



**US Army Corps  
of Engineers®**

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Department of the Army  
Facilities Standardization Program

# SENIOR LEADERS QUARTERS

## Standard Design

**Revision 4.7**

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### **3.0 SENIOR LEADERS QUARTERS (SLQ)**

#### **3.1 GENERAL REQUIREMENTS**

The standard design drawings graphically integrate Army Standard requirements, including net square footage, functional adjacencies, and control zones. The designer of record must utilize regional and climatic criteria to influence the building design.

Functional floor plans and conceptual site plans are provided in the applicable appendices. The plans may be modified to accommodate local, regulatory, engineering, architectural, life safety, and/or construction requirements at time of proposal. Additional consideration will be given for innovative, creative, or cost-saving proposals which meet or exceed the minimum requirements as established in the RFP.

Minor variations in the basic design forms of the facility types are permissible to accommodate proposed construction processes and materials. Building durability must not be diminished with the use of such systems as compared to the systems and finishes indicated in this package.

Floor and Site plans may change after award with installation and the Center of Standardization (COS) approval to enhance design, comply with codes, or support constructability.

#### **3.1.1 FACILITY DESCRIPTION**

- A. Included in this standard design are facilities classified as Senior Leader Quarters (SLQ). This package presents the mandatory living unit layouts.
- B. The quality of SLQ is recognized as a significant contributor to the Army's overall retention goals. Quality housing for Army personnel is a long standing objective and is reaffirmed in this standard design. An equally significant goal is economy of design and construction.
- C. The final appearance of any SLQ will be determined by the final designer taking into account available and economical materials and systems, current post architectural themes, and the user's requests.

#### **3.1.2 FACILITY RELATIONSHIPS: (NOT USED)**

#### **3.1.3 ACCESSIBILITY REQUIREMENTS:**

Senior Leader Quarters are intended to be occupied by senior leaders and families; thus, full accessibility is required.

#### **3.1.4 BUILDING AREAS:**

- A. GENERAL: Area requirements for circulation space and utility rooms area to the discretion of the designer of record in accordance with applicable codes and requirements, counted in the gross square footage. Coordinate column spacing and layout with the building floor plans concealing columns within or aligning with walls. Plan column placement to not interfere with the functionality of the space, providing clear spans for the larger open areas shown in the standard design plans.
- B. GROSS AREA: Maximum building gross areas must not be exceeded. A smaller overall gross area is allowed if all functional relationships in the floor plans and mandated net areas indicated in the building finish schedules are met. Contractor must clearly indicate proposed overall building(s) gross area calculation, to include net areas, building gross area, and half scope areas.

- C. HALF SPACE: Half scope areas must be included in the gross area for balconies and porches; overhangs greater than 3'-0" in width, exterior covered loading platforms of facilities, either depressed, ground level, or raised; covered but not enclosed passageways or walks; covered and uncovered but open stairs; and covered ramps.
- D. EXCLUDED SPACE: The following must not be included in the gross building area; Crawl spaces; exterior uncovered loading platforms or facilities, either depressed, ground level, or raised; open paved terraces; roof overhangs and soffits for weather protection 3'-0" or less in width; uncovered ramps; uncovered stoops; and utility tunnels and raceways.
- E. NET AREA: The standard floor plans mandate authorized space allowances for the functional areas as indicated on the drawings in the building finish schedules. Net area is measured to the inside face of the functional requirements, overall gross area limitations, and other recognized design principles. If net area requirements are not indicated as mandated, the space must be sized to accommodate the required function, comply with code requirements, and comply with overall gross area.
- F. AT Building Occupancy Level: The Officers' Quarters must be considered "billeting" with respect to anti-terrorism requirements.
- G. Typical SLQ consists of two living unit wings. One wing will consist of Company Grade living units, the other will consist of Field Grade living units. For multi-story construction these units must be "stacked" atop each other. The overall length and height of each wing will be selected to accommodate the particular "grade mix" of officers at an installation. Similarly, the number of floors may be chosen to best accommodate the site area available. If only one type of living unit is required, the total number of units may be divided into two wings, or may be designed into a facility with only one wing, with the core area module located at one of the ends.
- H. Company Grade Living Units are provided for Company Grade Officers (O1 – O3). The amenities include a separate living and bedroom, kitchen, private bath, and storage area. These units have a minimum net living area of 587 square feet.
- I. Field Grade Living Units are provided for Field Grade Officers (O4 – O6). The amenities include a slightly larger living unit which include separate living and sleeping rooms, kitchen, bathroom, and additional storage area. These officers are provided with a minimum net living area of 680 square feet.
- J. Modularity: To take maximum advantage of the concept of modularity, units of the same size and configuration will be grouped together, in modules of four living units per floor. Therefore, all references to the living units will be by modules which includes four units and corridor. The four unit living unit module consists of two units placed back-to-back, on each side of the corridor. When determining the total number of units, it is important to remember this modular approach since the number of units must be divisible by four times the number of floors (divisible by eight for two floors, twelve for three floors, etc.).
- K. The Core Area Module provides laundry and service space, vending, lobbies, restrooms, and the primary means of vertical circulation. The Core Area Module typically connects the two residential wings. The wings may be joined to the central core in a configuration which best fits the site.

