FC 4-721-10N
19 May 2022
Change 1, 24 April 2025

FACILITIES CRITERIA (FC)

NAVY AND MARINE CORPS UNACCOMPANIED HOUSING

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Indicate the preparing activity beside the Service responsible for preparing the document.

U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER CENTER

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

Change No.	Date	Location
1	24 April 2025	Foreword, updated WBDG hyperlink; 1-2 Applicability addition per CP; Table 2-3, updated Area/Space for “Trash Rooms (in bldgs. over 3 stories)”; 3-2.10, last paragraph, change “Where” to “If”; 3-15.14, add “Navy” to exclude Marine Corps

This FC supersedes FC 4-721-10N, dated 1 November 2012.

FOREWORD

Facilities Criteria (FC) provide functional requirements (i.e., defined by users and operational needs of a particular facility type) for specific DoD Component(s), and are intended for use with unified technical requirements published in DoD Unified Facilities Criteria (UFC). FC are applicable only to the DoD Component(s) indicated in the title and do not represent unified DoD requirements. Differences in functional requirements between DoD Components may exist due to differences in policies and operational needs.

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.

Because FC are coordinated with unified DoD technical requirements, they form an element of the DoD UFC system applicable to specific facility types. The UFC system is prescribed by MILSTD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and are applicable to the Military Departments, Defense Agencies, and DoD Field Activities. The UFC System also includes technical requirements and functional requirements for specific facility types, both published as UFC documents and FC documents.

FC 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 Systems Command (NAVFAC), and Air Force Civil Engineer Center (AFCEC) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent by the following electronic form: Criteria Change Request. The form is also accessible from the Internet site listed below.

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

- Whole Building Design Guide web site **\1** https://www.wbdg.org/dod/ufc. **/1/**

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

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CHAPTER 1 INTRODUCTION

1-1 BACKGROUND.

The Navy and the Marine Corps will use this document. It presents basic design criteria guidance for Unaccompanied Housing (UH) for the Navy and the Marine Corps and applies to both enlisted and officer quarters. It also considers local program operations and requirements, in accordance with the latest construction standards established by the Office of the Secretary of Defense (OSD). Unaccompanied Housing serves permanent party, trainees, and students, and includes open bay housing, barracks, and dormitories. This facilities criteria (FC) includes planning and design criteria for renovation and new construction of Navy and Marine Corps UH. Planners and designers must incorporate the requirements of this document as applicable to their appropriate type of UH. This document does not apply to privatized UH, commonly referred to as public private venture (PPV) assets by the Navy and the Marine Corps. This document does not include criteria for Navy Gateway Inns & Suites (NGIS), Transient, or Visitors Quarters.

1-1.1 Quality of Life.

Providing our unaccompanied military personnel with adequate, comfortable housing is a major goal for the Navy and Marine Corps, and a critical element in attracting and retaining high caliber personnel. Thus, the minimum standards set forth in this document maintain the focus of providing housing for a comfortable living environment.

1-2 APPLICABILITY AND MINIMUM STANDARDS.

\1 This UFC follows the same applicability as UFC 1-200-01, APPLICABILITY for Navy and Marine Corps unaccompanied housing with no exceptions. **/1/**

1-3 GENERAL BUILDING REQUIREMENTS.

Comply with UFC 1-200-01 which provides applicability of model building codes and Government unique criteria for typical design disciplines and building systems, as well as for accessibility, antiterrorism, security, high performance and sustainability requirements, and safety. Use this FC in addition to UFC 1-200-01 and the UFCs and Government criteria referenced therein.

1-4 CYBERSECURITY.

Control systems (including systems separate from an energy management control system) must be planned, designed, acquired, executed, and maintained in accordance with UFC 4-010-06, and as required by individual Service Implementation Policy.

1-5 AUSTERE CONSTRUCTION.

Austere construction is intended for facilities in locations determined by Commander Navy Installations Command (CNIC) and approved by OPNAV to be eligible for austere

facilities construction. The austere standards are intended to be applied flexibly and in varying degrees to all facilities at locations designated as austere. The flexibility should be allowed to ensure the criteria are appropriate for individual austere locations. Austere requirements are in APPENDIX C of this document and Planning requirements are in Appendix F of UFC 2-000-05N.

1-6 GLOSSARY.

Appendix D contains acronyms, abbreviations, and terms.

1-7 REFERENCES.

APPENDIX E 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 referenced publication applies.

CHAPTER 2 PLANNING

2-1 PROJECT INITIATION AND PLANNING.

This FC provides information required for preparation of DD Form 1391, which initiates project development. This includes information about functions, space allowances, overall building size, site evaluation, and special factors to consider in developing overall scope and cost estimates. It provides data and criteria needed at each stage of NAVFAC planning, project engineering, and the design process. Additional documentation may be provided in accordance with Chief of Naval Operations (CNO) or Commandant of the Marine Corps (CMC) guidance.

2-1.1 Navy Requirements Determination.

Navy UH requirements are defined in annual Unaccompanied Housing Requirements Determination Report (R-19), within the enterprise Military Housing System (eMH). The R-19 identifies the "Permanent Party Program Requirements" (line 15) by comparing base loading (people) and projected inventory. "School Program Requirements" are identified in the R-19 on page two (line 33), by comparing student throughput demand and projected inventory.

2-1.1.1 Permanent Party (Navy).

E1-E3: Shared bedrooms, with a bathroom to be used by 2 persons maximum.

E4: Private bedroom, with a bathroom to be used by 2 persons maximum.

E4-E6 (at remote locations): Private bedroom, with a bathroom to be used by 2 persons maximum.

E7-E9, O1 and above (at remote locations): Private unit with living room, bedroom, kitchen, and bathroom.

2-1.1.2 Military Necessity/Mission Essential (Navy).

E1-E3: Shared bedrooms, with a bathroom to be used by 2 persons maximum.

E4-E6: Private bedroom, with a bathroom to be used by 2 persons maximum.

E7-E9, O1 and above: Private bedroom, private bathroom.

2-1.1.3 Students (Navy).

Training Necessity: Shared bedrooms, with a bathroom to be used by 2 persons maximum.

2-1.2 Marine Corps Requirements Determination.

Marine Corps UH requirements are defined in annual UH Requirements Worksheet generated by MCICOM GF to the Installations Permanent Party.

E1-E4: Shared bedroom, with a bathroom to be used by 2 persons maximum.

E5: Private bedroom, with a private bathroom.

2-1.2.1 Students (Marine Corps).

Recruit: use the Open Bay plan to house personnel engaged in duty that requires special housing in groups to accomplish their tasks. These include basic training, follow-on entry level training at the Schools of Infantry (East and West), Special Forces with special mission needs, or other special situations as approved.

Formal Training/Schools: marines undergoing Military Occupational Specialty (MOS) training at Marine Corps Formal schools will be billeted at the 2+0 standard, unless otherwise approved.

Officer Accession: Shared bedrooms, with a bathroom to be used by 2 persons maximum.

2-1.3 Site Selection.

Site selection is a key aspect of initial project development and requires thoughtful consideration. This is part of a comprehensive planning process. After site selection and approval, thorough site and field investigations are performed.

- For Navy projects, follow the Installation Development Plan in accordance with UFC 2-100-01.
- For Marine Corps projects, follow the site selection process in accordance with the Base Installation Master Plan.

2-1.4 Project Analysis and Engineering Phase.

After a project is initiated, it is analyzed and defined. During the project analysis stage, the project team meets to define the project to have a clear understanding of the project goals and objectives. The customer, CNIC/HQMC, design agent, and architect/engineer (A/E) team then develops the project documentation based on an analysis of unique customer needs, requirements, established criteria, and site and environmental constraints. Information gathered provides the basis for defining the preliminary design and supports the project engineering phase, parametric cost estimating (PCE), and programming process. Information required includes space planning, site design, selection of the appropriate plan, and building design, elements and concepts. Unique local requirements concerning building program and design criteria are included in the PCE.

- Antiterrorism requirements are established as part of the design program and are identified as a separate line item in the DD Form 1391 estimate.
- For Navy Modernization projects a Business Case Analysis (BCA) is required for OPNAV review and approval.

2-2 ASSIGNMENT STANDARDS.

Navy: Assignment standards for the Navy are described in Commander Navy Installations Command Unaccompanied Housing Operations Manual CNIC M-11103.2. Refer to DOD 4165.63-M for additional information.

Marine Corps: Assignment standards for Marine Corps personnel are described in Marine Corps Order (MCO) 11000.22. Refer to DOD 4165.63-M for additional information.

2-3 FACILITY FUNCTIONS.

Three basic functional activities must be addressed in Navy and Marine Corps UH: “Units” (Navy) and “Rooms” (Marine Corps); Building Common Areas; and Recreational and Community Areas.

2-3.1 Terminology: “Unit”, “Room”, “Plan”, “Open Bay”.

The basic UH living unit should be composed of bedroom, living area, personal storage closet, bathroom, sink/personal hygiene area, food preparation area, and telecommunications as applicable. Navy and Marine Corps terminology differs for the same entity.

- "Unit". Navy UH living spaces are referred to as "Units”. The ‘Unit’ will refer to any group of rooms sharing any common space, such that a ‘Navy 2+0 Unit’ is composed of only one room and bathroom, whereas a ‘Market Unit’ might include several bedrooms, bathrooms, kitchen and living/dining area.
- "Room" or "Plan". The Marine Corps uses the terms “Room” or “Plan” for their basic UH living spaces, resulting in the “Marine Corps 2+0 Room”, “SNCO/BOQ Room” and “Marine Corps Officer Plan”.

Both Navy and Marine Corps use the term "Open Bay".

2-3.2 Building Common Areas (Spaces).

Building Common Areas (Spaces) are spaces within the building that are not included within the Navy UH Unit or the Marines Corp UH Room or Plan. Examples of these spaces are: entrance, laundry facilities, bulk storage, utility space, circulation space, multipurpose space, vending areas, public toilets, supply storage rooms, and administration area. See Chapter 3 for general space requirements which apply to all plans, and Chapters 4 thru 6 for Common Areas which vary by plans.

- Allowances for Common Areas (Spaces) vary depending upon the plan used.
- Not all Common Areas (Spaces) are permitted or available for all plans.

2-3.3 Recreation and Community Areas (Spaces).

Recreation and Community Areas (spaces) are outdoor activity areas. See Chapter 3, paragraph 3-2.14 entitled “Outdoor Recreation” for a more detailed description.

2-4 ACCESSIBLE UNITS.

Comply with *Architectural Barriers Act* (most recent edition) for additional requirements at accessible units or rooms. To determine the quantity of accessible units or rooms required in a project, take into account the amount of rooms provided in other UH facilities which meet ABA standards and include the quantity of rooms in the current project to meet the total required. Provide accessible units or rooms on the ground floor. Accessibility requirements also apply to common spaces (such as administrative areas, lobby, multipurpose rooms and laundry rooms).

2-5 ADAPTABLE UNITS

Adaptable rooms allow flexibility to accommodate the temporary requirement to house Members who are temporarily unable to climb stairs or have only limited mobility. These type facilities are not intended to house wounded warriors who require long term medical care. Fully accessible rooms are not intended; rather to serve those who are temporarily unable to climb stairs. In new construction projects, provide a minimum of two easily “adaptable” rooms on the ground floor to allow assigned service members with minor injuries to remain with their Units. Functional spaces and minimum square footage requirements must be provided in adaptable rooms (such as 2 closets required in 2-person units).

“Adaptable unit” means dwelling units that include the features of adaptable design specified in 24 CFR 100.205(c) (2)-(3). These include:

- Doors designed to allow passage into and within premises are sufficiently wide to allow passage by handicapped persons in wheelchairs;
- An accessible route into and through the unit;
- Light switches, electrical outlets, thermostats, and other environmental controls in accessible locations;
- Reinforcements in bathroom walls to allow later installation of grab bars around the toilet, tub, shower, stall and shower seat; and
- Usable kitchens and bathrooms such that an individual in a wheelchair can maneuver about the space.

2-6 NAVY STANDARDS FOR CONSTRUCTION AND SUSTAINMENT, RESTORATION, AND MODERNIZATION.

Restoration and Modernization (RM) projects must be executed in accordance with the current version of OPNAVINST 11010.20. This document provides detailed guidance for the administration of facilities projects at Navy shore installations. The criteria standards for Construction, Sustainment, Restoration, and Modernization (SRM) for Navy UH are referred to as Permanent Party, Mission Essential, or Recruits/Trainees. The existing building shell should be considered and respected in re-design projects. Modernization projects which alter the configuration of the building require a Business Case Analysis (BCA) approved by Deputy Chief of Naval Operations (Facilities Readiness & Logistics).

2-6.1 Recruits.

Provide Open Bay UH plan for recruits.

2-6.2 Training Necessity.

New construction for Students in Officer Accessions (Officer Training Command) and Enlisted (E1-E4), "non-prior service" in Initial Skills training (such as "A" Schools, Accessions pipeline, and "C" Schools) must use the Naval Education and Training Command (NETC) 2+0 Dormitory Unit.

2-6.3 Mission Essential.

New construction for rotational Sailors outside their homeport must use the Navy 2+0 Unit or the Austere design (based upon location).

2-6.4 Permanent Party.

Construction for Permanent Party UH must use Market Units in accordance with CNIC M-11103.2. Students in training 20 weeks or longer with exception of Officer Accessions and Enlisted "A" School pipeline training will be housed as Permanent Party (Market Units). This requirement is not applicable to renovation projects. Note that the Navy no longer uses a 2+0 plan for new footprint Permanent Party construction.

2-7 MARINE CORPS STANDARDS FOR CONSTRUCTION AND SRM.

Restoration and Modernization (RM) projects must be executed in accordance with the current version of OPNAVINST 11010.20. The criteria standards for Construction, Sustainment, Restoration, and Modernization (SRM) for Marine Corps UH are referred to as Permanent Party, Transients, or Recruits/Trainees. The existing building shell should be considered and respected in re-design projects. Modernization projects which alter the structural configuration of the building require a Business Case Analysis (BCA) approved by the Marine Corps Office Facilities and Services Division (Code LF).

2-7.1 Permanent Party.

New Marine Corps construction for Permanent Party UH must use the Marine Corps 2+0 Room.

2-7.2 Recruits and Trainees.

Use the Open-Bay Plan for UH to house personnel engaged in duty that requires special housing in groups to accomplish their tasks. These include basic training, follow-on entry level training at the Schools of Infantry (East and West), Special Forces with special mission needs, or other special situations as approved by HQMC Facilities and Services Division (Code LF). Marines undergoing Military Occupational Specialty training at Marine Corps formal schools will be billeted at the 2+0 standard, unless otherwise approved by HQMC Facilities and Services Division (Code LF).

2-8 DESIGN LIMITATIONS.

Graphic illustrations in this document are the basic building blocks from which UH designs are developed. These illustrations are provided to promote uniformity in the design of projects. These designs may be altered, but the mandatory size limits require that any variations be small. Required Common Areas (Spaces) for each UH plan differ. Refer to the specific Unit or Plan within subsequent chapters for the detailed descriptions of required Common Areas (Spaces).

- While plan layouts may be altered to some degree, all of the detailed features and fixtures must be included as a mandatory minimum.
- The Net Living/Sleeping Areas must be met, and gross area maximums must not be exceeded. Net Living/Sleeping Area describes the actual usable space in each sleeping/living area. Refer to DOD 4165.63-M for additional descriptive information.
- Plan room dimensions are NOT fixed but must remain functional. Size bedrooms to accommodate two extra-long twin beds, two desks and chairs, and if closets are not provided, two chest of drawers and two wardrobes.

2-9 GROSS BUILDING AREA.

When calculating the Gross Building Area, measure from the outside face to the outside face of exterior walls.

2-9.1 Gross Building Area = Unit/Room + Common Area (Space).

The total gross building size of UH facilities is based on a gross square footage metric for each unit or room type used. This metric accounts for the rooms/plans in addition to the common area spaces. See Chapters 3 thru 6 for the Net square footage requirements of specific spaces for use during plan layouts. These planning-level metrics are included in Table 2-1 below.

Table 2-1 Planning Level Metrics per Unit/Plan

UNIT/PLAN	MAXIMUM ALLOWABLE GROSS BUILDING AREA, FT2 (M2)
Navy Market Unit	606 ft2 (56.3 m2) per bedroom, based on a two-bedroom Unit. This maximum is not applicable for one-bedroom Units.
Navy NETC 2+0 Dormitory Unit / Navy 2+0 Unit	595 ft2 (55.3 m2) per plan
Marine Corps 1+1E Room	817 ft2 (76 m2) per plan
Marine Corps 2+0 Room	595 ft2 (55.3 m2) per plan
Marine Corps Officer Plan	855 ft2 (79.4 m2) per plan
Open Bay Plans	140 ft2 (13 m2) per person housed

2-9.2 Building Area Calculation.

For information on performing a building area calculation refer to UFC 3-101-01. For detailed information on Facilities Planning criteria for Navy/Marine Corps shore installations, refer to UFC 2-000-05N.

In cases where covered balconies and covered exterior circulation walks serve as the primary circulation (i.e., serving exterior room entrances), they count towards building gross area at 100%.

2-9.3 High Rise Structures and Additional Gross Area.

Multi-level construction requires additional structural and mechanical support. Therefore, for buildings above 3 stories an additional area of 21.5 ft^2 (2 m^2) may be added to the allowable gross area per Navy Unit or Marine Corps Plan. This must be identified and justified as a separate item in the DD 1391 documentation.

2-9.4 Additional Gross Area Required by Climate or Local Conditions.

Climate and local conditions may require additional enclosed spaces which need to be accounted for in the planning of the gross area for UH facilities. Examples of conditions and features that may require additional enclosed space include:

- Fire pump room where local infrastructure is insufficient.
- Locating emergency generator in an enclosed space due to climate or protection reasons.
- Requirements for a water treatment building where local water quality is inadequate.

2-9.5 Exterior Covered Areas

For covered outdoor facilities with no exterior walls, program these by the space function where there are associated Category Codes. Refer to UFC 2-000-05N for programmed areas of these spaces. Examples include:

- Car wash facility
- Gear/equipment washing and drying canopies
- Outdoor pavilion or other covered functional area

2-9.6 GROSS "UNIT" OR "ROOM" AREA.

Gross Unit or Room Area is defined as the area within the walls comprising the perimeter of a (Navy) Unit or (Marine Corps) Room. Review paragraph 2-3.1 entitled "Terminology for "Unit", "Room", "Plan" and "Open Bay"".

- Wall thickness and chase areas within the perimeter walls are included in the Gross Area.
- Gross Area is measured from the centerline of perimeter walls shared with interior corridors, common chases, or other rooms.
- Gross Area is measured to the outside face of exterior walls.
- Plan corner rooms with two exterior walls are to have the same interior dimensions as other rooms, even though technically the Gross Area for these corner spaces is slightly more than for other spaces.

2-10 FUNCTIONAL SPACES BY ROOM/UNIT TYPE

2-10.1 Navy Required and Optional Spaces

Chapters 3, 4 and 6 provide detailed information on the functional spaces required by the Navy based on Unit types. Table 2-2 presents a summary of space types and those that are required, indicated by an "X", and those that are optional, indicated by an "O". "N/A" indicates that a space is not applicable to that Unit type.

Table 2-2 Required and Optional Common Spaces: Navy Unit Types

NAVY UNITS				
AREA/SPACE	**MARKET UNIT**	**NAVY 2+0**	**NETC DORM**	**NAVY OPEN BAY**
Corridors	X	X	X	X
Stairways	X	X	X	X
Offices/Administration Area	X	X	O	O
Elevators	X	X	X	X
Lobby/Reception/Front Desk	X	X	O	O
Mechanical, Electrical and Telecom Rooms	X	X	X	X
*Weather Vestibule	X	X	X	X
Multipurpose Room(s)	X	X	X	X
Game Room(s)	N/A	N/A	O	N/A
Public Toilets	X	X	X	O
Vending (depending on nearby amenities)	O	O	X	O
Bulk Storage	X	X	O	X
General Maintenance Room	O	O	O	O
Janitorial	X	X	X	X
Trash Rooms (in bldgs. over 3 stories)	X	X	X	O
Housekeeping/Linen	X	X	O	N/A
Common Laundry	N/A	X	X	X
Duty Office	N/A	N/A	X	N/A
Duty Bunk	N/A	N/A	X	N/A
Unisex Restrooms	N/A	N/A	X	N/A
Armories	N/A	N/A	N/A	O

* Where required per ASHRAE 90.1, 5.4.3.4

2-10.2 Marine Corps Required and Optional Spaces

Chapters 3, 5 and 6 provide detailed information on the functional spaces required by the Marine Corps based on Room or Plan types. Table 2-3 presents a summary of space types and those that are required, indicated by an "X", and those that are optional, indicated by an "O". "N/A" indicates that a space is not applicable to that Room or Plan type.

Table 2-3 Required and Optional Common Spaces: Marine Corps Room or Plan Types

MARINE CORPS UNITS				
AREA/SPACE	**MC 2+0 ROOM**	**MC 1+1E ROOM**	**MC OFFICER PLAN**	**MC OPEN BAY**
Corridors	X	X	X	X
Stairways	X	X	X	X
Offices/Admin Area	O	O	O	N/A
Elevators	X	X	X	X
Lobby/Reception/Front Desk	** X	O	O	O
Mechanical, Electrical and Telecom Rooms	X	X	X	X
*Entry Vestibule	X	X	X	X
Multipurpose Room(s)	X	X	O	X
Game Room(s)	O	O	O	N/A
Theater Room	O	N/A	O	N/A
A/V Equipment Rooms	N/A	N/A	O	N/A
Internet Cafe	O	O	O	N/A
Public Toilets	O	O	O	O
Vending	X	X	O	O
Bulk Storage	O	O	O	O
General Maintenance Room	O	O	O	O
Janitorial	X	X	X	X
Trash Rooms (in bldgs. over 3 stories)	\1\ O /1/	\1\ O /1/	\1\ O /1/	O
Housekeeping/Linen	X	X	X	X
Centralized Kitchen	O	O	N/A	N/A
Common Laundry	X	X	N/A	X
Duty Office	X	X	N/A	O
Duty Bunk	X	X	N/A	O
Unisex Restrooms	X	X	X	O
Armories	N/A	N/A	N/A	O

* Where required per ASHRAE 90.1, 5.4.3.4.
** Optional at satellite facilities.

CHAPTER 3 GENERAL DESIGN CRITERIA - NAVY AND MARINE CORPS

3-1 SCOPE.

This Chapter is applicable to new construction, and renovation and modernization UH projects. Redesign and renovation project teams must apply sections relevant to the scope of work for their project.

3-2 SITE DESIGN.

Comply with the requirements of UFC 3-201-01. Analysis of existing site conditions (e.g., utilities and plant material, traffic patterns, land use, community facilities, and off-site workplaces), and antiterrorism is important for effective site design.

- Site Navy and Marine Corps UH to take advantage of the positive features of the site. Provide protection from undesirable winds and glare, shading from excessive sun in warm climates, and orientation of operable windows to take advantage of summer breezes.
- Pay special attention to building orientation, mass, and scale in developing the site plan. Develop a sense of order, arrival, orientation, and community in planning the site. Arrange the placement of structures in relationship to one another to create outdoor spaces for use as passive or active recreation areas. Achieve spatial balance and scale through thoughtful placement and arrangement of structures, landscaping, and landforms. Organize the site using functional zones and the appropriate relationship of functions. Intermittent functions such as trash collection, vending machine service, furniture moving, and mechanical repair should not interrupt residents' activities.
- Establishing the finished floor elevation of the project is one of the most important aspects of site planning. The Finished Floor Elevation affects grading, cut and fill, and visual impact of the facility, as well as interior and exterior transitions. In addition, the Finished Floor Elevation has a significant impact on the landscape architect's ability to effectively introduce site improvements into the new environment. When the approach is to "level the site" without sensitivity to other demands, the results lack visual interest. Closely combine efforts of the landscape architect, architect, and civil engineer to achieve the most optimum design results. For Civil Engineering, provide the facility's minimum finished floor elevation and the mechanical/electrical equipment pad elevations in accordance with the latest civil design guidance.

