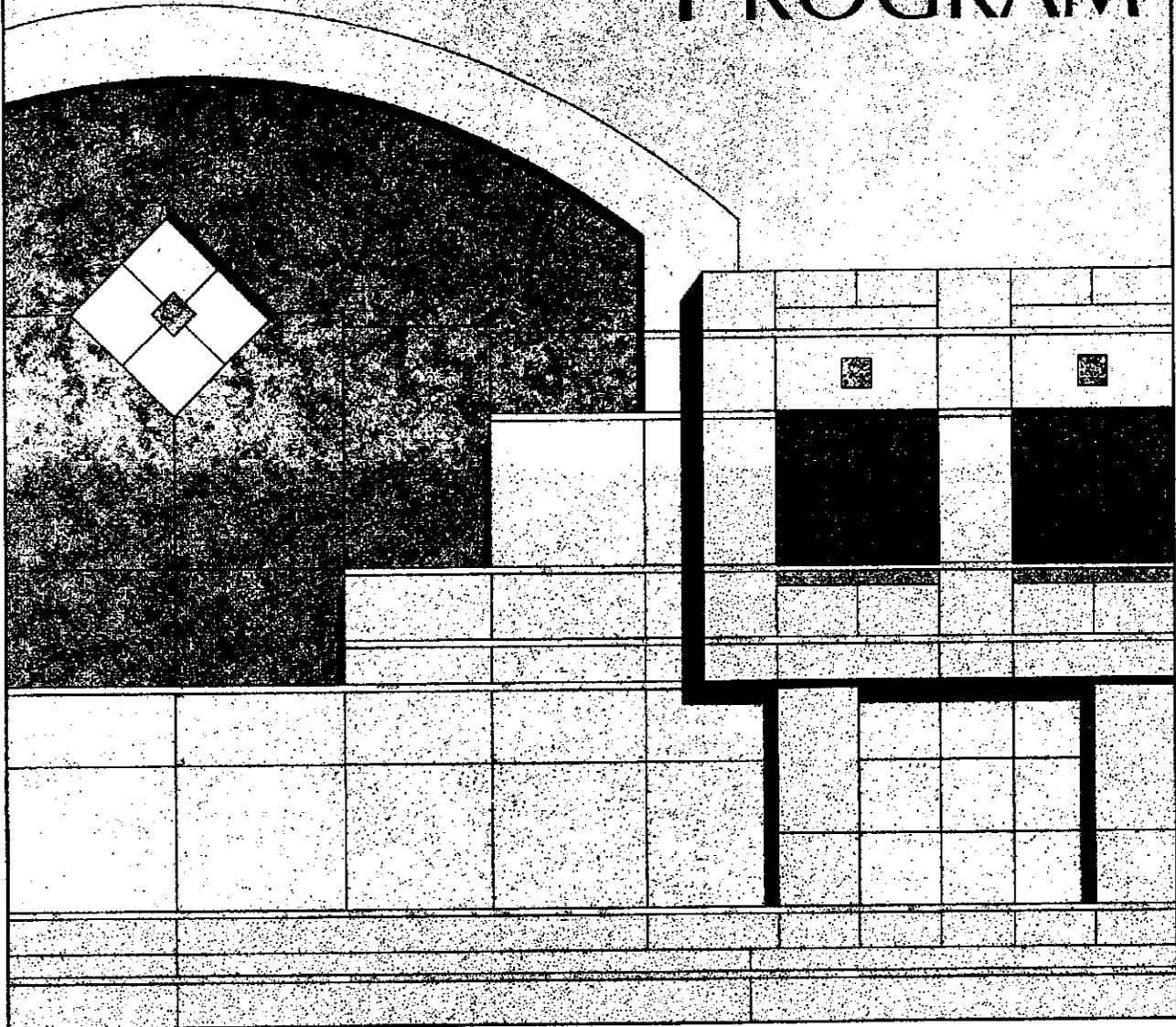
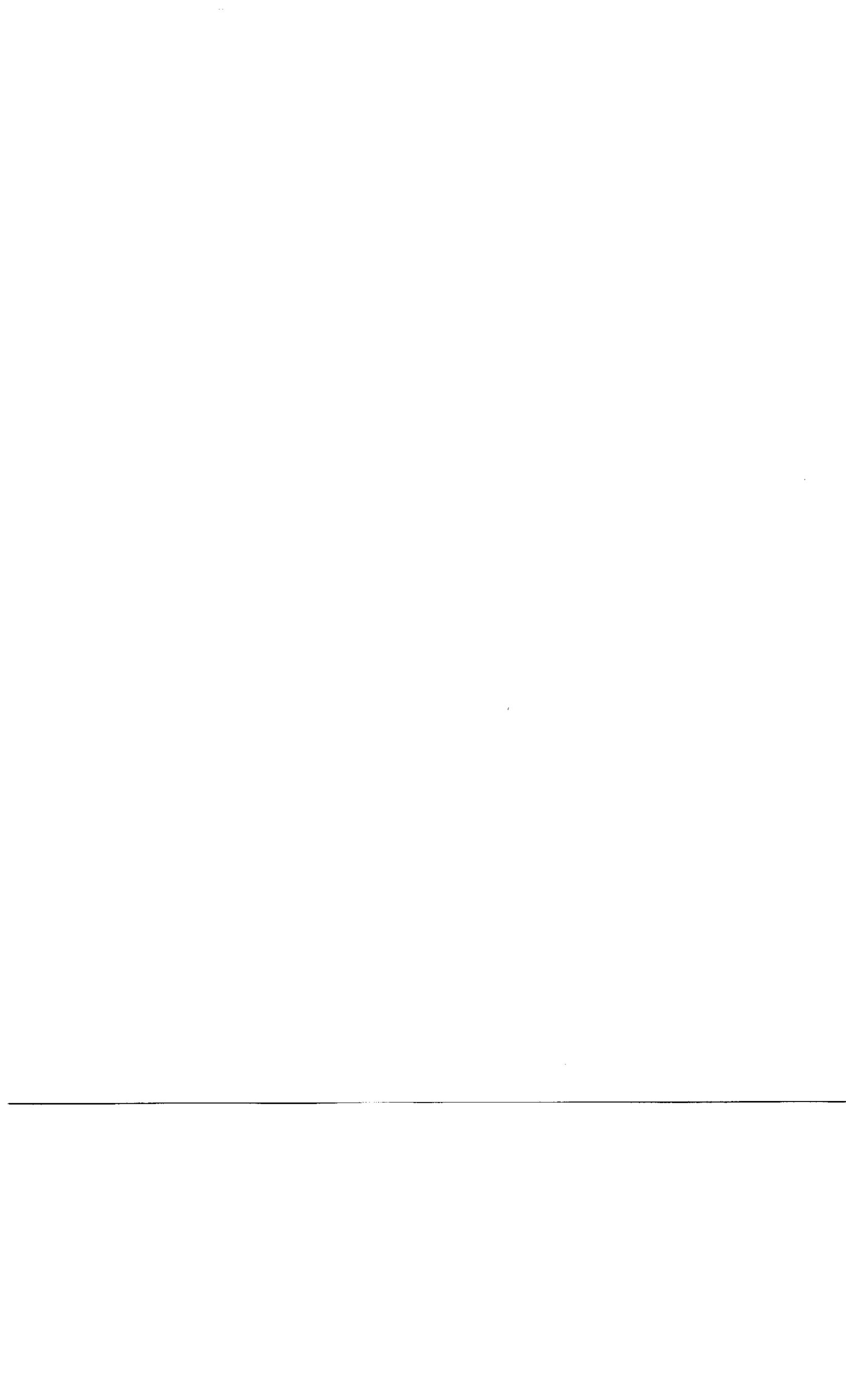


APPENDIX C
AFMC DESIGN STANDARDS

AIR FORCE MATERIEL COMMAND
FACILITY QUALITY
PROGRAM



Architectural Design ■ Comprehensive Interior Design ■ Design Awards



AFMC Architectural Design Program

"Air Force people building the world's most respected air and space force...global power and reach for America."

Air Force Vision Statement

"Through integrated management of research, development, test, acquisition, and support, we advance and use technology to acquire and sustain superior systems in partnership with our customers. We perform continuous product and process improvement throughout the life cycle. As an integral part of the Air Force warfighting team, we contribute to affordable combat superiority, readiness, and sustainability."

Air Force Materiel Command Mission

1.0 Purpose

This program defines responsibilities and sets standards to establish and maintain architecturally compatible facilities and a corporate image consistent with the AFMC mission.

2.0 Scope

This guidance encompasses all facility projects in the Military Construction (MILCON) Program, operations and maintenance (O&M—including in-house, Simplified Acquisition for Base Engineering Requirements [SABER] and self help), non-appropriated funds (NAF), Depot Maintenance Business Area (DMBA) Funds, military family housing (MFH—P-722, 711 and 713), facility Environmental Compliance Program (ECP) and the Defense Environmental Restoration Account (DERA) programs. Architectural guidance and assistance on MFH projects are provided by AFMC/CEC.

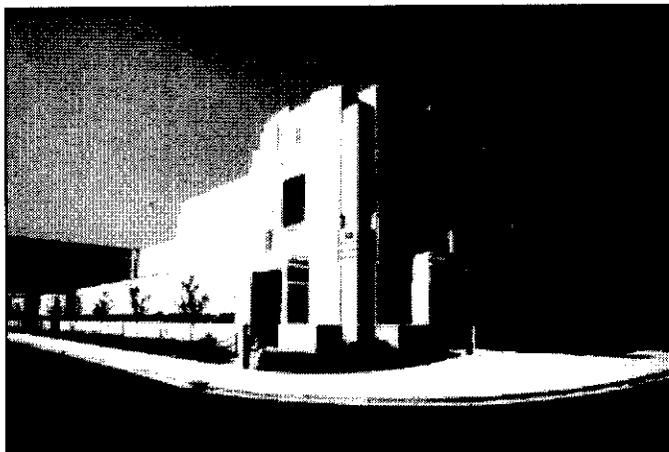
3.0 Goals

In addition to projecting an appropriate corporate image for AFMC, facilities must be designed to be architecturally compatible, minimize maintenance costs and be durable, be cost effective, satisfy customer needs, be energy efficient, and project a high level of quality.

3.1 Compatibility

Facilities must be designed with respect to their current surroundings. Compatibility does not mean that each building must be exactly the same. Each facility should, however, contribute to the overall harmony and permanent quality of a base through the use of common elements such as color, detailing, and materials, rather than attracting unwarranted attention.

Buildings should stand the test of time and not be trendy or endowed with cliches and inappropriate popular architectural fads.



A modern facility designed with respect to its historical context: Logistical Systems Operations Center, WPAFB, OH

3.2 Low Maintenance Costs and Durability

Facilities must use cost-conscious design, material selection, and construction methods because limited resources must be used wisely. Use durable, low-maintenance materials to lower the life-cycle cost of each facility, as well as to maintain its original appearance as long as possible.

3.3 Cost Effectiveness

Facilities must be designed to be appropriate for the function they house or support. Responsible expenditure of public funds is a great responsibility.

"Gold plating" in terms of both excessive square footage and unnecessary, inappropriate, or overly expensive finishes is prohibited.

3.4 Customer/User Focused

Facilities must be designed to effectively support the functions within them. This program must encourage user involvement at all stages of the design process to ensure we are only building what we need to build.

Enhanced productivity, communications, and user satisfaction shall be the primary goal of every design decision made.

3.5 Energy Efficiency

Facilities must be designed to be energy conscious and to minimize energy budgets. Energy is limited and is one of the biggest expenses in a facility's operation.

3.6 Quality Designs for Buildings and the Environment

Quality design is a goal toward which all design professionals must strive. Whether in-house or by architect/engineering (A/E) firms, quality must be a top priority and must be insisted upon in all designs.

No project is too insignificant to permit poor design work. Creativity must also be a top priority on all design projects.

4.0 Responsibilities

There are many individuals and agencies involved in the design process. Each has a separate function and responsibilities critical to the program's success.

4.1 Center Commanders

Ultimately responsible for facility quality. They set the standards for facility quality that impact quality of life in both the living and working environments. They approve base architectural compatibility plans, including exterior paint/material schemes.

4.2 The Base Civil Engineer

Responsible for developing and delivering this program. The Base Civil Engineer appoints a lead architect to act as architectural compatibility manager.

4.2.1 Lead Architect

Responsible for implementation of the base architectural compatibility program in accordance with this guidance and acts as liaison to HQ AFMC/CEC regarding compatibility issues. They will develop a strategy for moving toward full facility quality.

It is the lead architect's responsibility to develop a program to ensure compatibility issues have been properly addressed on all projects.

As architectural compatibility manager, the lead architect must review all concept designs and material and color boards for design and construction submittals. They coordinate the efforts of users, programmers, and design professionals regarding architectural compatibility.

4.2.2 Programmers

Responsible for working with the users and the design architect to develop the scope and cost for each project. The basic quality of a future facility is developed by a highly qualified programmer preparing the DD Form 1391s, Military Construction Project Data, and supporting documents. The programmer is responsible for ensuring that no project proceeds to the project definition stage without including the base's facility design standards as part of the Requirements and Management Plan (RAMP).

4.2.3 Community Planners

Responsible for the Base Comprehensive Plan (BCP). The community planner should be a critical member of the team developing the base architectural compatibility plan to be sure it is not in conflict with the BCP.

4.3 AFMC/CEC

Appoints a lead command architect to act as the command architectural compatibility manager to assist in the creation and review of base architectural compatibility programs. He reviews selected designs to ensure consistency with this program. The command architectural compatibility manager ensures this guidance is adhered to on all MILCON, NAF, MFH, and major O&M projects and for reviewing the program for effectiveness.

4.4 The AFMC/CEC Base Program Managers

Responsible for the delivery of all MILCON and MFH projects on time and within budget. They assist the base as the single points of contact on all MILCON and O&M and infrastructure issues. They are responsible for information in the AF Programming, Design, and Construction (PDC) system and for ensuring that complete reviews of all designs occur at each stage of the MILCON process. They ensure that base facility design standards are included in all MILCON projects. Additionally, they review all housing projects for each base.

4.5 Each AFMC Agency/ Directorate or Product Center (Users)

Responsible for ensuring the condition of its facilities meet AFMC's standards and are properly maintained. They provide the necessary information to the programmer and project manager to accomplish their designs. They will be an integral part of any working group for project development and review until the project is completed.

4.6 Commercial Design Services

May be used instead of in-house resources when it is determined by the BCE and AFMC/CEC to be the best way to meet our needs.

5.0 Program Components

There are three main components of the AFMC Architectural Design Program—Architectural Compatibility Plans, Facility Design Standards, and Exterior Sign Plans. Guidance for the development of each program is included in separate tabbed sections for each topic.

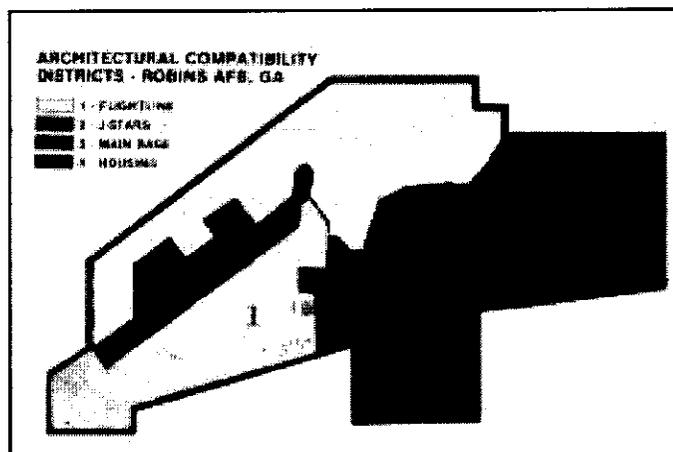
5.1 Architectural Compatibility Plans

The special character and function of AFMC bases requires architectural compatibility. Each base shall prepare an Architectural Compatibility Plan.

The unique nature of air bases cannot allow the diverse opinions of limitless numbers of design professionals and others to dominate without risking the creation of environments that are cluttered and too visually diverse.

5.1.1 Center Districts

AFMC uses districts as the primary definer of compatibility areas on a base. The districts, determined by functional, geographical, or physical boundaries, are developed to define areas where common building materials and construction methods are used to relate facilities visually. Also, the compatibility plans must include exterior paint/material color schemes, approved by the center commander. Most AFMC bases should be able to use a single color scheme throughout all districts. Predominant building materials may vary by district (industrial vs. administrative, laboratory or housing), but color should be used as a unifying element throughout. Exceptions to using a single color scheme by adding one additional scheme should be limited to only the larger AFMC bases and must be approved by the center commander.



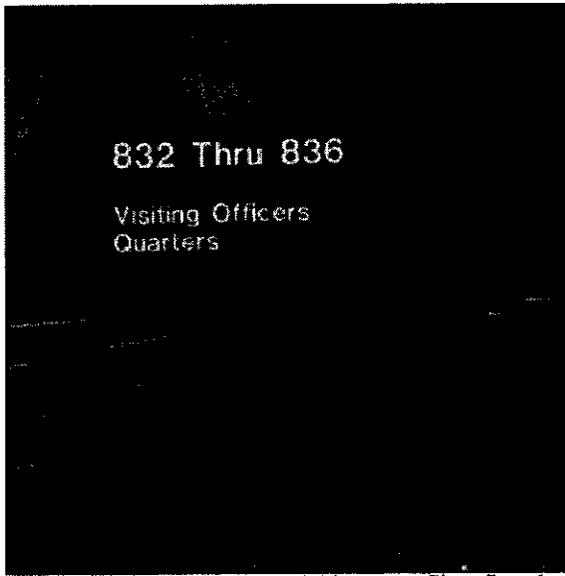
*Robins AFB
Architectural
Compatibility Plan*

5.2 Facility Design Standards

Each base shall develop base facility design standards to be included in the Requirements and Management Plan (RAMP) or A/E Statement of Work (SOW) with each facility project. The objective is to provide a set of architectural guidelines, developed from the base architectural compatibility plan, by district, that ensures all of the goals of this program are met.

5.3 Exterior Signage Plans

All signage throughout the base should be standardized and be in accordance with



Use AFPAM 32-1099, Dept. of Air Force Sign Standards.

AFPAM 32-1099, Dept. of Air Force Sign Standards. Each base shall produce a base exterior sign plan.

6.0 The Design and Construction Process

The design and construction process is as important as the program components just described in meeting architectural compatibility goals. From programming through construction, hundreds of decisions are made by many design professionals and others that affect the success of the facility. The concepts of partnering and sketch development are used to organize the facility design and construction process. They ensure the user, programmer, designer, and construction contractor are made an integral part of the process of providing quality facilities.

6.1 Partnering

The concept of partnering, or assembling a "team" of individuals at each stage of the programming, design, and construction process, should be used to the maximum extent possible. It shall be addressed on all MILCON projects and should be considered on major O&M and NAF projects as well. The composition of the team varies at each

stage of the process, but the concept of complete involvement and commitment to quality by everyone related to the project is common throughout.

6.1.1 Programming

The programmer, design architect, and/or engineer for the project must ensure the user is very involved in the project from beginning. Only the user knows what their real needs and priorities are. The user, in the context of facility design, has multiple meanings. It includes the major functional managers of the facility, the appropriate level commanders (in the case of a MILCON project, this is the center commander) and the maintainers of the building.

6.1.2 Design

A team consisting of the user, the programmer, the designer, and the project manager shall be formed to develop a functional program, validate the scope and cost, and a design for each facility. The user must approve the program and any design concepts developed for the project. This is a critical step in marketing the concept. They will also review the design at each stage to ensure everyone's needs are being met within funding, design, and programming limitations. This helps to avoid unexpected high bids and high costly change orders at a later date.

6.1.3 Construction

The greatest potential for improvement in the quality of our facilities is the use of construction partnering techniques. They have been used with great success by private industry and by the Corps of Engineers. All MILCON projects will utilize construction partnering techniques where applicable. The BCE should consider construction partnering on large O&M and NAF projects as well. An attached tabbed section includes an outline of the concepts of construction partnering as well as sample forms and letters.

The road to facility quality begins with the planning design process.

The creative process requires a definition and understanding of project objectives and user values. Innovative responses to these ideals is the key to attaining the goal of excellent design.

- AFMC uses a sketch development technique to create a sense and direction for each project from the beginning of the design process.

Stage 1 - Project Definition - Appointing project team with well defined roles and responsibilities to manage the project from the start through construction completion.

Stage 2 - Creative Development of the Conceptual Design - AFMC, BCE, and project team work together to develop the concept.

Stage 3 - Design Development - The design team develops the design through iterative processes.

Stage 4 - Construction - The design team monitors the construction process.

Continued in the design process through the construction process.

AFMC's four stage sketch development technique: NCO Club, Kelly AFB, TX

6.2 Sketch Development

AFMC uses a sketch development technique to ensure for each project a unique and compatible solution that has an appropriate visual impact on the base. The process involves four stages. The first is the project definition, which grows out of the programming process described above. The working group gathers the facts and requirements and converts them into a design concept for the site plan, floor plans and exterior appearance of the project. Step two is a further refinement of the concept. For the Military Construction Program (MILCON) and major non-appropriated funds (NAF), O&M, and MFH (P-722, 711 and 713) projects, the concept development should be sent to AFMC/CEC for approval if the project will have a significant architectural or visual impact on the base. The BCE, in coordination with AFMC/CEC, determines which projects of these types warrant HQ AFMC review. Step three is the design development of the approved concept. Step four is a final rendering of the project within its surroundings. Rendering requirements are included in one of the following tabbed sections. Step four is only required for projects requiring AFMC/CEC review and approval.

7.0 Material and Color Board Requirements

Material and color boards must be approved for all major construction and renovation projects having a significant architectural or visual impact on the center. Provide copies to the base civil engineer and AFMC/CEC for review at no later than the 60 percent design complete stage.

The center architectural compatibility manager will review all design and construction color boards.

Construction submittals must coordinate with the design material submittals to ensure the original design intent is achieved. All construction samples must be approved by the project manager and the center architectural compatibility manager.

8.0 CADD System Usage and Standardization

It is AFMC's desire to utilize computer-aided drafting and design (CADD) as much as possible. Each base shall acquire and use a microcomputer-based CADD system and all plans and major projects shall be accomplished using CADD. The microcomputer-based systems offer the best multiuser characteristics of any currently available system. If the base already has a CADD system, such as AutoCAD, there is no need to immediately change to another system. When the systems are to be replaced or significantly upgraded, however, changing systems must be considered. No matter what system is used, CADD offers great opportunities to integrate all design disciplines. Each base shall pursue a program of continuous upgrade (hardware and software) and training to move toward a completely integrated planning and design system which

fully utilizes CADD. Projects accomplished by architect/engineering firms shall be required to submit tapes for all projects compatible with the Intergraph system and/or the system currently in use at the base. Archives shall be converted to CADD formats as soon as possible.

9.0 Related Programs

There are several other programs that have a strong relationship to this program. Coordinate the architectural compatibility plans, facility design standards, and exterior sign plans with these programs to ensure their goals are consistent. They include base comprehensive planning, comprehensive interior design, housing community planning, area development planning, self-help and design awards.

9.1 Base Comprehensive Planning

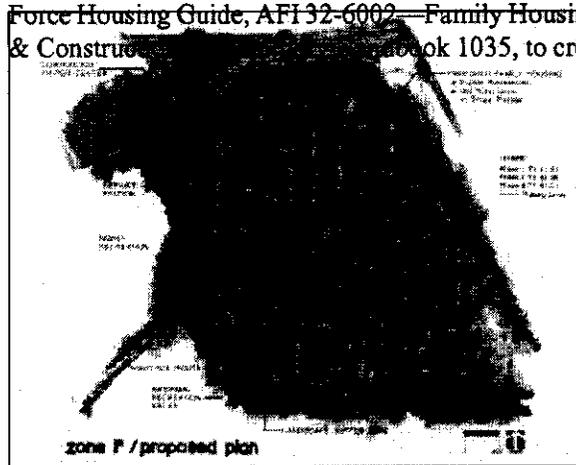
Base comprehensive planning is critical to the success of each project. The center architectural compatibility manager shall be a key contributor to the base comprehensive planning team and provide inputs to the planning process regarding architectural issues. If the architectural compatibility manager is not experienced in base comprehensive planning or does not have the time to devote to it, use an architect/engineering (A/E) firm to perform the planning services. This will ensure continuity in monitoring planning objectives and goals and incorporate new technologies, planning concepts, and quality of life standards.

9.2 Comprehensive Interior Design

Each base is required to develop a comprehensive interior design (CID) program. The center architectural compatibility manager shall coordinate with the center CID manager in the development and implementation of both programs. Interior design is a critical part of all facilities and must be addressed with equal emphasis on all major projects.

9.3 Housing Community Plans

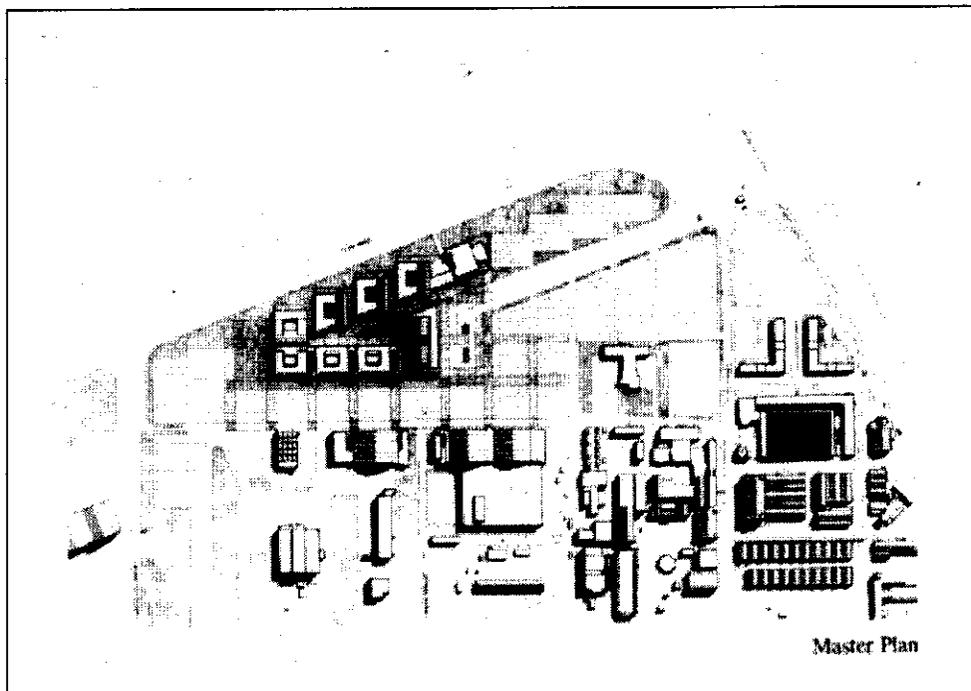
AFMC/CEC manages the Housing Community Plan (HCP) Program. This program establishes community design standards for all housing areas at a base. If no HCP exists for a base, then design goals stated in paragraph three of this document should be utilized, along with the Air Force Unit Assessment Guide, AFMC Housing Guide, Air Force Housing Guide, AFI 32-6002—Family Housing Planning, Programming, Design & Construction Handbook 1035, to create a Housing Community Plan.



