

UNIFIED FACILITIES CRITERIA (UFC)

FIRE STATIONS



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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND

AIR FORCE CIVIL ENGINEER CENTER (Preparing Activity)

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

Change No.	Date	Location
1	11 June 2021	<u>3-8 Deleted paragraph Barrier Free Design Requirements; Accessibility is in paragraph 1-4. Revised Tables 4-1, 4-5, 4-6, 4-11 and 4-13 "Plumbing" to clarify when an oil water separator is required.</u>

This UFC supersedes UFC 4-730-10, *Fire Stations*, dated 15 June 2006, and FC 4-730-10N, *Navy and Marine Corps Fire Stations*, dated 1 December 2013.

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 the Air Force Civil Engineer Center (AFCEC) are responsible for administration of the UFC system. Defense agencies must 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 must be sent to the respective service proponent office by the following electronic form: [Criteria Change Request](#). The form is also accessible from the Internet site listed below.

UFC are effective upon issuance and are distributed only in electronic media from the following source:

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

Refer to UFC 1-200-01, *DoD Building Code (General Building Requirements)*, for implementation of new issuances on projects.

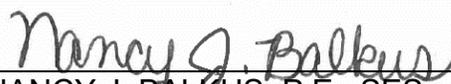
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UNIFIED FACILITIES CRITERIA (UFC) NEW DOCUMENT SUMMARY SHEET

Document: UFC 4-730-10, *Fire Stations*

Superseding: UFC 4-730-10, *Fire Stations*, dated 15 June 2006, and FC 4-730-10N, *Navy and Marine Corps Fire Stations*, dated 1 December 2013.

Description: This UFC provides criteria for planning and design of fire stations. This UFC includes guidance for Air Force, Army, Marine Corps, and Navy fire stations.

Reasons for Document: This is a new joint-Service document. This new document represents another step in the joint-Services' effort to bring uniformity to the planning, design, and construction of military facilities. This UFC was developed to provide design requirements to accomplish the following:

- Assist planners in understanding facility requirements to ensure accurate space program budgets.
- Provide architects, engineers, and construction surveillance personnel with essential, minimum requirements for the design and construction of fire stations.
- Clarify the operational intent of the facility design.

Impact: The following will result from the publication of this UFC:

- This UFC creates a single source for common DOD fire station criteria and an accurate reference to individual Service-specific documents.
- This UFC facilitates updates and revisions and promotes agreement and uniformity of design and construction among the Services.

Unification Issues: The following is non-unified content:

- The Marine Corps separates their program into two organizations, one for structural and one for aircraft rescue firefighting (ARFF).
- The Navy and Marine Corps mandate direct vent apparatus exhaust systems when required by intended apparatus operations.
- For Army only, the function associated with personal protective equipment (PPE) gear storage as described in Table 4-2 is permitted to occur within and open to the apparatus bay.
- For Army only, the functional program space for the decontamination room detailed in Table 4-11 has the option to be programmed as "fire extinguisher inspection, maintenance and storage (non-flight line)."

TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION	1
1-1 PURPOSE AND SCOPE.....	1
1-1.1 Types of Stations.....	1
1-1.2 Classes of Stations.....	1
1-1.3 Users of Stations.....	2
1-2 APPLICABILITY.....	2
1-3 USERS OF THIS UFC.....	2
1-3.1 Architects and Engineers.....	2
1-3.2 Planning Personnel.....	2
1-3.3 Additional Users.....	3
1-4 GENERAL BUILDING REQUIREMENTS	3
1-5 BEST PRACTICES.....	3
1-6 REFERENCES.....	3
1-7 GLOSSARY.....	4
CHAPTER 2 PLANNING AND LAYOUT.....	5
2-1 LOCATION DETERMINANTS.....	5
2-1.1 Access/Response Time.....	5
2-1.2 Size.....	5
2-1.3 Elevation.....	5
2-2 SIZE DETERMINANTS.....	5
2-2.1 General.....	5
2-2.2 Needs Validation Assessment.....	6
2-2.3 Types of Spaces.....	6
2-3 SPACE PROGRAM.....	9
2-3.1 Critical Space Drivers.....	10
2-3.1.1 Apparatus Bays.....	10
2-3.1.2 Dorm Room Counts.....	11
2-3.2 Total Area.....	13
2-4 LIFE-CYCLE COST PRIORITIZATION.....	13
2-5 LAYOUT AND ADJACENCIES.....	13
2-5.1 Functional Relationship Bubble Diagram.....	14

2-5.2	Space Assessment.....	16
2-6	ALTERATIONS TO EXISTING FACILITIES.....	16
2-6.1	Regulatory Authorities.....	16
2-6.2	Other Considerations.....	16
2-6.3	Sustainable Design.....	17
2-7	ACCESSIBILITY.....	17
2-8	SUSTAINABLE DESIGN.....	17
2-9	HAZARDOUS MATERIALS.....	17
2-9.1	Background Information.....	17
2-9.2	Facility Design Requirements.....	17
2-10	WEATHER RESILIENCY.....	18
CHAPTER 3	GENERAL DESIGN CRITERIA.....	19
3-1	GENERAL.....	19
3-1.1	Authorized Building Program.....	19
3-2	STRUCTURE.....	19
3-2.1	Substructure.....	19
3-2.2	Superstructure.....	19
3-2.3	Fall Protection.....	20
3-3	ARCHITECTURE.....	20
3-3.1	Stories.....	20
3-3.2	Exterior.....	20
3-4	INTERIOR DESIGN.....	21
3-4.1	Interior Construction.....	21
3-4.2	Finishes.....	21
3-4.3	Interior Signage.....	22
3-4.4	Window Treatments.....	22
3-5	ACOUSTICS.....	22
3-5.1	Sound Transmission Coefficient Ratings.....	22
3-5.2	Outdoor Indoor Transmission Class.....	22
3-5.3	Air Installations Compatible Use Zones.....	23
3-6	SERVICES.....	23
3-6.1	Plumbing.....	23

3-6.2	Heating, Ventilating, and Air Conditioning (HVAC).....	23
3-6.3	Fire Protection and Life Safety.....	23
3-6.4	Electrical.....	24
3-7	SITE WORK.....	26
3-7.1	Landscaping.....	27
3-7.2	Firefighting Vehicle Access Drives.....	27
3-7.3	Parking and Other Access Drives.....	27
3-7.4	General Site Lighting.....	28
3-8	SUSTAINABLE DESIGN.....	28
CHAPTER 4 SPECIFIC DESIGN CRITERIA.....		29
4-1	INTRODUCTION.....	29
APPENDIX A BEST PRACTICES.....		75
A-1	STRUCTURE.....	75
A-1.1	Substructure.....	75
A-1.2	Superstructure.....	75
A-1.3	Fall Protection.....	75
APPENDIX B FIGURES.....		77
B-1	APPARATUS BAYS.....	77
APPENDIX C GLOSSARY.....		83
C-1	ACRONYMS AND ABBREVIATIONS.....	83
APPENDIX D REFERENCES.....		87

FIGURES

Figure 2-1	Basic Facility Functional Relationship Diagram.....	15
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TABLES

Table 2-1	Fire Station Program Spaces.....	7
Table 2-2	Common Types of Vehicles and Their Size Classes.....	11
Table 2-3	Sample Staffing by Vehicle Type.....	12
Table 4-1	Apparatus Bay.....	30
Table 4-2	PPE Gear Storage.....	33
Table 4-3	Hose Storage.....	34
Table 4-4	SCBA Maintenance/Compressor Room.....	35
Table 4-5	Protective Clothing Laundry.....	36
Table 4-6	Equipment Maintenance/Wash/Disinfection.....	37

Table 4-7	EMT Storage and Medical Storage Cabinet	38
Table 4-8	HAZMAT/CBRNE Equipment Storage.....	39
Table 4-9	Agent Storage	40
Table 4-10	Spare PPE Gear Storage	41
Table 4-11	Decontamination Room	42
Table 4-12	Fire Extinguisher (Flightline) Maintenance and Storage	44
Table 4-13	Vehicle Maintenance Bay	46
Table 4-14	Vehicle Maintenance Equipment Storage.....	49
Table 4-15	Deployment Gear Storage.....	50
Table 4-16	Station Officer's Office/Watch Desk.....	51
Table 4-17	Fire Chief's and Deputy Fire Chief's Offices	53
Table 4-18	Offices	55
Table 4-19	Lobby.....	56
Table 4-20	Department Training Room	57
Table 4-21	Testing/Individual Study Area	58
Table 4-22	Dispatch	59
Table 4-23	Telecommunications Room	61
Table 4-24	Day/Training Room (Including Kitchen)	62
Table 4-25	Dorm Rooms	64
Table 4-26	Bathrooms/Showers/Changing.....	65
Table 4-27	Fitness Room	67
Table 4-28	Laundry Room.....	69
Table 4-29	Recreation Room.....	70
Table 4-30	Vending	71
Table 4-31	Outdoor Patio/BBQ.....	72
Table 4-32	Unisex Toilet "Public Use"	73
Table 4-33	Transition Zone	74

CHAPTER 1 INTRODUCTION

1-1 PURPOSE AND SCOPE.

This UFC provides requirements for evaluating, planning, programming, and designing fire stations. The information in this UFC applies to the design of all new construction projects, including additions, alterations, and renovation projects in the continental United States (CONUS) and outside the continental United States (OCONUS). This UFC is not intended as a substitution for thorough review during design by individual program managers and operations staff in the appropriate Service.

Fire stations support military firefighters' mission to provide fire protection to installation flightlines and facilities and fire prevention education and training. This UFC does not apply to deployment, contingency, or field operating facilities. When the fire station function is part of a consolidated operations facility (fire/police/safety), the criteria in this UFC is applicable only to fire station functions and must be applied carefully in order to integrate with other facility functions. Identify common support/administrative spaces that can be shared to improve efficiency.

1-1.1 Types of Stations.

Functionally, there are three types of fire stations:

- Structural stations provide fire protection to facilities
- Aircraft rescue firefighting (ARFF) stations provide fire protection to flightlines and aircraft
- Combination structural/ARFF stations

To support the firefighters' mission, it is crucial that the design of all fire stations accommodate the equipment, numerous unique functional requirements, and safety of the firefighting personnel. Generally, the differences between structural and ARFF stations are limited to the apparatus bay size criteria (see paragraph 2-3.1 for more on these differences) and the facility location determinants (see paragraph 2-1).

The Marine Corps program includes two separate organizations: one for structural and one for ARFF. Unlike the other Services, the Marine Corps rarely combines the stations and requires separate offices for fire chiefs and other personnel on their installations.

1-1.2 Classes of Stations.

Irrespective of type, there are two classes of fire stations:

- Headquarters (or main) stations generally house the fire chief and most of the general administrative functions.

- Satellite stations are located throughout the installation to provide response time coverage.

The differences between headquarters and satellite stations relate only to the additional administrative functions housed in the headquarters station. Both headquarters and satellite stations may be structural, ARFF, or combination stations.

1-1.3 Users of Stations.

Not all of these personnel will be located in every fire station but generally all of the following individuals will be present in at least one fire station per installation:

- Fire chief
- Deputy fire chief
- Assistant chief/shift supervisor
- Firefighters
- Inspectors
- Training officers
- Fire prevention officers
- Hazardous materials (HAZMAT)/health and safety officer
- Logistics officer
- Administrative assistant
- Reserve firefighters

1-2 APPLICABILITY.

This UFC applies to all Service elements and contractors involved in the planning, design, and construction of fire stations worldwide.

1-3 USERS OF THIS UFC.

This UFC is intended as a source of basic architectural and engineering information for all individuals involved in the planning, design, and construction of fire stations.

Specific users of the UFC include the following:

1-3.1 Architects and Engineers.

Architects and engineers (A/E) who will provide design services under the direction of the individual Service design agencies.

1-3.2 Planning Personnel.

Planning personnel will use this UFC for programming new or replacement facilities, pre-design planning, or assessing the extent of improvements required in an existing fire station to achieve the standard established herein.

1-3.3 Additional Users.

Additional users may include entities for operational or other purposes. The respective users must refer to this UFC from their own policy documents as appropriate and may include:

- Headquarters staff and field operating agencies
- Major command (MAJCOM) staff/regions
- Base, installation, and garrison commanders
- Installation facilities management
- Installation technical proponents

1-4 GENERAL BUILDING REQUIREMENTS.

Comply with UFC 1-200-01, *DoD Building Code*. UFC 1-200-01 provides applicability of model building codes and government-unique criteria for typical design disciplines and building systems, as well as accessibility, antiterrorism, security, high-performance and sustainability requirements, and safety. Use this UFC in addition to UFC 1-200-01 and the UFCs and government criteria referenced therein. Air National Guard facility requirements are defined in ANGH 32-1084, *Facility Space Standards*. For projects that fall under the area of responsibility of the U.S. Army Centers of Standardization (COS) program, the requirements of the COS for fire stations in Huntsville, Alabama, supersede any conflicting requirements herein. Designers must contact and coordinate with the COS accordingly.

1-5 BEST PRACTICES.

Appendix A is considered to be guidance and not requirements. Its main purpose is to communicate proven facility solutions, systems, and lessons learned, but may not be the only solution to meet the requirement.

1-6 REFERENCES.

Appendix D contains a list of references used in this document. The publication date of the code or standard is not included in this document. Unless otherwise specified, the most recent edition of the reference publication applies.

1-7 GLOSSARY.

Appendix C contains acronyms and abbreviations.

CHAPTER 2 PLANNING AND LAYOUT

2-1 LOCATION DETERMINANTS.

Several factors determine the most appropriate and cost-effective location for a fire station.

2-1.1 Access/Response Time.

The most critical determinant for the location of a fire station is response time. Refer to DODI 6055.06, *DoD Fire and Emergency Services Program*, or DOD component policy to determine required response times. In addition to response time, accommodate access to the station by delivery vehicles, staff, and visitors.

Direct access and response time may conflict with tightening antiterrorism (AT) criteria. Provide a facility site that is prominent and easily visible from the target areas (structures or flightlines).

2-1.2 Size.

Provide site space to accommodate firefighting vehicle turning radii, personnel parking, visitor parking, storage requirements, and reserve vehicles (if applicable). Provide site space to accommodate a dumpster pad and enclosure in accordance with the installation appearance plan (IAP).

2-1.3 Elevation.

Due to the critical response capabilities required by fire and emergency response units, select a site such that parking areas and driveways are located at least 3 ft (0.9 m) above the base flood elevation (BFE).

2-2 SIZE DETERMINANTS.

Several factors determine the size of the facility, as described below.

2-2.1 General.

Generally, the size of the station depends on the class of station, the number of companies housed, the number and types of vehicles housed, and any additional spaces required. The class of station will partially drive the number of spaces required. However, depending on what is currently available on the installation, some spaces normally reserved for headquarters stations may be provided in satellite stations. The installation representatives, in conjunction with the program manager, must decide which spaces must be provided.

Gross Square Feet (GSF) Deviation: The facility constructed gross area must not exceed 100 percent of the space allocation set forth in this UFC to accommodate site,

construction, or environmental factors. The number of apparatus bays and dorm rooms are used to determine the overall size of the fire station facility.

2-2.2 Needs Validation Assessment.

Conduct a needs validation assessment to determine the class and required capacity of personnel and vehicles of the new or renovated station.

2-2.3 Types of Spaces.

For a complete list of spaces, see Table 2-1. Fire station functional spaces fall into three main categories:

2-2.3.1 Maintenance and Apparatus.

This includes the apparatus room/bays that house the firefighting vehicles and supporting maintenance spaces. The maintenance spaces include both vehicle maintenance equipment maintenance/storage for fire extinguishers, self-contained breathing apparatus (SCBA), protective clothing, hoses, and firefighting agents.

2-2.3.2 Administration and Training.

This includes the appropriate offices, training spaces, dispatch areas, and administrative areas.

2-2.3.3 Residential and Living.

This includes on-duty firefighters' bedrooms, toilets/showers, kitchen/dining, recreation, and "living room" areas.

2-2.3.4 Other Spaces.

Other spaces that don't readily fit into the three categories include the following:

- Vending space shared by both staff and firefighters.
- Air Force Reserve Command/Air National Guard annex may provide a separate space for administration, equipment storage/maintenance, training, and testing.
- Host nation employee dayroom as mandated by Master Labor Contracts (MLC) or Status of Forces Agreements (SOFA).
- Transition zones (yellow) to allow movement of personnel between the facility's hot (red) and cold (green) zones. Hot zones are spaces in the facility exposed to carcinogens and green zones are living/working spaces intended for extended occupancy.

Table 2-1 Fire Station Program Spaces

Space	Notes
Maintenance and Apparatus	
Apparatus room/bays	Made up of bays; either single- or double-length bays. Sized according to truck modules: See para. 2-3.1.1.
Personal protective equipment (PPE) gear storage	One per station.
Hose storage	One per station.
SCBA compressor room	At least one per department. May be required in multiple stations due to extent of geographic separation as dictated by installation mission requirements.
SCBA maintenance	One per department.
Protective clothing laundry	One per station.
Equipment wash/disinfection	One per station.
Work room/equipment maintenance	One per station.
Vehicle maintenance equipment storage	One per station. Tools and minor parts.
EMT storage (basic first aid supplies)	One per station.
Medical storage cabinet/locker (drugs and needles)	One per station. Lockable. This may be combined with or a sub-space of the EMT storage room.
HAZMAT/CBRNE equipment storage	HAZMAT: One per station. CBRNE (chemical, biological, radiological, nuclear, explosive): As dictated by installation mission requirements. Not all stations require these spaces and store these materials off-site.
Agent storage	At least one per department. May be required in multiple stations due to extent of geographic separation as dictated by installation mission requirements.
Spare PPE gear storage	At least one per department.
Decontamination room	One per station. For Army only, this room can be programmed as "fire extinguisher inspection, maintenance and storage (non-flight line)."
Flightline fire extinguisher maintenance and storage	One per department.
Vehicle maintenance bay	Addition to apparatus room/bays, as dictated by installation mission requirements.
Vehicle maintenance office	As dictated by installation mission requirements if vehicle maintenance bay is provided.
Reserve and active duty mobility/deployment gear storage	As dictated by installation mission requirements.
Administration and Training	
Station officer office	One per station.