3-2.1 Walkways and Sidewalks.

Locate and size walkways to efficiently connect residents with site amenities, parking, station transportation, community facilities, jogging trails, and workplaces. Place walkways with emphasis on functional rather than formal needs. Grade walkways to

drain away from the building and ensure non-slip surfaces are provided. Consider security in all circulation designs.

- Construct walkways to building entrances to be 8 feet (2.5 meters) wide.
- Construct sidewalks used for troop formations to be as much as 28 feet (8.5 meters) wide.
- Construct typical pedestrian sidewalks 6 feet (2 meters) wide.

3-2.2 Vehicular Access.

Provide access to the housing site from secondary (collector) streets to reduce congestion associated with main arterial streets. Where possible, divide main entrances with landscaped traffic medians between entry and exit lanes. Because of high volume of traffic using the entrances, construct the width of non-divided entrances to be a minimum of 24.6 feet (7.5 meters). Carefully review security requirements when designing for vehicular access.

3-2.3 Parking.

Review the security study and incorporate its requirements into the design. Ensure existing and proposed parking is in compliance with Chapter 3, paragraph 3-5, entitled, Antiterrorism. Provide parking for residents, visitors, staff, and service personnel that is convenient, safe, and pleasant to use. Locate and shape parking areas to improve the residential environment. Use landforms such as earth berms, retention ponds, and tree islands to separate parking from other functional zones and to buffer the residential area from possible surrounding adverse environment.

Provide standard parking spaces for 70% of the resident capacity. Provide motorcycle parking for 5% of the resident capacity; provide dedicated space with concrete paving. Provide bicycle parking for 5% of the resident capacity; provide secure, weather protected, conveniently located facilities. Provide visitor parking for 2% of the resident capacity. Locate two standard parking spaces for guest check-in near the entrance. Provide parking for each staff member and locate staff parking at the outer areas of the parking area. Maintenance parking for service functions does not necessarily require dedicated space. Use the expected frequency of maintenance vehicles to determine whether dedicated parking is needed. Locate service access and parking to avoid disturbing residents.

3-2.4 Vehicular Service to Building.

Antiterrorism requirements take precedence over other requirements.

- Entrances. Where possible, separate service entrances associated with mechanical rooms or mechanical enclosures from parking areas.
- Design access streets and parking areas to accommodate service vehicles and fire protection equipment. Where interior court areas are

being proposed between adjoining buildings, consider designing the main pedestrian walks to accommodate service and fire protection vehicles. For example, construct the minimum width of such walkways a minimum of 8 feet (2.5 meters) wide and constructed using reinforced concrete to accommodate Government vehicle weight class 4 and 5.

- Consider treating the walkways with a patterned concrete system to minimize the negative impact of the wider access route. Use materials such as concrete grass road type pavers to provide access for infrequent service vehicles.

3-2.5 Bus Route Access.

Consider developing shelters and walks to serve personnel needs if the base provides bus service. Design bus shelters to be compatible with the architectural aesthetic of existing buildings, Installation Appearance Plan (IAP), and existing bus shelters on base. Program at least one bus stop shelter for each major housing complex. Coordinate with the base in selecting a new shelter that is programmed with new projects, where existing shelter design needs upgrading.

3-2.6 Utility Corridors.

Develop utility corridors in coordination with the planner, electrical, mechanical, and civil engineers. Size the corridors to accommodate future expansion. Locate utility corridors no closer to tree trunks than one and one-half times the crown width of mature trees or 33 feet (10 meters), whichever is the greater amount. Locate utility corridors to allow for future street tree plantings.

3-2.7 Fire Protection Access.

Site new structures a minimum of 39 feet (12 meters) laterally from the closest adjoining building. Provide fire department access, fire lanes, and fire apparatus turn-a-rounds in accordance with UFC 3-600-01.

3-2.8 Site Furniture.

Select site furniture that is in harmony with the architecture of the new and surrounding existing facilities, compliments the building, and makes the outdoor spaces more usable and organized. The landscape architect must coordinate the selections with the architect and interior designer to ensure smooth transitions are made in the procession from within the building to the outdoors and vice versa. Effective transitions are affected when building materials, colors used in the building exterior and interior areas, and design details from the building are incorporated into the paving materials and site furnishings. Durable site furnishings are to be used to support various site functions. Wherever possible, use recycled materials for site furnishings. Coordinate the use and locations of site furnishings, trash receptacles, seating, picnic shelters and grills, and lighting. Provide public areas suitable for various group sizes (4-20) with grills and at

least partially covered seating. Site public areas to accommodate larger coordinated and smaller separated activities.

3-2.9 Mechanical Enclosures.

Screen mechanical equipment such as chillers, evaporating condensers, switchgear, and electrical transformers. Use architectural screening materials that complement the materials used to construct the new facility. Use landforms to screen objects in the landscape that do not require enclosures. Design screening low and in cognizance of the requirements of the Risk Analysis and Vulnerability Assessment and security requirements.

3-2.10 Trash Dumpsters.

Locate dumpsters in areas away from main entrances, while still as convenient as possible to residents and large trash handling trucks. Screen trash dumpster locations with any combination of hard wall materials, earth forms, and landscaping to reduce their impact. Where hard wall materials are used, use materials that complement the materials used in the project and adjacent facilities. Locate dumpsters and design screening in accordance with the requirements of the Risk Analysis and Vulnerability Assessment and security requirements.

\1 If **/1/** large refuse containers or compactors are located within building footprints, locate trash chutes conveniently for use by all occupants. Provide trash rooms with a hose bib and floor drain for cleanup.

3-2.11 Planting and Vegetation.

Comply with the requirements of UFC 3-201-02. Proper planning and design, plant selection, and use of turf alternatives and mulch materials, zoning of plants in accordance with water requirements, soil improvements, efficient irrigation, and appropriate maintenance are the fundamentals of good landscape planting.

- Develop plantings to create an aesthetically pleasing landscape that conserves water and resources while minimizing maintenance requirements.
- Provide low shrubs and ground covers at the building foundation, bio-retention cells (if utilized), and for screening unsightly utility features.
- Provide trees throughout the site including at parking areas, along roadways, around the building as appropriate, and in turf areas.
- Provide new plantings which enhance the visual quality of the site during all seasons and incompliance with local installation standards.
- Provide a one-year maintenance contract on all plants, including sod or grass seeded areas.

- Provide plant materials that are drought tolerant, disease and pest resistant, and are native or naturalized.
- Plantings must meet Anti-terrorism (AT) Standards.

3-2.12 Landscape Maintenance Provisions.

The initial contract must provide landscape establishment and maintenance for installation of plant materials. Use a one-year duration of the establishment period in all cases. This must not be made optional. Include the following establishment requirements:

- Irrigation including adjusting sprinkler head radius, direction, and resetting to finish grade, replacing broken heads and other equipment, adjusting automatic irrigation controller timing;
- Mowing and edging, replacing mulch;
- Inspection, control of pests and weed control;
- Tightening, staking and guying materials, pruning, fertilization;
- Replacing damaged, dying, or dead plant materials;
- Maintaining watering saucers.

3-2.13 Irrigation.

Comply with the requirements of UFC 3-201-02. For Navy projects, permanent reclaimed water irrigation systems are required only for building perimeter planted areas, such as the 20-foot (6.096 meter) perimeter immediately around the building.

For Marine Corps projects, permanent irrigation systems are not required. Permanent reclaimed water irrigation systems may be approved where climactic conditions dictate.

3-2.14 Outdoor Recreation.

When providing sand volleyball courts and full basketball facilities or other appropriate amenities, light these facilities for evening use. Locate these recreational functions to reduce interference with other functions on and near the site. Shelter or screen both active and passive recreational facilities to temper wind and other climate elements. Provide horseshoe pits or other recreational activities, as well as tables, benches, appropriate lighting for safety and evening recreational activities, and appropriate plant materials.

3-3 RESTORATION AND MODERNIZATION REQUIREMENTS.

Projects for any existing facility housing unaccompanied personnel must incorporate a ‘whole building approach’ with the goal of eliminating all identified building deficiencies.

3-3.1 Navy RM.

Restoration and Modernization (RM) UH projects for the Navy will be executed to the maximum extent possible to include new construction requirements noting that a market style standard (assignment) for permanent party unaccompanied personnel may not be achieved within existing older facilities. RM projects must address all identified deficiencies (Condition and Building Code), and functional Quality of Life (QOL) deficiencies.

3-3.2 Marine Corps RM.

Restoration and Modernization UH projects for the Marine Corps will be executed to the maximum extent possible to include new construction requirements noting that a 2+0 standard (assignment) may not be achieved within existing older facilities.

3-4 STRUCTURAL DESIGN.

Use UFC 1-200-01 for structural engineering and seismic design.

3-4.1 Structural Selection.

Coordinate column spacing and layout with the building's floor plan so that they occur within or in alignment with walls. Hold columns occurring within spaces to a minimum and limit them to larger public spaces. Analyze and select the proposed structural system that is the most economical method of realizing the architectural design intent.

Select an economical structural system based on: facility size; load requirements; geotechnical conditions and foundation design based on local experience; antiterrorism considerations, including progressive collapse for buildings of three stories or greater; local availability of materials and labor; local construction practices; experience of inspection personnel; resistance to fire; permafrost conditions; construction schedule.

3-5 ANTITERRORISM (AT).

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

3-5.1 Vulnerability and Risk Assessment.

During the initial UH planning process, the Planning Team must conduct a vulnerability assessment to determine the appropriate Design Basis Threat (DBT) and associated level of protection. Use UFC 4-020-01.

3-5.1.1 UH Design in High Threat Environments.

When the vulnerability and risk assessment of a new project identifies a higher DBT, the following minimum design features are required:

- Kitchen/Bath. Kitchen and bath areas located to the threat side of the occupied space as a buffer to the more frequently occupied sleeping areas.
- Windows and Glass. Limit the use of doors and windows. Windows must be operable, and with lockable hardware.
- Protected Courtyard. A protected courtyard may or may not be a structurally enclosed space. A protected courtyard is a space where access by unauthorized persons or vehicles is limited by landscaping, structures or fencing.

3-6 ARCHITECTURE.

Refer to UFC 1-200-01 for direction to the appropriate core criteria for architectural details and finish concerning:

- Exterior Finishes, vapor retarders, thermal insulation, and air infiltration.
- Roof systems. Design and detail roof systems to resist maximum wind for the area.

3-6.1 Building Design.

Design buildings to make arrival and movement through them orderly and clearly understandable by users (visitors, residents, staff, and service personnel). Use circulation to organize and zone activities and to promote physical security.

- Provide a single public entrance to the building and to different functional areas within the building.
- Provide a weather protected entrance vestibule with two sets of doors. The first exterior door must not be secured. The second door set to provide secure access to the building.

3-6.2 Architectural Character and Scale.

Most military installations have published exterior architectural guidelines that contain criteria relative to achieving, maintaining, and emphasizing a positive exterior visual environment. Follow the design guidance contained in these documents. In the absence of such guidelines, design facilities to harmonize with the character of existing facilities considered historically or architecturally significant to the area.

Design the architectural character of the facility in context with its surroundings and relate not only to the immediate site and adjacent buildings, but also to the Installation itself.

3-6.3 Residential Character for Unaccompanied Housing.

Design housing to provide a residential environment through both exterior and interior elements. Design exterior building forms to reflect the residential character of the project. These residential images can be reinforced through the following:

- Provide gable or similar steep sloped roof shapes. Sloped metal roofs are mandatory on UH, with limited exceptions for Navy projects. The Navy will accept other roofing materials if necessary, to match existing buildings, with exception of asphalt shingles.
- Asphalt shingle roofs are prohibited.
- Bay windows may be used to change the exterior appearance from institutional to more residential. Additionally, architecturally integrated sunshades or other features are acceptable.

3-6.4 Model Unit “Mockups”.

Construction of a UH Model Unit or "Mockup" of a typical Unit/Plan or selected spaces within a typical Unit/Plan, created and finished for illustration purposes, have proven to be very effective in cost management and quality control. They are most successful when completed prior to the start of project construction. For new construction, mockups may be elemental or whole, built off-site and later dismantled or built on-site and converted for actual use. For RM projects, construct mockups in place on-site and convert to actual use to be most cost effective. For mockup reviews, include acoustical field testing in accordance ASTM E336.

- Mockups are required for Navy projects that contain more than 24 units. Provide a virtual typical unit model to test in-unit door swings and unit design functionality for projects containing less than 24 units.
- Mockups are encouraged for Marine Corps projects where space is available and time permitting, and if so, incorporated in the project RFP.

3-6.5 Acoustics.

Careful attention to acoustic design is required for UH to ensure a high degree of privacy for residents. Design to meet acoustic requirements structurally rather than through the use of applied finishes. Do not compromise the acoustical integrity of wall, floor, or ceiling assemblies with electrical outlets, or mechanical ducts. If required, field test assemblies in accordance with ASTM E336 and ASTM E492. Provide the following acoustic ratings:

- Walls between living units and between living units and corridors, and exterior walls of living units require a sound transmission class (STC) of minimum STC 55.
- Walls within the living units (room to room) require a minimum STC 50.
- Unit entry doors require a minimum STC 41.

Floor and ceiling assemblies require a minimum STC 55 and have an impact isolation class of at least (IIC) 60 for Navy. An impact Isolation rating (IIC) of STC 50 is the minimum design target for the Marine Corps, but an IIC 45 rating is acceptable if field tested.

3-6.6 Doors.

Specify doors, frames, and hardware to meet sound separation, fire separation, and security requirements unique to Navy and Marine Corps UH. Design all doors and frames in accordance with the findings of the Risk Analysis and Vulnerability Assessment provided for the project. Fully weather strip exterior doors and provide heavy duty metal thresholds that prevent drafts, dirt, water, and insect entry. Provide lobby and entry vestibules with glass commercial storefront doors with automatic openers at both sets of doors at major entrances. Provide other exterior doors as metal, thermally insulated, and secure.

- At Unit Entry for Navy facilities and at Room Entry for Marine Corps facilities, doors must be solid core wood (interior access) or thermally insulated metal doors (for exterior access) to provide sound isolation. Note that the acoustic rating of the door is not required to meet the adjacent wall acoustic rating. Provide a fire-rated, wide-angle security view port at 60-inch (1524 mm) height and an additional wide-angle security view port at 43-inch (1092 mm) height for accessible units.
- Doors within the units are required to be solid core wood doors. Connecting doors between bedrooms are not allowed.

3-6.7 Hardware and Locks.

Provide hardware that conforms to Builders Hardware Manufacturers Association (BHMA) standards, ANSI/BHMA A156, (1000 series). Use Grade 1 for entry doors. Occupant entry doors BHMA 4000 series Grade 1 locksets and privacy latches. All locks must be industry standard and comply with UFC 1-200-01 and UFC 3-600-01. All electronic locks must have a mechanical key override. Installations must ensure procurement of new and replacement lock systems are based upon a single system to reduce operating costs. Provide doors with programmable electronic key systems except for bathrooms and closets. Provide stand-alone programmable new and replacement electronic lock systems, not connected to any information network. Procurement of networked electronic lock systems is prohibited. Use stand-alone key-encoding systems. Use of CAC cards as keys for new internal lock systems is

prohibited. Use RFID key card locks with a battery compartment accessible from the exterior of the secured space.

3-6.7.1 Navy Locks.

New and replacement electronic lock systems must comply with the CNIC authorized system, an all-in-one system without a computer interface.

- Each occupant's key card must be able to open the entrance to their unit, bedroom, closet and secured common rooms (such as lounges and laundry) as appropriate. Provide dead bolts on unit entrance doors and privacy latches on bathroom doors.
- Provide Front Desk Unit (FDU).
- Exterior doors. Electronic locks are required at exterior doors. Building access must comply with CNIC and Installation standards.
- Use of mechanical key/tumbler locks is limited to service closets and administrative spaces.

3-6.7.2 Marine Corps Locks.

When determining lock configuration requirements, consider the different locking levels a manager, lock system programmer, facility employees such as housekeeping, and an occupant would need to open. Each occupant's key card must be able to open the entrance to their room and secured common rooms (such as lounges and laundry) as appropriate.

- Bathroom doors must have privacy latches and ensure that they cannot be locked from the outside.

3-6.8 Windows.

Fenestration must conform to the recommendations of DOD standards for buildings, and fire and life safety, including exiting. See UFC 3-101-01 for additional window design information. Place windows to prevent illicit entry accomplished by reaching adjacent entry door hardware. For exterior corridor configurations, where windows are likely to be kept covered for privacy, higher fenestration with a separate covering mechanism is recommended to allow light to enter the room while maintaining privacy at eye level. In general, size glazed openings to approximately 30% window to wall ratio to provide day light. Operable windows are encouraged within sleeping and living areas, subject to code compliance. Window sizing, placement, and shading should respond to the building's orientation and climate zone. Provide an energy efficient envelope which considers many aspects of opening design: allowing winter sun, shading summer sun, allowing day light into the majority of a given sleeping or living space, and quality of the glazing system. Specify commercial grade windows; low "E" glass is required. Install heavy duty insect screens on operable windows. For more information about optimum daylighting, see *Tips for Daylighting with Windows*.

3-6.9 Walls and Partitions.

Design walls and partitions to meet appearance and acoustic and durability requirements of Navy and Marine Corps UH. Seal edges of wall assemblies to adjacent construction to avoid flanking sound paths.

- For Navy projects, use light-frame construction for interior wall construction. When using gypsum board interior walls in high-use areas (such as lobby, corridors and multi-purpose rooms), provide double layer gypsum board, high-impact gypsum board, plywood backing board as a base to gypsum board, or similar. When using CMU interior walls, provide a grout or resin based (not plaster) finish to CMU walls to fill the joints to be a uniformly smooth surface to be painted.
- Marine Corps exterior walls must be masonry construction and finish. Basic wall construction types consist of concrete masonry units (CMU), precast concrete, or cast-in-place concrete construction, where appropriate. The Marine Corps requires interior walls with hard finishes similar in durability to CMU. When using CMU interior walls, provide a grout or resin based (not plaster) finish to CMU walls to fill the joints to be a uniformly smooth surface to be painted.

3-6.10 Balcony.

For projects with exterior breezeway or balcony access to each room, consider the use of an upper window, and transom over the entry door. This allows for the entry of natural light into the occupants' rooms while retaining privacy from travelers along the breezeway or balcony.

3-6.11 Signage.

Prepare a signage design package that instructs the activity in maintenance of the signage system and provides equipment and materials necessary for this. Place emphasis on directional signage to allow visitors and occupants to immediately familiarize with room names and numbers.

3-6.11.1 Exterior Signs.

Design directional signs as an integral part of an overall building and site system, to be furnished and installed under the construction contract. Economy, aesthetics, durability, flexibility, ease of installation and maintenance are important considerations of signage design. Design the system to inhibit vandalism but with flexibility to enable the addition or deletion of information. Select a mechanical mounting mechanism for the signs to permit the reuse of signs as the facility changes.

- Specify an easily read typeface such as Helvetica Medium.

- Provide a signage plan, legend, and details. Indicate the design, location, and installation method in the plan, elevations, and specifications.
- Require the Contractor, in the project specifications, to make a comprehensive submittal of the proposed signage system and to provide information necessary for acquiring new or replacement signs.
- Provide building signs and other items on the building exterior that meet the IAP (Installation Appearance Plan).
- The exterior signage system must be respected both on and off the specific facility site. Signage must also be harmonious in the landscape. Care must be taken to use signs only when necessary and to restrict the use of random sizing, placement, and colors.
- The interior designer will coordinate interior signage and identification with the exterior designs.

3-6.11.2 Project Signage.

Provide the following signs for each project or building:

- Entrance signs at roadway, walkway and building entry point as appropriate.
- Building Identification Sign.
- Building Directory.
- Directional Signs.
- Room Identification Signs. Coordinate room identification signs with the facility functions regarding occupant information.
- Regulatory Signs.
- Informational Signs. Include command board signage/display.
- Notices Board for residents' use (Permanent Party only).
- Bulletin Boards (for official use).

3-7 INTERIOR DESIGN.

Refer to the tables in this manual for specific interior finish schedules for Navy and the Marine Corps. Employ finishes that are easily cleaned and endure hard use and food spills. Select neutral colors for the more permanent surfaces within the facility (such as floor/wall tiles, solid surfacing material, masonry) to facilitate future finish/material changes with respect to Installation guidelines where available. See Table 3-1 for Navy and Table 3-2 for Marine Corps interior finish requirements.

