

UNIFIED FACILITIES CRITERIA (UFC)

ADMINISTRATION FACILITIES



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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing

Activity) AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

Record of Changes (changes are indicated by \1\ ... /1/)

Change No.	Date	Location
1	1 May 2013	Added Appendix C Austere Administration Facilities; and updated references.

FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with [USD \(AT&L\) Memorandum](#) dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate. All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA.) Therefore, the acquisition team must ensure compliance with the most stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Center (AFCEC) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: [Criteria Change Request](#). The form is also accessible from the Internet sites listed below.

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- Whole Building Design Guide web site <http://dod.wbdg.org/>.

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UNIFIED FACILITIES CRITERIA (UFC)
REVISION SUMMARY SHEET

Document: UFC 4-610-01, *Administration Facilities* dated May 6, 2008, with subsequent Change 1, dated May 1, 2013.

Superseding: UFC 4-610-01, *Administration Facilities* dated May 6, 2008.

Description of Changes: This UFC unifies the criteria for the design and construction of Administration Facilities. This UFC provides:

- A formalized process for planning administrative spaces that all four services will use;
- A new emphasis on coordinating furniture selection and interior design with the building design.

Reasons for Changes: The existing guidance was inadequate for the following reasons:

- It did not address current technology with respect to communications, furniture design, and security;
- It contained interior design information which overlapped and conflicted with the criteria contained in UFC 3-120-10, *Interior Design*;
- It was limited to Navy criteria; and
- This change contains requirements for Administration Facilities that are specifically designated as austere by CNIC. The requirements are located in an appendix to this document.

Impact: Potential cost savings:

- The space planning process and the new emphasis on coordinating the workstation/office design and building systems distribution with the overall building design, will lead to more efficient facilities with less wasted space.
- The incorporation of new lighting criteria should result in operational savings from reduced energy costs.
- Austere criteria is deductive and should provide some savings.

Potential Adverse Impacts:

- None apparent.

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CHAPTER 1 INTRODUCTION

1-1 SCOPE.

This UFC provides guidelines for evaluating, planning, and designing basic Administrative Facilities. This manual does not give detailed design guidance on interior design or provide theory and principles of interior design. The information in this UFC applies to the design of all new construction projects including additions, alterations, and renovation projects. Alteration and renovation projects should update existing facilities to meet the guidance and criteria in this UFC. However, this UFC is not intended as a substitution during design for thorough review by individual Program Managers and Operations Staff in the appropriate Service.

1-1.1 References.

See Appendix A for all references.

1-2 USERS OF THIS DOCUMENT.

This UFC is a source of basic architectural and engineering information for all individuals involved in the planning, design, or evaluation of Administrative Facilities.

1-2.1 General Users.

General users of this UFC comprise the following:

1-2.1.1 Architects, Engineers, and Interior Designers.

Professional architects, engineers, and interior designers will provide design services under the direction of the individual design agencies and this UFC.

1-2.1.2 Planning/Programming Personnel.

Planning personnel will use the UFC for pre-design planning or to assess the extent of improvements required in an existing facility in order to achieve the standard established herein.

1-2.2 Service-specific Users and Distribution of Responsibilities.

Where one Service's criteria vary from the other Services' criteria, it is noted in the text as a "Service Exception."

Since numerous different program offices and functions may be housed in Administrative Facilities, refer to the appropriate overseeing program office for the specific users and distribution of responsibilities to be housed in the facility.

For more general planning questions, refer to the following **Service-specific** governing documents:

- Army. AR 405-70, Utilization of Real Property;
- Navy and Marine Corps. UFC 2-000-05N / P-80, Facility Planning Criteria for Navy and Marine Corps Shore Installations; and
- Air Force. AFH 32-1084, Facility Requirements.

1-3 SCOPE OF FACILITY.

An Administrative Facility is primarily represented by category code 610 and is a building or portion of a building in which the administrative affairs of a military establishment are conducted. It accommodates the executive and staff functions of an Installation or particular organization. The functions performed in an Administrative Facility may include logistics, personnel management, and in some cases, operational functions classified in other category codes. Refer to the documents referenced in the paragraph entitled, "Service-Specific Users and Distribution of Responsibilities" for more information on the scope of facility.

When the administrative space represents a portion of a larger building, this UFC applies only if administrative functions are performed in that space and no other specific criteria address the function. Administrative office space provided within an operational facility, such as a warehouse or a recreational facility, is planned under the category code of the primary facility. For example, space in a general warehouse that is partitioned off and assigned to a clerk for administrative duties associated with that particular warehouse, is planned as warehouse space and is not governed by this UFC.

CHAPTER 2 PLANNING AND LAYOUT

2-1 SIZE DETERMINANTS.

Three primary factors determine the size of the facility:

- The number of occupants. The number of occupants drives both the office space and the administrative support space.
- The special purpose spaces required, including both organization and shared special purpose spaces.
- The multipliers, including both the circulation and net-to-gross multipliers.

2-2 SPACE PROGRAM PROCESS.

The determinants identified in the paragraph entitled, "Size Determinants" drive the facility space program, but these determinants must be calculated using a specific process in order to correctly develop the program. Since an Administrative Facility may contain more than one organization with different functional and space needs, the space for each of the size factors must be calculated first for each organization, and then for any spaces shared across multiple organizations within the facility.

The process is illustrated in Figure 2-1 and breaks down into two major steps:

- Organization. This calculation yields the usable area, or net organization space, required for each organization.
- Building Space. The sum of all the net organization spaces plus any shared special purpose space plus the application of a net-to-gross multiplier yields the total space program for the building.

FIGURE 2-1. SPACE PROGRAM PROCESS

<u>Process Steps</u>	<u>Explanation and Data Source</u>			
Organization				
		Army	Navy & MC	AF
1. Net Open Office space	Per no. of occupants. Refer to existing criteria:	AR 405-70	P-80	AFH 32-1084
+ 2. Net Private Office space	Per no. of occupants. Refer to existing criteria:	AR 405-70	P-80	AFH 32-1084
+ 3. Net Admin Support space	Per no. of occupants. Refer to existing criteria:	AR 405-70	P-80	AFH 32-1084
+ 4. Circulation Multiplier (x1-3)	Circulation space between offices, workstations, and support spaces within an organization.			
+ 5. Organization Special Purpose Space	Determined on a case-by-case basis.			
+ 6. SP Circulation Multiplier (x5)	Circulation space/access to organization special purpose space.			
<hr/>				
= Net Organization Space	The sum of Steps 1 through 6 equals the usable area for each Organization.			
Building				
7. Sum of all Net Organization Spaces	Add up the Net Organization Space for multiple Organizations.			
+ 8. Shared Special Purpose Space	Determined on a case-by-case basis.			
<hr/>				
= Net Building Area +	Sum of Steps 6 and 7.			
+ 9. Net-to-Gross Multiplier	Net-to-Gross multiplier varies for new construction vs. retrofit projects, programs housed, building height, and applicable codes.			
<hr/>				
= Gross Building Area				

2-3 OFFICE SPACE.

Office space (steps 1 and 2) is driven by the number of occupants in the organization, excluding personnel working in special purpose space. It is broken down into private office space and open office space. Refer to the Service-specific documents identified in Figure 2-1 for the planning criteria for office space. Calculate the number and sizes of private offices and the number and sizes of the open offices based on the organization's staffing needs.

2-4 ADMINISTRATIVE SUPPORT SPACE.

Administrative support space (step 3) includes all support office functions not included in personal office space. Refer to the Service-specific documents identified in Figure 2-1 for the planning criteria for administrative support space. Administrative support space generally includes the following:

- Photocopy machine space and work area,

- Printers,
- Files,
- Facsimile machine space and work area,
- Scanners,
- Non-secured office supply storage,
- Shredders, and
- Safes.

2-5 SPECIAL PURPOSE SPACE.

Special purpose space (steps 5 and 8) is defined as space which may be required to meet specific or special functional needs. Special purpose space typically has architectural characteristics and building support systems that make it different than open or private office space. The type, size, and quantity of special purpose spaces are project-specific.

Due to the broad number of potential functions that can be housed in Administrative Facilities, there is no way to provide a complete list of potential special purpose spaces. Below is a non-comprehensive list of potential special purpose spaces:

Assembly spaces, including auditoriums, conference rooms, team rooms, and training rooms;

Secure conference rooms/Sensitive Compartmentalized Information Facility (SCIF) (see the paragraph entitled, "Sensitive Compartmented Information Facility" for more information on SCIFs);

- Libraries;
- Cafeteria/snack bar;
- Break room/coffee bar;
- Shipping/receiving (including mail rooms);
- Trash/recycling;
- Telecom/server room;
- Contract maintenance;
- Fitness room/showers & lockers;

- Vestibule/lobby/waiting/display space;
- Special program file space (centralized and/or high density);
- Dedicated storage;
- Special work space;
- Warehouse;
- Retail/support space (ATM/bank, barber, travel agency, etc.); and
- Business center.

