

# **STANDARD DESIGN**

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**AIR FORCE**  
**CIVIL ENGINEER SQUADRON**  
**FACILITY MAINTENANCE BUILDING**



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# CHAPTER 1 INTRODUCTION

## 1.1. STANDARD DESIGN

Standard Designs provide functional and spatial requirements for specific Air Force facility types, and are intended for use in conjunction with DoD Unified Facilities Criteria (UFC), Air Force Corporate Facility Standards, Installation Facility Standards, and other applicable standards.

Standard Designs are living documents that are periodically reviewed, updated, and made available to users by posting on the Whole Building Design Guide. This Standard Design, as well as those for many other Air Force facilities, can be accessed at this web site: <http://wbdg.org/ffc/af-afcec/prototypes-standard-designs>

This Standard Design is effective upon issuance and is distributed only in electronic media.

## 1.2 AIR FORCE STANDARD DESIGN POLICY

### 1.2.A. Required use of Standard Designs

The use of Air Force Corporate Facilities Standards (AFCFS), Installation Facility Standards (IFS) and Standard Designs has been codified in the most recent version of AFI 32-1023, *Designing and Constructing Military Construction Projects* (ref (c)). In compliance with the AFI, all facility designs must conform to the standards outlined and specified in the AFCFS, and if there is an applicable Installation Facilities Standards (IFS) document, the project must conform to those standards as well.

This Standard Design was developed in close coordination with the facility's functional users to determine personnel counts, allowable/authorized space/room sizes, adjacency diagrams between the functional spaces, and the overall facility space requirements. It also addresses special requirements unique to this facility type. Use this Standard Design in conjunction with other AF policy and regulations such as AFI's, and UFC's when programming and designing this facility type.

### 1.2.B. Integration with Air Force Corporate and Installation Facility Standards

The Air Force Corporate Facilities Standards (AFCFS), is an enterprise-wide program of facility standards establishing an acceptable level of quality and performance for facility design, facility operations and ongoing building maintenance. The AFCFS provides an exciting direction forward; intended to create sustainable installations and cohesive, efficient, High Performance and Sustainable Buildings throughout the Air Force.

Installation Facilities Standards (IFS) are part of the Air Force Corporate Facilities Standards (AFCFS) program to assist bases in implementing facilities standards at the

local level. Bases develop and maintain an IFS, which replaces the Architectural Compatibility Plan, as a component plan of the Installation Development Plan (IDP).

Programmers and designers for CES Maintenance Facilities must use this Standard Design to ensure the specific functional, spatial, and special requirements are met, meet the local requirements established by the IFS, and the overall Air Force requirements set forth in the AFCFS.

### **1.3 APPLICABILITY**

This Standard Design provides requirements for evaluating, planning, programming, and designing a CES Maintenance Facility that supports the mission, is appropriately sized, flexible, durable, and life-cycle cost efficient. The information in this Standard Design applies to the design of all new construction projects, to include additions, alterations, and renovation projects worldwide. It also applies to the procurement of Design Build services for the above-noted projects. Alteration and renovation projects should update existing facilities to meet the guidance and criteria within budgetary constraints.

#### **1.3. A. Additions and Alterations**

For additions and alterations to existing facilities, use the adjacencies, sizing/scope and detailed requirements contained in the site diagrams, module drawings, and room data sheets to the maximum extent possible. The functionality and adjacency of the modules are still valid, but may require some manipulation to fit into existing spaces. This standard may be modified slightly to accommodate the existing structure. Remove non-structural walls to the greatest extent possible to open up space in the existing facilities to make them more receptive to the placement of the modules. The planner and designer must determine the most efficient means to balance the placement of modules within existing spaces or as a facility addition.

## CHAPTER 2 FACILITY DESIGN

### 2.1 FACILITY DESCRIPTION

#### 2.1.A. Function

The primary function of this CES Maintenance Facility is to provide a facility that fully supports the mission with a flexible state-of-the-art building. The facility supports administrative tasks for the complex/base and communications technology within standalone facility. The primary area in the facility is the Facility Maintenance Shop. The CES Maintenance Facility will consist of, but are not limited to grouped rooms or “Modules”. The modules needed for this facility are as follows (included rooms are noted below module title):

#### Facility Modules

- Facility Maintenance Module
  - Facility Maintenance Shop
- Tool Storage Module
  - Tool Storage
- Administration Module
  - Administration Open Office, Customer Service
- Break Room Module
  - Break Room
- Toilet, Shower, Janitor Module
  - Men’s Toilet and Shower, Women’s Toilet and Shower, Lockers, Janitor
- Building Support Module
  - Fire Pump Room, Electrical Room, Mechanical Room, Telecommunications Room

AFCFS: Consult the Air Force Corporate Facilities Standards (AFCFS) to determine quality standards for this facility group. This standard facility prototype is considered a Group 3 hierarchy.

#### 2.1.B. Typical Users

This facility is operated by active duty, guard, and reserve military personnel as well as civilian contractor representatives of the systems providers as well as USAF Civilian Federal Workforce.

The number of occupants is approximately 116 personnel throughout the building. Hours of operation for this facility type are user-driven, typically one day full shift and small second shift.

### **2.1.C. Related AFMAN 32-1084 Category Code**

The related AFMAN 32-1084 Category Codes are as follows: This facility would be governed by Chapter 3, Facility Class 2, Maintenance Facilities, Category Group 21, Maintenance Facilities, Base Engineer Covered Storage Facility CATCODE 219946 and Chapter 6, Facility Class 6, Administrative, Category Group 61, Administrative and Administrative Support Spaces.

## **2.2 CRITERIA**

### **APPLICABLE UNIFIED FACILITY CRITERIA**

Comply with UFC 1-200-01, DoD Building Code (General Building Requirements). UFC 1-200-01 provides applicability of model building codes and government unique criteria for typical design disciplines and building systems, as well as for accessibility, antiterrorism, security, high performance and sustainability requirements, and safety. Use this Standard Design in addition to UFC 1-200-01 and the UFCs and government criteria referenced therein. UFC 1-200-01 references other "Core UFCs" that are applicable to this Standard Design as well as most all DoD facilities.

UFC 1-200-01	DoD Building Code (General Building Requirements)
UFC 1-200-02	High Performance and Sustainability Building Requirements
UFC 1-300-07A	Design Build Technical Requirements
UFC 3-101-01	Architecture
UFC 3-110-03	Roofing
UFC 3-120-01	Design: Sign Standards
UFC 3-120-10	Interior Design
UFC 3-190-06	Protective Coatings and Paints
UFC 3-201-01	Civil Engineering
UFC 3-201-02	Landscape Architecture
UFC 3-210-10	Low Impact Development
UFC 3-220-01	Geotechnical Engineering
UFC 3-230-01	Water Storage, Distribution, and Transmission

UFC 3-240-01	Wastewater Collection
UFC 3-250-01	Pavement Design for Roads and Parking Areas
UFC 3-250-03	Standard Practice Manual for Flexible Pavements
UFC 3-250-04	Standard Practice for Concrete Pavements
UFC 3-260-01	Airfield and Heliport Planning and Design
UFC 3-301-01	Design: Structural Engineering
UFC 3-400-02	Design: Engineering Weather Data
UFC 3-401-01	Mechanical Engineering
UFC 3-410-01	Heating, Ventilation, and Air Conditioning Systems
UFC 3-410-02	Lonworks Direct Digital Control for HVAC and Other Local Building Systems
UFC 3-420-01	Plumbing Systems
UFC 3-450-01	Noise and Vibration Control
UFC 3-501-01	Electrical Engineering
UFC 3-520-01	Interior Electrical Systems,
UFC 3-530-01	Design: Interior and Exterior Lighting and Controls
UFC 3-550-01	Exterior Electrical Power Distribution
UFC 3-570-01	Cathodic Protection
UFC 3-575-01	Lightning and Static Electricity Protection Systems
UFC 3-580-01	Telecommunications Building Cabling Systems Planning and Design
UFC 3-600-01	Fire Protection Engineering for Facilities
UFC 4-010-01	DoD Minimum Antiterrorism Standards for Buildings
UFC 4-020-01	Security Engineering Facilities Planning Manual
UFC 4-021-01	Design and O&M: Mass Notification Systems
UFC 4-010-06	Cybersecurity of Facility-Related Control Systems
UFC 4-022-03	Security Fences and Gates

UFC 4-023-03	Design of Buildings to Resist Progressive Collapse
USGBC LEED-NC	LEED for New Construction and Major Renovations Rating System (U.S. Green Building Council)

### **2.2.A. Sustainability**

Comply with the Federal sustainability requirements as detailed in UFC 1-200-02, High Performance and Sustainable Building Requirements. Determine third-party certification requirements based on Table 1-1 of UFC 1-200-02 and current AF guidance at <https://www.wbdg.org/ffc/af-afcec>.