**3.1.5 ADAPT BUILD MODEL: (See COS BIM Model)**

**3.2 FUNCTIONAL AND OPERATIONAL REQUIREMENTS**

**3.2.1 FUNCTIONAL SPACES – SENIOR LEADERS QUARTERS**

**A. MANDATORY MODULES:**

- 1) Company Grade Living Unit Module (4 living units)
- 2) Field Grade Living Unit Module (4 living units)
- 3) Core Area Module
- 4) Stair Module
- 5) Bulk Storage Module
- 6) Multi-Purpose Activity Room (MPAR) Module – (CONUS only)
- 7) Mechanical Services Module – (As required by the installation.)

B. LIVING UNIT MODULES:

- 1) A typical SLQ building consists of a core and two living unit wings. One wing will consist of Company Grade living units, the other will consist of Field Grade living units.
- 2) For multi-story construction these units must be “stacked” atop each other. The overall length and height of each wing will be selected to accommodate the particular “grade mix” of officers at an installation. Similarly, the number of floors may be chosen to best accommodate the site area available.
- 3) If only one type of living unit is required, the total number of units may be divided into two wings or may be designed into a facility with only one wing, with the core area module located at one of the ends.
- 4) COMPANY GRADE LIVING UNIT MODULE
  - a. Provided for Company Grade Officers (O1 – O3).
  - b. Company Grade Living Unit Module – 3,268 gross square feet per module. This includes four living units and the corridor.
  - c. The amenities include a separate living and bedroom, kitchen, private bath, and storage area.
  - d. A minimum of 587 square feet of net living area is provided per living unit.
  - e. The gross area of the living unit alone, including exterior and corridor walls and to the centerline of party walls, and the door recess, is 667 square feet.
  - f. Minimum corridor width is 5'-0". Recommended width is between 5'-4" and 6'-0".
- 5) FIELD GRADE LIVING UNIT MODULE
  - a. Provided for Field Grade Officers (O4 – O6).
  - b. Field Grade Living Unit Module – 3,772 gross square feet per module. This includes four living units and the corridor.
  - c. The amenities include a slightly larger living unit which include separate living and sleeping rooms, kitchen, bathroom, and additional storage area.
  - d. A minimum of 680 square feet of net living area is provided per living unit.
  - e. The gross area of the living unit alone, including exterior and corridor walls and to the centerline of party walls, and the door recess, is 760 square feet.
  - f. Minimum corridor width is 5'-0". Recommended width is between 5'-4" and 6'-0".
- 6) To take maximum advantage of the concept of modularity, units of the same size and configuration will be grouped together, in modules of four living units per floor. Therefore, all references to the living units will be by modules which includes four units and corridor. The four unit living unit module consists of two units placed back-to-back, on each side of the corridor. When determining the total number of units, it is important to remember this

modular approach since the number of units must be divisible by four times the number of floors (divisible by eight for two floors, twelve for three floors, etc.).

- 7) Rooms must be arranged with bathrooms and kitchens back-to-back (common plumbing), and bedrooms back-to-back (noise conflict reduction).
- 8) Corridors in the residential wings will be double-loaded for efficiency.
- 9) The number of each type of unit must be divisible by 4 per floor, i.e. 8 for a 2 story facility (4 x 2), 12 for a 3 story facility (4 x 3), etc.
- 10) Each floor of a residential wing will have an identical layout.
- 11) The length of the residential wings is governed by exit distance limitations as prescribed by fire and building codes.
- 12) Total number of units and proportion of company grade units to field grade units will be determined by installation requirements.