2-5.1 Organization Special Purpose Space.

Organization special purpose space (step 5) is specific to an organization and is not shared with other facility occupants.

2-5.2 Shared Special Purpose Space.

Shared special purpose space (step 8) may be used by multiple organizations within the facility. The main entrance lobby is an example of a typical shared special purpose space.

2-6 NET ORGANIZATION SPACE.

After the office area and administrative support space have been calculated and summed, multiply that sum by a circulation multiplier (step 4). The circulation multiplier addresses circulation space within an organization such as between and among open and private offices and the administrative support spaces. Then multiply the total of organization special purpose space by a smaller SP circulation multiplier that accounts for access to that special purpose space (step 6). Add the resulting circulation products to the sum of steps 1 through 3 and 5 to generate the total net organization space. The net organization space is the entire usable space for that organization. Circulation multipliers are not identified as separate items in the Service-specific documents noted in Figure 2-1. However, internal organization circulation should be factored into the Net Organization Space.

2-7 BUILDING SPACE.

After the net organization space has been calculated for each organization, sum all the organizations (step 7) and add all the shared special purpose spaces for the facility (step 8). This generates the net building area. Multiply the net building area by a net-to-gross multiplier (step 9) and add the product to the net building area to determine the gross building area. Net-to-gross multipliers are identified in the Service-specific documents identified in Figure 2-1 and

accommodate everything needed to bring the net functional area up to the gross building area. They include the following:

- Wall and column thicknesses;
- Fire and life safety defined circulation;
- Vertical circulation;
- Toilets;
- Mechanical space;
- Elevator lobbies (if applicable);
- Janitor closets; and
- Shafts and other penetrations.

2-8 LOCATION DETERMINANTS.

Determine facility location in accordance with the Installation land use plan and/or master plan and the following Service-specific planning documents:

- **Army.** UFC 2-100-01, Installation Master Planning;
- **Navy.** NAVFACINST 11010.45, Regional Planning Instruction;
- **Air Force.** AFI 32-7062, Air Force Comprehensive Planning; and
- **Marine Corps.** MCO P11000.12C Real Property Facilities Manual, Volume II – Facilities Planning and Programming.

If the Installation land use plan and master plan are not available, balance the following general factors with the criteria documents above to determine the best site for the facility based on the specific programs housed.

2-8.1 Site Access.

Consider ease of access to the facility for the primary users. Note if the primary users include visitors or non-Installation personnel, as that may affect the location of the facility on (or off) the Installation. This criterion must be carefully weighed against security requirements. Also consider the proximity to public transportation and its effect on sustainability.

2-8.2 Security Requirements.

Antiterrorism (AT) criteria must be met. See the paragraph entitled, “Antiterrorism” for more information on AT criteria.

2-8.3 Other Considerations and Regulations.

Comply with other criteria as necessary, including environmental, airfield planning, explosive safety, etc.

2-9 COST.

Design these facilities with the objective of achieving a low life-cycle cost over the economic analysis planning period. To do so, the project's design program must adequately define the scope and performance requirements and match those needs against a budget. Conversely, the budget must adequately support an appropriate and high-quality program and the performance and technical requirements (such as sustainable design and AT criteria) identified in this UFC.

Additional information on the cost impacts resulting from various design decisions may be found in the paragraph entitled, "Alternations to Existing Facilities" and in Chapter 3.

2-10 BUILDING CONFIGURATION AND LAYOUT.

Building size, shape, and area-to-perimeter ratio have a direct impact on the cost and efficiency of the facility, and all of these aspects should be considered during planning. A simple shape with efficient structural layout and a high area-to-circumference ratio yields the most economical facility.

Limit permanent interior partitions to those required for private offices and special purpose spaces to allow flexibility in reconfiguration.

Critical elements of an efficient layout include the design of the building core, the dimensions of floor depth and bay spacing, and the workstation design and layout. These elements are described below and illustrated in Figure 2-2, "Sample Layout."

2-10.1 Building Core.

The building core includes the following elements: passenger and freight elevators, stairs, toilets, telephone and electrical closets, and mechanical rooms. Typically, these spaces are clustered in a central, common area to permit greater efficiency in floor plan layout and design. To permit efficiency in floor plan design, the width of the building core is typically 20 to 40 ft. (6.1 to 12.2 m.). The length of the building core will vary depending upon building requirements; 40 ft. (12.2 m) is a suggested minimum.

2-10.2 Floor Depth.

The floor depth is defined as the distance from inside face of the exterior wall to outside face of the building core. Floor depth affects the office and workstation sizing and needs to be carefully coordinated with office space planning and the furniture systems selection. In addition to its effect on workstation and office sizing, floor depth affects the admission of natural light. Too great a floor depth will preclude access to daylight by building occupants near the building core.

The suggested floor depth for initial planning purposes is between 35 ft. (10.7 m) and 40 ft. (12.2 m). Depths of approximately 50 to 65 ft. (15.2 m to 19.8 m) can be considered at the ends of the building core to accommodate programmed space that is not dependent on natural light, such as computer or filing rooms.

2-10.3 Bay Spacing.

The open area between structural columns is commonly referred to as a floor bay. The structural bay spacing plays a critical role in workspace layout efficiency. The size and shape of the structural bays will directly impact the number of workstations of a particular size that may be accommodated. For example, there may be the overall space to accommodate a certain number of workstations, but if the location of a structural column interferes with the location of a workstation, the actual number of workstations will be lower than the planning number. And since the bay dimension is repeated on each building floor, the results of poorly coordinated bay design will be multiplied by the number of building floors with office layouts.

Typical bay spacing ranges from 20 to 30 ft. (6.1 to 9.1 m). However, this can vary depending upon structural system employed, i.e., structural steel, reinforced concrete, precast concrete. A rectangular floor plan is generally preferred because it facilitates more efficient space planning.

See the paragraph entitled, "Building Systems" for more information on structural systems and the paragraph entitled, "Interior Design" for more information on interior design considerations.

2-10.4 Workstation/Office Design.

The basic building blocks of an administrative facility are the workstations and private offices. The sizes and features of these elements are critical to the efficiency of each worker, and the grouping or layout is critical to the efficiency of the organization. It is essential to understand the relationships between workstation/office design and the building design and systems. Refer to *Air Force Interior Design Guide*, Chapter 5, "Ergonomics in the Work Environment."

2-10.4.1 Minimize the number of different workstation and offices sizes. This will ease the planning process and provide greater flexibility in the final design. Also use workstation sizes with a common dimension to facilitate grouping stations of different sizes. Two appropriate workstation sizes that can accommodate just about any office function are 8 x 8 ft. (2.4 x 2.4 m) and 8 x 10 ft (2.4 x 3.0 m). Individual workstations should not be less than 6 x 8 ft. (1.8 x 2.4 m) and workstations in team work areas should not be less than 6 x 6 ft. (1.8 x 1.8 m).

2-10.4.2 Design the workstations and offices to maximize the admission of natural daylight and views. Place the private offices against the building core or ensure that the entire exterior wall is not blocked by private offices to maximize

natural daylight admission and views into the building. This practice will also assist with Leadership in Energy and Environmental Design (LEED™) certification. See the paragraph entitled, “Windows/Natural Light” for more information on natural light admission and the paragraph entitled, “Sustainable Design” for more on LEED™ and sustainable design.