### **2.2.B. Security and Antiterrorism**

The facility must meet, UFC 4-020-01 Security Engineering Facilities Planning Manual, UFC 04-010-01 DoD Minimum Antiterrorism Standards for Buildings, Change 1. Internal security measures include controlled and monitored special access hardware, Intrusion Detection Systems and Closed-Circuit Television Systems (CCTV). Exterior security measures will include antiterrorism stand-off distances for parking, controlled vehicular circulation, appropriately located trash enclosures, clear space surrounding the facility, and the primary single point of building entry.

## **2.3 NOTIONAL SITE**

### **2.3.A. Site Location, Orientation and Adjacencies**

The notional site plan diagram demonstrates key site development criteria. It is not a site-specific solution. The information represents the land requirements to construct this facility and includes associated AT standoff and parking. Utilization of existing or shared parking is allowable and may reduce the total acreage required for the facility. Adapt the requirements to the specific site and location and comply with the applicable Installation Development Plan (IDP) and Area Development Plan (ADP) for facility siting.

Several factors determine the most appropriate and cost-effective location for a facility. The availability and capacity of required utilities and the mass/scale of the facility relative to adjacent structures and noise issues must be analyzed.

Emphasis must be placed on operation, function, and safety when siting the facility. The preferred location of the facility is determined by the base master plan and is generally located in a specific geographic area or “zone” of the base.

The approximate project area required for the facility is one acre, which includes AT/FP standoff and parking (visitor, staff, and government vehicles located behind a secure fenced area at the rear of the complex).



### **2.3.B. Parking**

Parking is recommended to be provided to accommodate 60 percent of the assigned personnel to the facility plus additional parking for government vehicles. Government vehicle parking will be located in designated areas behind the secure fenced area at the rear of the facility, and visitor and staff vehicle parking will be located outside the secure fenced area at the front of the facility.

### **2.3.C. Vehicular and Pedestrian Circulation**

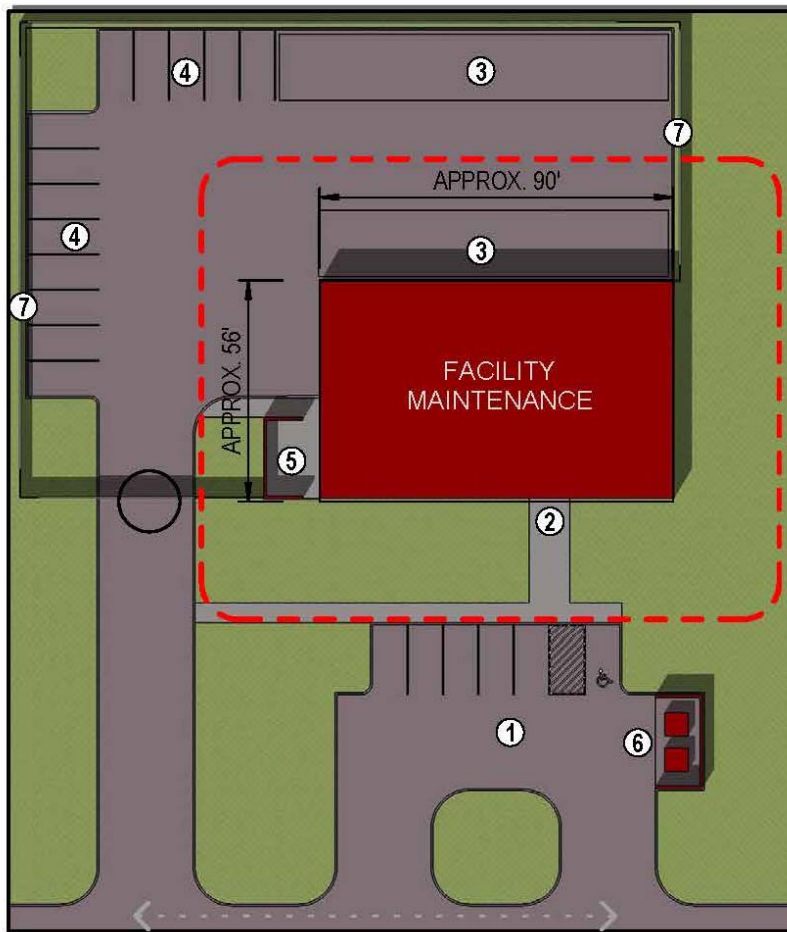
Convenient and safe vehicular access and circulation must be provided for personal vehicles and essential services, including operations, maintenance, deliveries, garbage and recycling collection, and emergency services.

Locate sidewalk networks to provide convenient and safe pedestrian circulation from existing circulation elements of the project site to the new parking areas and doors of the facility. Sidewalk width must accommodate maintenance and emergency services requirements.

Separate the service drives to the facility from parking circulation areas.

### **2.3.D. Notional Site Plan**




See next page for image.



**NOTES:**

- ① POV PARKING LOT
- ② PRIMARY BUILDING ENTRY
- ③ LAY DOWN UNCOVERED STORAGE
- ④ GOV PARKING
- ⑤ SCREENED UTILITY YARD
- ⑥ DUMPSTER ENCLOSURE
- ⑦ SECURITY FENCE

**LEGEND:**

-  CONCEPTUAL AT SETBACK (REFERENCE UFC 4-010-01)
-  ACCESS STREET
-  CONTROLLED VEHICLE ACCESS

## **2.4 BUILDING DESIGN**

### **2.4.A. General Considerations**

General considerations of the facility design are centered on:

- The administrative areas of the facility
- The functional relationships between the modules as well as within the modules
- The general personnel flow requirements within the facility.

Daily shift personnel enter the facility through the primary building entrance.

### **2.4.B. Building Configuration**

The building should be configured for future expansion or reconfiguration. The general size of the building is based on the number of staff required for the administrative areas. The size of the following modules affects the support areas of the facility:

- Facility Maintenance Module
- Administration Module

### **2.4.C. Interior/Exterior Relationships**

This facility is a mix of administrative and industrial occupants and a single main point of entry with two entrance/egress points at the primary corridor spine. Visitors and clients will enter the facility through the main entrance vestibule to a small 'Customer Service' area. All modules are accessed from the Facility Maintenance Module.

Exterior doors (with exception of Building Utility Rooms) will have security hardware for secondary entry capability for staff personnel. Building utility room doors will open on to wide concrete sidewalks connecting to vehicular parking/access areas.

### **2.4.D. Functional Area Requirements**

#### **Facility Modules Adjacency Diagrams & Conceptual Axonometric Layout(s)**

The composite diagram(s) represent ways to conceptually assemble the functional areas (modules) into a cohesive whole. Individual modules are represented by different colors.

Spaces and rooms that are integrally related with a specific functional connection or operational flow are grouped into a module. Modules and the associated room data sheets identify specific criteria and additional detail for each functional area of the facility as outlined in the Interactive Programming Sheet located in Chapter 3.