Watch desk	One per station only if no dispatch in station and then made part of station officer office. (Receives calls from dispatch.)
Fire chief office	One per department.
Chief's conference room	One per department. May be a part of fire chief's office.
Deputy chief office	The requirement for a deputy chief is driven by the size of the department.
Administrative assistant	Provided only in conjunction with chief and deputy chief.
Lobby area	Generally provided only in conjunction with chief and deputy chief.
Assistant chief/shift supervisor	One per station. Additional staffing as dictated by installation mission requirements.
Assistant chief of fire prevention	One per department as dictated by installation mission requirements.
Inspector(s) office(s)	Several workstations per department may be located in several stations.
EMS office	Space for EMS to complete confidential paperwork as dictated by installation mission requirements.
HAZMAT/health and safety office	One per department.
Logistics office	As dictated by installation mission requirements.
Department training room	At least one per department (in HQ station). May be provided in other stations as dictated by installation mission requirements.
Training officer office	One per department.
Testing/individual study area	One per station. Separate room.
General administration storage	One per station.
Fire-only dispatch	One per department; provided only if no requirement for consolidated or joint dispatch. Dispatch receives emergency calls from the public.
Consolidated or joint dispatch	Provided in lieu of fire-only dispatch. Combines fire, security, and medical dispatch functions.
Dispatch supervisor	Provided in conjunction with dispatch centers staffed by 3 or more on-duty dispatchers.
Dispatch bathroom	Dedicated facilities. Provide off the dispatch floor for immediate access by personnel.
Dispatch kitchenette	Dedicated facilities. Provide off the dispatch floor for immediate access by personnel.
Telecommunications room	One per station. Provide presence/size of dispatch and/or watch room as dictated by installation mission requirements.
Dispatch equipment room	One per station. Provide presence/size of dispatch and/or watch room as dictated by installation mission requirements.
Generator space	One per station. May need to be located inside as a security concern.
Residential and Living	

Day room	One per station. Includes kitchen, dining, and lounge areas.
Training room	The station training area may be incorporated as part of the dining portion of the day room as dictated by installation mission requirements.
Dorm rooms	Per station. Quantity depends on number of crews.
Bathrooms/shower/changing	Male and female facilities per station. Individual unisex showering/changing rooms can be provided as dictated by installation mission requirements.
Fitness room	One per station.
Laundry room	One per station.
Recreation room	Addition to day room for noisier activities such as games as dictated by installation mission requirements.
Covered outdoor patio	One per station is counted toward overall building square footage included in the validated DD1391.
Unisex public toilet	For headquarters stations only. Toilet facilities accessible from dayroom or main lobby for use by guests/visitors. For Army only: Required in all facilities.
Other Spaces	
Vending	For use by firefighters and staff.
Reserve firefighter gear	Air Force only. As dictated by installation mission requirements.
Reserve offices	Air Force only. Offices (two) for fire chief and assistant chief and training officer as dictated by installation mission requirements.
Host nation dayroom	Provide as mandated by Master Labor Contracts (MLC) or Status of Force Agreements (SOFA).
Transition zones (yellow)	Allow movement of personnel between the facility's hot (red) and cold (green) zones. Hot zones are spaces in the facility exposed to carcinogens and green zones are living/working spaces intended for extended occupancy.

2-3 SPACE PROGRAM.

The space program for fire stations is developed through the use of an interactive worksheet. It is completed by first entering the appropriate Service branch and then selecting the following: type of station, class of station, number of companies to be housed/dorm room count, number and class of vehicles to be housed, and additional required spaces. The selections vary depending on the Service branch selected. As selections are made, the program areas are calculated and summed for both the building and the site. The worksheet must be filled out in collaboration with the appropriate fire department representative(s).

This interactive worksheet is available as a downloadable Microsoft® Excel file from the Whole Building Design Guide Web site:

http://www.wbdg.org/references/pa_dod_sps.php.

2-3.1 Critical Space Drivers.

To understand how the numbers in the interactive worksheet are calculated, several critical space drivers must be understood.

2-3.1.1 Apparatus Bays.

The apparatus bays are sized based on the class of truck to be housed. See Table 2-2 for a list of common truck types. These types have been classified as follows to standardize the size criteria:

- **Large.** These typically include structural aerial (ladder) trucks or large tanker trucks with lengths greater than 38 ft (11.58 m). The standardized footprint (floor space occupied by the truck, not considering the space around it) is 10 ft by 50 ft (3.05 m by 15.24 m).
- **Medium.** This class covers a wide range of vehicles, from structural pumper trucks and smaller tanker trucks to rescue and HAZMAT trucks. Medium trucks have lengths between 30 and 38 ft (9.14 and 11.58 m). The standardized footprint is 10 ft by 38 ft (3.05 m by 11.58 m).
- **Large ARFF (Wide).** All ARFF trucks are distinguished by their generally greater width and may include heavy rescue or very large tankers. Large ARFF trucks have lengths greater than 38 ft (11.58 m). The standardized footprint is 12 ft by 50 ft (3.66 m by 15.24 m).
- **Medium ARFF (Wide).** Medium ARFF trucks are also distinguished by their generally greater width. They can vary in length from about 23 ft (7.01 m) up to 38 ft (11.58 m) but the standardized footprint is 12 ft by 38 ft (3.66 m by 11.58 m).
- **Small.** These typically include ambulances, small rescue or HAZMAT trucks, small brush units, and command vehicles. Small trucks have lengths less than 30 ft (9.14 m). A separate vehicle bay size class is not designated for these trucks. Depending on the actual size of the small class truck, it may be housed in its own bay or in a bay with another truck. For example, two 20-ft (6.10-m) -long vehicles may be housed in a large bay (either ARFF or not). The interactive worksheet makes a recommendation for the area of additional apparatus bays, as appropriate, for the quantity of small vehicles indicated. However, this area must be carefully reviewed by the planning team to ensure it provides the correct space, accounting for the actual length of the small vehicles anticipated and the space that may be available in other bays.

In addition to the truck footprint, the space program takes into account the space around the parked truck. This space varies, depending on whether the truck is parked next to a wall or another truck. See Figures B-1 through B-4 for illustrations of these variations. The space program uses the middle-sized bay for each truck class to calculate an "average" size bay for the given vehicle. Also see Table 4-1 for more information on the apparatus bays.

Table 2-2 Common Types of Vehicles and Their Size Classes

Type of Vehicle	Size Class of Vehicle (See Para. 2-3.1.1)
Structural	
Pumpers	Medium
Telesquirts	Medium
Aerial/ladders	Large
Tankers	Medium or large
ARFF	
Large water tankers	ARFF medium
ARFF foam (vary from 1500 gal [5700 L] up to 6500 gal (24,600 L)	ARFF medium or ARFF large
Ambulance	
Ambulances	Small
Rescue	
Small/light rescue	Small
Medium rescue	Medium
Heavy rescue	ARFF medium
HAZMAT	
HAZMAT support/small	Small
HAZMAT squad	Medium
HAZMAT squad	Large
Brush	
Small brush	Small
Large brush	Medium
Equipment Trailers	
Various equipment trailers pulled by command or other vehicles	Small

2-3.1.2 Dorm Room Counts.

The interactive worksheet uses two methods to calculate the number of dorm rooms needed (dorm room count). First, the user enters the number of structural companies and the number of ARFF companies, as appropriate. (If it is a structural station, ARFF

companies are not permitted and vice versa.) Based on the branch of Service selected, the worksheet will calculate the number of dorm rooms from the number of companies. Second, the user adds or subtracts dorm rooms to accommodate ambulance companies, rescue companies, or cross-staffing of companies. The initial number of rooms plus or minus the modified number of rooms is the final dorm room count.

Dorm room counts must be coordinated with the fire chief. See Table 2-3 for sample on-duty staffing by vehicle type. Cross-staffed (x-staffed) vehicles are staffed on an as-needed basis by personnel assigned to another vehicle or vehicles. X-staffed vehicles have no dedicated staff of their own. The sample vehicle staffing numbers shown in Table 2-3 do not represent staffing authorizations.

Table 2-3 Sample Staffing by Vehicle Type

Type of Vehicle	Army	Navy	Air Force	Marine Corps
Structural				
Pumpers	4	4	4	4
Telesquirts	4 or x-staffed	4 or 6	4	4
Aerial/ladders	4 or x-staffed	4 or 6	4	4
Tankers	x-staffed	1 or x-staffed	n/a	1 or x-staffed
ARFF				
Large water tankers	x-staffed	1 or x-staffed	1	1 or x-staffed
ARFF foam	3	3	3	4
Ambulance				
Ambulances	2 or x-staffed	2	n/a	2
Rescue				
Small/light rescue	x-staffed	3 or x-staffed	3	3 or x-staffed
Medium rescue	x-staffed	3 or x-staffed	3	3 or x-staffed
Heavy rescue	x-staffed	3 or x-staffed	3	3 or x-staffed
HAZMAT				
HAZMAT support/small	x-staffed	x-staffed	x-staffed	x-staffed
HAZMAT squad	x-staffed	x-staffed	x-staffed	x-staffed
Brush				
Small brush	x-staffed	x-staffed	x-staffed	x-staffed
Large brush	x-staffed	x-staffed	x-staffed	x-staffed

2-3.2 Total Area.

The space program developed through the use of the interactive worksheet serves as a guideline for the fire station planning team and generally represents the maximum space allowed. The final space program for a new fire station will need to be carefully determined by installation representatives and the appropriate Service program office, guided by the criteria in this UFC. The space assessment and its related basic facility requirement (BFR) calculation serves as the basis for the validated DD1391, which defines the total authorized space allowances for each project.

2-4 LIFE-CYCLE COST PRIORITIZATION.

Prioritize a lower total life-cycle cost over initial capital investment. Design these facilities with the objective of achieving the lowest life-cycle cost over a 40-year period. To do so, the project's design program must define the scope and performance requirements to develop and validate a long-term operational budget. The budget must be within reasonable funding expectations while supporting an appropriate and high-quality program and meeting the performance requirements identified in this UFC.

2-5 LAYOUT AND ADJACENCIES.

As with location determinants, the key internal adjacencies are driven by response time. The location of the residential and living areas must accommodate quick and clear access to the apparatus room/bays for response in the event of an alarm. The apparatus bays require the ability to drive through with overhead doors on either end of each bay. The appropriate layout and adjacencies are illustrated through a bubble diagram.

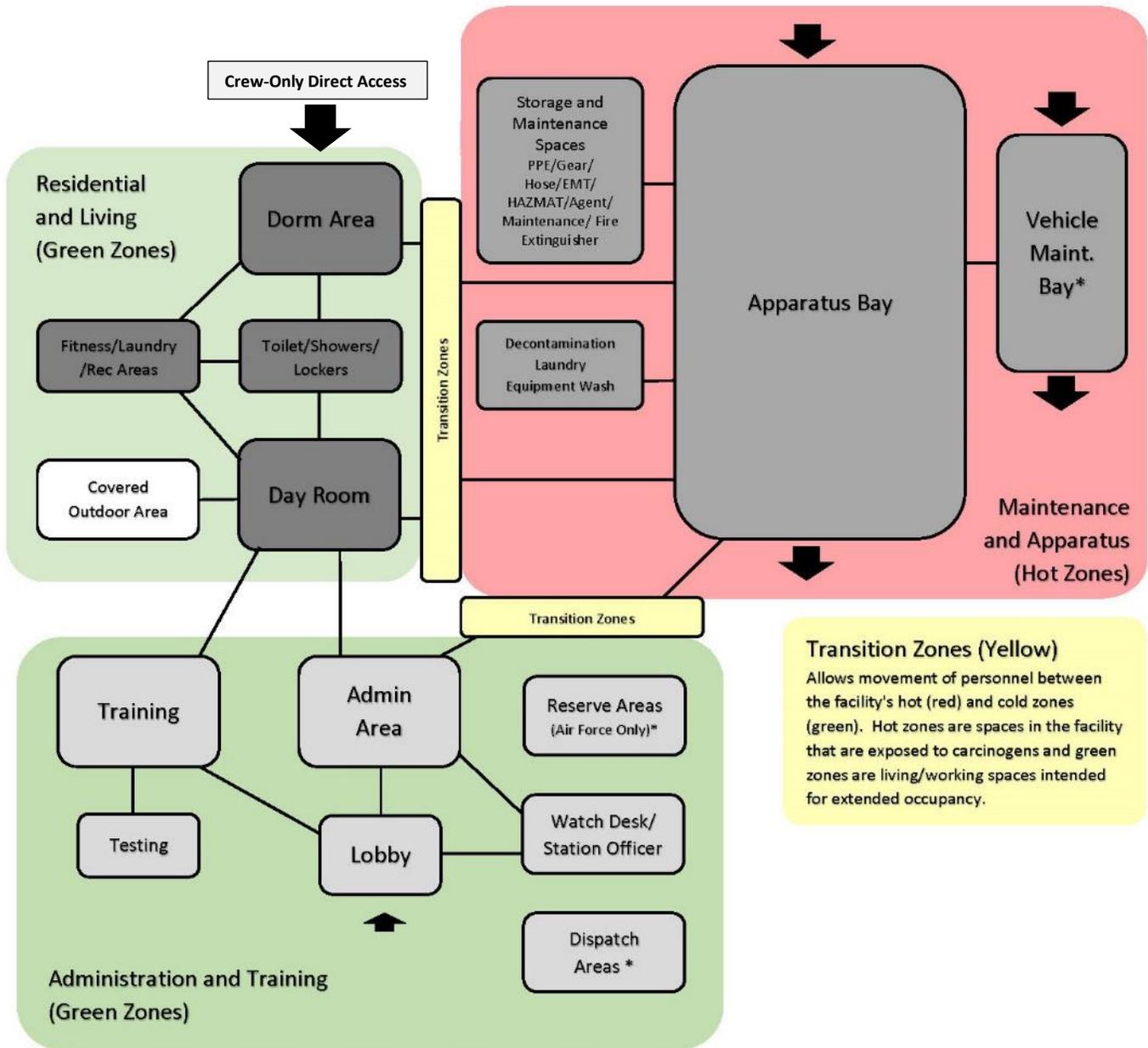
In HQ/main stations, coordinate the relationship between the administrative areas and the living areas with the users and program manager. There may be a desire to separate these areas to provide a sense of functional identity for each. One-story fire stations are preferred. However, if necessary, some required adjacencies may be accommodated vertically. If a two-story solution is proposed, the dispatch and administrative areas may be placed on the first floor to best account for Architectural Barriers Act (ABA) compliance requirements. The sequence for transitioning from a hot zone to a cold zone must allow space for personnel to take five steps along a walk-off surface over a minimum 6-ft (1.8-m) -long path after removing gear and washing off any visible contaminants.

2-5.1 Functional Relationship Bubble Diagram.

The bubble diagram in Figure 2-1 indicates the acceptable relative adjacencies of the functional spaces. Some of these key adjacencies may be accommodated through a hallway rather than a direct entrance/exit from one space to another. This is particularly true with the apparatus room/bays and the day room since many facility spaces need an adjacency with these two spaces. Note that the apparatus bay support area indicated in the diagram includes the following spaces, some of which may not be included in every station, depending upon installation mission requirements:

- SCBA maintenance
- SCBA compressor room
- Work room/equipment maintenance
- Equipment wash/disinfection
- Protective clothing laundry
- EMT storage
- HAZMAT/CBRNE equipment storage
- Spare PPE gear storage
- Decontamination room
- Flightline fire extinguisher maintenance

Figure 2-1 Basic Facility Functional Relationship Diagram



* If required by Installation mission requirements.

2-5.2 Space Assessment.

See the functional data sheets in Chapter 4 for additional information on the space types and their relationships to each other.

2-6 ALTERATIONS TO EXISTING FACILITIES.

2-6.1 Regulatory Authorities.

Refer to the following appropriate authorities for each Service:

- Army. The standard may be modified to accommodate the existing structure. However, all proposed modifications to the standard must be sent to the Army Corps of Engineers, Engineering & Support Center, HSV (CEHNC), for review and HQDA (CFSC; CYS) for approval prior to the initiation of concept design.
- Navy. Funding thresholds and authorities are in the most current version of OPNAVINST 11010.20, Navy Facilities Projects. The site approval request (SAR) process is in CNICINST 11010.3, Site Approval Request Process, and NAVFACINST 11010.45A, Site Approval Request Process. Prior to altering an existing fire station or converting an existing facility to a fire station, contact the local Asset Management Business Line of the Public Works Department (PWD) or Regional Facilities Engineering Command (FEC) for approval of changes to real property via site approval, certification of the work and property classification, assistance with project development, and the identification of signing authorities and fund source. This certification or assistance also applies to any alterations, conversion, construction, repair, or equipment installation effort for minor/specific work orders, special projects, or MILCON projects. Contact the Capital Improvements Business Line (CIBL) for assistance with the latest design and building codes.
- Air Force. Consult AFCEC for all architectural and functional requirements; technical issues relating to fire, life safety, certification; and publication coordination. Consult HQ USAF/A4C for functional policies.
- Marine Corps. Consult with Marine Corps Installations Command (GF) Facilities and (G3) Fire and Emergency Services.

2-6.2 Other Considerations.

It is unlikely that a non-fire station facility would ever be converted to a fire station. However, should this need arise, evaluate the site and structure of the existing facility and its limitations with regard to the required functions of a fire station.

Consideration must be given to the adaptability of the existing facility to the intent of the fire station program. For instance, can the building accommodate the apparatus room/bays? Does it have site space for the vehicle turning radii? Does it meet the

higher structural requirements for an essential facility (Risk Category IV) and an inhabited building or billeting? If not, can it be economically upgraded? Whether planning a conversion, alteration, addition, or new construction, all the criteria in this UFC must be met by the resulting facility.

2-6.3 Sustainable Design.

The location of a facility can have a significant impact on achieving sustainable design rating points. (See paragraph 3-9 for more information on sustainable design and sustainable rating systems.) Evaluate issues such as brownfield redevelopment, potential building orientation, access to public transportation, and reuse of existing paving and hardscape when selecting a site.

2-7 ACCESSIBILITY.

In accordance with UFC 1-200-01, follow the Architectural Barriers Act (ABA) Accessibility Standards for DOD facilities.

2-8 SUSTAINABLE DESIGN.

Design fire stations per the requirements of UFC 1-200-02, *High Performance and Sustainable Building Requirements*.

2-9 HAZARDOUS MATERIALS.

2-9.1 Background Information.

DOD operates facilities that routinely utilize, or have utilized in the past, hazardous materials and chemicals that contain lead, cadmium, chromium, and other heavy metals. Operations and activities that can create an unsafe condition with regards to worker protection include (but are not limited to) manual demolition, scraping, grinding, heat-gun applications, power tooling with dust collection, application of corrosion-control materials, spray paint with lead/chromium (VI)/cadmium-based paints, burning, power tooling without dust collection, rivet busting, cleanup activities with dry abrasives, movement/removal of enclosures, abrasive blasting, welding, cutting, and burning on steel structures. When these operations occur, there are hazards associated with the generation of dust, debris, and fumes. The hazards and the controls required are dependent on the materials used.