Brooks AFB, TX

9.4 Area Development Plans (ADPs)

The use of ADPs, which look at an entire district for redevelopment, should be considered whenever possible. ADP studies should be accomplished whenever a large volume of new construction, renovation, or reallocations of functions takes place within a readily definable area. ADPs provide a road map for phased renovations, demolitions, and additions to an area that consider all of the relevant factors surrounding the use and visual character of the area. The advantages of convenience, environmental benefits, amenities, energy and resource conservation, security, communications, and health and



Area Development Plan: Aeronautical Systems Center, WPAFB, OH
safety standards all reach a new level of efficiency and effectiveness when strong ADPs linking functions are used to plan development.

9.5 Self-Help

Items available to users through Self-Help Stores must comply with this guidance. The center architectural compatibility manager must periodically coordinate with the self-help manager to review inventory to be sure all items conform with this guidance. All significant self-help projects involving facility upgrade should be approved by the center architectural compatibility manager. All self-help projects involving facility renovation should be reviewed by the architectural compatibility manager for code violations, quality, and conformance with the architectural compatibility plan.

9.6 Design Awards

AFMC has an annual design awards program, outlined in a separate tabbed section of this guide, that parallels the Air Force program. The intent is recognize our people and push for award winning designs.

AFMC Architectural Design Program

10.0 References

10.1 Air Force Instructions, Pamphlets and Manuals

AFPD 32-10	Installation and Facilities
AFJMAN 32-1013	Airfield and Heliport Planning and Design Criteria
AFI 32-1021	Planning and Programming of Facility Construction Projects
AFI 32-1022	Planning and Programming of NAF Facility Construction Projects
AFI 32-1023	Design and Construction Standards and Execution of Facility Construction Projects
AFI 32-1024	Standard Facility Requirements
AFPAM 32-1025	Military Construction Program Development
AFI 32-1026	Planning and Design of Airfields
AFI 32-1032	Planning and Programming Real Property Maintenance Projects Using Appropriated Funds
AFJMAN 32-1050	Seismic Design Guidelines for Upgrading Existing Buildings
AFI 32-1051	Roof Systems
AFPAM 32-1099	Department of the Air Force Sign Standards (will replace AFR 88-40)
AFPAM 32-1098	BCE Self-Help Guide
AFI 32-6002	Family Housing, Planning, Programming, Design and Construction
AFH 32-6009	Family Housing Guide
AFI 32-7062	Base Comprehensive Planning
AFI 32-7065	Cultural Resources Management
AFJMAN 32-7083	Landscape Design and Planning

10.2 Engineering Technical Letters (ETL)

89-4	Systems Furniture Guide Specification
90-1	Built-Up Roof (BUR) Repair/Replacement Guide Specification
90-2	General Policy for Prewired Workstations and Systems Furniture
90-7	Air Force Interior Design Policy
91-5	Fire Protection Engineering Criteria—Emergency Lighting and Marking of Exits
93-1	Construction Signs
94-3	Air Force Carpet Standard

10.3 Military Handbooks

1035	Military Handbook/Family Housing
1190	Military Handbook/Facility Planning and Design Guide

10.4 General References

Americans with Disabilities Act (ADA)
 American National Standards Institute, Inc. (ANSI)
 Climate Action Plan

Evaluating the Cost Effectiveness of Shade Trees for Demand-Side Management
Handbook for Public Playground Safety (U.S. Consumer Product Safety Commission)
National Fire Protection Association (NFPA)
Occupational Safety and Health Act (OSHA)
Uniform Building Code (UBC)
Urban Forests

11.0 Guides

11.1 Air Force Design Guides

AFH 32-1085 Control Tower Design Guide
AFPAM 32-1086 Design Guide for Religious Facilities
88-1 Open Messes
88-38 Child Development Centers
88-42 Planning Guide for the Design of Planning Facilities
88-46 Multi-Purpose Recreational Centers
88-47 Bowling Centers
88-51 Design Guide for Gymnasiums, Field Houses, and Indoor Sports
Complexes
88-52 Design Guide for Swimming Pools
88-53 Design Guide for Youth Centers
88-54 Design Guide for Arts and Craft Centers
ETL 86-9 Lodging Facility Design Guide
ETL 89-7 Design Guide for Air Force Courtrooms
Air Force Family Hosing Guide
Air Force Housing Support Facilities Guide
USAF Landscape Design Guide

11.2 Air Force Materiel Command Guides

Commanders Guide to Facility Quality
Commanders Guide to Self-Help
Commanders Guide to Interior Design
Commanders Guide to Dormitory Excellence
Commanders Guide to Family Housing Excellence

Fire Protection Facilities Design Guide
AFMC Housing Guide

12.0 List of Related Tabbed Sections

AFMC Architectural Design Program
Architectural Compatibility Plans
Facility Design Standards
Exterior Guidance
Material and Color Board/SID Binder Format
Rendering Requirements
Construction Partnering
AFMC Comprehensive Interior Design Program
Interior Finish Standards
Carpet Guidance
AFMC Systems Furniture Guidance
Interior Sign Standards
Federal Procurement Guidance
CID Reporting Procedures
Checklist for SID and CID Binder Format
AFMC Design Awards Program

Architectural Compatibility Plans

1.0 Purpose

The purpose of this guidance is to assist in the establishment and maintenance of an architectural compatibility plan at each AFMC base.

2.0 Goal

The goal of architectural compatibility plans is to ensure a consistent visual character for the base by setting a limited palette of styles, colors, materials, and architectural details based on relevant factors and contextual issues.

The intention is not to limit creativity, but to aid the designer in reaching decisions consistent with the goal of this program and to create a unified AFMC image.

3.0 Responsibilities

The architectural compatibility manager for each base will be responsible for the creation and updating of compatibility plans and for ensuring that each project meets the plan's facility design standards. The plan is approved by the center commander.

4.0 Issues

Several issues must be considered when accomplishing the compatibility plan. Each must play a major role in all design decisions.

4.1 Regional Issues

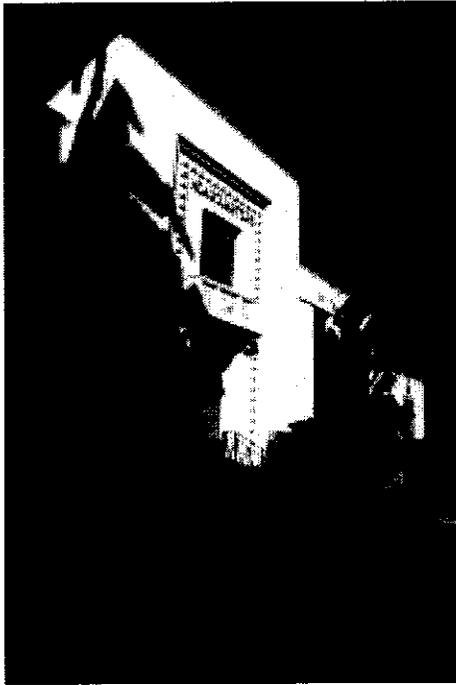
Designs must be sympathetic to regional styles, influences and materials. Regional uniqueness is a great asset and should be used to develop character and unity throughout the base.



Facility reflecting regional context: Gatehouse, Brooks AFB, TX.

4.2 Historic Preservation

Historic preservation is a national agenda fully supported by AFMC. Preservation should be accomplished for significant architectural and/or historical buildings, displays, monuments, memorabilia, districts, and details. Coordinate with the Base Historic Preservation Officer, who is the point of contact for these issues.



Historically renovated facility: Wing HQ, McClellan AFB, CA

4.3 Existing Architecture

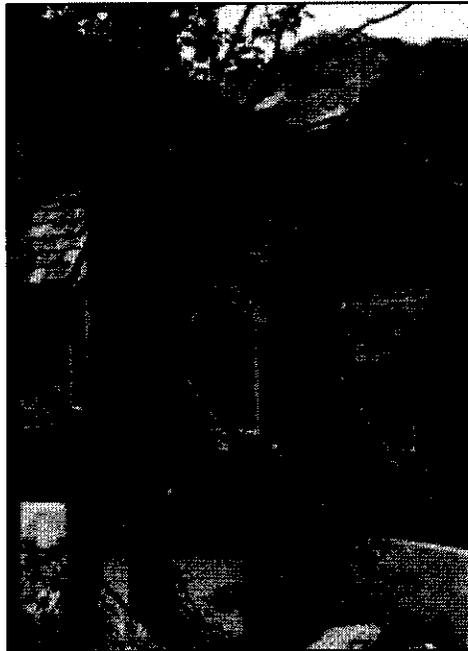
Existing architecture must be analyzed to determine how color, material, form and finish will be used on new buildings or major renovations to unify an area. Don't copy bad architecture for the sake of compatibility. Rather, highlight items of significance in an area and create a new focus for the area using new structures or landscaping.



Compatible facility near Wing HQ: Chapel, McClellan AFB, CA

4.4 Environment

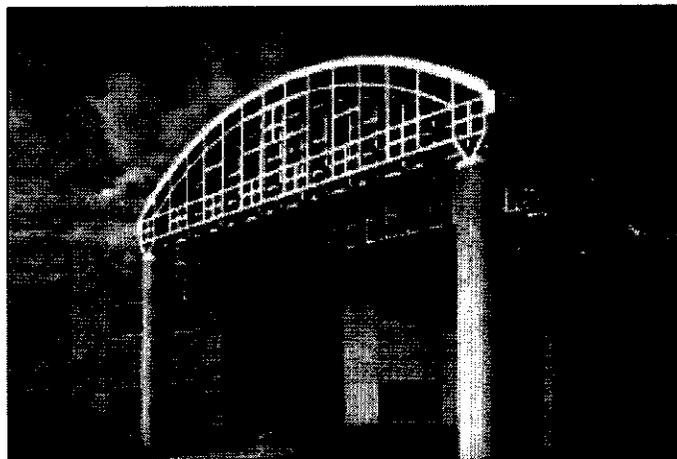
Environmental influences can affect architectural form and detailing. Building orientation, material selection and detailing (such as sun shading, window style and size, and so on) should respond to these influences, whether it is in the hot, arid desert, the humid south, or the cold of New England. Use passive solar energy and natural daylighting features wherever appropriate.



Facility reflecting mountain surroundings: Ski Haus, Hill AFB, UT

4.5 Corporate Image

The development of architectural compatibility plans and compatibility standards must place the creation of a unified corporate image for the base as a top priority.



Stewart Hall, the first phase of the Acquisition Management Complex, establishes a new corporate identity: Wright-Patterson AFB, OH.

5.0 Standard Format

AFMC/CEC has developed a standard format for the publishing of architectural compatibility plans to facilitate discussion and cross feed between centers. Architectural compatibility standards for each of 13 AFMC installations appear at the end of this document. The format is reflected in these 13 plans. This format should continue to be used in any future development or updating of base architectural compatibility plans and facility design standards.

5.1 Computerization

The plans shall be maintained in a desktop publishing system. From the plans, the facility design standards are extracted and desktop published in hard copy to be part of the RAMP or an A/E statement of work for a facility project. The computer system used to maintain the plans must be compatible or convertible to the systems in use at AFMC/CE. Contact AFMC/CECS for details on this matter. A hard copy and a copy on disk of any updates will be sent to AFMC/CEC for review and use.

5.2 Reviews

The compatibility plan and standards shall be reviewed by the center architectural compatibility manager annually and updated as required. AFMC/CEC will review and comment on the plan and design standards at least once every three years.

Construction Partnering

No matter what concepts and standards are used to achieve the goals of facility quality and architectural compatibility, the end product will not achieve those goals unless the facility is constructed in a quality manner. Construction partnering brings the contractor and subcontractors into the process by getting them to "sign up" to providing sound workmanship as part of a "team" dedicated to providing a quality facility to the customer.

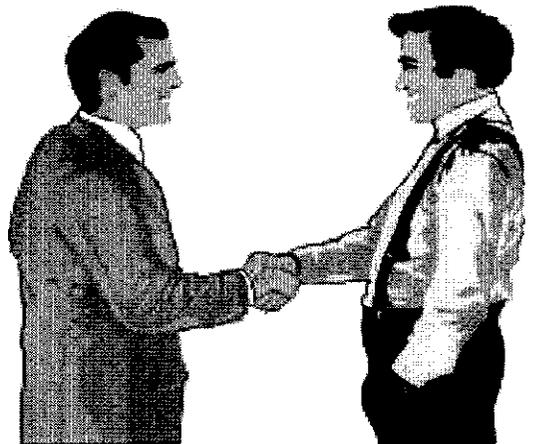
The following document was developed by the Associated General Contractors of America (AGC) to explain the concept of construction partnering. The concepts are sound and provide a forum for working with contractors to reduce the adversarial relationship that often exists on our projects, which has often detracted from our ability to provide a quality facility to our customers. The information is provided to assist in the development of similar programs at each base for use on major O&M and NAF projects.

Introduction

Construction contracting is a very competitive, high-risk business. This competitiveness and the perception of conflicting objectives among owners, contractors, architect/engineers, subcontractors, and suppliers has set the stage for what, at times, have become adversarial and unrewarding relationships. Parties from all sides of the tables have given up management rights and responsibilities because of the fear of risk and the threat of liability. We have witnessed an escalation of onerous documents and contracts focused on punitive measures to enforce performance. Consequently, we have seen a dramatic increase in litigation, which is expensive and counterproductive to everyone's efforts to produce quality projects on time and within budget.

The AGC strongly believes that the time has come for all the parties in the construction process to step forward and work together to take control of this costly and intolerable situation. The implementation of the AGC credo of skill, integrity and responsibility has never been more important to its members.

AGC sees the need to develop a teambuilding process that creates mutual trust and respect for one another's respective roles in the construction process and recognizes the risks inherent with those roles. We see a need to seek ways to develop harmonious relationships at our jobsites and to change the old notion that in order for someone to win—someone else must lose. AGC wants to develop a concept that creates a win/win attitude among all the team players. "Partnering" is one such concept.



What is Partnering?

The Partnering concept is not a new way of doing business—some have always conducted themselves in this manner. It is going back to the way people used to do business when a person's word was their bond and people accepted responsibility. Partnering is not a contract, but a recognition that every contract includes an implied covenant of good faith.

While the contract establishes legal relationships, the Partnering process attempts to establish working relationships among the parties (stakeholders) through a mutually-developed, formal strategy of commitment and communication. It attempts to create an environment where trust and teamwork prevent disputes, foster a cooperative bond to everyone's benefit, and facilitate the completion of a successful project.

For the most effective results, stakeholders should conduct a Partnering workshop, ideally at the early stages of the contract. The sole agenda of the workshop is to establish and begin implementing the partnering process. This forum produces the opportunity to initiate the key elements of Partnering.

The key elements of Partnering are:

Commitment

Commitment to Partnering must come from top management. The jointly developed Partnership charter is not a contract, but a symbol of commitment.

Equity

All stakeholders' interests are considered in creating mutual goals and there is commitment for a successful project by utilizing win/win thinking.

Trust

Teamwork is not possible where there is cynicism about others' motives. Through the development of personal relationships and communication about each stakeholder's risks and goals, there is better understanding. With understanding comes trust and with trust comes the possibility for synergistic relationship.

Development of Mutual Goals/Objectives

At a Partnering workshop, the stakeholders identify all respective goals for the project in which their interests overlap. These jointly developed and mutually agreed to goals may include achieving value engineering savings, meeting the financial goals of each party, limiting cost growth, limiting review periods for contract submittals, early completion, no lost time because of injuries, minimizing paperwork generated for the purpose of case building or posturing, no litigation, or other goals specific to the nature of the project.

Implementation

Stakeholders together develop strategies for implementing their mutual goals and the mechanisms for solving problems.

Continuous Evaluation

In order to ensure implementation, the stakeholders agree to a plan for periodic joint evaluation based on the mutually agreed to goals—to ensure the plan is proceeding as intended and that all stakeholders are carrying their share of the load.

Timely Responsiveness

Timely communication and decision making not only save money, but also can keep a problem from growing into a dispute. In the Partnering workshop the stakeholders develop mechanisms for encouraging rapid issue resolution, including the escalation of unresolved issues to the next level of management.

Partnering Benefits

For all the stakeholders of a project, Partnering is a high-leveraged effort. It may require increased staff and management time up front, but the benefits accrue in a more harmonious, less confrontational process, and at completion a successful project without litigation and claims.

The Partnering process empowers the project personnel of all stakeholders with the freedom and authority to accept responsibility—to do their jobs by encouraging decision making and problem solving at the lowest possible level of authority. It encourages everyone to take pride in the efforts and tells them its OK to get along with each other.

Partnering is an opportunity for public sector contracting, where the open competitive-bid process keeps the parties at arm's length prior to award, to achieve some of the benefits of closer personal contact which are possible in negotiated or design/build contracts.

It is interesting to note that the following lists of benefits to the various stakeholders confirm the mutual-ity of their individual interests.

Benefits to the Project Owner

Reduced exposure to litigation through open communication and issue resolution strategies

Lower risk of cost overruns and delays because of better time and cost control over project

Better quality product because energies are focused on the ultimate goal and not misdirected to adversarial concerns

Potential to expedite project through efficient implementation of the contract

Open communication and unfiltered information allow for more efficient resolution of problems

Lower administrative costs because of elimination of defensive case building

Increased opportunity for innovation through open communication and element of trust, especially in the development of value engineering changes and constructability improvement

Increased opportunity for a financially successful project because of non-adversarial win/win attitude

Benefits to the Project Contractor

Reduced exposure to litigation through communication and issue resolution strategies

Increased productivity because of elimination of defensive case building

Expedited decision making with issue resolution strategies

Better time and cost control over project

Lower risk of cost overruns and delays because of better time and cost control over project

Increased opportunity for a financially successful project because of nonadversarial win/win attitude

Benefits to the Project Architect/ Engineer and Consultants (where applicable)

Reduced exposure to litigation through communication and issue resolution strategies

Minimized exposure to liability for document deficiencies through early identification of problems, continuous evaluation, and cooperative, prompt resolution which can minimize cost impact

Enhanced role in decisionmaking process, as an active team member in providing interpretation of design intent and solutions to problems

Reduced administrative costs because of elimination of defensive case building and avoidance of claim administration and defense costs

Increased opportunity for a financially successful project because of nonadversarial win/win attitude

Benefits to the Project Subcontractors and Suppliers

Reduced exposure to litigation through communication and issue resolution strategies

Equity involvement in project increases opportunity for innovation and implementation of value engineering in work

Potential to improve cash flow due to fewer disputes and withheld payments

Improved decision making avoids costly claims and saves time and money

Enhanced role in decision making process as an active team member

Increased opportunity for a financially successful project because of nonadversarial win/win

attitude

By-Products of Partnering

By addressing the human element in the effort to build a team environment, stakeholders find themselves in a new mode of thinking about and dealing with people. Among the project personnel and within the stakeholder's own business organization, work can become more meaningful and fun. Morale is enhanced and an esprit de corps developed. A heightened awareness of the value of fair-dealing can be used internally, externally and in all aspects of business and life.

A by-product of demonstrating integrity and fairdealing is the respect of others. In the long term, that respect produces a reputation of true value in the industry.

Potential Problems

Partnering requires that all stakeholders "buy into" the concept. The concept is endangered if there is not true commitment.

Those conditioned in an adversarial environment may be uncomfortable with the perceived risk in trusting.

Giving lip-service to the term; treating the concept as a fad is not true commitment.

For some, changing the myopic thinking that it is necessary to win every battle, every day, at the other stakeholders' expense will be very difficult. Win/win thinking is an essential element for success in this process.



The Partnering Process

The following is only a model. Because every project is unique and the particular stakeholders for each project will vary, the process should be tailored by and for these stakeholders for the project. A partnering process can be developed for any type project and any size project. For the smaller project, the differences will be in intensity.

1. Educate Your Organization.

Whether you are an owner or a contractor, you must educate your own organization about Partnering before attempting a project using the concept. Understanding and commitment are essential.

2. Make Partnering Intentions Clear.

The owner's intention to encourage Partnering can be mentioned in the project solicitation advertisement and specifications. The provision would emphasize the voluntary nature of Partnering and that the costs associated with implementing it would be shared equally with no change in the contract price. A sample specification is shown in Appendix A. A letter can be sent to the CEO of every company on the bid list. A sample letter is shown in Appendix B. The prebid conference can include a presentation on Partnering. In the context of a negotiated contract for private work, it might be the contractor who proposes the use of Partnering. Even in public works contracts, the contractor can propose and initiate a Partnering agreement after the award because the Partnering process does not change the contract.

3. Commitment from Top Management at the Start.

Following the award, the owner or the contractor can request a meeting at the CEO level to discuss the Partnering approach to managing the project and the CEO role. See Appendix C. Commitment at this level is essential for Partnering to achieve its potential. Upon agreement, each entity will designate a Partnering leader. These leaders will meet at a neutral site to get to know one another as individuals and to plan a Partnering workshop.

4. The Partnering Workshop.

As soon as possible, before problems arise, all key players should participate in a Partnering workshop, again, at a neutral site away from the jobsite and outside of the respective corporate cultures of the various stakeholders. Key players from each stakeholder organization at the workshop are those who will be actually involved in contract performance and those with decision making authority. They might include the contractor's area manager, project manager, superintendent and project engineer; the architect/engineer's chief engineer, construction administrator and consultants; subcontractors' project managers or superintendents; the owner's manager or representative; and, depending on the project, special participants such as a representative from a testing laboratory or a key public official. Larger projects might utilize a facilitator, as discussed below, but a facilitator is not essential to the concept. The designated Partnering leaders have planned this workshop and they are the ones in charge of it. They should introduce the Partnering concept and outline the products to be developed in the workshop.

While partnering workshops are most effective at the beginning of a new project, project relations and problem solving can be improved even midway on a project.

- a. **Creation of the Partnering Charter.** Through the identification of stakeholders' respective goals for the project, mutual objectives can emerge. These mutually developed objectives form the Partnering charter. In this process the players get to know one another and develop team attitudes rather than we/they attitudes. Again, Partnering goals might include achieving specific value engineering savings, limiting cost growth, limiting review periods for contract submittals, early completion, no lost time because of injuries, minimizing paperwork generated for the purpose of case building or posturing, no litigation, and other goals specific to the nature of the project. Making the construction project an enjoyable process may be part of the charter. The charter not only is a symbol of the stakeholders' commitment to Partnering, but also can be used as the scale against which the stakeholders' implementation of the process can be evaluated. The ceremonial signing of the charter after the personal interaction necessary for the development of mutual goals is an important formalization of the bonds among all stockholders. A sample charter is illustrated at Appendix D.
- b. **Development of an Issue Resolution Process.** In the workshop the key players design their own systems for resolving issues on the project. Specific teams composed of personnel from the various stakeholders, who are knowledgeable about their particular technical portions of the contract, discuss potential problems and the way they would like to see them handled. They decide how issues that are not resolved at their level will be escalated to the next level in a timely fashion so that the decision-making process becomes more efficient and costly delays are avoided.
- c. **Development of a Joint Evaluation Process.** In Partnering the effectiveness of the process participation is reviewed and evaluated periodically by all participants—not just evaluation by the contractor or the owner. Evaluation can be in periodic written form, through periodic meetings of the key players, and periodic executive meetings. Evaluation, of course, includes recognition of positive behavior and not just deficiencies.
- d. **Discussion of Individual Roles/Concerns.** Workshop discussions should include definitions of each key player's unique role and what makes the job successful for that role—what that individual needs and how it is needed. Players' experiences (good and bad) should be put on the table. A workshop goal should be a high-trust culture in which everyone feels they can express their ideas and contribute to the solution. Risks and potentially difficult areas of the contract should be discussed openly. Players should be made aware of the potential for value engineering. Understanding other stakeholders' risks and concerns and seeing where one's portion of the contract fits in relation to others' helps to build the essential team attitude. In the process, individuals grow to know and understand the personalities with which they will be working before problems have arisen. This investment in the human dimension at this point can reap very significant benefits for the life of the project and potentially beyond.
- e. **The Facilitated Workshop.** Although not necessary to the process, a neutral facilitator can be very helpful in organizing the workshop agenda and providing training in conflict

management, listening and communication skills, as well as insights into individual problem-solving styles. The role of the facilitator, however, is not to lead, but to keep the focus on improving the process, to elicit from the stakeholders what they want out of the workshop, as well as their particular goals and objectives for the project. All stakeholders must be comfortable with the facilitator. The facilitator can help produce the products: the Partnering charter, the issue resolution system and the joint evaluation system. A good facilitator would be industry neutral but with some basic understanding of construction. The facilitator should have organizational skills. Professions such as behavioral or organizational psychologists, industrial psychologists, management consultants, or educators would be good sources for facilitators. Whether to use a facilitator is a business decision to be made jointly by all stakeholders. A qualified facilitator is particularly valuable in initial Partnering experiences to help develop comfort and confidence with regard to the effective implementation of the Partnering process. The benefits of using a facilitator should be balanced in light of the facilitator's fee in relation to the total cost of the project, and the long-term advantage of the training for each organization's personnel. A sample facilitator's agenda is shown in Appendix E.