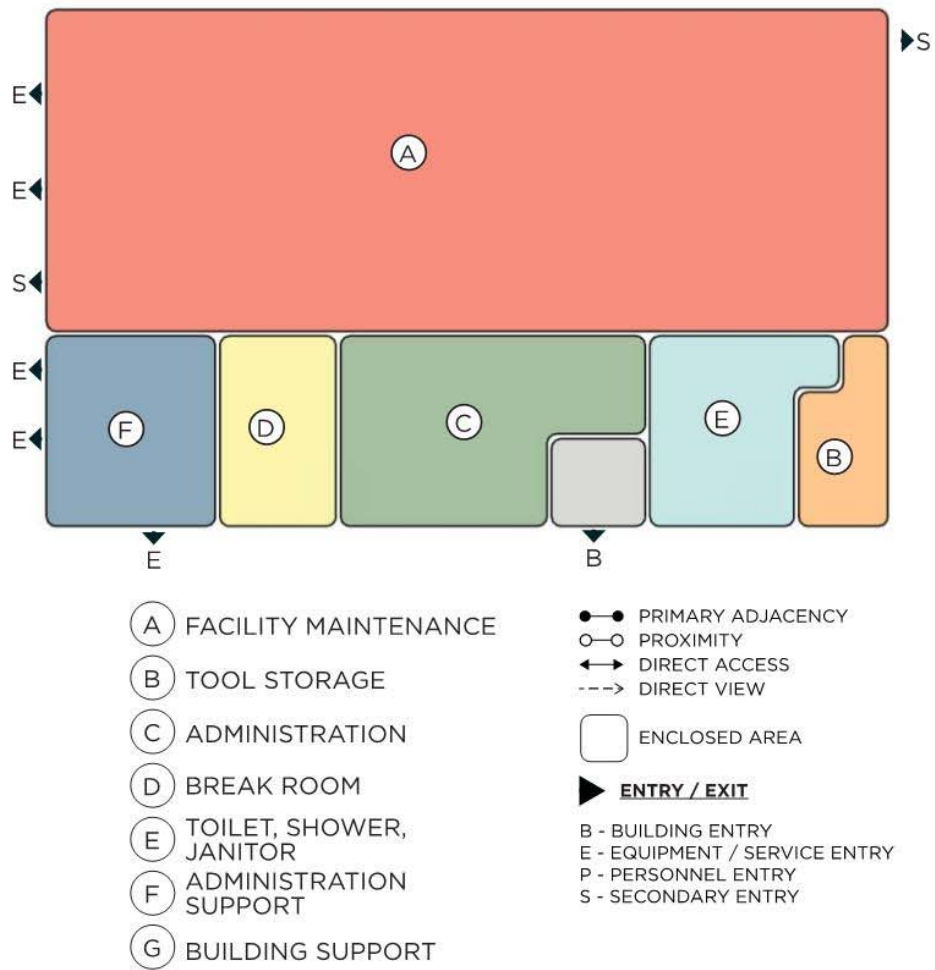
The modules are a grouping of functional spaces and represent “Lego blocks” to be used in a “kit-of-parts” design approach. Use the fixed modules as pre-assembled pieces of the facility “puzzle”. Assemble them to comply with the required adjacencies indicated in the diagrams and module plans.

Modules must be used as shown in this Standard Design to the greatest extent possible, and must not be deconstructed or altered except as indicated herein. The intent of the Standard Design criteria is to avoid manipulation of the composition, functional relationships, adjacencies, and module sizes. Modules contain fixed attributes and must not be changed arbitrarily. Modules may be rotated, flipped, and/or mirrored to accommodate an overall composition or site issue, but this must not be done arbitrarily and should occur only when necessary.

Some modules are linked to space requirements that increase or decrease in size based on the personnel count and equipment for a particular mission. In these cases, increase or decrease the size of the module to match the revised scope calculation. This may sometimes require minor adjustments in other adjacent modules so that they properly fit together to create a constructible facility floor plan. Spaces must comply with any critical dimensions indicated on module plans. Manipulate as few modules as possible to create a constructible facility. The resulting composite plan must respect the established modules adjacencies and must not exceed the authorized project scope.

### **Functional Adjacency Diagram**

The following Functional Adjacency Diagram will form the basis of design for the Standard Design plan for a typical CES Maintenance Facility. This facility is a mix of administrative and industrial occupants and a single main point of entry into a ‘Customer Service’ area. Visitors and clients will enter the facility through the main entrance vestibule and ‘Customer Service’ area. All modules are accessed from the Facility Maintenance Shop. This Facility Adjacency Diagram and as well as the modules is the Air Force approved Standard Design plan.



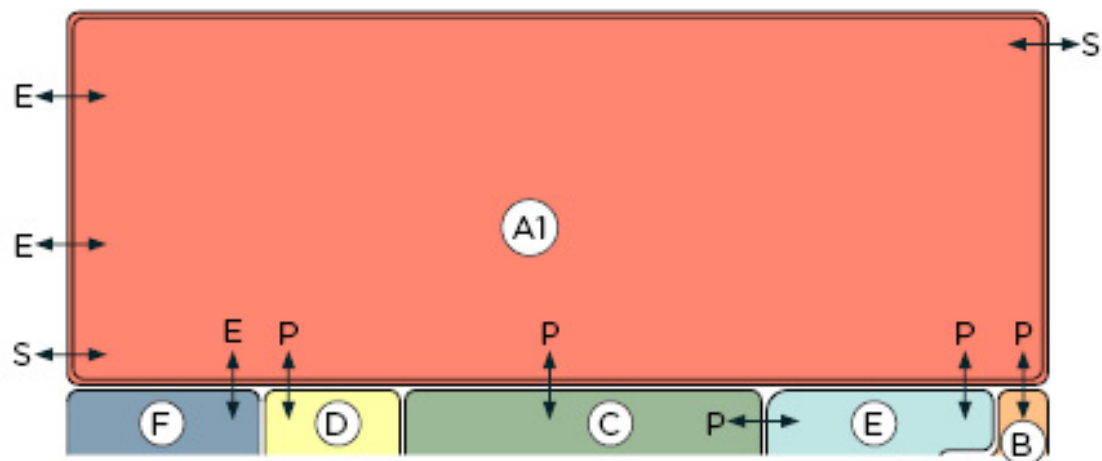
DRAWINGS NOT TO SCALE

## MODULE A – FACILITY MAINTENANCE

### Function and Adjacency

The Facility Maintenance Module is comprised of a single high bay shop area. This module is accessible via the customer service area.

Figure 2-A.1 Module A Adjacency Diagram



(A1) FACILITY MAINTENANCE SHOP

- PRIMARY ADJACENCY
- PROXIMITY
- ←→ DIRECT ACCESS
- - -> DIRECT VIEW

□ ENCLOSED AREA

▶ ENTRY / EXIT

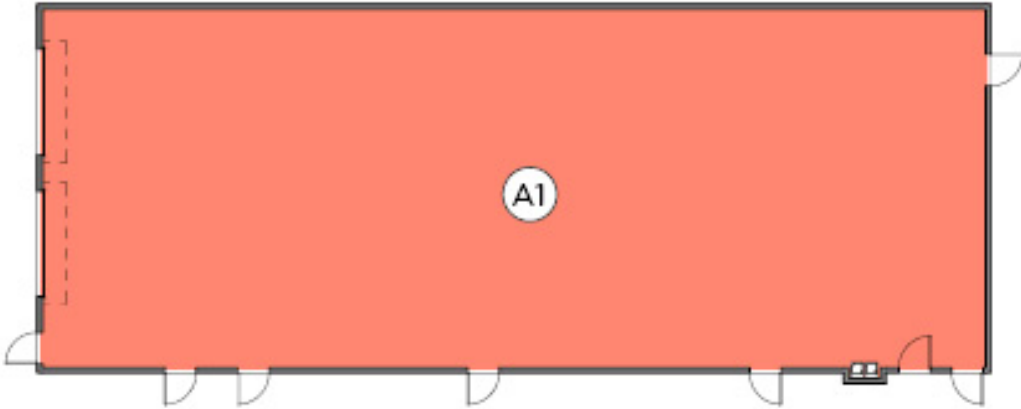
- B - BUILDING ENTRY
- E - EQUIPMENT / SERVICE ENTRY
- P - PERSONNEL ENTRY
- S - SECONDARY ENTRY

ADJACENT MODULES:

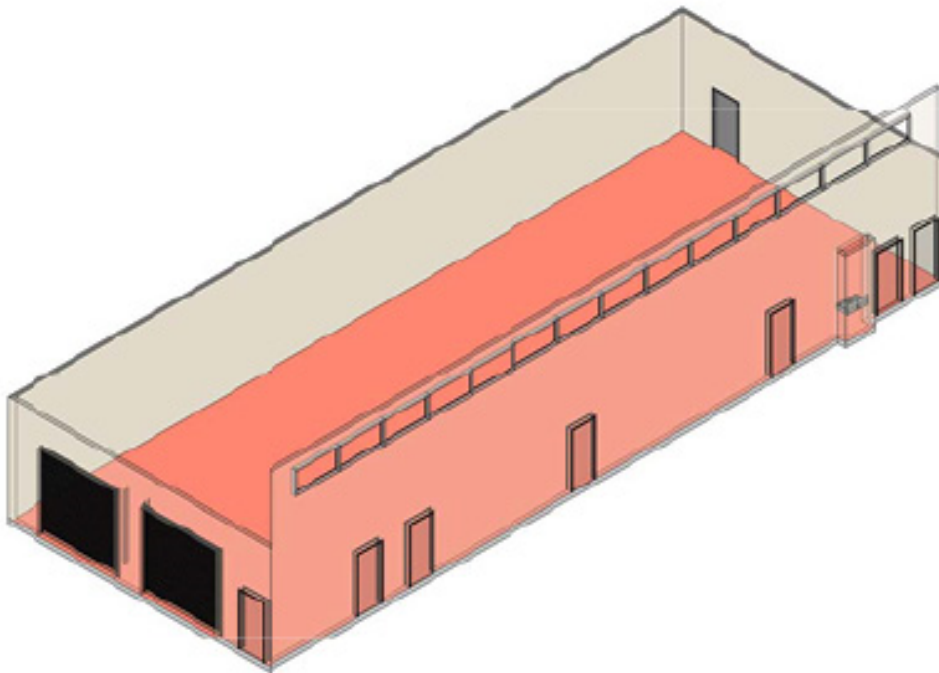
- B - TOOL STORAGE
- C - ADMINISTRATION
- D - BREAK ROOM
- E - TOILET, SHOWER, JANITOR
- F - BUILDING SUPPORT

