US Army Corps
of Engineers
Savannah District

Federal Facilities
Georgia and South Atlantic Division

Solicitation Number
DACA21-03-R-0064
Indefinite Delivery, Multi-Task Construction and Design/Build Construction Contract for Georgia
Volume I of II - IDC Contract Requirements;
Technical Provisions - Repair Community Center, Bldg 3728
Technical Provisions - Repair Roof Bldg 2121
Seymour Johnson AFB, NC
FY-03, Line Item 3379000
August 2003

THIS SOLICITATION IS UNRESTRICTED PURSUANT TO THE "BUSINESS OPPORTUNITY DEVELOPMENT REFORM ACT OF 1988" (PUBLIC LAW 100-656)

U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
100 WEST OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640

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Attachment 1 to Section 00800

Solicitation Specifications

SAMPLE PROJECT TASK ORDER
VKAG 00-1107 REPAIR COMMUNITY CENTER, BLDG 3728
VKAG 00-1165 REPAIR ROOF, BUILDING 2121
VKAG 02-1048 REPLACE BAK-12 DECK SHEAVES
VKAG 03-1501 DEMO CONTRACTING FACILITIES

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VKAG 95-1131 REPAIR 3RD FLOOR BUILDING 3602
VKAG 97-1139 REPLACE POWER CHECK PAD
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SOLICITATION, OFFER, AND AWARD *(Construction, Alteration, or Repair)*	1. SOLICITATION NO. DACA21-03-R-0064-0004	2. TYPE OF SOLICITATION [ ] SEALED BID (IFB) [X] NEGOTIATED *(RFP)*	3. DATE ISSUED 11-Aug-2003	PAGE OF PAGES 1 OF 190

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.

7. ISSUED BY CODE DACA21	8. ADDRESS OFFER TO *(If Other Than Item 7)* CODE
A-E & CONSTRUCTION BRANCH 100 W. OGLETHORPE AVE SAVANNAH GA 31401-3640	**See Item 7**
TEL:(912)652-5075 FAX: (912)652-5828	TEL: FAX:

9. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. *(Include area code)* *(NO COLLECT CALLS)*
	SANDRA B MEYERS	912/652-5324

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS *(Title, identifying no., date):*

INDEFINITE DELIVERY ORDER CONTRACT
FOR CONSTRUCTION AND DESIGN - BUILD CONSTRUCTION
GEORGIA AND SOUTH ATLANTIC DIVISION

POTENTIAL MAXIMUM AWARD IS $13,500,000.00 (BASE PLUS TWO OPTION PERIODS OF $4,500,000.00 EACH)

* PERFORMANCE PERIOD WILL BE DETERMINED WITH EACH TASK ORDER.

* LOCATION PERIOD OF PERFORMANCE AND LIQUIDATED DAMAGES WILL BE DETERMINED WITH EACH TASK ORDER.

Contracting Officer: Ms. Colleen O'Keefe, (912) 652-5075
email: colleen.j.okeefe@sas02.usace.army.mil

Contract Specialist: Sandy Meyers, (912) 652-5324
email: sandra.b.meyers@sas02.usace.army.mil

11. The Contractor shall begin performance within 5 calendar days and complete it within _____ calendar days after receiving [ ] award, [X] notice to proceed. This performance period is [ ] mandatory, [ ] negotiable. *(See* 52.211-10 *.)*

12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES," indicate within how many calendar days after award in Item 12B.)* [X] YES [ ] NO	12B. CALENDAR DAYS 5

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and 5 copies to perform the work required are due at the place specified in Item 8 by 11:00 AM *(hour)* local time 17 Sep 2003 *(date).* If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee [X] is, [ ] is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 60 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

SOLICITATION, OFFER, AND AWARD (Continued)

(Construction, Alteration, or Repair)

OFFER ***(Must be fully completed by offeror)***

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NO. *(Include area code)*
	16. REMITTANCE ADDRESS *(Include only if different than Item 14)* **See Item 14**
CODE / FACILITY CODE	

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS	SEE SCHEDULE OF PRICES

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS

(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*	20B. SIGNATURE	20C. OFFER DATE

AWARD ***(To be completed by Government)***

21. ITEMS ACCEPTED:

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA

24. SUBMIT INVOICES TO ADDRESS SHOWN IN *(4 copies unless otherwise specified)*	**ITEM**	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c) ☐ 41 U.S.C. 253(c)
26. ADMINISTERED BY CODE		27. PAYMENT WILL BE MADE BY: CODE

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return _ _ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.

☐ 29. AWARD *(Contractor is not required to sign this document.)* Your offer on this solicitation, is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*		31A. NAME OF CONTRACTING OFFICER *(Type or print)* TEL: EMAIL:
30B. SIGNATURE	30C. DATE	31B. UNITED STATES OF AMERICA BY / 31C. AWARD DATE

NOTICE TO OFFERORS

1. HAND-CARRIED OR MAILED PROPOSALS:

All proposals must be clearly identified with the contractor's name and address. To ensure timely and proper handling, the lower left corner of the outermost wrapper must indicate the Request for Proposal No., Due Date of Proposal, Time by which Proposals are Due, and Title of Project.

The Government will not be responsible for proposals delivered to any location or to anyone other than those designated to receive proposals on its behalf as indicated below.

Proposals delivered by commercial carrier and those sent by U.S. Mail, including U.S. Express Mail, must be addressed as indicated below. Proposals shall not be addressed to any specific person.

U.S. Army Engineer District, Savannah District
ATTN: CESAS-CT-C
100 West Oglethorpe Avenue
Savannah, Georgia 31401-3640

Mailroom personnel on the first floor of 100 West Oglethorpe Avenue must receive proposals sent by U.S. Mail or delivered by commercial carrier by the time specified in Block 13 of SF 1442 for receipt of proposals.

Hand-carried proposals must also be delivered to mailroom personnel on the first floor of 100 West Oglethorpe Avenue by the time specified in Block 13 of SF 1442 for receipt of proposals. Due to the increased security requirements it is suggested that hand carried proposals be delivered 30 minutes prior to the specified time of receipt.

Offerors are cautioned that there is no parking in or around the building, and visitors must pass through security and sign in prior to being allowed access to the mailroom. Sufficient time must be therefore be allowed when hand carrying proposals.

2. FACSIMILE MODIFICATION OF PROPOSALS IS <u>NOT</u> AUTHORIZED.

3. QUALITY CONTROL SYSTEM (QCS)

Any contract award resulting from this solicitation will require the mandatory use of the automated Quality Control System. Please see section 01312A for additional information.

SAMPLE PROJECT TASK ORDER IS IN VOLUME II OF III. OFFERORS ARE TO SUBMIT THE SAMPLE PROJECT TASK ORDER AS PER SECTION 00100 SUBMISSION REQUIREMENTS.

Offerors <u>should not complete</u> the Bid Schedule Section 00010 – Solicitation Contract Form, except for percentage rates for Overhead and Bond Premium.

Percentage Rates furnished for Field Overhead; Field Overhead for Subcontract Work; Home Office Overhead; and Bond Premium on the Sample Project Task Order will be used throughout the life of the contract.

Field Overhead will include but is not limited to Field Supervision, Quality Control, Safety Officer, Progress Schedules, Tools and Minor Equipment to include fuel and maintenance, Field Office Supplies, Equipment to include fuel and maintenance, Field Office Supplies, Equipment and Utilities, Storage Sheds/Enclosures, Workman's Compensation and Employer's Liability Insurance, Builder's Risk Insurance, Public Liability Insurance, Unemployment Tax, Social Security and Medicare, and Identification Badge.

Profit will be computed using Weighted Guidelines Method.

The Department of Labor has provided Davis Bacon Act labor rates for the state of Georgia where the majority of the work will be performed under this contract. Wage Determination for the Sample Task Order is included. After contract award Wage Determinations will be included. After contract award, Wage Determinations will be included with each task order issued.

OTHER THAN NORMAL WORKING HOURS: A percentage increase in labor rates for other than Normal working hours will be negotiated for each task order and applied to only the working hours as indicated in Section 01501. Other than normal working hours will be directed within a task order.

The contract awarded pursuant to this solicitation will be an indefinite quantity construction and design/build contract. Work will be provided on a task order basis. The task order will be Firm Fixed Price Construction or Firm Fixed Price Design/Build.

The guaranteed minimum amount for the base period is $90,000.00. For each option period, the guaranteed minimum will be $45,000.00. The contract maximum will be $13,500,000.00.

In accordance with FAR 52.216-18, Ordering, the schedule is hereby revised to include the following statement: Task Orders will only be issued by a duly warranted Contracting Officer, including facsimile and oral orders when deemed appropriate by the Contracting Officer.

In unusual and rare circumstances and with the Contracting Officer's approval, a task order may be issued with a final definitized scope of work, and Independent Government Estimate, and a fixed price to be further adjusted. (See 1080-6, paragraph 6.1.1.2). Costs associated with unpriced items in the Schedule will be determined as part of the establishment of each task order.

SCHEDULE

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0001		1	Lump Sum	$_____	$_____
	BASE PERIOD FFP Unpriced (See Sample Task Order) - Period of Performance is 365 day from date of award unless Option Period 1 is exercised early.				

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0002		1	Lump Sum		
	OPTION PERIOD 1 FFP Unpriced - Option Period 1 Period of Performance is 365 days from exercise of Option Period 2 unless exercised early.				

ITEM NO	SUPPLIES/SERVICES	MAX QUANTITY	UNIT	UNIT PRICE	MAX AMOUNT
0003		1	Lump Sum	$_____	$_____

OPTION PERIOD 2
FFP
Option Period 2 - Period of Performance is 365 from exercise of Option Period 1.

PERCENTAGE RATES FOR THE FOLLOWING WILL BE USED THROUGHOUT THE LIFE OF THE CONTRACT:

Field Overhead _____%

Field Overhead for Subcontract work _____%

Home Office Overhead _____%

Bond Premium _____%

PROFIT WILL BE COMPUTED FOR INDIVIDUAL TASK ORDERS USING WEIGHTED GUIDELINES METHOD.. The following guidance is to be used on calculating profit using the weighted guidelines method:

EFARS 15.404-73-100 Alternate structured approach for construction contracts

The following alternate structured approach shall be used for all fixed-price construction contract actions.

Profit will be computed using Weighted Guidelines Method. The following guidance is to be used on calculating profit using the weighted guidelines method:

EFARS 15.404-73-100 Alternate structured approach for construction contracts

a) The following alternate structured approach shall be used for all fixed-price construction contract actions.

Factor	Rate	Weight	Value
Degree of risk	**20**		
Relative difficulty of work	**15**		

Size of job	**15**		
Period of performance	**15**		
Contractor's investment	**5**		
Assistance by Government	**5**		
Subcontracting	**25**		
TOTAL	**100%**		

(b) Based on the circumstances of the procurement action, each of the above factors shall be weighted from .03 to .12 as indicated below. "Value" shall be obtained by multiplying the rate by the weight. The Value column when totaled indicates the fair and reasonable profit percentage under the circumstances of the particular procurement.

(1) Degree of risk. Where the work involves no risk or the degree of risk is very small, the weighting should be .03; as the degree of risk increases, the weighting should be increased up to a maximum of .12. Lump sum items shall generally have a higher weight than unit price items. Consider the nature of the work and where it is to be performed. Also consider the portion of the work to be done by subcontractors, amount and type of labor included in costs and whether the negotiation is before or after performance of the work. Modifications settled before the fact have much greater risk than those settled after the fact. A weight of .03 is appropriate for after the fact equitable adjustments and/or settlements.

(2) Relative Difficulty of Work. If the work is difficult and complex, the weight should be .12 and should be proportionately reduced to .03 on the simplest of jobs. This factor is tied in to some extent with the degree of risk. Other things to consider are the nature of the work, by whom it is to be done (i.e., subcontractors, consultants), etc.

(3) Size of Job. Work of $100,000 shall be weighted at .12. Work estimated between $100,000 and $5,000,000 shall be proportionately weighted from .12 to .05. Work from $5,000,000 to $10,000,000 shall be weighted at .04. Work in excess of $10,000,000 shall be weighted at .03. It should be noted that control of fixed expenses generally improves with increased job magnitude.

(4) Period of Performance. Work not to exceed 1 month is to be proportionately weighted at .03. Durations between 1 and 24 months are to be proportionately weighted between .03 and .12. Work in excess of 24 months is to be weighted at .12.

(5) Contractor's Investment. To be weighted from .03 to .12 on the basis of below average, average and above average. Consider the amount of subcontracting, Government-furnished property or data such as surveys, method of making progress payments, and any mobilization payment items.

(6) Assistance by Government. To be weighted from .12 to .03 on the basis of average to above average. - Consider use of Government-owned property, equipment and facilities, expediting assistance, etc.

(7) Subcontracting. To be weighed inversely proportional to the amount of subcontracting. Where 80% or more of the work is to be subcontracted use .03. The weighting should be increased proportionately to .12 where all the work is performed by the contractor's own forces.

CLAUSES INCORPORATED BY FULL TEXT

52.232-4001 COST LIMITATION – JUNE 1999

The contract award for design and construction shall not exceed $13,500,000.00 for this project. Offerors are under no obligation to approach this amount.

(End of Clause)

Section 00100

INSTRUCTIONS, CONDITIONS, AND NOTICE TO OFFERORS

INDEFINITE DELIVERY CONTRACT (IDC)

FOR

CONSTRUCTION AND DESIGN/BUILD CONSTRUCTION

PERFORMANCE PRICE TRADE-OFF

1. PROPOSAL OVERVIEW. This Request for Proposal (RFP) is to solicit an Indefinite Delivery, Multi-Task Construction and Design/Build Construction Contract for repairs, additions, and alterations to buildings, roads, drainage systems and utility systems; and new construction of buildings, roads, drainage systems and utility systems construction tasks. Work will be performed primarily at Federal Facilities in Georgia. Work may also be located at other Federal Facilities within the geographic boundaries of the U.S. Army Corps of Engineers South Atlantic Division. The task orders will be Firm Fixed Price Construction (FFP-C) or Firm Fixed Price Design/Build (FFP-D/B). In unusual and rare circumstances and with the Contracting Officer's approval, task orders may be issued with a final definitive scope of work and an independent government estimate leading to a fixed price to be negotiated at a later date.

1.1 **General.** Inasmuch as the proposal shall describe the capability of the Offeror to perform any resultant contract, it should be specific and complete in every detail. The proposal should be prepared simply and economically, providing straightforward, concise delineation of capabilities to satisfactorily perform the contract being sought. The proposal should therefore be practical, legible, clear and coherent. The process used for this solicitation will be a Request for Proposal (RFP) Best Value, (See Federal Acquisition Regulation 15.101). The evaluation criteria will include Construction-Past Performance, Construction-Experience, Construction-Capacity, Design-Specialized Experience, Design-Staffing and Professional Qualifications, and Design-Knowledge of Locality.

1.2 **Proposal Submissions and the Best Value Trade-Off Process.** This process requires potential contractors to submit their performance and capability information initially for review and consideration by the Government. The technical information contained in the proposal shall be reviewed and evaluated by the Government in accordance with the evaluation criteria set out in this Section. Relative weights among technical factors are provided in paragraph 4.1 Relative Importance. Following the review, evaluation, and rating of these proposals, the Government will evaluate price proposals for Offerors that have acceptable technical proposals. The Government shall evaluate Price based on the Offerors' proposed price of a sample project task order. In addition to the price of the sample project task order, the Offerors' proposed Field Overhead, Home Office Overhead, Field Office Overhead on Subcontractor's Work, and Bond Premium shall be evaluated. Offerors will be required to separately submit their price proposals. Price will not be scored, but will be a factor in establishing the competitive range prior to discussions and in making the final best value determination for award.

2. PROPOSAL SUBMISSION INSTRUCTIONS

2.1 **Who May Submit.**

2.1.1 Proposals may be submitted by firms formally organized as design/build entities, or by construction contractors and design firms that have associated specifically for this contract. For the purpose of this solicitation, no distinction is made between formally organized design/build entities and contract-specific design/build associations. Both are referred to as the design/build offeror, (or simply "Offeror"), or the design/build contractor, (or simply "Contractor"), after award of a contract.

2.1.2 Any legally organized Offeror may submit a proposal.

2.2 **Where to Submit.** Offerors shall submit their proposal packages to the Savannah District at the address shown in Block 7 of Standard Form 1442.

2.3 **Submission Deadline.** Proposals shall be received by the Savannah District no later than the time and date specified in Block 13 of Standard Form 1442.

2.4 **General Requirements.**

2.4.1 In order to effectively and equitably evaluate all proposals, the Contracting Officer must receive information sufficiently detailed to allow review and evaluation by the Government.

2.4.2 **Tabs.** Proposal shall be organized and tabbed as shown in paragraph 2.5 Submission Format.

2.4.3 **Size of Printed Matter Submissions.**

2.4.3.1 Written materials shall be on 8-1/2" x 11" paper.

2.4.3.2 The proposals shall contain a detailed table of contents. If more than one binder is used, the complete table of contents shall be included in each. Any materials submitted but not required by this solicitation, (such as company brochures), shall be relegated to appendices.

2.4.4 **Number of Copies.** Offerors shall submit one (1) hard copy of Volume I and five (5) hard copies of Volume II of their Proposal. Both volumes shall also be submitted on a CD-ROM.

2.5 **Submission Format.**
2.5.1 The Proposal will be tabbed and submitted in a three ring binders in the following format:

PROPOSAL

VOLUME I
TAB A
- SF 1442

TAB B

- Section 00600 – Representations and Certifications

TAB C
- PROPOSAL DATA SHEET – include Offeror's telephone number, FAX number, DUNS number, Architect-Engineer ACASS number, and Offeror's CCASS number

TAB D

- Sample Project Task Order Proposal (to be inserted by the Contract Specialist), and Percentage Rates for Overhead and Profit on the Bid Schedule Section 00010 - Solicitation Contract Form

TAB E

- Sample Project Task Order Bid Bond

VOLUME II

TAB A – FACTOR 1: CONSTRUCTION – PAST PERFORMANCE

- Past Performance Questionnaires – To be inserted by the Contract Specialist

TAB B – FACTOR 2: CONSTRUCTION - EXPERIENCE

- Project Information Sheets

TAB C – FACTOR 3: CONSTRUCTION - CAPACITY

- Current Contracts Status Information
- Management Plan

TAB D – FACTOR 4: DESIGN – SPECIALIZED EXPERIENCE AND TECHNICAL COMPETENCE
FACTOR 5: DESIGN – STAFFING & PROFESSIONAL QUALIFICATIONS
FACTOR 6: DESIGN – KNOWLEDGE OF LOCALITY

- STANDARD FORM 254/255

TAB E – OTHER INFORMATION. Offerors will submit any other information under TAB E. The Government may not consider information submitted under TAB E.

2.5.2 **Price Proposal Information.** Offerors shall complete all portions of the Price Proposal Schedule from Section 00010 and furnish the original in a separate envelope labeled "PRICE PROPOSAL". **The technical proposal shall not include any cost information.**

3. PROPOSAL AND SUBMISSION REQUIREMENTS AND EVALUATION

3.1 The Evaluation Team will evaluate each proposal individually using the qualitative/quantitative procedures that follow. Each proposal will be reviewed and rated by each of the evaluators. Following the completion of the individual evaluations, a consensus evaluation will be derived. During this process, discrepancies between evaluations will be discussed and resolved within the team.

3.1.1 Worksheets are provided on the following pages that the evaluators will use to review and rate the individual proposals.

3.1.2 During the consensus evaluation, a single "consensus rating" worksheet shall be completed for each proposal and signed by all the evaluators.

3.1.3 Comments and supporting rationale for the rating assigned will be included on this consensus sheet.

3.2 **VOLUME II TAB A - FACTOR 1: CONSTRUCTION – PAST PERFORMANCE.** Offerors shall be evaluated on SABRE, JOC, IDC Construction and/or IDC Design/Build type contracts successfully completed or substantially completed in the last three years with the contracts performed falling within the range of $5,000,000 to $15,000,000. The Offeror's past performance in completing task orders during the last three years will be evaluated to determine technical capability to perform the proposed contract and how well it satisfied its customers. The information presented in the Offeror's submittal, together with that from other sources available to the Government will comprise the input for evaluation of this factor. The following elements will be evaluated:

- Quality of Construction
- Timeliness of Performance
- Customer Satisfaction
- Sub-contractor Management

3.2.1 **Offeror's Submission Requirements.** Offeror's shall identify three completed contracts (or substantially complete) as described above to be used for reference and evaluation purposes and provide a questionnaire to the Point of Contact for each contract listed. A sample Past Performance Evaluation Questionnaire is included at the end of this section. When completed, these forms shall be mailed, faxed or e-mailed to the Savannah District Contract Specialist identified in the sample transmittal letter provided. It is the Offeror's responsibility to ensure that the reference documentation is provided, as the Government may not make additional requests for past performance information from the references. Copies of the evaluation form shall be provided to the Savannah District Contract Specialist directly from the reference. Contracts from which questionnaires are received shall have been completed or substantially completed within three years of the date of this solicitation. The Government may contact sources other than those provided by the Offeror for information with respect to past performance. These other sources may include CCASS (Construction Contractor Appraisal Support System), telephone interviews with organizations familiar with the Offeror's performance, and Government personnel with personal knowledge of the Offeror's performance capability.

3.2.2 **Evaluation.** The Government will evaluate the offeror's past performance using the sources available to it including the example contracts identified by the Offeror, Past Performance Evaluation Questionnaires received, and CCASS. Offerors may be provided an opportunity to address any negative past performance information about which the Offeror has not previously had an opportunity to respond. The Government treats an Offeror's lack of past performance as having no positive or negative evaluation significance. The Government will evaluate past performance based on the elements listed below:

- **Quality of Construction.** Based on information provided in the questionnaire and other information, the Government will assess the quality of the actual construction undertaken and the standards of workmanship exhibited by the Offeror's team.

- **Timeliness of Performance.** The Government will evaluate all information available with respect to the Offeror completing past projects within the scheduled completion times.

- **Customer Satisfaction.** The Government will evaluate all information available with respect to the Offeror's past customer satisfaction, cooperation with customers, and interaction on past projects.

- **Subcontractor Management.** The Government will evaluate all information available with respect to the Offeror's management of subcontractors on past projects.

3.3 **VOLUME II TAB B - FACTOR 2: CONSTRUCTION – EXPERIENCE.** Offerors shall be evaluated on SABRE, JOC, IDC Construction, and/or IDC Design/Build type task orders successfully completed or substantially completed in the last three years that demonstrate the offeror's specialized experience in the construction of repairs, additions, and alterations to buildings, roads, drainage systems and utility systems; and new construction of buildings, roads, drainage systems and utility systems. The majority of the task orders submitted by the Offeror for evaluation should fall within the range of $25,000 to $750,000.

3.3.1 **Offeror's Submission Requirements.** Offerors shall submit Project Information Sheets of construction and design/build type task orders completed, including those in progress during the last three years, listing all completed task orders separately that reflect specialized experience in the construction elements referenced in paragraph 3.3 above. As a minimum, the Project Information Sheets will provide project Point of Contact with telephone number, general character, scope, location, cost, and date of completion of each task order.

3.3.2 **Evaluation.** The Government will review the list of example task orders provided by the Offeror to evaluate and rate the recent relevant experience of the Offeror with similar projects. The example task orders that most closely resemble repairs, additions, and alterations to buildings, roads, drainage systems and utility systems; and new construction of buildings, roads, drainage systems and utility systems projects will receive the highest consideration. If the Offeror cannot provide suitable relevant experience and the evaluators consider that the information provided indicates that the Offeror has no relevant experience, a determination will be made as to the risk this lack of corporate experience presents to the Government and the proposal will be evaluated accordingly.

3.4 **VOLUME II TAB C – FACTOR 3: CONSTRUCTION – CAPACITY.** The successful Offeror will be expected to manage a large number of task orders simultaneously requiring a very high level of management skills using a management structure solely dedicated to the contract. This factor will be used to evaluate the Offeror's current contract capacity, understanding, and capability of successfully managing multiple contracts at multiple locations to their completion.

3.4.1 **Offeror's Submission Requirements.** Offerors shall submit a list of current SABRE, JOC, IDC Construction and/or IDC Design/Build type contracts providing the contract agency, agency POC, contract number, total contract capacity, remaining contract capacity, number of performance periods, current performance period, current performance period completion date, and contract completion date. Offerors shall submit a well-defined management plan from start to contract completion, showing (a) organization charts, (b) levels of personnel authority, (c) internal controls, (d) resume of individuals specifically involved with the work; as a minimum the Program Manager, Project Manager/s, Project Engineer/s, Project Superintendent/s, Contract Administrator, Quality Control Manager, and Safety Engineer (e) narrative describing plan functionality to include (1) management cooperation/responsiveness, (2) job site supervision, and (3) coordination/control of subcontractors, and (f) proposed response times for (1) initial call to attend site meeting, (2) proposal preparation time, and (3) start of work. Proposed response times shall address both normal and urgent conditions.

3.4.2 **Evaluation.** The Government will review the list of current SABRE, JOC, IDC Construction and IDC Design/Build type contracts provided by the Offeror to evaluate the Offeror's current contract capacity. The Government will review the Offeror's management plan to evaluate the Offeror's proposed contract management, responsiveness, effective job site supervision, coordination and control of subcontractors, and experienced and dedicated contract team.

3.5 **VOLUME II TAB D - FACTOR 4: DESIGN – SPECIALIZED EXPERIENCE AND TECHNICAL COMPETENCE.** This factor evaluates the offeror's specialized experience and technical competence in: (a) Design of repairs, additions, and alterations to buildings, roads, drainage systems and utility systems; and new construction of buildings, roads, drainage systems and utility systems. (b) Topographic surveying. (c) Shop drawing review, construction phase services, and preparation of O&M manuals. (d) Preparation of design files in (*.dgn) formats. Offerors will be evaluated on a comprehensive list of Design Build Construction IDIQ contract and/or Architect-Engineer IDC type contracts completed including those in progress in the last three years.

3.5.1 **Offeror's Submission Requirements.** Standard Form 255 for prime Architect-Engineer firm and Standard Form 254 for prime Architect-Engineer firm and each consulting Architect-Engineer firm listing all task order Architect-Engineer and task order design/build contracts completed including those in progress during the last three years that reflect experience in elements a-d of paragraph 3.5.

3.5.2 **Evaluation.** The Government will review the Offeror's Standard Form 255 for prime Architect-Engineer firm and Standard Form 254 for prime Architect-Engineer firm and each consulting Architect-Engineer firm, and/or may communicate with the points of contact listed by the Offeror, and/or may communicate with others selected by the Government. The Government will evaluate all information available to determine depth of experience and competence in the elements a-d of paragraph 3.5.

3.6 **VOLUME II TAB D - FACTOR 5: DESIGN – STAFFING AND PROFESSIONAL QUALIFICATIONS.** This factor evaluates the offeror's staffing and professional qualifications (appropriate training, education, experience and professional registration) to provide the following engineering disciplines: Architecture, Structural

Engineer, Civil Engineer, Electrical Engineer, Mechanical Engineer, Fire Protection Engineer, Industrial Hygienist (Asbestos and Lead Paint Abatement Specialist) and Topographic Surveyor/Crew. It is critical that the Design portion of the design/build partnership has the staffing and qualifications in all disciplines for which work is anticipated. Lack of staffing and qualifications may result in lack of efficiency and delays during accomplishment of task orders when engineering disciplines are being added to accomplish design.

3.6.1 **Offeror's Submission Requirements:** Standard Form 255 for prime Architect-Engineer firm and Standard Form 254 for prime Architect-Engineer firm and each consulting Architect-Engineer firm.

3.6.2 **Evaluation.** The Government will review the Offeror's Standard Form 255 for prime Architect-Engineer firm and Standard Form 254 for prime Architect-Engineer firm and each consulting Architect-Engineer firm, and/or may communicate with the points of contact listed by the Offeror, and/or may communicate with others selected by the Government. The Government will evaluate all information available to identify staffing and professional qualifications in the required engineering discipline elements of paragraph 3.6.

3.7 **VOLUME II TAB D – FACTOR 6: DESIGN – KNOWLEDGE OF LOCALITY:** This factor will evaluate the offeror's knowledge of the locality as it pertains to familiarity with design standards and practices in the South Atlantic Division (SAD). Offerors will be evaluated on a comprehensive list of all Design/Build Construction IDC contracts and other Architect-Engineer IDC type contracts completed and in progress in the last three years located in this area. For this solicitation, the Architect-Engineer firm proposed by the Offeror must be located within 180 miles of Ft Benning.

3.7.1 **Offeror's Submission Requirements:** Standard Form 255 for prime Architect-Engineer firm and Standard Form 254 for prime Architect-Engineer firm and each consulting Architect-Engineer firm listing all task order Architect-Engineer and task order design/build contracts completed including those in progress during the last three years, noting the project location and location of the Architect-Engineer firm's office.

3.7.2 **Evaluation.** The Government will review the Offeror's Standard Form 255 for prime Architect-Engineer firm and Standard Form 254 for prime Architect-Engineer firm and each consulting Architect-Engineer firm, and/or may communicate with the points of contact listed by the Offeror, and/or may communicate with others selected by the Government. The Government will evaluate all information available to determine the Offeror's knowledge and familiarity with design standards and practices in SAD.

3.8 **PRICE.** The Government will perform a price analysis of the sample project task order on all proposals received. Price analysis will be performed in accordance with FAR 15.401-1, to determine completeness, reasonableness, and understanding of the work. The evaluation will determine the adequacy of the offer in fulfilling the requirements of the proposal. Completeness addresses the extent to which the elements of the price proposal are consistent with the requirements of the proposal and the adequacy of the coverage of the specifications. Reasonableness will be established using historical price information, price competition information, the IGE, and any other pricing tools necessary.

3.8.1 **Content of Price Proposal.** In addition to the price for the sample project task order, the proposed Field Overhead, Field Overhead for Subcontractor Work, Home Office Overhead, and Bond Premium shall be evaluated for reasonableness. Upon award, the rates proposed will be incorporated into the contract and will be used for future task orders and task order modifications.

3.8.2 **Sample Task Order.** The sample project task order isConstruct Additions to Dexter and Wilson Elementary Schools at Ft Benning and Robins AFB, GA. The estimated cost range is between $1,000,000 to $2,000,000. The selected Offeror shall be awarded the sample project task order.

3.9 **Evaluation Standards.** Evaluation criteria (factors) will be rated using the following adjectival descriptions. Evaluators will apply the appropriate adjective to each criterion rated. The evaluator's narrative explanation must clearly establish that the Offeror's submittal meets the definitions established below.

3.9.1 **OUTSTANDING -** Information submitted demonstrates Offeror's potential to significantly exceed performance or capability standards. The offeror has clearly demonstrated an understanding of all aspects of the requirements to the extent that timely and highest quality performance is anticipated. The Offeror possesses exceptional strengths that will significantly benefit the Government. The Offeror's qualifications meet the fullest expectations of the Government. The offeror has convincingly demonstrated that the RFP requirements have been analyzed, evaluated, and synthesized into approaches, plans, and techniques that, when implemented, should result in highly effective and efficient performance under the contract which represents low risk to the Government. An assigned rating of "outstanding" indicates that, in terms of the specific factor, the submittal contains no significant weaknesses, deficiencies or disadvantages. Offeror very significantly exceeds most or all solicitation requirements. **Very high probability of success.**

3.9.2 **ABOVE AVERAGE -** Information submitted demonstrates Offeror's potential to exceed performance or capability standards. Offeror possesses one or more strengths that will benefit the Government. The areas in which the Offeror exceeds the requirements are anticipated to result in a high level of efficiency, productivity, or quality. The Offeror's qualifications are responsive with minor weaknesses, but no major weaknesses noted. An assigned rating of "Above Average" indicates that, in terms of the specific factor, any weaknesses noted are minor and should not seriously affect the offeror's performance. The submittal demonstrates that the requirements of the RFP are well understood and the approach will likely result in a high quality of performance which represents low risk to the Government. A rating of "Above Average" is used when there are no indications of exceptional features or innovations that could prove to be beneficial, or conversely, weaknesses that could diminish the quality of the effort or increase the risks of failure. Disadvantages are minimal. The submittal contains excellent features that will likely produce results very beneficial to the Government. Offeror fully meets all RFP requirements and significantly exceeds many of the RFP requirements. Response exceeds a "Satisfactory" rating. **High probability of success.**

3.9.3 **SATISFACTORY -** Information submitted demonstrates Offeror's potential to meet performance or capability standards. Offeror presents an acceptable solution and meets minimum standard requirements. Offeror possesses few or no advantages or strengths. The Offeror's proposal contains weaknesses in several areas that are offset by strengths in other areas. A rating of "Satisfactory" indicates that, in terms of the specific factor, the Offeror may satisfactorily complete the proposed tasks, but there is at least a moderate risk that it will not be successful. There is a good probability of success and that a fully acceptable level of performance will be achieved. Offeror meets all RFP requirements, presents a complete and comprehensive proposal, exemplifies an understanding of the scope and depth of the task requirements, and displays understanding of the Government's requirements. Offeror's response exceeds a "Marginal" rating. **No significant advantages or disadvantages.**

3.9.4 **MARGINAL -** Information submitted demonstrates Offeror's potential to marginally meet performance or capability standards necessary for minimal but acceptable contract performance. The submittal is not adequately responsive or does not address the specific factor. The assignment of a rating of "Marginal" indicates that mandatory corrective action would be required to prevent significant deficiencies from affecting the overall project. The offeror's qualifications demonstrate an acceptable understanding of the requirements of the RFP and the approach will likely result in an adequate quality of performance, which represents a moderate level of risk to the Government. Offeror displays low probability of success, although the submittal has a reasonable chance of becoming at least acceptable. Offeror's response exceeds an "Unsatisfactory" rating. **Significant disadvantages.**

3.9.5 **UNSATISFACTORY –** Information submitted fails to meet performance or capability standards necessary for acceptable contractor performance. The Offeror's interpretation of the Government's requirements is so superficial, incomplete, vague, incompatible, incomprehensible, or incorrect as to be Unsatisfactory. The submittal does not meet the minimum requirements of the RFP; requirements could only be met with major changes to the submittal. There is no reasonable expectation that acceptable performance would be achieved which represents high risk to the Government. The Offeror's qualifications have many deficiencies and/or gross omissions; fail to provide a reasonable, logical approach to fulfilling much of the Government's requirements; and, fail to meet many of the minimum requirements. The Offeror's qualifications are so unacceptable that it would have to be completely revised in order to attempt to make them acceptable. **Very significant disadvantages.**

4. EVALUATION FACTORS and WEIGHTS

4.1 **Relative Importance.** Construction-Past Performance, Construction-Experience, and Construction-Capacity are equal in weight. Design-Specialized Experience, Design-Staffing and Professional Qualifications, and Design-Knowledge of Locality are equal in weight. Construction-Past Performance, Construction-Experience, and Construction-Capacity combined are significantly more important than the remaining Factors.

4.2 **Relative Importance Definition.** For the purpose of this evaluation, the following terms will be used to establish the relative importance of the factors.

- **Significantly More Important:** Criterion is at least two times greater in value than other criterion.
- **Equal:** The criterion is of the same value or nearly the same as another criterion.

4.3 **Price.** Price will not be scored, but will be a factor in establishing the competitive range prior to discussions and in making the final best value determination for award.

5. OVERALL PROPOSAL RATING

5.1 Each member of the Government evaluation team will independently consider all information provided in the proposal. Once these individual analyses are completed, the team will meet and determine a rating for each of the evaluation factors by consensus decision.

5.2 Following completion of the consensus rating, each proposal will be assigned a single overall rating. This final overall rating, along with ratings on individual factors, will be provided to the Contracting Officer/Source Selection Authority.

5.3 The evaluation team will document sufficient strengths, weaknesses, and omissions to support the rating for each factor as well as the overall rating. Documentation and comments are required for all ratings.

6. BASIS FOR AWARD

6.1 In order to determine which proposal represents the best overall value, the Government will compare proposals to one another. The Government will award a contract to the responsible Offeror whose technical submittal and price proposal contains the combination of those criteria described in this document offering the best overall value to the Government. Best value will be determined by a comparative assessment of proposals against all source selection criteria in this RFP.

6.2 As technical ratings and relative advantages and disadvantages become less distinct, differences in price between proposals are of increased importance in determining the most advantageous proposal. Conversely, as differences in price become less distinct, differences in scoring and relative advantages and disadvantages between proposals are of increased importance to the determination.

6.3 The Government reserves the right to accept other than the lowest priced offer. The right is also reserved to reject any and all offers. The basis of award will be a conforming offer, the price or cost of which may or may not be the lowest. If other than the lowest offer, it must be sufficiently more advantageous than the lowest offer to justify the payment of additional amounts.

6.4 Offerors are reminded to include their best technical and price terms in their initial offer and not to automatically assume that they will have an opportunity to participate in discussions or be asked to submit a revised offer. The Government may make award of a conforming proposal without discussions, if deemed to be within the best interests of the Government.

7. EXCEPTIONS

Exceptions to the contractual terms and conditions of the solicitation (e.g., standard company terms and conditions) may result in a determination to reject a proposal.

8. RESTRICTIONS

Incomplete proposals. Failure to submit all the data in the format indicated in this section may be cause for determining a proposal incomplete and, therefore, not considered for evaluation, and for subsequent award.

PROPOSAL DATA SHEET

INDEFINITE DELIVERY CONTRACT (IDC)

FOR
CONSTRUCTION AND DESIGN/BUILD CONSTRUCTION

NOTE TO OFFERORS
This OFFEROR PERFORMANCE CAPABILITY PROPOSAL DATA SHEET must be completed and attached as the first page of the body of your proposal. The information required by this data sheet may be completed directly on this form or attached to the form as supplemental data sheets.

1. NAME OF OFFEROR.

Name of Offeror(s):

Offeror's Telephone Number:

Offeror's FAX Number:

If a joint venture or contractor-subcontractor association of firms, list the individual firms and briefly describe the nature of the association.

Firm 1:

Firm 2:

Nature of Association:

2. OFFEROR'S DUNS/CCASS NUMBER.
(If more than one DUNS number is to be considered explain affiliation to offeror)

3. ACASS identification number for design firm

4. AUTHORIZED NEGOTIATORS.

The offeror represents that the following persons are authorized to negotiate on its behalf with the Government in connection with this Request for Proposals (RFP).

[List names, titles, and telephone number of the authorized negotiator.]

Name of Person Authorized to Negotiate:

Negotiator's Address:

Negotiator's Telephone:

PROPOSAL DATA SHEET

(Continued)

5. FACTOR 1: CONSTRUCTION - PAST PERFORMANCE INFORMATION.

5.1 On an attached sheet, provide information for three SABRE, JOC, IDC Construction and/or IDC Design/Build type contracts in-progress or completed by the Offeror over the last three years, in the cost range of $5,000,000 to $15,000,000, to be used for reference and evaluation purposes. These should be the same contracts for which questionnaires have been provided to the Procurement Point of Contact.

For each contract provide the following information:

Contract Title:

Location:

Contract number:

Nature of involvement in this project, i.e. General Contractor, subcontractor, designer:

Procuring activity:

Procurement point of contact and telephone number:

Number of Task Orders completed or in progress to date:

Total Contract Amount:

Remaining Contract Capacity:

Contract Expiration Date:

Address and telephone number of owner:

Indicate type of project (private sector, Government, planned unit development, etc.):

General character of the Task Orders:

Total Contract Amount Awarded to Date:

Total cost of all modifications:

5.2 On an attached sheet, list all contracts with the Government within the last three years. Indicate Government contract number and contracting agency (with contact names and telephone numbers).

5.3 You may provide additional information on your capabilities, but please be brief.

SAMPLE TRANSMITTAL LETTER
AND
PAST PERFORMANCE EVALUATION QUESTIONNAIRE

Date: _____

To: _____
_____
_____

We have listed your firm as a reference for work we have performed for you as listed below. Our firm has submitted a proposal under a contract advertised by the U.S. Army Corps of Engineers, Savannah District titled Indefinite Delivery Contract for Construction and Design/Build Construction, Solicitation Number DACA21-03-R-0064. In accordance with Federal Acquisition Regulations (FAR), an evaluation of our firm's past performance will be completed by the Corps of Engineers. Your candid response to the attached questionnaire will assist the evaluation team in this process.

We understand that you have a busy schedule and your participation in this evaluation is greatly appreciated. Please complete the enclosed questionnaire as thoroughly as possible. Space is provided for comments. Understand that while the responses to this questionnaire may be released to the offeror, FAR 15.306 (e)(4) prohibits the release of the names of the persons providing the responses. Complete confidentiality will be maintained. Furthermore, a questionnaire has also been sent to _____ of your organization. Only one response from each office is required. If at all possible, we request that you individually answer this questionnaire and then coordinate your responses with that of _____, to develop a consensus on one overall response from your organization.

Please send your completed questionnaire to the following address to arrive NOT LATER THAN September 11, 2003.

U.S. Army Engineer District, Savannah
Contracting Division
CESAS-CT-C (Sandy Meyers)
100 West Oglethorpe Street
Savannah, Georgia 31402

The questionnaires can also be faxed to Sandy Meyers, Savannah District Contract Specialist at FAX 912-652-5828 or emailed to sandra.b.meyers@sas02.usace.army.mil. If you have questions regarding the attached questionnaire, or require assistance, please contact Sandy Meyers at 912-652-5324. Thank you for your assistance.

PAST PERFORMANCE EVALUATION QUESTIONNAIRE

INDEFINITE DELIVERY CONTRACT FOR CONSTRUCTION AND DESIGN/BUILD CONSTRUCTION

DACA21-03-R-0064

Upon completion of this form, please send directly to the U.S. Army Corps of Engineers in the enclosed addressed envelope or fax to Sandy Meyers at FAX NUMBER 912-652-5828 or email to Sandy Meyers.

Do not return this form to our offices. Thank you.

1. Contractor/Name & Address (City and State):

2. Type of Contract: SABRE _____ JOC _____
IDC _____ IDC Design/Build _____

3. Title of Contract/Contract Number/Contract Amount/Number of Task Orders Awarded/Remaining Contract Capacity:
_____
_____
_____

4. Description of Work: (Attach additional pages as necessary)

5. Complexity of Work: High _____ Mid _____ Routine _____

6. Location of Work:_____

7. Date of Award: _____

8. Current Contract Period: Base Period _____

Option Period 1 _____

Option Period 2 _____

Current Period Expiration Date _____

9. Name, address and telephone number of person completing this questionnaire:

10. QUALITY OF CONSTRUCTION:

Evaluate the contractor's performance in complying with the contract requirements, quality and the overall technical expertise demonstrated by the Contractor.

Outstanding Quality	
Above Average Quality	
Satisfactory Quality	
Marginal Quality	
Unsatisfactory Quality or Experienced Significant Quality Problems	

Comments to support Rating (Required)

_____

_____

_____

_____

_____

_____

_____

_____

_____

11. TIMELINESS OF PERFORMANCE:

To what extent did the contractor meet the contract and/or individual task order schedules?

Outstanding Timeliness – Completed Substantially Ahead of Schedule	
Above Average Timeliness – Completed on Schedule with no Time Delays	
Satisfactory Timeliness – Completed on Schedule with Minor Delays Under Extenuating Circumstances	
Marginal Timeliness – Completed Behind Schedule	
Unsatisfactory Timeliness – Experienced Significant Delays without Justification	

Comments to support Rating (Required)

_____

_____

_____

_____

_____

_____

_____

_____

_____

12. CUSTOMER SATISFACTION:

To what extent were the end users satisfied:

Outstanding – Exceptionally Satisfied	
Above Average – Highly Satisfied	
Satisfactory – Satisfied	
Marginal – Somewhat Dissatisfied	
Unsatisfactory – Highly Dissatisfied	

Comments to support Rating (Required)

_____

_____

_____

_____

_____

_____

_____

_____

_____

13. SUBCONTRACTOR MANAGEMENT

How well did the contractor manage and coordinate subcontractors, suppliers, and the labor force?

Outstanding	
Above Average	
Satisfactory	
Marginal	
Unsatisfactory	

Comments to support Rating (Required)

_____

_____

_____

_____

_____

_____

_____

_____

_____

14. If given the opportunity, would you work with this contractor again?

Yes _____ No _____ Not Sure _____

Comments to support Response (Required)

_____

_____

_____

_____

_____

_____

_____

_____

_____

15 . OTHER COMMENTS:

Use the space below to provide other information related to the contractor's performance. This may include the contractor's selection and management of subcontractors, flexibility in dealing with contract challenges, their overall concern for the Government's interest (if applicable), project awards received, etc.

_____

_____

_____

_____

_____

_____

_____

_____

_____

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION - PAST PERFORMANCE

1. General: The Government will evaluate each Offeror's past performance to determine how well it satisfied its customers. Evaluators will use this factor to evaluate the success of the Offeror based on the satisfaction of previous customers and clients as illustrated on the completed questionnaires.

Has Government received three completed questionnaires for this Offeror? __ YES __ NO

Do all the questionnaires received reflect contracts completed or substantially completed within the last 3 years?
__YES __ NO

2. CCASS Ratings: Contract Specialist shall provide CCASS Ratings for the Offeror.

Number of Ratings: Outstanding _____

Above Average _____

Satisfactory _____

Marginal _____

Unsatisfactory _____

OVERALL CCASS RATING. Select an appropriate overall rating for the CCASS evaluation information available:

/__/ Outstanding

/__/ Above Average

/__ / Satisfactory

/__ / Marginal

/__ / Unsatisfactory

Comments to support the OVERALL CCASS RATING:

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1

CONSTRUCTION - PAST PERFORMANCE

(Continued)

3. Relevant Evaluator Personal Knowledge: Has this evaluator had personal experiences with the offeror? If so, describe below:

4. Quality of Construction: Evaluators shall carefully evaluate the information provided in the completed questionnaires to ascertain a level of customer satisfaction with the quality of the past contracts. Based on that review, provide a rating for the Quality of Construction below. Include a listing of any apparent weaknesses or strengths of the Offeror.

/__/ Outstanding

/__/ Above Average

/__ / Satisfactory

/__ / Marginal

/__ / Unsatisfactory

4.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to final Quality of Construction.

4.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to final Quality of Construction.

4.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION – PAST PERFORMACE
(Continued)

5. Timeliness of Performance: Evaluators shall carefully review the information provided in the completed questionnaires to ascertain customer satisfaction with the timeliness of performance on the past contracts. Based on that review, provide a rating for the timeliness of performance of the past contracts below. Include a listing of any apparent weaknesses or strengths of the Offeror.

/__/ Outstanding

/__/ Above Average

/__ / Satisfactory

/__ / Marginal

/__ / Unsatisfactory

5.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to timeliness.

5.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to timeliness.

5.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION – PAST PERFORMACE
(Continued)

6. Customer Satisfaction: Evaluators shall carefully review the information provided in the completed questionnaires to ascertain a level of customer satisfaction with the Offeror's cooperation and interactions on the past contracts. Based on that review, provide a rating for the Offeror's cooperation on the past contracts below. Include a listing of any apparent weaknesses or strengths of the Offeror.

/__/ Outstanding

/__/ Above Average

/__ / Satisfactory

/__ / Marginal

/__ / Unsatisfactory

6.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to Offeror Customer Satisfaction.

6.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to Offeror Customer Satisfaction.

6.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION – PAST PERFORMACE
(Continued)

7. Subcontractor Management: Evaluators shall carefully review the information provided in the completed questionnaires to ascertain a level of customer satisfaction with the Offeror's Management of Subcontractors on the past contracts. Based on that review, provide a rating for the Offeror's Subcontractor Management Skills on the past contracts below. Include a listing of any apparent weaknesses or strengths of the Offeror.

/__/ Outstanding

/__/ Above Average

/__ / Satisfactory

/__ / Marginal

/__ / Unsatisfactory

7.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to Offeror Subcontractor Management.

7.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to Offeror Subcontractor Management.

7.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 1
CONSTRUCTION – PAST PERFORMACE
(Continued)

Factor 1 Past Performance Overall Rating

FACTOR 1 SUMMARY RATING CHART			
Item No.	**Description**	**Rating***	**Comments**
1.	Questionnaire Receipt	YES/NO	
2.	CCASS Rating		
3.	Personal Experience	N/A	No rating permitted here
4.	Quality of Construction		
5.	Timeliness of Performance		
6.	Customer Satisfaction		
7.	Sub-Contractor Management		

OVERALL FACTOR 1 RATING**		

* Ratings may be either:

Outstanding – Above Average – Satisfactory – Marginal – Unsatisfactory

** Evaluators shall consider the ratings in the various items shown to determine a suitable overall rating.

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 2
CONSTRUCTION – EXPERIENCE

1. General: The Government will evaluate the depth and breadth of the Offeror's corporate experience on the basis of the number of times it has performed projects that were similar in nature, size, scope, and complexity as the work required by this RFP. Completed Project Information Sheets shall be used as a basis to begin the evaluation of this factor.

Has the Government received completed Project Information Sheets for Experience for this Offeror?

____ YES ___ NO

COMMENTS:

Do all the Project Information Sheets received reflect projects completed or substantially completed within the last 3 years?

____YES ____NO

COMMENTS:

2. Offeror Similar Construction Projects Completed: The number and size of projects completed of similar scope required by this RFP in the last three (3) years.

/__/ Outstanding

/__/ Above Average

/__ / Satisfactory

/__ / Marginal

/__ / Unsatisfactory

2.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to experience.

2.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to experience.

2.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.
Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 3

CONSTRUCTION – CAPACITY

1. **General:** Evaluators will use this factor to evaluate the current and anticipated contracts of the Offeror. The Offeror's list of current SABRE, JOC, IDC Construction and/or IDC Design/Build type contracts and completed Management Plan shall be used as a basis to for the evaluation of this factor.

Has the Government received the list of current SABRE, JOC, IDC Construction and/or IDC Design/Build type contracts for this Offeror? ____ YES ___ NO
COMMENTS:

Has the Government received the Management Plan for this Offeror? ____ YES ___ NO
COMMENTS:

2. Management Plan Review: Evaluators shall carefully review the Management Plan provided for the required content and to ascertain the Offeror's ability to manage multiple tasks to their completion. The reviews may also included discussions with points of contact or others regarding the Offeror's Management capabilities. Based on this review, provide a rating for the Management Effectiveness. Include a listing of any apparent weaknesses or strengths of the Offeror and the proposed project team.

/__/ Outstanding

/__/ Above Average

/__ / Satisfactory

/__ / Marginal

/__ / Unsatisfactory

2.1 Strengths: Include a listing of any identified or obvious strengths of the offeror with respect to capacity.

2.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the offeror with respect to capacity.

2.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.
Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 4
DESIGN –SPECIALIZED EXPERIENCE AND TECHNICAL COMPETENCE

1. General: Evaluators will use this factor to evaluate the Specialized Experience and Technical Competence of the Offeror based on the Standard Form 254/255 provided. The completed Standard Form 254/255 shall be used as a basis to begin the evaluation of this factor.

Has Government Received the completed Standard Form 254/255 for this Offeror? __YES ___ NO

Does the Standard Form 254/255 received reflect projects completed or under design within the Last 3 Years?
____ YES ____NO

2. Standard Form 254/255 Review: Evaluators shall carefully review the Standard Form 254/255 provided for the required content and to ascertain the Offeror's ability to show the depth of experience and competence in each of the identified elements. The review may included discussions with points of contact or others regarding the Offeror's experience. Based on this review, provide a rating for experience. Include a listing of any apparent weaknesses or strengths of the Offeror and the proposed project team.

Specialized Experience and Technical Competence In:	Outstanding	Above Average	Satisfactory	Marginal	Unsatisfactory
a. Design of repairs, additions, and alterations to buildings, roads, drainage systems and utility systems; and new construction of buildings, roads, drainage					

systems and utility systems					
b. Topographic Surveying					
c. Shop drawing review, construction phase services, & preparation of O&M Manuals					
d. Originating design files in dgn format					

2.1 Strengths: Include a listing of any identified or obvious strengths of the Offeror with respect to Specialized Experience and Technical Competence.

2.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the Offeror with respect to Specialized Experience and Technical Competence.

2.3 Other: Include any other comments/rationale to support the overall rating provide for this Offeror.

FACTOR 4 OVERALL RATING
/__/ Outstanding /__/ Above Average /__/ Satisfactory /__/ Marginal /__/ Unsatisfactory

Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 5
DESIGN – STAFFING AND PROFESSIONAL QUALIFICATIONS

1. General: Evaluators will use this factor to evaluate the Staffing and Professional Qualifications of the Offeror in the required engineering disciplines based on the Standard Form 254/255 provided. The completed Standard Form 254/255 shall be used as a basis to begin the evaluation of this factor.

Has Government Received the completed Standard Form 254/255 for this Offeror? __YES ___ NO

2. Standard Form 254/255 Review: Evaluators shall carefully review the Standard Form 254/255 provided to ascertain the Offeror's staffing and professional qualifications in the required engineering disciplines. The review may also included discussions with points of contact or others. Based on this review, provide a rating for staffing and professional qualifications. Include a listing of any apparent weaknesses or strengths of the Offeror and the proposed project team.

Design Discipline	Outstanding	Above Average	Satisfactory	Marginal	Unsatisfactory
Architectural					
Structural Engineer					
Civil Engineer					
Electrical Engineer					
Mechanical Engineer					
Fire Protection Engineer					
Industrial Hygienist					
Topographic Surveyor/Crew					

2.1Strengths: Include a listing of any identified or obvious strengths of the Offeror with respect to Staffing.

.

2.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the Offeror with respect to Staffing.

2.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

FACTOR 5 OVERALL RATING
/__/ Outstanding /__/ Above Average /__/ Satisfactory /__/ Marginal /__/ Unsatisfactory
Offeror: _____

Evaluator: _____

PROPOSAL RATING WORKSHEET
FACTOR 6
DESIGN –KNOWLEDGE OF LOCALITY

1. General: Evaluators will use this factor to evaluate Offeror's knowledge of locality as pertains to familiarity with design standards and practices in the area of South Atlantic Division, U.S. Army Corps of Engineers. The completed Standard Form 254/255 shall be used as a basis to begin the evaluation of this factor.

Has Government Received the completed Standard Form 254/255 for this Offeror? __ YES __ NO

Does the Standard Form 254/255 submitted by the Offeror contain a list of Design/Build IDIQ Contracts and Architect-Engineer IDIQ type contracts completed and/or in progress in the last three years? ___YES ___NO

2. Standard Form 254/255 Review: Evaluators shall carefully review the Standard Form 254/255 provided to ascertain the Offeror's knowledge of locality and location. The review may also included discussions with points of contact or others. Based on this review, provide a rating for knowledge of locality. Include a listing of any apparent weaknesses or strengths of the Offeror and the proposed project team.

Area of Knowledge	Outstanding	Above Average	Satisfactory	Marginal	Unsatisfactory
Georgia					
South Carolina					
North Carolina					

2.1 Strengths: Include a listing of any identified or obvious strengths of the Offeror with respect to Knowledge of Locality.

2.2 Weaknesses: Include a listing of any identified or obvious weaknesses of the Offeror with respect to Knowledge of Locality.

2.3 Other: Include any other comments/rationale to support the overall rating provided for this Offeror.

FACTOR 6 OVERALL RATING
/__/ Outstanding /__/ Above Average /__/ Satisfactory /__/ Marginal /__/ Unsatisfactory
Offeror: _____

Evaluator: _____

SUMMARY RATING CHART			
Factor	**Description**	**Rating***	**Comments**
1	CONSTRUCTION – PAST PERFORMANCE		
2	CONSTRUCTION – EXPERIENCE		
3	CONSTRUCTION - CAPACITY		
4	DESIGN – SPECIALIZED EXPERIENCE AND TECHNICAL COMPETENCE		
5	DESIGN – STAFFING AND PROFESSIONAL QUALIFICATIONS		
6	DESIGN – KNOWLEDGE OF LOCALITY		
OVERALL PROPOSAL RATING			

* Ratings may be either:

Outstanding – Above Average – Satisfactory – Marginal – Unsatisfactory

Offeror: _____

CONSENSUS SUMMARY RATING CHART					
Factor	**Description**	**Board Member 1**	**Board Member 2**	**Board Member 3**	**CONSENSUS**
1	CONSTRUCTION – PAST PERFORMANCE				
2	CONSTRUCTION – EXPERIENCE				
3	CONSTRUCTION - CAPACITY				
4	DESIGN – SPECIALIZED EXPERIENCE AND TECHNICAL COMPETENCE				
5	DESIGN – STAFFING AND PROFESSIONAL QUALIFICATIONS				
6	DESIGN – KNOWLEDGE OF LOCALITY				
OVERALL PROPOSAL RATING					

Ratings may be either:

Outstanding – Above Average – Satisfactory – Marginal – Unsatisfactory

_____ _____

Board Member 1 Board Member 2

_____ _____
Board Member 3 Board Chairperson

SCHEDULE

NOTES TO OFFERORS

SAMPLE PROJECT TASK ORDER IS IN VOLUME II OF II. OFFERORS ARE TO SUBMIT THE SAMPLE PROJECT TASK ORDER AS PER SECTION 00100 SUBMISSION REQUIREMENTS.

Offerors should not complete the Bid Schedule Section 00010 – Solicitation Contract Form, except for percentage rates for Overhead and Bond Premium.

Percentage Rates furnished for Field Overhead; Field Overhead for Subcontract Work; Home Office Overhead; and Bond Premium on the Sample Project Task Order will be used throughout the life of the contract.

Field Overhead will include but is not limited to Field Supervision, Quality Control, Safety Officer, Progress Schedules, Tools and Minor Equipment to include fuel and maintenance, Field Office Supplies, Equipment to include fuel and maintenance, Field Office Supplies, Equipment and Utilities, Storage Sheds/Enclosures, Workman's Compensation and Employer's Liability Insurance, Builder's Risk Insurance, Public Liability Insurance, Unemployment Tax, Social Security and Medicare, and Identification Badge.

Profit will be computed using Weighted Guidelines Method.

The Department of Labor has provided Davis Bacon Act labor rates for the state of Georgia where the majority of the work will be performed under this contract. Wage Determination for the Sample Task Order is included. After contract award Wage Determinations will be included. After contract award, Wage Determinations will be included with each task order issued.

OTHER THAN NORMAL WORKING HOURS: A percentage increase in labor rates for other than Normal working hours will be negotiated for each task order and applied to only the working hours as indicated in Section 01501. Other than normal working hours will be directed within a task order.

The contract awarded pursuant to this solicitation will be an indefinite quantity construction and design/build contract. Work will be provided on a task order basis. The task order will be Firm Fixed Price Construction or Firm Fixed Price Design/Build.

The guaranteed minimum amount for the base period is $90,000.00. For each option period, the guaranteed minimum will be $45,000.00. The contract maximum will be $13,500,000.00.

In accordance with FAR 52.216-18, Ordering, the schedule is hereby revised to include the following statement: Task Orders will only be issued by a duly warranted Contracting Officer, including facsimile and oral orders when deemed appropriate by the Contracting Officer.

In unusual and rare circumstances and with the Contracting Officer's approval, a task order may be

issued with a final definitized scope of work, and Independent Government Estimate, and a fixed price to be further adjusted. (See 1080-6, paragraph 6.1.1.2). Costs associated with unpriced items in the Schedule will be determined as part of the establishment of each task order.

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52.204-6 DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (JUN 99)

(a) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" followed by the DUNS number that identifies the offeror's name and address exactly as stated in the offer.

(b) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one. A DUNS number will be provided immediately by telephone at no charge to the offeror. For information on obtaining a DUNS number, the offeror, if located within the United States, should call Dun and Bradstreet at 1-800-333-0505. The offeror should be prepared to provide the following information:

(1) Company name.

(2) Company address.

(3) Company telephone number.

(4) Line of business.

(5) Chief executive officer/key manager.

(6) Date the company was started.

(7) Number of people employed by the company.

(8) Company affiliation.

(c) Offerors located outside the United States may obtain the location and phone number of the local Dun and Bradstreet Information Services office from the Internet Home Page at http://www.customerservice@dnb.com. If an offeror is unable to locate a local service center, it may send an e-mail to Dun and Bradstreet at globalinfo@mail.dnb.com.

(End of provision)

52.211-2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) AND DESCRIPTIONS LISTED IN THE ACQUISITION MANAGEMENT SYSTEMS AND DATA REQUIREMENTS CONTROL LIST, DOD 5010.12-L (DEC 1999)

Copies of specifications, standards, and data item descriptions cited in this solicitation may be obtained--

(a) From the ASSIST database via the Internet at http://assist.daps.mil; or

(b) By submitting a request to the--Department of Defense Single Stock Point (DoDSSP), Building 4, Section D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Telephone (215) 697-2667/2179, Facsimile (215) 697-1462.

(End of provision)

52.211-14 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (SEP 1990)

Any contract awarded as a result of this solicitation will be DO rated order certified for national defense use under the Defense Priorities and Allocations System (DPAS) (15 CFR 700), and the Contractor will be required to follow all of the requirements of this regulation.

(End of provision)

52.214-5000 APPARENT CLERICAL MISTAKES (MAR 1995)--EFARS

(a) For the purpose of initial evaluations of bids, the following will be utilized in the resolving arithmetic discrepancies found on the face of bidding schedule as submitted by the bidder:

(1) Obviously misplaced decimal points will be corrected;

(2) Discrepancy between unit price and extended price, the unit price will govern;

(3) Apparent errors in extension of unit prices will be corrected;

(4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid evaluation, the government will proceed on the assumption that the bidder intends his bid to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

(End of statement)

52.215-1 INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (MAY 2001)

(a) Definitions. As used in this provision--

“Discussions” are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal.

“In writing or written” means any worded or numbered expression which can be read, reproduced, and later communicated, and includes electronically transmitted and stored information.

“Proposal modification” is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award.

“Proposal revision” is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations.

“Time”, if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.

(b) Amendments to solicitations. If this solicitation is amended, all terms and conditions that are not amended remain

unchanged. Offerors shall acknowledge receipt of any amendment to this solicitation by the date and time specified in the amendment(s).

(c) Submission, modification, revision, and withdrawal of proposals. (1) Unless other methods (e.g., electronic commerce or facsimile) are permitted in the solicitation, proposals and modifications to proposals shall be submitted in paper media in sealed envelopes or packages (i) addressed to the office specified in the solicitation, and (ii) showing the time and date specified for receipt, the solicitation number, and the name and address of the offeror. Offerors using commercial carriers should ensure that the proposal is marked on the outermost wrapper with the information in paragraphs (c)(1)(i) and (c)(1)(ii) of this provision.

(2) The first page of the proposal must show--

(i) The solicitation number;

(ii) The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);

(iii) A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item;

(iv) Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and

(v) Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

(3) Submission, modification, or revision, of proposals.

(i) Offerors are responsible for submitting proposals, and any modifications, or revisions, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that proposal or revision is due.

(ii)(A) Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is “late” and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and--

(1) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or

(2) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or

(3) It is the only proposal received.

(B) However, a late modification of an otherwise successful proposal that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(iii) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(iv) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(v) Proposals may be withdrawn by written notice received at any time before award. Oral proposals in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision at 52.215-5, Facsimile Proposals. Proposals may be withdrawn in person by an offeror or an authorized representative, if the identity of the person requesting withdrawal is established and the person signs a receipt for the proposal before award.

(4) Unless otherwise specified in the solicitation, the offeror may propose to provide any item or combination of items.

(5) Offerors shall submit proposals in response to this solicitation in English, unless otherwise permitted by the solicitation, and in U.S. dollars, unless the provision at FAR 52.225-17, Evaluation of Foreign Currency Offers, is included in the solicitation.

(6) Offerors may submit modifications to their proposals at any time before the solicitation closing date and time, and may submit modifications in response to an amendment, or to correct a mistake at any time before award.

(7) Offerors may submit revised proposals only if requested or allowed by the Contracting Officer.

(8) Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

(d) Offer expiration date. Proposals in response to this solicitation will be valid for the number of days specified on the solicitation cover sheet (unless a different period is proposed by the offeror).

(e) Restriction on disclosure and use of data. Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall--

(1) Mark the title page with the following legend: This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of--or in connection with-- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]; and

(2) Mark each sheet of data it wishes to restrict with the following legend: Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

(f) Contract award. (1) The Government intends to award a contract or contracts resulting from this solicitation to the responsible offeror(s) whose proposal(s) represents the best value after evaluation in accordance with the factors and subfactors in the solicitation.

(2) The Government may reject any or all proposals if such action is in the Government's interest.

(3) The Government may waive informalities and minor irregularities in proposals received.

(4) The Government intends to evaluate proposals and award a contract without discussions with offerors (except

clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

(5) The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit cost or prices offered, unless the offeror specifies otherwise in the proposal.

(6) The Government reserves the right to make multiple awards if, after considering the additional administrative costs, it is in the Government's best interest to do so.

(7) Exchanges with offerors after receipt of a proposal do not constitute a rejection or counteroffer by the Government.

(8) The Government may determine that a proposal is unacceptable if the prices proposed are materially unbalanced between line items or subline items. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more contract line items is significantly overstated or understated as indicated by the application of cost or price analysis techniques. A proposal may be rejected if the Contracting Officer determines that the lack of balance poses an unacceptable risk to the Government.

(9) If a cost realism analysis is performed, cost realism may be considered by the source selection authority in evaluating performance or schedule risk.

(10) A written award or acceptance of proposal mailed or otherwise furnished to the successful offeror within the time specified in the proposal shall result in a binding contract without further action by either party.

(11) The Government may disclose the following information in postaward debriefings to other offerors:

(i) The overall evaluated cost or price and technical rating of the successful offeror;

(ii) The overall ranking of all offerors, when any ranking was developed by the agency during source selection;

(iii) A summary of the rationale for award; and

(iv) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.

(End of provision)

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a **Firm Fixed price** contract resulting from this solicitation.

(End of clause)

52.217-5 EVALUATION OF OPTIONS (JUL 1990)

(a) Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the

basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

(b) The Government may reject an offer as nonresponsive if it is materially unbalanced as to prices for the basic requirement and the option quantities. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(End of provision)

52.219-4001 SUBCONTRACTING PLAN FOR SMALL BUSINESS CONCERNS
(SEP 2002 CESAS-CT)

(a) In accordance with FAR Clause 52.219-9, large businesses must submit a subcontracting plan. A sample subcontracting plan is located in Section 00800.

(b) The subcontracting targets (expressed in terms of percentages of total planned subcontracting dollars) of the Savannah District are as follows:

Small Business	-	57.2%
Small Disadvantaged Business	-	8.9%
HUBZone Small Business		3.0%
Women-Owned Business	-	8.1%
Veteran-Owned Small Business		0%*
Service-Disabled Veteran-Owned Small Business	-	3.0%**

If you cannot reach the above-stated targets, you must provide written justification with your subcontracting plan detailing the reasons you cannot meet the requirements.

*(c) While Savannah District does not have a specific target for subcontracting with Veteran-Owned small businesses, this must be addressed in any subcontracting plan.

**(d) Service-disabled Veteran-owned Small Business (SD/VOSB) is a composite of Veteran-Owned Small Business. The SD/VOSB target must be included in the Veteran-Owned small business target.

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
035 Augusta, GA-SMSA Counties - 27.2% 035 Augusta, GA –non SMSA Counties-32.8%	6.9%

036 Atlanta, GA – SMSA Counties – 21.2% 036 Atlanta, GA – non SMSA Counties - 19.5%	6.9%
037 Columbus, GA – SMSA Counties – 29.6% 037 Columbus, GA – non SMSA Counties – 31.6%	6.9%
038 Macon, GA – SMSA Counties – 27.5% 038 Macon, GA – non SMSA Counties – 31.6%	6.9%
039 Savannah, GA – SMSA Counties – 30.6% 039 Savannah, GA – non SMSA Counties – 29.8%	6.9%
040 Albany, GA – SMSA Counties – 32.1% 040 Albany, GA – non SMSA Counties – 31.1%	6.9%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

(1) Name, address, and telephone number of the subcontractor;

(2) Employer's identification number of the subcontractor;

(3) Estimated dollar amount of the subcontract;

(4) Estimated starting and completion dates of the subcontract; and

(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" will be cited on each individual task order.

(End of provision)

52.225-12 NOTICE OF BUY AMERICAN ACT REQUIREMENT-- CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (MAY 2002)

(a) Definitions. Construction material, designated country construction material, domestic construction material, foreign construction material, and NAFTA country construction material, as used in this provision, are defined in the clause of this solicitation entitled “Buy American Act --Construction Materials under Trade Agreements” (Federal Acquisition Regulation (FAR) clause 52.225-11).

(b) Requests for determination of inapplicability. An offeror requesting a determination regarding the inapplicability of the Buy American Act should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of FAR clause 52.225-11 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American Act before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) Evaluation of offers. (1) The Government will evaluate an offer requesting exception to the requirements of the Buy American Act, based on claimed unreasonable cost of domestic construction materials, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(4)(i) of FAR clause 52.225-11.

(2) If evaluation results in a tie between an offeror that requested the substitution of foreign construction material based on unreasonable cost and an offeror that did not request an exception, the Contracting Officer will award to the offeror that did not request an exception based on unreasonable cost.

(d) Alternate offers. (1) When an offer includes foreign construction material, other than designated country or NAFTA country construction material, that is not listed by the Government in this solicitation in paragraph (b)(3) of FAR clause 52.225-11, the offeror also may submit an alternate offer based on use of equivalent domestic, designated country, or NAFTA country construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of FAR clause 52.225-11 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of FAR clause 52.225-11 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic, designated country, or NAFTA country construction material, and the offeror shall be required to furnish such domestic, designated country, or NAFTA country construction material. An offer based on use of the foreign construction material for which an exception was requested--

(i) Will be rejected as nonresponsive if this acquisition is conducted by sealed bidding; or

(ii) May be accepted if revised during negotiations.

(End of provision)

52.232-4006 SUBJECT TO AVAILABILITY OF FUNDS STATEMENT (SEP 1999 SASCT) (Ref. AFARS 5101.602-2)

This is a high priority requirement as defined in Army Federal Acquisition Regulation (AFAR) Supplement 5101.602-2. Subject to the availability of funds, the accounting classification will be cited on individual task orders. This statement is not a commitment of funds. Funds are not presently available for this acquisition. No contract award will be made until appropriated funds are made available from which payment for contract purposes can be made.

(End of provision)

52.233-2 SERVICE OF PROTEST (AUG 1996)

(v) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from

U.S. Army Corps of Engineers, Savannah District
ATTN: CESAS-CT-C
100 West Oglethorpe Avenue
Savannah, GA 31401-3640

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of provision)

52.236-27 SITE VISIT (CONSTRUCTION) (FEB 1995)

(a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

(b) Site visits may be arranged during normal duty hours by contacting the person identified on individual task order.

(End of provision)

52.236-28 PREPARATION OF PROPOSALS--CONSTRUCTION (OCT 1997)

(a) Proposals must be (1) submitted on the forms furnished by the Government or on copies of those forms, and (2) manually signed. The person signing a proposal must initial each erasure or change appearing on any proposal form.

(b) The proposal form may require offerors to submit proposed prices for one or more items on various bases, including--

(1) Lump sum price;

(2) Alternate prices;

(3) Units of construction; or

(4) Any combination of paragraphs (b)(1) through (b)(3) of this provision.

(c) If the solicitation requires submission of a proposal on all items, failure to do so may result in the proposal being rejected without further consideration. If a proposal on all items is not required, offerors should insert the words “no proposal” in the space provided for any item on which no price is submitted.

(d) Alternate proposals will not be considered unless this solicitation authorizes their submission.

(End of provision)

52.236-4011 Disclosure of Magnitude of Construction (FAR 36.204 and DFARS 236.204)

The estimated price range for this project is between

$10,000,000.00 and $15,000,000.00.

Section 00600 - Representations & Certifications

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52.203-2 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985)

(a) The offeror certifies that --

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to –

(i) Those prices,

(ii) The intention to submit an offer, or

(iii) The methods of factors used to calculate the prices offered:

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory --

(1) Is the person in the offeror's organization responsible for determining the prices offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provison _____ (insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization);

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision.

(c) If the offeror deletes or modifies subparagraph (a)(2) of this provision, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

(End of clause)

52.203-11 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (APR 1991)

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence

Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of this Certification.

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that on or after December 23, 1989,--

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of $100,000 shall certify and disclose accordingly.

(vi) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision, shall be subject to a civil penalty of not less than $10,000, and not more than $100,000, for each such failure.

(End of provision)

52.204-5 WOMEN-OWNED BUSINESS (OTHER THAN SMALL BUSINESS) (MAY 1999)

(a) Definition. Women-owned business concern, as used in this provision, means a concern that is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

(b) Representation. [Complete only if the offeror is a women-owned business concern and has not represented itself as a small business concern in paragraph (b)(1) of FAR 52.219-1, Small Business Program Representations, of this solicitation.] The offeror represents that it ( ) is a women-owned business concern.

(End of provision)

52.204-4003 TAXPAYER IDENTIFICATION

Taxpayer Identification Number (TIN)," as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(a) Taxpayer Identification Number (TIN).

___ TIN:._____

___ TIN has been applied for.

___ TIN is not required because:

___ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

___ Offeror is an agency or instrumentality of a foreign government;

___ Offeror is an agency or instrumentality of the Federal Government.

(b) Type of organization.

___ Sole proprietorship;

___ Partnership;

___ Corporate entity (not tax-exempt);

___ Corporate entity (tax-exempt);

___ Government entity (Federal, State, or local);

___ Foreign government;

___ International organization per 26 CFR 1.6049-4;

___ Other _____

(c) Common parent.

___ Offeror is not owned or controlled by a common parent

___ Name and TIN of common parent:

Name _____

TIN _____

(End of provision)

52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (DEC 2001)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that--

(i) The Offeror and/or any of its Principals--

(A) Are ( ) are not ( ) presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ( ) have not ( ), within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are ( ) are not ( ) presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The Offeror has ( ) has not ( ), within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (APR 2002) - ALTERNATE I (APR 2002)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 236220.

(2) The small business size standard is $28,500,000.00.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it ( ) is, ( ) is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it ( ) is, ( ) is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a service-disabled veteran-owned small business concern.

(6) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It ( ) is, ( ) is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It ( ) is, ( ) is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture:_____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(7) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.) The offeror shall check the category in which its ownership falls:

____ Black American.

____ Hispanic American.

____ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

____ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

____ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

____ Individual/concern, other than one of the preceding.

(c) Definitions. As used in this provision--

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; or

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)

The offeror represents that --

(a) ( ) It has, ( ) has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) ( ) It has, ( ) has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

52.222-38 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (DEC 2001)

By submission of its offer, the offeror represents that, if it is subject to the reporting requirements of 38 U.S.C. 4212(d) (i.e., if it has any contract containing Federal Acquisition Regulation clause 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans), it has submitted the most recent VETS-100 Report required by that clause.

(End of provision)

52.223-4 RECOVERED MATERIAL CERTIFICATION (OCT 1997)

As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6962(c)(3)(A)(i)), the offeror certifies, by signing this offer, that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by the applicable contract specifications.

(End of provision)

52.223-13 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (JUN 2003)

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8, 1995.

(b) By signing this offer, the offeror certifies that--

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons: (Check each block that is applicable.)

( ) (i) The facility does not manufacture, process or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

( ) (ii) The facility does not have 10 or more full-time employees as specified in section 313.(b)(1)(A) of EPCRA 42 U.S.C. 11023(b)(1)(A);

( ) (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

( ) (iv) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

( ) (v) The facility is not located within the United States or its outlying areas.

(End of clause)

252.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) "Definitions."

As used in this provision --

(a) "Government of a terrorist country" includes the state and the government of a terrorist country, as well as any political subdivision, agency, or instrumentality thereof.

(2) "Terrorist country" means a country determined by the Secretary of State, under section 6(j)(1)(A) of the Export Administration Act of 1979 (50 U.S.C. App. 2405(j)(i)(A)), to be a country the government of which has repeatedly provided support for such acts of international terrorism. As of the date of this provision, terrorist countries include: Cuba, Iran, Iraq, Libya, North Korea, Sudan, and Syria.

(3) "Significant interest" means --

(i) Ownership of or beneficial interest in 5 percent or more of the firm's or subsidiary's securities. Beneficial interest includes holding 5 percent or more of any class of the firm's securities in "nominee shares," "street names," or some other method of holding securities that does not disclose the beneficial owner;

(ii) Holding a management position in the firm, such as a director or officer;

(iii) Ability to control or influence the election, appointment, or tenure of directors or officers in the firm;

(iv) Ownership of 10 percent or more of the assets of a firm such as equipment, buildings, real estate, or other tangible assets of the firm; or

(v) Holding 50 percent or more of the indebtness of a firm.

(b) "Prohibition on award."

In accordance with 10 U.S.C. 2327, no contract may be awarded to a firm or a subsidiary of a firm if the government of a terrorist country has a significant interest in the firm or subsidiary or, in the case of a subsidiary, the firm that owns the subsidiary, unless a waiver is granted by the Secretary of Defense.

(c) "Disclosure."

If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclosure such interest in an attachment to its offer. If the Offeror is a subsidiary, it shall also disclose any significant interest the government of a terrorist country has in any firm that owns or controls the subsidiary. The disclosure shall include --

(1) Identification of each government holding a significant interest; and

(2) A description of the significant interest held by each government.

(End of provision)

252.247-7022 REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term supplies is defined in the Transportation of Supplies by Sea clause of this solicitation.

(b) Representation. The Offeror represents that it:

____ (1) Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

____ (2) Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of provision)

Section 00700 - Contract Clauses

CLAUSES INCORPORATED BY FULL TEXT

52.202-1 DEFINITIONS (MAY 2001) --ALTERNATE I (MAR 2001)

(a) Agency head or head of the agency means the Secretary (Attorney General, Administrator, Governor, Chairperson, or other chief official, as appropriate) of the agency, unless otherwise indicated, including any deputy or assistant chief official of the executive agency.

(b) Commercial component means any component that is a commercial item.

(c) Component means any item supplied to the Government as part of an end item or of another component, except that for use in 52.225-9, and 52.225-11 see the definitions in 52.225-9(a) and 52.225-11(a).

(d) Contracting Officer means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(e) Nondevelopmental item means--

(1) Any previously developed item of supply used exclusively for governmental purposes by a Federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;

(2) Any item described in paragraph (f)(1) of this definition that requires only minor modification or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or

(3) Any item of supply being produced that does not meet the requirements of paragraph (f)(1) or (f)(2) solely because the item is not yet in use.

(f) "Contracting Officer" means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(g) Except as otherwise provided in this contract, the term "subcontracts" includes, but is not limited to, purchase orders and changes and modifications to purchase orders under this contract.

(End of clause)

52.203-3 GRATUITIES (APR 1984)

(a) The right of the Contractor to proceed may be terminated by written notice if, after notice and hearing, the agency head or a designee determines that the Contractor, its agent, or another representative--

(1) Offered or gave a gratuity (e.g., an entertainment or gift) to an officer, official, or employee of the Government; and

(2) Intended, by the gratuity, to obtain a contract or favorable treatment under a contract.

(b) The facts supporting this determination may be reviewed by any court having lawful jurisdiction.

(c) If this contract is terminated under paragraph (a) of this clause, the Government is entitled--

(1) To pursue the same remedies as in a breach of the contract; and

(2) In addition to any other damages provided by law, to exemplary damages of not less than 3 nor more than 10 times the cost incurred by the Contractor in giving gratuities to the person concerned, as determined by the agency head or a designee. (This subparagraph (c)(2) is applicable only if this contract uses money appropriated to the Department of Defense.)

(d) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.203-5 COVENANT AGAINST CONTINGENT FEES (APR 1984)

(a) The Contractor warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.

(b) "Bona fide agency," as used in this clause, means an established commercial or selling agency, maintained by a contractor for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds itself out as being able to obtain any Government contract or contracts through improper influence.

"Bona fide employee," as used in this clause, means a person, employed by a contractor and subject to the contractor's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee," as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence," as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract on any basis other than the merits of the matter.

(End of clause)

52.203-6 RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT (JUL 1995)

(a) Except as provided in (b) of this clause, the Contractor shall not enter into any agreement with an actual or prospective subcontractor, nor otherwise act in any manner, which has or may have the effect of restricting sales by such subcontractors directly to the Government of any item or process (including computer software) made or furnished by the subcontractor under this contract or under any follow-on production contract.

(b) The prohibition in (a) of this clause does not preclude the Contractor from asserting rights that are otherwise authorized by law or regulation.

(c) The Contractor agrees to incorporate the substance of this clause, including this paragraph (c), in all subcontracts under this contract which exceed $100,000.

52.203-7 ANTI-KICKBACK PROCEDURES. (JUL 1995)

(a) Definitions.

"Kickback," as used in this clause, means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided, directly or indirectly, to any prime Contractor, prime Contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a subcontract relating to a prime contract.

"Person," as used in this clause, means a corporation, partnership, business association of any kind, trust, joint-stock company, or individual.

"Prime contract," as used in this clause, means a contract or contractual action entered into by the United States for the purpose of obtaining supplies, materials, equipment, or services of any kind.

"Prime Contractor," as used in this clause, means a person who has entered into a prime contract with the United States.

"Prime Contractor employee," as used in this clause, means any officer, partner, employee, or agent of a prime Contractor.

"Subcontract," as used in this clause, means a contract or contractual action entered into by a prime Contractor or subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind under a prime contract.

"Subcontractor," as used in this clause, (1) means any person, other than the prime Contractor, who offers to furnish or furnishes any supplies, materials, equipment, or services of any kind under a prime contract or a subcontract entered into in connection with such prime contract, and (2) includes any person who offers to furnish or furnishes general supplies to the prime Contractor or a higher tier subcontractor.

"Subcontractor employee," as used in this clause, means any officer, partner, employee, or agent of a subcontractor.

(b) The Anti-Kickback Act of 1986 (41 U.S.C. 51-58) (the Act), prohibits any person from -

(1) Providing or attempting to provide or offering to provide any kickback;

(2) Soliciting, accepting, or attempting to accept any kickback; or

(3) Including, directly or indirectly, the amount of any kickback in the contract price charged by a prime Contractor to the United States or in the contract price charged by a subcontractor to a prime Contractor or higher tier subcontractor.

(c)(1) The Contractor shall have in place and follow reasonable procedures designed to prevent and detect possible violations described in paragraph (b) of this clause in its own operations and direct business relationships.

(2) When the Contractor has reasonable grounds to believe that a violation described in paragraph (b) of this clause may have occurred, the Contractor shall promptly report in writing the possible violation. Such reports shall be made to the inspector general of the contracting agency, the head of the contracting agency if the agency does not have an

inspector general, or the Department of Justice.

(3) The Contractor shall cooperate fully with any Federal agency investigating a possible violation described in paragraph (b) of this clause.

(4) The Contracting Officer may (i) offset the amount of the kickback against any monies owed by the United States under the prime contract and/or (ii) direct that the Prime Contractor withhold, from sums owed a subcontractor under the prime contract, the amount of any kickback. The Contracting Officer may order the monies withheld under subdivision (c)(4)(ii) of this clause be paid over to the Government unless the Government has already offset those monies under subdivision (c)(4)(i) of this clause. In either case, the Prime Contractor shall notify the Contracting Officer when the monies are withheld.

(5) The Contractor agrees to incorporate the substance of this clause, including this subparagraph (c)(5) but excepting subparagraph (c)(1), in all subcontracts under this contract which exceed $100,000.

52.203-8 CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) If the Government receives information that a contractor or a person has engaged in conduct constituting a violation of subsection (a), (b), (c), or (d) of Section 27 of the Office of Federal Procurement Policy Act (41 U.S.C. 423) (the Act), as amended by section 4304 of the 1996 National Defense Authorization Act for Fiscal Year 1996 (Pub. L. 104-106), the Government may--

(1) Cancel the solicitation, if the contract has not yet been awarded or issued; or

(2) Rescind the contract with respect to which--

(i) The Contractor or someone acting for the Contractor has been convicted for an offense where the conduct constitutes a violation of subsection 27(a) or (b) of the Act for the purpose of either--

(A) Exchanging the information covered by such subsections for anything of value; or

(B) Obtaining or giving anyone a competitive advantage in the award of a Federal agency procurement contract; or

(ii) The head of the contracting activity has determined, based upon a preponderance of the evidence, that the Contractor or someone acting for the Contractor has engaged in conduct constituting an offense punishable under subsections 27(e)(1) of the Act.

(b) If the Government rescinds the contract under paragraph (a) of this clause, the Government is entitled to recover, in addition to any penalty prescribed by law, the amount expended under the contract.

(c) The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law, regulation, or under this contract.

(End of clause)

52.203-10 PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) The Government, at its election, may reduce the price of a fixed-price type contract and the total cost and fee under a cost-type contract by the amount of profit or fee determined as set forth in paragraph (b) of this clause if the head of the contracting activity or designee determines that there was a violation of subsection 27 (a), (b), or (c) of the Office of Federal Procurement Policy Act, as amended (41 U.S.C. 423), as implemented in section 3.104 of the Federal Acquisition Regulation.

(b) The price or fee reduction referred to in paragraph (a) of this clause shall be--

(1) For cost-plus-fixed-fee contracts, the amount of the fee specified in the contract at the time of award;

(2) For cost-plus-incentive-fee contracts, the target fee specified in the contract at the time of award, notwithstanding any minimum fee or "fee floor" specified in the contract;

(3) For cost-plus-award-fee contracts--

(i) The base fee established in the contract at the time of contract award;

(ii) If no base fee is specified in the contract, 30 percent of the amount of each award fee otherwise payable to the Contractor for each award fee evaluation period or at each award fee determination point.

(4) For fixed-price-incentive contracts, the Government may--

(i) Reduce the contract target price and contract target profit both by an amount equal to the initial target profit specified in the contract at the time of contract award; or

(ii) If an immediate adjustment to the contract target price and contract target profit would have a significant adverse impact on the incentive price revision relationship under the contract, or adversely affect the contract financing provisions, the Contracting Officer may defer such adjustment until establishment of the total final price of the contract. The total final price established in accordance with the incentive price revision provisions of the contract shall be reduced by an amount equal to the initial target profit specified in the contract at the time of contract award and such reduced price shall be the total final contract price.

(5) For firm-fixed-price contracts, by 10 percent of the initial contract price or a profit amount determined by the Contracting Officer from records or documents in existence prior to the date of the contract award.

(c) The Government may, at its election, reduce a prime contractor's price or fee in accordance with the procedures of paragraph (b) of this clause for violations of the Act by its subcontractors by an amount not to exceed the amount of profit or fee reflected in the subcontract at the time the subcontract was first definitively priced.

(d) In addition to the remedies in paragraphs (a) and (c) of this clause, the Government may terminate this contract for default. The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.203-12 LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (JUN 2003)

(a) Definitions.

"Agency," as used in this clause, means executive agency as defined in 2.101.

"Covered Federal action," as used in this clause, means any of the following Federal actions:

(1) The awarding of any Federal contract.

(2) The making of any Federal grant.

(3) The making of any Federal loan.

(4) The entering into of any cooperative agreement.

(5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) and include Alaskan Natives.

"Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

(1) An individual who is appointed to a position in the Government under Title 5, United States Code, including a position under a temporary appointment.

(2) A member of the uniformed services, as defined in subsection 101(3),Title 37, United States Code.

(3) A special Government employee, as defined in section 202, Title 18, United States Code.

(4) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code, appendix 2.

"Person," as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable compensation," as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable payment," as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient," as used in this clause, includes the Contractor and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed," as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

State, as used in this clause, means a State of the United States, the District of Columbia, or an outlying area of the United States, an agency or instrumentality of a State, and multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibitions.

(1) Section 1352 of Title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan, or cooperative agreement from using appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(2) The Act also requires Contractors to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

(3) The prohibitions of the Act do not apply under the following conditions:

(i) Agency and legislative liaison by own employees.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(B) For purposes of subdivision (b)(3)(i)(A) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(C) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(D) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action--

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Pub. L. 95-507, and subsequent amendments.

(E) Only those services expressly authorized by subdivision (b)(3)(i)(A) of this clause are permitted under this clause.

(ii) Professional and technical services.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of--

(1) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(2) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(B) For purposes of subdivision (b)(3)(ii)(A) of this clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(C) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(D) Only those services expressly authorized by subdivisions (b)(3)(ii)(A)(1) and (2) of this clause are permitted under this clause.

(E) The reporting requirements of FAR 3.803(a) shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(c) Disclosure.

(1) The Contractor who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, OMB standard form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed

to make any payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(2) The Contractor shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (c)(1) of this clause. An event that materially affects the accuracy of the information reported includes--

(i) A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

(ii) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(iii) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

(3) The Contractor shall require the submittal of a certification, and if required, a disclosure form by any person who requests or receives any subcontract exceeding $100,000 under the Federal contract.

(4) All subcontractor disclosure forms (but not certifications) shall be forwarded from tier to tier until received by the prime Contractor. The prime Contractor shall submit all disclosures to the Contracting Officer at the end of the calendar quarter in which the disclosure form is submitted by the subcontractor. Each subcontractor certification shall be retained in the subcontract file of the awarding Contractor.

(d) Agreement. The Contractor agrees not to make any payment prohibited by this clause.

(e) Penalties.

(1) Any person who makes an expenditure prohibited under paragraph (a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph (b) of this clause shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(2) Contractors may rely without liability on the representation made by their subcontractors in the certification and disclosure form.

(f) Cost allowability. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provision.

(End of clause)

52.204-4 PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER (AUG 2000)

(a) Definitions. As used in this clause--

“Postconsumer material” means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of “recovered material.” For paper and paper products, postconsumer material means “postconsumer fiber” defined by the U.S. Environmental Protection Agency (EPA) as--

(1) Paper, paperboard, and fibrous materials from retail stores, office buildings, homes, and so forth, after they have passed through their end-usage as a consumer item, including: used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards; and used cordage; or

(2) All paper, paperboard, and fibrous materials that enter and are collected from municipal solid waste; but not

(3) Fiber derived from printers' over-runs, converters' scrap, and over-issue publications.

“Printed or copied double-sided” means printing or reproducing a document so that information is on both sides of a sheet of paper.

“Recovered material,” for paper and paper products, is defined by EPA in its Comprehensive Procurement Guideline as “recovered fiber” and means the following materials:

(1) Postconsumer fiber; and

(2) Manufacturing wastes such as--

(i) Dry paper and paperboard waste generated after completion of the papermaking process (that is, those manufacturing operations up to and including the cutting and trimming of the paper machine reel into smaller rolls or rough sheets) including: envelope cuttings, bindery trimmings, and other paper and paperboard waste resulting from printing, cutting, forming, and other converting operations; bag, box, and carton manufacturing wastes; and butt rolls, mill wrappers, and rejected unused stock; and

(ii) Repulped finished paper and paperboard from obsolete inventories of paper and paperboard manufacturers, merchants, wholesalers, dealers, printers, converters, or others.

(b) In accordance with Section 101 of Executive Order 13101 of September 14, 1998, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, the Contractor is encouraged to submit paper documents, such as offers, letters, or reports, that are printed or copied double-sided on recycled paper that meet minimum content standards specified in Section 505 of Executive Order 13101, when not using electronic commerce methods to submit information or data to the Government.

(c) If the Contractor cannot purchase high-speed copier paper, offset paper, forms bond, computer printout paper, carbonless paper, file folders, white wove envelopes, writing and office paper, book paper, cotton fiber paper, and cover stock meeting the 30 percent postconsumer material standard for use in submitting paper documents to the Government, it should use paper containing no less than 20 percent postconsumer material. This lesser standard should be used only when paper meeting the 30 percent postconsumer material standard is not obtainable at a reasonable price or does not meet reasonable performance standards.

(End of clause)

52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995)

(a) The Government suspends or debars Contractors to protect the Government's interests. The Contractor shall not enter into any subcontract in excess of the $25,000 with a Contractor that is debarred, suspended, or proposed for debarment unless there is a compelling reason to do so.

(b) The Contractor shall require each proposed first-tier subcontractor, whose subcontract will exceed $25,000, to disclose to the Contractor, in writing, whether as of the time of award of the subcontract, the subcontractor, or its principles, is or is not debarred, suspended, or proposed for debarment by the Federal Government.

(c) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs). The notice must include the following:

(1) The name of the subcontractor.

(2) The Contractor's knowledge of the reasons for the subcontractor being on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(3) The compelling reason(s) for doing business with the subcontractor notwithstanding its inclusion on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(4) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

52.211-15 DEFENSE PRIORITY AND ALLOCATION REQUIREMENTS (SEP 1990)

This is a rated order certified for national defense use, and the Contractor shall follow all the requirements of the Defense Priorities and Allocations System regulation (15 CFR 700).

(End of clause)

52.215-2 AUDIT AND RECORDS--NEGOTIATION (JUN 1999)

(a) As used in this clause, "records" includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.

(b) Examination of costs. If this is a cost-reimbursement, incentive, time-and-materials, labor-hour, or price redeterminable contract, or any combination of these, the Contractor shall maintain and the Contracting Officer, or an authorized representative of the Contracting Officer, shall have the right to examine and audit all records and other evidence sufficient to reflect properly all costs claimed to have been incurred or anticipated to be incurred directly or indirectly in performance of this contract. This right of examination shall include inspection at all reasonable times of the Contractor's plants, or parts of them, engaged in performing the contract.

(c) Cost or pricing data. If the Contractor has been required to submit cost or pricing data in connection with any pricing action relating to this contract, the Contracting Officer, or an authorized representative of the Contracting Officer, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data, shall have the right to examine and audit all of the Contractor's records, including computations and projections, related to--

(1) The proposal for the contract, subcontract, or modification;

(2) The discussions conducted on the proposal(s), including those related to negotiating;

(3) Pricing of the contract, subcontract, or modification; or

(4) Performance of the contract, subcontract or modification.

(d) Comptroller General--(1) The Comptroller General of the United States, or an authorized representative, shall have access to and the right to examine any of the Contractor's directly pertinent records involving transactions related to this contract or a subcontract hereunder.

(2) This paragraph may not be construed to require the Contractor or subcontractor to create or maintain any record that the Contractor or subcontractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e) Reports. If the Contractor is required to furnish cost, funding, or performance reports, the Contracting Officer or an authorized representative of the Contracting Officer shall have the right to examine and audit the supporting records and materials, for the purpose of evaluating (1) the effectiveness of the Contractor's policies and procedures to produce data compatible with the objectives of these reports and (2) the data reported.

(f) Availability. The Contractor shall make available at its office at all reasonable times the records, materials, and other evidence described in paragraphs (a), (b), (c), (d), and (e) of this clause, for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in Subpart 4.7, Contractor Records Retention, of the Federal Acquisition Regulation (FAR), or for any longer period required by statute or by other clauses of this contract. In addition--

(1) If this contract is completely or partially terminated, the Contractor shall make available the records relating to the work terminated until 3 years after any resulting final termination settlement; and

(2) The Contractor shall make available records relating to appeals under the Disputes clause or to litigation or the settlement of claims arising under or relating to this contract until such appeals, litigation, or claims are finally resolved.

(g) The Contractor shall insert a clause containing all the terms of this clause, including this paragraph (g), in all subcontracts under this contract that exceed the simplified acquisition threshold, and--

(1) That are cost-reimbursement, incentive, time-and-materials, labor-hour, or price-redeterminable type or any combination of these;

(2) For which cost or pricing data are required; or

(3) That require the subcontractor to furnish reports as discussed in paragraph (e) of this clause.

The clause may be altered only as necessary to identify properly the contracting parties and the Contracting Officer under the Government prime contract.

(End of clause)

52.215-11 PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) This clause shall become operative only for any modification to this contract involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, except that this clause does not apply to any modification if an exception under FAR 15.403-1 applies.

(b) If any price, including profit or fee, negotiated in connection with any modification under this clause, or any cost reimbursable under this contract, was increased by any significant amount because (1) the Contractor or a subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its

Certificate of Current Cost or Pricing Data, (2) a subcontractor or prospective subcontractor furnished the Contractor cost or pricing data that were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data, or (3) any of these parties furnished data of any description that were not accurate, the price or cost shall be reduced accordingly and the contract shall be modified to reflect the reduction. This right to a price reduction is limited to that resulting from defects in data relating to modifications for which this clause becomes operative under paragraph (a) of this clause.

(c) Any reduction in the contract price under paragraph (b) of this clause due to defective data from a prospective subcontractor that was not subsequently awarded the subcontract shall be limited to the amount, plus applicable overhead and profit markup, by which--

(1) The actual subcontract; or

(2) The actual cost to the Contractor, if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor; provided, that the actual subcontract price was not itself affected by defective cost or pricing data.

(d)(1) If the Contracting Officer determines under paragraph (b) of this clause that a price or cost reduction should be made, the Contractor agrees not to raise the following matters as a defense:

(i) The Contractor or subcontractor was a sole source supplier or otherwise was in a superior bargaining position and thus the price of the contract would not have been modified even if accurate, complete, and current cost or pricing data had been submitted.

(ii) The Contracting Officer should have known that the cost or pricing data in issue were defective even though the Contractor or subcontractor took no affirmative action to bring the character of the data to the attention of the Contracting Officer.

(iii) The contract was based on an agreement about the total cost of the contract and there was no agreement about the cost of each item procured under the contract.

(iv) The Contractor or subcontractor did not submit a Certificate of Current Cost or Pricing Data.

(2)(i) Except as prohibited by subdivision (d)(2)(ii) of this clause, an offset in an amount determined appropriate by the Contracting Officer based upon the facts shall be allowed against the amount of a contract price reduction if--

(A) The Contractor certifies to the Contracting Officer that, to the best of the Contractor's knowledge and belief, the Contractor is entitled to the offset in the amount requested; and

(B) The Contractor proves that the cost or pricing data were available before the “as of” date specified on its Certificate of Current Cost or Pricing Data, and that the data were not submitted before such date.

(ii) An offset shall not be allowed if--

(A) The understated data were known by the Contractor to be understated before the “as of” date specified on its Certificate of Current Cost or Pricing Data; or

(B) The Government proves that the facts demonstrate that the contract price would not have increased in the amount to be offset even if the available data had been submitted before the “as of” date specified on its Certificate of Current Cost or Pricing Data.

(e) If any reduction in the contract price under this clause reduces the price of items for which payment was made prior to the date of the modification reflecting the price reduction, the Contractor shall be liable to and shall pay the United States at the time such overpayment is repaid--

(1) Simple interest on the amount of such overpayment to be computed from the date(s) of overpayment to the Contractor to the date the Government is repaid by the Contractor at the applicable underpayment rate effective for each quarter prescribed by the Secretary of the Treasury under 26 U.S.C. 6621(a)(2); and

A penalty equal to the amount of the overpayment, if the Contractor or subcontractor knowingly submitted cost or pricing data that were incomplete, inaccurate, or noncurrent.

(End of clause)

52.215-13 SUBCONTRACTOR COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) The requirements of paragraphs (b) and (c) of this clause shall--

(1) Become operative only for any modification to this contract involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4; and

(2) Be limited to such modifications.

(b) Before awarding any subcontract expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, on the date of agreement on price or the date of award, whichever is later; or before pricing any subcontract modification involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, the Contractor shall require the subcontractor to submit cost or pricing data (actually or by specific identification in writing), unless an exception under FAR 15.403-1 applies.

(c) The Contractor shall require the subcontractor to certify in substantially the form prescribed in FAR 15.406-2 that, to the best of its knowledge and belief, the data submitted under paragraph (b) of this clause were accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract modification.

The Contractor shall insert the substance of this clause, including this paragraph (d), in each subcontract that exceeds the threshold for submission of cost or pricing data at FAR 15.403-4 on the date of agreement on price or the date of award, whichever is later.

(End of clause)

52.215-21 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) Exceptions from cost or pricing data. (1) In lieu of submitting cost or pricing data for modifications under this contract, for price adjustments expected to exceed the threshold set forth at FAR 15.403-4 on the date of the agreement on price or the date of the award, whichever is later, the Contractor may submit a written request for exception by submitting the information described in the following subparagraphs. The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable--

(i) Identification of the law or regulation establishing the price offered. If the price is controlled under law by periodic rulings, reviews, or similar actions of a governmental body, attach a copy of the controlling document, unless it was previously submitted to the contracting office.

(ii) Information on modifications of contracts or subcontracts for commercial items. (A) If--

(1) The original contract or subcontract was granted an exception from cost or pricing data requirements because the price agreed upon was based on adequate price competition or prices set by law or regulation, or was a contract or subcontract for the acquisition of a commercial item; and

(2) The modification (to the contract or subcontract) is not exempted based on one of these exceptions, then the Contractor may provide information to establish that the modification would not change the contract or subcontract from a contract or subcontract for the acquisition of a commercial item to a contract or subcontract for the acquisition of an item other than a commercial item.

(B) For a commercial item exception, the Contractor shall provide, at a minimum, information on prices at which the same item or similar items have previously been sold that is adequate for evaluating the reasonableness of the price of the modification. Such information may include--

(1) For catalog items, a copy of or identification of the catalog and its date, or the appropriate pages for the offered items, or a statement that the catalog is on file in the buying office to which the proposal is being submitted. Provide a copy or describe current discount policies and price lists (published or unpublished), e.g., wholesale, original equipment manufacturer, or reseller. Also explain the basis of each offered price and its relationship to the established catalog price, including how the proposed price relates to the price of recent sales in quantities similar to the proposed quantities.

(2) For market-priced items, the source and date or period of the market quotation or other basis for market price, the base amount, and applicable discounts. In addition, describe the nature of the market.

(3) For items included on an active Federal Supply Service Multiple Award Schedule contract, proof that an exception has been granted for the schedule item.

(2) The Contractor grants the Contracting Officer or an authorized representative the right to examine, at any time before award, books, records, documents, or other directly pertinent records to verify any request for an exception under this clause, and the reasonableness of price. For items priced using catalog or market prices, or law or regulation , access does not extend to cost or profit information or other data relevant solely to the Contractor's determination of the prices to be offered in the catalog or marketplace.

(b) Requirements for cost or pricing data. If the Contractor is not granted an exception from the requirement to submit cost or pricing data, the following applies:

(1) The Contractor shall submit cost or pricing data and supporting attachments in accordance with Table 15-2 of FAR 15.408.

As soon as practicable after agreement on price, but before award (except for unpriced actions), the Contractor shall submit a Certificate of Current Cost or Pricing Data, as prescribed by FAR 15.406-2.

(End of clause)

52.216-18 ORDERING. (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from date of award through the life of the contract.

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict

between a delivery order or task order and this contract, the contract shall control.

(c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

(End of clause)

52.216-19 ORDER LIMITATIONS. (OCT 1995)

(a) Minimum order. When the Government requires supplies or services covered by this contract in an amount of less than $2,500,000.00, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.

(b) Maximum order. The Contractor is not obligated to honor:

(1) Any order for a single item in excess of $500,000.00;

(2) Any order for a combination of items in excess of $2,000,000.00; or

(3) A series of orders from the same ordering office within 30 days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above.

(c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) above.

(d) Notwithstanding paragraphs (b) and (c) above, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

(End of clause)

52.216-22 INDEFINITE QUANTITY. (OCT 1995)

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum". The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum".

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be

completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after the performance period of all task orders issued.

(End of clause)

52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor within 30 calendar days of the requirement; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 30 days of the expiration of each period. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed three (3) years.

(End of clause)

52.219-4 NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999)

(a) Definition. HUBZone small business concern, as used in this clause, means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

(b) Evaluation preference. (1) Offers will be evaluated by adding a factor of 10 percent to the price of all offers, except--

(i) Offers from HUBZone small business concerns that have not waived the evaluation preference;

(ii) Otherwise successful offers from small business concerns;

(iii) Otherwise successful offers of eligible products under the Trade Agreements Act when the dollar threshold for application of the Act is exceeded (see 25.402 of the Federal Acquisition Regulation (FAR)); and

(iv) Otherwise successful offers where application of the factor would be inconsistent with a Memorandum of Understanding or other international agreement with a foreign government.

(2) The factor of 10 percent shall be applied on a line item basis or to any group of items on which award may be made. Other evaluation factors described in the solicitation shall be applied before application of the factor.

(3) A concern that is both a HUBZone small business concern and a small disadvantaged business concern will receive the benefit of both the HUBZone small business price evaluation preference and the small disadvantaged business price evaluation adjustment (see FAR clause 52.219-23). Each applicable price evaluation preference or adjustment shall be calculated independently against an offeror's base offer.

These individual preference amounts shall be added together to arrive at the total evaluated price for that offer.

(c) Waiver of evaluation preference. A HUBZone small business concern may elect to waive the evaluation preference, in which case the factor will be added to its offer for evaluation purposes. The agreements in paragraph (d) of this clause do not apply if the offeror has waived the evaluation preference.

___ Offeror elects to waive the evaluation preference.

(d) Agreement. A HUBZone small business concern agrees that in the performance of the contract, in the case of a contract for

(1) Services (except construction), at least 50 percent of the cost of personnel for contract performance will be spent for employees of the concern or employees of other HUBZone small business concerns;

(2) Supplies (other than procurement from a nonmanufacturer of such supplies), at least 50 percent of the cost of manufacturing, excluding the cost of materials, will be performed by the concern or other HUBZone small business concerns;

(3) General construction, at least 15 percent of the cost of the contract performance incurred for personnel will be will be spent on the concern's employees or the employees of other HUBZone small business concerns; or

(4) Construction by special trade contractors, at least 25 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns.

(e) A HUBZone joint venture agrees that in the performance of the contract, the applicable percentage specified in paragraph (d) of this clause will be performed by the HUBZone small business participant or participants.

(f) A HUBZone small business concern nonmanufacturer agrees to furnish in performing this contract only end items manufactured or produced by HUBZone small business manufacturer concerns. This paragraph does not apply in connection with construction or service contracts.

(End of clause)

52.219-8 UTILIZATION OF SMALL BUSINESS CONCERNS (OCT 2000)

(a) It is the policy of the United States that small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns shall have the maximum practicable opportunity to participate in performing contracts let by any Federal agency, including contracts and subcontracts for subsystems, assemblies, components, and related services for major systems. It is further the policy of the United States that its prime contractors establish procedures to ensure the timely payment of amounts due pursuant to the terms of their subcontracts with small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns.

(b) The Contractor hereby agrees to carry out this policy in the awarding of subcontracts to the fullest extent consistent with efficient contract performance. The Contractor further agrees to cooperate in any studies or surveys as may be conducted by the United States Small Business Administration or the awarding agency of the United States as may be necessary to determine the extent of the Contractor's compliance with this clause.

Definitions. As used in this contract--

HUBZone small business concern means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

Small business concern means a small business as defined pursuant to Section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto.

Small disadvantaged business concern means a small business concern that represents, as part of its offer that--

(1) It has received certification as a small disadvantaged business concern consistent with 13 CFR part 124, subpart B;

(2) No material change in disadvantaged ownership and control has occurred since its certification;

(3) Where the concern is owned by one or more individuals, the net worth of each individual upon whom the certification is based does not exceed $750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and

(4) It is identified, on the date of its representation, as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-Net).

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned small business concern means a small business concern--

(1) That is at least 51 percent owned by one or more women, or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as a small business concern, a veteran-owned small business concern, a service-disabled veteran-owned small business concern, a HUBZone small business concern, a small disadvantaged business concern, or a women-owned small business concern.

(End of clause)

52.219-9 SMALL BUSINESS SUBCONTRACTING PLAN (JAN 2002)--ALTERNATE II (OCT 2001).

(a) This clause does not apply to small business concerns.

(b) Definitions. As used in this clause--

Commercial item means a product or service that satisfies the definition of commercial item in section 2.101 of the Federal Acquisition Regulation.

Commercial plan means a subcontracting plan (including goals) that covers the offeror's fiscal year and that applies to the entire production of commercial items sold by either the entire company or a portion thereof (e.g., division, plant, or product line).

Individual contract plan means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror's planned subcontracting in support of the specific contract, except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

Master plan means a subcontracting plan that contains all the required elements of an individual contract plan, except goals, and may be incorporated into individual contract plans, provided the master plan has been approved.

Subcontract means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) Proposals submitted in response to this solicitation shall include a subcontracting plan that separately addresses subcontracting with small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. If the offeror is submitting an individual contract plan, the plan must separately address subcontracting with small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns, with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be negotiated within the time specified by the Contracting Officer. Failure to submit and negotiate a subcontracting plan shall make the offeror ineligible for award of a contract.

(d) The offeror's subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs.

(2) A statement of--

(i) Total dollars planned to be subcontracted for an individual contract plan; or the offeror's total projected sales, expressed in dollars, and the total value of projected subcontracts to support the sales for a commercial plan;

(ii) Total dollars planned to be subcontracted to small business concerns;

(iii) Total dollars planned to be subcontracted to veteran-owned small business concerns;

(iv) Total dollars planned to be subcontracted to HUBZone small business concerns;

(v) Total dollars planned to be subcontracted to small disadvantaged business concerns; and

(vi) Total dollars planned to be subcontracted to women-owned small business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to--

(i) Small business concerns;

(ii) Veteran-owned small business concerns;

(iii) HUBZone small business concerns;

(iv) Small disadvantaged business concerns; and

(v) Women-owned small business concerns.

(4) A description of the method used to develop the subcontracting goals in paragraph (d)(1) of this clause.

(5) A description of the method used to identify potential sources for solicitation purposes (e.g., existing company source lists, the Procurement Marketing and Access Network (PRO-Net) of the Small Business Administration (SBA), veterans service organizations, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small, HUBZone, small disadvantaged, and women-owned small business trade associations). A firm may rely on the information contained in PRO-Net as an accurate representation of a concern's size and ownership characteristics for the purposes of maintaining a small, veteran-owned small, HUBZone small, small disadvantaged, and women-owned small business source list. Use of PRO-Net as its source list does not relieve a firm of its responsibilities (e.g., outreach, assistance, counseling, or publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror in included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with—

(i) Small business concerns;

(ii) Veteran-owned small business concerns;

(iii) HUBZone small business concerns;

(iv) Small disadvantaged business concerns; and

(v) Women-owned small business concerns.

(7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business, veteran-owned small business, HUBZone small business, small disadvantaged business and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause of this contract entitled ``Utilization of Small Business Concerns'' in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) that receive subcontracts in excess of $500,000 ($1,000,000 for construction of any public facility) to adopt a subcontracting plan that complies with the requirements of this clause.

(10) Assurances that the offeror will--

(i) Cooperate in any studies or surveys as may be required;

(ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;

(iii) Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with paragraph (j) of this clause. The reports shall provide information on subcontract awards to small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, small disadvantaged business concerns, women-owned small business concerns, and Historically Black Colleges and Universities and Minority Institutions. Reporting shall be in accordance with the instructions on the forms or as provided in agency regulations.

(iv) Ensure that its subcontractors agree to submit SF 294 and SF 295.

(11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the offeror's efforts to locate small business, veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated)

(i) Source lists (e.g., PRO-Net), guides, and other data that identify small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small business, veteran-owned small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than $100,000, indicating--

(A) Whether small business concerns were solicited and, if not, why not;

(B) Whether veteran-owned small business concerns were solicited and, if not, why not;

(C) Whether HUBZone small business concerns were solicited and, if not, why not;

(D) Whether small disadvantaged business concerns were solicited and, if not, why not;

(E) Whether women-owned small business concerns were solicited and, if not, why not; and

(F) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact--

(A) Trade associations;

(B) Business development organizations;

(C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged, and women-owned small business sources; and

(D) Veterans service organizations.

(v) Records of internal guidance and encouragement provided to buyers through--

(A) Workshops, seminars, training, etc.; and

(B) Monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

(1) Assist small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(2) Provide adequate and timely consideration of the potentialities of small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all ``make-or-buy'' decisions.

(3) Counsel and discuss subcontracting opportunities with representatives of small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.

(4) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small, veteran-owner small business, HUBZone small, small disadvantaged, or women-owned small business for the purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the Contractor's subcontracting plan.

(f) A master plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided--
(1) the master plan has been approved, (2) the offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer, and (3) goals and any deviations from the master plan deemed necessary by the Contracting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial plan shall relate to the offeror's planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Commercial plans are also preferred for subcontractors that provide commercial items under a prime contract, whether or not the prime contractor is supplying a commercial item.

(h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.

(i) The failure of the Contractor or subcontractor to comply in good faith with (1) the clause of this contract entitled "Utilization Of Small Business Concerns," or (2) an approved plan required by this clause, shall be a material breach of the contract.

(j) The Contractor shall submit the following reports:

(1) Standard Form 294, Subcontracting Report for Individual Contracts. This report shall be submitted to the Contracting Officer semiannually and at contract completion. The report covers subcontract award data related to this contract. This report is not required for commercial plans.

(2) Standard Form 295, Summary Subcontract Report. This report encompasses all of the contracts with the awarding agency. It must be submitted semi-annually for contracts with the Department of Defense and annually for contracts with civilian agencies. If the reporting activity is covered by a commercial plan, the reporting activity must report annually all subcontract awards under that plan. All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a breakout, in the Contractor's format, of subcontract awards, in whole dollars, to small disadvantaged business concerns by North American Industry Classification System (NAICS) Industry Subsector. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant NAICS Industry Subsector and report all awards to that subcontractor under its predominant NAICS Industry Subsector.

(End of clause)

52.219-16 LIQUIDATED DAMAGES-SUBCONTRACTING PLAN (JAN 1999)

(a) Failure to make a good faith effort to comply with the subcontracting plan, as used in this clause, means a willful or intentional failure to perform in accordance with the requirements of the subcontracting plan approved under the clause in this contract entitled "Small Business Subcontracting Plan," or willful or intentional action to frustrate the plan.

(b) Performance shall be measured by applying the percentage goals to the total actual subcontracting dollars or, if a commercial plan is involved, to the pro rata share of actual subcontracting dollars attributable to Government contracts covered by the commercial plan. If, at contract completion or, in the case of a commercial plan, at the close of the fiscal year for which the plan is applicable, the Contractor has failed to meet its subcontracting goals and the Contracting Officer decides in accordance with paragraph (c) of this clause that the Contractor failed to make a good faith effort to comply with its subcontracting plan, established in accordance with the clause in this contract entitled “Small Business Subcontracting Plan,” the Contractor shall pay the Government liquidated damages in an amount stated. The amount of probable damages attributable to the Contractor's failure to comply shall be an amount equal to the actual dollar amount by which the Contractor failed to achieve each subcontract goal.

(c) Before the Contracting Officer makes a final decision that the Contractor has failed to make such good faith effort, the Contracting Officer shall give the Contractor written notice specifying the failure and permitting the Contractor to demonstrate what good faith efforts have been made and to discuss the matter. Failure to respond to the notice may be taken as an admission that no valid explanation exists. If, after consideration of all the pertinent data, the Contracting Officer finds that the Contractor failed to make a good faith effort to comply with the subcontracting plan, the Contracting Officer shall issue a final decision to that effect and require that the Contractor pay the Government liquidated damages as provided in paragraph (b) of this clause.

(d) With respect to commercial plans, the Contracting Officer who approved the plan will perform the functions of the Contracting Officer under this clause on behalf of all agencies with contracts covered by the commercial plan.

(e) The Contractor shall have the right of appeal, under the clause in this contract entitled Disputes, from any final decision of the Contracting Officer.

(f) Liquidated damages shall be in addition to any other remedies that the Government may have.

(End of clause)

52.222-3 CONVICT LABOR (JUN 2003)

(a) Except as provided in paragraph (b) of this clause, the Contractor shall not employ in the performance of this contract any person undergoing a sentence of imprisonment imposed by any court of a State, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, or the U.S. Virgin Islands.

(b) The Contractor is not prohibited from employing persons--

(1) On parole or probation to work at paid employment during the term of their sentence;

(2) Who have been pardoned or who have served their terms; or

(3) Confined for violation of the laws of any of the States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, or the U.S. Virgin Islands who are authorized to work at paid employment in the community under the laws of such jurisdiction, if--

(i) The worker is paid or is in an approved work training program on a voluntary basis;

(ii) Representatives of local union central bodies or similar labor union organizations have been consulted;

(iii) Such paid employment will not result in the displacement of employed workers, or be applied in skills, crafts, or trades in which there is a surplus of available gainful labor in the locality, or impair existing contracts for services;

(iv) The rates of pay and other conditions of employment will not be less than those paid or provided for work of a similar nature in the locality in which the work is being performed; and

(v) The Attorney General of the United States has certified that the work-release laws or **regulations** of the jurisdiction involved are in conformity with the requirements of Executive Order 11755, as amended by Executive Orders 12608 and 12943.

(End of clause)

52.222-4 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION. (SEP 2000)

(a) Overtime requirements. No Contractor or subcontractor employing laborers or mechanics (see Federal Acquisition Regulation 22.300) shall require or permit them to work over 40 hours in any workweek unless they are paid at least 1 and 1/2 times the basic rate of pay for each hour worked over 40 hours.

(b) Violation; liability for unpaid wages; liquidated damages. The responsible Contractor and subcontractor are liable for unpaid wages if they violate the terms in paragraph (a) of this clause. In addition, the Contractor and subcontractor are liable for liquidated damages payable to the Government. The Contracting Officer will assess liquidated damages at the rate of $10 per affected employee for each calendar day on which the employer required or permitted the employee to work in excess of the standard workweek of 40 hours without paying overtime wages required by the Contract Work Hours and Safety Standards Act.

(c) Withholding for unpaid wages and liquidated damages. The Contracting Officer will withhold from payments due under the contract sufficient funds required to satisfy any Contractor or subcontractor liabilities for unpaid wages and liquidated damages. If amounts withheld under the contract are insufficient to satisfy Contractor or subcontractor liabilities, the Contracting Officer will withhold payments from other Federal or Federally assisted contracts held by the same Contractor that are subject to the Contract Work Hours and Safety Standards Act.

(d) Payrolls and basic records.

(1) The Contractor and its subcontractors shall maintain payrolls and basic payroll records for all laborers and mechanics working on the contract during the contract and shall make them available to the Government until 3 years after contract completion. The records shall contain the name and address of each employee, social security number, labor classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. The records need not duplicate those required for construction work by Department of Labor regulations at 29 CFR 5.5(a)(3) implementing the Davis-Bacon Act.

(2) The Contractor and its subcontractors shall allow authorized representatives of the Contracting Officer or the Department of Labor to inspect, copy, or transcribe records maintained under paragraph (d)(1) of this clause. The Contractor or subcontractor also shall allow authorized representatives of the Contracting Officer or Department of Labor to interview employees in the workplace during working hours.

(e) Subcontracts. The Contractor shall insert the provisions set forth in paragraphs (a) through (d) of this clause in subcontracts exceeding $100,000 and require subcontractors to include these provisions in any lower tier subcontracts. The Contractor shall be responsible for compliance by any subcontractor or lower-tier subcontractor with the provisions set forth in paragraphs (a) through (d) of this clause.

(End of clause)

52.222-6 DAVIS-BACON ACT (FEB 1995)

(a) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (d) of this clause; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such period. Such laborers and mechanics shall be paid not less than the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in the clause entitled Apprentices and Trainees. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (b) of this clause) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(b)(1) The Contracting Officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The Contracting Officer shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination.

(ii) The classification is utilized in the area by the construction industry.

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator or an authorized representative will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(3) In the event the Contractor, the laborers or mechanics to be employed in the classification, or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (b)(2) and (b)(3) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(c) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(vii) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(End of clause)

52.222-7 WITHHOLDING OF FUNDS (FEB 1988)

The Contracting Officer shall, upon his or her own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(End of clause)

52.222-8 PAYROLLS AND BASIC RECORDS (FEB 1988)

(a) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under paragraph (d) of the clause entitled Davis-Bacon Act, that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b)(1) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify--

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR Part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b)(2) of this clause.

(4) The falsification of any of the certifications in this clause may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(c) The Contractor or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by the Contracting Officer or authorized representatives of the Contracting Officer or the Department of Labor. The Contractor or subcontractor shall permit the Contracting Officer or

representatives of the Contracting Officer or the Department of Labor to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit required records or to make them available, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(End of clause)

52.222-9 APPRENTICES AND TRAINEES (FEB 1988)

(a) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(b) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and

Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(c) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(End of clause)

52.222-10 COMPLIANCE WITH COPELAND ACT REQUIREMENTS (FEB 1988)

The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(End of clause)

52.222-11 SUBCONTRACTS (LABOR STANDARDS (FEB 1988)

(a) The Contractor or subcontractor shall insert in any subcontracts the clauses entitled Davis-Bacon Act, Contract Work Hours and Safety Standards Act-Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Withholding of Funds, Subcontracts (Labor Standards), Contract Termination-Debarment, Disputes Concerning Labor Standards, Compliance with Davis-Bacon and Related Act Regulations, and Certification of Eligibility, and such other clauses as the Contracting Officer may, by appropriate instructions, require, and also a clause requiring subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses cited in this paragraph.

(b)(1) Within 14 days after award of the contract, the Contractor shall deliver to the Contracting Officer a completed Statement and Acknowledgment Form (SF 1413) for each subcontract, including the subcontractor's signed and dated acknowledgment that the clauses set forth in paragraph (a) of this clause have been included in the subcontract.

(ii) Within 14 days after the award of any subsequently awarded subcontract the Contractor shall deliver to the Contracting Officer an updated completed SF 1413 for such additional subcontract.

(End of clause)

52.222-12 CONTRACT TERMINATION--DEBARMENT (FEB 1988)

A breach of the contract clauses entitled Davis-Bacon Act, Contract Work Hours and Safety Standards Act--Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Subcontracts (Labor Standards), Compliance with Davis-Bacon and Related Act Regulations, or Certification of Eligibility may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 CFR 5.12.

(End of clause)

52.222-13 COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS (FEB 1988)

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are hereby incorporated by reference in this contract.

(End of clause)

52.222-14 DISPUTES CONCERNING LABOR STANDARDS (FEB 1988)

The United States Department of Labor has set forth in 29 CFR Parts 5, 6, and 7 procedures for resolving disputes concerning labor standards requirements. Such disputes shall be resolved in accordance with those procedures and not the Disputes clause of this contract. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(End of clause)

52.222-15 CERTIFICATION OF ELIGIBILITY (FEB 1988)

(a) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(viii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(End of clause)

52.222-21 PROHIBITION OF SEGREGATED FACILITIES (FEB 1999)

(a) Segregated facilities, as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(b) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

(End of clause)

52.222-26 EQUAL OPPORTUNITY (APR 2002)

(a) Definition. United States, as used in this clause, means the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.

(b) If, during any 12-month period (including the 12 months preceding the award of this contract), the Contractor has been or is awarded nonexempt Federal contracts and/or subcontracts that have an aggregate value in excess of $10,000, the Contractor shall comply with paragraphs (b)(1) through (b)(11) of this clause, except for work performed outside the United States by employees who were not recruited within the United States. Upon request, the Contractor shall provide information necessary to determine the applicability of this clause.

(1) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. However, it shall not be a violation of this clause for the Contractor to extend a publicly announced preference in employment to Indians living on or near an Indian reservation, in connection with employment opportunities on or near an Indian reservation, as permitted by 41 CFR 60-1.5.

(2) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. This shall include, but not be limited to, (i) employment, (ii) upgrading, (iii) demotion, (iv) transfer, (v) recruitment or recruitment advertising, (vi) layoff or termination, (vii) rates of pay or other forms of compensation, and (viii) selection for training, including apprenticeship.

(3) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(4) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(5) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(6) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(7) The Contractor shall furnish to the contracting agency all information required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor. The Contractor shall also file Standard Form 100 (EEO-1), or any successor form, as prescribed in 41 CFR part 60-1. Unless the Contractor has filed within the 12 months preceding the date of contract award, the Contractor shall, within 30 days after contract award, apply to either the regional Office of Federal Contract Compliance Programs (OFCCP) or the local office of the Equal Employment Opportunity Commission for the necessary forms.

(8) The Contractor shall permit access to its premises, during normal business hours, by the contracting agency or the OFCCP for the purpose of conducting on-site compliance evaluations and complaint investigations. The Contractor shall permit the Government to inspect and copy any books, accounts, records (including computerized records), and other material that may be relevant to the matter under investigation and pertinent to compliance with Executive Order 11246, as amended, and rules and regulations that implement the Executive Order.

(9) If the OFCCP determines that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended; in the rules, regulations, and orders of the Secretary of Labor; or as otherwise provided by law.

(10) The Contractor shall include the terms and conditions of subparagraphs (b)(1) through (11) of this clause in every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor.

(11) The Contractor shall take such action with respect to any subcontract or purchase order as the contracting officer may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; provided, that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(c) Notwithstanding any other clause in this contract, disputes relative to this clause will be governed by the procedures in 41 CFR 60-1.1.

(End of clause)

52.222-27 AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (FEB 1999)

(a) Definitions. "Covered area," as used in this clause, means the geographical area described in the solicitation for this contract.

"Deputy Assistant Secretary," as used in this clause, means Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, or a designee.

"Employer's identification number," as used in this clause, means the Federal Social Security number used on the employer's quarterly federal tax return, U.S. Treasury Department Form 941.

"Minority," as used in this clause, means--

(1) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(2) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands);

(3) Black (all persons having origins in any of the black African racial groups not of Hispanic origin); and

(4) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).

(b) If the Contractor, or a subcontractor at any tier, subcontracts a portion of the work involving any construction trade, each such subcontract in excess of $10,000 shall include this clause and the Notice containing the goals for minority and female participation stated in the solicitation for this contract.

(c) If the Contractor is participating in a Hometown Plan (41 CFR 60-4) approved by the U.S. Department of Labor

in a covered area, either individually or through an association, its affirmative action obligations on all work in the plan area (including goals) shall comply with the plan for those trades that have unions participating in the plan. Contractors must be able to demonstrate participation in, and compliance with, the provisions of the plan. Each Contractor or subcontractor participating in an approved plan is also required to comply with its obligations under the Equal Opportunity clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good-faith performance by other Contractors or subcontractors toward a goal in an approved plan does not excuse any Contractor's or subcontractor's failure to make good-faith efforts to achieve the plan's goals.

(d) The Contractor shall implement the affirmative action procedures in subparagraphs (g)(1) through (16) of this clause. The goals stated in the solicitation for this contract are expressed as percentages of the total hours of employment and training of minority and female utilization that the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where that work is actually performed. The Contractor is expected to make substantially uniform progress toward its goals in each craft.

(e) Neither the terms and conditions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer minorities or women shall excuse the Contractor's obligations under this clause, Executive Order 11246, as amended, or the regulations thereunder.

(f) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

(g) The Contractor shall take affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with this clause shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and implement affirmative action steps at least as extensive as the following:

(1) Ensure a working environment free of harassment, intimidation, and coercion at all sites and in all facilities where the Contractor's employees are assigned to work. The Contractor, if possible, will assign two or more women to each construction project. The Contractor shall ensure that foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at these sites or facilities.

(2) Establish and maintain a current list of sources for minority and female recruitment. Provide written notification to minority and female recruitment sources and community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Establish and maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant, referrals of minorities or females from unions, recruitment sources, or community organizations, and the action taken with respect to each individual. If an individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred back, not employed by the Contractor, this shall be documented in the file, along with whatever additional actions the Contractor may have taken.

(4) Immediately notify the Deputy Assistant Secretary when the union or unions with which the Contractor has a collective bargaining agreement has not referred back to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area that expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (g)(2) of this clause.

(6) Disseminate the Contractor's equal employment policy by--

(i) Providing notice of the policy to unions and to training, recruitment, and outreach programs, and requesting their cooperation in assisting the Contractor in meeting its contract obligations;

(ii) Including the policy in any policy manual and in collective bargaining agreements;

(iii) Publicizing the policy in the company newspaper, annual report, etc.;

(iv) Reviewing the policy with all management personnel and with all minority and female employees at least once a year; and

(v) Posting the policy on bulletin boards accessible to employees at each location where construction work is performed.

(7) Review, at least annually, the Contractor's equal employment policy and affirmative action obligations with all employees having responsibility for hiring, assignment, layoff, termination, or other employment decisions. Conduct review of this policy with all on-site supervisory personnel before initiating construction work at a job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's equal employment policy externally by including it in any advertising in the news media, specifically including minority and female news media. Provide written notification to, and discuss this policy with, other Contractors and subcontractors with which the Contractor does or anticipates doing business.