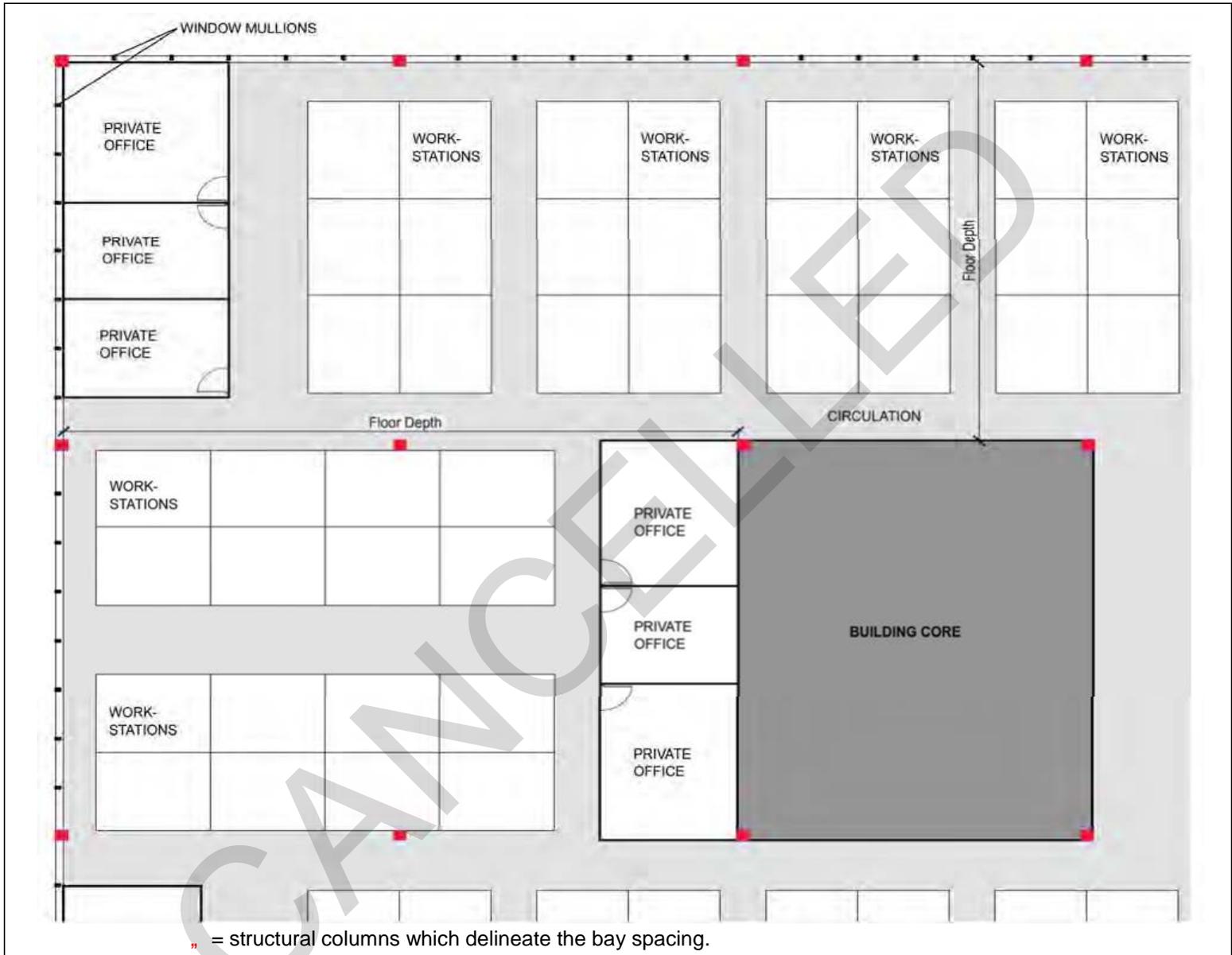
2-10.4.3 Design the workstation specifically for the types of tasks that the staff needs to accomplish. With furniture systems, it is possible to construct stations of any size or configuration—when necessary, consider larger workstations that accommodate meeting space. However, the open office environment can quickly become noisy and distracting if too many conversations are allowed to occur; meetings are best conducted in specifically-designed meeting space (special purpose space).

2-10.4.4 Design the workstations for flexibility and fit. The office configuration and furniture systems should be designed for the task being performed and the size of the user, to the best extent possible. Make sure the furniture fits the user, supports them properly and adjusts to their activities; use furniture systems that can be reconfigured easily for different users.

2-10.4.5 Integrate the workstation design with power, communications and other building systems. These systems affect staff productivity and design aesthetics.

2-10.4.6 These same rules apply to private offices. Three appropriate office sizes are 10 x 12 ft. (3.0 x 3.7 m), 15 x 12 ft. (4.6 x 3.7 m), and sometimes 20 x 12 ft (6.1 x 3.7 m.). If private offices are located against exterior window walls, coordinate the office sizes with the window mullion spacing so that office partitions occur at a mullion or solid wall component. Common mullion spacing is 5 ft. (1.5 m), which accounts for the common denominator of one dimension of the office sizes noted above.

FIGURE 2-2. SAMPLE LAYOUT



2-10.5 Special Program Spaces Key Adjacencies.

Give careful attention to the placement of special purpose spaces relative to the building entrance and other building spaces. Points to consider on key adjacencies can be found under the specific space descriptions in Chapter 4.

2-10.6 AT and Ballistic Protection Concerns.

When planning the building layout and adjacencies, consider if any of the special purpose spaces have specific requirements related to AT and ballistic protection

concerns. See the paragraph entitled, “Antiterrorism” for more information on AT requirements.

2-11 ALTERATIONS TO EXISTING FACILITIES.

2-11.1 General Considerations.

Administrative facilities will frequently be placed in existing facilities, and therefore, special attention should be given to selecting the right existing facility for adaptation to functions.

2-11.1.1 As discussed in this chapter, the building blocks of an administrative office building are the workstations and private offices. In new construction, the workstation arrangements should guide critical building dimensions such as bay spacing, exterior window mullions, floor depth, and building length. Floor plans should justify their configuration with the efficient layout of the workspace.

2-11.1.2 In retrofit projects, the column spacing, floor depth, and building configuration will already be established. If the selected building has inefficient key elements such as floor depth and bay spacing, fewer workstations and office layouts can be accommodated than were planned for based on the raw area. In other words, this inefficiency in building configuration and layout has the effect of “driving up” the circulation and net-to-gross multipliers so that fewer personnel are able to occupy the same gross building area when compared to new facilities. The layout and capacity of existing electrical, communications, and other building system distribution systems may also limit the flexibility of the layout.

Therefore, use the following process to determine if an existing facility can provide the required space and is appropriate for the administrative facility program:

- Examine the existing facility and calculate its usable area. Usable area is defined as the net areas available to accommodate the *net building area* (steps 1 through 8 in Figure 2-1). This calculation should not include areas that are part of the net-to-gross multiplier (step 9 in Figure 2-1; see the paragraph entitled, “Building Space” for a complete list of what is included in the net-to-gross multiplier).
- Compare this calculated usable area against the net building area of the space program to determine if the existing facility is large enough to accommodate the new program.
- The usable area provided by the existing facility must be larger than the net building area required by the space program.
- Carefully consider daylight availability, existing building systems distribution, ceiling clearances, egress stairs, toilet counts, and other similar building elements to ensure that a code-compliant, efficient, safe, and comfortable work environment can be provided.

2-11.1.4 Only permanent facilities should be considered for conversion to an Administrative Facility. Exceptions may be made for other buildings that are in excellent condition (determination of building condition will vary by Service and location), subject to the location determinants in the paragraph entitled, "Cost".

2-11.1.5 Whether planning a conversion, alteration, addition, or new construction, barrier-free design requirements and AT requirements must be taken into account (see the paragraphs entitled, "Barrier-Free Design Requirements" and "Antiterrorism").

2-11.2 Regulatory Authorities.

Refer to the following for the appropriate **Service-specific** authorities:

- **Army.** TI 800-01, *Design Criteria*, 20 July 1998.
- **Navy and Marine Corps.** Authorities are contained in OPNAVINST 11010.20F *Facilities Projects Manuals* and NAVFACINST 11010.45 *Comprehensive Regional Planning Instruction*.
- **Air Force.** HQ AFCEC for architectural and publication coordination as well as for technical issues relating to fire, life safety, and certification; and HQ USAF/A7C for functional policies.

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CHAPTER 3 GENERAL DESIGN CRITERIA

3-1 GENERAL.

Use UFC 1-200-01, *General Building Requirements* for guidance on the use of model building codes for design and construction of DoD facilities. See the paragraph entitled “Building Systems” for the appropriate governing codes for building systems.

3-2 COORDINATION.

Coordination between the design architect, the interior designer, and the distribution of services (power; data; and heating, ventilation, and air conditioning (HVAC)) early in the design process is critical for Administrative Facilities.

Coordinate the selection of workstation furniture systems with the floor depth, the structural bay size and system, and the window system. Also coordinate the distribution of services with the workstation and private office layouts. With the advent of open work spaces, alternative means of delivering HVAC, power, and data to individual workstations are available. These systems present many advantages and should be considered in an administrative office environment.

3-3 FLEXIBILITY.

Design the interior of Administrative Facilities for flexibility of use.