DRAWINGS NOT TO SCALE

**Facility Maintenance**  
**Figure 2-A.2 Module A Floor Plan & Axonometric**



**A1** FACILITY MAINTENANCE  
SHOP  
MODULE NET AREA: 3,045 SF



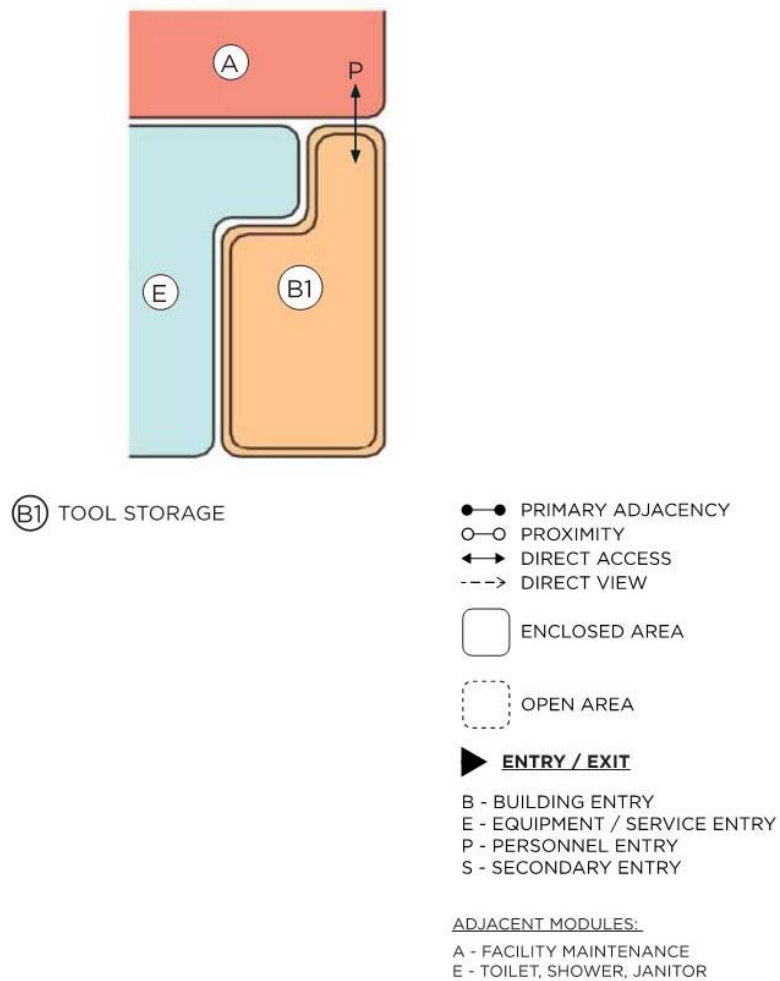
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## MODULE B – TOOL STORAGE

### Function and Adjacency

The Tool Storage Module is comprised of a single room for tool storage. This area is accessed via the Facility Maintenance Module.

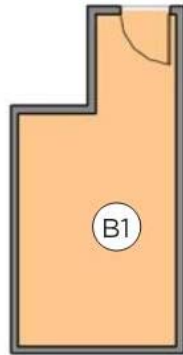
Figure 2-B.1 Module B Adjacency Diagram



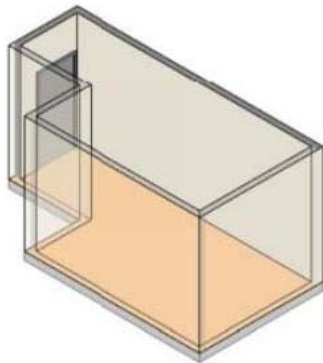
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**Tool Storage**  
**Figure 2-B.2 Module B Floor Plan & Axonometric**



ⓑ1 TOOL STORAGE  
MODULE NET AREA: 160 SF



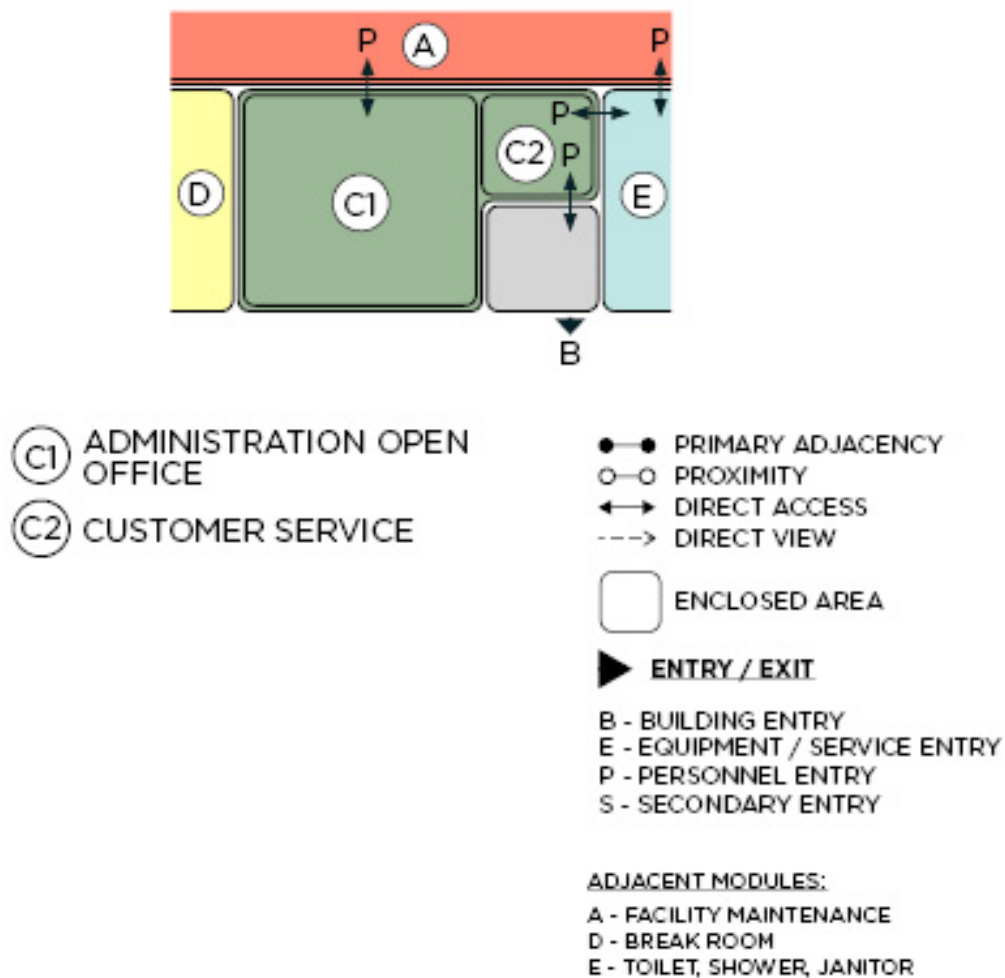
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## MODULE C – ADMINISTRATION

### Function and Adjacency

The Administration Module is comprised of an Open Office area and a Customer Service Room. The open office area includes spaces for the Shop Superintendent, two Hoteling workstations, one Locksmith workstation, and a Work Controller which has a transaction window to the Customer Service area. Room also shall have space for file storage cabinets, a copier/printer. The Open Office area is accessed from the Facility Maintenance Shop. The Customer Service area is accessed via the Entrance vestibule and serves as a control point for access into the facility.