2-9.2 Facility Design Requirements.

For facilities that will operate, or will continue to operate, utilizing hazardous materials and/or chemicals, comply with the Occupational Safety and Health Act (OSHA), American Conference of Governmental Industrial Hygienists (ACGIH) *Guide to Occupational Exposure Values and TLVs and BEIs*, DODI 6055.01, *DoD Safety and Occupational Health Program*, and DODI 6055.06. The requirements found in the OSHA regulations and DODIs may affect facility design requirements, which may

include (but are not limited to), separate toilets and washing/bathing areas for workers exposed to the hazard, change rooms, decontamination areas, break rooms, clothes-washing facilities, areas for controlled disposal of contaminated waste and work clothes, both local and general high-efficiency particulate air (HEPA) ventilation systems and filters, eyewash stations, and deluge showers. Facility areas utilizing these hazardous materials and/or chemicals must be designated as regulated areas whenever exposure can be expected to be in excess of the permissible exposure limit(s) (PEL) and must be demarcated from the rest of the workplace in a manner that establishes and alerts building occupants of the boundaries of the regulated area. Design facilities in a manner to allow OSHA-required air sampling and monitoring for the specific hazardous material in use. Design facilities to control these hazards below the standards set in the stated regulations.

Additionally, DODI 6055.01, Appendix 4, lists additional requirements for facilities that involve operations generating airborne dust, mist, debris, or aerosols containing lead, chromium (VI), or cadmium. These requirements include (but are not limited to) containment processes and methods to monitor effectiveness of housekeeping procedures, decontamination procedures, and engineering controls tailored to each facility.

2-10 WEATHER RESILIENCY.

Current guidance for critical public safety facilities recommends facilities in identified weather threat areas include features to ensure emergency responders can survive through the trans-event period and immediately deliver emergency response services in the post-event period. Refer to FEMA's *Operational Lessons Learned in Disaster Response* for specific guidance.

CHAPTER 3 GENERAL DESIGN CRITERIA

3-1 GENERAL.

References within this UFC to applicable criteria and codes are intended to assist the designer in compiling the required documents. These references are not intended to identify all that may apply. It is the responsibility of the designer of record to identify and comply with all required statutes.

Use UFC 1-200-01 for applicability of model building codes and referenced government criteria. UFC 1-200-01 identifies, through references, key unified facility criteria and requirements, including accessibility, antiterrorism, security, sustainability, safety, acoustics, discipline-specific, and building systems. See paragraph 3-6 for appropriate governing codes for building services.

3-1.1 Authorized Building Program.

A DD1391 funding document is developed for all new construction projects that establishes the project requirements and authorized building size. The designer can use the functional diagram in Figure 2-1 to create the logical flow and individual space allocations for approved functions within the facility; however, the design may not exceed the square footage allowances of the DD1391 or add functions in the facility if the functions are not authorized in the validated DD1391.

3-2 STRUCTURE.

Classify the entire facility as Risk Category IV in accordance with UFC 3-301-01, *Structural Engineering*. Calculate wind loadings for the apparatus bay as a "partially enclosed building."

If the facility includes 11 or more beds, classify it as billeting in accordance with UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*. Ensure that anticipated utilization of the apparatus bay allows for its classification as low occupancy, design the vehicle doors for conventional loads, and provide structural isolation from any inhabited portions of the building in accordance with UFC 4-010-01.

3-2.1 Substructure.

Design the floor slab in the apparatus bay for appropriate wheel loads based on the heaviest type and size of vehicle anticipated to be parked therein.

3-2.2 Superstructure.

Where the length of the apparatus bay is sized to accommodate one vehicle parked in each stall, provide clear spans with no intermediate columns. With the approval of the fire chief, where the length of the apparatus bay is sized to accommodate two or more vehicles parked end-to-end in each stall, a single row of interior columns perpendicular to the stalls is permitted, provided these columns do not obstruct the vehicle lanes.

3-2.3 Fall Protection.

Provide an active fall protection system, approved by the fire chief and designed by a licensed professional engineer in accordance with 29 CFR 1926.502, *Fall protection systems criteria and practices*, and ANSI/ASSE Z359, *Fall Protection Code*, in each stall of the apparatus bay where work or maintenance on top of a parked vehicle is anticipated. Design the structure for the associated anchorage locations and loadings.

3-3 ARCHITECTURE.

Refer to UFC 3-101-01, *Architecture*, and comply with stated and cross-referenced requirements for architecture, with the following additions and exceptions for this facility type.

3-3.1 Stories.

Single-story structures are preferred for fire stations. Site constraints may drive the need for multi-story structures. If a multi-story structure is required, ensure the appropriate adjacencies are maintained so the required response times may be achieved. See paragraph 2-4 for more information on the required adjacencies.

3-3.2 Exterior.

Design the exterior to comply with current command and installation planning and design guidance. Also design for the local geographical and cultural environment. The fire station must present a cohesive architectural image. Create an attractive, functional theme that applies to the entire facility design, from the overall exterior architectural statement to the specific interior design elements. Reinforce continuity of space by space planning, building form, elevation, materials, and details.

3-3.2.1 Entrances.

Clearly identify the main fire station entrance to discourage visitors from entering the facility through an open apparatus bay door. In cold climates, provide a canopy (or a recess) at required egress doors to ensure doors can completely open without obstruction from snow and ice.

Provide separate entrances to the dorm area and the day room.

3-3.2.2 Exterior Finishes.

Provide durable and low-maintenance exterior finishes. Coordinate the exterior finishes with the Service-specific design standards noted in paragraph 3-4.2.

3-3.2.3 Apparatus Bay Fire-Rated Construction

Separate the lodging/rooming and administrative portions of the building from the apparatus bay and maintenance areas with a 1-hour fire barrier. Design this fire barrier to also prevent the passage of exhaust emissions.

3-3.2.4 Building Signage.

Building signage must provide clear directional and informational assistance. Mechanical, electrical, and/or utility room doors must have identifying signage to match other building signage. Design signage to comply with command and installation appearance plans (IAP).

3-4 INTERIOR DESIGN.

Construction and finishes (walls, floor, and ceiling) must support the cohesive image and theme of the facility as noted in paragraph 3-3.2. The living areas of the facility, such as the day room and the dorm rooms, must reflect a residential, non-institutional character.

Durability is extremely important when specifying materials for interior construction and finishes. Fire stations are occupied 24 hours a day, seven days a week, and heavy equipment is regularly handled throughout the facility. These conditions will lead to greater interior damage being incurred compared to many other facility types.

Provide a clear boundary between contaminated spaces (such as apparatus bay, protective clothing laundry, decontamination spaces, hose storage, and similar spaces where equipment and clothing are exposed on the emergency scene) and uncontaminated spaces (such as offices, classrooms, dayroom, dining, sleeping rooms). Personnel travel through/across the boundary is allowed, though provision at the boundary to permit at least hand-washing should be provided.

3-4.1 Interior Construction.

Provide blocking for all wall- or ceiling-mounted equipment and furnishings. Counters, casework, and cabinets must be of high-quality, durable construction. Specify Architectural Woodwork Institute (AWI) Premium or Custom for finishes per *AWI Standards*. Countertops must be solid surface/solid composite plastics. Specify 0.75-in. (20-mm) minimum thickness for plywood, plywood backing, and solid wood panels. Particleboard may not be used.

Finishes must be able to withstand frequent cleaning and must coordinate with the other finish materials. All interior glass must be tempered safety glass and mirrors must be constructed with break-resistant materials.

3-4.2 Finishes.

Finishes must take into account the intended uses and be highly durable. They must meet the requirements listed in NFPA 101, *Life Safety Code*, and UFC 3-120-10, *Interior Design*. Coordinate the interior (and exterior) design with Service-specific

standards or agencies. Comply with the following requirements throughout the entire facility:

- In moist climates, do not cover the inside of exterior walls with impervious materials such as mirrors or vinyl wall coverings. This is due to concern over mold development in the walls.
- Procure a high-quality, easy-to-maintain, durable carpet that provides a long-lasting appearance.
- For more information on finishes in specific areas, see the functional data sheets in Chapter 4.

3-4.3 Interior Signage.

Develop a comprehensive signage package that addresses both way-finding and definition of all spaces within the facility. Signage must reflect and complement the interior environment through colors, images, and materials used. Signage must be in accordance with UFC 3-120-01, *Design: Sign Standards*, and with command and installation appearance plans (IAP).

3-4.4 Window Treatments.

All windows and other glazed openings to the exterior of the building must be provided with horizontal blinds or solar shading systems as part of the construction project.

3-5 ACOUSTICS.

3-5.1 Sound Transmission Coefficient Ratings

The functional data sheets in Chapter 4 provide minimum sound transmission coefficient (STC) ratings for the appropriate spaces. Typical STC ratings range from 35 to 55 STC, depending on the space and its intended use. The design team must achieve the minimum required STC values by treating wall surfaces, wall openings, and the structure with sound-attenuating materials.

3-5.2 Outdoor Indoor Transmission Class

Refer to UFC 3-101-01 and comply with stated and cross-referenced requirements for building envelope requirements. UFC 3-101-01 provides minimum building façade sound isolation ratings utilizing the composite Outdoor Indoor Transmission Class (OITC) values necessary for determining the acoustic building envelope requirements. Typical OITC ratings range from OITC 25 to OITC 50, dependent upon interior background noise levels set as noise criteria (NC) ratings. Unless otherwise stated, design the building envelope and interior spaces to achieve the more stringent acoustic criteria where applicable.

3-5.3 Air Installations Compatible Use Zones

Per DODI 4165.57, *Air Installations Compatible Use Zones (AICUZ)*, when a fire station is located near the flightline, comply with the AICUZ noise reductions for the facility location. If an AICUZ map is not available for the location, an acoustical engineer must conduct an acoustical analysis to determine the exact type and extent of the additional acoustical treatments needed to address aircraft noise.

3-6 SERVICES.

3-6.1 Plumbing.

Design all building systems—such as domestic hot and cold water, sanitary and storm drainage, propane, fuel oil, or natural gas systems—to meet the requirements of local installation standards, criteria in UFC 1-200-01, and cross-referenced requirements therein.

Provide combination water fountain and water bottle-filling station wherever electric water coolers are required. Provide double check-valve backflow preventers on all water lines serving beverage machines, coffee brewers, and ice makers.

3-6.2 Heating, Ventilating, and Air Conditioning (HVAC).

Refer to UFC 1-200-01 and comply with stated and cross-referenced requirements for HVAC systems. Unless otherwise stated, design spaces to comply with comfort cooling and heating requirements of UFC 3-410-01, *Heating, Ventilating, and Air Conditioning Systems*.

HVAC systems will maintain a negative pressure relationship between yellow/red zones and green zones at all times. Yellow zones are the transition zones between red zones (exposed to carcinogens) and green zones (living/working spaces).

3-6.3 Fire Protection and Life Safety.

Refer to UFC 1-200-01 and comply with stated and cross-referenced requirements for fire protection, life safety, and mass notification systems.

3-6.3.1 Fire Protection System Requirements.

Protect the entire fire station throughout with an automatic fire suppression and voice evacuation fire alarm system regardless of building size and type of construction. Comply with the facility safety section of NFPA 1500, *Standard on Fire Department Occupational Safety, Health, and Wellness Program*, except as modified in this UFC.

3-6.3.1.1 Carbon Monoxide Detection.

Provide carbon monoxide (CO) detection as required per UFC 3-600-01, *Fire Protection Engineering for Facilities*. Monitor, power, and provide notification for the CO detection from the fire alarm system, also as required per UFC 3-600-01.

3-6.3.1.2 Area Smoke Detection.

Provide smoke detection in sleeping rooms and sleeping room access hallways. Do not provide smoke detection in the apparatus bay or other areas where exhaust fumes may be present. Enable the general building evacuation signal upon activation of any smoke detector.

3-6.3.2 Retractable Partitions.

Where one or more retractable partitions are provided, fire suppression and fire alarm devices will be provided to protect the space in accordance with UFC 3-600-01 with the partitions in the open or closed position.

Means of egress inclusive of the number of exit access doors and door swing must be in accordance with NFPA 101 requirements with the partitions in the open or closed position.

3-6.4 Electrical.

Refer to UFC 1-200-01 and comply with stated and cross-referenced requirements for electrical systems. Also comply with the following fire station-specific requirements.

3-6.4.1 Lighting.

See Chapter 4 for light level and control requirements that are exceptions to or in addition to the requirements referenced above. Refer to UFC 3-530-01, *Interior and Exterior Lighting Systems and Controls*, for lighting levels not specified in Chapter 4 or in the requirements referenced above.

3-6.4.2 Emergency Power.

Provide 100 percent emergency generator back-up power for all stations. For satellite stations, provide emergency back-up power, at a minimum, for the following spaces/systems:

- Apparatus bay lighting and doors
- Watch desk/dispatch and all associated equipment
- IT room systems related to the dispatch and communication functions
- HVAC related to IT room support

- Lighting

Refer to the functional data sheets in Chapter 4 for uninterruptible power supply (UPS) requirements for applicable spaces. Provide on-site fuel storage for emergency generator back-up power for a 72-hour period. If fuel contracts are secured, the requirement for on-site fuel storage can be reduced to a 24-hour period.

3-6.4.3 Telecommunication Systems.

See Chapter 4 for outlet locations.

3-6.4.4 Television Systems.

See Chapter 4 for outlet locations.

3-6.4.5 Electronic Security Systems (ESS).

Design the ESS in accordance with UFC 4-021-02, *Electronic Security Systems*. See Chapter 4 for locations and additional criteria.

3-6.4.6 Access Control Systems.

Provide card readers with keypads at entries to building.

3-6.4.7 Closed-circuit Television (CCTV).

Provide the infrastructure for a CCTV system to meet operational requirements.

CCTV cameras will be located to monitor the apparatus bays, vehicle maintenance bay, and the main entrance to the facility. CCTV monitors will be located at either the watch desk or dispatch, if provided. See Chapter 4 for additional information.

3-6.4.8 Intercommunication Systems.

See Chapter 4 for locations and additional criteria.

3-6.4.9 Firefighter Alert System.

Firefighter alert systems must be provided in accordance with NFPA 403, *Standard for Aircraft Rescue and Fire-Fighting Services at Airports*, and NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*, for emergency response facilities (ERF). See general requirements below and Chapter 4 for additional information.

General Requirements:

- The system must provide audible announcements from defined message format to follow initial audible alert.

- Consult with component's dispatch leadership for specific technology used by computer aided dispatch (CAD)/records management system (RMS) for information transfer. This may include Web services.
- The system must provide fire station and EMS alerting with ramped heart saver tones no greater than 5 seconds from initiation.
- The system must provide fire station and EMS alerting with amplitude lighting no greater than 5 seconds from initiation.
- Fire station and EMS alerting will be provided with audible announcement to public address (PA) system no greater than 5 seconds from initiation.
- Fire station and EMS alerting will be provided with audible announcement to radios no greater than 5 seconds from initiation.
- Fire station and EMS alerting will be provided with a digital resource display board.
- The system must provide audible announcements from defined message format to follow initial audible alert.
- The system must provide a digital light status bar.
- The system must provide rip-and-run printers for incident and route information where required by the fire chief.
- The system must allow for zoning of audible and visual alert notification.
- Provide simultaneous light and audible control inside and outside to alert on-duty staff of emergencies.
- Provide simultaneous light and audible control for the following spaces when the firefighter alert system is activated: dorm room dedicated alert lights, corridor lights from dorm rooms to the apparatus bay, and the apparatus bay lights.

3-6.4.10 Lightning Protection System.

Install lightning protection systems for new facilities and existing facilities modifications in accordance with NFPA 780, *Standard for the Installation of Lightning Protection Systems*.

3-7 SITE WORK.

In addition to the criteria established in UFC 1-200-01 and the cross-references included therein, comply with the following additions or exceptions for this facility type.

Organize the site to be compatible with the site planning and style of adjacent existing structures. Locate the building to reflect local climatic conditions. For example, provide protection from prevailing winds and glare and orient operable windows to take advantage of summer breezes. Locate the building to take advantage of passive solar heating and day lighting.

3-7.1 Landscaping.

Select plants that are easy to maintain and enhance the visual quality of the facility in all seasons. Indigenous species are preferred. Accentuate main entrances to the facility with plant materials and specialty paving (precast concrete or brick pavers). Assess the growth characteristics of selected plant material when evaluating line-of-sight requirements to either flightline pavements or facilities. Comply with UFC 3-201-02, *Landscape Architecture*, and local installation landscape standards. For the Air Force, also refer to the applicable major command and installation standards.

Plan for sustainable design issues when designing the landscape. Select plants that require little to no additional water beyond normal rainfall. Avoid plants that require an irrigation system or evaluate a gray water or storm water irrigation system. Due to the proximity to the flightline for ARFF facilities, select trees and shrubs that produce little or no debris. Avoid using plants that produce fruits or nuts that may attract unwanted animals and birds to the airfield environs.

3-7.2 Firefighting Vehicle Access Drives.

Ensure that dimensions and layouts of access roadways and service entrances accommodate specific vehicle types anticipated for fire station operations. Provide apparatus ramps constructed of portland cement concrete pavement designed to support the anticipated vehicle weight.

Design the facility and site to permit drive-through apparatus bays unless restricted by the site and/or flightline. If the vehicle access drives are sloped, either for drainage or due to the site profile, ensure the slope angle is low enough to be easily navigated by the firefighting apparatus and the driver can maintain good visibility of the area around his or her vehicle. Provide signage and/or striping explicitly prohibiting unauthorized vehicles on the access drives and apparatus ramps. Do not install gates or other access control measures that would impede emergency response.

3-7.3 Parking and Other Access Drives.

Provide parking based on the total positions assigned, including eight- and 24-hour shift positions and reservists (if appropriate). Provide visitor parking separate from staff parking, with visitor parking spaces totaling approximately 25 percent of those required for staff. If possible, do not allow access drives to staff and public parking to cross the vehicle access drive out of the apparatus bay. Provide signage and/or striping to correlate with any parking or access drive restrictions or authorizations. Locate parking areas so they do not dominate the main entrance and public image of the facility. Provide a service drive adjacent to the mechanical room. Comply with UFC 3-201-01, *Civil Engineering*, and UFC 4-010-01.