#### C. CORE AREA MODULE

- 1) Provides laundry and service space, vending, lobbies, restrooms, and the primary means of vertical circulation.
- 2) The Core Area Module typically connects the two residential wings. The wings may be joined to the central core in a configuration which best fits the site. Also, provides separation between the Company Grade and Field Grade residential wings
- 3) Laundries, sized at 1 washer and 1 dryer for every 5 residents. A deep laundry sink, a continuous shelf above the washer and dryers, and folding tables must also be provided in each laundry. Seating should also be provided. Laundries occur on each floor and are provided for both Company Grade and Field Grade living unit wings. Laundries should be provided with floor drains.
- 4) Janitor closet and linen storage on each floor.
- 5) Electrical and Communications closet on each floor.
- 6) Restrooms, which should be convenient to the Multi-Purpose Activity Room.
- 7) The Lobby includes the following functions, and may be open to the floors above.
  - a. Vending or lounge area. A vending areas must be provided on the ground floor. Vending is also recommended on upper floors, but will depend on specific servicing requirements. If vending is not provided on the upper floors, this area should be developed into small lounge with tables and chairs.
  - b. An electric water cooler is required in the lobby area. A suggested location is near the restrooms.
  - c. Access to exterior, both parking and outdoor common areas.
  - d. Interior circulation. Corridors will be a minimum 5 feet wide. Recommended width is between 5'-4" and 6'-0".

#### D. STAIR MODULE

- 1) The gross for each stair module approximates 200 square feet per floor if the stair is enclosed, and 100 square feet per floor if the stair is open or unenclosed. Stairs must be provided at the ends of the residential wings and in the lobby as a minimum.

#### E. BULK STORAGE MODULE

- 1) Provides each resident with approximately 80 cu. Ft. of lockable storage. The installation must determine the appropriate method (for example: heavy gauge wire cages or solid lockers) of providing storage.
- 2) Lockable access should be provided from the interior of the building and also directly from the parking lot or a service area.

#### F. MULTIPURPOSE ACTIVITY ROOM MODULE

- 1) Should be located near the core area and should have direct access to any outdoor common areas. For aesthetic reasons, should be screened for located away from parking.
- 2) Functions include, but not limited to:
  - a. Big screen television
  - b. Game room
  - c. Meeting/conference room
  - d. Reading Room
  - e. Weight/exercise room
  - f. Sauna/whirlpool
  - g. Lounge area

#### G. MECHANICAL SERVICES MODULE

- 1) Must be provided with service access
- 2) Should be near center of building
- 3) Conceptually sized at 5% of the total living unit module gross square footage. If larger mechanical systems are required, additional scope must be requested during the programming phase. Functional areas will not be reduced to compensate for additional mechanical space.

#### H. ELEVATORS

- 1) Elevators are required in facilities over three floors.
- 2) Elevators will be for passengers and service unless otherwise requested by the installation.
- 3) Detailed analysis to include determination of appropriate number of cars is required.
- 4) The incorporation of elevators in a facility with a relatively small number of units may necessitate an increase in the lobby area. This additional scope must be considered during the programming phase.

#### I. COMMON AND UTILITY AREAS:

- 1) Vestibule: Provide an enclosed transition space between the exterior and lobby. Include a clearance between doors to accommodate a 10'-0" long walk-off grate to meet LEED credit requirements.

- 2) Corridors: Provide one electric water cooler on each floor near the common area. Minimum corridor width is 5'-0".
- 3) Stairs: Provide circulation to the second floor near the front entrance and at the end of the corridor. Both stairs must be enclosed with windows included for light and view. The Installation may choose to use a covered, open stair at the end of the second floor corridor in lieu of an enclosed stair.
- 4) Storage Rooms: Provide a storage room on each floor, including full built-in adjustable shelving with capability of supporting minimum 30 lb. per linear foot.
- 5) Janitor's Closets: Provide floor mop sink on each floor with 4'-0" high stainless steel, tile, or solid polymer backsplash, service faucet with hose and bracket, mop rack for three mops, minimum 6'-0" of linear stainless steel shelving capable of supporting minimum 30 lb. per linear feet, and floor drain.
- 6) Mechanical, Electrical, and Telecommunications Rooms: Size and locate utility rooms to allow equipment removal and maintenance. Mechanical rooms must include an interior access door and double exterior doors (or removable louver) for equipment replacement. The main electrical room must be located on the first floor. Provide a single out swinging interior door. Provide stacked dedicated interior rooms for telecommunications equipment, minimum 8'x10' on the first floor and minimum 6'x8' on the second floor.
- 7) VENDING AND RECYCLING AREAS: Include space for one full size soft drink and one full size snack vending machine on each floor, which will be provided by others. Provide adequate power for vending machines. Provide appropriate utilities for a GFGI ice machine, provided by the Installation. Provide space for five recycle bins to meet LEED credit requirements.
- 8) BOOTWASH: Coordinate bootwash location and drainage requirements with the Installation. Bootwashes must accommodate boot washing, drainage, and grit/dirt removal. Each boot wash facility must include hose bibs, removable bar grating for sediment clean-out, mounted boot brushes, and drying rack/handrail.