Table 3-1 Interior Finishes Schedule: Navy

NAVY INTERIOR FINISH SCHEDULE			
AREA/SPACE	**FLOORS**	**WALLS**	**CEILING**
Administration/ Conference Rooms	Resilient (LVT or RT) or Poured Epoxy Terrazzo	Gypsum Board, impact resistant or smooth finished CMU, painted.	Gypsum board, painted or SAT
Elevators	Resilient (LVT or RT) or Porcelain Tile	Plastic laminate, stainless steel, or solid surface material wall panels	Factory finish with lighting
Lobby/Front Desk	Porcelain Tile, Resilient (LVT or RT) Poured Epoxy Terrazzo or integrally colored or honed concrete	Gypsum Board impact resistant or Accent material	Gypsum board, painted or SAT
Mechanical and Electrical Rooms	Sealed Concrete with Rubber cove base	Gypsum Board, impact resistant, Concrete or CMU	Exposed Structure, painted
Weather Vestibule	Entrance Mat, Porcelain Tile, integrally colored or honed concrete, or Epoxy Terrazzo	Exterior Building Finish, Porcelain Tile or Gypsum Board, impact resistant	Exterior Finish or Painted Gypsum Board
Lounge/Meeting/ Game Room	Resilient (LVT or RT) or Poured Epoxy Terrazzo	Gypsum Board, impact resistant or smooth finished CMU, painted.	Gypsum board, painted or SAT
Public Toilets	Porcelain Tile, Epoxy Flooring or Poured Epoxy Terrazzo	Gypsum board, and Porcelain Tile, floor to ceiling	Gypsum board, painted or SAT
Vending/Coffee Mess	Porcelain Tile, integrally colored or honed concrete, Epoxy Flooring or Poured Epoxy Terrazzo	Gypsum board, impact resistant, painted, extended solid surface backsplash at counter	Gypsum board, painted or SAT
Bulk Storage	Sealed Concrete	Gypsum Board, impact resistant, Concrete or CMU, painted	Exposed Structure, painted or SAT
Bike Rooms	Sealed Concrete	Gypsum Board, impact resistant, Concrete or CMU, painted	Exposed Structure, painted or SAT

NAVY INTERIOR FINISH SCHEDULE			
AREA/SPACE	**FLOORS**	**WALLS**	**CEILING**
Trash Rooms	Sealed Concrete	Gypsum Board, impact resistant, Concrete or CMU, painted	Exposed Structure, painted
Housekeeping/Linen	Sealed Concrete	Gypsum board, impact resistant, painted	Gypsum board, painted or SAT
Common Laundry	Porcelain Tile, Epoxy Flooring or Sealed Concrete	Gypsum Board, impact resistant, Concrete or CMU, painted	Gypsum board, painted or SAT
Public Corridors	Resilient (LVT or RT) or Epoxy Terrazzo or Porcelain Tile	CMU with grouted smooth finish, painted or Accent Finishes	Gypsum board, painted or SAT
UNITS			
Entry/Service Areas	Resilient (LVT or RT) or Porcelain Tile	Gypsum board, impact resistant, painted	Gypsum board, painted
Living/Dining Area	Resilient (LVT or RT), Porcelain Tile	Gypsum board, impact resistant, painted	Gypsum board, painted
Kitchen	Resilient (LVT) or Porcelain Tile	Gypsum board, impact resistant, painted	Gypsum board, painted
Bedrooms	Resilient (LVT or RT) plank or tile	Gypsum board, impact resistant, painted	Gypsum board, painted
Closets	Resilient (LVT or RT) plank or tile	Gypsum board, impact resistant, painted	Gypsum board, painted
Laundry	Resilient (LVT or RT), Epoxy Flooring or Porcelain Tile	CMU or Impact Resistant Gypsum board, painted	Gypsum board, painted
Bathrooms/Vanity	Porcelain Tile	Gypsum board with PT Tile full height, solid surface in showers, full height	Gypsum board, painted
Kitchen	Resilient (LVT) or Porcelain Tile	Gypsum board, impact resistant, painted	Gypsum board, painted

Table 3-2 Interior Finishes Schedule: Marine Corps

MARINE CORPS INTERIOR FINISH SCHEDULE			
AREA/SPACE	**FLOORS**	**WALLS**	**CEILING**
Entry Vestibule	Entrance Mat, Porcelain Tile, integrally colored or honed concrete, or Epoxy Terrazzo	Exterior Building finish; Painted CMU or concrete. Optional grouted smooth finish. Painted CMU used with split faced block wainscot or equal.	Exterior Finish or Painted Gypsum Board
Duty Office	Resilient (LVT or RT) plank or tile	Painted CMU or concrete.	Gypsum board, painted
Duty Bunk Room	Resilient (LVT or RT) plank or tile	Painted CMU or concrete.	Gypsum board, painted
Public Toilet	Porcelain Tile, Epoxy Flooring or Poured Epoxy Terrazzo	Gypsum board, and Porcelain Tile, floor to ceiling	Gypsum board, painted
Vending	Porcelain Tile, integrally colored or honed concrete, Epoxy Flooring or Poured Epoxy Terrazzo	Painted CMU or concrete, optional grouted smooth finish. Painted CMU or concrete used with split faced block wainscot or equal.	Gypsum board, painted or SAT
Multi-Purpose Room	Porcelain Tile, integrally colored or honed concrete, Epoxy Flooring or Poured Epoxy Terrazzo	Painted CMU or concrete, optional grouted smooth finish. Painted CMU or concrete used with split faced block wainscot or equal.	Gypsum board, painted or SAT
Janitor Closet	Sealed Concrete	Painted CMU or concrete.	Exposed Structure, Paint
Laundry Room	Porcelain Tile, Epoxy Flooring or Sealed Concrete	Painted CMU or concrete.	Exposed Structure or Gypsum Board, Paint
Public Corridors	Resilient (LVT or RT) or Epoxy Terrazzo or Porcelain Tile	Painted CMU or concrete, optional grouted smooth finish. Painted CMU or concrete used with split faced block wainscot or equal.	Gypsum board, painted or SAT
Bedrooms	Epoxy Terrazzo; Resilient (LVT or RT) plank or tile.	Painted CMU or concrete.	Concrete, painted
Room Service Areas	Epoxy Terrazzo;	Painted CMU or concrete.	Gypsum board, painted

MARINE CORPS INTERIOR FINISH SCHEDULE			
AREA/SPACE	**FLOORS**	**WALLS**	**CEILING**
	Resilient (LVT or RT) plank or tile.		
Room Toilets	Porcelain Tile	Gypsum board with PRT Tile full height, solid surface in showers, full height	Gypsum board, painted
Bedroom Closets	Epoxy Terrazzo; Resilient (LVT or RT) plank or tile.	Painted CMU or concrete.	Concrete, painted

3-7.1 Paint.

Paint interior surfaces, except factory pre-finished material, a minimum of one prime coat and two finish coats. Provide painted finishes with a minimum of high-performance architectural paint as defined by Master Paint Institute (MPI) on gypsum board and CMU. On steel and non-ferrous surfaces, provide a minimum of high-performance system as defined by MPI in a minimum of a semi-gloss finish. Back prime wood trim frames, and other wood.

3-7.2 Wall Finishes.

Provide wall finishes that are easy to clean, repair and refinish. Proprietary finishes are prohibited. Vinyl Wall Covering is prohibited in all UH facilities.

3-7.2.1 Gypsum Board.

Gypsum board must be a minimum of level 4 finish and a minimum of an eggshell finish; semi-gloss where required. Use epoxy paint for high use areas such as laundry rooms and stairwells.

3-7.2.2 Concrete Masonry Units.

Concrete Masonry Units (CMU) must have a minimum of an eggshell finish, semi-gloss is recommended in certain utilitarian spaces such as mechanical and electrical rooms. Coordinate where smooth finish CMU is to be used. Use epoxy paint for high use areas such as laundry rooms and stairwells.

3-7.2.3 Porcelain Tile.

Provide color body porcelain tile in UH facilities. In Toilets and vanity areas, provide full height color body porcelain tile with matching cove base or coved metal profile for floor to wall tile transitions. Include metal corner trims to protect outside corners from

chipping. In public and recreational areas, porcelain tile may be used for a highly durable, cleanable wall finish and double as wall protection.

3-7.2.4 Showers.

Provide seamless solid surface materials (except at corners) from top of shower receptor to ceiling in showers. Tile with grout lines is not recommended for maintenance challenges.

3-7.2.5 Wall Protection.

Provide resilient corner guards consisting of integrally colored high impact resistant extruded vinyl, polyvinyl chloride, stainless steel, or injection molded thermal plastic. Install at outside corners of interior walls, partitions, and columns in all public spaces, high traffic, and high use spaces. Provide full height, minimum 8 ft. (2.44 m), corner guards at all locations where required. Additional wall protection, such as wainscots, bumper guards, and wall guards, may be required depending on the use of the space.

3-7.3 Ceilings.

Suspended acoustical tile may be used in corridors, entryways, and multi-purpose rooms. Suspended acoustical tile (SAT) is prohibited in bedrooms/bathrooms in UH projects. Provide painted gypsum board or concrete ceilings in these spaces with an off-white color. Blown-on or spray applied acoustic ceiling finish is not allowed in any space.

3-7.4 Flooring.

3-7.4.1 Resilient Flooring.

Use Luxury Vinyl Tile (LVT) flooring in units, rooms, corridors, and lounge/recreational spaces. Provide LVT in planks or large format sizes, with a minimum 20 mil wear layer and a minimum 20-year manufacturer’s commercial, non-pro-rated, written warranty. LVT flooring must be provided in medium tone colorations to minimize appearance of scratching and scuffing. Integral acoustical backing is required where noise transmission in existing facilities where the structure does not conform to acoustical requirements. LVT must be used with a minimum 4 inch (102 mm) high rubber cove base.

Use Rubber Tile (RT) flooring in units, rooms, corridors, elevators, stair landings and lounge/recreational space. Provide a minimum of 0.125 inch (3.2 mm) thick tile with textured, easy to clean surface and through color patterned or multi-color visual. RT must be used with a minimum 4-inch (102 mm) high rubber cove base. For interior stairs, provide coordinating rubber tile for stair landings and rubber stair treads which allows compatible maintenance and cleaning methods. Grit and contrasting strips on stair treads are required to be integral to the tread construction. Applied grit and contrasting strips are not acceptable.

3-7.4.2 Carpet.

Carpet is prohibited throughout Navy and Marine Corps UH facilities.

3-7.4.3 Porcelain Tile.

For porcelain tile, use through-body color tile with a heavy commercial rating for floors. Provide appropriate slip resistance in all areas. Specify a mottled or shaded tile to hide discoloration from detergents and other substances. Provide epoxy grout in a medium to dark color. Provide matching coved wall base or metal cove trim for floor to wall tile transitions.

3-7.4.4 Resinous Epoxy Flooring.

Provide a 3/16-inch (4.8 mm) thick, decorative flake or quartz broadcast system. Epoxy flooring must be a troweled mortar system, utilizing epoxy and silica aggregate mortar, high build grout, seal coat and decorative vinyl chip or quartz aggregates. Install with minimum with minimum 4-inch (102 mm) high integral resinous epoxy cove base.

3-7.4.5 Poured Epoxy Terrazzo

Poured epoxy terrazzo system must include (but not be limited to) moisture vapor primer system, isolation crack membrane, and divider strips; and include minimum 4-inch (102 mm) high by ½-inch (12.7 mm) thick precast epoxy terrazzo base. Thinner epoxy bases are not acceptable. Porcelain tile base is acceptable for terrazzo floor as it has a harder breaking strength and is more durable.

3-7.4.6 Integrally Colored or Honed/Polished Concrete.

Use honed, colored, polished, or sealed concrete as appropriate for the use of the space. Coordinate concrete finish products and specifications with the aesthetic, durability, and maintenance requirements of the space. Wall base must be rubber cove base or porcelain tile base.

3-7.4.7 Wall Base Molding.

Provide wall base molding for the flooring systems indicated above. Accent wall base molding may be provided in building and elevator lobbies.

3-7.5 Cabinets, Millwork, and Hardware.

Construct cabinets to American Woodworking Institute Custom grade with heavy-duty hardware.

- Provide acrylic solid surface or solid surface veneer kitchen countertops. Use of natural stone is prohibited. Coordinate type of sink and mounting with Plumbing.

- Provide acrylic solid surface, solid surface veneer or cultured marble bathroom vanity tops, with integral sink bowl. Coordinate type of sink and mounting with Plumbing.
- Provide cabinet boxes, bases and toe kick a minimum 3/4-inch (19 mm) hardwood plywood. Provide interior of cabinet boxes and drawer boxes with melamine for easy cleaning. Provide high pressure plastic laminate for exterior surfaces for impact resistance and easy cleaning. Cabinet backs and drawer bottoms should be minimum 1/4-inch (6.4 mm) hardwood plywood with melamine interior finish.
- Provide drawer boxes of 5/8-inch (15.8 mm) hardwood, with dovetail or box joints, mounted on full extension guides, rated for minimum 75 lbs (34 kg)
- Provide cabinet interior shelving of 3/4 inch (19 mm) hardwood plywood with melamine surface for ease of cleaning and with matching front edge banding. Hanging or mounting rails for wall cabinets must be a 3/4-inch (19 mm) hardwood.
- Cabinet doors and drawer fronts must be 3/4-inch (19 mm) hardwood plywood or medium density fiberboard, with high pressure plastic laminate on all surfaces and 1/8-inch (3 mm) PVC edging on all edges.
- Provide adjustable, cup type, hinges having a minimum 105-degree swing. Cabinets and countertop support must comply with CPA/ANSI A208.2 or ANSI/HPVA HP-1 standards for low formaldehyde emissions.
- Sustainable alternative materials should be considered where they provide comparable strength, quality, and durability, including formaldehyde free, or no added formaldehyde plywood and alternative backer boards.

3-7.6 Entrance Mats.

Provide entrance mats at main entries and at heavily used entrances which can be removed and cleaned as well as cleaned underneath them. Roll-up mats with the aluminum frame, vinyl hinges and foot cleaning treads are preferred. Provide a minimum uniform floor load of 300 lb/sq ft (14.36 KPa) and a wheel load of 350 lb (160 kg) per wheel.

3-7.7 Toilet Partitions.

Provide toilet partitions of high-density solid plastic, stainless steel, or solid phenolic core with decorative laminate materials. Painted metal and plastic laminate clad MDF core toilet partitions are not allowed.

3-7.8 Toilet Accessories.

Provide toilet accessories as surface mounted or recessed, of non-corrodible metal or solid surface (showers). Provide heavy duty materials with concealed mounting

methods. Provide toilet paper holder, soap dish, bathrobe hooks, and towel bars. Provide a shower curtain rod. Specify rod at proper height for conventional shower curtains (72 inches by 72 inches [1.8 m by 1.8 m], approximately).

3-7.9 Window Treatments.

Include window treatments (such as black out shades and sun shading systems) as an integral part of the construction contract. Dual solar roller shade systems with manual roll chain operation are recommended. Consider solar conditions when selecting window treatment light filtering opacity. Dual solar shade system provides visual privacy and natural light, with black out shades for sleeping. With black out shades, provide track on side of system for added durability and stability. Window treatments should overlap window openings to reduce light leakage, where possible. Note that soft window treatments, such as draperies, are considered collateral equipment and will be included in the FF&E package. Any window treatment must have flame resistance, blackout shade/lining, and be of commercial quality.

3-7.10 Furnishings, Fixtures and Equipment (FF&E).

3-7.10.1 Navy FF&E.

UH FF&E procurement packages must be designed by the same design agent as the facility and coordinated with UH Managers. Final approval of UH FF&E specifications will be determined by the design team to include guidance/input received from the respective Naval Facilities Command Interior Designers and the UH Manager. Use of turn-key approach to UH FF&E procurement within military construction UH projects is directed to the greatest extent possible and practical. This will ensure a coherent UH FF&E package which promotes an increased QOL for occupants and makes the best use of funding. This applies to UH furniture, furnishings, and equipment for new construction (collateral equipment) and existing UH (whole room concept and replacement items).

3-7.10.2 Marine Corps FF&E.

Marine Corps will prepare UH FF&E procurement packages through collaborative effort with Base Property, Purchasing and Contracting office, and installation Bachelor Housing Directors. Final approval of UH FF&E specifications will rest with the Installation BH Director. Procurement must conform to acceptable funding restraints. Incorporate to the extent possible guidance/input received from the respective Naval Facilities Command Interior Designers. Use of turn-key approach to FF&E procurement within military construction UH projects is directed to the greatest extent possible and practical. This will ensure a coherent UH FF&E package which promotes an increased QOL for occupants and makes the best use of funding. This applies to UH furniture, furnishings, and equipment for new construction (collateral equipment) and existing UH (whole room concept and replacement items).

3-7.11 Interior Signage, Artwork and Accessories.

Provide artwork for public areas, except storage rooms and maintenance areas. Coordinate graphics and interior signage to complement the architectural and finish materials. Provide attached or integral wall protection for recreational games such as dartboards and billiards. Provide bulletin boards in service areas and at the main entry. Provide interior signage, bulletin boards and wall protection devices as an integral part of the construction contract. Artwork is considered collateral equipment and will be included in the furnishings option. Provide interior signage at each room. Provide directional signage as required for way finding. Provide interior signage educating occupants on energy efficient and sustainable elements of the facility, particularly those elements with occupant control or influence. Educational signage should be permanent in nature but flexible for future additions/deletions of information. Utilize mechanical fasteners for interior signage.

3-8 LIFE SAFETY AND FIRE PROTECTION.

3-8.1 Sprinkler Systems.

All UH buildings are required to be sprinkled.

3-8.2 Fire Alarm Systems.

Install addressable building fire alarms systems and connect to the base reporting system.

3-8.3 Smoke Detectors.

Install smoke detectors for personnel housing facilities and power them from the building fire alarm system.

3-8.4 Carbon Monoxide (CO) Detectors.

Install approved carbon monoxide detectors in Navy and Marine Corps UH that contain carbon-based fuel burning systems. Use carbon monoxide detectors that are 24 Vdc powered by the building fire alarm system. An alarm from the Carbon monoxide detector will cause the fire alarm system to activate a voice announcement stating the following," Carbon monoxide has been detected in the building. Please exit the building." The fire alarm system must send a separate signal via the base reporting system.

3-9 HEATING, VENTILATION, AND AIR CONDITIONING (HVAC).

Design and construct facilities to comply with UFC 3-401-01 and UFC 3-410-01. Apply smart building concepts using local loop technology. Avoid central controllers and monitors. Provide an HVAC system to give residents individual choice of heating and cooling year-round within each living area. Provide one thermostat per unit. All new buildings shall meet ASHRAE 62.1 or ASHRAE 62.2 ventilation requirements.

3-10 VENTILATION AND MOISTURE MITIGATION.

Design and construct new Navy facilities in accordance with ASHRAE 62.1 or ASHRAE 62.2, as applicable to facility size. Design and construct facilities to comply with UFC 3-401-01 and 3-410-01. Consideration should be given to all components of natural and mechanical ventilation to provide a system which is adequately sized and easily maintained to avoid excessive indoor moisture, mold growth, and poor indoor air quality.

Navy Renovation and Redesign projects must address building and unit ventilation and moisture management deficiencies, and endeavor to comply with ASHRAE 62.1 or 62.2. For new construction, redesign, and renovation projects, UFC 1-200-01 provides reference to the criteria governing moisture control.

3-11 SUSTAINABILITY.

Comply with the requirements of UFC 1-200-02.

3-12 COMMISSIONING.

Comply with the requirements of UFC 1-200-02.

3-13 PLUMBING.

Comply with the requirements of UFC 3-420-01. Avoid plumbing chases whenever possible by placing plumbing in wall cavities. Mechanical engineers, architects, and structural engineers must coordinate to plan and minimize the size and location of plumbing chases. Set fixture clearances for the intended occupants and use low-flow fixture requirements.

- Provide hot and cold water to public toilets, en-suite bathrooms, compact kitchens, janitor closets, and laundry rooms.
- Provide shutoff valves at all fixtures.
- Water Closets. Provide commercial quality, low consumption type water closets. It is recommended that areas with low water pressure use power-flush type water closets. Use elongated, one-piece construction with a closed front seat and a lid. Provide matching water closets and bath fixtures in neutral color.
- Navy: Provide residential, tank-type water closets.
- Marine Corps: Provide flush-valve toilets, dual-flush manual type, and overhead rain fall type shower heads that meet low flow requirements set at a minimum of 75 inches (190.5 cm) above the shower base.
- Central Heads: For Navy recruits only, provide central heads in open-bay designs, including the following: Water closets 1 per 10 persons; Lavatories 1 per 10 persons; Individual Showers at 1 per 8 persons, or

centralized showers with shower heads separated by partitions and tile floors sloped to drain.

- Provide hose bibs on exterior walls of each building at 100-foot (30 meter) intervals; in trash rooms and near rooftop mechanical units; frost-free as dictated by climatic conditions. Provide floor drains in all janitor closets, laundry rooms, public restrooms, and trash rooms.
- Provide a drinking fountain(s) with cooler for interior public areas. Include water bottle filling features.
- Domestic Hot Water System type is optional but must meet FEMP recommendations. Recommend building wide system.
- Natural Gas is prohibited in unit or room.
- Provide one Service Sink per floor.
- Use the following fixtures as standards: Washerless faucets at lavatories. Single lever faucets at tub/showers or shower stalls. Provide showerheads with maximum 2.2 gpm (8.3 lpm) flow rate. Locate showerheads a minimum of 75 inches (190.5 cm) above the floor.
- Showers are to have solid floor pans, with full height solid surface surround with separated shower stalls. New construction must provide a 12 ft2 (1.11 m2) shower space with a minimum dimension of 30 inches (76.2 cm). Renovation projects without redesign must provide a minimum 30-inch (76.2 cm) dimension and 9 ft2 (0.84 m2) in order to fit in existing space.
- Provide stainless steel kitchen sinks (double bowl), kitchenette (single bowl). All sinks to be provided with single lever faucets, sprayers are prohibited.

3-14 ELECTRICAL.

Provide site electrical utilities, interior distribution systems, communications and security, and site lighting according to core criteria referenced by UFC 1-200-01 and the latest installation design requirements. Provide site lighting to ensure occupants have a means of safely moving between outdoor spaces. Refer to the Installation Appearance Plan in the selection of light poles and signs. Provide adequate site lighting where there is a change in grade requiring steps, near handicap and motorcycle parking areas, and near main entrances to buildings. Provide exterior lighting in parking areas, building entrances, and walkways.

Interior distribution systems include service entrance and distribution equipment, Televised Surveillance System (TVSS), dry type transformers, wiring devices, raceways, conductors, interior lighting systems, emergency power systems, lightning protection systems, hazardous locations, housing distribution, and systems furniture. Communications and security systems include telecommunications systems, television systems, electronic security systems (ESS), and intercommunication systems.

3-14.1 Ceiling Fans.

Ceiling fans are optional, except as noted below. Provide fans that are Energy Star compliant. Where included, provide ceiling fans in bedrooms and living areas within units. Also consider ceiling fans for multipurpose rooms and laundry facilities.

3-14.2 Power.

Provide electrical outlets appropriately adjacent to telecommunication outlets combined with television and telephone and computer data outlets. Provide duplex outlets in the compact kitchen or service areas. Provide a service panel located within the Unit or Room. Provide meter bases for all new and renovated buildings. Provide two USB charging outlets per occupant in each sleeping area.

3-14.3 Lighting.

Provide Energy Star certified lighting fixtures and lamps. LED lamps are preferred. Select fixtures to reflect a residential style, rather than institutional. Provide recessed hallway lighting (walls and ceilings). Suspended exit signs are prohibited. Surface mounted "pillow" or "cloud" light fixtures are prohibited for Navy. Recessed fixtures are preferred by Navy and allowed by Marine Corps.

3-14.3.1 Navy.

- Provide three-way switches at Unit/Room entrance and bedroom(s) doors. Also, provide motion sensor switches at closets, bathrooms and living rooms to control the light fixtures.
- Provide minimum 15 foot-candles lighting at the exterior of each unit or room entrance.
- Bedrooms: Provide overhead ambient lighting in bedrooms, separately switched and dimmed for each occupant side of the room. Ambient light level at desk height must provide a minimum of 30 foot-candles in each bedroom. The use of recessed and indirect fluorescent fixtures (T-8 730 lamps and electronic ballasts) is required by Navy.
- Bathrooms: Provide overhead ambient lighting and separate lighting at the lavatory mirror.
- Kitchens: Provide overhead ambient lighting, under cabinet lighting and lighting at sink.

3-14.3.2 Marine Corps.

- For direct entrance rooms, provide three-way switches at the entrance door and in the vanity area so that the living room and bedroom area lighting is controlled at either location. Also, provide motion sensor switches at bathroom doors to control the bathroom light fixture.

- Provide one exterior light fixture outside each room entrance door for exterior entry designs.
- Bedrooms: Provide overhead adjustable level ambient lighting in bedrooms; separately switched/dimmed for each occupant side of the room. Coordinate this with the furnishings plan. Marine Corps uses both indirect fluorescent fixtures (T-8 730 lamps and electronic ballasts) and dimmable LED lighting is allowed. Do not rely solely on table lamps for room lighting. Ambient light level at desk height must provide a minimum of 30 foot-candles in each bedroom. Indirect “cove” lighting is preferred.
- Bathrooms use fluorescent or LED lighting fixtures. Provide overhead lighting and valance lighting at the lavatory mirror. Use recessed valance or under counter (task) lighting in service area.
- Carefully consider the coordination of lighting with ceiling fans.
- Provide appropriate lighting and consider providing a recessed light at each entrance in addition to standard overhead corridor lighting.

3-14.4 Appliances.

Provide residential grade appliances, "Energy Star", CEE Tier 2 compliant.

3-14.4.1 Navy and Marine Corps.

- Washing machines: Minimum 3 c.f. (0.08 c.m.), top-loading where space accommodates. Size in-unit Laundry Area to accommodate a variety of available washing machines, including front loading, to ease future replacement. Where stackable washers and dryers are planned, specify that they can be separated and used and replaced separately.
- Dryers must be electric.
- Garbage disposal: 1/2 HP minimum, with SS impellers and sound insulation.
- Range: Free standing glass top electric 30-inch (76.2 cm) width.
- Cooktop: Minimum two burner electric cooktop.
- Exhaust Hood: Provide three speed vented exhaust fan, maximum 5.0 sones with dual light settings. Vent to exterior.

3-14.4.2 Navy.