3-3.1 Open Floor Plan.

Maximize the use of an open floor plan and provide well-designed furniture systems. Minimize the use of private offices to the degree possible.

3-3.2 Utility Distribution.

Develop a flexible design for the distribution of heating, ventilation, air conditioning, electrical, communications, and data system—particularly in large, open office areas. A raised floor system is recommended as it allows for easy access to utilities and allows flexibility in reconfiguration of the entire space. If such a system is used, alternate ceiling plenum design should be incorporated and mechanical duct work should be incorporated into the floor cavity. Avoid surface-mounted wiring and power poles.

3-3.3 Demountable Partitions/Movable Walls.

Consider using demountable partitions and/or movable walls when the office layout includes repetitive office modules which allow for the maximum re-use of panels. Systems which are independent of the floor finish and ceiling grid will reduce configuration cost. If office modules are repetitive, these partitions and walls give

facility managers flexibility to rearrange offices without the disruption or expense of construction. They have a higher initial cost than typical gypsum

wallboard and steel stud partitions, but may be life-cycle-cost effective where reconfigurations are expected

3-4 EXTERIOR DESIGN

Exterior design must comply with Installation architectural/design standards.

3-4.1 Entrance.

Provide a main entrance with a clearly identifiable point of reference or landmark that serves as a welcome and a transition. Provide a canopy (or a recess) at required egress doors to ensure that doors can open completely without obstruction.

Provide a vestibule at the main entrance. Provide flooring features for cleaning of footwear. In climate appropriate areas, the vestibule must incorporate an airlock to act as a buffer from the exterior weather.

3-4.2 Exterior Finishes.

Coordinate the exterior finishes with the Installation design guides and the design standards noted in the paragraph entitled, "Finishes".

3-4.3 Windows/Natural Light.

Provide for the admission of natural light in the design of the facility window systems and in the design of the overall footprint and floor depth. Select furniture systems that maximize the admission of natural light into the facility. The goal should be to achieve the LEED™ "Daylight & Views" points (see the paragraph entitled, "Sustainable Design" for more information on LEED™ and sustainable design).

In designing for natural light admission, comply with UFC 3-530-01, *Lighting Design and Controls*. Consider issues such as the even distribution of light, glare control, and heat gain and loss when designing space with good natural light qualities. Also refer to the paragraph entitled, "Antiterrorism" for AT criteria when designing window systems.

3-4.4 Exterior Signage.

Signage must comply with UFC 3-120-01, *Air Force Sign Standard* and Installation requirements. Sign placement and type are site-specific, but signs must be strategically located, adequately lit, and of sufficient size to permit proper viewing. Coordinate signage with barrier-free design requirements (see the paragraph entitled, "Barrier-Free Design Requirements").

3-5 INTERIOR DESIGN.

Construction features (columns, casework, etc.) and finishes (walls, floors, and ceilings) should support the image and theme of the facility and be consistent with any programs offered.

Recommend providing professional interior design services in the same manner as architectural and engineering services. Coordination and planning among the architects and interior designers are critical.

3-5.1 Finishes.

Finishes should be durable and of an appropriate level of quality for the application. They must meet the requirements listed in NFPA 101, *Life Safety Code*. Coordinate the interior (and exterior) design with UFC 3-100-10 *General Architectural Requirements* and UFC 3-120-10 *Interior Design*.

3-5.1.1 Finish Schedule.

Table 3.1 provides a finish schedule for typical administrative interior spaces, including some common special purpose spaces such as conference rooms and mail rooms.

TABLE 3-1. FINISH SCHEDULE

General Space	Recommended Finishes			
	Floor	Base	Walls	Ceiling
Vestibule	WF	CT/TER	GL/P/VWC	P/ACT
Lobby	CT/TER	CT/TER	P/VWC	P/ACT
Lobby Waiting Area	CT/TER/CPT	CT/TER	P/VWC	P/ACT
Mail Room	RF	RB	P/VWC	ACT
Command Suite	CPT	RB/WB	P/VWC	ACT
Private Office	CPT	RB	P/VWC	ACT
Open Space Office	CPT	RB	P/VWC	ACT
Conference Room	CPT	RB	P/VWC/AWT	P/ACT
Break Room	RF	RB	P/VWC	ACT
File Storage Room	RF/CONCS	RB	P/VWC	ACT
General Office Storage	RF	RB	P/VWC	ACT
Copy Graphics Room	RF	RB	P/VWC	ACT
Stairwells	RF/CONCS	RB	P/VWC	P
Toilets	CT	CT	P/VWC	P

Key:

ACT – Acoustical Ceiling Tile
 AWT – Acoustical Wall Tile
 CONCS – Sealed Concrete
 CPT – Carpet (broadloom/tile)
 CT – Ceramic Tile
 GL – Glass
 P - Paint

RB – Resilient Base (vinyl/ rubber)
 RF – Resilient Floor (includes vinyl composition tile, sheet vinyl, rubber, and cork)
 TER – Terrazzo
 VWC – Vinyl Wall Covering
 WB – Wood Base
 WF – Walk-off Flooring

3-5.1.2 Carpet.

Comply with the latest edition of the ETL 07-4, *Air Force Carpet Standard*.

3-5.2 Acoustics.

All facilities should be designed or treated to provide a comfortable acoustical environment. Acoustical control within the office environment can be divided into two broad categories: sound isolation (or transmission) and sound absorption. These two broad categories are emphasized differently depending on if the space is a private setting, such as a private office or conference room, or a large open setting, such as an open office environment.

3-5.2.1 Open Offices.

Use materials on the ceilings, partitions, and floors which absorb sound and reduce noise reflection. These materials have a high Noise Reduction Coefficient (NRC) and are manufactured specifically for open office environments. Consider the acoustics when selecting a location for and designing the finishes adjacent to office equipment such as copiers, printers, scanners, shredders, and facsimile machines.

Also consider the use of a sound masking system that generates background noise to disguise speech. This may be applied through the use of a noise generator or the building mechanical systems. Consult with an acoustical engineer before designing an open office environment where a sound masking system will be used.

If a sound masking system is not used, use ceiling materials that have a high Articulation Class (AC) rating. AC measures a ceiling material's ability to attenuate sound in an open office environment that utilizes partial height partitions but does not incorporate a sound masking system.

3-5.2.2 Private Spaces.

Hard walls dividing private offices from other spaces should meet the minimum rating of 40 STC. Hard walls dividing conference rooms, command suites, and private offices requiring additional privacy from other spaces should meet the minimum rating of 45 STC. The door and window assemblies within these hard walls should have factory STC rating of 35. Higher STC ratings for door and window assemblies may be specified for specific projects or spaces. Field testing and verification of the final STC ratings is not typically warranted for these applications unless specified for the specific project or space.

3-5.3 Interior Signage.

Interior signage identifies spaces, organizations, and persons as well as providing way-finding and directories. Signage must comply with UFC 3-120-01 and Installation requirements. Sign placement and type are site-specific, but signs must be strategically located, adequately lit, and of sufficient size to permit proper viewing. Coordinate signage with barrier-free design requirements (see the paragraph entitled, "Barrier-Free Design Requirements").

3-6 BUILDING SYSTEMS.

Also see the paragraph entitled, "Sustainable Design" for information on sustainable design and energy consumption.

3-6.1 Structure.

3-6.1.1 Structural Bay Size.

Coordinate the structural design with the floor plan and workstation layout. For new facilities, the workstation design should drive the structural design.

3-6.1.2 Structural Loads.

Refer to UFC 3-301-01, *Structural Engineering*. When higher-load areas are required, such as for high density storage, locate them strategically within the building, i.e. closer to the building core, to provide a flexible, cost-effective, and convenient location.

3-6.2 Plumbing.

Design domestic hot and cold water, sanitary and storm drainage, propane, fuel oil, or natural gas systems to meet the requirements of the most current edition of UFC 3-420-01, *Plumbing Systems*, and local Installation standards.

3-6.3 Heating, Ventilating, and Air Conditioning (HVAC).

Design the HVAC system to meet the requirements of the most current edition of the International Mechanical Code (IMC). Comply with AT requirements in the design of the HVAC system (See the paragraph entitled, "Antiterrorism").

- For **Army** and **Air Force** projects, also refer to UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning and UFC 3-410-02 Lonworks (R) Direct Digital Control for HVAC and Other Local Building Systems
- For **Navy** projects, refer to UFC 3-400-10N, *Mechanical Engineering*, to identify exceptions to the IMC.