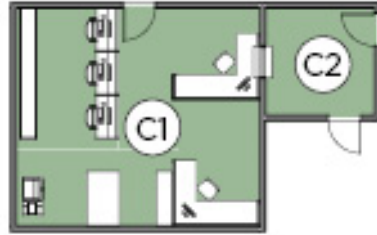
Figure 2-C.1 Module C Adjacency Diagram



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## Administration

### Figure 2-C.2 Module C Floor Plan & Axonometric



- (C1) ADMINISTRATION OPEN OFFICE
  - (C2) CUSTOMER SERVICE
- MODULE NET AREA: 545 SF



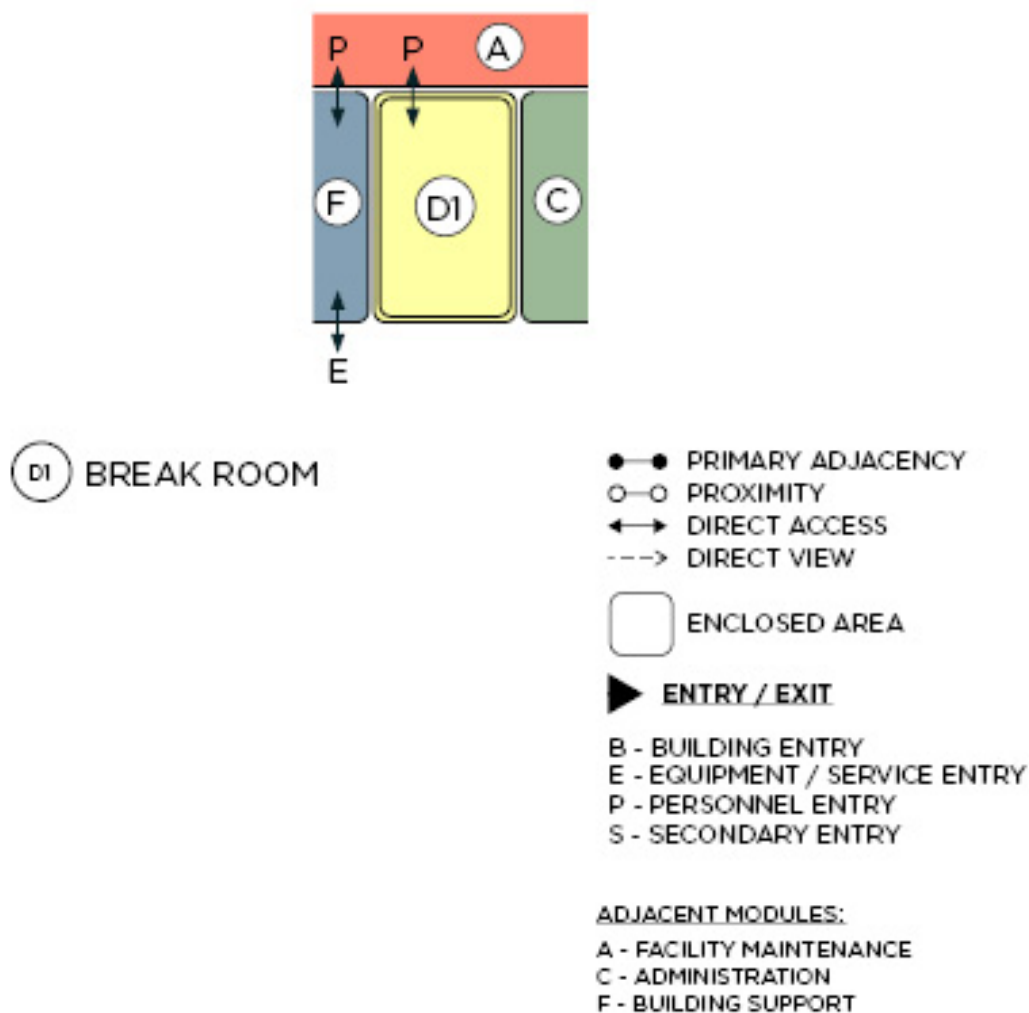
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## MODULE D – BREAK ROOM

### Function and Adjacency

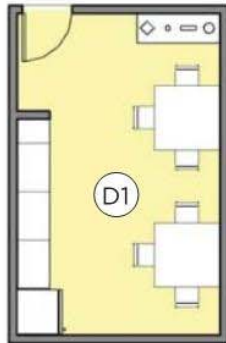
This is the primary Break Room for all staff in the facility and is used as informal gathering space for personnel during lunch, breaks and as a transitional space before and after shifts. The break room is required to have a designated recycling area. This room should be centrally located for all staff to access and have close proximity to the Administration module.

Figure 2-D.1 Module D Adjacency Diagram

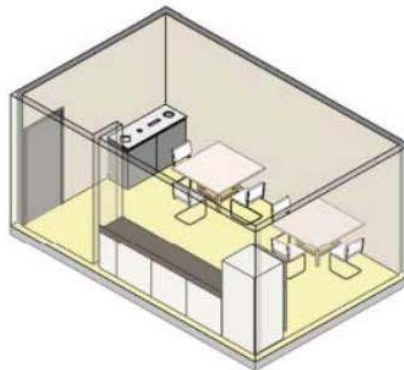


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**Break Room**  
**Figure 2-D.2 Module D Floor Plan & Axonometric**



(D1) BREAK ROOM  
MODULE NET AREA: 245 SF



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## MODULE E – TOILET, SHOWER, JANITOR

### Function and Adjacency

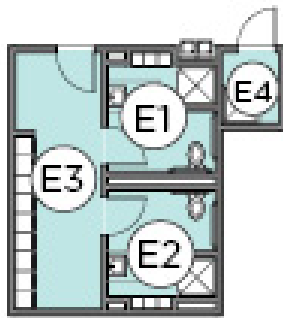
The Locker, Toilet, Shower, Janitor Module consists of a Men’s Toilet / Shower Room, a Women’s/Toilet/Shower Room, Locker Area and a Janitor’s Closet with two water coolers adjacent to this area. The toilet room facilities are provided at a male/female ratio of 50/50. This module shall have close proximity to the Facility Maintenance Module and Administration Module. The plumbing fixture count in the Standard design plan is approximate and actual plumbing fixture count shall be as required per actual occupancy count and as required in International Plumbing Codes, latest edition, Chapter 29.

**Figure 2-E.1 Module E Adjacency Diagram**

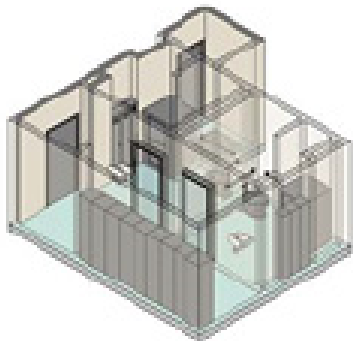


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Toilet, Shower, Janitor  
Figure 2-E.2 Module E Floor Plan & Axonometric



- Ⓔ E1 MEN'S TOILET, SHOWER
  - Ⓔ E2 CONFERENCE
  - Ⓔ E3 DEPUTY BASE CIVIL ENGINEER
  - Ⓔ E4 FIRST SERGEANT
- MODULE NET AREA: 300 SF