(9) Direct recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than 1 month before the date for acceptance of applications for apprenticeship or training by any recruitment source, send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit minority persons and women. Where reasonable, provide after-school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's workforce.

(11) Validate all tests and other selection requirements where required under 41 CFR 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities. Encourage these employees to seek or to prepare for, through appropriate training, etc., opportunities for promotion.

(13) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the Contractor's obligations under this contract are being carried out.

(14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user rest rooms and necessary dressing or sleeping areas shall be provided to assure privacy between the sexes.

(15) Maintain a record of solicitations for subcontracts for minority and female construction contractors and

suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment policy and affirmative action obligations.

(h) The Contractor is encouraged to participate in voluntary associations that may assist in fulfilling one or more of the affirmative action obligations contained in subparagraphs (g)(1) through (16) of this clause. The efforts of a contractor association, joint contractor-union, contractor-community, or similar group of which the contractor is a member and participant may be asserted as fulfilling one or more of its obligations under subparagraphs (g)(1) through (16) of this clause, provided the Contractor--

(1) Actively participates in the group;

(2) Makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry;

(3) Ensures that concrete benefits of the program are reflected in the Contractor's minority and female workforce participation;

(4) Makes a good-faith effort to meet its individual goals and timetables; and

(5) Can provide access to documentation that demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

(i) A single goal for minorities and a separate single goal for women shall be established. The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of Executive Order 11246, as amended, if a particular group is employed in a substantially disparate manner.

(j) The Contractor shall not use goals or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

(k) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts under Executive Order 11246, as amended.

(l) The Contractor shall carry out such sanctions and penalties for violation of this clause and of the Equal Opportunity clause, including suspension, termination, and cancellation of existing subcontracts, as may be imposed or ordered under Executive Order 11246, as amended, and its implementing regulations, by the OFCCP. Any failure to carry out these sanctions and penalties as ordered shall be a violation of this clause and Executive Order 11246, as amended.

(m) The Contractor in fulfilling its obligations under this clause shall implement affirmative action procedures at least as extensive as those prescribed in paragraph (g) of this clause, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of Executive Order 11246, as amended, the implementing regulations, or this clause, the Deputy Assistant Secretary shall take action as prescribed in 41 CFR 60-4.8.

(n) The Contractor shall designate a responsible official to--

(1) Monitor all employment-related activity to ensure that the Contractor's equal employment policy is being carried out;

(2) Submit reports as may be required by the Government; and

(3) Keep records that shall at least include for each employee the name, address, telephone number, construction trade, union affiliation (if any), employee identification number, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, separate records are not required to be maintained.

Nothing contained herein shall be construed as a limitation upon the application of other laws that establish different standards of compliance or upon the requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(End of clause)

52.222-35 EQUAL OPPORTUNITY FOR SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS (DEC 2001)

(a) Definitions. As used in this clause--

All employment openings means all positions except executive and top management, those positions that will be filled from within the Contractor's organization, and positions lasting 3 days or less. This term includes full-time employment, temporary employment of more than 3 days duration, and part-time employment.

Executive and top management means any employee--

(1) Whose primary duty consists of the management of the enterprise in which the individual is employed or of a customarily recognized department or subdivision thereof;

(2) Who customarily and regularly directs the work of two or more other employees;

(3) Who has the authority to hire or fire other employees or whose suggestions and recommendations as to the hiring or firing and as to the advancement and promotion or any other change of status of other employees will be given particular weight;

(4) Who customarily and regularly exercises discretionary powers; and

(5) Who does not devote more than 20 percent or, in the case of an employee of a retail or service establishment, who does not devote more than 40 percent of total hours of work in the work week to activities that are not directly and closely related to the performance of the work described in paragraphs (1) through (4) of this definition. This paragraph (5) does not apply in the case of an employee who is in sole charge of an establishment or a physically separated branch establishment, or who owns at least a 20 percent interest in the enterprise in which the individual is employed.

Other eligible veteran means any other veteran who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized.

Positions that will be filled from within the Contractor's organization means employment openings for which the Contractor will give no consideration to persons outside the Contractor's organization (including any affiliates, subsidiaries, and parent companies) and includes any openings the Contractor proposes to fill from regularly established “recall” lists. The exception does not apply to a particular opening once an employer decides to consider applicants outside of its organization.

Qualified special disabled veteran means a special disabled veteran who satisfies the requisite skill, experience, education, and other job-related requirements of the employment position such veteran holds or desires, and who, with or without reasonable accommodation, can perform the essential functions of such position.

Special disabled veteran means--

(1) A veteran who is entitled to compensation (or who but for the receipt of military retired pay would be entitled to compensation) under laws administered by the Department of Veterans Affairs for a disability--

(i) Rated at 30 percent or more; or

(ii) Rated at 10 or 20 percent in the case of a veteran who has been determined under 38 U.S.C. 3106 to have a serious employment handicap (i.e., a significant impairment of the veteran's ability to prepare for, obtain, or retain employment consistent with the veteran's abilities, aptitudes, and interests); or

(2) A person who was discharged or released from active duty because of a service-connected disability.

Veteran of the Vietnam era means a person who--

(1) Served on active duty for a period of more than 180 days and was discharged or released from active duty with other than a dishonorable discharge, if any part of such active duty occurred--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases; or

(2) Was discharged or released from active duty for a service-connected disability if any part of the active duty was performed--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases.
(b) General. (1) The Contractor shall not discriminate against the individual because the individual is a special disabled veteran, a veteran of the Vietnam era, or other eligible veteran, regarding any position for which the employee or applicant for employment is qualified. The Contractor shall take affirmative action to employ, advance in employment, and otherwise treat qualified special disabled veterans, veterans of the Vietnam era, and other eligible veterans without discrimination based upon their disability or veterans' status in all employment practices such as--

(i) Recruitment, advertising, and job application procedures;

(ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff and rehiring;

(iii) Rate of pay or any other form of compensation and changes in compensation;

(iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;

(v) Leaves of absence, sick leave, or any other leave;

(vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;

(vii) Selection and financial support for training, including apprenticeship, and on-the-job training under 38 U.S.C. 3687, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;

(viii) Activities sponsored by the Contractor including social or recreational programs; and

(ix) Any other term, condition, or privilege of employment.

(2) The Contractor shall comply with the rules, regulations, and relevant orders of the Secretary of Labor issued under the Vietnam Era Veterans' Readjustment Assistance Act of 1972 (the Act), as amended (38 U.S.C. 4211 and 4212).

(c) Listing openings. (1) The Contractor shall immediately list all employment openings that exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract, and including those occurring at an establishment of the Contractor other than the one where the contract is being performed, but excluding those of independently operated corporate affiliates, at an appropriate local public employment service office of the State wherein the opening occurs. Listing employment openings with the U.S. Department of Labor's America's Job Bank shall satisfy the requirement to list jobs with the local employment service office.

(2) The Contractor shall make the listing of employment openings with the local employment service office at least concurrently with using any other recruitment source or effort and shall involve the normal obligations of placing a bona fide job order, including accepting referrals of veterans and nonveterans. This listing of employment openings does not require hiring any particular job applicant or hiring from any particular group of job applicants and is not intended to relieve the Contractor from any requirements of Executive orders or regulations concerning nondiscrimination in employment.

(3) Whenever the Contractor becomes contractually bound to the listing terms of this clause, it shall advise the State public employment agency in each State where it has establishments of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these terms and has so advised the State agency, it need not advise the State agency of subsequent contracts. The Contractor may advise the State agency when it is no longer bound by this contract clause.

(d) Applicability. This clause does not apply to the listing of employment openings that occur and are filled outside the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, Guam, the Virgin Islands of the United States, and Wake Island.

(e) Postings. (1) The Contractor shall post employment notices in conspicuous places that are available to employees and applicants for employment.

(2) The employment notices shall--

(i) State the rights of applicants and employees as well as the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified employees and applicants who are special disabled veterans, veterans of the Vietnam era, and other eligible veterans; and

(ii) Be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, Department of Labor (Deputy Assistant Secretary of Labor), and provided by or through the Contracting Officer.

(3) The Contractor shall ensure that applicants or employees who are special disabled veterans are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled veteran, or may lower the posted notice so that it can be read by a person in a wheelchair).

(4) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement, or other contract understanding, that the Contractor is bound by the terms of the Act and is committed to take affirmative action to employ, and advance in employment, qualified special disabled veterans, veterans of the Vietnam era, and other eligible veterans.

(f) Noncompliance. If the Contractor does not comply with the requirements of this clause, the Government may take appropriate actions under the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(g) Subcontracts. The Contractor shall insert the terms of this clause in all subcontracts or purchase orders of $25,000 or more unless exempted by rules, regulations, or orders of the Secretary of Labor. The Contractor shall act as specified by the Deputy Assistant Secretary of Labor to enforce the terms, including action for noncompliance.

(End of clause)

52.222-36 AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (JUN 1998)

(a) General. (1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against any employee or applicant because of physical or mental disability. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified individuals with disabilities without discrimination based upon their physical or mental disability in all employment practices such as--

(i) Recruitment, advertising, and job application procedures;

(ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff, and rehiring;

(iii) Rates of pay or any other form of compensation and changes in compensation;

(iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;

(v) Leaves of absence, sick leave, or any other leave;

(vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;

(vii) Selection and financial support for training, including apprenticeships, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;

(viii) Activities sponsored by the Contractor, including social or recreational programs; and

(ix) Any other term, condition, or privilege of employment.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Rehabilitation Act of 1973 (29 U.S.C. 793) (the Act), as amended.

(b) Postings. (1) The Contractor agrees to post employment notices stating--

(i) The Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified individuals with disabilities; and

(ii) The rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. The Contractor shall ensure that applicants and employees with disabilities are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled individual, or may lower the posted notice so that it might be read by a person in a wheelchair). The notices shall be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance of the U.S. Department of Labor (Deputy Assistant Secretary) and shall be provided by or through the Contracting Officer.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Act and is committed to take affirmative action to employ, and advance in employment, qualified individuals with physical or mental disabilities.

(c) Noncompliance. If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(d) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order in excess of $10,000 unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Deputy Assistant Secretary to enforce the terms, including action for noncompliance.

(End of clause)

52.222-37 EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS (DEC 2001)

(a) Unless the Contractor is a State or local government agency, the Contractor shall report at least annually, as required by the Secretary of Labor, on--

(1) The number of disabled veterans and the number of veterans of the Vietnam era in the workforce of the contractor by job category and hiring location; and

(2) The total number of new employees hired during the period covered by the report, and of that total, the number of disabled veterans, and the number of veterans of the Vietnam era.

(b) The above items shall be reported by completing the form entitled "Federal Contractor Veterans' Employment Report VETS-100."

(c) Reports shall be submitted no later than September 30 of each year beginning September 30, 1988.

(d) The employment activity report required by paragraph (a)(2) of this clause shall reflect total hires during the most recent 12-month period as of the ending date selected for the employment profile report required by paragraph (a)(1) of this clause. Contractors may select an ending date: (1) As of the end of any pay period during the period January through March 1st of the year the report is due, or (2) as of December 31, if the contractor has previous written approval from the Equal Employment Opportunity Commission to do so for purposes of submitting the Employer Information Report EEO-1 (Standard Form 100).

(e) The count of veterans reported according to paragraph (a) of this clause shall be based on voluntary disclosure. Each Contractor subject to the reporting requirements at 38 U.S.C. 4212 shall invite all disabled veterans and veterans of the Vietnam era who wish to benefit under the affirmative action program at 38 U.S.C. 4212 to identify themselves to the Contractor. The invitation shall state that the information is voluntarily provided; that the information will be kept confidential; that disclosure or refusal to provide the information will not subject the

applicant or employee to any adverse treatment; and that the information will be used only in accordance with the regulations promulgated under 38 U.S.C. 4212.

(f) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order of $10,000 or more unless exempted by rules, regulations, or orders of the Secretary.

(End of clause)

52.222-41 SERVICE CONTRACT ACT OF 1965, AS AMENDED (MAY 1989)

(a) Definitions. "Act," as used in this clause, means the Service Contract Act of 1965, as amended (41 U.S.C. 351, et seq.).

"Contractor," as used in this clause or in any subcontract, shall be deemed to refer to the subcontractor, except in the term "Government Prime Contractor."

"Service employee," as used in this clause, means any person engaged in the performance of this contract other than any person employed in a bona fide executive, administrative, or professional capacity, as these terms are defined in Part 541 of Title 29, Code of Federal Regulations, as revised. It includes all such persons regardless of any contractual relationship that may be alleged to exist between a Contractor or subcontractor and such persons.

(b) Applicability. This contract is subject to the following provisions and to all other applicable provisions of the Act and regulations of the Secretary of Labor (29 CFR Part 4). This clause does not apply to contracts or subcontracts administratively exempted by the Secretary of Labor or exempted by 41 U.S.C. 356, as interpreted in Subpart C of 29 CFR Part 4.

(c) Compensation. (1) Each service employee employed in the performance of this contract by the Contractor or any subcontractor shall be paid not less than the minimum monetary wages and shall be furnished fringe benefits in accordance with the wages and fringe benefits determined by the Secretary of Labor, or authorized representative, as specified in any wage determination attached to this contract.

(2)(i) If a wage determination is attached to this con- tract, the Contractor shall classify any class of service employee which is not listed therein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination) so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed class of employees shall be paid the monetary wages and furnished the fringe benefits as are determined pursuant to the procedures in this paragraph (c).

(ii) This conforming procedure shall be initiated by the Contractor prior to the performance of contract work by the unlisted class of employee. The Contractor shall submit Standard Form (SF) 1444, Request For Authorization of Additional Classification and Rate, to the Contracting Officer no later than 30 days after the unlisted class of employee performs any contract work. The Contracting Officer shall review the proposed classification and rate and promptly submit the completed SF 1444 (which must include information regarding the agreement or disagreement of the employees' authorized representatives or the employees themselves together with the agency recommendation), and all pertinent informa-tion to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor. The Wage and Hour Division will approve, modify, or disapprove the action or render a final determination in the event of disagreement within 30 days of receipt or will notify the Contracting Officer within 30 days of receipt that additional time is necessary.

(iii) The final determination of the conformance action by the Wage and Hour Division shall be transmitted to the Contracting Officer who shall promptly notify the Contractor of the action taken. Each affected employee shall be furnished by the Contractor with a written copy of such determination or it shall be posted as a part of the wage

determination.

(iv)(A) The process of establishing wage and fringe benefit rates that bear a reasonable relationship to those listed in a wage determination cannot be reduced to any single formula. The approach used may vary from wage determination to wage determination depending on the circumstances. Standard wage and salary administration practices which rank various job classifications by pay grade pursuant to point schemes or other job factors may, for example, be relied upon. Guidance may also be obtained from the way different jobs are rated under Federal pay systems (Federal Wage Board Pay System and the General Schedule) or from other wage determina- tions issued in the same locality. Basic to the establishment of any conformable wage rate(s) is the concept that a pay relationship should be maintained between job classifications based on the skill required and the duties performed.

(B) In the case of a contract modification, an exercise of an option, or extension of an existing contract, or in any other case where a Contractor succeeds a contract under which the classification in question was previously conformed pursuant to paragraph (c) of this clause, a new conformed wage rate and fringe benefits may be assigned to the conformed classification by indexing (i.e., adjusting) the previous conformed rate and fringe benefits by an amount equal to the average (mean) percentage increase (or decrease, where appropriate) between the wages and fringe benefits specified for all classifications to be used on the contract which are listed in the current wage determination, and those specified for the corresponding classifications in the previously applicable wage determination. Where conforming actions are accomplished in accordance with this paragraph prior to the performance of contract work by the unlisted class of employees, the Contractor shall advise the Contracting Officer of the action taken but the other procedures in subdivision (c)(2)(ii) of this clause need not be followed.

(C) No employee engaged in performing work on this contract shall in any event be paid less than the currently applicable minimum wage specified under section 6(a)(1) of the Fair Labor Standards Act of 1938, as amended.

(v) The wage rate and fringe benefits finally determined under this subparagraph (c)(2) of this clause shall be paid to all employees performing in the classification from the first day on which contract work is performed by them in the classification. Failure to pay the unlisted employees the compensation agreed upon by the interested parties and/or finally determined by the Wage and Hour Division retroactive to the date such class of employees commenced contract work shall be a violation of the Act and this contract.

(vi) Upon discovery of failure to comply with subparagraph (c)(2) of this clause, the Wage and Hour Division shall make a final determination of conformed classification, wage rate, and/or fringe benefits which shall be retroactive to the date such class or classes of employees commenced contract work.

(3) Adjustment of Compensation. If the term of this contract is more than 1 year, the minimum monetary wages and fringe benefits required to be paid or fur- nished thereunder to service employees under this contract shall be subject to adjustment after 1 year and not less often than once every 2 years, under wage determinations issued by the Wage and Hour Division.

(d) Obligation to Furnish Fringe Benefits. The Contractor or subcontractor may discharge the obligation to furnish fringe benefits specified in the attachment or determined under subparagraph (c)(2) of this clause by furnishing equivalent combinations of bona fide fringe benefits, or by making equivalent or differential cash payments, only in accordance with Subpart D of 29 CFR Part 4.

(e) Minimum Wage. In the absence of a minimum wage attachment for this contract, neither the Contractor nor any subcontractor under this contract shall pay any person performing work under this contract (regardless of whether the person is a service employee) less than the minimum wage specified by section 6(a)(1) of the Fair Labor Standards Act of 1938. Nothing in this clause shall relieve the Contractor or any subcontractor of any other obligation under law or contract for payment of a higher wage to any employee.

(f) Successor Contracts. If this contract succeeds a contract subject to the Act under which substantially the same services were furnished in the same locality and service employees were paid wages and fringe benefits provided for in a collective bargaining agreement, in the absence of the minimum wage attachment for this contract setting forth

such collectively bargained wage rates and fringe benefits, neither the Contractor nor any subcontractor under this contract shall pay any service employee performing any of the contract work (regardless of whether or not such employee was employed under the predecessor contract), less than the wages and fringe benefits provided for in such collective bargaining agreement, to which such employee would have been entitled if employed under the predecessor contract, including accrued wages and fringe benefits and any prospective increases in wages and fringe benefits provided for under such agreement. No Contractor or subcontractor under this contract may be relieved of the foregoing obligation unless the limitations of 29 CFR 4.1b(b) apply or unless the Secretary of Labor or the Secretary's authorized representative finds, after a hearing as provided in 29 CFR 4.10 that the wages and/or fringe benefits provided for in such agreement are substantially at variance with those which prevail for services of a character similar in the locality, or determines, as provided in 29 CFR 4.11, that the collective bargaining agreement applicable to service employees employed under the predecessor contract was not entered into as a result of arm's length negotiations. Where it is found in accordance with the review procedures provided in 29 CFR 4.10 and/or 4.11 and Parts 6 and 8 that some or all of the wages and/or fringe benefits contained in a predecessor Contractor's collective bargaining agreement are substantially at variance with those which prevail for services of a character similar in the locality, and/or that the collective bargaining agreement applicable to service employees employed under the predecessor contract was not entered into as a result of arm's length negotiations, the Department will issue a new or revised wage determination setting forth the applicable wage rates and fringe benefits. Such determination shall be made part of the contract or subcontract, in accordance with the decision of the Administrator, the Administrative Law Judge, or the Board of Service Contract Appeals, as the case may be, irrespective of whether such issuance occurs prior to or after the award of a contract or subcontract (53 Comp. Gen. 401 (1973)). In the case of a wage determination issued solely as a result of a finding of substantial variance, such determination shall be effective as of the date of the final administrative decision.

(g) Notification to Employees. The Contractor and any subcontractor under this contract shall notify each service employee commencing work on this contract of the minimum monetary wage and any fringe benefits required to be paid pursuant to this contract, or shall post the wage determination attached to this contract. The poster provided by the Department of Labor (Publication WH 1313) shall be posted in a prominent and accessible place at the worksite. Failure to comply with this requirement is a violation of section 2(a)(4) of the Act and of this contract.

(h) Safe and Sanitary Working Conditions. The Contractor or subcontractor shall not permit any part of the services called for by this contract to be performed in buildings or surroundings or under working conditions provided by or under the control or supervision of the Contractor or subcontractor which are unsanitary, hazardous, or dangerous to the health or safety of the service employees. The Contractor or subcontractor shall comply with the safety and health standards applied under 29 CFR Part 1925.

(i) Records. (1) The Contractor and each subcontractor performing work subject to the Act shall make and maintain for 3 years from the completion of the work, and make them available for inspection and transcription by authorized representatives of the Wage and Hour Division, Employment Standards Administration, a record of the following:

(i) For each employee subject to the Act--

(A) Name and address and social security number;

(B) Correct work classification or classifications, rate or rates of monetary wages paid and fringe benefits provided, rate or rates of payments in lieu of fringe benefits, and total daily and weekly compensation;

(C) Daily and weekly hours worked by each employee; and

(D) Any deductions, rebates, or refunds from the total daily or weekly compensation of each employee.

(ii) For those classes of service employees not included in any wage determination attached to this contract, wage rates or fringe benefits determined by the interested parties or by the Administrator or authorized representative under the terms of paragraph (c) of this clause. A copy of the report required by subdivision (c)(2)(ii) of this clause will fulfill this requirement.

(iii) Any list of the predecessor Contractor's employees which had been furnished to the Contractor as prescribed by paragraph (n) of this clause.

(2) The Contractor shall also make available a copy of this contract for inspection or transcription by authorized representatives of the Wage and Hour Division.

(3) Failure to make and maintain or to make available these records for inspection and transcription shall be a violation of the regulations and this contract, and in the case of failure to produce these records, the Contracting Officer, upon direction of the Department of Labor and notification to the Contractor, shall take action to cause suspension of any further payment or advance of funds until the violation ceases.

(4) The Contractor shall permit authorized representatives of the Wage and Hour Division to conduct interviews with employees at the worksite during normal working hours.

(j) Pay Periods. The Contractor shall unconditionally pay to each employee subject to the Act all wages due free and clear and without subsequent deduction (except as otherwise provided by law or regulations, 29 CFR Part 4), rebate, or kickback on any account. These payments shall be made no later than one pay period following the end of the regular pay period in which the wages were earned or accrued. A pay period under this Act may not be of any duration longer than semi-monthly.

(k) Withholding of Payments and Termination of Contract. The Contracting Officer shall withhold or cause to be withheld from the Government Prime Contractor under this or any other Government contract with the Prime Contractor such sums as an appropriate official of the Department of Labor requests or such sums as the Contracting Officer decides may be necessary to pay underpaid employees employed by the Contractor or subcontractor. In the event of failure to pay any employees subject to the Act all or part of the wages or fringe benefits due under the Act, the Contracting Officer may, after authorization or by direction of the Department of Labor and written notification to the Contractor, take action to cause suspension of any further payment or advance of funds until such violations have ceased. Additionally, any failure to comply with the requirements of this clause may be grounds for termination of the right to proceed with the contract work. In such event, the Government may enter into other contracts or arrangements for completion of the work, charging the Contractor in default with any additional cost.

(l) Subcontracts. The Contractor agrees to insert this clause in all subcontracts subject to the Act.

(m) Collective Bargaining Agreements Applicable to Service Employees. If wages to be paid or fringe benefits to be furnished any service employees employed by the Government Prime Contractor or any subcontractor under the contract are provided for in a collective bargaining agreement which is or will be effective during any period in which the contract is being performed, the Government Prime Contractor shall report such fact to the Contracting Officer, together with full information as to the application and accrual of such wages and fringe benefits, including any prospective increases, to service employees engaged in work on the contract, and a copy of the collective bargaining agreement. Such report shall be made upon commencing performance of the contract, in the case of collective bargaining agreements effective at such time, and in the case of such agreements or provisions or amendments thereof effective at a later time during the period of contract performance such agreements shall be reported promptly after negotiation thereof.

(n) Seniority List. Not less than 10 days prior to completion of any contract being performed at a Federal facility where service employees may be retained in the performance of the succeeding contract and subject to a wage determination which contains vacation or other benefit provisions based upon length of service with a Contractor (predecessor) or successor (29 CFR 4.173), the incumbent Prime Contractor shall furnish the Contracting Officer a certified list of the names of all service employees on the Contractor's or subcontractor's payroll during the last month of contract performance. Such list shall also contain anniversary dates of employment on the contract either with the current or predecessor Contractors of each such service employee. The Contracting Officer shall turn over such list to the successor Contractor at the commencement of the succeeding contract.

(o) Rulings and Interpretations. Rulings and interpretations of the Act are contained in Regulations, 29 CFR Part 4.

(p) Contractor's Certification. (1) By entering into this contract, the Contractor (and officials thereof) certifies that neither it (nor he or she) nor any person or firm who has a substantial interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of the sanctions imposed under section 5 of the Act.

(2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract under section 5 of the Act.

(3) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(q) Variations, Tolerances, and Exemptions Involving Employment. Notwithstanding any of the provisions in paragraphs (b) through (o) of this clause, the following employees may be employed in accordance with the following variations, tolerances, and exemptions, which the Secretary of Labor, pursuant to section 4(b) of the Act prior to its amendment by Pub. L. 92-473, found to be necessary and proper in the public interest or to avoid serious impairment of the conduct of Government business:

(1) Apprentices, student-learners, and workers whose earning capacity is impaired by age, physical or mental deficiency, or injury may be employed at wages lower than the minimum wages otherwise required by section 2(a)(1) or 2(b)(1) of the Act without diminishing any fringe benefits or cash payments in lieu thereof required under section 2(a)(2) of the Act, in accordance with the conditions and procedures prescribed for the employment of apprentices, student-learners, handicapped persons, and handicapped clients of sheltered workshops under section 14 of the Fair Labor Standards Act of 1938, in the regulations issued by the Administrator (29 CFR Parts 520, 521, 524, and 525).

(2) The Administrator will issue certificates under the Act for the employment of apprentices, student-learners, handicapped persons, or handicapped clients of sheltered workshops not subject to the Fair Labor Standards Act of 1938, or subject to different minimum rates of pay under the two acts, authorizing appropriate rates of minimum wages (but without changing requirements concerning fringe benefits or supplementary cash payments in lieu thereof), applying procedures prescribed by the applicable regulations issued under the Fair Labor Standards Act of 1938 (29 CFR Parts 520, 521, 524, and 525).

(3) The Administrator will also withdraw, annul, or cancel such certificates in accordance with the regulations in 29 CFR Parts 525 and 528.

(r) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed and individually registered in a bona fide apprenticeship program registered with a State Apprenticeship Agency which is recognized by the U.S. Department of Labor, or if no such recognized agency exists in a State, under a program registered with the Bureau of Apprenticeship and Training, Employment and Training Administration, U.S. Department of Labor. Any employee who is not registered as an apprentice in an approved program shall be paid the wage rate and fringe benefits contained in the applicable wage determination for the journeyman classification of work actually performed. The wage rates paid apprentices shall not be less than the wage rate for their level of progress set forth in the registered program, expressed as the appropriate percentage of the journeyman's rate contained in the applicable wage determination. The allowable ratio of apprentices to journeymen employed on the contract work in any craft classification shall not be greater than the ratio permitted to the Contractor as to his entire work force under the registered program.

(s) Tips. An employee engaged in an occupation in which the employee customarily and regularly receives more than $30 a month in tips may have the amount of these tips credited by the employer against the minimum wage required by section 2(a)(1) or section 2(b)(1) of the Act, in accordance with section 3(m) of the Fair Labor Standards Act and Regulations, 29 CFR Part 531. However, the amount of credit shall not exceed $1.34 per hour beginning January 1, 1981. To use this provision--

(1) The employer must inform tipped employees about this tip credit allowance before the credit is utilized;

(2) The employees must be allowed to retain all tips (individually or through a pooling arrangement and regardless of whether the employer elects to take a credit for tips received);

(3) The employer must be able to show by records that the employee receives at least the applicable Service Contract Act minimum wage through the combination of direct wages and tip credit; and

(4) The use of such tip credit must have been permitted under any predecessor collective bargaining agreement applicable by virtue of section 4(c) of the Act.

Disputes Concerning Labor Standards. The U.S. Department of Labor has set forth in 29 CFR Parts 4, 6, and 8 procedures for resolving disputes concerning labor standards requirements. Such disputes shall be resolved in accordance with those procedures and not the Disputes clause of this contract. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(End of clause)

52.222-42 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (MAY 1989)

In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR Part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332.

THIS STATEMENT IS FOR INFORMATION ONLY: IT IS NOT A WAGE DETERMINATION

Employee Class	Monetary Wage-Fringe Benefits
General Clerk IV	$10.91
Secretary V	$16.74
Civil Engineer Technician	$15.12
Engineering Technician I	$ 9.72

(End of clause)

52.222-44 FAIR LABOR STANDARDS ACT AND SERVICE CONTRACT ACT--PRICE ADJUSTMENT (FEB 2002)

(a) This clause applies to both contracts subject to area prevailing wage determinations and contracts subject to Contractor collective bargaining agreements.

(b) The Contractor warrants that the prices in this contract do not include any allowance for any contingency to cover increased costs for which adjustment is provided under this clause.

(c) The contract price or contract unit price labor rates will be adjusted to reflect increases or decreases by the Contractor in wages and fringe benefits to the extent that these increases or decreases are made to comply with--

(1) An increased or decreased wage determination applied to this contract by operation of law; or

(2) An amendment to the Fair Labor Standards Act of 1938 that is enacted subsequent to award of this contract, affects the minimum wage, and becomes applicable to this contract under law.

(d) Any such adjustment will be limited to increases or decreases in wages and fringe benefits as described in paragraph (c) of this clause, and to the accompanying increases or decreases in social security and unemployment taxes and workers' compensation insurance; it shall not otherwise include any amount for general and administrative costs, overhead, or profit.

(e) The Contractor shall notify the Contracting Officer of any increase claimed under this clause within 30 days after the effective date of the wage change, unless this period is extended by the Contracting Officer in writing. The Contractor shall promptly notify the Contracting Officer of any decrease under this clause, but nothing in the clause shall preclude the Government from asserting a claim within the period permitted by law. The notice shall contain a statement of the amount claimed and any relevant supporting data that the Contracting Officer may reasonably require. Upon agreement of the parties, the contract price or contract unit price labor rates shall be modified in writing. The Contractor shall continue performance pending agreement on or determination of any such adjustment and its effective date.

(f) The Contracting Officer or an authorized representative shall, until the expiration of 3 years after final payment under the contract, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Contractor.

(End of clause)

52.223-5 POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION (APR 1998)

(a) Executive Order 12856 of August 3, 1993, requires Federal facilities to comply with the provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)(42 U.S.C. 11001-11050) and the Pollution Prevention Act of 1990 (PPA)(42 U.S.C. 13101-13109).

(b) The Contractor shall provide all information needed by the Federal facility to comply with the emergency planning reporting requirements of Section 302 of EPCRA; the emergency notice requirements of Section 304 of EPCRA; the list of Material Safety Data Sheets required by Section 311 of EPCRA; the emergency and hazardous chemical inventory forms of Section 312 of EPCRA; the toxic chemical release inventory of Section 313 of EPCRA, which includes the reduction and recycling information required by Section 6607 of PPA; and the toxic chemical reduction goals requirements of Section 3-302 of Executive Order 12856.

(End of clause)

52.223-6 DRUG-FREE WORKPLACE (MAY 2001)

(a) Definitions. As used in this clause --

"Controlled substance" means a controlled substance in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812) and as further defined in regulation at 21 CFR 1308.11 - 1308.15.

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to deter- mine violations of the Federal or State criminal drug statutes.

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution,

dispensing, possession, or use of any controlled substance.

"Drug-free workplace" means the site(s) for the performance of work done by the Contractor in connection with a specific contract at which employees of the Contractor are prohibited from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.

"Employee" means an employee of a Contractor directly engaged in the performance of work under a Government contract. "Directly engaged" is defined to include all direct cost employees and any other Contractor employee who has other than a minimal impact or involvement in contract performance.

"Individual" means an offeror/contractor that has no more than one employee including the offeror/contractor.

(b) The Contractor, if other than an individual, shall-- within 30 days after award (unless a longer period is agreed to in writing for contracts of 30 days or more performance duration), or as soon as possible for contracts of less than 30 days performance duration--

(1) Publish a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(2) Establish an ongoing drug-free awareness program to inform such employees about--

(i) The dangers of drug abuse in the workplace;

(ii) The Contractor's policy of maintaining a drug-free workplace;

(iii) Any available drug counseling, rehabilitation, and employee assistance programs; and

(iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(3) Provide all employees engaged in performance of the contract with a copy of the statement required by subparagraph (b)(1) of this clause;

(4) Notify such employees in writing in the statement required by subparagraph (b)(1) of this clause that, as a condition of continued employment on this contract, the employee will--

(i) Abide by the terms of the statement; and

(ii) Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction.

(5) Notify the Contracting Officer in writing within 10 days after receiving notice under subdivision (b)(4)(ii) of this clause, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;

(6) Within 30 days after receiving notice under subdivision (b)(4)(ii) of this clause of a conviction, take one of the following actions with respect to any employee who is convicted of a drug abuse violation occurring in the workplace:

(i) Taking appropriate personnel action against such employee, up to and including termination; or

(ii) Require such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency; and

(7) Make a good faith effort to maintain a drug-free workplace through implementation of subparagraphs (b)(1) though (b)(6) of this clause.

(c) The Contractor, if an individual, agrees by award of the contract or acceptance of a purchase order, not to engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance while performing this contract.

(d) In addition to other remedies available to the Government, the Contractor's failure to comply with the requirements of paragraph (b) or (c) of this clause may, pursuant to FAR 23.506, render the Contractor subject to suspension of contract payments, termination of the contract for default, and suspension or debarment.

(End of clause)

52.223-14 TOXIC CHEMICAL RELEASE REPORTING (JUN 2003)

(a) Unless otherwise exempt, the Contractor, as owner or operator of a facility used in the performance of this contract, shall file by July 1 for the prior calendar year an annual Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023(a) and (g)), and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106). The Contractor shall file, for each facility subject to the Form R filing and reporting requirements, the annual Form R throughout the life of the contract.

(b) A Contractor-owned or -operated facility used in the performance of this contract is exempt from the requirement to file an annual Form R if--

(1) The facility does not manufacture, process, or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

(2) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);

(3) The facility does not meet the reporting thresholds of toxic chemicals established under of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

(4) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

(5) The facility is not located in the United States or its outlying areas.

(c) If the Contractor has certified to an exemption in accordance with one or more of the criteria in paragraph (b) of this clause, and after award of the contract circumstances change so that any of its owned or operated facilities used in the performance of this contract is no longer exempt--

(1) The Contractor shall notify the Contracting Officer; and

(2) The Contractor, as owner or operator of a facility used in the performance of this contract that is no longer exempt, shall (i) submit a Toxic Chemical Release Inventory Form (Form R) on or before July 1 for the prior calendar year during which the facility becomes eligible; and (ii) continue to file the annual Form R for the life of the contract for such facility.

(d) The Contracting Officer may terminate this contract or take other action as appropriate, if the Contractor fails to comply accurately and fully with the EPCRA and PPA toxic chemical release filing and reporting requirements.

(e) Except for acquisitions of commercial items, as defined in FAR Part 2, the Contractor shall--

(1) For competitive subcontracts expected to exceed $100,000 (including all options), include a solicitation provision substantially the same as the provision at FAR 52.223-13, Certification of Toxic Chemical Release Reporting; and

(2) Include in any resultant subcontract exceeding $100,000 (including all options), the substance of this clause, except this paragraph (e).

(End of clause)

52.225-11 BUY AMERICAN ACT --CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (JUN 2003) ALTERNATE I (MAY 2002)

(a) Definitions. As used in this clause--

Component means an article, material, or supply incorporated directly into a construction material.

Construction material means an article, material, or supply brought to the construction site by the Contractor or subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means--

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

Designated country means any of the following countries: Aruba, Austria, Bangladesh, Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark, Djibouti, Equatorial Guinea, Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Kiribati, Korea, Republic of, Lesotho, Liechtenstein, Luxembourg, Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda, Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

Designated country construction material means a construction material that--

(1) Is wholly the growth, product, or manufacture of a designated country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different construction material distinct from the materials from which it was transformed.

Domestic construction material means--

(1) An unmanufactured construction material mined or produced in the United States; or

(2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

Foreign construction material means a construction material other than a domestic construction material.

United States means the 50 States, the District of Columbia, and outlying areas.

(b) Construction materials. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) by providing a preference for domestic construction material. In addition, the Contracting Officer has determined that the Trade Agreements Act applies to this acquisition. Therefore, the Buy American Act restrictions are waived for designated country construction materials.

(2) The Contractor shall use only domestic or designated country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows: None

(4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) of this clause if the Government determines that--

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the restrictions of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act. (1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this
clause.

(3) Unless the Government determines that an exception to the Buy American Act applies, use of foreign construction material is noncompliant with the Buy American Act.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\
Item 1:			
Foreign construction material....	.....	.....	.....
Domestic construction material...	.....	.....	.....
Item 2:			
Foreign construction material....	.....	.....	.....
Domestic construction material...	.....	.....	.....

\1\ Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).
List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.
Include other applicable supporting information.

(End of clause)

52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (JUN 2003)

(a) The Contractor shall not acquire, for use in the performance of this contract, any supplies or services originating from sources within, or that were located in or transported from or through, countries whose products are banned

from importation into the United States and its outlying areas under regulations of the Office of Foreign Assets Control, Department of the Treasury. Those countries are Cuba, Iran, Iraq, Libya, North Korea, Sudan, the territory of Afghanistan controlled by the Taliban, and Serbia (excluding the territory of Kosovo).

(b) The Contractor shall not acquire for use in the performance of this contract any supplies or services from entities controlled by the government of Iraq.

(c) The Contractor shall insert this clause, including this paragraph (c), in all subcontracts.

(End of clause)

52.227-1 AUTHORIZATION AND CONSENT (JUL 1995)

(a) The Government authorizes and consents to all use and manufacture, in performing this contract or any subcontract at any tier, of any invention described in and covered by a United States patent (1) embodied in the structure or composition of any article the delivery of which is accepted by the Government under this contract or (2) used in machinery, tools, or methods whose use necessarily results from compliance by the Contractor or a subcontractor with (i) specifications or written provisions forming a part of this contract or (ii) specific written instructions given by the Contracting Officer directing the manner of performance. The entire liability to the Government for infringement of a patent of the United States shall be determined solely by the provisions of the indemnity clause, if any, included in this contract or any subcontract hereunder (including any lower-tier subcontract), and the Government assumes liability for all other infringement to the extent of the authorization and consent hereinabove granted.

(b) The Contractor agrees to include, and require inclusion of, this clause, suitably modified to identify the parties, in all subcontracts at any tier for supplies or services (including construction, architect-engineer services, and materials, supplies, models, samples, and design or testing services expected to exceed the simplified acquisition threshold (however, omission of this clause from any subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.)

(End of clause)

52.227-2 NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (AUG 1996)

(a) The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.

(b) In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to the Government, when requested by the Contracting Officer, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Contractor has agreed to indemnify the Government.

(ix) The Contractor agrees to include, and require inclusion of, this clause in all subcontracts at any tier for supplies or services (including construction and architect-engineer subcontracts and those for material, supplies, models,

samples, or design or testing services) expected to exceed the simplified acquisition threshold at (FAR) 2.101.to exceed the dollar amount set forth in 13.000 of the Federal Acquisition Regulation (FAR).

(End of clause)

52.227-4 PATENT INDEMNITY--CONSTRUCTION CONTRACTS (APR 1984)

Except as otherwise provided, the Contractor agrees to indemnify the Government and its officers, agents, and employees against liability, including costs and expenses, for infringement upon any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a Secrecy Order under 35 U.S.C. 181) arising out of performing this contract or out of the use or disposal by or for the account of the Government of supplies furnished or work performed under this contract.

(End of clause)

52.228-1 BID GUARANTEE (SEP 1996)

(a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(b) The bidder shall furnish a bid guarantee in the form of a firm commitment, e.g., bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.-

(c) The amount of the bid guarantee shall be twenty (20%) percent of the bid price or $3,000,000.00, whichever is less.-

(d) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or furnish executed bond(s) within 10 days after receipt of the forms by the bidder, the Contracting Officer may terminate the contract for default.-

(e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

(End of clause)

52.228-2 ADDITIONAL BOND SECURITY (OCT 1997)

The Contractor shall promptly furnish additional security required to protect the Government and persons supplying labor or materials under this contract if--

(a) Any surety upon any bond, or issuing financial institution for other security, furnished with this contract becomes unacceptable to the Government.

(b) Any surety fails to furnish reports on its financial condition as required by the Government;

(c) The contract price is increased so that the penal sum of any bond becomes inadequate in the opinion of the Contracting Officer; or

(d) An irrevocable letter of credit (ILC) used as security will expire before the end of the period of required security. If the Contractor does not furnish an acceptable extension or replacement ILC, or other acceptable substitute, at least 30 days before an ILC's scheduled expiration, the Contracting officer has the right to immediately draw on the ILC.

(End of clause)

52.228-5 INSURANCE--WORK ON A GOVERNMENT INSTALLATION (JAN 1997)

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.

(b) Before commencing work under this contract, the Contractor shall notify the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contract is to be performed prescribe, or (2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

(End of clause)

52.228-11 PLEDGES OF ASSETS (FEB 1992)

(a) Offerors shall obtain from each person acting as an individual surety on a bid guarantee, a performance bond, or a payment bond--

(1) Pledge of assets; and

(2) Standard Form 28, Affidavit of Individual Surety.

(b) Pledges of assets from each person acting as an individual surety shall be in the form of--

(1) Evidence of an escrow account containing cash, certificates of deposit, commercial or Government securities, or other assets described in FAR 28.203-2 (except see 28.203-2(b)(2) with respect to Government securities held in book entry form) and/or;

(2) A recorded lien on real estate. The offeror will be required to provide--

(i) Evidence of title in the form of a certificate of title prepared by a title insurance company approved by the United States Department of Justice. This title evidence must show fee simple title vested in the surety along with any concurrent owners; whether any real estate taxes are due and payable; and any recorded encumbrances against the property, including the lien filed in favor of the Government as required by FAR 28.203-3(d);

(ii) Evidence of the amount due under any encumbrance shown in the evidence of title;

(iii) A copy of the current real estate tax assessment of the property or a current appraisal dated no earlier than 6 months prior to the date of the bond, prepared by a professional appraiser who certifies that the appraisal has been conducted in accordance with the generally accepted appraisal standards as reflected in the Uniform Standards of Professional Appraisal Practice, as promulgated by the Appraisal Foundation.

(End of clause)

52.228-12 PROSPECTIVE SUBCONTRACTOR REQUESTS FOR BONDS. (OCT 1995)

In accordance with Section 806(a)(3) of Pub. L. 102-190, as amended by Sections 2091 and 8105 of Pub. L. 103-355, upon the request of a prospective subcontractor or supplier offering to furnish labor or material for the performance of this contract for which a payment bond has been furnished to the Government pursuant to the Miller Act, the Contractor shall promptly provide a copy of such payment bond to the requester.

(End of clause)

52.228-14 IRREVOCABLE LETTER OF CREDIT (DEC 1999)

(a) “Irrevocable letter of credit” (ILC), as used in this clause, means a written commitment by a federally insured financial institution to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Government (the beneficiary) of a written demand therefor. Neither the financial institution nor the offeror/Contractor can revoke or condition the letter of credit.

(b) If the offeror intends to use an ILC in lieu of a bid bond, or to secure other types of bonds such as performance and payment bonds, the letter of credit and letter of confirmation formats in paragraphs (e) and (f) of this clause shall be used.

(c) The letter of credit shall be irrevocable, shall require presentation of no document other than a written demand and the ILC (including confirming letter, if any), shall be issued/confirmed by an acceptable federally insured financial institution as provided in paragraph (d) of this clause, and--

(1) If used as a bid guarantee, the ILC shall expire no earlier than 60 days after the close of the bid acceptance period;

(2) If used as an alternative to corporate or individual sureties as security for a performance or payment bond, the offeror/Contractor may submit an ILC with an initial expiration date estimated to cover the entire period for which financial security is required or may submit an ILC with an initial expiration date that is a minimum period of one year from the date of issuance. The ILC shall provide that, unless the issuer provides the beneficiary written notice of non-renewal at least 60 days in advance of the current expiration date, the ILC is automatically extended without amendment for one year from the expiration date, or any future expiration date, until the period of required coverage is completed and the Contracting Officer provides the financial institution with a written statement waiving the right to payment. The period of required coverage shall be:

(i) For contracts subject to the Miller Act, the later of--

(A) One year following the expected date of final payment;

(B) For performance bonds only, until completion of any warranty period; or

(C) For payment bonds only, until resolution of all claims filed against the payment bond during the one-year period following final payment.

(ii) For contracts not subject to the Miller Act, the later of--

(A) 90 days following final payment; or

(B) For performance bonds only, until completion of any warranty period.

(d) Only federally insured financial institutions rated investment grade or higher shall issue or confirm the ILC. The offeror/Contractor shall provide the Contracting Officer a credit rating that indicates the financial institution has the required rating(s) as of the date of issuance of the ILC. Unless the financial institution issuing the ILC had letter of credit business of less than $25 million in the past year, ILCs over $5 million must be confirmed by another acceptable financial institution that had letter of credit business of less than $25 million in the past year.

(e) The following format shall be used by the issuing financial institution to create an ILC:

_____

[Issuing Financial Institution's Letterhead or Name and Address]

Issue Date _____

IRREVOCABLE LETTER OF CREDIT NO. _____

Account party's name _____

Account party's address _____

For Solicitation No. _____(for reference only)

TO: [U.S. Government agency]

[U.S. Government agency's address]

1. We hereby establish this irrevocable and transferable Letter of Credit in your favor for one or more drawings up to United States $_____. This Letter of Credit is payable at [issuing financial institution's and, if any, confirming financial institution's] office at [issuing financial institution's address and, if any, confirming financial institution's address] and expires with our close of business on _____, or any automatically extended expiration date.

2. We hereby undertake to honor your or the transferee's sight draft(s) drawn on the issuing or, if any, the confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

3. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year from the expiration date hereof, or any future expiration date, unless at least 60 days prior to any expiration date, we notify you or the transferee by registered mail, or other receipted means of delivery, that we elect not to consider this Letter of Credit renewed for any such additional period. At the time we notify you, we also agree to notify the account party (and confirming financial institution, if any) by the same means of delivery.

4. This Letter of Credit is transferable. Transfers and assignments of proceeds are to be effected without charge to either the beneficiary or the transferee/assignee of proceeds. Such transfer or assignment shall be only at the written

direction of the Government (the beneficiary) in a form satisfactory to the issuing financial institution and the confirming financial institution, if any.

5. This Letter of Credit is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution, if any, otherwise state of issuing financial institution].

6. If this credit expires during an interruption of business of this financial institution as described in Article 17 of the UCP, the financial institution specifically agrees to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

_____

[Issuing financial institution]

(f) The following format shall be used by the financial institution to confirm an ILC:

_____
[Confirming Financial Institution's Letterhead or Name and Address]

(Date) _____

Our Letter of Credit Advice Number _____

Beneficiary: _____ [U.S. Government agency]

Issuing Financial Institution: _____

Issuing Financial Institution's LC No.: _____

Gentlemen:

1. We hereby confirm the above indicated Letter of Credit, the original of which is attached, issued by _____ [name of issuing financial institution] for drawings of up to United States dollars _____/U.S. $_____ and expiring with our close of business on _____ [the expiration date], or any automatically extended expiration date.

2. Draft(s) drawn under the Letter of Credit and this Confirmation are payable at our office located at _____.

3. We hereby undertake to honor sight draft(s) drawn under and presented with the Letter of Credit and this Confirmation at our offices as specified herein.

4. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this confirmation that it be deemed automatically extended without amendment for one year from the expiration date hereof, or any automatically extended expiration date, unless:

(a) At least 60 days prior to any such expiration date, we shall notify the Contracting Officer, or the transferee and the issuing financial institution, by registered mail or other receipted means of delivery, that we elect not to consider this confirmation extended for any such additional period; or

(b) The issuing financial institution shall have exercised its right to notify you or the transferee, the account party, and ourselves, of its election not to extend the expiration date of the Letter of Credit.

5. This confirmation is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution].

6. If this confirmation expires during an interruption of business of this financial institution as described in Article 17 of the UCP, we specifically agree to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

_____

[Confirming financial institution]

(g) The following format shall be used by the Contracting Officer for a sight draft to draw on the Letter of Credit:

SIGHT DRAFT

_____

[City, State]

(Date) _____

[Name and address of financial institution]

Pay to the order of _____ [Beneficiary Agency] _____ the sum of United States $_____.
This draft is drawn under Irrevocable Letter of Credit No. _____.

_____

[Beneficiary Agency]

By: _____

(End of clause)

52.228-15 PERFORMANCE AND PAYMENT BONDS--CONSTRUCTION (JUL 2000)-

(a) Definitions. As used in this clause--

Original contract price means the award price of the contract; or, for requirements contracts, the price payable for the estimated total quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) Amount of required bonds. Unless the resulting contract price is $100,000 or less, the successful offeror shall furnish performance and payment bonds to the Contracting Officer as follows:

(1) Performance bonds (Standard Form 25). The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) Payment Bonds (Standard Form 25-A). The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

(3) Additional bond protection. (i) The Government may require additional performance and payment bond protection if the contract price is increased. The increase in protection generally will equal 100 percent of the increase in contract price.

(ii) The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) Furnishing executed bonds. The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within the time period specified in the Bid Guarantee provision of the solicitation, or otherwise specified by the Contracting Officer, but in any event, before starting work.

(d) Surety or other security for bonds. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register or may be obtained from the U.S. Department of Treasury, Financial Management Service, Surety Bond Branch, 401 14th Street, NW, 2nd Floor, West Wing, Washington, DC 20227.

(e) Notice of subcontractor waiver of protection (40 U.S.C. 270b(c). Any waiver of the right to sue on the payment bond is void unless it is in writing, signed by the person whose right is waived, and executed after such person has first furnished labor or material for use in the performance of the contract.

(End of clause)

52.229-2 NORTH CAROLINA STATE AND LOCAL SALES AND USE TAX (APR 1984)

(a) "Materials," as used in this clause, means building materials, supplies, fixtures, and equipment that become a part of or are annexed to any building or structure erected, altered, or repaired under this contract.

(b) If this is a fixed-price contract, the contract price includes North Carolina State and local sales and use taxes to be paid on materials, notwithstanding any other provision of this contract. If this is a cost-reimbursement contract, any North Carolina State and local sales and use taxes paid by the Contractor on materials shall constitute an allowable cost under this contract.

(c) At the time specified in paragraph (d) below, the Contractor shall furnish the Contracting Officer certified statements setting forth the cost of the materials purchased from each vendor and the amount of North Carolina State and local sales and use taxes paid. In the event the Contractor makes several purchases from the same vendor, the certified statement shall indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices, and the North Carolina State and local sales and use taxes paid. The statement shall also include the cost of any tangible personal property withdrawn from the Contractor's warehouse stock and the amount of North Carolina State and local sales or use tax paid on this property by the Contractor. Any local sales or use taxes included in the Contractor's statements must be shown separately from the State sales or use taxes. The Contractor shall furnish any additional information the Commissioner of Revenue of the State of North Carolina may require to substantiate a refund claim for sales or use taxes. The Contractor shall also obtain and furnish to the Contracting Officer similar certified statements by its subcontractors.

(d) If this contract is completed before the next October 1, the certified statements to be furnished pursuant to paragraph (c) above shall be submitted within 60 days after completion. If this contract is not completed before the next October 1, the certified statements shall be submitted on or before November 30 of each year and shall cover taxes paid during the 12-month period that ended the preceding September 30.

(e) The certified statements to be furnished pursuant to paragraph (c) above shall be in the following form: I hereby certify that during the period . . . . to . . . .[insert dates], ... [insert name of Contractor or subcontractor] paid North Carolina State and local sales and use taxes aggregating $ . . . . (State) and $ . . . . (local), with respect to building materials, supplies, fixtures, and equipment that have become a part of or annexed to a building or structure erected, altered, or repaired by . . . . [insert name of Contractor or subcontractor] for the United States of America, and that the vendors from whom the property was purchased, the dates and numbers of the invoices covering the purchases, the total amount of the invoices of each vendor, the North Carolina State and local sales and use taxes paid on the property (shown separately), and the cost of property withdrawn from warehouse stock and North Carolina State and local sales or use taxes paid on this property are as set forth in the attachments.

(End of clause)

52.229-3 FEDERAL, STATE, AND LOCAL TAXES (APR 2003)

(a) As used in this clause--

"Contract date" means the date set for bid opening or, if this is a negotiated contract or a modification, the effective date of this contract or modification.

"All applicable Federal, State, and local taxes and duties" means all taxes and duties, in effect on the contract date, that the taxing authority is imposing and collecting on the transactions or property covered by this contract.

"After-imposed Federal tax" means any new or increased Federal excise tax or duty, or tax that was exempted or excluded on the contract date but whose exemption was later revoked or reduced during the contract period, on the transactions or property covered by this contract that the Contractor is required to pay or bear as the result of legislative, judicial, or administrative action taking effect after the contract date. It does not include social security tax or other employment taxes.

"After-relieved Federal tax" means any amount of Federal excise tax or duty, except social security or other employment taxes, that would otherwise have been payable on the transactions or property covered by this contract, but which the Contractor is not required to pay or bear, or for which the Contractor obtains a refund or drawback, as the result of legislative, judicial, or administrative action taking effect after the contract date.

Local taxes includes taxes imposed by a possession or territory of the United States, Puerto Rico, or the Northern Mariana Islands, if the contract is performed wholly or partly in any of those areas.

(b) The contract price includes all applicable Federal, State, and local taxes and duties.

(c) The contract price shall be increased by the amount of any after-imposed Federal tax, provided the Contractor warrants in writing that no amount for such newly imposed Federal excise tax or duty or rate increase was included in the contract price, as a contingency reserve or otherwise.

(d) The contract price shall be decreased by the amount of any after-relieved Federal tax.

(e) The contract price shall be decreased by the amount of any Federal excise tax or duty, except social security or other employment taxes, that the Contractor is required to pay or bear, or does not obtain a refund of, through the Contractor's fault, negligence, or failure to follow instructions of the Contracting Officer.

(f) No adjustment shall be made in the contract price under this clause unless the amount of the adjustment exceeds $250.

(g) The Contractor shall promptly notify the Contracting Officer of all matters relating to any Federal excise tax or duty that reasonably may be expected to result in either an increase or decrease in the contract price and shall take appropriate action as the Contracting Officer directs.

(h) The Government shall, without liability, furnish evidence appropriate to establish exemption from any Federal, State, or local tax when the Contractor requests such evidence and a reasonable basis exists to sustain the exemption.

(End of clause)

52.232-5 PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (SEP 2002)

(a) Payment of price. The Government shall pay the Contractor the contract price as provided in this contract.

(b) Progress payments. The Government shall make progress payments monthly as the work proceeds, or at more frequent intervals as determined by the Contracting Officer, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer.

(1) The Contractor's request for progress payments shall include the following substantiation:

(i) An itemization of the amounts requested, related to the various elements of work required by the contract covered by the payment requested.

(ii) A listing of the amount included for work performed by each subcontractor under the contract.

(iii) A listing of the total amount of each subcontract under the contract.

(iv) A listing of the amounts previously paid to each such subcontractor under the contract.

(v) Additional supporting data in a form and detail required by the Contracting Officer.

(2) In the preparation of estimates, the Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site also may be taken into consideration if--

(i) Consideration is specifically authorized by this contract; and

(ii) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(c) Contractor certification. Along with each request for progress payments, the Contractor shall furnish the following certification, or payment shall not be made: (However, if the Contractor elects to delete paragraph (c)(4) from the certification, the certification is still acceptable.)

I hereby certify, to the best of my knowledge and belief, that--

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) All payments due to subcontractors and suppliers from previous payments received under the contract have been made, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of chapter 39 of Title 31, United States Code;

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract; and

(4) This certification is not to be construed as final acceptance of a subcontractor's performance.

_____

(Name)

_____

(Title)

_____

(Date)

(d) Refund of unearned amounts. If the Contractor, after making a certified request for progress payments, discovers that a portion or all of such request constitutes a payment for performance by the Contractor that fails to conform to the specifications, terms, and conditions of this contract (hereinafter referred to as the "unearned amount"), the Contractor shall--

(1) Notify the Contracting Officer of such performance deficiency; and

(2) Be obligated to pay the Government an amount (computed by the Contracting Officer in the manner provided in paragraph (j) of this clause) equal to interest on the unearned amount from the 8th day after the date of receipt of the unearned amount until--

(i) The date the Contractor notifies the Contracting Officer that the performance deficiency has been corrected; or

(ii) The date the Contractor reduces the amount of any subsequent certified request for progress payments by an amount equal to the unearned amount.

(e) Retainage. If the Contracting Officer finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Contracting Officer shall authorize payment to be made in full. However, if satisfactory progress has not been made, the Contracting Officer may retain a maximum of 10 percent of the amount of the payment until satisfactory progress is achieved. When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds. Also, on completion and acceptance of each separate building, public work, or other division of the contract, for which the price is stated separately in the contract, payment shall be made for the completed work without retention of a percentage.

(f) Title, liability, and reservation of rights. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as--

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

(g) Reimbursement for bond premiums. In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety. The retainage provisions in paragraph (e) of this clause shall not apply to that portion of progress payments attributable to bond premiums.

(h) Final payment. The Government shall pay the amount due the Contractor under this contract after--

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against
the Government arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned under the Assignment of Claims Act of 1940 (31 U.S.C. 3727 and 41 U.S.C. 15).

(i) Limitation because of undefinitized work. Notwithstanding any provision of this contract, progress payments shall not exceed 80 percent on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

(j) Interest computation on unearned amounts. In accordance with 31 U.S.C. 3903(c)(1), the amount payable under subparagraph (d)(2) of this clause shall be--

(1) Computed at the rate of average bond equivalent rates of 91-day Treasury bills auctioned at the most recent auction of such bills prior to the date the Contractor receives the unearned amount; and

(2) Deducted from the next available payment to the Contractor.

(End of clause)

52.232-10 PAYMENTS UNDER FIXED-PRICE ARCHITECT-ENGINEER CONTRACTS (AUG 1987)

(a) Estimates shall be made monthly of the amount and value of the work and services performed by the Contractor under this contract which meet the standards of quality established under this contract. The estimates shall be prepared by the Contractor and accompanied by any supporting data required by the Contracting Officer.

(b) Upon approval of the estimate by the Contracting Officer, payment upon properly executed vouchers shall be made to the Contractor, as soon as practicable, of 90 percent of the approved amount, less all previous payments; provided, that payment may be made in full during any months in which the Contracting Officer determines that performance has been satisfactory. Also, whenever the Contracting Officer determines that the work is substantially complete and that the amount retained is in excess of the amount adequate for the protection of the Government, the Contracting Officer may release the excess amount to the Contractor.

(c) Upon satisfactory completion by the Contractor and acceptance by the Contracting Officer of the work done by the Contractor under the "Statement of Architect-Engineer Services", the Contractor will be paid the unpaid balance of any money due for work under the statement, including retained percentages relating to this portion of the work. Upon satisfactory completion and final acceptance of the construction work, the Contractor shall be paid any unpaid

balance of money due under this contract.

(d) Before final payment under the contract, or before settlement upon termination of the contract, and as a condition precedent thereto, the Contractor shall execute and deliver to the Contracting Officer a release of all claims against the Government arising under or by virtue of this contract, other than any claims that are specifically excepted by the Contractor from the operation of the release in amounts stated in the release.

(e) Notwithstanding any other provision in this contract, and specifically paragraph (b) of this clause, progress payments shall not exceed 80 percent on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

(End of clause)

52.232-17 INTEREST (JUNE 1996)

(a) Except as otherwise provided in this contract under a Price Reduction for Defective Cost or Pricing Data clause or a Cost Accounting Standards clause, all amounts that become payable by the Contractor to the Government under this contract (net of any applicable tax credit under the Internal Revenue Code (26 U.S.C. 1481)) shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in Section 12 of the Contract Disputes Act of 1978 (Public Law 95-563), which is applicable to the period in which the amount becomes due, as provided in paragraph (b) of this clause, and then at the rate applicable for each six-month period as fixed by the Secretary until the amount is paid. reproduce, prepare derivative works, distribute copies to the public, and (b) Amounts shall be due at the earliest of the following dates:

(1) The date fixed under this contract.

(2) The date of the first written demand for payment consistent with this contract, including any demand resulting from a default termination.

(3) The date the Government transmits to the Contractor a proposed supplemental agreement to confirm completed negotiations establishing the amount of debt.

(4) If this contract provides for revision of prices, the date of written notice to the Contractor stating the amount of refund payable in connection with a pricing proposal or a negotiated pricing agreement not confirmed by contract modification.

(c) The interest charge made under this clause may be reduced under the procedures prescribed in 32.614-2 of the Federal Acquisition Regulation in effect on the date of this contract.

(End of clause)

52.232-18 AVAILABILITY OF FUNDS (APR 1984)

Funds are not presently available for this contract. The Government's obligation under this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Contracting Officer

for this contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer.

(End of clause)

52.232-23 ASSIGNMENT OF CLAIMS (JAN 1986)

(a) The Contractor, under the Assignment of Claims Act, as amended, 31 U.S.C. 3727, 41 U.S.C. 15 (hereafter referred to as "the Act"), may assign its rights to be paid amounts due or to become due as a result of the performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency. The assignee under such an assignment may thereafter further assign or reassign its right under the original assignment to any type of financing institution described in the preceding sentence.

(b) Any assignment or reassignment authorized under the Act and this clause shall cover all unpaid amounts payable under this contract, and shall not be made to more than one party, except that an assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in the financing of this contract.

(c) The Contractor shall not furnish or disclose to any assignee under this contract any classified document (including this contract) or information related to work under this contract until the Contracting Officer authorizes such action in writing.

(End of clause)

52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (FEB 2002)

Notwithstanding any other payment terms in this contract, the Government will make invoice payments under the terms and conditions specified in this clause. The Government considers payment as being made on the day a check is dated or the date of an electronic funds transfer. Definitions of pertinent terms are set forth in sections 2.101, 32.001, and 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see paragraph (a)(3) concerning payments due on Saturdays, Sundays, and legal holidays.)

(a) Invoice payments--(1) Types of invoice payments. For purposes of this clause, there are several types of invoice payments that may occur under this contract, as follows:

(i) Progress payments, if provided for elsewhere in this contract, based on Contracting Officer approval of the estimated amount and value of work or services performed, including payments for reaching milestones in any project.

(A) The due date for making such payments is 14 days after the designated billing office receives a proper payment request. If the designated billing office fails to annotate the payment request with the actual date of receipt at the time of receipt, the payment due date is the 14th day after the date of the Contractor's payment request, provided the designated billing office receives a proper payment request and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) The due date for payment of any amounts retained by the Contracting Officer in accordance with the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, is as specified in the contract or, if not specified, 30 days after approval by the Contracting Officer for release to the Contractor.

(ii) Final payments based on completion and acceptance of all work and presentation of release of all claims against the Government arising by virtue of the contract, and payments for partial deliveries that have been accepted by the Government (e.g., each separate building, public work, or other division of the contract for which the price is stated separately in the contract).

(A) The due date for making such payments is the later of the following two events:

(1) The 30th day after the designated billing office receives a proper invoice from the Contractor.

(2) The 30th day after Government acceptance of the work or services completed by the Contractor. For a final invoice when the payment amount is subject to contract settlement actions (e.g., release of claims), acceptance is deemed to occur on the effective date of the contract settlement.

(B) If the designated billing office fails to annotate the invoice with the date of actual receipt at the time of receipt, the invoice payment due date is the 30th day after the date of the Contractor's invoice, provided the designated billing office receives a proper invoice and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(2) Contractor's invoice. The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in paragraphs (a)(2)(i) through (a)(2)(xi) of this clause. If the invoice does not comply with these requirements, the designated billing office must return it within 7 days after receipt, with the reasons why it is not a proper invoice. When computing any interest penalty owed the Contractor, the Government will take into account if the Government notifies the Contractor of an improper invoice in an untimely manner.

(i) Name and address of the Contractor.

(ii) Invoice date and invoice number. (The Contractor should date invoices as close as possible to the date of mailing or transmission.)

(iii) Contract number or other authorization for work or services performed (including order number and contract line item number).

(iv) Description of work or services performed.

(v) Delivery and payment terms (e.g., discount for prompt payment terms).

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number, and mailing address of person to notify in the event of a defective invoice.

(viii) For payments described in paragraph (a)(1)(i) of this clause, substantiation of the amounts requested and certification in accordance with the requirements of the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts.

(ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(x) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision (e.g., 52.232-38, Submission of Electronic Funds Transfer Information with Offer), contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration, or 52.232-34, Payment by Electronic Funds Transfer--Other Than Central Contractor Registration), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(xi) Any other information or documentation required by the contract.

(3) Interest penalty. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if payment is not made by the due date and the conditions listed in paragraphs (a)(3)(i) through (a)(3)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday, the designated payment office may make payment on the following working day without incurring a late payment interest penalty.

(i) The designated billing office received a proper invoice.

(ii) The Government processed a receiving report or other Government documentation authorizing payment and there was no disagreement over quantity, quality, Contractor compliance with any contract term or condition, or requested progress payment amount.

(iii) In the case of a final invoice for any balance of funds due the Contractor for work or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(4) Computing penalty amount. The Government will compute the interest penalty in accordance with the Office of Management and Budget prompt payment regulations at 5 CFR part 1315.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor for payments described in paragraph (a)(1)(ii) of this clause, Government acceptance or approval is deemed to occur constructively on the 7th day after the Contractor has completed the work or services in accordance with the terms and conditions of the contract. If actual acceptance or approval occurs within the constructive acceptance or approval period, the Government will base the determination of an interest penalty on the actual date of acceptance or approval. Constructive acceptance or constructive approval requirements do not apply if there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. These requirements also do not compel Government officials to accept work or services, approve Contractor estimates, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The prompt payment regulations at 5 CFR 1315.10(c) do not require the Government to pay interest penalties if payment delays are due to disagreement between the Government and the Contractor over the payment amount or other issues involving contract compliance, or on amounts temporarily withheld or retained in accordance with the terms of the contract. The Government and the Contractor shall resolve claims involving disputes, and any interest that may be payable in accordance with the clause at FAR 52.233-1, Disputes.

(5) Discounts for prompt payment. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if the Government takes a discount for prompt payment improperly. The Government will calculate the interest penalty in accordance with the prompt payment regulations at 5 CFR part 1315.

(6) Additional interest penalty. (i) The designated payment office will pay a penalty amount, calculated in accordance with the prompt payment regulations at 5 CFR part 1315 in addition to the interest penalty amount only if--

(A) The Government owes an interest penalty of $1 or more;

(B) The designated payment office does not pay the interest penalty within 10 days after the date the invoice amount is paid; and

(C) The Contractor makes a written demand to the designated payment office for additional penalty payment, in accordance with paragraph (a)(6)(ii) of this clause, postmarked not later than 40 days after the date the invoice amount is paid.

(ii)(A) The Contractor shall support written demands for additional penalty payments with the following data. The Government will not request any additional data. The Contractor shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) If there is no postmark or the postmark is illegible--

(1) The designated payment office that receives the demand will annotate it with the date of receipt provided the demand is received on or before the 40th day after payment was made; or

(2) If the designated payment office fails to make the required annotation, the Government will determine the demand's validity based on the date the Contractor has placed on the demand, provided such date is no later than the 40th day after payment was made.

(b) Contract financing payments. If this contract provides for contract financing, the Government will make contract financing payments in accordance with the applicable contract financing clause.

(c) Subcontract clause requirements. The Contractor shall include in each subcontract for property or services (including a material supplier) for the purpose of performing this contract the following:

(1) Prompt payment for subcontractors. A payment clause that obligates the Contractor to pay the subcontractor for satisfactory performance under its subcontract not later than 7 days from receipt of payment out of such amounts as are paid to the Contractor under this contract.

(2) Interest for subcontractors. An interest penalty clause that obligates the Contractor to pay to the subcontractor an interest penalty for each payment not made in accordance with the payment clause--

(i) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and

(ii) Computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(3) Subcontractor clause flowdown. A clause requiring each subcontractor to use:

(i) Include a payment clause and an interest penalty clause conforming to the standards set forth in paragraphs (c)(1) and (c)(2) of this clause in each of its subcontracts; and

(ii) Require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

(d) Subcontract clause interpretation. The clauses required by paragraph (c) of this clause shall not be construed to impair the right of the Contractor or a subcontractor at any tier to negotiate, and to include in their subcontract, provisions that--

(1) Retainage permitted. Permit the Contractor or a subcontractor to retain (without cause) a specified percentage of each progress payment otherwise due to a subcontractor for satisfactory performance under the subcontract without incurring any obligation to pay a late payment interest penalty, in accordance with terms and conditions agreed to by the parties to the subcontract, giving such recognition as the parties deem appropriate to the ability of a subcontractor to furnish a performance bond and a payment bond;

(2) Withholding permitted. Permit the Contractor or subcontractor to make a determination that part or all of the subcontractor's request for payment may be withheld in accordance with the subcontract agreement; and

(3) Withholding requirements. Permit such withholding without incurring any obligation to pay a late payment penalty if--

(i) A notice conforming to the standards of paragraph (g) of this clause previously has been furnished to the subcontractor; and

(ii) The Contractor furnishes to the Contracting Officer a copy of any notice issued by a Contractor pursuant to paragraph (d)(3)(i) of this clause.

(e) Subcontractor withholding procedures. If a Contractor, after making a request for payment to the Government but before making a payment to a subcontractor for the subcontractor's performance covered by the payment request, discovers that all or a portion of the payment otherwise due such subcontractor is subject to withholding from the subcontractor in accordance with the subcontract agreement, then the Contractor shall--

(1) Subcontractor notice. Furnish to the subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon ascertaining the cause giving rise to a withholding, but prior to the due date for subcontractor payment;

(2) Contracting Officer notice. Furnish to the Contracting Officer, as soon as practicable, a copy of the notice furnished to the subcontractor pursuant to paragraph (e)(1) of this clause;

(3) Subcontractor progress payment reduction. Reduce the subcontractor's progress payment by an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (e)(1) of this clause;

(4) Subsequent subcontractor payment. Pay the subcontractor as soon as practicable after the correction of the identified subcontract performance deficiency, and--

(i) Make such payment within--

(A) Seven days after correction of the identified subcontract performance deficiency (unless the funds therefor must be recovered from the Government because of a reduction under paragraph
(e)(5)(i)) of this clause; or

(B) Seven days after the Contractor recovers such funds from the Government; or

(ii) Incur an obligation to pay a late payment interest penalty computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty;

(5) Notice to Contracting Officer. Notify the Contracting Officer upon--

(i) Reduction of the amount of any subsequent certified application for payment; or

(ii) Payment to the subcontractor of any withheld amounts of a progress payment, specifying--

(A) The amounts withheld under paragraph (e)(1) of this clause; and

(B) The dates that such withholding began and ended; and

(6) Interest to Government. Be obligated to pay to the Government an amount equal to interest on the withheld payments (computed in the manner provided in 31 U.S.C. 3903(c)(1)), from the 8th day after receipt of the withheld amounts from the Government until--

(i) The day the identified subcontractor performance deficiency is corrected; or

(ii) The date that any subsequent payment is reduced under paragraph (e)(5)(i) of this clause.

(f) Third-party deficiency reports--(1) Withholding from subcontractor. If a Contractor, after making payment to a first-tier subcontractor, receives from a supplier or subcontractor of the first-tier subcontractor (hereafter referred to as a “second-tier subcontractor”) a written notice in accordance with section 2 of the Act of August 24, 1935 (40 U.S.C. 270b, Miller Act), asserting a deficiency in such first-tier subcontractor's performance under the contract for which the Contractor may be ultimately liable, and the Contractor determines that all or a portion of future payments otherwise due such first-tier subcontractor is subject to withholding in accordance with the subcontract agreement, the Contractor may, without incurring an obligation to pay an interest penalty under paragraph (e)(6) of this clause--

(i) Furnish to the first-tier subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon making such determination; and

(ii) Withhold from the first-tier subcontractor's next available progress payment or payments an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (f)(1)(i) of this clause.

(2) Subsequent payment or interest charge. As soon as practicable, but not later than 7 days after receipt of satisfactory written notification that the identified subcontract performance deficiency has been corrected, the Contractor shall--

(i) Pay the amount withheld under paragraph (f)(1)(ii) of this clause to such first-tier subcontractor; or

(ii) Incur an obligation to pay a late payment interest penalty to such first-tier subcontractor computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts DisputesAct of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(g) Written notice of subcontractor withholding. The Contractor shall issue a written notice of any withholding to a subcontractor (with a copy furnished to the Contracting Officer), specifying--

(1) The amount to be withheld;

(2) The specific causes for the withholding under the terms of the subcontract; and

(3) The remedial actions to be taken by the subcontractor in order to receive payment of the amounts withheld.

(h) Subcontractor payment entitlement. The Contractor may not request payment from the Government of any amount withheld or retained in accordance with paragraph (d) of this clause until such time as the Contractor has determined and certified to the Contracting Officer that the subcontractor is entitled to the payment of such amount.

(i) Prime-subcontractor disputes. A dispute between the Contractor and subcontractor relating to the amount or entitlement of a subcontractor to a payment or a late payment interest penalty under a clause included in the subcontract pursuant to paragraph (c) of this clause does not constitute a dispute to which the Government is a party. The Government may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

(j) Preservation of prime-subcontractor rights. Except as provided in paragraph (i) of this clause, this clause shall not limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or a subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor or deficient subcontract performance or nonperformance by a subcontractor.

(k) Non-recourse for prime contractor interest penalty. The Contractor's obligation to pay an interest penalty to a subcontractor pursuant to the clauses included in a subcontract under paragraph (c) of this clause shall not be construed to be an obligation of the Government for such interest penalty. A cost-reimbursement claim may not include any amount for reimbursement of such interest penalty.

(l) Overpayments. If the Contractor becomes aware of a duplicate payment or that the Government has otherwise overpaid on an invoice payment, the Contractor shall immediately notify the Contracting Officer and request instructions for disposition of the overpayment.

(End of clause)

52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL CONTRACTOR REGISTRATION (MAY 1999)

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT), except as provided in paragraph (a)(2) of this clause. As used in this clause, the term “EFT” refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either--

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Contractor EFT arrangements. If the Contractor has identified multiple payment receiving points (i.e., more than one remittance address and/or EFT information set) in the CCR database, and the Contractor has not notified the Government of the payment receiving point applicable to this contract, the Government shall make payment to the first payment receiving point (EFT information set or remittance address as applicable) listed in the CCR database.

(f) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for--

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and--

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment, and the provisions of paragraph (d) of this clause shall apply.

(g) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(h) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall register in the CCR database and shall be paid by EFT in accordance with the terms of this clause. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(i) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information made by the Contractor's financial agent.

(j) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address contained in the CCR database.

(End of Clause)

52.233-1 DISPUTES. (JUL 2002)

(a) This contract is subject to the Contract Disputes Act of 1978, as amended (41 U.S.C. 601-613).

(b) Except as provided in the Act, all disputes arising under or relating to this contract shall be resolved under this clause.

(c) Claim, as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. However, a written demand or written assertion by the Contractor seeking the payment of money exceeding $100,000 is not a claim under the Act until certified. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(d)(1) A claim by the Contractor shall be made in writing and, unless otherwise stated in this contract, submitted within 6 years after accrual of the claim to the Contracting Officer for a written decision. A claim by the Government against the Contractor shall be subject to a written decision by the Contracting Officer.

(2)(i) The contractors shall provide the certification specified in subparagraph (d)(2)(iii) of this clause when submitting any claim -

(A) Exceeding $100,000; or

(B) Regardless of the amount claimed, when using -

(1) Arbitration conducted pursuant to 5 U.S.C. 575-580; or

(2) Any other alternative means of dispute resolution (ADR) technique that the agency elects to handle in accordance with the Administrative Dispute Resolution Act (ADRA).

(ii) The certification requirement does not apply to issues in controversy that have not been submitted as all or part of a claim.

(iii) The certification shall state as follows: "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable; and that I am duly authorized to certify the claim on behalf of the Contractor.

(3) The certification may be executed by any person duly authorized to bind the Contractor with respect to the claim.

(e) For Contractor claims of $100,000 or less, the Contracting Officer must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over $100,000, the Contracting Officer must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.

(f) The Contracting Officer's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) If the claim by the Contractor is submitted to the Contracting Officer or a claim by the Government is presented to the Contractor, the parties, by mutual consent, may agree to use alternative disput resolution (ADR). If the Contractor refuses an offer for ADR, the Contractor shall inform the Contracting Officer, in writing, of the Contractor's specific reasons for rejecting the request.

(h) The Government shall pay interest on the amount found due and unpaid from (1) the date the Contracting Officer

receives the claim (certified, if required); or (2) the date that payment otherwise would be due, if that date is later, until the date of payment. With regard to claims having defective certifications, as defined in (FAR) 48 CFR 33.201, interest shall be paid from the date that the Contracting Officer initially receives the claim. Simple interest on claims shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the Contracting Officer receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

(i) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the Contracting Officer.

(End of clause)

52.233-3 PROTEST AFTER AWARD (AUG. 1996)

(a) Upon receipt of a notice of protest (as defined in FAR 33.101) or a determination that a protest is likely (see FAR 33.102(d)), the Contracting Officer may, by written order to the Contractor, direct the Contractor to stop performance of the work called for by this contract. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Upon receipt of the final decision in the protest, the Contracting Officer shall either--

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled either before or after a final decision in the protest, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if--

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor asserts its right to an adjustment within 30 days after the end of the period of work stoppage; provided, that if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon a proposal at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

(d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

(e) The Government's rights to terminate this contract at any time are not affected by action taken under this clause.

(f) If, as the result of the Contractor's intentional or negligent misstatement, misrepresentation, or miscertification, a protest related to this contract is sustained, and the Government pays costs, as provided in FAR 33.102(b)(2) or 33.104(h)(1), the Government may require the Contractor to reimburse the Government the amount of such costs. In addition to any other remedy available, and pursuant to the requirements of Subpart 32.6, the Government may collect this debt by offsetting the amount against any payment due the Contractor under any contract between the

Contractor and the Government.

(End of clause)

52.236-2 DIFFERING SITE CONDITIONS (APR 1984)

As prescribed in 36.502, insert the following clause in solicitations and contracts when a fixed-price construction contract or a fixed-price dismantling, demolition, or removal of improvements contract is contemplated and the contract amount is expected to exceed the small purchase limitation. The Contracting Officer may insert the clause in solicitations and contracts when a fixed-price construction or a fixed-price contract for dismantling, demolition, or removal of improvements is contemplated and the contract amount is expected to be within the small purchase limitation.

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of

(1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or

(2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

(End of clause)

52.236-3 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984)

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to

(1) conditions bearing upon transportation, disposal, handling, and storage of materials;

(2) the availability of labor, water, electric power, and roads;

(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site;

(4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this

information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Government, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

(b) The Government assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Government. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

(End of clause)

52.236-5 MATERIAL AND WORKMANSHIP (APR 1984)

(a) All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. When directed to do so, the Contractor shall submit samples for approval at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(c) All work under this contract shall be performed in a skillful and workmanlike manner. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee the Contracting Officer deems incompetent, careless, or otherwise objectionable.

(End of clause)

52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984)

At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the worksite a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(End of clause)

52.236-7 PERMITS AND RESPONSIBILITIES (NOV 1991)

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(End of clause)

52.236-8 OTHER CONTRACTS (APR 1984)

The Government may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with Government employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by Government employees.

(End of clause)

52.236-9 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984)

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(b) The Contractor shall protect from damage all existing improvements and utilities

(1) at or near the work site, and

(2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

(End of clause)

52.236-10 OPERATIONS AND STORAGE AREAS (APR 1984)

(a) The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers

and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

(b) Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(c) The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

(End of clause)

52.236-11 USE AND POSSESSION PRIOR TO COMPLETION (APR 1984)

(a) The Government shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the Government intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Government's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the Government has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the work resulting from the Government's possession or use, notwithstanding the terms of the clause in this contract entitled "Permits and Responsibilities." If prior possession or use by the Government delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

(End of clause)

52.236-12 CLEANING UP (APR 1984)

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

(End of clause)

52.236-13 ACCIDENT PREVENTION (NOV 1991) – ALTERNATE I (NOV 1991)

(a) The Contractor shall provide and maintain work environments and procedures which will

(1) safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to

Contractor operations and activities;

(2) avoid interruptions of Government operations and delays in project completion dates; and

(3) control costs in the performance of this contract.

(b) For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall-

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910; and

(3) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

(x) If this contract is for construction or dismantling, demolition or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

? Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the Contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the Contractor or the Contractor's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

(e) The Contractor shall insert this clause, including this paragraph (e), with appropriate changes in the designation of the parties, in subcontracts.

(f) Before commencing the work, the Contractor shall-

(1) Submit a written proposed plan for implementing this clause. The plan shall include an analysis of the significant hazards to life, limb, and property inherent in contract work performance and a plan for controlling these hazards; and

(2) Meet with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

(End of clause)

52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984)

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to

indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as directed by the Contracting Officer, and upon doing so shall immediately deliver three copies of the annotated schedule to the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

(End of clause)

52.236-17 LAYOUT OF WORK (APR 1984)

The Contractor shall lay out its work from Government established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

(End of clause)

52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997)

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by," or "acceptable to", or "satisfactory

to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown," as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed".

(d) Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements, and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Government's reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and one set will be returned to the Contractor.

(End of clause)

52.236-22 DESIGN WITHIN FUNDING LIMITATIONS (APR 1984)

(a) The Contractor shall accomplish the design services required under this contract so as to permit the award of a contract, using standard Federal Acquisition Regulation procedures for the construction of the facilities designed at a price that does not exceed the estimated construction contract price as set forth in paragraph (c) below. When bids or proposals for the construction contract are received that exceed the estimated price, the contractor shall perform such redesign and other services as are necessary to permit contract award within the funding limitation. These additional services shall be performed at no increase in the price of this contract. However, the Contractor shall not be required to perform such additional services at no cost to the Government if the unfavorable bids or proposals are the result of conditions beyond its reasonable control.

(b) The Contractor will promptly advise the Contracting Officer if it finds that the project being designed will exceed or is likely to exceed the funding limitations and it is unable to design a usable facility within these limitations. Upon receipt of such information, the Contracting Officer will review the Contractor's revised estimate of construction cost. The Government may, if it determines that the estimated construction contract price set forth in this contract is so low that award of a construction contract not in excess of such estimate is improbable, authorize a change in scope

or materials as required to reduce the estimated construction cost to an amount within the estimated construction contract price set forth in paragraph (c) below, or the Government may adjust such estimated construction contract price. When bids or proposals are not solicited or are unreasonably delayed, the Government shall prepare an estimate of constructing the design submitted and such estimate shall be used in lieu of bids or proposals to determine compliance with the funding limitation.

(c) The estimated construction contract price for the project described in this contract is $

(End of clause)

52.236-24 WORK OVERSIGHT IN ARCHITECT-ENGINEER CONTRACTS (APR 1984)

The extent and character of the work to be done by the Contractor shall be subject to the general oversight, supervision, direction, control, and approval of the Contracting Officer.

(End of clause)

52.236-25 REQUIREMENTS FOR REGISTRATION OF DESIGNERS (JUN 2003)

Architects or engineers registered to practice in the particular professional field involved in a State, the District of Columbia, or an outlying area of the United States shall prepare or review and approve the design of architectural, structural, mechanical, electrical, civil, or other engineering features of the work.

(End of clause)

52.236-26 PRECONSTRUCTION CONFERENCE (FEB 1995)

If the Contracting Officer decides to conduct a preconstruction conference, the successful offeror will be notified and will be required to attend. The Contracting Officer's notification will include specific details regarding the date, time, and location of the conference, any need for attendance by subcontractors, and information regarding the items to be discussed.

(End of clause)

52.239-4001 Year 2000 Compliance

The contractor shall ensure products provided under this contract, to include hardware, software, firmware, and middleware, whether acting alone or combined as a system, are Year 2000 compliant as defined as follows: Year 2000 compliant means with respect to information technology, that the information technology accurately processes date/time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations, to the extent that other information, used in combination with the information technology being acquired, properly exchanges date/time data with it.

52.239-4005 Year 2000 Compliance - Construction Contracts

a. In accordance with FAR 39.106, the contractor shall ensure that with respect to any design, construction, goods, or services under this contract as well as any subsequent task/delivery orders issued under this contract (if applicable), all information technology contained therein shall be Year 2000 compliant. Specifically:

The contractor shall:

(1) Perform, maintain, and provide an inventory of all major components to include structures, equipment, items, parts, and furnishings under this contract and each task/delivery order which may be affected by the Y2K compliance requirement.

(2) Indicate whether each component is currently Year 2000 compliant or requires an upgrade for compliance prior to government acceptance.

(End of Clause)

52.239-4006 Security Contract Language for all Corps of Engineers' Unclassified Contracts (PIL 2003-06, 19 Feb 03)

All Contractor employees (U.S. citizens and Non- U.S. citizens) working under this contract (to include grants, cooperative agreements and task orders) who require access to Automated Information Systems (AIS), (stand alone computers, network computers/systems, e-mail) shall, at a minimum, be designated into an ADP-III position (non-sensitive) in accordance with DoD 5220-22-R, Industrial Security Regulation. The investigative requirements for an ADP-III position are a favorable National Agency Check (NAC), SF-85P, Public Trust Position. The contractor shall have each applicable employee complete a SF-85P and submit to the USACE, Savannah District Security Officer, ATTN: CESAS-SL, 100 West Oglethorpe Avenue, Savannah, GA 31401 within three (3) working days after award of any contract or task order, and shall be submitted prior to the individual being permitted access to an AIS. Contractors who have a commercial or government entity (CAGE) Code and Facility Security Clearance through the Defense Security Service shall process the NACs and forward visit requests/results of NAC to the Savannah District Security Officer (address above). For those contractors who do not have a CAGE Code or Facility Security Clearance, the Savannah District Security Office will process the investigation in coordination with the Contractor and contract employees.

In accordance with Engineering Regulation, ER 380-1-18, Section 4, foreign nationals who work on Corps of Engineers' contracts or task orders shall be approved by the HQUSACE Foreign Disclosure Officer or higher before beginning work on the contract/task order. This regulation includes subcontractor employees. (NOTE: exceptions to the above requirement include foreign nationals who perform janitorial and/or ground maintenance services.) The contractor shall submit to the Division/District Contract Office, the names of all foreign nationals proposed for performance under this contract/task order, along with documentation to verify that he/she was legally admitted into the

United States and has authority to work and/or go to school in the US. Such documentation may include a US passport, Certificate of US citizenship (INS Form N-560 or N-561), Certificate of Naturalization (INS Form N-550 or N-570), foreign passport with I-551 stamp or attached INS Form I-94 indicating employment authorization, Alien Registration Receipt Card with photograph (INS Form I-151 or I-551), Temporary Resident Card (INS Form I-688), Employment Authorization Card (INS Form I-688A), Reentry Permit (INS Form I-327), Refugee Travel Document (INS Form I-571), Employment Authorization Document issued by the INS which contains a photograph (INS Form I-688B).

Classified contracts require the issuance of a DD Form 254 (Department of Defense Contract Security Classification Specification).

52.242-13 BANKRUPTCY (JUL 1995)

In the event the Contractor enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Contractor agrees to furnish, by certified mail or electronic commerce method authorized by the contract, written notification of the bankruptcy to the Contracting Officer responsible for administering the contract. This notification shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of Government contract numbers and contracting offices for all Government contracts against which final payment has not been made. This obligation remains in effect until final payment under this contract.

(End of clause)

52.242-14 SUSPENSION OF WORK (APR 1984)

(a) The Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract. (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

(End of clause)

52.243-1 CHANGES--FIXED-PRICE (AUG 1987) - ALTERNATE III (APR 1984)

(a) The Contracting Officer may at any time, by written order, and without notice to the sureties, if any, make changes within the general scope of this contract in the services to be performed.

(b) If any such change causes an increase or decrease in the cost of, or the time required for, performance of any part of the work under this contract, whether or not changed by the order, the Contracting Officer shall make an equitable adjustment in the contract price, the delivery schedule, or both, and shall modify the contract.

(c) The Contractor must assert its right to an adjustment under this clause within 30 days from the date of receipt of the written order. However, if the Contracting Officer decides that the facts justify it, the Contracting Officer may receive and act upon a proposal submitted before final payment of the contract.

(d) If the Contractor's proposal includes the cost of property made obsolete or excess by the change, the Contracting Officer shall have the right to prescribe the manner of the disposition of the property.

(e) Failure to agree to any adjustment shall be a dispute under the Disputes clause. However, nothing in this clause shall excuse the Contractor from proceeding with the contract as changed.

(f) No services for which an additional cost or fee will be charged by the Contractor shall be furnished without the prior written authorization of the Contracting Officer.

(End of clause)

52.243-4 CHANGES (AUG 1987)

(a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes--

(1) In the specifications (including drawings and designs);

(2) In the method or manner of performance of the work;

(3) In the Government-furnished facilities, equipment, materials, services, or site; or

(4) Directing acceleration in the performance of the work.

(b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating

(1) the date, circumstances, and source of the order and

(2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an

adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after

(1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Contracting Officer a written statement describing the general nature and amount of the proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.

(f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(End of clause)

52.244-5 COMPETITION IN SUBCONTRACTING (DEC 1996)

(a) The Contractor shall select subcontractors (including suppliers) on a competitive basis to the maximum practical extent consistent with the objectives and requirements of the contract.

(b) If the Contractor is an approved mentor under the Department of Defense Pilot Mentor-Protege Program (Pub. L. 101–510, section 831 as amended), the Contractor may award subcontracts under this contract on a noncompetitive basis to its proteges.

(End of clause)

52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS (APR 2003)

(a) Definitions.

"Commercial item", has the meaning contained in the clause at 52.202-1, Definitions.

"Subcontract", includes a transfer of commercial items between divisions, subsidiaries, or affiliates of the Contractor or subcontractor at any tier.

(b) To the maximum extent practicable, the Contractor shall incorporate, and require its subcontractors at all tiers to incorporate, commercial items or nondevelopmental items as components of items to be supplied under this contract.

(c) (1) The Contractor shall insert the following clauses in subcontracts for commercial items:

(i) 52.219-8, Utilization of Small Business Concerns (OCT 2000) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds $500,000 ($1,000,000 for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(ii) 52.222-26, Equal Opportunity (Apr 2002) (E.O. 11246).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212(a)).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (JUN 1998) (29 U.S.C. 793).

(v) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (APR 2003) (46 U.S.C. Appx 1241 and 10 U.S.C. 2631) (flow down required in accordance with paragraph (d) of FAR clause 52.247-64).

(2) While not required, the Contractor may flow down to subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(d) The Contractor shall include the terms of this clause, including this paragraph (d), in subcontracts awarded under this contract.

(End of clause)

52.249-2 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SEP 1996) - ALTERNATE I (SEP 1996)

(a) The Government may terminate performance of work under this contract in whole or, from time to time, in part if the Contracting Officer determines that a termination is in the Government's interest. The Contracting Officer shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

(b) After receipt of a Notice of Termination, and except as directed by the Contracting Officer, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

(1) Stop work as specified in the notice.

(2) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.

(3) Terminate all subcontracts to the extent they relate to the work terminated.

(4) Assign to the Government, as directed by the Contracting Officer, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the Government shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

(5) With approval or ratification to the extent required by the Contracting Officer, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.

(6) As directed by the Contracting Officer, transfer title and deliver to the Government (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (ii) the completed or partially completed plans, drawings, information, and other property that, if the contract had been completed, would be required to be furnished to the Government.

(7) Complete performance of the work not terminated.

(8) Take any action that may be necessary, or that the Contracting Officer may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Government has or may acquire an interest.

(9) Use its best efforts to sell, as directed or authorized by the Contracting Officer, any property of the types referred to in subparagraph (b)(6) of this clause; provided, however, that the Contractor (i) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by, the Contracting Officer. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Government under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Contracting Officer.

(c) The Contractor shall submit complete termination inventory schedules no later than 120 days from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 120-day period.

(d) After expiration of the plant clearance period as defined in Subpart 45.6 of the Federal Acquisition Regulation, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for disposition by the Contracting Officer. The Contractor may request the Government to remove those items or enter into an agreement for their storage. Within 15 days, the Government will accept title to those items and remove them or enter into a storage agreement. The Contracting Officer may verify the list upon removal of the items, or if stored, within 45 days from submission of the list, and shall correct the list, as necessary, before final settlement.

(e) After termination, the Contractor shall submit a final termination settlement proposal to the Contracting Officer in the form and with the certification prescribed by the Contracting Officer. The Contractor shall submit the proposal promptly, but no later than 1 year from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 1-year period. However, if the Contracting Officer determines that the facts justify it, a termination settlement proposal may be received and acted on after 1 year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Contracting Officer may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and shall pay the amount determined.

(f) Subject to paragraph (e) of this clause, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount to be paid or remaining to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (g) or paragraph (g) of this clause, exclusive of costs shown in subparagraph (g)(3) of this clause, may not exceed the total contract price as reduced by (1) the amount of payments previously made and (2) the contract price of work not terminated. The contract shall be modified, and the Contractor paid the agreed amount. Paragraph (g) of this clause shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(g) If the Contractor and Contracting Officer fail to agree on the whole amount to be paid the Contractor because of the termination of work, the Contracting Officer shall pay the Contractor the amounts determined as follows, but without duplication of any amounts agreed upon under paragraph (f) of this clause:

(1) For contract work performed before the effective date of termination, the total (without duplication of any items) of--

(i) The cost of this work;

(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (g)(1)(i) of this clause; and

(iii) A sum, as profit on subdivision (g)(1)(i) of this clause, determined by the Contracting Officer under 49.202 of the Federal Acquisition Regulation, in effect on the date of this contract, to be fair and reasonable; however, if it

appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Contracting Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(2) The reasonable costs of settlement of the work terminated, including--

(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

(h) Except for normal spoilage, and except to the extent that the Government expressly assumed the risk of loss, the Contracting Officer shall exclude from the amounts payable to the Contractor under paragraph (g) of this clause, the fair value, as determined by the Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government or to a buyer.

(i) The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.

(j) The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Contracting Officer under paragraph (e), (g), or (l) of this clause, except that if the Contractor failed to submit the termination settlement proposal or request for equitable adjustment within the time provided in paragraph (e) or (l), respectively, and failed to request a time extension, there is no right of appeal.

(k) In arriving at the amount due the Contractor under this clause, there shall be deducted--

(1) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract;

(2) Any claim which the Government has against the Contractor under this contract; and

(3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Government.

(l) If the termination is partial, the Contractor may file a proposal with the Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the Contracting Officer.

(m)(1) The Government may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

(2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Government upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App. 1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Contracting Officer because of the circumstances.

(n) Unless otherwise provided in this contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Government, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Contracting Officer, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

(End of clause)

52.249-7 TERMINATION (FIXED-PRICE ARCHITECT-ENGINEER) (APR 1984)

(a) The Government may terminate this contract in whole or, from time to time, in part, for the Government's convenience or because of the failure of the Contractor to fulfill the contract obligations. The Contracting Officer shall terminate by delivering to the Contractor a Notice of Termination specifying the nature, extent, and effective date of the termination. Upon receipt of the notice, the Contractor shall (1) immediately discontinue all services affected (unless the notice directs otherwise), and (2) deliver to the Contracting Officer all data, drawings, specifications, reports, estimates, summaries, and other information and materials accumulated in performing this contract, whether completed or in process.

(b) If the termination is for the convenience of the Government, the Contracting Officer shall make an equitable adjustment in the contract price but shall allow no anticipated profit on unperformed services.

(c) If the termination is for failure of the Contractor to fulfill the contract obligations, the Government may complete the work by contract or otherwise and the Contractor shall be liable for any additional cost incurred by the Government.

(d) If, after termination for failure to fulfill contract obligations, it is determined that the Contractor had not failed, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Government.

(xi) The rights and remedies of the Government provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.249-10 DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984)

(a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to complete the work within this time, the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the Government may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Government in completing the work.

(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if--

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include

(i) acts of God or of the public enemy,

(ii) acts of the Government in either its sovereign or contractual capacity,

(iii) acts of another Contractor in the performance of a contract with the Government,

(iv) fires,

(v) floods,

(vi) epidemics,

(vii) quarantine restrictions,

(viii) strikes,

(ix) freight embargoes,

(x) unusually severe weather, or delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within 10 days from the beginning of any delay (unless extended by the Contracting Officer), notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the Contracting Officer shall be final and conclusive on the parties, but subject to appeal under the Disputes clause.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Government.

The rights and remedies of the Government in this clause are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.253-1 COMPUTER GENERATED FORMS (JAN 1991)

(a) Any data required to be submitted on a Standard or Optional Form prescribed by the Federal Acquisition Regulation (FAR) may be submitted on a computer generated version of the form, provided there is no change to the name, content, or sequence of the data elements on the form, and provided the form carries the Standard or Optional Form number and edition date.

(b) Unless prohibited by agency regulations, any data required to be submitted on an agency unique form prescribed by an agency supplement to the FAR may be submitted on a computer generated version of the form provided there is no change to the name, content, or sequence of the data elements on the form and provided the form carries the agency form number and edition date.

(xii) If the Contractor submits a computer generated version of a form that is different than the required form, then the rights and obligations of the parties will be determined based on the content of the required form.

(End of clause)

252.201-7000 CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991)

(a) "Definition. Contracting officer's representative" means an individual designated in accordance with subsection 201.602-2 of the Defense Federal Acquisition Regulation Supplement and authorized in writing by the contracting officer to perform specific technical or administrative functions.

(b) If the Contracting Officer designates a contracting officer's representative (COR), the Contractor will receive a copy of the written designation. It will specify the extent of the COR's authority to act on behalf of the contracting officer. The COR is not authorized to make any commitments or changes that will affect price, quality, quantity, delivery, or any other term or condition of the contract.

(End of clause)

252.203-7001 PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE-CONTRACT-RELATED FELONIES (MAR 1999)

(a) Definitions. As used in this clause—

(1) “Arising out of a contract with the DoD” means any act in connection with—

(i) Attempting to obtain;

(ii) Obtaining, or

(iii) Performing a contract or first-tier subcontract of any agency, department, or component of the Department of Defense (DoD).

(2) “Conviction of fraud or any other felony” means any conviction for fraud or a felony in violation of state or Federal criminal statutes, whether entered on a verdict or plea, including a plea of *nolo contendere*, for which sentence has been imposed.

(3) “Date of conviction” means the date judgment was entered against the individual.

(b) Any individual who is convicted after September 29, 1988, of fraud or any other felony arising out of a contract with the DoD is prohibited from serving--

(1) In a management or supervisory capacity on any DoD contract or first-tier subcontract;

(2) On the board of directors of any DoD contractor or first-tier subcontractor;

(3) As a consultant, agent, or representative for any DoD contractor or first-tier subcontractor; or

(4) In any other capacity with the authority to influence, advise, or control the decisions of any DoD contractor or subcontractor with regard to any DoD contract or first-tier subcontract.

(c) Unless waived, the prohibition in paragraph (b) of this clause applies for not less than 5 years from the date of conviction.

(d) 10 U.S.C. 2408 provides that a defense contractor or first-tier subcontractor shall be subject to a criminal penalty of not more than $500,000 if convicted of knowingly—

(1) Employing a person under a prohibition specified in paragraph (b) of this clause; or

(2) Allowing such a person to serve on the board of directors of the contractor or first-tier subcontractor.

(e) In addition to the criminal penalties contained in 10 U.S.C. 2408, the Government may consider other available remedies, such as—

(1) Suspension or debarment;

(2) Cancellation of the contract at no cost to the Government; or

(3) Termination of the contract for default.

(f) The Contractor may submit written requests for waiver of the prohibition in paragraph (b) of this clause to the Contracting Officer. Requests shall clearly identify—

(1) The person involved;

(2) The nature of the conviction and resultant sentence or punishment imposed;

(3) The reasons for the requested waiver; and

(4) An explanation of why a waiver is in the interest of national security.

(g) The Contractor agrees to include the substance of this clause, appropriately modified to reflect the identity and relationship of the parties, in all first-tier subcontracts exceeding the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation, except those for commercial items or components.

(h) Pursuant to 10 U.S.C. 2408(c), defense contractors and subcontractors may obtain information as to whether a particular person has been convicted of fraud or any other felony arising out of a contract with the DoD by contacting The Office of Justice Programs, The Denial of Federal Benefits Office, U.S. Department of Justice, telephone (202) 616-3507.

(End of clause)

252.203-7002 DISPLAY OF DOD HOTLINE POSTER (DEC 1991)

(a) The Contractor shall display prominently in common work areas within business segments performing work under Department of Defense (DoD) contracts, DoD Hotline Posters prepared by the DoD Office of the Inspector General.

(b) DoD Hotline Posters may be obtained from the DoD Inspector General, ATTN: Defense Hotline, 400 Army Navy Drive, Washington, DC 22202-2884.

(xiii) The Contractor need not comply with paragraph (a) of this clause if it has established a mechanism, such as a

hotline, by which employees may report suspected instances of improper conduct, and instructions that encourage employees to make such reports.

(End of clause)

252.204-7000 DISCLOSURE OF INFORMATION (DEC 1991)

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless--

(1) The Contracting Officer has given prior written approval; or

(2) The information is otherwise in the public domain before the date of release.

(b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

(c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

(End of clause)

252.204-7003 CONTROL OF GOVERNMENT PERSONNEL WORK PRODUCT (APR 1992)

The Contractor's procedures for protecting against unauthorized disclosure of information shall not require Department of Defense employees or members of the Armed Forces to relinquish control of their work products, whether classified or not, to the contractor.

(End of clause)

252.204-7004 REQUIRED CENTRAL CONTRACTOR REGISTRATION (NOV 2001)

(a) Definitions.

As used in this clause--

(1) Central Contractor Registration (CCR) database means the primary DoD repository for contractor information required for the conduct of business with DoD.

(2) Data Universal Numbering System (DUNS) number means the 9-digit number assigned by Dun and Bradstreet Information Services to identify unique business entities.

(3) Data Universal Numbering System +4 (DUNS+4) number means the DUNS number assigned by Dun and Bradstreet plus a 4-digit suffix that may be assigned by a parent (controlling) business concern. This 4-digit suffix may be assigned at the discretion of the parent business concern for such purposes as identifying subunits or affiliates of the parent business concern.

(4) Registered in the CCR database means that all mandatory information, including the DUNS number or the DUNS+4 number, if applicable, and the corresponding Commercial and Government Entity (CAGE) code, is in the

CCR database; the DUNS number and the CAGE code have been validated; and all edits have been successfully completed.

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee must be registered in the CCR database prior to award, during performance, and through final payment of any contract resulting from this solicitation, except for awards to foreign vendors for work to be performed outside the United States.

(2) The offeror shall provide its DUNS or, if applicable, its DUNS+4 number with its offer, which will be used by the Contracting Officer to verify that the offeror is registered in the CCR database.

(3) Lack of registration in the CCR database will make an offeror ineligible for award.

(4) DoD has established a goal of registering an applicant in the CCR database within 48 hours after receipt of a complete and accurate application via the Internet. However, registration of an applicant submitting an application through a method other than the Internet may take up to 30 days. Therefore, offerors that are not registered should consider applying for registration immediately upon receipt of this solicitation.

(c) The Contractor is responsible for the accuracy and completeness of the data within the CCR, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR database after the initial registration, the Contractor is required to confirm on an annual basis that its information in the CCR database is accurate and complete.

(d) Offerors and contractors may obtain information on registration and annual confirmation requirements by calling 1-888-227-2423, or via the Internet at http://www.ccr.gov.

(End of clause)

252.205-7000 PROVISION OF INFORMATION TO COOPERATIVE AGREEMENT HOLDERS (DEC 1991)

(a) Definition.

"Cooperative agreement holder" means a State or local government; a private, nonprofit organization; a tribal organization (as defined in section 4(c) of the Indian Self-Determination and Education Assistance Act (Pub. L. 93-268; 25 U.S.C. 450 (c))); or an economic enterprise (as defined in section 3(e) of the Indian Financing Act of 1974 (Pub. L. 93-362; 25 U.S.C. 1452(e))) whether such economic enterprise is organized for profit or nonprofit purposes; which has an agreement with the Defense Logistics Agency to furnish procurement technical assistance to business entities.

(b) The Contractor shall provide cooperative agreement holders, upon their request, with a list of those appropriate employees or offices responsible for entering into subcontracts under defense contracts. The list shall include the business address, telephone number, and area of responsibility of each employee or office.

(c) The Contractor need not provide the listing to a particular cooperative agreement holder more frequently than once a year.

(End of clause)

252.209-7000 ACQUISITION FROM SUBCONTRACTORS SUBJECT TO ONSITE INSPECTION UNDER THE INTERMEDIATE-RANGE NUCLEAR FORCES (INF) TREATY (NOV 1995)

(a) The Contractor shall not deny consideration for a subcontract award under this contract to a potential subcontractor subject to on-site inspection under the INF Treaty, or a similar treaty, solely or in part because of the actual or potential presence of Soviet inspectors at the subcontractor's facility, unless the decision is approved by the Contracting Officer.

(b) The Contractor shall incorporate this clause, including this paragraph (b), in all solicitations and contracts exceeding the simplified acquisition threshold in part 13 of the Federal Acquisition Regulation, except those for commercial items.

(End of clause)

252.209-7004 SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) Unless the Government determines that there is a compelling reason to do so, the Contractor shall not enter into any subcontract in excess of $25,000 with a firm, or subsidiary of a firm, that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country.

(b) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country. The notice must include the name of the proposed subcontractor notwithstanding its inclusion on the List of Parties Excluded From Federal Procurement and Nonprocurement Programs.

(End of clause)

252.215-7000 PRICING ADJUSTMENTS (DEC 1991)

The term "pricing adjustment," as used in paragraph (a) of the clauses entitled "Price Reduction for Defective Cost or Pricing Data - Modifications," "Subcontractor Cost or Pricing Data," and "Subcontractor Cost or Pricing Data - Modifications," means the aggregate increases and/or decreases in cost plus applicable profits.

(End of clause)

252.223-7001 HAZARD WARNING LABELS (DEC 1991)

(a) "Hazardous material," as used in this clause, is defined in the Hazardous Material Identification and Material Safety Data clause of this contract.

(b) The Contractor shall label the item package (unit container) of any hazardous material to be delivered under this contract in accordance with the Hazard Communication Standard (29 CFR 1910.1200 et seq). The Standard requires that the hazard warning label conform to the requirements of the standard unless the material is otherwise subject to the labeling requirements of one of the following statutes:

(1) Federal Insecticide, Fungicide and Rodenticide Act;

(2) Federal Food, Drug and Cosmetics Act;

(3) Consumer Product Safety Act;

(4) Federal Hazardous Substances Act; or

(5) Federal Alcohol Administration Act.

(c) The Offeror shall list which hazardous material listed in the Hazardous Material Identification and Material Safety Data clause of this contract will be labeled in accordance with one of the Acts in paragraphs (b)(1) through (5) of this clause instead of the Hazard Communication Standard. Any hazardous material not listed will be interpreted to mean that a label is required in accordance with the Hazard Communication Standard.

MATERIAL (If None, Insert "None.")	ACT
_____	_____
_____	_____

(d) The apparently successful Offeror agrees to submit, before award, a copy of the hazard warning label for all hazardous materials not listed in paragraph (c) of this clause. The Offeror shall submit the label with the Material Safety Data Sheet being furnished under the Hazardous Material Identification and Material Safety Data clause of this contract.

(e) The Contractor shall also comply with MIL-STD-129, Marking for Shipment and Storage (including revisions adopted during the term of this contract).

(End of clause)

252.223-7004 DRUG-FREE WORK FORCE (SEP 1988)

(a) Definitions.

(1) "Employee in a sensitive position," as used in this clause, means an employee who has been granted access to classified information; or employees in other positions that the Contractor determines involve national security; health or safety, or functions other than the foregoing requiring a high degree of trust and confidence.

(2) "Illegal drugs," as used in this clause, means controlled substances included in Schedules I and II, as defined by section 802(6) of title 21 of the United States Code, the possession of which is unlawful under chapter 13 of that Title. The term "illegal drugs" does not mean the use of a controlled substance pursuant to a valid prescription or other uses authorized by law.

(b) The Contractor agrees to institute and maintain a program for achieving the objective of a drug-free work force. While this clause defines criteria for such a program, contractors are encouraged to implement alternative approaches comparable to the criteria in paragraph (c) that are designed to achieve the objectives of this clause.

(c) Contractor programs shall include the following, or appropriate alternatives:

(1) Employee assistance programs emphasizing high level direction, education, counseling, rehabilitation, and coordination with available community resources;

(2) Supervisory training to assist in identifying and addressing illegal drug use by Contractor employees;

(3) Provision for self-referrals as well as supervisory referrals to treatment with maximum respect for individual confidentiality consistent with safety and security issues;

(4) Provision for identifying illegal drug users, including testing on a controlled and carefully monitored basis. Employee drug testing programs shall be established taking account of the following:

(i) The Contractor shall establish a program that provides for testing for the use of illegal drugs by employees in sensitive positions. The extent of and criteria for such testing shall be determined by the Contractor based on considerations that include the nature of the work being performed under the contract, the employee's duties, and efficient use of Contractor resources, and the risks to health, safety, or national security that could result from the failure of an employee adequately to discharge his or her position.

(ii) In addition, the Contractor may establish a program for employee drug testing--

(A) When there is a reasonable suspicion that an employee uses illegal drugs; or

(B) When an employees has been involved in an accident or unsafe practice;

(C) As part of or as a follow-up to counseling or rehabilitation for illegal drug use;

(D) As part of a voluntary employee drug testing program.

(iii) The Contractor may establish a program to test applicants for employment for illegal drug use.

(iv) For the purpose of administering this clause, testing for illegal drugs may be limited to those substances for which testing is prescribed by section 2..1 of subpart B of the "Mandatory Guidelines for Federal Workplace Drug Testing Programs" (53 FR 11980 (April 11, 1988), issued by the Department of Health and Human Services.

(d) Contractors shall adopt appropriate personnel procedures to deal with employees who are found to be using drugs illegally. Contractors shall not allow any employee to remain on duty or perform in a sensitive position who is found to use illegal drugs until such times as the Contractor, in accordance with procedures established by the Contractor, determines that the employee may perform in such a position.

(e) The provisions of this clause pertaining to drug testing program shall not apply to the extent that are inconsistent with state or local law, or with an existing collective bargaining agreement; provided that with respect to the latter, the Contractor agrees those issues that are in conflict will be a subject of negotiation at the next collective bargaining session.

(End of clause)

252.223-7006 PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS MATERIALS (APR 1993)

(a) "Definitions".

As used in this clause --

(1) "Storage" means a non-transitory, semi-permanent or permanent holding, placement, or leaving of material. It does not include a temporary accumulation of a limited quantity of a material used in or a waste generated or resulting from authorized activities, such as servicing, maintenance, or repair of Department of Defense (DoD) items, equipment, or facilities.

(2) "Toxic or hazardous materials" means:

(i) Materials referred to in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. 9601(14)) and materials designated under section 102 of CERCLA (42 U.S.C. 9602) (40 CFR part 302);

(ii) Materials that are of an explosive, flammable, or pyrotechnic nature; or

(iii) Materials otherwise identified by the Secretary of Defense as specified in DoD regulations.

(b) In accordance with 10 U.S.C. 2692, the Contractor is prohibited from storing or disposing of non-DoD-owned toxic or hazardous materials on a DoD installation, except to the extent authorized by a statutory exception to 10 U.S.C. 2692 or as authorized by the Secretary of Defense or his designee.

(End of clause)

252.225-7012 PREFERENCE FOR CERTAIN DOMESTIC COMMODITIES (FEB 2003)

(a) Definitions. As used in this clause--

(1) Component means any item supplied to the Government as part of an end product or of another component.

(2) End product means supplies delivered under a line item of this contract.

(b) The Contractor shall deliver under this contract only such of the following items, either as end products or components, that have been grown, reprocessed, reused, or produced in the United States, its possessions, or Puerto Rico:

(1) Food.

(2) Clothing.

(3) Tents, tarpaulins, or covers.

(4) Cotton and other natural fiber products.

(5) Woven silk or woven silk blends.

(6) Spun silk yarn for cartridge cloth.

(7) Synthetic fabric, and coated synthetic fabric, including all textile fibers and yarns that are for use in such fabrics.

(8) Canvas products.

(9) Wool (whether in the form of fiber or yarn or contained in fabrics, materials, or manufactured articles).

(10) Any item of individual equipment (Federal Supply Class 8465) manufactured from or containing fibers, yarns, fabrics, or materials listed in this paragraph (b).

(c) This clause does not apply--

(1) To items listed in section 25.104(a) of the Federal Acquisition Regulation (FAR), or other items for which the Government has determined that a satisfactory quality and sufficient quantity cannot be acquired as and when needed at U.S. market prices;

(2) To end products incidentally incorporating cotton, other natural fibers, or wool, for which the estimated value of the cotton, other natural fibers, or wool--

(i) Is not more than 10 percent of the total price of the end product; and (ii) Does not exceed the simplified acquisition threshold in FAR part 2;

(3) To foods that have been manufactured or processed in the United States, its possessions, or Puerto Rico, regardless of where the foods (and any component if applicable) were grown or produced, except that this clause does apply to fish, shellfish, or seafood manufactured or processed in the United States and fish, shellfish, or seafood contained in foods manufactured or processed in the United States;

(4) To chemical warfare protective clothing produced in the countries listed in subsection 225.872-1 of the Defense FAR Supplement; or

(5) To fibers and yarns that are for use in synthetic fabric or coated synthetic fabric (but does apply to the synthetic or coated synthetic fabric itself), if--

(i) The fabric is to be used as a component of an end product that is not a textile product. Examples of textile products, made in whole or in part of fabric, include--

(A) Draperies, floor coverings, furnishings, and bedding (Federal Supply Group 72, Household and Commercial Furnishings and Appliances);

(B) Items made in whole or in part of fabric in Federal Supply Group 83, Textile/leather/furs/apparel/findings/ tents/flags, or Federal Supply Group 84, Clothing, Individual Equipment and Insignia;

(C) Upholstered seats (whether for household, office, or other use); and

(D) Parachutes (Federal Supply Class 1670); or

(ii) The fibers and yarns are para-aramid fibers and yarns manufactured in the Netherlands.

(End of clause)

252.225-7031 SECONDARY ARAB BOYCOTT OF ISRAEL (APR 2003)

(a) Definitions. As used in this provision--

(1) Foreign person means any person (including any individual, partnership, corporation, or other form of association) other than a United States person.

(2) United States person is defined in 50 U.S.C. App. 2415(2) and means--

(i) Any United States resident or national (other than an individual resident outside the United States who is employed by other than a United States person);

(ii) Any domestic concern (including any permanent domestic establishment of any foreign concern); and

(iii) Any foreign subsidiary or affiliate (including any permanent foreign establishment) of any domestic concern that is controlled in fact by such domestic concern.

(b) Certification. If the offeror is a foreign person, the offeror certifies, by submission of an offer, that it--

(1) Does not comply with the Secondary Arab Boycott of Israel; and

(2) Is not taking or knowingly agreeing to take any action, with respect to the Secondary Boycott of Israel by Arab countries, which 50 U.S.C. App. 2407(a) prohibits a United States person from taking.

(End of provision)

252.226-7001 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES-DOD CONTRACTS (SEP 2001)

(a) Definitions. As used in this clause--

“Indian” means any person who is a member of any Indian tribe, band, group, pueblo, or community that is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs (BIA) in accordance with 25 U.S.C. 1452(c) and any “Native” as defined in the Alaska Native Claims Settlement Act (43 U.S.C. 1601).

“Indian organization” means the governing body of any Indian tribe or entity established or recognized by the governing body of an Indian tribe for the purposes of 25 U.S.C. Chapter 17.

“Indian-owned economic enterprise” means any Indian-owned (as determined by the Secretary of the Interior) commercial, industrial, or business activity established or organized for the purpose of profit, provided that Indian ownership constitutes not less than 51 percent of the enterprise.

“Indian tribe” means any Indian tribe, band, group, pueblo, or community, including native villages and native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, that is recognized by the Federal Government as eligible for services from BIA in accordance with 25 U.S.C. 1452 (c).

“Interested party” means a contractor or an actual or prospective offeror whose direct economic interest would be affected by the award of a subcontract or by the failure to award a subcontract.

(b) The Contract shall use its best efforts to give Indian organizations and Indian-owned economic enterprises the maximum practicable opportunity to participate in the subcontracts it awards, to the fullest extent consistent with efficient performance of the contract.

(c) The Contracting Officer and the Contractor, acting in good faith, may rely on the representation of an Indian organization or Indian-owned economic enterprise as to its eligibility, unless and interested party challenges its status or the Contracting Officer has independent reason to question that status.

(d) In the event of a challenge to the representation of a subcontractor, the Contracting Officer will refer the matter to the U.S. Department of the Interior, Bureau of Indian Affairs, Attn: Chief, Division of Contracting and Grants Administration, 1849 C Street NW, MS-2626-MIB, Washington, DC 20240-4000. The BIA will determine the eligibility and will notify the Contracting Officer. No incentive payment will be made--

(1) Within 59 working days of subcontract award;

(2) While a challenge is pending; or

(3) If a subcontractor is determined to be an ineligible participant.

(e)(1) The Contractor, on its own behalf or on behalf of a subcontractor at any tier, may request an adjustment under the Indian Incentive Program to the following:

(i) The estimated cost of cost-type contract.

(ii) The target cost of a cost-plus-incentive-fee contract.

(iii) The target cost and ceiling price of a fixed-price incentive contract.

(iv) The price of a firm-fixed-price contract.

(2) The amount of the adjustment that may be made to the contract is 5 percent of the estimated cost, target cost, or firm-fixed price included in the subcontract initially awarded to the Indian organization or Indian-owned economic enterprise.

(3) The Contractor has the burden of proving the amount claimed and must assert its request for an adjustment prior to completion of contract performance.

(4) The Contracting Officer, subject to the terms and conditions of the contract and the availability of funds, will authorize an incentive payment of 5 percent of the amount paid to the subcontractor.

(5) If the Contractor requests and receives an adjustment on behalf of a subcontractor, the Contractor is obligated to pay the subcontractor the adjustment.

(f) The Contractor shall insert the substance of this clause, including this paragraph (f), in all subcontracts that--

(1) Are for other than commercial items; and

(2) Are expected to exceed the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation.

(End of clause)

252.227-7022 GOVERNMENT RIGHTS (UNLIMITED) (MAR 1979)

The Government shall have unlimited rights, in all drawings, designs, specifications, notes and other works developed in the performance of this contract, including the right to use same on any other Government design or construction without additional compensation to the Contractor. The Contractor hereby grants to the Government a paid-up license throughout the world to all such works to which he may assert or establish any claim under design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish the original or copies of all such works on the request of the Contracting Officer.

(End of clause)

252.227-7033 RIGHTS IN SHOP DRAWINGS (APR 1966)

(a) Shop drawings for construction means drawings, submitted to the Government by the Construction Contractor, subcontractor or any lower-tier subcontractor pursuant to a construction contract, showing in detail (i) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of

materials or equipment. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(b) This clause, including this paragraph (b), shall be included in all subcontracts hereunder at any tier.

252.236-7000 MODIFICATION PROPOSALS - PRICE BREAKDOWN. (DEC 1991)

(a) The Contractor shall furnish a price breakdown, itemized as required and within the time specified by the Contracting Officer, with any proposal for a contract modification.

(b) The price breakdown --

(1) Must include sufficient detail to permit an analysis of profit, and of all costs for --

(i) Material;

(ii) Labor;

(iii) Equipment;

(iv) Subcontracts; and

(v) Overhead; and

(2) Must cover all work involved in the modification, whether the work was deleted, added, or changed.

(c) The Contractor shall provide similar price breakdowns to support any amounts claimed for subcontracts.

(d) The Contractor's proposal shall include a justification for any time extension proposed.

252.236-7005 AIRFIELD SAFETY PRECAUTIONS. (DEC 1991)

(a) Definitions. As used in this clause --

(1) "Landing areas means" --

(i) The primary surfaces, comprising the surface of the runway, runway shoulders, and lateral safety zones. The length of each primary surface is the same as the runway length. The width of each primary surface is 2,000 feet (1,000 feet on each side of the runway centerline);

(ii) The "clear zone" beyond the ends of each runway, i.e., the extension of the primary surface for a distance of 1,000 feet beyond each end of each runway;

(iii) All taxiways, plus the lateral clearance zones along each side for the length of the taxiways (the outer edge of each lateral clearance zone is laterally 250 feet from the far or opposite edge of the taxiway, e.g., a 75-foot-wide taxiway would have a combined width of taxiway and lateral clearance zones of 425 feet); and

(iv) All aircraft parking aprons, plus the area 125 feet in width extending beyond each edge all around the aprons.

(2) "Safety precaution" areas means those portions of approach-departure clearance zones and transitional zones where placement of objects incident to contract performance might result in vertical projections at or above the approach-departure clearance, or the transitional surface.

(i) "The approach-departure clearance surface" is an extension of the primary surface and the clear zone at each end of each runway, for a distance of 50,000 feet, first along an inclined (glide angle) and then along a horizontal plane, both flaring symmetrically about the runway centerline extended.

(A) The inclined plane (glide angle) begins in the clear zone 200 feet past the end of the runway (and primary surface) at the same elevation as the end of the runway. It continues upward at a slope of 50:1 (1 foot vertically for each 50 feet horizontally) to an elevation of 500 feet above the established airfield elevation. At that point the plane becomes horizontal, continuing at that same uniform elevation to a point 50,000 feet longitudinally from the beginning of the inclined plane (glide angle) and ending there.

(B) The width of the surface at the beginning of the inclined plane (glide angle) is the same as the width of the clear zone. It then flares uniformly, reaching the maximum width of 16,000 feet at the end.

(ii) The "approach-departure clearance zone" is the ground area under the approach-departure clearance surface.

(iii) The "transitional surface" is a sideways extension of all primary surfaces, clear zones, and approach-departure clearance surfaces along inclined planes.

(A) The inclined plane in each case begins at the edge of the surface.

(B) The slope of the incline plane is 7:1 (1 foot vertically for each 7 feet horizontally). It continues to the point of intersection with the --

(1) Inner horizontal surface (which is the horizontal plane 150 feet above the established airfield elevation); or

(2) Outer horizontal surface (which is the horizontal plane 500 feet above the established airfield elevation), whichever is applicable.

(iv) The "transitional zone" is the ground area under the transitional surface. (It adjoins the primary surface, clear zone, and approach-departure clearance zone.)

(b) General. (1) The Contractor shall comply with the requirements of this clause while --

(i) Operating all ground equipment (mobile or stationary);

(ii) Placing all materials; and

(iii) Performing all work, upon and around all airfields.

(2) The requirements of this clause are in addition to any other safety requirements of this contract.

(c) The Contractor shall -

(1) Report to the Contracting Officer before initiating any work;

(2) Notify the Contracting Officer of proposed changes to locations and operations;

(3) Not permit either its equipment or personnel to use any runway for purposes other than aircraft operation without permission of the Contracting Officer, unless the runway is -

(i) Closed by order of the Contracting Officer; and

(ii) Marked as provided in paragraph (d)(2) of this clause;

(4) Keep all paved surfaces, such as runways, taxiways, and hardstands, clean at all times and, specifically, free from small stones which might damage aircraft propellers or jet aircraft;

(5) Operate mobile equipment according to the safety provisions of this clause, while actually performing work on the airfield. At all other times, the Contractor shall remove all mobile equipment to locations -

(i) Approved by the Contracting Officer;

(ii) At a distance of at least 750 feet from the runway centerline, plus any additional distance; and

(iii) Necessary to ensure compliance with the other provisions of this clause; and

(6) Not open a trench unless material is on hand and ready for placing in the trench. As soon as practicable after material has been placed and work approved, the Contractor shall backfill and compact trenches as required by the contract. Meanwhile, all hazardous conditions shall be marked and lighted in accordance with the other provisions of this clause.

(d) Landing areas. The Contractor shall -

(1) Place nothing upon the landing areas without the authorization of the Contracting Officer;

(2) Outline those landing areas hazardous to aircraft, using (unless otherwise authorized by the Contracting Officer) red flags by day, and electric, battery-operated low-intensity red flasher lights by night;

(3) Obtain, at an airfield where flying is controlled, additional permission from the control tower operator every time before entering any landing area, unless the landing area is marked as hazardous in accordance with paragraph (d)(2) of this clause;

(4) Identify all vehicles it operates in landing areas by means of a flag on a staff attached to, and flying above, the vehicle. The flag shall be three feet square, and consist of a checkered pattern of international orange and white squares of 1 foot on each side (except that the flag may vary up to ten percent from each of these dimensions);

(5) Mark all other equipment and materials in the landing areas, using the same marking devices as in paragraph (d)(2) of this clause; and

(6) Perform work so as to leave that portion of the landing area which is available to aircraft free from hazards, holes, piles of material, and projecting shoulders that might damage an airplane tire.

(e) Safety precaution areas. The Contractor shall -

(1) Place nothing upon the safety precaution areas without authorization of the Contracting Officer;

(2) Mark all equipment and materials in safety precaution areas, using (unless otherwise authorized by the Contracting Officer) red flags by day, and electric, battery-operated, low-intensity red flasher lights by night; and

(3) Provide all objects placed in safety precaution areas with a red light or red lantern at night, if the objects project above the approach-departure clearance surface or above the transitional surface.

252.242-7000 POSTAWARD CONFERENCE (DEC 1991)

The Contractor agrees to attend any postaward conference convened by the contracting activity or contract

administration office in accordance with Federal Acquisition Regulation subpart 42.5.

(End of clause)

252.242-7004 MATERIAL MANAGEMENT AND ACCOUNTING SYSTEM (SEP 1996)

(a) Definitions. As used in this clause--

(1) Material management and accounting system means the Contractor's system or systems for planning, controlling, and accounting for the acquisition, use, issuing, and disposition of material. Material management and accounting systems may be manual or automated. They may be stand-alone systems or they may be integrated with planning, engineering, estimating, purchasing, inventory, accounting, or other systems.

(2) Valid time-phased requirements means material which is--

Needed to fulfill the production plan, including reasonable quantities for scrap, shrinkage, yield, etc.; and

(ii) Charged/billed to contracts or other cost objectives in a manner consistent with the need to fulfill the production plan.

(3) Contractor means a business unit as defined in section 31.001 of the Federal Acquisition Regulation (FAR).

(b) General. The Contractor agrees to--

(1) Maintain a material management and accounting system (MMAS) that--

(i) Reasonably forecasts material requirements;

(ii) Ensures that costs of purchased and fabricated material charged or allocated to a contract are based on valid time-phased requirements; and

(iii) Maintains a consistent, equitable, and unbiased logic for costing of material transactions.

(2) Assess its MMAS and take reasonable action to comply with the MMAS standards in paragraph (f) of this clause.

(c) Applicability. Paragraphs (d) and (e) of this clause apply only if the Contractor--

(1) Is a large business; and

(2) Received, in its fiscal year preceding award of this contract, Department of Defense prime contracts or subcontracts, and their modifications totaling--

(i) $70 million or more; or

(ii) $30 million or more (but less than $70 million), and is notified in writing by the Contracting Officer that paragraphs (d) and (e) apply.

(d) Disclosure, demonstration, and maintenance requirements. (1) The Contractor shall--

Disclose its MMAS to the Administrative Contracting Officer in writing; and

(ii) If requested by the Administrative Contracting Officer, demonstrate that the MMAS conforms to the standards in paragraph (f) of this clause.

(2) An MMAS disclosure is adequate when the Contractor has provided the Administrative Contracting Officer with documentation which--

(i) Accurately describes those policies, procedures, and practices that the Contractor currently uses in its MMAS; and

(ii) Provides sufficient detail for the Government to reasonably make an informed judgment regarding the adequacy of the MMAS.