- f. **Periodic Evaluation.** Formal, periodic evaluation helps ensure that the relationships and attitudes created in the workshop are not lost. It also helps to keep the project implementation on target by looking back at goals and assessing progress in relation to those goals. Sample written evaluation forms are shown in Appendix F.
- g. **Occasional Escalation of an Issue.** Conflicts are inevitable in any human endeavor. Key players should be encouraged to escalate to the next level of management the issues they are unable to resolve themselves. Escalation saves time and money. It may prevent the stakeholders from taking a rigid position and thus keep a relatively minor issue from becoming a claim. Most importantly, it may preserve the working relationship of the key players.
- h. **Final Evaluations and Celebration.** Final evaluations are a way of learning from the experiences of the project. Closure and celebration are important human considerations.

Closing

We have all witnessed the construction industry's evolution into an adversarial, confrontational business with our energies misdirected away from our ultimate goal of constructing a quality product, on time and within budget. Partnering changes mindsets. It helps all of us in the construction process to redirect our energies and to focus on the real issues associated with achieving our ultimate objective.

It is time for a change. Partnering is not a panacea. It is a challenging endeavor. The participants must be committed to change and they must be committed to working in a team environment that fosters a win/win relationship.

Partnering has the potential to change our industry, one project at a time. AGC encourages you to try Partnering on your projects.

Appendix A:



Sample Provision for Project Specifications

Partnering

The Owner intends to encourage the foundation of a cohesive partnership with the Contractor and its subcontractors. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance, intended to achieve completion within budget, on schedule, and in accordance with plans and specifications.

This partnership will be bilateral in makeup, and participation will be totally voluntary. Any cost associated with effectuating this partnership will be agreed to by both parties and will be shared equally with no change in contract price. To implement this partnership initiative, it is anticipated that within 60 days of Notice to Proceed the Contractor's on-site project manager and the Owner's on-site representative will attend a partnership development seminar followed by a team-building workshop to be attended by the Contractor's key on-site staff and Owner's personnel. Follow-up workshops will be held periodically throughout the duration of the contract as agreed to by the Contractor and Owner.

An integral aspect of the partnering is the resolution of disputes in a timely, professional, and non-adversarial manner. Alternative dispute resolution (ADR) methodologies will be encouraged in place of the more formal dispute resolution procedures. ADR will assist in promoting and maintaining an amicable working relationship to preserve the partnership. ADR in this context is intended to be a voluntary, non-binding procedure available for use by the parties to this contract to resolve any dispute that may arise during performance.

Appendix B:

Sample Prebid Partnering Letter to CEOs on the

Bid List

Mr. John Smith
Quality Partnering Construction Co.
Quality City, U.S.A.

SUBJECT: Partnering

Dear: Mr. Smith

I understand your company intends to bid on the _____ contract. I am making a special effort to inform senior executives of all interested companies of an exciting new concept in the management of this project. It is my intention to establish a formal "Partnering" agreement and program with the successful bidder.

Partnering is a process promoting teamwork, minimizing confrontation and hopefully eliminating the need for litigation, where all stakeholders finish the job a winner. It is a challenging endeavor that requires the commitment of senior management.

I will present the details of Partnering during the prebid conference luncheon on (date) here in (city). I hope you will have your representative report back to you the particulars. You are certainly welcome to have one of your executives attend the luncheon to participate first hand.

Please feel free to contact me if you have questions at (telephone number). Reservations for the luncheon should be called in to (appropriate person) by (date).

Sincerely,

Owner's CEO

Appendix C:

Sample Letter to Awardee Requesting a Meeting to Discuss the Partnering Concept

Mr. John Smith
Quality Partnering Construction Co.
Quality City, U.S.A.

Dear Mr. Smith

Congratulations! I was delighted to find (company name) the apparent low bidder on the _____ project. Your company has a reputation for excellence and we look forward to a mutually rewarding relationship.

I hope to have all the administrative formalities completed by (date) when I will make the formal contract award. In the meantime, I would like to propose a meeting with you within the next few weeks, at your headquarters, to discuss a "Partnering" approach to managing the project.

My concept of partnering is recognizing shared risk and common objectives, promoting cooperation, minimizing confrontation and eliminating litigation. Success is all stakeholders finishing the job a winner. It is a challenging endeavor that requires up-front agreement on expectations, helpful systems and, most importantly, the unqualified commitment of senior leadership.

I will call you next week to determine when a meeting may be convenient.

Again, congratulations and best wishes!

Sincerely,

Owner's CEO

Appendix D:

Sample Partnering Charter

The mutual goals and objectives of the stakeholders form the Partnering charter. The charter for each project, therefore, will be unique to that project. The charter may be a simple statement about communication and cooperation in all matters affecting the project and resolution of conflicts at the lowest level. The following, however, provides an idea of objectives which might be included in a charter.

Partnering Charter for (Project)

We are a team dedicated to providing a quality project in accordance with the contract. We are committed to both employee and public safety, protection of the environment, and minimizing inconvenience to the public.

I. Communication Objectives

We intend to deal with each other in a fair, reasonable, trusting and professional manner including:

1. Communicate and resolve problems within the terms of the contract.
2. Decision making at lowest possible level.
3. Open, honest communication.
4. Treat each other with mutual respect, resolve personal conflicts immediately, and avoid personal attacks.
5. Timely notification of future meetings.
6. Support of the weekly and morning meetings.
7. Not allowing grudges to interfere with professionalism.

II. Conflict Resolution System

- Step 1. It is preferred that conflict be discussed and resolved at the level at which it originates.
- Step 2. When conflict is not resolved at the organizing level, it will be taken to the next level of supervision.
- Step 3. When conflict is not resolved at step 2, then it will be taken to the project manager and project engineer.
- Step 4. If it cannot be resolved at step 3, then it will be handled according to contract specifications.

III. Performance Objectives

1. Complete the project without litigation.
2. Utilize cost reduction incentive proposals.
3. Finish project on time.
4. No delays to project.
5. No lost time due to injuries.
6. Promote positive public relations.
7. Provide safe passage of the public through the project.
8. Make project enjoyable to work on.
9. Construct and administer the contract so that all parties are treated fairly.

We the undersigned agree to make a good faith effort to undertake and implement the above as
Construction Partnering

applicable to each of us:

General Contractor Personnel

Owner Personnel

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Subcontractors _____

A-E _____

_____	_____
_____	_____
_____	Suppliers _____
_____	_____
_____	_____
_____	_____
_____	_____

Appendix E:

Sample Facilitator's Agenda

The following is an agenda for a simple one-day workshop. For larger projects the parties may wish to expand the time and scope of the workshop by including discussions of problem solving styles, prior experiences, risk management philosophies, anticipated difficulties, and/or simply more time for the parties to become better acquainted—in small or larger groups.

WORKSHOP

Agenda

9:00-9:15AM	Opening remarks fo Senior Executives—Why we are here.
9:15-9:30AM	Introductions
9:30-10:30AM	Partnering Overview
10:30-10:45AM	Break
10:45-11:15AM	Exercise #1: Barriers, Problems, Opportunities

Barriers, Problems and Opportunities

What actions does the other group engage in that create problems for us?

What actions do we engage in that we think may create problems for them?

What recommendations would we make to improve the situation?

(The parties will break into two groups {Owner and Contractor}. These questions are answered and then reported back to entire group. Discussion facilitates understanding.)

11:15-11:45AM	Report and Discussion in Entire Group
11:45-12:00PM	Develop Mission Statement
12:00-1:00PM	Lunch
1:00-1:15PM	Develop Mission Statement
1:15-1:45PM	Exercise #2: Interest, Goals, Objectives

Interest/Goals/Objectives

What direct and indirect interest do we have in the outcome of this project?

Given our interest, what are reasonable, achievable goals toward which we can strive?

(Again, the parties separate into Owner and Contractor groups. When results are reported back to the entire group, common objectives emerge. From these, a specific list of charter objectives are developed along with mission statement.)

1:45-2:15PM Report, Discussion, Identification of Common Goals and Objectives

2:15-2:30PM Break

2:30-3:15PM Exercise #3: Issue Resolution and Team Evaluation

Issue Resolution/Team Evaluation

What should our issue resolution policy require?

How should the issue resolution process work?

What are the roles and responsibilities for all levels of the partnership in issue resolution?

How can we evaluate the progress of the partnership in achieving our goals and objectives?

Who initiates the evaluation, who has input to the evaluation and who sees the evaluation?

What actions should the evaluation trigger?

Should the evaluation process include followup workshop(s)?

If so, when and who is responsible?

Who should attend?

(This exercise may be conducted in one large group discussion. Specific followup tasks may be assigned to ensure closure on procedures and evaluation forms.)

3:15-4:00PM Report Discussion, Agree on Process and Format

4:00PM Sign Charter

Appendix F:

Sample Evaluation Form

(Project Name)
Partnering Program

Partnering Status Evaluator

Partnering Status Evaluator (Form to be filled out by jobsite partners prior to monthly progress meeting. Completed form is distributed at progress meeting and its review becomes the last agenda item of this meeting.)

DATE _____

Item	Evaluation		
	Contractor	Owner	Other
1. Quality of Project			
2. Resolution of Jobsite Problems			
3. Tone of Communication			
Progress Meetings			
Letters			
Oral			
4. Special Reports Required			

(Project Name) Partnering Rating Form

Partnering Factors

Date _____

- 1 - Adversarial/Forcing/Avoidance/Self-Interest
- 2 -
- 3 - Accomodating/Compromising/Moderate Posturing
- 4 -
- 5 - Synergistic/Collaborative/Win-Win/Team Interest

Factor

- 1. Communication
 - A. Open, Honest, Timely

 - B. Active, Empathetic, Listening

 - C. Number and Tone of Letters

- 2. Problem-Solving
 - A. Win-Win Synergistic

 - B. Solved at Lowest Level

 - C. Immediate Escalation When Responsible

- 3. Overall Trust/Candor

- 4. Progress on Goals

Key Issues:

Overall _____

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

Partnering is a relatively new process, but early results are very promising.

"Partnering is a strategy for success. In over three years' experience we have (1) virtually eliminated time growth, (2) Substantially reduced cost growth, (3) experienced no new litigation, (4) reduced paperwork by 2/3, (5) gained new respect for our industry partners, and (6) are HAVING FUN!"

Colonel Charles E. Cowan
U.S. Army Corps of Engineers, Portland District
(Mr. Cowan became Director of the Arizona Department of Transportation in June 1991.)

"Partnering is much more than a buzzword, a philosophy or an attitude. It is structured management process that is effective on all sizes of construction projects to focus the attention of all the parties on problem resolution, without prolonged disputes or litigation. All experienced contractors realize that good working relationships are essential for successful, profitable projects. I am committed to the Partnering process—it works!"

Richard A. Lewis
Vice President
Granite Construction Company

"Partnering has enabled us to accomplish, through a concentration of resources, much more than we otherwise could have. Both organizations have had difficulties but we are now enjoying the opportunity that Partnering offers to apply continuous improvement and quality programs. The greater trust and sharing between owner and contractor open many doors. Our partnership has expanded into upstream technology work and downstream plant and maintenance support. I see a great deal of potential remaining."

Don Rasmussen
Director of Engineering, Polyolefin Division
Union Carbide Chemicals and Plastics Company, Inc.

"We view partnering as a way to enhance the client-consultant relationship. Having a written charter, signed by the parties, provides a positive framework for teaming efforts. Contracts used define specific actions and requirements that are prone to adversarial and defensive postures by the parties. The goal of partnering is to ensure that communication and teamwork will be maximized to produce the best results for all partners."

David F. Evans, P.E., P.L.S.
David Evans and Associates, Inc.
Engineers, Surveyors, Planners, Landscape Architects, Scientists

"From first hand experience and simply put, Partnering is a leadership concept wherein contractors and owners deal with each other with trust, honor, and equity. It assures a project will be completed on time, within budget, and with final payment made on project acceptance and not five years later in a court of appropriate jurisdiction. What have you got to lose? Trust me, it works."

Michael B. Murphy

Executive Vice President

Cooney McHugh Company, a Division of Donald B. Murphy Contractors, Inc.

“Unwarranted conflicts in our business are about to bury us all. Partnering is a concept that helps us focus on what the true outcome of a project should be and how we can get there. We at Sundt are neophytes at Partnering, but you can bet we are going to get much better at it.”

J. Doug Pruitt

Executive Vice President

Sundt Corp

“The essence of AGC’s Partnering Program is to establish a working relationship with owners and other construction team members before a project starts so that relationships of trust are secured before the first concrete is poured or steel put in place. When that happens, when earned trust reigns, our projects will have the best foundations for success.”

Marvin M. Black

President

Associated General Contractors of America

References

"Partnering: Meeting the Challenges of the Future," Construction Industry Institute Partnering Task Force Interim Report, August 1989.

Getting to Yes, Fisher and Ury, Houghton Mifflin Company, 1981.

Getting Together, Fisher and Brown, Penguin Paperback, 1988.

The 7 Habits of Highly Effective People, Covey, Simon & Schuster, 1989.

Exterior Sign Guidance

1.0 Purpose

This guidance provides the vehicle to have cost effective, efficient, and attractive signs to meet the information needs of all the different users of AFMC bases.

2.0 Scope

This guidance encompasses all exterior identification, destination, regulation, and informational signs.

3.0 Goal

The goal is simple—signage will be of high quality, within the standards of AFPAM 32-1097 Dept. of Air Force Sign Standards, and few in number. Each base shall have an exterior master sign plan developed, implemented, and maintained by the base civil engineer which shows the location, content, and physical appearance of every exterior sign on base.

4.0 Base Sign Plan

Each base shall have prepared a base exterior master sign plan, in conjunction with the base Architectural Compatibility Plan, on their CADD system in accordance with the following:

4.1 Sign Design Goals/Emphasis:

- 4.1.1 Use signs for necessary information only. Minimize their number and make their messages short and to the point.
- 4.1.2 Sign color should be consistent throughout the base and compatible to the base color scheme.
- 4.1.3 Organizational and recreational signs and the backs of traffic and safety signs should be designed and painted to be consistent. Earth-toned colors are preferred.

4.2 AFMC Logo and Shield

Use the AFMC logo and shield to establish corporate identity but don't overuse them. The logo and shield color shall be as prescribed by the AFMC History Office. Display the logo at prominent visual locations (at least one per base). Limit the use, however, to gate signs, selected towers, billeting, base operations, hospitals and headquarters buildings. Do not overuse the logo.



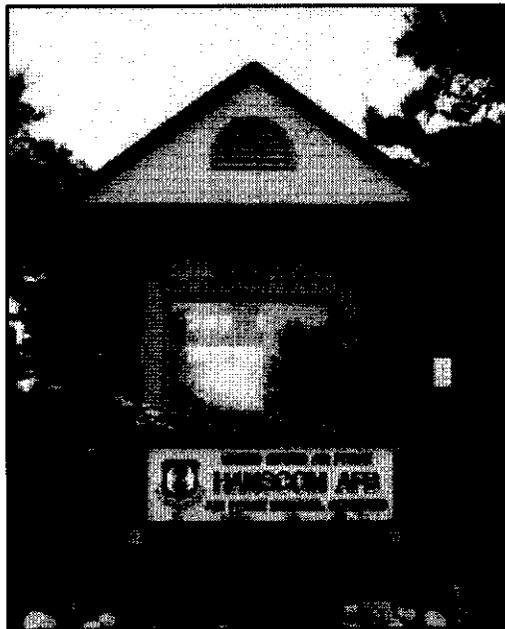
The AFMC Shield



The AFMC Logo

4.3 Gates

All gates on a base should follow a common design adopted for each base to provide a standard entry and present a common image to the surrounding community. The gate signs should be simple, include the AFMC logo or shield, with relevant base information arranged in a standard format on a neutral background. Use a low maintenance material that does not detract from the logo or lettering. The logo should be in the standard red, white and blue and not stylized in any way. Lettering should be raised metal (bronze preferred).



An attractive base entry sign and gatehouse: Hanscom AFB, MA.

4.4 Directional

Keep directional signs to a minimum in accordance with an established base signage plan.

4.5 Building Names and Addresses

In general, do not place or paint building names on the sides of buildings, except for landmark buildings. This practice is not in compliance with AFPAM 32-1099, Sign Standards. Place building numbers on the sides of buildings only when rapid identification is necessary, as stated in AFPAM 32-1099. It may also be necessary to place organizational names and door numbers on buildings that are several blocks in length to aid in the identification of individual offices. AFPAM 32-1099 has provisions for such a condition. Preferably, place building names and street addresses on an approved sign, in front of the building at visually prominent location(s). Follow AFMC/CEPL letters, Postal Decentralization, Building Numbering and Street Renaming, for guidance on the SAF initiative to change building numbers to street addresses to comply with postal regulations.

5.0 Job Site Signs

Each base should develop a standard job site sign for use on major O&M and NAF projects. The intention is to let our customers know what we're doing and when it will be ready for use. The sign should include, as a minimum, the AFMC logo or shield, the base civil engineering organization's name and/or shield, the title of the project, and when it is scheduled for completion (a general time frame, not an exact date). The sign colors should match the base exterior signage plan. Similar signs are desired on MILCON projects. Either the standard Corps of Engineers sign or the base's custom signs described above are acceptable.

6.0 Key Visual Impact Statement

It cannot be over emphasized that keeping the number of signs and display of the AFMC logo/shield to a minimum dramatically uplifts the visual image of the base, in addition to keeping maintenance costs to a minimum. Signs should provide information, be visible, but not add visual clutter to the base. For example, water and fuel tanks clustered together should be reevaluated to paint either one tank only or none at all, as opposed to all the tanks. Over display of the logo/shield weakens its visual impact—selective display of it maintains the desired AFMC professional image.

7.0 References

AFJMAN 32-1017 Highways for National Defense

AFPAM 32-1099 Sign Standards

MTMCP 55-11 Development and Maintenance of Traffic Control Device Inventories for DOD Installations

Plans Base Architectural Compatibility Plans

AFMC/CEPL Postal Decentralization, Building Renumbering,
Ltrs and Street Renaming, 16 Sep 91, 22 Oct 91 (with 18 Jun 92 AF updates)
and 16 Dec 91.

Facility Design Standards

1.0 Purpose

The purpose of these standards is to assist the center architectural compatibility manager in the design of facility projects. The standards are developed from the base architectural compatibility plan for use in the Requirements and Management Plans (RAMP) or statements of work for facility projects. They set general guidelines to ensure architectural compatibility and an appropriate AFMC corporate image is achieved on all projects. The standards for each district should be able to be removed from the architectural compatibility plan in total to be issued to designers as part of the RAMP or an A/E statement of work.

2.0 Goals

The facility standards should reflect the Air Force goal of producing quality, creative designs that purvey "understated excellence." Understated excellence is characterized by simplicity in design, durability of materials and finishes, reliability in utility and building systems, efficiency in function, completeness and appropriateness of detail, coordination in appearance—color, material and finish—and maintainability in configuration and layout. It avoids grand scale, plushness, excessive cost, and excesses driven by one-upmanship behavior, and a desire to deliver 110 percent. This does not mean we should not work hard to deliver quality designs that satisfy user needs. It does mean that we must not frivolously overdo it.

3.0 AFMC Standards

The following are minimum standards for the design of AFMC facilities. Incorporate these standards, along with those developed as a result of the base architectural compatibility plans, to create a comprehensive set of base facility design standards for each district.

3.1 Site Selection and Design

Site selection is the first step toward providing a quality facility or environment, and the design of site features must enhance the quality of the facility. Don't plan site development as an afterthought. Ensure site development is a critical part of all facility projects and does not take a back seat to the facility itself.

- 3.1.1 Location is critical. Choose sites that do not create congestion and orient the facility to the street to provide good views and spaces around and between facilities. At the same time, avoid the "open field" approach to planning—simply placing new facilities in areas because there is room for them, without consideration for other factors. Functionally group or link facilities for efficiency, but not if it contributes to congestion.

Moving a functionally related facility to another site is preferable to creating congestion.

- 3.1.2 Choose sites large enough to accommodate all of the necessary site development without creating congestion or eliminating needed green space. Consider future expan-

sion of the facility and others around it when selecting a site to ensure logical, cost-effective expansions can be accomplished.

Most good buildings with space around them expand at one time or another.

- 3.1.2 Screen parking from view by placing it behind facilities or by using landscaping buffers. Break large parking lots into smaller ones with adequate landscaping to eliminate the look of a sea of cars. Consolidate, infill, and attach parking areas with the overall objective of minimizing walking distances, construction of supporting roads and other parking, and operating and maintenance costs. Provide at least 10 percent landscaped areas to break up large parking lots.
- 3.1.3 Landscaping should be low maintenance and indigenous to the area. Consider environmental and energy related issues. Introduce color and seasonal variety to create visual interest. Don't use steep berms that will require excessive hand maintenance.



Landscaping and the siting of the facility screens large parking area: Logistics Systems Operations Center, Tinker AFB, OK

3.2 Functional Layouts

Plans must meet the needs of users without "gold plating" or providing excessive plushness. The user must be involved from programming through design and construction to ensure all of their needs are met.

- 3.2.1 Functional requirements must be met. Work closely with the user to determine needs.
- 3.2.2 Plans should be economical by avoiding excesses desired by users and designers, and by providing for flexibility to accommodate future changes. Avoid unusual shapes, such as radii or angles that are not functionally necessary because they are costly to build and make future additions difficult.

3.2.3 Energy considerations should become a priority in arranging functional plans. Use passive solar and daylighting measures where appropriate. Material selection and detailing (daylighting, solar orientation, volumes, fenestration, sky lighting, and alternative energy sources) must minimize energy budgets.

3.3. Exterior Materials and Detailing

The selection of materials is a critical factor, not only to make a building compatible, but also to reduce long term maintenance costs.

3.3.1 Select durable, heavily textured materials that will withstand heavy usage and weathering.



Use durable, low maintenance materials: Golf Clubhouse, Wright-Patterson AFB, OH.

3.3.2 Select materials that do not require painting or other excessive maintenance procedures. Use integrally colored, textured materials such as masonry, concrete, and pre-finished metals as much as possible.

3.3.3 Choose materials that are compatible with one another and with adjacent facilities.

3.3.4 Always consider local availability and life-cycle economy when selecting materials and detailing.

3.3.5 Materials must be appropriate to the function the facility houses and to the surrounding region to project the right image. Select materials that appropriately convey the function of the facility.

3.3.6 Establish a "clear zone" around buildings, using landscaping and building detailing to eliminate the possibility of damage from vehicles, lawnmowers, heavy equipment, etc.

3.4 Color

Color is a the most obvious factor in creating an architecturally compatible district. The strong visual influence of color can provide the strongest unifying element to tie two buildings together, especially industrial buildings that do not have strong architectural characteristics.

A color scheme shall be developed for each Center in conjunction with the base architectural compatibility plan.

- 3.4.1** Color should provide unity without sacrificing vitality. Most AFMC bases can be considered a single district in terms of color. The use of more than one color scheme on a base must be approved by the center commander. Even in cases where geography, architecture, or historical references are an influence, a maximum of two color schemes is desired. Do not mix color schemes within a district. The color schemes shall be of a limited number and range of colors as follows:

3.4.1.1 Limit base colors to no more than two shades of an earth-toned neutral color.

3.4.1.2 Architectural accents and/or trim colors shall be medium-range earth-toned colors only. Do not use bright colors with high reflective values. Limit accents and trim to two colors maximum per scheme.

- 3.4.2** Building graphics are not desired and their use should be minimized. Use them only in those cases where their is no other way to enhance a facility's appearance . When they are used, graphics should be designed to enhance an architectural feature or building form, not to identify a facility or organization. Don't overdo it. Do not paint organizational shields or other identification graphics or logos on buildings—they are not billboards. Limit the use of simple graphics to industrial buildings and older buildings with few architectural features. Keep graphics simple and use no more than two architectural accent/trim colors on a single building.



A neutral facility with appropriate mid-range accent colors: Advanced Composite Repair Facility, Tinker AFB, OK

3.5 Architectural Detailing and Image

Simplicity in design is primarily a function of the following:

- 3.5.1 Architectural style dictates certain materials and detailing, or an architectural vocabulary, which must be respected. Designs should be true to the predominant style in an area and enhance that style through proper usage of its dominant elements. For example, do not introduce over-stylized entrance elements simply to "dress-up" an otherwise plain building. This strategy generally results in calling unwanted attention to a building that does not warrant such attention.

Landmark or special use buildings should be treated as such while other utilitarian type buildings should "fade into the background."

- 3.5.2 Materials all have a texture that gives the facility an appearance of dominance, subordination, importance, etc. In addition, texture is a strong determining factor in compatibility. Use heavily textured materials appropriate to the function that are easily maintained and will last given the areas predominant weather characteristics.
- 3.5.3 Building form and scale must harmonize with surrounding structures and the environment.

3.6 Roofs

Avoid flat roofs where possible. Use flat roofs only on buildings with extremely long spans. Flat roofs tend to leak and are difficult to maintain. Use roofing materials with extended warranties. Use roof shapes that are compatible with existing surrounding rooflines.

3.7 Additions/ Alterations/ Renovations

For minor additions, match the existing building. For larger additions (over 50 percent of the original square footage), include an upgrade of the entire exterior to bring the facility into compliance with base facility standards unless the building is so large as to make it uneconomical to do so. Include development of the exterior landscaping and pavements surrounding the facility on all major additions or renovations. Remove outdated and/or abandoned equipment whenever possible. In many cases these have been allowed to deteriorate and create a detrimental image.

3.8 Metal Buildings

Limit the use of metal buildings to previously approved temporary structures only. They require a great deal of maintenance. When a metal building is used, site it within a compatible area. Do not place metal buildings in areas where they will detract from permanent structures. Where metal buildings must be used as semipermanent struc-

tures, add detailing, such as masonry bases, to improve their compatibility with surrounding facilities.

3.9 Equipment

Locate equipment away from major entrances and the fronts of buildings. Screen outdoor mechanical and electrical equipment using screen walls compatible with the adjacent facilities. Where this is not possible or where a temporary measure is required, paint the equipment the same base color as the surrounding facilities to make them less visually prominent.