- Appliances must be color white.
- Refrigerator: Kitchen 18-22 c.f. (0.5-0.62 c.m.); Kitchenette 16-19 c.f. (0.45-0.54 c.m.); Service Area 10-16 c.f. (0.28-0.45 c.m.)
- Microwave: Kitchen/Kitchenette 1500 watts; Service Area 1200 watts.

- Dishwashers are prohibited in new construction and renovation projects. Existing dishwashers may be replaced in renovation projects as applicable.
- Bathroom Exhaust Fan: Maximum 1.0 sones, minimum 50 cfm. Humidistat control preferred, with delay-off at switch.

3-14.4.3 Marine Corps.

- Dishwasher: Minimum 24-inch (60.96 cm) width.
- Refrigerator: Service Area 10.3 c.f. (0.29 c.m.); Kitchens (SNCO/BOQ), 18-22 c.f. (0.51-0.62 c.m.)
- Microwave: 1200 watts.
- Bathroom Exhaust Fan: Maximum 1.5 sones, minimum 50 cfm. Humidistat control preferred, with delay-off at switch.

3-14.5 Emergency Power.

Emergency power is not required in UH.

3-14.6 Telecommunication Service.

Provide in each Unit/Room a permanently installed conduit raceway system, supporting future needs of telecommunication systems. Provide a minimum of one outlet for each bedroom and one for each living room, located for flexibility and easy furniture access. Do not provide outlets in open bay berthing spaces. Navy UH and Marine Corps UH currently receive wireless internet service from service-wide contracted provider; coordinate to provide ample equipment space to meet the needs of this service.

3-14.7 Cable Television.

Navy requires no cable television service to each unit, but does permit vendor installation to each unit, through the Installation’s contract. Navy does require cable television service in each building, to be provided in common areas, such as lounges and lobbies.

Marine Corps requires cable television service in each building. Provide a permanently installed conduit raceway system for cable television system media. Refer to specific Plan for additional details.

3-14.8 Intrusion Detection/Monitoring systems (IDS).

Navy requires provision of conduit with pull strings and boxes for future installation of Intrusion Detection/Monitoring (IDS) systems that can cover building entrances/exits, entrance/elevator lobbies and hallways. With respect to "centrally monitored", the requirement is only something that is "central" to the building rather than central "base-wide". Provide IDS systems and Access Control systems with BMS switches (fixed) and

card swipes (fixed) along with conduit, wiring and a "basic" monitoring panel, (fixed). Provide an appropriate location for a "stand-alone" card station.

3-14.9 Closed Circuit Television (CCTV) Systems.

Provide conduit systems with pull strings and outlet boxes to accommodate later installation of a monitoring system as part of all new construction. System to include all common areas such as hallways, lobbies, lounges, classrooms/special use rooms, common kitchens, game rooms, laundry rooms, vending areas, stairwells (interior and exterior), elevators, entrances and exits, building exterior and additional areas/facilities adjacent to the UH facility.

Navy: CCTV systems are Not allowed without prior authorization as per CNIC M 11103.2 (CNIC Note pending N00 sig).

3-15 GENERAL SPACE REQUIREMENTS FOR UH FACILITIES.

3-15.1 Laundry Facilities.

Laundry facility requirements vary. Refer to the detailed descriptions in Chapters 4 and 5.

3-15.2 Resident Bulk Storage.

Examples of items typically stored in bulk storage areas include luggage, original stereo system cartons, snow tires, bicycles, surfboards, ski equipment, and other sports gear. Resident bulk storage requirements vary by Unit or Room plan. Refer to the plan’s chapter for details.

3-15.3 Utility Area (Space).

Provide appropriate space for the mechanical and electrical systems and telecommunications. These rooms are calculated at between 6% and 10% of the Gross Building Area. This includes: Main Mechanical room at ground floor, Electrical control closet, Electrical room, Elevator Equipment room, Mechanical room on each floor, and main vertical duct space (floor to floor). A dedicated fire pump room is not included in these allowances.

3-15.4 Elevators.

Elevators are intended for the movement of furniture and people. Provide elevators sized to accommodate movement of both furniture and a medical stretcher for personnel. Provide elevators and rooms which support elevator operations meeting the requirements of UFC 3-490-06. Special consideration is to be given to protecting elevators from harmful weather conditions. Additional gross area may be added for high-rise construction. Refer to paragraph 2-9.3 entitled “High Rise Structures and Additional Gross Area.” for details. The following is guidance for new construction.

Additional elevators may be provided at the discretion of the Installation Commander. Conduct Client Surveys and Traffic Studies to determine the number of elevators. Provide the following for new construction at a minimum:

- Two elevators are required for buildings 2-5 stories;
- Three elevators are required for buildings 6-7 stories;
- Four elevators are required for buildings 8 stories or higher;
- Marine Corps Recruit Facilities require a minimum of one elevator.

3-15.5 Circulation.

Design interior corridors to emphasize each quarter's entrance, and to de-emphasize length or "tunnel vision." Size the corridor to provide a minimum clear width to accommodate two persons with suitcases, and a base minimum of 5 feet (1.52 meters). Ensure that exterior walkways have non-slip surfaces and drain away from the building.

3-15.6 Multi-Purpose Areas (Spaces).

Multi-purpose areas (spaces) are for individual recreation, group activities, training, and meetings. Multi-purpose space requirements vary by plan. Refer to the specific plans in Chapters 4 and 5 for details.

3-15.7 Game Rooms.

Requirements for Game Rooms vary by plan. Refer to the specific plans in Chapters 4 and 5 for details.

3-15.8 Vending Area (Space).

Discuss vending area, machine quantity and the desired type with the installation and the local Navy Exchange General Manager/Vending Manager or the Marine Corps Community Services Director as appropriate. Provide space adjacent or co-located to the Multi-Purpose Room.

3-15.9 Public Toilets.

Navy: provide public toilets adjacent to lobby and public areas. Provide commercial grade fixtures. For a 96-person project, provide a minimum of one water closet, one urinal, and two sinks in the men's toilet and two water closets and two sinks in the women's toilet. Add one of each fixture for each increment of 100 persons; to a maximum of five of any fixture type. Provide floor and wall finishes as described in Tables 3-1 and 3-2. Use solid surfacing material for lavatory counters and solid plastic, continuous anchorage toilet partitions. Provide a floor drain placed out of the usual traffic pattern and close to the water closets. Provide appropriate dispensers for soap, towels, toilet tissue, and recessed waste receptacle. A single unisex toilet may be adequate for smaller capacity UH.

Marine Corps: requirements are described in Chapter 5.

3-15.10 Janitorial.

Requirements for Janitorial vary by Plan. Refer to the specific unit or plan for details.

3-15.11 Administrative Area (Space).

Requirements for Administrative areas (spaces) vary by Plan. Refer to the specific Plans in Chapters 4 and 5 for details.

3-15.12 Lobby, Vestibule, and Reception.

Lobby, Vestibule, and Reception vary by Plan. Refer to the specific plans in Chapters 4 and 5 for details.

3-15.13 General Maintenance Room

Locate on main entry level, size to be coordinated with the overall Base needs or Housing Complex needs. Where room will only serve the individual UH facility, size at 150 NSF (13.9 NSM) for <100 rooms plus 0.5 NSF (0.046 NSM) per each additional room (rooms are double occupancy).

3-15.14 Trash rooms

For **\1** Navy **/1/** facilities exceeding 3 stories, provide a trash chute to dumpster at main level. Provide fully walled room at each level for trash chute access, 64 ft^2 (min) to 100 ft^2 (max).

3-16 FALL PREVENTION AND PROTECTION.

Any location of the UH including accessing the roof structure or equipment that requires future maintenance work and exposing maintenance personnel to falls from heights above 4 feet, must incorporate prevention and control measures into the design. This is to protect personnel working at heights and exposed to fall hazards in accordance with OPNAVINST 5100.23H.

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CHAPTER 4 NAVY UNITS

This Chapter describes the variety of units to be constructed, or Redesigned to, for Navy unaccompanied enlisted personnel. New construction must correspond to the current Construction Standard for the type of personnel to be housed. In accordance with DOD 4165.63-M and CNO direction, the construction standard for the Navy's core requirement (E1-E4) is a Market Unit. Restoration and Modernization (RM) project teams should take into account both the current DoD and Navy construction standards for the type of personnel, as well as the current layout of the facility, to determine best practices. RM project teams must utilize the Business Case Analysis process to determine whether renovation or replacement construction is more cost effective.

4-1 NEW CONSTRUCTION REQUIREMENTS.

- Construction of new Units for Permanent Party (E1-E6) must be the 2-bedroom double occupancy Market Unit, reference Figure A-1.
- Construction of new Units at remote locations where higher pay grades are housed in UH (E7-O10) must be the 1-bedroom Market Unit.
- Construction of new Units for Mission Essential must be the Navy 2+0 Unit, reference Figure B-4.
- Construction of new Units for Students (Training Necessity) must be the NETC 2+0 Dormitory Unit, reference Figure B-5.
- Construction of new Units for Recruits must be Open Bay Berthing (refer to Chapter 6).

4-1.1 Adaptable Units.

In new construction projects, provide a minimum of two easily "adaptable" rooms on the ground floor to allow assigned service members with minor injuries to remain with their Units or within proximity to their shipmates. To determine the quantity of units or rooms required in a project, take into account the number of rooms provided in other UH facilities and include the quantity of rooms in the current project to meet the total required. Adaptable rooms allow flexibility to accommodate the temporary requirement to house Members who are temporarily unable to climb stairs or have only limited mobility. These type facilities are not intended to house wounded warriors who require long term medical care. See Chapter 2 for additional information on "Adaptable Units".

4-2 MARKET UNIT PROJECTS.

Market Units have floor plans similar to comparable private sector housing, including entry areas, living room, kitchen, laundry, bedrooms, baths, and storage; see Figures A-1 and B-1, B-2. In new construction projects, Market Units must be 2-Bed/2-Bath. 1-Bed/1-Bath Market Units are authorized only at remote locations with a requirement to house personnel ranking E7-O10. Refer to Table 4-1 for space and area requirements.

Dimensional requirements are not fixed but must remain functional and include all required features.

Table 4-1 Market Unit Square Footages

Market Unit Type	Minimum Areas (Net Square Feet (Net Square Meters))					Laundry (In-Unit / Common)	Minimum / Maximum Allowable Areas		Navy GSF per unit programmed amount (note 4)
	Bedroom (note 1)	Bedroom Closet (provide 2 per bedroom)	Shower /Toilet area (per bathroom)	Living / Dining Area (Note 2)	Kitchen		Construction Minimum GSF per Unit (note 3)	Construction Maximum GSF per Unit (note 3)	
2-Bed/2-Bath	144 (13.4)	12 (1.1)	40 (3.7)	N/A	55 (5.1)	IU	850 (79.1)	1290 (120.1)	1,212 (112.6)
1-Bed/1-Bath	144 (13.4)	12 (1.1)	40 (3.7)	N/A	55 (5.1)	IU	750 (69.8)	1050 (97.7)	1,028 (95.5)

Note 1: Bedroom area is Net Square Feet, specifically as defined by DOD 4165.63-M.

Note 2: No minimum living/dining area requirements.

Note 3: Construction Minimum and Maximum Gross Square Feet includes building circulation and common areas, as defined by DOD 4165.63-M.

Note 4: Navy requirements represent the Navy Programming standard inclusive of building circulation and common areas.

4-2.1 Market Unit Detail Requirements.

Refer to Chapter 3 for mechanical, plumbing, electrical, and telecommunication requirements.

4-2.1.1 Living/Dining Room.

Living/Dining Rooms can be a single shared space or two discrete spaces and must be sized to accommodate all occupants at one time. At a minimum, living rooms must accommodate a two-seat sofa, two lounge chairs, occasional tables, table lamps, in an arrangement for viewing a flat screen television. Provide a minimum of one hall/entry

closet with shelf and coat rod. Dining areas must accommodate all occupants at one time.

4-2.1.2 Bedrooms.

Size bedrooms to accommodate two extra-long twin beds, two desks and two desk chairs. Provide wall mounted full height mirror, located to be able to be used by either occupant. Provide two closets per bedroom, equally sized. Closets must have a minimum of 4 lineal feet of hanging space and 4 lineal feet of 15” deep shelving space above. Lowest shelf must be no less than 30 inches AFF allowing for bulk storage below.

4-2.1.3 Laundry.

Units require in-unit laundry. Provide a full-size Energy Star CEE Tier 2 top-load washer and a full-size dryer in each Unit. Size laundry closet to accommodate a variety of top and front-loading washing machines, such that options will be available for replacement equipment in the future. Provide drip pan and drain in floor slab, tie this plumbing to restroom, kitchen, or other regularly used drain with trap. Include space in laundry closet for storage of one full size ironing board and iron, one shelf for product storage, and one hanging rod for clothes.

4-2.1.4 Kitchens.

Provide upper and lower cabinets, at least 3 lineal feet of uninterrupted countertop as food preparation area, two compartment sink, and full-sized residential grade appliances. For any galley or u-shaped layout, provide a minimum of 4 feet (1.22 m) between countertop edges. Overall, cabinet layout must provide a minimum of 75 c.f. (2.12 c.m.) of storage space behind a variety of doors and drawers. Appliances must include refrigerator/freezer, microwave, garbage disposal, range (or electric 4-burner cook top and oven), and range hood. Dishwashers are not authorized. Provide Energy Star Certified and CEE Tier 2 appliances. See additional appliance and ventilation requirements in Chapter 3.

4-2.1.5 Bathrooms.

Each bathroom is to be designed to provide two separate areas: a Shower/Toilet room and a Lavatory/Vanity area. In the case of remote locations authorized to construct 1-Bed/1-Bath units, provide a one room bathroom.

- Each Lavatory/Vanity Area will contain one sink, two medicine cabinets, and associated fixtures. Vanity must be a continuous counter surface at least 2 feet (0.61 m) deep and 4 feet (1.22 m) wide with a centrally located bowl. Base cabinetry must include a two-door storage area and minimum two drawers. Shield bedroom from spillover light from vanity.
- Each Shower/Toilet Room will contain a water closet and shower in a separate enclosed room, located adjacent to the Lavatory/Vanity Area.

Locate toilet within a clear space at least 4 ft (1.22 m) in width; shower must be a minimum size of 12 ft^2 (1.1 m^2). See ventilation requirements in Chapter 3.

4-2.1.6 Doors and Locks.

Electric locks are required on Market Unit entrance doors, bedroom doors, and closet doors. Refer to Chapter 3.

4-2.2 Market Unit Building Common Areas.

Provide the following common areas. Mid/High-rise construction (over 3 stories) will have added common areas as identified.

4-2.2.1 Circulation.

Provide Corridors, Interior Stairways, and Elevators (optional/per local code requirements).

4-2.2.2 Building Utilities.

Provide Mechanical Rooms, Electrical Rooms, and Telecommunications Rooms sized to accommodate the building requirements. See UFC 3-580-01 for minimum telecom room size and system requirements.

4-2.2.3 Trash Chute (over 3 stories).

Provide a trash chute to dumpster at main level. Provide fully walled room at each level for trash chute access – see Chapter 3 for trash room sizing. At base of chute, provide dumpster room with lighting, ventilation, hose bib and floor drain. Trash compactors are optional. Provide only waterproof washable surfaces in trash and dumpster rooms.

4-2.2.4 Janitorial.

Janitorial includes vacuum cleaner storage and janitor's sink and faucet, as well as storage for maintenance supplies per floor.

4-2.2.5 Vestibule and Lobby.

Provide vestibule with entrance mat of type and size to be effective for sustainability requirements. Provide lobby space in proportion with capacity of building and locate to facilitate way finding for residents and guests. At a minimum, provide a waiting/lounge area with one seat per eight Units in building. Design lobby and vestibule space to allow pedestrian traffic into building without passing through waiting/lounge area.

4-2.2.6 Reception/Front Desk.

Coordinate size with overall Base needs for check-in space; do not duplicate functions which are already accommodated in other UH buildings. If functional space is inadequate in an existing facility, consider including this space of an adequate size in new construction projects.

4-2.2.7 Offices/Administration Area.

Identify specific requirements to avoid future conversion/loss of assignable spaces. Do not duplicate functions which are already accommodated in other UH buildings. If functional space is inadequate in an existing facility, consider including this space of an adequate size in new construction projects.

4-2.2.8 Bulk Storage Room.

Storage room(s) may be provided for both UH Management and occupant storage. Storage room(s) must be climate controlled. Occupant storage lockers/areas, if provided, must be a minimum 50 c.f. (1.42 c.m.), securable by occupants.

4-2.2.9 Public Toilet.

Located at main entry level, provide a minimum of one male and one female restroom. Coordinate placement with multi-purpose rooms; and provide additional restrooms to accommodate occupancy of large multi-purpose rooms, including those located on other floors.

4-2.2.10 General Maintenance Room.

Locate on main entry level, size to be coordinated with the overall Base needs or Housing Complex needs. See Chapter 3 for sizing information.

4-2.2.11 Multi-purpose Room/Rooms.

Provide a combination of room types (including game room, lounge, and meeting room), at a minimum of 5 ft^2 (.47 m^2) per planned occupant to a maximum of 10 ft^2 (.93 m^2). Plan for space usage to change in the future and provide maximum flexibility. Isolate these areas acoustically and locate them close to public toilets when possible. Provide finishes that are easily cleaned and durable. Provide cabinets and counter space for minor food service and to accommodate a microwave oven. Provide locked storage for related supplies and equipment. Provide rooms with light and power for general use. Room lights must be controllable to accommodate multiple uses. Provide window coverings and hardware to allow for darkening of the room with blinds or shades.

4-2.2.12 Vending Area.

Coordinate vending area size with the Base needs or the Housing Complex needs. Do not duplicate functions which are already accommodated in other UH buildings. For

large buildings, allow space for a minimum of four full-sized commercial vending machines with front facing circulation; three soft drink machines and one snack vending machine is typical. Allow a minimum recess of 40 inches (1 m) from the rear wall to the soffit. The minimum clearance from the finish floor to the soffit is 80 inches (2 m) for soft drink machines and 74 inches (1.9 m) for vending machines. Minimum space requirements for the vending areas are 180 inches (4.5 m) long x 84 inches (2.13 m) wide x 80 inches (2 m) high from finished space to finished space.

Locate vending areas on the ground floor with access from the parking areas. Locate vending space for security of users and for ease of service. Secure vending machines to prevent tipping. Provide appropriate sound isolation between vending and other spaces. Recess the machines into the wall or use materials to create a recessed appearance. Drop the soffits above the machines to the top of the machines but allow for proper cooling and heat dissipation. Coordinate paint or wall coverings with the interior designer's concept of the facility. Mirrored panels, cove lighting, and neon lights are optional, but desirable. Provide vending areas with appropriate outlets for appliances. Provide space for at least one waste receptacle and one recycling container. Provide an accented slip resistant floor surface and a dropped ceiling with open grid type panels or acoustic tiles to accent the vending area. Provide a retail commercial lighting level in this area.

4-2.2.13 Linen/Housekeeping Room.

Locate linen and housekeeping rooms, where provided, to maximize building functionality.

4-2.3 Market Unit Site Amenities.

Provide picnic and barbecue areas for 5% of the resident capacity; locate picnic tables and covers immediately adjacent to barbecue. Provide spaces appropriate for large and small groups. Provide other amenities as identified in the Recreational Services Assessment.

4-3 NAVY 2+0 UNIT.

This Unit type includes double occupancy living/sleeping area, two personal closets, and a separated toilet and shower compartment with a single bowl lavatory/vanity in the service area. Refer to Figure B-4. Access is from an interior corridor. <u>The construction of 2+0 Units is only authorized for Military Essential housing requirements.</u>

- Gross Building Area: Refer to paragraph 2-9.3 entitled "High Rise Structures and Additional Gross Area".
- Minimum Net Square Footage as defined by DOD 4165.63-M: 180 ft^2 (16.7 m^2).

4-3.1 2+0 Unit Detail Requirements.

4-3.1.1 Living/Sleeping Area.

Design room for double occupancy. Room dimensions are not fixed but must remain functional to accommodate two twin extra-long beds, two desk units, two desk chairs, and appropriate dresser drawer storage. For newly constructed facilities, the Sleeping Area must meet the Minimum Net Square Footage per DOD 4165.63-M as indicated above. For renovated and redesigned facilities, it may be appropriate to meet the Minimum Net Square Footage by combining both Sleeping Area and Service Area square footage.

4-3.1.2 Personal Closets.

Minimum 22 ft^2 (2 m^2) Net Area required. Provide one closet for each resident. Provide each closet with closet organizers with storage capability extending to the ceiling. Provide continuous ventilation in closets to resist mold and mildew growth. A light inside the closet with motion-activated control is preferable, but carefully placed lighting outside 2 ft (0.6 m) deep closets is acceptable.

4-3.1.3 Bathroom.

Provide a single lavatory and valance lighting in the service area with two medicine cabinets.

Provide a separate compartment with full-sized shower (12 ft^2 (1.1 m^2)) and water closet. Provide towel/toiletry hardware for two residents. Provide a full-length framed mirror mounted on Service area side of one door.

4-3.1.4 Service Area.

For Shared Units in a newly constructed facility, the Service Area is the corridor/service space within the unit that is not incorporated into the Net Square Footage. The service area provides access to the storage closets, bathroom, and a kitchenette. Kitchenette must include refrigerator, microwave, single bowl sink, and some counter and cabinet space. Kitchenette sink is separate from lavatory/vanity bowl.

In renovated and redesigned facilities, it is appropriate that Net Square Footage per DOD 4165.63-M may be achieved by combining both Sleeping Area and Service Area square footage.

4-3.1.5 Locks.

Electric locks are required on building entrance doors, Unit doors, and closet doors. See Chapter 3.

4-3.2 2+0 Unit Building Common Areas.

Provide common spaces as detailed for Market Unit Buildings, reference paragraph 4-2.2 entitled “Market Unit Building Common Areas”. Additionally, provide a common Laundry room(s), with a minimum one washer and two dryers for every 15 occupants.

4-4 THE NAVY (NETC) 2+0 DORMITORY UNIT.

This room plan includes double occupancy living/sleeping area, two personal closets, shared toilet with a separated shower compartment, and single bowl lavatory in the service area. Access is from an interior corridor.

- Gross Building Area: Refer to paragraph 2-9.3 entitled “High Rise Structures and Additional Gross Area”.
- Gross Room Area: 380 ft^2 (35.3 m^2) in the example plan.
- Net Living/Sleeping Area: 180 ft^2 (16.7 m^2) is the required MINIMUM size per bedroom.

4-4.1 Unit Details.

- Living/Sleeping Area. Bedrooms are intended for double occupancy. Bedroom dimensions are not fixed but must remain functional to accommodate two twin extra-long pop-top captains’ beds with double storage compartments below, storage headboard; two computer/TV wall desk units with built-in under-cabinet lighting, two chairs, and at least one credenza with double sided drawers.
- Heads. Heads and fixtures are to be of residential design, quality, and finish. Provide a single lavatory and valance lighting in the service area, a separate compartment with full sized shower, and separate compartment with water closet with shelving. Provide towel/toiletry hardware for two residents. Provide a full-length framed mirror mounted on Service area side of one door.
- Personal Closets. 22 ft^2 (2 m^2) Net Area required. Provide at least one closet for each resident. Provide each closet with closet organizers with storage capability extending to the ceiling. Provide additional storage in service areas as appropriate. Provide closets full height, using the space above the normal door height for bulk storage. Provide continuous ventilation in closets to resist mold and mildew growth. Provide integral full-length hanging rods for coats and shelves. A light with motion-activated control is preferable, but carefully placed lighting outside 2 ft (0.6 m) deep closets is acceptable. Secure closets with standard hinged doors with non-removable pin hinges and locking hardware. Provide padlocking slide bolt hardware for personal closets. Bi-fold and sliding doors are not acceptable.