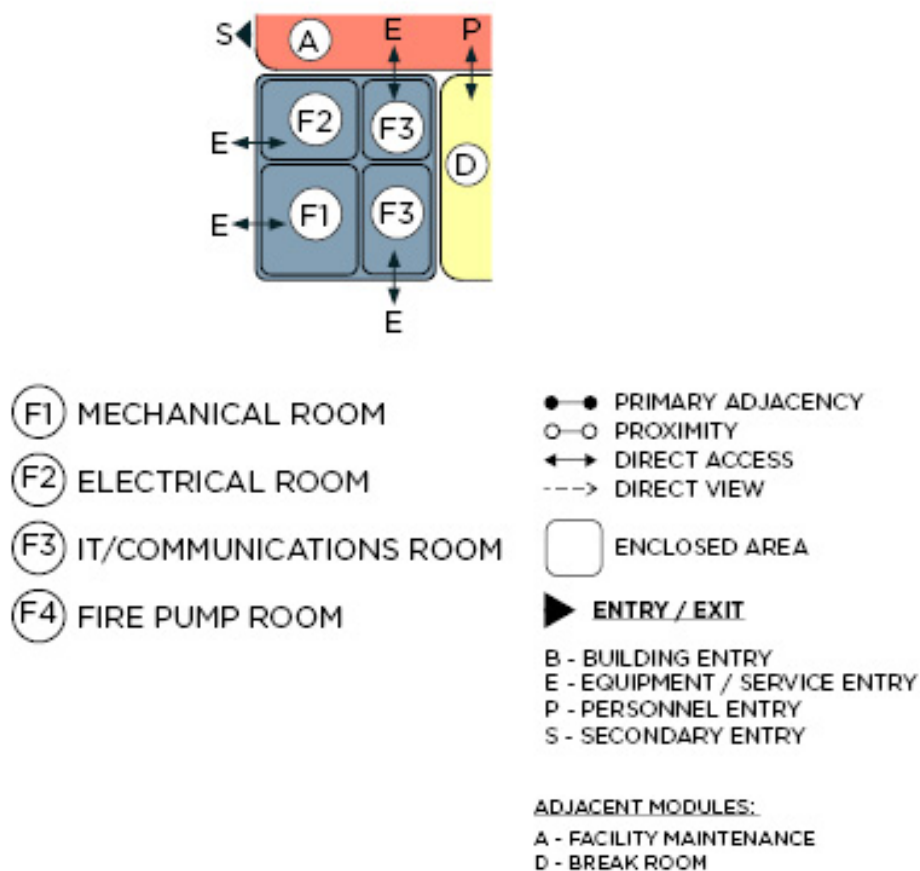
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## MODULE F – BUILDING SUPPORT

### Function and Adjacency

The Building Support Module consists of Mechanical Room, Electrical Room and Telecommunications Room (Fire Protection Room if not in Mechanical Room). All rooms shall have exterior access (with exception of Communication Room which may have interior access). These modules are to be located on an exterior wall adjacent to a Utility Courtyard and accessible for maintenance.

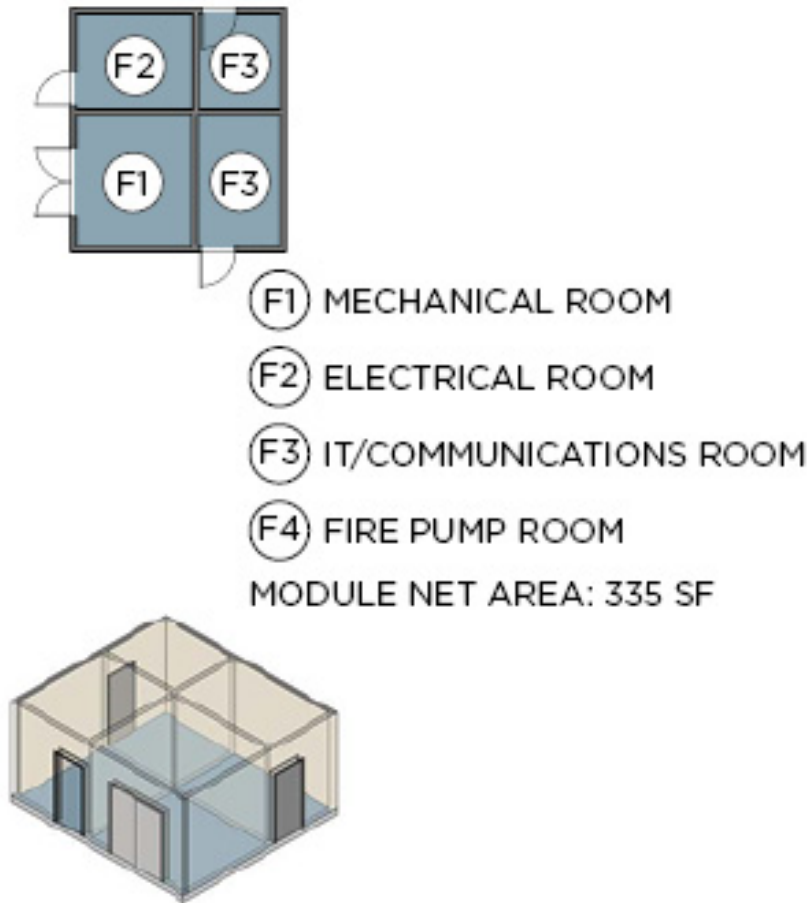
**Figure 2-F.1 Module F Adjacency Diagram**



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**Building Support**  
**Figure 2-F.2 Module F Floor Plan & Axonometric**



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Figure 2-A.3.1 Facility Maintenance Shop Room Data Sheet		
Index		A1
Description/Usage		High bay shop area, minimum 3000 sf in size.
Ceiling Height		20'-0" minimum
Windows		Exterior – Aluminum framed, insulated fixed, blast resistant; Meeting daylighting requirements of UFC 1-200-02 or translucent wall panels
Doors	Type	Hollow metal, 3' x 7' Overhead coiling doors, one 10'x10', one 10'x16', power operated
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	View panels, 5" x 20" for door to corridor Kick plates both sides of all doors
Finishes	Walls	CMU - Painted wainscot to 8', Pre-finished Metal Wall or Liner Panels above to roof deck; CMU or wire mesh/chain link separation walls
	Floor	Epoxy - Non-slip (fuel resistant) or Sealed concrete
	Base	No Base
	Ceiling	Exposed Structure – Painted
Plumbing		No Floor drains; eyewash shower/eyewash stations per UFC 3-420-01; compressed air drop every 25 feet; coordinate drop locations with users; hose bibb
HVAC		Heated with overhead infrared heaters; ventilation with exhaust fans and intake louvers
Fire Protection		Wet pipe or Dry pipe sprinkler system as required by UFC 3-600-01
Power		208V-3P, 480V-3P receptacles, Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	One per desk
	Data	NIPR
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		48-50 desks/workstations and one secretary/administrative desk, one 4-person conference table and chairs, file storage.
Special Requirements		N/A

Figure 2-B.3.1 Tool Storage Room Data Sheet		
Index		B1
Description/Usage		Storage room for general tool storage, minimum room size shall be 160 sf.
Ceiling Height		9'-0" minimum
Windows		No Windows Required
Doors	Type	Hollow metal, 3' x 7'
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	No view panels Kick Plates both sides of doors
Finishes	Walls	CMU – Painted to 9', Pre-finished Metal Wall or Liner Panels
	Floor	Sealed concrete, stained concrete, or tile
	Base	Resilient or tile
	Ceiling	Acoustical Ceiling Tile
Plumbing		N/A
HVAC		heated; ventilation
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	One per room
	Data	One per room
	CCTV	N/A
	CATV	N/A
	Security	Intrusion Detection System (IDS)
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		Storage racks/shelving.
Special Requirements		N/A

Figure 2-C.3.1 Administration Open Office Room Data Sheet		
Index		C1
Description/Usage		This room is an open office space that accommodates approximately 5 staff (3E6) personnel. The area includes space for 2 workstations for the Shop Superintendent and Work Controller, three hoteling work carrels (one for Locksmith) and a copy / file storage area located within the space. Room to be sized per AFMAN 32-1084, chapter 6; and a storage area minimum 100 sf in size.
Ceiling Height		9'-0" minimum
Windows		Exterior – Aluminum framed, insulated fixed, blast resistant; Meeting daylighting requirements of UFC 1-200-02
Doors	Type	Hollow metal, 3' x 7'
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	View panels, 5" x 20" for door to corridor Kick plates both sides of door
Finishes	Walls	Systems furniture, demountable partitions or gyp. board - painted
	Floor	Sealed concrete, stained concrete, tile, or carpet tile
	Base	Resilient or tile
	Ceiling	Acoustical Ceiling Tile
Plumbing		N/A
HVAC		Air conditioned; heated; ventilation
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	One per desk
	Data	NIPR
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		2 Workstations, 3 hoteling desks, copy machine and file storage.
Special Requirements		N/A

Figure 2-C.3.2 Customer Service Room Data Sheet		
Index		C2
Description/Usage		This is an open room, minimum size shall be 100 sf. This room is accessed from the Entrance Vestibule, with transaction counter and window to the Work Controller desk. Room also has access to the Locker, Toilet, Shower, Janitor Module.
Ceiling Height		9'-0" minimum
Windows		Exterior – Aluminum framed, insulated fixed, blast resistant; Meeting daylighting requirements of UFC 1-200-02; Interior – Transaction Window.
Doors	Type	Hollow metal, 3' x 7'
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	View panels, 5" x 20" for door to corridor Kick plates both sides of door
Finishes	Walls	Systems furniture, demountable partitions or gyp. board - painted
	Floor	Sealed concrete, stained concrete, or tile
	Base	Resilient or tile
	Ceiling	Acoustical Ceiling Tile
Plumbing		N/A
HVAC		Air conditioned; heated; ventilation
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	One per desk
	Data	NIPR
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		Transaction counter.
Special Requirements		N/A