3-7.4 General Site Lighting.

Refer to UFC 1-200-01 and comply with stated and cross-referenced requirements for electrical systems. If the facility is near a flightline, provide site lighting that will not interfere or be a distraction to aircraft movement at night. Comply with UFC 3-530-01.
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3-8 SUSTAINABLE DESIGN.

Requirements for sustainability apply to construction, redesign, renovation, and modernization projects. Comply with UFC 1-200-02.

CHAPTER 4 SPECIFIC DESIGN CRITERIA

4-1 INTRODUCTION.

This chapter identifies the specific design needs for each functional area as outlined in the space program. Tables 4-1 through 4-33 provide these data in a standard functional data sheet format.

The interior construction specialties, equipment, and furnishings criteria provided in these tables are broken down as follows:

- **Casework/Built-in Equipment.** This includes anything physically attached or plumbed to the building, such as counters, cabinets, casework, toilet accessories, window treatments, laundry machines, and marker boards.
- **Furnishings, Fixtures, and Equipment (FF&E).** This includes contractor-furnished, contractor-installed loose items such as desks, tables, chairs, and bookshelves.
- **User-Provided Equipment.** This includes all government-furnished, government-installed items, which are typically limited to office equipment such as computers, printers, and copiers. Flat panel display; if mounted, flat panel display mount is a built-in equipment item.

Table 4-1 Apparatus Bay

Description/ Usage	The apparatus bays house the fire protection vehicles. Drive-through bays are preferable. All bays must accommodate the latest and largest structural and ARFF vehicles. Each bay of the apparatus room/bays must include the required support utilities (drops) for vehicles such as exhaust, compressed air, hot and cold water, lighting, and power. Back to back bay arrangement is not permitted.
Min. Ceiling Ht.	14 ft (4.26 m) minimum. Note: 14 ft (4.26 m) clearance is required with bay doors in open and closed positions.
Finishes	<p>Walls. Concrete masonry units (CMU). Provide epoxy paints on all wall surfaces.</p> <p>Floor. Provide either a sealed concrete surface or a 1-part or 2-part water-based epoxy concrete floor paint, in a slip-resistant, semi-gloss, light color finish. Final color selection to be coordinated with user and installation. Apply a concrete etcher to thoroughly clean concrete surface and a bonding primer for proper adhesion prior to applying epoxy finish. Slope floor to trench drains.</p> <p>Ceiling. Ceiling not required; however, provide finishes for exposed structure. Coordinate mechanical, electrical, and plumbing components. None of the ceiling components can be located below minimum ceiling height.</p>
Plumbing	<p>Provide minimum 3-in. (75-mm) -diameter water service with 2.5-in. (62-mm) -diameter National Standard Threads ball-valve outlet to each vehicle. Provide a combination eye/face wash and drench shower. Provide foot-operated mop sink with mop hanging rack. Provide one standard hot and cold water hose bibb with mounted hose reel (100 ft [30.5 m] capacity) for every two truck bays. Provide floor trench drains parallel to the centerline of each vehicle. All apparatus room/bays drains must connect to an oil water separator or where the Installation has pretreatment or treatment methods in place in accordance with their permitted allowances, an approved sanitary sewer system. Coordinate with Installation EV staff for information on existing pretreatment or treatment methods and permitted allowances. /1/ If an exterior wash area is provided, size the separator for the total volume and connect the exterior drain to this separator.</p> <p>Provide compressed air with self-retracting reels at each vehicle bay. Provide SCBA air connection.</p>
HVAC	<p>Design heating for 68 °F (20 °C) dry bulb. Local installations may decide to forgo heating in areas without risk of freezing. Provide gas-fired radiant heating if natural gas or propane is available. Local base or post authorities may choose different heating systems on a case-by-case basis.</p> <p>Provide ventilation to cool bay to within 10 °F (6 °C) of design outdoor temperature. The Services will not air condition the apparatus bay unless through exceptions. If approved, systems used for conditioning will be determined on a case-by-case basis. Consider climatic conditions, energy costs, and sustainability impacts for exceptions and system selections. For Army projects, refer to TI-800-1 for appropriate exceptions. For Navy projects: Local base authorities within the Naval Forces Central Command region may choose to air-condition the apparatus bay; air-conditioning of the apparatus bay is not permitted for any other regions.</p> <p>Maintain apparatus bay air quality within the strictest established regulatory guidelines for volatile organics, nitrogen oxide, sulfur dioxide, carbon monoxide, particulates, diesel exhaust particulates established by:</p> <ul style="list-style-type: none"> • NIOSH (National Institute for Occupational Safety and Health) REL (recommended exposure limit/10-hour time-weighted average), <i>NIOSH Pocket Guide to Chemical Hazards</i>

	<ul style="list-style-type: none"> • OSHA (Occupational Safety and Health Administration) PELs (permissible exposure limit/8-hour time-weighted average), <i>Annotated Permissible Exposure Limits (PELs) Tables</i> • ACGIH threshold limit value (average over 8-hour work shift)/short-term exposure limit (over 15-minute period), <i>Guide to Occupational Exposure Values and TLVs and BEIs</i> • NFPA 1500 <p>Per the International Mechanical Code (IMC), the apparatus bay will be classified as an "enclosed parking garage." The apparatus bay ventilation system will operate continuously and comply with all other applicable requirements of IMC-2015 Sections 403, 404, 502.13, and 502.14 or current IMC equivalent. Minimum ventilation rate will be the greater of the requirements of IMC-2015 Section 404.2 or current IMC equivalent and ASHRAE 62.1, "Transportation Waiting". Exhaust and ventilation systems will be designed and operate to keep apparatus bay negatively pressurized with respect to adjacent occupiable spaces at all times. Provide carbon monoxide and nitrogen dioxide detectors. Such detectors will be listed in accordance with UL 2075 and installed in accordance with their listing and the manufacturer's instructions. Provide air contaminant detector systems with audible and visual alarms given at required levels and be easily identifiable by all occupants within the apparatus bay. Force HVAC systems to operate when contaminants are sensed and continue to operate until safe conditions are present in the apparatus bay.</p> <p>Provide an air-cleaning system for elimination of fire apparatus vehicle exhaust in compliance with NFPA 1500, the IMC, and ASHRAE 62.1. The apparatus bay air-cleaning system will be designed to remove, treat or eliminate particulates, VOCs, and gaseous exhaust contaminants from the apparatus bay. Air-cleaning system will automatically operate on vehicle operation and operate until apparatus bay air has been fully treated. For Navy and Marine Corps projects: If engines are operated inside the apparatus bay other than to move apparatus into and out of the bay then also provide a direct vent system that connects directly to the fire apparatus exhaust and evacuates vehicle exhaust directly to the outdoors. The direct vent system can be either an automatic-type Fire Apparatus Vehicle Exhaust Removal System (FAVERS) or a manually operated hose-type exhaust system operating whenever equipment is running in the bay.</p> <p>A make-up air system will supply heated air to the apparatus bay. Make-up air system will be designed and controlled to provide make-up air for all sources of exhaust installed within the apparatus bay. Make-up air should be distributed to minimize drafts and be introduced above apparatus level since diesel exhaust is heavier than air. In this way, the make-up air flow downward will assist in pushing the exhaust fumes out the apparatus bay doors when open.</p> <p>Provide a floor radiant heating element at each bay door to prevent the door from freezing to the pavement at the local installation's discretion.</p>
Fire Protection	Provide system per paragraph 3-6.3.
Power	<p>Provide outlets per paragraph 3-6.4. Locate all outlets at 36 in. (900 mm) above finished floor (AFF). Provide one self-retracting electric drop cord for each parking area. Provide backup power sized to provide full unobstructed operation capability of the apparatus bays.</p> <p>Provide power to each retractable bay door.</p>

Lighting	Provide lighting system per paragraph 3-6.4. Provide doors with a signaling system to indicate fully raised doors. A red/green indicator must be located on the driver's side. Coordinate indicator mounting height at viewable distance from driver position in planned truck for each bay.
Communication	<p>CCTV. Provide interior and exterior outlets located to provide coverage of the apparatus bay and facility's main entrance.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide speakers and horns with visual element.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. Provide data drops as required by equipment.</p> <p>Security. None required.</p> <p>Firefighter Alert System: Fire station and EMS alerting will be provided with audible announcement (to fire station PA systems and radios), ramped heart saving tones, and amplitude lighting with a digital resource display board no greater than 5 seconds from initiation.</p>
Casework/Built-in Equipment	None required.
Furnishings Fixtures & Equipment (FF&E)	Ice machine (with fresh water dispenser). Locate in direct adjacency to apparatus bay. Install in a clean area that allows adequate space for safe handling of ice and does not present a risk for ice contamination. Provide storage cabinet for cleaning supplies near mop sink.
User-provided Equipment	CCTV cameras.
Special Requirements	<p>Provide 14 ft by 14 ft (4.3 m by 4.3 m) apparatus bay doors, with electric eye, and/or fixtures and automatic reverse device. For ARFF bays, provide 18 ft by 18 ft (5.5 m by 5.5 m) apparatus bay doors as recommended by NFPA 403. Even if ARFF vehicles are only intended to be housed on one side of a double bay, provide the 18 ft by 18 ft (5.5 m by 5.5 m) doors on both sides to permit drive through and allow flexibility of use.</p> <p>Provide manual means to open doors in case of power failure. If solid door panels are used, provide insulated doors. Provide doors with radio-operated closing devices that can be activated from the vehicle. Ensure both the internal floor slope and the approach drive slope allow the fire protection vehicles to transition into and out of the apparatus bay without bottoming-out or impeding driver sightlines.</p> <p>Provide fall protection system per paragraph 3-2.</p>

Table 4-2 PPE Gear Storage

Description/ Usage	<p>The personal protective equipment (PPE) area provides storage for firefighters' protective gear. A well-ventilated locker is assigned to each member of the firefighting crew. Provide floor area in front of each locker as required for easy access during emergencies. Provide as ventilated space separate from apparatus bay.</p> <p>For Army only: PPE lockers are permitted to be located within and open to the apparatus bay.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. CMU. Provide a low-maintenance, durable finish such as industrial latex or epoxy paints on all wall surfaces.</p> <p>Floor. Provide a slip-resistant, sealed concrete surface sloped to the drain.</p> <p>Ceiling. Provide durable ACP or GWB ceiling with industrial latex or epoxy paint.</p>
Plumbing	Provide a floor drain. If part of apparatus bay, ensure hose bibb is available within 20 feet (6.1 m).
HVAC	<p>Provide a system per paragraph 3-6.2. Provide exhaust to maintain space negatively pressurized relative to occupiable spaces. Exhaust system must be separate from occupiable space exhaust.</p> <p>For Army projects only, if PPE gear storage is incorporated into the apparatus bay, size general space ventilation system to account for gaseous emissions from storage gear.</p>
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide speakers and horns with visual element.</p> <p>Telephone. None required.</p> <p>Data. None required.</p> <p>Security. None required.</p>
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide open 24 in. by 24 in. by 6 ft (600 mm by 600 mm by 1800 mm) high wire mesh metal locker that includes shelves and clothes hook. Lockers located along side walls.
Furnishings Fixtures & Equipment (FF&E)	Option to provide moveable gear lockers in lieu of fixed units. Provide work bench surface for personnel to conduct self-inspection of gear, take gear out of service for washing and return/place new PPE in service.
User-provided Equipment	None required.
Special Requirements	Locker layout must permit free air circulation around and throughout clothing. Layout must account for storage of additional spare equipment items. Provide extended-height door kick plates (min. 36 in. [914 mm]). Provide vision panel in door to assist in prevention of collision as personnel are frequently simultaneously moving in both directions through this doorway.

Table 4-3 Hose Storage

Description/ Usage	This area provides for storage of hoses. Hoses are rolled and stored on fixed or mobile storage racks.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. CMU. Provide a low-maintenance, durable finish such as industrial latex or epoxy paints on all wall surfaces.</p> <p>Floor. Provide a slip-resistant, sealed concrete surface sloped to floor drain.</p> <p>Ceiling. None required.</p>
Plumbing	Provide a floor drain. Ensure a hose bibb is available within 20 feet (6.1 m).
HVAC	Provide a system per paragraph 3-6.2. Ensure space is well ventilated.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6., and dedicated outlets required to support drying equipment (if provided).
Lighting	Provide system per paragraph 3-6.4.
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide a speaker.</p> <p>Telephone. None required.</p> <p>Data. None required.</p> <p>Security. None required.</p>
Casework/Built-in Equipment	Fixed racks for roll-up hose storage.
Furnishings Fixtures & Equipment (FF&E)	Optional to provide movable racks for roll-up hose storage.
User-provided Equipment	Hoses and hose drying oven when required due to climatic conditions.
Special Requirements	None required.

Table 4-4 SCBA Maintenance/Compressor Room

Description/ Usage	<p>The self-contained breathing apparatus (SCBA) maintenance room is used for the maintenance and minor repair of SCBA equipment. It includes a work bench, task lighting, and shelving for storage of parts and equipment. The room also contains a mask pressure testing machine.</p> <p>Separate but directly adjacent is the dedicated SCBA compressor room, which houses the main compressor unit used to charge the SCBA tank with filtered air. Ensure direct access between these rooms. This space must include sound attenuation. A compressed air supply line is provided from this room to the SCBA maintenance room and the apparatus bay.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. CMU. Provide a low-maintenance, durable finish such as industrial latex or epoxy paints on all wall surfaces.</p> <p>Floor. Provide a slip-resistant, sealed concrete surface.</p> <p>Ceiling. None required.</p>
Plumbing	Provide SCBA compressor and bottle filling stations. Provide compressed air lines to apparatus bay and SCBA maintenance room. Provide a floor drain for condensate. SCBA compressor air intake air must be separated from potential sources of contamination for SCBA compressor to provide Grade-E air as defined by ANSI/CGA G-7.1. Adequate maintenance and access clearance will be provided around SCBA compressor. Provide utility sink in SCBA maintenance room.
HVAC	Provide a system per paragraph 3-6.2. Provide positive pressure ventilation to prevent contamination.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4. In the SCBA maintenance room, provide task lighting at the work/service bench at 50 fc (500 lux).
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide a speaker.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. Provide data drops as required by equipment.</p> <p>Security. None required.</p>
Casework/Built-in Equipment	Provide stationary containment fill station for safety of the occupant during fill operation.
Furnishings Fixtures & Equipment (FF&E)	Provide industrial grade 24 in. (610 mm) deep minimum work bench and storage shelving. Provide spare parts bin. Provide workstation as applicable with installation requirements.
User-provided Equipment	Provide mask pressure testing machine and scales.
Special Requirements	Layout must account for storage of additional spare equipment items.

Table 4-5 Protective Clothing Laundry

Description/ Usage	Protective clothing laundry room is utilized to wash and disinfect firefighters' protective clothing/gear. The room must accommodate large commercial-grade washers and dryers and a drip-dry rack. Locate room with direct access to the exterior, equipment maintenance/wash/ disinfection room, PPE gear storage, and apparatus bay.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. CMU. Provide a low-maintenance, durable finish such as epoxy paints on all wall surfaces. Floor. Provide a slip-resistant, sealed concrete surface sloped to floor drain. Ceiling. Provide durable, moisture-resistant ACP or GWB ceiling.
Plumbing	Provide hot and cold water supply and an open-end drain to each washer. Provide hot and cold water supply and drain for laundry/utility sink. Provide a floor drain. Refer to NFPA 1581 for more information.
HVAC	Provide a system per paragraph 3-6.2. Exhaust per UFC 3-410-01 and negatively pressurize room. Provide direct vents to the outside for each dryer.
Fire Protection	Provide system per paragraph 3-6.3. Regardless of size, enclose the laundry room with a 1-hour fire barrier.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. None required. Data. None required. Security. None required
Acoustics	No special provisions required.
Casework/Built-in Equipment	Large, high-capacity, industrial extractors and dryers (soft mount and programmable controls) that comply with NFPA 1851 and NFPA 1581. (NFPA 1581 requires commercial models of washers and dryers to be front-loading to prevent agitator damage to clothing). Provide one additional dryer per extractors. Extractors must be mounted on concrete foundations. Provide a stainless-steel laundry-folding table. Provide stainless-steel laundry/utility sink. Provide wall-mounted hanging racks.
Furnishings Fixtures & Equipment (FF&E)	Provide workstation and workbench per installation requirements.
User-provided Equipment	None required.
Special Requirements	None required.

Table 4-6 Equipment Maintenance/Wash/Disinfection

Description/ Usage	<p>The maintenance area is used for the minor repair and maintenance of firefighters' equipment. Provide a work bench with lighting and storage.</p> <p>The wash/disinfection area is located adjacent to the maintenance area. It includes a wash-off area where incoming equipment can be washed, desalinated, and dried. When fire trucks return from a fire or other event, equipment is brought into this area for cleaning and disinfection. The equipment is taken from the truck directly to the wash and disinfection area prior to the truck's entry into the apparatus bay. Provide direct access to exterior.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. CMU. Provide a low-maintenance, durable finish such as industrial latex or epoxy paints on all wall surfaces.</p> <p>Floor. Provide a slip-resistant, sealed concrete surface.</p> <p>Ceiling. Provide durable moisture-resistant ACP or GWB ceiling.</p>
Plumbing	In the wash/disinfection area, provide floor mop sink with hose and spray nozzle. Provide a three-compartment stainless-steel sink and a drip dryer rack. \1\ Connect all drains to an approved sanitary sewer or septic system. Coordinate with Installation EV staff to determine if the local pretreatment program requires the use of an oil water separator. /1/ Provide compressed air supply to both wash and maintenance rooms. Provide floor drain in maintenance area.
HVAC	Provide a system per paragraph 3-6.2. Provide exhaust to negatively pressurize both rooms.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4. Provide 50 fc (500 lux) task lighting at work/service bench.
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide a speaker.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. None required.</p> <p>Security. None required.</p>
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide 3-compartment stainless-steel laundry/utility sink and 8 ft by 4 ft (2.4 m by 1.2 m) stainless-steel work table for wash/disinfection space.
Furnishings Fixtures & Equipment (FF&E)	Provide industrial grade 24 in. (610 mm) deep minimum work bench with storage shelving and spare parts bins. Provide hanging racks and open shelf storage units.
User-provided Equipment	None required.
Special Requirements	None required.