- Service Area. This term refers to the corridor/service space within the plan that is not incorporated into the Net Living/Sleeping Area. The service area in the plan provides access to the personal closets, head, a FAR Rated, Energy Star, 2-door refrigerator (10.3 cu. ft maximum) and microwave, and small counter space with the single bowl sink.
- Locks. Electric locks are required on building entrance doors, Unit doors, and closet doors. Use a magnetic key card system with hard key override.

4-4.2 Building Common Areas (Required).

The following spaces are REQUIRED common spaces. The net areas shown are approximations to assist the designer.

- Entry Vestibule. 50 ft^2 (4.5 m^2) Net Area. Provide automatic entry doors and weather vestibule. This area serves as the controlled single point of entry/exit quarterdeck as part of the Navy Military Training (NMT) environment. Install an alarm system at other points of emergency egress, which would activate when door is opened.
- Duty Office. 125 ft^2 (12 m^2) Net Area. Include a duty office designed to provide the staff with a secure, efficient, and comfortable environment from which to manage the building. Provide area for one desk with computer.
- Duty Bunk. 80 ft^2 (7.5 m^2) Net Area. Provide lockable room for one bed and one wall locker. Locate adjacent to the Duty office.
- Unisex Restrooms. 45 ft^2 (4.5 m^2) Net Area. Provide one water closet, and one lavatory with associated hardware.
- Elevator. 85 ft^2 (8 m^2) Net Area each. (Elevator machine room area is excluded.) See Chapter 3 for added details.
- Vending. 85 ft^2 (8 m^2) Net Area. Provide space adjacent or co-located to the Multi-Purpose Room. Allow space for a minimum of four full-sized commercial vending machines with front facing circulation - three soft drink machines and one snack vending machine is typical. Discuss vending area, machine quantity and desired type with the activity and local UH Manager.
- Multi-Purpose Room. Calculate room size based on 6.25 ft^2 (0.58 m^2) minimum to 12.5 ft^2 (1.16 m^2) maximum area for each occupant. Includes spaces such as: Lounge, Meeting, Conference, Classroom(s), or other appropriate spaces. Isolate the area acoustically and locate them close to public toilets. Provide cabinets and counter space for minor food service and to accommodate a temporary microwave oven, waste receptacles, and other similar food warming equipment. Provide locked storage for related supplies and for equipment. Provide rooms with light and power for resident's general use and provide light dimmers. Provide window

coverings and hardware to allow for darkening of the room with blinds or shades. With the military requirement of service members to access the internet to review military records and conduct personnel administration, multi-purpose rooms are required to be wired with infrastructure to support high speed internet access. Provide a minimum of two (2) eight-pin data ports wired with Category 5e wiring and clean power in each multi-purpose room.

- Laundry Room. Calculate room size based on 50 GSF (4.65 GSM) per 1 washer/2-dryer module. Provide 1 washer/2-dryer module for every 15 residents, as a minimum. Stacked units are acceptable. Locate laundry rooms (at the ground floor for NETC 2+0 Dormitory Unit only) for easy access and provide acoustic separation from other areas. Provide adjacency to a Multi-Purpose room as appropriate. Provide 12 linear feet (3.66 m) of folding table(s), clothes hanging area with hanging rods and 4 ft (1.25 m) of full height hanging for drip-dry clothing. Set aside a space of 36 inches x 72 inches (915 mm x 1829 mm) for soap, bleach, fabric softener and other laundry aid vending in each laundry facility.
- Janitor Closet(s). 90 ft^2 (8.5 m^2) Net Area. Provide a minimum 5 ft x 3 ft (1.5 m x 0.9 m) closet for permanent party facilities at each floor. At each floor level, provide a 5 ft x 5 ft (1.5 m x 1.5 m) closet for Transient facilities. In addition, for transient facilities, provide one secure space of about 250 ft^2 (23 m^2) net area for housekeeping equipment and supplies. Finish floor, base, and wall at the mop receptor to resist water. Slip resistant quarry tile or ceramic tiles are examples of acceptable finishes. Provide a motion-activated light. Provide a janitor's sink with drain, and basic storage for mops and one commercial grade floor polisher.
- Mechanical and Electrical Room(s). See Utility Area (Space) requirements in Chapter 3.
- Corridors. Travel distance from corridor door of any guest room to the nearest exit is limited by Code.
- Stair Towers. Estimate each exiting stair tower at 170 ft^2 (16 m^2) net area per floor. Enclose exterior stair towers or provide open-air per locale and building configuration.

4-4.3 Building Common Areas (Optional).

The following common spaces are OPTIONAL.

- Admin/Office Space. Provide other administrative office spaces as required within approved gross area constraints.
- Game Rooms. Acoustically isolate game rooms as appropriate. Include appropriate electrical outlets, and place close to public toilet(s). Design the rooms for installation of electronic video games. Locate within building

design for appropriate monitoring by Marine Corps UH personnel. Provide rooms with substantial natural lighting.

- Resident Bulk Storage. Resident Bulk Storage as required.

4-4.4 In-Room Services.

See Chapter 3 for requirements for in-Room telephone, cable television and Local Area Network Systems (LAN).

4-5 OPEN BAY PLAN.

This construction standard is current for Recruits. See Chapter 6.

4-6 RESTORATION AND REDESIGN REQUIREMENTS FOR NAVY.

Refer to paragraph 3-3.1 entitled “Navy RM” for specifics concerning RM requirements for Navy projects.

4-6.1 Renovation.

Several previous Construction Standards are still considered adequate Unit design for housing Permanent Party unaccompanied enlisted personnel. As such, when facilities with adequate Unit Types are programmed for an RM project, the project team must endeavor to include features and benefits of current Construction Standards without Redesign, while providing best return on investment.

4-6.1.1 Adequate Previous Construction Standards/Unit Types.

Existing 1+1, 1+1E, and 2+0 Types, when minimum bedroom sizes are met see paragraph 4-6.3 entitled “Renovation and Redesign Criteria" below, are acceptable Unit plans. Project teams must apply the recommendations in the paragraph entitled “Renovation and Redesign Criteria" to the specific facility in question to determine best practices, ideal return on investment for the Navy, and how to best return adequate quarters for unaccompanied personnel. For example, considerations should include re-working single user bathrooms to the separate lavatory/vanity area and toilet-shower room when the project scope already includes bathroom work.

4-6.2 Redesign.

Several previous Construction Standards are inadequate for Permanent Party unaccompanied enlisted personnel. As such, when facilities with those Unit Types are programmed for an RM project, the project team must select the optimum solution for reconfiguring and most efficiently utilizing the existing footprint, providing best return on investment.

4-6.2.1 Previous Construction Standards/Unit Types.

Redesign existing Open Bay and Gang Head Unit Types, such as Motel or Tower, when planned to house Permanent Party Sailors. Existing Open Bay/Gang Head Unit Types must be redesigned when planned to house Students, subject to individual school requirements. Refer to the recommendations below for the specific facility to determine best practices, ideal return on investment for the Navy, and how to best return adequate quarters for unaccompanied personnel.

Permanent Party Barracks:

- Redesign Open Bay or Gang Head buildings to Navy Shared 2+0 Units
- 2+2 Units may be Redesigned to Market or 2+0 Units based upon the BCA.

Student Dormitories:

- Open Bay or Centralized Head buildings should be redesigned to NETC 2+0 Dormitory Units, requirements vary by school

4-6.3 Renovation and Redesign Criteria.

SRM Project Teams are responsible for evaluating optimum return on Navy investment for the specific facility in question, and providing a BCA as required above. For renovation or redesign projects, incorporate design features of current Unit Types whenever practicable. The following list is relevant for all Unit Types except as noted otherwise.

- In RM projects, provide, replace, or upgrade Fire Protection (Sprinkler & Fire Alarm) Systems to meet current requirements.
- Redesign projects must return the following minimum Bedroom area (NSF): Shared Unit = 180 ft^2 (16.7 m^2); Market Unit = 144 ft^2 (13.4 m^2) with no more than two Sailors per bath.
- In renovation projects, retain existing Bedroom size, except where built-in closets are being added. Renovated bedrooms must provide a minimum 90 NSF (8.36 NSM) per occupant.
- Bathroom Configuration. Where economically feasible and load bearing structure allows, provide separate lavatory/vanity and shower-toilet areas. Provide one medicine cabinet per potential occupant. Meet bathroom ventilation requirements in Chapter 3.
- Closet Sizing and Organization: Renovation projects should, and Redesign projects must, comply with current closet standards, Reference Chapter 3.

- HVAC: Projects must meet applicable energy conservation criteria as identified in UFC 1-200-02, including occupant HVAC controls in unit.
- Ventilation: Renovation projects should, and Redesign projects must, meet applicable criteria of ASHRAE 62.1 or 62.2.
- Laundry: Central laundry is not mandatory but is acceptable in existing buildings being renovated. Redesign projects should evaluate feasibility of relocating Laundry in the Unit. In-Unit, stacked full size washer/dryers are acceptable in Redesign projects. If central laundry will remain, provide one washer and two dryers per 15 Sailors.
- Kitchenette: For renovation and redesign projects returning 2+0 Units, provide a kitchenette meeting the following minimum requirements: Single bowl stainless steel sink; Base and wall cabinets; Microwave; Minimum 16 c.f. (0.45 c.m.) refrigerator. Where feasible, two-burner electric cook top if the building has no common kitchen.
- Building Common Areas: At Installations with surplus housing capacity, Renovation and Redesign project teams should evaluate the conversion of assignable building area to Common Areas, defined for new construction earlier in Chapter 4, to improve Sailors Quality of Life and ‘right size’ building capacity.

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CHAPTER 5 MARINE CORPS ROOM PLANS

This chapter describes the variety of room plans to which Marine Corps unaccompanied enlisted personnel and single non-commissioned officers are assigned.

5-1 DESIGN PARAMETERS.

These plans are the basic building blocks from which Marine Corps UH designs are developed. The building layouts are provided to promote uniformity. All plan features must be included as a mandatory minimum.

- Building Gross Area must not be exceeded.
- Room Plan dimensions are NOT fixed but must remain functional. Size bedrooms to accommodate two extra-long twin beds. Room Plans are accessed from an interior corridor, or an exterior open breezeway.
- Adaptable Rooms**.** The Marine Corps will provide two easily adaptable rooms at the ground floor of new construction projects to allow Marines with minor injuries to remain with their group. Fully accessible rooms are NOT intended; rather to serve those who are temporarily unable to climb stairs. This billeting is not intended for wounded warriors who require long term medical care. This is not part of the accessibility requirements of the DoD Memorandum, Accessibility for People with Disabilities. Refer to paragraph 2-4 entitled “Accessible Units”.

5-2 MARINE CORPS 1+1E ROOM MODULE (OCONUS USE ONLY).

The 1+1E Room Plan Module has been approved as the standard for future UH built at Marine Corps Installations in Japan, instead of the 2+0 Module. Access is from an interior corridor, or conditioned or open breezeway.

- Gross Room Area: 600 ft^2 (56 m^2) (Example plans are notional).
- Net Living/Sleeping Area: 155 ft^2 (14.4 m^2) is the required MINIMUM size per bedroom.

5-3 MARINE CORPS 2+0 ROOM.

This room plan includes double occupancy living/sleeping area, two personal closets, shared toilet with a shower compartment, and sink service area. Access is from an interior corridor, conditioned or open breezeway.

- Gross Room Area: 387.5 ft^2 (36 m^2) (Example plans are notional).
- Net Living/Sleeping Area: 180 ft^2 (16.7 m^2) is the required MINIMUM size per bedroom.

5-3.1 Room Plan (Spaces) Detailed.

- Living/Sleeping Area. 180 ft^2 (16.7 m^2) Net Area required. Bedrooms are intended for double occupancy. Bedroom dimensions are not fixed but must remain functional to accommodate two twin extra-long pop-top captains beds with double storage compartments below, storage headboard; two computer/TV wall desk units with built-in under-cabinet lighting, two chairs, and at least one credenza with double sided drawers.
- Heads. Heads and fixtures are to be of residential design, quality, and finish. Provide a double vanity with double lavatory and valance lighting with double medicine cabinets, a full-sized shower, and water closet with shelving and towel/toiletry hardware for two residents. Provide a full-length framed mirror mounted on Service area side of the bathroom door.
- Personal Closets. 22 ft^2 (2 m^2) Net Area required. Provide at least one closet for each resident. Closets must be accessible to each living/sleeping area. Provide each closet with closet organizers with storage capability extending to the ceiling. Provide additional storage in service areas as appropriate. Provide closets full height, using the space above the normal door height for bulk storage. Provide continuous ventilation in closets to resist mold and mildew growth. Provide integral full-length hanging rods for coats and shelves. A light with motion-activated control is required. Carefully placed lighting outside 2 ft (0.6 m) deep closets is acceptable. Secure closets with standard hinged doors with non-removable pin hinges and locking hardware. Provide padlocking slide bolt hardware for personal closets. Bi-fold and sliding doors are not acceptable.
- Service Area. This term refers to the corridor/service space within the 2+0 Room Plan that is not incorporated into the Net Living/Sleeping Area. The service area in each Plan Room provides access to the personal closets, head, a FAR Rated, Energy Star, 2-door refrigerator (10.3 cu. ft) maximum, a microwave, and counter space with single bowl sink.
- Locks. Electric locks are required on building entrance doors and room doors. Use a magnetic key card system with hard key override. Provide each occupant one key that opens the room entry door, and one bedroom door. Installation Commanders may require electronic locks for closet doors as an option that provide each occupant with a second key for entry to his closet, without access to the other occupant's closet.

5-3.2 Required Common Building Spaces Detailed.

The following spaces are REQUIRED common spaces for the Marine Corps 2+0 Room configurations. The net areas shown are approximations to assist the designer.

- Entry Vestibule. 50 ft^2 (4.5 m^2) Net Area. Provide automatic entry doors per ABA and weather vestibule.

- Duty Office. 125 ft^2 (12 m^2) Net Area. Include a duty office designed to provide the staff with a secure, efficient, and comfortable environment from which to manage the building. Provide area for one desk with computer.
- Duty Bunk. 80 ft^2 (7.5 m^2) Net Area. Provide lockable room for one bed and one wall locker. Locate adjacent to the Duty office.
- Unisex Restrooms. 45 ft^2 (4.5 m^2) Net Area. Provide one water closet, and one lavatory with associated hardware.
- Elevator. 85 ft^2 (8 m^2) Net Area each. (Elevator machine room area is excluded.) See Chapter 3 for added details.
- Vending. 85 ft^2 (8 m^2) Net Area. Provide space adjacent or co-located to the Multi-Purpose Room. Discuss vending area, machine quantity and desired type with the activity and local Marine Corps Community Services Director. See Chapter 3 for details.
- Multi-Purpose Room. Calculate room size based on 6.25 ft^2 (0.58 m^2) minimum to 12.5 ft^2 (1.16 m^2) maximum Net Area for each occupant. Includes spaces such as: Lounge, Meeting, Conference, Classroom(s), or other appropriate spaces. Isolate the area acoustically and locate them close to public toilets. Provide cabinets and counter space for minor food service and to accommodate a temporary microwave oven, waste receptacles, and other similar food warming equipment. Provide locked storage for related supplies and for equipment. Provide rooms with light and power for resident's general use and provide light dimmers. Provide window coverings and hardware to allow for darkening of the room with blinds or shades. With the advent of Marine Online and the military requirement of Marines to access the internet to review military records and conduct personnel administration, <u>multi-purpose rooms are required to be wired with infrastructure to support high speed internet access.</u> Provide a minimum of two (2) eight-pin data ports and clean power in each multi-purpose room. Refer to UFC 3-580-01 for telecom room size and system requirements.
- Laundry Room. Calculate room size based on 50 GSF (4.65 GSM) per 1 washer/2-dryer module. Provide 1 washer/2-dryer module for every 12 residents, as a minimum. Stacked units are acceptable. Locate a single laundry rooms for easy access and provide acoustic separation from other areas. Provide adjacency to the Multi-Purpose room. Provide 12 linear feet (3.65 linear m) of folding table(s), clothes hanging area with hanging rods and 4 ft (1.25 m) of full height hanging for drip-dry clothing. Set aside a space of 36 inches x 72 inches (915 mm x 1829 mm) for soap, bleach, fabric softener and other laundry aid vending in each laundry facility.
- Janitor Closet(s). 90 ft^2 (8.5 m^2) Net Area. Provide a minimum 5 ft x 3 ft (1.5 m x 0.9 m) closet for permanent party facilities at each floor. Finish floor, base, and wall at the mop receptor to resist water. Slip resistant

quarry tile or ceramic tiles are examples of acceptable finishes. Provide a motion-activated light. Provide a janitor's sink with drain, and basic storage for mops and one commercial grade floor polisher.

- Mechanical and Electrical Room(s). See Utility Area (Space) requirements in Chapter 3.
- Corridors and Breezeways. Code limits travel distance from corridor door of any guest room to the nearest exit. Size building corridors to meet the minimum (or better) requirements of the International Building Code. Provide appropriate lighting and consider providing a recessed light at each entrance in addition to standard overhead corridor lighting. Size the corridor to meet NFPA 101 requirements with a minimum clear width to accommodate two persons with suitcases (60 inches (152.4 mm) clear).
- Stair Towers. Estimate each exiting stair tower at 170 ft^2 (16 m^2) net area per floor. Enclose exterior stair towers or provide open-air per locale and building configuration.
- Adaptable Rooms. Provide easily adaptable rooms per 5-1 Design Parameters.

5-3.3 Optional Common Building Spaces Detailed.

The following common spaces are OPTIONAL for the Marine Corps 2+0 configuration:

- Admin/Office Space. Provide other administrative office spaces as required within approved gross area constraints.
- Game Rooms. Acoustically isolate game rooms as appropriate. Include appropriate electrical outlets, and place close to public toilet(s). Design the rooms for installation of electronic video games. Locate within building design for appropriate monitoring by Marine Corps UH personnel. Provide rooms with substantial natural lighting.
- Resident Bulk Storage. Resident Bulk Storage as required.
- Centralized Kitchen.

5-3.4 In-Room Services.

See Chapter 3 for requirements for in-Room telephone, cable television and Local Area Network Systems (LAN).

5-3.5 Exterior Washdown Areas.

Size these areas based upon the number of occupants.

- Equipment Washdown Area. Locate equipment washdown areas at a covered cleaning shelter adjacent to a building entry point. The area must be concrete based, approximately 15 ft (4.6 m) width by 50 ft (15 m)

length with supported standpipes consisting of six hose bibs with sturdy supports and anchored at the tabletop level 40 inch (1016 mm) maximum height with separate cut-off valves suitable for simultaneous operation of all six (6). Provide a properly sized supply standpipe with a freeze-proof design and easily accessible shut-off valve(s). Slope the concrete tabletop area to a central drain with easy cleanout for mud and debris. Provide equipment suitable for outside service.

- Equipment Drying Areas**.** Provide a semi-enclosed roofed equipment drying area on concrete hardstand adjacent to the equipment washdown area. Each drying area may be totally enclosed on four sides and across the top for security per Command decision. The drying area must be divided into separate sections. If gates are used, each must have a lockable hasp. Slope the concrete hardstand adequately to prevent ponding water.
- Note that these structures will be counted as part of the allowable area limits for the project.

5-3.6 Windows.

Continuous overhead fenestration which provides cross ventilation is encouraged. See Chapter 3 for additional window requirements.

5-3.7 Interior Walls and Finishes.

Refer to paragraph 3-6.9 entitled “Walls and Partitions”, and Table 3-2 in this FC for specific interior finishes and schedules.

5-4 MARINE CORPS SNCO/OFFICERS ROOM.

This room plan is intended for unaccompanied Staff Noncommissioned Officers (E6-E9) (SNCO) and Officers on a dependent restricted unaccompanied orders, and support personnel on the Unit Deployment Program (UDP). Access is from an interior corridor, conditioned or open breezeway.

- Gross Room Area: 603 ft^2 (56 m^2).
- Bedroom Area: 151 ft^2 (14 m^2) is the required MINIMUM size per bedroom.

5-4.1 Room Plan (Spaces) Detailed.

- Bedroom. 151 ft^2 (14 m^2) Net Area required. Bedrooms are intended for single occupancy. Bedroom dimensions are not fixed, but must remain functional to accommodate one queen bed, one computer/TV wall desk unit with hutch, one chair, one nightstand, one lamp and at least one bureau or chest.

- Living Room. 130 ft^2 (12 m^2) Net Area required. Living rooms are intended for one occupant and two visitors use, sized for a sofa, chair, coffee table, end lamp, floor lamp and TV/credenza. Provide adjustable level lighting, recess mounted in the ceiling. Provide a ceiling fan with no light attachment appropriately mounted to avoid the recessed fixtures.
- Laundry Area. Provide one washer and one dryer for every resident, as a minimum, vented to the exterior. Stacked units are acceptable. Provide a containment curb. A floor drain is optional. Provide room for storage of ironing board and shelving for laundry soap.
- Heads. Heads and fixtures are to be of residential design, quality, and finish. Provide a vanity with lavatory and valance lighting with a single medicine cabinet, a full-sized tub-shower, and water closet with shelving and towel/toiletry hardware for one resident.
- Walk-in Closet. 32 ft^2 (3 m^2) Minimum Net Area required. Provide at least one walk-in closet for each resident. Closet must be accessible to the sleeping area. Provide organizers with storage capability extending to the ceiling. Closet must be full height, using the space above the normal door height for bulk storage. Provide continuous ventilation in closets to resist mold and mildew growth. Provide integral full-length hanging rods for coats and shelves at the long side, with shelf above the hanging rod, and five fixed shelves located at the far end wall. Provide one wall void of shelving for storage of tall items. Lighting outside of closets is not acceptable. An interior light with motion-activated switch is required. Carefully placed lighting outside closets is not acceptable. Secure each closet with standard hinged doors with non-removable pin hinges and keyed locking hardware. Bi-fold and sliding doors are not acceptable. Closet doors must have full-length dressing mirrors.
- Kitchen. The kitchen area is adjacent and provides open access to the living area, and doorway access to the bath and bedroom. The kitchen area will contain a full-sized refrigerator (14 c.f. (0.40 c.m.) maximum), a four-burner range with oven below and microwave and ventilation fan collocated above, appropriate counter space with under cabinet lighting with single bowl sink. Provide a small pantry and closet with broom storage capabilities adjacent to the main Room entry door.
- Locks. Use a magnetic key card system with hard key override. Provide occupant one key that opens the room entry door and bedroom door.

5-4.2 Required Common Building Spaces Detailed.

The following spaces are REQUIRED common spaces for the Marine Corps SNCO and Officers configurations:

- Entry Vestibule. 50 ft^2 (1.5 m^2) Net Area. Provide automatic entry doors and weather vestibule.

- Unisex Restrooms. 15 ft^2 (1.5 m^2) Net Area. Provide one (1) water closet, and one (1) lavatory with associated hardware.
- Elevators. 85 ft^2 (8 m^2) Net Area. (Elevator machine room area is excluded.) Note that the number of elevators allowed is now calculated by the building height. See Chapter 3 for additional details.
- Janitor Closet(s). 90 ft^2 (8.5 m^2) Net Area. Provide a minimum 5 ft x 3 ft (1.5 m x 0.9 m) closet for permanent party facilities at each floor. Finish floor, base, and wall at the mop receptor to resist water. Slip resistant quarry tile or ceramic tiles are examples of acceptable finishes. Provide a motion-activated light. Provide a janitor's sink with drain, and basic storage for mops and one (1) commercial grade floor polisher.
- Mechanical and Electrical Room(s). These rooms are calculated at 6% of the Gross Building Area, (10% maximum). This includes: Main Mechanical room at ground floor, Electrical control closet, Fire Pump Room, Elevator Equipment room, Mechanical room on each floor, and main vertical duct space (floor to floor). Refer to UFC 3-580-01 for telecom room size and system requirements.
- Corridors and Breezeways. NFPA 101 limits travel distance from corridor door of any guest room to the nearest exit. Size building corridors to meet the minimum (or better) requirements of the International Building Code. Provide appropriate lighting and consider providing a recessed light at each entrance in addition to standard overhead corridor lighting. Size the corridor to meet NFPA 101 requirements with a minimum clear width to accommodate two persons with suitcases (minimum 66 inches (167.64 cm) clear).
- Stair Towers. Estimate each exiting stair tower at 170 ft^2 (16 m^2) net area per floor. Enclose exterior stair towers or provide open-air per locale and building configuration.