3.10 Specifications

Use Construction Specifications Institute (CSI) standard specifications. For MILCON projects, use Corps of Engineers or NAVFAC guide specifications.

3.11 Federal Accessibility Standards

Follow all appropriate accessibility standards within the Americans with Disabilities Act (ADA).

4.0 Standard Format

The standard format for facility design standards is observed in the AFMC Architectural Compatibility Plans attached to this document. As stated earlier, these standards are part of the base architectural compatibility plan, but can be extracted and issued separately to designers, by district, for their use in the design of facilities. They should be maintained to be simple and to the point. Limit exceptions to only the most unusual of items. Remember, the overall goal is to create visual unity and cohesiveness throughout the base.

Material and Color Board Requirements/Checklist for Structural Interior Design (SID) Binder Format

1.0 SID Outline Format

The correct organization of SID binders is important to ensure a rapid and accurate evaluation of the buildings' finishes. Use the following outline to organize SID binders.

1. TITLE PAGE
2. TABLE OF CONTENTS
3. NARRATIVE: A statement of DESIGN OBJECTIVES explaining the design philosophy of the facility shall be provided in the SID binder. Design objectives and the proposed method of accomplishing the objectives shall cover, when applicable, energy efficiency, safety, health, maintenance, image, personal performance of occupants, and functional flexibility.
4. EXTERIOR SAMPLE BOARDS
5. EXTERIOR ELEVATIONS
6. INTERIOR FLOOR PLAN
7. INTERIOR SAMPLE BOARDS
 - Scheme A
 - Scheme B
 - Scheme C
8. ROOM FINISH SCHEDULE
9. SIGNAGE SAMPLE
10. SIGNAGE PLAN
11. DETAILS (Optional)

2.0 Sample Board Requirements

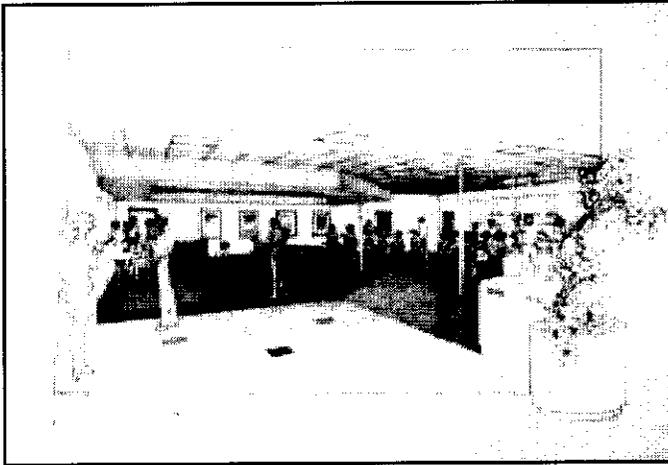
- 2.1 Submit all material sample and color boards for the exterior materials and SID on heavy neutral-colored illustration board capable of holding heavy samples without bending.
- 2.2 The color boards will be organized in an 8½-inch by 11-inch binder format with project identification on the spine and front cover.
- 2.3 Organize the SID presentations according to the SID outline.
- 2.4 A complete set of plans from the construction documents (not reduced sets) with the room finish schedule must be provided for all structural finish samples. Also include exterior elevations and a site plan.

Rendering Requirements

- 1.0 Final renderings of a project are an important tool used to “sell” a project to users, upper management, and others. As a standard, two different perspective drawings must be accomplished for each project as follows:
 - 1.1 “Birds-eye” or roof top perspective of the project to include as much of the surrounding area and existing buildings as necessary to depict the new facility and its contextual setting. However, be careful not to choose an angle so high that the drawing is dominated by the roof.
 - 1.2 Eye-level perspective focusing on the building design and its significant architectural features. Typically, the most prominent entrance or facade is portrayed. The angle is at the discretion of the designer in these cases. For interior renovation projects, an eye-level perspective only is required.
- 2.0 Sketch versions of the two perspectives listed above should be submitted between the design development stage (10 percent submittal) and the 35 percent submittal. Typical sketch perspectives are illustrated and rendered using pen and marker techniques which adequately illustrate the exterior materials, colors, and design intent. These perspectives shall be presented in no smaller than 11 inch by 17 inch format.
- 3.0 Final versions of the perspective renderings must be submitted at the 60 percent submittal. Submit two full-sized copies (not small photos) of each final rendering; one each to the base and the second set to AFMC/CEC. The final perspectives shall be submitted in the following standard format to facilitate display and storage.
 - 3.1 The size shall be 24 inch by 36 inch overall, including matting and frame.
 - 3.2 Frames shall be bronze metal, ¾-inch to 1-inch deep. Use single matting in a neutral color which complements the drawing.



A slightly “birds eye” perspective showing the new facility in context: NCO Club, Kelly AFB, TX



An interior perspective illustrating material and color selections within the space: Recreation Center, Edwards AFB, CA.

AFMC Comprehensive Interior Design (CID) Program

1.0 Purpose

This guidance establishes the scope of AFMC's Comprehensive Interior Design (CID) Program, the responsibilities of those involved with the program, and procedures for the program's implementation.

CID must be an integral part of the programming and design criteria used for the design, construction and maintenance of AFMC facilities.

This program establishes standards for the selection of interior finishes, materials, and furnishings to ensure consistency, functional effectiveness, cost consciousness, and compatibility throughout AFMC.

2.0 Scope

This guidance encompasses all facility projects in the Military Construction Program (MILCON), operations and maintenance (O&M—including in-house, Simplified Acquisition for Base Engineering Requirements [SABER] and self help), non-appropriated funds (NAF), Depot Maintenance Business Area (DMBA) Funds, and military family housing (MFH—P-722, 711 and 713) programs. CID must be considered for each project and included when required and appropriate. However, only MILCON and major NAF and O&M projects require AFMC/CEC review and approval. The base civil engineer (BCE) determines which projects will include CID. CID shall encompass the entire facility's interior environment to include all structural interior design (SID) building finishes, cabinetry, window treatments, graphics, signage, furniture, lighting, artwork, plants, and miscellaneous furnishings. Include all waste receptacles, clocks, coat storage, drinking fountains, and coffee/food/break equipment.

3.0 Goals

The primary goal of this program is to provide a framework to ensure that CID is efficiently and effectively accomplished. In addition, the following are goals of this program:

- 3.1 To ensure the Air Force's regulations, policies, and guidelines are met.
- 3.2 To accomplish the Air Force and AFMC's policy of "understated excellence" by providing facilities that are attractive, safe, functionally efficient, responsive to user needs, durable, and economically maintainable while projecting an appropriate professional image.
- 3.3 To promote the integration of interior design and architecture by strongly relating the

exterior and interior characteristics of each facility through a coordinated programming and design effort.

- 3.4 To ensure the interior appearance of each facility is based on carefully established professional design standards rather than arbitrary personal preferences.

4.0 Responsibilities

There are many individuals and agencies involved in the CID process. Each has a separate function and responsibilities critical to the program's success.

4.1 Center Commanders

Have the ultimate responsibility for ensuring professional interior designs are developed in their center's facilities.

4.2 Base Civil Engineer

Is responsible for developing and delivering this program. The base civil engineer will appoint a qualified interior designer to act as CID manager to develop and manage the CID program. Architects, if they show proven capability to perform CID services, may be used instead of interior designers where workload does not justify an additional position. If workload increases, however, the BCE should consider adding an interior design position.

4.2.1 CID Manager

Is responsible for the implementation of the center's CID program in accordance with this guidance and acts as liaison to HQ AFMC/CEC regarding CID. It is the CID manager's responsibility to develop a program to ensure CID has been properly addressed on appropriate projects and interior design packages are thoroughly reviewed and executed. The CID manager must approve all SID, CID, and systems furniture packages for design and construction submittals. They coordinate the efforts of programmers, the center carpet monitor, inspectors and other professionals regarding SID and CID.

4.2.2 Carpet Monitor

Is responsible for the implementation of the base carpet program in accordance with AFMC Carpet Guidance, outlined in an attached tabbed section, and acts as the liaison to AFMC/CEC regarding carpet policy. All carpet selections, flooring materials and maintenance procedures must be approved by the base carpet monitor and reviewed by the CID manager.

4.2.3 Programmers

Are responsible for incorporating CID scope and costs as determined by the CID manager for each project on its DD Form 1391. The programmer is responsible for ensuring that no DD Form 1391, Military Construction Project Data, or supporting documents, are forwarded from the base for processing without including the CID

information, along with the coordination of the CID manager.

4.3 AFMC/CEC

Will appoint a qualified interior designer to act as command CID manager to assist in the creation and review of CID packages. They review selected interior design packages to ensure consistency with this guidance. The command CID manager has the responsibility of ensuring this guidance is adhered to and for reviewing the program for effectiveness. The command CID manager will select and review major projects to assist and advise center CID managers.

4.4 AFMC/CEC Base Program Managers

Responsible for the delivery of facility projects on time and within budgets. They are responsible for CID information in the PDC and for ensuring proper reviews of all CID packages occur at each stage of the MILCON process.

4.5 AFMC Agency/Directorate or Product Center (Users)

Are responsible for ensuring the interior condition of their facilities meet AFMC's standards and are properly maintained, and for providing information to the CID manager to accomplish their CID packages.

4.6 Commercial Design Services

May be used as funds permit instead of inhouse resources when it is determined by the BCE and AFMC/CEC to be the best way to meet the government's needs.

5.0 Program Components

The following are the major components of the AFMC CID program. The center CID manager must ensure that each is established and procedures put into place so that each is accomplished as a normal part of each facility project.

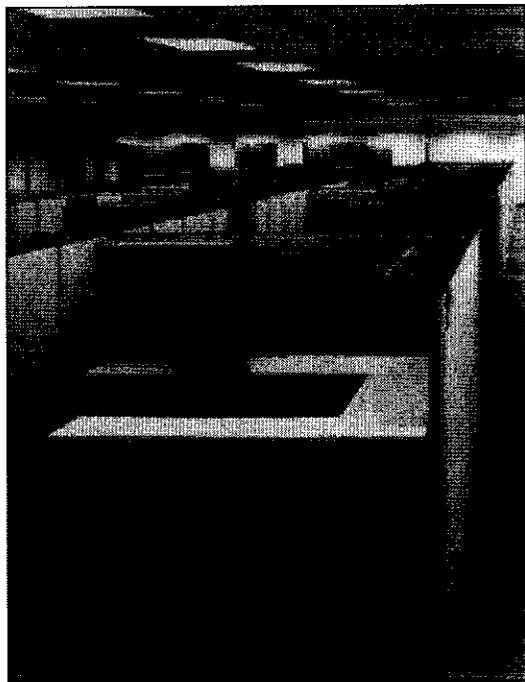
5.1 Interior Finish and Carpet Standards

An attached tabbed section of this program outlines guidelines for the selection and specification of interior finishes. It is followed by another tabbed section which outlines AFMC's carpet guidance. AFMC policy is to use durable, low maintenance finishes appropriate for the function of the space. Earth-toned colors are preferred, but neutral colors with medium-range muted or subdued accents may also be used, except in certain MWR and DV areas, as outlined in Interior Finish Guidelines, paragraph 4.0. Do not use bright colors with high reflectance values, but do not sacrifice vitality. Introduce primary accents through artwork, furnishings, and plants. The CID managers must ensure that interiors are professional, coordinated and appropriate for the function. The center CID manager will develop base interior design standards to ensure consis-

tent quality on all facility projects.

5.2 Systems Furniture

The CID manager must approve all systems and freestanding modular furniture packages with panels. The finishes for panels, trim, work surfaces, and chairs shall be coordinated with other interior finishes. The CID manager for each base must develop a standard and procedure for sizing, selection, purchase, installation, and maintenance of systems furniture. The procedure shall include coordination of power and communications installation. An attached tabbed section outlines guidance for the planning and



A well-organized and coordinated systems furniture layout serving the open office environment: Tinker AFB, OK.

processing of systems furniture orders.

5.3 Artwork And Interior Signage

Artwork and signage will be a coordinated part of all CID design packages.

- 5.3.1 Interior signage shall be coordinated throughout the building and shall be able to be updated and changed as building functions move. An attached tabbed section outlines AFMC's interior signage standards, which provides guidance for the selection and placement of interior signage. Signage systems must be a unifying visual element and communicate information effectively. The specifications included are intended to produce signs with the appearance of a non-changeable, subsurface silk-screened sign while providing the flexibility required for our organizations. The center CID manager shall develop a base interior sign standard. Signage plans and specifications shall be included in all CID packages for AFMC facilities. In addition, signage plans shall be included in the design for all major O&M interior upgrades. CID managers shall ensure signage is included in all CID packages and is coordinated with other building finishes.



Readily identifiable interior signage that clearly informs the user: Wright-Patterson AFB, OH.

5.3.2 Artwork and wall hangings should be integrated into each CID package. Coordinate the subject of the artwork, frames, and matting to create a consistent visual image.

6.0 User Involvement

Include users in the selection of finishes for CID packages when possible. This helps to instill a greater sense of ownership and discourages change. Include CID as part of any customer feedback or review process by including it on all questionnaires, surveys, or other methods of project evaluation. The BCE should also pursue a policy, through the center commander, to limit what users may hang in their areas and how the items should be framed and displayed. The policy should be self-policing by the users. Issue an occasional redistribution, signed by the center commander, to remind them of the policy.

7.0 Color Board Presentation and Approval

Material and color boards must be approved for all major construction and renovation projects having a significant architectural or visual impact on the center. Provide copies to the base civil engineer and AFMC/CEC for review at the 35 percent and no later than the 60 percent design complete stage. See the following tabbed section on SID/CID Binder Requirements for details. The Center CID manager will review and approve all design and construction color boards.

8.0 Reporting Procedures

An attached tabbed section to this guidance contains procedures for reporting CID project status. It is imperative that all items be reported correctly to ensure timely accomplishment and proper funds distribution.

9.0 Federal Procurement

An attached tabbed section includes guidance for the federal procurement of finishes and furniture which must be followed.

10.0 Self-Help

The center CID manager, along with the architectural compatibility manager, must periodically coordinate with the self-help manager to review inventory to ensure everything being offered is in compliance with this program and the center's CID standards.

Carpet Guidance

1.0 Purpose

This guidance is provided to assist in the acquisition, selection, technical requirements, installation, maintenance, and specification of carpet and carpet tiles.

It is provided for Civil Engineer (CE) staff, project managers, in-house interior designers, facility managers, design consultants, and design agents.

2.0 Scope

2.1 Application

The guidance applies to carpet purchased for all Air Force facilities, regardless of fund source (appropriated or non-appropriated funds), excluding family housing. It also applies to all carpet purchased with AFMC funds for use in facilities which are operated and maintained by organizations not within AFMC.

2.2 Authority

Carpet for medical facilities must comply with this guidance as well as HFO requirements cited in AFM 88-50, Criteria for the Design and Construction of Air Force Health Facilities. It applies to interior carpeting only and does not include products used on building exteriors or entrance vestibules. Also refer to AFP 32-10, *Installation and Facilities*; AFI 32-1023, *Design and Construction Standards and Execution of Facility Construction Projects*; and ETL 94-3, Air Force Carpet Standard.

3.0 Center Carpet Monitor

The center carpet monitor shall:

- 3.1 Ensure proper implementation of and compliance with this guidance.
- 3.2 Act as focal point and liaison to HQ AFMC/CEC and AFMC organizations regarding all carpet matters to include current carpet cleaning and maintenance procedures.
- 3.3 Establish a carpet sample library of products and specifications that meet the requirements of this guidance.
- 3.4 Ensure maintenance requirements for new carpets have been incorporated into the base's maintenance contracts.
- 3.5 Ensure the best methods and new advancements in cleaning and maintenance procedures are incorporated into the base's carpet cleaning contract(s).
- 3.6 During construction, approve contractor submittals and substitutions. This will be done in conjunction with the lead designer on all CID projects.

- 3.7 Verify with the project's interior designer that the contractor substitutions provided do not destroy the integrity of the design or its standard of quality.

4.0 Technical Assistance and Waivers

4.1 Technical Assistance

Contact the installation or MAJCOM interior designer for assistance. Otherwise, the Air Force Center for Environmental Excellence (AFCEE) Design Group will provide guidance.

4.2 Waivers

Requests for waiver to this guidance require MAJCOM approval and must be submitted in writing to AFMC/CEC. Requests should give a full explanation of circumstances and include technical information for the substitute carpet necessary to justify the waiver. Requests should address the AFMC carpet guidance only.

5.0 Selection Criteria

5.1 Sources

Choose carpet based upon functional suitability, durability, aesthetic appeal, and its ability to enhance the work/living areas. Colors must be carefully selected to develop an overall coordinated color scheme between the walls, furnishings, and the carpeting. Carpet selection must be compatible with adjacent carpeted areas.

- 5.1.1 NAF. Carpet provided from NAF resources may be purchased from an AFNAF contract, or open market.

- 5.1.2 Other. Carpet procured with Appropriated Funds and furnished as government furnished material (GFM) may be acquired through a GSA Contract or open market. Open market acquisition must be in accordance with the Federal Acquisition Regulation (FAR). If a construction contractor acquires carpet and furnishes it as a contractor-furnished material (CFM), the contractor may purchase from non-government sources.

6.0 Authorized Uses

Guidance for the use of carpeting as a floor covering, area rugs and wall covering is as follows:

6.1 Carpet as Floor Covering

Carpet permanently installed as an integral part of the facility is considered floor covering. Carpet is not mandatory, but may be provided as floor covering in authorized areas if economically and functionally feasible. Reference Tables of Allowance regarding the approval to use carpet in each type of facility. The base carpet monitor, however, must approve the suitability of carpet for each area. Use large samples to best illustrate how the final product will appear.

Carpet may be used in most areas as a floor finish. Exceptions are service, maintenance and industrial areas, food preparation areas, toilets and bathrooms, and areas requiring frequent cleaning. Carpet should not be used in areas of extremely high traffic such as halls.

6.1.1 Hard surface floor covering is recommended for areas with high traffic or where there is a potential for excessive soiling; i.e., areas adjacent to vending machines, and areas with janitorial functions.

6.1.2 Prior to exceeding TA allowances, recommended TA changes and substantial special allowance requests should be submitted in accordance with AFM 67-1, Vol IV, Part One, Chapter 18.

6.1.3 This guidance prohibits the use of carpet in maintenance facilities, warehouses or industrial shops. Administrative and support areas for the above facilities may have carpet but consider the heavy traffic in these areas before choosing carpet as the floor covering.

6.2 Carpet as Area Rugs

This guidance prohibits the use of area rugs. Carpet which is "loose laid" and not permanently installed is considered as an area rug, regardless of size and binding, trimming or finishing of material edges.

6.3 Carpet Tiles

Carpet tiles may be used provided they are required to meet necessary design technical requirements. Their use is required in open office and areas with raised floors or those that gain access to electrical or telephone raceways in floors or for pre-wired work stations and systems and freestanding modular furniture installations. Carpet tiles are required if using flat cable power distribution systems.

6.4 Carpet as Wall Covering

This guidance prohibits the use of carpet as wall covering. Carpeting shall not be installed on walls.

7.0 Technical Requirements

All carpet and padding must meet the following technical requirements. The BCE must certify that all carpet and padding is in compliance with this guidance prior to purchase. Carpet monitors should also review and certify carpeting specified as contractor-furnished goods in construction projects.

7.1 Color and Pattern

This policy permits patterned carpet only, regardless of area size, except in those facilities/areas indicated below. A patterned carpet has a design that is distinguishable

and consists of two or more colors, and not shades of the same color. A very bold tweed is acceptable but a subdued tweed is not considered a pattern and will not be accepted as complying with this policy. Carpets with tweed backgrounds and an overprint pattern are acceptable. Avoid light colors and high contrast, bold geometric patterns. Use random patterns.

- 7.1.1 Medical facilities may use patterned or tweed carpet designed and approved for medical facilities.
- 7.1.2 Computer areas in all facility types may use patterned or subdued tweed carpet.
- 7.1.3 Chapels and religious facilities will use bold tweed carpet only, regardless of area size.
- 7.1.4 Designated DV areas of transient quarters and General Officer suites may use solid color carpet. The installation or MAJCOM interior design office should make these selections.
- 7.1.5 Carpet tile must be patterned. That is, each tile must itself contain a pattern design. Alternating carpet tiles to create a checked pattern does not meet this requirement. Carpet tiles must meet the design and technical requirements outlined herein.
- 7.1.6 Avoid geometric patterns with predominant lines running parallel to walls in areas of long dimension such as corridors. This is to prevent the appearance of the carpet running askew.

7.2 Construction

Carpet construction must meet the following criteria:

- 7.2.1 Carpet must be tufted, fusion bonded, or woven with a plush-cut and/or level loop pile. Level loop pile should only be used for facilities/areas requiring floor covering with a firmer surface; i.e., areas where equipment will be frequently transported on carpet surfaces.
- 7.2.2 Carpet materials and treatments will be non toxic, reasonably non allergenic, and free of other recognized hazards.
- 7.2.3 Cushion backed carpet is not authorized. Carpet backings must be as follows:
 - 7.2.3.1 Primary carpet backing must be synthetic. Jute back is not authorized. Polypropylene primary backings may be woven, such as Polybac or equal, or non-woven, such as Typer or equal.
 - 7.2.3.2 Secondary carpet backing must be synthetic. Jute back is not authorized. Polypropylene secondary backings must be woven only, such as Action-Bac or equal. For heavy traffic areas such as corridors, hospitals, or schools, use a reinforced backing such as Powerbond or System Six.

- 7.2.3.3 Carpet tile backing should be a thermal plastic backing with fiberglass reinforcement or equal. Some examples are Glasbac, Everwear and Keldax.
- 7.2.4 Carpet yarn must be 100 percent advanced generation nylon for cut plush pile carpeting. Level loop carpet must be 100 percent nylon.
- 7.2.5 Carpet yarn face weight should be 28 oz/sq yd minimum on tufted cut pile and 26 oz/sq. yd. minimum on fusion bonded and loop pile.
- 7.2.6 Fibers:
- Nylon 6.6 or nylon 6 branded by the fiber manufacturer.
 - Wool and wool/nylon blends.
 - Polypropylene/olefin
- Because performance data for installed recycled carpet fibers is not currently available, use recycled materials in moderation.
- 7.2.7 Pile Density (Minimum):
- 3500 for woven or bonded construction
 - 4000 for tufted construction
- See Table 2 for average density factors and Table 1 for applications.
- 7.2.8 Gauge (Minimum): 1/8 inch as tested by ASTM D418.
- 7.2.9 Construction: Tufted, woven, or bonded.
- 7.2.10 Dimensional Stability (Maximum): ± 0.027 inches for carpet tiles as tested by ISO 2551 Aachen Test.
- 7.2.11 Pileweight (Minimum):
- 30 ounce for cut pile
 - 26 ounce for bonded
 - 24 ounce for loop pile
- 7.2.12 Electrostatic Propensity (Maximum):
- 3.5 kV or less for general commercial areas.
 - 2.0 kV or less for critical environments (such as equipment/technical rooms of communication facilities) as tested by the American Association of Textile Chemists and Colorists Test Method - 134 (AA TCC-134).
- 7.3 Fire Protection Requirements: Various combustibility requirements exist for floor finishes including carpeting.
- 7.3.1 All Areas Except Corridors: Carpeting for all areas except corridors shall have passed DOC FF-1-70, also known as the "Methamphetamine Pill Test" or more simply just the "Pill Test". (All carpeting manufactured for legitimate sale within the US has been required to meet the "Pill Test" since April 1971.)
- 7.3.2 Corridors: Two sets of criteria must be met for carpeting installed in corridors (includ-

ing stairways, if carpeted).

7.3.2.1 Comply with NFPA 101, and the various occupancy chapters of NFPA 101 which establish situations when minimum combustibility standards apply.

7.3.2.1.1 In NFPA 101, the combustibility of floor finishes is based upon NFPA 253, Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source (which is also known as ASTM E648). NFPA 101 paragraph 6-5.4.2 defines two combustibility categories, and the individual occupancy chapters determine when the carpeting must qualify for those two specific categories.

7.3.2.1.2 Corridor carpeting must pass either UL [Subject] 992 or ASTM E648. Since UL has never tested or listed a product under their UL Subject 992, then follow the performance under ASTM E648, Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source (which is also known as NFPA 253):

For Unaccompanied Personnel Housing, Lodging Facilities, and Hospitals:

Carpeting must pass the 0.45 watts per square centimeter minimum average critical radiant flux test.

For all other facilities:

Carpeting must pass the 0.22 watts per square centimeter minimum average critical radiant flux test.

7.3.3 Carpet in medical facilities, besides complying with all of the above criteria, must have a smoke development rating not greater than 450 when tested according to the National Bureau of Standards Smoke Chamber Test.

7.3.4 The following are full references to the standards referenced above:

7.3.4.1 DOC FF-1-70, Office of the Secretary, Consumer Products Safety Commission, Washington, D.C. 20207.

7.3.4.2 Underwriters Laboratories, Inc., Publication 992, 333 Pfingsten Road, Northbrook, Illinois 20062.

7.3.4.3 Federal Test Method Standard 372 and ASTM E648, available from Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA., 19120.

8.0 Installation

In general, carpet installed in AFMC facilities will use the direct glue method without pad, except where padding is authorized (such as billiting rooms, DV offices and suites, etc.). Application of a protective coating/spray of an industrial grade directly following installation is recommended. Other guidelines follow.

- 8.1 Follow manufacturer's recommendations when installing carpeting to protect warranties. Never install carpeting over existing carpeting or pad.
- 8.2 Provide a soil walk-off area (mats) for carpet in entry areas.
- 8.3 Provide adequate ventilation during installation, and 48 to 72 hours thereafter, to reduce indoor air pollutants.
- 8.4 Order an additional 10 percent of replacement tiles and roll goods to allow for cutting and matching of carpet pattern repeats.

9.0 Approval/Purchase

All carpet selections, including MWR facilities, must be approved through the CID manager and base carpet monitor. NOTE: Not all carpets on the Federal Supply Schedules meet the requirements of Air Force and the AFMC carpet policy, so review each carefully before approving for use.