(3) An MMAS demonstration is adequate when the Contractor has provided the Administrative Contracting Officer--

(i) Sufficient evidence to demonstrate the degree of compliance of its MMAS with the standards at paragraph (f) of this clause; and

(ii) Identification of any significant deficiencies, the estimated cost impact of the deficiency, and a comprehensive corrective action plan.

(4) The Contractor shall disclose significant changes in its MMAS to the Administrative Contracting Officer within 30 days of implementation.

(5) If the contractor desires the Government to protect such information as privileged or confidential, the Contractor shall--

(i) Notify the Government representative to whom the information is submitted, i.e., the ACO, or the auditor; and

(ii) Ensure an appropriate legend is on the face of the document(s) at the time of submission.

(e) Deficiencies. (1) If the Contractor receives a report which identifies deficiencies in its MMAS, the Contractor agrees to respond as follows--

(i) If the Contractor agrees with the report findings and recommendations, the Contractor shall--

(A) Within 30 days, state its agreement in writing; and

(B) Within 60 days, correct the deficiencies or submit a corrective action plan.

(ii) If the Contractor disagrees with the report findings and recommendations, the Contractor shall, within 30 days, state its rationale for each area of disagreement.

(2) The Administrative Contracting Officer shall evaluate the Contractor's response and notify the Contractor of the--

(i) Determination concerning remaining deficiencies;

(ii) Adequacy of any proposed or completed corrective action plan; and

(iii) Need for any new or revised corrective action plan.

(f) MMAS standards. MMAS systems shall have adequate internal accounting and administrative controls to ensure system and data integrity, and comply with the following:

(1) Have an adequate system description including policies, procedures, and operating instructions which comply with the Federal Acquisition Regulation and Defense FAR Supplement;

(2) Ensure that costs of purchased and fabricated material charged or allocated to a contract are based on valid time-phased requirements as impacted by minimum/economic order quantity restrictions--

(i) A 98 percent bill of material accuracy and a 95 percent master production schedule accuracy are desirable as a goal in order to ensure that requirements are both valid and appropriately time-phased.

(ii) If systems have accuracy levels below these, the Contractor shall demonstrate that--

(A) There is no material harm to the Government due to lower accuracy levels; and

(B) The cost to meet the accuracy goals is excessive in relation to the impact on the Government;

(3) Provide a mechanism to identify, report, and resolve system control weaknesses and manual override. Systems should identify operational exceptions such as excess/residual inventory as soon as known;

(4) Provide audit trails and maintain records (manual and those in machine readable form) necessary to evaluate system logic and to verify through transaction testing that the system is operating as desired;

(5) Establish and maintain adequate levels of record accuracy, and include reconciliation of recorded inventory quantities to physical inventory by part number on a periodic basis. A 95 percent accuracy level is desirable. If systems have an accuracy level below 95 percent, the Contractor shall demonstrate that--

(i) There is no material harm to the Government due to lower accuracy levels; and

(ii) The cost to meet the accuracy goal is excessive in relation to the impact on the Government;

(6) Provide detailed descriptions of circumstances which will result in manual or system generated transfers of parts;

(7) Maintain a consistent, equitable, and unbiased logic for costing of material transactions--

(i) The Contractor shall maintain and disclose written policies describing the transfer methodology and the loan/pay-back technique.

(ii) The costing methodology may be standard or actual cost, or any of the inventory costing methods in 48 CFR 9904.411-50(b). Consistency shall be maintained across all contract and customer types, and from accounting period to accounting period for initial charging and transfer charging.

(iii) The system should transfer parts and associated costs within the same billing period. In the few instances where this may not be appropriate, the Contractor may accomplish the material transaction using a loan/pay-back technique. The “loan/pay-back technique” means that the physical part is moved temporarily from the contract, but the cost of the part remains on the contract. The procedures for the loan/pay-back technique must be approved by the Administrative Contracting Officer. When the technique is used, the Contractor shall have controls to ensure--

(A) Parts are paid back expeditiously;

(B) Procedures and controls are in place to correct any overbilling that might occur;

(C) Monthly, at a minimum, identification of the borrowing contract and the date the part was borrowed; and

(D) The cost of the replacement part is charged to the borrowing contract;

(8) Where allocations from common inventory accounts are used, have controls (in addition to those in paragraphs (b)(2) and (7) of this clause) to ensure that--

(i) Reallocations and any credit due are processed no less frequently than the routine billing cycle;

(ii) Inventories retained for requirements which are not under contract are not allocated to contracts; and

(iii) Algorithms are maintained based on valid and current data;

(9) Notwithstanding FAR 45.505-3(f)(1)(ii), have adequate controls to ensure that physically commingled inventories that may include material for which costs are charged or allocated to fixed-price, cost-reimbursement, and commercial contracts do not compromise requirements of any of the standards in paragraphs (f)(1) through (8) of this clause. Government furnished material shall not be--

(i) Physically commingled with other material; or

(ii) Used on commercial work; and

(10) Be subjected to periodic internal audits to ensure compliance with established policies and procedures.

(End of clause)

252.243-7001 PRICING OF CONTRACT MODIFICATIONS (DEC 1991)

When costs are a factor in any price adjustment under this contract, the contract cost principles and procedures in FAR part 31 and DFARS part 231, in effect on the date of this contract, apply.

252.243-7002 REQUESTS FOR EQUITABLE ADJUSTMENT (MAR 1998)

(a) The amount of any request for equitable adjustment to contract terms shall accurately reflect the contract adjustment for which the Contractor believes the Government is liable. The request shall include only costs for performing the change, and shall not include any costs that already have been reimbursed or that have been separately claimed. All indirect costs included in the request shall be properly allocable to the change in accordance with applicable acquisition regulations.

(b) In accordance with 10 U.S.C. 2410(a), any request for equitable adjustment to contract terms that exceeds the simplified acquisition threshold shall bear, at the time of submission, the following certificate executed by an individual authorized to certify the request on behalf of the Contractor:

I certify that the request is made in good faith, and that the supporting data are accurate and complete to the best of my knowledge and belief.

(Official's Name)

(Title)

(c) The certification in paragraph (b) of this clause requires full disclosure of all relevant facts, including--

(1) Cost or pricing data if required in accordance with subsection 15.403-4 of the Federal Acquisition Regulation (FAR); and

(2) Information other than cost or pricing data, in accordance with subsection 15.403-3 of the FAR, including actual cost data and data to support any estimated costs, even if cost or pricing data are not required.

(d) The certification requirement in paragraph (b) of this clause does not apply to----

(1) Requests for routine contract payments; for example, requests for payment for accepted supplies and services, routine vouchers under a cost-reimbursement type contract, or progress payment invoices; or

(2) Final adjustment under an incentive provision of the contract.

252.244-7000 SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS (DOD) (MAR 2000)

In addition to the clauses listed in paragraph (c) of the Subcontracts for Commercial Items and Commercial Components clause of this contract (Federal Acquisition Regulation 52.244-6), the Contractor shall include the terms of the following clauses, if applicable, in subcontracts for commercial items or commercial components, awarded at any tier under this contract:

252.225-7014 Preference for Domestic Specialty Metals, Alternate I (10 U.S.C. 2241 note).

252.247-7023 Transportation of Supplies by Sea (10 U.S.C. 2631).

252.247-7024 Notification of Transportation of Supplies by Sea (10 U.S.C. 2631).

(End of clause)

252.247-7023 TRANSPORTATION OF SUPPLIES BY SEA (MAY 2002)

(a) Definitions. As used in this clause --

(1) "Components" means articles, materials, and supplies incorporated directly into end products at any level of manufacture, fabrication, or assembly by the Contractor or any subcontractor.

(2) "Department of Defense" (DoD) means the Army, Navy, Air Force, Marine Corps, and defense agencies.

(3) "Foreign flag vessel" means any vessel that is not a U.S.-flag vessel.

(4) "Ocean transportation" means any transportation aboard a ship, vessel, boat, barge, or ferry through international waters.

(5) "Subcontractor" means a supplier, materialman, distributor, or vendor at any level below the prime contractor whose contractual obligation to perform results from, or is conditioned upon, award of the prime contract and who is performing any part of the work or other requirement of the prime contract.

(6) "Supplies" means all property, except land and interests in land, that is clearly identifiable for eventual use by or owned by the DoD at the time of transportation by sea.

(i) An item is clearly identifiable for eventual use by the DoD if, for example, the contract documentation contains a reference to a DoD contract number or a military destination.

(ii) "Supplies" includes (but is not limited to) public works; buildings and facilities; ships; floating equipment and

vessels of every character, type, and description, with parts, subassemblies, accessories, and equipment; machine tools; material; equipment; stores of all kinds; end items; construction materials; and components of the foregoing.

(7) "U.S.-flag vessel" means a vessel of the United States or belonging to the United States, including any vessel registered or having national status under the laws of the United States.

(b)(1) The Contractor shall use U.S.-flag vessels when transporting any supplies by sea under this contract.

(2) A subcontractor transporting supplies by sea under this contract shall use U.S.-flag vessels if--

(i) This contract is a construction contract; or

(ii) The supplies being transported are--

(A) Noncommercial items; or

(B) Commercial items that--

(1) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it contracts for f.o.b. destination shipment);

(2) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(3) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(c) The Contractor and its subcontractors may request that the Contracting Officer authorize shipment in foreign-flag vessels, or designate available U.S.-flag vessels, if the Contractor or a subcontractor believes that --

(1) U.S.-flag vessels are not available for timely shipment;

(2) The freight charges are inordinately excessive or unreasonable; or

(3) Freight charges are higher than charges to private persons for transportation of like goods.

(d) The Contractor must submit any request for use of other than U.S.-flag vessels in writing to the Contracting Officer at least 45 days prior to the sailing date necessary to meet its delivery schedules. The Contracting Officer will process requests submitted after such date(s) as expeditiously as possible, but the Contracting Officer's failure to grant approvals to meet the shipper's sailing date will not of itself constitute a compensable delay under this or any other clause of this contract. Requests shall contain at a minimum --

(1) Type, weight, and cube of cargo;

(2) Required shipping date;

(3) Special handling and discharge requirements;

(4) Loading and discharge points;

(5) Name of shipper and consignee;

(6) Prime contract number; and

(7) A documented description of efforts made to secure U.S.-flag vessels, including points of contact (with names and telephone numbers) with at least two U.S.-flag carriers contacted. Copies of telephone notes, telegraphic and facsimile message or letters will be sufficient for this purpose.

(e) The Contractor shall, within 30 days after each shipment covered by this clause, provide the Contracting Officer and the Maritime Administration, Office of Cargo Preference, U.S. Department of Transportation, 400 Seventh Street SW., Washington, DC 20590, one copy of the rated on board vessel operating carrier's ocean bill of lading, which shall contain the following information:

(1) Prime contract number;

(2) Name of vessel;

(3) Vessel flag of registry;

(4) Date of loading;

(5) Port of loading;

(6) Port of final discharge;

(7) Description of commodity;

(8) Gross weight in pounds and cubic feet if available;

(9) Total ocean freight in U.S. dollars; and

(10) Name of the steamship company.

(f) The Contractor shall provide with its final invoice under this contract a representation that to the best of its knowledge and belief--

(1) No ocean transportation was used in the performance of this contract;

(2) Ocean transportation was used and only U.S.-flag vessels were used for all ocean shipments under the contract;

(3) Ocean transportation was used, and the Contractor had the written consent of the Contracting Officer for all non-U.S.-flag ocean transportation; or

(4) Ocean transportation was used and some or all of the shipments were made on non-U.S.-flag vessels without the written consent of the Contracting Officer. The Contractor shall describe these shipments in the following format:

ITEM DESCRIPTION	CONTRACT LINE ITEMS	QUANTITY

TOTAL_____

(g) If the final invoice does not include the required representation, the Government will reject and return it to the Contractor as an improper invoice for the purposes of the Prompt Payment clause of this contract. In the event there has been unauthorized use of non-U.S.-flag vessels in the performance of this contract, the Contracting Officer is entitled to equitably adjust the contract, based on the unauthorized use.

(h) In the award of subcontracts for the types of supplies described in paragraph (b)(2) of this clause, the Contractor shall flow down the requirements of this clause as follows:

(1) The Contractor shall insert the substance of this clause, including this paragraph (h), in subcontracts that exceed the simplified acquisition threshold in part 2 of the Federal Acquisition Regulation.

(2) The Contractor shall insert the substance of paragraphs (a) through (e) of this clause, and this paragraph (h), in subcontracts that are at or below the simplified acquisition threshold in part 2 of the Federal Acquisition Regulation.

(End of clause)

252.247-7024 NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000)

(a) The Contractor has indicated by the response to the solicitation provision, Representation of Extent of Transportation by Sea, that it did not anticipate transporting by sea any supplies. If, however, after the award of this contract, the Contractor learns that supplies, as defined in the Transportation of Supplies by Sea clause of this contract, will be transported by sea, the Contractor --

(1) Shall notify the Contracting Officer of that fact; and

(2) Hereby agrees to comply with all the terms and conditions of the Transportation of Supplies by Sea clause of this contract.

(b) The Contractor shall include this clause; including this paragraph (b), revised as necessary to reflect the relationship of the contracting parties--

(1) In all subcontracts under this contract, if this contract is a construction contract; or

(2) If this contract is not a construction contract, in all subcontracts under this contract that are for--

(i) Noncommercial items; or

(ii) Commercial items that--

(A) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it subcontracts for f.o.b. destination shipment);

(B) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(C) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(End of clause)

Section 00800 - Special Contract Requirements

CLAUSES INCORPORATED BY FULL TEXT

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 5 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than the performance time stated in each task order. The time stated for completion shall include final cleanup of the premises.

(End of clause)

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of (Amount shall be stated on each Task Order) for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

52.217-7 OPTION FOR INCREASED QUANTITY--SEPARATELY PRICED LINE ITEM (MAR 1989)

The Government may require the delivery of the numbered line item, identified in the Schedule as an option item, in the quantity and at the price stated in the Schedule. The Contracting Officer may exercise the option by written notice to the Contractor within 30 calendar days of the expiration of each period. Delivery of added items shall continue at the same rate that like items are called for under the contract, unless the parties otherwise agree.

(End of clause)

52.219-4002 REPORTING REQUIREMENTS--SUBCONTRACTING PLAN (CESAD-CT JUL 1993)

(a) Retainage will be withheld from progress payments in an amount sufficient to protect the Government's ability to assess Liquidated Damages in accordance with FAR clause 52.219-0016 for failure to submit timely SF 294 and SF 295 Reports. The amount of retainage will be determined in accordance with the following formula:

(b) Total dollar amount proposed for subcontracting to small business multiplied by percentage of actual progress on the contract, up to a maximum of 10% of the given progress payment, shall be withheld from the next progress payment due after a contractor fails to submit a required report. If one or more reports have been submitted before such failure, formula for determining the amount of retainage will be adjusted by deducting any amounts reported as subcontracted to small business from the total dollar amount proposed to be subcontracted and the difference multiplied by the percent of actual progress, up to a maximum of 10% of the given progress payment.

(End of clause)

52.223-9 ESTIMATE OF PERCENTAGE OF RECOVERED MATERIAL CONTENT FOR EPA-DESIGNATED PRODUCTS (AUG 2000)

(a) Definitions. As used in this clause--

Postconsumer material means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of "recovered material."

Recovered material means waste materials and by-products recovered or diverted from solid waste, but the term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

(b) The Contractor, on completion of this contract, shall--

(1) Estimate the percentage of the total recovered material used in contract performance, including, if applicable, the percentage of postconsumer material content; and

(2) Submit this estimate to Savannah District Office.

(End of clause)

52.223-4002 U.S. ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1

This paragraph applies to contracts and purchase orders that require the contractor to comply with EM 385-1-1 (e.g., contracts that include the Accident Prevention clause at FAR 52.236-13 and/or other safety provisions). EM 385-1-1 and its changes are available at http://www.hq.usace.army.mil. (At the HQ homepage, select Safety and Occupational Health.) The Contractor shall be responsible for complying with the current edition and all changes posted on the web through the date that is 10 calendar days prior to the date offers are due. If the solicitation is amended to extend the time set for receipt of offers, the 10 calendar days rule stated above shall be applied against the amended date. (For example, if offers are due on 10 April, all changes posted on or before 31 March shall apply to the contract. If the time for receipt of offers is extended from 10 April to 20 April, all changes posted on or before 10 April shall apply to the contract.)

52.228-4001 RECOMMENDED INSURANCE COVERAGE – MAY 2000

The Design-Build Contractor's attention is invited to the contract requirements concerning "RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN' and 'WARRANTY OF CONSTURCTION WORK". These requirements vest in the Contractor complete responsibility for the professional quality, technical accuracy, and coordination of all design, drawings, specifications and other work or materials furnished by his in-house or consultant forces. The Design-Build Contractor must correct and revise any errors or deficiencies in his work, notwithstanding any review, approval, acceptance or payment by the Government. The Contractor must correct and change any work resulting from his defective design at no additional cost to the Government. The requirements further stipulate that the Design-Build Contractor shall be liable to the Government for the damages to the Government caused by negligent performance. Though it is not am mandatory requirement, this is to recommend that the Design-Build Contractor investigate and obtain appropriate insurance coverage for such liability protection.

(End of Clause)

52.228-4002 REQUIRED INSURANCE (FEB 1987 SAS) (Ref. FAR 28.307)

(a) The Contractor shall procure and maintain during the entire period of his performance under this contract the following minimum insurance:

Comprehensive and Employer's Liability Insurance in the amount required by the State law in which the work is to be performed under this contract.

Comprehensive General Liability Insurance in an amount not less than $500,000 per accident.

Automobile Liability Insurance: $200,000 per person and $500,000 per accident for bodily injury liability and $20,000 property damage liability.

(b) Prior to the commencement of work hereunder, the Contractor shall furnish to the Contracting Officer a certificate or written statement of the above-required insurance. The policies evidencing required insurance shall contain an endorsement to the effect that cancellation, or any material change in the policies adversely affecting the interests of the Government in such insurance, shall not be effective for such period as may be prescribed by the laws of the State in which this contract is to be performed and in no event less than 30 days after written notice thereof to the Contracting Officer.

(c) The Contractor agrees to insert the substance of this clause, including this subparagraph (c), in all subcontracts hereunder.

(End of clause)

52.231-5000 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE
MAR 1995)--EFARS

(a) This clause does not apply to terminations. See 52.249-5000, Basis for Settlement of Proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule, Region III. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

(End of clause)

52.232-4007 ACCOUNTING AND APPROPRIATION DATA (APR 1989 CESAS-RM)

Accounting and Appropriation Data will be cited on individual task orders.

(End of clause)

52.232-4008 DESIGNATED BILLING OFFICE (APR 1989 CESAS-RM)

Invoices will be mailed to:

Will be cited on individual task orders

(End of Clause)

52.232-4009 DESIGNATED PAYMENT OFFICE (AUG 1998 CESAS-RM-F)

Payment will be made by:
U.S. Army Corps of Engineers Finance Center
ATTN: CEFC-AO-P
5720 Integrity Drive
Millington, TN 38054-5005
(End of clause)

52.232-5000 PAYMENT FOR MATERIALS DELIVERED OFF-SITE (MAR 1995)—EFARS

(a) Pursuant to FAR clause 52.232-5, Payments Under Fixed Priced Construction Contracts, materials delivered to the contractor at locations other than the site of the work may be taken into consideration in making payments if included in payment estimates and if all the conditions of the General Provisions are fulfilled. Payment for items delivered to locations other than the work site will be limited to: (1) materials required by the technical provisions; or (2) materials that have been fabricated to the point where they are identifiable to an item of work required under this contract.
(b) Such payment will be made only after receipt of paid or receipted invoices or invoices with canceled check showing title to the items in the prime contractor and including the value of material and labor incorporated into the item. In addition to petroleum products, payment for materials delivered off-site is limited to the following items: None

(End of clause)

52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least twenty percent (20%) of the total amount of work to be performed under the contract. This percentage may be reduced by a

supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

(End of clause)

52.236-4 PHYSICAL DATA (APR 1984)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) The indications of physical conditions on the drawings and in the specifications are the result of site investigations by (per task order).

(b) Weather conditions . . . . . (per task order).

(c) Transportation facilities . . . . . (per task order).

(End of clause)

52.236-14 AVAILABILITY AND USE OF UTILITY SERVICES (APR 1984)

(a) The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by the Government, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

(End of clause)

52.236-4001 DESIGN-BUILD CONTRACT-ORDER OF PRECEDENCE – AUG 1997

(a) The contract includes the standard contract clauses and schedules current at the time of award. It also entails: (1) the solicitation in its entirety, including all drawings, cuts and illustrations, and any amendments during proposal evaluation and selection, and (2) the successful Offeror’s accepted proposal. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any ways bears upon the terms of that agreement.

(b) In the event of conflict or inconsistency between any of the provisions of the various portions of this contract, precedence shall be given in the following order:

(1) Betterments: Any portions of the Offeror's proposal which both meet and exceed the provisions of the solicitation

(2) The provisions of the solicitation. (see also Contract Clause: SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION.)

(3) All other provisions of the accepted proposal.

(4)Any design products, including but not limited to plans, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc. These are "deliverables" under the contract and are not part of the contract itself. Design products must conform to all provisions of the contract, in the order of precedence herein.

(End of Clause)

52.236-4003 RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN – FEB 2000

(i) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other non-construction services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiency in its designs, drawings, specifications, and other non-construction services and perform any necessary rework or modifications, including any damage to real or personal property, resulting from the design error or omission.

(ii) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract. The Contractor shall be and remain liable to the Government in accordance wit applicable law for all damages to the Government caused by the Contractor's negligent performance of any of these services furnished under this contract.

(iii) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law

(iv) If the Contractor is comprised of more than one legal entity shall be jointly and severally liable thereunder.

(End of Clause)

52.236-4004 SEQUENCE OF DESIGN-CONSTRUCTION – AUG 1997

(a) After receipt of the Contract Notice to Proceed (NTP) the Contractor shall initiate design, comply with all design submission requirements as covered under Division 01 General Requirements, and obtain Government review of each submission. No construction may be started, <with the exception of….clearing, etc…> until the Government reviews the Final Design submission and determines it satisfactory for purposes of beginning construction. The Contracting Officer will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the Contracting Officer, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

(b) If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

(c) No payment will be made for any in-place construction until all required submittals have been made, reviewed and are satisfactory to the Government.

(End of Clause)

52.236-4005 SEQUENCE OF DESIGN- CONSTRUCTION (FAST TRACK) – AUG 1997

(c) After receipt of the Contract Notice to Proceed (NTP) the Contractor shall initiate design, comply with all design submissions requirements as covered under Division 01 General Requirements, and obtain Government review of each submission. The contractor may begin construction on portions of the work for which the Government has reviewed the final design submission and has determined satisfactory for purposes of beginning construction. The Contracting Officer will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the Contracting Officer, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

(d) If the Government allows the Contractor to proceed with the construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

(e) No payment will be made for any in-place construction until all required submittals have been made, reviewed and are satisfactory to the Government.

(End of Clause)

52.236-4006 CONSTRUCTOR'S ROLE DURING DESIGN – JUN 1998

The Contractor's construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements of this contract. In addition to the typical required construction activities, the constructor's involvement includes, but is not limited to actions such as: integrating the design schedule into the Master Schedule to maximize the effectiveness of fast-tracking design and construction (within the limits allowed in the contract), ensuring constructability and economy of the design, integrating the shop drawing and installation drawing process into the design, executing the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction QC program with the design QC program, and maintaining and providing the design team with accurate, up-to-date redline and as-built documentation. The Contractor shall require and manage the active involvement of key trade subcontractors in the above activities.

(End of Clause)

52.236-4007 TRAINING – FEB 2000

The Contractor shall provide operational and maintenance training for all systems furnished under this contract for the operating and maintenance personnel. The system manufacturer shall conduct the training, where feasible. All operation and maintenance manuals shall be submitted and approved prior to conducting the training, where feasible. All operation and maintenance manuals shall be submitted and approved prior to conducting the training and shall be

used during training. The Contractor shall video tape the training session on VHS tapes and provide the tapes to the Government.

(End of Clause)

52.236-4008 DESIGN CONFERENCES – AUG 1997

(a) Pre-Work: As part of the Pre-Work Conference conducted after contract award, key representatives of the Government and the Contractor will review the design submission and procedures specified herein, discuss the preliminary design schedule and provisions for phase completion of the D-B documents with construction activities (fast tracking), as appropriate, meet with Corps of Engineers Design Review personnel and key Using Agency points of contract and any other appropriate pre-design discussion items.

(b) Design Charette: After award of the contract, the Contractor shall visit the site and conduct extensive interviews, and problem solving discussions with the individual users, base personnel, Corps of Engineers personnel to acquire all necessary site information, review user options, and discuss user needs. The Contractor shall document all discussions. The design shall be finalized as direct result of these meetings.

(c) Design Review Conferences: Review conferences will be held on base for each design submittal. The Contractor will bring the personnel that developed the design submittal to the review conference. The conferences will take place the week after the review is complete.

(End of Clause)

52.236-4009 PARTNERING – FEB 2000

In order to most effectively accomplish this contract, the Government proposes to form a partnership with the Contractor to develop a cohesive building team. It is anticipated that this partnership would involve the the Contractor, primary subcontractors and designers and the Corps of Engineers. This partnership would strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve quality project within budget and on schedule. This partnership would be bilateral in membership and participation will be totally voluntary. Any cost associated with effectuating this partnership, excluding travel and lodging cost of Government personnel, will be borne by each party. The partnering meetings shall be held in a location to be determined.

(End of Clause)

52.236-4013 CONTRACTOR-PREPARED NETWORK ANALYSIS SYSTEM
(January 2002 SAS) (Ref. DFARS 236.273)

The progress chart to be prepared by the contractor pursuant to FAR 52.236-15, Schedules for Construction Contracts, shall utilize the Critical Path Method (CPM) of network calculation. (See Attachment 1 to Section 00800).

52.236-4015 PRECONSTRUCTION CONFERENCE (OCT 1988 SAS) (Ref. FAR 36.305)

(a) A preconstruction conference will be arranged by the Area/Resident Engineer after award of contract and before commencement of work. The Area/Resident Engineer will notify the Contractor of the time and date set for the meeting. At this conference, the Contractor shall be oriented with respect to Government procedures and line of authority, contractual, administrative, and construction matters.

(b) The Contractor shall bring to this conference, in completed form, a Certificate of Insurance, plus the following items in either completed or draft form:

Accident Prevention Plan (5 copies)
(use format shown in Attachment 1 to SECTION 00800)
Quality Control Plan (5 copies)
Letter Appointing Superintendent
Transmittal Register
Power of Attorney and Certified Copy of Resolution
Network Analysis System, when applicable
List of Subcontractors

(c) A letter of record will be written documenting all items discussed at the conference, and a copy will be furnished by the Area/Resident Engineer to all in attendance.

(End of clause)

52.236-4016 VIDEO TAPING OPERATING AND MAINTENANCE INSTRUCTIONS (MAR 1987 SASCD-SQ)

For all of the operating and maintenance instructions which are required in the contract specifications, the Contractor shall video tape these instructions as they are presented to the Government representatives. These tapes shall provide clear and understandable detailed instructions for all items required by the contract specifications. The tapes shall be prepared by an experienced video director/cameraman using good quality half-inch VHS color tape with correct sound equipment, lighting, and backdrop. The sound and picture quality shall be high and subject to approval by the Contracting Officer. The tapes are intended as followup training for other Government representatives at a later date. They must be suitable for this purpose. The Contractor shall be responsible for the contents of the instructions and shall verify that they are correct prior to taping. The Contractor may submit individual equipment manufacturer's instructional tape(s), provided they meet the above qualifications and cover the actual equipment that is installed. The tape(s) shall be for specific equipment identified by contents and contract name and number. The Contractor shall submit one copy of the tape(s) to the Contracting Officer for review and approval. Unacceptable tapes are to be corrected by the Contractor as indicated by the Contracting Officer at no additional cost to the Government.

(End of clause)

52.236-4017 SUBMITTAL OF MODIFICATION COST ESTIMATE PROPOSALS (MAR 1992 SAS)

(Ref. DFARS 52.236-7000)

When submittals of Cost Estimate Proposals are required for additions or deletions to work under this contract by modification, the Contractor shall use DA Form 5418-R titled "Cost Estimate Analysis" (see Attachment 1 to SECTION 00800). A separate assemblage will be prepared for submittal by each trade affected by the proposed work.
(End of clause)

52.244-4001 KEY PERSONNEL, SUBCONTRACTORS AND OUTSIDE ASSOCIATES OR CONSULTANTS – AUG 1997

In connection with the services covered by this contract, any in-house personnel, subcontractors, and outside associates or consultants will be limited to the individuals or firms that were specifically identified and agreed to during negotiations. The contractor shall obtain the Contracting Officer’s written consent before making any substitution for these designated in-house personnel, subcontractors, associates, or consultants.

(End of Clause)

52.246-12 INSPECTION OF CONSTRUCTION (AUG 1996)

(a) Definition. "Work" includes, but is not limited to, materials, workmanship, and manufacture and fabrication of components.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Government. All work shall be conducted under the general direction of the Contracting Officer and is subject to Government inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) Government inspections and tests are for the sole benefit of the Government and do not--

(1) Relieve the Contractor of responsibility for providing adequate quality control measures;

(2) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

(3) Constitute or imply acceptance; or

(4) Affect the continuing rights of the Government after acceptance of the completed work under paragraph (i) of this section.

(d) The presence or absence of a Government inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Contracting Officer's written authorization.

(e) The Contractor shall promptly furnish, at no increase in contract price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The Government may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The Government shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the

contract.

(f) The Contractor shall, without charge, replace or correct work found by the Government not to conform to contract requirements, unless in the public interest the Government consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(g) If the Contractor does not promptly replace or correct rejected work, the Government may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor or (2) terminate for default the Contractor's right to proceed.

(h) If, before acceptance of the entire work, the Government decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Contracting Officer shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(i) Unless otherwise specified in the contract, the Government shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Government's rights under any warranty or guarantee.

(End of clause)

52.246-4001 WARRANTY OF CONSTRUCTION WORK – AUG 1997

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (1) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall contain for a period of year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

(c) The Contractor shall remedy at the Contractor’s expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor’s expense any damage to Government-owned or controlled real or personal property, when that damage is the result of –

(1) The Contractor’s failure to conform to contract requirements; or

(2) Any defect of equipment, material, or workmanship.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor’s warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

(e) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall –

(1) Obtain all warranties that would be given in normal commercial practice:

(2) Require all warranties to be executed, in writing for the benefit of the Government, if directed by the Contracting Officer; and

(3)Enforce warranties for the benefit of the Government, if directed by the Contracting Officer.

(h) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

(j) This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

(End of Clause)

52.248-4003 VALUE ENGINEERING AFTER AWARD

(xiv) In reference to Contract Clause 52.248-3, "Value Engineering – Construction", the Government may refuse to entertain a "Value Engineering Change Proposal" (VECP) for those "performance oriented" aspects of the Solicitation documents which were addressed in the Contractor's accepted contract proposal and which were evaluated in competition with other offerors for award of this contract.

(xv) The Government may consider a VECP for those "prescriptive" aspects of the Solicitation documents, not addressed in the Contractor's accepted contract proposal or addressed but evaluated only for minimum conformance with the Solicitation requirements.

(xvi) For purposes of this clause, the term "performance oriented" refers to those aspects of the design criteria or other contract requirements which allow the Offeror or Contractor certain latitude, choice of and flexibility to propose in its accepted contract offer a choice of design, technical approach, design solution, construction approach or other approach to fulfil the contract requirements. Such requirements generally tend to be expressed in terms of functions to be performed, performance required or essential physical characteristics, without dictating a specific process or specific design solution for achieving the desired result.

(xvii) In contrast, for purposes of this clause, the term "prescriptive" refers to those aspects of the design criteria or other Solicitation requirements wherein the Government expressed the design solution or other requirements in terms of specific materials, approaches, systems and/or processes to be used. Prescriptive aspects typically allow the Offerors little or no freedom in the choice of design approach, materials, fabrication techniques, methods of installation or other approach to fulfill the contract requirements.

(End of Clause)

52.249-4001 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (APR 1991 OCE)
(Ref. FAR 52.249-10)

(a) This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the contract clause entitled DEFAULT (FIXED-PRICE CONSTRUCTION). In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

(b) The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORKDAYS BASED ON 5-DAY WORK WEEK

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

TO BE DETERMINED WITH EACH TASK ORDER.

(c) Upon acknowledgment of the Notice to Proceed and continuing through-out the contract, the Contractor will record on the daily Contractor Quality Control report the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled workday. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day in each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph (b) above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather workdays, and issue a modification in accordance with the contract clause entitled DEFAULT (FIXED PRICE CONSTRUCTION).
(End of clause)

52.249-5000 BASIS FOR SETTLEMENT OF PROPOSALS - EFARS

Actual costs will be used to determine equipment costs for a settlement proposal submitted on the total cost basis under FAR 49.206-2(b). In evaluating a terminations settlement proposal using the total cost basis, the following principles will be applied to determine allowable equipment costs:

(1) Actual costs for each piece of equipment, or groups of similar serial or series equipment, need not be available in the contractor's accounting records to determine total actual equipment costs.

(2)If equipment costs have been allocated to a contract using predetermined rates , those charges will be adjusted to actual costs.

(3) Recorded job costs adjusted for unallowable expenses will be used to determine equipment operating expenses.

(4) Ownership costs (depreciation) will be determined using the contractor's depreciation schedule (subject to the provisions of FAR 31.205-11).

(5) License, taxes, storage and insurance costs are normally recovered as an indirect expense and unless the contractor charges these costs directly to contracts, they will be recovered through the indirect expense rate.
(End of Clause)

ATTACHMENT 1 TO SECTION 00800

LIST OF ATTACHMENTS

1. Rates of Wages:

2. Formats:

Fort Bragg Project Sign

Army Project Sign

Project Sign Legend Defined

Project Sign Erection Detail

Air Force Project Sign

Corps of Engineers Logo

Accident Prevention Plan (Ref. FAR 52.236-13 and EM 385-1-1)

Construction Quality Control Report

Small and Disadvantaged Business Subcontracting Plan

Weekly Temporary Electrical Inspection

3. Minimum Standard for Temporary Electrical Service (Ref. FAR 52.236-14)

4. Forms:

SAS Form 9 - Activity Hazard Analysis

SAD Form 1666a-R - Safety Checklist for Crawler, Truck & Wheel Mounted Cranes

SAD Form 1666b-R - Safety Checklist for Portal, Tower, and Pillar Cranes

SAD Form 1666c-R - Safety Checklist for Rigging

SAD Form 1666d-R - Safety Checklist for Motor Vehicles, Trailers and Trucks

SAD Form 1666e-R - Safety Checklist for Crawler Tractors and Dozers

SAD Form 1666f-R - Safety Checklist for Scrapers, Motor Graders, and Other Mobile Equipment

SAD Form 1666g-R - Safety Checklist for Material Hoists

SAD Form 1666h-R - Safety Checklist for Earth Drilling Equipment

ENG Form 4025 - Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificates of Compliance

DA Form 5418-R - Cost Estimate Analysis

DD Form 1354 - Transfer and Acceptance of Military Real Property

DD Form 1547 - Record of Weighted Guidelines Application

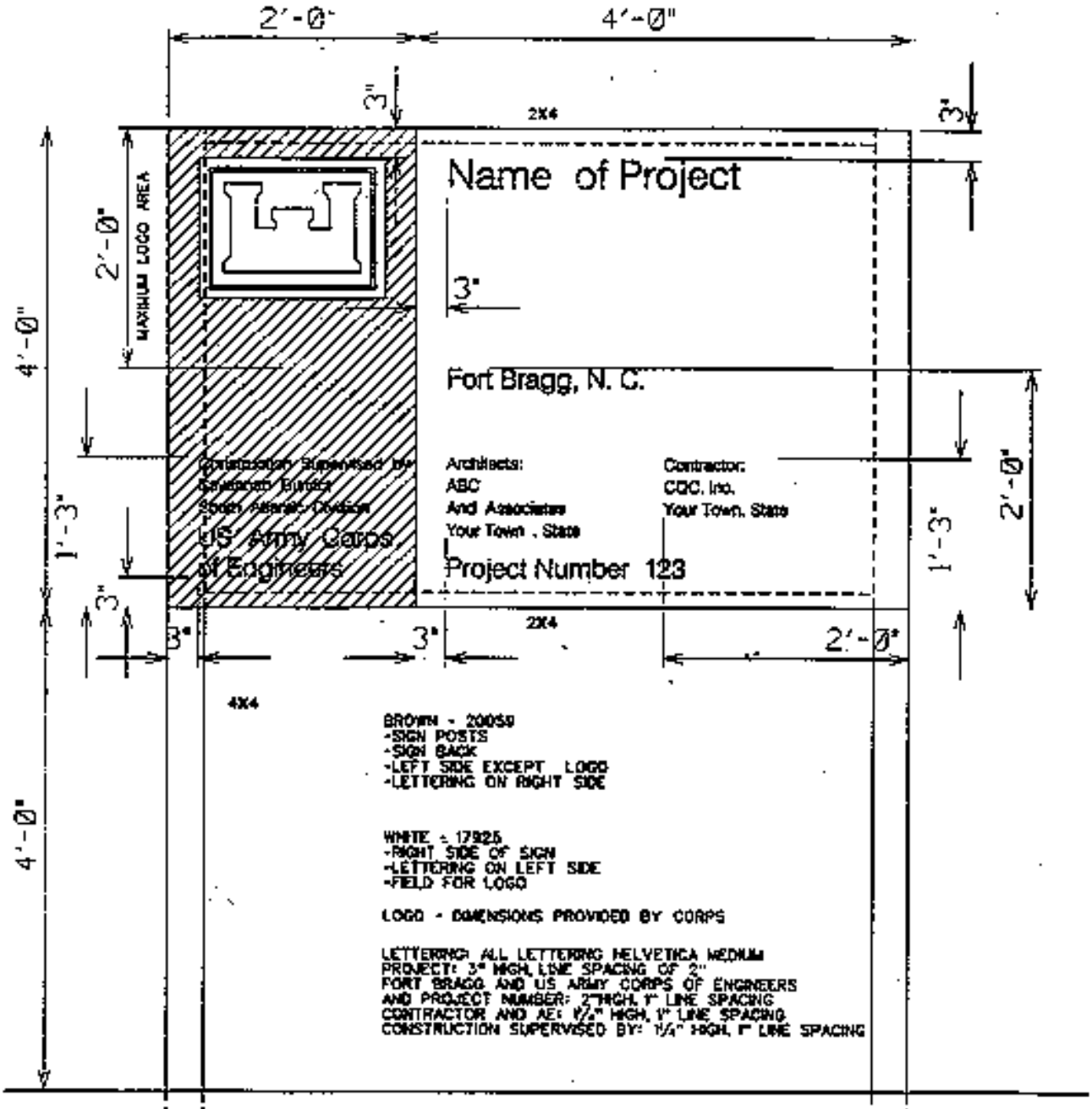
Standard Form LLL-A - Disclosure of Lobbying Activities

FB Form 1605 - Directorate of Engineering and Housing Excavation Permits

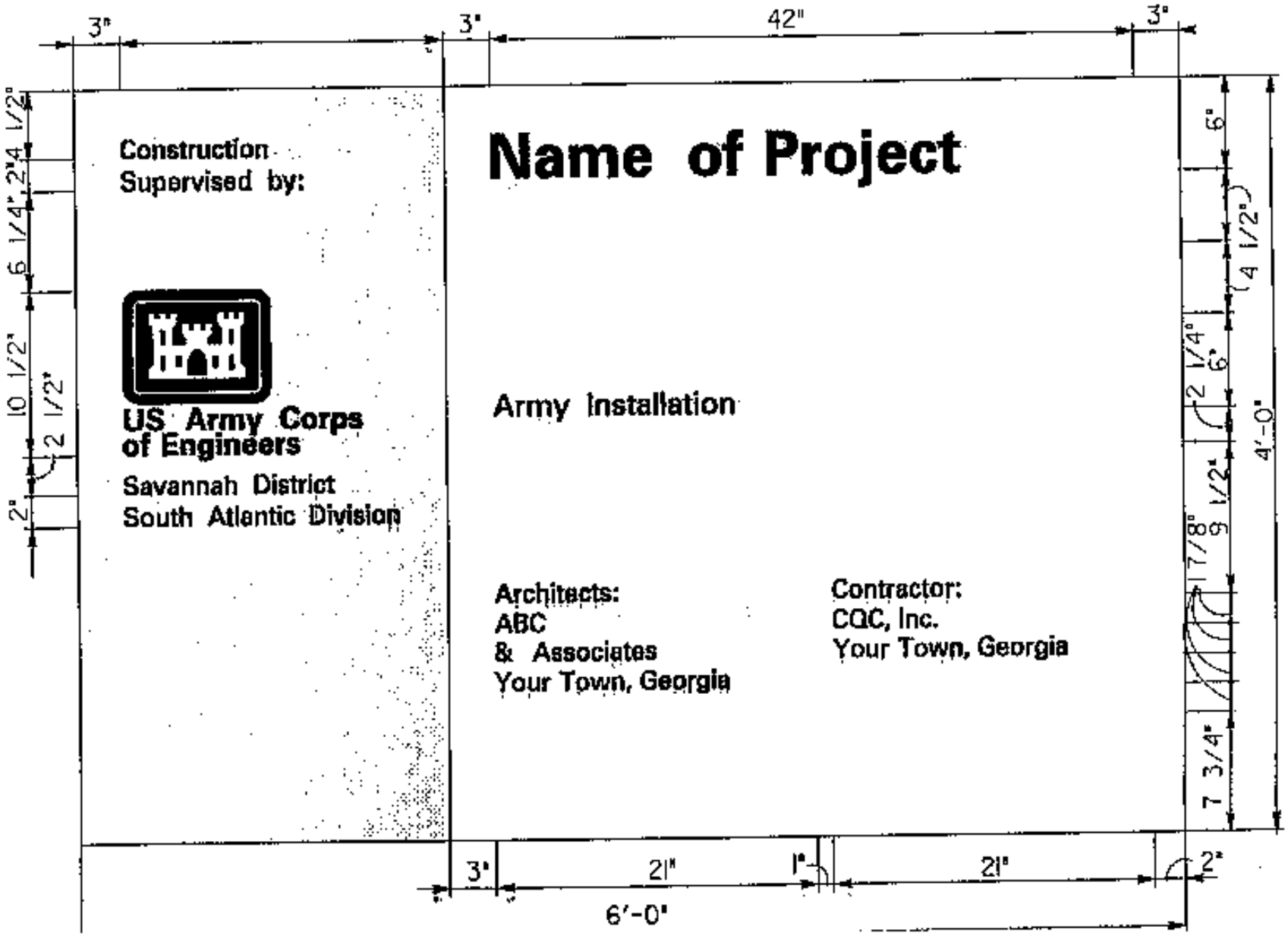
Landfill Permit Application

Ft. Bragg Asbestos Removal, Transportation, and Disposal

Real Property Inventory



PROJECT SIGN FOR SAVANNAH MANAGED DESIGNS


3"
3"
42"
3"
Construction
Supervised by:
US Army Corps
of Engineers
Savannah District
South Atlantic Division
Name of Project
Army Installation
Architects:
ABC
& Associates
Your Town, Georgia
Contractor:
CQC, Inc.
Your Town, Georgia
6"
4 1/2"
2 1/4"
6"
9 1/2"
7 3/4"
4'-0"
2 1/2"
10 1/2"
6 1/4"
4 1/2"
2"
3"
21"
1"
21"
2"
6'-0"

PROJECT SIGN LEGEND DEFINED

Legend Group 1: The words:

"Construction Supervised by:" or "Design and Construction Supervised by:"

shall be placed on two lines using black, 1.25" Helvetica regular typeface. Maximum line length is 19".

10.5" Reverse Signature: The Corps symbol shall be a 10.5" white reverse signature using a 6" castle on a red background. The castle and surrounding border lines shall be white. The castle windows, door, and logo background are to be red. The words "U.S. Army Corps of Engineers" shall be black.

Legend Group 2: The words:

"Savannah District
South Atlantic Division"

shall be placed on two lines below the 10.5" reverse signature, using black, 1.25" Helvetica regular typeface.

Legend Group 3: The "Name of Project" shall be placed on one to three lines using white 3" Helvetica bold typeface. Maximum line length is 42".

Legend Group 4: The "Army Installation" shall be a one or two line identification of the facility or name of the sponsoring department. Lettering is to be white, 1.5" Helvetica regular typeface. Maximum line length is 42".

NOTE: Cross-align the first line of legend group 4 with the first line of the Corps signature (U.S. Army Corps) as shown.

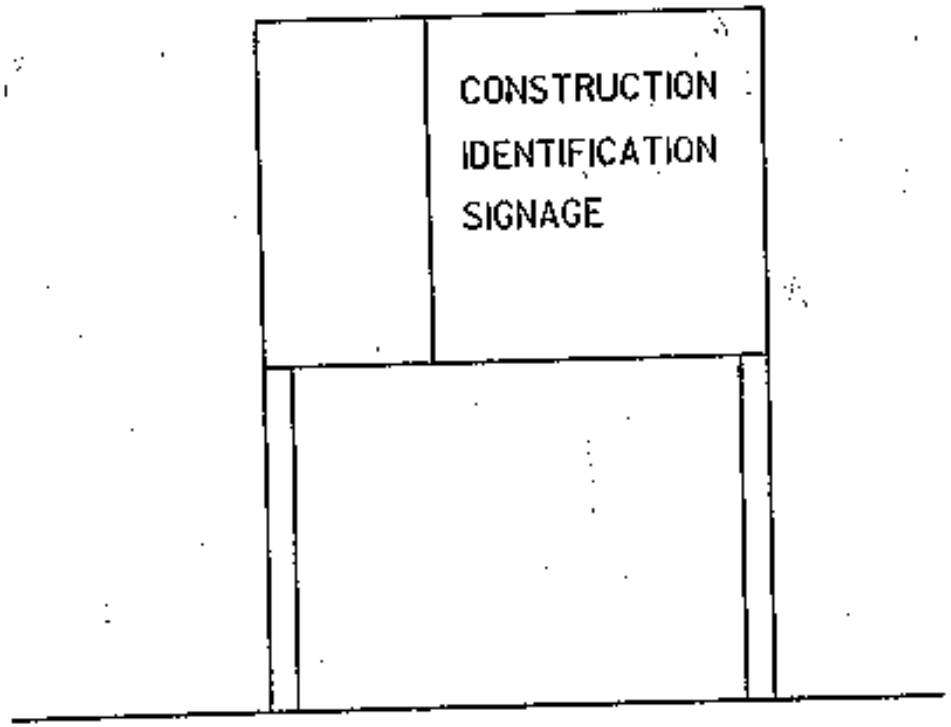
Legend Group 5a: The words:

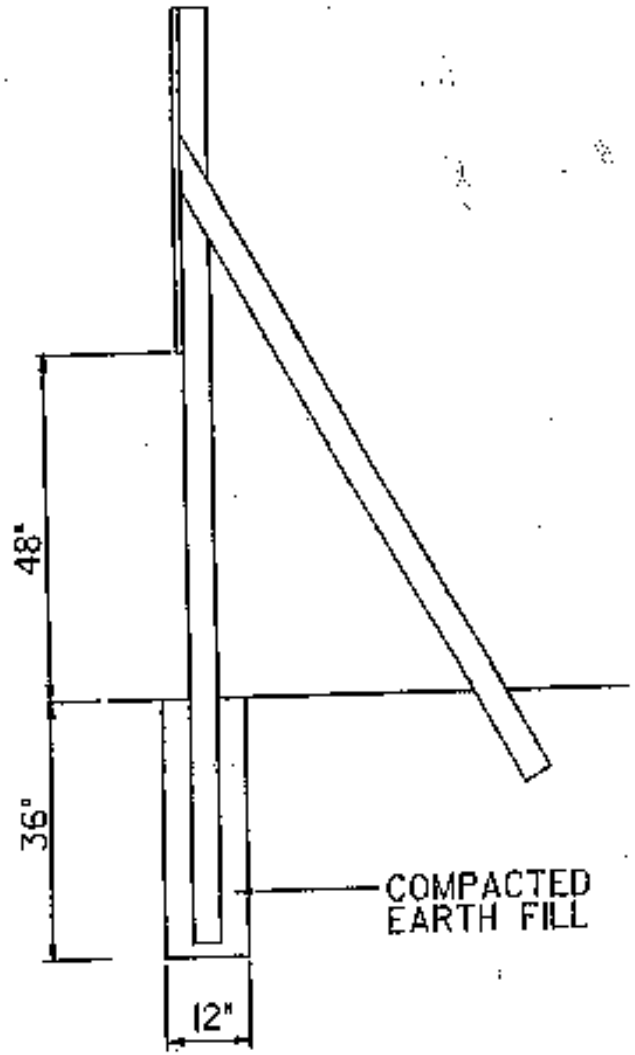
"Architects:" or "Engineers:" or "Architect-Engineers:"

shall be a one to five line identification of the prime architect or engineering corporate or firm name, city, and State. Lettering shall be white, 1.25" Helvetica regular typeface. Maximum line length is 21".

Legend Group 5b: The "Contractor:" shall be a one to five line identification of the prime Contractor corporate or firm name, city, and State. Include type of Contractor, i.e. General Contractor, etc. Lettering shall be white, 1.25" Helvetica regular typeface. Maximum line length is 21".

NOTE: All typography shall be flush left and rag right, upper and lower case with initial capitals only as shown.


CONSTRUCTION
IDENTIFICATION
SIGNAGE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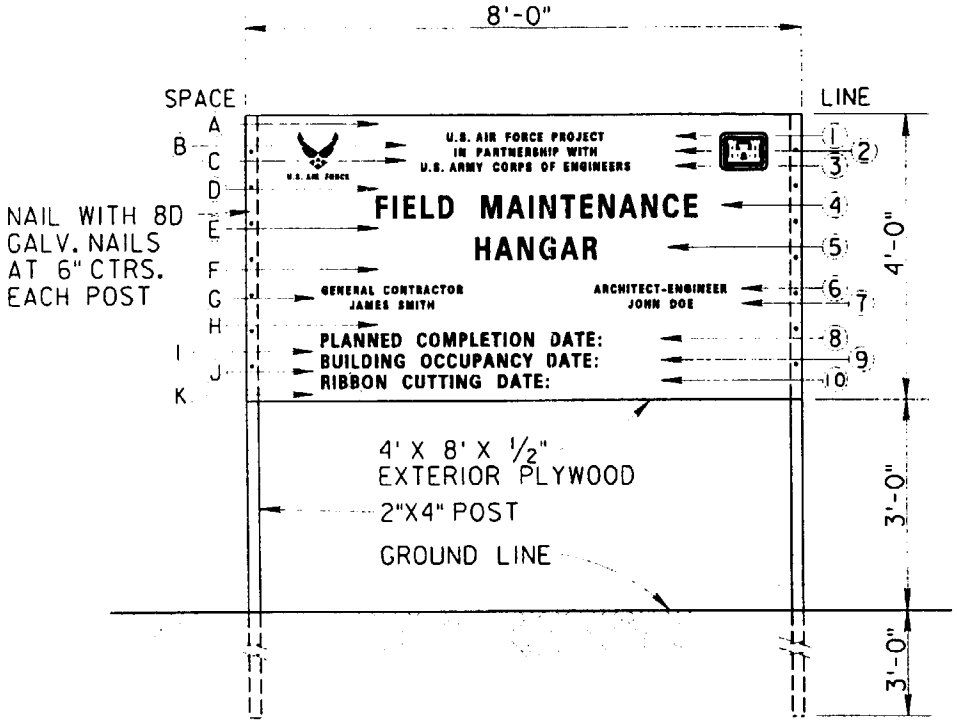
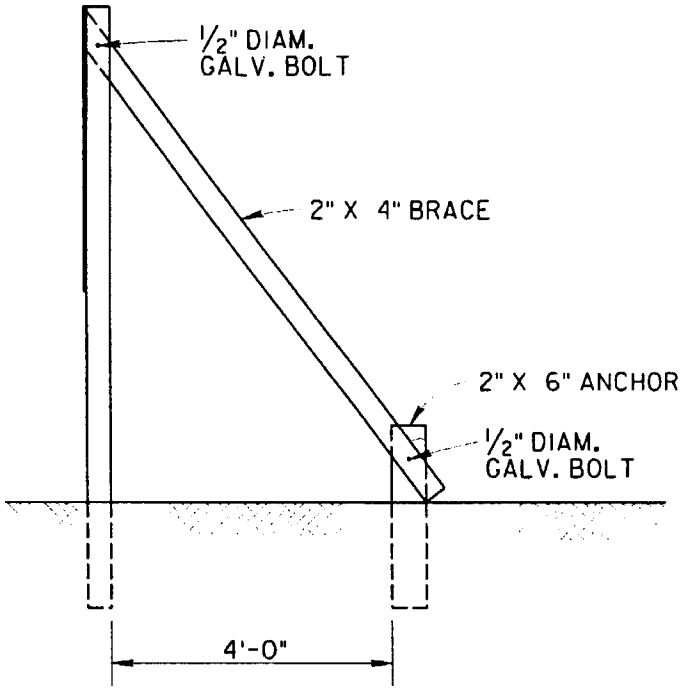
36"
12"
COMPACTED
EARTH FILL



FRONT VIEW



END VIEW

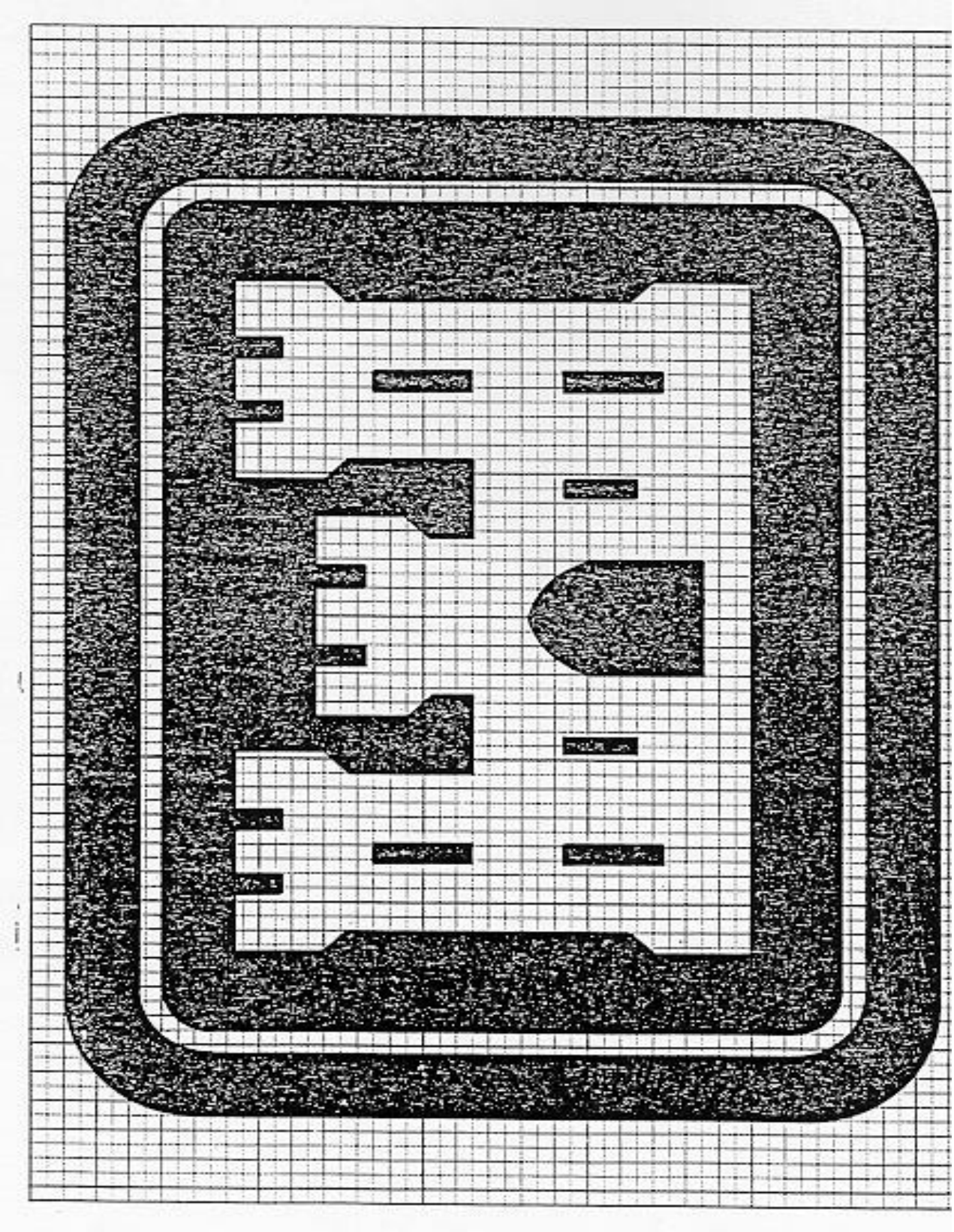
U.S. AIR FORCE PROJECT SIGN DETAILS

NOTES:

1. POSTS SHALL BE S4S.
2. PLYWOOD SHALL BE EXTERIOR TYPE, A-C GRADE.
3. BEFORE PAINTING, SURFACE SHALL BE CLEAN, DRY, FREE OF GREASE AND SANDED.
4. PAINT WITH ONE EXTERIOR OIL PRIME COAT AND EXTERIOR TYPE ALKYD, CONFORMING TO MASTER PAINTERS INSTITUTE MPI-9, MPI GLOSS LEVEL 6. COLOR SHALL MATCH SHERWIN WILLIAMS SW 2175.
5. ALL LETTERING SHALL BE EXTERIOR TYPE ALKYD. COLOR SHALL MATCH SHERWIN WILLIAMS SW 1900.
6. DECALOMANIA FOR CORPS OF ENGINEERS INSIGNIA AND U.S. AIR FORCE EMBLEM WILL BE FURNISHED BY THE CONTRACTING OFFICER FOR INSTALLATION BY THE CONTRACTOR.
7. ALL EXPOSED WOOD (POSTS, SUPPORTS, BACK, ETC.) SHALL BE PAINTED THE SAME BACKGROUND COLOR AS THE SIGN.
8. LETTERING STYLE SHALL BE EITHER HELIOS EXTRA BOLD CONDENSED, HELIOS BOLD II, HELVETICA BLACK ROMAN, OR HELVETICA BOLD ROMAN.

SCHEDULE

SPACE	HEIGHT	LINE	DESCRIPTION	LETTER HEIGHT	STROKE
A	3"	1	U.S. AIR FORCE PROJECT	1.5"	3/16"
B	1"	2	IN PARTNERSHIP WITH	1.5"	3/16"
C	1"	3	U.S. ARMY CORPS OF ENGINEERS	1.5"	3/16"
D	4"	4	PROJECT NAME	4"	1/2"
E	3"	5	PROJECT NAME CONT'D (IF REQ'D)	4"	1/2"
F	4"	6	GENERAL CONTRACTOR/A-E	1.5"	3/16"
G	1"	7	GENERAL CONTRACTOR/A-E	1.5"	3/16"
H	4"	8	PLANNED COMPLETION DATE	2.5"	1/4"
I	1"	9	BUILDING OCCUPANCY DATE	2.5"	1/4"
J	1"	10	RIBBON CUTTING DATE	2.5"	1/4"
K	2"				



CORPS OF ENGINEERS LOGO
HALF SIZE

Last revised 9 May 97

FORMAT
(Ref. FAR 52.236-13 and EM 385-1-1 dated 3 Sep 96)
ACCIDENT PREVENTION PLAN

MINIMUM BASIC OUTLINE FOR ACCIDENT PREVENTION PLAN

An accident prevention plan is, in essence, a safety and health policy and program document. The following areas are typically addressed in an accident prevention plan, but a plan shall be job specific and shall also address any unusual or unique aspects of the project or activity for which it is written. The accident prevention plan shall interface with the employer's overall safety and health program. Any portions of the overall safety and health program that are referenced in the accident prevention plan shall be included as appropriate.

1. SIGNATURE SHEET. Title, signature, and phone number of the following:

a. Plan preparer (corporate safety staff person, QC);

b. Plan approval, e.g., owner, company president, regional vice president (HTRW activities require approval of a Certified Industrial Hygienist (or qualified Industrial Hygiene personnel for in-house USACE activities; a Certified Safety Professional (or qualified USACE safety personnel for in-house work) may approve the plan for operations involving UST removal where contaminants are known to be petroleum, oils, or lubricants);

c. Plan concurrence (provide concurrence of other applicable corporate and project personnel (contractor)), e.g., Corporate Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC. The plan will be developed by qualified personnel (plan preparer) and will be signed by a competent person (plan concurrence) and a representative of the prime contractor's project management team (plan approval).

2. BACKGROUND INFORMATION. List the following:

a. Contractor;

b. Contract number;

c. Project name;

d. Brief project description, description of work to be performed, and location (map);

e. Contractor accident experience (provide information such as EMR, OSHA 200 Forms, corporate safety trend analyses);

f. Listing of phases of work and hazardous activities requiring activity hazards analyses.

3. STATEMENT OF SAFETY AND HEALTH POLICY. (In addition to the corporate policy statement, a copy of the corporate safety program may provide a

significant portion of the information required by the accident prevention plan.)

4. RESPONSIBILITIES AND LINES OF AUTHORITIES.

a. Identification and accountability of personnel responsible for safety - at both corporate and project level (contracts specifically requiring safety or industrial hygiene personnel should include a copy of their resume - the District Safety and Occupational Health Office will review the qualifications for acceptance). For items in EM 385-1-1 which require the use of a competent person or a qualified person, the contractor is to maintain documentation demonstrating the competence or qualification of that individual.

b. Lines of authority

5. SUBCONTRACTORS AND SUPPLIERS. Provide the following:

a. Identification of subcontractors and suppliers (if known);

b. Means for controlling and coordinating subcontractors and suppliers;

c. Safety responsibilities of subcontractors and suppliers.

6. TRAINING.

a. List subjects to be discussed with employees in safety indoctrination.

b. List mandatory training and certifications which are applicable to this project (e. g., explosive actuated tools, confined space entry, crane operator, diver, vehicle operator, HAZWOPER training and certification, personal protective equipment) and any requirements for periodic retraining/recertification.

c. Identify requirements for emergency response training.

d. Outline requirements (who attends, when given, who will conduct etc.) for supervisory and employee safety meetings.

e. Identify location at the project site where the records will be maintained.

7. SAFETY AND HEALTH INSPECTIONS. Provide details on:

a. Who will conduct safety inspections (e.g., project manager, safety professional, QC, supervisors, employees, etc.), when inspections will be conducted, how the inspections will be recorded, deficiency tracking system, follow-up procedures, etc;

b. Any external inspections/certifications which may be required (e.g., Coast Guard).

8. SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, AND COMPLIANCE.

a. The company's written safety program goals, objectives, and accident experience goals for this contract should be provided.

b. A brief description of the company's safety incentive programs (if any) should be provided.

c. Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified.

d. Provide written company procedures for holding managers and supervisors accountable for safety.

9. ACCIDENT REPORTING. The contractor shall identify who shall complete the following, how, and when:

a. Exposure data (man-hours worked);

b. Accident investigations, reports and logs;

c. Immediate notification of major accidents.

10. MEDICAL SUPPORT. Outline on-site medical support and off-site medical arrangements.

11. PERSONAL PROTECTIVE EQUIPMENT. Outline procedures (who, when, how) for conducting hazard assessments and written certifications for use of personal protective equipment.

12. PLANS (PROGRAMS, PROCEDURES) REQUIRED BY THE SAFETY MANUAL (as applicable).

a. Hazard communication program (01.B.04);

b. Emergency response plans:
- procedures and tests (01.E.01)
- spill plans (01.E.01, 06.A.02)
- fire fighting plan (01.E.01, 19.A.04)
- posting of emergency telephone numbers (01.E.04)
- wildfire prevention plan (09.K.01)
- man overboard/abandon ship (19.A.04)

c. Layout plans (04.A.01);

d. Respiratory protection plan (05.E.01);

e. Health hazard control program (06.A.02);

f. Lead abatement plan (06.B.05 & specifications);

g. Asbestos abatement plan (06.B.05 & specifications);

h. Abrasive blasting (06.H.01);

i. Confined space (06.1);

j. Hazardous energy control plan (12.A.07);

k. Critical lift procedures (16.C.17);

l. Contingency plan for severe weather (19.A.03);

m. Access and haul road plan (22.1.10);

n. Demolition plan (engineering and asbestos surveys) (23.A.01);

o. Emergency rescue (tunneling) (26.A.05);

p. Underground construction fire prevention and protection plan (26.D.01);

q. Compressed air plan (26.1.01);

r. Formwork and shoring erection and removal plans (27.B.02);

s. Lift slab plans (27.D.01);

t. SHP and SSHP (for HTRW work an SSHP must be submitted and shall contain all information required by the accident prevention plan - two documents are not required (28.B.01);

u. Blasting plan (29.A.01);

v. Diving plan (30.A.13);

w. Plan for prevention of alcohol and drug abuse (Defense Federal Acquisition Regulation Supplement Subpart 252.223-7004, Drug-Free Work Force).

13. The Contractor shall provide information on how they will meet the requirements of major sections of EM 385-1-1 in the accident prevention plan. Particular attention shall be paid to excavations, scaffolding, medical and first aid requirements, sanitation, personal protective equipment, fire prevention, machinery and mechanized equipment, electrical safety, public safety requirements, and chemical, physical agent, and biological occupational exposure prevention requirements. Detailed site-specific hazards and controls shall be provided in the activity hazard analysis for each phase of the operation. Site-specific hazards are those hazards which would be reasonably be anticipated to occur on the construction site of concern and will be identified through analysis of the activities to be performed. The controls are measures which will be implemented by the contractor to eliminate or reduce each hazard to an acceptable level.

F O R M A T

CONTRACTOR'S NAME
(Address)

CONSTRUCTION QUALITY CONTROL REPORT

Date: _____ Report No. _____

Contract No.: _____

Description and Location of Work: _____

WEATHER: (Clear)(P. Cloudy)(Cloudy); Temperature:___Min,___Max;
Rainfall ___Inches

Contractor/Subcontractors and Area of Responsibility
a._____
b._____
c._____
d._____
e._____
f._____
g._____
h._____

1. Work Performed Today:

(Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in table above.)

_____

2. Results of Control Activities:

(Indicate whether: P-Preparatory, I-Initial, or F-Followup and include satisfactory work completed or deficiencies with action to be taken.)

_____

3. Test Required by Plans and/or Specifications Performed and Results of Tests:

_____

4. Monitoring of Materials and Equipment:

---

5. Offsite Surveillance Activities:

---

6. Job Safety:

(Daily comment required.)

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7. Remarks:

a. (Cover any conflicts in plans, specifications or instructions.)

b. (Action taken in review of submittal.)

c. (Verbal instructions received.)

_____
Inspector

CONTRACTOR'S VERIFICATION:

The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

_____
Contractor's Approved
Authorized Representative

SAMPLE

SMALL AND DISADVANTAGED BUSINESS SUBCONTRACTING PLAN

BETTER BUILDERS, INC.

DATE: February 11, 2003

SOLICITATION NO. DACA21-0X-X-XXXX

TITLE: Barracks Complex, Fort Swampy, Georgia

Type of Work: Design and Construction

In accordance with applicable contract clauses of the solicitation noted above, Better Builders, Inc. submits the following Small Business Subcontracting Plan (includes small, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns).

It is company policy to follow all public laws including P.L. 99-661, Section 1207, P.L. 100-180, Section 806, P.L. 105-135 and P.L. 106-50. We have informed all purchasers to follow these laws in hiring subcontractors and buying materials.

1. The following goals (expressed in terms of percentages of the total dollars available for subcontract/purchase order award) would be applicable to a contract awarded under the cited solicitation. You must also provide the dollar amounts for each of the goals listed below.

    a. Total Proposed Contract Amount: $26,961,000

    b. Total amount available for Subcontract award: $18,300,000

    c. Large Business: $7,832,400 – 42.8%

    d. Total amount to be subcontracted to all small business: $10,467,600 - 57.2%

    e. Small Disadvantaged Business: $1,628,700 – 8.9%

    f. Women-Owned Small Business: $1,482,300 – 8.1%

    g. Service-Disabled Veteran-Owned Small Business: $549,000 - 3%

    h. HUBZone Small Business: $549,000 – 3%

i. There are no options in this solicitation. ***(NOTE: If there are options in the solicitation you must provide the same information as listed in paragraph 1 a-h for each option year/period.)***

j. Indirect and overhead costs have not been included in the goals specified in this section for amounts available for subcontract/purchase order award.

k. Consideration was given to HCBU/MI's but no opportunities were found to be included in the small disadvantaged business goals.

NOTE: While Savannah District does not have a specific goal for subcontracting with Veteran-Owned small business, it must be addressed in any subcontracting plan. However, FAR 52.219-9 requires a goal in your subcontracting plan for Veteran-Owned small business concerns.

2. The following principal products and/or services will be subcontracted under this contract, and the distribution among all small business concerns are as follows:

Large Business - Earthwork
Small Business - Windows and Storm Doors, Recreation, Site Utilities Plumbing
Veteran Owned Small Business – Materials, Equipment
Service Disabled Veteran Owned Small Business – Asphalt, Electrical, Doors
HUBZone Small Business - Window Treatment, HVAC, Concrete
Small Disadvantaged Business - Vinyl Siding, Insulation, Gutters
Women Owned Small Business – Carpentry, Ceramic Tile, Fencing

NOTE: Company names should be provided for each product and/or service listed.

The following method was used in developing our subcontracting goals: (1) all areas of potential subcontract work were determined to be available for subcontract award to all types of small business concerns, and (2) will be actively recruited for participation through the many sources described hereinafter.

3. The following individual will administer this Subcontract Plan on behalf of Better Builders, Inc.:

Name: Freddie Better Title: Executive Vice President

Address and Telephone Number: 4845 Tonka Drive
Fair Haven, CT 27413
800-621-4845

The individual's specific duties with regard to the conduct of our firm's Subcontracting Plan will include, but will not be limited to the following:

a. Developing and maintaining bidders lists of all types of small business concerns using sources such as the Pronet System developed by the Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, Local Minority Business Development Centers and Minority Contractor Associations, and the General Business Services Center in the project's Standard Metropolitan Statistical Area.

b. Assuring the inclusion of all types of small business concerns in all solicitations for products or services which they are capable of providing; and ensuring that all solicitations are structured to permit the maximum possible participation by all types of small business concerns.

c. Establishing and maintaining records of all solicitations and subcontract awards to all types of small business concerns to ensure that the members of the firm who review bidders proposals document their reasons for selecting or not selecting a bid.

d. Preparing and submitting the Subcontracting Report for Individual Contracts (SF 294) and the Summary Subcontract Report (SF 295) in accordance with the instructions provided on the forms, and coordinating and preparing for all compliance reviews by Federal agencies.

e. Conducting or arranging for all other activities necessary to further the intent and attainment of goals of the Plan to include motivational training of the firm's purchasing personnel attendance at workshop, seminars and trade fairs conducted by or on behalf of all types of small business concerns, and general cooperation with members of these concerns or their representatives.

4. The following steps will be taken to ensure that all types of small business concerns receive notice and have an equitable opportunity to compete for intended awards of subcontracts and/or purchase orders for the products and/or services described in paragraph 2 above:

a. Sources will be requested through the SBA's ProNet system, business development organizations, small business trade associations and at small business procurement conferences; sources will be contacted and bidding materials will be provided to all respond ing parties with interest.

b. Internally, motivational training will be conducted to guide and encourage purchasing personnel; source lists and guides to all types of small business concerns will be maintained and utilized by purchasing personnel while soliciting subcontracts and purchase orders; activities will be monitored to ensure sufficient time is allowed for interested bidders to prepare their bids and to evaluate continuing compliance with this Subcontracting Plan.

5. Better Builders, Inc. agrees that the clause entitled "Utilization of Small Business Concerns" will be included in all subcontracts which offer further subcontracting opportunities. All subcontractors, except small business concerns, who receive subcontracts in excess of $500,000 ($1,000,000 in the case of construction) will be required to adopt and comply with a subcontracting plan similar to this one. Such plans will be reviewed to assure that all minimum requirements of an acceptable subcontracting plan have been satisfied.

The acceptability of goals shall be determined on a case-by-case basis depending on the supplies/services involved, the availability of all potential small business and prior experience. Once approved and implemented, plans will be monitored through the submission of periodic reports or, as time and availability of funds permit, periodic visits to subcontractor's facilities to review applicable records and subcontracting program progress.

6. Better Builders, Inc. agrees to submit such periodic reports and cooperate in any studies or surveys as may be required by the Contracting agency or the Small Business Administration in order to determine the extent of compliance by the offeror with the subcontracting plan and with the clause entitled "Utilization of Small Business Concerns" contained in the solicitation.

7. Better Builders, Inc. agrees to maintain at least the following types of records to document compliance with this Subcontracting Plan:

a. The names of all organizations, agencies, and associations contacted for all small business sources, along with records of attendance at conferences, seminars and trade fairs where additional sources were developed.

b. Source lists, guides, and other data identifying all types of small business concerns

c. Records on all subcontract solicitations, on a contract-by-contract basis, indicating (1) whether all types of small business concerns were solicited, and if not, why not; and (2) the reasons for the failure of all solicited small businesses to receive a subcontract award.

d. Records of all subcontract award data, to include subcontractor's name and address, to be kept on a contract-by-contract basis.

e. Minutes of internal motivational and training meetings held for the guidance and encouragement of purchasing personnel, and records of all monitoring activities performed for compliance evaluation.

f. Copies of SF 294 and SF 295 showing date and place of filing and copies of all other reports or results of reviews conducted by the contracting agency or other interested agencies of the Federal government to monitor our compliance with this Subcontracting Plan.

In closing Better Builders, Inc. states that it will be the policy of Better Builders, Inc. to afford every practicable opportunity to all types of small business concerns to participate in construction contracts awarded to Better Builders, Inc. by the Federal Government to ensure that equitable opportunity is provided to all types of small business concerns to compete for award of subcontracts and purchase orders, and to diligently pursue the achievement of our goals by participation of all types of small business concerns in the dollars available for subcontract/purchase order award under the solicitation.

BY_____ DATE _____

_____
Signature

_____
Title, and Company Name

_____ DATE _____
Contract Specialist

Approval Recommended

_____ DATE _____
SADBU

Approve/Disapprove

_____ DATE _____
Contracting Officer

Approve/Disapprove

_____ DATE _____
Procurement Center Representative
Small Business Administration

WEEKLY TEMPORARY ELECTRICAL INSPECTION

Week ending _____

Contract No. _____

Contract Description _____

The following items were inspected in accordance with requirements in National Electrical Code and Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1.

1. Wire (size, type, condition).

2. Systems and devices (polarity, continuity of ground, resistance to ground).

3. Resistance of ground rods (25 OHMS) measured and recorded.

4. Check GFI for 15/20 amp 120 volt circuits.

5. Plugs and receptacles (type, NEMA rating).

6. Circuit breakers and disconnect (size, type, weatherproof).

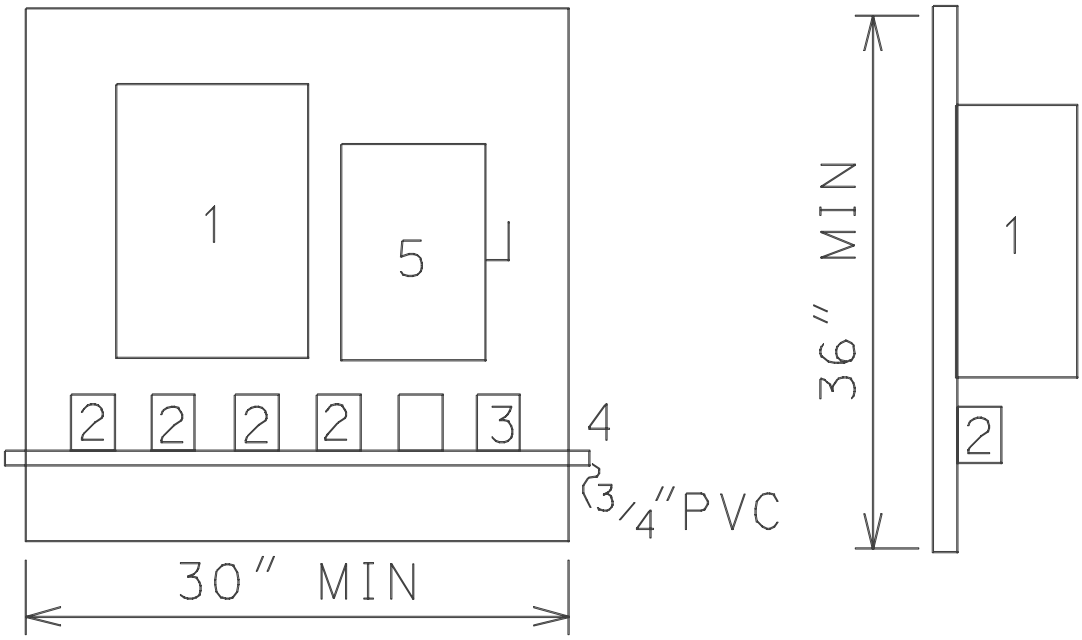
7. Extension cords (type, UL listed, insulation condition, splices, location).

8. Open wiring on insulators, nonmetallic sheathed cable, outside clearance (600 volts or less), Festoon lighting (as applicable).

_____

Signature Electrician/Electrical Engineer

MINIMUM STANDARD FOR TEMPORARY ELECTRICAL SERVICE



(DIMENSIONS ARE APPROXIMATE)

A. The backboard for temporary service shall consist of not less than 1/2 inch plywood of exterior grade.

B. Numbers above correspond to the item below:

Item 1 - NEMA 3R circuit breaker type panelboard. This panelboard shall consist of 1 two-pole 60 amp main circuit breaker, 4* one pole 20 AMP branch circuit breakers, and 1* two pole 20 AMP branch circuit breaker. Breakers shall meet Federal Specifications Standards for Class 1A breakers and shall be plug-in type. (*Number of breakers to be adjusted to suit the job requirements.)

Item 2 - Duplex grounding type convenience outlets in standard utility type outlet boxes with covers, meeting the NEC and NEMA requirements for wet locations. Connections to the branch circuit breakers shall be grounded by two conductors #12 NMC cable.

Item 3 – (Optional) A single three-conductor grounding type outlet rated for 250 volt service meeting the NEC and NEMA requirements for wet locations. Connections from this outlet to the two pole breaker shall be by two conductor grounded type NMC cable.

Item 4 - 3/4 inch PVC. This shall be used to support extension cords.

Item 5 – NEMA 3R service disconnect safety switch – 60 amp minimum.

C. The panelboard shall be grounded by #6 copper wire connected to a 3/4 inch by 10-foot long ground rod.

D. Service to the panel shall consist of three copper conductor #6 minimum service entrance cable. This cable may enter the top or side of the panelboard.

E. Periodic inspections of systems and devices will be made by the Contractor at intervals not to exceed 1 week, and a report will be submitted indicating the results.

F. All receptacle outlets that provide temporary electrical power during construction, remodeling, maintenance, repair, or demolition shall have ground-fault circuit-interrupter (CFCI) protection for personnel. GFCI protection shall be provided on all circuits serving portable electric hand tools or semi-portable electric power tools (such as block/brick saws, table saws, air compressors, welding machines, and drill presses). See EM 385-1-1 for exceptions.

G. Per EM 385-1-1 all temporary power distribution systems shall be submitted to the field office before installation.

ACTIVITY HAZARD ANALYSIS

1. Phase of Construction		
2. Location	3. Contract No.	4. Project
5. Prime Contractor	6. Date of Preparatory	7. Estimated Start Date
Potential Safety Hazard	Procedure to Control Hazard	
8. Contractor's Representative (signature)	9.	

SAS Form 9
1 Jan 82

SAFETY CHECKLIST FOR CRAWLER, TRUCK & WHEEL MOUNTED CRANES

Contract # and title:	
Equipment name & number: owned or leased?	
Contractor:	Subcontractor:
Contract Inspector:	Date inspected:

	Yes	No	N/A
1. Unless the manufacture has specified an on-rubber rating, outriggers will be fully extended and down? (16.D.10)			
2. Are lattice boom cranes equipped with a boom angle indicator, load indicating device, or a load moment indicator? (16.D.01)			
3. Are lattice boom and hydraulic cranes equipped with a means for the operator to visually determine levelness? (16.D.02)			
4. Are lattice boom and hydraulic cranes, except articulating booms cranes, equipped with drum rotation indicators located for use for the operator? (16.D.03)			
5. Are lattice boom and hydraulic mobile cranes equipped with a boom angle or radius indicator within the operator’s view? (16.D.04)			
6. Are lattice boom cranes, with exception of duty cycle cranes, equipped with an anti-two blocking device? (16.D.05)			
7. When duty cycle machines are required to make a non-duty lift, is the crane equipped with an international orange warning device and is a signal person present? (16.D 05)			
8. Are the following with the crane at all times: (16.C.02) a. the manufacturer’s operating manual? b. the load rating chart? c. the crane’s log book documenting use, maintenance, inspections and tests? d. operating manual for crane operator aids used on the crane.			

	Yes	No	N/A
9. Are the following on the project site: a. completed periodic inspection report prior to initial work? (16.C.12) b. pre-operational checklist used for daily inspection? (16.C.12) c. written reports of the operational performance test? (16.C.13) d. written reports of the load performance test? (16.C.13)			
10. Are all operators physically qualified to perform work? (16.C.05)			
11. Are all operators qualified by written and practical exam or by appropriate licensing agency for the type crane they are to operate? (16.C.05)			
12. Is the crane designed and constructed IAW the standards listed in Table 16-1? (16.C.06)			
13. Is a hazard analysis for set-up and set-down available? (16.C.08)			
14. Are accessible areas within the swing radius of the rear of the crane barricaded? (16.C.09)			
15. Are there at least 3 wraps of cable on the drum? (16.C.10)			
16. Are the hoisting ropes installed IAW the manufacturer’s recommendations? (16.C.10)			
17. Are critical lift plans available? (16.C.18)			
18. Are minimum clearance distance for high voltage lines posted at the operator’s position? (11.E.04)			
19. Do older lattice boom cranes with anti-two block warning devices in lieu of anti-two block prevention devices have a written exemption? (16.D.05)			
20. Is the slow moving emblem used on all vehicles which by design move at 25 MPH or less on public roads? (08.A.04)			
21. Are all vehicles which will be parked or moving slower than normal traffic on haul roads equipped with a yellow flashing light or flasher visible from all directions? (16.A.13)			

	Yes	No	N/A
22. Is all equipment to be operated on public roads provided with: (16A.07) a. headlights? b. brake lights? c. taillights? d. back-up lights? e. front and rear turn signals?			
23. Are seat and seat belts provided for the operator and each rider on equipment? (16.A.07 and 16.B.08)			
24. Is all equipment with windshields equipped with powered wipers and defogging or defrosting devices? (16.A.07)			
25. Is the glass in the windshield or other windows clear and unbroken to provide adequate protection and visiblity for the operator? (16.A.07, 16.B.10)			
26. Is all equipment equipped with adequate service brake system and emergency brake system? (16.A.18)			
27. Are areas on equipment where employees walk or climb equipped with platforms, footwalks, steps, handholds, guardrails, toeboards and non-slip surfaces? (16.B.03)			
28. Is all self propelled equipment equipped with automatic, audible, reverse signal alarms? (16.B.01)			
29. Is there a record of manufacturer’s approval of any modification of equipment which affects its capacity or safe operation? (16.A.18)			
30. Are truck and crawler cranes attached to a barge or pontoon by a slack tiedown system? (16.F.06)			
31. Have the following conditions been met for land cranes mounted on barges or pontoons: (16.F.04) a. Have load ratings been modified to reflect the increased loading from list, trim, wave, and wind action? b. Are all deck surfaces above the water? c. Is the entire bottom area of the barge or pontoon submerged? d. Are tie downs available? e. Are cranes blocked and secured?			
32. Are all belts, gears, shafts, spindles, drums, flywheels, or other rotating parts of equipment guarded where is a potential for exposure to workers? (16.B.03)			

	Yes	No	N/A
33. Is the area where the crane is to work level, firm and secured? (16.A.10)			
34. Is a dry chemical or carbon dioxide fire extinguisher rated at least 5-B:C on the crane? (16.A.26)			
35. Are trucks, for truck mounted cranes, equipped with a working reverse signal alarm? (16.B.01)			
36. Is a signal person provided where there is danger from swinging loads, buckets, booms, etc.? (16.B.13)			
37. Is there adequate clearance from overhead structures and electrical sources for the crane to be operated safely? (16.C.09)			
38. Is there adequate lighting for night operations? (16.C.19)			
39. Has the the boom stop test on cable-supported booms been performed? (16.D.06)			
40. Is the boom disenaging device functioning as required? (16.D.06)			
41. Has all rigging and wire rope been inspected? (Section 15)			
Remarks:(Enter actions taken for all “no” answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR PORTAL, TOWER, AND PILLAR CRANES

Contract # and Title:			
Equipment name & number: owned or leased?			
Contractor:	Subcontractor:		
Contract Inspector:	Date Inspected:		
	Yes	No	N/A
1. Are the following available: (16.E.02) a. written erection instructions? b. listing of the weight of each component? c. an activity hazard analysis for the erection? d. does the activity hazard analysis contain (1.) location of crane and adjacent structures? (2.) foundation design and construction requirements? (3.) clearance and bracing requirements?			
2. Is there a boom angle indicator within the operator's view? (16.E.04)			
3. Are luffing jib cranes equipped with: (16.E.05) a. shock absorbing jib stops? b. jib hoist limit switch? c. jib angle indicator visible to operator?			
4. If used, do rail clamps have slack between the point of attachment to the rail and the end fastened to the crane? (16E.06)			
5. Are the following with the crane at all times: (16.C.02) a. the manufacturer's operating manual? b. the load rating chart? c. the crane's log book documenting use, maintenance, inspections and tests? d. the operating manual for crane operational aids used on the crane?			

	Yes	No	N/A
6. Are the following on the project site: a. completed periodic inspection report prior to initial work? (16.C.12) b. pre-operational checklist used for daily inspections? (16.C.12) c. written reports of the operational performance tests? (16.C.13) d. written reports of the load performance tests? (16.C.13)			
7. Is every crane operator certified by a physician to be physically qualified to perform work? (16.C.05)			
8. Are all operators qualified by written and practical exam or by appropriate licensing agency for the type crane they are to operate? (16.C.05)			
9. Is the crane designed and constructed IAW the standards listed in Table 16-1? (16.C.05)			
10. Is a hazard analysis for set-up and set-down available? (16.C.08)			
11. Are there at least 3 wraps of cable on the drum? (16.C.10)			
12. Are the hoisting ropes installed IAW the manufacturer’s recommendations? (16.C.10)			
13. Is the a record of manufacturer’s approval of any modification of equipment which affects its capacity or safe operation? (16.A.07)			
5. Remarks: (Enter actions taken)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR RIGGING

Contract # and title:			
Equipment name & number: owned or leased?			
Contractor	Subcontractor:		
Contractor inspector:	Date inspected:		
	Yes	No	N/A
1. Has all defective rigging been removed? (15.A.01)			
2. Is rigging stored properly? (15.A.01)			
3. Are running lines within 6.5’ of the ground or working level guarded? (15.A.03)			
4. Are all eye splices made in an approved manner with rope thimbles? (sling eyes excepted) (15.A.04)			
5. Are positive latching devices used to secure loads? (15.A.05)			
6. Are all custom lifting accessories marked to indicate their safe working loads? (15A.07)			
7. Are all custom designed lifting accessories proof-tested to 125% of their rated load? (15.A.07)			
8. Are the following conditions met for wire rope: (15.B.01-09) a. Are they free of rust or broken wires? b. Are defective ropes cut up or marked as unusable? c. Do rope clips attached with U-bolts have the U-bolts on the dead end or short end of the rope? d. Are protruding ends of strands in splices on slings and bridles covered or blunted? e. Except for eye splices in the end of wires and for all endless wire rope slings, are all wire ropes used in hoisting, lowering, or pulling loads one continuous piece, free of knots or splices?			

	Yes	No	N/A
f. Do all eye splices have at least 5 full tucks? g. If used, are wedge sockets fastening attached without attached the dead end of the wire rope to the live rope? h. Are they free of eyes or splices formed by wire rope clips or knots?			
9. Are the following conditions met for chain? (15.C.01-04) a. Are all chains alloyed? b. Do all coupling links or other attachments have rated capacities at least equal to that of the chain. c. Are makeshift fasteners restricted from use?			
10. Are the following conditions met for fiber rope:(15.D.01-07) a. Are all ropes protected from freezing, excessive heat or corrosive materials? b. Are all ropes protected from abrasion? c. Are splices made IAW manufacture's recommendations? d. Do all eye splices in manila rope contain at least 3 full tucks and do all short splices contain at least 6 full tucks(3 on each side of the centerline of the splice)? e. Do all splices in layed synthetic fiber rope contain at least 4 full tucks and do short splices contain at least 8 full tucks (4 on each side of the centerline of the splice)? f. Do the tails of fiber rope splices extend at least 6 rope diameters (for rope 1" diameter or greater) past the last full tuck? g. Are all eye splices large enough to provide an included angle of not greater than 60* at the splice when the eye is placed over the load or support?			
11. Are the following conditions met for all slings:(15.E.01-06) a. Is protection provided between the sling and sharp surfaces? b. Do all rope slings have minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice? c. Do all braided slings have a minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice?			

	Yes	No	N/A
d. Do all welded alloy steel chain slings have affixed permanent identification stating size, grade, rated capacity and manufacturer? e. Is each synthetic web sling marked or coded to identify its manufacturer, rated capacities for each type hitch and the type material?			
12. Are drums, sheaves, and pulley smooth and free of surface defects? (15.F.01)			
13. Is the ratio of the diameter of the rigging and the drum, block sheave or pulley thread diameter such that the rigging will adjust without excessive wear, deformation, or damage? (15F.02)			
14. Have all damaged drums, sheaves and pulleys been removed from service? (15.F.04)			
15. Are all connections, fittings, fastenings, and attachments of good quality, proper size and strength, and installed IAW manufacturer's recommendations? (15.F.05)			
16. Are all shackles and hooks sized properly? (15.F.06 & .07)			
17. Are hoisting hooks rated at 10 tons or greater provided with safe handling means? (15.F.07)			
18. Do all drums have sufficient rope capacity? (15.F.08)			
19. Is the drum end of the rope anchored by a clamp securely attached to the drum in a manner approved by the manufacturer? (15.F.08)			
20. Do grooved drums have the correct groove pitch for the diameter of the rope and is the groove depth correct? (15.F.08)			
21. Do the flanges on grooved drums project beyond the last layer of rope at a distance of either 2″ or twice the diameter of the rope, whichever is greater? (15.F.08)			
22. Do the flanges on ungrooved drums project beyond the last layer of rope a distance of either 2.5″ or twice the diameter of the rope, which ever is greater.			

	Yes	No	N/A
23. Are the sheaves compatible with the size of rope used and as specified by the manufacture? (15F.09)			
24. Are sheaves properly aligned, lubricated, and in good condition? (15.F.09)			
25. When rope is subject to riding or jumping off a sheave, are sheaves equipped with cablekeepers? 915.F.09)			
26. Are eye bolts loaded in the plane of the eye and at angles less than 45* to the horizontal? (15.F.10)			
27. Remarks: (Enter actions taken for “no” answers.)			
Contractor inspector signature			
Contractor QC/safety/project manager signature			

SAFETY CHECKLIST FOR MOTOR VEHICLES , TRAILERS AND TRUCKS

Contract # and title: owned or leased?	
Equipment name & number:	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Are records of safety inspections of all vehicles available? (18.A.02)			
2. Are all vehicles to be operated between sunset and sunrise equipped with: (18.A.04) a. 2 headlights? b. taillights and brake lights? c. front and back turn signals? d. 3 emergency flares, reflective markers, or equivalent portable warning devices?			
3. Are vehicles, except trailers or semi-trailers having a gross weight of 5000 lbs or less, equipped with service brakes and manually operated parking brakes? (18.A.05)			
4. Are service brakes on trailers and semitrailers controlled from the driver’s seat of the prime mover? (18A.06)			
5. Does the vehicle have: (18.A.06) a. a speedometer? b. a fuel gage? c. an audible warning device (horn)? d. a windshield & adequate windshield wiper? e. an operable defroster and defogging device? f. an adequate rearview mirror? g. a cab, cab shield, and other protection to protect the driver from the elements and falling or shifting materials? h. non-slip surfaces on steps? I. a power-operated starting device?			

	Yes	No	N/A
6. Is all the glass safety glass and is all broken or cracked glass replace? (18.A.07)			
7. Do trailers meet the following: (18A.08) a. Are all towing devices adequate for the weight drawn? b. Are all towing devices properly mounted? c. Are locking devices or a double safety system provided on every 5th wheel mechanism and tow bar arrangement to prevent accidental separation? d. Are trailers coupled with safety chains or cables to the towing vehicle? e. Are trailers equipped with the power brakes equipped with a break-away device which will lock-up the brakes in the event the trailer separates from the towing vehicle?			
8. Are all dump trucks:(18.A.10) a. equipped with a holding device to prevent accidental lowering of the body? b. equipped with a hoist lever secured to prevent accidental starting or tipping? c. equipped with means to determine (from the operator’s position) if the dump box is lowered? d. equipped with trip handles for tailgates that allow the operator to be clear?			
9. Are all buses, trucks and combination of vehicles with a carrying capacity of 1.5 tons or more, to be operated on public roads equipped with: (18.A.11) a. 3 reflective markers? b. 2 wheel chocks for each vehicle? c. at least one 2A:10B:C fire extinguisher? d. at least two properly rated fire extinguishers (for vehicles carrying flammable cargo)? e. a red flag not less than 1 foot square.			
10. Is vehicle exhaust controlled so as not to present a hazard to personnel? (18.A.13)			
11. Are all rubber tired motor vehicles equipped with fenders or with mud flaps if the vehicle is not designed for fenders? (18.A.14)			

	Yes	No	N/A
12. Are all vehicles, except buses, equipped with seat belts? (18.B.02)			
13. Does all self-propelled construction and industrial equipment have a working reverse signal alarm? (16.B.01)			
14. Are all hot surfaces of equipment, including exhaust pipes or other lines, guarded or insulated to prevent injury or fire? (16.B.03)			
15. If an off the road vehicle, is it equipped with rollover protective structures? (16.B.12)			
16. Remarks: (Enter actions taken for “no” answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR CRAWLER TRACTORS AND DOZERS

Contract # and title:	
Equipment name & number: owned or leased?	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Are initial and daily/shift inspection records available? (16.A.01& .02)			
2. Are only qualified operators assigned to operate mechanized equipment? (16.A.04)			
3. Are sufficient lights provided for night operations? (16.A.11)			
4. Is the unit shut down before refueling? (16.A.14)			
5. Does the unit have as a minimum a 5-B:C fire extinguisher? (16.A.26)			
6. Is there an effective, working reverse alarm? (16.B.01)			
7. Are moving parts, shafts, sprockets, belts, etc., guarded? (16.B.03 ,07, and 13)			
8. Is protections against hot surfaces, exhausts, etc., provided? (16.B.03 and .13)			
9. Are fuel tanks located in a manner to prevent spills or overflows from running onto engine exhaust or electrical equipment?			

	Yes	No	N/A
10. Are exhaust discharges directed so they do not endanger person of obstruct operator vision?(16.B.05)			
11. Are seat belts provided? (16B.08)			
12. Is protection (grills, canopies, screens) provided to shield operator from falling or flying objects? (16.B.10 and .11)			
13. Is roll over protection provided? (16.B.12)			
14. Remarks: (Enter actions taken for “no” answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR SCRAPERS, MOTOR GRADERS , AND OTHER MOBILE EQUIPMENT

Contract # and title:	
Equipment name and number: owned or leased?	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Are initial and daily/shift inspection records available? (16.A.01 & .02)			
2. Are only qualified operators assigned to operate equipment? (16.A.04)			
3. Are sufficient lights provided for night operations? (16.A.11)			
4. Does the unit have as a minimum a 5-B:C fire extinguisher? (16.A.26)			
5. Is there an effective working reverse alarm? (16.B.01)			
6. Is the unit shut down for refueling? (16.A.14)			
7. Are moving parts, shafts, sprockets, belts, etc., guarded? (16.B.03, .07 and .13)			
8. Is protection against hot surfaces, exhausts, etc., provided? (16.B.03 and .13)			
9. Are fuel tanks located in a manner to prevent spills or overflow from running onto engine exhaust or electrical equipment? (16.B.04)			
10. Are exhaust discharges directed so they do not endanger persons or obstruct operator vision? (16.B.05)			

	Yes	No	N/A
11. Are seat belts provided for each person required to ride on the equipment? (16.B.08)			
12. Is protection (grills, canopies, screens) provided to shield operators from falling or flying objects? (16.B.10 and .11)			
13. Is roll over protection provided? (16.B.12)			
14. Is a safe means of access to the cab provided (steps, grab bars, non-slip surfaces)? (16.B.03)_			
15. Are adequate head and tail lights provided? (16.A.07)			
16. Have brakes been tested and found satisfactory? (16.A.07)			
17. Does the unit have an emergency brake which will automatically stop the equipment upon brake failure? Is this system manually operable from the drivers position? (16.A.07)			
18. Is all equipment with windshields equipped with powered wipers and defogging or defrosting system? (16.A.07)			
19. Are all vehicles which will be parked or moving slower than normal traffic on haul roads equipped with a yellow flashing light or flasher visible from all directions? (16.A.13)			
20. Is the slow moving emblem used on all vehicles which by design move at 25 MPH or less on public roads? (08A.04)			

	Yes	No	N/A
21. Have air tanks been tested and certified? (20.A.01)			
22. Is an air pressure gage in working condition installed on the unit? (20.A.12)			
23. Does the air tank have an accessible drain valve? (20.B.17)			
24. Remarks: (Enter action taken for all “no” answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager			

SAFETY CHECKLIST FOR MATERIAL HOISTS

Contract # and title:	
Equipment name & number:	
Contractor:	Subcontractor:
Contract Inspector:	Date inspected:

	Yes	No	N/A
1. Are all hoist towers, masts, guys or braces, counterweights, drive machinery supports, sheave supports, platforms, supporting structures, and accessories designed by a licensed engineer? (16.K.02)			
2. Is a copy of the hoist operating manual available? (16.K.04)			
3. Do all floors and platforms have slip-resistant surfaces? (16.K.08)			
4. Are landings and runways adequately barricaded and is overhead protection provided where needed? (16.K.08)			
5. Are hoisting ropes installed IAW manufacturer's instructions? (16.K.10)			
6. Are operating rules posted at the hoist operator's station? (16.K.14)			
7. Are air powered hoists connected to an air supply of sufficient capacity and pressure to safely operate the hoist? (16.K.15)			
8. Are pneumatic hoses secured by some positive means to prevent accidental disconnection? (16.K.15)			
9. Remarks: (Enter actions taken for all "no" answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAD Form 1666g-R Mar 97 Previous editions may be used for contracts referencing the 1992 edition of EM 385-1-1.

SAFETY CHECKLIST FOR EARTH DRILLING EQUIPMENT

Contract # and title:	
Equipment name & number:	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Is a copy of the manual for all drilling equipment available? (16.M.01)			
2. Have all overhead electrical hazards and potential ground hazards been identified in a site layout plan and addressed in an activity hazard analysis? (16.M.02)			
3. Are MSDSs for all drilling fluids available? (16.M.05)			
4. Does the drilling equipment have 2 easily accessible emergency shut down devices (one for the operator and one for the helper)? (16.M.06)			
5. Is the equipment posted with a warning of electrical hazards? (16.M.06)			
6. Is there a spotter or an electrical proximity warning device available to ensure safe distances from power lines are maintained? (16.M.06)			
7. Remarks: (Enter actions taken for “no” answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager			

SAD Form 1666h-R Mar 97 Previous editions may be used for contracts referencing the 1992 edition of EM 385-1-1.

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE *(Read instructions on the reverse side prior to initiating this form)*	DATE	TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____
SPECIFICATION SEC. NO. *(Cover only one section with each transmittal)*	PROJECT TITLE AND LOCATION		CHECK ONE: THIS TRANSMITTAL IS FOR ☐ FIO ☐ GOV'T. APPROVAL

ITEM NO. *a.*	DESCRIPTION OF ITEM SUBMITTED *(Type size, model number/etc.)* *b.*	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. *(See instruction no. 8)* *c.*	NO. OF COPIES *d.*	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE *g.*	VARIATION *(See instruction No. 6)* *h.*	FOR CE USE CODE *i.*
				SPEC. PARA. NO. *e.*	DRAWING SHEET NO. *f.*			

REMARKS	I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated. NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.

4. Submittals requiring expeditious handling will be submitted on a separate form.

5. Separate transmittal form will be used for submittals under separate sections of the specifications.

6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".

7. Form is self-transmittal, letter of transmittal is not required.

8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A -- Approved as submitted.

B -- Approved, except as noted on drawings.

C -- Approved, except as noted on drawings.
Refer to attached sheet resubmission required.

D -- Will be returned by separate correspondence.

E -- Disapproved (See attached).

F -- Receipt acknowledged.

FX -- Receipt acknowledged, does not comply as noted with contract requirements.

G -- Other *(Specify)*

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

COST ESTIMATE ANALYSIS

For use of this form, see TM 5-800-2; the proponent agency is USACE.

PROJECT	INVITATION/CONTRACTOR	EFFECTIVE PRICING DATE	DATE PREPARED
LOCATION	CODE (Check one) ☐ A ☐ B ☐ C ☐ OTHER	DRAWING NO.	SHEET OF SHEETS
		ESTIMATOR	CHECKED BY

TASK DESCRIPTION	QUANTITY		LABOR				EQUIPMENT		MATERIAL		TOTAL	SHIPPING	
	NO. OF UNITS	UNIT MEAS	MH UNIT	TOTAL HRS	UNIT PRICE	COST	UNIT PRICE	COST	UNIT PRICE	COST		UNIT WT	TOTAL WT
TOTAL THIS SHEET													

DA FORM 5418-R, Apr 85

TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY

Form Approved
OMB No. 0704-0188

PAGE OF PAGES

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, Va 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. **FROM** *(Installation/Activity/Service and Zip code)*	2. OPERATING UNIT	3. DISTRICT CODE	4. OPERATING AGENCY	5. DATE	6. JOB NUMBER	7. SERIAL NUMBER	8. CONTRACT NUMBER

9. **TO** *(Installation/Activity/Service and Zip code)*	10. OPERATING UNIT	11. DISTRICT CODE	12. OPERATING AGENCY	13. ACCOUNTING NUMBER	14. ACCOUNTABLE OFFICE NUMBER	15. TYPE OF TRANSACTION		16. PROJECT NUMBER
						A. ☐ NEW CONSTR. ☐ EXISTING FAC. ☐ CAPITAL IMP. ☐ OTHER *(Specify)*	B. ☐ BENF/O ☐ PHYSICAL COM. ☐ FINAN. COM. ☐ OTHER *(Specify)*	

ITEM NO. 17	CATEGORY CODE 18	FACILITY *(Category description)* 19	NO. OF UNITS 20	TYPE 21	UNIT OF MEAS. 22	TOTAL QUANTITY 23	COST 24	DRAWING NUMBERS 25	REMARKS 26

27.		28. ACCEPTED BY *(Signature)*	DATE
TRANSFERRED BY *(Signature)*	DATE	TITLE *(Post Engr./Base Civ. Engr./Navy Rep.)*	29. PROPERTY VOUCHER NUMBER
TITLE *(Area Engr./Base Engr./DPWO)*			

30. CONSTRUCTION DEFICIENCIES

31. REMARKS

INSTRUCTIONS

This form has been designed and issued for use in connection with the transfer of military real property between the military departments and to or from other government agencies. It supersedes ENG Forms 290 and 290B (formerly used by the Army and Air Force) and NAVDOCKS Form 2317 (formerly used by the Navy).

Existing instructions issued by the military departments relative to the preparation of the three superseded forms are applicable to this form to the extent that the various items and columns on the superseded forms have been retained. Additional instructions, as appropriate, will be promulgated by the military departments in connection with any new items appearing hereon.

With the issuance of this DD form, it is not intended that the departments shall revise and reprint manuals and directives simply to show the number of this DD form. Such action can be accomplished through the normal course of revision for other reasons.

RECORD OF WEIGHTED GUIDELINES APPLICATION

REPORT CONTROL SYMBOL
DD-AT&L(Q)1751

1. REPORT NO.	2. BASIC PROCUREMENT INSTRUMENT IDENTIFICATION NO.				3. SPIIN	4. DATE OF ACTION	
	a. PURCHASING OFFICE	b. FY	c. TYPE PROC INST CODE	d. PRISN		a. YEAR	b. MONTH

5. CONTRACTING OFFICE CODE		ITEM	COST CATEGORY	OBJECTIVE
6. NAME OF CONTRACTOR		13.	MATERIAL	
		14.	SUBCONTRACTS	
7. DUNS NUMBER	8. FEDERAL SUPPLY CODE	15.	DIRECT LABOR	
		16.	INDIRECT EXPENSES	
9. DOD CLAIMANT PROGRAM	10. CONTRACT TYPE CODE	17.	OTHER DIRECT CHARGES	
		18.	SUBTOTAL COSTS *(13 thru 17)*	
11. TYPE EFFORT	12. USE CODE	19.	GENERAL AND ADMINISTRATIVE	
		20.	TOTAL COSTS *(18 + 19)*	

WEIGHTED GUIDELINES PROFIT FACTORS

ITEM	CONTRACTOR RISK FACTORS	ASSIGNED WEIGHTING	ASSIGNED VALUE	BASE *(Item18)*	PROFIT OBJECTIVE
21.	TECHNICAL	%			
22.	MANAGEMENT/COST CONTROL	%			
23.	RESERVED				
24.	PERFORMANCE RISK (COMPOSITE)				
25.	CONTRACT TYPE RISK				
26.	WORKING CAPITAL	COSTS FINANCED	LENGTH FACTOR	INTEREST RATE	
				%	
	CONTRACTOR FACILITIES CAPITAL EMPLOYED		ASSIGNED VALUE	AMOUNT EMPLOYED	
27.	LAND				
28.	BUILDINGS				
29.	EQUIPMENT				
30.	TOTAL PROFIT OBJECTIVE				

NEGOTIATED SUMMARY

		PROPOSED	OBJECTIVE	NEGOTIATED
31.	TOTAL COSTS			
32.	FACILITIES CAPITAL COST OF MONEY *(DD Form 1861)*			
33.	PROFIT			
34.	TOTAL PRICE *(Line 31 + 32 + 33)*			
35.	MARKUP RATE *(Line 32 + 33 divided by 31)*	%	%	%

CONTRACTING OFFICER APPROVAL

36. TYPED/PRINTED NAME OF CONTRACTING OFFICER *(Last, First, Middle Initial)*	37. SIGNATURE OF CONTRACTING OFFICER	38. TELEPHONE NO.	39. DATE SUBMITTED *(YYYYMMDD)*

OPTIONAL USE

96.	97.	98.	99.

Approved by OM 0348-0046

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure.)

1. Type of Federal Action:

☐ a. contract
b. grant
c. cooperative agreement
d. loan
e. loan guarantee
f. loan insurance

2. Status of Federal Action:

☐ a. bid/offer/application
b. initial award
c. post-award

3. Report Type:

☐ a. initial filing
b. material change

For Material Change Only:
year _____ quarter _____
date of last report _____

4. Name and Address of Reporting Entity:

☐ Prime ☐ Subawardee
Tier _____, *if known*:

Congressional District, *if known:*

5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:

Congressional District, *if known*:

6. Federal Department/Agency:

7. Federal Program Name/Description:

CFDA Number, *if applicable*: _____

8. Federal Action Number, *if known*:

9. Award Amount, *if known*:

$

10. a. Name and Address of Lobbying Entity
(*if individual, last name, first name, MI):*

b. Individuals Performing Services *(including address if different from No. 10a)*
(last name, first name, MI):

(attach Continuation Sheet(s) SF-LLL-A, *if necessary*)

11. Amount of Payment *(check all that apply)*:

$ _____ ☐ actual ☐ planned

12. Form of Payment *(check all that apply)*:

☐ a. cash
☐ b. in-kind; specify: nature _____
value _____

13. Type of Payment *(check all that apply)*:

☐ a. retainer
☐ b. one-time fee
☐ c. commission
☐ d. contingent fee
☐ e. deferred
☐ f. other; specify: _____

14. Brief Description of Services Performed or to be Performed and Date(s) of Service, including officer(s), employee(s), or Member(s) contacted, for Payment indicated in Item 11:

(attach Continuation Sheet(s) SF-LLL-A, *if necessary*)

15. Continuation Sheet(s) SF-LLL-A attached: ☐ Yes ☐ No

16. Information requested through this form is authorized by title 31 U.S.C section 1352. This disclosure of lobbyig activities is a materia representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352 . This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to

Signature: _____

Print Name: _____

Title: _____

Telephone No.: _____ **Date:** _____

Federal Use Only:

Authorized for Local Reproduction

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with a covered Federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.

2. Identify the status of the covered Federal action.

3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.

4. Enter the full name, address, city, state and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.

5. If the organization filing the report in item 4 checks “Subawardee”, then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.

6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.

7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.

8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., “RFP-DE-90-001.”

9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.

10. (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.

    (b) Enter the full names of the individuals(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).

11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.

12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.

13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.

    Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, D.C. 20503.

DISCLOSURE OF LOBBYING ACTIVITIES
CONTINUATION SHEET

Approved by OM
0348-0046

Reporting Entity: _____ Page ____ of ____ ____

*U.S. G.P.O. 1990-260-708:00012

DIRECTORATE OF ENGINEERING & HOUSING
EXCAVATION PERMIT

FB Reg 420-13 DATE

1. CLEARANCE IS REQUIRED TO PROCEED WITH WORK AT
_____

ON WORK ORDER NO _____ CONTRACT NO
_____

2. METHOD OF EXCAVATION	A.HAND		B.POWER SHOVEL		C. DITCHER		D. OTHER (SPECIFY)

3. SCOPE OF WORK (DEPTH, WIDTH, LENGTH, LOCATION, AND SKETCH AS APPLICABLE)
IF CONTRACT A COPY OF APPLICABLE DRAWINGS OR SKETCHES MUST BE ATTACHED.

4. DATE CLEARANCE REQUESTED	5. TERMINATION DATE OF CLEARANCE (60 DAYS UNLESS SPECIFIED)	
6. REQUESTING ORGANIZATION OR COMPANY	7. PHONE NUMBER	8. SIGNATURE (REQUESTING OFFICIAL)

9. EXCAVATION CLEARANCE APPROVAL

UTILITY	REMARKS	SIGNATURE OF APPROVING OFFICIAL	DATE
ELECTRICAL UNDERGROUND DISTRIBUTION			
STEAM OR HTW DISTRIBUTION			
CHILLER DISTRIBUTION			
SEWER LINES			
WATER DISTRIBUTION			
NATURAL GAS DISTRIBUTION			
TELEPHONE (DOIM)			
OTHER			
TELEPHONE (CT&T)			

FB Form 1605 DIGGING WILL NOT BE PERMITTED UNLESS SIGNED
1 May 87 (AFZA-DE) Previous Edition is Obsolete.

AFZA-DE-RJ (420-10c) Date: _____

MEMORANDUM FOR DEH ENVIRONMENTAL OFFICE

SUBJECT: Landfill Permit Application

1. Fill in the following information for each Contractor vehicle:

a. Landfill to Be Used: Sanitary _____ Demolition _____ Both _____

b. Company Name: _____

c. Contract Number: _____

d. Project Title: _____

e. Project Location: _____

f. Date of Notice to Proceed: _____

g. Project Length (In Days): _____

h. Vehicle Make: _____

i. Vehicle License Plate Number: _____

j. Contract Inspector: _____

2. Note: Applications must be forwarded to the Environmental Office by a Government Official (e.g., Contracting Officer's Representative or Project Inspector). Applications delivered on any working day will be processed and available for pickup the following workday by 0830.

FORT BRAGG ASBESTOS REMOVAL, TRANSPORTATION, AND
DISPOSAL DOCUMENTATION FORM

1. REMOVAL: ON _____ _____ (SY/LF/CF/OR POUNDS) OF ASBESTOS CONTAINING MATERIAL REMOVED FROM BUILDING #_____, _____ (STREET ADDRESS), FORT BRAGG, NC, PER _____ (WORK ORDER/CONTRACT NUMBER) WAS PREPARED FOR MOVEMENT TO THE LANDFILL UNDER THE SUPERVISION OF _____ (PRINT NAME OF SUPERVISOR) REPRESENTING _____ (NAME OF FIRM/ORGANIZATION.

_____ (SIGNATURE OF SUPERVISOR)

2. TRANSPORTATION: ON _____ THE ACM MENTIONED ABOVE WAS TRANSPORTED ON THE VEHICLE AUTHORIZED BY LANDFILL VEHICLE PERMIT NUMBER _____ BY _____(PRINT NAME OF DRIVER) _____ (SIGNATURE OF DRIVER) TO THE LONGSTREET LANDFILL ON LONGSTREET ROAD, FORT BRAGG, NC.

3. DISPOSAL: THE ACM DESCRIBED IN PARAGRAPH 1 WAS DELIVERED BY THE VEHICLE IDENTIFIED ABOVE TO THE LONGSTREET LANDFILL AND RECEIVED BY _____ (PRINT NAME OF LANDFILL OPERATOR)

I CERTIFY THAT THE LANDFILL HAS BEEN APPROVED FOR THE DISPOSAL OF ASBESTOS. THE MATERIAL DELIVERED WILL BE COVERED WITH NONASBESTOS MATERIAL IN THE PRESCRIBED MANNER.

_____
(PRINT NAME OF OPERATOR)

_____
(SIGNATURE)

_____
(DATE)

REAL PROPERTY INVENTORY

ITEM	TALLY	TOTAL
COMMODES		
LAVATORIES		
URINALS		
EXHAUST FAN (9")		
EXHAUST FAN (OTHER)		
WATER COOLER		
HOTWATER HEATER		
MOP SINK		
AC PLANT	LS 5 TN. 5-25 TN. 25-100 TN. OVER 100 TN.	
AS (WINDOW TYPE)		
FIRE ALARM SYSTEM	MANUAL HALON SPRINKLER	
EMERGENCY LIGHTS		
UNIT HEATER		
STRIP HEATER		
COOLING TOWER		
WALK-IN COOLER		
AIR CURTAIN		
EYE WASH		
SHOWERS		
BOILER	GAS FIRED OIL FIRED STEAM	
FUEL TANK	UNDERGROUND OUTSIDE	

REAL PROPERTY INVENTORY

ITEM	TALLY	TOTAL
WASH BASIN		
AIR COMPRESSOR		
HOISTS		
INVENTORY BY:		DATA:
RECONCILED BY:		DATA:

REAL PROPERTY INVENTORY

ITEM	TALLY	TOTAL
INVENTORIED BY:		DATE:
RECONCILED BY:		DATE:

DESCRIPTION/SPECIFICATIONS

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DIVISION 1

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DIVISION 1 - GENERAL	
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SECTION 01080

DESCRIPTION/SPECS/WORK STATEMENT

1. OBJECTIVE: This Design-Build Indefinite Delivery Indefinite Quantity (IDIQ) task order contract is intended to provide rapid response to remediation of real property (i.e. maintenance/ repair/minor construction situations relating, but not limited to, the civil, mechanical, plumbing, structural, electrical, HVAC, instrumentation, security and safety areas of Government facilities) in a cost effective manner. Task orders for design only shall not be placed against the contract. Task orders for construction or design-build may be placed against the contract. Some Architect-Engineering Services related to design-build and construction may be required. A Professional Engineering "seal" shall be provided on that work. See the following sections for specific tasks.

2. DESCRIPTION.

2.1 The Contractor shall provide, upon receipt of a task order, all labor, materials, supplies, parts (to include system components), plant, supervision, equipment, and related services, (except when specified as Government furnished), for repairs, additions, and alterations to buildings, roads, drainage systems and utility systems; and new construction of buildings, roads, drainage systems and utility systems. Work will be performed primarily at Military Installations in Georgia. Work may also be included for Federal Projects within the geographic boundaries of the U.S. Army Corps of Engineers, South Atlantic Division as specified in strict accordance with all terms, conditions, special contract requirements, specifications, drawings, attachments, and exhibits contained in the contract or incorporated by reference.

2.1.1 Contractor's work and responsibility shall include all Contractor planning, programming, administration, and management necessary to provide all remediation (i.e. maintenance, repair, and/or construction and design/build services) as specified. The Contractor shall conduct the work in strict accordance with the contract and all applicable Federal, State, and local laws, regulations, codes, or directives. The Contractor shall provide related services such as preparing and submitting required reports, performing administrative work, and submitting necessary information as specified under this contract and within each task order. The Contractor shall ensure that all work provided meets the scope of work for each task order, and any special specifications included with the individual task order or included in any applicable documents.

2.1.2 The Government will provide a detailed scope of work to the Contractor detailing the task to be accomplished. The detail provided will vary from a general idea of what is required with no drawings to complete design documents, depending on the complexity of the project. The Contractor shall use the information provided by the Government and submit a complete proposal regardless of how much information is provided by the Government. The proposal shall include the remediation method, labor and materials necessary for performing the work required. For task orders where the

Government provides no drawings, the Contractor shall provide sketches to clearly show what work is included with his proposal.

2.1.3 The Contractor shall complete all work and services under this contract in accordance with schedules established in each task order. Submittal dates will be included in the task order. These dates identify when submittals are due in the issuing office and other addresses identified in the task order. Types and numbers of submittals and dates and places for review meetings shall be established by each task order.

3. DEFINITIONS.

3.1 The following terms apply to this contract (the list is not all-inclusive).

3.1.1 Site Survey: An inspection of a facility required to accomplish a design/build remediation action and normally part of the work plan.

3.1.2 Facility Remediation Project: A project undertaken to correct an identified situation.

3.1.3 Work Plan (Design): A detailed package consisting of single line diagrams, design, engineering calculations, criteria, manufacturers' data/cut sheets, specifications, estimates, etc., suitable to provide details to remediate (construct) a facility.

3.1.4 Remediation Action (Design/Build): The action taken to prepare the work plan (design) and accomplish construction; i.e., design, repair, renovation, minor new construction.

3.1.5 Remediation Action (Construction): The action taken to accomplish construction; i.e., repair, renovation, minor new construction.

3.2 Data Submittal Requirements.

3.2.1 DD Form 1423 - Contract DATA REQUIREMENTS LIST. These forms, attached to the end of this section, show the frequency of submittals and the number and destination of the submittals as well as related contracting office requirements. They are referenced in the scope of work (SOW) by title and DATA ITEM NUMBER (DIN). The DIN is assigned to the data submittal requirements for the Contractor. The DIN is alphanumeric in that it is composed of alphabetical letters and sequential data submittal requirements, numbers: i.e., FRP0001 is the first (001) data submittal requirement for the Facilities Remediation Project (FRP). They are cross-referenced to the scope of work and DD Form 1644 described below through common DINs titles.

3.2.2 DD Form 1664 - DATA ITEM DESCRIPTION. These forms, attached to the end of this section, contain the requirements for Contractor data submittals required in the SOW. Each DD Form 1664 is coded with the same alphanumeric DIN numbers and titles as the DD Form 1423s for cross-referencing data submittal requirements, frequency of submittals, and number and destination of submittals.

4. SERVICES TO BE PERFORMED.

4.1 General Services: The Contractor shall, commencing upon issuance of a task order, supply all personnel, tools, equipment, transportation, materials, and supervision (except as otherwise noted or provided) to safely and efficiently perform the FRPs. All task orders to be completed under this contract shall be performed in accordance with applicable provisions of the U.S. Army Corps of Engineers Safety and Health Requirements, Manual, EM 385-1-1; the Savannah District Design Manual http://en.sas.usace.army.mil/ead.htm; and the Technical Instruction (TI) 800-01 http://www.hnd.usace.army.mil under the TECHINFO link, Design Criteria, unless other criteria are provided by the Contracting Officer.

4.1.1 Contractor's Representative: The Contractor shall execute the work under the direction of a Contractor Program Manager approved by the Contracting Officer. The full-time on-site Program Manager shall be designated in writing (listing name, address, and local home telephone number). The Program Manager shall be responsible for the overall management and coordination of this contract and shall be the central point of contact with the Government for performance of all work under this contract including warranty. Another individual may be designated to temporarily act for the Program Manager, however, forty-eight (48) hours advance notice in writing of such change shall be provided to the Contracting Officer.

4.1.2 Contractor's Project Manager: The Contractor's Project Manager shall oversee task accomplishment, administer all instructions, and answer all questions from the Contracting Officer pertaining to the tasks during the life of the contract. The Contractor's Project Manager shall be responsible for the complete coordination of all work under this contract. The Contractor's Project Manager shall be responsible for ensuring that adequate internal controls and review procedures are followed in order to eliminate conflicts, errors and omissions and for ensuring that all technical requirements are met.

4.1.3 Overall Responsibility: The Contractor shall be responsible for all site surveys; calculations; work plans; remediation actions; equipment startups; and testing, repair, and/or training required for satisfactory completion of the FRP as required by each individual task order. This shall include, but not be limited to providing labor, equipment, materials, applicable engineering documentation, and other necessary services and/or products for the remediation, implementation, or testing that may be required by the individual task order.

4.1.4 Codes and Standards: The site surveys, work plans, remedial actions, equipment startup and testing and/or repair shall conform to the requirements of this contract. The Contractor shall adhere to codes and standards as specified herein and in the individual task orders. All codes and standard requirements shall be based on the latest edition of codes applicable at the time the task order is issued. All work shall comply with local, state, national, or military codes, whichever is the most stringent.

4.1.5 Documentation: The Contractor shall implement, maintain, and control a system for identification, preparation, reproduction, distribution, and maintenance of all documentation, dates and information necessary for its internal management as well as for Government management of the individual projects and the total program.

4.1.6 Presentations and Meetings: Times and locations of presentations and meetings shall be identified in each task order.

4.1.7 Safety and Health Program: Site activities performed in conjunction with this program may pose safety hazards which require specialized expertise to effectively address and eliminate. The Contractor shall be responsible for preparing and implementing an effective safety and health program, to include a generic site safety and health plan prepared in accordance with DD Form 1423, DIN FRP0001. This plan shall be capable of being adapted by means of a supplement to the main plan as required by individual task orders.

4.1.8 Quality Control Program: The Contractor shall develop, implement, and document an effective quality control plan for the program. Providing a generic site quality control plan prepared in accordance with DD Form 1423, DIN FRP0002. This generic site quality control plan shall be submitted to the Contracting Officer for approval within 30 days, or an agreed to shorter period, after contract award. This plan shall be capable of being adapted by means of a supplement to the main plan as required by individual task orders.

4.2 Specific Services.

4.2.1 Permits: The Contractor shall identify and obtain all permits from Federal, State, local, or installation agencies.

5. APPROVALS, RESPONSIBILITIES, QUALIFICATIONS FOR LABOR CATEGORIES

5.1 Staffing Approvals: Prior to making changes in management staff, the Contractor shall notify the Contracting Officer in writing of changes in his proposed management staff as set forth in his technical proposal.

5.1.1 The Contractor shall maintain a management staff with comparable ability and experience to the staff listed in the management proposal. Any changes from the proposed and accepted management staff must be approved by the Contracting Officer. A request for a change to the approved staff must be submitted in writing. A current qualification statement, and reason for changing the personnel, shall be included in the request for approval.

5.1.2 Resumes that have been previously submitted to the Government need not be a part of the individual task order proposal. Federal, military and civilian, employees shall not be employed by the Contractor in performance of any work under the contract, e.g., during off-duty hours, regular hours, or while on annual leave.

5.2 Responsibilities

5.2.1 Program Manager: This is the individual who has the direct responsibility for contract execution. This individual shall serve as the single point of contact and liaison between the Contracting Officer and the Contractor.

5.2.2 Project Manager: This is the individual who has the direct responsibility for all operations on the site.

5.2.3 Project Engineer: This individual shall provide professional engineering services and lead the technical staff (registered and non-registered engineering/scientist support).

5.2.4 Project Superintendent: This individual shall supervise the FRP work on site as stated in each task order.

5.2.5 Contract Administrator: This individual shall be directly responsible for contract administration.

5.2.6 Technical Staff: The technical staff shall consist of architects and engineers, (general, civil, mechanical, electrical, structural, fire protection, and/or safety), technicians and instrumentation specialists (DDC, Fire, security/intrusion detection).

5.2.7 Quality Control Manager: This individual shall be directly responsible for the Quality Control Program.

5.2.7.1 Quality Control Officer: This individual shall be directly responsible for the site quality control. This position may be held jointly by the project Safety Engineer.

5.2.8 Safety Engineer: This individual shall be directly responsible for the Safety Program.

5.2.8.1 Site Safety Officer: This individual shall be directly responsible for site safety. This position may be held jointly by the project Quality Control Officer.

5.2.9 Additional People: Additional specialized safety and quality control people may be required. i.e., fire protection, mechanical controls, HVAC balancing, etc. The Contractor may need to hire an outside lab., i.e., concrete testing, HTRW testing, welding testing, etc.

5.2.10 Minimum Qualifications for Labor Categories: The Contractor must possess a variety of skills in order to perform this effort. There is no limitation of the use of employees with qualifications exceeding those listed. Minimum qualification standards for labor categories are set forth below.

Professional Level I

Program and Project Managers - shall have a recognized 4-year college degree in engineering or related technical field or business/management, and 10 and 5 years' experience respectively, managing and supervising engineering and facilities remediation projects; or, 10 years experience in the construction and management of facilities remediation projects. Professional(s) shall be familiar and conversant with the various codes and standards applicable to facility remediation tasks covered by the scope of work.

Professional Level II

Project Superintendent, Quality Control Manager, Quality Control Officer, Site Safety Officer, Computer System Specialist, and Contract Administrator - shall have 5 years' experience in the related technical field. Professional(s) shall be familiar and conversant with the various codes and standards applicable to facility remediation projects.

Professional Level III

Project Engineer, Architect, Structural Engineer, Civil Engineer, Electrical Engineer, Mechanical Engineer, Industrial Hygienist (Asbestos and Lead Base Paint Specialist), Fire Protection Engineer, and other Engineer/Scientist Support - shall have a recognized 4-year degree in engineering; registered professional engineer; 10 years' experience in engineering, design and design review of facilities remediation projects. Professional(s) shall be familiar and conversant with the various codes and standards applicable to facility remediation tasks covered by the scope of work.

Professional Level IV

Architect, Structural Engineer, Civil Engineer, Electrical Engineer, Mechanical Engineer, Cost Engineer (Estimator), Technical Writer (Specifications) and other Engineer/Scientist support - shall have a recognized 4-year college degree in engineering (or related technical fields) and 3 years of design review and engineering or service experience (in unique discipline) in remediation projects, and 5 years' construction estimating experience. Professional(s) shall be familiar and conversant with the various codes and standards applicable to facility remediation projects, and may include architects, senior engineers (except safety), training specialist, and technical writers.

Professional Level V

Survey Crew (chief plus two surveyors) - chief shall be a registered professional surveyor with 5 years' experience and be familiar and conversant with various codes and standards applicable to facility remediation tasks covered by the scope of work. Surveyors must have 3 years' experience and be able to perform tasks per unique technical skill as required by the scope of work.

Skill Category I

Secretaries, word processors, clerks and office support staff - shall have 3 years' experience in unique skills and shall be able to perform tasks applicable to those skills efficiently and satisfactorily.

Skill Category II

Electricians, carpenters, painters, HVAC mechanics and plumbers - shall have 3 years' experience in unique skills and shall be familiar with codes and standards applicable to those skills.

6. ACTIVITIES UNDER FACILITY REMEDIATION PROJECTS.

6.1 Task Orders: The activities to be performed by the Contractor under this contract and subsequent task orders are described in general terms below (this list is not all-inclusive). The specific tasks to be performed will be identified in each task order. The Contracting Officer reserves the right to modify duties and time periods in the task. At the completion of each approved task order, the results, documented and conceptual, becomes the property of the Government. The Contracting Officer will decide whether or not to award another task order.