Table 4-7 EMT Storage and Medical Storage Cabinet

Description/ Usage	The EMT storage area is for storage of basic first aid supplies. It must be directly adjacent to the apparatus bay. The space must be fully conditioned. The medical storage cabinet is often a cabinet or subspace within the EMT storage area and is for storage of drugs, needles, and other restricted medical supplies. Access to EMT storage is restricted and controlled to prevent theft and abuse of controlled substances.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. Provide CMU or GWB wall with a low-maintenance, durable finish such as industrial latex paint. Floor. Provide low-maintenance resilient sheet or tile flooring material with rubber base. Ceiling. Provide ACP ceiling.
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. None required. Telephone. None required. Data. None required. Security. Provide electric cipher lock with remote push-button release and manual key override if narcotics/controlled substances are to be stored in this location.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide wall (or free-standing FF&E) shelving units.
Furnishings Fixtures & Equipment (FF&E)	Provide a lockable cabinet for EMT storage to store drugs and other restricted supplies. Provide lockable medical refrigerator.
User-provided Equipment	None required.
Special Requirements	Provide a keyed lock set at the access point to the space.

Table 4-8 HAZMAT/CBRNE Equipment Storage

Description/ Usage	HAZMAT/CBRNE equipment storage is a dedicated storage room housing only equipment classified for use with hazardous materials. Provide floor and open shelf storage areas.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. CMU. Provide a low-maintenance, durable finish such as industrial latex paint. Floor. Provide a sealed concrete surface. A non-skid, low-maintenance traffic coating may also be acceptable. Ceiling. None required.
Plumbing	Provide compressed air with self-retracting hose reels at the work bench.
HVAC	Provide a system per paragraph 3-6.2. Provide exhaust to negatively pressurize room.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. None required. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide heavy-duty hanging racks for HAZMAT suits.
Furnishings Fixtures & Equipment (FF&E)	Provide industrial and large-item storage shelving units.
User-provided Equipment	None required.
Special Requirements	None required.

Table 4-9 Agent Storage

Description/ Usage	Agent storage can be integral to the fire station building or detached. It must be located with access to the drive leading into the apparatus bay or access within the apparatus bay for ease of loading and unloading of firefighting agents.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. CMU or metal stud construction. If metal stud construction, provide plywood sheathing for protection. Provide paint finish to plywood. Floor. Provide a sealed concrete surface. Ceiling. None required.
Plumbing	None required.
HVAC	Heating and cooling only as needed by the stored agent's MSDS temperature requirements. Maintain a minimum temperature of 50 °F (10 °C) or per stored agent's MSDS temperature requirements, whichever is higher.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. None required. Telephone. None required. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	None required.
Furnishings Fixtures & Equipment (FF&E)	None required.
User-provided Equipment	None required.
Special Requirements	Provide double or overhead-type exterior doors. Provide insulated doors in locations where required by climatic conditions. Layout must account for storage of additional spare equipment items.

Table 4-10 Spare PPE Gear Storage

Description/ Usage	This space serves to store extra PPE gear for all assigned firefighters and reservists currently not on duty. The space includes gear lockers with an open shelving storage system.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. CMU. Provide a low-maintenance, durable finish such as industrial latex or epoxy paints on all wall surfaces. Floor. Provide a sealed concrete surface. A non-skid, low-maintenance traffic coating may also be acceptable. Ceiling. None required.
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2. Provide exhaust to maintain space negatively pressurized relative to occupiable spaces. Exhaust system must be separate from occupiable space exhaust.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. None required. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide lockable 24 in. by 24 in. by 72 in. (600 mm by 600 mm by 1800 mm) high wire mesh metal lockers that include shelves and clothes hooks.
Furnishings Fixtures & Equipment (FF&E)	Option to provide portable gear lockers in lieu of fixed units.
User-provided Equipment	None required.
Special Requirements	Locker layout must permit free air circulation around and throughout clothing.

Table 4-11 Decontamination Room

Description/ Usage	<p>The decontamination room provides showers and lockers for firefighters to decontaminate themselves prior to entering the living portion of the fire station. Space must be accessible/combined with the transition zones within the apparatus bay.</p> <p>For Army only: As required by the installation's mission, it is optional to utilize this space as "non-flightline fire extinguisher inspection, maintenance and storage." The non-flightline fire extinguisher maintenance and storage includes an indoor storage/maintenance room and possibly an outdoor storage area. The indoor storage/maintenance room accommodates a work bench with lighting to perform maintenance and service of extinguishers, safety cage, scale, recharge kit, and parts storage bins. Provide open shelving for storage of extinguishers. The outdoor storage area is covered and enclosed with a secured screen. This may be combined with the flightline fire extinguisher maintenance and storage area and made as one space with no dividing walls.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. CMU. Provide a low-maintenance, durable finish such as industrial latex or epoxy paints on all wall surfaces.</p> <p>Floor. Provide a slip-resistant, sealed concrete surface.</p> <p>Ceiling. None required.</p>
Plumbing	<p>Provide a hose bibb and floor drain. Provide emergency eye wash station. Provide utility sink. Provide shower. Connect all drains to \1\ an approved sanitary sewer or septic system. Coordinate with Installation EV staff to determine if the local pretreatment program requires the use of an oil water separator. /1/</p> <p>For Army fire extinguisher maintenance only: Provide compressed air with self-retracting hose reels at the work bench.</p>
HVAC	Provide a system per paragraph 3-6.2. Exhaust space per UFC 3-410-01 and to maintain negative pressure relationship to occupiable areas. Exhaust system must be separate from occupiable space exhaust.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	<p>Provide system per paragraph 3-6.4.</p> <p>For Army fire extinguisher maintenance only: Provide 50 fc (500 lux) task lighting at work/service bench.</p>
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide a speaker.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. For Army fire extinguisher maintenance only: Provide quad outlet at work bench and in locations where required to accommodate equipment.</p> <p>Security. None required.</p>
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide bench and lockers.
Furnishings Fixtures & Equipment (FF&E)	For Army fire extinguisher maintenance only: Provide industrial-grade 24 in. (610 mm) minimum work bench, storage shelving, spare parts bin, and flammable storage locker.

User-provided Equipment	Floor scale for Army only.
Special Requirements	For Army fire extinguisher maintenance only: Provide double leaf doors to exterior. Locate access to fire extinguisher maintenance and storage away from apparatus bay exterior circulation.

Table 4-12 Fire Extinguisher (Flightline) Maintenance and Storage

Description/ Usage	<p>The fire extinguisher maintenance and storage includes two parts: outdoor storage and indoor storage/maintenance room. The indoor storage/maintenance room accommodates a work bench with lighting to perform maintenance and service of extinguishers, safety cage, scale, recharge kit, and parts storage bins. The outdoor storage area is covered, enclosed with a secured screen, and accommodates tank recovery, spare tanks, and spare gaseous agent re-servicing tanks.</p> <p>This may be combined with the non-flightline fire extinguisher maintenance and storage area and made into one space with no dividing walls.</p> <p>For Army only: This space can be substituted for additional PPE gear storage as required by the installation.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. CMU. Provide a low-maintenance, durable finish such as industrial latex or epoxy paints on all wall surfaces.</p> <p>Floor. Provide a slip-resistant, sealed concrete surface.</p> <p>Ceiling. None required.</p>
Plumbing	Provide a hose bibb and floor drain. Provide an emergency eye wash station in maintenance room. Provide utility sink. Provide compressed air with self-retracting hose reels at the work bench.
HVAC	Provide a system per paragraph 3-6.2. Exhaust space per UFC 3-410-01 and to maintain negative pressure relationship to occupiable areas.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4. Provide 50 fc (500 lux) task lighting at work/service bench.
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide a speaker.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. Provide quad outlet at work bench and in locations where required to accommodate equipment.</p> <p>Security. None required.</p>
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide cylinder for extinguishing agent recovery (if halon is used, accommodate a 1500 lb [680 kg] cylinder). Place the agent recovery tanks outside the exterior wall of this room and connect via utility lines to a discharge point inside the room. If this approach is taken, provide a remote gauge in the room that displays the tank's fill status.
Furnishings Fixtures & Equipment (FF&E)	Provide industrial grade 24 in. (610 mm) minimum work bench, storage shelving, spare parts bin, and flammable storage locker.
User-provided Equipment	Agent and nitrogen tanks, dry chemical extinguisher recharge kit and floor scale.

Special Requirements	Provide double leaf or overhead-type doors to exterior. Locate access to fire extinguisher maintenance and storage away from apparatus bay exterior circulation.
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Table 4-13 Vehicle Maintenance Bay

Description/ Usage	This space is mainly used to service and repair firefighting vehicles, if required by installation mission requirements. At times, this bay may be used as an additional apparatus bay as well. The bay is sized to accommodate the largest vehicle and the equipment required to service it. Similar to the apparatus bay, the vehicle maintenance bay must be a drive-through.
Min. Ceiling Ht.	14 ft (4.26 m) minimum.
Finishes	<p>Walls. CMU. Provide epoxy paints on all wall surfaces.</p> <p>Floor. Provide either a sealed concrete or 1-part or 2-part water-based epoxy concrete floor paint, in a slip-resistant, semi-gloss, light color finish. Final color selection to be coordinated with user and installation. Apply a concrete etcher to thoroughly clean concrete surface and a bonding primer for proper adhesion prior to applying epoxy finish. Slope floor to trench drains.</p> <p>Ceiling. Ceiling not required; however, provide finishes on exposed structure. Coordinate mechanical, electrical, and plumbing components. None of the ceiling components can be located below minimum ceiling height.</p>
Plumbing	Provide minimum 3-in (75-mm) diameter water service with 2.5 in. (62-mm) diameter National Standard Threads ball valved outlet to each vehicle. Provide a combination eye/face wash and drench shower. Provide standard one hot and cold water hose bibb for every two truck bays. Provide floor trench drains parallel to the centerline of each vehicle. Connect trench drain to an oil water separator or where the Installation has pretreatment or treatment methods in place in accordance with their permitted allowances, an approved sanitary sewer system. Coordinate with Installation EV staff for information on existing pretreatment or treatment methods and permitted allowances. Provide compressed air with self-retracting hose reels at each vehicle bay.
HVAC	<p>Design heating for 68 °F (20 °C) dry bulb. Local installations may decide to forgo heating in areas without risk of freezing. Provide gas-fired radiant heating if natural gas or propane is available. Local base or post authorities may choose different heating systems on a case-by-case basis.</p> <p>Provide ventilation to cool the vehicle maintenance bay to within 10 °F (6 °C) of design outdoor temperature. The Services will not air-condition the vehicle maintenance bay unless through exceptions. If approved, systems used for conditioning will be determined on a case-by-case basis. Consider climatic conditions, energy costs, and sustainability impacts for exceptions and system selections. For Army projects, refer to TI-800-1 for appropriate exceptions. For Navy projects: local base authorities within the Naval Forces Central Command region may choose to air-condition the vehicle maintenance bay; air-conditioning of the maintenance bay is not permitted for any other regions.</p> <p>Maintain vehicle maintenance bay air quality within the strictest established regulatory guidelines for volatile organics, nitrogen oxide, sulfur dioxide, carbon monoxide, particulates, diesel exhaust particulates established by:</p> <ul style="list-style-type: none"> • NIOSH REL (10-hour time-weighted average), <i>NIOSH Pocket Guide to Chemical Hazards</i> • OSHA PELs (8-hour time-weighted average), <i>Annotated Permissible Exposure Limits (PELs) Tables</i>

	<ul style="list-style-type: none"> • ACGIH threshold limit value (average over 8-hour work shift)/short-term exposure limit (over 15-minute period), <i>Guide to Occupational Exposure Values and TLVs and BEIs</i> • Latest NFPA 1500 <p>Per the IMC, the bay will be classified as an "enclosed parking garage." The bay ventilation system will operate continuously and comply with all other applicable requirements of IMC-2015 Sections 403, 404, 502.13, and 502.14 or current IMC equivalent. Exhaust and ventilation systems will be designed and operated to keep vehicle maintenance bay negatively pressurized with respect to adjacent occupiable spaces at all times.</p> <p>Provide an air-cleaning system for elimination of fire apparatus vehicle exhaust in compliance with NFPA 1500, the IMC, and ASHRAE 62.1. The bay air-cleaning system will be designed to remove, treat, or eliminate particulates, VOCs and gaseous exhaust contaminants from the bay. Air-cleaning system will automatically operate on vehicle operation and operate until vehicle maintenance bay air has been fully treated.</p> <p>For Navy and Marine Corps projects: If engines are operated inside the vehicle maintenance bay other than to move apparatus into and out of the bay, then provide a direct vent system that connects directly to the fire apparatus exhaust and evacuates vehicle exhaust directly to the outdoors. The direct vent system can be either an automatic-type FAVERS or a manually operated hose-type exhaust system operating whenever equipment is running in the bay.</p> <p>A make-up air system will supply heated air to the bay. Make-up air system will be designed and controlled to provide make-up air for all sources of exhaust installed within the bay. Make-up air should be distributed to minimize drafts and be introduced above apparatus level since diesel exhaust is heavier than air. In this way, the make-up air flow downward will assist in pushing the exhaust fumes out the bay doors when open.</p> <p>Provide a floor radiant heating element at each bay door to prevent the door from freezing to the pavement at the local installation's discretion.</p>
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4. Locate all outlets at 36 in. (900 mm) AFF. Provide self-retracting electric drop cords between vehicles. Provide backup power sized to provide full unobstructed operational capability of the apparatus bays and vehicle maintenance bay. Provide power to each retractable door.
Lighting	Provide system per paragraph 3-6.4. Provide doors with signaling system indicating fully raised doors. A red/green indicator must be located on the driver's side at 72 in. (1800 mm) AFF.
Communication	<p>CCTV. Provide interior and exterior outlets and cameras located to provide coverage.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide speakers and horns with visual element.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. Provide data drops as required by equipment.</p> <p>Security. None required.</p>
Acoustics	No special provisions required.

Casework/Built-in Equipment	None required.
Furnishings Fixtures & Equipment (FF&E)	Provide tool storage bins and industrial work benches.
User-provided Equipment	CCTV cameras.
Special Requirements	Provide hydraulic lifts and/or overhead lift/crane per installation requirements. Provide or accommodate ladder access to ceiling equipment such as lights, HVAC, and apparatus vehicle exhaust system equipment. Vehicle doors must match the size, operator, and controls to those of the apparatus bays.

Table 4-14 Vehicle Maintenance Equipment Storage

Description/ Usage	Vehicle maintenance equipment storage is tied to the vehicle maintenance bay and is used to store spare parts and tools required for vehicle maintenance and service. It is only provided if required by installation mission requirements. It must accommodate shelving storage and floor area for storage of large items such as tires and wheels. This space must be adjacent to the vehicle maintenance office and vehicle maintenance bay.
Min. Ceiling Ht.	14 ft (4.26 m) minimum.
Finishes	Walls. CMU. Provide epoxy paints on all wall surfaces. Floor. Provide a sealed concrete surface. A non-skid, low-maintenance traffic coating may also be acceptable. Ceiling. Ceiling not required; however, provide finishes on exposed structure. Coordinate mechanical, electrical, and plumbing components. None of the ceiling components can be located below minimum ceiling height.
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. Provide one line with internal two-way communication. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	None required.
Furnishings Fixtures & Equipment (FF&E)	Provide industrial or large-item storage shelving units.
User-provided Equipment	None required.
Special Requirements	None required.

Table 4-15 Deployment Gear Storage

Description/ Usage	This storage space is utilized for storage of firefighting gear required for military deployment, if required by installation mission requirements. This gear may be used by reservists and/or active duty military personnel. It includes ventilated lockers.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. CMU. Provide epoxy paints on all wall surfaces. Floor. Provide a sealed concrete surface. Ceiling. None required.
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. None required. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide lockable 24 in. by 24 in. by 72 in. (600 mm by 600 mm by 1800 mm) high wire mesh metal lockers that include shelves and clothes hooks.
Furnishings Fixtures & Equipment (FF&E)	None required.
User-provided Equipment	None required.
Special Requirements	Locker layout must permit free air circulation around and throughout clothing. Layout must account for storage of additional spare equipment items.

Table 4-16 Station Officer's Office/Watch Desk

Description/ Usage	The station officer's office provides space for the station officer and/or company officers to perform their administrative functions. For satellite stations the station officer's office may serve to control public access to the station. If a watch desk function is required (i.e., dispatch not located in the station), it is typically included in the station officer's office. The watch desk receives emergency calls from dispatch and contains the security monitors for the station. It is usually occupied 24 hours a day/7 days a week.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. Provide a low-maintenance, durable finish such as eggshell latex paint. Floor. Provide low-maintenance resilient sheet or tile flooring material with rubber base or durable commercial carpeting with rubber base. Ceiling. Provide ACP ceiling system.
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2. Provide independent thermostat.
Fire Protection	Provide system per paragraph 3-6.3. If sleeping accommodations are provided in this room, provide required systems for sleeping rooms per Chapter 3 and fire-rated construction as required for residential occupancies per NFPA 101.
Power	Provide outlets per paragraph 3-6.4, and as needed to support the extensive equipment required. Provide two additional quad outlets at the control center console. Provide a switch controlling operation of apparatus bay doors. Provide HVAC shutdown switch adjacent to LOC devices. If LOC devices are located elsewhere, coordinate HVAC shutdown switch location with this alternate location.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. For stations without a dispatch, monitors for the facility cameras will be located here. Provide outlets required to support required equipment. CATV/Internal Video. Provide outlets required to support required equipment. PA/Audio. Provide simultaneous light and audible control for the entire fire station. Telephone. Provide regular and secure multi-telephone line required to support switch board operation, telephone, and fax. Data. Provide regular and secure data outlets to support required equipment. Security. Provide pin pad/cipher electric lock with remote push-button release and manual key override. Firefighter Alert System: Provide light and audible control for the following elements when the firefighter alert system is activated: dorm room lights (the dedicated alert light), corridor lights from dorm rooms to apparatus bay, and the apparatus bay lights.
Acoustics	Provide partition and door construction with a minimum STC rating of 45 per paragraph 3-5.
Casework/Built-in Equipment	Provide tinted windows with blinds.
Furnishings Fixtures & Equipment (FF&E)	Provide control center console. Provide modular component workstations to accommodate computers, monitor screens, two-way radios, and audio equipment. Provide wall-mounted installation grid coordinate map. Provide map racks. Provide safes for classified technical manuals. Provide book cases and ergonomically designed seating.