5-4.3 Optional Common Building Spaces Detailed.

The following common spaces are OPTIONAL for unaccompanied SNCO and Officers configurations.

- Admin/Office Space. Provide other administrative office spaces as required within approved gross area constraints.
- Vending. 85 ft^2 (8 m^2) Net Area. Provide space adjacent or co-located to the Multi-Purpose Room. Discuss vending area needs, machine quantity and desired type with the activity and local Marine Corps Community Services Director. Refer to Chapter 3 for details.
- Multi-Purpose Room. Calculate room size based on 6.25 ft^2 (0.58 m^2) minimum to 12.5 ft^2 (1.16 m^2) maximum area for each occupant. Includes areas such as: Billiards, Ping Pong, Foosball and Air Hockey and spaces

such as a Game Room, Internet Café, Theater, or other appropriate areas or spaces. Isolate the area acoustically and locate them close to public toilets. Provide cabinets and counter space for minor food service and to accommodate a temporary microwave oven, waste receptacles, and other similar food warming equipment. Provide locked storage for related supplies and for equipment. Provide rooms with light and power for resident's general use and provide light dimmers. Provide window coverings and hardware to allow for darkening of the room with blinds or shades. With the advent of Marine Online and the military requirement of Marines to access the internet to review military records and conduct personnel administration, multi-purpose rooms are required to be wired with infrastructure to support high speed internet access. Provide a minimum of two (2) eight-pin data ports wired with Category 5e wiring and clean power in each multi-purpose room.

- Game Rooms. Acoustically isolate game rooms as appropriate. Include appropriate electrical outlets, and place close to public toilet(s). Design the rooms for installation of electronic video games. Locate within building design for appropriate monitoring by Marine Corps UH personnel. Provide rooms with substantial natural lighting.
- Resident Bulk Storage. Resident Bulk Storage as required.
- Theater room is acceptable as an option.
- Audio/Visual Equipment Rooms are acceptable as an option.
- Balconies are an option.

5-5 ADDITIONAL REQUIRED BUILDING FEATURES.

The following common features must be provided.

5-5.1 Heating, Ventilation and Air Conditioning.

Design an HVAC system to provide residents with individual choice of heating and cooling year-round within each living area.

5-5.2 In-Room Services.

See Chapter 3 for requirements for in-Room telephone, cable television and Local Area Network (LAN) Systems.

5-5.3 Doors and View Ports.

Provide solid core doors or thermally insulated metal doors (in exterior applications) for sound isolation for the entry units. Provide a fire rated, wide angle security viewport at the 60-inch (1524 mm) height and an additional wide-angle security view port at 43-inch (1092 mm) height for accessible units.

5-5.4 Hardware and Locks.

Refer to Chapter 3 for hardware and lock information.

5-5.5 Windows.

Provide continuous overhead fenestration which allows cross ventilation in projects where open breezeway corridors are present. Single hung windows with window screens are required for interior corridor designs. Locate secure openings above the entry door and over windows in living room and bedroom. See Chapter 3 for additional window requirements.

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CHAPTER 6 OPEN BAY.

This Chapter describes Open Bay configurations used by the Navy and the Marine Corps. Marines Corps variations are specifically identified.

6-1 OPEN BAY PLAN.

An Open Bay barracks consists of an open-bay, central head facilities, common areas, circulation, and laundry facilities.

6-1.1 Gross Open Bay Sleeping Area.

Determine the total gross area of the open bay by the number of persons that will occupy the space. (# of persons x minimum net sleeping area per person). Typical sizes are 60 persons per bay.

6-1.2 Net Living/Sleeping Area.

Recruit net living area is 72 ft^2 (6.7 m^2) per person minimum.

6-1.3 Required Common Areas (Spaces).

The following spaces are required common spaces in Open-Bay designs.

- Navy Laundry facilities: Provide one washer and two dryers for every 12 residents as a minimum. Adjust this number as appropriate where some or all of the laundering is performed by contract. Locate laundry rooms preferably at each floor for easy access and provide acoustic separation from other areas; provide 10 linear feet (3 linear meters) of folding table with hanging rods above and 4 feet (1.25 meters) of full height hanging for drip-dry clothing.
- Marine Corps Laundry facilities: Provide one washer and two dryers for every 12 residents, at a minimum. Locate laundry rooms on the ground floor or in an adjacent separate building. Clothing and gear requirements vary by location. Provide folding tables with hanging rods appropriately designed for the mission of the occupants.
- Building Utility Room;
- Bulk storage. Provide bulk storage areas for gear and supplies for Navy. This is optional for the Marines Corps.
- Mechanical and Electrical Rooms. The spaces including main mechanical rooms, main electrical rooms, telecommunication room, and fire pump room must be provided within the limits of the maximum gross building area. This is limited to a maximum of 7% of the Gross building area. The elevator equipment room (not generally required for open bay UH), and the floor-to-floor duct spaces are not included in this limit.

- Design circulation, corridors, and hallways for appropriate passage with luggage and exiting. Provide additional recessed lighting at all entrances.
- Multi-Purpose Areas (Space) such as lounge or classroom. Isolate the areas acoustically and locate them close to public toilets. Provide rooms with light and power and provide light dimmers. Multi-purpose rooms are required to be wired with infrastructure to support high-speed internet access. Provide a minimum of two (2) eight-pin data ports wired with Category 5e wiring and clean power in each multi-purpose room. Provide window coverings and hardware to allow for darkening of the room with blinds or shades.
- Janitorial. Provide a 5-foot x 3-foot (1.5 meter x 0.9 meter) closet for each Bay to house vacuum cleaner storage and janitor's sink and faucet. Finish floor, base, and wall at the mop receptor to resist water. Slip resistant quarry tile or ceramic tiles are examples of acceptable finishes. Provide a motion-activated light.

6-1.4 Optional Common Areas (Spaces).

The following spaces are optional common spaces in Open-Bay designs.

- Automatic entry doors and weather vestibule. Weather vestibule may be required based on requirements in UFC 1-200-02.
- Administration Area (for Navy). Design administrative areas to provide the staff with a secure, efficient, and comfortable environment from which to manage the building.
- Navy Office Space. Provide other administrative office spaces to meet mission requirements within the gross building area limits.
- Lobby, Vestibule, Reception Desk. Locate the lobby and its vestibule for easy identification by arriving guests. Include a seating area for visitors and guests waiting for transportation. Locate the seating area for clear view of arriving automobiles and of the front desk. Choose and arrange lighting fixtures to organize and identify the space. Finish the lobby and entrance with attractive, durable, and easily cleaned materials. Provide the Reception Desk with enclosed space or counter/workspace. Locate the counter for visual control of the lobby and other central common spaces. Arrange the counter for check-in by several persons at once with computer, key control, and forms storage. Light counter surfaces for writing, mount duplex outlets above work surface, and provide computer and telephone cables and connections.
- Vending Area. Note that this is optional for recruit barracks.
- Public Toilets. Note that this is optional for recruit barracks.
- Marine Corps Drill Instructor Area. These spaces include a duty office designed for the Drill Instructor with head and bunkroom. Provide area to

accommodate one desk with computer, with adjacency to a non-public lavatory (included in the net area); a lockable room to accommodate one bed and one wall locker. Provide windows in the office area to observe conditions within the open-bay area, if located on each floor.

- Armories. Individual armories (if required) are part of the open bay area, or an adjacent space. This consists of a lockable (metal cage) cabinet permanently attached per force protection standards as referenced in UFC 1-200-01, and MCO 5530.14A.
- Marine Corps Multi-Purpose Areas. Isolate these areas acoustically and adjacent to a single public toilet. Provide these rooms with easily adjustable light (dimmers), power and internet capabilities according to mission use. Provide window coverings and hardware to allow for darkening of the room with blinds or shades. With the advent of Marine Online and the military requirement of Marines to access the internet to review military records and conduct personnel administration, multi-purpose rooms are required to be wired to support high speed internet access. Provide a minimum of two (2) eight-pin data ports wired with Category 5e wiring and clean power in each multi-purpose room.
- Exterior Wash down areas will be provided as follows: Navy will provide exterior water at a paved and well drained area with six grouped hose bibs securely posted at 40-inch (101.6 cm) height for individual wash down of field gear and shelters are optional. Marine Corps will provide exterior equipment wash down areas and shelters for them as described in paragraph 5-3.5 entitled, Exterior Washdown Areas.

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APPENDIX A BEST PRACTICES

A-1 NAVY RESIDENT AND BUILDING MANAGER INPUT.

Best practices for new construction and renovation projects for Navy Permanent Party UH should consider recent resident feedback, documented in the form of Post Occupancy and Tenant Satisfaction Surveys. The most common desires among residents included:

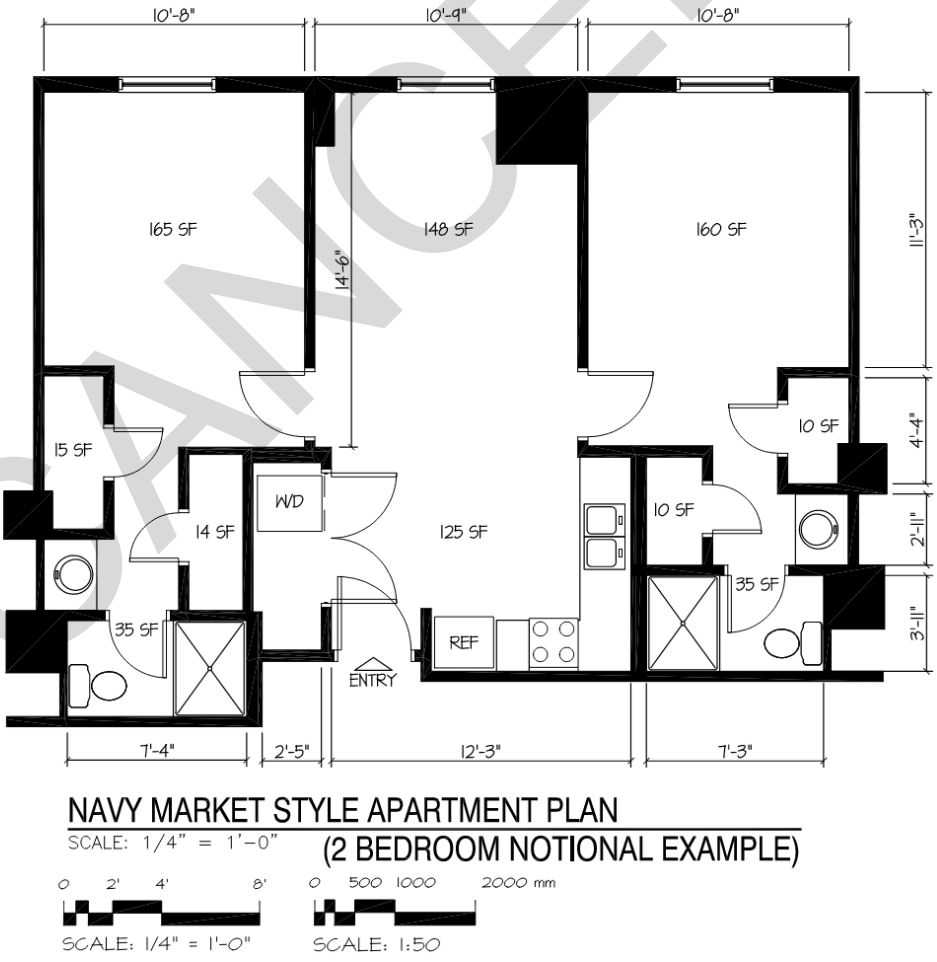
- Outdoor BBQ areas, ideally with shade covers, and a variety of sizes to accommodate varying size groups. Provide site furnishings such as but not limited to picnic tables, benches, and trash receptacles.
- For bathrooms which will be shared by two people, consider how two Sailors will use the area at the same time. In addition to providing separate vanity area, provide space for closet access while roommate is using vanity.
- When possible, maintain 2-bedroom Market Units, and do not add additional bedrooms, as it complicates roommate interactions.
- Look at entry/exit travel paths for residents when setting building entries; with use of electronic locks and cameras, resident entries can be remote from main lobby on convenient travel paths from commonly used facilities on the Installation (such as the fitness center).
- Consider noise issues with locating equipment such as ice machines in Lounge or computer spaces.
- Consider noise issues when locating exterior mechanical or other equipment outside of entries, bedroom units, or recreational activities.
- Cleanliness and maintenance of buildings are a consistent top resident concern; strongly consider ease of maintenance in selection of finishes and equipment.
- Consider how to maintain operations when critical systems are being maintained; for example, providing a hookup for a generator-based A/C system during chiller maintenance.
- Door hardware: consider use of push plates and kick plates for appearance retention and minimize maintenance. Also consider use of a threshold shape that discourages the use of a tool or device under the entry door to gain access to the lever handle on the secured side.
- Consider using non-painted aluminum railings on exterior applications.
- Site: consider stamped concrete in lieu of pavers where pervious surface is not required.

Building Managers offered the following input during the Post Occupancy Survey process:

- Appliances:
  - Residential Grade, simple appliances are the best for obtaining replacement parts as well as ease of cleanability. For example, all-glass stovetops which require special cleaners are not usually properly maintained by UH residents.
  - Strongly consider maintainability in initial appliance selection, including ability to maneuver the unit in and out for replacement or maintenance, serial numbers and product codes on the front of units, and providing ample attic stock/replacement parts as part of initial construction contract.
- Finishes: strongly consider not only durability but colors which hide stains and dirt well for carpet, other flooring, grout, countertops, and other materials.

A-2 NAVY FLOOR PLAN EXAMPLE.

Figure A-1 Navy Market Style Example



The Market Style Apartments shown above offer a variety of solutions for accommodating all requirements.

A-3 MARINE CORPS BEST PRACTICES.

Marine Corps Best practices for new construction and renovation projects for Permanent Party barracks include:

- Design a cohesive and integrated campus style complex for convenience of residents, with better traffic flow, hierarchical outdoor spaces, varying from large active outdoor areas to smaller areas for passive use.
- Co-locate UHs and support facilities in order to provide more usable outdoor areas. Site buildings and structure to protect residents from strong winds and inclement weather, wherever possible; and use solar orientation to reduce summer heat gain and site to take advantage of seasonal cooling breezes.
- Provide identifiable entry and focal points, variation of building massing and colors, landscape with native plants (low maintenance and water conserving) and use of locally available site materials and elements.
- Outdoor BBQ areas, ideally with shade covers, and a variety of sizes to accommodate varying size groups. Include quality built-in BBQs and maximize outdoor seating/eating capacity with open green space areas.
- Provide home-like environment by maximizing living/sleeping area (within the maximum limits), provide beds with lockable storage compartments, maximize the use of natural daylight and ventilation.
- Utilize daylighting in multipurpose spaces and provide a visual connection to associated outdoor spaces (such as BBQ area and outdoor activity areas).
- For bathrooms, consider how two Marines will use the area at the same time. In addition to providing separate vanity area, provide space for closet access while roommate is using vanity, where possible.
- Finishes: strongly consider not only durability but colors which hide stains and dirt well for carpet, other flooring, grout, countertops, and other materials.
- Provide coordinated furnishings, fixtures, and equipment (FF&E) packages reflective of the buildings architectural style, local culture and theme. Involve interior designers in complete process (Concept Design Workshops (CDW), FF&E selection/design and turnkey process).
- Specify sustainable FF&E with an extended warranty for material and labor beyond the normal contract or manufacturer’s warranty period.

- Cleanliness and maintenance of buildings are a consistent top resident concern; strongly consider ease of maintenance in selection of finishes and equipment.

Create a team of professionals during the process from start to finish; these should include: NAVFAC, Contract Specialist, Project Manager, design manager, Interior Designer, ROICC/Construction Manager, ROICC Contract Specialist, Client/End user, Bachelor Housing Director, Public works project manager, Installation Property Manager/CMSC Officer, and HQMC LF (where necessary).

Figure A-2 Best Practice, UH Campus Arrangement

In this illustration, the UH Facilities (3 each) are sited in the same complex with the new Dining Facility to form a very comfortable, easy to walk to various facilities in a coherent, sustainable complex with plenty of usable outdoor facilities for both very active sports to very low key passive recreational spaces.

UH CAMPUS ARRANGEMENT: Example of Preferred Building Arrangement, Adjacency, Massing, Site Improvements, Landscaping, and Vehicle and Pedestrian Circulation Paths.

Figure A-3 Best Practice, UH Campus Sun Shading and Walkways

Building design and site design: Example of using shading structures for outdoor gathering spaces, deep overhang to provide shade and shadow and minimize heat gain in Summer time, walkway connecting all elements of projects to each other, enhanced paving materials at important nodes in the circulation paths. Note site planning and building design to offer optimum views to all rooms in the UH.