6.1.1 Task Order Procurement Procedures for Normal, Unusual and Rare Conditions

6.1.1.1 Normal Conditions

Under normal conditions the Contractor shall review the scope of work for completeness and biddability and then provide a proposal for the work. When preparing the proposal, the contract bid schedule line items disciplines will be used to price labor hours performed by the Prime Contractor, with only hours being negotiated. For work that the Prime Contractor intends to subcontract, competition must be obtained and the most fair and reasonable prices reflected in the Contractor's proposal. If competition is not obtained, the Contractor shall explain in writing what circumstances precluded competition. The Government shall evaluate the proposal, assure competition is present and sufficient, determine price reasonableness, negotiate with the Contractor, and issue the FFP task order.

6.1.1.2 Unusual Conditions

In unusual cases when work must commence almost immediately and there is insufficient time to fully definitize the price, the Government will have, as a minimum, a fully definitized scope of work and an IGE completed. The Contractor will prepare and submit his proposal in the same manner as under normal conditions. The Government shall compare the IGE to the Contractor's proposal and establish a most realistic not to exceed limit for use in issuing the task order. Immediately after task order issuance the Government shall complete the evaluation of the proposal, assure competition is present and sufficient, determine price reasonableness, negotiate with the Contractor, and issue a modification to the FFP task order providing final definitization of price.

6.1.1.3 Rare Conditions

In rare cases, when a task order must be issued without receipt of the Contractor's proposal, the following additional limitations will apply:

6.1.1.3.1 Contractor's proposal shall be submitted to the Government within the time stipulated in the task order RFP or 30 calendar days after the issuance of the task order, whichever is less. If the proposal is not received within the required time, the Contracting Officer may issue a suspension of work. In the event that a suspension of work is issued due to Contractor delay shall result in no additional Contractor cost to the task order.

6.1.1.3.2 Contractor shall not perform work beyond 50 percent of the not to exceed obligation without having submitted a qualifying proposal to the Government.

6.1.1.3.3 The Government may increase the 50 percent performance limitation stated above in paragraph 6.1.4.3.2 to 75 percent when the Contractor submits a qualifying proposal; this increase shall be accomplished by modification (signed by the Contracting Officer) to the task order.

6.1.1.3.4 All task orders issued as firm fixed price must be definitized within 90 calendar days after receipt of the Contractor's proposal; any extension of time must be approved by the Contracting Officer in writing prior to the 90th day; the Area Office will submit the justification for extension to the Contracting Officer for approval.

6.1.2 Work Plan (Design). As per the Contractor's Technical Proposal for time periods, the Contractor shall prepare and submit a work plan to the Contracting Officer for approval prior to beginning any remedial action on site. The work plan shall be submitted for two reviews, preliminary and final, in accordance with DD Form 1423, DIN FRP0003. Work plan (Contractor's engineering related services and price proposal) shall be submitted within 10 working days after it is requested by the Government, unless the written request states otherwise.

The Contracting Officer shall decide to accept or reject the preliminary plan on its own merits or to continue through final review. The final review will be to ascertain that all Government review comments from the preliminary review have been incorporated.

6.1.3 Negotiations. The negotiations, when required, between the Contracting Officer, and the Contractor, shall begin at a time prescribed by the Government, and convenient to the Contractor. Details covered in negotiations shall include, but not necessarily be limited to:

Scope of Work Plan (Design).
Period of Contract.
Technical Details of Work Plan.
Management of Work Plan.
Cost of Price Proposal for Work Plan and/or Remediation Action (FRP0004).

Implementation of the remediation action shall not begin until all disagreements on the above items have been settled between the Contractor and the Government.

6.1.4 Awarded Action: After the work plan and/or remedial action have been awarded (through the medium of a task order) the Contractor shall:

6.1.4.1 Attend a pre-remediation conference with the Contracting Officer for review of the items described in DD Form 1423, DIN FRP0005.

6.1.4.2 Begin work on the work plan and/or remediation of the facility in accordance with the approved work schedule. As work progresses, the Contractor shall meet the following requirements:

a. Adhere to the work plan scope of services.

b. Adhere to the approved plan for site safety and health, prepared and submitted in accordance with DD Form 1423, FRP0001 and as modified by the task order.

c. Adhere to the approved quality control program, prepared and submitted in accordance with DD Form 1423, DIN FRP0002 and as modified by the task order.

d. Prepare and certify a comprehensive work, schedule based on the proposed work plan in accordance with DD Form 1423, FRP0006.

e. Remediate the facility in accordance with the approved work plan previously submitted in accordance with DD Form 1423, DIN FRP0003.

f. Submit weekly progress reports starting second week after issuance of task order in accordance with DD Form 1423, DIN FRP0007.

g. Maintain a telephone correspondence log in accordance with DD Form 1423, DIN FRP0008.

h. Conduct test of modified system/equipment and obtain Government inspection/approval in accordance with DD Form 1423, DIN FRP0009.

i. Prepare operation and maintenance manuals, for the modified system/equipment in accordance with DD form 1423, DIN FRP0010.

j. Prepare training program and train Government personnel in operation and maintenance of modified system/equipment in accordance with DD Form 1423, DIN FRP0011.

k. Provide equipment and construction warranties in accordance with DD Form 1423, DIN FRP0012.

l. Submit certified list of standard equipment and MFRP service organizations in accordance with DD Form 1423, DIN FRP0013.

m. Certify computer media in accordance with DD Form 1423, DIN FRP0014.

n. Prepare and submit project specific remediation reports including "lessons learned" documents in accordance with DD Form 1423, DIN FRP0015.

6.1.5 As-Built Drawings. As the work plan and remediation action progresses, the Contractor shall accomplish initial as-built drawings, which reflect the project current condition in accordance with DD Form 1423, DIN FRP0016. At the completion of the remediation action, the Contractor shall submit as-built final drawings in accordance with DD Form 1423, DIN FRP0017.

7. SUBMITTED SURVEYS, STUDIES, PROPOSALS, AND WORK PLANS. All surveys, studies, proposals, and work plans submitted to the Contracting Officer become the property of the Government.

8. ENVIRONMENTAL PROTECTION. The Contractor shall perform all work in such a manner as to minimize the pollution of air, water, or land and to control noise and dust within reasonable limits and in accordance with federal, state, and local environmental laws.

9. ASBESTOS AND LEAD-BASED PAINT. When work is in areas suspected of containing asbestos or lead-based paint, the Contractor shall notify the Contracting Officer immediately. If asbestos and/or lead-based paint is encountered during the course of a project, work shall cease immediately and the Contracting Officer shall be notified.

10. SITE SECURITY. The Contractor shall provide site security (fencing, lighting, or guard services) as required by each task order. However, at a minimum, the Contractor shall maintain the site and all other Contractor-controlled areas in such a manner as to minimize the risk of theft, vandalism, injury, or accident. The Contractor shall comply with site security regulations.

11. ACCIDENT REPORTS. The Contractor shall comply with accident reporting requirements as outlined in the latest edition of U.S. Army Corps of Engineers, Safety and Health Requirements Manual EM 385-1-1, which will be furnished by the Contracting Officer. All accident reports shall be submitted to the Contracting Officer within the time limits prescribed.

12. PUBLIC AFFAIRS. The Contractor shall not publicly disclose any data generated or reviewed under this contract. The Contractor shall refer all requests for information concerning site conditions to the Contracting Officer or Administration Contracting Officer for comment.

13. REFERENCES. The publications listed below form the basis for the remediation work under this contract. Additional references may be identified as required in the task orders. Work done under individual task orders shall utilize the latest issue of the publication dated at the time of the task order award. When a required publication is not referenced in this list or the task order, the Contractor shall utilize one that has national applications. Where conflicts arise between publications, the most stringent shall apply.

AMERICAN HOSPITAL ASSOCIATION (AHA)

AHA Maintenance Management for Health Care Facilities

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C2 National Electric Safety Code

AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS (ASHRAE)

Handbooks Refrigeration Fundamentals HVAC System and Equipment HVAC Applications

Standards Ventilation for Acceptable Indoor Air Quality

INSTALLATION DESIGN GUIDE

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910 Occupational Safety and Health Standards - General Construction

29 CFR 1926 Occupational Safety and Health Standards - Construction Industry

DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS MANUAL (EM)

EM 385-1-1 Safety and Health Requirements Manual

DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS REGULATION (ER)

ER 25-345-1 Military Publications System Operation and Maintenance Documentation

DEPARTMENT OF THE ARMY REGULATION (AR)

AR 385-40 Accident Reporting Standards

DEPARTMENT OF THE ARMY TECHNICAL MANUALS (TM)

TM 5-810-1 Mechanical Design, Heating, Ventilating, and Air Conditioning

TM 5-810-4 Compressed Air, TM 5-810-5 Plumbing

TM 5-811-1 Electric Power Supply and Distribution

TM 5-811-2 Electric Design, Interior Electrical System

TM 5-811-14 Coordinated Power Systems Protection

TM 5-815-3 Heating, Ventilation, and Air Conditioning (HVAC)

JOINT COMMISSION ACCREDITATION ON HEALTH CARE ORGANIZATION (JCAHO)

JCAHO Joint Commission of Accreditation on Health Care Organizations

MILITARY HANDBOOKS (MIL-HDBK)

MIL-HDBK-1008B Fire Protection for Facilities Engineering, Design, and Construction

MIL-HDBK-1190 Facility Planning and Design Guide

MIL-HDBK-1191 Medical and Dental Treatment Facilities, Design and Construction Criteria

NATIONAL INSTITUTE OF TECHNOLOGY AND STANDARDS

Handbook 135 Life Cycle Cost Analysis

NATIONAL FIRE PROTECTION ASSOCIATION, INC. (NFPA)

NFPA 70 National Electric Code

NFPA 80 Doors and Windows

NFPA 99 Health Care Facilities

NFPA 101 Safety to Life from Fire in Building and Structures

BUILDING CODES (52.9101-4000 TM)

All work shall be performed in compliance with the following National Standards and Codes, applicable.

American Institute of Steel Construction (AISC)

American Concrete Institute (ACI)

Uniform Building Code (UBC)

Uniform Plumbing Code (UPC)

Uniform Mechanical Code (UMC)

Joint Commission Accreditation of Hospitals (JCAH)

Code of Federal Regulations (CFR)

OSHA General Industry Safety and Health Standards (29 CFR 1910), Publication V2206; and OSHA Construction Industry Standards (29 CFR 1926). One source of these regulations is OSHA Publication 2207, which includes a combination of both Parts 1910 and 1926 as they relate to construction safety and health. Contact the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

National Emission Standards for Hazardous Air Pollutants (40 CFR, Part 61).

FEDERAL STANDARDS (FED STD)

FED STD 313A	Material Safety Data Sheets, Preparation and the Submission
FED STD 795	Uniform Federal Accessibility Standards

AMERICANS WITH DISABILITIES ACT (ADA)

CONTRACT DATA REQUIREMENTS LIST

Form Approved
OMB NO. 0704-0188

Public reporting burden for this collection of information is estimated to average 220 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operation and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget Paperwork Reduction Project (0704-0188), Washington D.C. 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. Listed in Block E.

A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TOP ____ TM ____ OTHER ____
D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA TEM NO. FRP0001
2. TITLE OF DATA ITEM Safety and Health Plan
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 4.1.7/6.1.4.2b, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time with back check
11. AS OF SATE As Required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As Required
14. DISTRIBUTION

a. ADDRESSEE	b. COPIES: DRAFT	FINAL: REG	FINAL: REPRO
Area/Resident		3	
15. TOTAL ---------->		3	

16. REMARKS
Submit generic plan within 7 days after contract award. Submit site adapted plan as required within the Task Order.

1. DATA TEM NO. FRP0002
2. TITLE OF DATA ITEM Quality Control Program
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 4.1.8/6.1.4.2c, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time with back check
11. AS OF SATE As Required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As Required
14. DISTRIBUTION

a. ADDRESSEE	b. COPIES: DRAFT	FINAL: REG	FINAL: REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
Submit generic plan within 7 days after contract award. Submit site adapted plan as required within the Task Order.

1. DATA TEM NO. FRP0003
2. TITLE OF DATA ITEM Work Plan (Design)
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.2, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY Two (Prelim/Final)
11. AS OF SATE As Required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As Required
14. DISTRIBUTION

a. ADDRESSEE	b. COPIES: DRAFT	FINAL: REG	FINAL: REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
As required by the Contracting Officer.

1. DATA TEM NO. FRP0004
2. TITLE OF DATA ITEM Price Proposal
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.3, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY As required
11. AS OF SATE As required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As required
14. DISTRIBUTION

a. ADDRESSEE	b. COPIES: DRAFT	FINAL: REG	FINAL: REPRO
AREA/RESIDENT		3	
I			
15. TOTAL ---------->		3	

16. REMARKS
As required by the Contracting Officer.

G. PREPARED BY	H. DATE	L. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

Form Approved
OMB NO. 0704-0188

Public reporting burden for this collection of information is estimated to average 220 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operation and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget Paperwork Reduction Project (0704-0188), Washington D.C. 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. Listed in Block E.

A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TOP ____ TM ____ OTHER ____
D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA TEM NO.	2. TITLE OF DATA ITEM	3. Subtitle
FRP0005	Pre-Remediation Action Conference	N/A

4. AUTHORITY (Date Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
	Para. 6.1.4.1, Sec 01080	

7. DO 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
		One time	See 16
8. ADP CODE		**11. AS OF SATE**	**13. DATE OF SUBSEQUENT SUBMISSION**
		As Required	As Required

16. REMARKS

Submit list of attendees with minutes of conference as required by the Contracting Officer.

14. DISTRIBUTION a. ADDRESSEE	b. COPIES DRAFT	FINAL REG	FINAL REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

1. DATA TEM NO.	2. TITLE OF DATA ITEM	3. Subtitle
FRP0006	Work Schedule	N/A

4. AUTHORITY (Date Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
	Para. 6.1.4.2d, Sec 01080	

7. DO 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
		One time with back check	See 16
8. ADP CODE		**11. AS OF SATE**	**13. DATE OF SUBSEQUENT SUBMISSION**
		As Required	As Required

16. REMARKS

As required by the Contracting Officer.

14. DISTRIBUTION a. ADDRESSEE	b. COPIES DRAFT	FINAL REG	FINAL REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

1. DATA TEM NO.	2. TITLE OF DATA ITEM	3. Subtitle
FRP0007	Weekly Progress Report	N/A

4. AUTHORITY (Date Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
	Para. 6.1.4.2f, Sec 01080	

7. DO 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
		One time	See 16
8. ADP CODE		**11. AS OF SATE**	**13. DATE OF SUBSEQUENT SUBMISSION**
		As Required	As Required

16. REMARKS

Weekly submittals, beginning second week after issuance of task order. Automated and, manual reports are required for individual Task Orders and summary is required for Task Orders together in formats approved by the Contracting Officer.

14. DISTRIBUTION a. ADDRESSEE	b. COPIES DRAFT	FINAL REG	FINAL REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

1. DATA TEM NO.	2. TITLE OF DATA ITEM	3. Subtitle
FRP0008	Telephone Conversation/Correspondence Log	N/A

4. AUTHORITY (Date Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
	Para. 6.1.4.2g, Sec 01080	

7. DO 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
		One time	See 16
8. ADP CODE		**11. AS OF SATE**	**13. DATE OF SUBSEQUENT SUBMISSION**
		As Required	As Required

16. REMARKS

Monthly submittals beginning no later than the 10th of the month following task order award.

14. DISTRIBUTION a. ADDRESSEE	b. COPIES DRAFT	FINAL REG	FINAL REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

G. PREPARED BY	H. DATE	L. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TOP ____ TM ____ OTHER ____
D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA TEM NO. FRP0009
2. TITLE OF DATA ITEM System/Equipment Testing
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.4.2h, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time with back check
11. AS OF SATE As Required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As Required
14. DISTRIBUTION

a. ADDRESSEE	b. COPIES: DRAFT	FINAL: REG	FINAL: REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
In accordance with Contractor's approved schedule or as directed by the Contracting Officer.

1. DATA TEM NO. FRP0010
2. TITLE OF DATA ITEM Operating and Maintenance Manuals
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.4.2i, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time with back check
11. AS OF SATE As Required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As Required
14. DISTRIBUTION

a. ADDRESSEE	b. COPIES: DRAFT	FINAL: REG	FINAL: REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
In accordance with Contractor's approved schedule or as directed by the Contracting Officer.

1. DATA TEM NO. FRP0011
2. TITLE OF DATA ITEM Training
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.4.2j, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time with back check
11. AS OF SATE As Required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As Required
14. DISTRIBUTION

a. ADDRESSEE	b. COPIES: DRAFT	FINAL: REG	FINAL: REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
In accordance with Contractor's approved schedule or as directed by the Contracting Officer.

1. DATA TEM NO. FRP0012
2. TITLE OF DATA ITEM Equipment and Construction Warranties
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.4.2k, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time with back check
11. AS OF SATE As required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As required
14. DISTRIBUTION

a. ADDRESSEE	b. COPIES: DRAFT	FINAL: REG	FINAL: REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
In accordance with Contractor's approved schedule or as directed by the Contracting Officer.

G. PREPARED BY	H. DATE	L. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

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OMB NO. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TOP ____ TM ____ OTHER ____
D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA TEM NO. FRP0013
2. TITLE OF DATA ITEM List of Standard Equipment and Service Organizations
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.4.2l, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time
11. AS OF SATE As Required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As Required

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES DRAFT	FINAL REG	FINAL REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
In accordance with contractor's approved schedule or as directed by the Contracting Officer.

1. DATA TEM NO. FRP0014
2. TITLE OF DATA ITEM Certification of Computer Media
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.4.2m, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time
11. AS OF SATE As Required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As Required

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES DRAFT	FINAL REG	FINAL REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
In accordance with contractor's approved schedule or as directed by the Contracting Officer.

1. DATA TEM NO. FRP0015
2. TITLE OF DATA ITEM Site/Project Specific Remediation Report
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.4.2n, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time
11. AS OF SATE As Required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As Required

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES DRAFT	FINAL REG	FINAL REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
In accordance with contractor's approved schedule or as directed by the Contracting Officer.

1. DATA TEM NO. FRP0016
2. TITLE OF DATA ITEM As-Built/In Progress Drawings
3. Subtitle N/A
4. AUTHORITY (Date Acquisition Document No.)
5. CONTRACT REFERENCE Para. 6.1.5, Sec 01080
6. REQUIRING OFFICE
7. DO 250 REQ
8. ADP CODE
9. DIST STATEMENT REQUIRED
10. FREQUENCY One time
11. AS OF SATE As required
12. DATE OF FIRST SUBMISSION See 16
13. DATE OF SUBSEQUENT SUBMISSION As required

14. DISTRIBUTION

a. ADDRESSEE	b. COPIES DRAFT	FINAL REG	FINAL REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

16. REMARKS
In accordance with contractor's approved schedule or as directed by the Contracting Officer.

G. PREPARED BY	H. DATE	L. APPROVED BY	J. DATE

CONTRACT DATA REQUIREMENTS LIST

Form Approved
OMB NO. 0704-0188

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A. CONTRACT LINE ITEM NO.	B. EXHIBIT	C. CATEGORY: TOP ____ TM ____ OTHER ____
D. SYSTEM/ITEM	E. CONTRACT/PR NO.	F. CONTRACTOR

1. DATA TEM NO.	2. TITLE OF DATA ITEM	3. Subtitle
FRP0017	As-Built/Final Drawings	N/A

4. AUTHORITY (Date Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE
	Para. 6.1.5, Sec 01080	

7. DO 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
		One time	See 16
8. ADP CODE		**11. AS OF SATE**	**13. DATE OF SUBSEQUENT SUBMISSION**
		As Required	As Required

16. REMARKS

In accordance with contractor's approved schedule or as directed by the Contracting Officer. Contractor shall return as-builts in automated format.

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	DRAFT	FINAL REG	FINAL REPRO
AREA/RESIDENT		3	
15. TOTAL ---------->		3	

1. DATA TEM NO.	2. TITLE OF DATA ITEM	3. Subtitle

4. AUTHORITY (Date Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE

7. DO 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
8. ADP CODE		**11. AS OF SATE**	**13. DATE OF SUBSEQUENT SUBMISSION**

16. REMARKS

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	DRAFT	FINAL REG	FINAL REPRO
15. TOTAL ---------->			

1. DATA TEM NO.	2. TITLE OF DATA ITEM	3. Subtitle

4. AUTHORITY (Date Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE

7. DO 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
8. ADP CODE		**11. AS OF SATE**	**13. DATE OF SUBSEQUENT SUBMISSION**

16. REMARKS

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	DRAFT	FINAL REG	FINAL REPRO
15. TOTAL ---------->			

1. DATA TEM NO.	2. TITLE OF DATA ITEM	3. Subtitle

4. AUTHORITY (Date Acquisition Document No.)	5. CONTRACT REFERENCE	6. REQUIRING OFFICE

7. DO 250 REQ	9. DIST STATEMENT REQUIRED	10. FREQUENCY	12. DATE OF FIRST SUBMISSION
			See 16
8. ADP CODE		**11. AS OF SATE**	**13. DATE OF SUBSEQUENT SUBMISSION**

16. REMARKS

14. DISTRIBUTION	b. COPIES		
a. ADDRESSEE	DRAFT	FINAL REG	FINAL REPRO
INSTALLATION			
15. TOTAL ---------->			

G. PREPARED BY	H. DATE	L. APPROVED BY	J. DATE

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Site Safety and Health Plan	**FRP0001**

3. **DESCRIPTION/PURPOSE**

This plan details tasks and activities of site safety management required to identify, evaluate and eliminate or control hazards at the work.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) identifies the contract requirements for the site safety and health plan.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The Site Safety and Health Plan (SSHP) shall be in accordance with this DID unless otherwise indicated or modified in the task order.

The Site Safety and Health Plan (SSHP) shall be prepared in accordance with the requirements specified in this section and shall comply with all federal, state, and local health and safety requirements, e.g., the Occupational Safety and Health Administration (OSHA) requirements (29 CFR 1910 and 1926) and the U.S. Army Corps of Engineers Safety and Health Requirements Manual (EM 385-1-1). The SSHP shall address those elements which are specific to this site and has potential for negative effects on the safety and health of workers and other personnel on site. Where a specific element is not applicable, the Contractor shall make negative declaration in the plan to establish that adequate consideration was given the topic, and a brief justification for its omission shall be given.

10.1 General. A fully trained and experienced site safety and health officer (SSHO), responsible to the Contractor may be delegated to implement the on-site elements for the SSHP. The SSHP shall be in a form usable by authorized U.S. Government representatives and authorized visitors to the site during site operations.

10.2 Staff Organization, Qualifications, and Responsibilities. The operational and health and safety responsibilities of each key person shall be discussed.

11. **DISTRIBUTION STATEMENT**

The organizational structure, with lines of authority for safety and health and overall responsibilities of the Contractor and all subcontractors shall be provided. An organizational chart showing the lines of authority for safety shall be provided. Each person assigned specific safety and health responsibilities shall be identified and his/her qualifications and experience documented by resume.

10.3 Accident Prevention. The SSHP may serve as the Accident Prevention Plan provided it addresses all content requirements of both 29 CFR 1910 and EM 385-1-1 (Table 1-1). All Accident Prevention Plan elements required by EM 385-1-1, but specifically covered by these elements shall be addressed in this section of the SSHP. Daily safety and health inspections shall be conducted to determine if site operations are conducted in accordance with the approved SSHP and contract requirements.

10.4 Personal Protective Equipment. A written Personal Protective Equipment (PPE) Program shall be provided in the SSHP if necessary. Minimum levels of protection necessary for each delivery/task operation to be performed shall be based on the hazard assessment/risk analysis.

10.5 Medical Surveillance. All personnel requiring respiratory protection shall have an annual medical examination to ensure they are physically qualified to wear respiratory protection. Those requiring respiratory protection shall be fit-tested in accordance with appropriate regulations. Any other medical surveillance requirements shall be determined by onsite conditions and exposures.

10.6 Noise Control. The Contractor shall monitor for hazardous noise conditions. If warranted, a hearing conservation program and abatement program shall be implemented.

10.7 Standing Operating Procedures, Engineering Controls and Work Practices. The Contractor shall develop Standing Operating Procedures for minimizing hazards and taking action to correct hazards where necessary. Site rules and safe work practices shall be discussed and shall include such topics as use of buddy system, smoking restrictions, material handling procedures, confined space entry, excavation safety, physiological and meteorological monitoring for heat/cold stress, illumination, sanitation, and daily safety inspections, etc. This list of topics is not intended to be all inclusive.

10.8 Logs, Reports and Recordkeeping. Recordkeeping procedures for training logs, daily safety inspection logs, employee/visitor registers, medical surveillance records and certifications, air monitoring results and personal exposure records shall be described. All personnel exposure and medical monitoring records shall be maintained in accordance with applicable OSHA standards, CFR 1910 and 1926. All recordable accidents/injuries/illness shall be reported to the Contracting Officer immediately. A completed ENG 3394, Accident Investigation Report shall be submitted within two (2) working days in accordance with AR 385-40.

DATA ITEM DESCRIPTION

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OMB No. 0704-0188

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Quality Control Program	**FRP0002**

3. **DESCRIPTION/PURPOSE**

Implementation and documentation of a comprehensive contract quality control program for the project.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Date Item Description (DID) identifies the contract requirements for quality control program.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The quality control program shall be in accordance with Section 01451 - CONTRACTOR QUALITY CONTROL, unless otherwise indicated or modified in the task order.

11. **DISTRIBUTION STATEMENT**

DATA ITEM DESCRIPTION

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OMB No. 0704-0188

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Work Plan (Design)	**FRP0003**

3. **DESCRIPTION/PURPOSE**

To provide requirements for developing a work plan for the proposed remediation project.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) describes the details required in a work plan.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The Work Plan shall be accordance with this DID unless otherwise indicated or modified in the task order.

10.1 General. The remediation action detailed under this DID shall conform in all aspects of the task order.

10.2 Detailed Requirements: See Section 01085.

10.3 The work plan shall consist of documentation of all analysis performed to select equipment and materials, scaled single line drawings with material and equipment schedules plus detailed double line shop/installation drawings to show the location and relationship of all equipment and materials, catalog cuts and/or equipment specifications as required to document the materials to be used, manufacturer installation procedures or execution specifications as required to indicate the methods and means of installation, and the codes and standards to which the remediation action will adhere. As required by the contract and the task order, Corps of Engineers, Army and Air Force engineering requirements and criteria shall be adhered to in all aspects of the work plan. Single line drawings shall include, but not limited to, floor plans, utility and equipment layout drawings, foundation plans, demolition drawings, control drawings, elevations, sections, details, schedules, site plans, riser diagrams and piping & instrumentation drawings as required to completely define the remediation action when viewed in conjunction with the shop drawings, catalog cuts, and manufactures installation requirements. A demolition plan shall be prepared to include the disposition on all removed material, equipment, and debris. The work plan shall include testing and training plans as required by DD Form 1423, Data Item No. (DIN) FRP09 and FRP011. The work plan shall also include a proposal schedule for all activities required by this contract and task order to implement the remediation action. The Contractor shall submit any site specific modifications or amendments to his approved Quality Control Plan and/or Safety and Health Plan.

10.4 All submittals required under this DID will be itemized on an Engineering Form 4025. The Contractor shall follow the required submittal procedures located in Section 01330.

11. **DISTRIBUTION STATEMENT**

10.5 Industry standard supplier professionally supported work such as pre-engineered buildings, truss shop drawings and fabrication details, fire sprinkler systems, irrigation systems, concrete reinforcing, concrete and asphalt, and standing seam metal roofs.

10.6 Contractor shall make this automated submittal on the ILAN. Until Contractor is operating on ILAN, submittal will be by 3-1/2" floppy disk plus one (1) hard (paper) copy. As a last resort, the Government may authorize the Contractor to make the submittal by hand-delivering seven (7) organized hard copies.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Price Proposal	**FRP0004**

3. **DESCRIPTION/PURPOSE**

To provide requirements for developing a cost/price proposal for the proposed remediation project.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) describes the details required in a cost/price proposal.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The Price Proposal shall be in accordance with this DID unless otherwise indicated or modified in the task order.

10.1 The Contractor shall obtain competition for equipment and any subcontractors required and the Contractor shall prepare preliminary drawings with equipment schedules as required and forward these to a minimum of two (2) separate and distinct suppliers/subcontractors (with no common brand name affiliation with each other) for quotes on each equipment/system proposed. Each of these quotes shall be broken down into distinct equipment costs and installation costs in terms of manhours, dollars, and skills. The quotes shall be forwarded to the Government as part of the cost proposal. The other than full and open competition justification shall be submitted by the Contractor. Where replaced equipment/systems are turned over to the Contractor for disposal, every effort should be made to obtain credit from the disposal of this equipment/system towards reducing the cost of the contract. This effort, positive or negative, shall be reflected in the cost proposal. The Contractor shall select the responsive and responsible suppliers/subcontractors with the lowest price and proceed with the development of shop/equipment installation drawings for the specific equipment selected. He shall also compile equipment catalog cut sheets with manufacturer's specifications and manufacture's installation procedures or execution specifications from the selected supplier. The Contractor shall then complete the drawings in such detail and prepare specifications as required to tie together the shop drawings, catalog cuts, and installation requirements into a comprehensive package that defines the remediation action.
For Firm-Fixed Price Task Orders, Contractor shall obtain price competition on all subcontractors, materials and equipment to the maximum extent practicable. Contractor shall get price quotes from at least two (2) prospective subcontractors and suppliers. When competitive quotes cannot be obtained, Contractor shall document his/her effort to obtain competition--show

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name of firms contacted for quotes, dates contacted and their response. Contractor shall provide this documented attempt to obtain competition to the Government with the proposal. This documentation will be included in the rationale for the Justification and Approval (J&A) that is required for a procurement under other than full and open competition. The Government will prepare the J&A. The Government will then conduct a detailed engineering review of the contractors price proposal and evaluate his supplier/subcontractor selection. Discipline criteria used as a basis for the work plan shall be stated.

10.2 The Contractor shall provide a cost proposal, which as a minimum, shall be detailed enough to indicate:

a. Description of items/services.
b. Quantity of items/services.
c. Units of measure for items/services.
d. Man-hours per unit to install/service/test items/services.
e. Material cost for item/services.
f. Equipment cost associated with item/service (with manufacturer's price quotes).
g. Special services (factory technicians, test labs, etc.) required.
h. Subcontractor work.
I. Specified individual mark-ups including overhead, profit, and escalation.

The details indicated above shall be arranged in a logical manner with mathematical extensions and summations at suitable locations. Wage rates utilized in crew rates should be identified as to crew composition by trade with base rates and fringes detailed separately. This proposal shall be reviewed in detail by Government estimators.

10.3 Cost proposals for training including length and location shall be submitted.

10.4 Costs proposals for operation and maintenance manuals shall be submitted.

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Pre-Remediation Action (Pre-Construction) Conference	**FRP0005**

3. **DESCRIPTION/PURPOSE**

To assure familiarity with details of the contract and the installation rules and regulations as well as to allow the Contracting Officer, or Authorized Representative, to interface with the Contractor and his/her organization.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) provides a baseline for the pre-remediation action.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The pre-remediation shall be held in accordance with this DID unless otherwise indicated or modified in the task order.

10.1 General.

10.1.1 This conference will be held at the location specified by the Contracting Officer. The purpose of this pre-remediation conference is to enable the Contracting Officer to outline procedures that will be followed by the Government in its administration of the task order and to discuss the performance that will be expected from the Contractor. This conference will allow the Contractor an opportunity to ask questions about the Government's supervision and inspection of contract work, security requirements, regulations, etc. The Contracting Officer may invite installation, using service, environmental management, ground safety office, engineering and/or security personnel as well as other involved Government personnel to attend this conference.

10.1.2 Discussion Items.

The following is a list of items for discussion during this conference. This is not considered to be a complete listing.

a. Authority of the Contracting Officer and procedures for administering the contract.
b. Contractor labor standards provisions.
c. Contract modification and administration procedures.

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d. Payment estimate data and procedures.
e. Contractor insurance requirements.
f. Contractor performance evaluation.

10.1.3 Installation Rules and Regulations. All rules and regulations issued by the Commanding Officer/Director covering general safety, security, sanitary requirements, pollution control, work hours, storage areas, utility availability and use, utility interruptions, site conditions, environmental compliance, clean-up, conduct and dress, work in areas with others, excavation permits, access to work areas, traffic regulations, as well as any other pertinent information requested by the Contractor or provided by the authorized installation technical representative shall be observed by the Contractor. Information regarding these requirements may be obtained by contacting the authorized installation technical representative, who will provide such information or assist in obtaining same from appropriate authorities.

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Work Schedule	**FRP0006**

3. **DESCRIPTION/PURPOSE**

To provide details of scheduling the work tasks.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) provides details for preparing a work schedule.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The work schedule shall be held in accordance with Section 01320 - PROJECT SCHEDULES, as indicated or modified in the task order.

11. **DISTRIBUTION STATEMENT**

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Weekly Progress Report	**FRP0007**

3. **DESCRIPTION/PURPOSE**

To provide progress reports that will be used as a measure of accomplished activity.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) details requirements for weekly progress reports.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The weekly progress report on the individual task orders shall be prepared in accordance with this DID unless otherwise indicated or modified in the task order.

10.1 A narrative report in tabular form shall be provided by the Contractor which details each activity shown on the schedule for the reporting period. **The progress report shall be coordinated with the approved work schedule**. The Contractor shall submit the proposed format to the Contracting Officer for approval. Specific contents are:

a. Summarize progress by estimated percent of completion of each FRP.
b. Remarks section shall be provided for the Contractor to describe any problems in detail which caused lag in schedule as well as Contractor plans to get back on schedule.
c. Section shall be provided for the Government's comments.

A **summary weekly progress report** covering all individual task orders shall be provided. This summary report shall have the same general format as the individual reports, except the narrative content shall be abbreviated.

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Telephone Conversation/Correspondence Records	**FRP0008**

3. **DESCRIPTION/PURPOSE**

To provide for telephone conversation/correspondence records.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) details requirements for telephone conversation/correspondence records.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The telephone conversation/correspondence records shall be in accordance with this DID unless otherwise indicated or modified in the task order.

10.1 The Contractor shall keep a record of each **substantive** phone conversation and written correspondence related to the performance of this contract. A **summary of the phone conversations and written correspondence** shall be submitted to the Contracting Officer monthly and is **due no later than the 10th of the following month**. For this contract, substantive is defined, but is not only inclusive of:

- **all calls to or from DPW personnel that require action by either the DPW or the Contractor.**
- **all calls to or from DPW personnel that directly or indirectly affect contract terms or conditions.**
- **all calls to or from Federal, state, or local regulatory agency personnel.**
- **all calls to Contractor personnel that require calling party to be referred to the Public Affairs Office.**

Calls involved in the routine performance of project work that does not fit the above definition of substantive need not be recorded and provided to the Contracting Officer.

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
System/Equipment Testing	**FRP0009**

3. **DESCRIPTION/PURPOSE**

To provide for systematic testing of the modified system/equipment and to document the tests performed as well as the results of these tests.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) states the requirements for systems/equipment testings.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The system/equipment testing shall be in accordance with this DID unless otherwise indicated or modified in the task order.

10.1 Ten (10) days prior to the required tests, the Contractor shall submit to the Contracting Officer and authorized installation representative a copy of a proposed testing plan necessary to prove the system/equipment meets the operating standards promulgated by the design. As a minimum, this testing plan shall contain:

a. Project nonmenclature.
b. System/Equipment description.
c. Specific requirements for system/equipment test.
d. Results of test.

After approval by the Contracting Officer, the Contractor shall schedule the implementation of this testing plan at a time convenient for the Contracting Officer to have installation representative observed.

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Operating and Maintenance Manuals	**FRP0010**

3. **DESCRIPTION/PURPOSE**

Operating manuals will be used by Government personnel at the installation to operate the modified system/equipment. Maintenance manuals will be used by Government personnel at the installation to identify and perform required preventive and corrective maintenance on the installed/modified system after completion of the FRP.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) details the requirements for operating and maintenance manuals.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

The operating and maintenance manuals shall be in accordance with Section 01700 - Contract Closeout, unless otherwise indicated or modified in the task order.

11. **DISTRIBUTION STATEMENT**

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Training	**FRP0011**

3. **DESCRIPTION/PURPOSE**

To delineate Contractor required training requirements.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) provides the requirements to provide a training program.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

Training shall be in accordance with Section 01700 - Contract Closeout, unless otherwise indicated or modified in the task order.

11. **DISTRIBUTION STATEMENT**

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Equipment and Construction Warranties	**FRP0012**

3. **DESCRIPTION/PURPOSE**

To provide warranties on equipment and construction to installation personnel.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) describes the procedures for providing equipment and construction warranties.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

Equipment and construction warranties shall be in accordance with Section 01700 - Contract Closeout, unless otherwise indicated or modified in the task order.

11. **DISTRIBUTION STATEMENT**

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
List of Standard Equipment and Service Organizations	**FRP0013**

3. **DESCRIPTION/PURPOSE**

To provide installation personnel with a source for service organizations.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) details the procedure for providing a list of standard equipment and service organizations.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

A list of standard equipment and service organizations shall be provided in accordance with this DID unless otherwise indicated or modified in the task order.

10.1 All equipment provided under this contract shall be standard products from a manufacturer regularly engaged in the manufacturing of such products, which are of similar material, design, and workmanship. The standard products shall be satisfactory (to the Government) commercial or industrial use for two (2) years prior to submission for approval. These standard products must be offered for sale on the commercial market through advertisement, manufacturers' catalogs, or brochures. Products having less than 2-year services record will be acceptable if a certified record of satisfactory field operation, for not less than 6000 hours exclusive of the manufactures' factory tests, can be shown and is approved by the Contracting Officer. **A certified list of major/minor equipment installed/modified on the project shall be submitted along with a certified list of service organization, with addresses, telephone numbers, and qualifications of qualified, permanent service organizations for support of major/minor equipment.** This list shall contain a cost for each item.

11. **DISTRIBUTION STATEMENT**

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Certification of Computer Media	**FRP0014**

3. **DESCRIPTION/PURPOSE**

To provide certification of virus free computer media.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) requires a virus free submittal of computer data.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

Computer media shall be certified in accordance with this DID unless otherwise indicated or modified in the task order.

10.1 All delivery media (floppy disks, magnetic tapes, etc.) for computer data shall be certified by the Contractor to be compatible with installation computer equipment and to be free of known computer viruses. A compatibility certification and the name(s) and release date(s) of the virus scanning software uses to analyze the delivery media shall be furnished to the Government at the time of delivery. The release or revision date of the virus scanning software shall be the current version which has detected the latest known viruses at the time of delivery of the media. If analysis of the delivery media by the Government finds evidence of incompatibility or virus infection, the media will be returned to the Contractor. The Contractor shall resubmit the media at no cost to the Government.

11. **DISTRIBUTION STATEMENT**

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
Site/Project Specific Remediation Report	**FRP0015**

3. **DESCRIPTION/PURPOSE**

To provide a final report of all work performed under the contract.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) gives the format and content for the site specific remediation report.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

A site specific remediation report shall be prepared in accordance with this DID unless otherwise indicated or modified in the task order.

10.1 Final Report. A final report of all technical work accomplished and information gained in performance of the contract, pertinent observations, nature of problems, positive as well as negative results, and design criteria established (where applicable) will be prepared. Procedures followed, processes developed, etc., will be included. The details of all technical work included shall be sufficient to permit full understanding of the techniques and procedures used evolving technology or processes developed. The status of the facility's compliance with specified standards shall be covered.

10.2 Format.

10.2.1 The title page will identify the report providing contract/task order number, project name, and reporting period.

10.2.2 The front cover **draft** reports will bear the following statement in addition to other requirements, "The view, opinions, and/or findings contained in the report are those of the author(s) and should not be construed as an official Department of the Army position, or decision, unless so designated by other documentation."

10.2.3 Table of Contents.

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10.3 Main Body. The main body of the report shall make use of the following outline only as applicable to each individual situation.

10.3.1 Introduction. The introduction shall consist of a narrative statement of the reasons for the remediation report, make reference to statement of work, technical instructions, other contract direction, previous related submittals and citation of the Government authorization. It should also state aims, objectives, probability of solution of accomplishment, estimated scope of development effort required and technical approach.

10.3.2 Discussion. Discussion shall give a detailed discussion for the technical effort or work performed covering procedures, equipment, facilities, data, and results (both expected and unexpected).

10.3.3 Documentation. Documentation should be made making reference to all related submittals (drawings, intermediate reports, laboratory reports, conference reports, and other research sources).

10.3.4 Tests. Identify tests conducted and resultant test results, both QA and QC.

10.3.5 Summary. The main report body shall end with a summary which should be a concise, self-explanatory recapitulation of the report.

10.3.6 Conclusion. The report should contain a logical conclusion based on the Contractor's evaluation of data presented in the report when an evaluation is applicable. The conclusion should be concise and based on supporting arguments presented in the body of the report. Content of the conclusion is optional on less formalized reports and is left to the discretion of the Contractor.

10.3.7 Recommendations. The report should contain recommendations, when applicable. The recommendations should be a logical outcome of the conclusions and should provide information necessary for action leading to improvements of a system of the state of the art.

10.4 Optional Content

10.4.1 Attendants. Drawings, sketches, photographs, calculations, references or other attachments may be used to clarify or explain the text and may be included either in the body of the report or in an appendix. Oversize material shall be arranged to fold within the report without protruding and shall be limited on one-way horizontal foldouts.

10.4.2 Illustrations. Separate lists of figures, illustrations, and tables may be given immediately following the table of contents, on the same page if possible. Such lists shall be included when there are ten or more figures, illustrations and tables.

10.4.3 Abbreviations and Symbols. Lists of abbreviations and symbols with definitions, and definitions of terms, may also be given following the table of contents, or on the same page or its reverse. The lists should be included when applicable for intelligibility and usefulness to the educated, but not specialized, reader of scientific reports.

10.4.4 References. A list of references is recommended if more than five titles are cited in the text, and shall follow the last page of the text in the report. Head the page 'References,' list the items in order of initial test reference, and number the items with Arabic numerals. The information of each item will include, in this sequence, as applicable: personal author, title, document number, the Defense Documentation Center AD number, (when known), publisher, data, and classification.

10.4.5 Bibliography. A bibliography (supplemental or associated reading) may be included, if appropriate. Head the list 'Bibliography'. It may appear on the same page with references, space permitting. The items will include the same information required for references, but arranged alphabetically by author and not numbered.

10.4.6 Index. An alphabetical index may be included, if necessary. Normally, it will be included only in a voluminous report that will clearly be used frequently for reference. If used, the index should not be a repetition of section of paragraphs titles, but should list every important subject breakdown which users are most likely to seek.

10.4.7 Appendix. An appendix may be used on material related to or additional to the report, such as material not essential to understanding the text, but which provides vital details to the critical reader; additional detailed description; or explanatory matter; extensive test data; complex mathematical derivations; and reproduction of additional tables, illustrations, charts or graphs referenced frequently throughout the report; lists of materials when the contract requires that such a list will be included in the report; and similar material. Special forms that are required by a specification may be included in the appendix. Appendices shall also be used to incorporate reports submitted by other activities that perform some of the technical effort. Each appendix shall be preceded by a title page indicating content (including number of pages) and applicable references to the body of the report.

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1. **TITLE**	2. **IDENTIFICATION NUMBER**
As-Built/Initial Drawings	**FRP0016**

3. **DESCRIPTION/PURPOSE**

To provide as-built drawings reflecting the on-going status of the project as well as the final remediation configuration of the system/facilities/equipment.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) provides for as-built drawings resulting from the effects of this contract.

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

As-built/initial drawings shall be prepared in accordance with this DID and Section 01085 - Detailed Design Performance Requirements, unless otherwise indicated or modified in the task order.

10.1 Additional Requirements: See Section 01085, paragraph 3.4.

11. **DISTRIBUTION STATEMENT**

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response. Including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0183), Washington, D.C. 20503.

1. **TITLE**	2. **IDENTIFICATION NUMBER**
As-Built/Final Drawings	**FRP0017**

3. **DESCRIPTION/PURPOSE**

To provide as-built drawings reflecting the final remediation configuration of the system/facilities/equipment.

4. **APPROVAL DATE** (YYMMDD)	5. **OFFICE OF PRIMARY RESPONSIBILITY (OPR)**	6a. **DTIC APPLICABLE**	6b. **GIDEP APPLICABLE**

7. **APPLICATION/INTERRELATIONSHIP**

This Data Item Description (DID) provides for as-built drawings resulting from the effects of this contract (DA Form 1354).

8. **APPROVAL LIMITATION**	9a. **APPLICABLE FORMS**	9b. **AMSC NUMBER**

10. **PREPARATION INSTRUCTIONS**

As-built/final drawings shall be prepared in accordance with this DID and Section 01700, unless otherwise indicated or modified in the task order.

Final submittal of certified as-builts drawings will include one red-lined copy of Government approved construction blueline prints, as well as one set of mylar reproducible, and two (2) sets of the blue lines. *

* As-builts in digital format may be required by the Contracting Officer.

11. **DISTRIBUTION STATEMENT**

SECTION 01085

DETAILED DESIGN PERFORMANCE REQUIREMENTS

1. GENERAL: This section sets forth the general requirements for the performance of various survey, comprehensive interior design, and design services related to new construction, upgrade, improvement and repair of facilities, infrastructure systems, and related components at Federal Facilities located within the Area of Responsibility of South Atlantic Division, U. S. Army Corps of Engineers. The design portion of the scope of work for each task order shall be selected from the list of requirements in paragraph 3 below. Other task order requirements shall be included in the pre-proposal conference minutes, instructions from the Using Agency's representatives through the Savannah District, or other additional instructions directly from the Savannah District.

In order to maintain maximum flexibility in establishing construction specifications while at the same time avoiding unnecessarily restrictive descriptions, the designer is required to comply with the following standards when specifying a product by trade name, make or catalog number:

a. List the salient characteristics of the named products which establish the “standard of quality” required by the Government. These characteristics should be listed in the form of physical, functional and performance characteristics.

b. Conduct a market survey to identify all manufacturers whose products meet the Government’s requirements.

c. Provide the names and model numbers of all manufacturers’ products which meet the “standard of quality” and list these manufacturers and products in the specifications and/or drawings.

2. CRITERIA REFERENCES. The following information and criteria are made a part of this contract by reference:

2.1 Savannah District Design Manual for Military Construction (SAS DM) dated May 2000. All applicable publications are listed in the SAS DM. (http://en.sas.usace.army.mil/cad.htm)

2.2 Technical Instructions (TI) 800-01, U.S. Army Corps of Engineers Design Criteria dated 20 July 1998 (http://www.hnd.usace.army.mil – under the TECHINFO link).

2.3 Tri-Service A/E/C CADD Standards, Release 1.7, dated 31 July 1998 (http://tsc.wes.army.mil/html/standards/aec/default.htm).

2.4 Savannah District Drafting Standards, dated March 1997.

2.5 DA Facility Standard Design for UEPH, COF, Tactical Equipment Maintenance Facilities, etc. (http://cadlib.wes.army.mil/).

2.6 Applicable Installation Design Guides

2.7 U.S. Army Corps of Engineers Guide Specifications (CEGS) (http://www.hnd.usace.army.mil – under the TECHINFO link).

2.8 Various Government and commercial criteria standards available in the Construction Criteria Base library (http://www.ccb.org).

2.9 U.S. Army Publications and Other Information (http://www.usapppc.hoffman.army.mil/gils/gils.html).

2.10 Air Force Directorate of Departmental Publications Resources (http://afpubs.hq.AF.mil/).

2.11 Federal Acquisition Regulation (FAR) (http://www.arnet.gov/far/).

2.12 Technical Requirements for Design-Build (http://www.hnd.usace.army.mil/techinfo/instructions.htm)

2.13 Design–Build Instructions (DBI) for Military Construction (http://www.hnd.usace.army.mil/techinfo/instructions.htm)

3. SERVICES. The SAS DM provides detailed guidance for preparation of all work under this contract. Unless otherwise indicated, all designs shall be developed using MicroStation CADD technology and SPECSINTACT software for contract specifications. Anticipated services required under this contract are as follows:

3.1 Studies/Reports: The Contractor shall prepare and submit studies/reports (engineering, life cycle cost analyses, etc.) in accordance with additional specific instructions provided within task orders.

3.2 Preliminary Design and Submittal: The Contractor shall prepare and submit for approval the drawings, written descriptions, design analyses, cost estimate, and other related and supporting documents as are more fully specified in the SAS DM, Volume II, Chapters A-1 Through A-12 and Chapters B-1 and B-2. The Contractor shall incorporate preliminary design review comments as a part of completing the Preliminary Design submittal.

3.3 Final Design and Submittal: The Contractor shall prepare in accordance with Government standards, the detailed working drawings and specifications necessary for the effective coordination and efficient execution of the construction work, together with such design analyses, cost estimate, quantity take-off, unit price schedules, and other related and supporting documentation as are more fully specified in the SAS DM, Volume II, Chapters A-1 Through A-12 and Chapters B-1 and B-2. This includes incorporation of comments from the final design review. The Contractor at no additional expense to the Government shall correct items of noncompliance, and corrections shall be made within the time allowed by established design and bidding schedules. This includes travel by the Contractor to Savannah District during reproduction of the bid documents to review discrepancies. Workstations in the Savannah District will not be available for Contractor use.

3.3.1 The Contractor shall prepare the submittal register listing all contractor submittals required in the contract specifications. The Submittal Register Form (ENG Form 4288) shall be developed using the SPECSINTACT software. Using the ENG Form 4288 Submittal Register, the Contractor shall

develop a list of submittal items requiring Designer ("ED" Savannah District Engineering Division or "AE" (Architect-Engineer) level review.

3.3.2 The corrected final design shall constitute the construction contract documents. The Contractor shall submit an electronic copy of the plans and specifications, one original copy of the plans on vellum, one original single-sided copy of the specifications on bond paper (unbound), and one original single-sided copy of the cost estimate on bond paper. If a M-CACES estimate is prepared, an electronic copy of the estimate shall be submitted as part of the corrected final design.

3.4 As Built Drawings (Initial): The Contractor shall survey existing facility conditions and update existing architectural and engineering drawings to reflect current conditions. The as-built drawings shall be created using Computer Aided Design and Drafting (CADD) technology. The Contractor shall provide, as a final product, the as-built drawing files in MicroStation software in use by the Savannah District at the time of contract award. The drawing files may require translation to a format compatible with the installation’s file system. If required, this shall be specified with each task order.

3.5 Architectural Renderings: The Contractor shall provide one original and two full sized color photos of the final color rendering. The full size renderings (original and photos) shall be framed and matted. The rendering shall be double matted as follows: upper matte sheet shall be a neutral color with a lower sheet of contrasting and complementary color. The frame shall be a standard aluminum type frame. The matte, frame, and rendering shall be color coordinated.

3.5.1 The Contractor shall provide for approval, a single line perspective sketch showing the three dimensional aspects of the facility with emphasis on the main building features. The perspective sketch must be a minimum of 8″ X 10″, and illustrate the view planned for the final color rendering. The Contractor shall include a sample indicating the type of rendering technique proposed for the final perspective. The Contractor shall select the horizon line and viewing point to best present the facility’s character. Generally, a normal eye level view is preferred for single building projects, and an aerial view should be used for multiple building complexes. A professional architectural illustrator showing the view approved from the single line perspective shall prepare the rendering. Details should be appropriate for the military installation (e.g., correct portrayal of personnel and uniforms).

3.5.2 The rendering size shall be appropriately apportioned to illustrate the facility shape, color, patterns of exterior materials, and site development features. The minimum size, as determined by adding the vertical and horizontal dimensions of the rendering (without matte) shall be 42″. Non-glare plastic glazing is required. Titles shall be scaled appropriately and included as part of the matte design. Titles shall identify only the project name, installation, and A-E firm.

3.5.3 The Contractor shall provide three mounted 35mm color slides and a photo negative (minimum 35mm) of the final rendering.

3.6 Interior Design: Development of a comprehensive interior design package shall be in accordance with SAS DM.

3.7 Topographic Survey: Complete requirements are detailed in the SAS DM, Volume II, Chapter A-1.

3.8 Subsurface Investigation: Complete requirements are detailed in the SAS DM, Volume II, Chapter B-1. If included in the task order, the Contractor shall complete and return to the Chief, Geotechnical and HTRW Branch, SAS Form 363 for each structure. Early receipt of this document will expedite completion of the foundation design analysis report. Any change in siting or changes to the basic information furnished in SAS Form 363 shall be reported immediately as these changes will likely affect the foundation analysis.

3.9 Design for the Physically Handicapped: In accordance with the Public Law 90-480, the facility shall be designed for use by the physically handicapped. The Uniform Federal Accessibility Standards published in the Federal Register in August 7, 1984, (49FR 31528) covers applicable criteria. If provisions for the handicapped are not included, specific reasons for exemption will be furnished.

3.10 Color Boards: The Contractor shall provide two sets of color/finish boards giving two distinct options, from which one scheme shall be selected by the Installation. The Contractor shall submit the color boards in a 3-ring binder format. Floor plans and elevations shall be included in this document. The Contractor shall submit three copies of the approved color boards with the corrected final design submittal. Finishes shall conform to the Installation’s Design Guide.

3.11 Asbestos/Lead Based Paint Identification and Removal: Complete requirements are detailed in the SAS DM.

3.12 DD Form 1354: The Contractor shall submit with the final design a draft DD Form 1354, Transfer and Acceptance of Military Real Property. Instructions and an example of the completed form can be found in the SAS DM.

3.13 Other A-E Services: The contractor shall complete other types of services related to military or federal facilities that may be identified during the life of the contract.

4. GENERAL TECHNICAL INSTRUCTIONS. The following technical instructions are applicable for the design portion of each individual task order unless otherwise specified in specific task orders. For task orders that include design, the task order shall provide specific instructions for the design of the project indicated and, in case of conflict, takes precedence over the requirements of the Appendix A and the SAS DM.

4.1 Quality Control Plan: The Contractor shall develop a design quality control plan and submit this plan with the fee proposal for each task order that includes design. The quality control plan shall include the following:

4.1.1 Project number, description, and location.

4.1.2 A listing of the design team members, noting their responsibilities, phone numbers, and E-mail addresses.

4.1.3 A CPM or bar chart schedule prepared using an off the shelf NAS software package fully compatible with Microsoft Windows environment (i.e.

Microsoft Project or similar software) indicating the required design activities and proposed submission dates.

4.1.4 Brief outline description of the Contractor's quality procedures for ensuring a coordinated design between disciplines, coordination between drawings and specifications, internal processes, and conformance with SAS deliverables requirements as defined in the SAS DM.

4.2 Communications Connectivity Requirements: The Contractor must have Internet access (MS Explorer or Netscape) to access design criteria on the SAS web page (http://www.sas.usace.army.mil). Also, the Contractor must have electronic mail with the capability to attach and transfer design documents.

4.3 Adapt Government Designs: When appropriate, the Contractor shall adapt Government designs, drawings, specifications, and standards for buildings and other structures as necessary to meet the requirement of the approved layout of the proposed project, and prepare detailed designs, specifications, and drawings in the required form for buildings and other structures for which Government designs are incomplete or unavailable. All such drawings and specifications shall be corrected to reflect the latest criteria requirements in effect during the project design. Facilities to be used as a basis of design shall be identified in the specific instructions for each task order.

4.4 Adjacent Projects: On-going projects located adjacent to, or nearby a proposed project site will be identified in the specific instructions for each task order. The Contractor shall completely and thoroughly coordinate all aspects of the proposed project and how it interrelates with surrounding facilities.

4.5 Military Installation Aesthetic Improvement Guidance: The Contractor shall consider aesthetic design in accordance with the SAS DM.

4.6 Work: The design portion of the work shall consist of performing all services necessary in preparation of contract plans and specifications, including supporting design analyses, cost estimates, narratives, etc., as required for the specific project. The scope of the respective projects is as defined in the task order.

4.7 Contract Drawings: The contract drawings shall be created using Computer Aided Design and Drafting (CADD) technology. The Contractor shall provide, as a final product, the contract drawing files in MicroStation graphics software in use by the Savannah District at the time of contract award. The drawing files may require translation to a format compatible with the installation's file system. If required, this shall be specified with each task order. The project files shall be delivered on compact disk (CD) with a physical label as to the project location and project name. The CD must conform to ISO 9660-file standard. The ISO convention restricts filenames to the characters A-Z (uppercase only), 0-9, and _ (underscore). Filenames including extensions are restricted to 11 characters.

4.8 Design Analysis: The Design Analysis shall be developed in accordance to the criteria specified within task orders and SAS DM. The Design Analysis shall include all features with the necessary calculations, tables, methods, and sources used in determining equipment and material sizes and capacities, and shall provide sufficient information to support the design.

4.9 Specifications: The Specifications shall be developed utilizing commercial CSI specifications or Corps of Engineers Guide Specifications (CEGS). The project specifications shall be in SPECSINTACT format and be in sufficient detail to fully describe and demonstrate the quality of materials, the installation and performance of equipment, and quality of workmanship. Detailing and installation of all equipment and materials shall comply with the manufacturer’s recommendations.

4.10 Documentation: Drawings, design analyses, estimates, resume of utility loads, etc., which are submitted to the Government, shall be appropriately dated with the current date of the latest revision.

4.11 Photographs: The Contractor shall submit photographs showing, where possible, all field conditions influencing the design. The Contractor shall submit a narrative report detailing the general conditions and all special conditions for which it is impractical to submit specific photographs. Each photograph shall be specifically labeled to identify the subject and how it is applicable to the design. The report and photographs shall be organized by design discipline with each design submittal as required. The Government will return photographs submitted with the preliminary design submittal to the Contractor for use in subsequent submittals. Photographs are to be original prints or copies of such quality (size and clarity) to clearly show field conditions and verify quantity of work required. Digital photographs are preferred.

4.12 Consultant Coordination: The Contractor shall ensure copies of all instructions, manuals, ETLs, or other documents pertaining to the design requirements are furnished to consultants in order to ensure a completely coordinated design.

4.13 Design Conferences: It is anticipated that preliminary design review, and final design review conference(s) will be held for each task order that requires design. The Contractor shall be appropriately represented at each conference. The design instructions furnished at or prior to the conference form a part of this contract and the task order The Contractor shall be responsible for taking notes and preparing the reports for all conferences after contract award. Conference/visit notes shall be prepared in typed form, signed by the Project Manager or Project Engineer, and the original furnished to the Savannah District office (within five days after date of conference) for concurrence and distribution to all attendees. This report shall include the following items as a minimum:

4.13.1 The date and place the conference was held with a list of attendees. The roster of attendees shall include name, organization, and telephone number.

4.13.2 Written review comments presented by attendees shall be attached to each report with the conference action noted. Conference action shall be "A" for an approved comment, "D" for a disapproved comment, "W" for a comment that has been withdrawn, "N" for noted, and "E" for a comment that has an exception noted.

4.13.3 Comments made during the conference, or decisions affecting criteria changes, must be coordinated with the Contracting Officer's Representative and recorded in the basic conference notes. The conference notes should document any augmentation of written comments.

4.14 Cost Estimates: The Contractor using the appropriate estimating tool based on the complexity of the project shall prepare construction cost estimates. For projects of high complexity, the M-CACES estimating system shall be used. For projects of lesser complexity, the Contractor’s in-house estimating system may be used. For projects with two or three disciplines, estimates prepared “by hand” may be used. The specific instructions prepared for each task order will specify the estimating system of choice. It is conceivable that the construction cost limit (CCL) of a project can change between the time the project is negotiated and the time final design is completed. The Contractor will be advised of all changes in the construction cost limit. A change in the CCL shall not categorically constitute a change in scope nor justify any change in the Contractor's fee. The Contractor is required to design the project at the full scope as indicated on the DD Form 1391 or the specific instructions as originally negotiated plus any changes incorporated by contract modification regardless of the fluctuation in the construction cost limit in accordance with Section 00700, FAR 52-236.22. At any time during the design process, should it become apparent to the Contractor that the construction cost of the project will exceed the amounts set forth in the specific instructions for each task order, he/she shall immediately provide written notice to the Contracting Officer.

4.15 Site Inspections: When making site inspection visits at the Installation, the necessary arrangements for such visits shall be made with the point of contact at the Installation, and keeping the Savannah District informed of scheduled dates. The Contractor is responsible for determining existing site conditions and coordinating the proposed new work with existing conditions and other proposed work. As-built drawings for typical facilities furnished the Contractor may not necessarily reflect the true existing conditions; therefore, each facility must be field checked and drawings revised to indicate the true existing conditions.

4.16 Authorized Changes: The Contractor shall accept instructions only from the Contracting Officer or his/her duly appointed representative; however, requests and desires of the using agency made directly to the Contractor shall be forwarded to the Contracting Officer or his/her duly appointed representative.

4.17 Verification of Design Conditions: Upon completion of each design, the Contractor shall review the design and correct the specifications, codes, etc. to assure the specifications are up to date. Any changes required in the design to conform to code or other criteria changes shall be reported to the Contracting Officer for consideration. Such design changes may be the basis for a contract modification if a change in the design is directed. The Contractor shall revisit the site, verify the field conditions on which the design is based, and advise the Contracting Officer of all changes in field conditions affecting the design and that the required verification is completed prior to the submittal of the corrected final design.

4.18 Submittals: Requirements for submittal packaging shall be outlined in the Specific Instructions for each task order that includes design to include a listing of review agencies with quantities of sets the Contractor is to provide for review by each agency.

4.19 Permits: The Contractor shall ensure that designs comply with all the requirements of the Clean Air Act, as amended; the Federal Water Pollution

Control Act, as amended; and the Safe Drinking Water Act. The Contractor shall, during final design and after consultation with the Installation Engineering staff, obtain necessary permits, licenses, and approvals from local, state, and federal authorities.

4.20 Ingress or Egress: Should it become necessary for the Contractor to secure the right of ingress and egress to accomplish any of the work required for the performance of various planning, survey, comprehensive interior design, and design services related to new construction, upgrade, improvement and repair on properties not owned or controlled by the Government, the Contractor shall secure the consent of the owner, his representative, or agent prior to entering the property.

4.21 Record of Discussions: The Contractor shall be required to provide a record of all discussions, verbal directions, telephone conversations, etc., participated in by the Contractor and/or his representatives on matters relative to this contract and the work.

4.22 Report of Field Visit: The Contractor shall submit a report of field visit each time a visit is made to an installation. In addition, for the purpose of accurate safety records, the Contractor will maintain a record and will report to the Contracting Officer by the 20th of each month, "exposure data" (total number of man-days spent at the installation) for the previous month. This applies to all fieldwork accomplished on Government property. The report of exposure data shall be made by letter.

4.23 Drawing Numbers: Drawing numbers will be assigned following the award of each task order.

4.24 Computerized Design Analysis: The Contractor is encouraged to use computer calculations as part of analysis whenever possible and should refer to the SAS DM and the Specific Instructions for additional information as to approved programs and the requirement for electronic media submittal. As a minimum, unless the programs are listed as approved, the Contractor shall provide:

4.24.1 The name of the program.

4.24.2 A description of the program: This description must be sufficient to verify the validity of methods, assumptions, theories, and formulas, but does not require source code documentation or other information that would compromise the proprietary rights. The Contractor is responsible for verifying the results of programs and that programs are used correctly.

4.24.3 A benchmark run validating the program that includes both a computer analysis and hand analysis of a typical or representative problem.

4.25 Y2K Compliance: All equipment designed under this contract shall be Year 2000 compliant in accordance with FAR 39.106. Equipment must accurately process date/time data including, but not limited to, calculating, comparing, sequencing from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations. Furthermore, year 2000 compliant information technology, when used in combination with other information technology, shall accurately process date/time data if the other information technology properly exchanges with it.

SECTION O1320

PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 REFERENCES (Not Applicable)

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only:

SD-08 Statements

Construction Progress Chart; GA.

Contractor-Prepared Network Analysis System; GA.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CONSTRUCTION PROGRESS CHART

Pursuant to the contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS" the Contractor shall prepare a schedule of construction, when required under individual delivery orders, utilizing a construction progress chart as described herein. Construction progress charts shall be prepared on ENG Form 2454. The Contractor shall submit three copies of the Construction Progress Chart for approval. No progress payments for work under affected Task Orders will be made without an approved progress chart.

The Contractor shall prepare the chart with the following considerations. The contract work shall be divided into definable contract features. As a minimum, the Contractor shall address each specification section as a principal contract feature. The weighted value (WT.) column should indicate the percentage of the contract for which each principal contract feature accounts. The vertical lines shall be identified by specific tin frames, (i.e., weekly, bi-weekly, monthly) with one space accounting for no more than 1 month. The Contractor shall identify the date when Notice to Proceed is acknowledged on the chart. The Contractor shall also identify the contract completion date on the chart.

The Contractor shall place bars on the chart to indicate scheduled progress for each feature of work. The Contractor shall note the anticipated percentage complete for each item at the end of each month and at the end of each scheduled block. Activities shall be identifiable by bid item if applicable.

3.2 CONTRACTOR-PREPARED NETWORK ANALYSIS SYSTEM

Pursuant to the Contract Clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS," the Contractor shall prepare a schedule of construction which shall be based upon a critical path method (CPM) network analysis system (NAS) as described below. The network analysis system is required to assure adequate planning and execution of the work and to assist the Contracting Officer in appraising the reasonableness of the proposed schedule and evaluating progress of the work both before and during construction.

3.2.1 Critical Path Method

The critical path method (CPM) shall conform in general to the requirements of the Corps of Engineers' regulation ER 1-1-11 entitled "NETWORK ANALYSIS SYSTEM" (NAS), single copies of which are available to bona fide bidders on request. Either the Arrow Diagram Method/I-J Procedure (ADM) or the Precedence Diagram Method (PDM) is acceptable for mathematical analysis. Float or slack is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the NAS schedule. Float or slack is not time for the exclusive use or benefit of either the Government or the Contractor. Extension of time for performance required under the CONTRACT CLAUSES entitled CHANGES, DIFFERING SITE CONDITIONS, DEFAULT (FIXED PRICE CONSTRUCTION) or SUSPENSION OF WORK will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total float or slack along the paths involved.

3.2.2 Network Analysis System

The network analysis system (NAS) shall consist of logic diagrams and accompanying CPM mathematical analysis. Both the logic diagrams and the CPM mathematical analysis will be updated monthly during construction to show the impact of progress and changes. The CPM program utilized to perform the mathematical analysis will be capable of analyzing all approved project activities, including updates, as a single process. Suppression of data critical to NAS calculations shall not be allowed.

The initial network analysis system shall be tested to ensure that it will accurately reflect the effects of time tracking. Testing will be approved by the Contracting Officer's representative prior to the first CPM mathematical analysis system update. Future major changes in the CPM schedule shall also be tested and approved prior to implementation to ensure proper reflection of the actual status of the project as well as on contract dates due to modification time adjustments. Minimum number of activities per building or feature of construction for this project, not including dummies (ADM), is as noted below:

Minimum Number of Activities

Will be determined in each Task Order

3.2.2.1 Logic Diagrams

3.2.2.1.1 Project Activities

Project activities shown on logic diagrams shall include as a minimum, all bona fide construction activities, design-related activities, the submittal, resubmittal (if required), and approval of shop drawings, certifications, samples, calculations, etc., relevant to all materials and equipment to be provided, fabrication/delivery of special materials, components and equipment, their installation and testing, systems testing, and required personnel training. Also included shall be mobilization, demobilization, placement of warrantee tags, O&M manuals, cleanup, and all required contract inspections. All activities of the Government which affect progress as well as contract-required milestone activities with completion dates shall also be included. Lag, lead, contingency, or restraint type time-related activities are allowed when used in conjunction with the precedence method of analysis. They must be clearly identifiable and must indicate time and relationships. These activities are prohibited in arrow diagramming unless contractually mandated and/or approved by the Contracting Officer. The work represented by each activity will be such that the duration will range from 1 to 30 days and will have a dollar value not to exceed $100,000.00 (except when an activity contains one item of equipment whose value exceeds $100,000.00). Exceptions to this will be allowed subject to the approval of the Contracting Officer. Activities of separate buildings and/or phases of construction (work items) shall be commonly identifiable by the use of approved activity codes. Activities of projects with more than one bid item shall also be identifiable with approved codes. Detailed logic diagrams need not be time scaled, but shall be drafted to show a continuous flow of work from left to right. The following information shall be shown on the logic diagrams for each activity: Event or I-J numbers, description of the activity, cost, craft involved (responsibility), work item designation, and activity duration in calendar days. The critical path shall be determined and shall be clearly indicated on the diagram as a continuous series of project activities with zero total float. Activity event numbers shall not exceed five digits (ADM) or ten digits (PDM) and shall be assigned in ascending sequence so that preceding event numbers are smaller numerically than following event numbers. Activity event numbers shall be assigned by fives: i.e., 5, 10, 15, etc. Random numbering schemes are not allowed unless approved by the Contracting Officer.

Logic diagrams shall show the order and interdependence of project activities and the sequence in which the work is to be accomplished, as planned by the Contractor. The logic diagramming procedure which will be used will show how the start of a given activity is dependent on the completion of preceding activities, and how its completion restricts the start of following activities. Solid symbols shall be used to represent actual activities and broken symbols with the page number adjacent shall indicate when an actual node is located elsewhere on the diagram.

3.2.2.1.2 Preliminary Logic Diagram

A preliminary logic diagram defining in detail the Contractor's planned operations during the first 90 calendar days of the project shall be submitted within 10 days after notice to proceed. The Contractor's general approach, in non-time-scaled summary, for the balance of the project shall be indicated. Cost of activities expected to be completed or partially completed before submission and approval of the complete schedule shall be included. The Contractor shall submit with the preliminary logic diagram a copy of the users manual outlining the CPM computer program's mathematical analysis capabilities, details, functions, and operation. Upon approval of the preliminary schedule, the Contractor shall provide to the Government a complete input listing of the approved schedule.

3.2.2.1.3 Summary Logic Diagram

If the project is of such size that the entire logic diagram cannot be readily shown on a single sheet, a summary logic diagram shall be provided. The summary logic diagram shall consist of a minimum of 50 activities and maximum of 150 activities and shall display work item summaries and highlight interdependencies between adjacent work items. Related activities shall be grouped together. The critical path shall be plotted generally along the center of the sheet with channels with increasing float placed towards the top or bottom. The summary logic diagram shall be time scaled using units of approximately 1/2 inch equals 1 week or other suitable scale, approved by the Contracting Officer.

3.2.2.1.4 Sheet Size

Sheet size of logic diagrams shall be 30 by 42 inches. Each updated copy shall show the date of the latest revisions. The logic diagrams shall be manually prepared and hand drafted or CADD drawings. Computer generated logic diagrams are allowed only upon approval of the Contracting Officer.

3.2.2.1.5 Submittal and Updating Procedures

Initial submittal for review purposes shall be submitted in two full size copies. Final approved schedule shall be submitted in eight copies (one reproducible full size, two full size prints, one reproducible half size, and four half-size prints). Monthly updates shall be submitted in two full size copies and one half-size copy. Revision/additions to logic diagrams shall require submittal of one full size reproducible and one half size reproducible of the relevant logic diagram.

3.2.2.2 CPM Mathematical Analysis Reports

The CPM mathematical analysis reports shall include a tabulation of each activity shown on the logic diagrams. The following information will be furnished as a minimum for each activity.

a. event or I-J numbers;

b. an identifier reflecting type of activity (beginning, ending, dummy, milestone), when applicable;

c. activity description;

d. original duration;

e. responsibility for activity (prime Contractor, each of the subcontractors, suppliers, Government, etc.);

f. the work item for phase of which the activity is a part;

g. monetary value of activity;

h. remaining duration in actual days remaining to complete the activity; note 4

i. actual start date (by calendar date);

j. actual finish date (by calendar date);

k. percentage of activity completed; Contractor's earnings based on portion of activity completed; note 2

l. earliest start date (by calendar date); note 3

m. earliest finish date (by calendar date); note 1

n. latest start date (by calendar date);

o. latest finish date (by calendar date);

p. total slack or total float;

q. an identifier reflecting modification activities including associated dummy activities: and

r. bid item if more than one bid item exists.

NOTES:
1. Early start date plus remaining duration equals early finish (ES + RD = EF). Remaining duration expressed in calendar days rather than percentage.

2. Quantity survey (percent complete) independent of network time analysis.

3. Show early start date on all scheduled activities not completed.

4. Remaining duration shall not be based upon percentage of remaining work to be earned.

The program calendar to be used in calculating Kinematical analyst be a continuous or 7-day calendar. The Contracting Officer must approve exceptions to this.

3.2.2.3 Program Analysis

3.2.2.3.1 Progress Reporting Format

The program used in making the mathematical computation shall compile the total dollar value of completed and partially completed activities by work item (as established in the SPECIAL CLAUSES SCHEDULE), and provide the percentage of actual work in place (by work item). Progress reporting format will be reflected in a work item (phase) summary as follows:

a. Original Contract Dollars

b. Modified Dollars to Date

c. Current Contract Dollars (c = a + b)

d. Earned Dollars (Work in Place)

e. Actual Percent Complete (e = d/c X 100%)

f. Percent Scheduled

g. Work Item Completion Dates (as modified to date)

3.2.2.3.2 Modification Activity Time Adjustments

The CPM mathematical analysis shall accept approved modification activity time adjustments and recompute all scheduled dates and float accordingly.

The Contractor shall indicate in his proposals for all contract modifications, by event number, the activities affected, activities added, or activities deleted. The effect shall be indicated for each activity in both time and money. When modifications in the work are found to necessitate issuance of a notice to proceed prior to proposal submission and/or settlement to avoid delay and additional expense, the Contractor shall furnish the Government suggested changes in the logic diagram(s) and/or duration of all activities affected by the modification within 10 calendar days from notice to proceed. In the event the Contractor does not furnish the suggested logic changes or an agreement cannot be reached, the Contracting Officer's representative will direct the Contractor as to the specific logic changes and/or time adjustments which shall be entered into the CPM mathematical analysis. Modification activity time adjustments to be used to "Time Track" shall be those issued with an unpriced change order or

approved since the last update. Each month, prior to updating, the CPM mathematical analysis shall apply these modification activity time adjustments to determine revised work item and/or project completion dates due to contract modifications. The results are to be reviewed and verified by the Contracting Officer's representative, after which the update CPM mathematical analysis shall again be performed including the current period progress with schedule dates and float recomputed based upon the update data date. This shall reflect the actual status of the project.

3.2.2.4 Activities

The program used for the CPM mathematical analysis shall be capable of producing reports listing activities in sorts or groups as follows:

a. Event or I-J Sort. By event number (PDM) or by the preceding event number, from lowest to highest, and then in the order of the following event number (ADM). Columns pertaining to budgeted and earned amounts shall be totaled. No activities shall be omitted.

b. Total Float (Slack) Sort. By the amount of total float (slack), then in order of event (PDM) or preceding and following event number (ADM). Dummy activities and completed activities are included.

c. Early Start Sort. In order of earliest allowable start dates, then in order of total float, then event number (PDM), or preceding event numbers, then in order of succeeding event number, and then in order of following event number (ADM) reflecting only through 90 days from date of report. Dummy activities and activities with more than 90 days of total float are omitted.

d. Responsibility ES-TF-I-J Sort. By responsibility, in order of earliest allowable start date, then in order of total float, then in order of event number (PDM) or preceding event number, then following event number (ADM); reflecting a 90-day period from the date of the report. Dummy activities are omitted unless they are lag activities and are time related; completed activities are included.

e. Work Item ES-TF-I-J Sort. By work item code, by early start date, total float, by event number (PDM) or by the preceding event number (from lowest to highest) and then in the order of the following event number (ADM). Dummy activities shall be omitted unless they are lag activities and are time related; completed activities shall be included.

f. Cost Summary Report. In order of earliest and latest finish dates. Dummy and completed activities are omitted.

g. Milestones Sort. By event number, or by preceding event number from lowest to the highest and then in the order of following event number.

h. The Contractor shall submit with the original submittal and major revisions thereafter, labor manning by craft, by activity.

3.2.2.5 Submittal Approval Procedure

The complete network analysis system consisting of the CPM mathematical analysis and logic diagrams for the entire project shall be submitted within 30 calendar days after receipt of notice to proceed. The Government shall have 30 days for review. No payment will be made after the first 60 days without an approved and tested, complete network analysis system.

The complete network analysis system consisting of the CPM mathematical analysis and logic diagrams, for the entire project, shall be submitted within 30 calendar days after receipt of notice to proceed. The preliminary logic diagram shall be submitted for review within 10 days after receipt of notice to proceed. The Government shall have 20 days for the review of the preliminary diagram and 30 days for review of the complete network analysis system. No payment shall be made during the first 30 days without an approved preliminary logic diagram nor after the first 60 days without an approved and tested, complete network analysis system.

3.2.2.6 Number of Copies

Monthly CPM mathematical analysis reports and manually prepared reports shall be submitted in three copies. The mathematical analysis shall also be submitted on 89 mm (3-1/2 inch) or 133 mm (5-1/4 inch) disks as determined at the mutual understanding conference.

3.2.2.7 Review And Evaluation

The Contractor's field representative shall participate in the development of the proposed logic diagram, review and evaluation of the proposed logic diagram, and the CPM mathematical analysis by the Contracting Officer. Any revisions necessary as a result of the review shall be incorporated into the complete network analysis system prior to approval by the Contracting Officer. The approved schedule shall then be the schedule to be used by the Contractor for planning, organizing, and directing the work and for reporting progress and requesting payment for work accomplished. If the Contractor thereafter does not follow his planned schedule or desires to make changes in his method of operating and scheduling, he shall notify the Contracting Officer in writing stating the reasons for the change. Progress payments will be awarded based on amount judged complete in conjunction with the approved activity sequence. Progress payments on work out of sequence will not be allowed unless logic changes are made and approved by the Contracting Officer prior to submission of the updated CPM mathematical analysis. If the Contracting Officer recognizes major logic changes or considers these Contractor changes to be of a major nature, he will require the Contractor to revise and submit for approval, without additional cost to the Government, all of the affected portion of the detailed logic diagrams and CPM mathematical analysis, as well as the summary logic diagram to show

the cumulative effect of the changes on the entire project. A change will be considered of a major nature if the time estimated to be required or actually used for an activity or the logic sequence of activities is varied from the original plan to such a degree that there is a reasonable doubt in the opinion of the Contracting Officer's representative as to the effect on the contract completion date or dates. Changes which affect activities with adequate total float shall be considered minor changes, except that an accumulation of minor changes will be considered a major change when their cumulative effect affects the project or a contractual or work item completion date. The effect of minor changes on logic shall be shown on each monthly update and described fully in the accompanying manually prepared narrative progress report.

3.2.2.8 Mutual Understanding Conference

In conjunction with or following the Pre-Construction Conference, a Mutual Understanding Conference will be conducted to develop a complete understanding of the requirements and procedures for the monthly progress update meeting and mandatory supporting data submission. At this time the medium and format of data exchange will be agreed upon. The meeting date and place will be mutually determined and will consist of authorized representatives who will be participating in the monthly progress update meeting.

3.2.2.9 CPM Mathematical Analysis Update

The Contractor shall submit, at intervals of 30 calendar days, a report of the actual construction progress by updating the CPM mathematical analysis. The update information shall be verified by the Contracting Officer prior to processing and shall include all conditions which would influence the CPM mathematical analysis results. Revisions causing changes in the detailed logic diagram shall be noted on the summary logic diagram, and a revised issue of affected portions of the detailed logic diagram will be furnished along with the CPM mathematical analysis. All logic changes shall have prior approval before being included in the update. The summary logic diagram shall be revised as necessary for the sake of clarity at the option of the Contracting Officer. However, only the initial submission or complete revisions need be time scaled. Subsequent minor revisions need not be time scaled. For each completed phase, the manually prepared progress report need only show total value of work. The date to be used for calculating progress (update data date) will be the first work day of the month following the progress month, or a date mutually agreed upon by the Contractor and Government Representatives, with remaining project work scheduled and total float recalculated from that date in the CPM mathematical analysis.

3.2.2.9.1 Report Content

The progress report package shall include cover letter, request for payment, sorts a., Event or I-J Sort, and b., Total Float (Slack Sort), identified in

paragraph 3.2.2.4, the appropriate narrative reports required below, and updated logic diagrams. The complete mathematical analysis shall be included on either 89 mm (3-1/2 inch) or 133 mm (5-1/4 inch) disks for use by the Government in preparing reports and sorts in paragraph 3.2 2.4. If data cannot be supplied on disk for use by the Government, all reports and sorts listed in paragraph 3.2.2.4 shall be submitted with the package. Pay Requests are not a mandatory part of this submittal update package; however, all requests for payment, when submitted, shall be part of a complete progress report package. To assure adequate time for review, progress report packages shall be submitted 5 working days prior to submittal of the pay estimate. The progress report shall include updated information on the activities or portions of activities completed during the reporting period and their total value as basis for the Contractor's request for payment. Payment made pursuant to the Contract Clause entitled "Payments Under Fixed Price Construction Contracts" will be based on the total value of such activities completed or partially completed after verification by the Contracting Officer. The report shall state the percentage of the work actually completed and scheduled, as of the report date, and the progress along the critical path in terms of days ahead or behind the approved contract completion dates. If the project is behind schedule, the Contractor shall also submit a manually prepared progress reporting narrative form with the undated CPM mathematical analysis which shall include, but not be limited to a description of the problem areas (current and anticipated), delaying factors and their impacts and an explanation of corrective actions taken or proposed. This report is mandatory.

3.2.2.9.2 Manually Prepared Progress Report

In addition to the CPM mathematical analysis reports, a manually prepared progress report shall be submitted to include the following data:

a. Identification of activities which are planned to be expedited by use of overtime or double shifts to be worked including Saturdays, Sundays, and holidays;

b. A description of the major items of construction equipment planned for operation of the project. (The description shall include the type, number of units, and unit capacities. A schedule shall be provided showing proposed times the equipment shall be on the job and shall be keyed to activities on which equipment will be used.); and

c. Where portions of the work are to be paid by unit cost, the estimated number of units in an activity which were used in developing the total activity cost.

3.2.2.9.3 Monitor of Input

Each monthly update report will include a monitor of input. This monitor of input will show all changes of input to the CPM mathematical analysis for that update. Progress reporting shall include actual start and finish

dates, remaining durations, percent complete, and monetary value of activities, if altered.

3.2.2.9.4 Modification Summary Status Report

The monthly update shall include a separate modification summary status report showing for each negotiated/approved modification the following:

a. The Corps of Engineer's modification numbers (PO# and DO#).

b. The Contractor's modification number.

c. The activity event numbers for each modification activity.

d. The respective activity duration.

e. The total modification negotiated price by activities.

3.2.3 Scheduling Staff

The Contractor shall employ at the jobsite, during all times which work under the contract is being performed, an experienced staff trained in the use and application of a computer-based critical path method network analysis system for planning and execution of the work. This staff shall have a minimum of 4 years verifiable experience in the planning, scheduling, modifying, application and analysis of CPM schedules. The sole responsibility of this staff shall be the monitoring and reporting of progress made in performing the work required under the contract. The staff shall be responsible for inputting data relating to progress in order to perform monthly revisions of the network, updating the mathematical analysis, and revising logic diagrams to reflect approved changes in the sequencing of the work. The size of this staff and the person(s) proposed by the Contractor shall be subject to the approval of the Contracting Officer. A resume of verifiable prior experience and/or training shall be submitted for those persons considered by the Contractor for employment.

3.2.3.1 Data Disks

The automated scheduling software utilized by the Contractor shall be capable of direct data input or some system of input to the scheduling system used by the Government or shall be capable of exporting input data to an ASCII text file. Data disk(s) containing direct entry data or current ASCII file shall be provided with the Initial Schedule, Monthly Updates, and all NAS revisions or requests for revisions. The Contractor will be responsible for the accuracy of this data and successful data transfer to the Government. In the event of faulty disk(s), the Contractor will be responsible for replacement.

3.2.3.1.1 Standard Data Exchange Format

If direct exchange of data is not possible, data shall be provided according to ER 1-1-11, Appendix B. Scheduling System Data Exchange Format dated 15 Mar 90 which shall be furnished the Contractor at the Mutual Understanding Conference during or following the Pre-Construction Conference.

3.3 Progress schedule requirements of Paragraph 3.1 of this section will be applicable to most task orders and will be priced in the Field Overhead Rate proposed. Progress Schedule requirements of Paragraph 3.2 of this section will be negotiated on a task order by task order basis as applicable.

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SECTION 01330

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09/00

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CEGS-01330/S (September 2000)

SECTION 01330

SUBMITTAL PROCEDURES
09/00

PART 1 GENERAL
1.1 SUBMITTAL IDENTIFICATION

Submittals required are identified by SD numbers and titles as follows:

SD-01 Preconstruction Submittals

SD-02 Shop Drawings

SD-03 Product Data

SD-04 Samples

SD-05 Design Data

SD-06 Test Reports

SD-07 Certificates

SD-08 Manufacturer's Instructions

SD-09 Manufacturer's Field Reports

SD-10 Operation and Maintenance Data

SD-11 Closeout Submittals

1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.2.1 Government Approved

Government approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.2.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers

any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

1.5 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

PART 2 PRODUCTS (Not used)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) System Manager and each item shall be stamped, signed, and dated by the CQC System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.2 SUBMITTAL REGISTER

At the end of this section is a submittal register showing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor shall maintain a submittal register for the project in accordance with Section 01312 RESIDENT MANAGEMENT SYSTEM (RMS).

3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals. An additional 10 calendar days shall be allowed and shown on the register for review and approval of submittals for food service equipment and refrigeration and HVAC control systems.

3.4 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) included in Attachment 1 to Section 00800 shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

3.5 SUBMITTAL PROCEDURE

Submittals shall be made as follows:

3.5.1 Procedures

The Contractor shall be responsible for the scheduling and control of all submittals. The Contractor is responsible for confirming that the submittal register includes all submittals required by the contract documents.

In addition to those items listed on ENG Form 4288, the Contractor will furnish submittals for any deviation from the plans or specifications. The scheduled need dates must be recorded on the document for each item for control purposes and critical items must be tied to the Contractor's approved schedule where applicable.

The Contractor will submit to the Contracting Officer for approval a minimum of five copies of all G/RE (Resident/Area Office Review), G/ED (Engineering Division Review) or G/AE (Architect-Engineer Review) level submittals. Three copies of all FIO level submittals will be provided. The number of copies of submittals specified in this portion of the contract shall be complied with in lieu of four copies as specified by FAR 52.236-21.

For those contracts requiring Network Analysis System (NAS), the Contractor will schedule on the NAS critical items of equipment submittals and procurement activities which will, or have the potential to, significantly impact project completion. The inclusion or exclusion of critical items shall be subject to the approval of the Contracting Officer.

Where ENG Form 4025 must be submitted prior to approval of the Construction Progress Schedule, the Contractor shall submit an initial annotated ENG Form 4288 upon which dates for submittal, approval and delivery of procurement items shall be included for the first 60 days of the work. Upon approval of the Construction Progress Schedule, or no later than 60 days after Notice to Proceed, the Contractor shall submit final annotated copies of ENG Form 4288. Dates shall be coordinated with the approved Construction Progress Schedule to logically interface with the sequence of construction. Critical item numbers will be shown on the listing if NAS is required.

Furnishing the schedule shall not be interpreted as relieving the Contractor of his obligation to comply with all the specification requirements for the items on the schedule. Contractor's Quality Control representative shall review the listing at least every 30 days and take appropriate action to maintain an effective system. The Contractor shall furnish a list each 30 days of all submittals on which either Government's or Contractor's action is past due. He shall also furnish revised due dates in those cases when the original submittal schedule is no longer realistic. This monthly list of delayed items shall also be annotated by the Contractor to show what corrective action he is taking with regard to slippages in submittal schedule which are attributable to actions by him, his subcontractors, or suppliers.

The Contractor shall provide a complete updated submittal register indicating the current status of all submittals when requested by the Contracting Officer in order to assure himself the schedule is being maintained.

The Contractor shall certify that each submittal is correct and in strict conformance with the contract drawings and specifications. All submittals not subject to the approval of the Contracting Officer will be submitted for information purposes only.

No Corps of Engineers action will be required prior to incorporating these items into the work, but the submittal shall be furnished to the Area/Resident Engineer not less than 2 weeks prior to procurement of Contractor certified material, equipment, etc.

These Contractor approved submittals will be used to verify that material received and used in the job is the same as that described and approved and will be used as record copies. All samples of materials submitted as required by these specifications shall be properly identified and labeled for ready identification, and upon being certified by the Contractor and reviewed by the Contracting Officer, shall be stored at the site of the work for job site use until all work has been completed and accepted by the Contracting Officer. Delegation of this approval authority to Contractor Quality Control does not relieve the Contractor from the obligation to

conform to any contract requirement and will not prevent the Contracting Officer from requiring removal and replacement of construction not in contract conformance; nor does it relieve the Contractor from the requirement to furnish "samples" for testing by the Government Laboratory or check testing by the Government in those instances where the technical specifications so prescribe.

Contractor certified drawings will be subject to quality assurance review by the Government at any time during the duration of the contract. No adjustment for time or money will be allowed for corrections required as a result of noncompliance with plans and specifications.

Submittals Requiring Government Approval (G/ED Level, G/RE Level or G/AE level). Where the review authority is designated to the Government, the Contractor is required to sign the certification on ENG Form 4025 in the box beside the remarks block in Section I. The Government will code the items in block h and sign the approval action block in Section II as the approving authority.

Operating and Maintenance Instructions. Six complete sets of instructions containing the manufacturer's operating and maintenance instructions for each piece of equipment shall be furnished. Each set shall be permanently bound and shall have a hard cover. One complete set shall be furnished at the time test procedures are submitted. Remaining sets shall be furnished before the contract is completed. The following identification shall be inscribed on the covers: The words "OPERATING AND MAINTENANCE INSTRUCTIONS," name and location of the facility, name of the Contractor, and contract number. Fly sheets shall be placed before instructions covering each subject. Instruction sheets shall be approximately 8-1/2 by 11 inches, with large sheets of drawings folded in. Instructions shall include but are not limited to:

(1) System layout showing piping, valves and controls;

(2) Approved wiring and control diagrams;

(3) A control sequence describing startup, operation and shutdown;

(4) Operating and maintenance instructions for each piece of equipment, including lubrication instructions and troubleshooting guide; and

(5) Manufacturer's bulletins, cuts and descriptive data; parts lists and recommended parts.

3.5.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

3.6 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four copies of the submittal will be retained by the Contracting Officer and one copy of the submittal will be returned to the Contractor.

3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans

and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

3.9 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR

(Firm Name)

_____ Approved

_____ Approved with corrections as noted on submittal data and/or attached sheets(s).

SIGNATURE: _____

TITLE: _____

DATE: _____

-- End of Section --

SECTION 01340

SURVEY, LAYOUT, AND OTHER DATA

PART 1 - GENERAL

1.1 REFERENCES (Not Applicable)

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only:

SD-01 Data

Verification of Contract Survey Data; GA.

The Contractor shall furnish verification of basic survey data prior to disturbing existing site conditions in accordance with PART 3 paragraph CONTRACTOR VERIFICATION OF CONTRACT SURVEY DATA.

Underground Storage Tank Data; FIO.

Furnish the Contracting Officer notification of tank installation and other data in accordance with PART 3 paragraph UNDERGROUND STORAGE TANKS.

Thirty-five mm Color Slides; FIO.

Provide color slides of the project construction in accordance with paragraph THIRTY-FIVE MM COLOR SLIDES.

SD-04 Drawings

Plant Layout Drawings; GA.

Furnish drawings and other data concerning the principal components of the construction plant, offices, and shop and storage areas the Contractor proposes to construct at the site in accordance with paragraph PLANT LAYOUT DRAWINGS.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CONTRACTOR VERIFICATION OF CONTRACT SURVEY DATA

During initial site layout and before existing conditions are disturbed the Contractor shall verify, in writing, the basic survey data provided on the contract drawings. Verification shall be initiated from the point shown on the contract drawings or from the contract drawing reference point designated by the Contracting Officer's authorized representative and shall

include, as a minimum, benchmark elevations, horizontal control points, and sufficient spot checks of critical elevations to ensure that the survey data adequately reflects existing conditions. The Contractor shall not proceed with construction until survey verification is provided to the Contracting Officer's authorized representative. Before an existing benchmark referenced on the contract drawings is disturbed the Contractor shall establish a new benchmark which has been approved by the Contracting Officer's authorized representative. Benchmarks which are destroyed without authorization from the Contracting Officer's authorized representative must be replaced at the Contractor's expense as prescribed in clause "Layout of Work" in Section 00700, Contract Clauses. The Contractor shall refer to Contract Clauses, "Differing Site Conditions" and "Site Investigation and Conditions Affecting the Work," for additional requirements.

3.2 UNDERGROUND STORAGE TANKS

In addition to any other requirements for submittal, the Contractor shall, within 5 days of installation of any underground storage tanks under this contract, notify the Contracting Officer's representative the date of installation. The notification shall also include the following information:

a. A plan view showing the tank's location.

b. Projected date the tank will begin operation.

c. Total capacity of tank in gallons.

d. The material used in the construction of the tank.

e. Internal protection of the tank.

f. External protection of the tank.

g. Type of piping and if piping is cathodically protected.

h. Type of substance to be stored in the tank.

3.3 PLANT LAYOUT DRAWINGS (1965 APR OCE)(EFARS 52.2/9109(f))

Drawings, in triplicate, showing the layout of the plant the Contractor proposes to use on the work shall be submitted by the Contractor for review by the Contracting Officer. The drawings shall show the locations of the principal components of the construction plant; offices; shop and storage buildings; housing facilities, if any; and storage areas and yards which the Contractor proposes to construct at the site of the work and elsewhere. The Contractor shall also furnish for review by the Contracting Officer drawings in triplicate, showing the general features of his aggregate processing plant; aggregate transporting, storage and reclaiming facilities; aggregate rinsing and dewatering plant, if required; coarse aggregate rescreening plant, if required; concrete batching and mixing plant; concrete conveying and placing plant; and when precooling of concrete is required, the cooling

plant. The drawing shall appropriately show the capacity of each major feature of the plant including the rated capacity of the aggregate production plant in tons per hour of fine and coarse aggregates; rated capacity of the aggregate transporting, storage and reclaiming facilities; volume of aggregate storage; capacity of cement and pozzolan storage; rated capacity of the concrete batching and mixing plant in cubic yards per hour; rated capacity of the concrete transporting and placing plant in cubic yards per hour; and when used rated capacity of plant for precooling of concrete. Drawings in triplicate showing-any changes in plant made during design and erection or after the plant is in operation shall be submitted to the Contracting Officer for review. Two sets of the drawings will be retained by the Contracting Officer and one set will be returned to the Contractor with comments.

3.4 THIRTY-FIVE MM COLOR SLIDES

If required by a task order, the Contractor shall make a representative series of 35 mm, color slides consisting of six before, six during, and six after construction of the project. Slides shall be taken as directed by the Contracting Officer, and shall be delivered to the Contracting Officer.

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SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

09/01

PART 1 GENERAL

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1.2 ORDERING INFORMATION

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SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS
09/01

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number. The designations "AOK" and "LOK" are for administrative purposes and should not be used when ordering publications.

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01451

CONTRACTOR QUALITY CONTROL

04/97

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CEGS-01451/S (April 1997)

Includes changes through Notice 3 (May 2000)

SECTION 01451

CONTRACTOR QUALITY CONTROL
04/97

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1999b) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1998a) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS
*3
The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall be responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Government, not later than 5 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 7 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Omitted
3.4.2 Omitted
3.4.3 Omitted

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is offered on a quarterly basis within the Savannah District boundaries. CQC System Managers who have not successfully completed this course must attend the next available training session. Failure to successfully complete this training within the next available training date will be grounds for removal as CQC System Manager. There is currently a nominal fee to cover the cost of the training materials for Contractors who have current contracts with the Savannah District.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.

b. A review of the contract drawings.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including

control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the following address:

US Army Engineer District, Savannah
Environmental & Materials Unit
200 North Cobb Parkway
Building 400, Suite 404
Marietta, GA 30062

Coordination for each specific test will be made through the Area Office.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the Special Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed.

These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

Sample forms are included in Attachment 1 to Section 00800.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

SECTION 01501

SPECIAL CONTRACT REQUIREMENTS

PART 1 GENERAL

1.1 HAUL ROUTES

The Contractor will be required to use the haul routes shown on the plans unless otherwise permitted in writing by the Contracting Officer. When haul routes are not designated on the plans, the Contractor must obtain approval of the Contracting Officer of haul routes he intends to use. The Contractor shall maintain the haul routes and shall keep the dust problem under control by wetting the surface as needed. Sweeping and cleaning of pavements will be done as necessary to remove spillage resulting from the hauling operations. After all hauling has been completed; the Contractor shall restore the earth areas used for the haul routes to original condition by final grading, shaping, compacting, and grassing, and shall clean and sweep all paved areas as required. Any pavement damaged as a result of hauling operations under this contract for both the earth and other materials shall be promptly repaired by the Contractor, as approved by the Contracting Officer. The cost of maintenance and repair of the haul routes, as mentioned above, shall be considered as a subsidiary obligation of the Contractor. The axle load of earth hauling equipment operating on paved streets shall not exceed 12,000 pounds.

1.2 OMITTED

1.3 PARTNERING

Following contract award, the Government intends to propose a voluntary partnering relationship with the Contractor. This partnering relationship will attempt to draw on strengths of each organization to facilitate communications and minimize delays to achieve a quality product, within budget, and on schedule. Participation in such partnering activities may include attendance at coordination meetings and cooperation in other efforts to promote the partnering relationship. The Government and the Contractor will each bear their own costs for participation in the partnering relationship, with no change in the contract price. Participation will not result in any change in the terms or price of the contract.

1.4 INSTALLATION REGULATIONS

The employees of the Contractor will be required to abide by all installation regulations as published by the Commanding Officer. A copy of these regulations can be obtained from the Area/Resident Engineer at the installation. All costs in connection therewith shall be included in the contract price for the work.

1.5 ERECTION OF SIGNS

1.5.1 Army Project Sign

The Contractor shall furnish and install a project sign (when required by each task order) at the location selected by the Contracting Officer. The project sign shall be painted on 1/2 inch thick exterior grade plywood. The sign layout shall be in accordance with the graphic format shown in Attachment 1 to Section 00800. The 4-foot by 4-foot right-hand section shall be painted white (Color No. 37875, Fed. Std. 595a) with black (Color No. 37038, Fed. Std. 595a) lettering. The 2-foot by 4-foot left-hand section shall be painted red (Color No. 12199, Fed. Std. 595a) with white lettering.

1.5.2 Fort Bragg Project Sign

The Contractor shall furnish and install a project sign (when required by each task order) at the location selected by the Contracting Officer. The project sign shall be painted on 1/2 inch thick exterior grade plywood. The sign layout shall be in accordance with the graphic format shown in Attachment 1 to Section 00800.

1.5.3 Air Force Project Sign

The Contractor shall furnish and erect a project sign in the location as selected by the Contracting Officer. Details of construction shall be as shown on sketches included in Attachment 1 to Section 00800. The sign shall be constructed of 1/2 inch thick (or metric equivalent), grade A-C, exterior type plywood. The sign shall receive one coat primer paint followed by two coats brown color paint in accordance with Fed. Std. 595a, Color No. 20100 semigloss exterior type enamel. Lettering must be white gloss exterior type enamel (Fed. Std. 595a, Color No. 37875). Windows and door of the Castle and logo background shall be painted white (Fed. Std. 595a, Color No. 37875). The Castle and inner border line shall be brown (Fed. Std. 595a, Color No. 20100). Upon completion of work under this contract, the project sign shall be removed from the job site and shall remain the property of the Contractor.

The Engineering and Services Directorate emblem (AFVA 85-3) may be acquired by sending a letter; a completed DD Form 1149, Requisition and Invoice/Shipping Document; or a DA Form 17, Requisition for Publications (Army customers) to:

The Air Force Publishing Distribution Center
2800 Eastern Boulevard
Baltimore, MD 21220-2898

1.6 OMITTED

1.7 ENVIRONMENTAL EVALUATION FOR SITE CONTAMINATION

1.7.1 Omitted

1.7.2 Contractual Responsibilities of All Parties in the Event of Encounter with Contamination

If the Contractor encounters materials or conditions which indicate that there may be contamination on the site, the Contractor shall stop all work on the job site and report the discovery of the contaminants to the Contracting Officer's Representative (COR). The COR, will issue a written order to the Contractor to resume work or to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government as provided in FAR 52.212-12 - SUSPENSION OF WORK. The Government will be responsible for making an assessment of the contaminated site if this course of action is determined to be appropriate. After the assessment has been completed, the Government reserves the right to the following courses of action:

a. Direct the Contractor to resume work.

b. Clean up the contaminated site prior to directing the Contractor to resume work. The COR will determine whether the cleanup is to be accomplished by others or the Contractor.

c. Relocate the project site.

d. Terminate the contract for the convenience of the Government as provided in FAR 52.249-1 - TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SHORT FORM) or FAR 52.249-2 - TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) - ALTERNATE I as applicable.

1.8 OMITTED

1.9 CONSTRUCTION SCHEDULE RESTRAINTS

1.9.1 Occupancy

The state of occupancy of each work site will be determined with each task order. It is the intent of these provisions to provide for maximum coordination between construction activities pursuant to this contract and concurrent ongoing routine activities of base personnel. Interference with and inconvenience to the occupants or routine of the facility shall be held to an absolute minimum.

1.9.2 Protection

Contractor is responsible to provide such covering, shields and barricades as are required to protect building occupants, equipment, stores, supplies, etc., from dust, debris, weather intrusion, water, moisture or other cause of damage resulting from construction.

1.9.3 Phasing and Sequence

1.9.3.1 General

In addition to the submittals required by clause SCHEDULES FOR CONSTRUCTION CONTRACTS (see SECTION 00700, FAR 52.236-15) the Contractor shall submit for approval a summary work schedule setting forth schedule dates for initiation and completion of construction in each work area. No work shall be performed prior to approval of this schedule and all work shall be performed in strict adherence thereto. If departures from this schedule appear to be required or desired, the Contracting Officer shall be promptly notified and his approval will be required prior to implementation of said departure(s).

1.9.3.2 Special Work Restraints

To be determined with each task order.

1.9.4 Time of Performance

1.9.4.1 All work requiring access to building interiors excluding attics, crawl spaces, etc., and all other work shall be performed between 7:30 a.m. and 4 p.m. (normal working hours for base where project is located) excluding official holidays, unless otherwise indicated or approved by the Contracting Officer. Requests to work during other than these normal hours shall be made in writing at least 36 hours in advance. For example, a request to work on a Saturday shall be submitted no later than Thursday at noon.

1.9.4.2 Work requiring outages of utilities or building systems will be accomplished in accordance with prior approved schedule(s).

1.9.5 Outages

Contractor's work requiring outages of utility systems or building systems will require 2 weeks' advance notice and will be subject to the approval of the Contracting Officer. Contractor will be held responsible for unathorized utility disruptions that cause damage or loss to the Government's real property, equipment, or operations. The Contractor will be held responsible for utility disruptions that extend beyond this period.

Limits of Duration:

Water ---------- 4 hours
Sewer ---------- 4 hours
Electricity ---------- 4 hours
Natural Gas: Seasons to be determined by installation
During heating season -- 3 hours
During cooling season -- 6 hours
LP Gas: Seasons to be determined by installation
During heating season -- 3 hours
During cooling season -- 6 hours

#2 Fuel Oil: Seasons to be determined by installation
During heating season -- 3 hours
During cooling season -- 6 hours
High Temperature Water (HTW): Seasons to be determined by installation
During heating season -- 3 hours
During cooling season -- 6 hours
Steam: Seasons to be determined by installation
During heating season -- 3 hours
During cooling season -- 6 hours
Chilled Water: Seasons to be determined by installation
During heating season -- 3 hours
During cooling season -- 6 hours

*The cooling season is 1 May through 1 October. The heating season is 1 October through 1 May.

(2) The Contractor shall provide temporary utilities systems for any utility outage longer than the limits of duration shown above.

1.9.6 Continuity

All tools, labor and materials required to complete any item of work within a given work area or requiring an outage of any building utility or system, shall be available at the site prior to commencement thereof. Once work has commenced on an item of work, said work shall be continuously and diligently performed to completion and acceptance.

1.9.7 Excavation Permits

An excavation permit shall be presented to the Resident Engineer and approved by the Facilities Engineer 7 working days prior to any excavation that penetrates the ground by 6 or more inches. The Contractor shall contact the Resident Engineer's Office for an appointment for spotting of utility lines. A signed copy of the digging permit shall be kept on site at all times.

1.9.8 Road and/or Railroad Closures

Road and/or railroad closures will require 2 weeks' advance written notice and be subject to the Contracting Officer's approval. Notice shall state reason for closure, date and time closure will commence and estimated duration of closure. A sketch shall be provided showing location of excavated area and placement of barricades and signs. Closures shall be limited to a maximum of 5 calendar days.

1.9.9 Construction Debris

Construction debris (stumps, limbs, leaves, concrete, masonry, brick, uncontaminated earth, steel, and glass) will be disposed of in the disposal area located in an approved off-base landfill at the Contractor's expense. Combustible material shall be disposed of in a sanitary fill area located off the site at the Contractor's expense.

1.9.9.1 Trash Containers

All trash containers on the job site must be covered at all times to ensure that trash does not blow around. In addition, all light/loose material will be secured such that it will not blow around during windy weather.

1.9.9.2 Construction Debris Leaving Site

All construction debris/trash that leaves the project site will be covered from the time that it leaves the construction site. Any mud or soil which leaves the project site will be cleaned up by the Contractor immediately upon discovery or notification of such an occurrence.

1.9.10 Contractor will be required to maintain existing landforms, drainage patterns, and healthy, mature vegetation to the maximum extent possible and will replace damaged vegetation, sod, and ground cover.

1.9.11 Any suitable topsoil stripped from the site during the course of work will be stockpiled onsite for reuse. Any excess topsoil remaining upon completion of project will be stockpiled in the DPW compound.

1.9.12 Any unforeseen site conditions, unmapped utility systems, or historical/archeological items encountered during site surveys, soil borings, or construction excavation will be reported to the Contracting Officer.

1.9.13 The Contractor shall be held responsible for the replacement of any utility systems, facilities, or Government equipment damaged during the course of the contract.

1.9.14 The Contractor will mow the grass on the construction site weekly or when the following conditions warrant: centipede grass will be maintained to a maximum height of 2 inches and a minimum height of 1 inch; all other grasses will be mowed to keep the height of the grass to a maximum of 4 inches and a minimum of 2 inches.

1.9.15 MOTSU Regulation 715-5

In performing the contract work on the Military Ocean Terminal at Sunny Point, the Contractor shall comply with all pertinent provisions of MOTSU Regulation 715-5 (Appendix A at the end of this section) and the following additional provisions.

(a) No cameras are permitted in restricted areas without permission of the Chief, Safety and Security Division, MOTSU. Further, the individual must be accompanied by a terminal employee.

(b) No firearms are permitted in restricted areas without permission of the Chief, Safety and Security Division, MOTSU.

(c) All sanitary services must be provided by the Contractor. Use of Government sanitary facilities will not be allowed.</LST> <LST>(d) No disposal site exists on Sunny Point. All trash/rubbish must be removed from the terminal at the Contractor's expense.

(e) Space for Contractor personnel parking and materials storage must be confined to the job site proper. Further the utilization of the job site for this purpose cannot interfere with the operations of existing facilities in the area.

(f) At no time will construction be allowed which effects the integrity of MOTSU's perimeter fence without the approval of the Chief, Facilities Engineer Division, MOTSU.

(g) MOTSU's main entrance and perimeter road will remain clear and free of congestion at all times.

1.9.16 Standby Time

(a) The work to be performed is to be accomplished at facilities which will be in operation at various times during the course of this construction. The Contractor will not be permitted access to an active wharf until operations have ceased. The Contractor will be given notice of an impending operation and shall schedule his work such that he can suspend work and vacate a wharf scheduled for activity and move to an inactive wharf without rendering the vacated wharf totally inoperable. A delay day will be awarded if the Contractor cannot immediately begin work on alternate wharf. The following utilities are necessary for terminal operations and shall be in service whenever the Contractor is required to vacate a wharf: Power to one of the two smoke houses and on the first floor of the service building, fire pumps or fire protection cranes (south wharf), lift station pump(s) and potable water service to the operable buildings outlined above. The South Wharf is the most active wharf with approximately 15 days of operation per month followed by the center wharf with approximately 5 nonconsecutive days per month and the north wharf with approximately 3 nonconsecutive days per month.

(b) The Commanding Officer of Military Ocean Terminal, Sunny Point, or other duly authorized representative of the Government and/or its assignees, reserves the right to exclude all persons from said land during the loading or unloading of ammunition and explosive and/or anytime the Government perceives a danger to contractor personnel. This provision is invoked in order that MOTSU may comply with DOD 6055.9 STD Ammunition and Explosive Safety Standards.

(c) Contractors will be required to suspend all work on the south, north or center wharf when so directed by the Contracting Officer for time period as required for MOTSU personnel to load and unload ammunition and explosives. During an average month it is anticipated that Contractor will be required to suspend all operations as follows:

South wharf ---------- 15 days per month

Center wharf ---------- 5 days per month
North wharf ---------- 3 days per month

(d) The Contractor shall be compensated for delays associated with the restrictions as stated above, at the south, center and north wharfs in excess of the average of 15, 5, and 3 days per month, respectively. The Contractor shall note that no compensation will be given for delays associated with the restrictions as stated above which are less than or equal to the anticipated averages per month for suspension of work. Any delay time in excess of the average delays discussed above which is associated with the restrictions mentioned above is defined as Contractor's stand by time. The number of actual suspension days shall be calculated chronologically from the first to the last day of the month. Once the number of actual suspension days anticipated in subparagraph 1.9.7(c) above have been incurred, the Contracting Officer will examine any subsequently occurring suspension to determine whether the Contractor is entitled to a time extension. These subsequently occurring suspension days must prevent scheduled work for 50% or more of the Contractor's work day and delay work critical to the timely completion of the project. For each day of stand by time, Contractor will be compensated at the rate [_____].

1.9.17 Terminal Activities

The terminal activities will be in continuous operation while work is in progress. The work shall be accomplished in such a way as to minimize interference with the terminal operation.

1.10 UNAUTHORIZED INSTRUCTIONS FROM GOVERNMENT PERSONNEL

1.10.1 The Contractor will not accept any instructions issued by any person employed by the U. S. Government or otherwise, other than the Contracting Officer or the Contracting Officer's representatives (the Administrative Contracting Officer (ACO) and the Contracting Officer's Representative (COR)) acting within the limits of their authority. The ACO and COR, and the scope of their authority, will be designated in writing and identified to the Contractor.

1.10.2 Only information contained in an authorized amendment or modification to the contract, or a task order duly issued by the Contracting Officer, may be considered by the Contractor as grounds for deviation from any stipulation of the contract, any modification, referenced drawings, and/or specifications. No information received from any person employed by the Government, other than the Contracting Officer, shall be considered as grounds for deviations from the specified stipulations.

1.11 CLASSIFICATION OF WORK PERFORMED BY CONTRACTOR

Unless he has submitted such description with his offer, the successful offeror must furnish the Contracting Officer's Representative, within 20 days after award, a description of the work which he intends to perform with his own organization (e.g., earthwork, paving, brickwork, or roofing).

1.12 SAFETY AND HEALTH

1.12.1 This section is applicable to all work covered by this contract.

1.12.2 The publications listed in Section 01080 are applicable to and form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

1.12.3 Definition of Hazardous Materials: Refer to hazardous and toxic materials/substances included in Subparts H and Z of 29 CFR 1910, and to others as additionally defined in Fed. Std. 313. Those most commonly encountered include asbestos, polychlorinated biphenyls (PCBs), explosives, radioactive material, lead, and lead based paint, but may include others.

1.12.4 Asbestos

1.12.4.1 Asbestos containing material (ACM) demolition may be required under this contract.

1.12.4.2 THE CONTRACTOR IS WARNED THAT EXPOSURE TO AIRBORNE ASBESTOS HAS BEEN ASSOCIATED WITH FOUR DISEASES: LUNG CANCER, CERTAIN GASTROINTESTINAL CANCERS, PLEURAL OR PERITONEAL MESOTHELIOMA AND ASBESTOSIS. Studies indicate there are significantly increased health dangers to persons exposed to asbestos who smoke, and further, to family members and other persons who become indirectly exposed as a result of the exposed worker bringing asbestos-laden work clothing home to be laundered.

1.12.4.3 The Contractor is advised that friable and/or nonfriable asbestos-containing material may be encountered in area(s) where contract work is to be performed. Friable asbestos-containing material means any material that contains more than one percent asbestos by weight that hand pressure can crumble, pulverize or reduce to powder when dry. Nonfriable asbestos-containing materials are materials in which asbestos fibers are bound by a matrix material, saturant, impregnant or coating. However, excessive fiber concentrations may be produced during uncontrolled abrading, sanding, drilling, cutting, machining, removal, demolition or other similar activities.

1.12.4.4 Care must be taken to avoid releasing, or causing to be released, asbestos fibers into the atmosphere where they may be inhaled or ingested. The Occupational Safety and Health Administration (OSHA) has set standards at 29 CFR 1910.1002 and 29 CFR 1926.58 for exposure to airborne concentrations of asbestos fibers, methods of compliance, medical surveillance, housekeeping procedures and other measures that must be taken when working with or around asbestos-containing materials. The Environmental Protection Agency (EPA) has established standards at 49 CFR 61.140-156 for the control of asbestos emissions to the environment and the handling and disposal of asbestos wastes.

1.12.4.5 Use of friable asbestos-containing materials is not permitted by current criteria and shall not be used in new construction or modification projects (ETL 1110-1-118, 27 May 1983). Plans and specifications for all

new construction and modification projects will be reviewed to insure the use of friable asbestos-containing materials is not specified.

1.12.4.6 Maintenance, modification, or demolition activities where exposure to asbestos dust may occur from previously installed friable or nonfriable asbestos-containing material will be identified. All precautions, to include proper work practices, medical surveillance, respiratory protection, industrial hygiene, and environmental protection requirements of OSHA, EPA (40 CFR 61.140-156) and DA Circular 40-83-4, as applicable, shall be strictly adhered to.

1.12.5 Lead-Based Paint: The Contractor shall report any findings of suspected lead or lead-based paint to the Contracting Officer's Representative. Any remediation of this type will be conducted under separate contract.

1.13 INSTALLATION DESIGN GUIDE

The appropriate installation design guide for each task order provides guidance which, when applied to the planning, programming, design, and execution of individual projects, will result in improving and maintaining the quality of the visual environment.

1.14 NOISE CONTROL

The Contractor shall comply with all applicable Federal, State, local, and installation laws, ordinances, and regulations relative to noise control.

1.15 ADP SUPPORT REQUIREMENTS

1.15.1 The Contractor is responsible for obtaining, maintaining, and operating an operational computer system which is compatible with the Government computer systems and networks.

1.15.2 The Contractor is responsible, at his own expense, for obtaining his own automation system. Ownership of this system will remain with the Contractor.

1.16 GOVERNMENT-FURNISHED SITE

1.16.1 The Contractor will be provided the use of a parcel of as designated by the Contracting Officer or his designated representative.

1.16.2 The Contractor shall be required to provide trailers and storage rooms to house staff personnel and equipment used in performance of this contract, and to connect to existing utility lines.

1.17 GOVERNMENT-FURNISHED EQUIPMENT/MATERIALS

1.17.1 If Government property is furnished as part of a task order, it will be identified on individual task orders. The Government property will be received, loaded and transported from the storage site by the Contractor.

The Contractor shall be required to establish a hand receipt with the appropriate Property Officer to receive the supplies as directed by the Contracting Officer.

1.17.2 The Contractor assumes the risk and responsibility for loss or damage to Government-furnished property as defined in FAR 52.245-2(g).

1.17.3 The Contractor shall follow the instructions of the Contracting Officer or his designated representative regarding the disposition of all Government-furnished property not consumed in performance of a task order.

1.18 SALVAGEABLE AND REPAIRABLE MATERIALS

1.18.1 Material classified by the Contracting Officer or the Contracting Officer's Representative as salvageable, and equipment designated on the drawings or specifications, shall remain the property of the Government and shall be turned in as directed by the Contracting Officer.

1.18.2 Material classified by the Contracting Officer or the Contracting Officer's Representative as repairable shall be thoroughly cleaned and delivered as directed by the Contracting Officer.

1.18.3 Material and equipment not identified to be removed and turned in to the Contracting Officer will become the property of the Contractor. Materials not classified as salvageable or repairable by the Contracting Officer or the Contracting Officer's Representative shall be removed from the site and disposed of off post at no cost to the Government.

1.18.4 Prior to commencing work, a joint inventory will be conducted by the Contractor, the Contracting Officer's Representative, and Government Inspector during which salvageable, repairable material will be identified. The Contractor will be given a copy of this inventory and will be accountable for this property as indicated above. This joint inventory will in no way limit or preclude the Contracting Officer from designating additional items in the above categories during the life of this contract. Identified materials will be delivered as directed by the Contracting Officer either to the DPW or through the DPW to the Defense Reutilization and Marketing Office (DRMO). For materials to be delivered to DRMO, the Contractor shall fill out DA Form 1348 (Turn-In Slip) and present it for signature to the Real Property Accountable Officer at DPW.

1.19 TOILET FACILITIES

Contractor's personnel will be permitted to use toilet facilities where available and or allowed by Facility User on the premises subject to regulation and control of the Contracting Officer or his designated representative. On those sites where no toilet facilities are available, the Contractor shall provide portable chemical latrines (registered by TNRCC), at no additional cost to the Government. These facilities shall be maintained in accordance with the installation's safety office.

1.20 IDENTIFICATION OF EMPLOYEES

1.20.1 The Contractor and all subcontractors shall furnish an identification badge/card to each employee prior to commencement of work onsite by any employee, and all employees shall wear a visible identification badge at all times on the job site. As a minimum, the Contractor's name and phone number, employee's photograph, title of contract, and employee name/identification shall be displayed on the identification. All prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon the release of any employee.

1.20.2 Clothing worn by all Contractor employees shall comply with applicable health and safety provisions and shall not include any portion of past or present military uniforms. Official Contractor logos and uniforms are permissible.

1.21 DEVIATION FROM PROPOSED MANAGEMENT PERSONNEL

The Contractor shall obtain prior written approval from the Contracting Officer prior to making any changes in his proposed management staff set forth in his technical proposal.

1.22 DEVIATION FROM PROPOSED LIST OF SUBCONTRACTORS

1.22.1 The Contractor shall update the list of his subcontractors monthly and submit the updated list through the COR to the Ordering Officer by the 10th day of each month. This list should contain all subcontractor deviations (increases/decreases) which vary from the original list of contemplated subcontractors provided in the technical proposal.

1.22.2 In addition to the above, the Contractor shall submit with the proposal for each task order a list of subcontractors who will perform work under each task order.

1.23 PROBLEM REPORTING

The Contractor shall promptly report to the Contracting Officer's Representative all construction problems or design deficiencies encountered during construction. Report will include recommended solutions or alternatives. The reporting is to be done on a form provided by the Contractor. This may be called a Corrective Action Request (CAR), Request for Information (or Instruction) (RFI) or whatever title the Contractor desires as long as the form and title are acceptable to the COR.

1.24 PRESERVING HISTORICAL AND ARCHEOLOGICAL FINDS

The Contractor shall be required to obtain archeological clearance from the Environmental Office prior to conducting any ground disturbing action in areas where archeological resources exist. This will include all areas except improved roads, grounds and similar areas. Any failure to do so, which results in damage to cultural resources, may result in claims for costs of mitigating damage being assessed against the Contractor.

1.25 LIMITED ACCESS TO FORT

1.25.1 The Contractor, shall under regulations prescribed by the Provost Marshal, use only established roadways when transporting personnel and/or material in the prosecution of work. The Contractor shall adhere strictly to the above, and shall not develop new ingress or egress roads without specific written instructions from the Provost Marshal. The Contractor shall insure his personnel use designated parking areas only. Vehicles shall not be parked on grassy areas.

1.25.2 If the Contractor fails or refuses to comply with the above, the Contracting Officer may issue a stop work order. No part of the time lost due to any such order shall be made the subject of claim for extension of time or for excess costs or damage by the Contractor.

1.25.3 Compliance with the provisions of this paragraph by subcontractors will be the responsibility of the Contractor.

1.25.4 All vehicles operated in support of the contract, including Contractor and Contractor employees' privately owned vehicles or subcontractor vehicles shall be registered, insured, licensed, and inspected for compliance with applicable Federal, State, and local safety requirements.

1.26 GOVERNMENT EQUIPMENT ON THE SITE

The Contractor shall cover equipment that is to remain in place within the area of contract operations and protect it against damage or loss; move and store equipment that is removed in performance of work where directed or reuse in work as required by drawings and specifications. Equipment temporarily removed shall be protected, cleaned and replaced equal to its condition prior to staring work. Security for equipment or materials that is to be reused and is removed for temporary storage shall be the sole responsibility of the Contractor.

1.27 SERVICES TO BE PERFORMED

The general requirements for the nature and categories of work to be performed under this contract includes but is not necessarily limited to the following:
site clearing, building renovation, earthwork, site drainage and utilities, roads and walks, cast-in-place concrete, brick masonry, block and tile masonry, structural metal, metal joists and decking, rough carpentry, finish carpentry, built-in cabinetry and furniture, roofing and siding, sheet metal work, doors, windows and glazing, window coverings, entrances and store fronts, lath and plaster, drywall, painting and wall coverings, floor tile and carpeting, pipe and fittings, plumbing devices and fixtures, fire extinguishing systems, fire alarm systems and intrusion detection systems and equipment, heating and air conditioning and ventilating equipment and systems, ducts and controls, boxes and wiring devices, starters, breaker

panels, switching devices and transformers, lighting and primary and secondary power systems.

1.28 ACCESS TO WORK AREAS

Scheduling of access to family housing units shall be coordinated with the appropriate Family Housing Division at the work site for each task order through the Contracting Officer's Representative and shall comply with the following:

1.28.1 All work shall be performed during normal duty hours from 7:30 a.m. to 4:00 p.m., Monday through Friday, excluding Federal legal holidays, unless specifically authorized by the Contracting Officer or as required for a scheduled interruption. Federal legal holidays falling on Saturday shall be observed on the preceding Friday and those falling on Sunday shall be observed on the following Monday.

1.28.2 Family Housing office at the installation (the Government) will notify family quarters occupants by letter of the general time frame in which the Contractor will be allowed access to their set of quarters. This general schedule will be based on the Contractor's schedule, submitted in accordance with contract clause SCHEDULES FOR CONSTRUCTION CONTRACTS (FAR 52.236-15).

1.28.3 It shall be the Contractor's responsibility to notify, in writing, the occupants of each family housing unit of the specific day access is desired and the exact nature of the work to be performed. This notice must be given a minimum of 2 weeks in advance. The procedure for accomplishing this is as follows:

1.28.3.1 Within 30 days of receipt of the Notice to Proceed, but before starting work, the Contractor shall either mail or deliver a letter (see Sample Letter No. 1 included at the end of this section) addressed to the occupants of dwelling units involved and include the following information:

1.28.3.1.1 An informative statement that the Contractor has been engaged to accomplish certain work in the occupant's dwelling unit.

1.28.3.1.2 A description of the work to be accomplished and the date the total project is to be completed.

1.28.3.1.3 A description of the time frames and location in which access will be necessary to perform the work. (Multiple access requirements shall be carefully defined.)

1.28.3.1.4 A statement that a responsible adult (18 years or older) will have to be present (on the premises) during all phases of work in which interior access will be required.

1.28.3.1.5 A statement that all vehicles must be removed from the immediate vicinity of the building prior to the beginning of work.

1.28.3.1.6 The name and phone number of a point of contact to which the occupants should report access coordination problems. (Long distance phone numbers must include area codes and a statement that the Contractor will bear the expense of collect calls.) A time frame in which phone calls will be received.

1.28.3.1.7 A return mailing address to which inquiries may be directed.

1.28.3.1.8 Include one of the following statements as it applies to this project:

- A request to gain access at a specific time on a specific date or dates for a specific time period. (Applicable only for dwelling units to be completed within 14 calendar days of the date Letter No. 1 is sent.)

- A statement that a Contractor's Representative will be in contact with the occupant 2 weeks prior to actual access requirements.

1.28.3.1.9 A request for the occupant to accelerate work progress by removing any occupant-owned items in the work area that might impede the flow of work.

1.28.3.1.10 A courteous salutation.

1.28.3.1.11 The letter is to be approved by the Contracting Officer, and a copy of same is to be furnished to the Contracting Officer. No work may commence until this requirement has been accomplished in total.

1.28.3.2 At 14 calendar days prior to actual access requirements at a particular dwelling unit, the Contractor shall send another approved letter reminding the occupant that he is doing this work and this letter (see Sample Letter No. 2 included at the end of this section) shall include the same information as Sample Letter No. 1 with an update as to when access will be required. Letter No. 2 should include a request that the occupant call the Contractor to verify that access will be available.

1.28.3.3 Between 2 and 4 days prior to actual access requirements, the Contractor shall either send or deliver a third notice that access is needed. This letter (see Sample Letter No. 3 included at the end of this section) is to include the following:

1.28.3.3.1 All of the information required in Letter No. 2 with another update of the exact time, date and for what period access will be required.

1.28.3.3.2 Include one of the following statements as it applies to each individual dwelling unit:

- A statement that coordination has not been completed because no access agreement has yet been finalized.

- A statement that failure to set this agreement will possibly impede the progress of this work.

- Another request that the occupant make contact with the Contractor's Representative to coordinate access.

1.28.3.4 The Contractor shall meet the agreed upon schedule that his repre- sentative prearranged with the family housing occupant.

1.28.3.5 If at this point no agreement has been arranged, the Contractor shall report to work at the time at which he had previously requested access. If access is not available, he shall furnish and leave a note fastened to the front door handle to inform the occupant that the Contractor needs access to the quarters (see Sample Fourth Notice included at the end of this section). Again, a phone number, point of contact, and mission statement is required.

1.28.3.6 The Contractor shall return to the dwelling unit at least 4 days later to try again to gain access.

1.28.3.6.1 If access is not available at this time, the Contractor shall again leave a notice on the front door knob (see Sample Fifth Notice at the end of this section) and at this time request in writing the assistance of the Family Housing Branch Office through the Contracting Officer's Representative to determine the status of the dwelling unit and/or effect notification through the command of the occupant's military unit.

1.28.3.6.2 The Contractor shall repeatedly place notices on the door knob every 4 days until a time 2 days prior to the completion date of the contract or until the work is completed.

1.28.3.7 In the event that an access agreement is never reached within the time constraints of this contract, consideration will be given to extending the time limit. No money shall be paid for materials or labor not used because an access agreement was not effected.

1.28.3.8 The Contractor is hereby put on notice that these occupants have peculiar and extenuating demands on their time and on their transit status. It is, therefore, incumbent upon the Contractor to make every reasonable effort to communicate with the occupants on a one-on-one basis to accommodate their requirements.

1.28.3.9 Omitted
1.28.3.10 Omitted

1.28.3.11 If, for some reason, the occupant refuses to allow access to the quarters or if the Contractor's personnel are required to stop work on that dwelling unit because the occupant leaves, the Contractor shall notify the Contracting Officer's Representative immediately and receive directions from the Contracting Officer.

1.28.3.12 All letters and notices required herein shall be prepared in the correct number by the Contractor and shown to the Contracting Officer's Representative prior to distribution.

1.28.3.13 It should be understood by the Contractor that, even with the notification system outlined above, access to some units of family housing will not be available the first time, and it may be necessary to renotify the occupants. After two unsuccessful attempts by the Contractor, the Contracting Officer's Representative will be notified and will effect final notification.