User-provided equipment	If the facility does not include a dispatch, CCTV monitors, recording equipment and controls will be located here. Recording system to record all emergency radio and telephone conversations. Computers, computer monitors, radios and audio equipment.
Special Requirements	Provide vision panel to the apparatus bay. Provide a 36 in. (920 mm) free access area around the entire control console. Provide space for Emergency Information Systems computer.

Table 4-17 Fire Chief's and Deputy Fire Chief's Offices

Description/ Usage	The fire chief's and deputy fire chief's offices are two separate offices that will not exist in every station. When they are both located in a station, they are adjacent to each other and to an administrative assistant and a chief's conference room. Each office includes a typical office space and workstation. An adjacent private bedroom and private toilet are shared by both offices and must be directly accessible by both offices.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. Provide a low-maintenance, durable finish such as eggshell latex paint. In toilet, provide moisture-resistant gypsum wall board with porcelain tile wainscot and semi-gloss industrial latex-based paint. Floor. Provide durable commercial carpeting with rubber base in office and sleeping areas. Provide porcelain tile and porcelain tile base in toilet. Ceiling. Provide ACP or gypsum board ceiling. Provide moisture-resistant gypsum board ceiling in the toilet. Provide eggshell latex paint in office and sleeping areas and semi-gloss industrial paint in the toilet.
Plumbing	Provide water closet, shower, floor drain, and lavatory.
HVAC	Provide a system per paragraph 3-6.2. Exhaust private toilet as required by UFC 3-410-01. Provide independent thermostat for fire chief's and deputy fire chief's offices.
Fire Protection	Provide system per paragraph 3-6.3. If sleeping accommodations will be provided in this room, provide required systems for sleeping rooms per Chapter 3 and fire-rated construction as required for residential occupancies per NFPA 101.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4. Provide task lighting at individual desks. Provide a dedicated alert luminaire that is controllable from the watch desk/dispatch and tied into the firefighting alert system with a red-tinted bulb or lens.
Communication	CCTV. None required. CATV/Internal Video. Provide one outlet in the office area and one outlet in the bedroom area. PA/Audio. Provide a speaker. Telephone. Provide one line with internal two-way communication. Data. Provide data outlets to support required equipment. Security. None required. Firefighter Alert System: Provide system per paragraph 3-6.4. Fire station and EMS alerting will be provided with audible announcement to radios no greater than 5 seconds from initiation. The system must use web services submission method to the fire and emergency services (F&ES) RMS via a secure, encrypted website.
Acoustics	Provide partition and door construction with a minimum STC rating of 52 per paragraph 3-5.
Casework/Built-in Equipment	Provide window blinds. In the private bedrooms, provide black-out roller shades. Provide robe hooks and/or coat hooks.

Furnishings Fixtures & Equipment (FF&E)	Provide office desk, office chair, file cabinet, bookshelf, task lighting, and additional side chair. In the private bedroom, provide twin bed, night stand, table lamp, and a wardrobe.
User-provided Equipment	Computers and associated equipment.
Special Requirements	<p>In large facilities where an assistant fire chief exists, the private toilet must be shared with the deputy fire chief and the fire chief must be provided with his or her own private toilet.</p> <p>There also may be a requirement for a chief's conference room. If required, this would be directly adjacent to or expand out of the chief's office. It provides space for a small conference table for 8 to 10 people.</p>

Table 4-18 Offices

Description/ Usage	<p>General administrative office spaces in the station include the following: assistant chief/shift supervisor office (for Army only: Assistant chief's office will include a private bunk room and toilet/shower room), inspectors' office(s), training officer office, vehicle maintenance office, EMS office, dispatch supervisor (if provided), administrative assistant, reservist office (if provided), assistant chief of fire prevention (if provided), HAZMAT/health & safety officer (if provided), and logistics officer (if provided). General administration storage space.</p> <p>Assistant chief for fire prevention's office: This typical office space at 120 net ft² (11.1 m²) must contain a workstation located adjacent to and accessible from the inspector's office area or accessible from the corridor in the administrative office area.</p> <p>The offices are generally grouped together in the administrative component of the fire station. The administrative assistant is generally only provided if the chief and deputy chief are resident in the station, in which case this area also doubles as the general reception area for the facility and is located directly off the lobby (see Table 4-19).</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. Provide a low-maintenance, durable finish such as eggshell latex paint.</p> <p>Floor. Provide low-maintenance resilient sheet or tile flooring material with rubber base or durable commercial carpeting with rubber base.</p> <p>Ceiling. Provide ACP ceiling.</p>
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide a speaker.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. Provide data outlets to support required equipment.</p> <p>Security. None required.</p>
Acoustics	Provide partition and door construction with a minimum STC rating of 39 per paragraph 3-5.
Casework/Built-in Equipment	None required.
Furnishings Fixtures & Equipment (FF&E)	Provide office desk, office chair, file cabinet, bookshelf, task lighting, and an additional side chair. For a more executive-level office, provide a credenza and two additional side chairs. For the fire prevention office, provide plans review/drafting table and plans storage cabinet/rack.
User-provided Equipment	Computers and associated equipment.
Special Requirements	The vehicle maintenance office will be located near the vehicle maintenance bay and storage. It will likely have CMU walls and more durable finishes than typical offices.

Table 4-19 Lobby

Description/ Usage	The lobby is generally only provided if the department chief and deputy chief are resident in the station. It serves as the entrance to the facility and gathering/waiting space for the visiting public. The lobby must be adjacent to the administrative component of the facility. It must be recognizable from the outside and be a well-lit, inviting space. For Army only: All facilities will require a lobby.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. Provide a low-maintenance, durable finish such as industrial eggshell latex paint. Floor. Provide porcelain tile with porcelain tile base. Provide recessed walk-off mat. Ceiling. Provide acoustical and decorative ACP or gypsum board ceiling such as egg-shell latex paint for gypsum board ceiling.
Plumbing	Provide an electric water cooler.
HVAC	Provide a system per paragraph 3-6.2.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4. Provide outlets for display cases.
Lighting	Provide system per paragraph 3-6.4. Provide decorative luminaires and task lighting.
Communication	CCTV. Provide at least one outlet. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. Provide one line for local and toll-free calls. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide tack boards and a glass-enclosed bulletin board or recessed display cases.
Furnishings Fixtures & Equipment (FF&E)	Provide upholstered seating, side tables, and magazine rack.
User-provided Equipment	CCTV camera.
Special Requirements	Provide airlock at main entrance when necessary. Provide overhead weather protection at fire station entrance as applicable by climate zone.

Table 4-20 Department Training Room

Description/ Usage	<p>Department training room is a classroom space used for the continuing education and training of fire station staff and occasionally the public. At least one per department (in HQ station). May be provided in other stations as dictated by installation mission requirements. Space must be sized to fit on-duty population or Reserve component, whichever is larger. Provide seating and desks. Provide audiovisual capabilities with phone and Internet connections for each training station.</p> <p>A storage closet is located adjacent to the training room and used for storage of audiovisual equipment, media, additional equipment, and furnishings.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. Provide a low-maintenance, durable finish such as eggshell latex paint.</p> <p>Floor. Provide low-maintenance resilient sheet or tile flooring material with rubber base, or durable commercial carpeting with rubber base.</p> <p>Ceiling. Provide ACP ceiling.</p>
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2. Provide independent thermostat.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4. Provide direct power to each work table.
Lighting	Provide system per paragraph 3-6.4.
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. Provide a speaker.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. Provide data outlets to every workstation.</p> <p>Security. None required.</p>
Acoustics	Provide partition and door construction with a minimum STC rating of 55 per paragraph 3-5.
Casework/Built-in Equipment	Provide flat panel display mount. Provide bulletin board with tack surface and dry-erase board. Provide shelving and rack storage in training room closet.
Furnishings Fixtures & Equipment (FF&E)	<p>Provide training tables and chairs or tablet armchairs.</p> <p>If a separate testing area is not provided, provide computer/study/testing carrels.</p> <p>Flat panel display. Provide podium or lectern.</p>
User-provided Equipment	Computers, printer, and DVD.
Special Requirements	Provide black-out shades if windows are provided.

Table 4-21 Testing/Individual Study Area

Description/ Usage	This area consists of individual computer/study carrels for study and testing of firefighters. Each of these stations must be private to eliminate potential for cheating during testing and to facilitate quiet study.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. Provide a low-maintenance, durable finish such as eggshell latex paint. Floor. Provide low-maintenance resilient sheet or tile flooring material with rubber base or durable commercial carpeting with rubber base. Ceiling. Provide ACP ceiling.
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4. Provide direct power to each computer/study carrel and printer.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. Provide video camera with monitor located in training officer office. CATV/Internal Video. None required. PA/Audio. Provide a speaker Telephone. None required. Data. Provide data outlets to all workstations and equipment. Security. None required.
Acoustics	Provide partition and door construction with a minimum STC rating of 55 per paragraph 3-5.
Casework/Built-in Equipment	None required.
Furnishings Fixtures & Equipment (FF&E)	Provide computer/study carrels, office chairs, and task lights. Provide lockable storage for personal technology devices.
User-provided Equipment	Computers and printer.
Special Requirements	None required.

Table 4-22 Dispatch

Description/ Usage	<p>The dispatch room functions to receive and dispatch emergency-related calls. The space can be programmed for either a fire-only dispatch operation or a consolidated dispatch operation.</p> <p>Fire-only dispatch rooms are solely responsible for receiving and dispatching fire-related emergency calls.</p> <p>A consolidated dispatch room handles fire, security, and medical response service calls. Not every station includes a dispatch.</p> <p>The dispatch room includes workstations sized to accommodate the necessary equipment for each individual dispatcher. Coordinate with installation to determine if consolidated dispatch is to be operated by cross-trained staff vs independent staff assigned per service call type.</p> <p>In larger dispatch rooms (three or more dispatchers), a separate, adjacent room for the dispatch supervisor is required. The finishes and mechanical/electrical requirements for this room are the same as for offices (see Table 4-18).</p> <p>Provide low-profile access flooring as required by installation mission requirements.</p> <p>Dispatch rooms also include a dedicated toilet and kitchenette directly adjacent to and accessible from the dispatch floor for staff use.</p> <p>For Air Force only: When E-911 is programmed, provide additional space for Emergency Information Systems computer, Next-Gen 911, and DOD Public Safety Answering Point (PSAP) Pilot Program initiative.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. Provide a low-maintenance, durable finish such as industrial eggshell latex paint.</p> <p>Floor. Provide low-profile access flooring with a low-maintenance resilient sheet or tile flooring material with rubber base or durable commercial carpeting with rubber base.</p> <p>Ceiling. Provide ACP ceiling.</p>
Plumbing	Provide an ADA-accessible toilet with a lavatory. Provide a kitchenette with a kitchen sink and disposal.
HVAC	Provide a system per paragraph 3-6.2. Provide primary HVAC from independent dedicated HVAC system. The back-up HVAC system for the dispatch must be the main building HVAC system. Power primary and backup HVAC systems with generator backup power. Exhaust the toilet as required by UFC 3-410-01.
Fire Protection	Provide system per paragraph 3-6.3.
Power	<p>Provide outlets per paragraph 3-6.4 and as needed to support all equipment, including charging equipment for handhelds. Provide a switch controlling open-only operation of apparatus bay doors. Provide HVAC shutdown switch.</p> <p>The generator must provide back-up power for all dispatch room systems. In addition, provide uninterruptible power supply (UPS) for the dispatch equipment.</p>

Lighting	<p>Provide 50 fc (500 lux) task lighting at control desk.</p> <p>Firefighter alert system: Provide light and audible control for the following elements when the firefighter alert system is activated: dorm room lights (the dedicated alert light), corridor lights from dorm rooms to apparatus bay, and the apparatus bay lights.</p>
Communication	<p>CCTV. Monitors for the facility cameras will be located here. Provide outlets required to support equipment.</p> <p>CATV/Internal Video. Provide outlets required to support equipment.</p> <p>PA/Audio. Provide a speaker and a microphone.</p> <p>Telephone. Provide regular and secure multi-telephone line required to support switchboard operation, telephone, and fax.</p> <p>Data. Provide regular and secure data outlets to support required equipment.</p> <p>Security. Provide pin pad/cipher electric lock with remote push-button release and manual key override. Provide remote door-locking capability within the room.</p> <p>Firefighter Alert System: The system must provide audible announcements from defined message format to follow initial audible alert.</p>
Acoustics	<p>Provide partition and door construction with a minimum STC rating of 49 per paragraph 3-5.</p>
Casework/Built-in Equipment	<p>At kitchenette, provide wall and base cabinets with 24-in (610-mm) deep solid surface counter. Provide wall personnel lockers and coat hooks per installation requirements.</p>
Furnishings Fixtures & Equipment (FF&E)	<p>Provide control center console. Provide modular component workstations to accommodate computers, monitor screens, two-way radios and audio equipment. Provide map racks. Provide book cases, and ergonomically designed seating.</p> <p>Provide refrigerator, coffee maker, and microwave.</p> <p>Provide a secure drawer or safe for storage of classified documents and classified technical manuals. Security must meet SECRET criteria.</p>
User-provided Equipment	<p>Computers, monitor screens, two-way radios, and audio equipment. Recording system to record all emergency radio and telephone conversations. Wall-mounted installation grid coordinate map.</p>
Special Requirements	<p>Comply with the requirements for "Communication Centers" in NFPA 1221 as well as the requirements in UFC 4-021-02, Chapter 7.</p> <p>Note that some equipment requires free access area around the entire control console. Design this space appropriate to the equipment being provided. Note any special requirements for the E-911 system, if appropriate. If required for selected equipment, provide a conduit to the roof for a roof-mounted antenna. Provide an adjacent dedicated IT room.</p> <p>Provide low-profile access flooring as required by installation mission requirements.</p> <p>Provide vision panel to the apparatus bay.</p> <p>Provide space for Emergency Information Systems computer. Provide tinted windows with blinds. Operators must be able to see exterior conditions. Also provide visible access to the flightline, if applicable.</p>

Table 4-23 Telecommunications Room

Description/ Usage	This room is the termination point for all data and communication utilities in the facility. This room also houses the equipment racks for the facility's computer networks, telephone, and communication feeds.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. Provide a low-maintenance, durable finish such as eggshell latex paint. Provide 0.75-in. (19 mm) fire-rated plywood on all walls as required. Floor. Provide sealed concrete or static dissipative tile flooring with rubber base. Ceiling. Provide ACP ceiling.
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2. Provide dedicated HVAC system.
Fire Protection	Provide system per paragraph 3-6.3. Provide smoke detection.
Power	Provide outlets per paragraph 3-6.4 and as needed to support the extensive equipment required. The generator must provide back-up power for all dispatch and alarm systems. In addition, provide UPS for these systems and the computer file server.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. None required. Telephone. Provide telephone line as required to support equipment. Data. Provide data lines as required to support equipment. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide racks to accommodate equipment.
Furnishings Fixtures & Equipment (FF&E)	None required.
User-provided Equipment	None required.
Special Requirements	Provide a cipher lock at the door. Locate telecommunications room in a central location of the station.

Table 4-24 Day/Training Room (Including Kitchen)

Description/ Usage	<p>The day room is configured and furnished like a very large residential kitchen/dining room/living room. It must be flexible to accommodate a number of different activities. The dining area must accommodate dining, informal meetings, and group training for the number of on-duty companies. Provide controllable natural light and seating to accommodate all company members, both in the dining setting and comfortable seating for television watching, reading, and relaxation in the living room area.</p> <p>Directly adjacent to the dining area is a kitchen sized to provide preparation space for the entire overnight population of the station. In HQ/main stations this may include additional 8-hour/10-hour management/admin/prevention personnel. The kitchen must resemble a residential kitchen as much as possible. Provide separate dry and cold food storage for two shifts. Provide additional cold and dry food storage for a swing shift and/or other facility occupants.</p> <p>If day room is provided, refer to the contractual agreement and points of contact for size, space, and operational criteria.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. Provide a low-maintenance, durable finish such as industrial eggshell latex paint.</p> <p>Floor. Provide low-maintenance resilient sheet or tile flooring material with rubber base, or durable commercial carpeting with rubber base. In kitchen, provide porcelain tile.</p> <p>Ceiling. Provide ACP or GWB with eggshell latex paint.</p>
Plumbing	<p>Provide hot and cold water supply in kitchen. Provide cold water connections for the coffee and ice makers. Provide hot water connections for dishwashers. Provide two-basin deep kitchen sink with garbage disposal and sink sprayer. Provide drain connection for the dishwashers. Provide a floor drain. Natural gas service must have an accessible shut-off switch.</p>
HVAC	Provide a system per paragraph 3-6.2. Provide exhaust hood over kitchen stoves appropriate to the grade of equipment provided.
Fire Protection	Provide system per paragraph 3-6.3. Protect hood and duct systems for cooking equipment per UFC 3-600-01.
Power	Provide outlets per paragraph 3-6.4 to accommodate all kitchen equipment.
Lighting	Provide system per paragraph 3-6.4. Provide 50 fc (500 lux) task lighting at the day/training area. Provide residential-style luminaires with dimming control switches.
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. Provide at least one outlet in the living room area.</p> <p>PA/Audio. Provide a speaker.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. Provide at least one outlet in the dining/training area. Provide outlets in the living room area.</p> <p>Security. None required.</p> <p>Firefighter Alert System: Fire station and EMS alerting will be provided with audible announcement (to fire station PA systems and radios), ramped heart</p>

	saving tones, and amplitude lighting with a digital resource display board no greater than 5 seconds from initiation.
Acoustics	Provide partition and door construction with a minimum STC rating of 45 per paragraph 3-5.
Casework/Built-in Equipment	<p>Kitchen area: Provide large-capacity dishwashers, stove/range, exhaust hood, and free-standing ice-maker. Provide light commercial-grade equipment. Provide base and wall cabinets with deep, solid-surface work counter. Provide a minimum of two separate dry storage closets or pantries (one for each of two shifts). Provide additional pantry/closet for HQ/main stations with admin/management/prevention personnel.</p> <p>Dining/training area: Provide bulletin board with tack surface. Provide flat panel display mount and wall-mounted dry-erase board.</p>
Furnishings Fixtures & Equipment (FF&E)	<p>Kitchen area: Provide a minimum of two separate refrigerators with freezers (one for each of two shifts), microwave oven, commercial-grade coffee maker, and toaster oven. Provide light commercial-grade equipment. Provide additional refrigerator unit for HQ/main station with admin/management/prevention personnel.</p> <p>Dining/training area: Provide dining table with chairs.</p> <p>Living room area: Provide recliner armchairs, side tables, and entertainment center.</p>
User-provided Equipment	Flat panel display, DVD player.
Special Requirements	None required.