10.0 Maintenance

Develop and implement a sound carpet maintenance program. Cleaning on a regular schedule prolongs carpet life by removing dirt and grit that can stain, cut, and abrade carpet fiber. Therefore, all requests for carpet must confirm that appropriate maintenance equipment for care and cleaning is available prior to installation.

- 10.1 Care and cleaning should be according to the manufacturer's recommendations for care and cleaning. Perform preventive and corrective maintenance to preserve original appearance.
- 10.2 Remove stains and spills immediately.
- 10.3 Schedule periodic vacuuming and cleaning.
- 10.4 Before cleaning carpet, remove furniture or place plastic or aluminum foil under and around furniture legs to prevent rust stains. Leave in place until carpet has completely dried.

11.0 Point of Contact

MS SANDY WARNER, CFID
HQ AFCEE/DGA
COMMERCIAL (210) 536-4201
FAX 240-4254
DSN 240-4201

**12.0 Table 1: Areas of Use and Wear
Classification**

Classifications	Minimum Carpet Wear	
	Heavy	Severe
Administrative Facilities (Including areas in other facility types)		
Open plan offices		X
Closed private offices	X	
Corridors		X
Conference rooms	X	
Bowling Centers		
Converse (Excluding food service working and storage areas)	X	X
Chapels and Other Religious Facilities		
Worship Areas	X	
Education areas	X	
Child Development Centers	X	
Clubs - Officers and Enlisted	X	X
Dining Facilities (Excluding work spaces, serving areas, and toilets)		X
Exchange Facilities		
Sales areas		X
Offices (see Admin Facilities)	X	
Restaurant and cafeteria dining areas		X
Firehouses		
Sleeping rooms	X	
Day rooms	X	
Offices (see Admin Facilities)	X	
Golf Course Club House (Spike Proof)		
Pro Shop		X
Dining Area		X
Libraries	X	
Lodging Facilities (Includes VAQ, VOQ, and TLF)		
Rooms/suites (Except kitchens and baths)	X	
Corridors (Except vending and laundry areas)		X
Billeting lobby		X
Music and Drama Centers	X	
Passenger Terminals		
Waiting Areas		X
Offices (see Admin Facilities)	X	

12.0 Table 1: Areas of Use and Wear Classification (continued)

Facility	Minimum Carpet	
	Heavy	Severe
Research Facilities Bio-Optics Laboratories	X	
Theaters, Auditoriums	X	X
Training Buildings, Educational Facilities (Including Independent Schools)		
Staff Offices	X	
Classrooms	X	X
Corridors		X
Medical Facilities		X
Unaccompanied Personnel Housing		
Sleeping Rooms	X	
Public Areas (Corridors, lobbies, lounges, TV rooms)		X
Offices (see Admin Facilities)	X	
Youth Centers	X	X

* Use lower wear classification only where applicable based on expected wear.

13.0 Table 2: Average Density Factor

Type and Wear Level	Polypropylene		Wool and
	Nylon Fibers	Filament	Wool/Nylon
Surface Texture	Oz/Sq Yd - Density	Oz/Sq Yd - Density	Oz/Sq Yd - Density
Tufted Carpet/Carpet Tile - Heavy			
a. Loop Pile	24 - 4500	28 - 6000	42 - 6000
b. Plush-cut Pile	32 - 4500	NR	46 - 4300
c. Twist (Frieze)	32 - 4500	NR	50 - 4000
d. Cut and Loop	26 - 4500	NR	50 - 4800
Tufted Carpet/Carpet Tile - Severe (Extra Heavy)			
a. Loop Pile	32 - 6000	32 - 8000	NR
b. Plush-cut Pile (Heat-set only)	36 - 6000	NR	NR
c. Twist (Frieze)	36 - 6000	NR	NR
d. Cut and Loop	30 - 6000	NR	NR
Woven or Bonded Carpet/Carpet Tile - Heavy			
a. Loop Pile	24 - 4500	28 - 6000	42 - 6000
b. Plush-cut Pile	30 - 4500	NR	46 - 4300
c. Twist (Frieze)	30 - 4500	NR	50 - 4000
d. Cut and Loop	26 - 4500	NR	50 - 4800
Woven or Bonded Carpet/Carpet Tile - Severe (Extra Heavy)			
a. Loop Pile	30 - 5500	NR	NR
b. Plush-cut Pile	36 - 5500	NR	NR
c. Twist (Frieze)	36 - 5000	NR	NR
d. Cut and Loop	30 - 5500	NR	NR

$$\text{Density calculated as: Density} = \frac{36 \times \text{Pile Weight}}{\text{Pile Height (Thickness)}}$$

NR - Not recommended for use in this type wear area

Checklist for SID and CID Binder Format

The correct organization of the SID and CID binders is important to ensure a rapid and accurate evaluation of the buildings' finishes, furnishings, signage, artwork, etc.

SEQUENCE OF SID SUBMITTAL

1. TITLE PAGE
2. TABLE OF CONTENTS
3. DESIGN OBJECTIVES: A statement explaining the interior design philosophy of the facility shall be provided in the SID binder. Design objectives and the proposed method of accomplishing the objectives shall cover, when applicable, energy efficiency, safety, health, maintenance, image, personal performance of occupants, and functional flexibility.
4. EXTERIOR SAMPLE BOARDS (if required)
5. EXTERIOR ELEVATIONS (if required)
6. INTERIOR FLOOR PLAN
7. INTERIOR SAMPLE BOARDS (one or more, as developed by the designer)
 - Scheme A
 - Scheme B
 - Scheme C
8. ROOM FINISH SCHEDULE
9. SIGNAGE SAMPLE (or manufacturer's literature)
10. SIGNAGE PLAN
11. DETAILS (Optional)

SEQUENCE OF CID SUBMITTAL

The CID binder is the most detailed of all binders submitted because of the numerous components specified, priced, and illustrated within it. A correct organization of the CID binder is important to ensure a rapid and accurate review of all the building components and their relationship to the architectural finishes.

The CID binder shall include the following information. Include items only if applicable:

1. Title Page
2. Table of Contents
3. Design Objectives
4. Exterior Sample Boards
5. Color Perspective (for MILCON and high interest O&M and NAF contract projects)
6. Interior Sample Boards
7. Pre-wired Work Station and Ergonomic Chair Sample Boards
8. Room Color and/or Room Finish Schedule
9. Pre-wired Workstation Plan
10. Pre-wired Workstation Isometric Drawings and Plan Drawings
(if required to properly show the stations)
11. Pre-wired Workstation Specifications
12. Ergonomic Chair Specifications
13. Pre-wired Workstation Matrix and Cost Analysis
14. Pre-wired Workstation Cost Estimate
15. Pre-wired Workstation Acquisition Approval Forms
16. Black and White Sketches (as required to show unique elements)
17. Furnishings Plan (1/8" scale min, including plants and artwork)
18. Furnishings Placement Plan
19. Furnishing Illustration Sheets
20. Other Related Drawings; e.g., millwork, restrooms, cabinetry
21. Order Forms (as provided by the designer, showing model numbers, quantities, etc.)
22. Cost Estimate

Once again, a narrative concerning design objectives and methods must be included.

Project title, project number, page title, page number, and date should appear on all pages. Each page submitted must be identified to prevent misinformation if a page is separated.

Submit all color boards for all required SID and CID informational samples on heavy neutral colored illustration board capable of holding heavy samples without bending.

Use an 8½-inch by 11-inch binder format with project identification on the spine and front exterior cover.

Organize the SID and CID presentations according to the submittal requirements outlined in Appendix 6, Checklist for SID and CID binder format.

A full sized contract drawing with the room finish schedule must be provided for all structural finish samples.

Provide one copy each at the 35 percent submittal, with resubmittals provided no later than the 60 percent design complete stage, to the BCE and HQ AFMC/CEC for projects requiring AFMC/CEC review and approval.

CID Reporting Procedures

1.0 Scope

The following procedures apply to the creation and processing of all CID packages within the scope of this policy.

2.0 User Involvement and Scope Development

For all types of projects, the base level user is responsible for working with the center CID manager and programmers to develop their CID packages. Each user will appoint a project officer responsible for identifying and developing the project's requirements and for reviews and coordination throughout the project execution. The project officer will be responsible to provide the following information to the BCE staff:

- a. Scope of requirements
- b. Funding source
- c. Amount of funds available
- d. Age of facilities
- e. Description of the facility's interior condition
- f. Planned projects that may impact the project
- g. Justification for the project
- h. Assistance to the BCE to develop required documentation.

3.0 Report to AFMC/CEC

The base CID manager and/or programmer must provide the following project information for all projects containing CID to the base program manager at AFMC/CEC:

- a. Base name
- b. FY
- c. Project number
- d. Project title
- e. Type of project
- f. Construction budget
- g. CID budget and furnishings budget

4.0 AFMC/CEC Submittals

Major MWR/Services and administrative facility O&M renovation projects must be submitted to AFMC/CEC in order to identify the number and type of projects that are being planned for each base. These projects will be submitted to AFMC/CEC in a project listing for each type of program. The format for project identification is as follows:

- a. Base project identification number
- b. FY

- c. Numerical listing of projects
- d. Types of projects
 - Add/Alter - A/A;
 - Interior Renovation - IR
 - Replacement - Repl (i.e., 2852/90/001/Repl)

5.0 PDC Screen

When MILCON projects are placed in the Programming, Design and Construction (PDC) information system, the CID requirements must be identified according to Air Staff guidance. Estimates and actual costs for the CID package and pre-wired work stations, as developed by the base CID manager and reported on the DD Form 1391, are to be entered on the screen "ZPDSCLC," CID. This information shall be provided by the base CID manager and shall be reviewed by HQ AFMC/CEC.

- 5.1 The interior design screen of the PDC (ZPDSCLC) looks like the sample on the following page. The items with titles in parenthesis provided in the blanks are the responsibility of the base CID manager. Other items are accomplished by AFMC/CEC base program managers and Air Staff program managers.

COMPREHENSIVE INTERIOR DESIGN							
PDC:	SHORT TITLE:				PA:	_____	
FY:	STATUS:	_____					
Project Scope: _____							
CID Required?: (Y/N/S)				CID Factor: _____ %			
CID Scope: _____							
DM MNGR: _____							
DA MNGR:				A/E Firm: (CIDDSNNM*)			
MAJCOM MNGR:				A/E ID Cost (\$000):(CIDACFEE*)			
CID Est Cost (\$000): (CIDBCOST*)				PW Est Cost (\$000):(PWBCOST*)			
CID Act Cost (\$000): (CIDACOST*)				PW Act Cost (\$000):(PWACOST*)			
Project Status		Date Color Board Received: _____					
DI Issued:	NTP:	EST:	ACT:	_____			
	Dsg Strt	30%	60%	90%	100%	BCD	BOD
Estimated:	_____	_____	_____	_____	_____	_____	_____
Revised:	_____	_____	_____	_____	_____	_____	_____
Actual:	_____	_____	_____	_____	_____	_____	_____
Comments:						(CIDCMNTS*)	
xxxxxx ZPDSCLC							

5.2 * Definitions of CID input items:

CIDBCOST: Estimate of CID furnishings cost.
CIDACOST: Actual cost of CID furnishings.
CIDACFEE: Actual fee paid to perform CID services (\$000)
CIDDSNNM: Name of A/E, ID Firm, or in-house (if AF accomplished) accomplishing the CID package
CIDCMTS: Short comments relative to CID Project
PWBCOST: Estimate for pre-wired workstations within the PA
PWACOST: Actual cost for pre-wired workstations

Federal Procurement Guidance

1.0 Introduction

For a CID effort to be successful, the designer must have a working knowledge of the Federal procurement system. The CID solution must be designed around items that will be available through allowable procurement sources at the time of procurement. Unless specific approval has been given by HQ AFMC/CEC, only government sources listed in the following paragraph shall be used.

2.0 Government Sources

Priorities for use of government supply sources shall be in accordance with Title 48 Federal Acquisition Regulations System (FARS), part 8.001. The following excerpt is provided for general guidance only.

"Priorities of Government supply sources. Except as required by 8.002, or as otherwise provided by law, agencies shall satisfy requirements for supplies and services from or through the sources and publications listed below in descending order of priority prescribed in 41 CFR 101-26.107:

(1) Supplies.

- (ii) Agency inventories;*
- (iii) Excess from other agencies (see Subpart 8.1);*
- (iv) Federal Prison Industries, Inc. (see Subpart 8.6);*
- (v) Procurement lists of products available from the Committee for Purchase from the Blind and Other Severely Handicapped (see Subpart 8.7);*
- (vi) Wholesale supply sources, such as stock programs of General Services Administration (GSA) (see 41 CFR 101-26.26.3), the Defense Logistics Agency (see 41 CFR 101-26.6), the Veterans Administration (see 41 CFR 101-26.704), and military inventory control points;*
- (vii) Mandatory Federal Supply Schedules (see Subpart 8.4);*
- (viii) Optional-use Federal Supply Schedules (see Subpart 8.4); and*
- (viiii) Commercial sources (including educational and nonprofit institutions)."*

3.0 Foreign Purchases

Part 25 of the DOD Supplement of the FARS includes restrictions and procedures affecting procurement of foreign-made items. Government sources often list foreign items, some of which has a "Buy American Differential" applied by GSA. This involves adding a price restriction (6 percent to 50 percent) to aid the balance of trade agreements with various foreign governments.

4.0 Open Market Procurement

Open market procurement or local manufacture of an item shall be held to a minimum and used only when the scheduling is not available from an approved government source. This source requires the designer to prepare drawings, specifications, and justification for the item in question. The completed document shall be submitted to the procuring agency for advertising, bidding, and award.

5.0 Multiple Award Justification

Subpart 8.403-2 of the FARS requires that when multiple sources are provided to make available a selection of supplies or services to meet an unusual requirement, the ordering activity must justify the purchase of other than the lowest schedule price. The designer is tasked with reviewing the multiple sources, evaluating the items, and selecting the item which best carries out the objective of each integrated interior design.

6.0 Waivers to Government Sources

All interior design schemes should attempt to utilize GSA stock or federal supply schedule items. When a designer determines that such items procured through Government sources will not serve the required functional purpose, requests to waive the requirement for use of GSA sources shall be submitted to HQ AFMC/CEC for consideration. The designer shall prepare requests for waivers addressed to the appropriate GSA office that would normally handle the schedule for these items. The request for waiver shall be forwarded to HQ AFMC/CEC and shall contain the following:

- 6 . 1 Complete description of the item requested. Descriptive literature such as costs, illustrations, drawings, etc. that show the characteristics or construction of the item or explain its operation should be furnished whenever possible.
- 6 . 2 Comparison of price and pertinent technical differences between the item requested and the GSA item.
- 6 . 3 Inadequacies of the GSA item in performing required functions.
- 6 . 4 Advantages of the item requested, such as technical, economic, or other.
- 6 . 5 Quantity required. (If demand is recurrent estimate annual usage. If it is non recurrent, or unpredictable, so state.)

7.0 Maximum Order of Limitation (MOL)

A purchase order for items from GSA sources cannot exceed the amounts shown in the contractor's catalog/price list or the federal supply schedule for that item. The maximum limits are established by GSA and a condition of the contract under which the item is offered. When GSA wants to buy a product on either the competitive or multiple award programs that exceed the MOL, the order must be processed by the National Furniture Center under a definite quantity procurement procedure as follows:

7.1 Competitive Schedule

GSA sends out specifications and the lowest bidder wins.

7.2 Multiple Award Schedule

The ordering activity must provide a specification describing the salient features of the item. GSA will send out specifications for bids and will then make an evaluation as to the lowest bidder who meets the specifications.

7.3 Time

A definite quantity procurement procedure will require a minimum of six to seven months to accomplish.

8.0 Proprietary Items

In the event certain furnishing items are not available from government sources, and further, they are available from one source only, the following information must be furnished to the procurement office through HQ AFMC/CEC:

8.1 A complete and detailed description of the item.

8.2 A copy of manufacturer's cut and/or specification sheet, showing all pertinent details of the item such as size, material, finish, manufacturer's standards, and test and approval by agencies such as underwriters' laboratory, etc.

8.3 A statement indicating why these items and these items only are required, and why it is not possible to obtain competition in their acquisition.

8.4 An estimate indicating the quantity of each item involved, price delivered to the building, and installation cost if appropriate.

9.0 Installation of Furniture and Accessories

The designer must identify items in the interior design package that require attachment to the building, cutting, fitting, etc., to complete their installation. Although these items should be identified with installation specified in the contract documents, they are often selected along with the furnishings during the construction period. If items requiring installation are approved by the government for use, the designer must prepare specifications and/or drawings for this service in order that competitive bids can be obtained from responsible contractors. These specifications must include a tabulation of the quantities of items involved, item descriptions, methods of attachment or installation, materials required and all other data necessary for the preparation of a responsible bid. The designer must submit an estimate of the cost of the contract for the guidance of the procurement authorities.

Interior Finish Standards

1.0 Purpose

The purpose of these standards is to assist the center CID manager in the design of facility projects. The standards are developed, in coordination with the base architectural compatibility plan, for use in the Requirements and Management Plans (RAMP) or A/E statements of work for facility projects involving CID. They set general guidelines to ensure professional, consistent interiors with an appropriate AFMC corporate image are achieved on all projects.

2.0 Responsibilities

Each center CID manager shall develop a comprehensive set of interior standards including the following AFMC standards, and those adopted for their center, based on relevant regional and other issues. The Center Commander approves the standards.

3.0 Color and Material

In principle, color is not a matter of aesthetics or personal taste. In our homes, color is expressed in an emotional mode with our individual taste determining its usage. In business, the selection of color must be objective rather than subjective.

- 3.1 To establish comfortable and consistent environments in our facilities, earth tones or neutral color schemes shall be used for all permanent structural interior design (SID) finishes. Medium range colors that provide muted, subdued contrasts or accents may be used. Color accents should be introduced with artwork, furnishings, and plants. Color schemes should be appropriate to the base's predominant regional characteristics.
- 3.2 Permanent finishes shall be in neutral colors only. Some examples are wall coverings, ceramic tile, vinyl tile, toilet partitions, and pre-wired workstations, systems furniture, and modular furniture panels.
- 3.3 If color selection is not properly thought out for the work environment, it may impact the worker's performance.

High impact or bright reflective colors have been proven to interfere with concentration and create visual fatigue.

The reflectance value of surfaces must be appropriate for the function of the space.

- 3.3.1 A typical functional environment requires ceilings with a bright reflectance value, preferably white or off-white to provide good visualization.
- 3.3.2 The wall colors should be neutral hues with a moderate reflectance value.

- 3.3.3 Floor materials, furniture, and equipment finishes should range from low to medium reflectance values.

4.0 Facilities of Special Consideration

Certain facilities, due to their function, may require exceptions to the standard. Exceptions to the neutral color schemes are as follows:

- 4.1 The use of subdued colors within the medium ranges are recommended for DV suites.
- 4.2 Medium to dark neutrals with mid-range color accents are recommended for dining facilities and living areas such as VOQs, dormitories, and TLFs.
- 4.3 Patterns with mid-range colors are recommended for clubs. The pattern size should be an appropriate dimension according to the size of the space in which it is installed.
- 4.4 When addressing specialized MWR facilities, the services of a professional interior designer, if not available in-house, should be used to assure that a complementary color scheme is achieved. Mid-range colors with primary color accents may be used when appropriate for the facility.

5.0 Wall Treatments

Whenever possible, commercial grade wall covering should be selected in place of painting for its added visual interest, soil hiding design characteristics, and better durability. High grades of wall covering may last several standard paint cycles.

- 5.1 Avoid exposed concrete and concrete block walls whenever possible. It is recommended that concrete block walls in housing and administrative areas be recovered with vinyl wall covering. A heavy-duty wall covering system is a cost-effective alternative to furring out walls, but careful attention must be paid to avoid an uneven appearance of the final installation.
- 5.2 Sound absorbing materials are recommended in areas such as private offices or conference rooms.
- 5.3 Heavy weight Type II vinyl wall covering should be utilized in heavy traffic areas such as offices, reception areas, dining areas, and rest rooms. Use Type III in corridors.
- 5.4 Interior wood trim should be stained and finished in order to reduce maintenance. However, in DV and MWR facilities, trim may be painted.
- 5.5 In areas where there is a high incidence of damage to the walls, such as hallways and lounges, wainscoting with a durable wood or laminate chair railing or bumper guard should be used. Place the chair rail at heights proportional to the wall height, but also where it will reduce damage as much as possible.

- 5.6 Use an egg shell (satin) or semi-gloss finish when painting, except for wood trim, which should always be semi-gloss.

6.0 Floors

- 6.1 Flooring materials are one of the most important interior finishes to be selected. The selection of carpets or other flooring materials is critical to the function and the overall success of a space.
- 6.1.1 Floor surfaces should be selected with both function and aesthetics in mind. Durability, resistance to wear, ease in maintenance, comfort underfoot, and slip resistance are important features. Consider vinyl, ceramic, or quarry tile where appropriate but make sure noise does not become a problem. Consider these or synthetic rubber tiles for entrances, stairs, and hallways. To hide soiling, use darker colors to the fullest extent possible.
- 6.1.2 Durability is most important because of the direct wear due to foot traffic and furniture and equipment movement. Whether a selection is a hard surface material or carpet, the selection should provide a utilitarian surface.
- 6.2 **Carpet**
- The next tabbed section contains AFMC's carpet guidance. Coordinate the selection of carpets closely with the selection of other finishes.
- 6.3 **Tile**
- Tile is recommended for use in heavy duty traffic areas such as corridors, stairs, entries, or areas where damage to carpeting might occur; e.g., copy rooms.
- 6.3.1 The tile category includes ceramic, quarry paver tiles and vinyl. Differences are in the surface treatment and density of the tile (degree of hardness).
- 6.3.2 Quarry tile and pavers are excellent for heavy use and abuse areas. They are virtually maintenance free, stain resistant, and can be slip resistant by using a grit on the surface or through surface texture.
- 6.3.3 Vinyl/rubber tile should be used in areas that do not have special needs, and are not going to impact the aesthetics of a space, such as secondary entrances and stairs.
- 6.3.4 Solid color "radial" rubber tile with low profiles are not recommended due to the extra maintenance caused by the raised patterns.
- 6.3.5 Self-stick, cushioned, and no-wax floors are strictly residential. They are not made for commercial traffic or heavy furniture. Do not use these products.
- 6.3.6 Commercial grade sheet vinyl is a good solution where seamless flooring is required due to excessive exposure to liquids and prevention of bacterial growth.

6.5.7 Poured vinyl flooring is an extreme solution for a seamless flooring requirement and is not a recommended material.

7.0 Safety Codes, Standards and Regulations

AFR 88-15 should continue to be used as a reference for these requirements. The following codes, standards and regulations apply to all interior finishes selected:

7.1 All wall and ceiling finishes (including movable partitions, modular furniture wall panels, etc.) shall comply with all requirements of NFPA Standard 101, the Life Safety Code, except as noted in this section of this guidance.

7.1.1 In general, the subject of interior finishes is addressed in NFPA 101 Section 6-5. Class A, Class B, and Class C interior finishes are specifically defined in NFPA 101 paragraph 6-5.3.2. However, AFR 88-15 paragraph 1-57 restricts the "smoke developed" rating of Class A and B finish materials to a lesser amount than NFPA definitions.

7.1.2 The following minimum criteria apply to all references to Class A and Class B interior finishes:

Class A finish

Flame Spread 0 - 25 (same as NFPA 101)

Smoke Developed: 0 - 50 (NFPA uses 0-450)

Class B finish

Flame Spread: 26-75 (same as NFPA 101)

Smoke Developed: 0 - 100 (NFPA uses 0-450)

7.2 Wherever possible, use interior finish materials having a Class A interior finish rating (except carpet, see AFMC Carpet Guidance). NFPA 101 establishes minimum requirements for essentially all applications, and HQ USAF has established the following (generally more restrictive) minimum requirements in certain areas:

Exits, Exit Access Corridors, and Sleeping Rooms: Class A interior finish (walls, ceilings, and partitions)

All Other Areas: Class B interior finish (walls, ceilings, and partitions)

7.2.1 Fire retardant paints, varnishes, or other coatings are not authorized in any situation to obtain the required interior finish ratings for stairs, exits, corridors, and sleeping rooms. (Note that the Air Force, in AFR 88-15 paragraph 1-57f, prohibits these finish processes which the NFPA standards would otherwise permit.)

7.3 The use of Class C or lower interior finishes is not permitted in Air Force facilities. Additionally, cellular plastics (including polystyrene and polyurethane) shall not be used as interior finish materials. (AFR 88-15 paragraph 1-57b and d).

7.3.1 Since practically all interior finish materials are controlled and restricted by the applica-

ble building codes, virtually all reputable manufacturers of interior finish materials (especially carpets, flexible and rigid wall coverings, and ceiling tiles) have had their products tested by nationally recognized independent testing organizations such as Underwriters' Laboratories (UL), Factory Mutual System (FM), etc. Acceptable interior finish systems are listed in the current edition of either UL's Building Materials Directory or FM's Approval Guide.

7.3.1.1 In accordance with AF/CE's letter, Use of Textile for Interior Finishes, dated 22 Apr 92, use UBC Standard 42-2, Test Method for Textile Wall Coverings, conducted by an independent test laboratory, to satisfy the requirements of NFPA 101, paragraph 6-5.2.3, Exception 1, for the use of textile wall coverings.

7.3.2 Generally, if the results of these tests are favorable, the manufacturers will have the test results in their product catalogs and literature. If the manufacturer is unable to provide written confirmation that its products have the necessary UL listings or FM approvals (or other independent testing labs having follow-up factory inspection services to ensure ongoing quality control), the product cannot be used.

7.4 Very limited amounts of Class C trim and incidental finish, generally including solid wood products, may be permissible when limited to NFPA 101 criteria, which is generally 10 percent of the aggregate wall and ceiling areas of the particular room. See NFPA 101 paragraph 6-5.5. Note that AFR 88-15 Appendix A1 paragraph 11 is not intended to allow Class C wood paneling or wainscoting in excess of the NFPA 101 restrictions.

8.0 Fire Detection and Electrical Devices

Fire detection devices and electrical panels need not detract from a facility's appearance.