Design energy efficient, environmentally friendly, and well balanced mechanical systems. Perform a life-cycle cost calculation to compare potential systems in order to provide the most economical balance between operation costs and initial cost. Maximum size and capacity of the mechanical system should be taken into consideration in conjunction with the footprint to ensure the system is as cost-effective as possible.

3-6.4 Fire Protection.

Design fire protection and life safety to comply with UFC 3-600-01, *Fire Protection Engineering for Facilities*.

3-6.5 Electrical.

Provide electric service and distribution equipment, wiring receptacles and grounding, interior and exterior lighting and control, emergency lighting, telephone, communication systems, fire alarm, and intrusion detection systems in accordance with NFPA 70, *National Electric Code*; UFC 3-520-01, *Interior Electrical Systems*; and the latest Installation design requirements. See the latest edition of *Electric Current Abroad*, U.S. Department of Commerce, to determine voltages and cycles in overseas locations. The service grounding system and all wiring methods must meet the current NFPA 70 requirements. All service equipment must be Underwriters Laboratories (UL) listed. Alternately, published proof from an approved independent testing laboratory may be provided.

3-6.5.1 Lighting.

Provide lighting and control systems throughout the facility in accordance with UFC 3-530-01, *Interior and Exterior Lighting Design and Controls*. Minimize overhead lighting, glare, and hot spots. Provide task lighting at individual workstations to augment general illumination. Maximize the admission of natural light.

3-6.5.2 Telecommunications.

As noted in the paragraph entitled, "Coordination", coordinate the distribution of voice and data lines with the workstation and office layout, Installation communications personnel, UFC 3-580-01, and the following Service- specific standards.

- **Navy and Marine Corps.** UFC 3-580-10, Navy and Marine Corps Intranet (NMCI) Standard Construction Practices and the NMCI local manager.
- **Air Force.** The Installation information technology manager and ETL 02-12 Communications and Information System Criteria for Air Force Facilities.

Consider accommodating a wireless network for data transfer. All networks must meet the applicable Department of Defense and Service component information assurance certification and accreditation processes.

3-6.5.3 Electronic Security System (ESS).

Consider providing an ESS for access control, intrusion detection, and closed circuit television (CCTV) to protect equipment and assets. Provisions for an alarm system must be justified during the planning/programming process. Design in accordance with:

- **Air Force, Navy, and Marine Corps.** UFC 4-021-02NF, *Security Engineering: Electronic Security Systems*.

- **Army.** UFC 4-020-04A, *Electronic Security Systems: Security Engineering*.

3-7 SITE WORK.

3-7.1 Landscape.

Comply with UFC 3-201-02, *Landscape Architecture* and local Installation landscape standards. The landscape design must comply with AT criteria (see the paragraph entitled, "Antiterrorism"). **Service Exception:** For **Air Force**, also refer to the USAF *Landscape Guide* and any Major Command standards.

3-7.2 Parking, Access Drives, and other Site Features.

Provide adequate parking for both staff and patrons with the appropriate access drives. Comply with UFC 3-210-02, *POV Site Circulation and Parking*.

Provide bicycle racks in a secure location near the facility entrance.

Parking, access drives, and all site features must comply with AT criteria (see the paragraph entitled, "Antiterrorism").

3-7.3 General Site Lighting.

Ensure that parking areas and the facility have adequate lighting for safety, evacuation, and security measures. Comply with UFC 3-530-01.

3-8 ERGONOMICS.

Provide an ergonomic work environment.

- For **Army** and **Air Force**, refer to *Air Force Interior Design Guide*, Chapter 5 "Ergonomics in the Work Environment."
- For **Navy** and **Marine Corps**, refer to OPNAVINST 5100.23G, Chapter 23, "Ergonomics Program."

3-8.1 ERGONOMIC DESIGN

Facilities, processes, job tasks and materials shall be designed to reduce or eliminate work-related musculoskeletal (WMSD) injuries and risk factors or stressors in the workplace. Refer to *Air Force Interior Design Guide*, Chapter 5.

3-8.2 ERGONOMIC ACCESS

Designs must ensure facility maintenance access is designed to reduce WMSD risk factors/stressors to the lowest level possible.

3-8.3 SPECIAL SPACES

Special purpose spaces such as Mail Rooms and Shipping/Receiving where heavy lifting may be encountered must include manual materials handling equipment when feasible. For example, a roll top surface on the mail room receiving desk to accept heavy packages allow packages to be rolled rather than lifted to their next point of handling. Or for Shipping/Receiving, include a Loading Dock Scissor Lift/dock Lever at the receiving dock to assure the delivery truck level matches the receiving bay allowing materials to be moved with a pallet lifter.

3-9 BARRIER-FREE DESIGN REQUIREMENTS.

Refer to UFC 1-200-01 and comply with stated and cross referenced requirements for barrier-free design.

3-10 ANTITERRORISM.

Design the facility to comply with UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings and UFC 4-020-01, DoD Security Engineering Facilities Planning Manual.

Additional requirements may apply for overseas facilities or facilities in high- threat areas.

3-11 SUSTAINABLE DESIGN.

Comply with the requirements of UFC 1-200-02, *High Performance and Sustainable Building Requirements*

3-11.1 Service Specific.

See the following Service-specific requirements:

- **Army.** Design projects with consideration for sustainable ratings in eight facility categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Facility Delivery Process, Current Mission, and Future Missions. The minimum rating for the Army's Sustainability Project Rating Tool (SPiRiT) must be in accordance with the current rating. Most projects can reach a sustainability rating without increasing costs, while improving Installation sustainability and balancing available resources with customer requirements. Understanding and applying the principles of sustainable design and development and using the SPiRiT rating process improves day-to-day decisions and project quality.
- **Navy and Marine Corps.** Use the United States Green Building Council (USGBC) LEED™ Green Building Rating System to measure the sustainability of the completed project. It can also be used during planning and design as a source of green building strategies. LEED™

addresses sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. The minimum LEED™ rating of “Certified” should be met within budgetary constraints. \1\ Refer to UFC 1-200-02 for LEED and Commissioning requirements. /1/

- **Air Force.** It is Air Force policy to apply sustainable development concepts in the planning, design, construction, environmental management, operation, maintenance, and disposal of facilities and infrastructure projects, consistent with budget and mission requirements.

Each Major Command should incorporate sustainable development using LEED™ criteria. The *Air Force Sustainable Facilities Guide* will provide tools and suggested guidelines for selecting candidate projects. The goal is to have all MILCON/NAF projects in the FY09 program capable of achieving LEED™ certification. Submission to the USGBC for actual LEED™ certification is at MAJCOM discretion. This policy does not apply to Host Nation or NATO funded projects.

Sustainable development concepts will benefit the Air Force by creating high-performance buildings with long-term value. They are to be integrated into the development process and balanced with all other design criteria to achieve best value for the Air Force. The economic analysis process need not change, but the elements to consider will now include sustainable technologies and their potential for long-term savings. Complete Air Force policies may be found in the *Air Force Sustainable Facilities Guide*.

3-11.2 Whole Building Design Guide.

The “Whole Building Design Guide” further explains the environmental issues related to building materials and provides technical guidance on green building material selection.

3-11.3 DoD Energy Budget.

Design of new facilities must ensure that building energy consumption does not exceed the DoD energy budget figures.

CHAPTER 4 SPECIFIC DESIGN CRITERIA

4-1 INTRODUCTION.

This chapter defines the major functional components of a typical Administrative Facility: office, administrative support, and special purpose spaces.

4-2 OFFICE AREAS.

These areas comprise the primary organizational spaces in the facility and are generally assigned to staff.

4-2.1 Private Offices.

Private offices are assigned to individuals based on rank and/or assignment and have an entrance door and enclosing partitions which typically extend from finished floor to finished ceiling. If additional acoustical privacy is necessary, extend partitions between the structural floor slabs and enhance the space with acoustical insulation to decrease sound transmission. Provide the following design elements:

- Telephone and data connections on at least two walls for flexibility of furniture layout;
- A minimum of one convenience outlet on each partition with additional outlets provided on partitions where furniture and equipment configurations will require additional power;
- A door with a privacy lock or passage set. Carefully consider the need for locking doors;
- A well-designed lighting system in accordance with the paragraph entitled, "Lighting". Ensure the admission of natural daylight; and
- Furniture systems or free-standing furniture, storage, ergonomic desk chair, and guest seating. Consider upgraded finishes for private offices.

4-2.2 Open Office.