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APPENDIX B FIGURES

Figure B-1 Navy Market Style Unit (Two Bedroom) Bubble Diagram

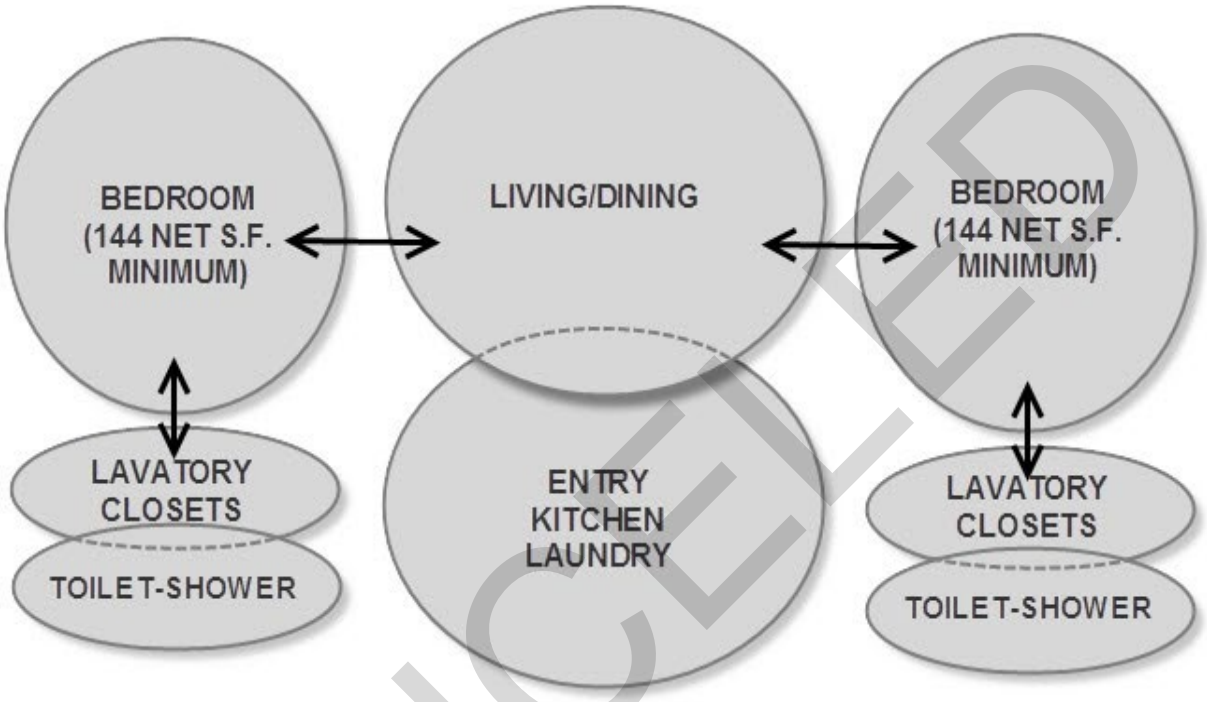


Figure B-2 Navy Market Style Unit (One Bedroom, Remote Locations) Bubble Diagram

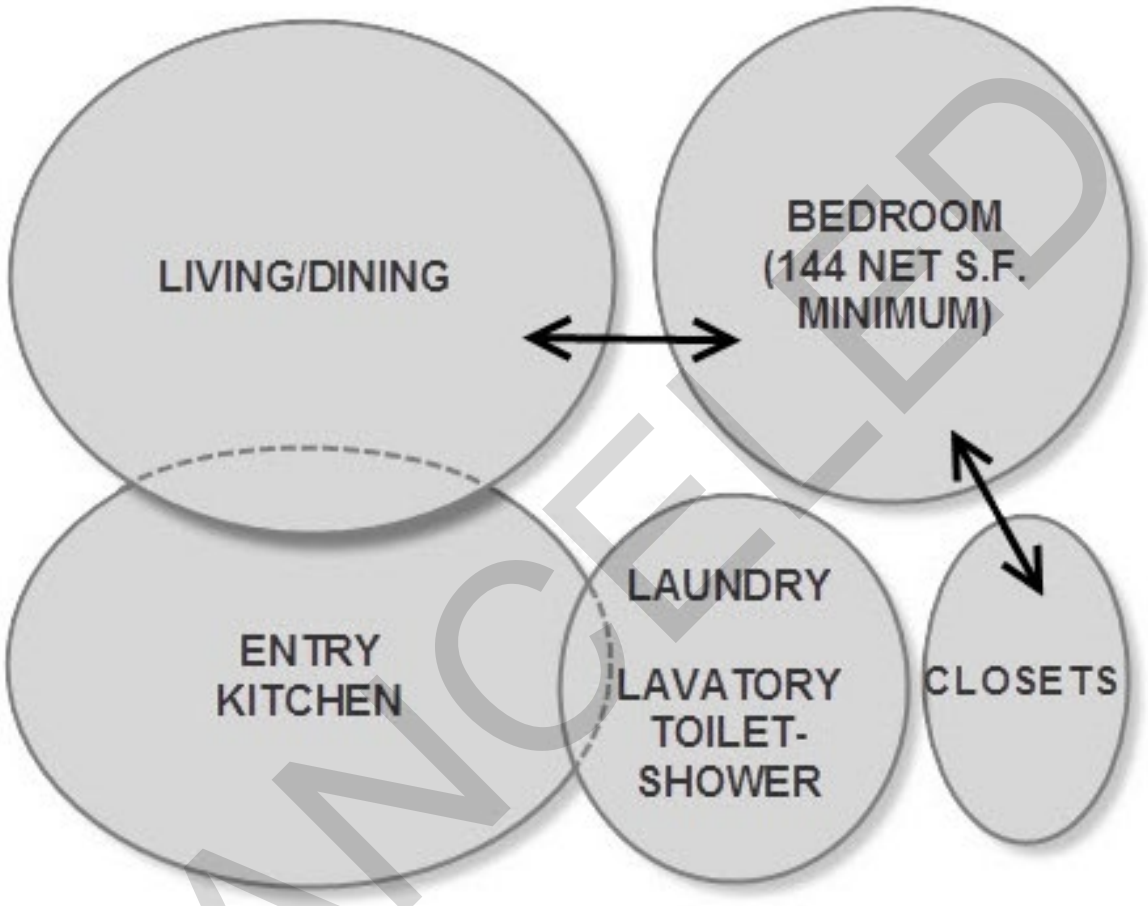


Figure B-3 Navy 2+0 Unit Bubble Diagram

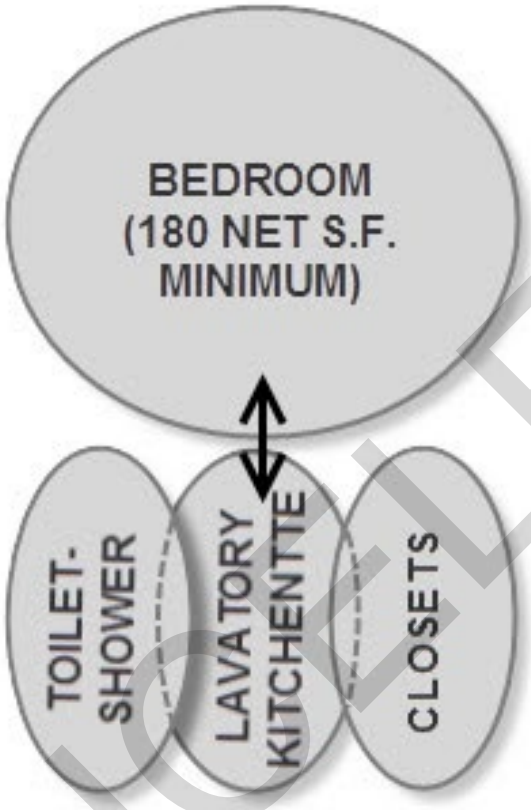


Figure B-4 Navy 2+0 Unit Floor Plan

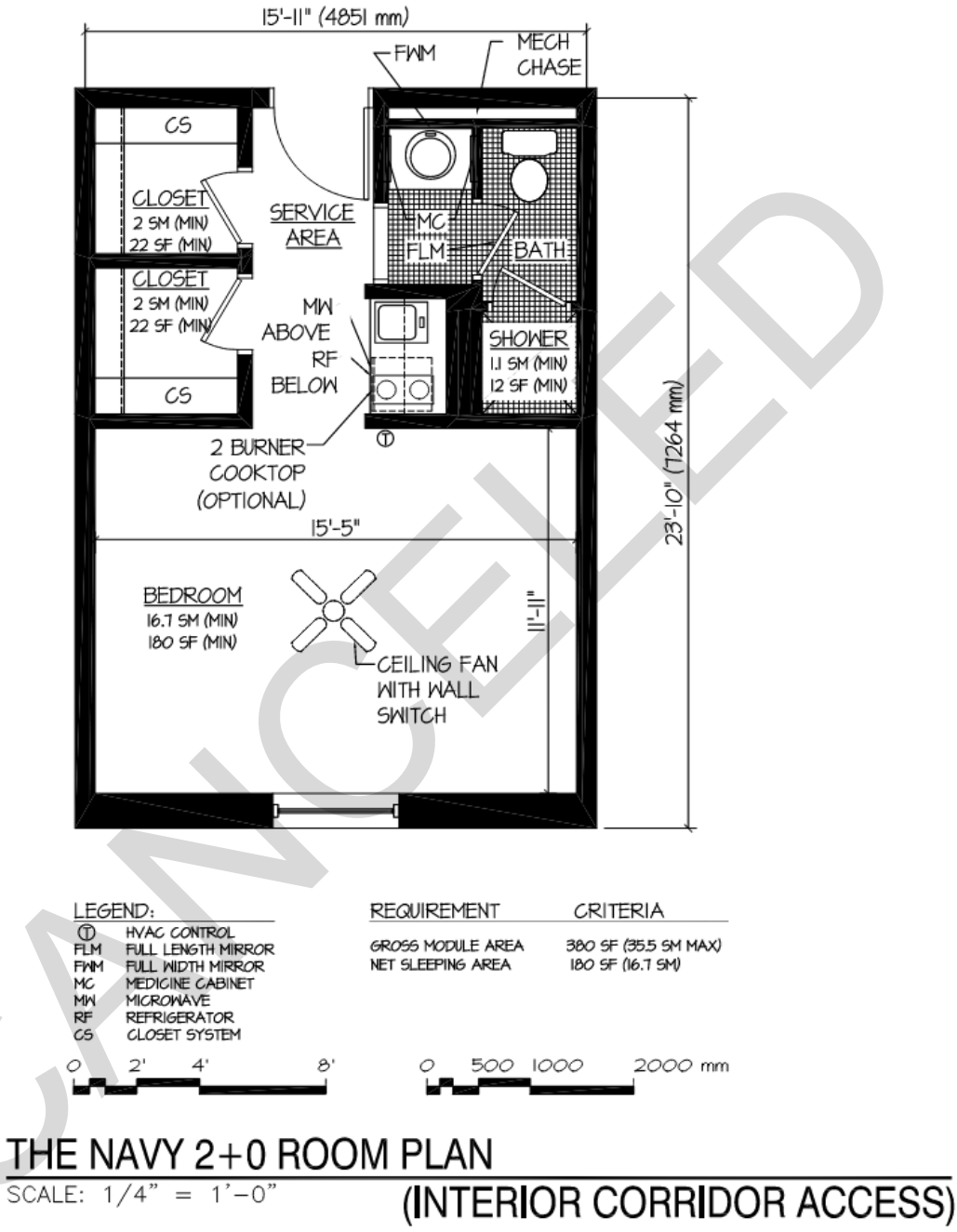
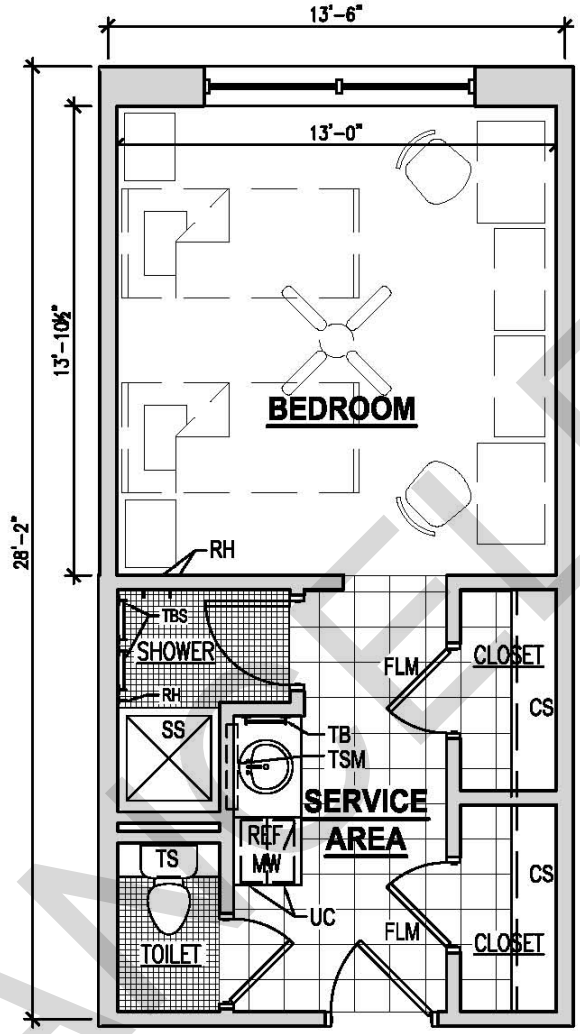


Figure B-5 NETC Dorm Room Floor Plan



LEGEND:

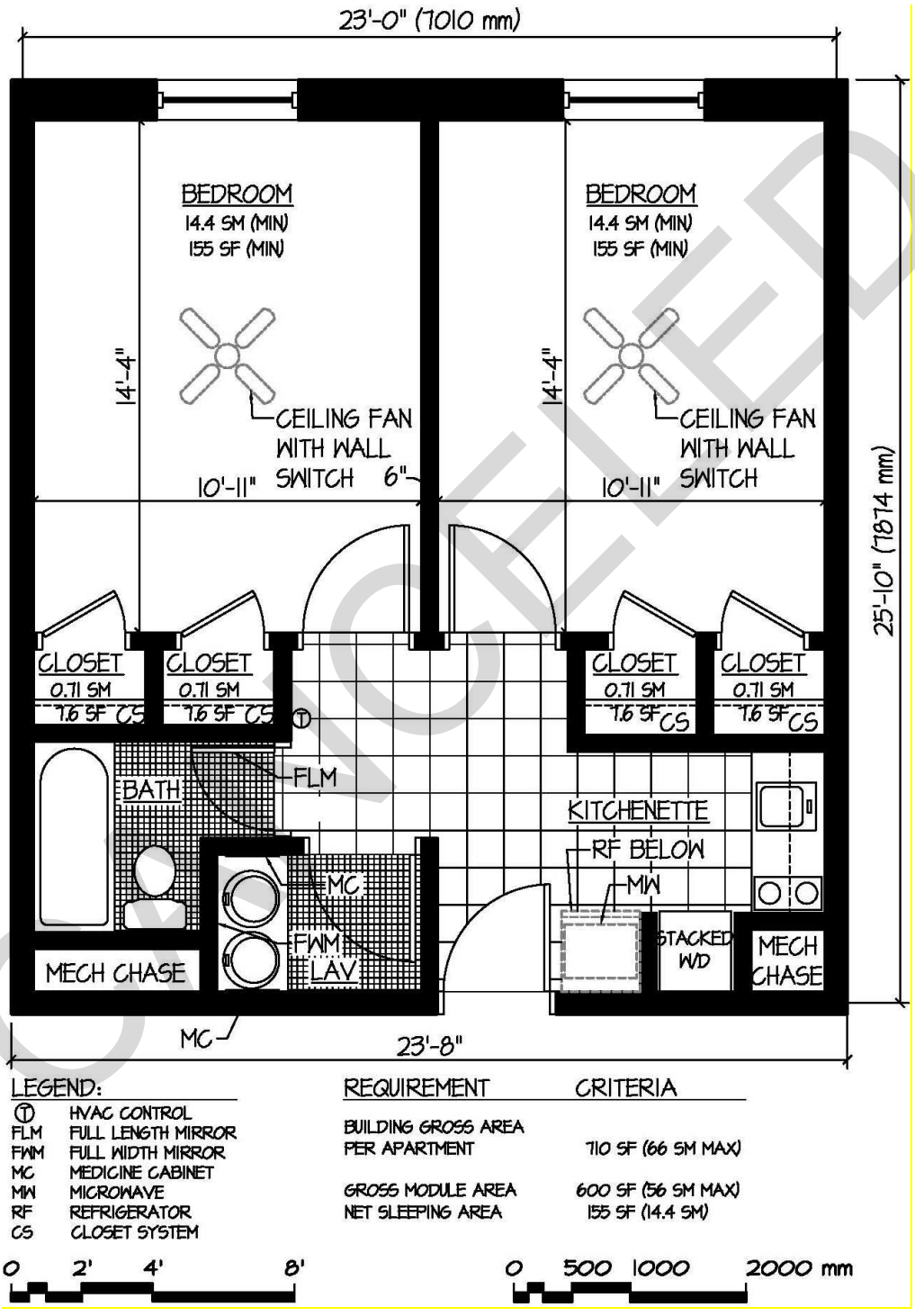
TBS	TOWEL BAR WITH SHELF ABOVE (2)
RH	ROBE HOOK
SS	SHOWER STALL
TS	12"D X 36"W UPPER CABINET
FLM	FULL LENGTH MIRROR
UC	12"D X 24"W UPPER CABINET
TSM	THREE SECTION MIRROR W/ TWO BUILT-IN MEDICINE CABINETS.
CL	CLOSET SYSTEM
IB	IRONING BOARD WITH IRON STORAGE RACK
TB	TOWEL BAR

NOTE: REFER TO UFC FOR GROSS AND NET AREAS

0 2' 4' 8'

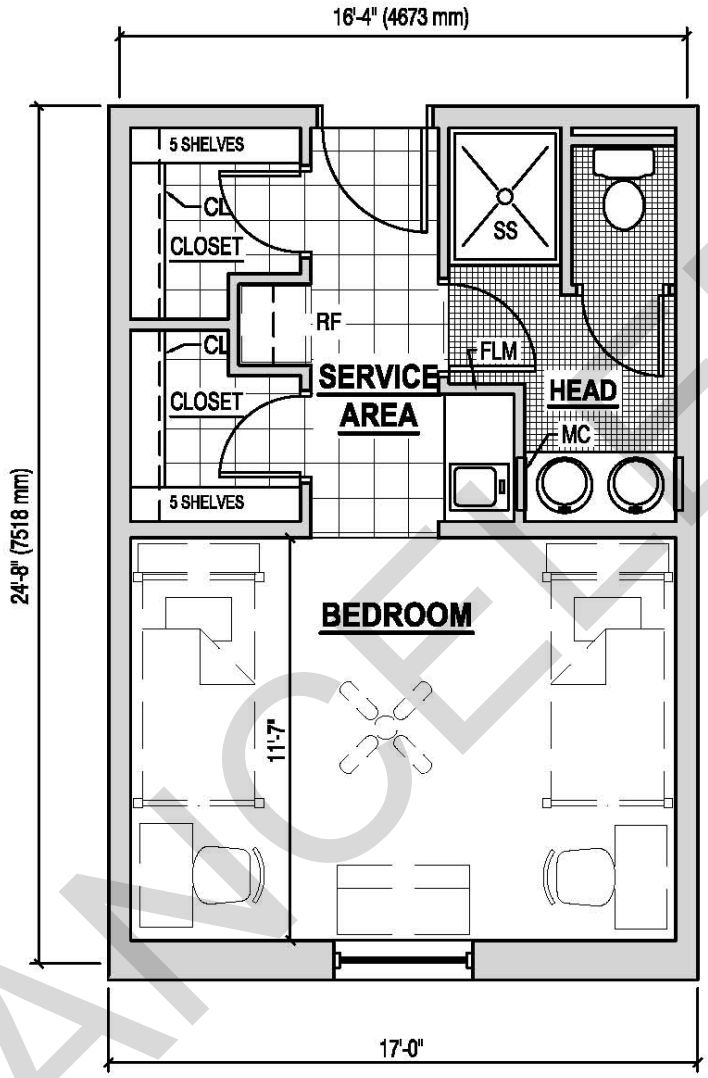
0 500 1000 2000 mm

Figure B-6 Marine Corps 1 + 1E Plan – OCONUS Use Only



2-1

Figure B-7 Marine Corps 2+0 Room



LEGEND:

FLM	FULL LENGTH MIRROR	MW	MICROWAVE
FWM	FULL WIDTH MIRROR	RF	REFRIGERATOR
MC	MEDICINE CABINET (2 STACKED)	SS	SOLID SURFACE SHOWER ENCLOSURE
CL	CLOSET SHELVES & RODS		

NOTE: REFER TO UFC FOR GROSS AND NET AREAS

0 2' 4' 8'

0 500 1000 2000 mm

Figure B-8 Marine Corps 2+0 Room (Breezeway Access)

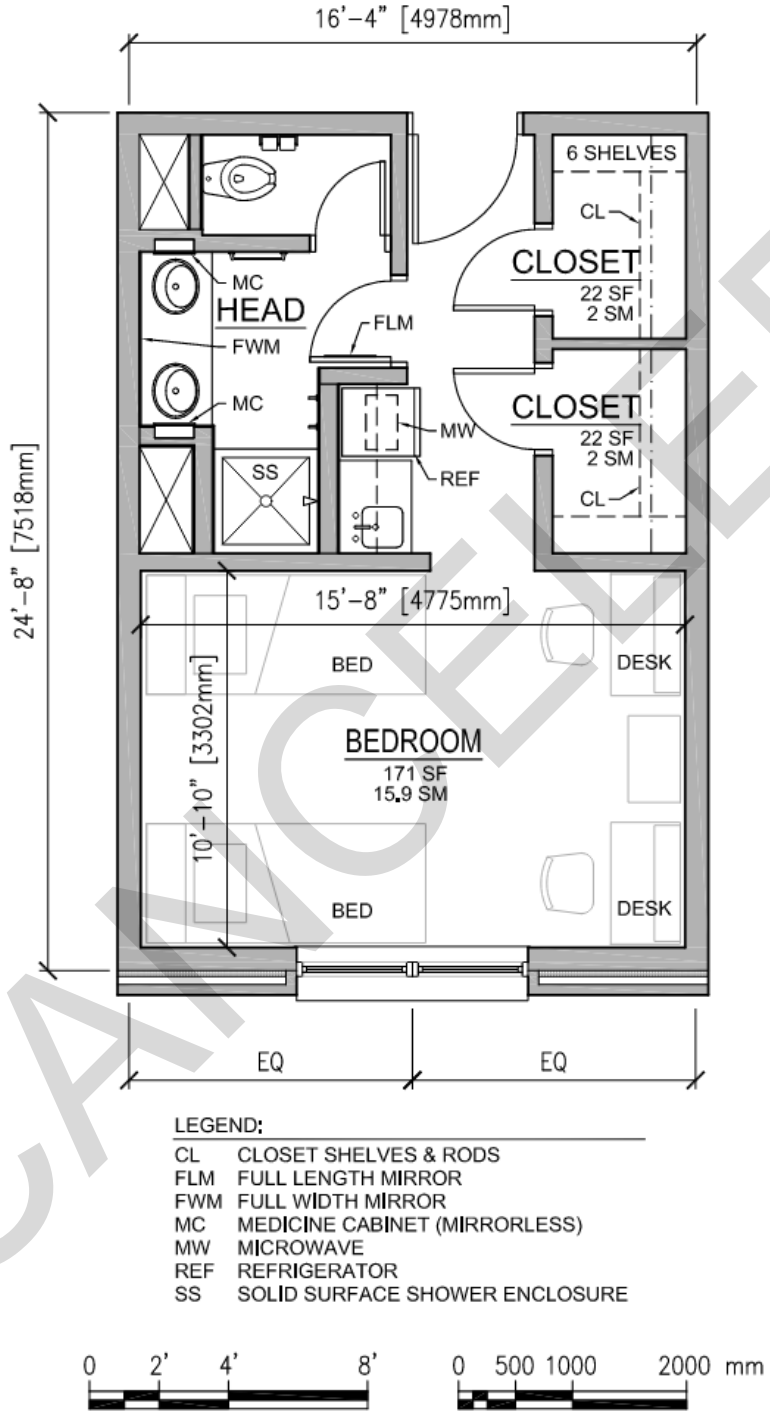
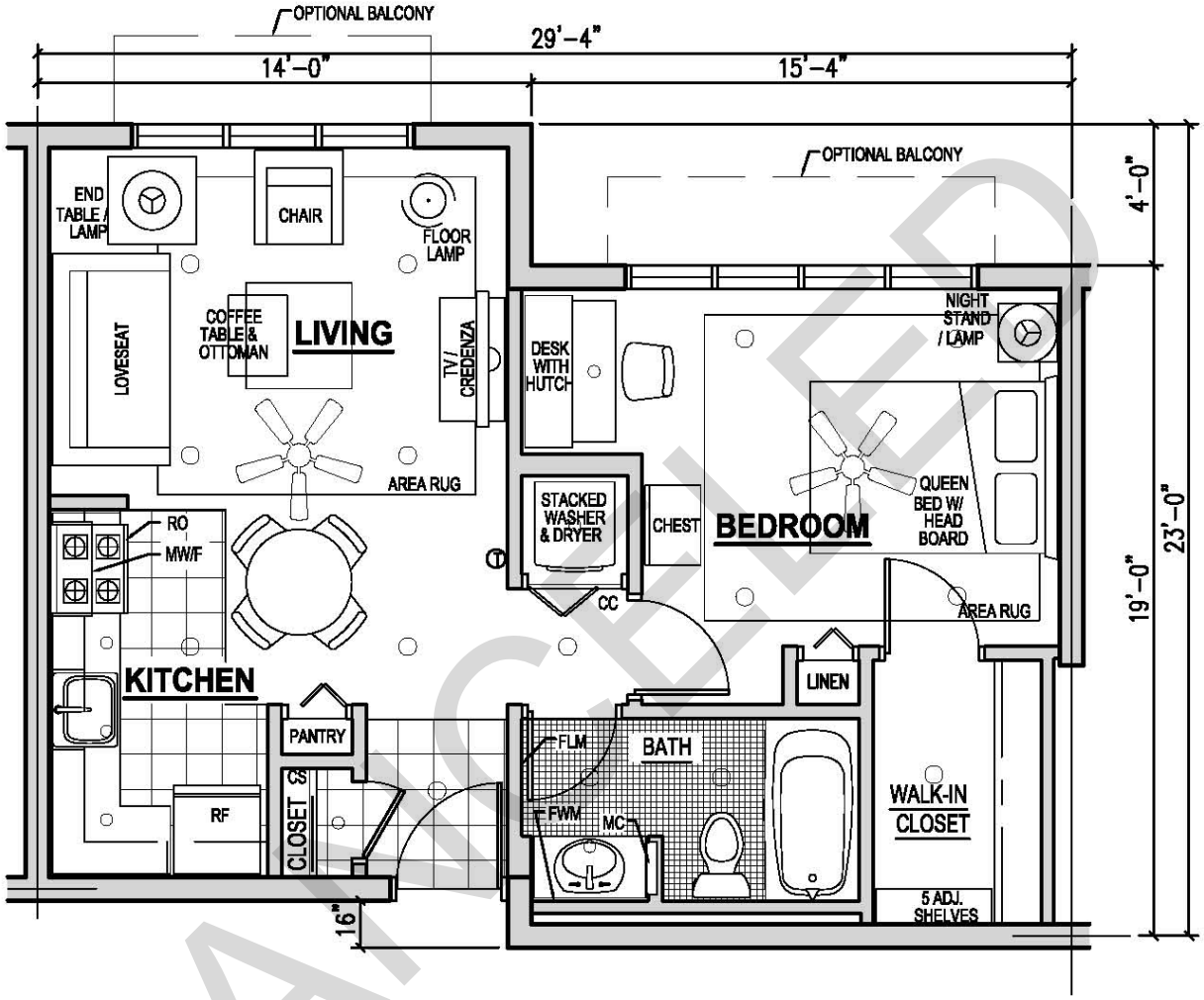


Figure B-9 Marine Corps SNCO/Officer's Room Plan



LEGEND:

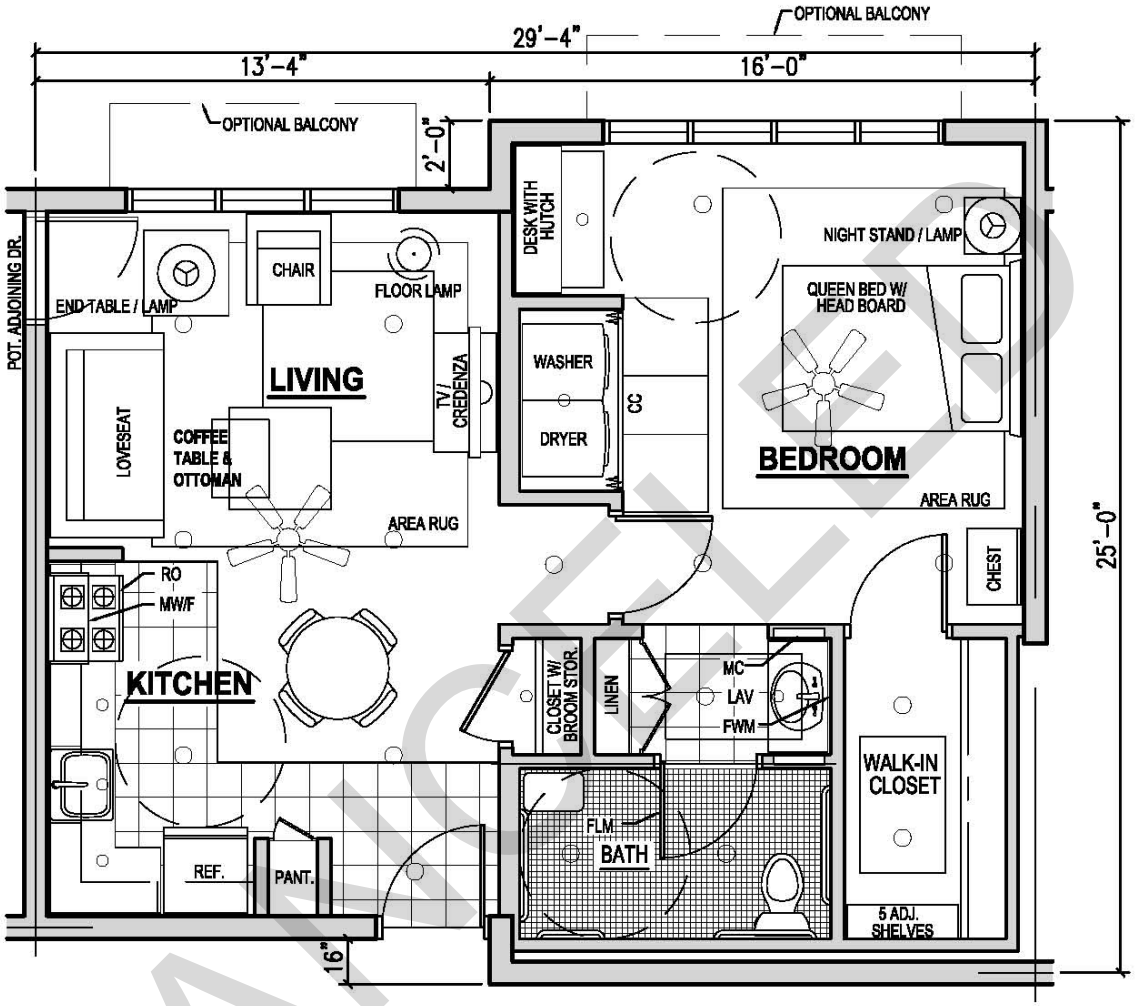
ⓣ	HVAC CONTROL	CC	CONTAINMENT CURB
FLM	FULL LENGTH MIRROR	RF	REFRIGERATOR
FWM	FULL WIDTH MIRROR	CS	CLOSET SYSTEM
MC	MEDICINE CABINET	RO	RANGE OVEN
MW/F	MICROWAVE W/ RANGE FAN		

NOTE: REFER TO UFC FOR GROSS AND NET AREAS

0 2' 4' 8'

0 500 1000 2000 mm

Figure B-10 Marine Corps SNCO/Officer's Room Plan (Accessible Example)



LEGEND:

Ⓣ	HVAC CONTROL	CC	CONTAINMENT CURB
FLM	FULL LENGTH MIRROR	MW	MICROWAVE
FWM	FULL WIDTH MIRROR	RF	REFRIGERATOR
MC	MEDICINE CABINET	CS	CLOSET SYSTEM

NOTE: REFER TO UFC FOR GROSS AND NET AREAS

0 2' 4' 8'

0 500 1000 2000 mm

APPENDIX C AUSTERE UNACCOMPANIED HOUSING

C-1 PURPOSE.