Figure 2-D.3.1 Break Room Data Sheet		
Index		D1
Description/Usage		This area has counter/cabinets with sink and space for refrigerator. Room to accommodate shift change gatherings, staff meetings. Minimum room size shall be 245 sf.
Ceiling Height		9'-0" minimum
Windows		Exterior – Aluminum framed, insulated fixed, blast resistant; Meeting daylighting requirements of UFC 1-200-02
Doors	Type	Hollow metal, 3' x 7'
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	View panels, 5" x 20" for door to corridor Kick plates both sides of door
Finishes	Walls	gyp. board – painted OR CMU – Painted
	Floor	Sealed concrete, Stained concrete, or tile
	Base	Resilient or tile
	Ceiling	Acoustical Ceiling Tile
Plumbing		Sink with disposal, hot water
HVAC		Air conditioned; heated; ventilation
Fire Protection		Wet pipe sprinkler system
Power		120v dedicated circuits for coffee maker, microwave, & refrigerator; 120v convenience outlets per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	One per desk
	Data	NIPR
	CCTV	N/A
	CATV	Wall mounted flat screen tv
	Security	N/A
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		Refrigerator, microwave, dishwasher, double sink with disposal; vending machine; Wall mounted bulletin board, two small tables to accommodate 4-6 persons. Wall mounted flat screen tv system.
Special Requirements		Recycling Area

Figure 2-E.3.1 Men's Toilet, Shower Room Data Sheet		
Index		E1
Description/Usage		Men's toilet, shower, locker room
Ceiling Height		8'-0" minimum
Windows		No Windows Permitted
Doors	Type	Hollow metal, 3' x 7'
	Security/ Hardware	Privacy lock set
	View Panels/ Kick Plates	No view panels Kick plates on both sides of door
Finishes	Walls	Gypsum Board – Painted, Ceramic Wall Tile in Showers
	Floor	Porcelain Tile or Quartz Epoxy
	Base	Porcelain Tile or Quartz Epoxy
	Ceiling	Gypsum Board - Painted
Plumbing		Water closets, lavatories. Floor drain in restroom area.
HVAC		Heating, ventilation, air conditioning. Exhaust directly outdoors.
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	N/A
	Data	N/A
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		Six half size 12x12 lockers in shower area. Fixture count shall be determined by the number of building occupants at maximum load per International Plumbing Code latest edition, Chapter 29; wall hung water closets and urinals, lavatories in counter tops.
Special Requirements		Water resistant gypsum board throughout.

Figure 2-E.3.2 Women's Toilet, Shower Room Data Sheet		
Index		E2
Description/Usage		Women's toilet , shower, locker room
Ceiling Height		8'-0" minimum
Windows		No Windows Permitted
Doors	Type	Hollow metal, 3'x7'
	Security/ Hardware	Privacy lock set
	View Panels/ Kick Plates	No view panels Kick plates both sides of door
Finishes	Walls	Gypsum board – Painted, Ceramic Wall Tile in Showers
	Floor	Porcelain Tile or Quartz Epoxy
	Base	Porcelain Tile or Quartz Epoxy
	Ceiling	Gypsum Board – Painted
Plumbing		Water closets, lavatories. Floor drain in restroom area.
HVAC		Heating, ventilation, air conditioning. Exhaust directly outdoors.
Fire Protection / Life Safety		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	N/A
	Data	N/A
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical		Per UFC 3-450-01 for noise control
Furnishings / Equipment / Casework		Six half size 12x12 lockers in shower area. Fixture count shall be determined by the number of building occupants at maximum load per International Plumbing Code latest edition, Chapter 29; wall hung water closets and urinals, lavatories in counter tops.
Special Requirements		Water-resistant gypsum board throughout.



Figure 2-E.3.3 Locker Room Data Sheet		
Index		E3
Description/Usage		Area is for staff locker storage, accessed via Customer Service room.
Ceiling Height		8'-0" minimum
Windows		No Windows Permitted
Doors	Type	Hollow metal, 3' x 7'
	Security/ Hardware	Privacy lock set
	View Panels/ Kick Plates	No view panels Kick plates both sides of door
Finishes	Walls	Gypsum board – painted
	Floor	Porcelain Tile or Quartz Epoxy
	Base	Porcelain Tile or Quartz Epoxy
	Ceiling	Gypsum Board – painted
Plumbing		N/A
HVAC		Heating, ventilation, air conditioning. Exhaust directly outdoors.
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	N/A
	Data	N/A
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		Ten 18x18 full height lockers with two 12" x 36" benches
Special Requirements		Water resistant gypsum board throughout.

Figure 2-E.3.4 Janitor Room Data Sheet		
Index		E4
Description/Usage		Custodial room for general maintenance for the building. Minimum room size shall be 25 sf.
Ceiling Height		8'-0" minimum
Windows		No Windows Permitted
Doors	Type	Hollow metal, 3' x 7'
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	No view panels, 5" x 20" Kick plates both sides of door
Finishes	Walls	Gypsum Board or CMU– Painted, Ceramic Tile at mop sink
	Floor	Porcelain Tile or Quartz Epoxy
	Base	Porcelain Tile or Quartz Epoxy
	Ceiling	Gypsum Board - Painted
Plumbing		Mop sink with hot water, floor drain
HVAC		Heating, ventilation, air conditioning. Exhaust directly outdoors
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	N/A
	Data	N/A
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		Mop Shelf
Special Requirements		Water resistant gypsum board throughout.

Figure 2-F.3.1 Mechanical Room Data Sheet		
Index		F1
Description/Usage		Mechanical equipment and service.
Ceiling Height		No ceiling, 9' minimum clearance
Windows		No Windows Permitted
Doors	Type	Hollow metal, pair 3' x 7', exterior access required
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	No view panels Kick plates each side of door
Finishes	Walls	CMU – painted
	Floor	Sealer hardener
	Base	No base
	Ceiling	Open to structure - painted
Plumbing		Floor drains as required
HVAC		Heated & ventilated
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	One for the room
	Data	NIPR
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		N/A
Special Requirements		N/A

Figure 2-F.3.2 Electrical Room Data Sheet		
Index		F2
Description/Usage		Electrical equipment and service.
Ceiling Height		No ceiling, 9'-0" minimum clearance
Windows		No Windows Permitted
Doors	Type	Hollow metal, 3' x 7', exterior access required
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	No view panels Kick plates each side of door
Finishes	Walls	Gypsum board – painted or CMU - painted
	Floor	Sealer hardener
	Base	No base
	Ceiling	Open to structure - painted
Plumbing		N/A
HVAC		Heated & ventilated
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	N/A
	Data	NIPR
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		N/A
Furnishings, Equipment and Casework		N/A
Special Requirements		N/A