Open office spaces are designed to use furniture system components to delineate space and provide privacy, work surfaces, storage, lighting, and electrical and communications distribution. Individual workstations are typically grouped together in an open office arrangement and have specialized visual and acoustical considerations. The ceiling is typically lay-in, and ceiling panels should be both aesthetically pleasing and high in noise absorption.

4-2.2.1 Provide the following design elements:

- Furniture systems, ergonomic desk chair, and optional guest seating. Maximize storage in the furniture system design, and
- Power, data, communications, and task lighting for each workstation—either integrated with the furniture system panel or as part of the building’s architecture.
- A Telecommunications/server room for special telecom functions.

4-2.3 Command Suite.

The command suite is an office area that houses a Commanding Officer of an Installation or Activity or a Grade O7 or equivalent with command authority. It is typically an enclosed suite consisting of office areas, administrative support, special purpose spaces, and a secure entry point. The command suite typically includes the following spaces, but other spaces may be provided based on specific tenant needs (actual spaces provided and position titles vary by Service and mission):

- Commanding Officer’s (CO) office,
- Deputy Commander/Executive Officer’s office,
- Chief of Staff’s office,
- Executive Director’s office,
- Command Noncommissioned Officer’s office,
- Reception/waiting area,
- Aides’ offices,
- Administrative support, and
- Conference room.

For details on the individual spaces, see the appropriate Chapter 4 paragraph. In general, finishes will be of a higher quality and tailored to meet the specific needs of the suite’s occupants.

4-3 ADMINISTRATIVE SUPPORT.

These spaces support the administrative functions of the office areas and include storage, copying, filing, printing, and faxing. The design approach can consolidate these functions in a central area within an organization, spread them throughout the organization in a decentralized arrangement, or some combination of the two. The relationship of support to the administrative function should be carefully considered prior to determining which design approach is most efficient and desirable. Space for these functions is derived from the number of staff within an organization.

- Provide data and power as necessary for equipment. Consider dedicated electrical circuits for equipment as necessary.

- Consider the traffic pattern and noise levels around the support equipments. Locate the support areas to minimize disturbances to private and open offices.

4-4 SPECIAL PURPOSE SPACES.

These spaces are defined in the paragraph entitled, “Special Purpose Space” and can either be assigned to an organization or provided as part of the building general area and shared by all organizations within the facility. Because of the character, function, and/or size of some special purpose spaces, separate documents may provide criteria for those spaces. When available, use the specific criteria documents for the design of these spaces. In the absence of dedicated criteria, the designer must work closely with the client to design these spaces. Descriptions of some of commonly occurring special purpose spaces are provided below.

4-4.1 Vestibule.

Provide a “walk-off” area where people entering the building can wipe their feet on an appropriate surface prior to entering the lobby. Design the vestibule in conjunction with the building mechanical system. Building security will be performed either in the vestibule via a secure interior door and a security phone or in the building lobby.

4-4.2 Lobby.

The lobby is the entry point for staff and visitors. The design should express the purpose of the facility in a simple, business-like manner. Provide direct access to elevators and other building support functions from the lobby.

4-4.2.1 Lobby Waiting Area.

The lobby waiting area is located directly adjacent to or as a part of the lobby. It should be out of the main traffic area but within sight lines of the reception desk. Furniture should be comfortable and convey the business character of the facility.

4-4.2.2 Reception Desk.

The reception desk serves as the welcoming center and the control point for the facility. Building security will be performed either in the vestibule or at the reception desk via a check-in point. Ensure an unobstructed view of the front entry doors from the reception desk.

4-4.3 Shipping/Receiving.

This area accommodates loading and unloading of a wide variety of supplies and services necessary for the operation of the facility. It includes an exterior entrance located for easy access by delivery trucks, but this entrance should not be visible

from the building's main entrance. In multi-story structures, shipping/receiving should have direct access to a freight elevator. Ensure the width, depth, and height of the bays accommodate the trucks that can be reasonably anticipated for the specific location and functions within the facility.

4-4.4 Mail Room.

This space accommodates processing and distribution of the facility's incoming and outgoing mail and parcels. It may accommodate screening requirements. Ensure adequate storage and work area. The mail room should be adjacent to and provide direct access to the shipping/receiving area. Consult with the appropriate Installation authority to determine how mail is delivered and sorted to determine the mail room size and design requirements. Comply with AT criteria in the design of the mail room (see the paragraph entitled, "Antiterrorism").

4-4.5 Coffee Bar.

This staff-only space is used for breaks and lunches. It includes a kitchenette for storage, warming, and minimal preparation of food. Ensure appropriate utilities for all appliances.

4-4.6 Break Room.

This staff-only space is used for breaks and lunches. It includes a kitchenette for storage, warming, and minimal preparation of food. Ensure appropriate utilities for all appliances. This should be a comfortable space with tables and chairs. Consider location of vending: If vending is located in the break room, accommodate power and space requirements. Provide a sink with hot and cold water connections. Provide exterior views if possible.

4-4.7 Assembly Spaces.

Assembly spaces include the following.

4-4.7.1 Conference Room.

Conference rooms accommodate 10 or more people for staff meetings, presentations, training, and occasional social functions. A conference room should be enclosed with partitions that extend from the finished floor to the structure above. Provide acoustical insulation in the partitions to achieve a minimum STC of 50. In instances where a floor-to-structure partition is not possible, provide a ceiling with a high Ceiling Attenuation Class (CAC) rating capable of reducing sound transmission. If video conferencing (VTC) is to be accommodated, consider the design with respect to outlet location, room dimensions, and furniture selection. Accommodate a built-in projector and projection screen.

4-4.7.2 Team/Meeting/Mini-conference Room.

Team rooms accommodate six to 10 people around a conference table for smaller group meetings. The team room should be acoustically isolated from other spaces.

4-4.7.3 Training Room.

A training room may be for general training or dedicated for computer training. The training room accommodates a flexible arrangement of classroom settings. The computer training room includes dedicated computer workstations. Accommodate a built-in projector and projection screen.

4-4.7.4 Auditorium.

Auditoriums accommodate 50 or more people for large presentations and include a tiered floor with fixed seating and a stage or raised platform. Accommodate built-in presentation equipment, a sound system, and specialized lighting. An auditorium should be enclosed with partitions that extend from the finished floor to the structure above. Include the services of specialized engineering disciplines to properly address issues of lighting, acoustics, and audio-visual displays. Include these consultants as part of the design team when auditoriums are required in administrative office buildings.

4-4.7.5 Multipurpose Room.

A multipurpose room combines one or more of the assembly functions. Design the multipurpose room for flexibility of use with easily-movable furniture.

4-4.8 Dedicated Storage Room.

This space is used for the storage of files, supplies, and equipment. The details of the partitions will vary depending on the agency and the level of security required. Verify these requirements with the appropriate agency. Provide a separate lockable room for storage of sensitive or high-value equipment.

4-4.9 Sensitive Compartmented Information Facility (SCIF).

A SCIF is an accredited area, room, group of rooms, buildings, or installation where sensitive compartmentalized information may be stored, used, discussed, and/or electronically processed. If a SCIF is required, comply with Director of Central Intelligence Directive (DCID) 6/9, *Physical Security Standards for Sensitive Compartmented Information Facilities*.

4-4.10 Copy/Graphics Room.

This room provides space for a large, production-quality copy machine and/or for staff to design and assemble reports, brochures, and informational pamphlets. It should be conducive to computer-based design work and have space for document production and pallet-based paper storage. The room should be enclosed with

partitions which extend from finished floor to the structure above. Provide acoustical treatment.

4-4.11 Trash/Recycling.

This interior room provides a central collection point for trash and recyclable materials such as glass, plastic, aluminum, and paper. The main trash/recycling area is adjacent to the shipping/receiving area where recyclables from the floors can be consolidated and stored for pick-up. In multi-story buildings, locate remote trash/recycling areas adjacent to break rooms, copy rooms, vending, and other similar areas. Locate containers such that they do not interfere with required egress widths; it may be beneficial to provide alcoves for these containers. If this function is outside the building envelope, coordinate with AT criteria in the paragraph entitled, "Antiterrorism".