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

C-2 DEFINITION AND SCOPE.

An austere facility is defined as a structure designed and constructed with minimal infrastructure, footprint/area, and finishes while still incorporating applicable building codes and facility criteria to assure adherence to all health, accessibility, and life safety standards and regulations required to fulfill the mission, including anti-terrorism force protection regulations as appropriate to each site. Construct austere facilities with the lowest total ownership costs (TOC) possible, including purchase, maintenance, and use of consistently available local goods.

C-3 APPLICABILITY.

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

C-4 MODIFICATIONS FOR AUSTERE CONSTRUCTION.

For austere design and construction, use the facility criteria in the prior Chapters of this FC with the (generally deductive) modifications included in this Appendix, as follows.

(FC) CHAPTER 3 GENERAL DESIGN CRITERIA - NAVY AND MARINE CORPS.

3-2 SITE DESIGN.

Add the following to the FC paragraphs. Apply austere decision making to assess, modify and incorporate requirements such as pedestrian circulation, vehicle parking, and lighting plans appropriately to local conditions.

3-2.3 Parking.

Delete the FC paragraphs and use the following. Apply austere decision making to assess, modify and incorporate requirements such as pedestrian circulation, bus access, service vehicle parking, and lighting plans appropriately to local conditions and to limit parking as much as possible while still meeting the facility mission. Review the security study and incorporate its requirements into the design. Ensure existing and proposed parking is in compliance with antiterrorism requirements. In austere facilities

parking for residents, visitors, staff, and service personnel should be extremely minimal and only to the mission. Maintenance parking for service functions does not necessarily require dedicated space. Use the expected frequency of maintenance vehicles to determine whether dedicated parking is needed. Locate service access and parking to avoid disturbing residents.

3-6 ARCHITECTURE.

Add the following to the paragraphs. Austere construction requires cost effective and durable materials and finishes throughout. Refer to the Table 3-3 Austere Interior Finishes.

3-6.2 Architectural Character and Scale.

Delete this FC paragraph in its entirety. Scale should be a reflection of security and local military construction requirements.

3-6.3 Residential Character for Unaccompanied Housing.

Delete this FC paragraph in its entirety.

3-6.4 Model Unit "Mockups".

Delete the FC paragraph in its entirety. Mockups are not required in austere facilities construction.

3-6.7 Hardware and Locks.

Use the FC paragraphs with the following exceptions: Electric locks are optional in austere UH. Provide locks to ANSI/BHMA standards.

3-6.7.1 Bathroom locks.

Provide the following for bathroom locks: Provide hardware and latches for Common Centralized Shower, Toweling, Dressing, and adjacent Toilet only as privacy and personal security requires.

3-6.9 Walls and Partitions.

Delete the FC paragraphs and use the following for austere construction. The ability to repair, refinish and reconfigure are important in austere construction. Design walls and partitions to meet appearance, acoustics, and durability requirements of Navy UH. Seal edges of wall assemblies to adjacent construction to avoid flanking sound paths. Consider ease of repair and refinishing when choosing wall finishes. Proprietary finishes are prohibited. Provide corner guards on walls in public areas. Austere projects use of light-frame construction with gypsum board for interior wall construction is preferred. Concrete / masonry is optional; minimize load bearing walls where appropriate.

3-7 INTERIOR DESIGN.

Delete FC Table 3-1 and Table 3-2 and use the following Table 3-3 for Austere Facilities Finishes.

Table 3-3 for Austere Interior Finishes

AREA/SPACES	FLOORS	WALLS	CEILING
Entrance weather Vestibule	Concrete, hardened and sealed	Match exterior building finish at sides, 2 sets of double doors at entry	Moisture weather resistant gypsum board, painted
Resident Corridors/Distribution	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Resident multi-occupant rooms	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Centralized Toilets and Showers	Porcelain tile, slip-resistant	Ceramic Tile over Gypsum Board to full height; Painted Gypsum Board at plumbing/wet walls	Refer to 3-7.3 of this appendix
Janitorial Areas	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Housekeeping Areas	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Utility Rooms	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Laundry, linens (optional)	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Laundry, resident use	Concrete, hardened and sealed	Ceramic Tile over Gypsum Board to full height; Painted	Refer to 3-7.3 of this appendix

(optional)		Gypsum Board at plumbing/wet walls	
Laundry Storage, clean (optional)	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Laundry Storage, soiled (optional)	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Receiving (optional)	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Reception, (optional)	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Storage, cleaning fluid (optional)	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Storage, General supply (optional)	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix
Mechanical and Electrical Utility rooms	Concrete, hardened and sealed	Gypsum Board, painted	Refer to 3-7.3 of this appendix

3-7.1 Paint.

Delete the FC paragraphs and use the following. Interior (and Exterior) surfaces requiring paint must use a minimum of one prime coat and two finish coats.

3-7.3 Ceilings.

Delete the FC paragraph and use the following. Suspended acoustical ceilings and blown-on acoustical ceiling finishes are prohibited. Ceilings are to be exposed and painted, including all exposed plumbing mechanical and electrical conduit, unless it is more cost effective to provide a hard finished (gypsum board) painted ceiling.

3-7.4.7 Wall Base Molding.

Revise the paragraph as follows. For porcelain or ceramic tiled areas, use matching or cove base trim. For all other flooring, use coved rubber molding.

3-7.5 Cabinets, Millwork, and Hardware.

Delete the FC paragraph and substitute the following: Construct cabinets to American Woodworking Institute Custom grade with heavy-duty hardware. Centralized / Group bathrooms provide solid surface vanity tops with integral bowl lavatories. Toilet / Shower partitions (if applicable) shall be solid plastic (HDPE) or Color-through Phenolic.

3-7.8 Toilet Accessories.

Delete the FC paragraph and substitute the following: Provide toilet accessories as surface mounted or recessed, of non-corrodible metal or tile. Provide toilet paper holders, soap dishes, and bathrobe hooks. Provide shower curtain rods set at proper height for conventional shower curtains.

3-7.9 Window Treatments.

Delete the FC paragraph and substitute the following: Include window treatments (shading systems) as an integral part of the construction contract. Dual fabric solar roller shade systems with manual roll chain operation are recommended. Consider solar conditions when selecting a window treatment. Dual solar shade system provides visual privacy and natural light, with black out properties available as required. Sidetracks can add durability, stability and reduce light leakage.

3-7.10 Furnishings, Fixtures and Equipment, (FF&E).

Delete the FC paragraphs and substitute the following:

FF&E procurement packages must be designed by the same design agent as the facility to ensure complete coordination. Final approval of FF&E specifications will be determined by the design team to include guidance/input received from the respective NAVFAC Interior Designers. Use of turn-key approach to FF&E procurement within MILCON projects is directed to the greatest extent possible and practical. This will ensure a coherent FF&E package and the most practical use of funding.

Specify furnishings as minimal as possible to meet the required mission of the facility. The major prerequisites for all products are durability, flexibility and sustainability. The standard finishes must be easily maintained and non-corrosive. Special attention must be given to the geographical location and extreme weather conditions of the facility to provide the most practical solutions to endure the situation. Consider surge capabilities as required by the specific location and facility requirements.

3-11 SUSTAINABILITY.

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

3-12 COMMISSIONING.

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

3-13 PLUMBING.

Delete the FC paragraph and substitute the following: Avoid plumbing chases whenever possible by placing plumbing in wall cavities. Fixture clearances should be appropriately sized for the intended occupants and use low-flow Water Sense requirements where feasible.

- Centralized or common toilet areas are to be standard for austere housing. The International Plumbing Code (IPC) uses the term "Bathroom Group" for fixtures located together on the same floor. These bathroom groups should be centrally located at each floor within each building and designed with consideration to the local male/female resident privacy requirements. No tub-showers or bathtubs are allowed in austere construction. Provide all fixtures in accordance with the UFC 1-200-01 and IPC, for water closets and urinals, lavatories and service sinks, and individual curtained dressing/showers.
- Provide hot and cold water to laundry facilities if applicable.
- Provide easily accessible shutoff valves at all fixtures.
- Water Closets. Provide commercial quality water closets. It is recommended that areas with low water pressure use power-flush type water closets. Use elongated, one-piece construction with a closed front seat and a lid. Provide matching water closets and bath fixtures in neutral color.
- Provide hose bibs on one exterior wall of each building and near rooftop mechanical units; frost-free as dictated by climatic conditions. Provide floor drains in all janitor closets, and laundry rooms, if applicable.
- Provide a single drinking fountain with cooler in accordance with the IPC.

- Provide a building- wide hot water system.
- Provide the following fixtures as standards: Provide single-lever and washer-less faucets at lavatories. Provide overhead rainfall type showerheads with maximum 2.2 gpm (8.3 lpm) flow rate, low-flow if applicable. Locate showerheads a minimum of 75 inches (190.5 cm) above the shower base.
- Showers are to have porcelain tile bases sloped to drains, with full height surrounds. For new construction, provide a 12 ft2 (1.11 m2) shower space with a minimum dimension of 30 inches (76.2 cm).

3-15 GENERAL SPACE REQUIREMENTS FOR UH FACILITIES.

3-15.1 Service Area.

Austere bedrooms do not have service areas. All bedrooms will use a common bath toileting area that is ideally centralized within the building and may be divided for male and female use with the inclusion of appropriate security measures.

3-15.12 Lobby, Vestibule, and Reception.

Delete the FC paragraph and substitute the following: Provide a weather vestibule with two sets of doors. Lobby and Reception areas are prohibited in austere.

Chapter 4 NAVY UNITS.

Delete the FC Chapter 4 NAVY UNITS except as follows:

4-4 The Unit.

Delete the FC paragraph and substitute the following: Each austere bedroom will be a simple open room sized 288 ft^2 (26.8 m^2) net for habitation by four persons; that is 72 ft^2 (6.7 m^2) net area per person in each room. They do not contain any service area or toilets within the rooms. UH occupants will use centralized toilet facilities.

4-4.1 Unit Details.

Delete the FC paragraph 4-4.1 The Market Unit, and substitute the following:

- Living/Sleeping Area. Bedrooms are intended for occupancy by four persons. Bedroom dimensions are not fixed but must remain functional to accommodate four twin extra-long beds; two desk units, two chairs, and four wall lockers.
- Personal closets are not included in Austere UH construction.
- Bathroom Groups (Common Centralized Shower /Toileting) - refer to Plumbing paragraph 3-13 to describe requirements for "Bathroom Groups". Common bathroom groups will consist of shower/dry toweling/dressing and adjacent

toileting areas which are to be centrally located for division for male / female personnel occupancies at each floor.

- Centralized Laundry. The Austere requirement for laundry is optional. If provided, locate a single centralized laundry at the ground floor only if no other laundry facilities are within a reasonable co-location. Provide one washer and two dryers for every 20 residents, as a minimum. Stacked units are acceptable. Provide a single laundry room for easy access and provide acoustic separation from other areas. Provide 12 linear feet (3.6 m) of folding table(s), a clothes hanging area with hanging rods and 4 ft (1.25 m) of full height hanging for drip-dry clothing. Set aside a space of 24 inches x 48 inches (0.6 m x 1.2 m) for soap, bleach, fabric softener and other laundry aid vending.

Delete the FC Chapter 5 MARINE CORPS ROOM PLANS.

Delete the FC Chapter 6 OPEN BAY.

Delete the FC APPENDIX A. BEST PRACTICES.

Delete the FC APPENDIX B FIGURES.

END OF APPENDIX C.

APPENDIX D GLOSSARY

D-1 ACRONYMS

A/E	Architect/Engineer
ABA	Architectural Barriers Act
AFCEC	Air Force Civil Engineer Center
AFF	Above Finished Floor
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
AT	Anti-Terrorism
BBQ	Barbecue
BCA	Business Case Analysis
BH	Base Housing
BHMA	Builders Hardware Manufacturers Association
BIA	Bilateral Infrastructure Agreement
BOQ	Bachelors Officer Quarters
CAC	Common Access Card
CCTV	Closed Circuit Television
CEE	Consortium for Energy Efficiency
c.f.	cubic feet
cfm	cubic feet per minute
cm	centimeter(s)
c.m.	cubic meter(s)
CMC	Commandant of the Marine Corps
CMU	Concrete Masonry Unit

CNIC	Commander, Navy Installations Command
CNO	Chief of Naval Operations
CO	Carbon Monoxide
DBT	Design Basis Threat
DD, DoD	Department of Defense
eMH	Enterprise Military Housing System
ESS	Electronic Security System
FAR	Federal Acquisition Regulation
FC	Facilities Criteria. Facilities Criteria FCs are part of the Unified Facilities Criteria System but meaning that it is Service specific with a designation in the number title (N) , meaning Navy or (A) Army only as examples.
FDU	Front Desk Unit
FEMP	Federal Energy Management Program
FF&E	Furnishings, Fixtures & Equipment
ft	foot/feet
ft2	square feet
gpm	gallons per minute
GSF	Gross square feet
GSM	Gross square meters
HDPE	High-density Polyethylene
HNFA	Host Nation Funded Construction Agreements
HP	Horsepower
HPSB	High Performance and Sustainable Buildings
HQMC	Headquarters, Marine Corps
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HVAC	Heating, Ventilating and Air Conditioning

IAP	Installation Appearance Plan
IDS	Intrusion Detection System
IIC	Impact Isolation Rating
in	inch(es)
IPC	International Plumbing Code
kg	kilogram
LAN	Local Area Network
lb	pound(s)
lf	linear foot
LED	Light-emitting Diode
lpm	liters per minute
LVT	Luxury Vinyl Tile
m	meter(s)
m2	square meters
mm	millimeter(s)
MCICOM GF	Marine Corps Installations Command Facility Operations and Energy Office
MCO	Marine Corps Order
MCRD	Marine Corps Recruit Depots
MDF	Medium-density fiberboard
MILSTD	Military Standards/Handbook
MOS	Military Occupational Specialty
MPI	Master Painters Institute
NAVFAC	Naval Facilities Engineering Systems Command
NETC	Naval Education and Training Command
NFPA	National Fire Protection Association

NGIS	Navy Gateway Inns and Suites
NMT	Navy Military Training
NSF	Net square feet
NSM	Net square meters
OCONUS	Outside Continental United States
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Office of the Chief of Naval Operations Instruction
OSD	Office of the Secretary of Defense
PCE	Parametric Cost Estimating
PPV	Privatized Assets
PVC	Polyvinyl Chloride
QOL	Quality of Life
R-19	Navy's UH Requirements Determination Report
RFID	Radio Frequency Identification
RM	Restoration and Modernization
ROICC	Resident Officer in Charge of Construction
RT	Rubber Tile
SAT	Suspended Acoustical Tile
sf	square feet
sm	square meter(s)
SNCO	Staff Noncommissioned Officer
SOFA	Status of Forces Agreements
SOI	School of Infantry
SRM	Sustainment, Restoration and Modernization
STC	Sound Transmission Class

TEMDUFURAS	Temporary Duty for Further Assignment
TOC	Total Ownership Costs
TV	Television
TVSS	Televised Surveillance System
UDP	Unit Deployment Program
UFC	Unified Facilities Criteria
UH	Unaccompanied Housing
U.S.	United States

D-2 DEFINITION OF TERMS

2+0 Type Designs: Unaccompanied Housing suitable for assignment of two E1-E3 Sailors or one E4 Sailor. 2+0/2+0 Type Designs generally consist of a Unit providing a room of at least 180 net square feet and an in-room bath.

Formal Training/Schools: United States Marine Corps Training and Education Command (TECOM)-Sponsored Professional Military Education (PME) schools (such as the Sergeants course and Advanced Senior Non-Commissioned Officers (SNCO) Academy) or a formal MOS-producing school (similar to Navy A Schools). Formal Training/Schools do not include basic training which includes recruit basic training at Marine Corps Recruit Depots (MCRD), School of Infantry (SOI)/Marine Combat Training (MCT), or local training courses such as the Corporal's course, Vehicle Operator Training Course, and others).

Mission Essential: Housing for rotational/mobilized Sailors outside their homeport and crewmembers of uninhabitable ships/submarines outside their normal homeport.

Military Necessity: Housing supporting Individual's Accounts Personnel, individual augmentees, Sailors assigned to Transient Personnel Units while awaiting ship's movement or separation from the Navy, Sailors executing temporary duty for further assignment (TEMDUFURAS) orders, awaiting Medical boards, executing limited duty orders, or Sailors directed by the Command to temporarily reside in UH because of restricted duty, military protective orders, or cool down. Personnel are considered "must house" on the installation.

Motel/Tower Design: Unaccompanied Housing which generally consists of a ‘module’ including six bedrooms sized to house three Sailors each that share a central head, shower and laundry room and lounge.

Officer Accessions: Any of several programs that provide personnel to assume positions as commissioned officers.

Permanent Party: Active duty and Reserve Component military personnel who are assigned to or are attached to an installation in a PCS Status. Also includes trainees or students who are attending a training course for 20 weeks or longer.

Recruits: Personnel undergoing basic military training who have no continuous prior enlisted service (active or reserve).

Remote Locations: Installations without community housing support (such as NAVSUPPFAC Diego Garcia, NAVSTA Guantanamo Bay, the California Off-Shore Islands of Santa Cruz, San Clemente and San Nicolas, and others) or with only limited community housing support (such as AUTEC Andros Island and others).

Rotational/Mobilized Sailors: Sailors attached to units that are "Sea Duty for rotational purposes" (such as air squadrons, mobile training units and Seabees) on orders as a

unit to duty outside their homeport, individuals on orders to a combat zone or crewmembers of uninhabitable ships/submarines outside their normal homeport.

Training Necessity: Training programs including officer accessions (such as OTC) and enlisted initial skills training (such as "A" schools and accessions pipeline schools) where student housing is part of the training mission and separate from other UH, and students are considered 'must house' on the installation.

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APPENDIX E REFERENCES

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

https://www.ansi.org/

ANSI/BHMA A156:

A156.1, *Butts and Hinges*;

A156.2, *Bored and Preassembled Locks and Latches*;

A156.3, *Exit Devices*;

A156.4, *Door Controls - Closers*;

A156.6, *Architectural Door Trim*;

A156.13, *Mortise Locks and Latches* (1000 series);

A156.23, *Electromagnetic Locks*;

A156.25, *Electrified Locking Devices*;

A156.29, *Exit Locks and Alarms*

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

https://www.astm.org/

ASTM E336, *Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings*

ASTM E492, *Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine*

AMERICAN SOCIETY OF HEATING REFRIGERATING AND AIR-CONDITIONING ENGINEERS

https://www.ashrae.org/

ASHRAE 62.1, *Ventilation for Acceptable Indoor Air Quality*

ASHRAE 62.2, V*entilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings*

ASHRAE 90.1, *Energy Standards for Buildings*

COMPOSITE PANEL ASSOCIATION

http://www.compositepanel.org/

CPA/ANSI A208.2, *Medium Density Fiberboard (MDF) for Interior Applications*

DEPARTMENT OF DEFENSE

Architectural Barriers Act
https://www.access-board.gov/aba/

DOD 4165.63-M, *DOD Housing Management Manual.*

HARDWOOD PLYWOOD AND VENEER ASSOCIATION

https://www.hpva.org/

ANSI/HPVA HP-1, *American National Standard for Hardwood and Decorative Plywood*

LAWRENCE BERKLEY NATIONAL LABORATORY

https://www.lbl.gov/

Tips for Daylighting with Windows, prepared by the Building Technologies Program, Lawrence Berkley National Laboratory, Copyright 1997 The regents of the University of California

MARINE CORPS AND NAVY

MILSTD 3007, Unified Facilities Criteria, Facilities Criteria and Unified Facility Guide Specifications

CNIC M-11103.2, *Unaccompanied Housing Operations Manual*

MCO 5530.14A, *Marine Corps Physical Security Program Manual*
https://www.marines.mil/News/Publications/MCPEL/

MCO 11000.22, *Marine Corps Bachelor and Family Housing Management*
https://www.marines.mil/News/Publications/MCPEL/

OPNAVINST 5100.23H, *Navy Safety and Occupational Health Manual*
https://www.secnav.navy.mil/doni/SECNAV%20Manuals1/Forms/AllItems.aspx

OPNAVINST 11010.20, *Navy Facilities Projects*
https://www.secnav.navy.mil/doni/opnav.aspx

NATIONAL FIRE PROTECTION ASSOCIATION

https://www.nfpa.org/

NFPA 101, *Life Safety Code*

UNIFIED FACILITIES CRITERIA

https://www.wbdg.org/dod/ufc

UFC 1-200-01, *DoD Building Code.*

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

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

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

UFC 3-201-01, *Civil Engineering*

UFC 3-201-02, *Landscape Architecture*

UFC 3-401-01, *Mechanical Engineering*

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

UFC 3-420-01, *Plumbing Systems*

UFC 3-490-06, *Elevators*

UFC 3-580-01, *Telecommunications Interior Infrastructure Planning and Design*

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

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

UFC 4-010-06, *Cybersecurity of Facility-Related Control Systems*

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