Table 4-25 Dorm Rooms

Description/ Usage	<p>Dorm rooms are the private quarters of the firefighters and are used for studying, relaxing, entertainment, and sleeping during 24-hour shifts. The room is shared between two firefighters of different crews/shifts so that the room is never occupied simultaneously. Individual wardrobes are provided for each firefighter. A bed, nightstand, and desk are shared. A two-bed arrangement, giving each firefighter an individual bed and nightstand, has become a desirable option in recent years. Wall-beds, also known as Murphy beds, are also becoming a common alternative. These combine the personality of an individual bed with added space savings.</p> <p>The room must be a comfortable, inviting space that promotes relaxation. Acoustical privacy between rooms and acoustical protection from outside-to-inside sound transmission is important. Provide direct access to a private corridor and means of natural light in every room (design for AT issues, especially in OCONUS locations, with regard to natural light provisions).</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. Provide a low-maintenance, durable finish such as eggshell latex paint. Floor. Provide durable commercial carpeting with rubber base. Ceiling. Provide painted gypsum ceiling with eggshell latex paint.</p>
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2. Provide independent thermostat for each room.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	<p>CCTV. None required. CATV/Internal Video. Provide one outlet. PA/Audio. Provide a dedicated alert speaker with a soft-start audio output controllable from the watch desk/dispatch and tied into the firefighting alert system. Telephone. Provide one line with internal two-way communication. Data. Provide one outlet. Security. None required. Firefighter Alert System: The system must provide a digital light status bar. Provide a dedicated alert luminaire that is controllable from the watch desk/dispatch and tied into the firefighting alert system with a red-tinted bulb or lens.</p>
Acoustics	Provide partition and door construction with a minimum STC rating of 55 per paragraph 3-5.
Casework/Built-in Equipment	Provide black-out roller shades. Provide adjustable-arm flat panel display mounts. Provide robe and/or coat hooks.
Furnishings Fixtures & Equipment (FF&E)	Provide extra-long twin bed, night table, two wardrobes, desk and desk chair, desk light, and alarm clock. As an alternative to a shared bed, provide two beds or two retractable wall beds (retractable beds are built-in casework).
User-provided Equipment	Flat panel display.
Special Requirements	Provide operable windows.

Table 4-26 Bathrooms/Showers/Changing

Description/ Usage	The bathroom/shower/changing room includes private water closets, lavatory, and shower stalls with private changing area for the personal use of the firefighters. Also provide lockers for temporary storage of personal items within this room. These lockers are not for storage of PPE gear.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. Provide a low-maintenance, durable finish such as industrial semi-gloss latex or epoxy paint. Provide full-height porcelain tile with cementitious backerboard. Floor. Provide slip-resistant porcelain tile. Ceiling. Provide painted moisture-resistant gypsum board ceiling.
Plumbing	Provide shower stalls, lavatories, and water closets. See Special Requirements below for male/female distribution. Provide a floor drain.
HVAC	Provide a system per paragraph 3-6.2. Exhaust per UFC 3-410-01.
Fire Protection	Provide system per paragraph 3-6.3. Provide corrosion-resistant sprinklers and escutcheons such as stainless-steel or Teflon-coated throughout room.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. None required. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide 24-in. (610 mm) -deep minimum solid-surface materials for countertops. Provide solid plastic (HDPE) or color-through phenolic shower and toilet partitions. Provide a mirror over the vanity. Provide 24-in- (610-mm) -deep lockers. Provide a mix of full- and half-sized Z-shaped lockers with integral benches (usually part of the locker system) at least 16 in. (406 mm) wide. Provide solid plastic (HDPE) or color-through phenolic lockers.
Furnishings Fixtures & Equipment (FF&E)	None required.
User-provided Equipment	None required.

Special Requirements	<p>Divide facilities as follows for smaller stations:</p> <ul style="list-style-type: none">• One-company station: Provide 1 water closet, 1 shower, and 1 lavatory for females, and provide 2 water closets, 2 showers, and 2 lavatories for males unless required otherwise by UFC 1-200-01 and UFC 3-420-01.• Two-company station: Provide 1 water closet, 1 shower, and 1 lavatory for females, and provide 4 water closets, 4 showers, and 3 lavatories for males unless required otherwise by UFC 1-200-01 and UFC 3-420-01. <p>For larger stations, consult with user, UFC 1-200-01, and UFC 3-420-01 for final fixture count but plan for concentrated usage of the toilets after a call and the disparity between male and female fixture counts.</p> <p>Note: Use of individual unisex shower/changing rooms as dictated by installation mission requirements is acceptable.</p> <p>Provide a janitor's closet associated with or in proximity to this room. This closet includes a floor mop sink with hot and cold water and a hose connection, a floor drain, and storage for pails, mops, vacuums, and related cleaning supplies and equipment. Provide a lockable door with a vision panel that can be opened from the inside without a key. Provide lockable cabinets for cleaning supplies. Exhaust per UFC 3-410-01.</p> <p>Provide extended-height door kick panel (minimum 24 in. [610 mm]).</p>
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Table 4-27 Fitness Room

Description/ Usage	The fitness room promotes health and physical fitness of fire department personnel. The fitness room must accommodate the latest in fitness machines as well as more traditional equipment. The room must be sized to provide open floor workout space and free circulation between equipment while in use. The room must be arranged to accommodate all on-duty personnel. Fitness training is often conducted by the entire crew at one time.
Min. Ceiling Ht.	10 ft (3 m) minimum.
Finishes	Walls. Provide a low-maintenance, durable finish such as industrial eggshell latex paint. Floor. Provide 0.079 in. (2 mm) virgin rubber top surface with a 0.30 in. (7.5 mm) recycled rubber base. Use tile only for easy replacement. Tile must be manufactured in a mold and never cut from rolls so placing weights on the seams during installation is not necessary. Impact and athletic flooring system cannot be accommodated by interlocking flooring tiles or movable furnishings such as mats. Ceiling. Provide acoustical ACP or gypsum board ceiling with a finish such as industrial eggshell latex paint for gypsum board ceiling.
Plumbing	Provide electric water cooler.
HVAC	Provide a system per paragraph 3-6.2.
Fire Protection	Provide system per paragraph 3-6.3. Where a sauna is present, provide high-temperature-rated corrosion-resistant sprinklers and escutcheons such as stainless-steel or Teflon-coated throughout sauna area. Fire alarm notification appliances are not required within the sauna. Provide an audible and visual fire alarm notification appliance on the wall directly opposite the entry door into the sauna, with a minimum sound power of 95 dB at 10 ft (3 m) and 110 cd. At a minimum, provide a 100 in ² (0.6 m ²) vision panel within the entry door into the sauna.
Power	Provide outlets per paragraph 3-6.4. Provide wall or floor outlets to accommodate fitness machines. Ceiling fans may be provided.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. Provide for camera for view of room from the watch desk/stations officer's office. CATV/Internal Video. Provide at least one outlet for a wall-mounted unit. PA/Audio. Provide a speaker. Telephone. Provide one line with internal two-way communication. Data. None required. Security. None required.
Acoustics	Provide partition and door construction with a minimum STC rating of 52 per paragraph 3-5.
Casework/Built-in Equipment	Provide full-wall-height mirrors on at least one wall. Flat panel display mount. Provide cabinet with counter top with an associated electrical outlet.
Furnishings Fixtures & Equipment (FF&E)	Provide fitness machines, treadmill, stationary bicycle, elliptical machine, weights, and mats.
User-provided equipment	Flat panel display.

Special Requirements	Provide exterior access or locate in close proximity to exterior access. Provide for natural light to the extent feasible (with shade/privacy screen).
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Table 4-28 Laundry Room

Description/ Usage	The laundry room contains washers, dryers, and a folding table for use by the firefighters. This laundry room is only used for personal clothing of the firefighters and occasionally for laundry from the common areas of the fire station, not for firefighting gear.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. Provide a low-maintenance, durable finish such as industrial semi-gloss latex paint. Floor. Provide a resilient sheet or tile flooring material with rubber base. Ceiling. Provide durable, moisture-resistant ACP or GWB ceiling. Provide semi-gloss latex paint for gypsum board ceiling.
Plumbing	Provide hot and cold water supply and an open end drain to each washer. Provide a floor drain. Provide a deep laundry sink.
HVAC	Provide a system per paragraph 3-6.2. Provide dryer venting per UFC 3-410-01.
Fire Protection	Provide system per paragraph 3-6.3. Regardless of size, enclose the laundry room with a 1-hour fire barrier. Exception: Where the building is fully sprinklered in accordance with UFC 3-600-01, a smoke partition and associated opening protection may be provided in lieu of the 1-hour fire barrier.
Power	Provide outlets per paragraph 3-6.4. Provide an additional outlet at the folding table.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. None required. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide a built-in laundry-folding table and wall-mounted drying rack.
Furnishings Fixtures & Equipment (FF&E)	Provide large, heavy-duty, residential washers and dryers: <ul style="list-style-type: none"> • Less than 3 companies. One washer and two dryers. • 4 companies. Two washers and four dryers. • More than 4 companies. Three washers and six dryers. • Always provide two dryers to every one washer.
User-provided Equipment	None required.
Special Requirements	This laundry room is to be utilized only for washing staff's personal linens and clothing.

Table 4-29 Recreation Room

Description/ Usage	<p>If required by the installation mission, this room provides space for the firefighters to engage in noisier recreational activities, such as table games (e.g., pool or table tennis) or video games and is in addition to the day room. Provide acoustical separation from the day room and dorm rooms.</p> <p>For Army only: This space can be substituted for additional day/training room as required by the installation.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. Provide a low-maintenance, durable finish such as industrial eggshell latex paint.</p> <p>Floor. Provide low-maintenance resilient sheet or tile flooring material with rubber base, or durable commercial carpeting with rubber base.</p> <p>Ceiling. Provide acoustical ACP or gypsum board ceiling such as industrial eggshell latex paint for gypsum board ceiling.</p>
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2. Provide independent thermostat.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4. Provide power required to accommodate any game equipment.
Lighting	Provide system per paragraph 3-6.4. Provide residential-style luminaires with dimming control switches.
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. Provide at least one outlet. Coordinate height of outlet for a wall-mounted flat panel display.</p> <p>PA/Audio. Provide a speaker.</p> <p>Telephone. Provide one line with internal two-way communication.</p> <p>Data. None required.</p> <p>Security. None required.</p>
Acoustics	Provide partition and door construction with a minimum STC rating of 55 per paragraph 3-5.
Casework/Built-in Equipment	Flat panel display mount.
Furnishings Fixtures & Equipment (FF&E)	Provide pool table/table-tennis table, lounge chairs, side tables, bar stools, book cases, and storage cabinets.
User-provided Equipment	Flat panel display.
Special Requirements	None required.

Table 4-30 Vending

Description/ Usage	<p>The vending area accommodates two or more vending machines for snacks and drinks. The vending area must be conveniently located for the use of firefighters and fire station staff.</p> <p>Do not place vending machines in the day room or lobby. Recommended locations include the recreation room (if provided) or an alcove off a main hallway.</p>
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	<p>Walls. Provide a low-maintenance, durable finish such as eggshell latex paint.</p> <p>Floor. Provide low-maintenance resilient sheet or tile flooring material with rubber base.</p> <p>Ceiling. Provide ACP or painted gypsum ceiling.</p>
Plumbing	None required.
HVAC	Provide a system per paragraph 3-6.2.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4. Provide outlets and power required by vending machines.
Lighting	Provide system per paragraph 3-6.4.
Communication	<p>CCTV. None required.</p> <p>CATV/Internal Video. None required.</p> <p>PA/Audio. None required.</p> <p>Telephone. None required.</p> <p>Data. None required.</p> <p>Security. None required.</p>
Acoustics	No special provisions required.
Casework/Built-in Equipment	None required.
Furnishings Fixtures & Equipment (FF&E)	None required.
User-provided Equipment	Vending machines.
Special Requirements	None required.

Table 4-31 Outdoor Patio/BBQ

Description/ Usage	This is an outdoor patio space. The patio counts toward overall building square footage. Its character must resemble a residential patio or deck. Firefighters will relax, play games, and barbeque in this space during their 24-hour shift when weather permits. Patio must be adjacent to or in close proximity to the apparatus bay for easy access in the event of a call and be directly accessible from the kitchen/dining area.
Min. Ceiling Ht.	Provide shade structures.
Finishes	Walls. None required. Floor. Concrete, brick, or stone paver accents. Ceiling. None required.
Plumbing	Provide hose bibb. If natural gas is available, provide gas connection for an external grill at the local installation's discretion. Locate gas connection 10 ft (3 m) away from structure and not adjacent to any combustible materials. Natural gas service must have accessible shut-off.
HVAC	None required.
Fire Protection	Provide system per paragraph 3-6.3. Refer to NFPA 13 for fire-suppression requirements under attached canopies or awnings, where provided. Refer to UFC 4-021-01 for mass notification system requirements.
Power	Provide exterior outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4. Provide 5 fc (50 lux) at the grill.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. None required. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide exterior-grade counter-top/food preparation workstation collocated with grill as required per installation.
Furnishings Fixtures & Equipment (FF&E)	Provide garden furniture: tables, chairs, lounge chairs, garden umbrella, and exterior surface walk-off mat at entrance to day room.
User-provided Equipment	Grill.
Special Requirements	None required.

Table 4-32 Unisex Toilet "Public Use"

Description/ Usage	For headquarters stations only. Toilet facilities accessible from dayroom or main Lobby for use by guests/visitors. For Army only: All facilities will require a unisex toilet "public use".
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. Provide porcelain tile on cementitious backer board for wet walls. Provide a low-maintenance, durable finish such as eggshell latex paint. Floor. Provide slip-resistant porcelain tile with tile base. Ceiling. Moisture-resistant gypsum board.
Plumbing	Provide lavatory, water-closet, and floor drain.
HVAC	Provide a system per paragraph 3-6.2. Exhaust per UFC 3-410-01.
Fire Protection	Provide system per paragraph 3-6.3. Provide corrosion resistant sprinklers and escutcheons.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. None required. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide sink set into counter/cabinet. Provide coat hooks. Provide wall-mounted/fold-down baby changing station.
Furnishings Fixtures & Equipment (FF&E)	None required.
User-provided Equipment	None required.
Special Requirements	None required.

Table 4-33 Transition Zone

Description/ Usage	This space allows movement of personnel between the facility's hot (red) and cold zones (green). Hot zones are spaces in the facility exposed to carcinogens and green zones are living/working spaces intended for extended occupancy. Also, locate the following areas between hot and green zones: equipment maintenance/wash/disinfection, protective clothing laundry, PPE gear storage, spare PPE gear storage, and deployment gear storage. The sequence for transitioning from a hot zone to a cold zone must allow space for personnel to take 5 steps along a walk-off surface over a minimum 6-ft (1.8 m) -long path after removal of gear and washing off any visible contaminants. Transition zones must be in close proximity to hand wash sink/eyewash, PPE storage/laundry, and boot scrub station.
Min. Ceiling Ht.	8 ft (2.4 m) minimum.
Finishes	Walls. CMU. Provide a low-maintenance, durable finish such as industrial latex or epoxy paints on all wall surfaces. Floor. Provide a sealed concrete surface and walk-off mat with scraper surface finish. A non-skid, low-maintenance traffic coating may also be acceptable. Ceiling. Provide ACP or painted gypsum board ceiling.
Plumbing	Provide a hand-washing sink.
HVAC	Provide a system per paragraph 3-6.2. Exhaust space to maintain negative pressure relationship to occupiable/"green" zones.
Fire Protection	Provide system per paragraph 3-6.3.
Power	Provide outlets per paragraph 3-6.4.
Lighting	Provide system per paragraph 3-6.4.
Communication	CCTV. None required. CATV/Internal Video. None required. PA/Audio. Provide a speaker. Telephone. None required. Data. None required. Security. None required.
Acoustics	No special provisions required.
Casework/Built-in Equipment	Provide accessories, paper towel dispenser/waste receptacle, soap dispenser, hand sanitizer, and mirror.
Furnishings Fixtures & Equipment (FF&E)	Boot scrub station.
User-provided Equipment	None required.
Special Requirements	Provide recessed walk-off mat. Signage: "No fire gear beyond this point."

APPENDIX A BEST PRACTICES

The Best Practices Appendix is considered to be guidance and not requirements. Its main purpose is to communicate proven facility solutions, systems, and lessons learned, but may not be the only solution to meet the requirement.

A-1 STRUCTURE.

Single-story structures are preferred for fire stations. Where feasible, design the structural system to accommodate potential future expansion, such as additional stalls for the apparatus bay.

A-1.1 Substructure.

Coordinate the design assumptions for the floor slab in the apparatus bay with those for exterior pavements; for example, use wheel loads that correspond to the default fire truck configurations in the Pavement-Transportation Computer Assisted Structural Engineering (PCASE) software program.

A-1.2 Superstructure.

Coordinate clearance and support requirements for the large overhead doors in the apparatus bay. Where feasible, use pre-engineered systems and components for building framing. For example, a pre-engineered metal building system may be an economical solution at the apparatus bay.

A-1.3 Fall Protection.

Coordinate the anchorage locations and loadings with the fall protection system specifications and the minimum design requirements of 29 CFR 1926.502.

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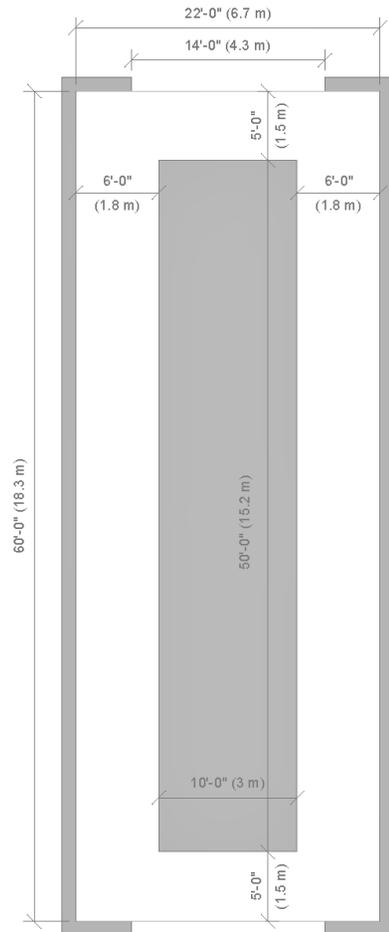
APPENDIX B FIGURES

B-1 APPARATUS BAYS.