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APPENDIX A REFERENCES

FEDERATION OF AMERICAN SCIENTISTS

<http://fas.org>

Director of Central Intelligence Directive (DCID) 6/9, Physical Security Standards for Sensitive Compartmented Information Facilities,
<http://www.fas.org/irp/offdocs/dcid6-9.htm>

INTERNATIONAL CODE COUNCIL

<http://www.iccsafe.org>

International Mechanical Code (IMC)

NATIONAL FIRE PROTECTION ASSOCIATION

<http://www.nfpa.org>

NFPA 70, *National Electric Code*

NFPA 101, *Life Safety Code*

NATIONAL INSTITUTE OF BUILDING SCIENCES

<http://www.nibs.org>

Whole Building Design Guide (WBDG), <http://www.wbdg.org>

UNITED STATES AIR FORCE

<http://www.afcec.af.mil/>

AFH 32-1084, *Facility Requirements*

AFI 32-7062, *Air Force Comprehensive Planning*

Air Force Interior Design Guide

Air Force Sustainable Facilities Guide |

ETL 02-12, Communications and Information System Criteria for Air Force Facilities

ETL 07-4, *Air Force Carpet Standard*

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UNITED STATES ARMY, U.S. ARMY CORPS OF ENGINEERS

AR 405-70, *Utilization of Real Property*

Sustainability Project Rating Tool (SPiRiT)

TI 800-1, *Design Criteria*, 20 July 1998

UNITED STATES MARINE CORPS

<http://www.usmc.mil>

MCO P11000.12C, *Real Property Facilities Management Volume II - Facilities Planning and Programming*

UNITED STATES NAVY

NAVFACINST 11010.45D, *Comprehensive Regional Planning Instruction*, Naval Facilities Engineering Command,
<https://portal.navfac.navy.mil/portal/page/portal/navfac/>,

OPNAVINST 11010.20F, *Facilities Projects Manual*, SECNAV/OPNAV Directives Control Office, <http://doni.daps.dla.mil/default.aspx>

OPNAVINST 5200.23G, *Navy Safety and Occupational Health Manual*, SECNAV/OPNAV Directives Control Office, <http://doni.daps.dla.mil/default.aspx>,

UNITED STATES DEPARTMENT OF COMMERCE, INTERNATIONAL TRADE ADMINISTRATION

<http://www.ita.doc.gov>

Electric Current Abroad, <http://trade.gov/publications/abstracts/electric-current-abroad-2002.asp>

UNITED STATES DEPARTMENT OF DEFENSE, UNIFIED FACILITIES CRITERIA PROGRAM

<http://dod.wbdg.org>

UFC 1-200-01, *General Building Requirements*

UFC 1-200-02, *High Performance and Sustainable Building Requirements*

UFC 2-000-05N / P-80, *Facility Planning Criteria for Navy and Marine Corps Shore Installations*

UFC 2-100-01, *Installation Master Planning*

UFC 3-101-01, *Architectural*

UFC 3-120-01, *Air Force Sign Standard*

UFC 3-120-10, *Interior Design*

UFC 3-201-02, *Landscape Architecture*

UFC 3-210-02, *POV Site Circulation and Parking*

UFC 3-301-01, *Structural Engineering*

UFC 3-400-01, *Energy Conservation*

UFC 3-400-10N, *Mechanical Engineering*

UFC 3-410-01FA, *Heating, Ventilating and Air Conditioning*

UFC 3-410-02, *Lonworks (R) Direct Digital Control for HVAC and Other Local Building Systems*

UFC 3-420-01, *Plumbing Systems*

UFC 3-520-01, *Interior Electrical Systems*

UFC 3-530-01, *Design: Interior and Exterior Lighting Design and Controls*

UFC 3-580-01, *Telecommunications Building Cabling Systems Planning and Design*

UFC 3-580-10, *Navy and Marine Corps Intranet (NMCI) Standard Construction Practices*

UFC 3-600-01, *Fire Protection Engineering For Facilities*

UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings.*

UFC 4-020-01, *DoD Security Engineering Facilities Planning Manual*

UFC 4-020-04A, *Electronic Security Systems: Security Engineering*

UFC 4-021-02NF, *Security Engineering: Electronic Security Systems*

UNITED STATES GREEN BUILDING COUNCIL

<http://www.usgbc.org>

LEED™ Green Building Rating System

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APPENDIX B SPACE PROGRAMMING TOOL

B-1 SAMPLE SPACE PROGRAM TOOL.

Figure B-1 illustrates a sample tool that conforms to the UFC space programming process. This tool could be used to develop the space program for an Administrative Facility. Down the left-hand side of the figure are numbers which correspond to the process steps described in Chapter 2.

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FIGURE B-1. SPACE PROGRAMMING TOOL

Organization Offices								
Process Steps	ID	Name/Description	(from planning doc)	(from program)	(from planning doc)		(no. of personnel times Net Area Stds.)	
			Space Type	No. of Personnel	Net Area Stds m ²	Net Area Stds ft. ²	Total Net Area m ²	Total Net Area ft. ²
1	1.01	Open Office 1	O ¹	N	O ¹	O ¹	N x O ¹	N x O ¹
	1.02	Open Office 2	O ²	N	O ²	O ²	N x O ²	N x O ²
2	1.03	Private Office 1	P ¹	N	P ¹	P ¹	N x P ¹	N x P ¹
	1.04	Private Office 2	P ²	N	P ²	P ²	N x P ²	N x P ²
	1.05	Private Office 3	P ³	N	P ³	P ³	N x P ³	N x P ³
Organization Administrative Support								
Administrative Support				N ²	AS	AS	N ² x AS	N ² x AS
Circulation Multiplier								
Subtotal: Steps 1 - 3 (Office Areas + Admin Support)							Sub ¹	Sub ¹
Circulation Multiplier @ CM							Sub ¹ x CM	Sub ¹ x CM
Organization Special Purpose Spaces								
5	ID	Organization Special Purpose (SP) Space	Space Type	No. of Auth. Spaces	Net Area per SP Space		Net Area for SP Space Category	
					m ²	ft. ²	m ²	ft. ²
	1.06	Organization SP Space 1	OSP ¹	N	OSP ¹	OSP ¹	N x OSP ¹	N x OSP ¹
	1.07	Organization SP Space 2	OSP ²	N	OSP ²	OSP ²	N x OSP ²	N x OSP ²
1.08	Organization SP Space 3	OSP ³	N	OSP ³	OSP ³	N x OSP ³	N x OSP ³	
SP Circulation Multiplier								
Subtotal: Step 5 (Organization Special Purpose Spaces)							Sub ²	Sub ²
SP Circulation Multiplier @ SPM							Sub ² x SPM	Sub ² x SPM
Net Organization Space								
Sum of Steps 1 - 6							Sub ¹ x CM	Sub ¹ x CM
							Sub ² x SPM	Sub ² x SPM
Net Organization Space (NOS)							NOS	NOS
All Net Organization Spaces								
7	Organizations						Net Organization Spaces	
							m ²	ft. ²
	Organization A						NOS ^A	NOS ^A
	Organization B						NOS ^B	NOS ^B
Organization C						NOS ^C	NOS ^C	
Shared Special Purpose Spaces								
8	Shared Special Purpose (SP) Space	Space Type	No. of Auth. Spaces	Net Area per SP Space		Net Area for SP Space Category		
				m ²	ft. ²	m ²	ft. ²	
	Shared SP Space 1	SSP ¹	N	SSP ¹	SSP ¹	N x SSP ¹	N x SSP ¹	
	Shared SP Space 2	SSP ²	N	SSP ²	SSP ²	N x SSP ²	N x SSP ²	
Shared SP Space 3	SSP ³	N	SSP ³	SSP ³	N x SSP ³	N x SSP ³		
Net-to-Gross Multiplier								
Subtotal: Steps 7 - 8 (Net Organization Spaces + Shared SP Space)							Sub ³	Sub ³
Net-to-Gross @ NGM							Sub ³ x NGM	Sub ³ x NGM
Gross Building Area								
TOTAL - Gross Building Area							Sub ³ x NGM	Sub ³ x NGM

Key:

CM – Circulation Multiplier
N – Number of personnel or spaces
NGM – Net-to-Gross Multiplier
NOS – Net Organization Space
O – Open office

OSP – Organization Special Purpose space
P – Private office
SPM – Special Purpose space Multiplier
SSP – Shared Special Purpose space
Sub - Subtotal

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APPENDIX C AUSTERE ADMINISTRATION FACILITIES

C-1 PURPOSE.

The purpose of this appendix is to provide implementation requirements for the austere construction established by Commander, Navy Installations Command (CNIC). These requirements were developed to address construction of support facilities in CNIC designated operating environments.

C-2 DEFINITION AND SCOPE.

An austere facility is defined as a structure designed and constructed with minimal infrastructure, footprint area and finishes, incorporating applicable building codes and facility criteria to assure adherence to all health, accessibility and life safety standards and regulations required to fulfill the mission, including Anti-Terrorism Force Protection appropriate to each site. Austere facilities should be built with the least total ownership costs (TOC) possible, including purchase, maintenance and use of consistently available alternative local goods.