1.28.4 In no case will the Contractor or his employees enter family housing units without the occupants being present.

1.28.5 In the case of unoccupied, vacant quarters, the Family Housing office will provide access.

1.28.6 The Contractor shall schedule his work in a manner that will reduce the inconvenience to the family housing occupants to a minimum. The Contractor shall finish his daily increments of work to the extent that the family housing units are habitable and functional.

1.28.7 The Contractor will ensure that all his employees entering family housing make every reasonable effort to refrain from tracking in dirt or mud and other extraneous matter. It shall be the Contractor's responsibility to clean and/or repair any damage caused by his employees.

1.28.8 The Contractor shall be responsible for repairing any structural or architectural damage that occurs as a result of his performance of this work.

1.28.9 The Contractor shall provide a nametag for each of his personnel entering family housing. This nametag shall show the complete name of the employee and the name of the employee's firm. This nametag shall be worn at all times when entering and working in family housing. In addition, each crew will be provided with a letter of identification from the Family Housing office.

1.28.10 The Contractor will be required to remove all furniture and other items required to be moved in order to perform the work. Care of the furniture and other items during moving (removing and return) shall be the responsibility of the Contractor, and if any damage is incurred due to fault or negligence of the Contractor, his agents and/or employees, repairs shall be at the Contractor's expense. Furniture and items shall be stored within the area in a location as convenient as possible to the occupant. Furniture and other items shall be replaced by the Contractor upon completion of the work.

1.28.11 The Contractor will be required to supply the installation's Family Housing Maintenance Contractor with an emergency phone number and point of contact. The individual who is designated as point of contact must be available at any time in case the Contractor's work creates some problem with utilities which must be corrected by the installation Maintenance Contractor.

1.29 DISCOVERY OF UNEXPLODED BOMBS

The Contractor accepts the award of the contract with the knowledge that unexploded bombs (DUDS) may be encountered when carrying out such work. The Contractor will be required to comply with the installation regulations.

1.30 COMPLETION OF TASK ORDERS

1.30.1 Performance time will be negotiated for each task order considering that all task orders issued will be accomplished and performed concurrently. The Contractor shall provide a critical path method schedule (CPM) with each proposal which will be revised and resubmitted based upon the negotiated completion date. The CPM shall be updated weekly for each task order after the Contractor receives the notice to proceed for that task order. Some task orders may require phased completion times. Completion times for individual phases of such task orders will be determined by mutual agreement during project proposal negotiations.

1.30.2 The following requirements pertain to timely completion of task orders. The performance period for any task order shall begin as indicated upon the task order. A task order is considered complete upon final acceptance of work completed under that order to include delivery of acceptable, required as-builts, drawings, DD Form 1354, DA Form 2877, O&M training and manuals, and warranty information.

1.30.3 The Contractor shall plan, perform, and manage all work so as to comply with specified completion dates without resort to other task orders and without resort to other actions which would result to additional cost to the Government. The following categories shall be used as a basis for estimating completion dates:

(a) Proper crew sizes and equipment.

(b) Use of subcontractors.

(c) Required phasing.

(d) Concrete curing.

(e) Government delay of access to work site.

(f) Testing and evaluation of work site conditions which require extra days.

(g) Documented unavailability of materials or equipment.

(h) Full compliance with any applicable law, regulation, or safety requirement which delays time beyond the number of days allowed by other elements.

(i) Extensive coordination required for use of utilities and digging permits.

(j) Factors beyond the Contractor's control delay work.

(k) Negotiate a completion time which would appear sooner than normal based on priority and criticality work completion.

1.31 NOTICE OF COMPLETION OF TASK ORDER

The Contractor shall notify the ordering officer upon completion of each individual task order. The Contractor shall give a minimum advance notice of 2 working days of the date the work will be fully completed and ready for final inspection.

1.32 CONTRACT PROGRESS REPORTS

1.32.1 The Contractor shall submit a weekly progress report to the Contracting Officer or his designated representative for each task order issued but not completed.

1.32.2 The report will use FORSCOM Form 59-1-R unless an alternate progress report format is proposed by the Contractor for approval by the Government. Any changes or additions requested by the Government will be included in the format. Each report is to be signed and dated by the Contractor.

1.32.3 The Contractor shall also furnish weekly an updated computer summary CPM chart listing all task orders issued to date. A summary chart shall be provided on floppy disk and in hard copy.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

SAMPLE LETTER 1

COMPANY NAME
ADDRESS

DATE

Occupant
Street Address
Fort Bragg, NC 28307

Dear Sir:

1. This is to inform you that this firm has been engaged to perform the following work in your dwelling unit:

Work to be accomplished _____
Work to be completed by _____.

2. In accomplishing this work, we will need access to your dwelling unit as follows:

Phase	Location	Reason	Time Required

3. Our contract does not allow us to enter your dwelling unit unless an adult (18 years or older) is present at all times.

4. Please call collect Mr. _____ at area code ( ) _____ to schedule access to quarters. Call between 7:30 a.m. and 3:30 p.m. Monday through Friday before _____.

5. Mailed inquiries may be sent to the address shown on this letterhead.

6. (1) A Contractor representative will again be in touch with you 2 weeks prior to the actual access requirements to nail down specific dates and times.

OR (2) We will have men coming to your quarters to accomplish work at 8 a.m. on _____. Please provide access at that time by having an adult present or call Mr. _____ to make other arrangements.

7. When construction actually begins, please help accelerate work progress be removing as many personal items from the work area as possible.

8. Thank you for your cooperation in this matter.

Sincerely yours,

_____

President

Fort Bragg Contracting Officer Approval _____

SAMPLE LETTER 2

COMPANY NAME
ADDRESS

DATE

A REMINDER

Occupant
Street Address
Fort Bragg, NC 28307

Dear Sir:

1. This is to inform you that this firm has been engaged to perform the following work in your dwelling unit:

Work to be accomplished
_____
Work to be completed by _____.

2. In accomplishing this work, we will need access to your dwelling unit as follows:

Phase	Location	Reason	Time Required

3. Our contract does not allow us to enter your dwelling unit unless an adult (18 years or older) is present at all times.

4. Please call collect Mr. _____ at area code ( ) _____ to schedule access to quarters. Call between 7:30 a.m. and 3:30 p.m. Monday through Friday before _____.

5. Mailed inquiries may be sent to the address shown on this letterhead.

6. (1) A Contractor representative will again be in touch with you 2 weeks prior to the actual access requirements to nail down specific dates and times.

OR (2) We will have men coming to your quarters to accomplish work at 8 a.m. on _____. Please provide access at that time by having an adult present or call Mr. _____ to make other arrangements.

7. When construction actually begins, please help accelerate work progress by removing as many personal items from the work area as possible.

8. Thank you for your cooperation in this matter.

Sincerely yours,

_____
President

Fort Bragg Contracting Officer Approval _____

NOTE: This is to remind you to call or that we will be there at 7:45 a.m. on _____ to accomplish work. Thank you for having someone present at that time.

SAMPLE LETTER 3

COMPANY NAME
ADDRESS

DATE

A REMINDER

A FINAL REMINDER

Occupant
Street Address
Fort Bragg, NC 28307

Dear Sir:

1. This is to inform you that this firm has been engaged to perform the following work in your dwelling unit:

Work to be accomplished _____
Work to be completed by _____.

2. In accomplishing this work, we will need access to your dwelling unit as follows:

Phase	Location	Reason	Time Required

3. Our contract does not allow us to enter your dwelling unit unless an adult (18 years or older) is present at all times.

4. Please call collect Mr. _____ at area code ( ) _____ to schedule access to quarters. Call between 7:30 a.m. and 3:30 p.m. Monday through Friday before _____.

5. Mailed inquiries may be sent to the address shown on this letterhead.

6. (1) A Contractor representative will again be in touch with you 2 weeks prior to the actual access requirements to nail down specific dates and times.

OR (2) We will have men coming to your quarters to accomplish work at 8 a.m. on _____. Please provide access at that time by having an adult present or call Mr. _____ to make other arrangements.

7. When construction actually begins, please help accelerate work progress by removing as many personal items from the work area as possible.

8. Thank you for your cooperation in this matter.

Sincerely yours,

_____
President

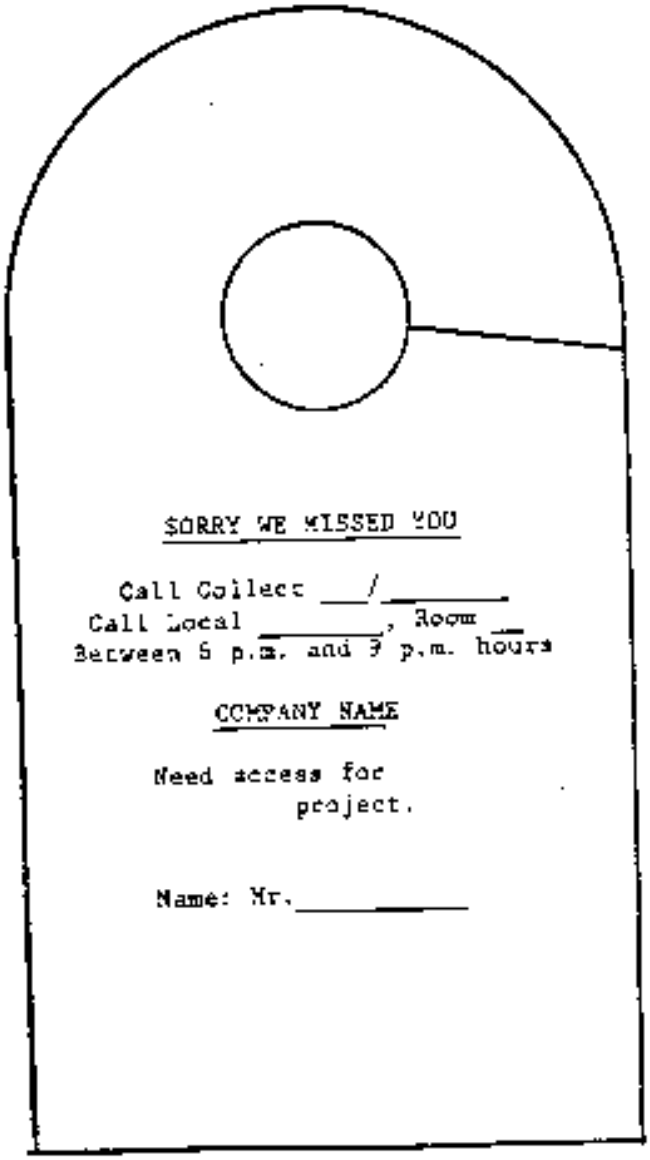
Fort Bragg Contracting Officer Approval _____

NOTE: (1) This is to remind you to call or that we will be there at 7:45 a.m. on _____ to accomplish work. Thank you for having someone present at that time.

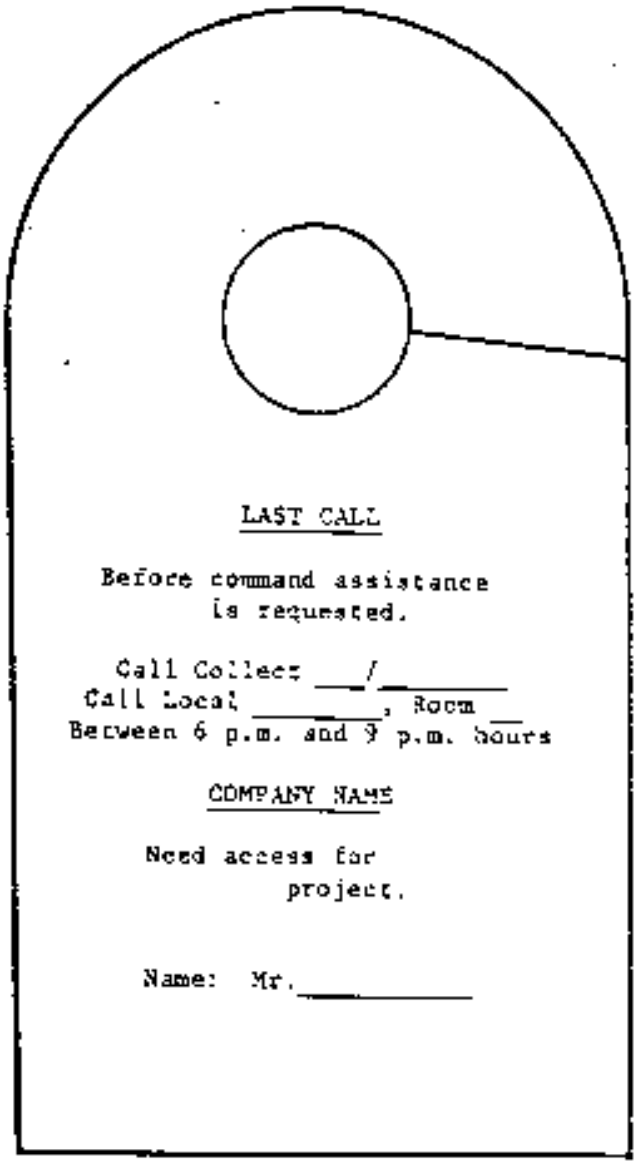
OR (2) We have not heard from you and need to schedule access before _____.

Failure on your part to make your dwelling unit available to us may adversely affect our contractual agreement to complete the project on time. Please call!

SAMPLE 4TH NOTICE



SAMPLE 5TH NOTICE



APPENDIX A

DEPARTMENT OF THE ARMY
Military Traffic Management Command
597th Transportation Terminal Group
Military Ocean Terminal, Sunny Point
Southport, North Carolina 29461-5000

597th TRANS GP (TML)
REGULATION 715-5 23 MAR 99

Procurement

CONTRACTORS PERFORMING INCIDENTAL SERVICES

	Paragraph
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1. Purpose. This regulation sets forth basic requirements contractors will observe to perform incidental services. They provide these services within, or for, 597th Transportation Terminal Group (597th TRANS GP (TML)), Military Ocean Terminal, Sunny Point (MOTSU).

2. Scope. This regulation applies to contractor personnel and equipment. It excludes the stevedore contractor.

3. Responsibilities. Chief, Contract Administration office (CAO) exercises staff supervision over this regulation and reviews it annually.

4. Policy. Department of the Army and 597th TRANS GP (TML) policies ensure contractor personnel who violate any government regulation are subject to action by government authorities. This will include that considered appropriate or necessary by CAO.

5. Definitions. The following is a list of terms used in this regulation:

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*This regulation supersedes 1303d MPC Regulation 715-5, 01 AUG 97
597th TRANS GP (TML) Reg 715-5

a. Incidental Services - Those services, excluding stevedoring, done under contract at or for the terminal.

b. Contractor Personnel - Official company members, contractors, subcontractors, and authorized representatives/employees.

c. Utilities - Apply only to electricity, gas, water, steam, mechanical refrigeration, and compressed air.

d. Lost Time Injury - Any accident resulting in personal injury that prevents the injured person from returning to duty the next regularly assigned tour. The government does not consider time for first aid treatment "lost time."

e. First Aid Injury - Any accident that results in minor personal injury. The injured person will return to duty after first aid treatment, at beginning or before next scheduled tour.

f. Motor Vehicle Accident - An occurrence involving operating a motor vehicle on terminal that results in death or injury requiring medical treatment or care. Also, it applies to vehicle damage requiring repair or replacement parts, or which causes other property destruction or damage.

g. Property Damage Accident - An accident from any cause that occurs on terminal and results in damage to, or loss of, materiel, equipment (including Materials Handling Equipment (MHE)), or other property, despite ownership

6. Personnel Identification.

a. When 597th TRANS GP (TML) or another government agency awards a contract for work on terminal property, the individual or company awarded the contract will furnish the following to Chief, Installation Security Activity (SEI):

(1) Name of company or individual.

(2) Location or area where work will be done.

(3) Contract duration.

(4) Before work starting date, duplicate listing of name, address, date and place of birth, social security number, and if applicable, Coast Guard Port Security Card Number of each employee who will work on terminal.

b. The terminal admits commercial or contractual agency permanent or temporary employees/representatives on base if they engage in terminal activities. However, they must first present:

(1) International Longshoreman Association (ILA) Picture Badge.

(2) Merchant mariner Document (Identify).

(3) A 597th TRANS GP (TML) visual laminated ID Badge or company ID Badge.

c. The following are examples of personnel included in this category:

(1) Permanent contractor personnel.

(2) Contract personnel (other than permanent).

(a) Longshoremen.

(b) Laborers.

(3) Contract or commercial agency personnel/representatives who have limited functions with 597th TRANS GP (TML).

d. Authorized contract personnel will have identification baages/cards issued to them by Chief, SEI. They remain government property. Chief SEI determines when to recall. Chief, Security Division (SE), may require contractors to provide their identification badges instead of MOTSU ID Badge, if large numbers of contractor employees need access.

e. The Commander makes the determination to admit or exclude contractor employees from the terminal. The Commander, through Chief, SE:

(1) Determines whether a person satisfies established clearance requirements for admission.

(2) Specifies limitations or restrictions that will be placed on the person in the interest of security.

f. Persons and vehicles entering, leaving, or within the terminal, will be subject to search at any time. Security Guards or authorized civilian law enforcement agencies will apprehend and detain persons suspected of violating existing terminal regulations. Vehicles enter only on these conditions.

g. Labor representatives, who request base access to conduct business, secure approval from Chief, SEI, before meeting with contractor employees.

h. Individuals, who lose identification badge or pass, will immediately report it through their supervisor, to Chief, SEI. Chief, SEI will investigate. If personnel unable to locate badge/pass promptly, individual prepares an affidavit that shows time, place, and circumstances of loss. Person issued badge/pass signs affidavit. Chief, SEI will inform contractor by letter of the incident.

7. Property Passes.

a. Authorized SEI Guards interview personnel and inspect property to forestall or expose any fraudulent scheme, or prevent theft/unlawful removal of government property from the terminal.

b. No person can remove terminal property without one of the following:

(1) Individual Property Pass (DA Form 1818).

(2) Cash Sales Slip (Accountable Form) (DD Form 649).

(3) Army Shipping Documents.

(4) Commercial Bills of Lading.

(5) Government Bills of Lading.

(6) Contractor's Commercial Property Pass.

c. Supply Division (SU) will issue property passes to contractor personnel. Chief, SU, or designated representative, signs passes.

d. Guards at exit gate inspect property being removed from the terminal. They will ensure the property appears on the property pass.

8. Vehicle Control.

a. The terminal restricts motor vehicles that need terminal access as follows:

(1) Commercial delivery vehicles or those on other authorized missions. Driver must present a valid state operator's license.

(2) Personal vehicles registered as provided in subparagraph 8c.

(3) Emergency vehicles.

b. Sponsoring terminal agencies must approve commercial motor vehicle entry on terminal wharves. The Commander must authorize privately owned vehicle (POV) entry on wharves.

c. Personnel in SEI must register POV's or those "for hire," operated by employees of individuals, partnerships, or other business firms, that require daily/frequent use on terminal. Personnel registering vehicles ensure they:

(1) Show proof of ownership (notarized Certificate of Title, Bill of Sale, or owner identification issued by a state or territory).

(2) Certify their liability insurance coverage for personal injury and property damage remains in full force and effect. Also, the owner will certify that said insurance coverage complies with laws of the state of registration and North Carolina.

(3) NC State Safety Inspection Sticker or proof of current safety inspection from any other state.

(4) Valid vehicular license from any US state/territory.

d. Report Non-Army owned MHE inspected by 597th TRANS GP (TML) personnel that does not meet minimum safety requirements, to contractor or tenant agency. They will take immediate action and ensure these vehicles meet requirements before operating further on terminal.

e. Authorized POV parking will be permitted in established parking lots on a first-come, first-served basis. In an emergency, personnel push parked vehicles away/removed from buildings or other dangerous areas. Personnel only use officially designated parking areas unless SE grants permission otherwise.

f. NC traffic laws, except as otherwise superseded by these and future regulations, will be in full force and effect on terminal.

g. Terminal Speed Limits:

(1) Cargo and Passenger Vehicles - 25 MPH, except as otherwise posted.

(2) All vehicles, including tractor trailers, tractors, tow motors, fork lifts, and other MHE, when operating on wharves, cargo loading and unloading areas:

(a) 15 MPH over straightaway.

(b) SAFE and PRUDENT speed on turns, at exits, when moving through congested areas, or when vision is obscured.

h. Persons who drive government vehicles or MHE must possess a valid state driver's license, Motor Equipment Utilization Record (DD Form 1970), and valid U.S. Government Motor Vehicle operator Identification Card (OF 346). Possession of these will qualify personnel, except trainees (accompanied by a qualified operator) to operate assigned vehicles.

i. outgoing commercial vehicles will halt at Post #2. Guard checks them for cargo and property passes.

9. Utilities.

a. The government furnishes utilities to contractor only to the extent available and necessary.

b. The government furnishes utilities to persons, firms, or corporations that work as contractors for the government. An agreement negotiated between contractor and CAO stipulates these terms for services furnished, consistent with the contractual relationship between contractor and CAO.

c. No costs to the government involved when existing facilities get connections made.

d. The government will not be liable for failure to provide continuous utilities. It neither guarantees quality nor quantity of supplied service.

e. Contractor, will:

(1) Notify CAO, in writing, when utilities will be required.

(2) Make no utility system alterations without prior CAO approval.

(3) Be responsible for damage to utilities systems used by them.

10. Removal of Facilities. Unless otherwise directed, contractor removes facilities installed by them on terminal at their expense, upon contract termination or completion.* Contractor restores government land and facilities to original condition at their expense. If contractor fails to remove its facilities promptly (usually within 90 days), the government considers the facilities "abandoned" and they become government property.

11. Safety. Contractors covered in this regulation will, in connection with their work:

a. Inspect premises, equipment, and operations. Initiate immediate corrective action when noting unsafe conditions or acts.

b. Make personnel under their jurisdiction aware of their responsibility to prevent accidents and properly report them.

c. Designate an individual to investigate all accidents. This will include personal injury, property damage and vehicle. Designee will immediately notify Chief, Safety Division (SA) (X8560), when an accident occurs or an unsafe condition exists, not immediately correctable. Submit Accident Report (DA Form 285) to SA and CAO within 24 hours after an accident occurs. This report will answer five basic questions: Who? When? Where? Why? How? It will include corrective action taken by contractor to prevent recurrence. Complete DA Form 285 on accidents that involve lost time injury, property damage, and any motor vehicle ($1,000.00 or greater) damage.

d. Ensure only qualified licensed operators operate vehicles. Ensure safe-operating principles will be strictly enforced/followed. Instruct

operators to immediately notify supervisor when vehicle functions improperly; or, if in their opinion adequate vehicle safety devices are not being used. when reporting above conditions, take immediate action to repair or replace.

e. Ensure personnel tow (not push) vehicles (including MHE), except during alignment, parking, and storing. Use towing cable constructed of 3/4-inch steel wire, 20 feet long, with a tempered steel safety hook spliced at each end, with splices at least 12 inches long.

f. Ensure contractors provide personnel under their supervision with, and they wear, adequate personal protective equipment.

g. Provide adequate safety guards and electrical grounds for machines, tools, and equipment.

12. Loss. In event of government property loss due to contractor personnel action, contractor representative will immediately provide CAO a verbal report. Within 24 hours, notify CAO in writing. Give all pertinent information concerning loss.

13. Custodial Service (Housekeeping). Contractor provides custodial services in areas assigned and ensures personnel maintain areas to normal industrial good housekeeping standards practiced on terminal.

14. Fire Prevention.

a. Smoking.

(1) On Vessels - Smoking, carrying lighters or matches, will be prohibited on board vessels at berth, except when those vessels meet specific requirements that permit them to operate a smoking room for crew only. Fire Department personnel will inspect designated smoking rooms on vessels and issue smoking permits if rooms meet subparagraph 146.29-29(c), CG 108 conditions

(2) On Wharves - **NO SMOKING** or carrying matches/lighters on wharves. Smoking allowed inside center building or buildings (smokers) located on north and south ends of each wharf.

(3) On Land Areas.

(a) Within RESTRICTED AREAs - **DO NOT** carry lighters or matches. SMOKE ONLY IN DESIGNATED BUILDINGS.

(b) In Administrative Area and Community Services Building Designated Area - Smoking permitted outdoors.

b. Open Fires or Torches.

(1) NO open fires or torches aboard vessels berthed at 597th TRANS GP (TML). **EXCEPT:** when specifically authorized by the terminal Fire Marshal, Captain of the Port (USCG), and the terminal Quality Assurance Specialist Ammo Surveillance (QASAS). When receiving approval for each fire/torch use, have a special fire watch on hand with extinguishing equipment. The Fire Marshal requires and approves this. Company employee/person doing work become responsible for fire protection of welding and cutting operations, or other open flame work, including furnishing fire watches, fire extinguishers, asbestos shields, and other protective devices.

(2) Written Fire Prevention Building Record (MOTSU Form 122), will be required to burn, weld, braze, caulk, or perform other open flame operations

that require Hot Work Permit (DA Form 5383). Before fire department personnel issue the form, Chief, Safety Division (SA) or QASAS will approve. Once approved, Fire Department personnel prepare and submit the form to the Fire Marshal to approve. Before approving MOTSU Form 122 for terminal operational area, Fire Marshal will coordinate with Chief, SEI. Work detail civilian in charge possesses an approved copy of the form.

c. Fire Fighting Equipment.

(1) **DO NOT BLOCK** fire exits and hose cabinets.

(2) Use fire hydrants only for authorized Fire Department purposes, except by authority of terminal Fire Marshal.

(3) In event of damage to, or interruption of, fire protection systems, notify terminal Fire Marshal and Fire Chief immediately.

d. Gasoline or Diesel Driven Equipment.

(1) DO NOT refuel portable gasoline engines or gasoline driven motor vehicles on wharves or in buildings. Fuel diesel tractors, forklifts, trucks, and other gasoline/diesel driven equipment outside, at least 50 feet away from warehouses and entrances to wharves. Portable tanks shall be no larger than 500 gallons.

(2) **SHUT ENGINES OFF** before refueling.

(3) **DO NOT INSTALL** any stationary gasoline engine on wharves.

(4) Equip gasoline or diesel powered equipment, with fuel in tanks, such as trucks, tractors, forklifts, derricks, etc., with appropriate fire extinguishers.

(5) **ALWAYS** store or transport gasoline, or other flammable liquids, in containers approved by the terminal Fire Marshal. Maintain aisles 3 feet wide in stored material areas. DO NOT USE a faucet or other device that permits gravity flow on any drum/container of flammable liquids.

(6) **DO NOT USE** gasoline to clean or degrease. Use standard solvent or other authorized cleaning fluids, or steam method.

e. Painting. The terminal Fire Marshal approves, in advance, work areas/methods of painting that could cause fire hazard conditions.

f. Reporting Fires.

(1) Contractor personnel will become familiar with location of fire reporting telephone nearest respective work area. Telephone extension for reporting a fire: 8217.

(2) **IMMEDIATELY** report all fires, regardless of size. Person turning in alarm must give calm/distinct directions of fire location to Fire Department personnel.

(3) When personnel discover a fire, they immediately use available fire fighting equipment to extinguish it.

g. Tar Kettles. Tar kettles will produce constant hazards and expose combustible materials to a potentially dangerous heat source. Strictly adhering to the following minimizes inherent risks:

(1) **ALWAYS** locate kettles outside, preferably at least 20 feet from any building, in well-ventilated areas.

(2) Tar kettles WILL NOT be permitted on combustible roofs.

(3) Keep tar kettles in good working condition. Closing hood and temperature gauges must function properly. Regularly clean equipment. This will guard against dangerous build-up of spilled combustible material.

(4) A reliable fire watch, equipped with adequate carbon dioxide or foamite extinguisher, will **ALWAYS** be on duty when using any tar kettle.

(5) **DO NOT MOVE** kettle until extinguished.

15. Medical Treatment.

a. Military or civilians assigned to this terminal will administer no medical services or first aid treatment to contractor personnel. **EXCEPTION:** To prevent undue suffering or loss of life. Then only qualified personnel may administer first aid treatment.

b. Southport, NC, will provide commercial ambulance service. Call Post operator and ask for Southport 457-7911. Ambulatory cases may go to either Southport or Wilmington, NC hospitals at contractor's expense.

c. when commercial ambulance service is unavailable, in a life or death situation, the terminal will render ambulance support to transport person(s) to Southport hospital. In such cases, call terminal Fire Department personnel (X8217 or X8218) to dispatch an ambulance.

16. Environmental Considerations:

a. Before using chemicals on terminal, submit a Material Safety Data Sheet (MSDS) to the terminal Environmental Engineer (X8603).

b. Dispose of hazardous materials according to federal, state, and local regulations. Coordinate disposal through terminal Environmental Engineer (X8603).

c. Before doing any work that involves hazardous materials, i.e., asbestos, contractor must obtain required federal, state, and local permits and submit a copy to the terminal Environmental Engineer.

d. **INKEDIATELY REPORT hazardous substance spill that** includes gasoline, diesel fuel, and lubrication oil, to Fire Department personnel (X8217).

17. References.

AR 385-10 The Army Safety Program

AR 385-40 Accident Reporting and Records

MOTSU REGS

190-4 Removing Government Property

385-1 Command Safety Program

420-3 Fire Prevention, Protection, and Procedures.

(MTAQ-AS-SO)

MICHAEL J. TOAL
Colonel, TC
Commanding

OFFICIAL:

/s/
BOBBY W. DeWITTE
BOBBY W. DeWITTE
Chief, Information Management Division

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES (Not Applicable)

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only:

SD-01 Data

Spare Parts Lists; FIO. Spare Parts; FIO. Special Tools; FIO. Personnel Training; FIO.

Spare parts lists, spare parts, special tools, and personnel training curriculum and staffing shall be submitted in accordance with the general requirements described in paragraph 1.4 of this section and the applicable requirements described in the technical sections.

Warranties; FIO.

The Contractor shall furnish the warranties for each Task Order under this contract in accordance with clause WARRANTY OF CONSTRUCTION of Section 00800 and paragraph ADDITIONAL WARRANTY REQUIREMENTS of this section.

SD-04 Drawings

As-Built Drawings; GA.

As-built drawings for each Task Order under this contract shall be submitted for approval in accordance with the requirements described in paragraph AS-BUILT DRAWINGS of this section.

SD-07 Schedules

Inventory of CF/CI Equipment; FIO. Inventory of GF/CI Equipment; FIO.

Inventories shall be furnished in accordance with paragraphs INVENTORY OF CONTRACTOR-FURNISHED AND INSTALLED EQUIPMENT and INVENTORY OF GOVERNMENT-FURNISHED, CONTRACTOR-INSTALLED EQUIPMENT of this section.

SD-19 Operation and Maintenance Manual

Operation and Maintenance Manuals; GA.

Operation and maintenance manuals shall be submitted for approval in accordance with the general requirements described in this section and the applicable requirements pertaining to individual equipment and systems described in the technical sections.

1.4 OPERATION AND MAINTENANCE MANUALS, SPARE PARTS LISTS, SPARE PARTS, SPECIAL TOOLS, INVENTORIES OF INSTALLED PROPERTIES AND TRAINING OF OPERATING AND SERVICE PERSONNEL

The Contractor shall be responsible for the preparation, coordination, execution and submittal of all operation and maintenance manuals, spare parts lists, special tools, inventories of equipment manuals and maintenance instructions, and shall conduct all training of operating and service personnel. Operation and maintenance manuals shall cover all system installations provided in this contract and shall be in sufficient detail to facilitate normal maintenance and troubleshooting by persons with minimum experience with the installed equipment.

1.4.1 Submittal Requirements

All of the above listed items required in the Technical Provisions of these specifications shall be submitted to the Contracting Officer not less than 60 days prior to the scheduled contract completion date. Fully developed and approved operation and maintenance instructions shall be provided 30 days prior to scheduling training of operating and service personnel. The Contractor shall coordinate the content of each instruction period required in the Technical Provisions of these specifications with the Contracting Officer's representative prior to the actual start of the training period.

1.4.1.1 Videotaping of Training for Operating and Service Personnel

Each instruction or training period as discussed above, shall be videotaped in VHS format by the Contractor. The taping shall include the entire session; and the original video tape(s) shall be labeled and turned over to the Contracting Officer. The video camera and tapes utilized by the Contractor, shall be of a quality to enable clear and understandable playbacks of the recorded events.

l.4.2 Bidding Schedule

A separate Bid Item entitled "O&M Manuals" will be placed in the Task Order/Delivery Order Bidding Schedule for the above listed items. The amount of this Bid Item has been established by the Contracting Officer and entered into the Bidding Schedule. This Bid Item becomes a part of the overall Contractor's bid, but payment of the amount shown shall not be made until all the above listed items have been received and approved. On those systems where complete and comprehensive operation and maintenance instructions cannot be fully developed until the system is checked, tested, and/or balanced, a proposed draft of those system manuals shall be submitted. Liquidated damages for O&M Manuals shall begin if the complete O

& M Manuals submittal package with drafts is not submitted 60 days prior to the scheduled contract completion date and shall continue until the complete package is submitted. Fully developed O&M Manuals of the drafts shall be submitted for approval after the systems have been checked, tested and/or balanced. Failure to submit all specified O&M manuals, spare parts listings, spare parts, special tools and inventories of installed property in a timely manner shall be cause for delaying substantial completion of the work. Commencement of warranty under the clause WARRANTY OF CONSTRUCTION of Section 00800, will not occur until all these items are delivered, and approved by the Contracting Officer, but not earlier than the date of final acceptance of the work by the Government. When the O&M Manuals with drafts are approved they will not constitute a reason for delaying the start of the warranty period. Payment for O&M Manuals will be made after approval of all the fully developed manuals.

1.4.3 Government Possession of Work

The Government may take possession of any completed or partially completed work, as provided for under Contract Clause entitled "USE AND POSSESSION PRIOR TO COMPLETION." If the installed equipment and/or systems thereto, have not been accepted by the Government due to the Contractor's failure to submit the above specified items, the Contractor shall operate and maintain such plant or system at no additional cost to the Government until such time that the specified items have been received, approved and any subsequent testing, check-out and/or training has been completed.

1.5 EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUALS

1.5.1 Scope

This paragraph establishes general requirements for the preparation and submission of equipment operating, maintenance, and repair manuals, as called for in the various sections of the specifications. Specific instruction(s) relating to a particular system or piece of equipment shall be incorporated into the manuals in accordance with the applicable specification requirement.

1.5.2 General Requirements

1.5.2.1 Hard Cover Binders

The manuals shall be permanently bound and have a hard cover. The following identification shall be inscribed on the cover the words "EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUAL" and the name, building number, location, and indication of utility or systems covered. Manuals shall be approximately 215 mm by 280 mm (8-1/2 by 11 inches) with large sheets folded in and capable of being easily pulled out for reference. All manuals for a single facility must be similar in appearance.

1.5.2.2 Warning Page

A warning page shall be provided to warn of potential dangers (if they exist), such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, or high pressures. The warning page shall be placed inside the front cover, in front of the title page.

1.5.2.3 Title Page

The title page shall show the name of the preparing firm (designer or Contractor) and the date of publication.

1.5.2.4 Table of Contents

Provide in accordance with standard commercial practice.

1.5.3 Equipment Operating, Maintenance, and Repair Manuals

1.5.3.1 General

Separate manuals shall be provided for each utility system as defined hereinafter. Manuals shall be provided in the number of copies specified in the applicable technical section. Manuals shall include, in separate sections, the following information for each item of equipment:

a. Performance sheets and graphs showing capacity data, efficiencies, electrical characteristics, pressure drops, and flow rates. Marked up catalogs or catalog pages do not satisfy this requirement. Performance information shall be presented as concisely as possible and contain only data pertaining to equipment actually installed.

b. Catalog cuts showing application information.

c. Installation information showing minimum acceptable requirements.

d. Operation and maintenance requirements. Include adequate illustrative material to identify and locate operating controls, indicating devices and locations of areas or items requiring maintenance.

(1) Describe, in detail, starting and stopping procedures for components, adjustments required to obtain optimum equipment performance, and corrective actions for malfunctions.

(2) Maintenance instructions describing the nature and frequency of routine maintenance and procedures to be followed. Indicate any special tools, materials, and test equipment that may be required.

e. Repair information including diagrams and schematics, guidance for diagnosing problems, and detailed instructions for making repairs. Provide troubleshooting information that includes a statement of the indication or symptom of trouble and the sequential instructions necessary. Include test

hookups to determine the cause, special tools and test equipment, and methods for returning the equipment to operating conditions. Information may be in chart form or in tabular format with appropriate headings.

f. Parts lists and names and addresses of closest parts supply agencies.

g. Names and addresses of local manufacturers' representatives.

1.5.3.2 Facility Heating Systems

Information shall be provided on the following equipment: boilers, water treatment, chemical feed pumps and tanks, converters, heat exchangers, pumps, unit heaters, fin-tube radiation, air handling units (both heating only and heating and cooling), and valves (associated with heating systems).

1.5.3.3 Air-Conditioning Systems

Provide information on chillers, packaged air-conditioning equipment, towers, water treatment, chemical feed pumps and tanks, air-cooled condensers, pumps, compressors, air handling units, and valves (associated with air-conditioning systems).

1.5.3.4 Temperature Control and HVAC Distribution Systems

1.5.3.4.1 Provide the information described for the following equipment:

Valves, fans, air handling units, pumps, boilers, converters, and heat exchangers, chillers, water cooled condensers, cooling towers, and fin-tube radiation.

1.5.3.4.2 Provide all information described for the following equipment:

Control air compressors, control components (sensors, controllers, adapters, and actuators), and flow measuring equipment.

1.5.3.5 Central Heating Plants

Provide the information described for the following equipment: Boilers, converters, heat exchangers, pumps, fans, steam traps, pollution control equipment, chemical feed equipment, control systems, fuel handling equipment, de-aerators, tanks (flash, expansion, return water, etc.), water softeners, and valves.

1.5.3.6 District Heating Distribution Systems

Provide the information described for the following equipment: Valves, fans, pumps, converters and heat exchangers, steam traps, tanks (expansion, flash, etc.) and piping systems.

1.5.3.7 Exterior Electrical Systems

Information shall be provided on the following equipment: Power transformers, relays, reclosers, breakers, and capacitor bank controls.

1.5.3.8 Interior Electrical Systems

Information shall be provided on the following equipment: Relays, motor control centers, switchgear, solid state circuit breakers, motor controller, and EPS lighting systems, control systems (wire diagrams and troubleshooting flow chart), and special grounding systems.

1.5.3.9 Energy Management and Control System

The maintenance manual shall include descriptions of maintenance for all equipment, including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

1.5.3.10 Domestic Water Systems

The identified information shall be provided on the following equipment: Tanks, unit process equipment, pumps, motors, control and monitoring instrumentation, laboratory test equipment, chemical feeders, valves, switching gear, and automatic controls.

1.5.3.11 Wastewater Treatment Systems

The identified information shall be provided on the following equipment: Tanks, unit process equipment, pumps, motors, control and monitoring instrumentation, laboratory test equipment, chemical feeders, valves, scrapers, skimmers, comminutors, blowers, switching gear, and automatic controls.

1.5.3.12 Fire Protection Systems

Information shall be provided on the following equipment: Alarm valves, manual valves, regulators, foam and gas storage tanks, piping materials, sprinkler heads, nozzles, pumps, and pump drivers.

1.5.3.13 Fire Detection Systems

The maintenance manual shall include description of maintenance for all equipment, including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

1.5.3.14 Plumbing Systems

Information shall be provided on the following equipment: Water heaters, valves, pressure regulators, backflow preventers, piping materials, and plumbing fixtures.

1.5.3.15 Liquid Fuels Systems

Information shall be provided on the following equipment: Tanks, automatic valves, manual valves, filter separators, pumps, mechanical loading arms, nozzles, meters, electronic controls, electrical switch gear, and fluidic controls.

1.5.3.16 Cathodic Protection Systems

Information shall be provided on the following material and equipment: Rectifiers, meters, anodes, anode backfill, anode lead wire, insulation material and wire size, automatic controls (if any), rheostats, switches, fuses and circuit breakers, type and size of rectifying elements, type of oil in oil-immersed rectifiers, and rating of shunts.

1.5.3.17 Generator Installations

Information shall be provided on the following equipment: Generator sets, automatic transfer panels, governors, exciters, regulators, starting systems, switchgear, and protective devices.

1.5.3.18 Miscellaneous Systems

Information shall be provided on the following: Communication and ADP systems, security and intrusion alarm, elevators, material handling, active solar, photovoltaic, and other similar type special systems not otherwise specified.

1.6 AS-BUILT DRAWINGS

1.6.1 Scope

This paragraph covers as-built drawings technical requirements and provides information on preliminary and final as-built drawing submittals.

1.6.1.1 General

The as-built drawings shall be a record of the construction as installed and completed by the Contractor. They shall include all the information shown on the contract set of drawings and a record of all deviations, modifications, or changes from those drawings, however minor, which were incorporated in the work, all additional work not appearing on the contract drawings, all changes which are made after final inspection of the contract work and the location and size of all uncharted existing utilities encountered. In event the Contractor accomplishes additional work which changes the as-built conditions of the facility after submission of the as-built drawings, the Contractor shall furnish revised and/or additional drawings as required to depict as-built conditions. The requirements for these additional drawings will be the same as for the as-built drawings included in the original submission.

1.6.1.1.1 Fire Protection/Detection As-Built Drawings

The fire protection/detection as-built drawings will be a finalized version of the fire protection/detection shop drawings. The Contractor shall submit these as-built drawings on full-size mylar sheets.

1.6.1.2 Submittals of preliminary and final as-built drawings shall be as outlined:

1.6.1.2.1 Delivery Orders Having Multiple Items of Work

A copy of the preliminary as-built drawings which the Contractor has reproduced from the approved preliminary as-built drawing sepias, shall be furnished to the Contracting Officer's representative at the time of the final inspection on each interim item of work.

1.6.1.2.2 Delivery Orders Having a Single Item of Work and the Chronologically Last Item of Work on Contracts Having Multiple Items of Work

At the time of final inspection on the last/only item of work, the Contractor shall deliver a copy of the approved preliminary as-built drawing sepias and blue lines to the Contracting Officer's representative.

1.6.1.2.3 All Delivery Orders, Final As-Built Drawings

Final as-built drawing submittal requirements are as stated later in this specification.

1.6.2 Preliminary As-Built Drawings

The Contractor shall mark up both a sepia set and a blue line set of prints to show as-built conditions. These two sets, hereafter called preliminary as-built drawings, or singly, sepias or blue lines, shall be kept current and available on the jobsite at all times, except as noted below. A member of the Contractor's Quality Control Organization shall be assigned responsibility for the maintenance and currency of preliminary as-built drawings. This assignment and any reassignment of duties concerning the maintenance of the as-built drawings shall be promptly reported to the Contracting Officer's representative for his approval. All changes from the contract plans that are made in the work or additional information that might be uncovered in the course of construction, including uncharted utilities, shall be accurately and neatly recorded as they occur by means of details and notes. All changes and/or required additions to the preliminary as-built drawings shall be clearly identified in a color contrasting to blue and which is compatible with reproduction of the preliminary as-built sepias. During periods when the sepias are being copied and are therefore not available at the jobsite, the Contractor shall continue posting all required data to the blue lines. The Contractor shall minimize the time that the sepias are away from the jobsite and he shall update them with all

as-built data immediately upon their return. The sepias and blue lines will be jointly inspected for accuracy and completeness by the Contracting Officer's representative and the assigned representative of the Contractor's Quality Control Organization prior to submission of each monthly pay estimate. (See paragraph Withholding for Preliminary As-Builts.) The as-built drawings shall show the following information, but not be limited thereto.

The Contractor shall mark up copies of the drawings attached in the specifications to show as-built conditions. These copies hereafter called preliminary as-built drawings, shall be kept current and available on the jobsite at all times, except as noted below. A member of the Contractor's Quality Control Organization shall be assigned responsibility for the maintenance and currency of preliminary as-built drawings. This assignment and any reassignment of duties concerning the maintenance of the as-built drawings shall be promptly reported to the Contracting Officer's representative for his approval. All changes from the contract plans that are made in the work or additional information which might be uncovered in the course of construction, including uncharted utilities, shall be accurately and neatly recorded as they occur by means of details and notes. All changes and/or required additions to the preliminary as-built drawings shall be clearly identified in red. The marked up drawings will be jointly inspected for accuracy and completeness by the Contracting Officer's representative and the assigned representative of the Contractor's Quality Control Organization prior to submission of each monthly pay estimate. (See paragraph Withholding for Preliminary As-Builts.) The as-built drawings shall show the following information, but not be limited thereto.

1.6.2.1 The location and description of any utility lines or other installation of any kind or description known to or found to exist within the construction area. The location of exterior utilities includes actual measured horizontal distances from utilities to permanent facilities/ features. These measurements shall be within an accuracy range of 6 inches and shall be shown at sufficient points to permit easy location of utilities for future maintenance purposes. Measurements shall be shown for all change of direction points and all surface or underground components such as valves, manholes, drop inlets, cleanouts, meter, etc. The general depth range of each underground utility line shall be shown (i.e., 1 to 1.2 meters (3 to 4 feet) in depth). The description of exterior utilities includes the actual quantity, size, and material of utility lines.

1.6.2.1.1 The location and dimensions of any changes within the building or structure.

1.6.2.1.2 Correct grade or alignment of roads, structures or utilities if any changes were made from contract plans.

1.6.2.1.3 Correct elevations if changes were made in site grading.

1.6.2.1.4 Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

1.6.2.1.5 The topography and grades of all drainage installed or affected as a part of the project construction.

1.6.2.1.6 Options

Where contract drawings or specifications allow options, only the option selected for construction shall be shown on the as-built drawings.

1.6.2.2 As part of the prefinal inspection for each item of work, the preliminary as-built drawings will be reviewed. They must comply with this specification prior to scheduling the final inspection, and/or prior to substantial completion of the item of work.

1.6.2.3 Preliminary As-Built Drawing Final Submittal

Prior to scheduling the final acceptance inspection of the last/only bid schedule item of work, the preliminary as-built drawings shall be completed and delivered to the Contracting Officer's representative for his review and approval. If upon review, the drawings are found to contain errors and/or omissions, they will be returned to the Contractor for corrections. Failure of the Contractor to make timely delivery of the preliminary as-built drawings on any/all items of work will be cause for the Government to delay substantial completion, and to assess liquidated damages in accordance with the terms and conditions of the contract.

1.6.2.4 Withholding for Preliminary As-Built Drawings

Failure by the Contractor to maintain current and satisfactory preliminary as-built drawings in accordance with these requirements will result in withholding from progress payments an amount determined by the Contracting Officer's authorized representative as the value of the subject as-built drawings, and will indicate this unearned amount on monthly payment estimates until the Contractor has fulfilled the contract requirements.

1.6.3 Final As-Built Information

Upon approval of the preliminary as-built drawings, the Contracting Officer will furnish the Contractor the approved blue lines and the original set of contract drawings or tracings and the computer generated graphics files (CADD files) of the contract drawings. The CADD files will be provided to the Contractor in Intergraph Microstation Version 5 format. CADD files will be delivered to the Contractor on one of the following types of media: 90 megabyte Bernoulli disk; up to 10, 89 mm (3-1/2-inch) floppy disks in DOS 5 format using PKZIP compression; 2.3 gigabyte 8mm cartridge tape using scpio

or cpio and CLIX Unix format; or 9-track tape using VAX tape backup. The Contractor shall provide the Contracting Officer, upon approval of the preliminary as-built drawings, the preferred media on which to copy the CADD files. The Contractor will then modify these original drawings or tracings and CADD files as may be necessary to correctly show all the features of the project as it was constructed by bringing the contract set into agreement with the preliminary as-built drawings, including adding additional drawings and CADD files as may be necessary. The original drawings or tracings and CADD files are part of the permanent records of this project and the Contractor shall be responsible for the protection and safety thereof until returned to the Contracting Officer. Any drawings or tracings or CADD files damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at his expense. If additional drawings are required, they shall be prepared on blank sheets furnished by the Government and added to the CADD files.

Upon approval of preliminary as-built drawings, the Contractor shall modify the original drawings or tracings and CADD files as may be necessary to correctly show all the features of the project as it was constructed by bringing the contract set into agreement with the preliminary as-built drawings, including adding additional drawings and CADD files as may be necessary. The original drawings or tracings and CADD files are part of the permanent records of this project and the Contractor shall be responsible for the protection and safety thereof until returned to the Contracting Officer. Any drawings or tracings or CADD files damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at his expense. If additional drawings are required, they shall be prepared on blank sheets furnished by the Government and added to the CADD files.

1.6.3.1 Final Revisions

When final revisions have been completed, each drawing and CADD file shall be lettered with the words "DRAWING OF WORK AS-BUILT" in letters at least 3/16" high placed below the title block between the border and the trim line. The date of completion and the words "REVISED AS-BUILT" shall be placed in the revision block above the latest existing revision notation.

1.6.3.2 Title Blocks

The title block to be used for any new as-built drawings shall be similar to that used on the original drawings.

1.6.3.3 Submittal Requirements

The Contractor shall submit to the Contracting Officer the final as-built drawings, consisting of two sets of corrected CADD files in Intergraph Microstation version 5 format, one for the District and one for the user on the media determined by the Contracting officer; the approved preliminary blue lines; and all required reproduced items. All paper prints, reproducible drawings, CADD files, and microfilms will become the property of the Government upon final approval. Failure to submit as-built information as required herein shall be cause for withholding payment due the Contractor for as-built drawings under this contract and for assessment of the specified liquidated damages. Approval and acceptance of final as-built information shall be accomplished before final payment is made to the Contractor.

1.6.3.4 Payment for Final As-Built Drawings

A fixed price for as-built drawings will be agreed upon in the individual Task Orders. Payment for the performance of the work outlined above will be made after its acceptance by the Contracting Officer.

1.7 OMITTED

1.8 ADDITIONAL WARRANTY REQUIREMENTS

1.8.1 Performance Bond

It is understood that the Contractor's Performance Bond will remain effective throughout the life of all warranties and warranty extensions. This paragraph is applicable to the Contractor's Warranty of Construction only and does not apply to manufacturer's warranties on equipment, roofing, and other products.

a. In the event the Contractor or his designated representative fails to commence and diligently pursue any work required under clause WARRANTY OF CONSTRUCTION of Section 00800 within a reasonable time after receipt of written notification pursuant to the requirements thereof, the Contracting Officer shall have a right to demand that said work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Contracting Officer shall have the work performed by others, and after completion of the work, shall make demand for reimbursement of any or all expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

b. Warranty repair work which arises to threaten the health or safety of personnel, the physical safety of property or equipment, or which impairs operations, habitability of living spaces, etc., will be handled by the Contractor on an immediate basis as directed verbally by the Contracting Officer or his authorized representative. Written verification will follow verbal instructions. Failure of the Contractor to respond as verbally directed will be cause for the Contracting Officer or his authorized

representative to have the warranty repair work performed by others and to proceed against the Contractor as outlined in the paragraph a. above.

1.8.2 Pre-Warranty Conference

Prior to contract completion and at a time designated by the Contracting Officer or his authorized representative, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of the clause WARRANTY OF CONSTRUCTION of Section 00800. Communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer or his authorized representative for the execution of the construction warranty shall be established/reviewed at this meeting.

In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor will furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue warranty work action on behalf of the Contractor. This single point of contact will be located within the local service area of the warranted construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of and of his responsibilities in connection with the clause WARRANTY OF CONSTRUCTION of Section 00800.

1.8.3 Equipment Warranty Identification Tags

The Contractor shall provide warranty identification tags on all equipment installed under this contract. Tags and installation shall be in accordance with the requirements of paragraph EQUIPMENT WARRANTY IDENTIFICATION TAGS.

1.9 EQUIPMENT WARRANTY IDENTIFICATION TAGS

1.9.1 General Requirements

The Contractor shall provide warranty identification tags on all Contractor- and Government-furnished equipment which he has installed.

1.9.1.1 Tag Description and Installation

The tags shall be similar in format and size to the exhibits provided by this specification, they shall be suitable for interior and exterior locations, resistant to solvents, abrasion, and to fading caused by sunlight, precipitation, etc. These tags shall have a permanent pressure sensitive adhesive back, and they shall be installed in a position that is easily (or most easily) noticeable. Contractor furnished equipment that has differing warranties on its components will have each component tagged.

1.9.1.2 Sample Tags

Sample tags shall be submitted to the Contracting Officer's authorized representative for his review and approval. These tags shall be filled out representative of how the Contractor will complete all other tags.

1.9.1.3 Tags for Warranted Equipment

The tag for this equipment shall be similar to the following. Exact format and size will be as approved by the Contracting Officer's authorized representative. The Contractor warranty expires (warranty expiration date) and the final manufacturer's warranty expiration dates will be determined as specified by the clause WARRANTY OF CONSTRUCTION of Section 00800.

EQUIPMENT WARRANTY

CONTRACTOR FURNISHED EQUIPMENT

MFG _____ MODEL NO. _____

SERIAL NO. _____

CONTRACT NO. _____

CONTRACTOR NAME _____

CONTRACTOR WARRANTY EXPIRES _____

MFG WARRANTY(IES) EXPIRE _____

EQUIPMENT WARRANTY
GOVERNMENT-FURNISHED EQUIPMENT

MFG _____ MODEL NO. _____
SERIAL NO. _____

CONTRACT NO. _____

DATE EQUIP PLACED IN SERVICE _____

MFG WARRANTY(IES) EXPIRE _____

1.9.1.4 Duplicate Information

If the manufacturer's name (MFG), model number and serial number are on the manufacturer's equipment data plate and this data plate is easily found and fully legible, this information need not be duplicated on the equipment warranty tag.

1.9.2 Execution

The Contractor will complete the required information on each tag and install these tags on the equipment by the time of and as a condition of final acceptance of the equipment. The Contractor will schedule this activity in the Contractor progress reporting system. The final acceptance inspection is scheduled based upon notice from the Contractor, thus if the Contractor is at fault in this inspection being delayed, the Contractor will, at his own expense, update the in-service and warranty expiration dates on these tags.

1.9.3 Payment

The work outlined above is a subsidiary portion of the contract work, and has a value to the Government approximating 5 percent of the value of the Contractor furnished equipment. The Contractor will assign up to that amount, as approved by the Contracting Officer's authorized representative.

1.9.4 Equipment Warranty Tag Replacement

Under the terms of this contract, the Contractor's warranty with respect to work repaired or replaced shall run for 1 year from the date of repair or replacement. Such activity shall include an updated warranty identification tag on the repaired or replaced equipment. The tag shall be furnished and installed by the Contractor, and shall be identical to the original tag, except that the Contractor's warranty expiration date will be 1 year from the date of acceptance of the repair or replacement.

1.10 INVENTORY OF CONTRACTOR FURNISHED AND INSTALLED EQUIPMENT

The Contractor shall develop and maintain an up-to-date list of all equipment installed under this contract. The list shall include but not be limited to equipment that require electrical power or fuel, or may require removal or replacement such as AHU's, fans, air conditioners, compressors, condensers, boilers, thermal exchangers, pumps, cooling towers, tanks, fire hydrants, sinks, water closets, lavatories, urinals, shower stalls, and any other large plumbing fixtures, light fixtures, etc. The list shall be reviewed periodically by the Government to insure completeness and accuracy. Partial payment will be withheld for equipment not incorporated in the list. Final list shall be turned over to the authorized representative of the Contracting Officer at the time of Contractor's quality control completion inspection.

1.10.1 Equipment Data

List shall include on each item as applicable: Description, Manufacturer, Model or Catalog No., Serial No., Input (power voltage, BTU, etc.), Output (power, voltage, BTU, tons, etc.). Size or Capacity (tanks), and net inventory costs; any other data necessary to describe item and shall list all warrantors and warranty periods for each item of equipment.

1.11 INVENTORY OF CONTRACTOR FURNISHED AND INSTALLED EQUIPMENT

A list of equipment or units of equipment that require electrical power or fuel, or may require removal or replacement such as AHU's, fans, air conditioners, compressors, condensers, boiler, thermal exchangers, pumps, cooling towers, tanks, fire hydrants, sinks, water closets, lavatories, urinals, shower stalls, and any other large plumbing fixtures, light fixtures, etc., shall be made and kept up to date as installed. The list shall be reviewed periodically by the Government to insure completeness and accuracy. Partial payment will be withheld for equipment not incorporated in the list. List shall include on each item as applicable: Description, Manufacturer, Model or Catalog No., Serial No., Input (power, voltage, BTU, etc.), Output (power, voltage, BTU, tons, etc.), Size or Capacity (tanks), and net inventory costs; any other data necessary to describe item and shall list all warrantors and warranty periods for each item of equipment. Final list shall be turned over to the authorized representative of the Contracting Officer at the time of the Contractor's quality control completion inspection.

1.12 INVENTORY OF GOVERNMENT-FURNISHED CONTRACTOR-INSTALLED EQUIPMENT (GF/CI)

A list of all GFE shall be developed for each task order under which GFE is furnished to the Contractor; and updated as necessary to reflect Task Order changes. Equipment items will be as defined under inventory of Contractor furnished equipment above and the list shall include, on each item, as applicable, the same information. The final list shall be turned over to the Contracting Officer's representative, at the time of the Contractor's quality control inspection.

PART 2 -PRODUCTS (Not Applicable)

PART 3 -EXECUTION (Not Applicable)

-- End of Section --

*1 OFFEROR FEE PROPOSAL
Sample Project Task Order
Various Projects Seymour Johnson Air Force Base
DACA21-03-R-0064

Work Item	Labor	Equipment	Material	TOTAL
Repair Community Center, Bldg 3728 VKAG 00-1107				
General Conditions				$0.00
Site Work, Complete				$0.00
Concrete, Complete				$0.00
Masonry, Complete				$0.00
Metals, Complete				$0.00
Wood and Plastics, Complete				$0.00
Doors and Windows, Complete				$0.00
Finishes, Complete				$0.00
Specialties, Complete				$0.00
Special Construction, Complete				$0.00
Electrical, Complete				$0.00
Mechanical, Complete				$0.00
Option 1 Pad Mounted Transformer, Complete				
Repair Roof, Building 2121, VKAG 00-1165				
General Conditions				$0.00
Demolition, Complete				$0.00
Standing Seam Roof, Complete				$0.00
Gutters and Downspouts, Complete				$0.00
Ridge Vents and Fascia, Complete				$0.00
Replace BAK-12 Deck Sheaves, VKAG 02-1048				
General Conditions				$0.00
Demolition, Complete				$0.00
Trenching, Backfill, Compaction, Complete				$0.00
Topsoil and Finished Grading. Complete				$0.00
Airfield Pavement Markings, Complete				$0.00
Remove Pavement Markings, Complete				$0.00
Rubber Removal, Complete				$0.00
Asphalt Paving, Complete				$0.00
Seeding, Complete				$0.00

(Added by Amendment No. 0001)

*1 OFFEROR FEE PROPOSAL
Sample Project Task Order
Various Projects Seymour Johnson Air Force Base
DACA21-03-R-0064

Concrete, Complete				$0.00
Structural Steel, Complete				$0.00
Miscellaneous Metal, Complete				$0.00
Fluid Applied Roofing, Complete				$0.00
Airfield Lighting, Complete				$0.00
Demo Contracting Facilities, Bldg 3634/3632 VKAG 03-1501				
General Conditions				$0.00
Asbestos Abatement, Complete				$0.00
Trenching and Backfill, Complete				$0.00
Demolition, Complete				$0.00
Curbing and Side Walk Installation, Complete				$0.00
Reconnect Electrical, Complete				$0.00
Finish Grade, Topsoil, and Sod, Complete				$0.00
Repair 3rd Floor Building 3602, VKAG 95-1131				
General Conditions				$0.00
Site Work, Complete				$0.00
Concrete, Complete				$0.00
Masonry, Complete				$0.00
Metals, Complete				$0.00
Wood and Plastics, Complete				$0.00
Thermal and Moisture Protection, Complete				$0.00
Doors and Windows, Complete				$0.00
Finishes, Complete				$0.00
Specialties, Complete				$0.00
Furnishings, Complete				$0.00
Special Construction, Complete				$0.00
Conveying Systems, Complete				$0.00
Mechanical, Complete				$0.00
Electrical, Complete				$0.00
Repair Power Check Pad, VKAG 97-1139				
General Conditions				$0.00

(Added by Amendment No. 0001)

*1 OFFEROR FEE PROPOSAL
Sample Project Task Order
Various Projects Seymour Johnson Air Force Base
DACA21-03-R-0064

Demo Concrete Pads, Complete				$0.00
Blast Deflector, Complete				$0.00
Concrete Foundation, Complete				$0.00
Select Fill, Complete				$0.00
Grading, Complete				$0.00
Seeding, Complete				$0.00
Option 1 Demo Existing Building				$0.00
Option 1 Excavate Berm				$0.00
Option 1 Haul Excavated Soil				$0.00
Repair ALS Roof, Bldg 3611 VKAG 99-1130				
General Conditions				$0.00
Site Work, Complete				$0.00
Concrete, Complete				$0.00
Metals, Complete				$0.00
Woods and Plastics, Complete				$0.00
Thermal and Moisture Protection, Complete				$0.00
Mechanical, Complete				$0.00
Construct Addition to Personnel Deployment Facility VKAG 99-1137				
General Conditions				$0.00
Site Work, Complete				$0.00
Masonry, Complete				$0.00
Metals, Complete				$0.00
Woods and Plastics, Complete				$0.00
Thermal and Moisture Protection, Complete				$0.00
Doors and Windows, Complete				$0.00
Finishes, Complete				$0.00
Equipment, Complete				$0.00
Metal Buildings, Complete				$0.00
Mechanical, Complete				$0.00
Electrical, Complete				$0.00

(Added by Amendment No. 0001)

*1 OFFEROR FEE PROPOSAL
Sample Project Task Order
Various Projects Seymour Johnson Air Force Base
DACA21-03-R-0064

Option 1 Install Acoustical Ceiling Panels, Complete				$0.00
TOTAL DIRECT COSTS	$0.00	$0.00	$0.00	$0.00
Field Overhead			_____%	
Field Overhead on Subcontract Work	Tot. Subcontracts _____		____%	
Home Office Overhead			____%	
TOTAL COSTS				$0.00
Profit			_____%	
Bond Premium			_____%	
TOTAL PROPOSED FEE				$0.00

NOTES:
1. Attach Subcontractor quotes and reference applicable work item.
2. Options may be awarded at any time during the life of the task order.

(Added by Amendment No. 0001)

SCOPE OF WORK

11 August 2003

TASK ORDER FOR CONSTRUCTION OF VARIOUS MAINTENANCE AND REPAIR PROJECTS,
SEYMOUR JOHNSON AIR FORCE BASE, GEORGIA
SOLICITATION NUMBER DACA21-03-R-0064

1. DESCRIPTION OF WORK: Work under this task order will consist of the following:

SUBJECT TO AVAILABILITY OF FUNDS (SAF)- PROJECT NO. VKAG 00-1107 – REPAIR COMMUNITY CENTER, BLDG. 3728 The work covered by this project includes, but is not limited to the following: Major Architectural and building systems renovation; Install new Sprinkler system and associated controls; Install low voltage automatic integrated transceiver fire alarm system; Provide asbestos abatement plan and abate asbestos; and Provide Architectural and Civil support to complete installation of sprinkler and fire alarm systems.

PROJECT NO. VKAG 00-1165, REPAIR ROOF, BLDG 2121 The work covered by this project includes, but is not limited to the following: Remove metal roofing system and replace with new and Install standing seam metal roof system over existing facility.

SUBJECT TO AVAILABILITY OF FUNDS (SAF)- PROJECT NO. VKAG 02-1048 – REPLACE BAK-12 DECK SHEAVES The work covered by this project includes, but is not limited to the following: Deck sheave, and concrete foundation, and steel tube removal; Fairlead beam installation, concrete foundation replacement and steel tube replacement; and BAK-12 absorber removal/installation

SUBJECT TO AVAILABILITY OF FUNDS (SAF)- PROJECT NO. VKAG 03-1501 – DEMO CONTRACTING FACILITIES The work covered by this project includes, but is not limited to the following: Demolition of existing facilities 3634 and 3632 and associated utilities and. Site restoration to include grading and sodding.

SUBJECT TO AVAILABILITY OF FUNDS (SAF)- PROJECT NO. VKAG 95-1131 – REPAIR 3rd FLOOR BUILDING 3607 The work covered by this project includes, but is not limited to the following: Repair and construct an addition to include but not limited to the demolition and removal of the 3rd floor existing wall, floor and ceiling finishes and systems; The demolition and removal of the existing stair tower serving the 1st, 2nd and 3rd floors; The up-fit of the 3rd floor area shall include: new wall, floor and ceilings finishes; a new 4-pipe fan coil HVAC and associated piping; new electrical power distribution system for the 3rd floor and new toilet groups for the 3rd floor. A new fire sprinkler system shall be installed for all three floors; the system shall include new service main to the building, backflow preventor, riser, piping system and heads. The existing fire alarm system shall be retrofit to match the 3rd floor renovations and renovated on the 1st and 2nd floors. A new entrance vestibule, stair tower, elevator and riser room addition shall be constructed in place of the demolished stair tower. The addition shall be 3 stories and provide elevator and stair access to all three floors.

PROJECT NO. VKAG 97-1139 – REPLACE POWER CHECK PAD The work covered by this project includes, but is not limited to the following: Furnishing of all plant, labor, equipment and materials for the installation of a new blast deflector foundation, blast deflector, and associated landscaping; and Demolition of existing mechanical blast deflector foundation, mechanical blast deflector, and earth covered blast deflector.

SUBJECT TO AVAILABILITY OF FUNDS (SAF)- PROJECT NO. VKAG 99-1130 – REPAIR ALS ROOF BUILDING 3611 The work covered by this project includes, but is not limited to the following: Install standing seam metal roof and support system over existing facility.

CONTINUED

PROJECT NO. VKAG 99-1137 – CONSTRUCT ADDITION TO PERSONNEL DEPLOYMENT FACILITY BUILDING 4743 The work covered by this project includes, but is not limited to the following: Site demolition, grading, excavation, and building construction including mechanical and electrical systems to Construct Addition to Personnel Deployment Facility.

2. PERFORMANCE PERIOD:

PROJECT NO. VKAG 00-1107 – REPAIR COMMUNITY CENTER, BLDG. 3728 215 Calendar Days
PROJECT NO. VKAG 00-1165 – REPAIR ROOF, BLDG 2121 180 Calendar Days
PROJECT NO. VKAG 02-1048 – REPLACE BAK-12 DECK SHEAVES 153 Calendar Days
PROJECT NO. VKAG 03-1501 – DEMO CONTRACTING FACILITIES 120 Calendar Days
PROJECT NO. VKAG 95-1131 – REPAIR 3rd FLOOR BUILDING 3607 125 Calendar Days
PROJECT NO. VKAG 97-1139 – REPLACE POWER CHECK PAD 150 Calendar Days
PROJECT NO. VKAG 99-1130 – REPAIR ALS ROOF BUILDING 3611 180 Calendar Days
PROJECT NO. VKAG 99-1137 – CONSTRUCT ADDITION TO PERSONNEL DEPLOYMENT FACILITY BUILDING 4743 205Calendar Days

3. CONTRACT REQUIREMENTS:

A. Project Involves Handling of Asbestos:
[ ] Yes for VKAG 95-1131, VKAG 00-1107
[X] No for all others

B. Occupancy During Construction:
[X] Yes
[ ] No

C. Phasing of Work:
[X] Yes (See Section 1.13 for VKAG-99-1130, VKAG-00-1165, See Section 1.14 for VKAG-00-1107, VKAG-95-1131, VKAG 97-1139, See Section 1.15 for VKAG 03-150, VKAG 02-1048, VKAG 99-1137)
[ ] No

D. Construction Schedule
[X] Bar Chart/Gant Chart
[ ] NAS

E. CQC System Requirements
CQC System Manager - Construction person with 15 years' experience. CQC may have other duties.

CQC Personnel

4. PRE-BID CONFERENCE:
[ ] Yes Date _____ Time_____ Location_____ POC/Telephone_____
[X] No

CONTINUED

5. CONTRACTOR REQUIREMENTS:

A. After task order award:
[X] FRP0001 – Site Safety and Health Plan
[X] FRP0002 – Quality Control Program
[X] FRP0007 – Work Plan
[X] FRP0009 - Pre-Remediation Action Conference
[X] FRP0010 – Work Schedule
[X] FRP0011 - Weekly Progress Report
[X] FRP0016 - Equipment and Construction Warranties

B. After construction completion, prior to final payment:
[X] FRP0021 - As-Built/Final Drawings

6. GOVERNMENT-FURNISHED ITEMS/WORK:

7. INTERFACE WITH GOVERNMENT PERSONNEL: Access to and from the site shall be coordinated through the Seymour Johnson Resident Engineer Office, POC Matt Makdad at telephone number 919.722.5572.

8. WAGE DETERMINATION: The applicable wage determination for *insert applicable wage rate determination.*

9. LIQUIDATED DAMAGES: The Contractor shall be assessed the amount of $376.14 liquidated damages per calendar day, for failure to complete the prescribed work within the performance period stated in paragraph 2, above.

10. PAYMENT OFFICE: North Carolina Air Force and Special Ops Area Office
Attention: Bob Cagle
Building D-2507
Ardennes Street
Fort Bragg, NC 29307-0247

11. ENCLOSURES:

A. SPECIFICATIONS AND DRAWINGS:
PROJECT NO. VKAG 00-1107 – REPAIR COMMUNITY CENTER, BLDG. 3728
PROJECT NO. VKAG 00-1165, REPAIR ROOF, BLDG 2121
PROJECT NO. VKAG 02-1048 – REPLACE BAK-12 DECK SHEAVES
PROJECT NO. VKAG 03-1501 – DEMO CONTRACTING FACILITIES
PROJECT NO. VKAG 95-1131 – REPAIR 3rd FLOOR BUILDING 3607
PROJECT NO. VKAG 97-1139 – REPLACE POWER CHECK PAD
PROJECT NO. VKAG 99-1130 – REPAIR ALS ROOF BUILDING 3611
PROJECT NO. VKAG 99-1137 – CONSTRUCT ADDITION TO PERSONNEL DEPLOYMENT FACILITY BUILDING 4743

END OF SCOPE

General Decision Number NC030009

General Decision Number **NC030009**
Superseded General Decision No. NC020009
State: **North Carolina**
Construction Type:
HEAVY
County(ies):
STATEWIDE
SEWER AND WATER CONSTRUCTION PROJECTS AND HEAVY CONSTRCUTION
PROJECTS (excluding Dam construction projects).
Modification Number Publication Date
0 06/13/2003

COUNTY(ies):
STATEWIDE
SUNC2001A 02/12/1990

	Rates	Fringes
BOILERMAKERS:		
Storage Tank Erection/Repair	12.96	4.105
All Other Work:	16.20	4.105
BRICKLAYERS	7.23	
CARPENTERS	6.63	
CEMENT MASONS/FINISHERS	6.11	
ELECTRICIANS	8.56	
FENCE ERECTORS	5.15	
IRONWORKERS	8.20	
LABORERS:		
Unskilled	5.15	
Air Drill Operator	5.92	
Asphalt Rakers	5.15	
Pipelayers	5.17	
MANHOLE BUILDERS	5.81	
MILLWRIGHTS	5.27	
PAINTERS	7.12	
PLUMBERS & PIPEFITTERS	7.42	
POWER EQUIPMENT OPERATORS:		
Asphalt Distributor	5.77	
Asphalt Finisher	5.69	
Asphalt Paver	5.69	
Asphalt Screed	5.69	
Backhoe	6.40	
Boring Machine	5.65	
Bulldozer	5.96	
Crane	7.60	
Dragline	6.34	
Drill	7.23	
Loader	5.79	
Mechanic	7.16	
Motor Grader	6.24	
Roller	5.15	
Scraper, Pan	5.42	
Tractor	5.49	
Trenching	6.58	
Well Drillers	6.50	
TRUCK DRIVERS	5.15	

TV & GROUTING TECHNICIANS 9.21

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

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General Decision Number NC030053

General Decision Number NC030053
Superseded General Decision No. NC020053
State: **North Carolina**
Construction Type:
BUILDING
County(ies):
WAYNE
BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories)
Modification Number Publication Date
0 06/13/2003

COUNTY(ies):
WAYNE
SUNC1032A 03/13/1997

	Rates	Fringes
ACOUSTICAL CEILING MECHANIC	11.50	.43
CARPENTER (Excluding formwork,batt/ blown insulation, acoustical ceiling installation, carpet laying, overhead doors, and drywall hanging	10.62	1.08
CEMENT MASON	10.66	.95
DRYWALL FINISHER	12.00	
DRYWALL HANGER	12.00	.63
ELECTRICIAN (Excluding HVAC control wiring)	10.88	.93
GLAZIER	10.41	1.42
HVAC MECHANIC	13.75	1.13
IRONWORKER-STRUCTURAL	10.15	.97
LABORERS:		
Unskilled	6.95	
Landscape Worker	7.31	
OVERHEAD DOOR INSTALLER	9.50	.52
PAINTER (including paperhanging, excluding drywall finishing	9.00	.35
PLUMBER (Excluding HVAC piping)	11.59	1.67
POWER EQUIPMENT OPERATORS:		
Backhoe	10.00	
Dozer	10.00	
Grader	13.83	
ROOFER	8.42	.26
SHEETMETAL WORKER (Excluding HVAC duct work)	10.34	1.06
TRUCK DRIVER-TANDEM DUMP	10.00	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

In the listing above, the "SU" designation means that rates

listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

SEYMOUR JOHNSON

Air Force Base

Goldsboro, North Carolina

SPECIFICATIONS

FOR

DATE: MARCH 12, 2003

PROJECT TITLE: REPAIR COMMUNITY CENTER, BLDG 3728

PROJECT NO: VKAG 00-1107

PROJECT MANAGER: MATT MAKDAD

PROGRESS BY TEAMWORK

SPECIFICATIONS

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02070	SELECTIVE DEMOLITION
02300	EARTHWORK
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SECTION 01000

GENERAL

1.1 SCOPE OF WORK: The work covered by this specification consists of furnishing all plant, labor, equipment and material, and performing all work in connection with the PROJECT NO. VKAG 00-1107 – REPAIR COMMUNITY CENTER, BLDG. 3728 in strict accordance with these specifications and drawings and subject to the terms and conditions of this contract.

1.2 LOCATION: The work is to be accomplished at Seymour Johnson Air Force Base, Goldsboro, North Carolina. This base is accessible by both public highway and railway.

1.3 WORKWEEK: The contractor shall observe the same regular workweek being observed by the Seymour Johnson AFB Civil Engineering shop forces, which is 7:30 a.m. to 4:30 p.m., Monday through Friday, with Federal holidays excluded. Any deviation from this schedule will require 48 hours advance notice and approval of the Contracting Officer.

1.4 PRINCIPLE FEATURES: The work covered by this contract includes, but is not limited to the following:

A. Major Architectural and building systems renovation.

B. Install new Sprinkler system and associated controls.

C. Install low voltage automatic integrated transceiver fire alarm system.

D. Provide asbestos abatement plan and abate asbestos.

E. Provide Architectural and Civil support to complete installation of sprinkler and fire alarm systems.

1.5 HAUL ROUTES: The Contractor shall use the haul routes indicated on the plans.

1.6 DISPOSITION OF NONSALVABLE MATERIALS: All nonsalvable or unusable material shall be disposed of off base as directed by the Contracting Officer. All waste material generated by any work under this contract shall be handled, transported, stored, and disposed of off base, by the Contractor, in accordance with all applicable federal, state, or local laws, ordinances, regulations, court orders, or other types of rules or rulings having the effect of law.

1.7 DISPOSITION OF SALVAGEABLE MATERIALS: The Contractor shall be required to furnish an itemized listing of materials to be salvaged to the Base Civil Engineering material Control section, located in Bldg 3300, so that an AF Form 1348-1 can be

obtained. After receiving this form, all salvable or reusable material will be delivered to the Defense reutilization and Marketing Office, which is located near Bldg 2620 or as directed by Contracting Officer.

1.8 SUBMITTALS REQUIRED: Required submittals are listed on AF Form 66.

1.9 BASE CIVIL ENGINEERING WORK CLEARANCE REQUEST, AF FORM 103: The Contractor shall obtain AF Form 103, Base Civil Engineering Work Clearance Request, prior to work commencement from the Contract Management Section in Bldg 3300, 1095 Peterson Avenue. Upon receipt of an AF Form 103, the Contractor shall be responsible for locating all base owned underground utilities, as well as, coordinating local utility companies to stake out utilities if not owned by the base. Historical drawings, as-built drawings, and topographic drawings are available for review at the 4th Civil Engineer Squadron, Design element located in Building 3300. Base owned utilities include but are not limited to electric, water, sewer, steam, communication, telephone, fiber optic, cathodic protection, and fuel lines. Utilities not owned by the base include but are not limited to cable TV, Southern Bell Telephone, and Natural Gas. The Contractor shall contact ULOCO and the non-base utility companies for location services. In the event that the Contractor damages a utility which is commented in the plans, record drawings, or located by a utility locator, the Contractor shall repair/replace the utility at no additional cost to the Government. Utilities not documented, shown, or located by a locator shall be considered abandoned or unknown. Contractor damage to unknown or abandoned utilities shall be dealt with as a differing site condition.

1.10 MATERIALS CONTAINING ASBESTOS: In the event the Contractor discovers materials suspected of containing asbestos that is not identified to be removed in the plans and specifications, the Contractor shall notify the Contracting Officer. The Contractor's work shall proceed unless the materials suspected of containing asbestos are damaged or disturbed. Any suspected materials damaged or disturbed by the Contractor without permission from the Contracting Officer shall be removed by the Contractor at his expense IAW all applicable Federal, State, and local laws, ordinances, regulations, court orders, or other types of rules or rulings having the effect of law.

1.11 LABELING OF STORAGE DRUMS: All 55 gallon or larger drums brought on base for use under this contract and containing new material or used for storage of waste materials or hazardous waste must be labeled with a Department of Transportation (DOT) Proper Shipping Name, DOT Hazardous Identification Number, the Contractor's name, a Contractor representative, and the Contractor's telephone number.

Label lettering should have a minimum height of one half inch painted in white paint or other color that is in contrast with the color of the drum. The label should be sufficiently durable to equal or exceed the life (including storage and disposal) of the drum.

1.12 CONTRACTOR STORAGE TRAILER(S) AND BUILDING(S): The Contractor shall place or paint a sign on all of his storage trailer(s) and building(s) used on this contract. At a minimum, the sign shall contain the name of the Contractor and a telephone number at which the Contractor can be reached. The trailer(s) and building(s) shall be complete with gates and/or doors which can be locked. Only material for this project shall be stored in the trailer(s) or building(s). The Contractor shall remove the storage trailer(s) or building(s) within 30 days after completion of the contract and prior to submitting his final invoice. The area around the storage trailer(s) and building(s) shall be kept clean. This includes the mowing of grass during the growing season. The lawn mower shall be supplied by the Contractor.

A. The Contractor will be given a lot in the Contractor Storage Area behind Bldg 2700 for the life of the contract. The Contractor's progress schedule shall include a line item (equal to 1%) for final cleanup of this storage lot. Final payment will not be made until this final cleanup is performed by the Contractor and accepted by the contracting Officer or authorized representative.

1.13 CONSTRAINTS:

A. All contractor and subcontractor personnel shall have photo identification available at all times. This identification shall be visible at all times. All vehicles operated by the contractor or subcontractors shall have visible identification showing name of represented company.

1.14 PHASING:

A. The 45 days following Contractor's Notice to Proceed will be allowed for delivery of materials, equipment ordering, and submittal approval only. No on-site work shall be permitted by the Contractor during that initial 45 day period.

B. After the submittal phase, the asbestos abatement (Phase II) will take 95 days and construction (Phase III) will take 75 days.

C. The Contractor shall not proceed to Phase III until the completion of Phase II.

1.15 AFFIRMATIVE PROCUREMENT:

A. The contractor shall incorporate Affirmative Procurement requirements as per 40 CFR, Part 247 and Executive Order 13101: "Greening the Government Through Waste Prevention, Recycling and Federal Acquisition." Designated items used in the execution of this contract shall meet or exceed the Environmental Protection Agency's (EPA) requirements for recycled content materials (RCM) as per the EPA's Comprehensive Procurement Guidelines (CPG).

The contractor/engineer shall ensure affirmative procurement requirements for CPG items are met or provide written justification that: 1) The price of a given designated item is unreasonably high, 2) There is inadequate competition (not enough sources of supply), 3) Unusual and unreasonable delays would result from obtaining the item, or

4) The item does not meet the Air Force's performance specifications. Individual specifications contained in this contract may or may not reference the permitted use of a recycled/recovered material. Recycled/recovered materials shall be used in the quantities set forth in the EPA's CPG whether specified or not. The following products are on the CPG list and the contractor must meet the minimum percentages: fiberglass insulation, carpet cushion, concrete containing fly ash, and steel restroom dividers.

END OF SECTION 01000

SECTION 02051

ASBESTOS REMOVAL, CLEANUP & DISPOSAL

1.1 GENERAL: The term abate, as used in the plans and specifications, shall mean to remove, clean up, and dispose of asbestos containing materials (ACM). The work covered by this section includes the removal, cleanup, and disposal of materials containing asbestos.

1.2 DOCUMENTATION OF PERFORMANCE IN ASBESTOS REMOVAL:

A. The Contractor shall furnish documentation of successful performance in asbestos removal. This documentation will include names and addresses of purchasers of services and location of work performed.

B. The Contractor shall have at all times in his possession at his office (one copy) and in view at the job site (one copy) OSHA Regulation 29 CFR 1926.1101; Asbestos and Environmental Protection Agency 40 CFR, Part 61, Subpart B: National Emission Standard for Asbestos, Asbestos Stripping Work Practices, and Disposal of Asbestos Waste; N.C. General Statute 130A, Article 19, Asbestos Hazard Management.

1.3 REGULATORY REQUIREMENTS:

A. All asbestos removal cleanup, and disposal shall be made in accordance with:
   1. N.C. General Statute 130A, Article 19 and OSHA Regulation 1926.1101 - Asbestos, permissible exposure limits for asbestos shall apply to all air samples:
      a. Amosite 0.01 fibers/cc
      b. Chrysotile 0.01 fibers/cc:
      c. Crocidolite 0.01 fibers/cc:
      d. All others 0.01 fibers/cc

B. EPA 40 CFR, Part 61, Subpart B - National Emission Standard for Asbestos, Asbestos Stripping, Stripping Work Practice, and Disposal of Asbestos Waste.

C. Other State and Local Agency Requirements.

1.4 SUBMITTALS:

A. Pre Removal Plan: Submit a detailed plan of the work procedures to be used in the removal and demolition of materials containing asbestos. The preremoval plan must be approved and signed by an N. C. State accredited Asbestos Abatement Project Designer. Such plan shall include location of asbestos control areas, change rooms, layout of change rooms, interface of trades involved in the construction, sequencing of asbestos related work, disposal plan, type of wetting agent and asbestos sealer to be used, air monitoring, and a detailed description of the method to be employed in order to control pollution. Provide copies of all notifications sent to agencies. This plan must be approved prior to the start of any asbestos work. Include North Carolina Asbestos

Accreditation Certificates for each worker and Accredited Supervisor and Asbestos Removal Permits/Notifications when removal quantities require by N.C. Statute 130A, Article 19.

B. Submit personnel and space air monitoring and final clearance reports.

C. Training: Submit certificates signed by each employee that the employee has received current accredited training within 12 months of scheduled removal work in the proper handling of materials that contain asbestos; understands the health implications and risks involved, including the illnesses possible from exposure to airborne asbestos fibers; understands the use and limits of the respiratory equipment to be used; and understands the results of monitoring of airborne quantities of asbestos as related to health and respiratory equipment.

D. Return manifest signed by company or landfill accepting custody of asbestos waste within 24 hours. Minimum information on the manifest shall include: date of disposal, quantity, sources of asbestos waste type of insulation (pipe, duct, etc.), name of certified/licensed asbestos removal Contractor.

1.5 REMOVAL, CLEANUP AND PREPARATION: The Contractor shall have proper dress and equipment for all personnel. The Contractor shall provide proper decontamination facilities. The method of asbestos removal shall be conducted as required by regulation. Work areas shall be decontaminated prior to resuming other activities.

1.6 PHASING AND SCOPE: Phasing of asbestos removal will be coordinated by the general Contractor and approved by the Contracting Officer per the removal plan.

END OF SECTION 02051

SECTION 02070

SELECTIVE DEMOLITION

1.1 GENERAL

A. Definitions:

1. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
2. Remove and Salvage: Detach items from existing construction and deliver them to the Government.
3. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
4. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

B. Materials Ownership: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Government 's property, demolished materials shall become Contractor's property and shall be removed from Project site.

C. Submittals:

1. Proposed dust-control and noise-control measures.
2. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition work, interruption of utility services, use of elevator and stairs, and locations of temporary partitions and means of egress.
3. Predemolition Photographs: Show existing conditions of adjoining construction and site improvements.

D. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

E. Standards: Comply with ANSI A10.6 and NFPA 241.

F. Project Conditions:

1. The Government will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so the Government 's operations will not be disrupted. Provide not less than 48 hours' notice to the Government of activities that will affect the Government 's operations.
2. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
3. the Government assumes no responsibility for condition of areas to be selectively demolished.

a. Conditions existing at time of inspection for bidding purpose will be maintained by the Government as far as practical.

G. Storage or sale of removed items or materials on-site will not be permitted.

H. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

1.2 PRODUCTS

A. Repair Materials: Use repair materials identical to existing materials.

1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
2. Use materials whose installed performance equals or surpasses that of existing materials.

1.3 EXECUTION

A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

B. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to the Contracting Officer or authorized representative.

C. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

D. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

E. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.

F. Utility Requirements: Locate, identify, disconnect, shut off, and seal or cap off indicated utilities serving areas to be selectively demolished.

1. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.

G. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.

H. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Erect temporary protection, such as walks, barricades, roping, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
2. Protect existing site improvements, appurtenances, and landscaping to remain.

I. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

J. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

K. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.

L. Temporary Shoring: Provide and maintain interior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

M. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.

N. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

O. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

P. Selective Demolition: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.

2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations. Any use of “open flame” devices for demolition or construction shall require a burning permit. Contact the base Fire department prior to use of equipment.
4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

Q. Removed and Salvaged Items: Comply with the following:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to the Government.
4. Protect items from damage during transport and storage.

R. Removed and Reinstalled Items: Comply with the following:

1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

S. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Contracting Officer or authorized representative, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

T. Patching and Repairs: Promptly repair damage to adjacent construction caused by selective demolition operations.

1. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
2. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

U. Disposal of Demolished Materials: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

1. Burning: Do not burn demolished materials.
2. Disposal: Transport demolished materials off the Government's property and legally dispose of them.

END OF SECTION 02070

SECTION 02300

EARTHWORK

1.1 GENERAL

A. Definitions in this Section include the following:

1. Backfill: Soil materials used to fill an excavation.
2. Base Course: Layer placed between the subbase course and asphalt paving.
3. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.
4. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
5. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.
6. Excavation: Removal of material encountered above subgrade elevations.
7. Fill: Soil materials used to raise existing grades.
8. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
9. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.
10. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
11. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

B. Existing Utilities: Do not interrupt utilities serving facilities occupied by the Government or others unless permitted in writing and then only after arranging to provide temporary utility services according to requirements indicated.

1.2 PRODUCTS

A. Soil Materials: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols.

D. Backfill and Fill: Satisfactory soil materials.

E. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (38-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

F. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

G. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (38-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

H. Detectable Warning Tape: Polyethylene film warning tape encasing a metallic core, minimum 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

1.3 EXECUTION

A. Preparation: Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Provide erosion- and sedimentation-control measures.

C. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

D. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

E. Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

F. Excavate for structures, pavements, and walks to indicated elevations and dimensions. Extend excavations for placing and removing concrete formwork, for installing services and other construction, and for inspections. Trim bottoms to required lines and grades to leave solid base to receive other work.

G. Excavate utility trenches to indicated gradients, lines, depths, and invert elevations of uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit.

1. Excavate trenches deeper than bottom of pipe elevation, 6 inches (150 mm) deeper in rock, 4 inches (100 mm) deeper elsewhere. Hand excavate for bell of pipe.

H. Proof roll subgrades, before filling or placing aggregate courses, with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.

I. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities.

J. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by the Contracting Officer or authorized representative.

K. Stockpile borrow materials and satisfactory soil materials, without intermixing, in shaped, graded, drained, and covered stockpiles. Stockpile soil materials away from edge of excavations and outside drip line of remaining trees.

L. Utility Trench Backfill: Place, compact, and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.

1. Place and compact initial backfill of satisfactory soil material or subbase material, free of particles larger than 1 inch (25 mm), to a height of 12 inches (300 mm) over the utility pipe or conduit. Place and compact final backfill of satisfactory soil material to final subgrade.
2. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

M. Fill: Place and compact fill material in layers to required elevations.

N. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

1. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

O. Compaction: Place backfill and fill materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

P. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill material at 95 percent.

2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill material at 92 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill material at 85 percent.

Q. Grading: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated. Grade lawns, walks, and unpaved subgrades to tolerances of plus or minus 1 inch (25 mm) and pavements and areas within building lines to plus or minus 1/2 inch (13 mm).

R. Subbase and Base Courses: Under pavements and walks, place subbase course on prepared subgrade. Place base course material over subbase. Compact to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

S. Under slabs-on-grade, place drainage course on prepared subgrade. Compact to required cross sections and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

T. Testing Agency: The Contractor will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing. 2 Tests shall be provided for each pipe trench. 2 tests shall be provide for each footing.

1. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
2. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

U. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction.

V. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

W. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off the Government's property.

END OF SECTION 02300

SECTION 02510

WATER DISTRIBUTION

1.1 GENERAL

A. Comply with requirements of utility supplying water.

B. Comply with standards of Contracting Officer for water-service piping.

C. Comply with NSF 61 for materials for potable water.

D. Provide listing/approval stamp, label, or other marking on piping and specialties made to specified standards.

E. Submittals: Submit the following:

1. Product Data: For valves (NRS, OS&Y), tapping sleeve and valve, underground piping materials, and fittings.
2. Approved Site Plan Drawings: Working plans, prepared according to NFPA 13 and 24 that have been approved by Contracting Officer.
3. Field test reports and certificates: Include “Contractor’s Material and Test Certificate for Underground Piping”, purging and disinfecting reports, and hydrostatic test.
4. Warranty: Provide manufacturer’s written warranty for pipe.

1.2 PRODUCTS

A. Pipes and Tubes: Applications of the following pipe and tube materials are indicated in "Piping Applications" Paragraph.

1. Ductile-Iron, Push-on-Joint Pipe: AWWA C151, with cement-mortar lining and seal coat. Include rubber compression gasket.

B. Pipe and Tube Fittings: Applications of the following pipe and tube fitting materials are indicated in "Piping Applications" Paragraph.

1. Ductile-Iron, Push-on-Joint Fittings: AWWA C110, ductile-iron or cast-iron; or AWWA C153, ductile-iron, compact type. Include cement-mortar lining, seal coat, and rubber compression gaskets.

C. Joining Materials: Applications of the following piping joining materials are indicated in "Piping Applications" Paragraph.

1. Ductile-Iron Piping: The following materials apply:

a. Push-on Joints: AWWA C111 rubber gaskets and lubricant.

2. Pipe Couplings: Iron-body sleeve assembly, fabricated to match OD of pipes to be joined. Include sleeve, followers, gaskets, bolts and nuts, and enamel-paint finish.

D. Nonrising-Stem Gate Valves, 4-Inch NPS (DN100) and Larger: UL 262, FM approved, iron body and bonnet with flange for indicator post, bronze seating material, inside screw, 175-psig (1200-kPa) working pressure, and mechanical-joint ends. Provide with flanged ends for pit installation.

E. Rising-Stem Gate Valves, 3-Inch NPS (DN80) and Larger: AWWA C509, resilient seated; cast-iron or ductile-iron body and bonnet, OS&Y, bronze stem, 200-psig (1380-kPa) working pressure, and flanged ends.

F. Nonrising-Stem Gate Valves, 2-Inch NPS (DN50) and Smaller: MSS SP-80; body and screw bonnet of ASTM B 62 cast bronze; with Class 125 threaded ends, solid wedge, nonrising copper-silicon-alloy stem, brass packing gland, PTFE-impregnated packing, and malleable-iron handwheel.

G. Valve Boxes: Cast-iron box with top section and cover with lettering "WATER," bottom section with base of size to fit over valve and barrel approximately 5 inches (125 mm) in diameter, and adjustable cast-iron extension of length required for depth of bury of valve. Include steel tee-handle wrench with each valve box.

H. Service Boxes for Curb Stops: Cast-iron box with telescoping top section of length required for depth of bury of valve. Include cover with lettering "WATER," and bottom section with base of size to fit over curb-stop and barrel approximately 3 inches (75 mm) in diameter. Include steel tee-handle shutoff rod with each service box.

I. Ball Valves: AWWA C507, Class 250. Include interior coating according to AWWA C550.

J. Tapping Sleeve and Tapping Valve: Complete assembly, including tapping sleeve, tapping valve, and bolts and nuts. Use sleeve and valve compatible with tapping machine.

1. Tapping Sleeve: Cast- or ductile-iron, 2-piece bolted sleeve with flanged outlet for new branch connection. Sleeve may have mechanical-joint ends with rubber gaskets or sealing rings in sleeve body. Include sleeve matching size and type of pipe material being tapped and of outlet flange required for branch connection.

K. Anchorage Materials are as follows:

1. Steel: ASTM A 506, clamps, straps, and washers; ASTM A 575, rods; and ASTM A 307, bolts.
2. Iron: ASTM A 197 (ASTM A 197M), malleable-iron rod couplings and ASTM A 126, gray-iron washers.
3. Concrete Reaction Backing: Portland cement concrete mix, 3000 psig (20.7 MPa); with cement according to ASTM C 150, Type I; sand and crushed gravel according to ASTM C 33; and potable water.

L. Refer to Section 02300 "Earthwork" for underground warning tape materials. Arrange for warning tapes made of solid blue film with continuously printed black-letter caption "CAUTION--WATER LINE BURIED BELOW."

1.3 EXECUTION

A. Refer to Section 02300 "Earthwork" for excavation, trenching, and backfilling.

B. Piping Applications: Use pipe, fittings, and joining methods for piping systems according to the following applications:

1. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used in applications below, unless otherwise indicated.

2. Fire-Protection Water-Service Piping: Use ductile-iron, push-on-joint pipe and fittings; and gasketed joints.

C. Valve Applications: Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Underground Valves, 4-Inch NPS (DN100) and Larger: UL/FM, gate valves, nonrising stem, with indicator post.
2. Pit Installation Valves, 2-1/2-Inch NPS (DN65) and Larger: UL/FM, OS&Y gate valves.
3. Pit Installation Valves, 2-Inch NPS (DN50) and Smaller: MSS, nonrising-stem gate valves.

D. Joint Construction:
1. Ductile-Iron Piping, Gasketed Joints for Fire-Service Piping: According to UL 194 and AWWA C600.

E. Piping Systems - Common Requirements: Drawings indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated, unless deviations to layout are approved on Working Drawings.

1. Install fittings for changes in direction and branch connections.
2. Piping Connections: Unless otherwise indicated, make piping connections as specified below:

a. Install unions, in piping 2-inch NPS (DN50) and smaller, adjacent to each valve and at final connection to each piece of equipment with 2-inch NPS (DN50) or smaller threaded pipe connection.
b. Install flanges, in piping 2-1/2-inch NPS (DN65) and larger, adjacent to flanged valves and at final connection to each piece of equipment with flanged pipe connection.

F. Extend water-service piping and connect to water-supply source.

G. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

H. Anchor service-entry piping to building wall.

I. Piping Installation: Install piping according to the following:

1. Water-Main Connection: Tap water main with size and in location as indicated according to requirements of water utility.
2. Make connections larger than 2-inch NPS (DN50) with tapping machine according to manufacturer's written instructions and AWWA C600. Install valve with stem pointing up and with cast-iron valve box.
3. Comply with NFPA 24 for fire-protection water-service piping materials and installation.
4. Install ductile-iron piping according to AWWA C600.
5. Bury piping with depth of cover over top at least 30 inches (750 mm), with top at least 12 inches (300 mm) below level of maximum frost penetration.

J. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:

1. Gasketed-Joint, Ductile-Iron, Potable-Water Piping: According to AWWA C600.
2. Fire-Service Piping: According to NFPA 24.
3. Apply full coat of asphalt or other acceptable corrosion-retarding material to surfaces of installed ferrous anchorage devices.

K. Valve Installation: Use mechanical-joint-end valves for 3-inch NPS (DN80) and larger underground installation. Use threaded- and flanged-end valves for installation in pits. Use nonrising-stem UL/FM gate valves for installation with indicator posts.

1. AWWA-Type Gate Valves: Comply with AWWA C600. Install underground valves with stem pointing up and with cast-iron valve box.
2. UL/FM-Type Gate Valves: Comply with NFPA 24. Install underground valves and valves in pits with stem pointing up and with vertical cast-iron indicator post.

L. Install fire department connections of types and features indicated. See section 13916 “Fire Suppression Sprinklers”.

M. Install continuous plastic underground warning tape during back-filling of trench for underground water-service piping. Locate 6 to 8 inches (150 to 200 mm) below finished grade, directly over piping.

N. Conduct piping tests before joints are covered and after thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system.

O. Hydrostatic Tests: Test at 1-1/2 times working pressure for 2 hours. Maximum allowable leakage is 2 quarts (1.89 L) per hour per 100 joints. Remake leaking joints with new materials and repeat test until leakage is within above limits.

P. CLEANING

1. Flush, clean and disinfect water distribution piping as follows:

2. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
3. Use purging and disinfecting procedure prescribed by Contracting Officer or, if method is not prescribed by Contracting Officer, use procedure described in NFPA 24 for flushing of piping. Flush piping system with clean, potable water until dirty water does not appear at points of outlet.
4. Use purging and disinfecting procedure prescribed by Contracting Officer or, if method is not prescribed by Contracting Officer, use procedure described in AWWA C651 or as described below:

    a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
    b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for 3 hours.
    c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.
    d. Submit water samples in sterile bottles to Contracting Officer. Repeat procedure if biological examination shows evidence of contamination.

Q. Prepare reports of purging and disinfecting activities.

END OF SECTION 02510

SECTION 02511

HOT-MIX ASPHALT PAVING

1.1 GENERAL

A. Submittals: Product Data, material certificates, and the following:

1. Job-Mix Designs: For each job mix proposed for the Work.

B. Installer Qualifications: Engage an experienced installer who has completed hot-mix asphalt paving similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

C. Manufacturer Qualifications: Manufacturer of hot-mix asphalt shall be a registered and approved paving mix manufacturer with authorities having jurisdiction or with the NCDOT.

D. Regulatory Requirements: Conform to applicable standards of authorities having jurisdiction for asphalt paving work on public property.

E. Asphalt-Paving Publication: Comply with AI's "The Asphalt Handbook," except where more stringent requirements are indicated.

F. Environmental Limitations: Do not apply asphalt materials if substrate is wet or excessively damp or if the following conditions are not met:

1. Prime and Tack Coats: Minimum surface temperature of 60 deg F (15.5 deg C).
2. Asphalt Base Course: Minimum surface temperature of 40 deg F (4 deg C) and rising at time of placement.
3. Asphalt Surface Course: Minimum surface temperature of 60 deg F (15.5 deg C) at time of placement.

G. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F (4 deg C) for oil-based materials, 50 deg F (10 deg C) for water-based materials, and not exceeding 95 deg F (35 deg C).

1.2 PRODUCTS

A. Coarse Aggregate: Sound; angular crushed stone; crushed gravel; or properly cured, crushed blast-furnace slag; complying with ASTM D 692.

B. Fine Aggregate: Sharp-edged natural sand or sand prepared from stone; gravel, properly cured blast-furnace slag, or combinations thereof; complying with ASTM D 1073.

C. Mineral Filler: Rock or slag dust, hydraulic cement, or other inert material complying with ASTM D 242.

D. Asphalt Cement: ASTM D 3381 for viscosity-graded material; ASTM D 946 for penetration-graded material.

E. Prime Coat: ASTM D 2027; medium-curing cutback asphalt; MC-30, MC-70, or MC-250.

F. Prime Coat: Asphalt emulsion prime conforming to state DOT requirements.

G. Tack Coat: ASTM D 977, emulsified asphalt or ASTM D 2397, cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.

H. Herbicide: Commercial chemical for weed control, registered by Environmental Protection Agency (EPA). Provide granular, liquid, or wettable powder form.

I. Pavement-Marking Paint: Alkyd-resin type, ready-mixed, complying with FS TT-P-115, Type I, or AASHTO M-248, Type N.

J. Pavement-Marking Paint: Latex, water-base emulsion, ready-mixed, complying with FS TT-P-1952.

K. Wheel Stops: Precast, air-entrained concrete, 2500-psi (17.2-MPa) minimum compressive strength, approximately 6 inches (150 mm) high, 9 inches (225 mm) wide, and 84 inches (2130 mm) long. Provide chamfered corners and drainage slots on underside, and provide holes and galvanized steel dowels for anchoring to substrate.

L. Hot-Mix Asphalt: Provide dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction; designed according to procedures in AI's "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types"; and complying with the following requirements:

1. Base Course: As indicated.
2. Surface Course: As indicated.

1.3 EXECUTION

A. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.

1. Before placing asphalt materials, remove loose and deleterious material from substrate surfaces.

B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions.

C. Prime Coat: Apply uniformly over surface of compacted-aggregate base at a rate of 0.15 to 0.50 gal./sq. yd. (0.7 to 2.3 L/sq. m). Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure for 72 hours minimum.

D. Tack Coat: Apply uniformly to existing surfaces of previously constructed asphalt or portland cement concrete paving and to surfaces abutting or projecting into new, hot-

mix asphalt pavement. Apply at a uniform rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m) of surface. Allow tack coat to cure undisturbed before paving.

1. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

E. Machine place base and surface courses of hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness, when compacted.

F. Promptly correct surface irregularities in paving course behind paver. Remove excess material and fill depressions with hot-mix asphalt.

G. Construct joints to ensure continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.

H. Compact each hot-mix asphalt course to an average density of 96 percent of reference laboratory density according to ASTM D 1559, but not less than 94 percent nor greater than 100 percent, and to the following tolerances:

1. Thickness: Base course, plus or minus 1/2 inch (13 mm); surface course, plus 1/4 inch (6 mm), no minus.
2. Surface Smoothness: Base course, 1/4 inch (6 mm); surface course, 1/8 inch (3 mm).

I. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt compacted by rolling to specified density and surface smoothness.

J. Apply pavement-marking paint with mechanical equipment to produce pavement markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).

K. Securely attach wheel stops into pavement with not less than 2 galvanized steel dowels embedded in precast concrete at one-third points. Firmly bond each dowel to wheel stop and to pavement.

END OF SECTION 02511

SECTION 02920

LAWNS AND GRASSES

1.1 GENERAL

A. Submittals: In addition to Product Data for each type of product indicated, submit a planting schedule indicating anticipated planting dates.

B. Lawn Maintenance: Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:

1. Seeded Lawns: 60 days from date of Substantial Completion.
2. Mow lawn as soon as top growth is tall enough to cut. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings.

1.2 PRODUCTS

A. Seed Species: Tall Fescue.

B. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 4 percent organic material content; free of stones 1 inch (25 mm) or larger in any dimension and other extraneous materials harmful to plant growth.

1. Topsoil Source: Reuse surface soil stockpiled on-site and supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Verify suitability of stockpiled surface soil to produce topsoil.

C. Fertilizer:

1. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in composition suitable for site conditions.

D. Mulches:

1. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

1.3 EXECUTION

A. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off the Government's property.

1. Apply fertilizer (if needed) directly to subgrade before loosening.

B. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
2. Loosen surface soil to a depth of at least of 6 inches. Apply fertilizer and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
3. Remove stones larger than 2 inches in any dimension and sticks, roots, trash, and other extraneous matter.
4. Legally dispose of waste material, including grass, vegetation, and turf, off the Government's property.

C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1 inch of finish elevation.

D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

E. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

F. Seeding Schedule:

	Rate	Seeding Dates	
Tall Fescue	100 lb/acre	Fall – Best	Aug. 25 – Sept. 15
		Fall – Possible	Aug. 20 – Oct. 15
		Late Winter	Feb. 15 – Mar. 21
Soil Amendments			
Apply lime (ground agricultural limestone)	4,000 lb/acre		
10-10-10 Fertilizer	1,000 lb/acre		

1. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.
2. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
3. Protect seeded areas from hot, dry weather or drying winds within 24 hours after completing seeding operations. Soak and scatter uniformly to a depth of 3/16 inch and roll to a smooth surface.

G. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.

H. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

END OF SECTION 02920

SECTION 03300

CAST-IN-PLACE CONCRETE

1.1 GENERAL

A. Submittals: In addition to Product Data, submit design mixes and the following for each concrete mix:

1. Shop Drawings detailing fabrication, bending, and placement.
2. Material certificates signed by product manufacturers certifying that product complies with requirements.

B. Quality Assurance: Comply with ACI 301, "Specification for Structural Concrete," and ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

1. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

1.2 PRODUCTS

A. Steel Reinforcement: As follows:

1. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
2. Plain-Steel Wire: ASTM A 82, as drawn.
3. Plain-Steel Welded Wire Fabric: ASTM A 185, flat sheets.

B. Concrete Materials: As follows:

1. Portland Cement: ASTM C 150, Type I.
2. Aggregate: ASTM C 33, uniformly graded, from a single source throughout the project.
3. Water: ASTM C 94, shall be clean, fresh, free from oil, organic matter, or other deleterious substances.
4. Air-Entraining Admixture: ASTM C 260, Products shall be (or approved equal):
   a. Air-Mix or AEA 92 by the Euclid Chemical Company.
   b. MB-VR by Master Builders.
   c. Darex Series or Daravair Series by W.R. Grace & Co.
5. Water-Reducing Admixture: ASTM C 494, Type A. Shall not contain more chloride ions than are present in municipal drinking water. Products shall be (or approved equal):
   a. Eucon WR-75 by The Euclid Chemical Company.
   b. Pozzolith 200N by Master Builders.
   c. WRDA Series by W.R. Grace & Co.
6. High-Range, Water-Reducing Admixture (Superplasticizer): ASTM C 494, Type F. Shall not contain more chloride ions than are present in municipal drinking water. Products shall be (or approved equal):

a. Eucon 37 by The Euclid Chemical Company.
b. Rheobuild 1000 by Master Builders.
c. ADVA Series or Davacon Series by W.R. Grace & Co.

7. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E. Shall not contain more chloride ions than are present in municipal drinking water. The admixture manufacturer must have long-term non-corrosive test data from an independent testing laboratory (of at least a year's duration) using an acceptable accelerated corrosion test method such as that using electrical potential measures. Products shall be (or approved equal):
   a. Accelguard 80 by The Euclid Chemical Company.
   b. Polarset or Lubricon NCA by W. R. Grace Company.
8. Water-Reducing and Retarding Admixture: ASTM C 494, Type D. Water Reducing, Retarding Admixture: Shall not contain more chloride ions than are present in municipal drinking water. Products shall be (or approved equal):
   a. Eucon Retarder-75 by The Euclid Chemical Company.
   b. Possolith 100XR by Master Builders.
   c. Daratard-17 by W.R. Grace & Co.
9. Fly Ash: ASTM C 618, Type F. Fly ash shall be obtained from one source for the concrete delivered to the project and not exceed 20 percent of the total cementitous material.

C. Related Materials: As follows:
1. Self-Expanding Strip Waterstops: Rectangular or trapezoidal strip, sodium bentonite or other hydrophylic material.
2. Vapor Retarder: Polyethylene sheet, ASTM D 4397, thickness on Drawings.
3. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
4. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
5. Epoxy-Bonding Adhesive: ASTM C 881, two-component epoxy resin, of type, class, and grade to suit requirements.

D. Curing Materials: As follows:

1. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
2. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.
3. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
4. Clear, Solvent-Borne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
5. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
6. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
7. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

E. Concrete Mixes: Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, with the following properties:

1. Compressive Strength (28 Days): 4,500 psi or as indicated on Drawings.
2. Slump: 4 inches.
3. Air Content: 4.5 to 7.0 percent for all exterior concrete subject to freezing and thawing.

F. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

G. Non-shrink Grout:
1. The non-shrink grout shall be:
   a. Euco NS by The Euclid Chemical Company.
   b. Five Star Grout by the U.S. Grout Corporation.

   The factory pre-mixed grout shall conform to ASTM C1107, “Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink).” In addition, the grout manufacturer shall furnish test data from an independent laboratory indicating that the grout when placed at a fluid consistency shall achieve 95 percent bearing under a 4' x 4' base plate.

2. The high flow grout shall be used where high fluidity and/or increase placing time is required. Products shall be:
   a. Euco Hi-Flow Grout by The Euclid Chemical Company.
   b. Masterflow 928 by Master Builders.

   The factory pre-mixed grout shall conform to ASTM C1107, “Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-Shrink).” In addition, the grout manufacturer shall furnish test data from an independent laboratory indicating that the grout when placed at a fluid consistency shall achieve 95 percent bearing under a 18” x 36” base plate.

1.3 EXECUTION

A. Design, construct, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.

B. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

C. Leave formwork, for beam soffits, joists, slabs, and other structural elements, that supports weight of concrete in place until concrete has achieved 28-day design compressive strength.

D. Comply with ACI 318, ACI 301, and recommendations in ACI 347R for design, installation, and removal of shoring and reshoring.

E. Vapor Retarder: Place, protect, and repair vapor-retarder sheets according to ASTM E 1643.

F. Steel Reinforcement: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

G. Joints: Locate and install construction, isolation, and contraction joints.

H. Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions.

I. Concrete Placement: Deposit concrete continuously and avoid segregation. Deposit concrete in forms in horizontal layers no deeper than 24 inches, avoiding cold joints.

1. Consolidate concrete with mechanical vibrating equipment.
2. Screed and initial-float concrete floors and slabs using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
3. Comply with ACI 306.1 for cold-weather concrete placement.
4. Place concrete according to recommendations in ACI 305R when hot-weather conditions exist.

J. Finish formed surfaces as follows:

1. Apply rough-formed finish, defined in ACI 301, to concrete surfaces indicated or not exposed to public view.
2. Apply smooth-formed finish, defined in ACI 301, to concrete surfaces indicated and exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.
3. Apply smooth-rubbed finish to smooth-formed finished concrete surfaces indicated or exposed to public view.

K. Finishing Floors and Slabs: Comply with recommendations in ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Finish unformed surfaces as follows:

1. Float Finish: Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing.
2. Trowel Finish: Apply a hard trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.
3. Nonslip Broom Finish: Apply a nonslip broom finish to surfaces indicated and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.

L. Concrete Protection and Curing: Protect concrete from excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.

1. Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause excessive moisture loss.
2. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
3. Cure formed and unformed concrete for at least seven days by moisture curing, moisture-retaining-cover curing, or curing compound.
4. Cure and seal floors and slabs with a curing and sealing compound according to manufacturer's written instructions.

M. Testing Agency: Contractor shall engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement.

N. Testing: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd., but less than 50 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.
3. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
5. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
6. Compression Test Specimens: ASTM C 31 cast and laboratory cure one set of four standard cylinder specimens for each composite sample.

O. Defective Concrete: Repair and patch defective areas when approved. Remove and replace concrete that cannot be repaired and patched.

END OF SECTION 03300

SECTION 04810

UNIT MASONRY ASSEMBLIES

1.1 GENERAL

A. Submittals: In addition to Product Data, submit the following:
   1. Samples showing the full range of colors and textures available for exposed masonry units.
   2. Material Certificates: For each type of masonry unit required.

B. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.

C. Cold-Weather Requirements: Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

D. Hot-Weather Requirements: When ambient temperature exceeds 100 deg F (38 deg C), or 90 deg F (32 deg C) with a wind velocity greater than 8 mph (13 km/h), do not spread mortar beds more than 48 inches (1200 mm) ahead of masonry. Set masonry units within one minute of spreading mortar.

1.2 PRODUCTS

A. Color and Texture: As indicated by manufacturer's designations.

B. Concrete Masonry Units: ASTM C 90 and as follows:

   1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi (13.1 MPa).
   2. Weight Classification: Normal weight.
   3. Provide Type II, nonmoisture-controlled units.
   4. Provide special shapes for lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.

C. Face Brick: ASTM C 216, Grade MW or SW, Type FBS.
   1. Initial Rate of Absorption: Less than 20 g/30 sq. in. per minute when tested per ASTM C 67.
   2. Efflorescence: When tested per ASTM C 67 and brick is rated "not effloresced."
   3. Size: Match dimensions of existing adjacent face brick.
   4. Color: Match existing adjacent face brick.

D. Mortar and Grout Materials: As follows:

   1. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction.

2. Hydrated Lime: ASTM C 207, Type S.
3. Mortar Cement: ASTM C 1329.
4. Masonry Cement: ASTM C 91.
5. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.

    a. Colored-Mortar Aggregates: Natural-colored sand or ground marble, granite, or other sound stone; of color necessary to produce required mortar color.

6. Aggregate for Grout: ASTM C 404.
7. Epoxy Pointing Mortar: ASTM C 395, epoxy-resin-based material formulated for use as pointing mortar for structural-clay tile facing units.
8. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by the manufacturer for use in masonry mortar of composition indicated.
9. Water: Potable.

E. Steel Reinforcing Bars: ASTM A 615, Grade 60.

F. Masonry Joint Reinforcement: ASTM A 951; mill galvanized, carbon-steel wire for interior walls and hot-dip galvanized, carbon-steel wire for exterior walls.

1. Wire Size for Side Rods: W1.7 or 0.148-inch diameter.
2. Wire Size for Cross Rods: W1.7 or 0.148-inch diameter.
3. For single-wythe masonry, provide either ladder or truss type with single pair of side rods and cross rods spaced not more than 16 inches o.c.

G. Concealed Flashing: For flashing not exposed to the exterior, use one of the following, unless otherwise indicated:

1. Copper-Laminated Flashing: Manufacturer's standard laminated flashing consisting of 5-oz./sq. ft. sheet copper bonded with asphalt between 2 layers of glass-fiber cloth.

2. Rubberized-Asphalt Flashing: Manufacturer's standard composite flashing product consisting of a pliable and highly adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of 0.030 inch.

3. Elastomeric Thermoplastic Flashing: Manufacturer's standard composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy 0.025 inch thick with a 0.015-inch-thick layer of rubberized-asphalt adhesive.

4. EPDM Flashing: Manufacturer's standard flashing product formed from a terpolymer of ethylene-propylene diene, complying with ASTM D 4637, 0.040 inch thick.

H. Miscellaneous Masonry Accessories: As follows:

1. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; formulated from neoprene, urethane or PVC.
2. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

I. Loose-Granular Fill Insulation: Perlite complying with ASTM C 549, Type II or IV.

J. Masonry Cleaners: As follows:

1. Job-Mixed Detergent Solution: Solution of 1/2-cup dry measure tetrasodium polyphosphate and 1/2-cup dry measure laundry detergent dissolved in 1 gal. of water.

K. Mortar and Grout Mixes: Do not use admixtures, unless otherwise indicated. Do not use calcium chloride in mortar or grout.

1. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification.

a. Extended-Life Mortar for Unit Masonry: Mortar complying with ASTM C 1142 may be used instead of mortar specified above, at Contractor's option.
b. Limit cementitious materials in mortar to portland cement, mortar cement, and lime.
c. For masonry below grade, in contact with earth, and where indicated, use Type S.
d. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.

2. Grout for Unit Masonry: Comply with ASTM C 476.

a. Use grout of type (fine or coarse) that will comply with Table 5 of ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
b. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143.

1.3 EXECUTION

A. Cut masonry units with motor-driven saws. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

C. Comply with tolerances in ACI 530.1/ASCE 6/TMS 602 and the following:

1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/4 inch in 20 feet, nor 1/2 inch maximum.
2. For conspicuous horizontal lines, such as exposed lintels, sills, parapets, and reveals, do not vary from level by more than 1/4 inch in 20 feet, nor 1/2 inch maximum.

D. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

E. Bond Pattern for Exposed Masonry: Lay exposed masonry in bond pattern indicated; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

F. Built-in Work: As construction progresses, build in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.

G. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

H. Lay hollow masonry units as follows:

1. With full mortar coverage on horizontal and vertical face shells.
2. Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.
3. For starting course on footings where cells are not grouted, spread out full mortar bed, including areas under cells.

I. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than the joint thickness, unless otherwise indicated.

J. Provide continuous masonry joint reinforcement as indicated. Install with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.

1. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections.

K. Provide masonry lintels where shown. Provide precast lintels made from concrete matching concrete masonry units in color, texture, and compressive strength and with reinforcing bars indicated or required to support loads indicated.

L. Embedded Flashing: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

M. Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing.

1. Use round plastic tubing, or open head joints to form weep holes.
2. Space weep holes 16 inches o.c.

N. Temporary Formwork and Shores: Construct formwork and shores to support reinforced masonry elements during construction.

1. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.

O. Placing Reinforcement: Comply with requirements of ACI 530.1/ASCE 6/TMS 602.

P. Grouting: Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.

1. Comply with requirements of ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

Q. Cleaning: Clean unit masonry as follows:

1. By dry brushing to remove mortar fins and smears before tooling joints, as work progresses.
2. After mortar is thoroughly set and cured, clean exposed masonry as follows:

a. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
b. Protect adjacent surfaces from contact with cleaner.
c. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfaces thoroughly with clear water.
d. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain on exposed surfaces.

R. Masonry Waste Disposal: Dispose of clean masonry waste, including broken masonry units, waste mortar, and excess or soil-contaminated sand, by crushing and mixing with fill material as fill is placed.

1. Do not dispose of masonry waste as fill within 18 inches of finished grade.
2. Remove excess, clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off the Government's property.

END OF SECTION 04810

SECTION 05521

PIPE AND TUBE RAILINGS

1.1 SUMMARY

A. This Section includes pipe and tube handrails and railings made of the following:

1. Stainless steel.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance of Handrails and Railings:

1. Comply with ASTM E 985, based on testing per ASTM E 894 and ASTM E 935.
2. Capable of withstanding structural loads required by ASCE 7 without exceeding allowable design working stresses of materials involved.
3. Capable of withstanding the following structural loads without exceeding the allowable design working stress of materials involved:

a. Top Rail of Guards: Concentrated load of 200 lbf (890 N) applied at any point and in any direction, and a uniform load of 50 lbf/ft. (730 N/m) applied horizontally and concurrently with uniform load of 100 lbf/ft. (1460 N/m) applied vertically downward. Concentrated and uniform loads need not be assumed to act concurrently.

1.3 SUBMITTALS

A. Shop Drawings: Include plans, elevations, sections, details of installation, attachments to other Work.

1.4 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Stainless-Steel Pipe and Tube Railings:

a. Alumaguard.
b. Architectural Art Mfg., Inc.
c. Stainless Fabricators, Inc.

1.5 METALS

A. Stainless Steel:

1. Tubing: ASTM A 554, Grade MT [304] [316L].
2. Pipe: ASTM A 312/A 312M, Grade TP [304] [316L].
3. Plate: ASTM A 666, Type [304] [316L].
4. Castings: ASTM A 743/A 743M, Grade [CF 8 or CF 20] [CF 8M or CF 3M].

1.6 MISCELLANEOUS MATERIALS

A. Welding Electrodes and Filler Metal: Provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

B. Fasteners: Same basic metal as fastened metal; concealed, unless otherwise indicated or unavoidable, and standard with systems indicated.

C. Anchors: Fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined per ASTM E 488.

D. Shop Primers: Provide primers to comply with applicable requirements in Division 9 Section "Painting."

E. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664; with good resistance to corrosion; and compatible with finish paint systems indicated.

F. Shop Primer for Galvanized Steel: SSPC-Paint 5, zinc-dust, zinc-oxide primer formulated for priming zinc-coated steel and for compatibility with finish paint systems indicated.

1.7 FINISHES

A. Stainless Steel:

1. 180-Grit Polished Finish: Oil-ground, uniform, textured finish.
2. 320-Grit Polished Finish: Oil-ground, uniform, smooth finish.

1.8 INSTALLATION

A. General: Perform cutting, drilling, and fitting required to install handrails and railings. Set units accurately in location, alignment, and elevation.

1. Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
2. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
3. Align rails so variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).

B. Attach handrails to wall with wall brackets.

1. For wood stud partitions, use hanger or lag bolts set into wood backing between studs.
2. For steel-framed gypsum board assemblies, use hanger or lag bolts set into wood backing between studs or fasten to steel framing or concealed reinforcements using self-tapping screws of size and type required to support structural loads.

END OF SECTION 05521

SECTION 06105

MISCELLANEOUS CARPENTRY

1.1 GENERAL

A. Submittals:

1. Product Data: For wood-preservative and fire-retardant treatment from chemical treatment manufacturers and certification by treating plants that treated materials comply with requirements.

1.2 PRODUCTS

A. Lumber, General: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review. Factory mark each piece of lumber with grade stamp of grading agency.

1. For exposed lumber, mark grade stamp on end or back of each piece.
2. Provide dressed lumber, S4S, unless otherwise indicated.
3. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

B. Wood-Preservative-Treated Materials: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

1. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
2. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
3. Application: Treat items indicated on Drawings, and the following:

a. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
b. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
c. Wood framing members less than 18 inches (460 mm) above grade.
d. Wood floor plates that are installed over concrete slabs directly in contact with earth.

C. Fire-Retardant-Treated Materials: Where fire-retardant-treated materials are indicated, provide materials that comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Use Exterior type for exterior locations and where indicated.
2. Use Interior Type A High Temperature (HT), unless otherwise indicated.

D. Provide miscellaneous lumber for support or attachment of other construction.

1. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade lumber with 19 percent maximum moisture content of any species.
2. For exposed boards, provide lumber, with 15 percent maximum moisture content, of eastern white pine, Idaho white, lodgepole, ponderosa, or sugar pine; Finish or 1 Common (Colonial) grade; NELMA, NLGA, WCLIB, or WWPA.
3. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

   a. Mixed southern pine, No. 2 grade; SPIB.
   b. Eastern softwoods, No. 2 Common grade; NELMA.
   c. Northern species, No. 2 Common grade; NLGA.
   d. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

E. Shelving: 3/4-inch (19-mm) boards of same species and grade indicated above for exposed boards.

F. Clothes Rods: 1-1/2-inch- (38-mm-) diameter, clear, kiln-dried hardwood rods oraluminum tubes.

G. Miscellaneous Concealed Plywood: Exterior sheathing, span rating to suit framing in each location, and thickness as indicated but not less than 1/2 inch (13 mm).

H. Miscellaneous Concealed Oriented Strand Board: Exposure 1 sheathing, span rating to suit framing in each location, and thickness as indicated but not less than 1/2 inch (13 mm).

I. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2 inch (12.7 mm) thick.

J. Fasteners: Provide fasteners of size and type indicated.

1. Where carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
2. Power-Driven Fasteners: CABO NER-272.
3. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings.

1.3 EXECUTION

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.

C. Countersink fastener heads on exposed carpentry work and fill holes with wood filler.

D. Wood Structural Panels: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.

E. Wood Trim Installation: Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Cope at returns and miter at corners to produce tight-fitting joints. Use scarf joints for end-to-end joints.

1. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.6-mm) maximum offset for reveal installation.

END OF SECTION 06105

SECTION 06402

INTERIOR ARCHITECTURAL WOODWORK

1.1 GENERAL

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips, unless concealed within other construction before woodwork installation.

B. Submittals: In addition to Product Data, submit the following:

1. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
2. Samples of plastic-laminate-clad panel products, for each type, color, pattern, and surface finish.

C. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements.

1. Provide AWI Quality Certification Program certificate indicating that woodwork complies with requirements of grades specified.

D. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.2 PRODUCTS

A. Wood for transparent finish: Red Oak, plain sawn or sliced.

B. Wood Products: Comply with the following:

1. Hardboard: AHA A135.4.
2. Medium-Density Fiberboard: ANSI A208.2, Grade MD.
3. Softwood Plywood: DOC PS 1, Medium Density Overlay.
4. Hardwood Plywood and Face Veneers: HPVA HP-1.

C. High-Pressure Decorative Laminate: NEMA LD 3.

D. Fire-Retardant-Treated Lumber and Plywood: Materials impregnated with fire-retardant chemical formulations to comply with AWPA C20 (lumber) and AWPA C27 (plywood), Exterior Type or Interior Type A. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Kiln-dry material after treatment.

E. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.

F. Fabrication, General: Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible, before shipment to Project site. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Interior Woodwork Grade: Provide Custom grade interior woodwork complying with the referenced quality standard.
2. Shop cut openings to maximum extent possible. Sand edges of cutouts to remove splinters and burrs.
3. Seal edges of openings in countertops with a coat of varnish.

G. Wood Cabinets for Transparent Finish:

1. AWI Type of Cabinet Construction: As indicated.
2. Reveal Dimension: As indicated.
3. Grain Matching: As indicated.
4. Matching of Veneer Leaves: Random Match.
5. Veneer Matching within Panel Face: Running match.
6. Semiexposed Surfaces: Thermoset decorative overlay.

H. Plastic-Laminate Cabinets: As follows:

1. AWI Type of Cabinet Construction: Flush overlay.
2. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:

   a. Horizontal Surfaces Other Than Tops: HGS.
   b. Postformed Surfaces: HGP.
   c. Vertical Surfaces: HGS.
   d. Edges: HGS.

3. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

   a. Provide Contracting Officer or authorized representative selections from laminate manufacturer's full range of colors and finishes.

4. Provide dust panels of 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers, unless located directly under tops.

I. Plastic-Laminate Countertops: As follows:

1. High-Pressure Decorative Laminate Grade: HGS.
2. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
   a. Provide Contracting Officer or authorized representative selections from manufacturer's full range of colors and finishes.

3. Edge Treatment: As indicated.

4. Core Material at Sinks: Particleboard made with exterior glue, medium-density fiberboard made with exterior glue, or exterior-grade plywood.

J. Finish architectural woodwork at fabrication shop. Defer only final touchup, cleaning, and polishing until after installation.

K. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling.

L. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining, and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523:

1. Grade: Custom.
2. AWI Finish System: TR-6, catalyzed polyurethane.
3. Staining: None required.
4. Wash Coat for Stained Finish: Apply a vinyl wash coat to woodwork made from closed-grain wood before staining and finishing.
5. Open-Grain Woods: Do not apply filler to open grain woods.
6. Sheen: Semigloss, 55-75 gloss units.

1.3 EXECUTION

A. Condition woodwork to average prevailing humidity conditions in installation areas and examine and complete work as required, including removal of packing and backpriming before installation.

B. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in this Section for type of woodwork involved.

C. Install woodwork level, plumb, true, and straight to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm). Shim as required with concealed shims.

D. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.

1. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches (400 mm) o.c..

G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop. Caulk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."

END OF SECTION 06402

SECTION 07210

BUILDING INSULATION

1.1 SUMMARY

A. This Section includes the following:

1. Insulation under slabs-on-grade.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

1.3 INSULATING MATERIALS

A. General: Provide insulating materials that comply with requirements and with referenced standards and, for preformed units, in sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.

B. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, 1.60 lb/cu. ft. (26 kg/cu. m), with maximum flame-spread and smoke-developed indices of 75 and 450, respectively.

1.4 AUXILIARY INSULATING MATERIALS

A. Protection Board: Premolded, semirigid asphalt/fiber composition board, 1/4 inch (6 mm) thick, formed under heat and pressure, of standard sizes.

1.5 INSTALLATION

A. General: Install insulation to comply with insulation manufacturer's written instructions applicable to products and application indicated. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

B. Install perimeter insulation on vertical surfaces by setting units in adhesive.

1. If not otherwise indicated, extend insulation a minimum of 24 inches (610 mm) below exterior grade line.
2. Protect below-grade insulation on vertical surfaces from damage during backfilling by applying protection board set in adhesive.