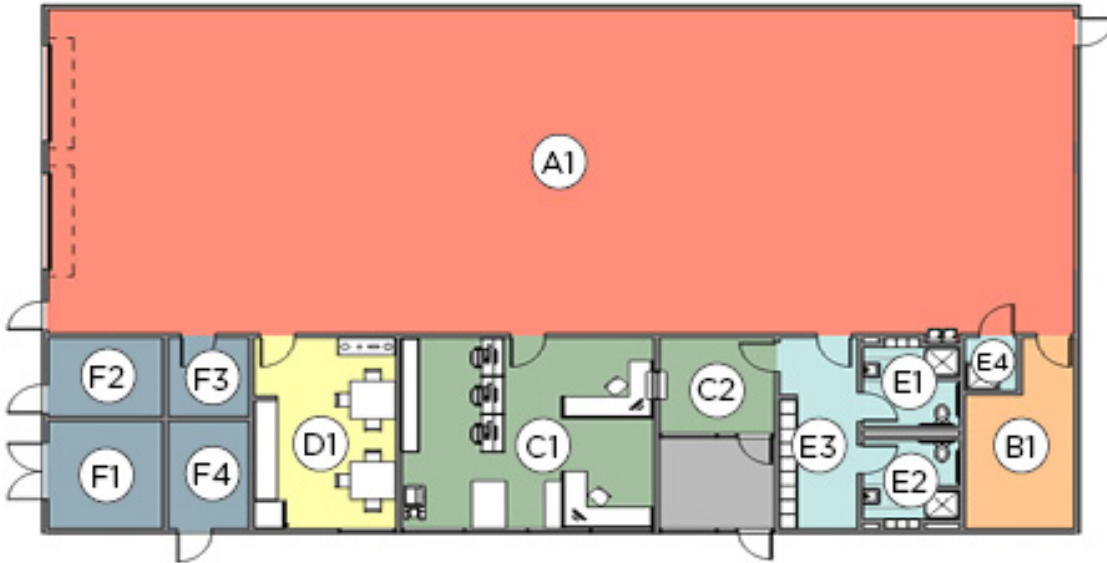
Figure 2-F.3.3 Fire Pump Room Data Sheet		
Index		F3
Description/Usage		Mechanical equipment and service
Ceiling Height		No ceiling, 9' minimum clearance
Windows		No Windows Permitted
Doors	Type	Hollow metal, pair 3' x 7', exterior access required
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	No view panels Kick plates each side of door
Finishes	Walls	CMU – painted
	Floor	Sealer hardener
	Base	No base
	Ceiling	Open to structure - painted
Plumbing		Floor drains as required
HVAC		Heated & ventilated
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	N/A
	Data	NIPR
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		Per UFC 3-450-01 for noise control
Furnishings, Equipment and Casework		N/A
Special Requirements		N/A

Figure 2-F.3.4 IT/Communication Room Data Sheet		
Index		F4
Description/Usage		Communication and UPS service.
Ceiling Height		No ceiling, 9'-0" minimum clearance
Windows		No Windows Permitted
Doors	Type	Hollow metal, 3' x 7', interior or exterior access is acceptable
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	No view panels Kick plates each side of door
Finishes	Walls	Gypsum board – painted or CMU - painted
	Floor	Sealer hardener
	Base	No base
	Ceiling	Open to structure - painted
Plumbing		N/A
HVAC		Dedicated cooling system in addition to building system cooling
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	N/A
	Data	NIPR
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		N/A
Furnishings, Equipment and Casework		N/A
Special Requirements		N/A

Figure 2-X-3.1 Entrance & Circulation Room Data Sheet		
Index		
Description/Usage		All areas of general facility circulation. This includes facility entrances, vestibules or corridor spaces. An air lock type entrance vestibule may be required.
Ceiling Height		9'-0" minimum
Windows		No windows required
Doors	Type	Hollow metal, 3' x 7' (egress), 3' x7' aluminum framed with full glass (medium stile) at entrance vestibule.
	Security/ Hardware	Keyed lock set
	View Panels/ Kick Plates	Side lites and transom at entrance vestibule doors Kick plates both sides of door
Finishes	Walls	Gypsum board - painted
	Floor	Sealed concrete, stained concrete or tile
	Base	Resilient or tile
	Ceiling	Acoustical Ceiling Tile
Plumbing		N/A
HVAC		Air conditioned; heated; ventilation
Fire Protection		Wet pipe sprinkler system
Power		Per UFC 3-520-01
Lighting		Per UFC 3-530-01
Communication	Tele.	N/A
	Data	N/A
	CCTV	N/A
	CATV	N/A
	Security	N/A
Acoustical Requirements		N/A
Furnishings, Equipment and Casework		N/A
Special Requirements		Walk-off mat at entry vestibule.

### 2.4.F. Floor Plan

The floor plan below is a composite of the Modules within the approved Functional Adjacency Diagram which is based on the criteria listed within this Standard Design document. The scaled drawing showing conceptual fixture and furniture information is located within the Standard Design drawings.



DRAWINGS NOT TO SCALE



### 2.4.G. Interactive Programming Worksheet

This tool is provided in two formats. A snapshot of the programming sheet is provided in this section primarily as a reference and reflects the baseline standard facility program based on the criteria as discussed in this document. The additional interactive programming sheet provides a tool for planners and programmers. It allows the input of authorized personnel positions and special purpose spaces. Updated inputs are automatically calculated and provide new required square footage for each space and the estimated overall facility size.

CES FACILITY MAINTENANCE BUILDING  
INTERACTIVE PROGRAMMING WORKSHEET

MODULE NO.	AREA	NO. OCCUP	SF PER USER	NO. OF ROOMS REQUIRED	INDIVIDUAL ROOM ROOMNTS	NET USER REQUIREMENTS		COMMENTS
						SF	SM	
<b>A FACILITY MAINTENANCE</b>								
A1	FACILITY MAINTENANCE SHOP			1	3,045	3,045	282.88	5
<b>SUBTOTAL FACILITY MAINTENANCE AREA</b>						<b>3,045</b>	<b>282.88</b>	
<b>B TOOL STORAGE</b>								
B1	TOOL STORAGE			1	160	160	14.86	
<b>SUBTOTAL TOOL STORAGE AREA</b>						<b>160</b>	<b>14.86</b>	
<b>C ADMINISTRATION</b>								
C1	ADMINISTRATION OPEN OFFICE			1	445	445	41.34	4.5
C2	CUSTOMER SERVICE			1	100	100	9.29	4.5
<b>SUBTOTAL ADMINISTRATION AREA</b>						<b>545</b>	<b>50.63</b>	
<b>D BREAK ROOM</b>								
D1	BREAK ROOM			1	245	245	22.76	3.5
<b>SUBTOTAL BREAK ROOM AREA</b>						<b>245</b>	<b>22.76</b>	
<b>E TOILET, SHOWER, JANITOR</b>								
E1	MEN'S TOILET, SHOWER			1	70	70	6.50	6
E2	WOMEN'S TOILET, SHOWER			1	70	70	6.50	6
E3	LOCKERS			1	135	135	12.54	
E4	JANITOR			1	25	25	2.32	
<b>SUBTOTAL TOILET, SHOWER, JANITOR AREA</b>						<b>300</b>	<b>27.87</b>	
<b>F BUILDING SUPPORT</b>								
F1	MECHANICAL ROOM			1	110	110	10.22	8
F2	ELECTRICAL ROOM			1	85	85	7.90	8
F3	IT/COMMUNICATIONS ROOM			1	60	60	5.57	8
F4	FIRE PUMP ROOM			1	80	80	7.43	8
<b>SUBTOTAL BUILDING SUPPORT AREA</b>						<b>335</b>	<b>31.12</b>	
VESTIBULE						100	9.29	7
<b>TOTAL FACILITY NET FLOOR AREA</b>						<b>4,295</b>	<b>399.01</b>	
		CIRCULATION MULTIPLIER	5%			4,510		
		NET TO GROSS MULTIPLIER	10%			4,960		
<b>TOTAL FACILITY GROSS AREA (ROUNDED)</b>						<b>5,000</b>	<b>461</b>	9.10.11
<b>COMMENTS:</b>								
1 Facility Personnel Count : 40								
2 Includes all areas listed in Air Force Manual 32-1084, Chapter 1 and Chapter 6								
3 Break Room also serves as Team room, sized per Table 6.3 Break Rooms Break Room 16% of 40 occupants multiplied by 18 sf per occupant. Additional space allotted per user request.								
4 Reference Tables in Chapter 6 of Air Force Manual 32-1084 for additional information. Administration Areas include circulation factor of 10% per Chapter 1 Air Force Manual 32-1084								
5 These areas are User Defined/Justified. SF to be adjusted and or verified for each base installation.								
6 Male/Female ratio of 50/50. Actual fixture count shall be based on International Plumbing Code, latest edition, Chapter 29 and the UFC 3-420-01, latest edition, Plumbing Systems. This 50/50 ratio shall be verified at each installation								
7 Circulation areas are based on Proof of Concept and a circulation multiplier of 10% per Air Force Manual 32-1084								
8 Building Support areas are estimates only and actual size is dependent on requirements for climate zone, location, system, etc. (Sq. Ft. not included in Total Concept Plan Net Floor Area as this area is included in Net to Gross Multiplier of 25%)								
9 Per AFM 32-1084 Chapter 1, net-to-gross multiplier of up to 25%, used 10% per Standard Design Plan which would include any additional Building Support Areas that may be required. Also included in multipliers are column furr-outs and mechanical/plumbing chases.								
10 All area SF's are rounded to the nearest whole 5 number.								
11 This worksheet represents a facility rounded up to 5,000 Square Feet.								