- 8.1** Use recessed fire extinguisher wall cabinets; confirm proper cabinet sizing with the Technical Services Section of the Base Fire Department before specifying.
- 8.2** Use of (factory) chrome-plated pendent sprinkler heads is recommended in finished office areas with ceilings, except in VIP areas, where recessed heads should be used. Do not specify flush or concealed sprinkler heads because their cost (labor and materials) is excessive and in some cases their performance is degraded. The use of factory-painted glass-bulb type pendent sprinklers is authorized for very special applications but their use is discouraged due to increased cost and degraded performance common with this type due to the maintenance procedures involved.
- 8.3** All-new fire alarm systems are required by AFR 88-15 paragraph 15-69a to produce both audible and visual signals. Also, NFPA 101 paragraph 7-6.3.4 requires both audible and visual signals in most existing facilities, with some exceptions.

- 8.3.1 The style and design of the alarm signaling appliances should be selected with aesthetic consideration for their appearance and blended in with the surrounding decor.
- 8.3.2 The Americans with Disabilities Act (Public Law 101-336) contains very stringent criteria governing the performance and required locations of visible fire alarm signaling appliances. These criteria are typically much more stringent than the NFPA requirements, and the designer should try to meet both the NFPA and ADA requirements.
- 8.4 Fire alarm manual pull stations and any operating instructions for such devices shall not be painted or otherwise modified to blend into the decor.
- 8.5 Operating instructions for kitchen range hood suppression systems or any other fire protection hardware shall not be painted or otherwise modified to blend into the decor.
- 8.6 Paint the following types of equipment to match surrounding decor:
 - 8.6.1 Fuse and circuit breaker boxes and covers.
 - 8.6.2 All exposed conduit and junction boxes. This is only when they must be exposed for functional or security reasons. Otherwise, conceal all conduit and junction boxes within walls and ceilings.
 - 8.6.3 Mechanical piping and ducts. Fire protection system piping may be required to have explanatory decals when painted other than traditional red.
 - 8.6.4 Fire alarm bells and signals.

9.0 Restrooms

Design restrooms for easy cleaning and maintenance but not at the expense of quality. Provide large mirrors with appropriate lighting over vanities rather than individual sinks and mirrors, except in large public restrooms and shop areas. Use plastic laminate partitions in office areas and prefinished metal partitions in shop areas. Provide quality fixtures and hardware that do not easily tarnish, rust, or clog.

10.0 Installation of Artwork and Signage

Artwork and signage will be a coordinated part of all CID design packages.

- 10.1 Interior signage should be coordinated throughout all base facilities and be able to be updated and changed as building functions move or are eliminated or added. It should be simple, durable, and properly located for maximum effectiveness. Keep it to a minimum to avoid frequent changes and visual clutter. A tabbed section follows which outlines the AFMC interior signage standards.
- 10.2 Artwork and wall hangings should be integrated into the design as much as possible. In

general, artwork should be hung at eye level, about 5 feet 6 inches to 5 feet 8 inches above finish floor to the center of the piece. If a wainscot exists, adjust the height accordingly so a comfortable amount of wall space is left between the chair rail and the bottom edge of the piece. Coordinate the subject of the artwork into themes or styles. Coordinate frames and matting as much as possible.

11.0 Self-Help

Items available to users through Self-Help Stores must comply with this guidance. The base CID manager must periodically coordinate with the self-help manager to review inventory to be sure all items conform with this policy.

12.0 Specifications

Use Construction Specifications Institute (CSI) standard specifications for all finishes. MILCON projects will follow Corps of Engineers and NAVFAC guide specifications.

13.0 Federal Accessibility Standards

The selection of interior finishes and furniture layout have implications regarding handicapped accessibility. Follow all appropriate accessibility standards including FED STD 795, Uniform Federal Accessibility Standards. Designers are encouraged to follow ADA requirements to the maximum extent possible.

Interior Signage Standards

1.0 Purpose

These standards are for the selection and placement of interior signage as part of a comprehensive interior design package. Signage systems must be a unifying visual element and communicate information effectively. They should be developed based on AFPAM 32-1099, along with AFMC Reg 190-1 (the AFMC logo) and the AFMC Interior Finish Standards. The center CID manager shall develop a base interior sign standard, in conjunction with the base interior design standards, incorporating this guidance.

2.0 Scope

These standards apply to all interior signage in AFMC facilities. It applies to directory modules, stanchion mounted modules, countertop modules, partition mounted modules, building numbering signage and directional signage. Signage plans and specifications will be included in all comprehensive interior design packages for AFMC facilities. In addition, signage plans will be included in the design for all major O&M interior upgrades. Directories and "you are here" signs should be given special consideration in large, complex facilities where the direction of customers is of great concern. Center CID managers shall ensure signage is included in all CID packages and coordinated with other building finishes.

3.0 Goals

The goal is to provide signage that communicates information clearly and makes a positive contribution to the overall image of AFMC facilities. The specifications are intended to produce signs with the appearance of a non-changeable, subsurface silk-screened sign while providing the flexibility for change required by our organizations.

4.0 General Design Concepts

To convey information clearly and make a positive contribution to the overall visual image of AFMC facilities, the signage system must incorporate the following general characteristics:

5.1 Simplicity

Provide only needed information, avoid redundancy, and don't use too many signs where a few will do the job. Sign messages must be clear, simple, and easy to read.

5.2 Consistency

Apply signage uniformly and consistently throughout facilities.

5.3 Visibility

Locate signs at significant places and orient them to provide clear sight lines for the users. Place them to read clearly from a distance.

5.4 Legibility

Typeface, line spacing, color, and size are critical. Use appropriately sized white helvetica medium letters on a dark background.

5.5 Flexibility

Allow for changing sign messages without total replacement of the sign. Signs should be a sleeve type sign with interchangeable panels that can be reused.

5.6 Hierarchy

Communicate the relative importance of the individual activity the sign identifies by varying sign sizes, layouts, and orientation.

5.7 Color

Signage colors shall not compete or be in conflict with the CID of the facility. Colors should be a dark neutral background with white letters and pictographs that provide a sharp contrast. Slate gray or dark brown are very effective backgrounds that are commonly available and fit well with most neutral color schemes.

6.0 General Specifications

Plaque modules should follow these specifications:

6.1 Exterior surface front

1/16-inch thick clear optically correct (phenolic) laminate plastic with a radius corner perimeter.

6.2 Frame and exterior surface back

1/8-inch thick acrylic back plate in slate gray or dark earth toned color with a radius corner perimeter.

6.3 Insert

Slate gray or dark earth toned color reversible vinyl sheet such that it can be reused.

6.4 Lettering

White vinyl, die cut, Helvetica medium-style lettering with upper and lower case format. All lettering is subsurface, on the vinyl insert behind the face plate.

6.5 AFMC Shield and Logo

Use with DCS or major organizational identification signs only. Don't overuse them by placing one or the other of them on all signs.



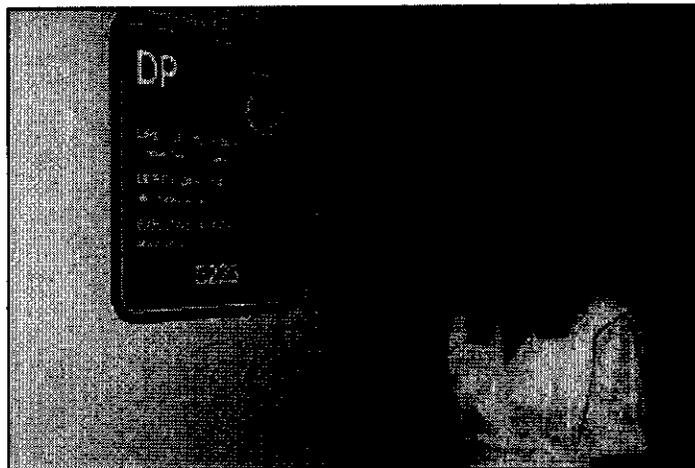
The AFMC Shield



The AFMC Logo



Sample Interior Sign



Clearly legible professional signage that is easily modified: Wright-Patterson AFB, OH.

Systems Furniture Guidance

1.0 Purpose

This guidance establishes procedures for the development of systems furniture packages and provides outlines for typical work station layouts in accordance with AF Engineering Technical Letter (ETL) 90-2, General Policy for Prewired Workstations and Systems Furniture. It is intended to supplement ETL 90-2 and clarify how systems furniture packages are to be designed, processed, and approved.

2.0 Scope

For the purposes of this guidance, systems furniture will also include non-powered, free-standing modular furniture. All systems furniture purchase/installation and maintenance contracts must follow this guidance. Not all packages require HQ AFMC/CEC approval, however. Only those packages accomplished as part of a MILCON project submittal must be sent to AFMC/CEC for approval. For O&M projects, there is no workstation order size or dollar threshold of furniture ordered that requires AFMC/CEC review and approval.

3.0 Goals

The main goal of systems furniture is to reduce the costs of facilities. It does so by providing a more space- and cost-efficient alternative to conventional furniture systems, fitting more people within the same sized area. Many factors can contribute to a work area which positively affects worker job satisfaction including:

- 3.1 Coordination, or a sense of order, which comes from well-coordinated colors and styles as well as properly sized, efficient storage and adequate work space.
- 3.2 Convenience, including access to utilities, ease of contact with others, and layout of workstations and auxiliary areas.
- 3.3 Comfort physical and psychological including noise levels, color, ergonomics, and interior climate.
- 3.4 Corporate image and self-image, with ranges of furnishing types and sizes to create a hierarchy of office work stations consistent with the organizational structure.

4.0 Responsibilities

The Base Civil Engineer (BCE) now has the sole responsibility for compliance with ETL 90-2. The center CID manager should approve all systems furniture packages to ensure the prudent use of funds and quality on all projects. The CID manager should be intimately involved in the initial decision to use systems furniture, determining if it is the most effective choice on a given project. The command CID manager maintains information on major systems furniture manufacturers and can offer advice and assistance as necessary.

5.0 Open-Ended Contracts

It is advisable to use open-ended A/E contracts with interior design capability to design and develop orders for systems furniture packages if necessary. They are an effective way to manage the volume and complexity common to these packages. Also, an open-ended maintenance contract to repair, replace, and rearrange systems furniture is advisable to reduce the cost and lead times of individual requests every time a change or repair is necessary. AFMC/CEC has several examples of these types of contracts on file for reference. There is no substitute for professional design and maintenance expertise.

6.0 Acquisition Procedures

The BCE should establish operating procedures with the base contracting office to ensure no furnishings are purchased without the coordination of the CID manager. Work with the base contracting center to establish coordination procedures to ensure this critical step is accomplished.

7.0 Project Development

The most important phase in any systems furniture project is the initial user interview. If a qualified professional is not involved at this point, the customer will probably end up with unnecessary components or a lower quality package that doesn't satisfy his or her needs. It is critical, therefore, that a procedure for involving the CID manager, or the open-ended A/E firm hired to facilitate implementation, be involved in the process as early as possible. A standard procedure must be adopted to cover the following topics, as a minimum:

- Adjacencies of personnel and activities
- Traffic patterns
- Conference needs (formal and informal)
- Storage needs (individual and common)
- Machine support areas (FAX, copier, etc.)
- Reference materials, supplies, and other common use areas
- Seating
- Waiting areas and guest seating (individual and common)
- Communications requirements
- Lighting and power requirements
- Computer support requirements
- Security requirements (secure areas, safes, etc.)
- Flexibility for future personnel changes (up-front planning when possible)
- Budget limitations
- Schedule for design and delivery/installation
- Unusual requirements, special equipment support, stand-alone furniture to be supported within a system furniture setting (such as drafting boards), etc.

8.0 Materials and Color

Choose materials that are durable and will withstand years of abuse. Use plastic laminate work surfaces except in private executive (two and three letter) offices, where wood laminates can

be used. Extravagances such as overly large workstations, luxury finishes, extra components, etc. are prohibited. They drive up the cost of the furnishings and add little value to the work space. All supporting free-standing furnishings, files, cabinets, etc., shall be metal in a coordinated color (except in executive offices where they can be wood to match the work surfaces). Chairs, panels and tack surfaces shall be heavy-duty tested, stain resistant fabrics. Use solid colors. Fabrics should avoid patterns that will become difficult to match in the future. Colors should follow the same guidance as stated in the AFMC Interior Finish Standards, paragraph 3.0. Simply stated, predominantly earth toned or neutral color schemes are preferred, with coordinated mid-range color accents.

- 8.1 Panels should not exceed 66 inches for general office areas. Higher panels should be reserved for directors' offices, along high-use corridors, security areas, noisy machine and break areas, or at breaks between major organizations. The higher panels cut air circulation and light and tend to have a negative psychological effect, creating a trapped, "closed-in" feeling. In areas where conferences will take place or noise is a real problem, or in high security areas, consider floor to ceiling walls, conventional construction or modular, in lieu of panels.
- 8.2 Workstation panels must comply with the interior finish combustibility criteria that apply to stationary partitions and walls.

9.0 Workstation Costs

As a general planning factor, use \$4,200 to \$4,500, on average, for standard workstations to include the cost of an ergonomic chair. This figure does not include freestanding furniture or files because they are not part of the systems furniture components. They must be ordered separately.

10.0 Space Planning Guidelines

The following guidelines are provided as rules of thumb for space planning of systems furniture. They are not a substitute for good professional judgment as it applies to individual situations. They are intended to provide a good point from which the final design can evolve.

- 10.1 Fire Protection: Avoid mazes and labyrinths. Provide a straight forward circulation pattern that makes visual sense as you walk through it. People become disoriented in complex spaces, especially in a fire where toxic smoke and fumes fill the air. On a practical level, they're just difficult and confusing to find your way around, especially to the occasional visitor but especially to the firefighter or rescue worker. Follow Life Safety Code provisions.
 - 10.1.1 The minimum aisle, corridor, or passageway through workstation areas is 44 inches in the clear (NFPA 101 paragraph 26-2.3.2).
 - 10.1.2 The configuration of aisles and corridors must comply with NFPA 101, Chapter 26, Sections 26-2.5 and 26-2.6. These sections generally limit the Travel Distance to Exits to 200 feet, Common Path of Travel to 75 feet, and Dead-end Corridors to 20

feet. In fully sprinklered facilities, the Code allows for specific increases in each of these restrictions.

- 10.1.3** Proposed workstation layouts must be coordinated with the Technical Services Section of the Base Fire Department to ensure compliance with NFPA 101 criteria.

10.2 Maintenance

Window walls should be used as corridors when possible and be kept free of panel hung furniture to allow access to windows for fresh air and light. Do not block air handling units. Workmen must be able to get to mechanical, electrical, and telephone equipment, and all doors and windows to perform maintenance. Keep furnishings interior to the room and away from walls as much as possible. If you must place furnishings along walls, use freestanding panels instead so they can be moved easily.

10.3 Support Space

ETL 90-2, section 4, establishes a standard of 20 square feet per person for support spaces such as conference areas, reference materials, common storage, coat racks, general filing, reproduction and mail handling. This is sufficient, but plan these areas very carefully. Proper design of support areas is critical to an organization's efficiency.

10.4 Filing Options

Nearly all systems furniture manufacturers make panel hung file components. They are efficient, coordinated parts of the package. They are excellent for individuals, filing needs because they become an integral part of the workstation, making the most of the vertical space. However, they are not always the best option for common use storage. They are not as flexible and stable as freestanding multi-media storage cabinets. They are also not as stable as free standing cabinets for heavier loads. Explore all the options and provide a good mixture of filing options based on an investigation of the users' storage needs.

10.5 Circular Systems

There are several circular types of systems furniture available on the market. These types work well in large areas but create circulation problems and wasted space in smaller and irregular-shaped areas. Put simply, they need space around them to work well. Avoid these types of systems in all but the largest open office plans. Even then, look at them carefully. There is probably a more conventional system that works better.

10.6 Consistency

Don't mix different types of system furniture together. Create a standard that fits the need and stay with it. This will simplify maintenance and additions/replacements later. To the maximum extent possible, standardize all furniture packages toward a single type.

10.7 Lighting

Minimize glare, especially at computer terminals. Provide a combination of general area

lighting and task lighting at the workspace. Task lighting at the work station can solve a great many problems even in the most poorly lit space. Be careful, however, not to design lighting that contributes to glare at computer monitor screens. This creates problems that can result in severe eye strain after prolonged use. Consult your bio-environmental office for advice. Use parabolic reflectors on all area lighting to reduce glare and increase the efficiency of the lighting (less fixtures are needed because the light is spread out farther and more evenly). Provide under-counter task lighting at open secretarial transition work surfaces and at all overhead storage bins. All lighting schemes must consider energy reductions/budgets as a primary planning factor.

10.8 Acoustics

Utilize as much sound absorbing material as possible. Panels are an excellent sound buffer and, when used in combination with carpet and acoustic ceiling tiles, provide excellent acoustic properties. The lower the panel heights, however, the more additional measures must be taken, such as wall coverings and other baffles. In extreme cases, "white noise" or "husher" systems can be introduced to counteract other sounds. These are only necessary in extreme cases, however.

10.9 Power/Communications

The following power and communications requirements should be met:

- 10.9.1 Raceways in panels should support eight 25-pair telephone cables and a minimum of eight power conductors, including a separate computer circuit, in an enclosed metallic compartment.
- 10.9.2 Surface-mounted conduit and power poles are unsightly and generally indicate poor coordination of electrical and communications requirements. Early and thorough coordination by the BCE and the communications group with the user is essential. Use flat cable installations instead of power poles and surface mounting. However, these systems require a great deal of coordination because if they are not installed in the proper locations, electrical and communications cords end up being run along the floor and create a safety hazard. They are also unsightly. Close coordination of the carpet installation, furniture installation, and the power and communications installations can eliminate the potential problems and provide the best results.
- 10.9.3 In major installations with complex requirements, consider a raised flooring system to support the installation of utilities.
- 10.9.4 For secure communications and power, red (secure) requires a minimum three foot separation from black (non-secure) lines and are usually required to be in an exposed raceway along the tops of panels. Once again, early and thorough coordination is the key to avoiding unsafe, unsightly conditions.
- 10.10 Ergonomics: Systems furniture is designed to fit the natural variations in human proportions. ETL 90-2 requires all work surfaces and chairs be adjustable and provide back support. These requirements for variability should be worked into the statement of

work and specifications for the furnishings, and be preprogrammed as much as possible. This includes the height of the workstations for each individual. This is difficult, however, so standardization of work surface heights initially is understandable. Be sure to make these types of adjustments part of any maintenance contract so users who are experiencing difficulty due to the work surface placement can have the problem corrected. Users should only have to make minor adjustments to fit their needs. The use of keyboard drawers is discouraged because studies have shown that people do not really want them or use them. It is suggested, however, to make this feature available to those who want them initially. Also, make the installation and removal of them part of the maintenance contract. This accommodates individual users and avoids the purchase of a great many unused keyboard drawers.

11.0 Workstation Size

ETL 90-2 requires a minimum workstation size of 56 square feet. AFMC is waiving this requirement to 48 net square feet for manned workstations for up to 25 percent of the total number of manned workstations on a project. No waivers will be granted below this level. Unmanned work stations, such as computer workstations or reservists' workstations that are used occasionally for specific functions, can be 36 net square feet if enclosed by panels, or less if they open onto a hall or into a common space. Worker satisfaction can be directly tied to workstation size. Only use these minimum sizes where space requirements become an overwhelming constraint and there is no other way to solve it. Maintain a minimum of three feet from unmanned areas to adjacent panels or furniture. Develop a base standard to avoid "turf wars" and battles over inequities between work station sizes for different organizations.



Appropriately sized workstation with necessary components improves efficiency and spatial organization within a facility: Eglin AFB, FL.

12.0 Workstation Configurations

Systems furniture must allow for the different and variable privacy needs of individuals and teams. To accommodate the dual needs of privacy and communication, work areas must provide visual separation when facing one direction, but personal interaction when facing another. For more complex tasks and team settings, private alcoves surrounding common group areas should be provided. The whole concept between personal alcoves and common group areas is to

create team interaction and semi-private enclosures and use no more space than in a typical 56-square-foot workstation. Within the alcoves adaptable individual workstation components should be provided: adjustable work surfaces, computers, chairs, storage devices, and task lights. The common area may have a table, sitting circle, shared resource files, joint-use equipment, and communications tools like whiteboards and screens. Together, the alcoves and common areas facilitate small work areas that office workers prefer in supporting teamwork.

13.0 Typical Workstations

Standardize workstations as much as possible. Do not customize workstations except at the three- and two-letter office level. Flexibility is a major consideration in using systems furniture. Customizing defeats the purpose of using systems furniture to create a flexible environment. If very frequent changes are anticipated, freestanding modular units may be a better choice because they are easier to move. Create a hierarchy of spaces from the clerk/secretary level to office worker to various supervisory levels based on workstation size and additional components such as guest chairs and freestanding meeting tables. Examples of some typical layouts are included later in this section.

13.1 Basic Elements

The basics of each workstation should include:

Main Components:

- Panels (powered and non-powered)
- Pedestal or drawer units with lock
- 1 general use drawer (6 inch)
- 1 file drawer (12 inch) add a 3 inch drawer if possible
- Primary work surface with a pencil drawer (24 inch by 48 inch min.)
- Secondary work surface for computer (30 inch by 36 inch min.)
- Overhead bins with flipper doors and locks. Include dividers and a task light mounted to the underside of the bin, for at least the main work surface.
- Paper flow organizers, either free standing or mounted below an overhead bin.
- Tack boards (preferably 2 behind main work surface)
- Ergonomic seating
- Coat hook
- Name plate holder
- Trash receptacle
- Electrical outlets for computer, task light(s), and other general power uses (4 outlets min.)

Loose furniture that may need to be supported within a work station:

- Drafting Boards
- Executive peninsula work surface
- Work surface extender
- Computer carousel
- Countertop top/transaction counter (most secretarial counters at 42 inches high,

receptionists can go to 48 inches high)
Modular door accessories
Foot rests
Individual conference tables
Side (or guest) chairs
Additional storage bins or cabinets
Additional file drawers
Freestanding safe

Additional items (common areas):

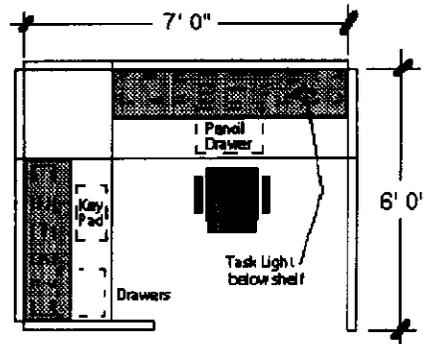
File cabinets
Area identification signage
Shelving
Storage Cabinets
Framed artwork
Plants and planters
Common coat racks
Safes
Office Equipment (copiers, printers, FAX, etc.)
Mission unique equipment

13.2 Sample Workstation Layouts

The following pages include sample drawings and parts listings for various types of system furniture layouts. They are for use as a starting point for design. The hierarchy of sizes and spaces shown is typical for most office arrangements as shows a good delineation between workstations to accommodate a typical organizational structure. Adjust these as required to fit the individual users needs but don't sacrifice standardization and flexibility. It is critical to plan for the ever changing requirements of administrative spaces by making them as similar to one another as possible. Standardization promotes "briefcase moves", which should be the norm in administrative spaces.