C-3 APPLICABILITY.

Austere construction is intended for facilities in locations determined by CNIC and approved by OPNAV to be eligible for austere facilities construction. The austere standards are intended to be applied flexibly and in varying degrees to all facilities at locations designated as austere. This flexibility should be allowed to ensure the criteria are appropriate for individual austere locations.

C-4 MODIFICATIONS.

For austere design and construction use UFC 4-610-01, Administration Facilities with the following (generally deductive) modifications of this appendix.

CHAPTER 2 PLANNING AND LAYOUT

2-5 SPECIAL PURPOSE SPACE.

Delete these spaces:

- Lobby/waiting area/display space; (maintain a weather vestibule as an energy saving feature)
- Shipping/receiving (including mail rooms); (centralized function assumed)
- Libraries;
- Cafeteria/snack bar;

- Break room/coffee bar;
- Trash/recycling; (centralized location assumed)
- Contract maintenance;
- Fitness room/showers and lockers;
- Special work space; (mission dependent)
- Warehouse;
- Retail/support space (ATM/bank, barber, travel agency, etc.); and
- Business center.

2-9 COST.

Delete paragraph and replace with the following:

Design these facilities with consideration of a time frame appropriate to austere facilities, regionally appropriate acquisition of equipment, Base Operating Support BOS difficulties, and logistical difficulties.

2-10 BUILDING CONFIGURATION AND LAYOUT.

Add the following:

For austere facilities limit permanent interior partitions to those required for a single private office and a single conference room.

2-10.1 Building Core.

Use this paragraph with the following exception:

Elevators are prohibited in austere facilities.

2-10.4 Workstation/Office Design.

Add the following:

2-10.4.1 Workstations shall be 6 x 8 ft. (1.8 x 2.4 m) in austere facilities.

2-10.4.6 Limit austere facilities to a single 10 x 12 ft. (3.0 x 3.7 m) private office.

CHAPTER 3 GENERAL DESIGN CRITERIA

3-3 FLEXIBILITY.

3-3.1 Open Floor Plan.

Delete paragraph and replace with following:

Maximize the use of an open floor plan and provide well-designed furniture systems.

3-3.2 Utility Distribution.

Add the following:

Raised floor systems will not be used.

3-4 EXTERIOR DESIGN.

3-4.1 Entrance.

Add the following:

Canopies will not be used in austere facilities unless needed for weather conditions.

3-4.2 Exterior Finishes.

Add the following:

Refer to UFC 3-101-01, *Architecture* for direction to the appropriate core criteria for architectural details and finish concerning:

- Exterior finishes, vapor retarders, thermal insulation, and air infiltration.
- Roof systems. Design and detail roof systems to resist maximum wind for the area.
- Austere construction requires durable materials and finishes throughout.

3-4.3 Windows/Natural Light.

Delete paragraph and replace with following:

LEED Daylight and Views points will not be used. Provide for the admission of natural light in the design of the facility window systems and in the design of the overall footprint and floor depth.

In designing for natural light admission, comply with UFC 3-530-01, *Lighting Design and Controls*. Consider issues such as the even distribution of light, glare control, and heat gain and loss when designing space with good natural light qualities.

Also refer to the paragraph entitled, "Antiterrorism" for Anti-Terrorism Force Protection criteria when designing window systems.

3-4.4 Exterior Signage.

Delete paragraph and replace with following:

Sign placement and type are site-specific, but signs must be strategically located, adequately lit, and of sufficient size to permit proper viewing.

3-5 INTERIOR DESIGN.

3-5.1 Finishes.

3.5.1.1 Finish Schedule.

Delete paragraph and replace with the following:

Table C-1 provides a finish schedule for typical austere administrative interior spaces, including some common special purpose spaces such as conference rooms and mail rooms. Ceilings are to be exposed and painted, including all exposed plumbing mechanical fire stops and electrical conduit, unless it is more cost effective to provide a finished ceiling.

TABLE C-1. AUSTERE FINISH SCHEDULE

General Space	Recommended Finishes for generally approved spaces			
	Floor		Walls	Ceiling
Open Space Office	CONCS	RB	P	EXP/P
Private Office	CONCS	RB	P	EXP/P
Weather Vestibule	CONCS/W M	RB	P	EXP/P
Telecommunications / server room	CONCS	RB	P	EXP/P
Administrative support space	CONCS	RB	P	EXP/P
Conference Room	CONCS	RB	P	EXP/P
Stairwells	CONCS	RB	P	EXP/P
Bathrooms	CONCS	RB	P	EXP/P
Mechanical rooms	CONCS	RB	P	EXP/P

Key:

EXP – Exposed structure RB – Rubber Base

P – Paint WM – Walk-off Mat (Surface)

CONCS – Concrete, hardened and sealed

3-5.1.2 Carpet.

Delete requirement. Carpet is not allowed.

3-5.2 Acoustics.

Delete all paragraphs.

3-5.3 Interior Signage.

Delete the paragraph and replace with the following:

Interior signage identifies spaces, organizations, and persons as well as providing way-finding and directories. Sign placement and type are site-specific, but signs must be strategically located and of sufficient size to permit proper viewing.

3-7 SITE WORK.

3-7.1 Landscape.

Delete. No landscaping is required.

3-7.2 Parking, Access Drives, and other Site Features.

Delete paragraph and replace with the following:

Apply austere decision making to assess, modify and incorporate requirements such as pedestrian circulation, bus access, service vehicle parking, and lighting plans appropriately to local conditions and to limit parking as much as possible while still meeting the facility mission. Review the security study and incorporate its requirements into the design. Ensure existing and proposed parking is in compliance with antiterrorism requirements. In austere facilities parking for residents, visitors, staff, and service personnel should be extremely minimal and only to the mission. Maintenance parking for service functions does not necessarily require dedicated space. Use the expected frequency of maintenance vehicles to determine whether dedicated parking is needed. Locate service access and parking to avoid disturbing residents.

3-10 ANTITERRORISM.

Delete the paragraph and replace it with the following for austere constructions.:

The DOD objective is to eliminate personnel exposure to security threats in occupied Fitness facilities and limit property damage and minimize the likelihood of mass casualties from terrorist attacks through cost effective security improvements. DOD policy and guidance for antiterrorism and the physical security of facilities is contained in core criteria as referenced in UFC 1-200-01. Use UFC 4-010-01, and UFC 4-010-02, and the Geographic Combatant Commander Antiterrorism construction standards for these antiterrorism requirements. These requirements are applicable to austere design and construction.

3-11 SUSTAINABLE DESIGN (LEED and Commissioning)

3-11.1 Service Specific

Delete the paragraph 3-11.1, **Navy and Marine Corps**, and insert the following :

Do not register or certify projects designated austere. The Chief Engineer of NAVFAC has waived LEED Registration and Certification requirements for projects designated austere (CONUS and OCONUS). However, requirements for the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (HPSB) remain. Refer to UFC 1-200-02 for criteria associated with HPSB.

Commissioning. Austere projects require fundamental commissioning or an equivalent process. At a minimum, commission the following systems: HVAC systems and controls, lighting controls, and if provided, day lighting controls, refrigeration systems and controls, renewable energy systems and domestic hot water systems. Refer to UFC 1-200-02.

CHAPTER 4 SPECIFIC DESIGN CRITERIA

4.2.2.1 (Open Office) - Telecommunications Room.

Provide a separated but adjacent Telecommunications /server room for special telecom functions.

4-2.3 Command Suite.

Delete command suite space from austere admin facilities.

4-4 SPECIAL PURPOSE SPACES.

All authorized spaces are listed in the finish schedule. Other types of special purpose rooms such as a SCIF, training room, or dedicated storage room must be individually justified based on mission requirements during the planning phase. Delete the following spaces:

- 4-4.2 Lobby.
- 4-4.2.1 Lobby Waiting Area.
- 4-4.3 Shipping/Receiving.
- 4-4.4 Mail Room.
- 4-4.5 Coffee Bar.
- 4-4.6 Break Room.
- 4-4.7.2 Team/Meeting/Mini-conference Room.
- 4-4.7.3 Training Room.
- 4-4.7.4 Auditorium.
- 4-4.7.5 Multipurpose Room.
- 4-4.8 Dedicated Storage Room.
- 4-4.9 Sensitive Compartmented Information Facility (SCIF).
- 4-4.10 Copy/Graphics Room.
- 4-4.11 Trash/Recycling.

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