C. Protect top surface of perimeter under slab insulation from damage during concrete work by applying protection board.

END OF SECTION 07210

SECTION 07841

THROUGH-PENETRATION FIRESTOP SYSTEMS

1.1 GENERAL

A. Performance Requirements: Provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.

1. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
2. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E 814, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:

   a. Penetrations located outside wall cavities.
   b. Penetrations located outside fire-resistive shaft enclosures.
   c. Penetrations located in construction containing fire-protection-rated openings.
   d. Penetrating items larger than 4-inch- (100-mm-) diameter nominal pipe or 16 sq. in. (100 sq. cm) in overall cross-sectional area.

3. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.

   a. For piping penetrations for wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
   b. For floor penetrations with annular spaces exceeding 4 inches (100 mm) in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.

4. For through-penetration firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E 84.

B. Submittals: In addition to Product Data for each type of product specified, submit the following:

1. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction, and kind of penetrating item. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction.

2. Product Certificates: Signed by manufacturers of through-penetration firestop system products certifying that products furnished comply with requirements.
3. Product Test Reports: From a qualified testing agency indicating through-penetration firestop system complies with requirements, based on comprehensive testing of current products.

C. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in "Performance Requirements" Paragraph:

1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
2. Through-penetration firestop systems are identical to those tested per ASTM E 814 and bear classification marking of qualified testing and inspecting agency.

1.2 PRODUCTS

A. Products: Subject to compliance with requirements, provide one of the through-penetration firestop systems indicated for each application that are produced by one of the following manufacturers:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following (or approved equal):

1. DAP Inc.
2. Firestop Systems Inc.
3. Hilti Construction Chemicals, Inc.
4. RectorSeal Corporation (The).
5. 3M Fire Protection Products.
6. Tremco.
7. United States Gypsum Company.

C. Firestopping, General: Provide through-penetration firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.

D. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with "Performance Requirements" Paragraph. Use only components specified by through-penetration firestop system manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:

1. Permanent forming/damming/backing materials.
2. Temporary forming materials.
3. Substrate primers.

4. Collars.
5. Steel sleeves.

E. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of this Section by reference to the types of materials described below. Fill materials are those referred to in directories of the referenced testing and inspecting agencies as fill, void, or cavity materials.

1. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
2. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
3. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
4. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
5. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
6. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
7. Mortars: Prepackaged, dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
8. Silicone Sealants: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealants.

1.3 EXECUTION

A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Paragraph and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

C. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:

1. The words: "Warning--Through-Penetration Firestop System--Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Through-penetration firestop system designation of applicable testing and inspecting agency.

4. Date of installation.
5. Through-penetration firestop system manufacturer's name.
6. Installer's name.

END OF SECTION 07841

SECTION 07920

JOINT SEALANTS

1.1 GENERAL

A. Preconstruction Joint-Sealant-Substrate Tests: Submit substrate materials, representative of actual joint surfaces, to joint sealant manufacturer for laboratory testing of joint sealants for adhesion to primed and unprimed substrates and for compatibility with joint substrates and other joint-related materials.

B. Submittals: In addition to Product Data, submit the following:

1. Samples of each type and color of joint sealant required.
2. Test reports for joint sealants evidencing compliance with requirements.

1.2 PRODUCTS

A. Elastomeric Sealant Manufacturers: Subject to compliance with requirements, provide sealants by one of the following (or approved equal):

1. Silicone Sealants:

a. Dow Corning.
b. GE Silicones.
c. NUCO Industries, Inc.
d. Sonneborn Building Products Div., ChemRex Inc.
e. Tremco.

2. Urethane Sealants:

a. Polymeric Systems, Inc.
b. Sonneborn Building Products Div., ChemRex Inc.
c. Tremco.

B. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.

C. Colors: Provide colors indicated for exposed joint sealants or, if not indicated, as selected by Contracting Officer’s Representative from manufacturer's full range for this characteristic.

D. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant of base polymer specified below:

1. Low-Modulus Neutral-Curing Silicone Sealant: Type S, Grade NS, Class 25, and as follows:

    a. Uses NT, G, A, and O.
    b. Additional capability, when tested per ASTM C 719, to withstand the following percentage changes in joint width and still comply with other requirements of ASTM C 920:

        1) 100 percent movement in extension and 50 percent movement in compression for a total of 150 percent movement.

    c. Applications: Window and door frames, thresholds and lintels.

2. Medium-Modulus Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; with the additional capability, when tested per ASTM C 719, to withstand 50 percent movement in both extension and compression for a total of 100 percent movement and still comply with other requirements of ASTM C 920; and as follows:

    a. Uses NT, M, G, A, and O.
    b. Application: Glazing.

3. High-Modulus Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; and as follows:

    a. Uses NT, M, G, A, and O.
    b. Applications: Galvanized steel and miscellaneous aluminum flashing.

4. Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and O; formulated with fungicide; intended for sealing interior joints with nonporous substrates exposed to high humidity and temperature extremes.

5. Single-Component Nonsag Urethane Sealant: Type S; Grade NS; and as follows:

    a. Class 25.
    b. Uses NT, M, A, and O.
    c. Applications: Exterior masonry joints.

E. Latex Sealant: ASTM C 834.

F. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant complying with ASTM C 834.

G. Acoustical Sealant for Concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.

H. Sealant Backings, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

I. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

1. Type O: Open-cell material.

J. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C).

K. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint.

L. Primer: As recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

1.3 EXECUTION

A. General: Comply with joint sealant manufacturer's instructions for products and applications indicated.

B. Sealant Installation Standard: Comply with ASTM C 1193.

C. Acoustical Sealant Application Standard: Comply with ASTM C 919 for use of joint sealants in acoustical applications.

END OF SECTION 07920

SECTION 08110

STEEL DOORS AND FRAMES

1.1 GENERAL

A. Submittals:

1. Product Data and Shop Drawings for each type of door and frame indicated.
2. Door Schedule using same reference designations indicated on Drawings in preparing schedule for doors and frames.

B. Quality Assurance:

1. Comply with ANSI A 250.8, unless more stringent requirements are indicated.

1.2 PRODUCTS

A. Materials:

1. Hot-Rolled Steel Sheets: ASTM A 569/A 569M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
2. Cold-Rolled Steel Sheets: ASTM A 366/A 366M, Commercial Steel (CS), or ASTM A 620/A 620M, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.
3. Metallic-Coated Steel Sheets: ASTM A 653/A 653M, Commercial Steel (CS), Type B, with A40 (ZF120) zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness.
4. Electrolytic Zinc-Coated Steel Sheets: ASTM A 591/A 591M, Commercial Steel (CS), Class B coating; mill phosphatized; suitable for unexposed applications; stretcher-leveled standard of flatness where used for face sheets.

B. Interior Doors: Complying with ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level indicated.

1. Level 2 and Physical Performance Level B, Model 1 (Full Flush)

C. Exterior Doors: Doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:

1. Level 3 and Physical Performance Level A, Model 1 (Full Flush).

D. Frames: Provide steel frames that comply with ANSI A250.8 and with steel sheet thickness as indicated for door level selected below:

1. For Level 2 steel doors, 0.053 inch (1.3 mm).
2. For Level 3 steel doors, 0.067 inch (1.7 mm).

3. Door Silencers: Three silencers on single-door frames and two silencers on double-door frames.
4. Supports and Anchors: Not less than 0.042-inch- (1.0-mm-) thick, zinc-coated steel sheet.
5. Wall Anchors in Masonry Construction: 0.177-inch- (4.5-mm-) diameter, steel wire complying with ASTM A 510 (ASTM A 510M) may be used in place of steel sheet.
6. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.

E. Fabricate steel door and frame units to comply with ANSI A250.8 and to be free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant.

1. Exterior Doors and Frames: Fabricate from metallic-coated steel sheet. Close top and bottom edges of doors flush.
2. Interior Door Faces: Fabricate exposed faces of doors from cold-rolled steel sheet.
3. Core Construction: Manufacturer's standard core construction that produces a door complying with SDI standards.
4. Tolerances: Comply with SDI 117.
5. Prepare doors and frames to receive hardware. Reinforce doors and frames to receive surface-applied hardware. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.
6. Fabricate frames with mitered or coped and continuously welded corners and seamless face joints. Provide temporary spreader bars.
7. Provide nonremovable glazing stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
8. Provide screw-applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.

F. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

1.3 EXECUTION

A. Install doors and frames according to Shop Drawings and manufacturer's data.

1. Frames: Install steel frames for doors and other openings, of size and profile indicated.

a. Provide at least three wall anchors per jamb. For openings 90 inches (2286 mm) or more in height, install an additional anchor at hinge and strike jambs.
b. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is

completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.

1) At existing concrete or masonry construction, set frames and secure in place with machine screws and masonry anchorage devices.

2. Doors: Install to comply with ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G. Fit non-fire-rated doors accurately in their respective frames, with the following clearances:

   a. Jambs and Head: 1/8 inch (3.2 mm).
   b. Meeting Edges, Pairs of Doors: 1/4 inch (6.4 mm).
   c. Bottom: 3/4 inch (19 mm).

B. Adjusting and Cleaning:

1. Prime-Coat Touchup: Sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
2. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 08110

SECTION 08211

FLUSH WOOD DOORS

1.1 GENERAL

A. Submittals:

1. Product Data: For each type of door. Include factory-finishing specifications.
2. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details; location and extent of hardware blocking; mortises, holes, and cutouts; fire ratings; and other pertinent data.

B. Quality Standard: Comply with NWWDA I.S.1-A, "Architectural Wood Flush Doors."

1.2 PRODUCTS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include the following (or approved equal):

1. Algoma Hardwoods Inc.
2. Eggers Industries; Architectural Door Division.
3. Mohawk Flush Doors, Inc.
4. Weyerhaeuser Company.

B. Doors for Transparent Finish:

1. Grade: Custom, with Grade A faces.
2. Species and Cut: White Birch, rotary sliced.
3. Match between Veneer Leaves: Book match.
4. Assembly of Veneer Leaves on Door Faces: Balance match.
5. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.

C. Interior Veneer-Faced, Solid-Core Doors:

1. Core: Particleboard.
2. Construction: Five or seven plies with stiles and rails bonded to core, then entire unit abrasive planed before veneering.

D. Provide doors with either glued-block or structural composite lumber cores instead of particleboard cores at locations where exit devices are indicated.

E. Fabricate doors in sizes indicated for Project-site fitting.

F. Factory machine doors for hardware that is not surface applied.

1. Metal Astragals: Premachine astragals and formed-steel edges for hardware for pairs of fire-rated doors.

G. Factory Finishing: Finish doors at factory.

1. Finish: Manufacturer's standard transparent finish.
2. Staining: As selected by Contracting Officer or authorized representative from manufacturer's full range.
3. Sheen: Semigloss.

1.3 EXECUTION

A. Manufacturer's Written Instructions: Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.

B. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.

C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

END OF SECTION 08211

SECTION 08331

OVERHEAD COILING DOORS

1.1 SUMMARY

A. This Section includes the following types of overhead coiling doors:

1. Insulated service doors.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide overhead coiling doors capable of withstanding the effects of gravity loads and the following loads and stresses without evidencing permanent deformation of door components:

1. Wind Load: Uniform pressure (velocity pressure) of 20 lbf/sq. ft. (960 Pa), acting inward and outward.

B. Operational Life: Design components to operate for not less than 20,000 cycles.

1. Operation Cycle: One complete cycle begins with door in closed position. Door is then moved to open position and back to closed position.
2. Include tamperproof cycle counter.

1.3 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Include plans, elevations, sections, details of installation, and attachments to other Work.

1. Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.

C. Samples: For each exposed finish.

1.4 DOOR CURTAIN AND CONSTRUCTION

A. Door Curtain: Interlocking slats in continuous length for width of door. Unless otherwise indicated, slats of material thickness recommended by door manufacturer for performance, size, and type of door indicated.

1. Steel Door Curtain Slats: Structural-quality, cold-rolled galvanized steel sheets, ASTM A 653/A 653M, with G90 (Z275) zinc coating.
2. Slat Type: Flat profile.

3. Insulation: Fill slat with rigid cellular polystyrene or polyurethane-foam-type thermal insulation with maximum flame-spread and smoke-developed indices of 75 and 450, respectively, according to ASTM E 84. Enclose insulation completely within metal slat faces.

   a. Inside Curtain Slat Face: Match material of outside metal curtain slat.

B. Endlocks, General: Locate locks on every other curtain slat for curtain alignment and resistance against lateral movement.

   1. Service Door Endlocks: Malleable-iron castings galvanized after fabrication, and secured to curtain slats with galvanized rivets, or high-strength nylon.

C. Windlocks: Malleable-iron castings secured to curtain slats with galvanized rivets or high-strength nylon, as required to comply with wind load.

D. Curtain Jamb Guides: Steel angles, or channels and angles, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading.

   1. Service Doors: Build up units with not less than 3/16-inch- (5-mm-) thick, galvanized steel sections complying with ASTM A 36/A 36M, and ASTM A 123. Slot bolt holes for guide adjustment. Prevent overtravel of curtain with removable stops on guides and hold windlocks with continuous bar.

1.5 HOODS AND ACCESSORIES

A. Hood: Form to enclose coiled curtain and operating mechanism at opening head and act as weatherseal. Contour to suit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Provide closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting projecting beyond wall face. Provide intermediate support brackets as required to prevent sag.

   1. Steel-Door Hoods: Fabricate from not less than 0.028-inch (0.7-mm) thick, hot-dip galvanized steel sheet that matches slat material.
   2. Shape: Round.

B. Weatherseals: Replaceable, adjustable, continuous, compressible weather-stripping gaskets fitted to bottom and at top of exterior doors, unless otherwise indicated. At door head, use 1/8-inch- (3-mm-) thick, replaceable, continuous sheet secured to inside of curtain coil hood.

   1. Jamb Seals: Replaceable, adjustable, continuous, flexible, 1/8-inch- (3-mm-) thick seals of flexible vinyl, rubber, or neoprene at door jambs for weathertight installation.

C. Fabricate locking device assembly with lock, spring-loaded dead bolt, operating handle, cam plate, and adjustable locking bar to engage through slots in tracks.

   1. Locking Bars: Full-disc Cremone type, both jamb sides.

a. Operation: From inside only.

D. Counterbalancing Mechanism: Adjustable, oil-tempered, heat-treated steel helical torsion springs mounted around structural carbon-steel pipe, and contained in barrel of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats and to limit barrel deflection to not more than 0.03 in./ft. (2.5 mm/m) of span under full load; with grease-sealed bearings or self-lubricating graphite bearings.

1. Mounting Brackets: Cast-iron or cold-rolled steel plate with bell-mouth guide groove for curtain.

E. Manual Door Operator: Push up; lift or pull for counter doors with operation not exceeding 25 lbf (111 N); Chain hoist for service doors.

1.6 FINISHES

A. Steel Finish: Manufacturer's standard powder coating.

1. Color and Gloss: As selected from manufacturer's full range.

B. Galvanized-Steel Finish: Manufacturer's standard powder coating.

1. Color and Gloss: As selected from manufacturer's full range.

1.7 INSTALLATION

A. General: Install door and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports.

B. Lubricate bearings and sliding parts; adjust doors to operate easily, free from warp, twist, or distortion and fitting weathertight for entire perimeter.

END OF SECTION 08331

SECTION 08410

ALUMINUM ENTRANCES AND STOREFRONTS

1.1 GENERAL

A. This Section includes the following:

1. Exterior entrance systems.

B. System Description: Provide aluminum entrance and storefront systems capable of withstanding loads and thermal and structural movement requirements indicated without failure, based on testing manufacturer's standard units in assemblies similar to those indicated for this Project. Failure includes air infiltration and water penetration exceeding specified limits; and framing members transferring stresses, including those caused by thermal and structural movement, to glazing units.

C. Glazing: Physically and thermally isolate glazing from framing members.

D. Thermally Broken Construction: Provide systems that isolate aluminum exposed to exterior from aluminum exposed to interior with a material of low thermal conductance.

E. Wind Loads: Provide entrance and storefront systems, including anchorage, capable of withstanding wind-load design pressures calculated according to requirements of authorities having jurisdiction or the American Society of Civil Engineers' ASCE 7, "Minimum Design Loads for Buildings and Other Structures," 6.4.2, "Analytical Procedure," whichever are more stringent.

1. Deflection of framing members in a direction normal to wall plane is limited to 1/175 of clear span or 3/4 inch (19 mm), whichever is smaller, unless otherwise indicated.
2. Static-Pressure Test Performance: Provide entrance and storefront systems that do not evidence material failures, structural distress, failure of operating components to function normally, or permanent deformation of main framing members exceeding 0.2 percent of clear span when tested according to ASTM E 330.

a. Test Pressure: 150 percent of inward and outward wind-load design pressures.
b. Duration: As required by design wind velocity; fastest 1 mile (1.609 km) of wind for relevant exposure category.

F. Dead Loads: Provide entrance- and storefront-system members that do not deflect an amount which will reduce glazing bite below 75 percent of design dimension when carrying full dead load. Provide a minimum 1/8-inch (3.18-mm) clearance between members and top of glazing or other fixed part immediately below. Provide a minimum 1/16-inch (1.59-mm) clearance between members and operable windows and doors.

G. Air Infiltration: Provide entrance and storefront systems with permanent resistance to air leakage through fixed glazing and frame areas of not more than 0.06 cfm/sq. ft. (0.3 L/s/sq. m) of fixed wall area when tested according to ASTM E 283 at a static-air-pressure difference of 1.57 lbf/sq. ft. (75.2 Pa).

H. Water Penetration: Provide entrance and storefront systems that do not evidence water leakage through fixed glazing and frame areas when tested according to ASTM E 331 at minimum differential pressure of 20 percent of inward-acting wind-load design pressure as defined by ASCE 7, "Minimum Design Loads for Buildings and Other Structures," but not less than 6.24 lbf/sq. ft. (299 Pa).

I. Thermal Movements: Provide entrance and storefront systems, including anchorage, that accommodate thermal movements of systems and supporting elements resulting from the following maximum change (range) in ambient and surface temperatures without buckling, damaging stresses on glazing, failure of joint sealants, damaging loads on fasteners, failure of doors or other operating units to function properly, and other detrimental effects.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

J. Condensation Resistance: Provide storefront systems with condensation resistance factor (CRF) of not less than 45 when tested according to AAMA 1503.1.

K. Average Thermal Conductance: Provide storefront systems with average U-values of not more than 0.63 Btu/sq. ft. x h x deg F (3.57 W/sq. m x K) when tested according to AAMA 1503.1.

L. Submittals: Product Data for each product specified and the following:

1. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.

a. For entrance systems, include hardware schedule and indicate operating hardware types, quantities, and locations.

2. Samples for Verification: Of each type of exposed finish required in manufacturer's standard sizes. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.
3. Product Test Reports: Based on evaluation of tests performed by manufacturer and witnessed by a qualified independent testing agency, indicate compliance of entrance and storefront systems with requirements based on comprehensive testing of current systems.

M. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing entrance and storefront systems similar to those required for this Project and who is acceptable to manufacturer.

N. Product Options: Drawings indicate size, profiles, and dimensional requirements of entrance and storefront systems and are based on the specific systems indicated.

Other manufacturers' systems with equal performance characteristics may be considered.

O. Welding Standards: Comply with applicable provisions of AWS D1.2, "Structural Welding Code--Aluminum."

1.2 PRODUCTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following (or approved equal):

1. Butler Manufacturing Company; Vistawall Architectural Products.
2. EFCO Corporation.
3. Kawneer Company, Inc.
4. YKK AP America Inc.

B. Materials: As follows:

1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with the requirements of standards indicated below.

   a. Sheet and Plate: ASTM B 209 (ASTM B 209M).
   b. Extruded Bars, Rods, Shapes, and Tubes: ASTM B 221 (ASTM B 221M).
   c. Extruded Structural Pipe and Tubes: ASTM B 429.
   d. Bars, Rods, and Wire: ASTM B 211 (ASTM B 211M).
   e. Welding Rods and Bare Electrodes: AWS A5.10.

2. Steel Reinforcement: Complying with ASTM A 36 (ASTM A 36M) for structural shapes, plates, and bars; ASTM A 611 for cold-rolled sheet and strip; or ASTM A 570 (ASTM A 570M) for hot-rolled sheet and strip.
3. Glazing as specified in Division 8 Section "Glazing."
4. Glazing Gaskets: Manufacturer's standard pressure-glazing system of black, resilient glazing gaskets, setting blocks, and shims or spacers, fabricated from an elastomer of type and in hardness recommended by system and gasket manufacturer to comply with system performance requirements. Provide gasket assemblies that have corners sealed with sealant recommended by gasket manufacturer.
5. Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.
6. Sealants and joint fillers for joints at perimeter of entrance and storefront systems as specified in Division 7 Section "Joint Sealants."
7. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements, except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

C. Components: As follows:

1. Doors: Provide manufacturer's standard 1-3/4-inch- (44.5-mm-) thick glazed doors with minimum 0.125-inch- (3.2-mm-) thick, extruded tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deep

penetration and fillet welded or that incorporate concealed tie-rods. Provide manufacturer's standard snap-on extruded-aluminum glazing stops and preformed gaskets.

a. Stile Design: Medium stile; 3-1/2-inch (88.9-mm) nominal width.

2. Brackets and Reinforcements: Provide manufacturer's standard brackets and reinforcements that are compatible with adjacent materials. Provide nonstaining, nonferrous shims for aligning system components.
3. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
   a. Reinforce members as required to retain fastener threads.
   b. Do not use exposed fasteners, except for hardware application. For hardware application, use countersunk Phillips flat-head machine screws finished to match framing members or hardware being fastened, unless otherwise indicated.
4. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123 or ASTM A 153 requirements.
5. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing, compatible with adjacent materials, and of type recommended by manufacturer.
6. Weather Stripping: Manufacturer's standard replaceable weather stripping.

D. Hardware: Provide heavy-duty hardware units indicated in sizes, number, and type recommended by manufacturer for entrances indicated. Finish exposed parts to match door finish, unless otherwise indicated.

1. Ball-Bearing Butts: ANSI/BHMA A156.1, Grade 1, 5-knuckle, 4-1/2-by-4-inch (101.6-by-114.3-mm) ball-bearing butts. Provide nonremovable pins at offset pivots exposed to door outside and provide nonferrous pivots for applications exposed to weather. Provide 3 pivots at each leaf for doors up to 36 inches (914 mm) wide and 80 inches (2032 mm) tall; provide 4 pivots at each leaf for taller doors.
2. Closers, General: Comply with manufacturer's recommendations for closer size, depending on door size, exposure to weather, and anticipated frequency of use.
   a. Closing Cycle: Comply with requirements of authorities having jurisdiction or the Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," whichever are more stringent.
   b. Opening Force: Comply with requirements of authorities having jurisdiction or the Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," whichever are more stringent.
3. Surface-Mounted Overhead Closers: ANSI/BHMA A156.4, Grade 1. Provide cover and the following:
   a. Mounting: Parallel arm.
   b. Hold Open: Automatic, at angle selected by Contracting Officer or authorized representative from manufacturer's standard options.
   c. Back Check: Adjustable.
4. Door Stops: ANSI/BHMA A156.16, Grade 1, floor- or wall-mounted door stop, as appropriate for door location indicated, with integral rubber bumper.
5. Cylinders: As specified in Division 8 Section “Door Hardware”.
6. Cylinder Guard: Manufacturer's standard hardened-steel security ring with retainer plate for inside stile wall that protects lock cylinder from removal by wrenches, prying, or sawing.

7. Lockset Faceplates: Manufacturer's standard extruded-aluminum faceplate for lock type indicated that lays flush with door stile.
   a. Provide radiused faceplate with weather sweep extending full length of lock at meeting stiles of pairs of doors.
8. Vertical-Rod Exit Devices: Concealed, vertical-rod exit device complying with UL 305 requirements, with 2-point top and bottom latching that is released by a full-width crash bar or when locked down (dogged) by lock cylinder or retracting screws beneath housing.
9. Pull Handles: As selected by Contracting Officer or authorized representative from manufacturer's full range of pull handles and plates.
10. Push Bars: As selected by Contracting Officer or authorized representative from manufacturer's full range of full-door-width, single-bar push bars.
11. Thresholds: At exterior doors, provide manufacturer's standard threshold with cutouts coordinated for operating hardware, with anchors and jamb clips, and not more than 1/2-inch- (12.7-mm-) high, with beveled edges providing a floor level change with a slope of not more than 1:2, and in the following material:
    a. Material: Aluminum, mill finish.
12. Weather Sweeps: Manufacturer's standard weather sweep for application to exterior door bottoms and with concealed fasteners on mounting strips.

E. Fabrication: Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

1. Forming: Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
2. Prepare components to receive concealed fasteners and anchor and connection devices.
3. Fabricate components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.
4. Welding: Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
5. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
6. Storefront: Fabricate framing in profiles indicated for flush glazing (without projecting stops). Provide subframes and reinforcing of types indicated or, if not indicated, as required for a complete system. Factory assemble components to greatest extent possible. Disassemble components only as necessary for shipment and installation.
7. Entrances: Fabricate door framing in profiles indicated. Reinforce as required to support imposed loads. Factory assemble door and frame units and factory install hardware to greatest extent possible. Reinforce door and frame units as required for installing hardware indicated. Cut, drill, and tap for factory-installed hardware before finishing components.

a. Exterior Doors: Provide compression weather stripping at fixed stops. At other locations, provide sliding weather stripping retained in adjustable strip mortised into door edge.
b. Interior Doors: Provide ANSI/BHMA A156.16 silencers at stops to prevent metal to metal contact. Provide 3 silencers on strike jamb of single-door frames and 2 silencers on head of double-door frames.

F. Aluminum Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.

1. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 606.1 or AAMA 608.1.

a. Color: Dark bronze.

G. Steel Priming: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying primer. Perform manufacturer's standard cleaning operations to remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel. Apply manufacturer's standard corrosion-resistant primer immediately after surface preparation and pretreatment.

1.3 EXECUTION

A. Installation, General: Comply with manufacturer's written instructions for protecting, handling, and installing entrance and storefront systems. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure nonmovement joints. Seal joints watertight.

B. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.

D. Set continuous sill members and flashing in a full sealant bed to provide weathertight construction, unless otherwise indicated. Comply with requirements of Division 7 Section "Joint Sealants."

E. Install framing components plumb and true in alignment with established lines and grades without warp or rack of framing members.

F. Install entrances plumb and true in alignment with established lines and grades without warp or rack. Lubricate operating hardware and other moving parts according to hardware manufacturers' written instructions.

1. Install surface-mounted hardware according to manufacturer's written instructions using concealed fasteners to greatest extent possible.

G. Install glazing to comply with requirements of Division 8 Section "Glazing," unless otherwise indicated.

H. Install perimeter sealant to comply with requirements of Division 7 Section "Joint Sealants," unless otherwise indicated.

I. Erection Tolerances: Install entrance and storefront systems to comply with the following maximum tolerances:

1. Variation from Plane: Limit variation from plane or location shown to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
2. Alignment: Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm). Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).
3. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).

J. Adjust doors and hardware to provide tight fit at contact points and weather stripping, smooth operation, and weathertight closure.

K. Remove excess sealant and glazing compounds, and dirt from surfaces.

END OF SECTION 08410

SECTION 08711

DOOR HARDWARE (SCHEDULED BY NAMING PRODUCTS)

1.1 GENERAL

A. Submittals: In addition to Product Data for each item specified, submit the following:
   1. Door Hardware Schedule: Organize into door hardware sets indicating type, style, function, size, label, hand, manufacturer, fasteners, location, and finish of each door hardware item.

B. Supplier Qualifications: Door hardware supplier who is or employs a qualified DHI Architectural Hardware Consultant.

C. Templates: Obtain and distribute templates for doors, frames, and other work specified to be factory prepared for installing door hardware.

1.2 PRODUCTS

A. Scheduled Door Hardware: Provide door hardware for each door to comply with requirements in this Section and door hardware sets indicated in door and frame schedule.

   1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products.
   2. Designations: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

B. Standards: Comply with BHMA A156 series standards, Grade 1, unless Grade 2 is indicated.

C. Certified Products: Provide door hardware that is listed in one of BHMA's directories of certified products.

D. Hinges and Pivots: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.

   1. Hinge Base Metal: Unless otherwise indicated, provide the following:

      a. Exterior Hinges: Stainless steel, with stainless-steel pin.
      b. Interior Hinges: Stainless steel, with stainless-steel pin.
      c. Hinges for Fire-Rated Assemblies: Stainless steel, with stainless-steel pin.

   2. Nonremovable Pins: Provide set screw in hinge barrel that prevents removal of pin while door is closed; for outswinging exterior doors and outswinging corridor doors with locks.
   3. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.

4. Wood Screws: For wood doors and frames.
5. Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
6. Screws: Phillips flat-head screws. Finish screw heads to match surface of hinges.

E. Locks and Latches: As follows:

1. Provide the lockset design designated below:

a. Bored Locks: Best; 9K Series, 14L (or approved equal).

2. Dummy Trim: Match lever lock trim and escutcheons.
3. Lock Throw: Comply with labeled fire door requirements.
4. Backset: 2-3/4 inches (70 mm), unless otherwise indicated.

F. Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:

1. Number of Pins: Seven.
2. High-Security Grade: BHMA Grade 1A, listed and labeled as complying with UL 437 (Suffix A).
3. Manufacturer: Same manufacturer as for locks and latches.
4. Permanent Cores: Manufacturer's standard; finish face to match lockset; removable cores.
5. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 10 construction master keys.
6. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

a. Replace construction cores with permanent cores, as directed by Owner.

G. Keying System: Coordinate with Contracting Officer’s Representative.

1. Keys: Provide nickel-silver keys permanently inscribed with a visual key control number and "DO NOT DUPLICATE" notation. In addition to one extra blank key for each lock, provide three change keys and five master keys.

H. Strikes: Manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set.

I. Closers: Comply with the following:

1. Size of Units: Factory sized, adjustable to meet field conditions and requirements for opening force.

J. Protective Trim Units: Furnish protection plates sized 1-1/2 inches (38 mm) less than door width on push side and 1/2 inch (13 mm) less than door width on pull side, by height specified in Door Hardware Schedule. Fasten with exposed machine or self-tapping screws.

K. Floor Stops: For doors, unless wall or other type stops are scheduled or indicated. Do not mount floor stops where they will impede traffic. Where floor or wall stops are not appropriate, provide overhead holders.

L. Door Gasketing: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

1. Air Leakage: Not to exceed 0.50 cfm per foot (0.000774 cu. m/s per m) of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.
2. Gasketing Materials: Comply with ASTM D 2000 and AAMA 701/702.

M. Fabrication: As follows:

1. Base Metals: Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials if different from specified standard.
2. Fasteners: Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated. Provide steel machine or wood screws or steel through bolts for fire-rated applications.
3. Spacers or Hex Bolts: For through bolting of hollow metal doors.
4. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, "Recommended Fasteners for Wood Doors."

1.3 EXECUTION

A. Examine doors and frames for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

B. Steel Door and Frame Preparation: Comply with DHI A115 series. Drill and tap doors and frames for surface-applied hardware according to SDI 107.

C. Wood Door Preparation: Comply with DHI A115-W series.

D. Mounting Heights: Comply with DHI requirements, unless otherwise indicated.

E. Installation: Comply with manufacturer's written instructions. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

1. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

F. Adjust and check each operating item of door hardware and each door to ensure proper operation or function. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with accessibility requirements. Clean operating items as necessary to restore proper function and finish.

G. Door Hardware Schedule: Provide products indicated (or approved equal) as follows:

1. Hardware Set No. 1
   a. 1-1/2 pair butts: Hager, Full Mortise BB1191, 4-1/2x4-1/2.
   b. 1 Exit Device: Von Duprin 98L.
   c. 1 Cylinder: Best, 7-pin, compatible with exit device.
   d. 1 Closer: Parallel arm, LCN, 1460 series.
   e. 1 Kickplate: 8” high.
   f. 1 set Weatherstripping: Reese, DS75D.
   g. 1 Sill Sweep: Reese, 362D.
   h. 1 Threshold: Reese, S475A.

2. Hardware Set No. 2
   a. 1-1/2 pair butts: Hager, Full Mortise BB1191, 4-1/2x4-1/2.
   b. 1 Lockset: Best, 9K Series, 14L, D-Storeroom.
   c. 3 Silencers: Ives, 20.

3. Hardware Set No. 3
   a. 1-1/2 pair butts: Hager, Full Mortise BB1191, 4-1/2x4-1/2.
   b. 1 Push: Hager 30S, 4” x 16”
   c. 1 Pull: Hager, 34G, 4” x 16” Plate
   d. 1 Closer: Parallel arm, LCN, 1460 series.
   e. 1 Kickplate: 8” High.
   f. 3 Silencers: Ives, 20.
   g. 1 Stop.

4. Hardware Set No. 4
   a. 1-1/2 pair butts: Hager, Full Mortise BB1191, 4-1/2x4-1/2.
   b. 1 Lockset: Best 9K Series 14L, T- Dormitory.
   c. Provide N-Passage function.
   d. 3 Silencers: Ives 20.
   e. 1 Stop.

5. Hardware Set No. 5
   a. 3 pair butts: Hager, Full Mortise BB1191, 4-1/2x4-1/2.
   b. 1 Lockset: Best, 9K Series, 14L, D-Storeroom.
   c. 1 Dummy Trim.
   d. 1 set Flush Bolts: Glynn-Johnson, FB6.
   e. 1 Astragal: Reese, 393D.
   f. 1 set Weatherstripping: Reese, DS75D.
   g. 2 Sill Sweep: Reese, 362D.
   h. 1 Threshold: Reese, S475A.

6. Hardware Set No. 6
   a. 1 Cylinder: Best, 7-pin, compatible with exit device.

7. Hardware Set No. 7
   a. 1-1/2 pair butts: Hager, Full Mortise BB1191, 4-1/2x4-1/2.
   b. 1 Lockset: Best, 9K Series, 14L, AB-Entrance.
   c. 1 Closer: Parallel arm, LCN, 1460 series.
   d. 1 set Weatherstripping: Reese, DS75D.
   e. 1 Sill Sweep: Reese, 362D.
   f. 1 Threshold: Reese, S475A.
   g. 1 Stop.

8. Hardware Set No. 8
   a. 3 pair butts: Hager, Full Mortise BB1191, 4-1/2x4-1/2.
   b. 1 Lockset: Best 9K Series 14L, T- Dormitory.
   c. 1 set 4-A: Provide N-Passage function.
   d. 6 Silencers: Ives 20.
   e. 2 Stops.
   f.
9. Hardware Set No. 9
   a. 3 pair butts: Hager, Full Mortise BB1191, 4-1/2x4-1/2.
   b. 1 Lockset: Best, 9K Series, 14L, AB-Entrance.
   c. 2 Closers: Parallel arm, LCN, 1460 series.
   d. 2 sets Weatherstripping: Reese, DS75D.
   e. 2 Sill Sweeps: Reese, 362D.
   f. 2 Thresholds: Reese, S475A.
   g. 2 Stops.

10. Hardware Set No. 10
   a. 3 pair butts: Hager, Full Mortise BB1191, 4-1/2x4-1/2.
   b. 1 Lockset: Best, 9K Series, 14L, D-Storeroom.
   c. 6 Silencers: Ives, 20.

END OF SECTION 08711

SECTION 08800

GLAZING

1.1 GENERAL

A. Performance Requirements: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

1. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:

a. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:

1) Specified Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour (meters per second) at 33 feet (10 m) above grade, according to ASCE 7, Section 6.4.2, based on mean roof heights above grade indicated on Drawings.

2. Thermal and Optical Performance Properties: As determined according to procedures indicated below:

a. Center-of-Glass U-Values: NFRC 100 methodology using LBL-35298 WINDOW 4.1 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
b. Center-of-Glass Solar Heat Gain Coefficient: NFRC 200 methodology using LBL-35298 WINDOW 4.1 computer program.
c. Solar Optical Properties: NFRC 300.

B. Submittals: In addition to Product Data for each glass product and glazing material, submit the following:

1. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer indicating glazing sealants were tested for adhesion to glass and glazing channel substrates and for compatibility with glass and other glazing materials.

C. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.

D. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are

indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. SIGMA Publications: SIGMA TM-3000, "Vertical Glazing Guidelines," and SIGMA TB-3001, "Sloped Glazing Guidelines."

E. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the following inspecting and testing agency:

1. Insulating Glass Certification Council.
2. Associated Laboratories, Inc.
3. National Accreditation and Management Institute.

1.2 PRODUCTS

A. Float Glass: ASTM C 1036, Type I, Quality q3; class as indicated in schedules.

B. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality q3; class, kind, and condition as indicated in schedules.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
2. Fabrication Process: By vertical (tong-held) or horizontal (roller-hearth) process, at manufacturer's option, except provide horizontal process where indicated as tongless or free of tong marks.

C. Pyrolytic-Coated Float Glass: With solar-reflective metallic-oxide coating applied by pyrolytic deposition process during initial manufacture, complying with requirements specified in schedules.

D. Insulating-Glass Units: Preassembled units consisting of dual-sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in the Insulating-Glass Schedule.

E. Elastomeric Glazing Sealants: Products complying with ASTM C 920 and other requirements specified in the Glazing Sealant Schedule, in colors indicated, compatible with one another and with other materials they will contact.

F. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

G. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of material indicated below; complying with ASTM C 509, Type II, black; and of profile and hardness required to maintain watertight seal:

1. Neoprene.
2. EPDM.
3. Silicone.
4. Thermoplastic polyolefin rubber.
5. Any material indicated above.

H. Miscellaneous Glazing Materials: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

I. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.

1.3 EXECUTION

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Protect glass edges from damage during handling and installation.

C. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

D. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

E. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter.

F. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.

G. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

1.4 GLASS SCHEDULE

A. Low-E Insulating Glass IG-[1]:

1. Overall Unit Thickness and Thickness of Each Lite: 25 and 6 mm.

2. Indoor Lite: Type I (transparent glass, flat), Class 1 (clear) float glass 1/8” panes bonded together with a minimum 0.03 inch polyvinyl-butyral (PVB) interlayer.

    a. Kind FT (fully tempered as required by code to be fully tempered).

3. Outdoor Lite: Type I (transparent glass, flat) float glass.

    a. Class 1 (clear).

    b. Kind FT (fully tempered as required by code to be fully tempered).

4. Low-Emissivity Coating: Pyrolytic on third surface.

END OF SECTION 08800

SECTION 09260

GYPSUM BOARD ASSEMBLIES

1.1 GENERAL

A. Submittals: Product Data for each type of product indicated.

B. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

1.2 PRODUCTS

A. Steel Partition and Soffit Framing: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Complying with ASTM C 645 requirements for metal and with manufacturer's standard corrosion-resistant zinc coating.
2. Steel Studs and Runners: ASTM C 645, in depth indicated.

a. Minimum Base Metal Thickness: 0.027 inch (0.7 mm).

3. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

a. Minimum Base Metal Thickness: 0.027 inch (0.7 mm).

4. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flange, and in depth indicated.

a. Clip Angle: 1-1/2 by 1-1/2 inch (38.1 by 38.1 mm), 0.068-inch- (1.73-mm-) thick, galvanized steel.

5. Hat-Shaped, Rigid Furring Channels: ASTM C 645, in depth indicated.

a. Minimum Base Metal Thickness: 0.0179 inch (0.45 mm).

6. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Panel Size, General: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.

C. Gypsum Wallboard: ASTM C 36.

1. Regular Type: In thickness indicated and with long edges tapered.
2. Type X: In thickness indicated and with long edges tapered.

D. Sag-Resistant Gypsum Wallboard: ASTM C 36, manufactured to have more sag resistance than regular-type gypsum board, 1/2-inch (12.7-mm) thick, and with long edges tapered. Apply on ceiling surfaces.

E. Interior Trim: ASTM C 1047.

1. Cornerbead: Use at outside corners**,** unless otherwise indicated.
2. LC-Bead (J-Bead): Use at exposed panel edges.

F. Joint Treatment Materials, General: Comply with ASTM C 475.

G. Joint Tape:

1. Interior Gypsum Wallboard: Paper.

H. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, flanges of trim accessories, and fasteners, use drying-type, all-purpose compound.

   a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.

I. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

J. Auxiliary Materials: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

1. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

2. Isolation Strip at Exterior Walls:

   a. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
   b. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

3. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

a. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

1.3 EXECUTION

A. Installing Steel Framing, General: Comply with ASTM C 754, and ASTM C 840 requirements that apply to framing installation.

B. Installing Steel Partition and Soffit Framing:

1. Where studs are installed directly against exterior walls, install isolation strip between studs and wall.
2. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
3. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb, unless otherwise indicated.
    b. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.

4. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

C. Polyethylene Vapor Retarder: Install to comply with requirements specified in Division 7 Section "Building Insulation."

D. Gypsum Board Application: Comply with ASTM C 840 and GA-216.

1. Space screws a maximum of 12 inches (304.8 mm) o.c. for vertical applications.
2. Space fasteners in panels that are tile substrates a maximum of 8 inches (203.2 mm) o.c.
3. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
4. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of board.
    b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.

5. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.
6. Laminating to Substrate: Comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

E. Installing Trim Accessories: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

F. Finishing Gypsum Board Assemblies: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

1. Prefill open joints and damaged surface areas.
2. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
3. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:

a. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, unless otherwise indicated.

END OF SECTION 09260

SECTION 09310

CERAMIC TILE

1.1 SUMMARY

A. This Section includes the following:

1. Ceramic mosaic tile.
2. Glazed wall tile.
3. Metal edge strips installed as part of tile installations.

B. Related Sections include the following:

1. Division 1 Section “Selective Demolition: for removing existing finishes.
2. Division 7 Section “Joint Sealants” for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints.

C. Samples:

1. Each type, composition, color, and finish of tile.
2. Assembled samples with grouted joints for each type, composition, color, and finish of tile.

D. Qualification Data: For Installer.

1.3 QUALITY ASSURANCE

A. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer.

1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Store liquid latexes and emulsion adhesives in unopened containers and protected from freezing.

E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

1.6 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

1.7 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
2. Basis-of-Design Product: The design for each tile type is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified.

1.8 TILE PRODUCTS

A. Manufacturers:

1. American Olean; Div. of Dal-Tile International Corp.
2. Buchtal Corporation USA.
3. Crossville Ceramics Company, L.P.
4. Daltile; Div. of Dal-Tile International Inc.
5. Florida Tile Industries, Inc.

B. ANSI Ceramic Tile Standard: Provide Standard grade tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.

C. Unglazed Ceramic Tile CT-1: Flat tile as follows:

1. Composition: Porcelain
2. Surface: Slip-resistant.
3. Module Size: 6 by 6 inch Nominal.
4. Thickness: 7/16 inch.
5. Face: Plain with cushion edges.
6. Basis-of-Design Product: Crossville Ceramics; Veranda Stone Collection, VS-14.

D. Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing where applicable.

1. Base Cove: Cove, module size 6 by 6 inch
2. Wainscot Cap: Bullnose module size 6 by 6 inch External Corners: Bullnose module size 6 by 6 inch Revise subparagraph below if field-butted, square internal angles are required.
3. Internal Corners: Cove, module size 6 by 6 inch Units below are available from some manufacturers. Before retaining, verify availability of required colors and textures with manufacturers selected.
4. Tapered Transition Tile: Shape designed to effect transition between thickness of tile floor and adjoining floor finishes of different thickness, tapered to provide reduction in thickness from 1/2 to 1/4 across nominal 6-inch (100-mm) dimension.

1.9 SETTING AND GROUTING MATERIALS

A. Manufacturers:

1. Atlas Minerals & Chemicals, Inc.
2. Bostik.
3. DAP, Inc.
4. LATICRETE International, Inc.
5. MAPEI Corporation.
6. Summitville Tiles, Inc.

B. Dry-Set Portland Cement Mortar (Thin Set): ANSI A118.1.

1. For wall applications, provide nonsagging mortar.

C. Standard Sanded Cement Grout: ANSI A118.6, color as indicated.

D. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials.

E. Metal Edge Strips: Angle or L-shape, nickel silver; ASTM A 666, 300 Series exposed-edge material.

F. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.

1.10 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

1.11 PREPARATION

A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.

B. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions.

C. Remove protrusions, bumps, and ridges by sanding or grinding.

D. Blending: For tile exhibiting color variations, use factory blended tile or blend tiles at Project site before installing.

E. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

1.12 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.

C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Grind cut edges of tile abutting trim, finish, or built-in items. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.

F. Lay out tile wainscots to next full tile beyond dimensions indicated.

G. Expansion Joints: Locate expansion joints and other sealant-filled joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates.

H. Grout tile to comply with requirements of ANSI A108.10, unless otherwise indicated.

I. Install tile on floors with the following joint widths:

1. Unglazed Ceramic Tile: 1/4 inch (6.35 mm).

J. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.

K. Install tile on walls with the following joint widths:

1. Unglazed Ceramic Tile: 1/4 inch (6.35 mm).

1.13 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove grout residue from tile as soon as possible.
2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only

cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.

C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 09310

SECTION 09511

ACOUSTICAL PANEL CEILINGS

1.1 GENERAL

A. Submittals: In addition to Product Data for each type of acoustical panel and suspension system required, submit the following:

1. 6-inch- (150-mm-) square samples of each acoustical panel type, pattern, and color.
2. Set of 12-inch- (300-mm-) long samples of exposed suspension system members, including moldings, for each color and system type required.

B. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:

1. Fire-response tests were performed by UL, ITS/Warnock Hersey, or another independent testing and inspecting agency that is acceptable to authorities having jurisdiction and that performs testing and follow-up services.
2. Surface-burning characteristics of acoustical panels comply with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84.

1.2 PRODUCTS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated for each designation in the Acoustical Panel Ceiling Schedule.

B. Acoustical Panels: Manufacturer's standard panels complying with ASTM E 1264 classifications, unless otherwise indicated, and with requirements indicated in the Acoustical Panel Ceiling Schedule.

1. Mounting Method for Measuring Noise Reduction Coefficient: Type E-400 per ASTM E 795.

C. Metal Suspension System: Manufacturer's standard direct-hung suspension system complying with applicable ASTM C 635 requirements and with requirements indicated in the Acoustical Panel Ceiling Schedule.

D. Finishes and Colors for Metal Suspension System, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.

E. Suspension System Attachment Devices: Fabricated from corrosion-resistant materials and sized for five times design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated.

F. Wire Hangers, Braces, and Ties: Zinc-coated, carbon-steel wire complying with ASTM A 641/A 641M, Class 1 zinc coating, soft temper. Size wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, Direct Hung) will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.

G. Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material and finish as that used for exposed flanges of suspension system runners.

1.3 EXECUTION

A. General: Install acoustical panel ceilings to comply with publications referenced below per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

1. Standard for Ceiling Suspension System Installations: Comply with ASTM C 636.

B. Secure ceiling hangers from suspension system members to building's structural members. Install hangers plumb and free from contact with other objects within ceiling plenum. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure; that are appropriate for substrate; and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.

1. Do not support ceilings directly from permanent metal forms, or floor or roof deck. Do not attach hangers to steel deck tabs.
2. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers, unless otherwise indicated; and provide hangers not more than 8 inches (200 mm) from ends of each member.

C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

D. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

E. Install acoustical panels with undamaged edges and fitted accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

1.4 ACOUSTICAL PANEL CEILING SCHEDULE

A. Acoustical Tile No. 1 (AT-1)
1. Armstrong 507M, or approved equal, natural fissured, medium textured.
2. Angled tegular edge design.
3. 24”x24”x3/4” size.
4. White color.
5. 0.65 NRC; 35 CAC.

6. 0.80 light reflectance coefficient.
7. Armstrong Prelude 15/16” Exposed Tee grid or approved equal; white color.

END OF SECTION 09511

SECTION 09651

RESILIENT TILE FLOORING

1.1 GENERAL

A. Submittals: As follows:

1. Product Data: For each type of product specified.

2. Samples: Of each different color and pattern of product specified.

3. Maintenance Data: For resilient floor tile to include in the maintenance manuals specified in Division 1.

1.2 PRODUCTS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated for each designation in the Acoustical Panel Ceiling Schedule.

B. Vinyl Composition Floor Tile: Products complying with ASTM F 1066 and with requirements specified in the Resilient Tile Flooring Schedule.

C. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by flooring manufacturer for applications indicated.

D. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

E. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of tiles, and in maximum available lengths to minimize running joints.

1.3 EXECUTION

A. Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer's requirements. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified.

1. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by flooring manufacturer.

2. Do not proceed with installation until unsatisfactory conditions have been corrected.

B. Preparation: Comply with resilient product manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.

C. Tile Installation: Comply with tile manufacturer's written installation instructions.

1. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half of a tile at perimeter.

a. Lay tiles square with room axis, unless otherwise indicated.

2. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered.

a. Lay tiles in basket-weave pattern with grain direction alternating in adjacent tiles.

D. Resilient Accessory Installation: Install resilient accessories according to manufacturer's written installation instructions.

E. Clean and protect resilient products according to manufacturer's written recommendations. Clean resilient products after installation and not more than 4 days before dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project.

1.4 RESILIENT TILE SCHEDULE

A. Vinyl Composition Tile:

1. Products: Mannington, Tarkett, Armstrong (or approved equal).

2. Color: To be selected by Contracting Officer or authorized representative from manufacturer’s full range of standard colors.

3. Class: Class 2.

4. Wearing surface: Smooth.

5. Thickness: 0.125 inch.

6. Size 12 inch by 12 inch.

END OF SECTION 09651

SECTION 09653

RESILIENT WALL BASE AND ACCESSORIES

1.1 SUMMARY

A. This Section includes resilient the following:

1. Wall base.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Samples: For each product and for each color, pattern, and texture required.

1.3 PROJECT CONDITIONS

A. Maintain a temperature of not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C) in spaces to receive resilient accessories for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods.

1. After postinstallation period, maintain a temperature of not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).

B. Install resilient accessories after other finishing operations, including painting, have been completed.

1.4 WALL BASE

A. Wall Base: Rubber, FS SS-W-40, Type I.

1. Color and Pattern: As selected from manufacturer's full range.
2. Style: Cove with top-set toe.
3. Minimum Thickness: 1/8 inch (3.2 mm).
4. Height: 4 inches (101.6 mm).
5. Lengths: Cut lengths 48 inches (1219.2 mm) long or coils in lengths standard with manufacturer, but not less than 96 feet (29.26 m).
6. Outside Corners: Job formed or premolded.
7. Inside Corners: Job formed or premolded.
8. Surface: Smooth.

1.5 INSTALLATION

A. Before installing resilient wall base:

1. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
2. Move resilient products and installation accessories into spaces where they will be installed at least 48 hours before installation, unless longer conditioning periods are recommended in writing by manufacturer. Install products only after they are at the same temperature as the space where they are to be installed.
3. Broom and vacuum clean substrates to be covered immediately before installing resilient products. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Adhesively install resilient wall base. Place resilient products so they are butted to adjacent materials.

C. Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

1. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
2. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
3. Do not stretch base during installation.
4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.

D. Immediately after installing resilient products, remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.

END OF SECTION 09653

SECTION 09680

CARPET

1.1 SUMMARY

A. This Section includes tufted carpet.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Include the following:

1. Seam locations.
2. Pile direction.
3. Insets and borders.
4. Transition, and other accessory strips.
5. Transition details to other flooring materials.

C. Samples: For each for each carpet and exposed accessory and for each color and pattern required.

D. Product Schedule: Use same room and product designations indicated on Drawings and in schedules.

E. Maintenance data.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Comply with CRI 104, Section 5, "Storage and Handling."

1.5 PROJECT CONDITIONS

A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."

B. Environmental Limitations: Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

C. Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by manufacturer.

1.6 WARRANTY

A. Carpet Warranty: Manufacturer's standard form in which manufacturer agrees to replace carpet that does not comply with requirements or that fails within 10 years from date of Substantial Completion. Warranty does not include deterioration or failure of carpet from unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.

B. Carpet Cushion Warranty: Manufacturer's standard form agreeing to replace carpet cushion that does not comply with requirements or that fails within 10 years from date of Substantial Completion. Warranty does not include deterioration or failure of carpet cushion from unusual traffic, failure of substrate, vandalism, or abuse. Failure includes, but is not limited to, permanent indentation or compression.

1.7 CARPET

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

B. Products: Subject to compliance with requirements, provide one of the following:

1. Karsten Bigelow; Stati-Tuft (or approved equal).

a. Color and Pattern: As selected from manufacturer's full range.

C. Fiber Content:

D. Surface Pile Weight: 28 oz/sq. yd. excluding weight of backings.

E. Primary Backing: Manufacturer's standard.

F. Secondary Backing: Manufacturer’s standard.

G. Width: 12 feet.

1.8 WALL BASE

A. Products: Johnsonite, Roppe, or Approved Equal.

B. Color: To be selected by Contracting Officer or authorized representative from manufacturer’s full range of colors.

C. Style: Cove with top set toe.

D. Minimum Thickness: 1/8 inch.

E. Height: 4 inches.

1.9 INSTALLATION

A. Comply with CRI 104, Section 8, Direct Glue-Down.

B. Maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position. Bind or seal cut edges as recommended by carpet manufacturer.

C. Install pattern parallel to walls and borders.

END OF SECTION 09680

SECTION 09900

PAINTING

1.1 GENERAL

A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.

1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Contracting Officer or Authorized Representative will select from standard colors and finishes available.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

D. Submittals: For each paint system specified, provide the following:

1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.

E. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

F. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label.

G. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers in clean condition, free of foreign materials and residue. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

H. Project Conditions: Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1.2 PRODUCTS

A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

C. Colors: Contractor to provide color selections to the Contracting Officer’s Representative.

1.3 EXECUTION

A. Examine substrates, areas, and conditions under which painting will be performed for compliance with paint application requirements. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates.

C. Preparation: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

D. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

E. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition.

1. Cementitious Materials: Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation. Use abrasive blast-cleaning methods if recommended by paint manufacturer.

a. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's written instructions.

2. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.

   a. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.

3. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

F. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
2. Use only thinners approved by paint manufacturer and only within recommended limits.

G. Application: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Paint surface treatments, and finishes are indicated in the schedules.
2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
3. Provide finish coats that are compatible with primers used.
4. The term "exposed surfaces" includes areas visible when permanent or built-in items are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
6. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
7. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
8. Sand lightly between each succeeding enamel or varnish coat.

H. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
3. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

I. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

J. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

K. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.

L. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

M. Field Quality Control: The Government reserves the right to engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.

1. The testing agency will perform appropriate tests as required by the Government.
2. If tests show material being used does not comply with specified requirements, the Contractor shall remove noncomplying paint from the site, pay for testing, and repaint surfaces previously coated with the rejected paint. If necessary, the Contractor may be required to remove rejected paint from previously painted surfaces if, on repainting with specified paint, the 2 coatings are incompatible.

N. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

O. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Contracting Officer or Authorized Representative.

P. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

1.4 PAINT SCHEDULE

A. Concrete Masonry Units: Provide the following finish systems over interior concrete masonry block units:

1. Low-Luster, Acrylic-Enamel Finish: Two finish coats over a block filler.

a. Block Filler: High performance, latex-based, block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 5.0 mils.
b. First and Second Coats: Low-luster (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by manufacturer to achieve a total dry film thickness of not less than 2.8 mils.

B. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:

1. Low-Luster, Acrylic-Enamel Finish: Two finish coats over a primer.

a. Primer: Latex-based, interior primer at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mil.
b. First and Second Coats: Low-luster (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by manufacturer to achieve a total dry film thickness of not less than 2.8 mils.

C. Ferrous Metal: Provide the following finish systems over ferrous metal:

1. Low-Luster, Acrylic-Enamel Finish: Two finish coats over a primer.

a. Primer: Quick-drying, rust-inhibitive, alkyd-based or epoxy-metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
b. First and Second Coats: Low-luster (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by manufacturer to achieve a total dry film thickness of not less than 2.8 mils.

D. Zinc-Coated Metal: Provide the following finish systems over zinc-coated metal:

1. Low-Luster, Acrylic-Enamel Finish: Two finish coats over a primer.

    a. Primer: Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
    b. First and Second Coats: Low-luster (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by manufacturer to achieve a total dry film thickness of not less than 2.8 mils.

E. Interior Stain and Natural-Finish Woodwork Schedule:

1. Natural-Varnish Finish: Two finish coats of varnish over a sealer coat and a filler coat.

    a. Filler Coat: Open-grain wood filler.
    b. Sealer Coat: Clear sanding sealer.
    c. Finish Coats: Interior polyurethane-based clear satin.

END OF SECTION 09900

SECTION 09950

WALL COVERINGS

1.1 SUMMARY

A. This Section includes the following:

1. Vinyl wall covering.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Include location and extent of each wall covering type, seam locations and termination points.

C. Samples: For each for each wall covering and for each color and texture required. Include sample sets with specified treatments applied.

D. Product Schedule: Use same room designations as indicated on Drawings.

E. Maintenance data.

1.3 QUALITY ASSURANCE

A. Surface-Burning Characteristics: Provide wall coverings with flame-spread and smoke-developed indices of not more than 25 and 450, respectively, per ASTM E 84.

1.4 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Wall Covering: Full-width rolls of wall covering equal to 5 percent of amount of each type installed, but not less than 1 full roll.

1.5 VINYL WALL COVERING

A. Total Weight: 20 oz./sq. yd. (g/sq. m)> not including performance coatings.

B. Vinyl Wall Covering Standard: FS CCC-W-408A and CFFA-W-101-A, Type II, Medium Duty.

C. Backing Material: Osnaburg *(or approved equal).*

D. Stain-Resistant Coating: DuPont "Tedlar" coating *(or approved equal*), complying with FS L-P-1040-B.

E. Vinyl wall covering shall be washable.

1.6 INSTALLATION

A. Preparation:

1. Clean substrates of substances that could impair wall covering's bond, including mold, mildew, oil, grease, incompatible primers, and dirt.
2. Prepare substrates to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, and defects.
3. Painted Surfaces: Treat areas susceptible to pigment bleeding.
4. Metals: If not factory primed, clean and apply rust-inhibitive zinc primer.
5. Moisture Content: Maximum of 5 percent on new plaster, concrete, and concrete masonry units when tested with an electronic moisture meter.
6. Prime new gypsum board with primer recommended by wall covering manufacturer.
7. Allow new plaster to cure. Treat areas of high alkalinity.
8. Check painted surfaces for pigment bleeding. Sand gloss, semigloss, and eggshell finishes with fine sandpaper.
9. Install wall liner, with no gaps or overlaps, where required by wall covering manufacturer. Form smooth wrinkle-free surface for finished installation. Do not begin wall covering installation until wall liner has dried.
10. Acclimatize wall covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

B. Cut panels in roll number sequence. Change run numbers at partition breaks and corners only.

C. Install seams vertical and plumb, with no horizontal seams.

D. Match pattern 72 inches (1830 mm) above finish floor.

E. Remove excess adhesive at finished seams, perimeter edges, and adjacent surfaces using cleaning methods recommended by wall covering manufacturer. Replace strips that cannot be cleaned.

END OF SECTION 09950

SECTION 10200

LOUVERS AND VENTS

1.1 SUMMARY

A. This Section includes extruded-aluminum louvers.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide louvers capable of withstanding the effects of gravity loads and wind loads based on a uniform pressure of 30 lbf/sq. ft. (1436 Pa), acting inward or outward, without permanent deformation of louver components, noise or metal fatigue caused by louver blade rattle or flutter, or permanent damage to fasteners and anchors.

B. Air-Performance, Water-Penetration, and Wind-Driven Rain Ratings: As demonstrated by testing manufacturer's stock units according to AMCA 500-L.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Louvers (or approved equal):

a. Airline Products Co.
b. Airolite Company (The).
c. Arrow United Industries.
d. Carnes Company, Inc.
e. Construction Specialties, Inc.
f. Greenheck.
g. Industrial Louvers, Inc.
h. Louvers & Dampers, Inc.
i. Metal Form Manufacturing Company, Inc.
j. NCA Manufacturing, Inc.
k. Ruskin Company; Tomkins PLC.

1.5 MATERIALS

A. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy 6063-T5 or T-52.

B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy 3003 or 5005.

C. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 (Z275) zinc coating, mill phosphatized.

D. Stainless-Steel Sheet: ASTM A 666, Type 304, with No. [4] [6] finish.

E. Fasteners: Of same basic metal and alloy as fastened metal or 300 Series stainless steel.

1.6 FABRICATION, GENERAL

A. Fabricate frames to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.

B. Join frame members to each other and to louver blades with fillet welds concealed from view.

C. Join frame members to each other and to louver blades with fillet welds, threaded fasteners, or both, as standard with louver manufacturer, concealed from view.

1.7 EXTRUDED-ALUMINUM LOUVERS

A. Horizontal, Drainable-Blade Louver:

1. Frame and Blade Nominal Thickness: Not less than 0.060 inch (1.5 mm) for blades and 0.080 inch (2.0 mm) for frames.
2. Performance Requirements:

   a. Free Area: Not less than 8.0 sq. ft. (0.74 sq. m) for 48-inch- (1.2-m-) wide by 48-inch- (1.2-m-) high louver.

3. AMCA Seal: Mark units with AMCA Certified Ratings Seal.

1.8 LOUVER SCREENS

A. General: Provide screen at interior face of each exterior louver.

B. Louver Screen Frames: Same kind and form of metal as indicated for louver to which screens are attached.

C. Louver Screening:

1. Bird Screening: Aluminum, 1/2-inch- (12.7-mm-) square mesh, 0.063-inch (1.6-mm) wire.

1.9 FINISHES

A. Aluminum, Baked-Enamel Finish: Clean with inhibited chemicals and apply conversion coating and primer/topcoat system complying with AAMA 2603, except with a minimum dry film thickness of 1.5 mils (0.04 mm), medium gloss.

1. Color: Per Contracting Officer or authorized representative.

1.10 INSTALLATION

A. Locate and place louvers and vents level, plumb, and at indicated alignment with adjacent work.

B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.

C. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.

D. Repair damaged finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.

E. Protect galvanized and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.

END OF SECTION 10200

SECTION 10425

SIGNS

1.1 SUMMARY

A. This Section includes the following:

1. Panel signs.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other Work.

1. Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.

C. Samples: For each exposed finish.

1.3 MATERIALS

A. Cast Acrylic Sheet: Cast (not extruded or continuous cast) methyl methacrylate monomer plastic sheet with minimum flexural strength of 16,000 psi (110 MPa) per ASTM D 790 and minimum allowable continuous service temperature of 176 deg F (80 deg C).

1. Opaque Sheet: Colored, in colors as selected from manufacturer's full range.

B. Fasteners: Use concealed fasteners fabricated from metals that are not corrosive to sign material and mounting surface.

C. Anchors and Inserts: Use nonferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

D. Colored Coatings for Acrylic Plastic Sheet: Use colored coatings, including inks and paints for copy and background colors, recommended by acrylic manufacturers for optimum adherence to surface and that are nonfading for application intended.

1.4 PANEL SIGNS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Andco Industries Corp.
2. APCO Graphics, Inc.
3. ASI Sign Systems, Inc.
4. Best Manufacturing Company.
5. Mohawk Sign Systems.

B. Unframed Panel Signs: Fabricate with smooth edges mechanically finished.

1. Edge Condition: Square cut.
2. Corner Condition: Square.

C. Raised Copy: Machine-cut copy characters from matte-finished opaque acrylic sheet and chemically weld onto acrylic sheet forming sign panel face. Produce precisely formed characters with square cut edges free from burrs and cut marks.

1. Panel Material: Matte-finished opaque acrylic sheet.
2. Raised-Copy Thickness: Not less than 1/32 inch (0.8 mm).

1.5 FINISHES

A. Colors and Surface Textures: For exposed sign material that requires selection of materials with integral or applied colors, surface textures or other appearance characteristics, provide color matches as selected from manufacturer's full range, unless otherwise indicated.

1.6 INSTALLATION

A. Install signs level, plumb, and at height indicated, with sign surfaces free from distortion or other defects in appearance.

B. Wall-Mounted Panel Signs:

1. Vinyl-Tape Mounting: Use double-sided foam tape to mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.
2. Silicone-Adhesive Mounting: Use liquid silicone adhesive recommended by sign manufacturer to attach sign units to irregular, porous, or vinyl-covered surfaces. Use double-sided vinyl tape where recommended by sign manufacturer to hold sign in place until adhesive has fully cured.

END OF SECTION 10425

SECTION 10520

FIRE-PROTECTION SPECIALTIES

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Portable fire extinguishers.
2. Fire-protection cabinets for the following:

a. Portable fire extinguishers.

B. Related Sections include the following:

1. Division 9 Section "Painting" for field-painting fire-protection cabinets.
2. Division 15 Section "Standpipe and Sprinkler Systems" for hose systems and racks.
3. Division 15 Section "Standpipe and Hose Systems" for fire hoses in cabinets.

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection specialties.

1. Fire Extinguishers: Include rating and classification.
2. Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.

B. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of cabinet finish indicated.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain fire extinguishers and cabinets through one source from a single manufacturer.

B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers."

C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1.5 COORDINATION

A. Coordinate size of cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

1.6 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Fire-Protection Cabinets:

   a. J.L. Industries, Inc.
   b. Larsen's Manufacturing Company.
   c. Potter-Roemer; Div. of Smith Industries, Inc.

1.7 MATERIALS

A. Cold-Rolled Steel Sheet: Carbon steel, complying with ASTM A 366/A 366M, commercial quality, stretcher leveled, temper rolled.

B. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:

1. Sheet: ASTM B 209 (ASTM B 209M).
2. Extruded Shapes: ASTM B 221 (ASTM B 221M).

C. Stainless-Steel Sheet: ASTM A 666/A 666M, Type 302 or Type 304 alloy.

1.8 PORTABLE FIRE EXTINGUISHERS

A. General: Provide fire extinguishers of type, size, and capacity for each cabinet and other locations indicated.

B. Multipurpose Dry-Chemical Type: UL-rated 4-A:60-B:C, 10-lb (4.5-kg) nominal capacity, in enameled-steel container.

1.9 FIRE-PROTECTION CABINETS

A. Cabinet Construction: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.

1. Fire-Rated Cabinets: Listed and labeled to meet requirements of ASTM E 814 for fire-resistance rating of wall where it is installed.

    a. Construct fire-rated cabinets with double walls fabricated from 0.0478-inch- (1.2-mm-) thick, cold-rolled steel sheet lined with minimum 5/8-inch- (16-mm-) thick, fire-barrier material.
    b. Provide factory-drilled mounting holes.

2. Cabinet Metal: Enameled-steel sheet.
3. Shelf: Same metal and finish as cabinet.

B. Cabinet Type: Suitable for the following:

1. Fire extinguisher.

C. Cabinet Mounting: Suitable for the following mounting conditions:

1. Semirecessed: Cabinet box partially recessed in walls of shallow depth to suit style of trim indicated.

D. Cabinet Trim Style: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

1. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).

    a. Rolled-Edge Trim: 2 1/2-inch (64-mm) backbend depth.

E. Cabinet Trim Material: Manufacturer's standard, as follows:

1. Stainless-steel sheet.

F. Door Material: Manufacturer's standard, as follows:

1. Stainless-steel sheet.

G. Door Glazing: Manufacturer's standard, as follows:

1. Tempered Float Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, as follows:

    a. Class 1 (clear).

H. Door Style: Manufacturer's standard design, as follows:

1. Fully glazed panel with frame.

I. Door Construction: Fabricate doors according to manufacturer's standards, of materials indicated, and coordinated with cabinet types and trim styles selected.

1. Provide minimum 1/2-inch- (13-mm-) thick door frames, fabricated with tubular stiles and rails, and hollow-metal design.

J. Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam-action latch, or exposed or concealed door pull and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 degrees.

1.10 ACCESSORIES

A. Mounting Brackets: Manufacturer's standard steel, designed to secure extinguisher, of sizes required for types and capacities of extinguishers indicated, with plated or baked-enamel finish.

1. Provide brackets for extinguishers located in cabinets.

B. Door Locks: Provide cylinder lock, with all cabinets keyed alike.

C. Identification: Provide lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location. Locate as indicated by Architect.

1. Identify fire extinguisher in cabinet with the words "FIRE EXTINGUISHER" applied to door.

a. Application Process: Vinyl letters.
b. Lettering Color: Black.
c. Orientation: Vertical.

1.11 COLORS AND TEXTURES

A. Colors and Textures: As selected by Architect from manufacturer's full range for these characteristics.

1.12 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Cabinet Finishes: Provide manufacturer's standard baked-enamel paint for the following:

1. Interior of cabinets.

1.13 STEEL FINISHES

A. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond using manufacturer's standard methods.

B. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment.

1. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, lead- and chromate-free, universal primer, selected for resistance to normal atmospheric corrosion, for compatibility with substrate and field-applied finish paint system indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

C. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils (0.05 mm).
1. Color and Gloss: As selected by Architect from manufacturer's full range.

1.14 STAINLESS-STEEL FINISHES

A. General: Remove or blend tool and die marks and stretch lines into finish. Grind and polish surfaces to produce uniform, directionally textured polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.

B. Satin, Directional Polish: No. 6 finish.

C. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

1.15 EXAMINATION

A. Examine walls and partitions for suitable framing depth and blocking where recessed and semirecessed cabinets are to be installed.

B. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged units.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

1.16 INSTALLATION

A. Comply with manufacturer's written instructions for installing fire-protection specialties.

B. Install in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.

1. Prepare recesses for cabinets as required by type and size of cabinet and trim style.
2. Fasten cabinets to structure, square and plumb.

1.17 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust cabinet doors that do not swing or operate freely.

B. Refinish or replace cabinets and doors damaged during installation.

C. Provide final protection and maintain conditions that ensure that cabinets and doors are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10520

SECTION 10801

TOILET AND BATH ACCESSORIES

1.1 GENERAL

A. Submittals: Manufacturer's Product Data. Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each type of accessory specified.

B. Product Options: Accessory requirements, including those for materials, finishes, dimensions, capacities, and performance, are established by specific products indicated in the Toilet and Bath Accessory Schedule on drawings.

1. Products of other manufacturers with equal characteristics, as judged solely by Contracting Officer or authorized representative, may be provided.

1.2 PRODUCTS

A. Materials: As follows:

1. Stainless Steel: ASTM A 666, Type 304, with No. 4 finish (satin), in 0.0312-inch (0.8-mm) minimum nominal thickness, unless otherwise indicated.
2. Brass: ASTM B 19, leaded and unleaded flat products; ASTM B 16 (ASTM B 16M), rods, shapes, forgings, and flat products with finished edges; ASTM B 30, castings.
3. Sheet Steel: ASTM A 366/A 366M, cold rolled, commercial quality, 0.0359-inch (0.9-mm) minimum nominal thickness; surface preparation and metal pretreatment as required for applied finish.
4. Galvanized Steel Sheet: ASTM A 653/A 653M, G60 (Z180).
5. Chromium Plating: ASTM B 456, Service Condition Number SC 2 (moderate service), nickel plus chromium electrodeposited on base metal.
6. Baked-Enamel Finish: Factory-applied, gloss-white, baked-acrylic-enamel coating.
7. Mirror Glass: ASTM C 1036, Type I, Class 1, Quality q2, nominal 6.0 mm thick, with silvering, electroplated copper coating, and protective organic coating complying with FS DD-M-411.
8. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
9. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.
10. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to the Government's representative.

1.3 EXECUTION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

1. Secure mirrors to walls in concealed, tamper-resistant manner with special hangers, toggle bolts, or screws. Set units level, plumb, and square at locations indicated, according to manufacturer's written instructions for substrate indicated.
2. Install grab bars to withstand a downward load of at least 250 lbf (1112 N), when tested according to method in ASTM F 446.

B. Adjust accessories for unencumbered, smooth operation and verify that the mechanisms function properly. Replace damaged or defective items.

C. Remove temporary labels and protective coatings.

D. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10801

SECTION 13916

FIRE-SUPPRESSION SPRINKLERS

1.1 GENERAL

A. Design sprinkler working plans and obtain approval from authorities having jurisdiction.

B. Design sprinkler piping according to the following and obtain approval from authorities having jurisdiction:

1. Include 10 percent margin of safety for available water flow and pressure.
2. Sprinkler Occupancy Hazard Classifications: As follows:

    a. All Areas: Ordinary Hazard, Group 1.

3. Minimum Density for Automatic-Sprinkler Piping Design: As follows:

    a. Ordinary-Hazard, Group 1 Occupancy: 0.12 gpm over 3,000-sq. ft. (7.6 mL/s over 279-sq. m) area.

4. Maximum Protection Area per Sprinkler: As follows:

    a. All Areas: 130 sq. ft. (12.1 sq. m).

C. Components and Installation: Capable of producing piping systems with 175-psig (1200-kPa) minimum working-pressure rating.

D. Submittals: Submit the following:

1. Product Data: For valves (NRS, OS&Y, check), piping materials and fittings, hangers and upper attachments, water motor gong, flow switch, tamper switch, back flow preventer, post indicator, sprinkler head guards, fire department connections, all sprinklers and propylene glycol.
2. Warranty: provide manufacturer’s written warranty for pipe, pipe fittings, pipe couplings, and sprinkler heads.
3. Approved Sprinkler Piping Drawings: Working plans, prepared according to NFPA 13, that have been approved by authorities having jurisdiction. Include hydraulic calculations.
4. Field Test Reports and Certificates: Indicate and interpret test results for compliance with performance requirements and as described in NFPA 13. Include "Contractor's Material and Test Certificate for Aboveground Piping", "Contractor's Material and Test Certificate for Underground Piping", and purging and disinfecting reports.
5. Furnish material safety data sheet (MSDS) for propylene glycol.
6. Furnish samples of each sprinkler head, escutcheon, and guard.
7. Provide operating instructions for: flow switch, tamper switch, water motor gong, alarm check valve, and backflow preventer.

E. Manufacturer Qualifications: Firms whose equipment, specialties, and accessories are listed by product name and manufacturer in UL's "Fire Protection Equipment Directory" and FM's "Fire Protection Approval Guide" and that comply with other requirements indicated.

F. Sprinkler Components: Listing/approval stamp, label, or other marking by a testing agency acceptable to authorities having jurisdiction.

G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

H. NFPA Standards: Equipment, specialties, accessories, installation, and testing complying with the following:

1. NFPA 13, "Installation of Sprinkler Systems."

1.2 PRODUCTS

A. Piping: Refer to "Piping Applications" Paragraph for applications of pipe, tube, fitting, and joining materials.

B. Ductile-Iron Pipe: AWWA C151, push-on-joint type; with cement-mortar lining and seal coat according to AWWA C104. Include rubber gasket according to AWWA C111.

C. Standard-Weight Steel Pipe: ASTM A 53, ASTM A 135, or ASTM A 795; Schedule 40 in NPS 6 (DN150) and smaller, and Schedule 30 in NPS 8 (DN200) and larger.

D. Schedule 30 Steel Pipe: ASTM A 135 or ASTM A 795, with wall thickness less than Schedule 40 and equal to or greater than Schedule 30 or ASTM A 795 and ASME B36.10M, Schedule 30 wrought-steel pipe.

E. Schedule 10 Steel Pipe: ASTM A 135 or ASTM A 795, Schedule 10 in NPS 5 (DN125) and smaller and NFPA 13 specified wall thickness in NPS 6 to NPS 10 (DN150 to DN250).

F. Ductile-Iron Fittings: AWWA C110, ductile-iron or cast-iron push-on-joint type; or AWWA C153, ductile-iron, compact push-on-joint type. Include cement-mortar lining and seal coat according to AWWA C104 and rubber gaskets according to AWWA C111.

G. Cast-Iron Threaded Flanges: ASME B16.1.

H. Cast-Iron Threaded Fittings: ASME B16.4.

I. Malleable-Iron Threaded Fittings: ASME B16.3.

J. Steel, Threaded Couplings: ASTM A 865.

K. Steel Welding Fittings: ASTM A 234/A 234M, ASME B16.9, or ASME B16.11.

L. Steel Flanges and Flanged Fittings: ASME B16.5.

M. Steel, Grooved-End Fittings: UL-listed and FM-approved, ASTM A 47 (ASTM A 47M), malleable iron or ASTM A 536, ductile iron; with dimensions matching steel pipe and ends factory grooved according to AWWA C606.

N. Transition Couplings: AWWA C219, sleeve type, or other manufactured fitting the same size as, with pressure rating at least equal to, and with ends compatible with piping to be joined.

O. Fire-Protection-Service Valves: UL listed and FM approved, with minimum 175-psig (1200-kPa) nonshock working-pressure rating. Valves for grooved-end piping may be furnished with grooved ends instead of type of ends specified.

1. Gate Valves, NPS 2 (DN50) and Smaller: UL 262; cast-bronze, threaded ends; solid wedge; OS&Y; and rising stem.
2. Indicating Valves, NPS 2-1/2 (DN65) and Smaller: UL 1091; ball-type, bronze body with threaded ends; and integral indicating device.
3. Gate Valves, NPS 2-1/2 (DN65) and Larger: UL 262, iron body, bronze mounted, taper wedge, OS&Y, and rising stem. Include replaceable, bronze, wedge facing rings and flanged ends.
4. Swing Check Valves, NPS 2 (DN50) and Smaller: UL 312 or MSS SP-80, Class 150; bronze body with bronze disc and threaded ends.
5. Swing Check Valves, NPS 2-1/2 (DN65) and Larger: UL 312, cast-iron body and bolted cap, with bronze disc or cast-iron disc with bronze-disc ring and flanged ends.
6. Indicator Post Gate Valves: UL 262, iron body, bronze mounted, solid-wedge disc, and nonrising stem with operating nut and flanged ends. Paint bronze color per Contracting Officer.
7. Indicator Posts: UL789, horizontal, wall-type, cast-iron body, with windows for target plates that indicate valve position, extension rod and coupling, locking device, and red enamel finish.
    a. Operation: Hand wheel.

P. Alarm Check Valves: UL 193, 175-psig (1200-kPa) working pressure, designed for horizontal or vertical installation, with cast-iron flanged inlet and outlet, or grooved outlet, bronze grooved seat with O-ring seals, and single-hinge pin and latch design. Include trim sets for bypass, drain, electric sprinkler alarm switch, pressure gages, retarding chamber, fill-line attachment with strainer, and drip cup assembly.

Q. Ball Drip Valves: UL 1726, automatic drain valve, NPS 3/4 (DN20), ball check device with threaded ends.

R. Automatic Sprinklers: With heat-responsive element complying with the following:

1. UL 199, for applications except residential.

S. Sprinkler Types and Categories: Nominal 1/2-inch (12.7-mm) orifice for "Ordinary" temperature classification rating, unless otherwise indicated or required by application.

T. Sprinkler types, features, and options include the following:

1. Pendent sprinklers.

2. Sidewall sprinklers.
3. Sidewall, dry-type sprinklers.
4. Upright sprinklers.

U. Sprinkler Finishes: Chrome-plated, bronze, and painted.

V. Sprinkler Escutcheons: Chrome-plated steel, one piece, flat, unless otherwise indicated.

W. Sprinkler Guards: Wire-cage type, including fastening device for attaching to sprinkler.

X. Specialty Sprinkler Fittings: UL listed and FM approved; made of steel, ductile iron, or other materials compatible with piping.

Y. Locking-Lug Fittings: Unacceptable.

Z. Mechanical-Cross Fittings: UL 213, ductile-iron housing with pressure-responsive gaskets, bolts, and threaded or locking-lug outlets.

AA. Drop-Nipple Fittings: UL 1474, with threaded inlet, threaded outlet, and seals; adjustable.

BB. Sprinkler, Drain and Alarm Test Fittings: UL-listed, cast- or ductile-iron body; with threaded inlet and outlet, test valve, and orifice and sight glass.

CC. Sprinkler, Branch-Line Test Fittings: UL-listed, brass body; with threaded inlet and capped drain outlet and threaded outlet for sprinkler.

DD. Sprinkler, Inspector's Test Fittings: UL-listed, cast- or ductile-iron housing; with threaded inlet and drain outlet and sight glass.

EE. Sidewalk, Exposed, Free Standing, Fire Department Connections: UL 405; cast-brass body, inlets with threads according to NFPA 1963 and matching local fire department sizes and threads, and bottom outlet with pipe threads. Include brass, lugged caps, gaskets and brass chains; and brass, lugged swivel connection and drop clapper for each hose connection inlet; 18-inch high brass sleeve; and round, floor, brass, escutcheon plate with marking "AUTO SPKR & STANDPIPE."

1. Type: Exposed mounting.
2. Escutcheon Plate: Rectangular.
3. Finish: Painted enamel finish, bronze color as per Contracting Officer.

FF. Water-Motor-Operated Alarms: UL 753, mechanical-operation type with pelton-wheel operator with shaft length, bearings, and sleeve to suit wall construction and 10-inch-(250-mm-) diameter, cast-aluminum alarm gong with red-enamel factory finish. Include NPS 3/4 (DN20) inlet and NPS 1 (DN25) drain connections.

GG. Water-Flow Indicators: UL 346; electrical-supervision, vane-type water-flow detector; with 250-psig (1725-kPa) pressure rating; and designed for horizontal or vertical installation. Include two single-pole, double-throw, circuit switches for isolated alarm and auxiliary contacts, 7 A, 125-V ac and 0.25 A, 24-V dc; complete with factory-set,

field-adjustable retard element to prevent false signals and tamperproof cover that sends signal if removed.

HH. Valve Supervisory Switches: UL 753; electrical; single-pole, double throw; with normally closed contacts. Include design that signals controlled valve is in other than fully open position.

II. Pressure Gages: UL 393, 3-1/2- to 4-1/2-inch- (90- to 115-mm-) diameter dial with dial range of 0 to 250 psig (0 to 1725 kPa).

JJ. Industrially inhibited propylene glycol: Operating temperature range of –50 degrees F to 325 degrees F. Fluid to contain corrosion inhibitors. Fluid shall have low acute oral toxicity. Fluid shall be dyed yellow to facilitate leak detection, easily analyzed for glycol and inhibitor level, and pass ASTM D1384 for penetration.

KK. Flanged Pipe Support: See Detail C/F4. Construct from plate steel of thickness indicated conforming to ASTM A36/A36M. All welding procedures and personnel shall conform to AWS D1.1 “Structural Welding Code – Steel”. Prime with fast curing, lead and chromate free, universal modified alkyd primer complying with FS TT-P-664.

LL. Double-Check-Valve Backflow Prevention Assemblies: UL 312, FM approved; with two UL 312, FM-approved, iron-body, 175-psig (1207-kPa) working-pressure, flanged-end check valves and two UL 262, FM-approved, iron-body, outside screw and yoke, flanged, 175-psig (1207-kPa) working-pressure gate valves.

1. Maximum Pressure Loss: **5 psig (35 kPa)** through middle 1/3 of flow range.

1.3 EXECUTION

A. Preparation: Fire-hydrant flow tests are indicated on Drawing F2. Use results for system design calculations. Any additional tests shall be performed by base personnel.

B. Piping Applications: Use according to the following:

1. Do not use welded joints with galvanized steel pipe.
2. Flanges, unions, and transition and special fittings with pressure ratings the same as or higher than system's pressure rating may be used in aboveground applications, unless otherwise indicated.
3. Piping between Fire Department Connections and Check Valves: Use galvanized, standard-weight steel pipe with threaded ends; cast- or malleable-iron threaded fittings; and threaded joints.
4. Underground Service-Entrance Piping: Use ductile-iron, push-on-joint pipe and fittings and restrained joints.
5. Sprinkler Feed Mains and Risers: Use the following:

a. NPS 4 (DN100) and Smaller: Standard-weight steel pipe with threaded ends, cast- or malleable-iron threaded fittings, and threaded joints.

b. NPS 4 (DN100) and Smaller: Standard-weight steel pipe with grooved ends; steel, grooved-end fittings; steel, keyed couplings; and grooved joints.
c. NPS 4 (DN100) and Smaller: Standard-weight steel pipe with plain ends, steel welding fittings, and welded joints.
d. NPS 4 (DN100) and Smaller: Schedule 40 steel pipe with threaded ends, cast- or malleable-iron threaded fittings, and threaded joints.
e. NPS 4 (DN100) and Smaller: Schedule 30 steel pipe with roll-grooved ends; steel, grooved-end fittings; steel, keyed couplings; and grooved joints.
f. NPS 4 (DN100) and Smaller: Schedule 10 steel pipe with roll-grooved ends; steel, grooved-end fittings; and grooved joints.
g. NPS 4 (DN100) and Smaller: Schedule 10 steel pipe with plain ends, steel welding fittings, and welded joints.

6. Sprinkler Branch Piping: Use the following:
7. Wet-Pipe, Sprinkler Branch Piping: Use the following:

a. Sprinkler-Piping Option: Specialty sprinkler fittings, NPS 2 (DN50) and smaller, including mechanical-T fittings, may be used downstream from sprinkler zone valves.
b. NPS 1-1/2 (DN40) and Smaller: Standard-weight steel pipe with threaded ends, cast- or malleable-iron threaded fittings, and threaded joints.
c. NPS 1-1/2 (DN40) and Smaller: Standard-weight steel pipe with plain ends, steel welding fittings, and welded joints.
d. NPS 1-1/2 (DN40) and Smaller: Schedule 10 steel pipe with plain ends, steel welding fittings, and welded joints.
e. NPS 2 (DN50): Standard-weight steel pipe with threaded ends, cast- or malleable-iron threaded fittings, and threaded joints.
f. NPS 2 (DN50): Standard-weight steel pipe with cut grooved ends; steel, grooved-end fittings; steel, keyed couplings; and grooved joints.
g. NPS 2 (DN50): Standard-weight steel pipe with plain ends, steel welding fittings, and welded joints.
h. NPS 2 (DN50): Schedule 30 steel pipe with grooved ends; steel, grooved-end fittings; steel, keyed couplings; and grooved joints.
i. NPS 2 (DN50): Schedule 10 steel pipe with roll-grooved ends; steel, grooved-end fittings; steel, keyed couplings; and grooved joints.
j. NPS 2 (DN50): Schedule 10 steel pipe with plain ends, steel welding fittings, and welded joints.
k. NPS 2-1/2 to NPS 3-1/2 (DN65 to DN90): Standard-weight steel pipe with threaded ends, cast- or malleable-iron threaded fittings, and threaded joints.
l. NPS 2-1/2 to NPS 3-1/2 (DN65 to DN90): Standard-weight steel pipe with cut grooved ends; steel, grooved-end fittings; steel, keyed couplings; and grooved joints.
m. NPS 2-1/2 to NPS 3-1/2 (DN65 to DN90): Standard-weight steel pipe with plain ends, steel welding fittings, and welded joints.
n. NPS 2-1/2 to NPS 3-1/2 (DN65 to DN90): Schedule 30 steel pipe with roll-grooved ends; steel, grooved-end fittings; steel, keyed couplings; and grooved joints.

o. NPS 2-1/2 to NPS 3-1/2 (DN65 to DN90): Schedule 10 steel pipe with roll-grooved ends; steel, grooved-end fittings; and grooved joints.
p. NPS 2-1/2 to NPS 3-1/2 (DN65 to DN90): Schedule 10 steel pipe with plain ends, steel welding fittings, and welded joints.

C. Valve Applications: Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Fire-Protection-Service Valves: UL listed and FM approved for applications where required by NFPA 13.

a. Shutoff Duty: Use gate valves.

2. General-Duty Valves: For applications where UL-listed and FM-approved valves are not required by NFPA 13.

a. Shutoff Duty: Use gate valves.

D. Joint Construction:

1. Steel-Piping, Grooved Joints: Use Schedule 40 steel pipe with cut-grooved ends and Schedule 30 or thinner steel pipe with roll-grooved ends; steel, grooved-end fittings; and steel, keyed couplings. Assemble joints with couplings, gaskets, lubricant, and bolts according to coupling manufacturer's written instructions.
2. Brazed Joints: Use AWS A5.8, BCuP-3 or BCuP-4 filler metals.
3. Locking-Lug-Fitting, Twist-Locked Joints: Unacceptable.
4. Provide “Mega-Lug” flange on service entrance piping for connection of interior flanged piping.

E. Service-Entrance Piping: Connect interior sprinkler piping to underground water-service piping of size and in location indicated on drawing detail A/F4 for service entrance to building. Install shutoff valve, backflow preventer, pressure gage, drain, and other accessories indicated at connection to water-service piping.

F. Backflow Preventer Installation:
1. Install backflow preventers of type, size, and capacity indicated. Include valves and test cocks. Install according to requirements of Contracting Officer.
2. Do not install backflow preventers with relief drain in space subject to flooding.
3. Do not install bypass piping around backflow preventers.
4. Support NPS 2-1/2 (DN 65) and larger backflow preventers, valves, and piping near floor as indicated by detail A/F4.

G. Piping Installation:

1. Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general location and arrangement of piping. Install piping as indicated, as far as practical. Deviations from approved working plans for piping require written approval from authorities having jurisdiction. File written approval before deviating from approved working plans.
2. Install underground service-entrance piping according to NFPA 24 and with restrained joints.

3. Use approved fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.
4. Install unions adjacent to each valve in pipes NPS 2 (DN50) and smaller. Unions are not required on flanged devices or in piping installations using grooved joints.
5. Install flanges or flange adapters on valves, apparatus, and equipment having NPS 2-1/2 (DN65) and larger connections.
6. Install "Inspector's Test Connections" in sprinkler piping, complete with shutoff valve, sized and located according to NFPA 13.
7. Install sprinkler piping with drains for complete system drainage.
8. Install sprinkler zone control valves, test assemblies, and drain risers adjacent to sprinkler risers when sprinkler branch piping is connected to sprinkler risers.
9. Install ball drip valves to drain piping between fire department connections and check valves. Drain to floor drain or outside building.
10. Install alarm devices in piping systems.
11. Hangers and Supports: Comply with NFPA 13 for hanger materials and installation.
12. Install piping with grooved joints according to manufacturer's written instructions. Construct rigid piping joints, unless otherwise indicated.
13. Install pressure gages on riser or feed main and at each sprinkler test connection. Include pressure gages with connection not less than NPS 1/4 (DN8) and with soft metal seated globe valve, arranged for draining pipe between gage and valve. Install gages to permit removal, and install where they will not be subject to freezing.
14. Install specialty sprinkler fittings according to manufacturer's written instructions.

H. Valve Installation: Install fire-protection specialty valves, trim, fittings, controls, and specialties according to NFPA 13, manufacturer's written instructions, and authorities having jurisdiction.

1. Gate Valves: Install fire-protection-service valves supervised-open, located to control sources of water supply except from fire department connections. Provide permanent identification signs indicating portion of system controlled by each valve.
2. Install check valve in each water-supply connection. Install backflow preventers instead of check valves in potable-water supply sources.
3. Alarm Check Valves: Install valves in vertical position for proper direction of flow, including bypass check valve and retard chamber drain-line connection.

I. Sprinkler Applications: Use sprinklers according to the following:

1. Rooms without Ceilings: Upright sprinklers.
2. Rooms with Suspended Ceilings: Pendent sprinklers.
3. Wall Mounting: Sidewall sprinklers.
4. Spaces Subject to Freezing: Upright; pendent, dry-type; and sidewall, dry-type sprinklers.
5. Sprinkler Finishes: Use sprinklers with the following:

    a. Upright, Pendent, and Sidewall Sprinklers: Chrome-plated in finished spaces exposed to view and rough bronze in unfinished spaces not exposed to view.

J. Install sprinklers in suspended ceilings in center of narrow dimension of acoustical panels.

K. Connect water supplies to sprinklers. Include backflow preventers.

L. Connect piping to specialty valves, specialties, fire department connections, and accessories.

M. Electrical Connections: Power wiring is specified in Division 16.

N. Connection of alarm devices to fire alarm will be performed by Division 16.

O. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13. This includes hydraulic design information sign.

P. Flush, test, and inspect sprinkler piping according to NFPA 13, "System Acceptance" Chapter.

Q. Provide material safety data sheet (MSDS) for propylene glycol. Follow handling and storage directions for propylene glycol. Propylene glycol shall not be handled or stored in public areas.

END OF SECTION 13916

SECTION 15050

BASIC MECHANICAL MATERIALS AND METHODS

1.1 GENERAL

A. Definitions include the following:

1. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.
2. Exposed, Interior Installations: Exposed to view indoors.
3. Exposed, Exterior Installations: Exposed to view outdoors, or subject to outdoor ambient temperatures and weather conditions.
4. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants.
5. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants, but subject to outdoor ambient temperatures.

B. The following are industry abbreviations for plastic and rubber materials:

1. ABS: Acrylonitrile-butadiene-styrene plastic.
2. CPVC: Chlorinated polyvinyl chloride plastic.
3. NP: Nylon plastic.
4. PE: Polyethylene plastic.
5. PVC: Polyvinyl chloride plastic.
6. CR: Chlorosulfonated polyethylene synthetic rubber.
7. EPDM: Ethylene-propylene-diene terpolymer rubber.

C. Equipment selection of higher electrical characteristics, physical dimensions, capacities, and ratings may be furnished provided such proposed equipment is approved in writing and connecting mechanical and electrical services, circuit breakers, conduit, motors, bases, and equipment spaces are increased. Any proposed equipment increases shall be at no additional cost to the Government. If minimum energy ratings or efficiencies of equipment are specified, equipment must meet design and commissioning requirements.

1.2 PRODUCTS

A. Refer to individual Division 15 piping Sections for pipe and fitting materials and joining methods and for special joining materials not listed below.
1. Plastic Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer.
2. Solder Filler Metal: ASTM B 32, Alloy Sn95, Alloy Sn94, or Alloy Sb5, unless otherwise indicated.
3. Brazing Filler Metals: AWS A5.8, BCuP Series or Alloy BAg1, unless otherwise indicated.

4. Solvent Cements: ASTM D 2235 for ABS piping, ASTM F 493 for CPVC piping, and ASTM D 2564 with ASTM F 656 primer for PVC piping.

B. Dielectric Fittings: Combination of copper alloy and ferrous; threaded, solder, plain, and weld-neck end types matching piping system materials; with insulating material suitable for system fluid, pressure, and temperature.

1. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig (1725-kPa) minimum working pressure at 180 deg F (82 deg C).
2. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).
3. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).

C. Flexible Connectors: Fabricated from materials suitable for system fluid and that will provide flexible pipe connections. Include 125-psig (860-kPa) minimum working-pressure rating, threaded ends for 2-inch NPS (DN50) and smaller, and flanged ends for 2-1/2-inch NPS (DN65) and larger.

1. Rubber, Flexible Connectors: CR or EPDM elastomer rubber construction, with multiple plies of NP fabric, molded and cured in hydraulic presses. Include 125-psig (860-kPa) minimum working-pressure rating at 220 deg F (104 deg C).

D. Steel, Sheet-Metal Sleeves: 0.0239-inch (0.6-mm) minimum thickness, galvanized, round tube closed with welded longitudinal joint.

E. Steel Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized, plain ends.

F. PVC Pipe Sleeves: ASTM D 1785, Schedule 40.

G. Escutcheons: Manufactured wall, ceiling, and floor plates; deep-pattern type if required to conceal protruding fittings and sleeves. Include ID to closely fit around pipe, tube, and insulation of insulated piping and OD to completely cover opening.

1. Cast Brass: One-piece or split casting, with concealed hinge; set screw; and polished chrome-plated finish.
2. Stamped Steel: Split plate, with concealed hinge, spring clips, and chrome-plated finish.

H. Identifying Devices and Labels: Manufacturer's standard products.

1. Equipment Nameplates: Metal nameplate with operational data engraved or stamped; permanently fastened to equipment in accessible and visible location. Include manufacturer, product name, model number, serial number, capacity, operating and power characteristics, and labels of tested compliances.
2. Stencils: Standard stencils, prepared for required applications with letter sizes complying with recommendations of ASME A13.1 for piping and similar applications, but not less than 1-1/4-inch- (30-mm-) high letters for ductwork and

not less than 3/4-inch- (19-mm-) high letters for access door signs and similar operational instructions.

a. Material: Fiberboard or brass.
b. Stencil Paint: Standard exterior-type stenciling enamel; black, unless otherwise indicated; either brushing grade or pressurized spray-can form and grade.
c. Identification Paint: Standard identification enamel of colors indicated or, if not otherwise indicated for piping systems, comply with ASME A13.1 for colors.

3. Snap-on Plastic Pipe Markers: Manufacturer's standard preprinted, semirigid, snap on, color-coded, complying with ASME A13.1.
4. Pressure-Sensitive Pipe Markers: Manufacturer's standard preprinted, permanent adhesive, color-coded, pressure-sensitive vinyl, complying with ASME A13.1.
5. Plastic Duct Markers: Manufacturer's standard color-coded, laminated plastic. Include green for cold air; yellow for hot air; yellow/green or green for supply air; blue for exhaust, outside, return, and mixed air; and as recommended by ASME A13.1 for hazardous exhausts.

   a. Nomenclature: Include direction of airflow; duct service, origin, and destination; and design cubic feet per meter (liters per second).

6. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white melamine subcore. Fabricate in sizes required for message, engrave with standard letter style, of sizes and with wording to match equipment identification, punch for mechanical fastening, and 1/16-inch (1.6-mm) minimum thickness. Include self-tapping stainless-steel screws or contact-type permanent adhesive.
7. Plastic Equipment Markers: Color-coded, laminated plastic. Include green for cooling equipment; yellow for heating equipment; yellow/green or green for combination cooling and heating equipment; brown for energy reclamation equipment; blue for other equipment; and as recommended by ASME A13.1 for hazardous equipment. Include name and plan number, service, design capacity, design parameters, and size approximate 2-1/2 by 4 inches (65 by 100 mm) for control devices, dampers, and valves; and 4-1/2 by 6 inches (115 by 150 mm) for equipment.
8. Lettering and Graphics: Coordinate names, abbreviations, and other designations used in mechanical identification, with corresponding designations indicated. Use numbers, lettering, and wording indicated for proper identification and operation/maintenance of mechanical systems and equipment.

I. Grout: ASTM C 1107, Grade B, nonshrink and nonmetallic, premixed and factory packaged; and 5000-psig (34.5-MPa), 28-day compressive strength design mix.

1.3 EXECUTION

A. Piping Systems - Common Requirements: Install piping as described below, unless piping Sections specify otherwise. Division 15 piping Sections specify unique installation requirements.

B. General Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated.

C. Install components with pressure rating equal to or greater than system operating pressure.

D. Install piping in concealed locations, except in equipment rooms and service areas.

E. Install exposed piping at right angles or parallel to building walls.

F. Install piping tight to slabs, beams, joists, columns, walls, and other building elements. Allow sufficient space above removable ceiling panels to allow for ceiling panel removal.

G. Install piping to allow application of insulation plus 1-inch (25-mm) clearance around insulation.

H. Locate groups of pipes parallel to each other, spaced to permit valve servicing.

I. Install fittings for changes in direction and branch connections.

J. Install pipe escutcheons for pipe penetrations of concrete and masonry walls, wall board partitions, and suspended ceilings according to the following:

1. Chrome-Plated Piping: Cast brass, one piece, with set screw, and polished chrome-plated finish. Use split-casting escutcheons if required, for existing piping.
2. Uninsulated Piping Wall Escutcheons: Cast brass or stamped steel, with set screw.
3. Insulated Piping: Cast brass or stamped steel; with concealed hinge, spring clips, and chrome-plated finish.
4. Piping in Utility Areas: Cast brass or stamped steel, with set-screw or spring clips.

K. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces, except extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches (50 mm) above finished floor.

2. Install sleeves large enough to provide 1/4-inch (6.4-mm) annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

    a. Steel Pipe Sleeves: For pipes smaller than 6-inch NPS (DN150), in exterior walls.
    b. PVC or Steel Pipe Sleeves: For pipes smaller than 6-inch NPS (DN150), unless otherwise indicated.
    c. Steel, Sheet-Metal Sleeves: For pipes 6-inch NPS (DN150) and larger, penetrating gypsum-board partitions.

3. Except for underground wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using elastomeric joint sealants. Refer to Division 7 Section "Joint Sealants" for materials. Use Type S, Grade NS, Class 25, Use O neutral-curing silicone sealant, unless otherwise indicated.
4. Aboveground, Exterior-Wall, Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeve for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals. Assemble and install mechanical sleeve seals according to manufacturer's written instructions.

L. Verify final equipment locations for roughing-in. Refer to other Sections of these Specifications for roughing-in requirements.

M. Piping Joint Construction: Join pipe and fittings as follows and as specifically required in individual piping specification Sections. Ream ends of pipes and tubes and remove burrs; bevel plain ends of steel pipe; and remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly. Construct soldered joints according to AWS's "Soldering Manual," Chapter "The Soldering of Pipe and Tube" or CDA's "Copper Tube Handbook"; brazed joints according to AWS's "Brazing Handbook," Chapter "Pipe and Tube"; threaded joints according to ASME B1.20.1; and welded joints according to AWS D10.12, "Recommended Practices and Procedures for Welding Low Carbon Steel Pipe."

    1. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Comply with ASTM F 402 for safe handling practice of cleaners, primers, and solvent cements, and join ABS piping according to ASTM D 2235 and ASTM D 2661, CPVC piping according to ASTM D 2846 and ASTM F 493, PVC pressure piping according to ASTM D 2672, and PVC nonpressure piping according to ASTM D 2855.

N. Piping Connections: Make connections according to the following, unless otherwise indicated:

    1. Install unions, in piping 2-inch NPS (DN50) and smaller, adjacent to each valve and at final connection to each piece of equipment with 2-inch NPS (DN50) or smaller threaded pipe connection.
    2. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.
    3. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

O. Concrete Bases: Construct concrete equipment bases of dimensions indicated, but not less than 4 inches (100 mm) larger than supported unit in both directions. Follow supported equipment manufacturer's setting templates for anchor bolt and tie locations. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete and reinforcement.

P. Erection of Metal Supports and Anchorage: Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment. Comply with AWS D1.1, "Structural Welding Code--Steel," for welding.

Q. Cutting and Patching: Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations. Perform cutting by skilled mechanics of trades involved. Repair cut surfaces to match adjacent surfaces.

R. Grouting: Install nonmetallic nonshrink grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors.

END OF SECTION 15050

SECTION 15060

HANGERS AND SUPPORTS

1.1 GENERAL

A. Design channel support systems for piping to support multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.

B. Design heavy-duty steel trapezes for piping to support multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.

C. Design seismic restraint hangers and supports for piping and equipment.

1.2 PRODUCTS

A. Pipe Hangers, Supports, and Components: MSS SP-58, factory-fabricated components.

1. Galvanized, Metallic Coatings: For piping and equipment that will not have field-applied finish.
2. Nonmetallic Coatings: On attachments for electrolytic protection where attachments are in direct contact with copper tubing.

B. Channel Support Systems: MFMA-2, factory-fabricated components for field assembly.

1. Coatings: Manufacturer's standard finish, unless bare metal surfaces are indicated.
2. Nonmetallic Coatings: On attachments for electrolytic protection where attachments are in direct contact with copper tubing.

C. Mechanical-Anchor Fasteners: Insert-type attachments with pull-out and shear capacities appropriate for supported loads and building materials where used.

D. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars, black and galvanized.

1.3 EXECUTION

A. Specific hanger requirements are specified in Sections specifying equipment and systems.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Specification Sections.

C. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:

1. Adjustable Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30 (DN15 to DN750).
2. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes, NPS 3/4 to NPS 24 (DN20 to DN600), requiring clamp flexibility and up to 4 inches (100 mm) of insulation.
3. Adjustable Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8 (DN15 to DN200).
4. U-Bolts (MSS Type 24): For support of heavy pipe, NPS 1/2 to NPS 30 (DN15 to DN750).

D. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:

1. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20 (DN20 to DN500), if longer ends are required for riser clamps.

E. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches (150 mm) for heavy loads.
2. Steel Clevises (MSS Type 14): For 120 to 450 deg F (49 to 232 deg C) piping installations.

F. Building Attachments: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:

1. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
2. C-Clamps (MSS Type 23): For structural shapes.
3. Welded-Steel Brackets: For support of pipes from below or for suspending from above by using clip and rod. Use one of the following for indicated loads:

    a. Light (MSS Type 31): 750 lb (340 kg).
    b. Medium (MSS Type 32): 1500 lb (675 kg).
    c. Heavy (MSS Type 33): 3000 lb (1350 kg).

4. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
5. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.

G. Pipe Hanger and Support Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

H. Install mechanical-anchor fasteners in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

I. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

J. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

K. Equipment Supports: Fabricate structural-steel stands to suspend equipment from structure above or to support equipment above floor. Place grout under supports for equipment and make smooth bearing surface.

END OF SECTION 15060

SECTION 15075

MECHANICAL IDENTIFICATION

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes mechanical identification materials and devices.

1.3 SUBMITTALS

A. Product Data: For identification materials and devices.

1.4 QUALITY ASSURANCE

A. Comply with ASME A13.1, "Scheme for the Identification of Piping Systems" for lettering size, length of color field, colors, and viewing angles of identification devices.

1.5 SEQUENCING AND SCHEDULING

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Install identifying devices before installing acoustical ceilings and similar concealment.

1.6 IDENTIFYING DEVICES AND LABELS

A. General: Products specified are for applications referenced in other Division 15 Sections. If more than single type is specified for listed applications, selection is Installer's option.

B. Equipment Nameplates: Metal permanently fastened to equipment with data engraved or stamped.

1. Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and essential data.
2. Location: Accessible and visible.

C. Snap-On Plastic Pipe Markers: Manufacturer's standard preprinted, semirigid, snap-on type. Include color-coding according to ASME A13.1, unless otherwise indicated.

D. Pipes with OD, Including Insulation, Less Than 6 Inches (150 mm): Full-band pipe markers, extending 360 degrees around pipe at each location.

E. Lettering: Manufacturer's standard preprinted captions as selected by the Contracting Officer or authorized representative.

F. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white melamine subcore, unless otherwise indicated. Fabricate in sizes required for message. Provide holes for mechanical fastening.

1. Engraving: Engraver's standard letter style, of sizes and with terms to match equipment identification.
2. Thickness: 1/8 inch (3 mm), unless otherwise indicated.
3. Fasteners: Self-tapping, stainless-steel screws or contact-type, permanent adhesive.

G. Plastic Equipment Markers: Manufacturer's standard laminated plastic, in the following color codes:

1. Green: Cooling equipment and components.
2. Yellow: Heating equipment and components.
3. Blue: Equipment and components that do not meet criteria above.
4. Hazardous Equipment: Use colors and designs recommended by ASME A13.1.
5. Terminology: Match schedules as closely as possible. Include the following:

a. Name and plan number.
b. Equipment service.
c. Design capacity.
d. Other design parameters such as pressure drop, entering and leaving conditions, and speed.

6. Size: 2-1/2 by 4 inches (65 by 100 mm) for control devices, dampers, and valves; 4-1/2 by 6 inches (115 by 150 mm) for equipment.

1.7 LABELING AND IDENTIFYING PIPING SYSTEMS

A. Install pipe markers on each system. Include arrows showing normal direction of flow.

B. Marker Type: Plastic markers, with application systems. Install on pipe insulation segment where required for hot, noninsulated pipes.

C. Fasten markers on pipes and insulated pipes smaller than 6 inches (150 mm) OD by one of following methods:

1. Snap-on application of pretensioned, semirigid plastic pipe marker.

D. Locate pipe markers and color bands where piping is exposed in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior nonconcealed locations according to the following:

1. Near each control device.
2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Mark each pipe at branch, where flow pattern is not obvious.
3. Near major equipment items and other points of origination and termination.
4. Spaced at a maximum of 50-foot (15-m) intervals along each run. Reduce intervals to 25 feet (7.5 m) in areas of congested piping and equipment.
5. On piping above removable acoustical ceilings, except omit intermediately spaced markers.

1.8 EQUIPMENT SIGNS AND MARKERS

A. Install engraved plastic-laminate signs or equipment markers on or near each major item of mechanical equipment. Include signs for the following general categories of equipment:

1. Condensers, and similar motor-driven units.
2. Fans, blowers, primary balancing dampers, and mixing boxes.
3. Packaged HVAC units.

B. Plasticized Tags: Install within concealed space, to reduce amount of text in exposed sign outside concealment, if equipment to be identified is concealed above acoustical ceiling or similar concealment.

1.9 ADJUSTING AND CLEANING

A. Relocate mechanical identification materials and devices that have become visually blocked by work of this or other Divisions.

END OF SECTION 15075

SECTION 15081

DUCT INSULATION

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes semirigid and flexible duct and plenum insulation; insulating cements; field-applied jackets; accessories and attachments; and sealing compounds.

B. Related Sections include the following:

1. Division 15 Section "Pipe Insulation" for insulation for piping systems.

1.3 SUBMITTALS

A. Product Data: Identify thermal conductivity, thickness, and jackets (both factory and field applied, if any), for each type of product indicated.

1.4 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: As determined by testing materials identical to those specified in this Section according to ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and sealer and cement material containers with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Ship insulation materials in containers marked by manufacturer with appropriate ASTM specification designation, type and grade, and maximum use temperature.

1.6 COORDINATION

A. Coordinate clearance requirements with duct Installer for insulation application.

1.7 SCHEDULING

A. Schedule insulation application after testing duct systems. Insulation application may begin on segments of ducts that have satisfactory test results.

1.8 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following (or approved equal):

1. Mineral-Fiber Insulation:

a. CertainTeed Manson.
b. Knauf FiberGlass GmbH.
c. Owens-Corning Fiberglas Corp.
d. Schuller International, Inc.

1.9 INSULATION MATERIALS

A. Mineral-Fiber Blanket Thermal Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II, without facing and with all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.

1.10 FIELD-APPLIED JACKETS

A. General: ASTM C 921, Type 1, unless otherwise indicated.

B. Foil and Paper Jacket: Laminated, glass-fiber-reinforced, flame-retardant kraft paper and aluminum foil.

1.11 ACCESSORIES AND ATTACHMENTS

A. Glass Cloth and Tape: Comply with MIL-C-20079H, Type I for cloth and Type II for tape. Woven glass-fiber fabrics, plain weave, presized a minimum of 8 oz./sq. yd. (270 g/sq. m).

1. Tape Width: 4 inches (100 mm).

B. Bands: 3/4 inch (19 mm) wide, in one of the following materials compatible with jacket:

1. Stainless Steel: ASTM A 666, Type 304; 0.020 inch (0.5 mm) thick.

1.12 VAPOR RETARDERS

A. Mastics: Materials recommended by insulation material manufacturer that are compatible with insulation materials, jackets, and substrates.

1.13 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

1.14 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

1.15 GENERAL APPLICATION REQUIREMENTS

A. Apply insulation materials, accessories, and finishes according to the manufacturer's written instructions; with smooth, straight, and even surfaces; and free of voids throughout the length of ducts and fittings.

B. Refer to schedules at the end of this Section for materials, forms, jackets, and thicknesses required for each duct system.

C. Use accessories compatible with insulation materials and suitable for the service. Use accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Seal joints and seams with vapor-retarder mastic on insulation indicated to receive a vapor retarder.

E. Keep insulation materials dry during application and finishing.

F. Apply insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by the insulation material manufacturer.

G. Apply insulation with the least number of joints practical.

H. Apply insulation over fittings and specialties, with continuous thermal and vapor-retarder integrity, unless otherwise indicated.

I. Hangers and Anchors: Where vapor retarder is indicated, seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic. Apply insulation continuously through hangers and around anchor attachments.

J. Insulation Terminations: For insulation application where vapor retarders are indicated, seal ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.

K. Apply insulation with integral jackets as follows:

1. Pull jacket tight and smooth.

2. Joints and Seams: Cover with tape and vapor retarder as recommended by insulation material manufacturer to maintain vapor seal.
3. Vapor-Retarder Mastics: Where vapor retarders are indicated, apply mastic on seams and joints and at ends adjacent to duct flanges and fittings.

L. Cut insulation according to manufacturer's written instructions to prevent compressing insulation to less than 75 percent of its nominal thickness.

M. Install vapor-retarder mastic on ducts and plenums scheduled to receive vapor retarders.

1. Ducts with Vapor Retarders: Overlap insulation facing at seams and seal with vapor-retarder mastic and pressure-sensitive tape having same facing as insulation. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-retarder seal.
2. Ducts without Vapor Retarders: Overlap insulation facing at seams and secure with outward clinching staples and pressure-sensitive tape having same facing as insulation.

N. Roof Penetrations: Apply insulation for interior applications to a point even with top of roof flashing.

1. Seal penetrations with vapor-retarder mastic.
2. Apply insulation for exterior applications tightly joined to interior insulation ends.
3. Seal insulation to roof flashing with vapor-retarder mastic.

O. Interior Wall and Partition Penetrations: Apply insulation continuously through walls and partitions, except fire-rated walls and partitions.

1.16 MINERAL-FIBER INSULATION APPLICATION

A. Blanket Applications for Ducts: Secure blanket insulation with adhesive.

1. Apply adhesives according to manufacturer's recommended coverage rates per square foot, for 100 percent coverage of duct and plenum surfaces.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches (50 mm) from one edge and one end of insulation segment. Secure laps to adjacent insulation segment with 1/2-inch (13-mm) staples, 1 inch (25 mm) o.c., and cover with pressure-sensitive tape having same facing as insulation.
4. Apply insulation on rectangular duct elbows and transitions with a full insulation segment for each surface. Apply insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
5. Insulate duct stiffeners, hangers, and flanges that protrude beyond the insulation surface with 6-inch- (150-mm-) wide strips of the same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with anchor pins spaced 6 inches (150 mm) o.c.

6. Apply vapor-retarder mastic to open joints, breaks, and punctures for insulation indicated to receive vapor retarder.

1.17 FIELD-APPLIED JACKET APPLICATION

A. Apply glass-cloth jacket, where indicated, directly over bare insulation or insulation with factory-applied jackets.

1. Apply jacket smooth and tight to surface with 2-inch (50-mm) overlap at seams and joints.
2. Embed glass cloth between two 0.062-inch- (1.6-mm-) thick coats of jacket manufacturer's recommended adhesive.
3. Completely encapsulate insulation with jacket, leaving no exposed raw insulation.

1.18 DUCT SYSTEM APPLICATIONS

A. Insulation materials and thicknesses are specified in schedules at the end of this Section.

B. Materials and thicknesses for systems listed below are specified in schedules at the end of this Section.

C. Insulate the following plenums and duct systems:

1. Indoor concealed supply-, return-, outside-, and relief- air ductwork.
2. Indoor exposed supply-, return-, and outside-air ductwork.

D. Items Not Insulated: Unless otherwise indicated, do not apply insulation to the following systems, materials, and equipment:

1. Factory-insulated flexible ducts.
2. Factory-insulated plenums, casings, terminal boxes, and filter boxes and sections.
3. Flexible connectors.
4. Vibration-control devices.
5. Testing agency labels and stamps.
6. Nameplates and data plates.
7. Access panels and doors in air-distribution systems.

1.19 INDOOR DUCT APPLICATION SCHEDULE

A. Service: Rectangular and round, supply, return, and relief air ducts, concealed.

1. Material: Mineral-fiber blanket.
2. Thickness: 2 inches (38 mm).
3. Number of Layers: One.
4. Field-Applied Jacket: Foil and paper.
5. Vapor Retarder Required: Yes.

END OF SECTION 15081

SECTION 15083

PIPE INSULATION

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes preformed, rigid and flexible pipe insulation; insulating cements; field-applied jackets; accessories and attachments; and sealing compounds.

1.3 SUBMITTALS

A. Product Data: Identify thermal conductivity, thickness, and jackets (both factory and field applied, if any), for each type of product indicated.

1.4 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: As determined by testing materials identical to those specified in this Section according to ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and sealer and cement material containers with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Ship insulation materials in containers marked by manufacturer with appropriate ASTM specification designation, type and grade, and maximum use temperature.

1.6 COORDINATION

A. Coordinate size and location of supports, hangers, and insulation shields specified in Division 15 Section "Hangers and Supports."

B. Coordinate clearance requirements with piping Installer for insulation application.

1.7 SCHEDULING

A. Schedule insulation application after testing piping systems. Insulation application may begin on segments of piping that have satisfactory test results.

1.8 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include the following (or approved equal):

1. Mineral-Fiber Insulation:

    a. CertainTeed Manson.
    b. Knauf FiberGlass GmbH.
    c. Owens-Corning Fiberglas Corp.
    d. Schuller International, Inc.

1.9 INSULATION MATERIALS

A. Mineral-Fiber Insulation: Glass fibers bonded with a thermosetting resin complying with the following:

1. Preformed Pipe Insulation: Comply with ASTM C 547, Type 1, with factory-applied, all-purpose, vapor-retarder jacket.
2. Fire-Resistant Adhesive: Comply with MIL-A-3316C in the following classes and grades:

    a. Class 1, Grade A for bonding glass cloth and tape to unfaced glass-fiber insulation, for sealing edges of glass-fiber insulation, and for bonding lagging cloth to unfaced glass-fiber insulation.
    b. Class 2, Grade A for bonding glass-fiber insulation to metal surfaces.

3. Vapor-Retarder Mastics: Fire- and water-resistant, vapor-retarder mastic for indoor applications. Comply with MIL-C-19565C, Type II.

B. Prefabricated Thermal Insulating Fitting Covers: Comply with ASTM C 450 for dimensions used in preforming insulation to cover valves, elbows, tees, and flanges.

1.10 FIELD-APPLIED JACKETS

A. General: ASTM C 921, Type 1, unless otherwise indicated.

B. Foil and Paper Jacket: Laminated, glass-fiber-reinforced, flame-retardant kraft paper and aluminum foil.

C. Standard PVC Fitting Covers: Factory-fabricated fitting covers manufactured from 20-mil- (0.5-mm-) thick, high-impact, ultraviolet-resistant PVC.

1. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories for the disabled.
2. Adhesive: As recommended by insulation material manufacturer.

1.11 ACCESSORIES AND ATTACHMENTS

A. Glass Cloth and Tape: Comply with MIL-C-20079H, Type I for cloth and Type II for tape. Woven glass-fiber fabrics, plain weave, presized a minimum of 8 oz./sq. yd. (270 g/sq. m).

1. Tape Width: 4 inches (100 mm).

B. Bands: 3/4 inch (19 mm) wide, in one of the following materials compatible with jacket:

1. Stainless Steel: ASTM A 666, Type 304; 0.020 inch (0.5 mm) thick.

C. Wire: 0.080-inch (2.0-mm), nickel-copper alloy; 0.062-inch (1.6-mm), soft-annealed, stainless steel; or 0.062-inch (1.6-mm), soft-annealed, galvanized steel.

1.12 VAPOR RETARDERS

A. Mastics: Materials recommended by insulation material manufacturer that are compatible with insulation materials, jackets, and substrates.

1.13 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

1.14 PREPARATION

A. Surface Preparation: Clean and dry pipe and fitting surfaces. Remove materials that will adversely affect insulation application.

1.15 GENERAL APPLICATION REQUIREMENTS

A. Apply insulation materials, accessories, and finishes according to the manufacturer's written instructions; with smooth, straight, and even surfaces; free of voids throughout the length of piping, including fittings, valves, and specialties.

B. Refer to schedules at the end of this Section for materials, forms, jackets, and thicknesses required for each piping system.

C. Use accessories compatible with insulation materials and suitable for the service. Use accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Apply insulation with longitudinal seams at top and bottom of horizontal pipe runs.

E. Apply multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Seal joints and seams with vapor-retarder mastic on insulation indicated to receive a vapor retarder.

H. Keep insulation materials dry during application and finishing.

I. Apply insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by the insulation material manufacturer.

J. Apply insulation with the least number of joints practical.

K. Apply insulation over fittings, valves, and specialties, with continuous thermal and vapor-retarder integrity, unless otherwise indicated. Refer to special instructions for applying insulation over fittings, valves, and specialties.

L. Hangers and Anchors: Where vapor retarder is indicated, seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic.

1. Apply insulation continuously through hangers and around anchor attachments.
2. For insulation application where vapor retarders are indicated, extend insulation on anchor legs at least 12 inches (300 mm) from point of attachment to pipe and taper insulation ends. Seal tapered ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.
3. Install insert materials and apply insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by the insulation material manufacturer.
4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect the jacket from tear or puncture by the hanger, support, and shield.

M. Insulation Terminations: For insulation application where vapor retarders are indicated, taper insulation ends. Seal tapered ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.

N. Apply adhesives and mastics at the manufacturer's recommended coverage rate.

O. Apply insulation with integral jackets as follows:

1. Pull jacket tight and smooth.
2. Circumferential Joints: Cover with 3-inch- (75-mm-) wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip and spaced 4 inches (100 mm) o.c.
3. Longitudinal Seams: Overlap jacket seams at least 1-1/2 inches (40 mm). Apply insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches (100 mm) o.c.

    a. Exception: Do not staple longitudinal laps on insulation having a vapor retarder.

4. Vapor-Retarder Mastics: Where vapor retarders are indicated, apply mastic on seams and joints and at ends adjacent to flanges, unions, valves, and fittings.

5. Seal penetrations with vapor-retarder mastic.
6. Apply insulation for exterior applications tightly joined to interior insulation ends.

P. Interior Wall and Partition Penetrations: Apply insulation continuously through walls and floors.

1.16 MINERAL-FIBER INSULATION APPLICATION

A. Apply insulation to straight pipes and tubes as follows:

1. Secure each layer of preformed pipe insulation to pipe with wire, tape, or bands without deforming insulation materials.
2. Where vapor retarders are indicated, seal longitudinal seams and end joints with vapor-retarder mastic. Apply vapor retarder to ends of insulation at intervals of 15 to 20 feet (4.5 to 6 m) to form a vapor retarder between pipe insulation segments.
3. For insulation with factory-applied jackets, secure laps with outward clinched staples at 6 inches (150 mm) o.c.
4. For insulation with factory-applied jackets with vapor retarders, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by the insulation material manufacturer and seal with vapor-retarder mastic.

B. Apply insulation to fittings and elbows as follows:

1. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.
2. When premolded insulation elbows and fittings are not available, apply mitered sections of pipe insulation, or glass-fiber blanket insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire, tape, or bands.
3. Cover fittings with standard PVC fitting covers.
4. Cover fittings with heavy PVC fitting covers. Overlap PVC covers on pipe insulation jackets at least 1 inch (25 mm) at each end. Secure fitting covers with

manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.

1.17 FIELD-APPLIED JACKET APPLICATION

A. Foil and Paper Jackets: Apply foil and paper jackets where indicated.

1. Draw jacket material smooth and tight.
2. Apply lap or joint strips with the same material as jacket.
3. Secure jacket to insulation with manufacturer's recommended adhesive.
4. Apply jackets with 1-1/2-inch (40-mm) laps at longitudinal seams and 3-inch- (75-mm-) wide joint strips at end joints.
5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-retarder mastic.

1.18 FINISHES

A. Glass-Cloth Jacketed Insulation: Paint insulation finished with glass-cloth jacket as specified in Division 9 Section "Painting."

1.19 PIPING SYSTEM APPLICATIONS

A. Insulation materials and thicknesses are specified in schedules at the end of this Section.

B. Items Not Insulated: Unless otherwise indicated, do not apply insulation to the following systems, materials, and equipment:

1. Vibration-control devices.
2. Chrome-plated pipes and fittings, unless potential for personnel injury.
3. Air chambers, unions, strainers, check valves, plug valves, and flow regulators.

1.20 FIELD QUALITY CONTROL

A. Inspection: Perform the following field quality-control inspections, after installing insulation materials, jackets, and finishes, to determine compliance with requirements:

1. Inspect fittings and valves randomly selected by Contracting Officer or authorized representative.

B. Insulation applications will be considered defective if sample inspection reveals noncompliance with requirements. Remove defective Work and replace with new materials according to these Specifications.

C. Reinstall insulation and covers on fittings and valves uncovered for inspection according to these Specifications.

1.21 INSULATION APPLICATION SCHEDULE, GENERAL

A. Refer to insulation application schedules for required insulation materials, vapor retarders, and field-applied jackets.

B. Application schedules identify piping system and indicate pipe size ranges and material, thickness, and jacket requirements.

1.22 INTERIOR INSULATION APPLICATION SCHEDULE

A. Service: Domestic cold water.

1. Operating Temperature: 50 to 140 deg F.
2. Insulation Material: Mineral fiber.
3. Insulation Thickness:

    a. Copper Pipe, ½” – 1”: 2” mineral fiber.

4. Vapor Retarder Required: Yes.

B. Service: Hydronic Piping.

1. Operating Temperature: 45 to 250 deg F.
2. Insulation Material: Mineral fiber.
3. Insulation Thickness:

    a. Steel Pipe, all sizes: 2”.

4. Vapor Retarder Required: Yes.

END OF SECTION 15083

SECTION 15110

VALVES

1.1 SUMMARY

A. This Section includes the following general-duty valves:

1. Copper-alloy ball valves.
2. Ferrous-alloy butterfly valves.
3. Bronze check valves.

B. See Division 15 piping Sections for specialty valves applicable to those Sections only.

1.2 SUBMITTALS

A. Product Data: For each type of valve indicated. Include body, seating, and trim materials; valve design; pressure and temperature classifications; end connections; arrangement; dimensions; and required clearances. Include list indicating valve and its application. Include rated capacities; furnished specialties; and accessories.

1.3 QUALITY ASSURANCE

A. ASME Compliance: ASME B31.9 for building services piping valves.

1. Exceptions: Domestic hot- and cold-water piping valves unless referenced.

B. ASME Compliance for Ferrous Valves: ASME B16.10 and ASME B16.34 for dimension and design criteria.

C. NSF Compliance: NSF 61 for valve materials for potable-water service.

1.4 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

1.5 VALVES, GENERAL

A. Refer to Part 3 "Valve Applications" Article for applications of valves.

B. Bronze Valves: NPS 2 (DN 50) and Smaller: Threaded ends, unless otherwise indicated.

C. Ferrous Valves NPS 2-1/2 (DN 65) and Larger: Flanged ends, unless otherwise indicated.

D. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

E. Valve Sizes: Same as upstream pipe, unless otherwise indicated.

F. Valve Actuators:

1. Handwheel: For valves other than quarter-turn types.
2. Lever Handle: For quarter-turn valves NPS 6 (DN 150) and smaller, except plug valves.

G. Extended Valve Stems: On insulated valves.

H. Valve Flanges: ASME B16.1 for cast-iron valves, ASME B16.5 for steel valves, and ASME B16.24 for bronze valves.

I. Valve Bypass and Drain Connections: MSS SP-45.

1.6 COPPER-ALLOY BALL VALVES

A. Available Manufacturers:

1. Two-Piece, Copper-Alloy Ball Valves:

a. Conbraco Industries, Inc.; Apollo Div.
b. Crane Co.; Crane Valve Group; Crane Valves.
c. Crane Co.; Crane Valve Group; Jenkins Valves.
d. Crane Co.; Crane Valve Group; Stockham Div.
e. DynaQuip Controls.
f. Flow-Tek, Inc.
g. Grinnell Corporation.
h. Hammond Valve.
i. Honeywell Braukmann.
j. Jamesbury, Inc.
k. Jomar International, LTD.
l. Kitz Corporation of America.
m. Legend Valve & Fitting, Inc.
n. Milwaukee Valve Company.
o. Nexus Valve Specialties.
p. NIBCO INC.
q. R & M Energy Systems (Borger, TX).
r. Red-White Valve Corp.
s. Richards Industries; Marwin Ball Valves.
t. Watts Industries, Inc.; Water Products Div.

B. Copper-Alloy Ball Valves, General: MSS SP-110.

1.7 FERROUS-ALLOY BUTTERFLY VALVES

A. Available Manufacturers:

1. Flangeless, Ferrous-Alloy Butterfly Valves:

a. American Valve, Inc.
b. Bray International, Inc.
c. Cooper Cameron Corp.; Cooper Cameron Valves Div.
d. Crane Co.; Crane Valve Group; Center Line.
e. Crane Co.; Crane Valve Group; Stockham Div.
f. Dover Corp.; Dover Resources Company; Norriseal Div.
g. General Signal; DeZurik Unit.
h. Grinnell Corporation.
i. Hammond Valve.
j. Kitz Corporation of America.
k. Legend Valve & Fitting, Inc.
l. Metraflex Co.
m. Milwaukee Valve Company.
n. Mueller Steam Specialty.
o. NIBCO INC.
p. Process Development & Control.
q. Red-White Valve Corp.
r. Techno Corp.
s. Tyco International, Ltd.; Tyco Valves & Controls.
t. Watts Industries, Inc.; Water Products Div.