Typical Staff Work Station (Reduced Size)

42 Sq Ft



RECOMMENDED COMPONENTS (excluding panels):

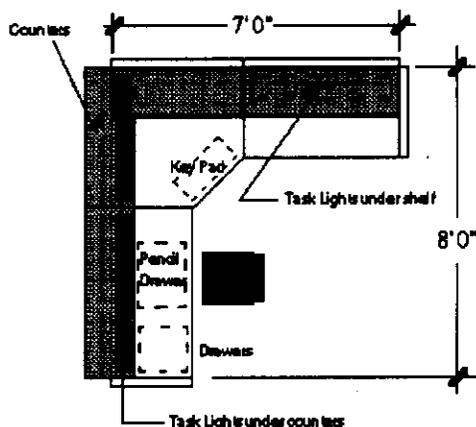
- 1 - 24"x48" work surface
- 1 - 24"x60" work surface
- 1 - 24"x24" corner work surface
- 1 - 48" W shelf unit with lockable flipper door
- 1 - 60" W shelf unit with lockable flipper door
- 1 - 48" task light (mounted under shelf unit)
- 1 - 60" task light (mounted under shelf unit)
- 1 - 48" W tack surface (mounted below shelf unit, behind work surface)
- 1 - 60" W tack surface (mounted below shelf unit, behind work surface)
- 1 - 3" H drawer
- 1 - 6" H drawer
- 1 - 12" H drawer w/ lock
- 1 - pencil drawer
- 1 - adjustable keyboard pad (optional)

SEATING:

- 1 - ergonomic task chair w/ arms

Secretarial Work Station #1

56 Sq Ft



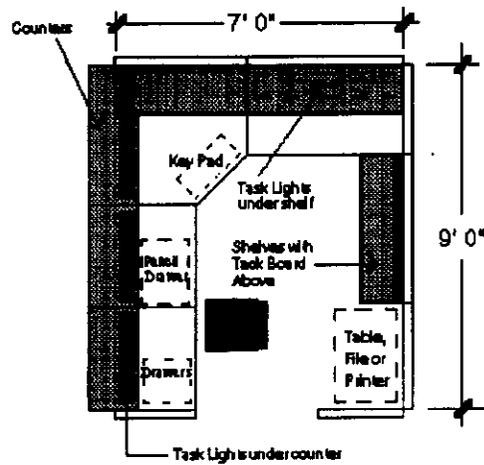
RECOMMENDED COMPONENTS (excluding panels):

SEATING:

- | | |
|---|-----------------------------------|
| 1 - 24"x48" work surface | 1 - ergonomic task chair w/o arms |
| 1 - 24"x60" work surface | |
| 1 - 36"x36" corner work surface with angled front | |
| 1 - 36" W shelf unit with lockable flipper door | |
| 1 - 48" W shelf unit with lockable flipper door | |
| 1 - 12"x36" counter top | |
| 1 - 12"x60" counter top | |
| 1 - 36" task lights (mounted under counter) | |
| 1 - 48" task light (mounted under shelf unit) | |
| 1 - 60" task light (mounted under counter) | |
| 2 - 36" W tack surfaces (mounted below shelf units and counter, behind work surfaces) | |
| 1 - 48" W tack surface (mounted below shelf unit, behind work surface) | |
| 1 - 60" W tack surface (mounted below counter, behind work surface) | |
| 1 - 3" H drawer | |
| 1 - 6" H drawer | |
| 1 - 12" H drawer w/ lock | |
| 1 - pencil drawer | |
| 1 - adjustable keyboard pad (optional) | |

Typical Secretarial Work Station #2

63 Sq Ft



RECOMMENDED COMPONENTS (excluding panels):

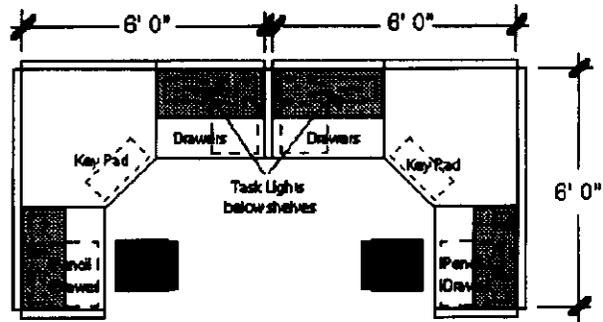
SEATING:

1 - ergonomic task chair w/o arms

- 1 - 24"x48" work surface
- 2 - 24"x36" work surfaces
- 1 - 36"x36" corner work surface with angled front
- 1 - 36" W shelf unit with lockable flipper door
- 1 - 48" W shelf unit with lockable flipper door
- 3 - 12"x 36" counter tops
- 4 - 36" task lights (mounted under shelf unit and counters)
- 1 - 48" task light (mounted under shelf unit)
- 4 - 36" W tack surfaces (mounted below shelf units, behind work surfaces)
- 1 - 48" W tack surface (mounted below shelf unit, behind work surface)
- 1 - 3" H drawer
- 1 - 6" H drawer
- 1 - 12" H drawer w/ lock
- 1 - pencil drawer
- 1 - adjustable keyboard pad (optional)
- 2 - 48" W file drawers (stacked)
- 1 - tack board (mounted above files)
- 1 - extra file, table, or printer stand (optional)

Computer Work Stations (not manned)

36 Sq Ft each

RECOMMENDED COMPONENTS
(excluding panels):

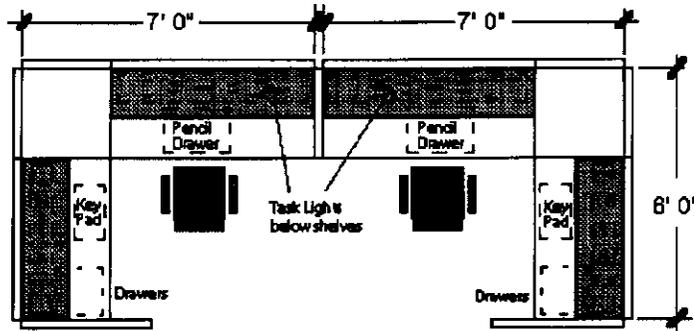
SEATING:

1 - ergonomic task chair w/o arms

- 2 - 24"x36" work surface
- 1 - 36"x36" corner work surface with angled front
- 2 - 36" W shelf units with lockable flipper door
- 2 - 36" task lights (mounted under shelf units)
- 2 - 36" W tack surfaces (mounted below shelf units, behind work surfaces)
- 1 - 3" H drawer
- 1 - 6" H drawer
- 1 - 12" H drawer w/ lock
- 1 - pencil drawer
- 1 - adjustable keyboard pad (optional)

* List is for each work station. The drawing shows two work stations joined together.

Typical Reservist/ Occasional Staff Work Station
42 Sq Ft each



RECOMMENDED COMPONENTS SEATING:
(excluding panels):

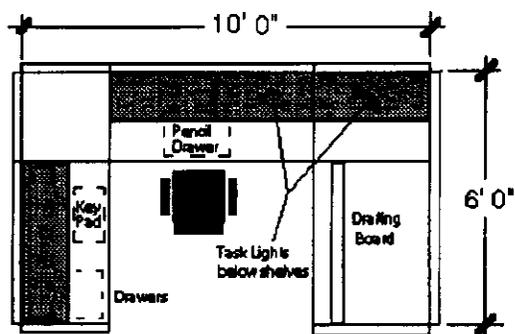
- 1 - 24"x48" work surface
- 1 - 24"x60" work surface
- 1 - 24"x24" corner work surface
- 1 - 48" W shelf unit with lockable flipper door
- 1 - 60" W shelf unit with lockable flipper door
- 1 - 48" task light (mounted under shelf unit)
- 1 - 60" task light (mounted under shelf unit)
- 1 - 48" W tack surface (mounted below shelf unit, behind work surface)
- 1 - 60" W tack surface (mounted below shelf unit, behind work surface)
- 1 - 3" H drawer
- 1 - 6" H drawer
- 1 - 12" H drawer w/ lock
- 1 - pencil drawer
- 1 - adjustable keyboard pad (optional)

1 - ergonomic task chair w/ arms

* List is for each work station. The drawing shows two work stations joined together.

Typical Engineer/Architect/Drafting Work Station

60 Sq Ft each



RECOMMENDED COMPONENTS (excluding panels):

SEATING:

- | | |
|--|----------------------------------|
| 1 - 24"x48" work surface | 1 - ergonomic task chair w/ arms |
| 1 - 24"x60" work surface | |
| 1 - 24"x36" work surface | |
| 1 - 24"x24" corner work surface | |
| 1 - 48" W shelf unit with lockable flipper door | |
| 1 - 60" W shelf unit with lockable flipper door | |
| 1 - 36" W shelf unit with lockable flipper door | |
| 1 - 48" task light (mounted under shelf unit) | |
| 1 - 60" task light (mounted under shelf unit) | |
| 1 - 36" task light (mounted under shelf unit) | |
| 1 - 48" W tack surface (mounted below shelf unit, behind work surface) | |
| 1 - 60" W tack surface (mounted below shelf unit, behind work surface) | |
| 1 - 36" W tack surface (mounted below shelf unit, behind work surface) | |
| 1 - 3" H drawer | |
| 1 - 6" H drawer | |
| 1 - 12" H drawer w/ lock | |
| 1 - pencil drawer | |
| 1 - adjustable keyboard pad (optional) | |

* Drafting board is separate from the workstation. Layout tables and drawing storage should be placed in common areas to be most efficient.

13.0 Sample Order Forms

Sample order forms for workstations, panels, and loose furniture items follow the sample workstation layouts. Use them as a reference to develop a system for organizing systems furniture purchases, either as part of a construction project or as a separate purchase (attached to an AF Form 9, Purchase Request). The samples break the order down by workstation type, showing each workstation type and the components included in it. Panels for the complete package are listed separately. Loose furniture that must be ordered separately is listed on another form, one for each type of item. Provide a cost summary by adding the costs from each sheet total. Also, provide a furniture plan showing where each workstation and loose furniture item will be located.

WORKSTATION ORDER FORM

Workstation Designator	Project Title		
	Proj Num	User	Date
	Workstation Type		
	Suggested Source		Order Quantity

Workstation Diagram (typical layout for this workstation type)

Workstation Color/Fabric Descriptions

Work Surfaces: _____

Tack Boards: _____

Trim: _____

Doors: _____

Shelves: _____

SHEET ____ of ____

Workstation Components List (quantities per work station)*

Quantity	Product Number	Description	Cost/item	Total Cost
----------	----------------	-------------	-----------	------------

Total Cost per Workstation: _____

Multiplied by Order Quantity: _____

TOTAL COST: _____

SHEET of

FURNISHINGS ORDER FORM

Item

Item number Suggested Source

Collection Style

DESCRIPTION (use applicable items)

Finish

Color

Size Repeat

Frame Mat

Glass Other

FABRIC (use as applicable)

No. Pattern Color

Grade

No. Pattern Color

Grade

No. Pattern Color

Grade

No. Pattern Color

Grade

1 Scotchguarded 1 Factory Flameproofed

1 Inherently Flame Resistant 1 Other

CONTRACT INFORMATION

1 GSA Contract No:

FSC Group:

Part:

SEC: Spec Item:

NSN:

1 Other Contract No:

AFMC System Furniture Guidance

LOCATION: 1 Room(s):

APPENDIX D

CONSTRUCTION STANDARDS FOR TRAFFIC CHECK HOUSES



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MATERIEL COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

11 MAR 2002

MEMORANDUM FOR HQ USAF/XOFX

FROM: HQ AFMC/CE/SF
4225 Logistics Avenue
Wright Patterson AFB OH 45433-5746

SUBJECT: Construction Standards for Traffic Check Houses

READ FILE

1. The horrific events of 11 September have driven many changes in the way our nation approaches its defense. The Air Force is but one agency, in a cast of many, re-evaluating how to approach the requirements and challenges of anti-terrorism and force protection. Protection of our personnel is paramount and old approaches to this task are, in many cases, no longer acceptable. One such approach that demands reconsideration is the protection level afforded by traffic check houses to security forces personnel performing duties in these facilities.

2. Current Civil Engineering construction guidance for these structures, contained in AFH 32-1084, *Facilities Requirements Handbook*, states built-in protection from small arms fire and fragmentation explosives is required only in high threat areas. In the post 11 September world, this construction standard is inadequate for appropriate force protection for security forces personnel performing installation entry control duties. A "New Normal" construction standard needs to be established to provide adequate protection. It is recommended the high threat area caveat for hardening requirements be deleted. This would establish hardening as the Air Force "New Normal" construction standard, irrespective of MAJCOM, CONUS/OCONUS locale, and postulated threat level.

3. This is a coordinated initiative between HQ AFMC/CE and HQ AFMC/SF. We solicit your support and request this proposal be forwarded to HQ AFCEE/DC for evaluation. Our points of contact for this matter are Mr. Louis Zavakos, AFMC/CEPD, DSN 787-7520, Louis.Zavakos@wpafb.af.mil and Maj Kevin Sherrick, AFMC/SFOF, DSN 674-1430, kevin.sherrick2@wpafb.af.mil.

KENNETH M. FREEMAN
Colonel, USAF
Director, Security Forces

DAVID M. CANNAN
Brigadier General, USAF
Command Civil Engineer

APPENDIX E

AFMC ENTRY CONTROL FACILITIES DESIGN GUIDELINES



AIR FORCE MATERIEL COMMAND

**INSTALLATION
ENTRY CONTROL POINT
DESIGN GUIDE**

9 July 2002

INTERIM — AUTHORIZED FOR IMMEDIATE USE



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Introduction

Purpose

This design guide provides the basic guidelines for evaluating, planning, programming, and designing Entry Control Facilities (ECF) for AFMC installations. The guidelines presented in this document will need to be adapted to suit specific criteria for individual AFMC installations. This guide is not intended to be a manual for determining Tactics, Techniques, and Procedures (TTP).

Mission

The objective of all ECF is to secure the installation from unauthorized access while maximizing vehicular throughput. At the same time, the Entry Control Point (ECP) is the primary avenue for base employees to get to their job sites and conduct the installation mission(s). The order of priorities for the ECF is:

1. Security
2. Safety
3. Capacity
4. Image

Security – First, the ECF must enhance perimeter security. The ECP represents a necessary break in the perimeter that requires strict control.

Safety – The ECF must address safety of Security Forces (SF) personnel operating the facilities as well as those entering the installation.

Capacity – The ECF must maximize vehicular throughput, eliminating undue delay that would affect base operations

Image –The ECF must be designed to impart an immediate impression of professionalism and commitment to facilities excellence while simultaneously establishing AFMC vigilance for acts of terrorism.

Assumptions:

- The installation perimeter represents a legal line of demarcation and adds to the “defense in depth” strategy.
- Installation ECF must accommodate the security measures of Force Protection Condition (FPCON) Bravo, including Random Antiterrorism Measures, for sustained operations. These facilities must also have provisions for operation at increased FPCON and shall accommodate 100% vehicle inspections.
- The focus of security procedures at the ECP is deterring vehicle borne and illegal entry threats.

Design Guide Scope and Use

This guide illustrates those ideals which must be considered when constructing an ECF. Realizing that few installations will incorporate all elements exactly as demonstrated in this guide, ECF renovation projects should focus on security enhancements.

Building Code and Accessibility Considerations

All Air Force facilities, regardless of location, must comply with applicable DoD and Air Force construction standards and should be in voluntary compliance with commercial building codes. If commercial codes do not apply to the location, the facility must then comply with the current edition of the Uniform Building Code. In the event of a conflict between Air Force standards and local building codes, the more stringent requirement shall apply.

Air Force facilities shall be designed to be accessible to and usable by persons with disabilities, unless it can be clearly documented that only able-bodied military personnel will occupy the facility. Otherwise, new construction and alterations to existing facilities must be designed and constructed to meet the requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS), with the most stringent standards applied in the event of conflicts.

Deviations from this guidance may be submitted to HQ AFMC/CE for coordination. HQ AFMC/CEPD is the OPR for this guide.

Planning and Programming Considerations

General

Programming provides the basic guidelines for sizing and configuring a facility and includes diagrams that clarify the desired relationships between functions. Square footage requirements will be based on each facility function and appropriate Air Force reference documents.

ECP Types

AFMC installations will use three basic types of ECPs, however specific installation conditions will require modifications. Only one or two types of ECPs may be needed at most AFMC installations. The three basic types of ECPs may be categorized as the following:

- Visitors/"Trusted Agents" (e.g., DoD personnel, etc.)
- Trusted Agents Only
- Commercial – deliveries/contractors

Layouts of each, respectively, are shown in Figures 1-3. The functions are then briefly described.

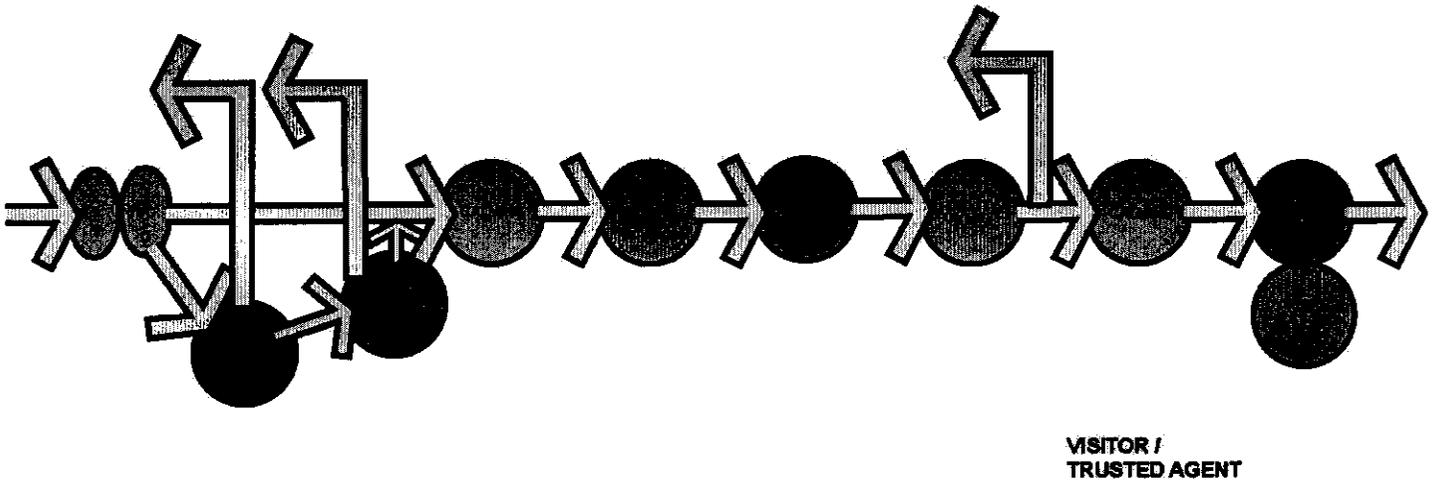


Figure 1: Visitor/Trusted Agent ECP

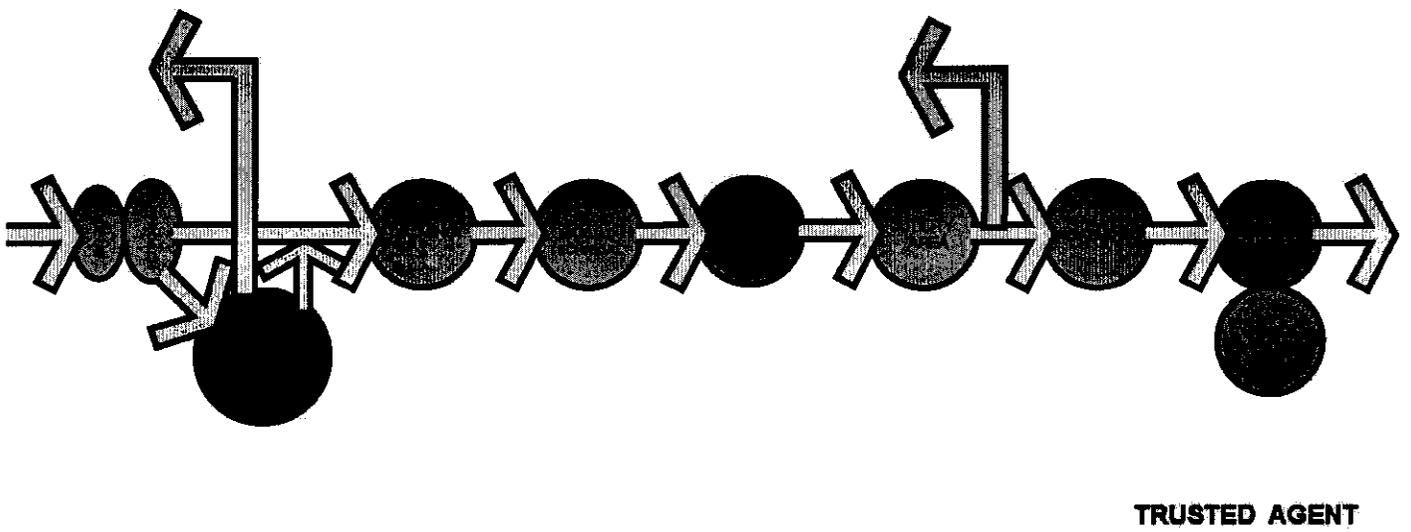
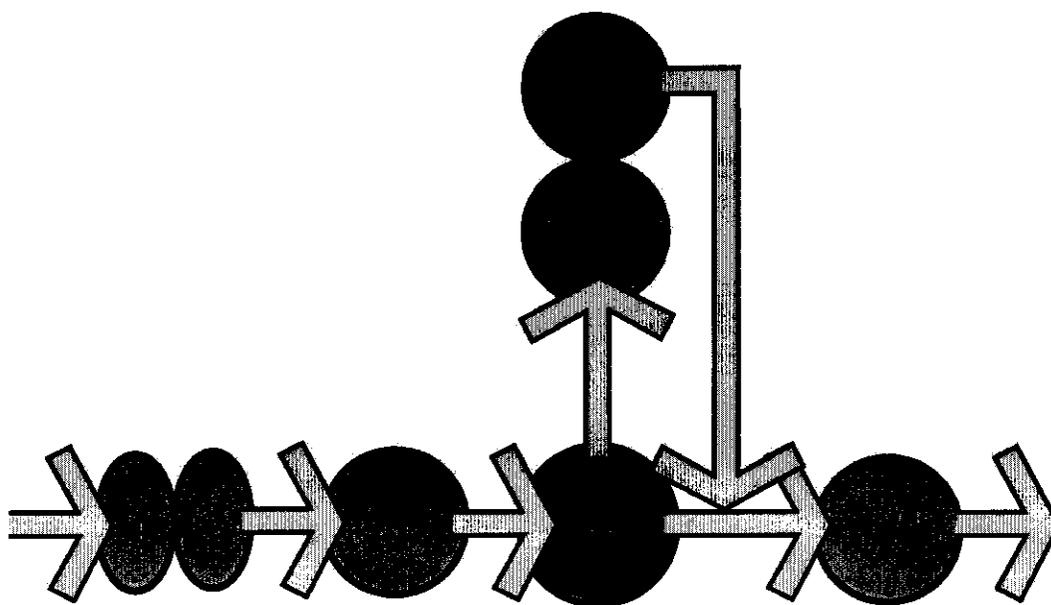


Figure 2: Trusted Agent Only ECP



COMMERCIAL GATE

Figure 3: Commercial Gate ECP

Site Design and Facility Layout Considerations

This section discusses the ECF functions in more detail and provides site design and facility layout considerations. While this guide is written primarily for general traffic gates, it has application for commercial/industrial gates as well.

The ECF and site—layout, design, and architecture—will establish a first impression to those visiting the installation and a daily one for those working on the installation. These facilities and site must be designed to impart an immediate impression of professionalism and commitment to facilities and installation excellence. The site design is critical and must appear inviting, uncluttered and orderly despite the need for many visually competing elements. Site design considerations include:

- Multiple traffic lanes and controls
- Gate, base and visitor control signage
- Gate house
- Overwatch position(s)
- Containment measures
- Gates and fencing
- Street and facility lighting
- Landscaping elements (walls, plantings, lighting, etc.)

The overall architectural theme should be a prelude to that found on the rest of the installation. To accomplish this, ensure ECF projects comply with:

- Base Architectural Compatibility Plan
- Commander's Guide to Facility Excellence
- AFMC Facility Quality Program, 1996, including:
 - Exterior Sign Standards
 - Landscape Design Standards
 - Interior Design Standards

In addition, use AFH 32-1084 for guidance in determining individual facility functional elements and space allocations.

An installation sign name with authorized lettering, logos, and heraldry should be in the vicinity of the ECP. Use landscaping and lighting to enhance the image and indirectly provide additional security measures. If electronic signage displaying information and directing traffic flow is provided, make fully accessible to on-duty security forces. The installation point of entry should present a positive, professional image consistent with the base architectural theme.

Traffic Flow

The focus of addressing traffic flow at the ECP is throughput—ECF must be designed to prevent undue delays to inbound traffic. The number of inbound lanes should be determined based on traffic counts during peak period(s). However, local traffic studies are the primary factor in determining the number of lanes required to promote throughput. Local procedures may also be developed to handle inbound traffic during peak periods, e.g. using outbound for inbound traffic.

Another important function of the ECP that begins with the handling of inbound traffic flow is containment. With a physical break in the perimeter, a potential exists for unauthorized vehicular access to the installation. To provide some measure of security for inbound traffic, the ECP should be located some distance inside the base proper, creating a traffic containment channel. The traffic containment channel must be contained to the roadway from the perimeter fence to a final denial point located beyond the gate. Extending the containment beyond the gate is necessary to deny access to a "gate runner". The channel also removes base traffic from the local community, potentially minimizing the impact on local traffic systems, and helps add to the distinction of entering a secure installation. Availability of real estate will dictate whether this option is feasible.

Containment may be provided through the use of either natural or constructed barriers. Berms or ditches must be severe enough that a vehicle would have difficulty crossing it (ditches work better in this regard, providing necessary drainage and better aesthetics). Constructed barriers

include 10 inch high barrier curbing and fencing. If pedestrian access is present, planters, benches and light standards along the walkway provide excellent barriers¹.

Traffic should also be “calmed” approaching and leaving the checkpoint area. This may be done by narrowing the lanes to 10’, speed humps, or other methods. This effect will serve to slow traffic, providing both safety and security benefits.

A vehicle turnaround area must be provided prior to the ID check area for those choosing not to attempt base entry, and after ID check and Visitor Control for those denied access. As ID check occurs at the ECP, there needs to be a turnaround point behind the ECP to accommodate vehicles denied entry to the base. All turnarounds should be sized to accommodate tractor-trailer vehicles (minimum 45-foot turn radius²) with minimum interruption to traffic flow. Directing commercial delivery and industrial traffic to a secondary gate dedicated to this type of traffic is preferred but may not be practical at some installations. If real estate limitations prevent a turnaround, installations need to adopt a plan to circumvent this situation. Possible solutions may be posting signs to direct unauthorized vehicles to a separate entrance, or provide SF escort service for the unauthorized vehicle to a point where it can turn around and exit the base.

Visitor Control

A visitor control (VC) facility provides preliminary entry control for visitors to the base or those who require passes for unregistered vehicles (referred to collectively as visitors)³. Entry to the VC should be a smooth transition from inbound traffic. See Figure 1. Adequate parking must be based on typical peak volume, and parking layout must accommodate large commercial vehicles. Visitors who do not obtain authorization to proceed on to the installation must be able to exit to outbound traffic prior to crossing the ECP. Exit could be across inbound traffic lanes, although this may impede inbound traffic. Another option would be to have a separate exit-only lane back to the public road, but this requires additional real estate and potentially increases the size of the traffic channel area. Provision must be made for accommodating National Crime Information Center (NCIC) police background-check equipment. However, do not provide a drive-up window.

Entry Control

A gatehouse facility should be located between inbound and outbound traffic lanes. This facility functions as the central point for control, surveillance and notification for entry control activities. The actual entry control/gate area must be designed to adequately assess authorization of approaching vehicles and occupants to proceed onto the installation, and provide safety for both gate guards and approaching vehicles during periods of peak volume. Pedestrian and bicycle

¹ TM 5-853-2/AFMAN 32-1071, Vol. 2, pg. 3-4

² MTMC TEA Pamphlet 55-17, pg. 2-4

³ AFH 32-1084, *Facility Requirements*, section 15.18.2, Category Code 730-832, Security Police Control and Identification.

access need also be provided. A secondary consideration with particular importance for installations at inclement weather locations is protection for gate guards from the elements. A canopied "toll-booth" type configuration for ID checkpoints (outboard of the main "gate house") can provide protection for guards from oncoming traffic (with crash attenuators and raised platforms) as well as protection from the elements. See Figure 4. If an installation does not have a separate contractor/truck gate, at least one lane would have to be left open to permit the entry of oversize loads.