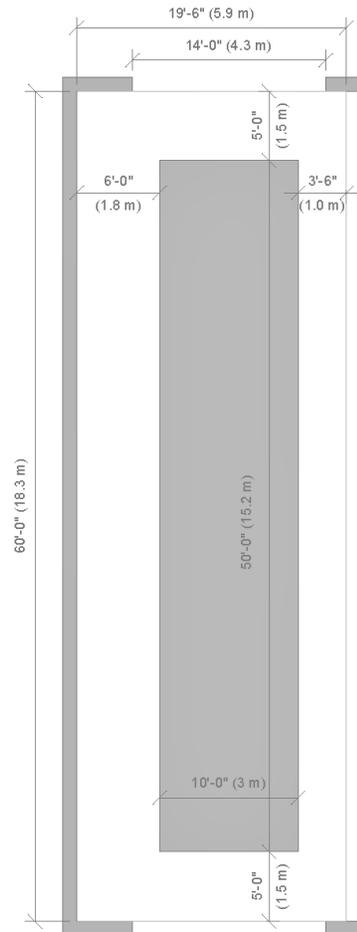
The key driver behind the size and configuration of the apparatus bays are the truck sizes and the required area around the vehicle footprint. Paragraph 2-3.1.1 gives the standard truck sizes and their relative footprints. The diagrams in Figures B-1 through B-4 illustrate the required space around each vehicle size class.

Each diagram has three possible configurations: a truck parked between two walls, a truck parked between a wall and another truck, and a truck parked between two other trucks. This is due to the different set-off distances for a wall versus another vehicle.

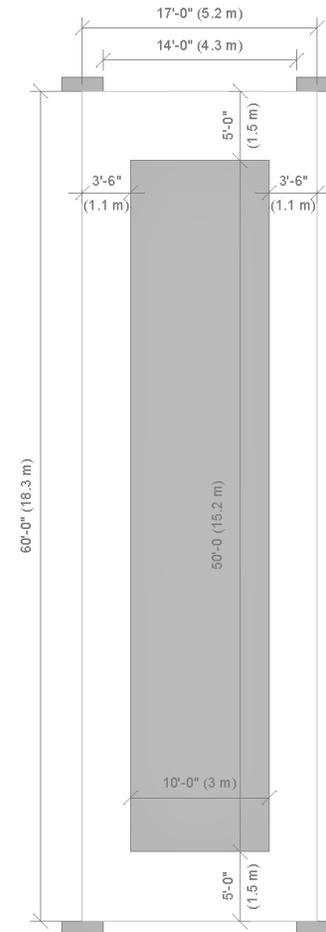
Figure B-1 Large Vehicle Class



LARGE TRUCK
 SINGLE BAY
 1320 SF
 (122.6 SQUARE METERS)

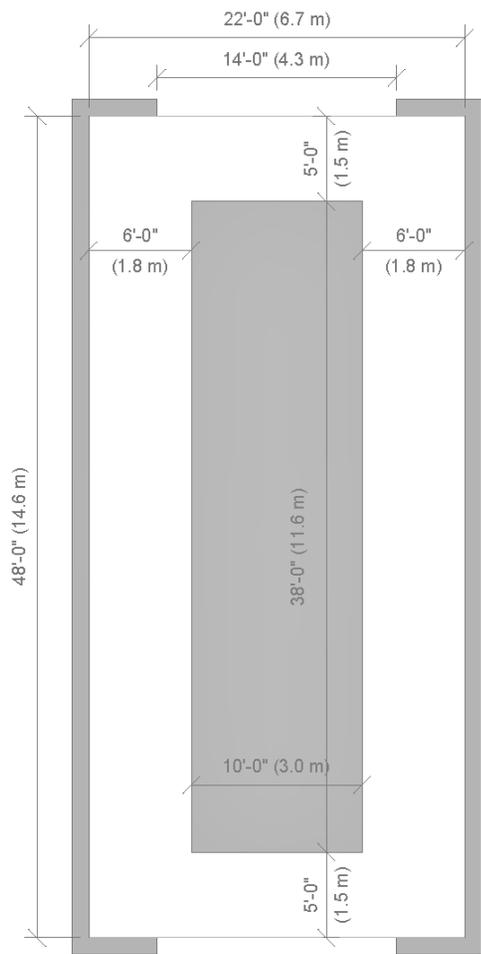


LARGE TRUCK
 DOUBLE BAY
 1170 SF
 (108.7 SQUARE METERS)

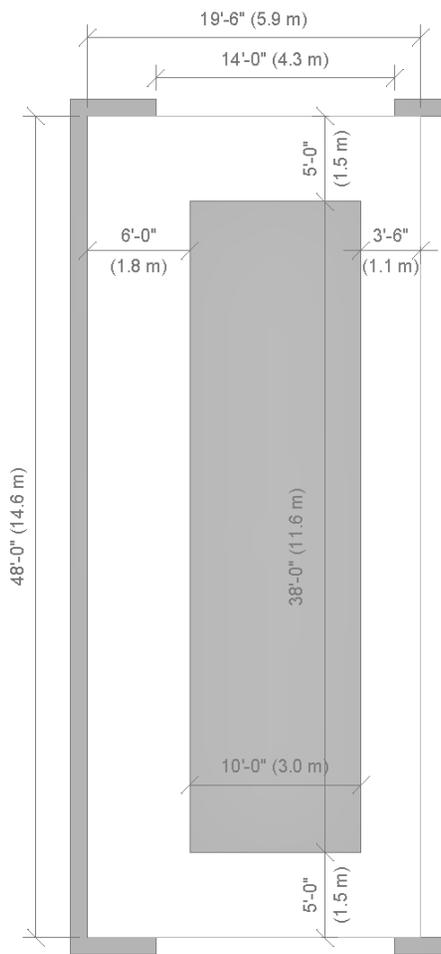


LARGE TRUCK
 THREE OR MORE BAY
 1020 SF
 (94.7 SQUARE METERS)

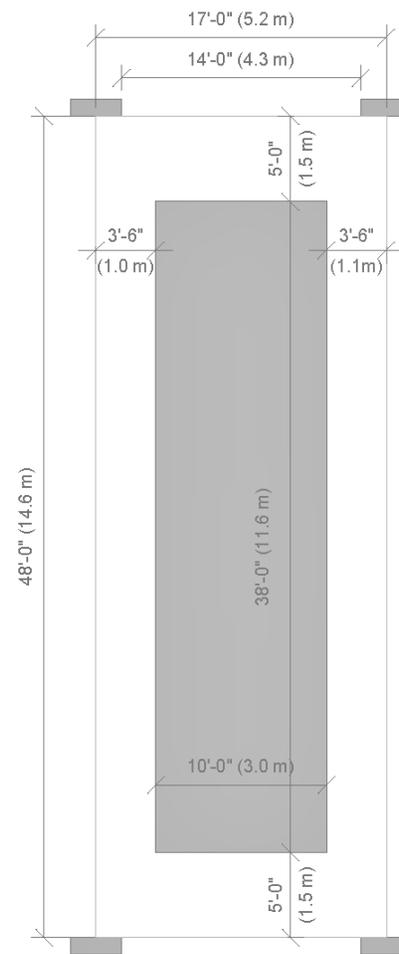
Figure B-2 Medium Vehicle Class



**MEDIUM TRUCK
 SINGLE BAY
 1056 SF
 (98.1 SQUARE METERS)**

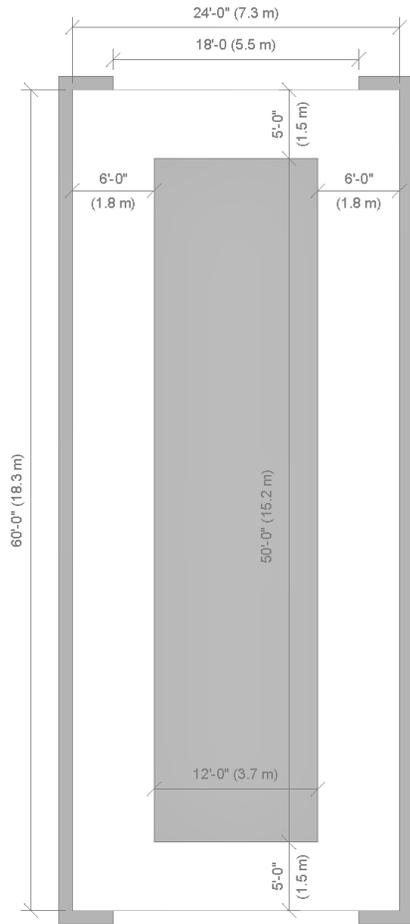


**MEDIUM TRUCK
 DOUBLE BAY
 936 SF
 (86.9 SQUARE METERS)**

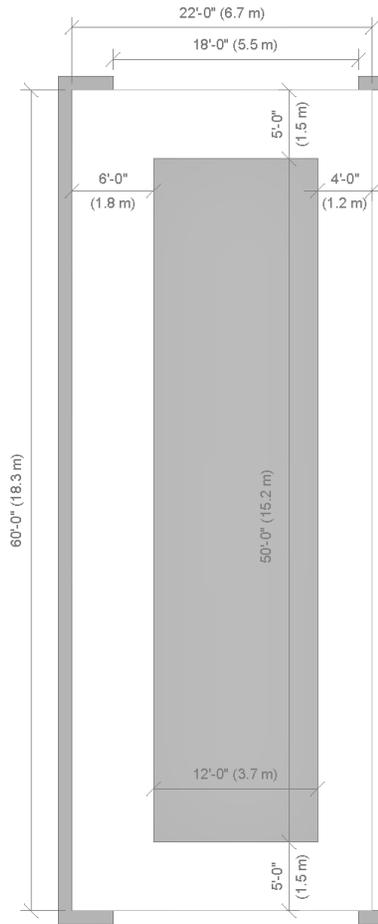


**MEDIUM TRUCK
 THREE OR MORE BAY
 816 SF
 (75.8 SQUARE METERS)**

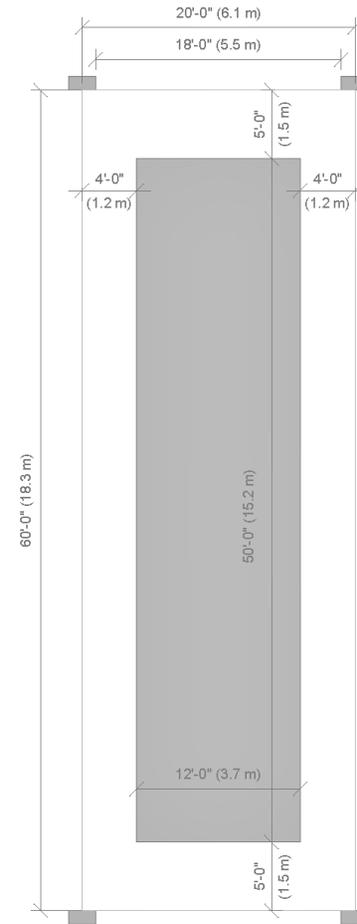
Figure B-3 Large ARFF (Wide) Vehicle Class



ARFF LARGE TRUCK
SINGLE BAY
1440 SF
(133.7 SQUARE METERS)

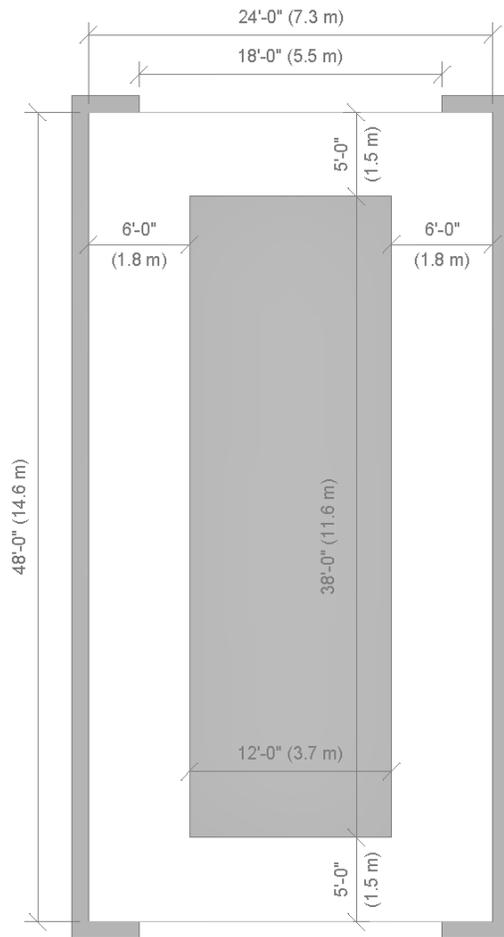


ARFF LARGE TRUCK
DOUBLE BAY
1320 SF
(122.6 SQUARE METERS)

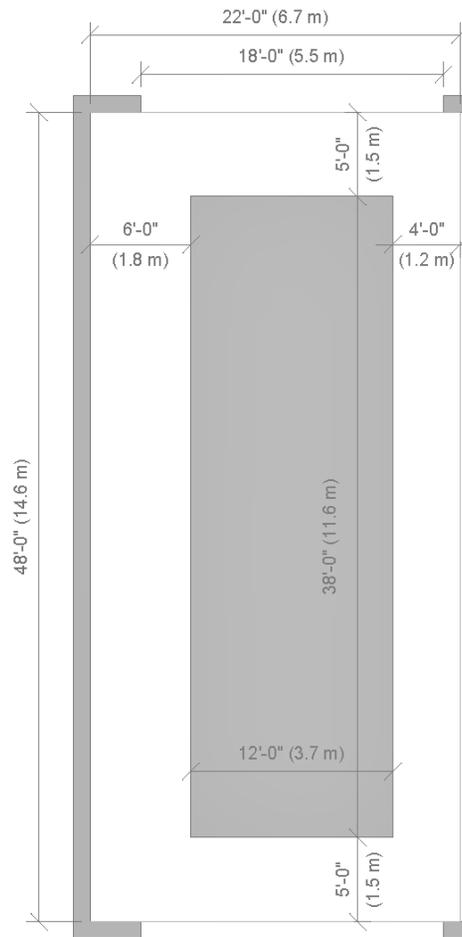


ARFF LARGE TRUCK
THREE OR MORE BAY
1200 SF
(111.5 SQUARE METERS)

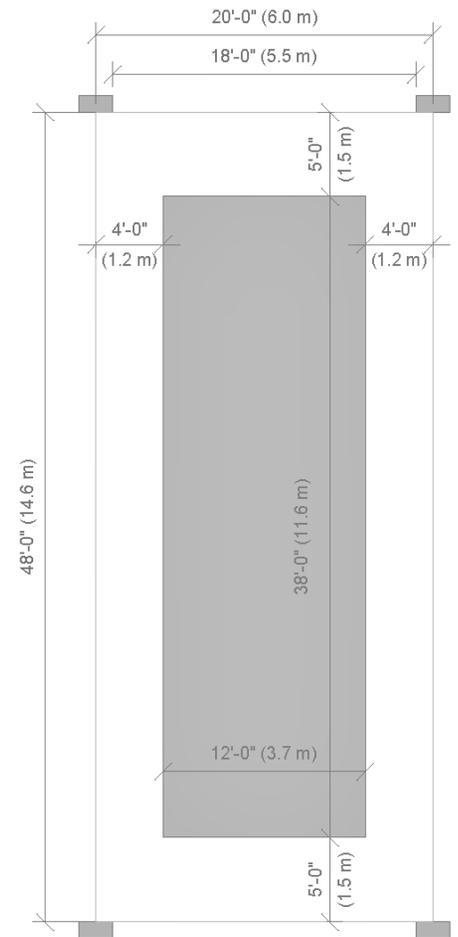
Figure B-4 Medium ARFF (Wide) Vehicle Class



ARFF MEDIUM TRUCK
 SINGLE BAY
 1152 SF
 (107.0 SQUARE METERS)



ARFF MEDIUM TRUCK
 DOUBLE BAY
 1056 SF
 (98.1 SQUARE METERS)



ARFF MEDIUM TRUCK
 THREE OR MORE BAY
 960 SF
 (89.2 SQUARE METERS)

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APPENDIX C GLOSSARY

C-1 ACRONYMS AND ABBREVIATIONS.

°C	Degree Celsius
°F	Degree Fahrenheit
ABA	Architectural Barriers Act
ACGIH	American Conference of Governmental Industrial Hygienists
ACP	Acoustical Ceiling Panel
AFF	Above Finished Floor
ANGH	Air National Guard Handbook
ANSI/ASSE	American National Standards Institute / American Society of Safety Engineers
ANSI/CGA	American National Standards Institute / Compressed Gas Association
AR	Army Regulation
ARFF	Aircraft Rescue Firefighting
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASN(EIE)	Assistant Secretary of the Navy (Engineering, Installations & Environment)
AWI	Architectural Woodwork Institute
CAD	Computer Aided Dispatch
CATV	Cable Television
CBRNE	Chemical Biological Radiological, Nuclear, Explosive
CCTV	Closed-circuit Television
cd	Candela
CFR	Code of Federal Regulations
CMU	Concrete Masonry Units

CNIC	Commander, Navy Installations Command
dB	Decibel
DoD	Department of Defense
DODI	Department of Defense Instruction
DVD	Digital Video Disc
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
FAVERS	Fire Apparatus Vehicle Exhaust Removal System
fc	Foot Candle
ft	Foot
ft ²	Square Foot
gal	Gallon
GWB	Gypsum Wall Board
HAZMAT	Hazardous Materials
HDPE	High-Density Polyethylene
HQ USAF/A4C	Logistics, Engineering and Force Protection, Civil Engineers
HQ	Headquarters
Ht	Height
HVAC	Heating, Ventilating, and Air Conditioning
IMC	International Mechanical Code
in.	Inch
IT	Information Technology
kg	Kilogram
L	Liter
lb	Pound

m	Meter
m ²	Square Meter
mm	Millimeter
MSDS	Material Safety Data Sheet
NAVFACINST	Naval Facilities Command Instruction
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OCONUS	Outside Continental United States
OPNAVINST	Chief of Naval Operations Instruction
OSHA	Occupational Safety and Health Administration
PA	Public Address
PPE	Personal Protective Equipment
RMS	Record Management System
RMS	Records Management System
SCBA	Self-contained Breathing Apparatus
SF	Square Foot
STC	Sound Transmission Coefficient
UFC	Unified Facilities Criteria
UL	Underwriters Laboratories
UPS	Uninterruptible Power Supply
VOC	Volatile Organic Compound

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