B. Ferrous-Alloy Butterfly Valves, General: MSS SP-67, Type I, for tight shutoff, with disc and lining suitable for potable water, full lug design unless otherwise indicated.

C. Flangeless, 150-psig (1035-kPa) CWP Rating, Ferrous-Alloy Butterfly Valves: Wafer type with one - or two-piece stem.

1.8 BRONZE CHECK VALVES

A. Available Manufacturers:

1. Type 1, Bronze, Horizontal Lift Check Valves with Metal Disc:

a. Cincinnati Valve Co.
b. Crane Co.; Crane Valve Group; Crane Valves.
c. Crane Co.; Crane Valve Group; Stockham Div.
d. Red-White Valve Corp.
e. Walworth Co.

B. Bronze Check Valves, General: MSS SP-80.

C. Type 1, Class 150, Bronze, Horizontal Lift Check Valves: Bronze body with bronze disc and seat.

1.9 VALVE APPLICATIONS

A. Refer to piping Sections for specific valve applications. If valve applications are not indicated, use the following:

1. Shutoff Service: Ball or butterfly valves.
2. Throttling Service: Angle, ball, butterfly, or globe valves.
3. Pump Discharge: Spring-loaded, lift-disc check valves.

B. If valves with specified SWP classes or CWP ratings are not available, the same types of valves with higher SWP class or CWP ratings may be substituted.

C. Chilled-Water Piping: Use the following types of valves:

1. Ball Valves, NPS 2 (DN 50) and Smaller: Two-piece, 400-psig (2760-kPa) CWP rating, copper alloy.
2. Ball Valves, NPS 4" (DN 65) and Larger: Class 150, ferrous alloy.
3. Butterfly Valves, NPS 6" (DN 65) and Larger: Flangeless, 150-psig (1035-kPa) CWP rating, ferrous alloy, with EPDM liner.
4. Lift Check Valves, NPS 2 (DN 50) and Smaller: Type 2, Class 150, horizontal, bronze.

D. Domestic Water Piping: Use the following types of valves:

1. Ball Valves, NPS 2 (DN 50) and Smaller: Two-piece, 400-psig (2760-kPa) CWP rating, copper alloy.
2. Ball Valves, NPS 2-1/2 (DN 65) and Larger: Class 150, ferrous alloy.
3. Butterfly Valves, NPS 2-1/2 (DN 65) and Larger: Flangeless, 150-psig (1035-kPa) 175-psig (1207-kPa) CWP rating, ferrous alloy, with EPDM liner.
4. Lift Check Valves, NPS 2 (DN 50) and Smaller: Type 2, Class 150, horizontal, bronze.

E. Low-Pressure Steam Piping: Use the following types of valves:

1. Ball Valves, NPS 2 (DN 50) and Smaller: Two-piece, 400-psig (2760-kPa) CWP rating, copper alloy.
2. Ball Valves, NPS 2-1/2 (DN 65) and Larger: Class 150, ferrous alloy.
3. Swing Check Valves, NPS 2 (DN 50) and Smaller: Type 4, Class 150, bronze.
4. Swing Check Valves, NPS 2-1/2 (DN 65) and Larger: Type II, Class 125, gray iron.

F. Steam Condensate Piping: Use the following types of valves:

1. Ball Valves, NPS 2 (DN 50) and Smaller: Two-piece, 600-psig (4140-kPa) CWP rating, copper alloy.
2. Ball Valves, NPS 2-1/2 (DN 65) and Larger: Class 150, ferrous alloy.
3. Swing Check Valves, NPS 2 (DN 50) and Smaller: Type 4, Class 150, bronze.

4. Swing Check Valves, NPS 2-1/2 (DN 65) and Larger: Type II, Class 125, gray iron.

1.10 VALVE INSTALLATION

A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.

C. Locate valves for easy access and provide separate support where necessary.

D. Install valves in horizontal piping with stem at or above center of pipe.

E. Install valves in position to allow full stem movement.

F. Install check valves for proper direction of flow and as follows:

1. Swing Check Valves: In horizontal position with hinge pin level.
2. Dual-Plate Check Valves: In horizontal or vertical position, between flanges.
3. Lift Check Valves: With stem upright and plumb.

1.11 JOINT CONSTRUCTION

A. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic piping joint construction.

B. Grooved Joints: Assemble joints with keyed coupling housing, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.

C. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.

1.12 ADJUSTING

A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

END OF SECTION 15110

SECTION 15122

METERS AND GAGES

1.1 SUMMARY

A. This Section includes meters and gages for mechanical systems.

1.2 SUBMITTALS

A. Product Data: For each product indicated. Include scale range, ratings, and calibrated performance curves for each meter, gage, fitting, specialty, and accessory specified.

1.3 MANUFACTURERS

A. In other Part 2 articles where subparagraphs titles below introduce lists, the following requirements apply for product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.

1.4 THERMOMETERS

A. Scale Range: Temperature ranges for services listed are as follows:

1. Hot Water: 30 to 300 deg F, with 2-deg ree scale divisions (0 to 150 deg C, with 1-deg ree scale divisions).

B. Liquid-in-Glass Thermometers: Comply with ASTM E 1.

1. Available Products:

a. Dresser Industries, Inc., Instrument Div.; Weksler Instruments Operating Unit.
b. Ernst Gage Co.
c. Palmer Instruments, Inc.
d. Trerice, H. O. Co.
e. Weiss Instruments, Inc.
f. Winter's Thermogauges, Inc.

2. Case: Die cast and aluminum finished in baked-epoxy enamel, glass front, spring secured, 9 inches (230 mm) long.
3. Adjustable Joint: Finish to match case, 180-deg ree adjustment in vertical plane, 360-deg ree adjustment in horizontal plane, with locking device.
4. Tube: Red or blue reading, organic-liquid filled with magnifying lens.
5. Scale: Satin-faced nonreflective aluminum with permanently etched markings.

6. Stem: Copper-plated steel, aluminum, or brass for separable socket; of length to suit installation.

C. Thermometer Wells: Fitting with protective well for installation in threaded pipe fitting to hold test thermometer.

1. Material (in Steel Piping): Stainless steel.
2. Extension-Neck Length: Nominal thickness of 2 inches (50 mm), but not less than thickness of insulation. Omit extension neck for wells for piping not insulated.
3. Insertion Length: To extend to one-third of diameter of pipe.
4. Cap: Threaded, with chain permanently fastened to socket.
5. Heat-Transfer Fluid: Oil or graphite.

1.5 PRESSURE GAGES

A. Pressure Gages: ASME B40.1; phosphor-bronze bourdon-tube type with bottom connection; dry type, unless liquid-filled-case type is indicated.

1. Available Products:

a. AMETEK, Inc., U.S. Gauge Div.
b. Dresser Industries, Inc., Instrument Div.; Weksler Instruments Operating Unit.
c. Ernst Gage Co.
d. Trerice, H. O. Co.
e. Weiss Instruments, Inc.

2. Case: Drawn steel, brass, or aluminum with 4-1/2-inch- (115-mm-) diameter, glass lens.
3. Connector: Brass, NPS 1/4 (DN 8).
4. Scale: White-coated aluminum with permanently etched markings.
5. Accuracy: Plus or minus [1] [2] percent of middle 50 percent of scale.
6. Range: Comply with the following:

a. Vacuum: 30 inches Hg of vacuum to 15 psig of pressure (100 kPa of vacuum to 103 kPa of pressure).
b. Fluids under Pressure: Two times the operating pressure.

7. Pressure-Gage Fittings

a. Valves: NPS 1/4 (DN 8) brass or stainless-steel needle type.
b. Syphons: NPS 1/4 (DN 8) coil of brass tubing with threaded ends.
c. Snubbers: ASME B40.5, NPS 1/4 (DN 8) brass bushing with corrosion-resistant porous-metal disc of material suitable for system fluid and working pressure.

1.6 THERMOMETER INSTALLATION

A. Install thermometers and adjust vertical and tilted positions.

B. Install in the following locations:

1. Inlet and outlet of each hydronic coil in air-handling units.

C. Install thermometer wells in vertical position in piping tees where fixed thermometers are indicated.

1.7 PRESSURE GAGE INSTALLATION

A. Install pressure gages in piping tees with pressure-gage valve located on pipe at most readable position.

B. Install liquid-filled-type pressure gages at suction and discharge of each pump.

1. Install pressure-gage needle valve and snubber in piping to pressure gages.
2. Install syphon instead of snubber in piping to steam pressure gages.

END OF SECTION 15122

SECTION 15140

DOMESTIC WATER PIPING

1.1 GENERAL

A. Performance Requirements: Provide components and installation capable of producing domestic water piping systems with the following minimum working-pressure ratings, unless otherwise indicated:

1. Domestic Water Distribution Piping: 125 psig (860 kPa).

B. Piping materials shall bear label, stamp, or other markings of specified testing agency.

C. Comply with NSF 61, "Drinking Water System Components-Health Effects; Sections 1 through 9," for potable domestic water piping and components.

1.2 PRODUCTS

A. Piping Materials: Refer to "Piping Applications" Paragraph for applications of pipe, tube, fitting, and joining materials.

1. Soft Copper Tube: ASTM B 88, Types K and L (ASTM B 88M, Types A and B), water tube, annealed temper.

a. Copper Pressure Fittings: ASME B16.22, wrought-copper, solder-joint fittings.
b. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end.
c. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.

2. Hard Copper Tube: ASTM B 88, Types K and L (ASTM B 88M, Types A and B), water tube, drawn temper.

a. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought- copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
b. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end. Furnish Class 300 flanges if required to match piping.
c. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.

1.3 EXECUTION

A. Piping Applications:

1. Aboveground Domestic Water Piping: Use the following piping materials for each size range:

    a. NPS 1-1/2 (DN 40) and Smaller: Hard copper tube, Type L; copper pressure fittings; and soldered joints.

    b. NPS 2 (DN 50): Hard copper tube, Type L (Type B); copper pressure fittings; and soldered joints.

B. Piping Installation: Refer to Section 15050 "Basic Mechanical Materials and Methods" for basic piping installation.

1. Install aboveground domestic water piping level without pitch and plumb.
2. Fill water piping. Check components to determine that they are not air bound and that piping is full of water.

C. Perform the following steps before operation:

1. Close drain valves, hydrants, and hose bibbs.
2. Open shutoff valves to fully open position.

D. Check plumbing equipment and verify proper settings, adjustments, and operation. Do not operate water heaters before filling with water.

E. Check plumbing specialties and verify proper settings, adjustments, and operation.

F. Joint Construction: Refer to Section 15050 "Basic Mechanical Materials and Methods" for basic piping joint construction.

1. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.

G. Hanger and Support Devices: Refer to Section 15060 "Hangers and Supports" for pipe hanger and support devices. Install the following:

1. Vertical Piping: MSS Type 8 or Type 42, clamps.
2. Individual, Straight, Horizontal Piping Runs: According to the following:

    a. 100 Feet (30 m) and Less: MSS Type 1, adjustable, copper clevis hangers.

H. Install supports according to Section 15060 "Hangers and Supports."

1. Support vertical piping and tubing at base and at each floor.
2. Rod diameter may be reduced 1 size for double-rod hangers, to a minimum of 3/8-inch (10 mm).

I. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 3/4 (DN 20) and Smaller: 60 inches (1500 mm) with 3/8-inch (10-mm) rod.

2. NPS 1 and NPS 1-1/4 (DN 25 and DN 32): 72 inches (1800 mm) with 3/8-inch (10-mm) rod.
3. NPS 1-1/2 and NPS 2 (DN 40 and DN 50): 96 inches (2400 mm) with 3/8-inch (10-mm) rod.

J. Install supports for vertical copper tubing every 10 feet (3 m).

K. Connections: Drawings indicate general arrangement of piping, fittings, and specialties.

1. Install piping adjacent to equipment and machines to allow service and maintenance.
2. Connect domestic water piping to exterior water service piping. Use transition fitting to join dissimilar piping materials.
3. Water Heaters: Cold-water supply and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
4. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Refer to Section 15410 "Plumbing Fixtures."

L. Field Quality Control:

1. Inspect domestic water piping as follows:

a. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
b. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:

1) Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
2) Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

2. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
3. Test domestic water piping as follows:

a. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
b. Leave uncovered and unconcealed new, altered, extended, or replaced domestic water piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
c. Cap and subject piping to static water pressure of 50 psig (345 kPa) above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.

d. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.

M. Clean and disinfect domestic water piping as follows:

1. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

2. Purge new piping and parts of existing domestic water piping that have been altered, extended, or repaired before using.
3. Use purging and disinfecting procedures prescribed by authorities having jurisdiction or, if methods are not prescribed, procedures described in either AWWA C651 or AWWA C652 or as described below:

   a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
   b. Fill and isolate system according to either of the following:

      1) Fill system or part thereof with water/chlorine solution with at least 50 ppm (50 mg/L) of chlorine. Isolate with valves and allow to stand for 24 hours.
      2) Fill system or part thereof with water/chlorine solution with at least 200 ppm (200 mg/L) of chlorine. Isolate and allow to stand for three hours.

   c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
   d. Testing of water samples shall be performed by an independent laboratory. Contractor shall submit water samples in sterile bottles for testing. Results of the test shall be forwarded to the Contracting Officer or authorized representative for review and approval. Repeat procedures if biological examination shows contamination.

END OF SECTION 15140

SECTION 15150

SANITARY WASTE AND VENT PIPING

1.1 SUMMARY

A. This Section includes soil and waste, sanitary drainage and vent piping inside the building.

1.2 SUBMITTALS

A. Submit product data for the following products:
   1. Pipe, pipe fittings, and couplings.

1.3 PIPING MATERIALS

A. Hubless Cast-Iron Pipe and Fittings: ASTM A 888 or CISPI 301.

   1. Couplings: ASTM C 1277 assembly of metal housing, corrosion-resistant fasteners, and ASTM C 564 rubber sleeve with integral, center pipe stop.

      a. Heavy-Duty, Type 304, Stainless-Steel Couplings: ASTM A 666, Type 304, stainless-steel shield; stainless-steel bands; and sleeve.

         1) NPS 1-1/2 to NPS 4 (DN 40 to DN 100): 3-inch- (76-mm-) wide shield with 4 bands.

1.4 PIPING APPLICATIONS

A. Transition and special fittings with pressure ratings at least equal to piping pressure ratings may be used in applications below, unless otherwise indicated.

B. Aboveground, Soil, Waste, and Vent Piping: Use any of the following piping materials for each size range:

   1. NPS 1-1/4 and NPS 1-1/2 (DN 32 and DN 40): Use NPS 1-1/2 (DN 40) hubless, cast-iron soil piping and one of the following:

      a. Couplings: Heavy-duty, Type 304, stainless steel.

   2. NPS 1-1/4 and NPS 1-1/2 (DN 32 and DN 40): Steel pipe; cast-iron, threaded drainage fittings; and threaded joints.
   3. NPS 2 to NPS 4 (DN 50 to DN 100): Hubless, cast-iron soil piping and one of the following:

      a. Couplings: Heavy-duty, Type 304, stainless steel.

1.5 PIPING INSTALLATION

A. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic piping installation.

B. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

C. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:

1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 (DN 80) and smaller; 1 percent downward in direction of flow for piping NPS 4 (DN 100) and larger.
2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.
3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.

D. Do not enclose, cover, or put piping into operation until it is inspected and approved by contracting officer or authorized representative.

1.6 JOINT CONSTRUCTION

A. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic piping joint construction.

B. Cast-Iron, Soil-Piping Joints: Make joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."

1. Gasketed Joints: Make with rubber gasket matching class of pipe and fittings.
2. Hubless Joints: Make with rubber gasket and sleeve or clamp.

1.7 HANGER AND SUPPORT INSTALLATION

A. Refer to Division 15 Section "Hangers and Supports" for pipe hanger and support devices. Install the following:

1. Vertical Piping: MSS Type 8 or Type 42, clamps.
2. Individual, Straight, Horizontal Piping Runs: According to the following:

    a. 100 Feet (30 m) and Less: MSS Type 1, adjustable, steel clevis hangers.

B. Install supports according to Division 15 Section "Hangers and Supports"

C. Support vertical piping and tubing at base and at each floor.

D. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch (10-mm) minimum rods.

E. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/2 and NPS 2 (DN 40 and DN 50): 60 inches (1500 mm) with 3/8-inch (10-mm) rod.
2. NPS 3 (DN 80): 60 inches (1500 mm) with 1/2-inch (13-mm) rod.
3. NPS 4 and NPS 5 (DN 100 and DN 125): 60 inches (1500 mm) with 5/8-inch (16-mm) rod.

F. Install supports for vertical cast-iron soil piping every 15 feet (4.5 m).

G. Install hangers for steel piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/4 (DN 32): 84 inches (2100 mm) with 3/8-inch (10-mm) rod.
2. NPS 1-1/2 (DN 40): 108 inches (2700 mm) with 3/8-inch (10-mm) rod.
3. NPS 2 (DN 50): 10 feet (3 m) with 3/8-inch (10-mm) rod.
4. NPS 2-1/2 (DN 65): 11 feet (3.4 m) with 1/2-inch (13-mm) rod.
5. NPS 3 (DN 80): 12 feet (3.7 m) with 1/2-inch (13-mm) rod.
6. NPS 4 and NPS 5 (DN 100 and DN 125): 12 feet (3.7 m) with 5/8-inch (16-mm) rod.

H. Install supports for vertical steel piping every 15 feet (4.5 m).

1.8 CONNECTIONS

A. Connect drainage and vent piping to the following:

1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code.
2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by plumbing code.
3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code.

1.9 FIELD QUALITY CONTROL

A. During installation, Contracting Officer at least 24 hours before inspection must be made. Perform tests specified below in presence of Contracting Officer.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.

2. Final Inspection: Arrange for final inspection by contracting officer or authorized representative to observe tests specified below and to ensure compliance with requirements.

B. Reinspection: If contracting officer or authorized representative find that piping will not pass test or inspection, make required corrections and arrange for reinspection.

1.10 CLEANING

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

END OF SECTION 15150

SECTION 15181

HYDRONIC PIPING

1.1 SUMMARY

A. This Section includes piping, special-duty valves, and hydronic specialties for chilled-water cooling, and condensate drain piping.

B. See Division 15 Section "Basic Mechanical Materials and Methods" for general piping materials and installation requirements.

C. See Division 15 Section "Hydronic Pumps" for pumps, motors, and accessories for hydronic piping.

1.2 SUBMITTALS

A. Product Data: For each type of special-duty valve indicated. Include flow and pressure drop curves based on manufacturer's testing for diverting fittings, calibrated balancing valves, and automatic flow-control valves.

1.3 QUALITY ASSURANCE

A. Welding: Qualify processes and operators according to the ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

B. ASME Compliance: Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation. Safety valves and pressure vessels shall bear the appropriate ASME label. Fabricate and stamp air separators and expansion tanks to comply with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

1.4 COORDINATION

A. Coordinate pipe fitting pressure classes with products specified in related Sections.

1.5 PIPES, TUBES, AND FITTINGS

A. General: Refer to Part 3 "Piping Applications" Article for applications of pipe and fitting materials.

B. Copper Tube and Fittings:

1. Drawn-Temper Copper Tubing: ASTM B 88, Type L.
2. Wrought-Copper Fittings: ASME B16.22.
3. Wrought-Copper Unions: ASME B16.22.
4. Solder Filler Metals: ASTM B 32, 95-5 tin antimony.

5. Brazing Filler Metals: AWS A5.8, Classification BAg-1 (silver).

C. Steel Pipe and Fittings:

1. Steel Pipe, NPS 2 (DN 50) and Smaller: ASTM A 53, Type S (seamless) or Type F (furnace-butt welded), Grade A, Schedule 40, black steel, plain ends.
2. Steel Pipe, NPS 2-1/2 through NPS 12 (DN 65 through DN 300): ASTM A 53, Type E (electric-resistance welded), Grade A, Schedule 40, black steel, plain ends.
3. Steel Pipe Nipples: ASTM A 733, made of ASTM A 53, Schedule 40, black steel; seamless for NPS 2 (DN 50) and smaller and electric-resistance welded for NPS 2-1/2 (DN 65) and larger.
4. Cast-Iron Threaded Fittings: ASME B16.4; Classes 125 and 250.
5. Malleable-Iron Threaded Fittings: ASME B16.3, Classes 150 and 300.
6. Malleable-Iron Unions: ASME B16.39; Classes 150, 250, and 300.
7. Flexible Connectors: Stainless-steel bellows with woven, flexible, bronze, wire-reinforcing protective jacket; 150-psig (1035-kPa) minimum working pressure and 250 deg F (121 deg C) maximum operating temperature. Connectors shall have flanged or threaded-end connections to match equipment connected and shall be capable of 3/4-inch (20-mm) misalignment.

1.6 VALVES

A. General-Duty Valves: Gate, globe, check, ball, and butterfly valves are specified in Division 15 Section "Valves".

B. Calibrated Balancing Valves, NPS 2 (DN 50) and Smaller: Bronze body, ball type, 125-psig860-kPa working pressure, 250 deg F (121 deg C) maximum operating temperature, and having threaded ends. Valves shall have calibrated orifice or venturi, connections for portable differential pressure meter with integral seals, and be equipped with a memory stop to retain set position.

C. Calibrated Balancing Valves, NPS 2-1/2 (DN 65) and Larger: Cast-iron or steel body, ball type, 125-psig860-kPa working pressure, 250 deg F (121 deg C) maximum operating temperature, and having flanged or grooved connections. Valves shall have calibrated orifice or venturi, connections for portable differential pressure meter with integral seals, and be equipped with a memory stop to retain set position.

1.7 HYDRONIC SPECIALTIES

A. Automatic Air Vent: Designed to vent automatically with float principle; bronze body and nonferrous internal parts; 150-psig (1035-kPa) working pressure; 240 deg F (116 deg C) operating temperature; with NPS 1/4 (DN 8) discharge connection and NPS 1/2 (DN 15) inlet connection.

B. Flexible Connectors: Stainless-steel bellows with woven, flexible, bronze, wire-reinforcing protective jacket; 150-psig (1035-kPa) minimum working pressure and 250 deg F (121 deg C) maximum operating temperature. Connectors shall have flanged-

or threaded-end connections to match equipment connected and shall be capable of 3/4-inch (20-mm) misalignment.

1.8 PIPING APPLICATIONS

A. Chilled Water: Aboveground, use Type L (Type B) drawn-temper copper tubing with soldered joints or Schedule 40 steel pipe with threaded joints.

B. Condensate Drain Lines: Type L (Type B) drawn-temper copper tubing with soldered joints or Schedule 40, PVC pipe with solvent-welded joints.

1.9 VALVE APPLICATIONS

A. Unless otherwise indicated, use the following general-duty valve types for applications indicated:

1. Shutoff Duty: Gate, ball, and butterfly valves.
2. Throttling Duty: Globe, ball, and butterfly valves.
3. Install shutoff duty valves at each branch connection to supply mains, at supply connection to each piece of equipment, unless only one piece of equipment is connected in the branch line. Install throttling duty valves at each branch connection to return mains, at return connections to each piece of equipment, and elsewhere as indicated.
4. Install check valves at each pump discharge and elsewhere as required to control flow direction.

B. Unless otherwise indicated, use the following special-duty valve types for applications indicated:

1. Install calibrated balancing valves in the return water line of each heating or cooling element and elsewhere as required to facilitate system balancing.

1.10 PIPING INSTALLATIONS

A. Install drains, consisting of a tee fitting, NPS 3/4 (DN 20) ball valve, and short NPS 3/4 (DN 20) threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.

B. Install piping at a uniform grade of 0.2 percent upward in direction of flow.

C. Reduce pipe sizes using eccentric reducer fitting installed with level side up.

D. Unless otherwise indicated, install branch connections to mains using tee fittings in main pipe, with the takeoff coming out the bottom of the main pipe. For up-feed risers, install the takeoff coming out the top of the main pipe.

E. Anchor piping for proper direction of expansion and contraction.

1.11 HANGERS AND SUPPORTS

A. Hanger, support, and anchor devices are specified in Division 15 Section "Hangers and Supports." Comply with requirements below for maximum spacing of supports. Install the following pipe attachments:

1. Adjustable steel clevis hangers for individual horizontal piping less than 20 feet (6 m) long.
2. Adjustable roller hangers and spring hangers for individual horizontal piping 20 feet (6 m) or longer.
3. Install hangers for steel piping with the following maximum spacing and minimum rod sizes:

    a. NPS 3/4 (DN 20): Maximum span, 7 feet (2.1 m); minimum rod size, 1/4 inch (6.4 mm).
    b. NPS 1 (DN 25): Maximum span, 7 feet (2.1 m); minimum rod size, 1/4 inch (6.4 mm).
    c. NPS 1-1/2 (DN 40): Maximum span, 9 feet (2.7 m); minimum rod size, 3/8 inch (10 mm).
    d. NPS 2 (DN 50): Maximum span, 10 feet (3 m); minimum rod size, 3/8 inch (10 mm).
    e. NPS 2-1/2 (DN 65): Maximum span, 11 feet (3.4 m); minimum rod size, 3/8 inch (10 mm).
    f. NPS 3 (DN 80): Maximum span, 12 feet (3.7 m); minimum rod size, 3/8 inch (10 mm).

4. Install hangers for drawn-temper copper piping with the following maximum spacing and minimum rod sizes:

    a. NPS 3/4 (DN 20): Maximum span, 5 feet (1.5 m); minimum rod size, 1/4 inch (6.4 mm).
    b. NPS 1 (DN 25): Maximum span, 6 feet (1.8 m); minimum rod size, 1/4 inch (6.4 mm).
    c. NPS 1-1/2 (DN 40): Maximum span, 8 feet (2.4 m); minimum rod size, 3/8 inch (10 mm).
    d. NPS 2 (DN 50): Maximum span, 8 feet (2.4 m); minimum rod size, 3/8 inch (10 mm).
    e. NPS 2-1/2 (DN 65): Maximum span, 9 feet (2.7 m); minimum rod size, 3/8 inch (10 mm).
    f. NPS 3 (DN 80): Maximum span, 10 feet (3 m); minimum rod size, 3/8 inch (10 mm).

1.12 PIPE JOINT CONSTRUCTION

A. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for joint construction requirements for soldered and brazed joints in copper tubing; threaded, welded, and flanged joints in steel piping.

1.13 TERMINAL EQUIPMENT CONNECTIONS

A. Size for supply and return piping connections shall be same as for equipment connections.

B. Install control valves in accessible locations close to connected equipment.

C. Install ports for pressure and temperature gages at coil inlet connections.

1.14 ADJUSTING

A. Mark calibrated nameplates of pump discharge valves after hydronic system balancing has been completed, to permanently indicate final balanced position.

B. Perform these adjustments before operating the system:

1. Open valves to fully open position. Close coil bypass valves.
2. Check pump for proper direction of rotation.
3. Set automatic fill valves for required system pressure.
4. Check air vents at high points of system and determine if all are installed and operating freely (automatic type), or bleed air completely (manual type).
5. Set temperature controls so all coils are calling for full flow.
6. Check operation of automatic bypass valves.
7. Check and set operating temperatures of chillers to design requirements.
8. Lubricate motors and bearings.

1.15 CLEANING

A. Flush hydronic piping systems with clean water.

END OF SECTION 15181

SECTION 15182

STEAM AND CONDENSATE PIPING

1.1 SUMMARY

A. This Section includes steam and condensate piping and specialties for systems operating at less than 15 psig (104 kPa), inside the building.

B. See Division 15 Section "Basic Mechanical Materials and Methods" for general piping materials and installation requirements.

1.2 SUBMITTALS

A. Product Data: For each each type of special-duty valve and steam trap indicated, including rated capacities and accessories.

1.3 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according according to the ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

B. ASME Compliance: Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation. Safety valves and pressure vessels shall bear the appropriate ASME label. Fabricate and stamp flash tanks to comply with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

1.4 COORDINATION

A. Coordinate pipe sleeve installations for foundation wall penetrations.

1.5 MANUFACTURERS

A. In other Part 2 articles where subparagraphs titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

1.6 PIPE AND FITTINGS

A. Steel Pipe, NPS 2 (DN 50) and Smaller: ASTM A 53, Type S (seamless), Grade A, Schedules 40 and 80, black steel, plain ends.

B. Steel Pipe, NPS 2-1/2 (DN 65) and Larger: ASTM A 53, Type E (electric-resistance welded), Grade A, Schedules 40 and 80, black steel, plain ends.

C. Steel Pipe Nipples: ASTM A 733, made of ASTM A 53, Schedules 40 and 80, black steel; seamless for NPS 2 (DN 50) and smaller and electric-resistance welded for NPS 2-1/2 (DN 65) and larger.

D. Cast-Iron Threaded Fittings: ASME B16.4; Classes 125, 150, and 300.

E. Malleable-Iron Threaded Fittings: ASME B16.3; Classes 150 and 300.

F. Malleable-Iron Unions: ASME B16.39; Classes 150, 250, and 300.

G. Cast-Iron Threaded Flanges and Flanged Fittings: ASME B16.1, Classes 125 and 250; raised ground face, and bolt holes spot faced.

H. Wrought-Steel Fittings: ASTM A 234/A 234M, wall thickness to match adjoining pipe.

I. Wrought-Steel Flanges and Flanged Fittings: ASME B16.5, including bolts, nuts, and gaskets of material group 1.1, butt welding end connections, and Raised face.

J. Flexible Connectors: Stainless-steel bellows with woven, flexible, bronze, wire-reinforcing protective jacket; 150-psig (1035-kPa) minimum working pressure and 250 deg F (121 deg C) maximum operating temperature. Connectors shall have flanged or threaded-end connections to match equipment connected and shall be capable of 3/4-inch (20-mm) misalignment.

K. Welding Materials: Comply with Section II, Part C, of the ASME Boiler and Pressure Vessel Code for welding materials appropriate for wall thickness and for chemical analysis of pipe being welded.

L. Gasket Material: Thickness, material, and type suitable for fluid to be handled; and design temperatures and pressures.

1.7 VALVES

A. General-Duty Valves: Gate, globe, check, ball, and butterfly valves.

1.8 STEAM TRAPS

A. Available Manufacturers:

1. Armstrong International, Inc.
2. Barnes & Jones, Inc.
3. Dunham-Bush, Inc.
4. ITT Hoffman; ITT Fluid Technology Corp.
5. Spirax Sarco, Inc.
6. Sterling, Inc.

B. Thermostatic Traps: Class 125, bronze angle-pattern body with integral union tailpiece and screw-in cap; balanced-pressure, stainless-steel or monel bellow element; and renewable, hardened stainless-steel head and seat.

C. Float and Thermostatic Traps: ASTM A 126, cast-iron body and bolted cap; renewable, stainless-steel float mechanism with renewable, hardened stainless-steel head and seat; maximum operating pressure of 125 psig (860 kPa); balanced-pressure, stainless-steel or monel thermostatic bellow element. Thermostatic air vent capable of withstanding 45 deg F (25 deg C) of superheat and resisting water hammer without sustaining damage.

1.9 STEAM SPECIALTIES

A. Thermostatic Air Vents:

1. Quick Vents: Cast-iron or brass body, with balanced-pressure, stainless-steel or monel thermostatic bellows and stainless-steel heads and seats.
2. Float Vents: Cast-iron or brass body, seamless brass float, balanced-pressure thermostatic bellows, and replaceable stainless-steel seat, float, and head.
3. Vacuum Breakers: 150-psig (1035-kPa) steam working pressure, 365 deg F (185 deg C) maximum operating temperature, brass or stainless-steel body, and stainless-steel retainer, spring, and ball; with plain or threaded outlet.

1.10 PIPING APPLICATIONS

A. Steam Piping, NPS 2 (DN 50) and Smaller: Schedule 40 steel pipe, with threaded joints using Class 125 cast-iron fittings.

B. Steam Piping, NPS 2-1/2 through NPS 12 (DN 65 through DN 300): Schedule 40 steel pipe, with welded joints using Schedule 40 wrought-steel welding fittings and Class 150 wrought-steel flanges.

C. Condensate Piping, NPS 2-1/2 through NPS 12 (DN 65 through DN 300): Schedule 80 steel pipe, with welded joints using Schedule 80 wrought-steel welding fittings and Class 150 wrought-steel flanges.

D. Condensate Piping, NPS 2 (DN 50) and Smaller: Schedule 40 steel pipe, with threaded joints using Class 125 cast-iron fittings.

1.11 VALVE APPLICATIONS

A. General-Duty Valve Applications: Unless otherwise indicated, use the following valve types:

1. Shutoff Duty: Gate and ball valves.
2. Throttling Duty: Globe and ball valves.

B. Install shutoff-duty valves at each branch connection to supply mains, at inlet connection to each steam trap, and elsewhere as indicated.

1.12 TRAP APPLICATIONS

A. Float and Thermostatic Traps: Steam main and riser drip legs.

1.13 PIPING INSTALLATIONS

A. Install drains, consisting of a tee fitting, NPS 3/4 (DN 20) ball valve, and short NPS 3/4 (DN 20) threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.

B. Install steam supply piping at a uniform grade of 0.2 percent downward in direction of steam flow.

C. Install condensate return piping at a uniform grade of 0.4 percent downward in direction of condensate flow.

D. Reduce pipe sizes using eccentric reducer fitting installed with level side down.

E. Unless otherwise indicated, install branch connections to steam mains using 45-deg ree fittings in main pipe, with the takeoff coming out the top of the main pipe. Use of 90-deg ree tee fittings is permissible if 45-deg ree fittings are impractical. If length of branch takeoff is less than 10 feet (3 m), pitch branch line down toward mains at a 0.4 percent grade.

F. Install unions in piping NPS 2 (DN 50) and smaller adjacent to each valve, at final connections of each piece of equipment, and elsewhere as indicated.

G. Install flanges in piping NPS 2-1/2 (DN 65) and larger at final connections of each piece of equipment and elsewhere as indicated.

H. Install strainers on supply side of each control valve, pressure-reducing valve, solenoid valve, traps, and elsewhere as indicated. Install NPS 3/4 (DN 20) nipple and ball valve in blowdown connection of strainers NPS 2 (DN 50) and larger. Match size of strainer blowoff connection for strainers smaller than NPS 2 (DN 50).

I. Anchor piping for proper direction of expansion and contraction.

J. Install drip legs at low points and natural drainage points such as ends of mains, bottoms of risers, and ahead of pressure regulators, control valves, isolation valves, pipe bends, and expansion joints.

   1. On straight runs with no natural drainage points, install drip legs at intervals not exceeding 300 feet (90 m) where pipe is pitched down in direction of steam flow and a maximum of 150 feet (45 m) where pipe is pitched up in direction of steam flow.
   2. Size drip legs at vertical risers same size as pipe and extend beyond rise. Size drip legs at other locations same diameter as main. In steam mains NPS 6 (DN 150) and larger, dirt leg size can be reduced, but to no less than NPS 4 (DN 100).

3. Install gate valve at drip legs, dirt pockets, and strainer blowdowns to allow removal of dirt and scale.
4. Install steam traps close to drip legs.

1.14 TRAP INSTALLATIONS

A. Install steam traps in accessible locations as close as possible to connected equipment, but not more than 48 inches (1200 mm) from connected equipment.

1. Unless otherwise indicated, install gate valve, strainer, and union upstream from trap; install union, check valve, and gate valve downstream from trap.

1.15 HANGERS AND SUPPORTS

A. Hanger, support, and anchor devices are specified in Division 15 Section "Hangers and Supports." Install the following pipe attachments:

1. Adjustable steel clevis hangers for individual horizontal piping less than 20 feet (6 m) long.
2. Adjustable roller hangers and spring hangers for individual horizontal piping 20 feet (6 m) or longer.
3. Spring hangers to support vertical runs.
4. Install hangers with the following maximum spacing and minimum rod sizes:

   a. NPS 3/4 (DN 20): Maximum span, 9 feet (2.7 m); minimum rod size, 1/4 inch (6.4 mm).
   b. NPS 1 (DN 25): Maximum span, 9 feet (2.7 m); minimum rod size, 1/4 inch (6.4 mm).
   c. NPS 1-1/2 (DN 40): Maximum span, 12 feet (3.7 m); minimum rod size, 3/8 inch (10 mm).
   d. NPS 2 (DN 50): Maximum span, 13 feet (4 m); minimum rod size, 3/8 inch (10 mm).
   e. NPS 2-1/2 (DN 65): Maximum span, 14 feet (4.3 m); minimum rod size, 3/8 inch (10 mm).
   f. NPS 3 (DN 80): Maximum span, 15 feet (4.6 m); minimum rod size, 3/8 inch (10 mm).
   g. NPS 4 (DN 100): Maximum span, 17 feet (5.2 m); minimum rod size, 1/2 inch (13 mm).

5. Support vertical runs at roof, at each floor, and at 10-foot (3-m) intervals between floors.

1.16 TERMINAL EQUIPMENT CONNECTIONS

A. Size for supply and return piping connections shall be same as for equipment connections.

1. Install traps and control valves in accessible locations close to connected equipment.
2. Install bypass piping with globe valve around control valve. If multiple, parallel control valves are installed, only one bypass is required.
3. Install vacuum breaker downstream from control valve and bypass and close to coil inlet connection.
4. Install ports for pressure and temperature gages at coil inlet connections.
5. Install a drip leg at coil outlet.

1.17 FIELD QUALITY CONTROL

A. Test steam and condensate piping according to ASME B31.9.

1.18 CLEANING

A. Flush system with clean water.

B. Clean strainers.

END OF SECTION 15182

SECTION 15185

HYDRONIC PUMPS

1.1 SUMMARY

A. This Section includes the following:

1. Base Mounted Horizontal Split-Case.

1.2 SUBMITTALS

A. Product Data: Include certified performance curves and rated capacities; furnished specialties; final impeller dimensions; and accessories for each pump indicated. Indicate pump's operating point on curves.

1.3 QUALITY ASSURANCE

A. UL Compliance: Fabricate and label pumps to comply with UL 778, "Motor-Operated Water Pumps," for construction requirements.

B. Regulatory Requirements: Fabricate and test steam condensate pumps to comply with HI 1.1-1.5, "Centrifugal Pumps for Nomenclature, Definitions, Application and Operation," and HI 1.6, "Centrifugal Pump Tests."

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.4 MANUFACTURERS

A. In other Part 2 articles where subparagraphs titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

1.5 GENERAL PUMP REQUIREMENTS

A. Pump Units: Factory assembled and tested.

B. Motors: Include built-in, thermal-overload protection and grease-lubricated ball bearings. Select each motor to be nonoverloading over full range of pump performance curve.

1.6 HORIZONTAL SPLIT-CASE PUMP

A. Centrifugal, close-coupled, single-stage, bronze-fitted, horizontal split; rated for 175-psig (1200-kPa) minimum working pressure and a continuous water temperature of 225 deg F (107 deg C).

1. Available Manufacturers:

   a. Armstrong Pumps, Inc.
   b. Bell & Gossett ITT; Div. of ITT Fluid Technology Corp.
   c. Goulds Pumps, Inc.
   d. Ingersoll-Dresser Pump Co.
   e. PACO Pumps.
   f. Peerless Pump Co.
   g. Taco; Fabricated Products Div.
   h. Weil Pump Company, Inc.
   i. Or approved equal.

2. Casing: Cast iron, axially split design with suction and discharge flanges.
3. Impeller: cast bronze, statically and dynamically balanced, closed, double suction.
4. Shaft: Stainless-steel shaft close coupled to motor shaft.
5. Seals: Mechanical, with carbon-steel rotating ring, stainless-steel spring, ceramic seat, and flexible bellows and gasket.
6. Motor: Directly mounted to pump casing and with supporting legs as integral part of motor enclosure.

1.7 PUMP SPECIALTY FITTINGS

A. Triple-Duty Valve: Angle or straight pattern, 175-psig (1200-kPa) pressure rating, cast-iron body, pump-discharge fitting; with drain plug and bronze-fitted shutoff, balancing, and check valve features.

1.8 PUMP INSTALLATION

A. Set base-mounted pumps on concrete foundation. Disconnect coupling halves before setting. Do not reconnect couplings until alignment operations have been completed.

1. Support pump baseplate on rectangular metal blocks and shims, or on metal wedges with small taper, at points near foundation bolts to provide a gap of 3/4 to 1-1/2 inches (19 to 38 mm) between pump base and foundation for grouting.

B. Adjust metal supports or wedges until pump and driver shafts are level. Check coupling faces and suction and discharge flanges of pump to verify that they are level and plumb.

C. Install pumps to provide access for periodic maintenance, including removing motors, impellers, couplings, and accessories.

D. Support pumps and piping separately so piping is not supported by pumps.

1.9 ALIGNMENT

A. Align pump and motor shafts and piping connections after setting them on foundations, after grout has been set and foundation bolts have been tightened, and after piping connections have been made.

B. Comply with pump and coupling manufacturers' written instructions.

1.10 CONNECTIONS

A. Install piping adjacent to machine to allow service and maintenance.

B. Connect piping to pumps. Install valves that are the same size as piping connected to pumps.

C. Install suction and discharge pipe sizes equal to or greater than diameter of pump nozzles.

D. Install triple-duty valve on discharge side of vertical in-line pumps.

E. Install suction diffuser and shutoff valve on suction side of base-mounted pumps.

F. Install triple-duty valve on discharge side of base-mounted pumps.

G. Install flexible connectors on suction and discharge sides of base-mounted pumps between pump casing and valves.

H. Install a single pressure gage between pump suction and discharge. Install at integral pressure-gage tappings where provided.

I. Install electrical connections for power, controls, and devices. Electrical power and control wiring and connections are specified in Division 16 Sections.

J. Ground equipment.

END OF SECTION 15185

SECTION 15410

PLUMBING FIXTURES

1.1 GENERAL

A. Submit Product Data for selected fixture and trim, fittings, accessories, appliances, appurtenances, equipment, and supports and indicate materials and finishes, dimensions, construction details, and flow-control rates for each type of fixture indicated.

B. Source Limitations: Obtain plumbing fixtures, faucets, and other components of each category through one source from a single manufacturer.

1. Exception: If fixtures, faucets, or other components are not available from a single manufacturer, obtain similar products from other manufacturers specified for that category.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities," and Public Law 101-336, "Americans with Disabilities Act," about plumbing fixtures for people with disabilities.

E. Regulatory Requirements: Comply with requirements in Public Law 102-486, "Energy Policy Act," about water flow and consumption rates for plumbing fixtures.

F. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

G. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.

H. Comply with the following applicable standards and other requirements specified for plumbing fixtures:

1. Enameled, Cast-Iron Fixtures: ASME A112.19.1M.
2. Hand Sinks: NSF 2 construction.
3. Vitreous-China Fixtures: ASME A112.19.2M.
4. Water-Closet, Flush Valve, Tank Trim: ASME A112.19.5.
5. Water-Closet, Flushometer, Tank Trim: ASSE 1037.

1.2 PRODUCTS

A. Refer to plumbing plans for fixture information.

1.3 EXECUTION

A. Examine walls, floors, and cabinets for suitable conditions where fixtures are to be installed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Fixture Installation:

1. Assemble fixtures, trim, fittings, and other components according to manufacturers' written instructions.
2. For wall-hanging fixtures, install off-floor supports affixed to building substrate.
   a. Use carrier supports without waste fitting for fixtures with tubular waste piping.
3. Install floor-mounting fixtures on closet flanges or other attachments to piping or building substrate.
4. Install wall-hanging fixtures with tubular waste piping attached to supports.
5. Install fixtures level and plumb according to manufacturers' written instructions and roughing-in drawings.
6. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.

   a. Exception: Use ball or gate valve if stops are not specified with fixture. Refer to Division 15 Section "Valves" for general-duty valves.

7. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.
8. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.
9. Install flushometer valves for accessible water closets with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.
10. Install toilet seats on water closets.

D. Ground equipment.

1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

E. Field Quality Control:

1. Verify that installed fixtures are categories and types specified for locations where installed.
2. Check that fixtures are complete with trim, faucets, fittings, and other specified components.
3. Inspect installed fixtures for damage. Replace damaged fixtures and components.

4. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

F. Adjust water pressure at faucets and flushometer valves to produce proper flow and stream.

G. Replace washers and seals of leaking and dripping faucets and stops.

H. Clean fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials. Do the following:

1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.
2. Remove sediment and debris from drains.

I. Provide protective covering for installed fixtures and fittings.

J. Do not allow use of fixtures for temporary facilities unless approved in writing by the Contracting Officer or authorized representative.

END OF SECTION 15410

SECTION 15430

PLUMBING SPECIALTIES

1.1 GENERAL

A. Plumbing specialties shall bear label, stamp, or other markings of specified testing agency.

B. Comply with ASME B31.9, "Building Services Piping," for piping materials and installation.

C. Comply with NSF 61, "Drinking Water System Components--Health Effects, Sections 1 through 9," for potable domestic water plumbing specialties.

1.2 PRODUCTS

A. Water Hammer Arresters: ASSE 1010 or PDI-WH 201, metal-bellows type.

B. Cleanouts: Comply with ASME A112.36.2M.

1. Application: Floor cleanout.
2. Body or Ferrule Material: Cast iron.
3. Clamping Device: Not required.
4. Outlet Connection: Threaded.
5. Closure: Brass plug with straight threads and gasket.
6. Adjustable Housing Material: Cast iron.
7. Frame and Cover Material and Finish: Nickel-bronze, copper alloy.
8. Frame and Cover Shape: Round.
9. Top Loading Classification: Medium Duty.

1.3 EXECUTION

A. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for piping joining materials, joint construction, and basic installation requirements.

B. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:

1. Size same as drainage piping up to NPS 4 (DN 100). Use NPS 4 (DN 100) for larger drainage piping unless larger cleanout is indicated.
2. Locate at each change in direction of piping greater than 45 degrees.
3. Locate at minimum intervals of 50 feet (15 m) for piping NPS 4 (DN 100) and smaller and 100 feet (30 m) for larger piping.

C. Install individual shutoff valve in each water supply to plumbing specialties. Use ball, gate, or globe valve if specific valve is not indicated. Install shutoff valves in accessible

locations. Refer to Section 15110 "Valves" for general-duty ball, butterfly, check, gate, and globe valves.

D. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.

E. Install escutcheons at wall, floor, and ceiling penetrations in exposed finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding pipe fittings.

F. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

G. Connect plumbing specialties to piping specified in other Division 15 Sections.

H. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

I. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 15430

SECTION 15485

ELECTRIC, DOMESTIC WATER HEATERS

1.1 SUMMARY

A. This Section includes household and commercial electric water heaters.

1.2 SUBMITTALS

A. Product Data: Include rated capacities, furnished specialties, and accessories for each type and size of water heater indicated.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. ASME Compliance: Fabricate and label water heater, hot-water storage tanks to comply with ASME Boiler and Pressure Vessel Code: Section VIII, "Pressure Vessels," Division 1.

C. ASHRAE Standards: Comply with performance efficiencies prescribed for the following:

1. ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings," for commercial water heaters.
2. ASHRAE 90.2, "Energy Efficient Design of New Low-Rise Residential Buildings," for household water heaters.

1.4 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

1.5 LIGHT-COMMERCIAL, STORAGE, ELECTRIC WATER HEATERS

A. Description: Comply with UL 174 or UL 1453, and listed by manufacturer for commercial applications.

1. Available Manufacturers:

a. American Water Heater Co.
b. Bradford White Corp.
c. Electric Heater Corp.
d. Lochinvar Corp.
e. Patterson-Kelley Co.
f. Rheem Manufacturing Co.; Rheem Water Heater Div.
g. Rheem Manufacturing Co.; Ruud Water Heater Div.
h. Smith, A. O. Water Products Co.

2. Storage Tank Construction: Non-ASME-code steel with 150-psig (1035-kPa) working-pressure rating.

   a. Tappings: Factory fabricated of materials compatible with tank for piping connections, relief valve, pressure gage, thermometer, drain, anode rod, and controls as required. Attach tappings to tank before testing and labeling. Include ASME B1.20.1, pipe thread.
   b. Interior Finish: Materials and thicknesses complying with NSF 61, barrier materials for potable-water tank linings. Extend finish into and through tank fittings and outlets.
   c. Insulation: Comply with ASHRAE 90.1. Surround entire storage tank except connections and controls.
   d. Jacket: Steel, with enameled finish.

3. Heating Elements: Two electric, screw-in, immersion type.
4. Temperature Control: Adjustable thermostat for each element with wiring arrangement for simultaneous operation.
5. Safety Controls: Automatic, high-temperature-limit and low-water cutoff devices or systems.Drain Valve: ASSE 1005, corrosion-resistant metal, factory installed.
6. Anode Rod: Factory installed, magnesium.
7. Dip Tube: Factory installed. Not required if cold-water inlet is near bottom of storage tank.
8. Drain valve: Factor installed.

1.6 WATER HEATER ACCESSORIES

A. Combination Temperature and Pressure Relief Valves: ASME rated and stamped and complying with ASME PTC 25.3. Include relieving capacity at least as great as heat input and include pressure setting less than water heater working-pressure rating. Select relief valve with sensing element that extends into tank.

   1. Option: Separate temperature and pressure relief valves are acceptable instead of combination relief valve.
   2. Exception: Omit combination temperature and pressure relief valve for tankless water heater, and furnish pressure relief valve for installation in piping.

B. Vacuum Relief Valves: Comply with ASME PTC 25.3. Furnish for installation in piping.

   1. Exception: Omit if water heater has integral vacuum-relieving device.

C. Drain valve: Furnish water heater with standard manufacturer’s drain valve.

1.7 INSTALLATION

A. Install water heaters, level and plumb, according to layout drawings, original design, and referenced standards. Maintain manufacturer's recommended clearances. Arrange units so controls and devices needing service are accessible.

B. Anchor water heaters to substrate.

C. Install temperature and pressure relief valves in top portion of storage tanks. Use relief valves with sensing elements that extend into tanks. Extend relief valve outlet with water piping in continuous downward pitch and discharge onto closest floor drain.

D. Install vacuum relief valves in cold-water-inlet piping.

E. Install piping adjacent to machine to allow service and maintenance.

F. Install drain valve.

1.8 CONNECTIONS

A. Connect hot- and cold-water piping with shutoff valves and unions. Connect hot-water-circulating piping with shutoff valve, check valve, and union.

B. Make connections with dielectric fittings where piping is made of dissimilar metal.

C. Electrical Connections: Power wiring and disconnect switches are specified in Division 16 Sections. Arrange wiring to allow unit service.

1.9 FIELD QUALITY CONTROL

A. Engage a factory-authorized service representative to perform startup service and to train Owner's maintenance personnel to adjust, operate, and maintain water heaters.

B. In addition to manufacturer's written installation and startup checks, perform the following:

1. Check for clear relief valve inlets, outlets, and drain piping.
2. Test operation of safety controls, relief valves, and devices.
3. Adjust operating controls.
4. Adjust hot-water-outlet temperature settings. Do not set above 140 deg F (60 deg C) unless piping system application requires higher temperature.
5. Balance water flow through manifolds of multiple-unit installations.

END OF SECTION 15485

SECTION 15725

MODULAR INDOOR AIR-HANDLING UNITS

1.1 SUMMARY

A. This Section includes constant-volume, modular air-handling units with coils for indoor installations.

1.2 SUBMITTALS

A. Product Data: For each type of modular indoor air-handling unit indicated. Include the following:

1. Certified fan-performance curves with system operating conditions indicated.
2. Certified fan-sound power ratings.
3. Certified coil-performance ratings with system operating conditions indicated.
4. Motor ratings, electrical characteristics, and motor and fan accessories.
5. Material gages and finishes.
6. Filters with performance characteristics.
7. Dampers, including housings, linkages, and operators.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. NFPA Compliance: Modular indoor air-handling units and components shall be designed, fabricated, and installed in compliance with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems."

C. ARI Certification: Modular indoor air-handling units and their components shall be factory tested according to ARI 430, "Central-Station Air-Handling Units," and shall be listed and labeled by ARI.

D. Comply with NFPA 70.

1.4 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Airtherm Manufacturing Company.
2. Buffalo Air Handling.
3. Carrier; Div. of United Technologies Corp.

4. CES Group Inc.; Governair, Mammoth, Temtrol, Venmar Ventrol, Webco Divisions.
5. McQuay International.
6. Trane Company (The); Worldwide Applied Systems Group.

1.5 MANUFACTURED UNITS

A. Modular indoor air-handling units shall be factory assembled and consist of fans, motor and drive assembly, coils, damper, plenums, filters, condensate pans, mixing dampers, control devices, and accessories.

1.6 CABINET

A. Materials: Formed and reinforced double-wall insulated panels, fabricated to allow removal for access to internal parts and components, with joints between sections sealed.

1. Outside Casing: Steel, 0.0598 inch (1.5 mm) thick.

2. Inside Casing: Galvanized steel**, 0.0276 inch (0.7 mm)**]**,** perforated.
3. Floor Plate: Galvanized steel, 0.1382 inch (3.5 mm) thick.

B. Cabinet Insulation: Comply with NFPA 90A or NFPA 90B.

1. Materials: ASTM C 1071 with coated surface exposed to airstream to prevent erosion of glass fibers.
2. Thickness: 1 inch (25 mm).
3. Thermal Conductivity (k-Value): 0.26 at 75 deg F (0.037 at 24 deg C) mean temperature.
4. Fire-Hazard Classification: Maximum flame-spread index of 25 and smoke-developed index of 50, when tested according to ASTM C 411.
5. Liner Adhesive: Comply with NFPA 90A or NFPA 90B and ASTM C 916.
6. Mechanical Fasteners: Galvanized steel, suitable for adhesive attachment, mechanical attachment, or welding attachment to duct without damaging liner when applied as recommended by manufacturer and without causing leakage in cabinet.
7. Location and Application: Factory applied with adhesive and mechanical fasteners to the internal surface of section panels downstream from and including the cooling coil section.

C. Access Panels and Doors: Same materials and finishes as cabinet, complete with hinges, latches, handles, and gaskets. Inspection and access panels and doors shall be sized and located to allow periodic maintenance and inspections. Provide access panels and doors in the following locations:

1. Fan Section: Inspection and access panels.
2. Access Section: Doors.
3. Coil Section: Inspection panel.
4. Damper Section: Inspection and access panels.

5. Filter Section: Inspection and access panels to allow periodic removal and installation of filters.

D. Condensate Drain Pans: Formed sections of galvanized-steel sheet coated complying with requirements in ASHRAE 62. Fabricate pans with slopes in two planes to collect condensate from cooling coils (including coil piping connections and return bends) and humidifiers when units are operating at maximum catalogued face velocity across cooling coil.

1. Drain Connections: Both ends of pan.

1.7 FAN SECTION

A. Fan-Section Construction: Belt-driven centrifugal fans consisting of housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, and support structure and equipped with formed-steel channel base for integral mounting of fan, motor, and casing panels. Mount fan with vibration isolation.

B. Centrifugal Fan Housings: Formed- and reinforced-steel panels to make curved scroll housings with shaped cutoff, spun-metal inlet bell, and access doors or panels to allow entry to internal parts and components.

1. Panel Bracing: Steel angle- or channel-iron member supports for mounting and supporting fan scroll, wheel, motor, and accessories.
2. Performance Class: AMCA 99-2408, Class II.
3. Horizontal Flanged Split Housing: Bolted construction.
4. Plug Fans: With steel cabinet. Fabricate without fan scroll and volute housing.

C. Fan Assemblies: Statically and dynamically balanced and designed for continuous operation at maximum rated fan speed and motor horsepower.

D. Forward-Curved Fan Wheels: Black-enamel or galvanized-steel construction with inlet flange, backplate, and shallow blades with inlet and tip curved forward in direction of airflow and mechanically secured to flange and backplate; cast-steel hub swaged to backplate and fastened to shaft with set screws.

E. Shafts: Statically and dynamically balanced and designed for continuous operation at maximum rated fan speed and motor horsepower, with final alignment and belt adjustment made after installation.

1. Turned, ground, and polished hot-rolled steel with keyway. Ship with a protective coating of lubricating oil.
2. Designed to operate at no more than 70 percent of first critical speed at top of fan's speed range.

F. Grease-Lubricated Shaft Bearings: Self-aligning, pillow-block-type, ball or roller bearings with adapter mount and two-piece, cast-iron housing. Provide with extension tubes to motor side.

1. Ball-Bearing Rating Life: ABMA 9, L_{10} of [50,000] [120,000] hours.

2. Roller-Bearing Rating Life: ABMA 11, L_{10} of [50,000] [120,000] hours.

G. Belt Drives: Factory mounted, with final alignment and belt adjustment made after installation and with 1.2 service factor based on fan motor.

1. Pulleys: Cast iron or cast steel with split, tapered bushing; dynamically balanced at factory.
2. Motor Pulleys: Adjustable pitch for use with 5-hp motors and smaller; fixed pitch for use with motors larger than 5 hp. Select pulley so pitch adjustment is at the middle of adjustment range at fan design conditions.
3. Belts: Oil resistant, nonsparking, and nonstatic; matched for multiple belt drives.
4. Belt Guards: Fabricate to OSHA/SMACNA requirements; 0.1046-inch- (2.7-mm-) thick, 3/4-inch (20-mm) diamond-mesh wire screen welded to steel angle frame or equivalent; prime coated. Provide belt guards for motors mounted on outside of cabinet.
5. Motor Mount: Adjustable for belt tensioning.

H. Vibration Control: Install fans on open-spring vibration isolators having a minimum of 1-inch (25-mm) static deflection and side snubbers.

I. Fan-Section Source Quality Control:

1. Sound Power Level Ratings: Comply with AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Test fans according to AMCA 300, "Reverberant Room Method for Sound Testing of Fans." Fans shall bear AMCA-certified sound ratings seal.
2. Factory test fan performance for flow rate, pressure, power, air density, rotation speed, and efficiency. Establish ratings according to AMCA 210, "Laboratory Methods of Testing Fans for Rating."

1.8 MOTORS

A. General: Refer to Division 15 Section "Motors" for general requirements.

B. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.

C. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in Division 16 Sections.

1.9 COILS

A. Coil Sections: Common or individual, insulated, galvanized-steel casings for heating and cooling coils. Design and construct to facilitate removal and replacement of coil for maintenance and to ensure full airflow through coils.

B. Water Coils: Continuous circuit coil fabricated according to ARI 410.

1. Piping Connections: Threaded, on same end.

2. Tubes: Copper.
3. Fins: Aluminum with fin spacing 0.125 inch (3.18 mm).
4. Fin and Tube Joint: Mechanical bond.
5. Headers: Seamless copper tube with brazed joints, prime coated.
6. Frames: Galvanized-steel channel frame, 0.052 inch (1.3 mm).
7. Ratings: Design tested and rated according to ASHRAE 33 and ARI 410.

    a. Working-Pressure Ratings: 200 psig (1380 kPa), 325 deg F (163 deg C).

8. Source Quality Control: Test to 300 psig (2070 kPa) and to 200 psig (1380 kPa) underwater.

C. Steam Coils: Distribution header coil fabricated according to ARI 410, with threaded steam supply and condensate connections.

1. Connections: Same end.
2. Tubes: Copper.
3. Fins: Copper with fin spacing 0.125 inch.
4. Fin and Tube Joint: Mechanical bond.
5. Headers: Seamless copper tube with brazed joints, prime coated.
6. Frames: Galvanized-steel channel frame, 0.052 inch (1.3 mm).
7. Ratings: Design tested and rated according to ASHRAE 33 and ARI 410.

    a. Working-Pressure Ratings: 100 psig (690 kPa), 400 deg F (205 deg C).

1.10 DAMPERS

A. General: Leakage rate, according to AMCA 500, "Laboratory Methods for Testing Dampers for Rating," shall not exceed 2 percent of air quantity at 2000-fpm (10-m/s) face velocity through damper and 4-inch wg (1000-Pa) pressure differential.

B. Damper Operators: Electric specified in Division 15 Section "HVAC Instrumentation and Controls."

C. Combination Filter and Mixing Box: Parallel-blade galvanized-steel dampers mechanically fastened to steel operating rod in reinforced, galvanized-steel cabinet. Connect operating rods with common linkage and interconnect linkages so dampers operate simultaneously. Cabinet support members shall hold 2-inch- (50-mm-) thick, pleated, flat permanent or throwaway filters. Provide hinged access panels or doors to allow removal of filters from both sides of unit.

1.11 FILTER SECTION

A. Filters: Comply with NFPA 90A.

B. Filter Section: Provide filter holding frames arranged for flat or angular orientation, with access doors on both sides of unit. Filters shall be removable from one side.

C. Disposable Panel Filters: Factory-fabricated, viscous-coated, 2” pleated, disposable air filters with holding frames.

D. Contractor shall provide two sets of filters. Set 1 for during construction. Set 2 upon completion of construction.

1.12 INSTALLATION

1. Units with Internally Isolated Fans: Secure units to anchor bolts installed in concrete bases.
2. Floor-Mounted Units: Support on neoprene pads. Secure units to anchor bolts installed in concrete.

B. Arrange installation of units to provide access space around modular indoor air-handling units for service and maintenance.

1.13 CONNECTIONS

A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to machine to allow service and maintenance.

C. Connect piping to modular indoor air-handling units mounted on vibration isolators with flexible connectors.

D. Connect condensate drain pans using NPS 1-1/4 (DN 32), Type M copper tubing or schedule 40 PVC. Extend to nearest equipment or floor drain. Construct deep trap at connection to drain pan and install cleanouts at changes in direction.

E. Steam and Chilled-Water Piping: Comply with applicable requirements in Division 15 Section "Hydronic Piping." Connect to supply and return coil tappings with shutoff or balancing valve and union or flange at each connection.

F. Duct installation and connection requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connections.

G. Electrical: Comply with applicable requirements in Division 16 Sections for power wiring, switches, and motor controls.

H. Ground equipment according to Division 16 Section "Grounding and Bonding."

END OF SECTION 15725

SECTION 15815

METAL DUCTS

1.1 GENERAL

A. Submittals: Product Data.

B. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," unless otherwise indicated.

C. Comply with NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems," unless otherwise indicated.

1.2 PRODUCTS

A. Galvanized, Sheet Steel: Lock-forming quality; ASTM A 653/A 653M, G90 (Z275) coating designation; mill-phosphatized finish for surfaces of ducts exposed to view.

B. Reinforcement Shapes and Plates: Galvanized steel reinforcement where installed on galvanized, sheet metal ducts; compatible materials for aluminum and stainless-steel ducts.

C. Tie Rods: Galvanized steel, 1/4-inch (6-mm) minimum diameter for 36-inch (900-mm) length or less; 3/8-inch (10-mm) minimum diameter for lengths longer than 36 inches (900 mm).

D. Joint and Seam Tape: 2 inches (50 mm) wide; glass-fiber fabric reinforced.

E. Joint and Seam Sealant: One-part, nonsag, solvent-release-curing, polymerized butyl sealant, formulated with a minimum of 75 percent solids.

F. Building Attachments: fasteners, or structural-steel fasteners appropriate for building materials.

G. Hanger Materials: Galvanized, sheet steel or round, threaded steel rod.

H. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

I. Trapeze and Riser Supports: Galvanized steel shapes complying with ASTM A 36/A 36M.

J. Duct Fabrication: Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction with galvanized, sheet steel, according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible." Comply with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.

K. Static-Pressure Classifications: Unless otherwise indicated, construct ducts to the following:

1. Supply Ducts: 2-inch wg (750 Pa).
2. Return Ducts: 2-inch wg (500 Pa), negative pressure.
3. Exhaust Ducts: 4-inch wg (500 Pa), negative pressure.

L. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19 inches (480 mm) and larger and 0.0359 inch (0.9 mm) thick or less, with more than 10 sq. ft. (0.93 sq. m) of unbraced panel area, unless ducts are lined.

1.3 EXECUTION

A. Duct installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of ducts, fittings, and accessories.

B. Construct and install each duct system for the specific duct pressure classification indicated.

C. Install ducts with fewest possible joints.

D. Install fabricated fittings for changes in directions, changes in size and shape, and connections.

E. Install couplings tight to duct wall surface with a minimum of projections into duct.

F. Install ducts, unless otherwise indicated, vertically and horizontally, parallel and perpendicular to building lines; avoid diagonal runs.

G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

H. Install ducts with a clearance of 1 inch (25 mm), plus allowance for insulation thickness.

I. Conceal ducts from view in finished spaces. Do not encase horizontal runs in solid partitions, unless specifically indicated.

J. Coordinate layout with suspended ceiling, lighting layouts, and similar finished work.

K. Electrical Equipment Spaces: Route ductwork to avoid passing through transformer vaults and electrical equipment spaces and enclosures.

L. Non-Fire-Rated Partition Penetrations: Where ducts pass through interior partitions and exterior walls, and are exposed to view, conceal space between construction opening and duct or duct insulation with sheet metal flanges of same metal thickness as duct. Overlap opening on four sides by at least 1-1/2 inches (38 mm).

M. Seam and Joint Sealing: Seal duct seams and joints according to the duct pressure class indicated and as described in SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."

1. Pressure Classification Less Than 2-Inch wg (500 Pa): Transverse joints.
2. Seal externally insulated ducts before insulation installation.

N. Install rigid round and rectangular metal duct with support systems indicated in SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."

O. Support horizontal ducts within 24 inches (600 mm) of each elbow and within 48 inches (1200 mm) of each branch intersection.

P. Connect equipment with flexible connectors according to Division 15 Section "Duct Accessories."

Q. For branch, outlet and inlet, and terminal unit connections, comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."

END OF SECTION 15815

SECTION 15820

DUCT ACCESSORIES

1.1 GENERAL

A. Submittals: Product Data for backdraft dampers, volume dampers, duct-mounted access doors and panels, and flexible ducts.

B. NFPA Compliance: Comply with the following NFPA standards:

1. NFPA 90A, "Installation of Air Conditioning and Ventilating Systems."
2. NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

1.2 PRODUCTS

A. Galvanized, Sheet Steel: Lock-forming quality; ASTM A 653/A 653M, G90 (Z275) coating designation; mill-phosphatized finish for surfaces of ducts exposed to view.

B. Tie Rods: Galvanized steel, 1/4- (6-mm) minimum diameter for 36-inch (900-mm) length or less; 3/8-inch (10-mm) minimum diameter for lengths longer than 36 inches (900 mm).

C. Backdraft Dampers: Suitable for horizontal or vertical installations.

D. Frame: 0.052-inch- (1.3-mm-) thick, galvanized, sheet steel, with welded corners and mounting flange.

E. Blades: 0.025-inch- (0.6-mm-) thick, roll-formed aluminum.

F. Blade Seals: Felt, vinyl, or neoprene.

G. Blade Axles: Galvanized steel.

H. Tie Bars and Brackets: Galvanized steel.

I. Return Spring: Adjustable tension.

J. Manual-Volume Dampers: Factory fabricated with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single-blade dampers in a fixed position without vibration. Close duct penetrations for damper components to seal duct consistent with pressure class.

K. Standard Volume Dampers: Multiple- or single-blade, parallel- or opposed-blade design as indicated, standard leakage rating, with linkage outside airstream, and suitable for horizontal or vertical applications.

1. Steel Frames: Hat-shaped, galvanized, sheet steel channels, minimum of 0.064 inch (1.62 mm) thick, with mitered and welded corners; frames with flanges

where indicated for attaching to walls; and flangeless frames where indicated for installation in ducts.
2. Blade Axles: Galvanized steel.
3. Tie Bars and Brackets: Galvanized steel.

L. Jackshaft: 1-inch- (25-mm-) diameter, galvanized steel pipe rotating within a pipe-bearing assembly mounted on supports at each mullion and at each end of multiple-damper assemblies.

M. Damper Hardware: Zinc-plated, die-cast core with dial and handle made of 3/32-inch- (2.4-mm-) thick zinc-plated steel, and a 3/4-inch (19-mm) hexagon locking nut.

N. Turning Vanes: Fabricate to comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."

1. Manufactured Turning Vanes: Fabricate of 1-1/2-inch- (38-mm-) wide, curved blades set 3/4 inch (19 mm) o.c.; support with bars perpendicular to blades set 2 inches (50 mm) o.c.; and set into side strips suitable for mounting in ducts.

O. Flexible Connector Fabric: Glass fabric double coated with polychloroprene.

1. Minimum Weight: 26 oz./sq. yd. (880 g/sq. m).
2. Tensile Strength: 480 lbf/inch (84 N/mm) in the warp, and 360 lbf/inch (63 N/mm) in the filling.

P. Flexible Ducts, Insulated: Comply with UL 181, Class 1. Factory-fabricated, insulated, round duct, with an outer jacket enclosing 1-1/2-inch- (38-mm-) thick, glass-fiber insulation around a continuous inner liner.

1. Reinforcement: Steel-wire helix encapsulated in inner liner.
2. Outer Jacket: Polyethylene film.
3. Inner Liner: Polyethylene film.

Q. Pressure Rating: 6-inch wg (1500 Pa) positive, 1/2-inch wg (125 Pa) negative.

R. Flexible Duct Clamps: Stainless-steel band with cadmium-plated hex screw to tighten band with a worm-gear action, in sizes 3 to 18 inches (75 to 450 mm) to suit duct size.

S. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

1.3 EXECUTION

A. Install duct accessories according to applicable details shown in SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for metal ducts and NAIMA's "Fibrous Glass Duct Construction Standards" for fibrous-glass ducts.

B. Provide test holes at fan inlet and outlet and elsewhere as indicated.

C. Install duct access panels for access to both sides of duct coils. Install duct access panels downstream from volume dampers, turning vanes, and equipment.

1. Install duct access panels to allow access to interior of ducts for cleaning, inspecting, adjusting, and maintaining accessories and terminal units.
2. Install access panels on side of duct where adequate clearance is available.

D. Label access doors according to Division 15 Section "Mechanical Identification."

END OF SECTION 15820

SECTION 15838

POWER VENTILATORS

1.1 SUMMARY

A. This Section includes the following:

1. Centrifugal roof ventilators.

1.2 SUBMITTALS

A. Product Data: Include rated capacities, furnished specialties, and accessories for each type of product indicated.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. AMCA Compliance: Products shall comply with performance requirements and shall be licensed to use the AMCA-Certified Ratings Seal.

C. NEMA Compliance: Motors and electrical accessories shall comply with NEMA standards.

D. UL Standard: Power ventilators shall comply with UL 705.

1.4 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Belts: One set for each belt-driven unit.

1.5 MANUFACTURERS

A. In other Part 2 articles where subparagraphs titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

1.6 CENTRIFUGAL ROOF VENTILATORS

A. Description: Belt-driven or direct-driven centrifugal fans consisting of housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, curb base, and accessories.

1. Manufacturers:

a. Acme Engineering & Mfg. Corp.
b. Aerovent; a Twin City Fan Company.
c. Carnes Company HVAC.
d. Central Blower Co.
e. Cook, Loren Company.
f. Greenheck Fan Corp.
g. Hartzell Fan, Inc.
h. NuTone Inc.
i. Penn Ventilation Companies, Inc.
j. Or approved equal.

B. Housing: Removable, spun-aluminum, dome top and outlet baffle; square, one-piece, aluminum base with venturi inlet cone.

C. Fan Wheels: Aluminum hub and wheel with backward-inclined blades.

D. Belt-Driven Drive Assembly: Resiliently mounted to housing, with the following features:

1. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
2. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.
3. Pulleys: Cast-iron, adjustable-pitch motor pulley.
4. Fan and motor isolated from exhaust airstream.

E. Accessories:

1. Disconnect Switch: Nonfusible type, with thermal-overload protection mounted inside fan housing, factory wired through an internal aluminum conduit.
2. Bird Screens: Removable, 1/2-inch (13-mm) mesh, aluminum or brass wire.
3. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in curb base; factory set to close when fan stops.

F. Roof Curbs: Galvanized steel; mitered and welded corners; 1-1/2-inch- (40-mm-) thick, rigid, fiberglass insulation adhered to inside walls; and 1-1/2-inch (40-mm) wood nailer. Size as required to suit roof opening and fan base.

1. Configuration: Self-flashing without a cant strip, with mounting flange.
2. Overall Height: 8 inches (200 mm).
3. Sound Curb: Curb with sound-absorbing insulation matrix.
4. Metal Liner: Galvanized steel.
5. Hinged Subbase: Galvanized-steel hinged arrangement permitting service and maintenance.

6. Mounting Pedestal: Galvanized steel with removable access panel.

1.7 CENTRIFUGAL WALL VENTILATORS

1.8 MOTORS

A. Refer to Division 15 Section "Motors" for general requirements for factory-installed motors.

B. Motor Construction: NEMA MG 1, general purpose, continuous duty, Design B.

C. Enclosure Type: Open dripproof.

1.9 SOURCE QUALITY CONTROL

A. Sound-Power Level Ratings: Comply with AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Factory test fans according to AMCA 300, "Reverberant Room Method for Sound Testing of Fans." Label fans with the AMCA-Certified Ratings Seal.

B. Fan Performance Ratings: Establish flow rate, pressure, power, air density, speed of rotation, and efficiency by factory tests and ratings according to AMCA 210, "Laboratory Methods of Testing Fans for Rating."

1.10 INSTALLATION

A. Support units using spring isolators having a static deflection of 1 inch.

B. Secure roof-mounting fans to roof curbs with cadmium-plated hardware.

C. Install units with clearances for service and maintenance.

D. Label units according to requirements specified in Division 15 Section "Mechanical Identification."

1.11 CONNECTIONS

A. Duct installation and connection requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors. Flexible connectors are specified in Division 15 Section "Duct Accessories."

B. Install ducts adjacent to power ventilators to allow service and maintenance.

1.12 FIELD QUALITY CONTROL

A. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation. Remove malfunctioning units, replace with new units, and retest.

B. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

C. Shut unit down and reconnect automatic temperature-control operators.

D. Refer to Division 15 Section "Testing, Adjusting, and Balancing" for testing, adjusting, and balancing procedures.

E. Replace fan and motor pulleys as required to achieve design airflow.

F. Repair or replace malfunctioning units. Retest as specified above after repairs or replacements are made.

END OF SECTION 15838

SECTION 15855

DIFFUSERS, REGISTERS, AND GRILLES

1.1 GENERAL

A. Submittals: Product Data for each model indicated.

1.2 PRODUCTS

A. Diffusers, registers, and grilles are scheduled on Drawings.

1.3 EXECUTION

A. Install diffusers, registers, and grilles level and plumb, according to manufacturer's written instructions, Coordination Drawings, original design, and referenced standards.

B. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practicable. For units installed in lay-in ceiling panels, locate units in the center of the panel. Where architectural features or other items conflict with installation, notify Contracting Officer or authorized representative for a determination of final location.

C. Install diffusers, registers, and grilles with airtight connection to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

D. Install diffusers, registers, and grilles according to NFPA 90A, "Standard for the Installation of Air-Conditioning and Ventilating Systems."

E. After installation of diffusers, registers, and grilles, inspect exposed finish. Clean exposed surfaces to remove burrs, dirt, and smudges. Replace diffusers, registers, and grilles that have damaged finishes.

END OF SECTION 15855

SECTION 15900

HVAC INSTRUMENTATION AND CONTROLS

1.1 SUMMARY

A. This Section includes control equipment for HVAC systems and components, including control components for terminal heating and cooling units not supplied with factory-wired controls.

B. See Division 15 Section "Sequence of Operation" for requirements that relate to this Section.

1.2 SUBMITTALS

A. Product Data: Include manufacturer's technical literature for each control device indicated, labeled with setting or adjustable range of control. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who is a certified installer of the automatic control system manufacturer for both installation and maintenance of units required for this Project.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilation Systems."

D. Year-2000 Compliant: Computer hardware and software shall be capable of accurately processing, providing, and receiving date data from, into, and between the twentieth and twenty-first centuries, including leap-year calculations.

1.4 COORDINATION

A. Coordinate location of thermostats, humidistats, and other exposed control sensors with plans and room details before installation.

B. Coordinate equipment with Division 13 Section "Fire Alarm" to achieve compatibility with equipment that interfaces with that system.

C. Coordinate equipment with Division 16 Section "Motor-Control Centers" to achieve compatibility with motor starters and annunciation devices.

1.5 MANUFACTURERS – THE BUILDING CURRENTLY HAS INSTALLED THE BARBER COLEMAN NETWORK 8000 CONTROLS. ALL NEW CONTROLS SHALL BE FULLY COMPATIBLE WITH THE EXISTING CONTROL PANELS.

1.6 CONTROL PANELS

A. Local Control Panels: Unitized cabinet with suitable brackets for wall or floor mounting, located adjacent to each system under automatic control. Provide common keying for all panels.

1. Fabricate panels of 0.06-inch- (1.5-mm-) thick, furniture-quality steel, or extruded-aluminum alloy, totally enclosed, with hinged doors and keyed lock and with manufacturer's standard shop-painted finish.
2. Panel-Mounted Equipment: Temperature and humidity controllers, relays, and automatic switches; except safety devices. Mount devices with adjustments accessible through front of panel.
3. Door-Mounted Equipment: Flush-mount (on hinged door) manual switches, including damper-positioning switches, changeover switches, thermometers, and gages.
4. Graphics: Color-coded graphic, laminated-plastic displays on doors, schematically showing system being controlled, with protective, clear plastic sheet bonded to entire door.

1.7 ANALOG CONTROLLERS

A. Step Controllers: 6- or 10-stage type, with heavy-duty switching rated to handle loads and operated by electric motor.

B. Electric, Outdoor-Reset Controllers: Remote-bulb or bimetal rod-and-tube type, proportioning action with adjustable throttling range, adjustable set point, scale range minus 10 to plus 70 deg F (minus 23 to plus 21 deg C), and single- or double-pole contacts.

C. Electronic Controllers: Wheatstone-bridge-amplifier type, in steel enclosure with provision for remote-resistance readjustment. Identify adjustments on controllers, including proportional band and authority.

1. Single controllers can be integral with control motor if provided with accessible control readjustment potentiometer.

1.8 SENSORS

A. Electronic Sensors: Vibration and corrosion resistant; for wall, immersion, or duct mounting as required.

1. Thermistor temperature sensors as follows:

    a. Accuracy: Plus or minus 0.5 deg F (0.3 deg C) at calibration point.
    b. Wire: Twisted, shielded-pair cable.
    c. Insertion Elements in Ducts: Single point, 8 inches (20 cm) long; use where not affected by temperature stratification or where ducts are smaller than 9 sq. ft. (1 sq. m).
    d. Averaging Elements in Ducts: 72 inches (183 cm) long, flexible; use where prone to temperature stratification or where ducts are larger than 9 sq. ft. (1 sq. m); length as required.
    e. Insertion Elements for Liquids: Brass socket with minimum insertion length of 2-1/2 inches (64 mm).
    f. Room Sensors: Match room thermostats, locking cover.
    g. Outside-Air Sensors: Watertight inlet fitting, shielded from direct sunlight.
    h. Room Security Sensors: Stainless-steel cover plate with insulated back and security screws.

B. Equipment operation sensors as follows:

1. Status Inputs for Fans: Differential-pressure switch with adjustable range of 0 to 5 inches wg (0 to 1243 Pa).
2. Status Inputs for Pumps: Differential-pressure switch piped across pump with adjustable pressure-differential range of 8 to 60 psig (55 to 414 kPa).
3. Status Inputs for Electric Motors: Current-sensing relay with current transformers, adjustable and set to 175 percent of rated motor current.

C. Electronic Valve/Damper Position Indication: Visual scale indicating percent of travel and 2- to 10-V dc, feedback signal.

D. Water-Flow Switches: Pressure-flow switches of bellows-actuated mercury or snap-acting type, with appropriate scale range and differential adjustment, with stainless-steel or bronze paddle. For chilled-water applications, provide vaporproof type.

1.9 THERMOSTATS

A. Remote-Bulb Thermostats: On-off or modulating type, liquid filled to compensate for changes in ambient temperature, with copper capillary and bulb, unless otherwise indicated.

1. Bulbs in water lines with separate wells of same material as bulb.
2. Bulbs in air ducts with flanges and shields.
3. Averaging Elements: Copper tubing with either single- or multiple-unit elements, extended to cover full width of duct or unit, adequately supported.
4. Scale settings and differential settings are clearly visible and adjustable from front of instrument.
5. On-Off Thermostat: With precision snap switches, with electrical ratings required by application.
6. Modulating Thermostats: Construct so complete potentiometer coil and wiper assembly is removable for inspection or replacement without disturbing calibration of instrument.

B. Fire-Protection Thermostats: UL listed with fixed or adjustable settings to operate at not less than 75 deg F (24 deg C) above normal maximum operating temperature, with the following:

1. Reset: Automatic with control circuit arranged to require manual reset at central control panel, with pilot light and reset switch on panel labeled to indicate operation.

C. Room thermostat accessories include the following:

1. Insulating Bases: For thermostats located on exterior walls.
2. Thermostat Guards: Locking; heavy-duty, transparent plastic; mounted on separate base.
3. Adjusting Key: As required for calibration and cover screws.
4. Aspirating Boxes: For flush-mounted aspirating thermostats.
5. Set-Point Adjustment: 1/2-inch- (13-mm-) diameter, adjustment knob.

D. Immersion Thermostat: Remote-bulb or bimetal rod-and-tube type, proportioning action with adjustable throttling range and adjustable set point.

E. Electric Low-Limit Duct Thermostat: Snap-acting, single-pole, single-throw, manual- or automatic-reset switch that trips if temperature sensed across any 12 inches (300 mm) of bulb length is equal to or below set point.

1. Bulb Length: Minimum 20 feet (6 m).
2. Quantity: One thermostat for every 20 sq. ft. (2 sq. m) of coil surface.

F. Electric High-Limit Duct Thermostat: Snap-acting, single-pole, single-throw, manual- or automatic-reset switch that trips if temperature sensed across any 12 inches (300 mm) of bulb length is equal to or above set point.

1. Bulb Length: Minimum 20 feet (6 m).
2. Quantity: One thermostat for every 20 sq. ft. (2 sq. m) of coil surface.

1.10 ACTUATORS

A. Electric Motors: Size to operate with sufficient reserve power to provide smooth modulating action or two-position action.

1. Permanent Split-Capacitor or Shaded-Pole Type: Gear trains completely oil immersed and sealed. Equip spring-return motors with integral spiral-spring mechanism in housings designed for easy removal for service or adjustment of limit switches, auxiliary switches, or feedback potentiometer.
2. Nonspring-Return Motors for Valves Larger Than NPS 2-1/2 (DN 65): Size for running torque of 150 in. x lbf (16.9 N x m) and breakaway torque of 300 in. x lbf (33.9 N x m).
3. Spring-Return Motors for Valves Larger Than NPS 2-1/2 (DN 65): Size for running and breakaway torque of 150 in. x lbf (16.9 N x m).

4. Nonspring-Return Motors for Dampers Larger Than 25 Sq. Ft. (2.3 sq. m): Size for running torque of 150 in. x lbf (16.9 N x m) and breakaway torque of 300 in. x lbf (33.9 N x m).
5. Spring-Return Motors for Dampers Larger Than 25 Sq. Ft. (2.3 sq. m): Size for running and breakaway torque of 150 in. x lbf (16.9 N x m).

B. Electronic Damper Actuators: Direct-coupled type designed for minimum 60,000 full-stroke cycles at rated torque.

1. Valves: Size for torque required for valve close-off at maximum pump differential pressure.
2. Dampers: Size for running torque calculated as follows:

a. Parallel-Blade Damper with Edge Seals: 7 inch-pounds/sq. ft. (86.8 kg-cm/sq. m) of damper.
b. Opposed-Blade Damper with Edge Seals: 5 inch-pounds/sq. ft. (62 kg-cm/sq. m) of damper.
c. Parallel-Blade Damper without Edge Seals: 4 inch-pounds/sq. ft (49.6 kg-cm/sq. m) of damper.
d. Opposed-Blade Damper without Edge Seals: 3 inch-pounds/sq. ft. (37.2 kg-cm/sq. m) of damper.
e. Dampers with 2 to 3 Inches wg (500 to 750 Pa) of Pressure Drop or Face Velocities of 1000 to 2500 FPM (5 to 13 m/s): Multiply the minimum full-stroke cycles above by 1.5.
f. Dampers with 3 to 4 Inches wg (750 to 1000 Pa) of Pressure Drop or Face Velocities of 2500 to 3000 FPM (13 to 15 m/s): Multiply the minimum full-stroke cycles above by 2.0.

3. Coupling: V-bolt and V-shaped, toothed cradle.
4. Overload Protection: Electronic overload or digital rotation-sensing circuitry.
5. Fail-Safe Operation: Mechanical, spring-return mechanism. Provide external, manual gear release on non-spring-return actuators.
6. Power Requirements (Modulating): Maximum 10 VA at 24-V ac or 8 W at 24-V dc.
7. Proportional Signal: 2- to 10-V dc or 4 to 20 mA, and 2- to 10-V dc position feedback signal.
8. Temperature Rating: Minus 22 to plus 122 deg F (minus 30 to plus 50 deg C).
9. Temperature Rating (Smoke Dampers): Minus 22 to plus 250 deg F (minus 30 to plus 121 deg C).
10. Run Time: [12 seconds open, 5 seconds closed] [30 seconds] [60 seconds] [120 seconds].

1.11 CONTROL VALVES

A. Control Valves: Factory fabricated, of type, body material, and pressure class based on maximum pressure and temperature rating of piping system, unless otherwise indicated.

B. Hydronic system valves shall have the following characteristics:

1. Rating: Class 125 for service at 125 psig (862 kPa) and 250 deg F (121 deg C) operating conditions.
2. Internal Construction: Replaceable plugs and seats of stainless steel or brass.

    a. Single-Seated Valves: Cage trim provides seating and guiding surfaces for plug on top and bottom of guided plugs.
    b. Double-Seated Valves: Balanced plug; cage trim provides seating and guiding surfaces for plugs on top and bottom of guided plugs.

3. Sizing: 3-psig (21-kPa) maximum pressure drop at design flow rate.
4. Flow Characteristics: Two-way valves shall have equal percentage characteristics; three-way valves shall have linear characteristics. Operators shall close valves against pump shutoff head.

1.12 DAMPERS

A. Dampers: AMCA-rated, opposed-blade design; 0.1084-inch (2.8-mm) minimum, galvanized-steel frames with holes for duct mounting; damper blades shall not be less than 0.0635-inch (1.6-mm) galvanized steel with maximum blade width of 8 inches (203 mm).

1. Blades shall be secured to 1/2-inch- (13-mm-) diameter, zinc-plated axles using zinc-plated hardware, with nylon blade bearings, blade-linkage hardware of zinc-plated steel and brass, ends sealed against spring-stainless-steel blade bearings, and thrust bearings at each end of every blade.
2. Operating Temperature Range: From minus 40 to plus 200 deg F (minus 40 to plus 93 deg C).
3. For standard applications, include optional closed-cell neoprene edging.
4. For low-leakage applications, use parallel- or opposed-blade design with inflatable seal blade edging, or replaceable rubber seals, rated for leakage at less than 10 cfm per sq. ft. (51 L/s per sq. m) of damper area, at differential pressure of 4 inches wg (995 Pa) when damper is being held by torque of 50 in. x lbf (5.6 N x m); when tested according to AMCA 500D.

1.13 CONTROL CABLE

A. Electronic Cable for Control Wiring: As specified in Division 16 Section "Control/Signal Transmission Media."

1.14 INSTALLATION

A. Install equipment level and plumb.

B. Verify location of thermostats, humidistats, and other exposed control sensors with plans and room details before installation. Locate all 60 inches (1524 mm) above the floor.

1. Install averaging elements in ducts and plenums in crossing or zigzag pattern.

C. Install guards on thermostats in the following locations:

1. Entrances.
2. Public areas.
3. Where indicated.

D. Install automatic dampers according to Division 15 Section "Duct Accessories."

E. Install damper motors on outside of duct in warm areas, not in locations exposed to outdoor temperatures.

F. Install labels and nameplates to identify control components according to Division 15 Section "Basic Mechanical Materials and Methods."

G. Install hydronic instrument wells, valves, and other accessories according to Division 15 Section "Hydronic Piping."

H. Install duct volume-control dampers according to Division 15 Sections specifying air ducts.

I. Install electronic cables according to Division 16 Section "Control/Signal Transmission Media."

1.15 ELECTRICAL WIRING AND CONNECTION INSTALLATION

A. Install raceways, boxes, and cabinets according to Division 16 Section "Raceways and Boxes."

B. Install building wire and cable according to Division 16 Section "Conductors and Cables."

C. Install signal and communication cable according to Division 16 Section "Control/Signal Transmission Media."

1. Bundle and harness multiconductor instrument cable in place of single cables where several cables follow a common path.
2. Fasten flexible conductors, bridging cabinets and doors, along hinge side; protect against abrasion. Tie and support conductors.
3. Number-code or color-code conductors for future identification and service of control system, except local individual room control cables.

1.16 CONNECTIONS

A. Install piping adjacent to machine to allow service and maintenance.

B. Connect manual-reset limit controls independent of manual-control switch positions. Automatic duct heater resets may be connected in interlock circuit of power controllers.

C. Connect hand-off-auto selector switches to override automatic interlock controls when switch is in hand position.

D. Ground equipment.

1.17 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including piping and electrical connections.

1. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove malfunctioning units, replace with new units, and retest.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment, and retest.
3. Calibration test controllers by disconnecting input sensors and stimulating operation with compatible signal generator.

B. Engage a factory-authorized service representative to perform startup service.

C. Replace damaged or malfunctioning controls and equipment.

1. Start, test, and adjust control systems.
2. Demonstrate compliance with requirements, including calibration and testing, and control sequences.
3. Adjust, calibrate, and fine tune circuits and equipment to achieve sequence of operation specified.

1.18 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain HVAC instrumentation and controls.

1.19 ON-SITE ASSISTANCE

A. Occupancy Adjustments: Within one year of date of Completion, provide up to three Project-site visits, when requested by Contracting Officer, to adjust and calibrate components and to assist Contracting Officer’s personnel in making program changes and in adjusting sensors and controls to suit actual conditions.

END OF SECTION 15900

SECTION 15940

SEQUENCE OF OPERATION

1.1 SUMMARY

A. This Section includes control sequences for HVAC systems, subsystems, and equipment.

B. See Division 15 Section "HVAC Instrumentation and Controls" for control equipment and devices and submittal requirements.

1.2 SUBMITTALS

A. Shop Drawings: Written descriptions and diagrams of operational sequences.

1.3 PRIMARY CHILLED-WATER TEMPERATURE-CONTROL SEQUENCES

A. Control of Primary Chilled- Water Circulating Pump: System starts pumps and proves flow through chiller before allowing chiller(s) to start.

B. Chilled-Water Supply Temperature Control: Integral chiller controls maintain constant leaving chilled-water temperature.

C. Existing air cooled chillers shall cycle and unload as necessary to maintain system chilled water setpoint.

1.4 SINGLE-ZONE, SINGLE-DUCT, CONSTANT-VOLUME, AIR-HANDLING UNIT CONTROL SEQUENCES

A. Fan Control: System starts fan to run continuously during occupied periods. System cycles fan during unoccupied periods.

1. Signal alarm if fan fails to start as commanded.

B. Freeze Protection: Duct-mounted thermostat, located before supply fan, signals alarm, stops fan, and closes outside-air dampers when temperature falls below 37 deg F (3 deg C).

C. High-Temperature Protection: Duct-mounted thermostat, located in return air, signals alarm, stops fan, and closes outside-air dampers when temperature rises above 300 deg F (150 deg C).

D. Smoke Control: Smoke detector, located in return air, signals alarm, stops fan, and closes smoke dampers when products of combustion are detected in airstream.

E. Mixed-Air and Temperature Control: During occupied periods, when fan is running, system modulates outside-air, return-air, and relief-air dampers to maintain supply air temperature.

1. During occupied periods, when fan is running, open outside-air dampers to minimum position.
2. During heating sequence, set outside-air dampers to minimum position.
3. During cooling sequence and outside air temperature is above 55 degrees set outside-air dampers to minimum position.
4. When outside air temperature is below 55 degrees set outside air damper to 100% open, return air damper to closed and relief air damper to 100% open.
5. During occupied periods, AHU-3 outside air, return and relief air dampers shall modulate based on signal from space mounted CO2 sensor (mounted in ball room)

F. Filters: During occupied periods, when fan is running, differential air-pressure transmitter signals alarm when low- and high-pressure conditions exist.

G. Steam Heating Coil: During occupied periods, when fan is running, system modulates control valve to maintain supply-air temperature.

1. System resets supply-air temperature set point from return-air temperature.
2. During unoccupied periods, when fan is off, return valve to closed position.
3. During unoccupied periods, when fan is on, enable normal control**.**

H. Hydronic Cooling Coil: During occupied periods, when fan is running, system modulates control valve to maintain supply-air temperature.

1. System resets supply-air temperature set point from return-air temperature.
2. During unoccupied periods, when fan is off, return valve to closed position.
3. During unoccupied periods, when fan is on, enable normal control

1.5 VENTILATION SEQUENCES

A. Exhaust Fan: Breaker turns fan on and off.

END OF SECTION 15940

SECTION 15990

TESTING, ADJUSTING, AND BALANCING

1.1 SUMMARY

A. This Section includes testing, adjusting, and balancing HVAC systems to produce design objectives, including the following:

1. Balancing airflow and water flow within distribution systems, including submains, branches, and terminals, to indicated quantities according to specified tolerances.
2. Adjusting total HVAC systems to provide indicated quantities.
3. Measuring electrical performance of HVAC equipment.
4. Setting quantitative performance of HVAC equipment.
5. Verifying that automatic control devices are functioning properly.
6. Reporting results of activities and procedures specified in this Section.

1.2 DEFINITIONS

A. AABC: Associated Air Balance Council.

B. AMCA: Air Movement and Control Association.

C. NEBB: National Environmental Balancing Bureau.

D. SMACNA: Sheet Metal and Air Conditioning Contractors' National Association.

1.3 SUBMITTALS

A. Certified Testing, Adjusting, and Balancing Reports: Prepared on approved forms certified by the testing, adjusting, and balancing Agent.

1.4 QUALITY ASSURANCE

A. Agent Qualifications: Engage a testing, adjusting, and balancing agent certified by AABC or NEBB.

B. Certification of Testing, Adjusting, and Balancing Reports: Certify testing, adjusting, and balancing field data reports. This certification includes the following:

1. Review field data reports to validate accuracy of data and to prepare certified testing, adjusting, and balancing reports.
2. Certify that testing, adjusting, and balancing team complied with approved testing, adjusting, and balancing plan and procedures specified and referenced in this Specification.

C. Testing, Adjusting, and Balancing Reports: Use standard forms from AABC's "National Standards for Testing, Adjusting, and Balancing."

D. Instrumentation Type, Quantity, and Accuracy: As described in AABC national standards.

E. Instrumentation Calibration: Calibrate instruments at least every six months or more frequently if required by the instrument manufacturer.

1.5 COORDINATION

A. Coordinate efforts of factory-authorized service representatives for systems and equipment, HVAC controls installers, and other mechanics to operate HVAC systems and equipment to support and assist testing, adjusting, and balancing activities.

B. Perform testing, adjusting, and balancing after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

1.6 EXAMINATION

A. Examine the Contract Documents to become familiar with project requirements and to discover conditions in systems' designs that may preclude proper testing, adjusting, and balancing of systems and equipment.

1. Verify that balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers, are required by the Contract Documents. Verify that quantities and locations of these balancing devices are accessible and appropriate for effective balancing and for efficient system and equipment operation.

B. Examine approved submittal data of HVAC systems and equipment.

C. Examine Project Record Documents described in Division 1 Section "Project Record Documents."

D. Examine system and equipment installations to verify that they are complete and that testing, cleaning, adjusting, and commissioning specified in individual Specification Sections have been performed.

E. Examine system and equipment test reports.

F. Examine HVAC system and equipment installations to verify that indicated balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers, are properly installed, and their locations are accessible and appropriate for effective balancing and for efficient system and equipment operation.

G. Examine systems for functional deficiencies that cannot be corrected by adjusting and balancing.

H. Examine air-handling equipment to ensure clean filters have been installed, bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.

I. Examine strainers for clean screens and proper perforations.

J. Examine three-way valves for proper installation for their intended function of diverting or mixing fluid flows.

K. Examine heat-transfer coils for correct piping connections and for clean and straight fins.

L. Examine automatic temperature system components to verify the following:

1. Dampers, valves, and other controlled devices operate by the intended controller.
2. Dampers and valves are in the position indicated by the controller.
3. Integrity of valves and dampers for free and full operation and for tightness of fully closed and fully open positions. This includes dampers in multizone units, mixing boxes, and variable-air-volume terminals.
4. Automatic modulating and shutoff valves, including two-way valves and three-way mixing and diverting valves, are properly connected.
5. Thermostats are located to avoid adverse effects of sunlight, drafts, and cold walls.
6. Sensors are located to sense only intended conditions.
7. Sequence of operation for control modes is according to the Contract Documents.
8. Controller set points are set at design values. Observe and record system reactions to changes in conditions. Record default set points if different from design values.
9. Interlocked systems are operating.
10. Changeover from heating to cooling mode occurs according to design values.

M. Report deficiencies discovered before and during performance of testing, adjusting, and balancing procedures.

1.7 PREPARATION

A. Prepare a testing, adjusting, and balancing plan that includes strategies and step-by-step procedures.

B. Complete system readiness checks and prepare system readiness reports. Verify the following:

1. Permanent electrical power wiring is complete.
2. Hydronic systems are filled, clean, and free of air.
3. Automatic temperature-control systems are operational.
4. Equipment and duct access doors are securely closed.
5. Isolating and balancing valves are open and control valves are operational.
6. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.

7. Windows and doors can be closed so design conditions for system operations can be met.

1.8 TESTING AND BALANCING PROCEDURES

A. Perform testing and balancing procedures on each system according to procedures contained in AABC national standards.

B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. After testing and balancing, close probe holes and patch insulation with new materials identical to those removed. Restore vapor barrier and finish according to the insulation Specifications for this Project.

C. Mark equipment settings with paint or other suitable, permanent identification material, including damper-control positions, valve indicators, fan-speed-control levers, and similar controls and devices, to show final settings.

1.9 TOLERANCES

A. Set HVAC system airflow and water flow rates within the following tolerances:

1. Supply, Return, and Exhaust Fans: Plus 5 to plus 10 percent.
2. Air Outlets and Inlets: 0 to minus 10 percent.
3. Heating-Water Flow Rate: 0 to minus 10 percent.
4. Cooling-Water Flow Rate: 0 to minus 5 percent.

1.10 REPORTS

A. Final Report: Typewritten, or computer printout in letter-quality font, on standard bond paper, bound in three-ring, loose-leaf binder, and tabulated and divided into sections by tested and balanced systems.

1. Include a certification sheet in front of binder signed and sealed by the certified testing and balancing agent.
2. Include a list of instruments used for procedures, along with proof of calibration.
3. Final Report Contents: In addition to certified field report data, include the following:

    a. Pump curves.
    b. Fan curves.
    c. Manufacturers' test data.
    d. Field quality-control test reports prepared by system and equipment installers.
    e. Other information relative to equipment performance, but do not include approved Shop Drawings and Product Data.

4. General Report Data: In addition to form titles and entries, include the following data in the final report, as applicable:

   a. Title page.
   b. Name and address of testing, adjusting, and balancing Agent.
   c. Project name.
   d. Project location.
   e. Architect's name and address.
   f. Engineer's name and address.
   g. Contractor's name and address.
   h. Report date.
   i. Signature of testing, adjusting, and balancing Agent who certifies the report.
   j. Summary of contents, including the following:

      1) Design versus final performance.
      2) Notable characteristics of systems.
      3) Description of system operation sequence if it varies from the Contract Documents.

   k. Nomenclature sheets for each item of equipment.
   l. Data for terminal units, including manufacturer, type size, and fittings.
   m. Notes to explain why certain final data in the body of reports vary from design values.
   n. Test conditions for fans and pump performance forms, including the following:

      1) Settings for outside-, return-, and exhaust-air dampers.
      2) Conditions of filters.
      3) Cooling coil, wet- and dry-bulb conditions.
      4) Face and bypass damper settings at coils.
      5) Fan drive settings, including settings and percentage of maximum pitch diameter.
      6) Inlet vane settings for variable-air-volume systems.
      7) Settings for supply-air, static-pressure controller.
      8) Other system operating conditions that affect performance.

END OF SECTION 15990

SECTION 16060

GROUNDING AND BONDING

1.1 SUMMARY

A. Extent of electrical grounding and bonding work is indicated by the Drawings and Schedules and as specified herein. Grounding and bonding work is defined to encompass systems, circuits, and equipment.

B. Type of electrical grounding and bonding work specified in this section includes the following:

1. Solidly grounded.

C. Applications of electrical grounding and bonding work in this section includes the following:

1. Electrical power systems.
2. Ground bars.
3. Raceways.
4. Service equipment.
5. Enclosures.
6. Equipment.

D. Refer to other Division 16 sections for wires/cables, electrical raceways, boxes and fittings, and wiring devices which are required in conjunction with electrical grounding and bonding work.

1.2 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Install grounding and bonding products of firms regularly engaged in the manufacture of these materials, including stranded cable, grounding rods, and bonding jumpers.

B. Electrical Code Compliance: Comply with the applicable State electrical code requirements of the authority having jurisdiction, and NEC as applicable to electrical grounding and bonding, pertaining to systems, circuits and equipment.

C. UL Compliance: Comply with applicable requirements of UL Standards No.'s 467, "Electrical Grounding and Bonding Equipment," and 869, "Electrical Service Equipment," pertaining to grounding and bonding of systems, circuits and equipment. In addition, comply with UL Standard 486A, "Wire Connectors and Soldering Lugs for Use with Copper Conductors." Provide grounding and bonding products which are UL listed and/or labeled for their intended usage.

1.3 SUBMITTALS

A. Product Data: For each type of product specified.

B. Test Report: On all ground resistance testing.

1.4 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, manufacturers offering grounding products which may be incorporated in the work include, but are not limited to, the following (or approved equal):

1. B-Line Systems, Inc.
2. Burndy Corporation.
3. Gould Inc.
4. Ideal Industries, Inc.
5. Thomas & Betts Corp.

1.5 MATERIALS AND PRODUCTS

A. General: Except as otherwise indicated, provide electrical grounding and bonding systems indicated; with assembly of materials, including, but not limited to, cables/wires, connectors, solderless lug terminals, ground bars, bonding jumpers, and additional accessories needed for a complete installation.

1. Where more than one type component product meets indicated requirements, selection is Contractor's option.
2. Where materials or components are not indicated, provide products which comply with NEC and UL requirements and with established industry standards for those applications indicated.

B. Conductors: Unless otherwise indicated, provide electrical grounding conductors for grounding system connections that match power supply wiring materials and are sized according to NEC.

C. Bonding Connectors, Terminals and Clamps: Provide electrical bonding connectors, terminals, lugs and clamps as recommended by bonding connector, terminal and clamp manufacturers for indicated applications.

D. Ground Bars: 1-1/2" wide x 1/4” thick copper ground bar.

E. Electrical Grounding Connection Accessories: Provide electrical insulating tape, bonding straps, as recommended by accessories manufacturers for type service indicated.

F. Exothermic Welds: Provide welds to ground cable as noted on drawing.

1.6 TESTING

A. After installing grounding system but before permanent electrical circuitry has been energized, test for compliance with requirements.

B. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Measure ground resistance not less than two full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests, by the fall-of-potential method according to IEEE 81.

1.7 EXAMINATION

A. Examine areas and conditions under which electrical grounding and bonding connections are to be made and notify the Contracting Officer or authorized representative in writing of conditions detrimental to proper completion of work.

B. Do not proceed with work until unsatisfactory conditions have been corrected.

1.8 INSTALLATION OF ELECTRICAL GROUNDING AND BONDING SYSTEMS

A. General: Install electrical grounding and bonding systems as indicated, in accordance with manufacturer's instructions and applicable portions of NEC, OSHA, and NECA's "Standard of Installation," and in accordance with recognized industry practices to ensure that products comply with requirements.

B. Install grounding systems as designed and submit certified test report on grounding system.

C. Coordinate with other electrical work as necessary to interface installation of electrical grounding and bonding system work with other work.

D. Ground electrical service system neutral at service entrance equipment to grounding rod(s), grounded copper water pipe, and foundation building steel.

E. Ground each separately-derived system neutral to an effectively grounded copper water pipe or grounded building steel.

F. Connect together system neutral, service equipment enclosures, exposed noncurrent carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and cold water systems.

G. Provide ground clamps for grounding conductors to underground grounding rods, unless exothermic grounding system is specified.

H. Provide a separate, insulated equipment grounding conductor from each device to ground buses in panelboards. Terminate each end on a grounding lug, bus, or insulated grounding bushing.

I. Provide grounding system per the Drawings and Article 250 of the NEC. Provide green equipment grounding conductor for all electrical raceways.

J. Connect grounding electrode conductors to copper water pipe using a suitable grounding clamp as indicated on the Drawings. Provide conduit grounding hubs and water pipe ground clamps as required.

K. Connect grounding electrode conductors to 1-inch diameter, or greater, metallic cold water pipe using a suitably sized ground clamp.

L. Tighten grounding and bonding connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values for connectors and bolts. Where manufacturer's torquing requirements are not indicated, tighten connections to comply with tightening torque values specified in UL 486A to assure permanent and effective grounding.

M. Apply corrosion-resistant finish to field connections, buried metallic grounding and bonding products, and places where factory applied protective coatings have been destroyed, which are subjected to corrosive action.

N. Provide clamp-on connectors on clean metal contact surfaces, to ensure electrical conductivity and circuit integrity.

1.9 FIELD QUALITY CONTROL

A. Upon completion of installation of electrical grounding and bonding systems, test ground resistance with ground resistance tester.

1. Where tests show resistance-to-ground is over 25 ohms, take appropriate action to reduce resistance to 25 ohms, or less, by driving additional ground rods.
2. Retest grounding system to demonstrate compliance.

B. Provide written certified testing report indicating resistance-to-ground value.

END OF SECTION 16060

SECTION 16120

CONDUCTORS AND CABLES

1.1 SUMMARY

A. Extent of electrical wire and cable work is indicated by the Drawings and Schedules for low voltage wire and cable - 600V and below.

B. Types of electrical wire, cable, and connectors specified in this section include but are not limited to the following:

1. Copper conductors.
2. Fixture wires.
3. Service-entrance cable.
4. Tap type connectors.
5. Split-bolt connectors.
6. Wirenut connectors.

C. Applications of electrical wire, cable, and connectors required for this Project include but are not limited to the following:

1. For power distribution circuits.
2. For building lighting circuits.
3. For appliance and equipment circuits.
4. For motor-branch circuits.

1.2 SUBMITTALS

A. Product Data: For each type of product specified.

1.3 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of electrical wire and cable products of types, sizes, and ratings required.

B. NEC Compliance: Comply with NEC requirements as applicable to construction, installation and color coding of electrical wires and cables.

C. UL Compliance: Provide wiring/cabling and connector products which are UL listed and/or labeled.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver wire and cable properly packaged in factory-fabricated type containers, or wound on NEMA-specified type wire and cable reels.

B. Store wire and cable in clean dry space in original containers. Protect products from weather, damaging fumes, construction debris and traffic.

C. Handle wire and cable carefully to avoid abrading, puncturing and tearing wire and cable insulation and sheathing. Ensure that dielectric resistance integrity of wires/cables is maintained.

1.5 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products of one of the following (for each type of wire, cable, and connector) (or approved equal):

B. Wire and Cable:

1. American Insulated Wire Corp.
2. Cabelec Corp.
3. General Cable Corp.
4. Okonite Company.
5. Rome Cable Corp.
6. Southwire Company.
7. Triangle PWC, Inc.

C. Connectors:

1. AMP, Inc.
2. Appleton Electric Co.; Emerson Electric Co.
3. Electrical Products Div.; Midland-Ross Corp.
4. Ideal Industries, Inc.
5. 3M Company
6. O-Z/Gedney Co.
7. Square D Company.
8. Thomas & Betts Corp.

1.6 SECONDARY VOLTAGE WIRES, CABLES, AND CONNECTORS

A. General: Provide electrical wires, cables, and connectors of manufacturer's standard materials, as indicated by published product information; designed and constructed as recommended by manufacturer, for a complete installation, and for application indicated. Provide copper conductors with conductivity of not less than 98% at 68 degrees F.

B. Building Wires: Provide factory-fabricated wires of sizes, ampacity ratings, and materials for applications and services indicated. Where not indicated, provide proper wire selection as determined by Contractor to comply with project's installation requirements, NEC and NEMA standards. Select from the following UL types, those wires with construction features which fulfill project requirements:

1. Type THWN: For dry and wet locations; maximum operating temperature 75 degrees C (167 degrees F). Insulation, flame-retardant, moisture- and

heat-resistant, thermoplastic; outer covering, nylon jacket; conductor, annealed copper.

2. Type THHN (Interior Branch Circuits): For dry and damp locations; maximum operating temperature 90 degrees C (194 degrees F). Insulation, flame-retardant, heat-resistant, thermoplastic; outer covering, nylon jacket; conductor, annealed copper.

C. Cables: Provide UL type factory-fabricated cables of sizes, ampacity ratings, and materials and jacketing/sheathing as indicated for services indicated. Where not indicated, provide proper selection as determined by Contractor to comply with installation requirements, NEC and NEMA standards.

D. Conductors No. 10 and smaller may be solid or stranded and conductors larger than No. 10 shall be stranded. Control wire shall be stranded copper.

E. Connectors:

1. General: Provide UL type factory-fabricated, metal connectors of sizes, ampacity ratings, materials, types and classes for applications and for services indicated.
2. Where not indicated, provide proper selection as determined by the Installer to comply with the project's installation requirements, and with NEC and NEMA standards.
3. Select from the following, those types, classes, kinds and styles of connectors to fulfill project requirements:

   a. Type: Pressure, threaded.
   b. Class: Insulated.
   c. Kind: Copper (for Cu to Cu connection).
   d. Style: Tap, pigtail, wirenut, split bolt, T-connections.

1.7 INSTALLATION OF WIRES AND CABLES

A. General: Install wires and wiring connectors as indicated, in compliance with applicable requirements of NEC, NEMA, OSHA, UL, and NECA's "Standard of Installation," and in accordance with recognized industry practices.

B. Coordinate wire/cable installation work including electrical raceway and equipment installation work, as necessary to properly interface installation of wires/cables with other work.

C. Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 14 AWG for control wiring (fire alarm).

D. Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 120 feet, unless otherwise noted on the Drawings.

E. Place an equal number of conductors for each phase of a circuit in same raceway, unless indicated otherwise on the Drawings.

F. Neatly train and lace wiring inside boxes, equipment and panelboards.

G. Make conductor lengths for parallel circuits equal.

H. Conductors shall be color coded; (1) ground leads, green; (2) grounded neutral leads, white (120 volts); (3) ungrounded phase wires, black, red, and blue (208Y/120V); (4) ungrounded phase wires, brown, orange, and yellow (480Y/277V); (5) switch leg travellers, purple.

I. Install exposed cables parallel and perpendicular to surfaces, or exposed structural members, and follow surface contours, where possible.

J. Completely and thoroughly swab raceway system before installing conductors.

K. Branch circuit wiring shall not loop through receptacle terminals, but shall be connected by means of conductor taps joined to branch circuit conductors. At end of run, branch circuit conductors may terminate on receptacle terminals.

L. Position all splices in pull boxes and junction boxes of adequate volume so they are accessible from the removable cover side of the box.

M. Conductors for signal systems shall be continuous and shall be terminated on terminal strips or terminate in a manner approved by the system's manufacturer.

N. All neutrals and ground wires in panels shall be labeled with numbered tape to indicate the circuits being served.

O. Pull conductors simultaneously where more than one is being installed in same raceway.

P. Use pulling compound or lubricant, where necessary; compound used must not deteriorate conductor or insulation.

Q. Use pulling means including fish tape, cable, rope and basket weave wire/cable grips which will not damage cables or raceway.

R. Keep conductor splices to minimum.

S. Install splices and taps which possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.

T. Use splice and tap connectors which are compatible with conductor material.

U. Tighten electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standard 486A and B.

V. Conductors manufactured more than twelve months prior to date of delivery to site shall not be used.

1.8 WIRING CONNECTIONS AND TERMINATIONS

A. Splice only in accessible junction boxes.

B. Splices, taps and attachments of fittings and lugs shall be electrically and mechanically secure. Connectors and lugs shall be correct size for conductors jointed.

C. Solid conductors, namely those sized No. 10 AWG copper, and smaller, shall be spliced by using Ideal "Wing-Nuts," 3M Co.'s "Scotchlox" or T&B "Piggy" conductors (or approved equal) in junction boxes and light fixtures, except recessed fixtures as noted below.

1. "Sta-Kon" or other permanent type crimp connectors shall not be used.
2. Contractor shall use Ideal "Wing-Nuts" for splicing recessed lighting fixture leads to branch circuit conductors.

D. Stranded conductors, namely No. 8 AWG and larger, shall be spliced by UL listed mechanical connectors plus gum tape, plus friction or plastic tape. Solderless mechanical connectors, for splices and tape provided with UL listed insulating covers, may be used instead of mechanical connectors plus tape.

E. Conductors, in all cases, shall be continuous from outlet to outlet, and no splicing shall be made except within outlet or junction boxes, troughs, and gutters.

F. Lugs for conductors No. 6 through No. 1/0 AWG shall be copper, split bolt type with spacer. Lugs for connectors No. 2/0 AWG and larger shall be copper 2-bolt type with spacer. Lugs shall be as manufactured by AMP, Inc. (or approved equal).

G. Taping of joints shall be made using special oil resistant vinyl plastic tape; UL listed, rated 105 degrees C, Scotch Electrical Tape No. 33+ or reviewed equal.

H. Splices in grounding conductors No. 8 AWG and larger shall be by means of exothermic welding and termination shall be by means of approved grounding connectors. Soldering shall not be used.

I. Thoroughly clean wires before installing lugs and connectors.

J. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

K. Terminate spare conductors with electrical tape.

1.9 FIELD QUALITY CONTROL

A. Subsequent to wire and cable hook-ups, energize circuitry and demonstrate functioning in accordance with requirements. Where necessary, correct malfunctioning units, and then retest to demonstrate compliance.

1.10 WIRE AND CABLE INSTALLATION SCHEDULE

A. Exposed Interior Locations: Building wire in raceway.

B. Above Accessible Ceilings: Building wire in raceway.

C. Exterior Locations: Building wire in raceway.

END OF SECTION 16120

SECTION 16130

RACEWAYS AND BOXES

1.1 SUMMARY

A. Extent of raceway work is indicated by the Drawings and Schedules.

B. Types of raceways specified in this section include the following:

1. Electrical metallic tubing (EMT).
2. Flexible metal conduit.
3. Liquid-tight flexible metal conduit.
4. Rigid steel conduit (RSC).
5. Rigid nonmetallic conduit.
6. Surface metal raceways.

C. This section specifies the following raceways:

1. Raceways installed within buildings.

D. Types of electrical boxes and fittings specified in this section include the following.

1. Outlet boxes.
2. Junction boxes.
3. Pull boxes.
4. Bushings.
5. Locknuts.
6. Knockout closures.

1.2 SUBMITTALS

A. Product data for each type of product specified.

1.3 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of raceway systems of types and sizes required.

B. Manufacturers: Firms regularly engaged in manufacture of electrical boxes and fittings of types and sizes required.

1.4 CODES AND STANDARDS:

A. NEMA Compliance: Comply with applicable requirements of NEMA Standards Publications pertaining to raceways.

B. UL Compliance and Labeling: Comply with applicable requirements of UL safety standards pertaining to electrical raceway systems. Provide raceway products and components which have been UL listed and/or labeled.

1. UL No. 1: Flexible Metal Conduit
2. UL No. 6: Rigid Steel Conduit, Zinc Coated
3. UL No. 6: Rigid Steel Conduit, Enameled
4. UL No. 651: Schedule 40 and 80 Rigid PVC
5. UL No. 797: Electrical Metallic Tubing, Zinc Coated

C. NEC Compliance: Comply with applicable requirements of the latest edition of the NEC pertaining to construction and installation of raceway systems.

D. ANSI Publications:

1. C80.1 Rigid Steel Conduit, Zinc Coated
2. C80.2 Rigid Steel Conduit, Enameled
3. C80.3 Electrical Metallic Tubing, Zinc Coated

E. UL Compliance: Comply with applicable requirements of UL 50, UL 514-Series, and UL 886 pertaining to electrical boxes and fittings. Provide electrical boxes and fittings which are UL listed and/or labeled.

F. NEMA Compliance: Comply with applicable requirements of NEMA Stds/Pub No's OS1, OS2, and Pub 250 pertaining to outlet and device boxes, covers and box supports.

1.5 METAL CONDUIT AND TUBING

A. General: Provide metal conduit, tubing and fittings of types, grades, sizes and weights for each service indicated. Where types and grades are not indicated, provide proper selection determined by Installer to fulfill wiring requirements, and comply with applicable portions of NEC for raceways.

B. Rigid Steel Conduit (RSC): Low carbon malleable iron, cadmium plated or hot-dipped galvanized inside and outside, with threaded ends, minimum size ¾ inch. Threaded Fittings - alloy steel, galvanized.

C. Electrical Metallic Tubing (EMT): High strength galvanized, minimum size ¾ inch, maximum size two (2") inch. Fittings shall be made of same finish and material as tubing. Use compression type fittings only.

D. Flexible Metal Conduit: Formed with continuous length of spirally wound, interlocked zinc-coated strip steel, minimum size ½ inch, for connections to recessed lighting fixture only.

1. Flexible Metal Conduit Fittings: Provide conduit fittings for use with flexible steel conduit of threadless hinged clamp type.

2. Straight Terminal Connectors: One piece body, female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.
3. 45 degrees or 90 degrees Terminal Angle Connectors: Two-piece body construction with removable upper section female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.

E. Liquidtight Flexible Metal Conduit: Provide liquid-tight flexible metal conduit; construct of single strip, flexible, continuous, interlocked, and double-wrapped steel; galvanized inside and outside; coated with liquid-tight jacket of flexible polyvinyl chloride (PVC), 3/4-inch minimum size.

1. Manufacturers:
   a. Sealtite Type "UA" Anaconda, Liquatite Type "LA"
   b. Electri-Flex Co., International Metal Hose Co.
   c. Universal Metal Hose Company "Sealflex-U".
2. Fittings shall be Series "6000" as manufactured by:
   a. Thomas & Betts
   b. Crouse-Hinds
   c. Electri-Flex.
3. Where an external ground is required, fittings shall be Series "5200GR" or "5300GR."
4. Special care shall be taken to be sure that conduit bending radius limitations are not exceeded.

F. Expansion/Deflection Fittings: Watertight Type "XC" or Type "DX" with integral bonding jumper for rigid metal conduit permitting movement up to ¾ inch in any direction and angular deflection up to 30 degrees from normal in all directions as manufactured by:

1. Crouse-Hinds.
2. O-Z/Gedney.
3. Appleton.

G. Sealing Fittings or Bushings: Series "EYS", "EZD" or "EZS" (as applicable) as manufactured by:

1. Crouse-Hinds.
2. Pyle National.
3. Appleton.

H. Thruwall Sealing Fittings: Type "WKS" as manufactured by:

1. O-Z/Gedney.
2. Appleton.
3. Crouse-Hinds.

I. Fire-Seal Fittings: Type "CFSI" as manufactured by:

1. O-Z/Gedney.

2. Appleton.
3. Crouse-Hinds.

J. EMT Conduit Couplings:

1. Compression: Type "5120" (raintight) as manufactured by:
   a. Thomas & Betts.
   b. Raco.
   c. O-Z/Gedney.
2. Couplings shall be of steel construction.
3. Screw type couplings are not premitted.

K. EMT Conduit Connectors:

1. Compression: Type "5123" (raintight, insulated throat) as manufactured by:
   a. Thomas & Betts.
   b. Raco.
   c. O-Z/Gedney.
2. Connectors shall be of steel construction.
3. Screw type connectors are not premitted.

L. Conduit Bushings:

1. Insulated: Type "B" or "SBT" (as applicable) as manufactured by:
   a. O-Z/Gedney.
   b. Steel City.
   c. Myers.
2. Grounding: Type "BLG" as manufactured by:
   a. O-Z/Gedney.
   b. Thomas & Betts.
   c. Myers.

M. Conduit Locknuts:

1. Case-hardened locknuts shall be equal to Series No. 140 by:
   a. Thomas & Betts.
   b. Midwest Electric.
   c. O-Z/Gedney.

1.6 MISCELLANEOUS MATERIAL AND FITTINGS

A. Pulling in Wire: Provide 5/32 inch polyethylene rope.

B. Thread lubricant/sealant shall be Type "STL" as manufactured by:

1. Crouse-Hinds.
2. Greenlee Tool.
3. Ideal Industries.

C. When required on joints for heat producing elements (such as lighting fixtures), thread lubricant shall be Type "HTL" as manufactured by:

1. Crouse-Hinds.
2. Ideal Industries.
3. 3M Company.

D. Nest Back Spacers: Type "NG" by:

1. O-Z/Gedney.
2. Appleton.
3. Raco.

E. Conduit Bodies:

1. Provide galvanized cast-metal conduit bodies of types, shapes and sizes as required to fulfill job requirements and NEC requirements.
2. Construct conduit bodies with threaded-conduit-entrance ends, removable covers, either cast or of galvanized steel, and corrosion-resistant screws.
3. Manufacturers: Subject to compliance with requirements, provide conduit bodies of one of the following:
   a. Appleton Electric; Div. of Emerson Electric Co.
   b. Crouse-Hinds Co.
   c. Killark Electric Mfg. Co.

1.7 NONMETALLIC CONDUIT

A. General: Provide nonmetallic conduit and fittings of types, sizes and weights for each service indicated. Where types and grades are not indicated, provide proper selection determined by Installer to fulfill wiring requirements which comply with provisions of NEC for raceways.

B. Electrical Plastic Conduit (PVC):

1. Extra Heavy Wall Conduit: Schedule 80, 90degreesC, constructed of polyvinyl chloride and conforming to NEMA TC-2, for direct burial, or concrete-encased use, UL listed and in conformity with NEC Article 347.
2. All vertical ells shall be heavy wall rigid steel conduit.

C. PVC Conduit Fittings: NEMA TC 3, mate and match to conduit or tubing type and material.

D. Conduit, and Tubing Accessories: Provide conduit, tubing and duct accessories of types, sizes, and materials, complying with manufacturer's published product information, which mate and match conduit and tubing.

1.8 WIREWAYS

A. General: Provide electrical wireways of types, grades, sizes, and number of channels for each type of service as indicated. Provide complete assembly of raceway including, but not limited to, couplings, offsets, elbows, expansion joints, adapters, holddown straps, end caps, and other components and accessories as required for a complete system.

1. Indoors, wireway shall be NEMA 1.
2. The wireways shall include all necessary accessories and fittings to make a complete installation.
3. NEMA 1 wireway shall be Bulletin F-40 as manufactured by Hoffman, Square D or Parker Electrical.
4. Outside wireways shall be NEMA 3R.

B. Lay-in Wireways: Construct lay-in wireways with hinged covers, in accordance with UL 870.

1. Select units to allow fastening hinged cover closed without use of parts other than standard lengths, fittings and connectors. Provide captive type screws.
2. Construct units to be capable of sealing cover in closed position with sealing ears.
3. Provide wireways with knockouts.
4. Covers may require field splicing to be installed in accordance with N.E.C..

C. Connectors: Provide wireway connectors suitable for "lay-in" conductors, with connector covers permanently attached so that removal is not necessary to utilize the lay-in feature.

D. Finish: Protect sheet metal parts with rust inhibiting coating and baked enamel finish. Plate finish hardware to prevent corrosion. Protect screws installed toward inside of wireway with spring nuts to prevent wire insulation damage.

1.9 ELECTRICAL SURFACE METAL RACEWAYS

A. Two-piece type with single compartment, length as indicated. Provide nominal 4-3/4" x 3-9/16" with flush, snap-on cover. Factory gray enamel finish. Provide couplings, elbows, connectors, circuit breakers (rated 20AIP to protect receptacles indicated on the Drawings), wiring, receptacles (rated as noted on the Drawings). Provide insulated equipment ground conductor. Wire and mount receptacles on 18" centers. Install devices as indicated in raceway on the Drawings. Raceway shall be Wiremold G-6000.

1. Color shall be manufacturer's standard finish color unless noted otherwise.
2. All electrical surface metal raceways and components shall be painted two (2) coats to match existing surface on which it is mounted.
3. Include all fittings, elbows, connectors, covers, grounding devices, boxes, and extensions.

B. Boxes for Surface Raceways: Designed, manufactured and supplied by raceway manufacturer for use with specified raceway.

C. Manufacturers: Subject to compliance with requirements, provide surface metal raceways of one of the following:

1. Power-Strut Div., Youngstown Sheet and Tube Co.
2. Square D Company
3. Wiremold Company

1.10 BOXES AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

B. Interior Outlet Boxes (or approved equal):

1. Appleton Electric
2. Emerson Electric Co.
3. General Signal Co.
4. Harvey Hubbell Inc.
5. Midland-Ross Corp.
6. O-Z/Gedney
7. RACO Div.
8. Thomas & Betts Co.

C. Raintight Outlet Boxes (or approved equal):

1. Appleton Electric
2. Arrow-Hart Div.
3. Crouse-Hinds Co.
4. Emerson Electric Co.
5. General Signal Co.
6. Harvey Hubbell, Inc.
7. O-Z/Gedney

D. Junction and Pull Boxes (or approved equal):

1. Appleton Electric
2. Arrow-Hart Div.
3. Emerson Electric Co.
4. General Signal Co.
5. O-Z/Gedney Co.
6. Spring City Electrical Mfg. Co.

E. Bushings, Lockout Closures and Locknuts (or approved equal):

1. AMP, Inc.
2. General Signal Co.
3. Harvey Hubbell Inc.
4. Midland-Ross Corp.
5. O-Z/Gedney Co.
6. RACO Div.

7. Thomas & Betts Co., Inc.

1.11 FABRICATED MATERIALS

A. Outlet Boxes: Provide galvanized coated flat rolled sheet-steel outlet wiring boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations.
   1. Construct outlet boxes with mounting holes, and with cable and conduit-size knockout openings in bottom and sides.
   2. Provide boxes with threaded screw holes, with corrosion-resistant cover and grounding screws for fastening surface and device type box covers, and for equipment grounding.

B. Outlet Box Accessories: Provide outlet box accessories as required for each installation, including box supports, mounting ears and brackets, wallboard hangers, box extension rings, fixture studs, cable clamps and metal straps for supporting outlet boxes, which are compatible with outlet boxes being used to fulfill installation requirements for individual wiring situations. Choice of accessories is Contractor's code-compliance option.

C. Device Boxes: Provide galvanized coated flat rolled sheet-steel non-gangable device boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations.

   1. Construct device boxes for flush mounting with mounting holes, and with cable-size knockout openings in bottom and ends, and with threaded screw holes in end plates for fastening devices.
   2. Provide cable clamps and corrosion-resistant screws for fastening cable clamps, and for equipment type grounding.
   3. Where multi-device boxes are required, provide gangable boxes where more than one device is mounted together.

D. Device Box Accessories: Provide device box accessories as required for each installation, including mounting brackets, device box extensions, switch box supports, plaster ears, and plaster board expandable grip fasteners, which are compatible with device boxes being utilized to fulfill installation requirements for individual wiring situations. Choice of accessories is Contractor's code-compliance option.

E. Raintight Outlet Boxes: Provide NEMA 3R corrosion-resistant cast-metal raintight outlet wiring boxes, of types, shapes and sizes, including depth of boxes, with threaded conduit holes for fastening electrical conduit, cast-metal face plates with spring-hinged watertight caps suitable configured for each application, including face plate gaskets and corrosion-resistant plugs and fasteners.

F. Junction and Pull Boxes: Provide galvanized code-gage sheet steel junction and pull boxes, no knockouts, UL listed, with screw-on covers; of types, shapes and sizes, to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws and washers.