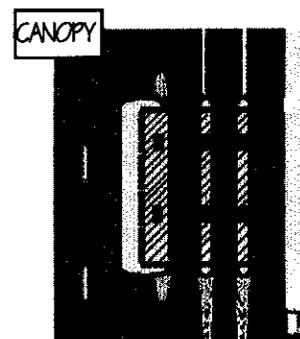


Figure 4

Installation of warming points such as in-ground heating elements, forced air or radiant heat in the ID check areas should also be considered for additional guard comfort. A canopy can also provide shade for SF personnel. A configuration of raised guard platforms adjacent to each inbound lane also provides expansion capability for a potential transition to automatic entry control devices. Card proximity readers (or similar) could be installed on the raised platforms, so provisions in ECF designs need to be incorporated for future technological upgrades, such as enhanced entry control systems. Electrical conduit can be pre-placed in preparation for future installation. Figure 5 is a conceptual layout to consider when planning for this type of system.

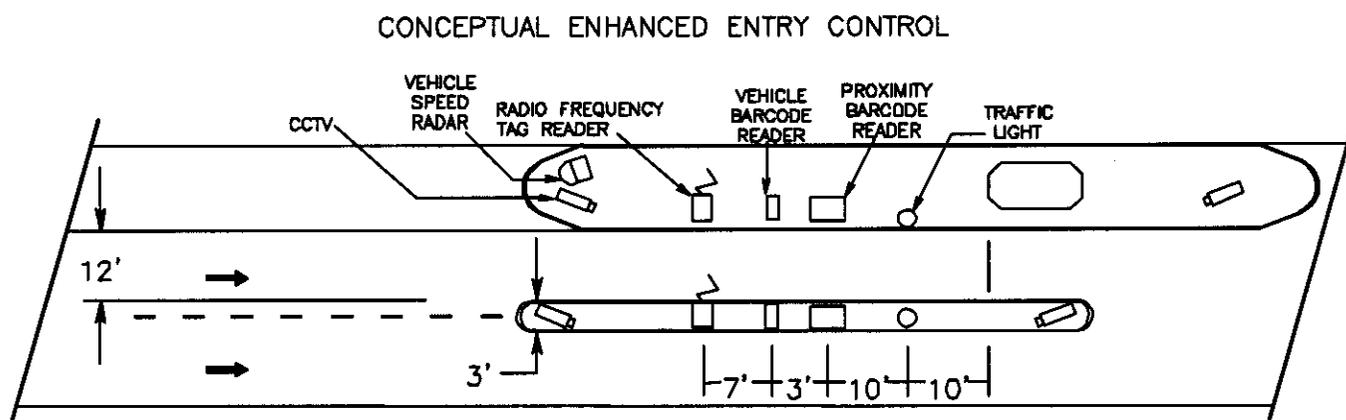


Figure 5

Gates must be located in the vicinity of the gatehouse to stop both inbound and outbound traffic as necessary, effectively sealing the perimeter. Crash-resistant gates and barriers must be installed to protect SF personnel from vehicles. Vehicle barriers, such as retractable bollards, must be installed in both inbound and outbound lanes to ensure protection from hostile gate runners. Pop-up bollards or spike strips are not recommended here. Refer to AFMAN 32-1071, *Security Engineering Project Development* for specifics regarding barrier type versus vehicle threat, but plan on a minimum threat of 2.5 ton vehicle at 60 mph.

A separate rest/recovery facility for gate personnel is not required. Gatehouse design should accommodate space for 3-5 personnel, a standing work surface, weapon storage, communication closet, and a restroom.

Entry control facilities should be hardened against attacks according to the type of threat. In high threat areas, facilities should be protected from small arms fire and fragmentation of explosive devices⁴. The methods of hardening may include:

- Reinforced concrete or masonry
- Steel plating
- Bullet-resistant glass
- Sandbags, two layers in depth
- Commercially fabricated, bullet-resistant building components or assemblies

Lighting

Adequate lighting must be provided for the ECP. This includes area lighting in the vicinity of the facilities (as a group) and inspection lighting in the ID check and vehicle inspection area. One of the key considerations is contrast, to which the human eye responds to more readily than simply brightness.

General area lighting should provide an even distribution of light that transitions vehicles from a dark or street-lit area to the ECP environment. The Illuminating Engineering Society (IES) recommends general area lighting of 0.5-2 foot-candles (fc). If there is street lighting leading up to the ECP, general area lighting levels need to be higher than street lighting to distinguish the ECP.

Additional task lighting must be provided in the ID check and inspection areas so that security forces may adequately identify vehicle occupants and contents, and conduct sufficient vehicle inspections. IES recommends average light levels at 10 fc⁵ (at the vehicle) in the inspection area. Care must be given to neither blind drivers nor inhibit inspections with unnecessary shadows. Lamps with good color rendition such as mercury-vapor, fluorescent, or metal-halide are preferred rather than choosing lamps for brightness. Additionally, lighting needs to be coordinated with CCTV manufacturers if CCTV is present. See Figure 6.

Interior gatehouse lighting should have a dimmer switch provided and luminaries at desk level are preferred. Glass windows should be specular-reflecting, low transmission glass with tilted angles. Task lighting for interior workspaces is recommended at 30 fc.

All lighting controls must be accessible by on-duty SF.

⁴ AFH 32-1084, *Facility Requirements*, section 15.18.7, Category Code 730-839, Traffic House

⁵ Lighting Handbook, 8th ed., Illuminating Engineering Society of North America, c1993; p900-902

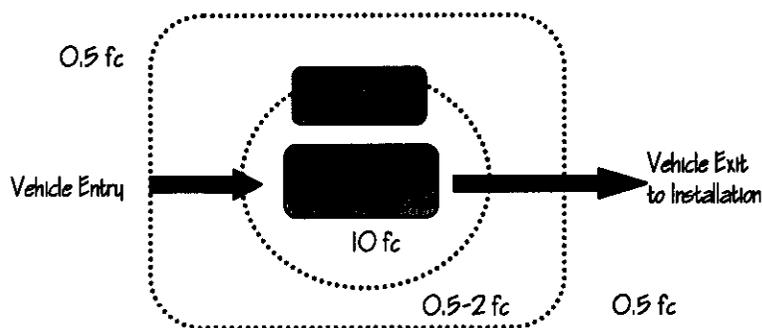


Figure 6: Illumination Lighting Area Diagram

Vehicle Inspection

To comply with the security measures, vehicles may be required to undergo inspection. See Figures 1-2. As vehicles may be selected for inspection at the ECP, an inspection area needs to be constructed beyond the ECP, but still within the traffic containment channel. To the extent possible, the inspection area should be not immediately adjacent to the inbound traffic lanes. Actual layout may be restricted by local real estate availability. Screening of the inspection procedure from public view is also desirable for safety and security reasons. A covered area could be considered as a site to erect a temporary defensive fighting position, but this will be determined by the Installation Security Plan. Additionally, since inspection is usually conducted for suspicious vehicles, refer to Interim Department of Defense Antiterrorism/Force Protection Construction Standards, *December 16, 1999* for stand-off requirements. Consider covering and partially enclosing the inspection area for both inclement weather and blast protection. Although blast protection systems such as berms will not significantly reduce the impact of an explosion, they do provide a barrier to debris. Inspection site layout must accommodate commercial vehicles and turnarounds for unauthorized vehicles need to be provided. Pole- or facility-mounted mirrors or cameras can be used to inspect the tops of vehicles, precluding special construction of a two-story facility or use of ladders.

Final Denial Point/Overwatch Response.

At the ECP, a dangerous scenario involves a “gate runner” vehicle that is denied access by an entry controller yet proceeds on to the base. The ECP site layout must facilitate security response to this situation. The purpose of the overwatch position is to provide security support to the ECP and serve as final denial for incoming traffic. The installation Chief of Security Forces is responsible for advising installation commanders on appropriate placement/mission for final denial point/overwatch positions after considering all pertinent data/requirements. When an installation designs an entry point, they must account for the type of overwatch they intend to employ, i.e., a second SF member/position providing protective cover during high risk operations, or a final denial weapons emplacement meant to stop a hostile vehicle from entering the installation. Provision for a gatehouse at the overwatch during increased FPCONs may be provided, i.e., a concrete pad with utility connections. Physical constraints due to available real estate and surrounding facilities, regard for decreasing the chance of fratricide/collateral damage,

and local operating procedures will factor into the overwatch location. Depending upon the FPCON level, the overwatch position may or may not be manned. If it is not manned, secondary provisions need to be in place to stop unauthorized vehicles at a final denial point. A road barrier, such as pop-up bollards or drum-type, located beyond the ECP inside the base that can be remotely operated from the ECP is one possible option. The road barrier should be located far enough inside the installation to give innocent gate runners sufficient warning to stop and SF sufficient time to activate the barrier, while minimizing penetration into the base. The traffic lanes and landscaping connecting the ECP and the final denial point should be designed to channel and contain unauthorized vehicles that proceed through the ECP, preventing ready access to the installation. During heightened FPCON levels, a manned overwatch position may become necessary. A road barrier can act as a force multiplier by giving the manned overwatch flexibility to adopt a mobile position. Manned overwatch should be conducted at a location deemed to be most advantageous to the threat, whether it be at the vehicle inspection pull-off area or some other location. A good rule of thumb for separation between the ECP and the overwatch position is 50 meters⁶, close enough to provide support without becoming included as a target with the ECP.

Commercial/Industrial Gate Considerations

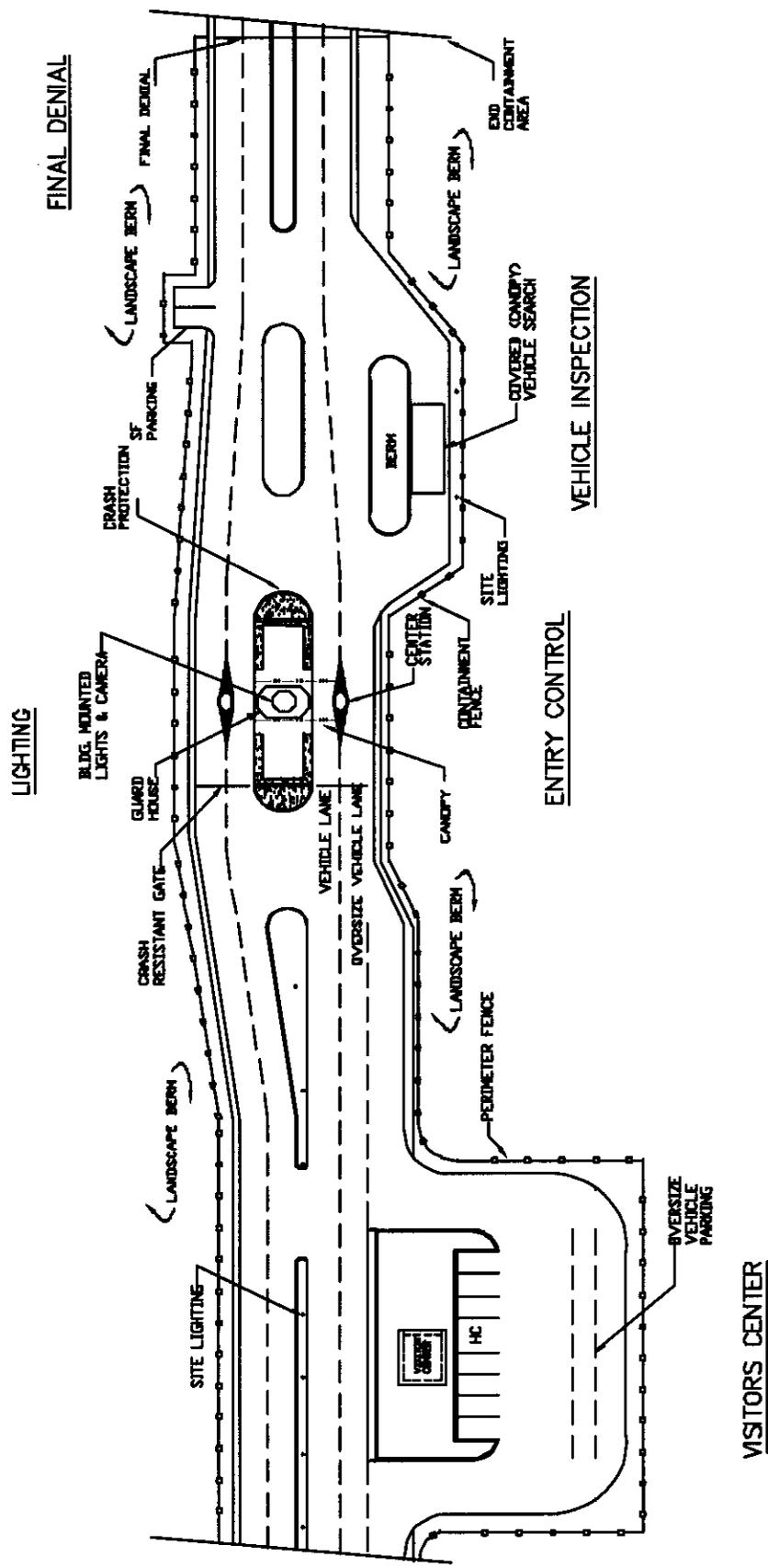
The ideal layout of the installation perimeter would provide a separate ECP for processing commercial/industrial traffic. Meeting this objective funnels vehicles that are typically thoroughly inspected and prevents impeding authorized POV traffic. The entrance at this gate could then be normally closed, i.e., security forces will permit entry only after an inspection is completed and they determine that the vehicle is authorized to proceed. An area of the installation away from resources or personnel is preferred. If a separate, secondary gate is not available or an option, restricted hours procedures can also be used to reduce vehicle-type conflicts and maintain throughput.

The principal site layout consideration surrounds provision for inspecting oversized vehicles. The size of the inspection area (i.e. number of inspection lanes/stalls) should be designed to accommodate peak commercial/industrial traffic at the installation. Screening may not be an issue if the gate is limited to commercial traffic, however, enclosure or covering of the inspection area should be considered. Below-grade under-vehicle search "pits" may be provided as part of the inspection stalls to facilitate inspector access to the bottom of vehicles and/or use of specialized equipment. Specifically address vehicle search procedures and equipment with security forces. Some Improvised Explosive Device detection equipment requires more square footage than others and must be operated in specific environmental/climatic conditions.

Considerations for inbound traffic, vehicle turnaround area, and a gatehouse facility apply to this gate as well. Gatehouse will provide processing for delivery authorizations.

⁶ AFPAM 10-219, V3, *Postattack and Postdisaster Procedures*

CONCEPTUAL ENTRY CONTROL POINT



APPENDIX F

ENVIRONMENTAL FORMS

Houston County MSW Landfill
2018 Kings Chapel Road
Perry, Georgia 31069
Telephone: (912) 987-0089
Fax: (912) 987-0102

Profile No. _____
(Assigned by Houston County)

SPECIAL WASTE ACCEPTANCE APPLICATION (SWAA)

Generator Name: _____ Contact: _____
Address: _____
Telephone: _____ Fax: _____
Description of Waste: _____
Source / Location of Waste: _____
Waste Quantity: _____ Cubic Yards [] Tons []
Frequency of Disposal: Daily [] Weekly [] Monthly [] One Time [] Other []

LABORATORY DATA (Please attach a hard copy of laboratory test data)

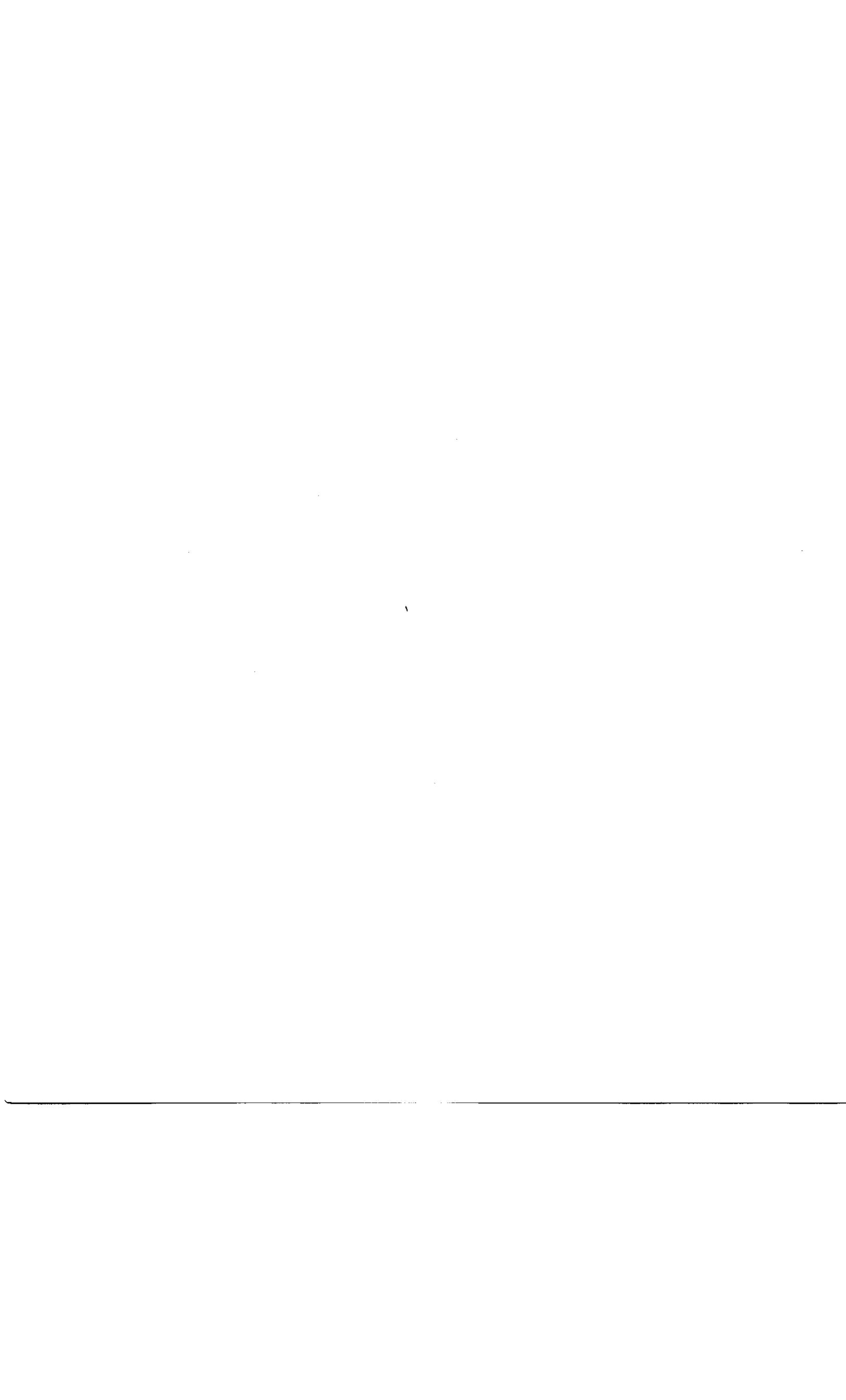
Physical Properties: Physical State: _____ Solid [] Semisolid [] Liquid [] Color: _____
Halogenated Organics: mg/kg Flash Point: _____ []F Odor: Yes [] No []
Water Content: _____ % by Weight Paint Filter Test Passed [] Failed []
Reactive: No [] Yes [] With H2S _____ mg/kg HCN _____ mg/kg Others _____ mg/kg
pH Value: _____ (S.U.) Infectious: Yes [] No: []
Chemical Properties (TCLP): (Concentrations in mg/l)
Arsenic _____ m-Cresol _____ Hexachlorobenzene _____ Pyridine _____
Barium _____ p-Cresol _____ Hexachlorobutadiene _____ Selenium _____
Benzene _____ Total Cresol _____ Hexachloroethane _____ Silver _____
Cadmium _____ 2,4-D _____ Lead _____ Tetrachloroethene _____
Carbon Tetrachloride _____ 1,4 Dichlorobenzene _____ Lindane _____ Toxaphene _____
Chlordane _____ 1,2 Dichloroethane _____ Mercury _____ Trichloroethene _____
Chlorobenzene _____ 1,1 Dichloroethylene _____ Methoxychlor _____ 2,4,5 Trichlorophenol _____
Chloroform _____ 2,4 Dinitrotoluene _____ Methyl Ethyl Ketone _____ 2,4,6 Trichlorophenol _____
Chromium _____ Endrin _____ Nitrobenzene _____ 2,4,5TP (Silvex) _____
o-Cresol _____ Heptachlor (a hydroxide) _____ Pentachlorophenol _____ Vinyl Chloride _____
None of the above constituents exceed TCLP disposal limits _____
Others (List) _____
Other Information: Delivery method: Bulk [] Other _____
Regulatory Agency Approval Received: Yes [] No [] Permit Number _____
Material Safety Data Sheet Provided: Yes [] No []

Generator's Certification Statement

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. To the best of my knowledge, the material described above is not classified as hazardous waste under current regulations, and I agree to notify Houston County MSW Landfill if such classification changes. The attached information provided is true and accurate to the best of my knowledge."

Signature of Authorizing Agent _____ Date _____

Name of Agent (Typed or Printed) _____ Title _____



Houston County MSW Landfill
2018 Kings Chapel Road
Perry, Georgia 31069
Telephone: (912) 987-0089

Profile No. _____
(Assigned to SWAA)

WASTE SHIPMENT TRACKING DOCUMENT

Generator Name: _____ Contact: _____
Address: _____
Telephone: _____ Fax: _____
Description of Waste: _____
Location of Waste: _____
Date Shipped: _____ Quantity Shipped: _____

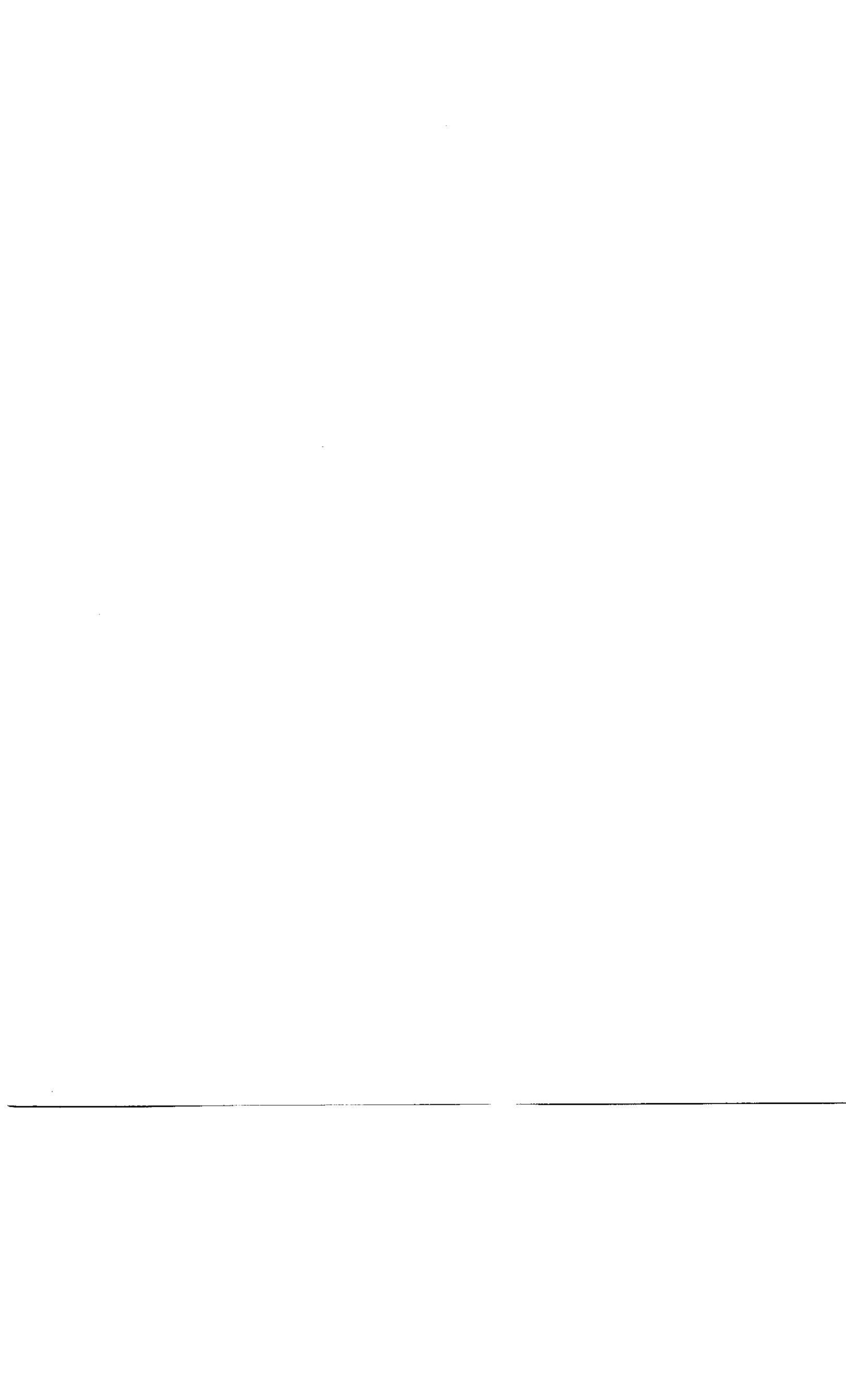
Certification: I certify the waste described above is the waste represented by the Special Waste Acceptance Application (SWAA) of the same Profile Number and no regulated hazardous waste has been introduced into the waste.

Generator's Signature: _____ Date: _____

Transporter: _____ Contact: _____
Address: _____
Telephone: _____

Certification: I certify no regulated hazardous waste was introduced into the waste while in my custody:

Hauler's Signature: _____ Date: _____



Waste Management Report (Monthly)

I. Sanitary Landfill Waste

*Total cost of disposal, including hauling, container rental/tip fees

Contract Number: _____
Contractor: _____
Contractor POC: _____
Phone #: _____
Gov't Inspector: _____
Project # Title: _____

Quantity (tons)	Landfill Site	Tip fee/ton	*Total cost/ton

II. Inert Landfill Disposal

*Total Cost of disposal

*Total cost/ton

Date: _____

Quantity (tons)	Landfill Site	*Total Cost of disposal	*Total cost/ton

III. Next Page