   1. Boxes larger than 12" in any dimension shall be provided with hinged cover.

2. Provide steel barriers in boxes with feeder circuits of different voltages.

G. Bushings, Knockout Closures and Locknuts: Provide corrosion-resistant box knockout closures, conduit locknuts and malleable iron conduit insulated bushings, offset connectors, of types and sizes, to suit respective installation requirements and applications.

1.12 GENERAL

A. All installation shall comply with the NEC and OSHA.

1.13 EXAMINATION

A. Examine areas and conditions under which raceways are to be installed, and substrate which will support raceways.

B. Notify Contracting officer's representative in writing of conditions detrimental to proper completion of the work.

C. Do not proceed with work until unsatisfactory conditions have been corrected.

1.14 INSTALLATION OF CONDUITS

A. Install conduit concealed unless indicated otherwise on the Drawings. Maintain minimum distance of six (6") inches from parallel runs of flues, steam or hot water pipes.

B. Use liquid-tight flexible metal conduit for connections to motors, transformers and other equipment subject to vibration and in areas subject to moisture.

C. Use flexible metal conduit for connections to recessed and/or semi-recessed lighting fixtures.

D. Space groups of conduits uniformly. For bends and offsets, use an approved hickey or bending machine.

E. Cut all conduit with hacksaw or approved cutting machine and ream after threading to remove all burrs.

F. Fasten conduit securely to outlets, junctions and pullboxes to ensure firm electrical contact.

1. Join conduit with approved couplings.
2. No running threads will be allowed.
3. Install insulated bushings and double locknuts on threaded conduits entering or leaving sheet metal outlet, junction, or pull boxes, and cabinets.
4. Install grounding bushings on all conduits entering an enclosure such as a motor control center from below where the conduit is not attached to the enclosure.

5. Bond all bushings to ground bus using conductor the same size as the equipment grounding conductor in the conduit.
6. Install compression type connectors with insulated throats on electrical metallic tubing entering or leaving sheet metal outlet, junction or pull boxes and cabinets.

G. Avoid condensation pockets in installations. Keep conduit, fittings, and boxes free from foreign matter, before, during and after installation.

H. Do not use EMT in wet areas, in floor slabs, within outside walls below grade, below grade, or exposed except on ceilings and in vertical runs no less than four (4') feet above floor.

I. Use electrical surface metal raceway for extensions of circuits only where specifically indicated on the Drawings.

J. Not more than one (1) exposed conduit shall be run down to an exposed wall switch or outlet box.

K. Use expansion/deflection fittings where rigid metal conduits pass from existing building structures to additions on new foundations, every 200 feet linear run maximum, and where otherwise indicated on the Drawings.

L. Use thruwall sealing fittings where conduits enter buildings or vaults below finished grade.

M. Conduits less than one (1") inch may be installed in concrete but shall not cross each other. Installation of larger conduits in concrete must be approved by Engineer.

N. Do not use aluminum conduit on this project.

O. Support runs of metallic conduit at least every eight (8') feet.

P. Support runs of non-metallic conduit at least as required by NEC Table 352.30.

Q. Install runs of conduit parallel or perpendicular to walls, structural members or intersections of vertical planes and ceilings. Provide right angle turns consisting of fittings or symmetrical bends.

R. Support conduits within one (1') foot of all changes in direction. Supports shall include wall brackets, trapeze hangers, strap hangers or pipe straps secured to hollow masonry with toggle bolts, to brick and concrete with expansion bolts, to metal surfaces with machine screws and to wood with wood screws.

S. The use of wooden plugs (inserted in masonry), tie wire or nails as fastening media is prohibited.

T. Conduit shall not be supported from metal roof deck.

U. Provide pitchpocket where conduit penetrates roof.

V. Conduit shall not penetrate concrete bases designed for vibration isolation.

W. Apply thread lubricant/sealant to joints of all conduit buried in earth or concrete encased.

X. Use PVC conduit only where specifically indicated on the Drawings.

1. Schedule 80 PVC shall be used in floor slabs within the building limits, in underground site distribution and shall be concrete encased where detailed on the Drawings.

Y. Install fire-seal fittings or UL classified foam sealant where conduits penetrate concrete floor slabs or masonry walls required to be fire rated.

Z. Use nest back spacers in conjunction with conduit spacers or clamp backs when additional spacing away from mounting surface is required.

AA. All conduits shall be installed as high as possible in the ceiling cavity. Coordinate all conduit installation with ductwork.

BB. Avoid use of dissimilar metals throughout system to eliminate possibility of electrolysis. Where dissimilar metals are in contact, coat surfaces with corrosion inhibiting compound before assembling.

CC. Install miscellaneous fittings such as reducers, chase nipples, 3-piece unions, split coupling, and plugs that have been specifically designed and manufactured for their particular application.

DD. Use roughing-in dimensions of electrically operated unit furnished by supplier.

EE. Set conduit and boxes for connection to units only after receiving review of dimensions and after checking location with other trades.

FF. Provide nylon pull string in empty conduits where indicated.

GG. Test conduits required to be installed, but left empty, with ball mandrel.

HH. Clear any conduit which rejects ball mandrel.

II. Pay costs involved for restoration of conduit and surrounding surfaces to original condition.

JJ. Cut conduits straight, properly ream, and cut threads for heavy wall conduit deep and clean.

KK. Field-bend conduit with benders designed for purpose so as not to distort or vary internal diameter.

LL. Size conduits to meet NEC, except no conduit smaller than ¾ inch shall be installed.

MM. Fasten conduit terminations in sheet metal enclosures by 2 locknuts, and terminate with insulated bushing. Install locknuts inside and outside of enclosure.

NN. Conduits are not to cross pipe shafts or ventilating duct openings.

OO. Support riser conduit at each floor level with clamp hangers.

PP. Use of running threads at conduit joints and terminations is prohibited. Where required, use 3-piece union or split coupling.

QQ. Complete installation of electrical raceways before starting installation of cables/wires within raceways.

RR. Support exposed conduit by use of hangers, clamps or clips.

1. Support conduit within 3'-0" of each outlet box, junction box, cabinet or fitting and on each side of bends and on spacing not to exceed following: Rigid metal conduits up to 1": 6'-0"; 1-1/4" and over: 8'-0"; EMT up to 1": 5'-0"; 1-1/4" and over: 8'-0".
2. Arrange conduit supports to prevent distortion of alignment by wire pulling operations.
3. Fasten conduit using galvanized straps, caddy clamps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.
4. Requirements for exposed conduits also apply to conduits installed in space above hung ceilings.

SS. Exposed Conduits:

1. Install conduits as not to damage or run through structural members. Avoid horizontal or cross runs in building partitions or side walls.
2. Install exposed conduits and extensions from concealed conduit systems neatly, parallel with, or at right angles to walls of building.
3. Install exposed conduit work as not to interfere with ceiling inserts, lights or ventilation ducts or outlets.
4. Run conduits for outlets on waterproof walls exposed. Set anchors for supporting conduit on waterproof wall in waterproof cement.
5. Requirements for exposed conduit also apply to conduits installed in space above hung ceilings.

TT. Non-Metallic Conduit:

1. Make solvent cemented joints in accordance with recommendations of manufacturer.
2. Install PVC conduits in accordance with NEC.

UU. Conduit Fittings:

1. Construct locknuts for securing conduit to metal enclosure with sharp edge for digging into metal, and ridged outside circumference for proper fastening.
2. Install insulated throat connectors for terminating EMT.
3. Install insulated type bushings for terminating conduits. Bushings are to have flared bottom and ribbed sides. Upper edge to have phenolic insulating ring molded into bushing.
4. Miscellaneous fittings such as reducers, chase nipples, 3-piece unions, split coupling, and plugs to be specifically designed for their particular application.

VV. Install expansion fittings in all raceways wherever structural expansion joints are crossed.

WW. Make changes in direction of raceway run with proper fittings, supplied by raceway manufacturer.

XX. Properly support and anchor raceways for their entire length by structural materials. Raceways are not to span any space unsupported.

YY. Use boxes as supplied by raceway manufacturer wherever junction, pull or devices boxes are required. Standard electrical "handy" boxes, etc. shall not be permitted for use with surface raceway installations.

ZZ. Arrange conduit to maintain headroom and present a neat appearance.

AAA. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.

BBB. Group conduits in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25% additional conduit.

CCC. Do not fasten and/or hang conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

DDD. Bring conduit to the shoulder of fittings and couplings and fasten securely. Raceways shall be cut to proper length so ends fit accurately in outlets.

EEE. Use conduit hubs for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations.

FFF. Install no more than the equivalent of three (3) 90 degree bends between boxes.

GGG. Use conduit bodies to make sharp changes in direction, as around beams.

HHH. Use hydraulic one-shot conduit bender for bends in conduit smaller than 2" size, or factory elbows for bends in conduit 2" and larger. Bends in metallic conduit shall be made while "cold."

III. Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.

JJJ. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.

KKK. EMT shall not be permitted in exterior walls or underground.

LLL. Where conduit penetrates fire rated walls, provide pipe sleeve two sizes larger than conduit; seal opening around conduit with UL listed foamed silicone elastomer compound.

MMM. Route conduit through roof openings for piping and ductwork where possible; otherwise, route through roof jack with pitch pocket.

NNN. Combining of circuits other than as indicated on the Drawings shall not be permitted.

OOO. Bolts, clamps, screws and expansion bolts shall be used in securing conduit, equipment, etc. Holes for lead shields shall be drilled in solid brick or concrete and must be neatly cemented after bolts are in place.

1.15 INSTALLATION OF ELECTRICAL BOXES AND FITTINGS

A. General: Install electrical boxes and fittings as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC, OSHA, and NECA's "Standard of Installation," and in accordance with recognized industry practices to fulfill project requirements.

B. Coordinate installation of electrical boxes and fittings with wire/cable, wiring devices, and raceway installation work.

C. Provide weathertight outlets for interior and exterior locations exposed to weather or moisture.

D. Provide knockout closures to cap unused knockout holes where blanks have been removed.

E. Install electrical boxes in those locations which ensure ready accessibility to enclosed electrical wiring.

F. Avoid installing boxes back-to-back in walls. Where receptacles are shown back-to-back in walls, they shall be mounted in separate boxes, a minimum of 6" apart (24" in acoustic rated walls) and connected together using flex with ground wire. Flex will not be acceptable for system grounding. The flex shall have a loop for limiting sound transmissions. Outlet boxes shall be equipped with plaster rings of appropriate depth to finish flush with finished wall. Outlets in exposed masonry walls shall be equipped with extra deep square corner tile rings so that boxes may be installed in brick walls or in the core of the block.

G. Aluminum products shall not be installed.

H. Position recessed outlet boxes accurately to allow for surface finish thickness.

I. Do not use round boxes unless noted otherwise on the Drawings.

J. Fasten electrical boxes firmly and rigidly to substrates, or structural surfaces to which attached, or solidly embed electrical boxes in concrete or masonry. Boxes shall be supported independently of conduit.

K. Provide electrical connections for installed boxes.

L. Electrical box locations indicated on the Drawings are approximate unless dimensioned. Verify location of outlets prior to rough-in. Outlet may be relocated by the Contracting Officer or authorized representative at no additional cost.

M. Locate and install to maintain headroom and to present a neat appearance.

N. Use multiple gang boxes where more than one device is mounted together; do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.

O. Install boxes in walls without damaging wall insulation.

P. Position outlets to locate luminaries as indicated on the Drawings.

Q. Align wall mounted outlet boxes for switches, thermostats, and similar devices.

R. Subsequent to installation of boxes, protect boxes from construction debris and damage.

S. Support all outlet boxes as required by the NEC. Suspended outlet boxes shall be independently supported from raceway by means of 1/4" all thread rod to structure.

T. All outlet boxes or plaster rings shall finish flush with finished wall or ceiling. Outlets which do not finish flush (recessed) shall be equipped with copper tube stand-off nipples of proper length to hold wiring device securely in place. Wiring device shall be secure and shall not push in or rock.

1.16 GROUNDING

A. Upon completion of installation work, properly ground electrical boxes and demonstrate compliance with requirements of Section 16060 – GROUNDING AND BONDING.

1.17 JUNCTION AND OUTLET BOX IDENTIFICATION:

A. Identify each junction and outlet box cover with color and the type system that is within the box. Sample identifications are as follows:

B. Fire Alarm (Red): Name “FIRE ALARM”.

C. The written labels above shall be neatly and legibly marked on the outside of the box covers using a permanent black ink marker.

END OF SECTION 16130

SECTION 16140

WIRING DEVICES

1.1 SUMMARY

A. This Section includes receptacles, connectors, switches, and finish plates.

1.2 DEFINITIONS

A. GFCI: Ground-fault circuit interrupter.

1.3 SUBMITTALS

A. Product Data: For each product specified.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

B. Comply with NEMA WD 1.

C. Comply with NFPA 70.

1.5 COORDINATION

A. Receptacles for Government-Furnished Equipment: Match plug configurations.

1. Cord and Plug Sets: Match equipment requirements.

1.6 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Wiring Devices (or approved equal):
   a. Bryant Electric, Inc.
   b. Eagle Electric Manufacturing Co., Inc.
   c. GE Company; GE Wiring Devices.
   d. Hubbell, Inc.; Wiring Devices Div.
   e. Killark Electric Manufacturing Co.
   f. Leviton Manufacturing Co., Inc.
   g. Pass & Seymour/Legrand; Wiring Devices Div.

1.7 RECEPTACLES

A. Provide NEMA configuration 5-20R duplex 125 Volt grounding type receptacles rated for 20 Amperes unless otherwise indicated on the Drawings.

B. Receptacles shall be specification grade, Bryant "5362" series, Hubbell "5352" series, P&S "5362" series, G.E., "5362" series, Sylvania "5362" series or Slater "5362" series (or approved equal).

C. Receptacle color shall be ivory in finished areas and brown in unfinished areas.

1.8 OTHER RECEPTACLES

A. Receptacles requiring a current or voltage rating or configuration different from duplex convenience receptacles shall be as indicated on the Drawings.

B. Provide other receptacles with quality, material and workmanship at least equal to that specified for duplex convenience receptacles.

C. Ground fault interrupter receptacles shall have the following features:

1. UL listed: UL 943 Class A
2. Configuration: Duplex, NEMA 5-20R
3. Trip Current: 5 plus or minus 1 milliampere
4. Trip Speed: 0.025 second maximum
   a. Front-accessible test and reset pushbuttons
   b. Manufacturer and type (or approved equal):
      1) Harvey Hubbell, Inc.: GP5362
      2) Pass & Seymour, Inc.: 2091
      3) Slater: SIR-20-F

1.9 PENDANT CORD/CONNECTOR DEVICES

A. Description: Matching, locking type, plug and receptacle body connector, NEMA WD 6, Configurations L5-20P and L5-20R, Heavy-Duty grade.

1. Body: Nylon with screw-open cable-gripping jaws and provision for attaching external cable grip.
2. External Cable Grip: Woven wire-mesh type made of high-strength galvanized-steel wire strand, matched to cable diameter, and with attachment provision designed for corresponding connector.

1.10 CORD AND PLUG SETS

A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.

1. Cord: Rubber-insulated, stranded-copper conductors, with type SOW-A jacket. Green-insulated grounding conductor, and equipment-rating ampacity plus a minimum of 30 percent.
2. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

1.11 SWITCHES

A. Provide totally enclosed, 20 Ampere, 120/277 Volt, quite AC general-use snap switches.

B. Switches shall be single pole, double pole, three-way, four-way, locking or with pilot light as indicated on the drawings.

C. Switches shall be specification grade, Bryant "4900" series, Hubbell "1220" series, P& S "20AC" series, G.E. "5950" series, Sylvania "1221A" series or Slater "720" series (or approved equal).

D. Switch color shall be ivory in finished areas and brown in unfinished areas.

1.12 WALL PLATES

A. Provide wall plates for single and combination wiring devices of types, sizes, and ganging, and cutouts as indicated.

B. Sectional wall plates shall not be used. Select plates which mate and match wiring devices to which attached.

1. Plate securing screws: Metal with head color to match plate finish.
2. Material for finished spaces: Smooth, high impact thermoplastic, color of ivory.
3. Material for unfinished spaces: Stainless steel.

1.13 INSTALLATION

A. All work shall be in accordance with NEC and OSHA requirements.

B. Install devices and assemblies plumb and secure.

C. Install wall plates when painting is complete.

D. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

E. Protect devices and assemblies during painting.

F. Where adjacent to doors, coordinate with architectural drawings to ensure switches are installed on strike side of door.

G. Locate switches approximately 48 inches (centerline) above finished floor elevation unless otherwise indicated.

H. Locate receptacles approximately 18 inches (centerline) above finished floor elevation unless otherwise indicated.

I. Install wiring devices only in electrical boxes which are clean (free from excess building materials, dirt, and debris).

1.14 IDENTIFICATION

A. Switches: Where three or more switches are ganged, and elsewhere as indicated, identify each switch with approved legend engraved on wall plate.

B. Receptacles: Identify panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, durable wire markers or tags within outlet boxes.

1.15 CONNECTIONS

A. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor.

B. Tighten electrical connectors and terminals according to manufacturers published torque-tightening values. If manufacturers torque values are not indicated, use those specified in UL 486A and UL 486B.

1.16 FIELD QUALITY CONTROL

A. Test wiring devices for proper polarity and ground continuity. Use Hubbel model HBL5200 or equal.

B. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.

C. Replace damaged or defective components.

1.17 CLEANING

A. Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

END OF SECTION 16140

SECTION 16442

PANELBOARDS

1.1 SUMMARY

A. Extent of panelboard, load-center and enclosure work, including cabinets and cutout boxes is indicated by the Drawings and Schedules.

B. Types of panelboard and enclosures required for the project include the following:

1. Lighting and appliance panelboards.

C. Refer to other Division 16 sections for wires/cables, electrical boxes and fittings, and raceway work required in conjunction with installation of panelboards and enclosures.

D. Wire/cables, electrical boxes and fittings, and raceways required in conjunction with the installation of panelboards and enclosures are specified in other Division 16 sections.

1.2 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of panelboards and enclosures, of types, sizes, and ratings required, whose products are UL listed and/or labeled for the purpose intended.

B. Electrical Code Compliance: Comply with applicable State code requirements of the authority having jurisdiction and NEC Article 384 as applicable to installation and construction of electrical panelboards and enclosures.

C. UL Compliance: Comply with applicable requirements of Std No. 67, "Electric Panelboards," and Stds No.'s 50, 869, 486A, 486B, and 1053 pertaining to panelboards, accessories and enclosures. Provide units which are UL listed and/or labeled.

D. Special-Use Markings: Provide panelboards, constructed for special-use, with appropriate UL marks which indicates that they are suitable for special type of use/application including service entrance equipment.

E. NEMA Compliance: Comply with NEMA Stds Pub/No. 250 "Enclosures for Electrical Equipment (1000 Volts Maximum)," Pub/No. PB 1, "Panelboards," and Pub/No. PB 1.1, "Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 volts or Less."

1.3 SUBMITTALS

A. Product Data: Submit manufacturer’s data on panelboards and enclosures.

B. Shop Drawings: Submit layout drawings of panelboards showing accurately scaled basic equipment sections, auxiliary compartments and combination sections. In addition, show special relationships of units to associated equipment.

1.4 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide panelboard products of one of the following (for each type and rating of panelboard and enclosure) (or approved equal):

1. Cutler-Hammer/Westinghouse
2. General Electric Company.
3. Square D Company.

1.5 PANELBOARDS

A. General: Except as otherwise indicated, provide panelboards, bolt-on breakers, integral common trip, enclosures and ancillary components, of types, sizes, and ratings indicated, which comply with manufacturer's standard materials; design and construction in accordance with published product information; equip with proper number of unit panelboard devices as required for complete installation. Where types, sizes, or ratings are not indicated, comply with NEC, UL and established industry standards for those applications indicated.

B. Lighting and Appliance Panelboards: Provide factory assembled, dead front safety constructed, lighting and appliance panelboards circuit breaker type, in sizes and ratings indicated, with panelboard switching and protective devices in quantities, ratings, types, characteristics and with arrangement indicated; with anti-turn solderless pressure type main lug connections approved for use with copper conductors.

1. Construct with rectangular shaped bus bars (Phase, neutral and ground) of solid copper, with conductivity not less than 98%, which are securely mounted and braced, and with solderless lugs bolted to main bus bars, and with full sized neutral bus and bare uninsulated ground bus suitable for bolting to enclosures, suitable for service with 480Y/277 volt, 3 phase, 4 wire, and 208Y/120 volt, 3 phase, 4 wire system.
2. Provide suitable lugs on neutral bus for outgoing feeders requiring neutral connections.
3. Provide molded case main and branch circuit bolt-on breaker types for each circuit, with toggle handles that indicate when tripped.
4. Branch circuit breakers for lighting circuits shall be Type "SWD"; for air conditioning and appliance circuits, Type "HACR."
5. Where multiple pole breakers are indicated, provide with integral common trip so overload on one pole will trip all poles simultaneously.
6. Minimum integrated short circuit rating for branch circuit breakers shall be as noted on the Drawings.
7. Select enclosures as noted on drawings fabricated by same manufacturer as panelboards, which mate and match properly with panelboards.

C. Panelboard Enclosures: Provide galvanized sheet steel cabinet type enclosures, in sizes and NEMA types as indicated, code-gage, minimum 16-gage thickness. Construct with no knockouts and code sized wiring gutters.

1. Provide fronts with adjustable trim clamps, and doors with flush locks and keys, all panelboard enclosures keyed alike, with concealed piano door hinges and door swings as indicated.
2. Equip with interior circuit-directory frame, and card with clear plastic covering.
3. Provide baked gray enamel finish over a rust inhibitor coating.
4. Design enclosures for recessed or surface mounting, as indicated on drawings.
5. Provide enclosures which are fabricated by same manufacturer as panelboards, which mate properly with panelboards to be enclosed.

D. Molded Case Circuit Breakers: Provide factory assembled, molded case circuit breakers of frame sizes, characteristics, and ratings including RMS symmetrical interrupting ratings indicated.

1. Select breakers with permanent thermal and instantaneous magnetic trip, and with fault current limiting protection, ampere ratings as indicated.
2. Construct with overcenter, trip free, toggle type operating mechanisms with quick-make, quick-break action and positive handle trip indication.
3. Construct breakers for mounting and operating in any physical position, and operating in an ambient temperature of 40 degrees C.
4. Provide breakers with mechanical screw type removable connector lugs, AL/CU rated.
5. Breaker terminals shall be approved for conductors rated 60/75 degrees C, and shall be identified accordingly on each breaker.

E. Panelboard Accessories: Provide panelboard accessories and devices including, but not necessarily limited to, cartridge and plug time-delay type fuses, circuit-breakers, ground-fault protection units, etc., as recommended by panelboard manufacturer for ratings and applications indicated.

F. Short Circuit Rating: Unless otherwise indicated on drawings, panelboards and all devices will have a minimum short circuit withstand rating of 25,000 RMS symmetrical amperes for 480 volt power distribution panelboards, 35,000 RMS symmetrical amperes for 480 volt power lighting and appliance panelboards, 10,000 RMS symmetrical amperes for 208/120 volt power lighting and appliance panelboards.

G. Series rated panelboards are premitted provided all NEC and UL requirements are satisfied, and series rating data is submitted to the Contracting Officer or authorized representative.

H. All main breakers shall be individually vertical mounted.

1.6 EXAMINATION

A. Examine areas and conditions under which panelboards and enclosures are to be installed, and notify Contracting Officer or authorized representative in writing of conditions detrimental to proper completion of work.

B. Do not proceed with work until unsatisfactory conditions have been corrected.

1.7 INSTALLATION OF PANELBOARDS

A. General: Install panelboards and enclosures as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC standards, OSHA, and NECA's "Standard of Installation," and in compliance with recognized industry practices to ensure that products fulfill requirements.

B. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Stds 486A and B.

C. Fasten enclosures firmly to walls and structural surfaces, ensuring that they are permanently and mechanically anchored.

D. Provide properly wired electrical connections for panelboards within enclosures.

E. Fill out panelboard's circuit directory card with typewriter upon completion of installation work.

F. All neutral and ground wires shall have taped on numbers at panels indicating circuits served.

G. Install panelboards approximately 6 feet 6 inches (top) above finished floor elevation unless otherwise indicated.

1.8 FIELD QUALITY CONTROL

A. Prior to energization of electrical circuitry, check all accessible connections to manufacturer's tightening torque specifications.

B. Prior to energization, check panelboards for electrical continuity of circuits, and for short-circuits.

1.9 GROUNDING

A. Provide equipment grounding connections for panelboards as indicated on drawings.

B. Tighten connections to comply with tightening torques specified in UL Stds 486A to assure permanent and effective grounds.

C. Upon completion of installation work, properly ground panelboards and demonstrate compliance with requirements of Section 16060 – GROUNDING AND BONDING.

1.10 ADJUSTING AND CLEANING

A. Adjust operating mechanisms for free mechanical movement.

B. Touch-up scratched or marred surfaces to match original finishes.

1.11 DEMONSTRATION

A. Subsequent to wire and cable hookups, energize panelboards and demonstrate functioning in accordance with requirements.

B. Where necessary, correct malfunctioning units, and then retest to demonstrate compliance.

END OF SECTION 16442

SECTION 16515

INTERIOR LIGHTING FIXTURES

1.1 SUMMARY

A. Extent, location, and details of interior lighting fixture work are indicated on drawings and in schedules.

B. Types of interior lighting fixtures in this section include the following:

1. Metal Halide.
2. Fluorescent.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer’s product data and installation instructions on each type of interior lighting fixture and component.

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of interior lighting fixtures of sizes, types and ratings required, whose products are UL listed and/or labeled.

B. Codes and Standards:

1. Electrical Code Compliance: Comply with applicable State code requirements of the authority having jurisdiction and NEC Articles 220, 410, and 510 as applicable to installation, and construction of interior building lighting fixtures.
2. NEMA Compliance: Comply with applicable requirements of NEMA Stds Pub/No.'s LE 1 and LE 2 pertaining to lighting equipment.
3. UL Compliance: Comply with UL standards, including UL 486A and B, pertaining to interior lighting fixtures. Provide interior lighting fixtures and components which are UL listed and labeled.
4. CBM Labels: Provide electronic fluorescent lamp ballasts which comply with Certified Ballast Manufacturers Association standards and carry the CBM label.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver interior lighting fixtures in factory-fabricated containers or wrappings, which properly protect fixtures from damage.

B. Store interior lighting fixtures in original packaging. Store inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, humidity, laid flat and blocked off ground.

C. Handle interior lighting fixtures carefully to prevent damage, breaking, and scoring of finishes. Do not install damaged units or components; replace with new.

1.5 SEQUENCING AND SCHEDULING

A. Coordinate with other work including wires/cables, electrical boxes and fittings, and raceways, to properly interface installation of interior lighting fixtures with other work.

B. Sequence interior lighting installation with other work to minimize possibility of damage and soiling during remainder of construction.

1.6 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide interior lighting units of one of the following (for each type of interior lighting unit) (or approved equal):

1. General Electric Co.
2. Hubbell
3. Holophane Div; Johns-Manville Corp.
4. Lithonia
5. Daybrite

B. Fluorescent Ballasts:

1. Advance Transformer Co.
2. Electronic Ballast Technology
3. Magnatek
4. Osvam

C. Metal Halide

1. Advance Transformer Co.
2. General Electric Co.
3. Magnatek

D. Lamps

1. General Electric
2. Osvam-Sylvania
3. Phillips

1.7 INTERIOR LIGHTING FIXTURES

A. General: Provide lighting fixtures, of sizes, types and ratings indicated; complete with, but not limited to, housings, energy efficient ballasts, starters, wiring, poles and standards.

B. Wiring: Provide electrical wiring within fixture suitable for connecting to branch circuit wiring.

C. Fluorescent Lamp Ballasts: Provide solid state low-temperature, high power-factor, Class P, UL Listed integrated electronic ballasts, capable of operating lamp types indicated.

1. Ballasts shall be Electronic Integrated Circuit type.

a. Ballast sound levels shall not exceed Class A ambient noise levels.
b. Ballast shall maintain constant light output of all rapid start fluorescent lamps over operating ranges of 90V to 145V (120V ballasts) and 200V to 320V (277V ballasts).
c. Input current Total Harmonic Distortion content shall be below 15 percent (expressed in percentage of full light output current level).
d. Ballast shall have an average lamp current crest factor below 1.4.
e. Where applicable, ballasts shall meet minimum efficacy standards of Public Law No. 100-357, National Appliance Energy Conservation Amendments of 1988.
f. Ballast shall be rapid startup.
g. Ballast shall withstand line transients ad defined in ANSI/IEEE C62.41, Category A.
h. Ballast case temperature shall not exceed 25 degrees C temperature rise over 40 degrees C ambient.
i. Ballast shall have a frequency of operation of 20 kHz or greater, and operate without visible flicker.
j. Ballast shall have a power factor of 90% or above.
k. Ballast shall not contain polychlorinated biphenyls (PCB's).
l. Ballast shall meet the requirements of the Federal Communications Commission Rules and Regulations, Part 18, Class A.

D. Metal Halide:

1. Provide metal halide lamp ballasts, capable of operating lamp types with rating indicated; reactor type, high power-factor, core and coil assembly encapsulated in non-melt resin; install capacitor outside ballast encapsulation for easy field replacement
2. Provide metal halide lamp ballasts, which properly mates and matches lamps to electrical supply by provide appropriate voltages and impedances for which lamps are designed.
3. Design metal halide ballasts to operate lamp within the lamp’s power trapezoid requirements.

E. Lamps:

1. All lamps used on this Project shall be by one manufacturer.
2. All lamps of a particular type shall be from one production run.
3. Provide fluorescent lamps of energy saving types and wattages as indicated on the Drawings.
4. Provide HID lamps in types and wattages indicated on the Drawings.

F. Interior Lighting Fixture Types:

1. General: Fixtures must comply with minimum requirements as stated herein. Review architectural drawings and specifications to verify ceiling types, modules, suspension systems appropriate to installation.
2. Refer to the Fixture Schedule on the Drawings for specific fixture requirements.

1.8 EXAMINATION

A. Examine areas and conditions under which lighting fixtures are to be installed, and substrate for supporting lighting fixtures.

B. Notify Contracting officer’s representative in writing of conditions detrimental to proper completion of the work.

C. Do not proceed with work until unsatisfactory conditions have been corrected.

1.9 INSTALLATION OF INTERIOR LIGHTING FIXTURES

A. Install interior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, OHSA, NECA's "Standard of Installation," NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.

B. Provide fixtures and/or fixture outlet boxes with hangers to properly support fixture weight. Submit design of hangers, method of fastening, other than indicated or specified herein, for review by Contracting officer’s representative.

C. Install flush mounted fixtures properly to eliminate light leakage between fixture frame and finished surfaces.

D. Provide plaster frames for recessed fixtures installed in other than suspended grid type acoustical ceiling systems. Brace frames temporarily to prevent distortion during handling.

E. Fasten fixtures securely to indicated structural supports; and ensure that pendant fixtures are plumb and level. Provide individually mounted pendant fixtures longer than two (2') feet with twin stem hangers. Provide stem hanger with ball aligners and provisions for minimum one (1") inch vertical adjustment. Mount continuous rows of fixtures with an additional stem hanger greater than number of fixtures in the row. Provide clips for securing layin fixtures in grid ceiling system.

F. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Stds 486A and B, and the National Electrical Code.

G. Support surface mounted fixtures greater than two (2') feet in length at one other point in addition to the outlet box fixture stud.

H. Surface mounted fluorescent fixtures shall be mounted using 1/4" threaded rod at each end and rods shall be attached to the building structure above the ceiling. Ceiling grid tees shall not be used for supporting surface mounted fixtures.

1.10 FIELD QUALITY CONTROL

A. Replace defective and burned out lamps for a period of one year following the Date of Substantial Completion.

B. At Date of Substantial Completion, replace lamps in interior lighting fixtures which are observed to be noticeably dimmed after Contractor's use and testing, as judged by Contracting officer’s representative.

1.11 GROUNDING

A. Provide equipment grounding connections for interior lighting fixtures as indicated and as specified in Section 16060 – GROUNDING AND BONDING.

B. Tighten connections to comply with tightening torques specified in UL Std 486A to assure permanent and effective grounds.

1.12 ADJUSTING AND CLEANING

A. Clean interior lighting fixtures of dirt and construction debris upon completion of installation. Clean fingerprints and smudges from lenses.

B. Protect installed fixtures from damage during remainder of construction period.

1.13 DEMONSTRATION

A. Upon completion of installation of interior lighting fixtures, and after building circuitry has been energized, apply electrical energy to demonstrate capability and compliance with requirements.

B. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.

END OF SECTION 16515

SECTION 16525

EXTERIOR LIGHTING FIXTURES

1.1 SUMMARY

A. Types of exterior lighting fixtures in this section include the following:

1. Metal Halide.

1.2 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of exterior building lighting fixtures of types and ratings required.

B. Codes and Standards:

1. NEC Compliance: Comply with NEC as applicable to installation and construction of exterior building lighting fixtures.
2. NEMA Compliance: Comply with applicable requirements of NEMA Stds Pub/No.'s FA 1, LE 1 and LE 2 pertaining to lighting equipment.
3. UL Compliance: Comply with UL standards, including Stds 486A and B, pertaining to exterior lighting fixtures. Provide exterior lighting fixtures which are UL listed and/or labeled.

1.3 SUBMITTALS

A. Product Data: For each type of product specified.

1.4 DELIVERY, STORAGE AND HANDLING

A. Handle lighting fixtures carefully to prevent damage, breaking, and scoring. Do not install damaged fixtures or components; replace with new.

B. Store lighting fixtures in clean dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage.

1.5 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated into the work include, but are not limited to, the following (or approved equal):

B. Exterior Lighting Fixtures:

1. General Electric Co.

2. GTE Sylvania, Inc.
3. Holophane
4. Hubbell Lighting.
5. Lithonia Lighting.
6. Sterner Lighting.

C. Metal Halide Ballasts:

1. Advance Transformer Co.
2. General Electric Co. (Hendersonville)
3. Holophane Div.; Johns-Manville Corp.
4. Jefferson Electric Co.
5. Universal Transformer Co.

1.6 EXTERIOR LIGHTING FIXTURES

A. General: Provide lighting fixtures, of sizes, types and ratings indicated; complete with, but not limited to, housings, energy efficient ballasts, starters and wiring.

B. Wiring: Provide electrical wiring within fixture suitable for connection to branch circuit wiring.

C. Metal Halide Lamp Ballasts: Provide Metal Halide lamp ballasts, capable of operating lamp types with ratings indicated; reactor type, high power-factor, core and coil assembly encapsulated in non-melt resin; install capacitor outside ballast encapsulation for easy field replacement.

D. Lamps:

1. All lamps used on this Project shall be by one manufacturer.
2. All lamps of a particular type shall be from one production run.
3. Provide Metal Halide lamps in types and wattages indicated on the Drawings.

E. Exterior Lighting Fixture Types:

1. General: Refer to the Fixture Schedule for types and requirements of exterior lighting fixtures.

1.7 INSPECTION

A. Examine areas and conditions under which lighting fixtures are to be installed, and substrate which will support lighting fixtures.

B. Do not proceed with work until unsatisfactory conditions have been corrected.

1.8 INSTALLATION OF EXTERIOR LIGHTING FIXTURES

A. Install exterior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation," NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.

B. Coordinate with other electrical work as appropriate to properly interface installation of exterior lighting fixtures with other work.

C. Tighten connectors and terminals, including screws and bolts, to comply with tightening torques specified in UL Stds 486A.

D. Fasten fixtures securely to poles; and ensure that poles and fixtures are plumb.

1.9 ADJUSTING AND CLEANING

A. Clean exterior lighting fixtures of dirt and debris upon completion of installation.

B. Protect installed fixtures from damage during construction period.

1.10 FIELD QUALITY CONTROL

A. Upon completion of installation of exterior lighting fixtures, and after building circuitry has been energized, apply electrical energy to demonstrate capability and compliance with requirements.

B. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.

C. Replace defective and burned out lamps for a period of one year following the Date of Substantial Completion.

D. At the Date of Substantial Completion, replace lamps in exterior lighting fixtures which are observed to be noticeably dimmed after Contractor's use and testing as judged by the Contracting Officer or authorized representative.

1.11 GROUNDING

A. Tighten connections to comply with tightening torques specified in UL Std 486A to assure permanent and effective grounds.

B. Provide equipment grounding connections for exterior lighting fixtures as indicated and as specified in Section 16060 – GROUNDING AND BONDING.

END OF SECTION 16525

SECTION 16535

EMERGENCY LIGHTING

1.1 SUMMARY

A. Extent of emergency lighting work is indicated by Drawings and Schedules.

B. Types of emergency lighting fixtures in this section include the following:

1. Fluorescent fixtures with emergency battery ballast.
2. Exit fixtures.
3. Unitized battery powered fixtures.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer’s product data and installation instructions on each type of emergency lighting fixture and component.

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of emergency lighting fixtures of types and ratings required, whose products are UL listed and/or labeled.

B. Codes and Standards:

1. NEC Compliance: Comply with NEC as applicable to installation and construction of emergency lighting.
2. NEMA Compliance: Comply with applicable requirements of NEMA Std Pub No.'s 1B 4, 1B 5, and FA 1 pertaining to emergency lighting.
3. UL Compliance: Provide emergency lighting fixtures which are UL listed and/or labeled.
4. NFPA Compliance: Comply with applicable requirements of NFPA 99, "Health Care Facilities" and NFPA 101, "Life Safety Code."

1.4 DELIVERY, STORAGE AND HANDLING

A. Handle lighting fixtures carefully to prevent damage, breaking, and scoring. Do not install damaged fixtures or components; replace with new.

B. Store lighting fixtures in clean dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage.

1.5 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, manufacturers offering emergency lighting equipment which may be incorporated in the work include the following (or approved equal):

B. Exit Fixtures:

1. Chloride Systems USA, Inc.
2. Emergi-Lite Electronics
3. Exide Electronics Corp.
4. Hubbell Lighting, Inc.
5. Lightalarms Electronics Corp.
6. Lithonia Lighting Inc.
7. Shield Source, Inc.

C. Unitized Battery Powered Fixtures:

1. Chloride Systems USA, Inc.
2. Exide Electronics Corp.
3. Hubbell Lighting, Inc.
4. Lightalarms Electronics Corp.
5. Lithonia Lighting Inc.

D. Fluorescent Fixtures with Emergency Battery Ballast:

1. General Electric Co.
2. Hubbell Lighting, Inc.
3. Holopane, Div; John-Manville Corp.
4. Lithonia Lighting, Inc.
5. Daybrite

E. Fluorescent Ballasts:

1. Advance Transformer Co.
2. Electric Ballast Technology
3. Magnatek
4. Osvam

F. Lamps:

1. General Electric Co.
2. Osvam-Sylvania
3. Phillips

1.6 EMERGENCY LIGHTING FIXTURES

A. General: Provide lighting fixtures, of sizes, types and ratings indicated; complete with, but not limited to, housings, energy efficient lamps, lamp holders, reflectors, energy-efficient ballasts, starters, and wiring.

B. Wiring: Provide wiring within fixtures for connection to branch circuit wiring.

C. Exit Fixtures - Battery Powered: Provide surface, wall, or ceiling mounted fixtures as indicated. Select fixture with standard exterior finish and red lamps (6 -inch), with capability for adjusting exit arrows as indicated. Provide LED type lamps for normal and emergency operation, dual voltage (120/277 V.), Universal mounting, universal arrows. Furnish battery powered unit with automatic charging, complete with nickel-cadmium battery which automatically connects low voltage lamp to battery power upon loss, and disconnect upon restoration of normal AC supply.

D. Fluorescent Fixtures with Emergency Battery Ballast: In selected fixtures, emergency battery ballasts shall be installed.

1. The ballast unit shall include a nickel cadmium battery, a solid state electronic charger and a test switch/charging light wiring harness.
2. The battery shall operate one lamp for at least 90 minutes.

E. Unitized Battery Powered Fixtures:

1. General: Various fixture types are indicated below. Fixtures must comply with minimum requirements as stated herein.
2. Emergency Units: Provide battery powered, dual voltage (120/277 V.), self-contained units and solid-state, UL listed, fully automatic charger and transfer/brownout circuit and low-voltage battery disconnect; full 3-year warranty plus 15-year prorated warranty.

   a. Provide enclosure constructed in accordance with NEMA 1 standards, high impact thermoplastic.
   b. Supply maintenance-free lead-calcium battery for 6 volt operation capable of supply connected load for minimum period of 90 minutes to end voltage or 87-1/2% of nominal battery voltage.
   c. Provide unit-mounted and/or remote-mounted head as indicated on the Drawings, rated 6 volt, 5.4 watts tungsten lamps.

3. Accessories: Provide following accessories mounted on unit cabinet:

   a. Unit test switch.
   b. AC "ON" pilot light.
   c. Battery life expectancy alarm.
   d. Heavy-duty wall mounting bracket.

1.7 INSTALLATION OF EMERGENCY LIGHTING FIXTURES

A. Examine areas and conditions under which emergency lighting is to be installed, and substrate which will support lighting fixtures. Do not proceed with work until unsatisfactory conditions have been corrected.

B. Install emergency lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation," NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.

C. Coordinate with other electrical work as appropriate to properly interface installation of emergency lighting fixtures with other work.

1.8 ADJUSTING AND CLEANING

A. Clean emergency lighting fixtures of dirt and debris upon completion of installation.

B. Protect installed fixtures from damage during remainder of construction period.

1.9 GROUNDING

A. Provide equipment grounding connections for emergency lighting fixtures as indicated.

B. Tighten connections to comply with tightening torques specified in UL Std 486A to assure permanent and effective grounds.

C. Upon completion of installation work, properly ground emergency lighting and demonstrate compliance with requirements of Section 16060 – GROUNDING AND BONDING.

1.10 FIELD QUALITY CONTROL

A. Upon completion of installation of emergency lighting fixtures, and after building circuitry has been energized with normal power source, apply electrical energy to demonstrate capability and compliance with requirements.

B. Test emergency lighting to demonstrate operation under emergency conditions.

C. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.

END OF SECTION 16535

SECTION 16721

FIRE DETECTION, ALARM AND RADIO TYPE REPORTING SYSTEM

1.11 GENERAL: This specification outlines requirements for modifications of the existing fire alarm monitoring and control equipment for Building 3728 at Seymour Johnson Air Force Base at Goldsboro, North Carolina. The existing fire alarm control panel is to be replaced with a new "Class A" type as indicated in this specification. The existing Monaco transmitter is to be relocated and attached to the new fire alarm control panel. Existing pull stations and horn/strobes to remain and to be incorporated with new initiating and notification devices as indicated on Drawing. Existing conduits may be reused if they meet all necessary requirements.

1.1 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. All publications shall be referred to in their latest edition, including any revisions thereof.

1. American National Standards Institute(ANSI)

ANSI C62.41	Recommended Practice for Surge Voltage in Low-Voltage AC Power Circuits

2. National Fire Protection Association (NFPA)

NFPA 70	National Electrical Code
NFPA 72	National Fire Alarm Code
NFPA 78	Lightning Protection Code
NFPA 90A	Installation of Air Conditioning and Ventilation Systems

3. Underwriters Laboratories, Inc. (UL)

UL Directory	Fire Protection Equipment Directory
UL 06	Rigid Metal Conduit
UL 38	Manually Actuated Signaling Boxes for Use with Fire-Protective Signaling Systems
UL 268A	Smoke Detectors for Duct Application
UL 464	Audible Signal Appliances
UL 797	Electrical Metallic Tubing

1.12 GENERAL REQUIREMENTS

A. Products: The Contractor shall provide a low voltage, automatic integrated fire alarm control panel compatible with Monaco transmitter manufactured by Monaco Enterprises, Inc. of Spokane, Washington, or approved equal.

B. Nameplates: Major components of equipment shall have the manufacturer's name, address, type or style, voltage and current rating, and catalog number on a noncorrosive and nonheat sensitive plate which is securely attached to the equipment.

C. Keys and Locks: Locks shall be keyed alike.

D. Tags: Tags with stamped identification number shall be furnished for keys and locks on a key ring and given to the Contracting Officer or authorized representative.

E. Verification of Dimensions: The contractor shall become familiar with all details of the work, verify all dimensions in the field, and shall advise the Contracting Officer or authorized representative of any discrepancy before performing the work.

F. Compliance: The fire detection and internal alarm system shall be configured in accordance with NFPA 72. The equipment furnished shall be compatible and be UL listed or FM approved or approved or listed by a nationally recognized testing laboratory in accordance with the applicable NFPA standards.

G. Manufacturer's Services: Services of a manufacturer's representative who is certified in the installation, maintenance, adjustment, operation and repair, of the equipment specified shall be provided. The representative shall supervise the installation, adjustment, programming, testing and certification of the equipment.

H. Delivery and Storage: All equipment delivered and placed in storage shall be protected from the weather, humidity and temperature variations, dirt, dust, and other contaminates.

I. Programming: Contractor is required to fully program the transceiver and the D-500 to communicate by zone and remote test.

1.13 SYSTEM DESIGN

A. Operation: System shall be a complete, programmable, supervised Monaco type fire alarm system. The system shall be activated into the alarm mode by actuation of any alarm initiating device. The system shall remain in the alarm mode until any initiating device is reset and the fire alarm control panel is manually reset and restored to normal. Electrical supervision shall be Style D in accordance with NFPA 72. All circuits shall be capable of operating under a single ground or open condition, as specified in NFPA 72. All textual, audible and visual devices, and systems shall comply with NFPA 72.

B. Operational Features. The system shall have the following operating features:

1. Six Class A (Style D) alarm initiating (zone) circuits for connection of detection devices (Three are spare for future).
2. Two auxiliary zone circuits for connection of non-powered alarm initiating devices such as tamper switches, heat detectors or manual pull stations.
3. Two Class A (Style D) indicating (horn/horn strobe) circuits for connection of audible and visual alarm evacuation signaling devices; each circuit may be programmed as silenceable or nonsilenceable. When Class A is selected, two circuits are provided; one circuit operates for common alarms and one circuit is programmable for specific zone alarms or for common alarm operation.
4. Zone programming capability which allows entry of a zone identification number, thirteen character description and type. Each zone is programmed for standard, supervisory, verification, positive alarm sequence, or water-flow warm operation; the auxiliary zones may also be programmed for tamper or for publicly accessible manual pull station.
5. An auxiliary alarm output which is used in conjunction with zones that are programmed for water-flow alarm, positive alarm sequence or publicly accessible manual pull station operation.
6. An auxiliary power output which provides one amp, 24 volt, dc power.
7. One Form C (24 vdc) auxiliary relay, programmable to operate with one or more zones.
8. A Liquid Crystal Display (LCD), an 18-digit keypad, and passcode-controlled configuration menus to aid installation, response and maintenance personal with set-up, alarm and trouble response, system testing and troubleshooting.
9. LED's which identify ac power and battery status, common alarm, common trouble message transmission, carrier detect, messages received, disconnected transmitter and Monaco fault conditions; the LCD displays alarm/trouble locations and the zone descriptions or the panel trouble condition.
10. Switches for silencing and the audible alert, acknowledging alarms and trouble conditions, normalizing the panel, restarting the transmitter, testing LED operation and performing drill tests.
11. Walk test and transmitter disable functions built in; individual zones may be disabled at the panel.
12. An on-board phone plug-type connector for connection of a computer to download preconfigured data to the Monaco units or to a terminal for display of menus for programming and testing.
13. AC power failures, tamper input activations and battery faults are specifically reported to the central D-500 with the Monaco address. A battery fault report indicates a disconnected battery, or high or low battery charging voltage; the specific condition is displayed on the LCD. Low battery shut down circuitry prevents complete battery discharge.
14. Automatic battery backup for 48 hours of standard operation or 5 minutes in alarm, in the event of an AC power failure.
15. Status reports in response to central supervising station scheduled or user initiated interrogations. On-board radio interrupt circuitry which turns off the transmitter if it outputs a continuous signal for more than 30 seconds. A trouble alarm silence switch shall be provided which will silence the trouble buzzer, but will not extinguish the trouble indicator amp. After the system returns to normal operating conditions, the trouble buzzer shall again sound until the silencing switch returns to normal position, unless automatic trouble reset is provided.

16. Transmitter is existing.
17. An alarm condition on a circuit shall automatically deactivate the air handling units throughout the building.
18. Trouble buzzer and trouble lamp (light emitting diode or neon light-to activate upon a single break; open, or ground fault condition which prevents the required normal operation of the system. The trouble signal shall also operate upon loss of primary power (AC) supply, low battery voltage, removal of alarm zone modules, and disconnection of the circuit used for transmitting alarm signals off premises.
19. Electrical supervision of the primary power (AC) supply, battery voltage, placement of alarm zone modules within the control panel, and transmitter tripping circuit integrity.
20. Transmitter disconnect switch to allow testing and maintenance of the system without activating the transmitter.
21. Evacuation alarm silencing switch or switches which, when activated, will silence alarm devices, but will not affect the zone indicating lamp no the operation of the transmitter. This switch shall be overridden upon activation of a subsequent alarm from an unalarmed zone and the alarm devices will be activated.
22. Electrical supervision of circuits used for supervisory signal services. Supervision shall detect all opens, shorts and grounds.
23. Zones for alarm initiating circuits shall be arranged as indicated on the contract drawings.
24. Alarm functions. An alarm condition on a circuit shall automatically initiate the following functions:

    a. Transmission of a signal (by zone and general alarm/general trouble) over the station fire reporting system.
    b. Visual indication of the alarmed zone on the fire alarm control panel annunciator..
    c. Continuous sounding of alarm indicating devices throughout the building.
    d. Operation of the smoke control system.
    e. Deactivation of the air handling, exhaust fans units throughout the building.

25. Primary Power: Operating power shall be single phase taken from the building electric services as specific. Circuit breaker shall be provided with key lock. Transfer from normal to emergency power or restoration from emergency to normal power shall be fully automatic and not cause transmission of a false alarm. Loss of ac power shall not prevent transmission of a signal via the fire reporting system upon operation of any initiating circuit. Circuit disconnecting means shall be clearly marked "Fire Alarm Circuit."
26. Battery Backup Power: Battery backup power shall be through use of rechargeable, sealed-type storage batteries and battery charger.

1.14 SUBMITTALS

A. Installer Qualification. Installer must have five years experience in the installation of fire alarm systems and possess a minimum LEVEL II certificate from the NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET) in the sub-field FIRE PROTECTION ENGINEERING TECHNOLOGY (FIRE ALARM

SYSTEMS). No fire alarm work is to be done with non-certified personnel (ie. electrican, helper, etc.).

B. Shop Drawings. Shop drawings shall be submitted and shall consist of a complete set of equipment and materials, including manufacturer's descriptive and technical literature; performance charts and curves; catalog cuts; and installation instructions. Detail drawings shall also contain complete wiring and schematic diagrams and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Drawings shall show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work including clearances for maintenance and operation.

C. Test Reports. Upon completion and testing of the installed system, test reports shall be submitted in booklet form showing all field tests performed to prove compliance with the specified performance criteria. Each test report shall indicate the final position of controls.

D. Operation and Maintenance Manuals.

1. The contractor shall furnish the Contracting Officer or authorized representative six complete copies of operating instructions outlining step-by-step procedures required for system start up, operation and shut down. The instructions shall include the manufacturer's name, model number, service manual, parts list, and brief description of all equipment and their basic operating features.
2. The contractor shall furnish the Contracting Officer or authorized representative six copies of maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guide. The instructions shall include conduit layout, equipment layout and simplified wiring, and control diagrams of the system installed.

E. Spare Parts Data. After approval of the shop drawings the contractor shall furnish spare parts data for each different item of materials and equipment specified. The data shall include a complete list of parts and supplied, with current unit prices and source of supply, and a list of the parts recommended by the manufacturer to be replaced after 3 years of service.

F. As Built Drawings. PRIOR TO PERFORMANCE AND ACCEPTANCE TESTING, The contractor shall submit two legible copies of all fire alarm drawings showing the "as-built" system. The detail drawings of the fire detection system shall be signed by a Fire Protection Engineer. The drawings shall consist of a complete list of equipment and material, including manufacturer's descriptive and technical literature and catalog cuts. The drawings shall also contain complete wiring and schematic diagrams for the equipment furnished, equipment layout, and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. The detailed point-to-point wiring diagram showing all points of connection shall include connections between system devices, appliances, control panels, supervised devices, and all equipment that is activated by the control panel.

G. Certificates of Completion. PRIOR TO PERFORMANCE AND ACCEPTANCE TESTING, a Certificate of Completion per NFPA 72 shall be given to the Contracting Officer or authorized representative. "NOTE" The individual signing the certificate is

warranting that the fire alarm system has been installed per NFP, NEC, UL and Air Force specifications and codes.

1.15 OVER VOLTAGE AND SURGE PROTECTION

A. Power Line Surge Protection. All equipment connected to alternating current circuits shall be protected from power line surges. Equipment shall meet requirements of ANSI C62.41. Surge protector shall be a Delta LA 301 or equal.

1.16 DELIVERY AND STORAGE

A. All equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variation, dirt and dust, any other contaminants.

1.17 CONTROL PANEL

A. The fire alarm control panel shall be a low voltage, automatic, addressable, integrated fire alarm control panel, as manufactured by Monaco Enterprises, Inc., of Spokane, Washington or approved equal. The control panel shall comply with the applicable requirements of UL 864. Panel shall be modular, installed in a surface mounted steel cabinet with hinged door and cylinder lock. Control panel shall be a neat, compact assembly containing all components and equipment required to provide the specified operating and supervisory functions of the system. The panel shall have prominent rigid plastic or metal identification plates for all lamps, zones, controls, meters, fuses and switches. Nameplates for fuses shall also include ampere rating. Separate alarm and trouble lamp shall be provided for each zone alarm initiating circuit, located on exterior of cabinet door or be visible through the cabinet door. Control panel switches shall be within the locked cabinet. A suitable means shall be provided for testing the control panel visual indicating devices (meters or lamps). Meters and lamps shall be plainly visible when the cabinet of the control unit is closed. Initiating circuit shall have plug-in cards or modules for ease of servicing Modules or cards shall be removable without disconnecting wiring. Signals shall be provided to indicate by zone any alarm, supervisory or trouble condition on the system. Each initiating circuit shall be powered and supervised so that a signal on one zone does not prevent the receipt of signals require the reloading of a program from any source. Upon restoration of power, start up shall be immediate, automatic, and shall not require any manual operation. The loss of primary power or the sequence of applying primary or emergency power shall not affect the transmission of alarm, supervisory or trouble signals. Enclosures shall be provided with ample gutter space to allow proper clearance between the enclosure and live parts of the panel equipment. If more than one modular unit is required to form a control panel, the units shall be installed in a single enclosure large enough to accommodate all units. The fire alarm control panel shall be compatible and connected to the existing Monaco BT2-3 transmitter.

1. Circuit Connections. Circuit conductors entering or leaving the panel shall be connected to screw-type terminals with each terminal marked for identification.

2. Storage Batteries. Storage batteries shall be provided and shall be the sealed, lead calcium types requiring no additional water. The batteries shall have ample capacity, either primary power disconnected, to operate the fire alarm system for a period of 48 hours. Following this period of operation via batteries, the batteries shall have ample capacity to operate all components of the system, including all alarm signaling devices in the total alarm mode for a period of 5 minutes. Batteries shall be sized to deliver 20 percent more ampere/hours than required for the calculated capacities. Battery cabinet shall be a separate compartment within the control panel cabinet.

3. Battery Charger. Battery charger shall be completely automatic, with high/low charging rate, capable of restoring the batteries from full discharge to full charge within 48 hours. A separate ammeter shall be provided for indicating rate of charge. A separate voltmeter shall be provided to indicate the state of the battery charge. Pilot light shall indicate when batteries are manually placed on a high rate of charge as part of the unit assembly if a high rate switch is provided.

4. Manual Fire Alarm Stations. Manual fire alarm stations shall conform to the applicable requirements of the UL 38. Manual stations shall be connected into alarm initiating circuits. Stations shall be single action type. Stations shall be finished in red, with raised letter operating instructions of contrasting color. Stations requiring the breaking of glass or plastic panels for operation are not acceptable. Stations employing glass or plastic rods are not acceptable. The use of a key or wrench shall be required to reset the station. Gravity or mercury switches are not acceptable. Switches and contacts shall be rated for the voltage and current upon which they shall operate. Stations shall have a separate screw terminal for each conductor. Where boxes must be surface mounted, boxes shall be painted the same color as the fire alarm manual stations.

1.18 FIRE DETECTING DEVICES

A. Fire Duct Smoke Detectors. Detectors shall have a duct housing, mounted exterior to the duct, with factory perforated sampling tubes, in accordance with UL 268 and UL 268A. Activation of a detector shall cause shutdown of the associated air-handling unit. Detectors shall be mounted in readily accessible locations. Detectors shall be capable of activation a remote indicating lamp on a remote annunciator. Detectors shall be furnished and wired by electrical contractor and installed by HVAC contractor.

1.19 NOTIFICATION APPLIANCES

A. Audible appliances shall be heavy duty and conform to the applicable requirements of UL 464. Devices shall be connected into alarm indicating circuits. All devices shall have separate screw terminals for each conductor.

B. Combination Audible/Visual Notification Appliances. Combination audible/visual appliances shall be factory assembled. Units shall be suitable for use in an electrically supervised circuit and shall have a sound output rating of at least 85 dBA at 10 feet. Visual indication shall be accomplished by high intensity optic lens and flash tubes.

1.20 FIRE DETECTION AND ALARM SYSTEM PERIPHERAL EQUIPMENT

A. Conduit shall comply with UL 06 and UL 797.

B. Wiring: All wiring shall be stranded copper. Wiring for strobe light circuits shall be No. 14 AWG minimum. Wiring for 120 v AC power shall be No. 12 AWG minimum. Wiring for power limited circuits shall be No. 16 AWG minimum/Power wiring and control wiring shall be isolated. All wiring shall conform to NFPA 70. All conductors shall be color coded. Wiring code color shall remain uniform throughout the circuit. Pigtail or T-tap connections are unacceptable.

1.21 INSTALLATION

A. All work shall be installed as shown and in accordance with the manufacturer's diagrams and recommendations, unless otherwise specified.

B. Power Supply for System. A single dedicated branch-circuit connection for supplying power to each building system shall be provided. Emergency power supply shall be automatically transferred upon failure of the normal power supply. The power disconnect shall be separate from the circuit breaker. The disconnect shall be the type that can be locked in the "on" position and painted red.

C. Wiring. Wiring for systems shall be installed in 1/2 inch minimum diameter conduit; however the wiring for the fire alarm system shall not be installed in conduits, junction boxes with conductors of lighting and power systems. No more than one conductor shall be installed under any screw terminal. All circuits conductors entered or leaving any mounting box, outlet box enclosure or cabinet shall be connected to terminals with each terminal marked in accordance with the wiring diagram for identification. Connections shall be made with either crimp-on terminal spade lugs or with approved pressure type terminal blocks. The use of wire nut type connectors are prohibited in the system. All wiring within any control equipment shall be readily accessible without removing any component parts. The fire alarm equipment manufacturer's representative shall be present for the connection of wiring to the control panel.

D. Control Panel. The control panel and its assorted components shall be mounted so that no part of the enclosing cabinet is less than 12 inches above the finished floor no more than 78 inches above the finished floor. All manually operable controls shall be at least 3 feet and less than 5 feet above the finished floor. Panel shall be installed to comply with the requirements of UL 864. Unless otherwise indicated panel shall be installed on a 3/4 inch thick plywood backboard. Backboard shall be finished with two coats of varnish. Space shall be reserved on backboard for future devices.

E. Painting. All junction boxes shall be painted red.

F. Notification Appliances. Devices shall be mounted 6 feet 8 inches above the finished floor elevation, or 6 inches below finished ceiling, if limited by ceiling height.

G. Grounding. Grounding shall be provided to building ground.

H. Manual Pull Stations shall be installed at approximately 4 feet (center) above finished floor elevation unless otherwise indicated.

1.22 TESTING

A. The contractor shall notify the Contracting Officer or authorized representative 30 days before the performance and acceptance tests are to be conducted. The Contractor shall provide battery calculations for the fire alarm system to the Contracting Officer or authorized representative 30 days prior to the acceptance test. The test shall be performed in the presence of the Contracting Officer or authorized representative under the supervision of the fire alarm system manufacturer's qualified representative. The contractor shall furnish all instruments, equipment and personnel required for the tests.

B. Preliminary Tests. Upon completion of the installation, the system shall be subjected to functional and operational performance tests including tests of each installed initiating and notification appliance. Tests shall include the meggering of all system conductors to determine that the system is free from grounded, shorted and open circuits. The megger test shall be conducted prior to the installation of fire alarm equipment. Smoke detector bases shall be equipped with jumpers for the megger test. If deficiencies are found, corrections shall be made and the system shall be retested to assure that is functional.

C. Acceptance Test. The testing shall be in accordance with NFPA 72 and shall verify that all previous deficiencies have been corrected. The test shall include the following:

1. Test of each function of the control panel.
2. Test of each circuit in both trouble and normal modes.
3. Test of alarm initiating devices in both normal and trouble conditions.
4. Test of each control circuit and device.
5. Test of each alarm notification appliance.
6. Test of the battery charger and batteries.
7. Complete operational test under emergency power supply.
8. Visual inspection of all wiring connections.
9. Opening the circuit at each alarm initiating and indicating device to test the wiring supervisory feature.
10. Test of the as-built drawings to insure that they are correct.

END OF SECTION 16721

SECTION 16770

PAGING AND SOUND SYSTEM

1.1 DESCRIPTION

A. This specification includes the furnishing, installation, and connections of a telephone paging system and a ballroom sound system ready for operation. It shall include, but not be limited to, receiver, amplifier, speakers, microphone, and volume controls.

1.2 SCOPE

A. A new telephone paging and sound system shall be installed in accordance to project specifications and drawings.

B. The telephone paging system shall page over the entire building.

C. The sound system is to address the ballroom only.

D. Ballroom microphone shall mute all building speakers except ballroom speakers.

1.3 QUALITY ASSURANCE

A. All items of equipment, including wire and cable, shall be designed by the manufacturer to function as a complete system.

1.4 WARRANTY

A. All materials and installation shall be guaranteed to be free of defects in material and workmanship after final acceptance of installation for a period of one year.

B. On-the-premise maintenance shall be provided at no cost to the owner from date of installation for one year.

C. When requested within one year of date of substantial completion (maximum of 4 visits), provide on site assistance in adjusting sound levels, resetting matching transformer taps and adjusting controls to suit actual occupied condition.

1.5 MAINTENANCE

A. The contractor shall guarantee availability of service by factory-trained personnel of the specified equipment form an authorized distributor of all equipment specified under this section.

1.6 SUBMITTALS

A. Product Data: For each type of product specified.

1.7 TELEPHONE PAGING SYSTEM

A. MATERIAL

1. The telephone paging amplifier shall be a Bogen Model TPU 100B or approved equal, with a full power rating of 100 watts. The amplifier shall provide a frequency response of ± 1dB from 70Hz to 15kHz, and shall deliver rated power at less than 1% distortion.
2. The amplifier shall permit paging from telephone and/or microphone. The signal-activated paging channel shall automatically mute background music during a telephone page, eliminating the need for manual activation of switches and the use of external relays. Provision shall be included to set to mute the level of background music during a page. Music level shall be returned to its normal level after a page.
3. The telephone paging channel shall have a VOX sensitivity adjustment to eliminate transmission of background noise, and automatic output leveling (ALC) to compensate for varying voice levels and paging techniques of persons using the system.
4. An Aphex ® Aural Exciter circuit shall be included to regenerate the harmonics lost during the amplification process. A control shall be provided to set the level of the Aphex effect.
5. A night ringer shall be included to alert personnel of incoming calls during non-business hours. The night ringer shall be activated by a contact closure or by a 90-volt ring signal from the telephone line.
6. Input terminals shall be furnished for a telephone line and LO-Z balanced microphone. A choice of RCA jack or screw terminals shall be provided for the music source. Terminals shall also be provided to control music muting during a mic page, and for contact closure or ring signal activation of the night ringer. Bridging jacks shall be provided to bridge two TPU-series amplifiers.
7. Balanced or unbalanced outputs shall be provided for 16-ohm, 25V, 25VCT, and 70V speaker lines. Provision shall be included to feed a 60-ohm telephone line. LO-Z input or balanced microphone input of another amplifier, using an accessory line matching transformer (Model WMT1A).
8. Individual controls shall be provided to set the telephone and mic page volume, music volume, night ringer volume, VOX sensitivity, and music mute level. Bass and treble controls shall permit tonal adjustments. An automatic level control (ALC) and VOX sensitivity controls shall be included. A peak level indicator shall illuminate when the amplifier is driven into clipping. A power indicator shall also be provided. The amplifier shall operate from a 120V AC, 60Hz source, and shall be equipped with a resettable circuit breaker and thermal and electronic overload protection.
9. Installation shall be facilitated by flanges with keyhole slots for mounting on a suitable backboard. Dimensions for the 100 models shall be 14-3/16” W x 8-3/8” H x 3-5/8” D.

10. The loudspeaker assembly shall be a Bogen Model S86T725PG8WVR or approved equal, 8” cone-type loudspeaker, having a frequency response of at least 50Hz to 12kHz. Axial sensitivity shall be 95dB, at four feet with one-watt input. The loudspeaker shall have a 6 oz. ceramic magnet and a ¾” voice coil and be volume adjustable. A transformer, capable of matching an 8-ohm loudspeaker to a 25-volt or 70-volt line, and providing power taps of 4, 2, 1, ½, ¼, and 1/8 watts shall be included. The transformer primary and secondary leads shall be stripped, tinned, and shall be at least 6” in length. The loudspeaker shall be assembled on a 13” steel ceiling grille, finished in white semi-gloss enamel.
11. Mount all telephone equipment/paging equipment on a 4’ x 4’ x ¾” thick plywood backboard. Backboard shall be finished with two coats of varnish. Space shall be reserved on backboard for future devices. Coordinate with Contracting Officer or authorized representative for exact location.

1.8 BALLROOM SOUND SYSTEM

A. Material

1. The amplifier shall be a Bogen Model DPA-80 or approved equal having a continuous output power rating of 80 watts. It shall include a module input for maximum flexibility and have power MOFSET output stages for improved performance and reliability. Conventional package-type amplifiers which do not provide both modular flexibility and power MOFSET reliability will not be accepted as equal.
2. The amplifier shall provide two input channels; a fixed program (music) input with variable mute, and one modular input port for use with Bogen’s input modules. The variable mute circuit shall be screwdriver-adjustable over a range of at least 60dB and capable of being activated by either an external contact closure or by a priority signal from the module input. The module port shall be of the plug-in type, accessible from the rear, and utilizing a ribbon type connector having gold-plated contacts.
3. Frequency response at all levels up to full rated output shall be within +0 to –2dB from 20 Hz to 20kHz. Distortion at all power levels up to the rated output shall be less than 0.5%. Signal to noise ratio shall be at least –75dB or better. The amplifier shall include front-panel-mounted level controls for each input; a Master gain control and associated bar graph type LED output level meter, and an illuminated power on/off switch. A Lo-Cut filter switch shall be included and shall be located inside the module port to prevent accidental adjustments.
4. Both direct and transformer coupled outputs shall be provided to match 4- and 8-ohm speaker systems and 25V and 70V distribution systems. A Bridging In/Out jack shall be provided for recording and/or bridging applications. A Preamp Out/Power Amp In link shall be included; the link switch shall be located in the module port to prevent tampering.
5. The amplifier shall be designed for continuous duty service in commercial and industrial applications on line voltages of 120V, 60Hz AC, and include an AC line circuit breaker.
6. The loudspeaker shall be a Bogen Model S810 (or transformer coupled S810T725), or approved equal, 8” cone-type loudspeaker, having a frequency response of at least 70Hz to 15kHz. Axial sensitivity shall be 96dB, at four feet with one-watt input. The loudspeaker shall have a 10 oz. ceramic magnet, a 1”

voice coil, and power handling capacity of 15 watts, minimum. Mounting holes shall be provided for attaching an optional transformer. Speaker depth shall be 3-1/4". (For S810T725 add) a transformer, capable of matching an 8-ohm loudspeaker to a 25-volt or 70-volt line, and providing power taps of 4, 2, 1, ½, ¼, and 1/8 watts shall be included. The transformer primary and secondary leads shall be stripped, tinned, and shall be at least 6" in length.

7. The microphone shall be Bogen Model MBS-1000, or approved equal, dynamic type, omni directional, dual impedance with an on-off switch with 25 foot microphone cord and shall come with a floor stand. The frequency response shall be uniform from 50Hz to 12,000Hz with a presence boost at 2,000Hz for natural, intelligible sound.
8. Impedance shall be selected via a switch on the underside of the microphone base. Impedances shall be 400 ohms (matching 125 ohms to 1,000 ohms) or 40,000 ohms (matching 100K ohms or greater). Voltage output shall be –76dB at Lo-Z and –55dBat Hi-Z.
9. Wire shall be West Penn 293.
10. Mount all telephone equipment/paging equipment on a 4' x 4' x ¾" thick plywood backboard. Backboard shall be finished with two coats of varnish. Space shall be reserved on backboard for future devices. Coordinate with Contracting Officer or authorized representative for exact location.

1.9 FINAL INSPECTION

A. At final inspection a factory-trained representative of the manufacture of the major equipment shall demonstrate that the systems function properly in every respect.

B. Provide instruction as required for operating the system.

END OF SECTION 16770

SUBMITTAL CODES: A: 30 DAYS AFTER NTP B: DURING CONSTRUCTION

SCHEDULE OF MATERIAL SUBMITTALS

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																	APPROVED	DISAPPROVED			
1	**02051 PARA 1.4.A** ASBESTOS REMOVAL, CLEANUP…									3	A										
2	**02051 PARA 1.4.B** ASBESTOS REMOVAL, CLEANUP…									3	B										
3	**02051 PARA 1.4.C** ASBESTOS REMOVAL, CLEANUP…	3									A										
4	**02051 PARA 1.4.D** ASBESTOS REMOVAL, CLEANUP…	3									B										
5	**02070 PARA 1.1.C.1** SELECTIVE DEMOLITION	3									A										
6	**02070 PARA 1.1.C.2** SELECTIVE DEMOLITION									3	A										
7	**02070 PARA 1.1.C.3** SELECTIVE DEMOLITION									3	A										
8	**02510 PARA 1.1, E.1** PIPE	3									A										
9	**02510 PARA 1.1, E.2** PIPE						3				A										
10	**02510 PARA 1.1, E.3** PIPE							3			A										
11	**02510 PARA 1.1, E.1** PIPE FITTINGS							3			A										
12	**02510 PARA 1.1, E.1** GATE VALVES							3			A										

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																	APPROVED	DISAPPROVED			
13	**02510 PARA 1.1, E.2** SITE PLAN		3								A										
14	**02510 PARA 1.1, E.1** POST INDICATOR							3			A										
15	**02510 PARA 1.1, E.4** WARRANTY						3				B										
16	**02510 PARA 1.1, E.3** HYDROSTATIC TEST	3									B										
17	**02510 PARA 1.1, E.3** PURGING & DISINFECTION REPTS	3									B										
18	**02510 PARA 1.1, E.3** BELOW GROUND PIPING	3									B										
19	**02510 PARA 1.1, E.1** TAPPING SLEEVE							3			A										
20	**02511 PARA 1.1.A** HOT-MIX ASPHALT PAVING							3			A										
21	**02511 PARA 1.1.A** HOT-MIX ASPHALT PAVING	3									A										
22	**02511 PARA 1.1.A.1** HOT-MIX ASPHALT PAVING									3	A										
23	**02920 PARA 1.1.A** LAWNS AND GRASSES							3			A										
24	**02920 PARA 1.1.A** LAWNS AND GRASSES									3	A										

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25	**03300 PARA 1.1.A** CAST IN PLACE CONCRETE							3			A										
26	**03300 PARA 1.1.A** CAST IN PLACE CONCRETE									3	A										
27	**03300 PARA 1.1.A.1** CAST IN PLACE CONCRETE		3								A										
28	**03300 PARA 1.1.A.2** CAST IN PLACE CONCRETE	3									A										
29	**04810 PARA 1.1.A** UNIT MASONRY ASSEMBLIES							3			A										
30	**04810 PARA 1.1.A.1** UNIT MASONRY ASSEMBLIES			3							A										
31	**04810 PARA 1.1.A.2** UNIT MASONRY ASSEMBLIES	3									A										
32	**05521 PARA 1.3.A** PIPE AND TUBE RAILINGS		3								A										
33	**06105 PARA 1.1.A.** MISC. CARPENTRY							3			A										
34	**06402 PARA 1.1.B** INTERIOR ARCH. WOODWORK							3			A										
35	**06402 PARA 1.1.B.1.** INTERIOR ARCH. WOODWORK		3								A										
36	**06402 PARA 1.1.B.2.** INTERIOR ARCH. WOODWORK			3							A										

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																	APPROVED	DISAPPROVED			
37	**07210 PARA 1.2.A** BUILDING INSULATION							3			A										
38	**07841 PARA 1.1.B.1.** THRU-PENET. FIRE STOP SYS		3								A										
39	**07841 PARA 1.1.B.2.** THRU-PENET. FIRE STOP SYS	3									A										
40	**07841 PARA 1.1.B.3.** THRU-PENET. FIRE STOP SYS									3	A										
41	**07920 PARA 1.1.B.** JOINT SEALANTS							3			A										
42	**07920 PARA 1.1.B.1.** JOINT SEALANTS			3							A										
43	**07920 PARA 1.1.B.2.** JOINT SEALANTS	3									A										
44	**08110 PARA 1.1.A.1.** STEEL DOORS AND FRAMES		3								A										
45	**08110 PARA 1.1.A.1.** STEEL DOORS AND FRAMES							3			A										
46	**08110 PARA 1.1.A.2.** STEEL DOORS AND FRAMES									3	A										
47	**08211 PARA 1.1.A.1.** FLUSH WOOD DOORS		3								A										
48	**08211 PARA 1.1.A.2.** FLUSH WOOD DOORS							3			A										

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49	**08331 PARA 1.3.A** OVERHEAD COILING DOORS							3			A										
50	**08331 PARA 1.3.B** OVERHEAD COILING DOORS		3								A										
51	**08331 PARA 1.3.C** OVERHEAD COILING DOORS			3							A										
52	**08410 PARA 1.1.L** ALUMINUM ENTRANCES AND STORE FRONTS							3			A										
53	**08410 PARA 1.1.L.1.** ALUMINUM ENTRANCES AND STORE FRONTS		3								A										
54	**08410 PARA 1.1.L.1.a.** ALUMINUM ENTRANCES AND STORE FRONTS									3	A										
55	**08410 PARA 1.1.L.2.** ALUMINUM ENTRANCES AND STORE FRONTS			3							A										
56	**08410 PARA 1.1.L.3.** ALUMINUM ENTRANCES AND STORE FRONTS	3									A										
57	**08711 PARA 1.1.A.** DOOR HARDWARE							3			A										
58	**08711 PARA 1.1.A.1** DOOR HARDWARE									3	A										
59	**08711 PARA 1.2.B** DOOR HARDWARE									3	A										
60	**08711 PARA 1.2.C** DOOR HARDWARE			3							A										

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																	APPROVED	DISAPPROVED			
61	**08800 PARA 1.1.B.** GLAZING							3			A										
62	**08800 PARA 1.1.B.1.** GLAZING	3									A										
63	**09260 PARA 1.1.A.** GYPSUM BOARD ASSEMBLIES							3			A										
64	**09310 PARA 1.2.A** CERAMIC TILE							3			A										
65	**09310 PARA 1.2.B** CERAMIC TILE		3								A										
66	**09310 PARA 1.2.C** CERAMIC TILE			3							A										
67	**09310 PARA 1.2.D** CERAMIC TILE									3	A										
68	**09511 PARA 1.1.A** ACOUSTICAL PANEL CEILINGS							3			A										
69	**09511 PARA 1.1.A.1.** ACOUSTICAL PANEL CEILINGS			3							A										
70	**09511 PARA 1.1.A.2.** ACOUSTICAL PANEL CEILINGS			3							A										
71	**09651 PARA 1.1.A.1.** RESILIENT TILE FLOORING							3			A										
72	**09651 PARA 1.1.A.2.** RESILIENT FLOOR TILE			3							A										

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SCHEDULE OF MATERIAL SUBMITTALS

PROJECT NUMBER: VKAG 00-1107

PROJECT TITLE: REPAIR COMMUNITY CENTER, BLDG 3728

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																	APPROVED	DISAPPROVED			
73	**09651 PARA 1.1.A.3.** RESILIENT FLOOR TILE					3					A										
74	**09653 PARA 1.2.A.** RESILIENT WALL BASE AND ACCESSORIES							3			A										
75	**09653 PARA 1.2.B.** RESILIENT WALL BASE AND ACCESSORIES			3							A										
76	**09680 PARA 1.2A** CARPET							3			A										
77	**09680 PARA 1.2B** CARPET		3								A										
78	**09680 PARA 1.2C** CARPET			3							A										
79	**09680 PARA 1.2D** CARPET									3	A										
80	**09680 PARA 1.2E** CARPET									3	A										
81	**09900 PARA 1.1.D.1.** PAINTING									3	A										
82	**09900 PARA 1.1.D.2.** PAINTING							3			A										
83	**09950 PARA 1.2.A** WALL COVERINGS							3			A										
84	**09950 PARA 1.2.B** WALL COVERINGS		3								A										

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																	APPROVED	DISAPPROVED			
85	**09950 PARA 1.2.C** WALL COVERINGS			3							A										
86	**09950 PARA 1.2.D** WALL COVERINGS									3	A										
87	**09950 PARA 1.2.E** WALL COVERINGS									3	A										
88	**10155 PARA 1.1.A.1.** TOILET COMPARTMENTS							3			A										
89	**10155 PARA 1.1.A.2.** TOILET COMPARTMENTS		3								A										
90	**10155 PARA 1.1.A.3.** TOILET COMPARTMENTS			3							A										
91	**10200 PARA 1.3.A** LOUVERS AND VENTS							3			A										
92	**10425 PARA 1.2.A.** SIGNS							3			A										
93	**10425 PARA 1.2.B.** SIGNS		3								A										
94	**10425 PARA 1.2.C.** SIGNS			3							A										
95	**10520 PARA 1.3.A** FIRE-PROTECTION SPECIALTIES							3			A										
96	**10520 PARA 1.3.B** FIRE-PROTECTION SPECIALTIES			3							A										

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																	APPROVED	DISAPPROVED			
97	**10801 PARA 1.1.A.** TOILET AND BATH ACCESSORIES							3			A										
98	**13916 PARA 1.1, D.1** PIPE	3									A										
99	**13916 PARA 1.1, D.2** PIPE						3				A										
100	**13916 PARA 1.1, D.1** PIPE							3			A										
101	**13916 PARA 1.1, D.2** PIPE FITTINGS						3				A										
102	**13916 PARA 1.1, D.1** PIPE FITTINGS							3			A										
103	**13916 PARA 1.1, D.2** PIPE COUPLINGS						3				A										
104	**13916 PARA 1.1, D.1** PIPE COUPLINGS							3			A										
105	**13916 PARA 1.1, D** SPRINKLER HEADS, ESCUTCHEONS, & GUARDS			3							A										
106	**13916 PARA 1.1, D** SPRINKLER HEADS, ESCUTCHEONS, & GUARDS						3				A										
107	**13916 PARA 1.1, D** SPRINKLER HEADS, ESCUTCHEONS, & GUARDS							3			A										
108	**13916 PARA 1.1, D.3** WET SYSTEM		3								A										

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109	**13916 PARA 1.1, D.1** GATE VALVES							3			A										
110	**13916 PARA 1.1, D.1** FLOW SWITCH							3			A										
111	**13916 PARA 1.1, D.7** FLOW SWITCH								3		A										
112	**13916 PARA 1.1, D** CHECK VALVES								3		A										
113	**13916 PARA 1.1, D** WATER MOTOR GONG								3		A										
114	**13916 PARA 1.1** HANGERS & UPPER ATTACHMNTS								3		A										
115	**13916 PARA 1.1, D.1** ALARM CHECK VALVE							3			A										
116	**13916 PARA 1.1, D.7** ALARM CHECK VALVE								3		A										
117	**13916 PARA 1.1, D.1** BACKFLOW PREVENTER							3			A										
118	**13916 PARA 1.1, D.7** BACKFLOW PREVENTER								3		A										
119	**13916 PARA 1.1, D.1** FIRE DEPT CONNECTION							3			A										
120	**13916 PARA 1.1, D.1** POST INDICATOR							3			A										

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121	**13916 PARA 1.1, D.4** HYDROSTATIC TEST	3									A										
122	**13916 PARA 1.1, D.4** ABOVE GROUND PIPING	3									A										
123	**13916 PARA 1.1, D.1** TAMPER SWITCH							3			A										
124	**13916 PARA 1.1, D.7** TAMPER SWITCH								3		A										
125	**15075 PARA 1.3.A.** MECHANICAL IDENTIFICATION							3			A										
126	**15081 PARA 1.3.A.** DUCT INSULATION							3			A										
127	**15083 PARA 1.3.A.** PIPE INSULATION							3			A										
128	**15110 PARA 1.2A** VALVES							3			A										
129	**15122 PARA 1.2A** METERS AND GAGES							3			A										
130	**15140 PARA 1.3.M.d** DOMESTIC WATER PIPING	3									B										
131	**15150 PARA 1.2.A** SANITARY WASTE AND VENT							3			A										
132	**15181 PARA 1.2A** HYDRONIC PIPING							3			B										
133	**15182 PARA 1.2A**							3			B										

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																	APPROVED	DISAPPROVED			
134	**15185 PARA 1.2A** HYDRONIC PUMPS							3			B										
135	**15410 PARA 1.1.A.** PLUMBING FIXTURES							3			A										
136	**15485 PARA 1.2.A.** DOMESTIC WATER HEATERS							3			A										
137	**15725 PARA 1.2A** MODULAR INDOOR AHUs							3			A										
138	**15815 PARA 1.1.A.** METAL DUCTS							3			A										
139	**15820 PARA 1.1.A.** DUCT ACCESSORIES							3			A										
140	**15838 PARA 1.2.A.** POWER VENTILATORS							3			A										
141	**15855 PARA 1.1.A.** DIFFUSERS, REGISTERS, GRILLES							3			A										
142	**15900 PARA 1.2.A.** HVAC INSTR. & CONTROLS							3			A										
143	**15900 PARA 1.2.B.** HVAC INSTR. & CONTROLS		3								A										
144	**15940 PARA1.2A** SEQUENCE OF OPERATION		3								A										
145	**15990 PARA 1.3.A.** TESTING, ADJUSTING, BALANC.	3									B										

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146	**16060 PARA 1.2.B** GROUNDING AND BONDING	3									B										
147	**16060 PARA 1.3A** GROUNDING AND BONDING							3			A										
148	**16060 PARA 1.3B** GROUNDING AND BONDING									3	A										
149	**16120 PARA 1.2.A.** CONDUCTORS & CABLES							3			A										
150	**16130 PARA 1.2.A.** RACEWAYS							3			A										
151	**16140 PARA 1.3.A.** WIRING DEVICES							3			A										
152	**16442 PARA 1.3.A.** PANELBOARDS							3			A										
153	**16442 PARA 1.3.B.** PANELBOARDS		3								A										
154	**16515 PARA 1.2.A.** INTERIOR LIGHTING FIXTURES							3			A										
155	**16525 PARA 1.3.A.** EXTERIOR LIGHTING FIXTURES							3			A										
156	**16535 PARA 1.2.A** EMERG. LIGHTING							3			A										
157	**16721 PARA 1.4.A. FIRE DETECTION, ALARM & RADIO** TYPE REPORTING SYS.									3	A										

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																	APPROVED	DISAPPROVED			
158	**16721 PARA 1.4.B.** **FIRE DETECTION, ALARM & RADIO** TYPE REPORTING SYS.		3								A										
159	**16721 PARA 1.4.C.** **FIRE DETECTION, ALARM & RADIO** TYPE REPORTING SYS.									3	A										
160	**16721 PARA 1.4.D.** **FIRE DETECTION, ALARM & RADIO** TYPE REPORTING SYS.									3	A										
161	**16721 PARA 1.4.E.** **FIRE DETECTION, ALARM & RADIO** TYPE REPORTING SYS.									3	A										
162	**16721 PARA 1.4.F.** **FIRE DETECTION, ALARM & RADIO** TYPE REPORTING SYS.									3	A										
163	**16721 PARA 1.4.G.** **FIRE DETECTION, ALARM & RADIO** TYPE REPORTING SYS.	3									B										
164	**16770 PARA 1.6A** PAGING AND SOUND SYSTEM							3			A										

S

SEYMOUR JOHNSON
AIR FORCE BASE
NORTH CAROLINA

SPECIFICATIONS

FOR

DATE: 25 JUL 01

PROJECT NO: VKAG 00-1165

PROJECT TITLE: Repair Roof, Building 2121

PROJECT ENGINEER: Lt. Kevin Golart

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VKAG 00-1165

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SECTION 01000

GENERAL

1.1 SCOPE OF WORK: The work covered by this specification consists of furnishing all plant, labor, equipment and material, and performing all work in connection with VKAG 00-1165, REPAIR ROOF, BLDG 2121 in strict accordance with these specifications and drawings and subject to the terms and conditions of this contract.

1.2 LOCATION: The work is to be accomplished at Seymour Johnson Air Force Base, Goldsboro, North Carolina. This base is accessible by both public highway and railway.

1.3 WORKWEEK: The contractor shall observe the same regular workweek being observed by the Seymour Johnson AFB Civil Engineering shop forces, which is 7:30 a.m. to 4:30 p.m., Monday through Friday, with Federal holidays excluded. Any deviation from this schedule will require 48 hours advance notice and approval of the Contracting officer or authorized representative.

1.4 PRINCIPLE FEATURES: The work covered by this contract includes, but is not limited to the following:

A. Remove metal roofing system and replace with new.

B. Install standing seam metal roof system over existing facility.

1.5 HAUL ROUTES: The Contractor shall use the haul routes indicated on the plans.

1.6 DISPOSITION OF NONSALVABLE MATERIALS: All nonsalvable or unusable material shall be disposed of off base as directed by the Contracting Officer or authorized representative. All waste material generated by any work under this contract shall be handled, transported, stored, and disposed of off base, by the Contractor, in accordance with all applicable federal, state, or local laws, ordinances, regulations, court orders, or other types of rules or rulings having the effect of law.

1.7 SUBMITTALS: Required submittals are listed on the AF Form 66.

1.8 BASE CIVIL ENGINEERING WORK CLEARANCE REQUEST, AF FORM 103: The Contractor shall obtain AF Form 103, Base Civil Engineering Work Clearance Request, prior to work commencement from the Contract Management Section in Bldg. 3300, 1095 Peterson Avenue.

1.9 SAFETY: All safety requirements of the U.S. Army Corps of Engineers Safety Manual 385-1-1 dated October 1996 will be strictly adhered to as related to all work covered under these specifications.

1.10 MATERIALS CONTAINING ASBESTOS: In the event the contractor discovers materials suspected of containing asbestos that is not identified to be removed in the plans and specifications, the contractor shall notify the Contracting Officer or authorized representative. The contractor's work shall proceed unless the materials suspected of containing asbestos are damaged or disturbed. Any suspected materials damaged or disturbed by the contractor without permission from the contracting Officer or authorized representative shall be removed by the Contractor at his expense IAW all applicable Federal, State, and local laws, ordinances, regulations, court orders, or other types of rules or rulings having the effect of law.

1.11 LABELING OF STORAGE DRUMS: All 55 gallon or larger drums brought on base for use under this contract and containing new material or used for storage of waste materials or hazardous waste must be labeled with a Department of Transportation (DOT) Proper Shipping name, DOT Hazardous Identification Number, the Contractor's name, a Contractor representative, and the Contractor's telephone number. Label lettering should have a minimum height of one half inch painted in white paint or other color that is in contrast with the color of the drum. The label should be sufficiently durable to equal or exceed the life (including storage and disposal) of the drum.

1.12 CONTRACTOR STORAGE TRAILER(S) AND BUILDING(S): The Contractor shall place or paint a sign on all of his storage trailer(s) and building(s) used on this contract. At a minimum, the sign shall contain the name of the Contractor and a telephone number at which the Contractor can be reached. The trailer(s) and building(s) shall be complete with gates and/or doors which can be locked. Only material for this project shall be stored in the trailer(s) or building(s). The Contractor shall remove the storage trailer(s) or building(s) within 30 days after completion of the contract and prior to submitting his final invoice. The area around the storage trailer(s) and building(s) shall be kept clean. This includes the mowing of grass during the growing season. The lawn mower shall be supplied by the Contractor.

1.12.1 The Contractor will be given a lot in the Contractor Storage Area behind Bldg 2700 for the life of the contract. The Contractor's progress schedule shall include a line item (equal to 1%) for final cleanup of this storage lot. Final payment will not be made until this final cleanup is performed by the Contractor and accepted by Seymour Johnson AFB.

1.13 PHASING:

A. The 60 days following Contractor's Notice to Proceed (Phase I) will be allowed for delivery of materials, equipment ordering, and submittal approval only. No on-site work shall be permitted by the Contractor during that initial 60 day period.

B. After the initial submittal phase, construction performance period (Phase II) shall be 120 days.

1.14 AFFIRMATIVE PROCUREMENT

A. The contractor shall incorporate Affirmative Procurement requirements as per 40 CFR, Part 247 and Executive Order 13101: Greening the Government Through Waste Prevention, Recycling and Federal Acquisition." Any Environmental Protection Agency's (EPA) Designated items used in the execution of this contract shall meet or exceed the EPA's requirements for recycled content materials (RCM) as per the EPA's Comprehensive Procurement Guidelines (CPG). The contractor shall ensure affirmative procurement requirements for CPG items are met or provided written justification that: 1) The price of a given designated item is unreasonably high, 2) There is inadequate competition (not enough sources of supply), 3) Unusual and unreasonable delays would result from obtaining the item, or 4) The item does not meet the Air Force's performance specifications.

B. Individual specifications contained in this contract may or may not reference the permitted use of a recycled/recovered material. Recycled/recovered materials shall be used in the quantities set forth in the EPA's CPG whether specified in the individual specification or not.

C. The following products are on the CPG list and the contractor must meet minimum percentages: Building insulation

END OF SECTION 01000

SECTION 02070

SELECTIVE DEMOLITION

PART 1 – GENERAL

A. Definitions:

1. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

2. Remove and salvage: Detach items from existing construction and deliver them to the Government.

3. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

4. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

B. Material Ownership: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Government's property, demolished materials shall become Contractor's property and shall be removed from Project site.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

D. Project Conditions:

1. The Government will occupy the building immediately below the selective demolition area. Conduct selective demolition so the Government's operations will not be disrupted. Provide not less than 48 hours' notice to the Government of activities that will affect Government operations.

2. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

3. The Government assumes no responsibility for condition of areas to be selectively demolished.

a. Conditions existing at time of inspection for bidding purpose will be maintained by the Government as far as practical.

E. Storage or sale of removed items or materials on-site will not be permitted.

PART 2 – PRODUCTS

A. Repair Materials: Use repair materials identical to existing materials.

1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

2. Use materials whose installed performance equals or surpasses that of existing materials.

PART 3 – EXECUTION

A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

B. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to the Contracting Officer.

C. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

D. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.

E. Utility Requirements: Locate, identify, disconnect, shut off, and seal or cap off indicated utilities serving areas to be selectively demolished.

1. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.

F. Site Access and Temporary Controls: Conduct selective demolition and debris removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.

2. Protect existing site improvements, appurtenances, and landscaping to remain.

G. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

H. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.

I. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

J. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

K. Selective Demolition: Demolish and remove existing construction only to the extent required by new construction and not before proper permit has been obtained and as indicated. Remove only the amount of roofing that can be adequately covered by the end of the day to ensure water tightness. Use methods required to complete the work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.

2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.

4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

L. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Contracting Officer or authorized representative, items may be removed as suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

M. Patching and Repairs: Promptly repair damage to adjacent construction caused by selective demolition operations.

1. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.

2. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

N. Disposal of Demolished Materials: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

1. Burning: Do not burn demolished materials.

2. Disposal: Transport demolished materials off the Government’s property and legally dispose of them.

END OF SECTION 02070

SECTION 06105

MISCELLANEOUS CARPENTRY

PART 1 – GENERAL

A. Submittals:

1. Product Data: For wood-preservative and fire retardant treatment from chemical treatment manufacturers and certification by treating plants that treated materials comply with requirements.

PART 2 – PRODUCTS

A. Lumber, General: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review. Factory mark each piece of lumber with grade stamp of grading agency.

1. For exposed lumber, mark grade stamp on end or back of each piece.

2. Provide dressed lumber, S4S, unless otherwise indicated.

3. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

B. Wood-Preservative-Treated Materials: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

1. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.

2. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.

3. Application: Treat items indicated on Drawings, and the following:

a. Wood cants, mailer, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.

b. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

c. Wood framing members less than 18 inches (460 mm) above grade.

C. Fire-Retardant-Treated Materials: Where fire-retardant-treated materials are indicated, provide materials that comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Use Exterior-type for exterior locations and where indicated.

2. Use Interior Type A High Temperature (HT), unless otherwise indicated.

D. Provide miscellaneous lumber for support or attachment of other construction.

1. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade lumber with 19 percent maximum moisture content of any species.

2. For exposed boards, provide lumber, with 15 percent maximum moisture content, or eastern white pine, Idaho white, lodgepole, ponderosa, or sugar pine; Finish or 1 Common (Colonial) grade; NELMA, NLGA, WCLIB, or WWPA.

3. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

a. Mixed southern pine, No. 2 grade; SPIB.

b. Eastern softwoods, No. 2 Common grade; NELMA.

c. Northern species, No. 2 Common grade; NLGA

d. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

E. Miscellaneous Concealed Plywood: Exterior sheathing, span rating to suit framing in each location, and thickness as indicated but not less that ½ inch (13 mm).

F. Fasteners: Provide fasteners of size and type indicated.

1. Where carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

2. Power-Driven Fasteners: CABO NER-272.

3. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings.

PART 3 – EXECUTION

A. Set carpentry to required levels and lines, with members plumb, true to line, cut , and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.

C. Countersink fastener heads on exposed carpentry work and fill holes with wood filler.

D. Wood Structural Panels: Comply with applicable recommendations contained in APA Form No. E30K, “APA Design/Construction Guide: Residential & Commercial,” for types of structural-use panels and applications indicated.

END OF SECTION 06105

SECTION 07213

BATT AND BOARD INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Batt insulation for metal building roofs.

B. Rigid board insulation on metal roof deck.

1.2 SUBMITTALS

A. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Certainteed Fiberglass - Valley Forge, PA. for Batt insulation.

B. Celotex Corporation - Tampa, FL for Rigid insulation at roof.

C. Or approved equals.

2.2 MATERIALS

A. Batt insulation:

1. Fiberglass batt insulation shall have a facing providing a permeability of 0.1 perm or less when tested in accordance with ASTM E96. Facing shall be white, either of reinforced foil with a vinyl finish or sheet vinyl except unreinforced foil with a natural finish may be used in concealed locations. Facings shall be factory applied. Blanket insulation shall conform to Fed Spec HH-I-58, Form B, Type 1, Class 6.

B. Rigid Board Insulation:

1. Hg-Therm AP or approved equal - at roof as indicated on the Drawings, per manufacturer’s recommendations.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.

3.2 INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.

B. Batt insulation: Blanket insulation which is to be installed across the top of the purlins shall have a maximum thickness of four inches before installation.

C. Trim insulation neatly to fit spaces.

END OF SECTION

SECTION 07465

PREFORMED METAL SIDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preformed metal siding.

1.02 RELATED SECTIONS

A. Section 07213 - Batt and BoardInsulation

B. Section 07600 - Sheet metal flashing.

1.03 REFERENCES

A. ASTM A446/A446M - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.

B. ASTM A525/A525M - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, General Requirements.

C. ASTM A606 - Steel Sheet and Strip, Hot-Rolled and Cold-Rolled, High-Strength, Low-Alloy, with Improved Corrosion Resistance.

D. ASTM A755/A755M - Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil Coating Process For Exterior Exposed Building Products.

E. ASTM A792/A792M - Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot-Dip Process, Structural (Physical) Quality.

F. ASTM B209/B209M - Aluminum and Aluminum-Alloy Sheet and Plate.

G. ASTM C665 - Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

1.04 SYSTEM DESCRIPTION

A. System: Preformed and prefinished metal siding system of vertical profile to match existing building-color to match.

1.05 DESIGN REQUIREMENTS

A. Components: Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall as

calculated in accordance with North Carolina State Building code.

B. Maximum Allowable Deflection of Panel: 1/90 of span.

C. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement within system; movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; deflection of structural support framing.

1.06 SUBMITTALS FOR REVIEW

A. Shop Drawings: Indicate dimensions, layout, joints, construction details, methods of anchorage.

B. Samples: Submit three samples of siding, siding finish, 4x4 inch in size illustrating finish color, sheen, and texture.

1.07 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing the work of this section approved by manufacturer.

1.08 DELIVERY, STORAGE, AND PROTECTION

A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

B. Store prefinished material off ground protected from weather, to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials which may cause discoloration or staining.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Berridge S-Deck Manufacturing Co. (1-800-231-3127)

B. Equal product by Butler Manufacturing Co. (816-968-3322).

C. Equal product by MBCI (804-526-3395)

D. Or approved equal.

2.02 PANEL INTERIOR AND OTHER SHEET MATERIALS

A. Galvanized Steel: ASTM A446/A446M, Grade A, Coating Designation G90. Precoated Surfaces: color to match existing building.

2.03 ACCESSORIES

A. Sealants: Manufacturer's standard type suitable for use with installation of system; non-staining, skinning, non-shrinking and non-sagging color to match surface.

B. Fasteners: Manufacturer's standard type to suit application; exposed fasteners same finish as panel system.

C. Field Touch-up Paint: As recommended by panel manufacturer.

D. Bituminous Paint: Asphalt base.

2.04 COMPONENTS

A. Interior Sheet: Minimum 24 gage thick precoated steel stock; profile as indicated; 36 inches wide panel; lapped edges, fitted with continuous gaskets.

B. Internal Corners: Same material, thickness, and finish as sheets; profile to suit system; brake formed to required angles.

C. Trim, Closure Pieces, Caps: Same material, thickness and finish as sheets; brake formed to required profiles.

D. Anchors: Galvanized steel.

2.05 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest practicable lengths.

C. Fabricate corners in one continuous piece with minimum 18 inch returns.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that building framing members are ready to receive panel system.

3.02 INSTALLATION

A. Install metal siding system in accordance with manufacturer's instructions.

B. Protect surfaces in contact with cementitious materials and dissimilar metals with bituminous paint. Allow to dry prior to installation.

C. Fasten siding to structural supports; aligned, level, and plumb.

D. Locate joints over supports. Lap panel ends minimum 2 inches.

E. Use concealed fasteners unless otherwise approved by Contracting Officer.

3.03 TOLERANCES

A. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line: 1/16 inch.

B. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch.

3.04 CLEANING

A. Remove site cuttings from finish surfaces.

B. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

END OF SECTION

SECTION 07531

EPDM MEMBRANE ROOFING

PART 1 – GENERAL

1.1 Summary

A. This Section includes adhered membrane roofing system.

1.2 SUBMITTALS

A. Product Data: For each product indicated

B. Test reports indicating compliance.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

B. Source Limitations: Obtain components for membrane roofing system approved by roofing membrane manufacturer.

1.4 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Warranty period: 20 years from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 EPDM ROOFING MEMBRANE

A. EPDM Roofing Membrane: ASTM D 4637, Type 1, nonreinforced uniform, flexible sheet made from EPDM, and as follows:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include the manufacturers specified (or approved equal):

a. Carlisle SynTec Incorporated
b. Celotex Corporation
c. Firestone Building Products Company
d. Johns Manville International, Inc.

2. Thickness: 60 mils (1.1 mm), nominal.

3. Exposed Face Color: Black.

2.2 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

B. Sheet Flashing: 60-mil-(1.5-mm-) thick EPDM, partially cured or cured, according to application.

C. Bonding Adhesive: Manufacturer's standard bonding adhesive.

D. Seaming Material: Manufacturer's standard synthetic-rubber polymer primer and 3-inch-(75-mm-) wide minimum, butyl splice tape with release film.

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

F. Miscellaneous Accessories: Provide lap sealant, water cutoff mastic, metal termination bars, metal battens, pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

PART 3 – EXECUTION

3.1 ADHERED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.

B. Start installation of roofing membranes in presence of roofing system manufacturer's technical personnel.

C. Accurately align roofing membranes and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Adhesively fasten roofing membrane securely at termination of roofing.

E. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

F. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

G. Repair tears, voids, and lapped seams in roofing that does not meet requirements.

H. In-Splice Attachment: Secure one edge of roofing membrane using fastening plates or battens centered within membrane splice and mechanically fasten roofing membrane to roof deck. Field-splice seam.

I. Through-Membrane Attachment: Secure roofing membrane using fastening plates or battens and mechanically fasten roofing membrane to roof deck. Cover battens and fasteners with a continuous strip.

3.3 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings (and mechanically anchor to substrate through termination bars.

3.4 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Contracting Officer.

B. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

END OF SECTION 07531

SECTION 07600

FLASHING AND SHEET METAL

PART 1 – GENERAL

1.1 REFERENCE STANDARDS

A. Aluminum Association (AA):

1. 1980 Aluminum Sheet Metal Work in Building Construction, Section 5.

B. American Society for Testing and Materials (ASTM):

1.	B32-93	Solder Metal
2.	B209-93	Aluminum and Aluminum-Alloy Sheet and Plate.
3.	B221-93	Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
4.	D412-92	Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers – Tension
5.	D4586-93	Asphalt Roof Cement, Asbestos Free

C. Architectural Aluminum Manufacturers Association (AAMA):

1.	605.2-92	Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.
2.	809.2-92	Non-Drying Sealants

D. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA):

1. Architectural Sheet Metal Manual, Fifth Edition, 1993.

1.2 SUBMITTALS

A. Product Data: Manufacturer's printed installation instructions for all prefabricated products.

B. Shop Drawings: Clearly detail shaping, jointing, length of sections, fastening, sealing, and installation details.

1. Indicate materials, gauges, or thicknesses.

1.3 COORDINATION

A. Properly coordinate flashing and sheet metal work with related work to insure work is properly installed; gravel guards, flashing aprons and other work built into roofing are properly stripped-in, and base flashings are properly counterflashed where roofing terminates.

B. Verify designs necessary to accomplish required performance of flashing systems; where modifications are deemed necessary, submit detailed drawings and describe proposed modifications.

1.4 WARRANTY

A. Contractor guarantees and warrants Work of this Section to be in compliance with Contract Documents and free from faults and defects in materials and workmanship for period of two years from Date of Substantial Completion.

B. Warrant fluoropolymer coating to remain free of checking, crazing, peeling, chalking of fading for period of five years from Date of Substantial Completion.

PART 2 – PRODUCTS

2.1 SHEET MATERIALS

A. Aluminum Sheet: ASTM B209, alloy 3003-H14, minimum 0.032-inch (20 gauge) thick, except as otherwise indicated, premium fluoropolymer coating, unless directed otherwise.

1. Coping: .125-inch thick formed aluminum
2. Cleat: .0625-inch thick formed aluminum
3. Finish:
   a. Factory Finish: Premium fluoropolymer in color to match Petersen Aluminum “Dark Bronze”.
   b. Colored Anodic: AA-M12C22A42, Architectural Class 1, bronze anodic coating to match Petersen Aluminum “Dark Bronze”.

B. Aluminum; Extruded: Manufacturer’s standard extrusions of sized and profiles indicated, ASTM B221, alloy 6063-T52, 0,080-inch thick minimum thickness for primary legs of extrusions.

C. Flexible Flashing: 60 mil thick flexible sheet of EPDM synthetic fiber.

D. Self-Healing Flashing: Cold-applied, self adhering membrane composed of high strength polyethylene film coated on one side with thick layer of adhesive-consistency rubberized asphalt, fully adhered, 40 mil thick; self-healing.

1. Acceptable Products (or approved equal):

   a. Jiffy Seal Waterproofing systems “Ice and Water Guard”
   b. Nord Bitumi US, Inc. “Nord Shield”
   c. W.R. Grace & Co. “Ice and Water Shield”

2. Retaining Bar: 1/8-inch by one-inch hot dipped galvanized bar.

2.2 GUTTERS AND DOWNSPOUTS

A. Provide gutters and downspouts in shapes and sizes indicated, with mitered and welded corners. Include steel straps formed from at least 0.028-inch thick, galvanized steel sheet; hangers or other attachment devices; screens; end plates; and trim and other accessories indicated or required for complete installation.

B. Additional features: Provide items below fabricated from the same metal as gutters and downspouts.

1. Leaf guard with hold-down clips.

C. Provide gutters and downspouts fabricated from the following metal:

1. Formed-aluminum sheet in thickness indicated, but not less than the following:

a. Thickness: 0.032 inch

2.3 ACCESSORY MATERIALS AND COMPONENTS

A. Bituminous Paint: SSPC-Paint 12, minimum 30 mils thick cold applied asphalt mastic.

B. Fasteners: Same material or compatible with sheet metal being fastened.

1. Nails: 12 gauge, flat head annular thread type, of sufficient length to penetrate wood not less than one-inch.
2. Screws: No. 10 gauge flat head wood screws for attachment to wood, No. 10
3. Expansion Shields: Lead of bronze sleeves.
4. Bolts: Furnished complete with nuts and washers.
5. Rivets: Round head closed end type.
6. Blind Clips and Cleats: Same gauge as sheet metal.

C. Mastic: AAMA 809.2, nonskinning, nondrying, butyl polyisobutylene polymer.

D. Sealant: Specified in Section 07920.

E. Premium Fluoropolymer Coating Finish: Two coat coil applied, baked on fluoropolymer coating system based on minimum 70% Elf Atochem “Kynar 500” or Ausimont, Inc. “Hylar 5000 resin” (Polyvinylidene fluoride, PVDF), formulated by licensed Kynar manufacturer and applied by manufacturer’s approved applicator to meet AAMA 605.2. Provide minimum 0.90 mil dry film thickness consisting of primer and minimum 0.75 mil dry film thickness color coat. Color to match Petersen Aluminum “Dark Bronze”. Work to receive fluoropolymer coating includes gutters and downspouts.

F. Splash Blocks: Precast concrete, minimum 3,000 psi at 28 days, sizes and profiles indicated in Drawings.

2.4 FABRICATION

A. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance and performance.

B. Form sections in 10-foot lengths. Make allowances for expansion at joints. Provide shop fabricated, mitered and jointed corners, maximum 2-foot long legs.

C. Fabricate nonmoving seams in sheet metal with flat lock seams. For metal, other than aluminum, tin edges to be seamed, form seams and solder.

D. Make joints in aluminum sheets less than 0.040-inch thick using flat lock seams, ¾-inch wide. Fill seams with exterior sealant and rivet.

E. Make riveted joints using solid shank rivets or pop rivets as applicable. Pop rivets shall be closed end type.

F. Wipe and wash clean soldered joints, immediately after soldering, to remove traces of flux.

H. Apply flexible flashing or bituminous paint on surfaces where expected to be in contact with cementitious materials or dissimilar metals.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install flashings and sheet metal to properly prepared, clean, dry, and sound surfaces.

B. Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations and to conform to best standard practices outlined in SMACNA "Architectural Sheet Metal Manual."

C. Cut, fit and frill as necessary to accommodate related Work. Provide accessories necessary for complete watertight sheet metal installation.

D. Provide screws and bolts of size and type suited for particular purpose. Unless otherwise specified, confine nailing to sheet metal less than 12-inches wide.

1. Secure flashings in place using specified type fasteners. Use exposed fasteners in locations approved by Contracting Officer or authorized representative. When using exposed fasteners, they are to be of the same finish as flashings.

E. Pre-tin metal edges where soldered seams are required. Thoroughly heat seam, sweat solder through full seam width. Perform soldering immediately after applying flux. Solder all flat locked seams.

F. Construct sheet metal work watertight, with lines, arrises, and angles sharp and true, with plane surfaces free from waves and buckles.

G. Do no place dissimilar materials in contact, or in position where drainage across them will occur. Separate dissimilar metals with tape, roofing cement, flexible flashing or self-healing flashing.

H. Counterflash mechanical and electrical items projecting through roofing.

I. Install counterflashings over base flashings where roof surfaces intersect vertical surfaces. Install counterflashing in sealant compatible with roofing and waterproofing systems. Install after base flashing is complete.

J. Form counterflashing in 10 foot lengths. Turn down over base flashings not less than 4-inches. Form to provide spring action against base flashings. Fold back bottom edge of counterflashing ½-inch on underside. Lap end joints not less than 3-inches, do not solder or weld. Set in concealed continuous bead of butyl sealant; ¼-inch in diameter minimum. Make flashings continuous at angles. At corners and transitions, provide separate piece with maximum 2'-0" long legs.

K. Install pre-finished aluminum gutters and downspouts.

1. Prefabricate gutters in continuous lengths with soldered endcaps.
2. Flash and seal gutters to downspouts.
3. Attach downspout to wall with hangers 2 gauges heavier than downspout spaced on maximum 3 foot centers.

QL Install continuous cleat using stainless steel fasteners. At joints, install 12-inch backup plates. Install shop fabricated corners. Leave ¼-inch between section ends centered over backup plates.

M. Secure cleats and backup plates to wood nailers on 4-inch centers set in mastic. Attach cleats to metal with self-drilling self-tapping screws.

N. At joints in linear sheet metal items, set sheet metal over back-up plate in two beads of sealant, ¼-inch in diameter, minimum. Extend sealant over all metal surfaces. Accurately mate components for positive seal. Allow no sealant to migrate onto exposed surfaces.

O. Copings: Install formed 0.125-inch thick prefinished aluminum coping and attach securely to continuous cleat.

1. Set copings over 60 mil EPDM flexible flashing membrane, trimmed even with bottom edge of cleats, and sealed at laps watertight using manufacturer's recommended adhesive. Ensure copings with front and back continuous cleats only; do not penetrate coping with mechanical anchor.

2. Install cover plates at joints between sections, set in full beds of sealant ½-inch from edges of plates and make watertight fit, allowing for expansion and contraction in compliance with SMACNA standard details.

P. Sheet Metal Expansion Joints:

1. Provide slip type expansion joints in continuous runs of sheet metal.

2. Unless indicated otherwise, space expansion joints approximately 30 feet apart.

END OF SECTION 07600

SECTION 07610

STANDING SEAM METAL ROOFING

PART 1 – GENERAL

1.1 System Description

A. Design and Performance Criteria:

1. Thermal Movement: Completed metal roofing and flashing system capable of withstanding expansion and contraction of components caused by temperature ranges from –10 degrees F to +120 degrees F without buckling, producing excess stress on structure, anchors or fasteners, or reducing performance ability.

B. Uniform Wind Load Capacity:

1. Capacity determined in compliance with AA publication "Specification for Aluminum Structures", 1986 Edition, and principles of ASTM E330, Procedure A, adapted to testing roof panels as follows:

(7.1) Roof test specimens either full length or representative of main body of roof, free from edge restraint of perimeter attachments, continuous over one or more supports, and containing at least five panel modules for standing seam roof.

(7.2) No attachments are permitted at sides or end perimeter other than those that occur uniformly throughout roof. Side and end seals shall be flexible and in no way restrain crosswise distortion of panels.

(7.2.1) Panels and accessories production materials of same type and thickness proposed for use on Project.

(10.1.1) Seals or film shall not span any crevices or cracks that may tend to separate under pressure.

2. Installed roof system shall withstand positive or negative design wind loading pressures complying with 1994 Uniform Building Code with 1997 Revisions and 1994 North Carolina State Building Code with 1999 Revisions, with maximum system deflection of L/140 and maximum panel deflection of 0.04% and in compliance with ASCE 7-93, UL 90 and ASTM E1592.

C. Concentrated Load Capacity: Withstand load of 250 lbs. Applied to four-inch by four-inch square area located in center of panel between stiffener ribs without buckling of ribs or permanent panel distortion.

D. Water Penetration (Dynamic Pressure): No uncontrolled water penetration ,other than condensation, when tested in compliance with ASTM E1646 at minimum differential pressure of 20 percent of inward acting, wind load design pressure of 6.24 psf and not more than 12 psf.

E. Air Infiltration: Provide preformed roof panel assemblies with permanent resistance to air leakage through assembly of not more than 0.09 cfm/sq. ft. of fixed roof area when tested according to ASTM E1680 at static air pressure difference of 4.0 lbf/sq. ft.

F. Capacities for gauge, span or loading other than those tested may be determined by interpolation of test results within range of test data. Extrapolation for conditions outside test range is not acceptable.

1.2 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM):

1. A792-93a Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process, General Requirements.
2. D1056-91 Flexible Cellular Materials – Sponge or Expanded Rubber.
3. E1592-94 Test Method for Structural Performance of Sheet Metal Roofing and Siding Systems by Uniform Air Pressure Difference.
4. E1646-95 Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
5. E1680-95 Test Method for Rate of Air Leakage through Exterior Metal Roof Panel Systems.

B. Architectural Aluminum Manufacturers Association (AAMA):

1. 501-83 Methods for Test of Metal Curtain Walls.
2. 605.2-92 Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.

C. American Society of Civil Engineers (ASCE):

1. 7-95 Minimum Design Loads for Buildings and other Structures.

D. National Roofing Contractors Association (NRCA):

1. The NRCA Construction Details – Third Edition.

E. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

1. Architectural Sheet Metal Manual, Fifth Edition, 1993.

1.3 SUBMITTALS

A. Product Data: Include manufacturer's detailed material and system description installation instructions, and engineering performance data and finish specifications.

B. Shop Drawings: Show roofing system with flashings and accessories in plan and elevation; sections and all details at full scale. Include metal thicknesses and finishes, panel lengths, joining details, anchorage details, flashings and special fabrication provisions for termination and penetrations; girt locations expansion provisions and special supports. Indicate relationships with adjacent and interfacing work.

C. Samples:

1. Panel Section, minimum 2'-0" in length by full width, indicating thickness, profile, texture and color.

2. Submit samples of panel clips, closures, insulation and accessory items.

D. Design Calculations: Submit design calculation, indicating compliance with specified performance criteria. Design calculations shall bear seal of registered engineer licensed to practice in the State of North Carolina. Indicate that engineer has reviewed shop drawings.

E. Test Reports:

1. Submit reports by independent testing laboratory to support structural calculations and show compliance with specified performance criteria.

2. Tests shall have been made for substantially identical systems within ranges of specified performance criteria.

3. If test data is not available, or if data does not represent project conditions, Contractor shall be responsible for securing satisfactory tests by independent testing agency acceptable to Contracting Officer or authorized representative with all costs of such testing borne by Contractor.

1.4 QUALITY ASSURANCE

A. Fabricator/Installer Qualifications:

1. Installer trained and approved by system manufacturer, with trained supervisory personnel observing and directing work.

2. If required, proposed fabricator/installer shall submit work and proof of adequate financial responsibility. Contracting officer or authorized representative reserves the right to inspect fabrication facilities in determining qualifications.

B. Fire-Test-Response Characteristics: Where fire-resistance-rated roof panel assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

C. Preinstallation Conference: Prior to beginning metal roofing work, preroofing conference will be held to review work to be accomplished.

1. Contractor, Contracting Officer or authorized representative, metal roofing subcontractor, metal roofing system manufacturer's representative and all other subcontractors who have equipment penetrating roof or whose work involves access to roof shall be present.

2. Contractor shall notify the Contracting Officer or authorized representative and other attending parties' a minimum of three days prior to time for conference.

3. Contracting Officer or authorized representative shall record minutes of meeting and shall distribute copies of minutes to attending parties.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect components during fabrication, shipment, storage, handling, and erection from mechanical abuse, stains, discoloration, and corrosion.

B. Maintain strippable plastic protective film on finished surfaces until panel is erected.

C. Store materials off ground, adequately shored, and under cover and protected from wind movement, foreign material contamination, mechanical damage , cement, lime, or other corrosive substance.

D. Handle materials to prevent damage to surfaces, edges and ends of roofing sheets and sheet metal items. Damaged material shall be rejected and removed from site.

E. Protect panels from wind related damages during erection.

F. Inspect materials upon delivery. Reject and remove from site physically damaged or marred material.

1.6 WARRANTY

A. Endorse and Forward to Government Following Warranties:

1. Manufacturer's twenty-year warranty covering replacement of defective materials, structural defects and corrosion.

2. Applicator's five year finish warranty covering refinishing of fluoropolymer coating due to checking crazing, peeling, chalking or fading.

3. Installer's five-year warranty covering roofing system installation and watertightness.

4. All warranties shall commence on Date of Substantial Completion.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturer and Type: Butler Roof Systems (or approved equal) roll formed MR-24 panels; 24-gauge steel coated on both sides with a layer of Galvalume aluminum-zinc alloy in color to match Petersen's Aluminum "Dark Bronze".

B. Other Acceptable Manufacturer's (or approved equal):

1. Berridge Manufacturing Co.
2. Carlisle Engineered Metals
3. Merchant & Evans, Inc.
4. Smith-Steelite, Inc.
5. Zip-Rib, Inc.

2.2 METAL ROOFING SYSTEM

A. Materials:

1. Panel Material: ASTM A792, 24 gauge, prefinished "Galvalume" sheet compromised of 55% aluminum, 1.6%silicon and the balance zinc.

2. Flashing and Flat Stock Material: 24 gauge thickness galvalume of same type and finish as panels.

3. Finish on Exposed Surfaces: Two coat shop-applied, backed on fluoropolymer coating system based on Elf Arochem "Kynar 500" resin or Ausimont "Hylar

5000” resin (Polyvinylidene fluoride, PVDF), formulated by licensed manufacturer and applied by manufacturer’s approved applicator to meet AAMA Publication 605.2

a. Coating System: Minimum 1.3 mil dry film thickness consisting of 0.3 (+ 0.1) mil primer, minimum 1.0 mil color coat. Both color coat and clear top coat containing minimum 70% polyvinylidene fluoride resin by weight; complying with AAMA 1402, Test Method No. 7.

b. Color: Manufacturer’s standard color to match Petersen Aluminum “Dark Bronze”.

4. Finish on Unexposed Interior Face: Neutral Wash coat.

5. Protective Surfacing: Provide strippable plastic film covering on finish surfaces to prevent abrasion during fabrication, storage and handling.

B. Characteristics:

1. Configuration: Standing seams incorporating mechanically seamed sidelap, concealed anchor clips allowing thermal movement, and of configuration which will prevent entrance or passage of water.

2. Seam Height: 2 inch minimum.

3. Panel Width: 24” o.c. between standing seams.

4. Panel Surface: Smooth.

5. Stiffener Ribs: 3/8-inch maximum, spaced 4-inches to 6-inches o.c., parallel to seams.

6. Panel Length: Full length without joints, including bends, where applicable.

C. Accessories:

1. Anchor Clips: 18 gauge domestic galvanized steel, 33 ksi yield strength, double strength, double fastener with UL imprint, designed to receive recessed mechanical anchor into decking or structural support elements, girts or blocking. Clips shall allow free thermal expansion and contraction movement, relative to structure, within full temperature ranges specified.

2. Anchors: Noncorrosive cadmium plated hardened self-drilling hexagonal head steel screws designed to meet structural loading requirements.

3. Exposed Fasteners: Stainless steel self-tapping hexagonal head screws with neoprene sealing washers. #14 size minimum, head finished to match panel color.

4. Closures: Factory pre-cut closed cell foam complying with ASTM D 1056, Grade SCE-41 (EPT), and field fabricated PVC hip closures, enclosed in metal channel matching panels when used at hip and ridge.

5. Provide all miscellaneous accessories for complete installation. J All accessories shall be furnished by roofing system manufacturer.

2.3 FABRICATION

A. Prefabricate metal roof panels and flashing components to maximum extent possible, forming metal work with clear, sharp, straight and uniform bends and arrises. Hem exposed edges of flashings.

B. Form flashing components from full single width sheet. Provide shop fabricated, mitered corners, joined using closed end pop rivets and joint sealant.

C. Fabricate roofing and related sheet metal work in compliance with approved shop drawings and applicable standards. Form sheet metal work with clear, sharp, and uniform arrises. Hem exposed edges.

D. Make joints in aluminum sheets using flat-lock seams, ¾-inch in width. Fill seams with exterior sealant.

E. Provide linear sheet metal items in minimum 10’-0” sections except as otherwise noted. Form flashing using single pieces for full width. Provide shop fabricated, mitered joints and corners. With minimum 2’-0” long legs.

F. Clips:

1. Provide UL listed clip designed to allow panels to thermally expand and contract.
2. Fabricate clips with embossings that raise underside of panels above substrate to create positive ventilation and eliminate underside-condensation and corrosion.
3. Fabricate clips with structurally embossed outstanding legs to prevent distortion due to wind uplift forces.

PART 3 – EXECUTION

3.1 ROOFING AND FLASHING INSTALLATION

A. Inspection: Examine alignment and placement of building structure before proceeding with installation of preformed standing seam metal roofing.

B. Install roofing and flashings in compliance with approved shop drawings and within specified erection tolerances.

C. Isolate dissimilar metals and masonry or concrete from metals with bituminous paint, tape, or flexible flashing specified in Section 07600. Use gasketed fasteners where required to prevent corrosive action between fastener, substrate and panels.

D. Use exposed fasteners, prefinished to match finish of panels and rim. Limit exposed fasteners to extent indicated on shop drawings.

E. Anchorage shall allow for temperature expansion/contraction movement within specified range without stress or elongation of panels, clips or anchors. Attach clips to purlins, sleepers or track using self-drilling screws of size and spacing a determined by manufacturer’s design analysis as to resist specified uplift and thermal movement forces.

F. Seal laps and joints in compliance with roofing system manufacturer's product data.

G. Coordinate flashing and sheet metal work to provide weathertight conditions at roof terminations. Fabricate and install in compliance with standards of SMACNA "Architectural Sheet Metal Manual" and NRCA "Construction Details" using continuous cleats at all exposed edges.

H. Provide for temperature expansion/contraction movement of panels at roof penetrations and roof mounted equipment as recommended by system manufacturer.

I. Installed system shall be true to line and plane and free of dents, oilcans and physical defects.

J. Form joints in linear sheet metal to allow for ½-inch minimum expansion at 12'-0" o.c. maximum and 2'-0" from corners. Provide 1'-0" wide back-up plate at intersections. Form plates to profile of sheet metal item.

K. At joints in linear sheet metal items, set sheet metal over back-up plate in two beads of butyl sealant, ¼-inch in diameter, minimum. Extend sealant over all metal surfaces. Accurately mate components for positive seal. Allow no sealant to migrate onto exposed surfaces.

L. Remove damaged work and replace with new, undamaged components.

M. Applicable Erection Tolerances: Maximum variation from true planes and lines: ¼-inch in 20'-0", 3/8-inch in 40'-0" or more.

3.3 CLEANING

A. Remove protective film and clean exposed surfaces of preformed roofing and accessories after completion of installation. Leave in clean condition at Date of Substantial Completion. Touch up minor abrasions and scratches in finish to satisfaction of Contracting Officer or authorized representative.

END OF SECTION 07610

SECTION 07920

JOINT SEALANTS

PART 1 – GENERAL

A. Preconstruction Joint-Sealant-Substrate Tests: Submit substrate materials, representative of actual joint surfaces, to joint sealant manufacturer for laboratory testing of joint sealants for adhesion to primed and unprimed substrates and for compatibility with joint substrates and other joint-related materials.

B. Submittals: In addition to Product Data, submit the following:

1. Samples of each type and color of joint sealant required.
2. Test reports for joint sealants evidencing compliance with requirements.

PART 2 – PRODUCTS

A. Elastomeric Sealant Manufacturers: Subject to compliance with requirements, provide sealants by one of the following (or approved equal):

1. Silicone Sealants:
   a. Dow Corning
   b. GE Silicones
   c. NUCO Industries, Inc.
   d. Sonneborn Building Products Div., ChemRex Inc.
   e. Tremco

2. Urethane Sealants:
   a. Polymeric Systems, Inc.
   b. Sonneborn Building Products Div., ChemRex Inc.
   c. Tremco

B. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.

C. Colors: Provide colors indicated for exposed joint sealants or , if not indicated, as selected by the Contracting Officer or authorized representative from manufacturer's full range for this characteristic.

D. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant of base polymer specified below:

1. Low-Modulus Neutral-Curing Sealant: Type S, Grade NS, Class 25, and as follows:

   a. Uses NT, G, A, and O.
   b. Additional capability, when tested per ASTM C 719, to withstand the following percentage changes in joint width and still comply with other requirements of ASTM C 920:
      1. 100 percent movement in extension and 50 percent movement in compression for a total of 150 percent movement.
   c. Applications: Window and door frames, thresholds and lintels.

E. High-Modulus Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; and as follows:

1. Uses NT, M, G, A, and O.
2. Applications: Galvanized steel and miscellaneous aluminum flashing.
3. Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, a, and O; formulated with fungicide; intended for sealing interior joints with nonporous substrates exposed to high humidity and temperature extremes.

F. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant complying with STM C 834.

1. Acoustical Sealant for concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.
2. Sealant Backing, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; approved for applications indicated by sealant manufacturers based on field experience and laboratory testing.
3. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
   a. Type O: Open-cell material.
4. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM< or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 degrees F (minus 32 degrees C).
5. Bond-Breaker Tape: Polyethylene tape or other plastic t ape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint.
6. Primer: As recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 – EXECUTION

A. General: Comply with joint sealant manufacturer’s instructions for products and applications indicated.

B. Sealant Installation Standard: Comply with ASTM C 1193.

C. Acoustical Sealant Application Standard: Comply with ASTM C 919 for use of joint sealants in acoustical applications.

END OF SECTION 07920

SUBMITTAL CODES: A: 30 DAYS AFTER NTP B: DURING CONSTRUCTION

SCHEDULE OF MATERIAL SUBMITTALS

PROJECT NUMBER	PROJECT TITLE	SOLICITATION/CONTRACT NUMBER
VKAG 00-1165	REPAIR ROOF, BLDG 2121	

TO BE COMPLETED BY PROJECT ENGINEER												TO BE COMPLETED BY CONTRACT ADMINISTRATOR								
		NUMBER OF COPIES REQUIRED																		
LINE NUMBER	ITEM OR DESCRIPTION OF ITEM, CONTRACT REFERENCE, TYPE OF SUBMITTAL	CERTIFICATION OF COMPLIANCE	SHOP DRAWINGS	SAMPLES	COLOR SELECTION	MANUFACTURER'S RECOMMENDATIONS	MANUFACTURER'S WARRANTY	CATALOG DATA	OPERATING INSTRUCTIONS	OTHER	SUBMITTAL CODE	REQUIRED SUBMISSION DATE	DATE RECEIVED IN CONTRACTING	DATE TO CIVIL ENGINEERING	RETURN SUSPENSE	SUBMITTAL NUMBERS	DATE CONTRACTOR NOTIFIED		CONTRACTOR RESUBMITTAL	FINAL APPROVAL	REMARKS
																	APPROVED	DISAPPROVED			
1	PRODUCT DATA SECTION 07600 PAR 1.2A							3			A										
2	SHOP DRAWINGS SECTION 07600 PARA 1.2B		3								A										
3	PRODUCT DATA SECTION 07610 PARA 1.3A							3			A										
4	SHOP DRAWINGS SECTION 07610 PARA 1.3B		3								A										
5	SAMPLES SECTION 07610 PARA 1.3C			3							A										
6	DESIGN CALCULATIONS SECTION 07610 PARA 1.3D									3	A										
7	TEST REPORTS SECTION 07610 PARA 1.3E	3									A										
8	METAL SIDING SECTION 07465 PARA 1.06		3	3							A										
9	SEALANTS SECTION 07920 PARA 1.B1			3				3			A										
10	SEALANTS SECTION 07920 PARA 1.B2	3									A										

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																	APPROVED	DISAPPROVED			
11	INSULATION SECTION 07213 PARA 1.2	3									A										
12	EPDM SECTION 07531 PARA 1.2A							3			A										
13	EPDM SECTION 07531 PARA 1.2B	3									A										