### **3.3 SITE FUNCTIONAL REQUIREMENTS**

A. SITE DESIGN CRITERIA per UFC 2-100-01 Installation Master Planning, and TM 5-803-5 Installation Design.

B. SITE DEVELOPMENT OBJECTIVES:

- 1) Reinforce the architectural and landscaping themes as set forth in the appropriate Installation Design Guide.
- 2) Must conform to the approved installation master plan.
- 3) Provide attractive and convenient surroundings.
- 4) Retain the natural character of the site. Existing features such as ground forms, rock outcroppings, significant tree groups and masses will be retained when possible.
- 5) Avoid excessive grading.
- 6) Consider energy-conserving orientation.
- 7) Screen views of unattractive features.
- 8) Population density controlled to avoid "over-crowding".
- 9) Provide for drainage of water away from the structure.



C. SITE CIRCULATION:

- 1) Separate vehicular and pedestrian circulation will be provided to the maximum extent feasible. However, ready access must be provided for firefighting equipment, removal of trash and garbage, and other essential services.
- 2) An efficient pedestrian circulation will be provided between the SLQ building(s), parking areas, and other functionally related facilities, both on the site and adjacent to the site.
- 3) Pedestrian Sidewalks: Provide minimum 6-foot wide sidewalks connecting each building entrance with parking areas, other buildings in the complex, and as needed for fire exiting and site circulation.

D. PARKING:

- 1) One parking space per resident. Provide paved and striped parking for privately owned vehicles (POV) as shown in the provided site layout per the Installation's requirements. Accessible parking for visitors should be compliant with ABA Accessibility Standards for DoD Federal Facilities.
- 2) Required staff, maintenance, and visitor parking as determined by the needs of the installation.
- 3) An analysis of existing adjacent parking lots may be performed to determine to what extent existing parking can satisfy the total parking requirement for the SLQ.
- 4) Excessive walking distances between parking areas and SLQ buildings must be avoided.
- 5) Arrange parking to avoid direct vehicular access to entry.
- 6) Locate parking convenient to building entries.
- 7) For efficiency, parking should be organized using 90 degree stalls.
  - a. Parking stall dimensions should not exceed 9' by 16' where a vehicle overhand occurs, and 9' by 18' where no overhang occurs, unless dictated otherwise by more current criteria.
  - b. Aisles and access lanes will be 24 feet wide.

E. LANDSCAPING:

- 1) Landscaping: Minimal landscaping must be provided as required by the Installation. All other areas must be seeded in lawn grasses acceptable to the climate and Installation. Landscape with materials indigenous to the area, eliminating requirements for irrigation and minimizing maintenance.
- 2) Reference Installation planting lists. Use plants to reduce heat and glare
- 3) Enhance area appearance
- 4) Emphasize trees vs shrubs (maintainability)
- 5) Use locally compatible species
- 6) Use landscaping to define site circulation and building access
- 7) Site furnishings:
- 8) Consider informal outdoor recreation areas (picnic shelters, BBQ grills, outdoor athletic and game areas)
- 9) Add benches and trash containers where appropriate

F. SERVICE AREAS:

- 1) Trash dumpsters must be screened so as not to be readily visible upon approaching the building. The method of screening must compliment the overall architectural theme of the building by use of similar materials and landscaping.
- 2) Dumpsters must be located at the ends of the building, away from the primary entrances and will be separated from the building by a distance of not less than 30 feet.
- 3) The location of the dumpsters must not interfere or be obtrusive to the pedestrian circulation to the building, and around the building.

- 4) A service drive must be provided and may be accessed from the street or parking lot. Service Drives: Provide service drives to each building for access to the mechanical room location. Restrict access as required for AT and the Installation. Service drives must be minimum 12 feet wide.
- 5) Emergency Vehicle/Fire Access Lanes: Provide fire access to each building as required by UFC 3-600-01 Fire Protection Engineering for Facilities with access restricted as required for AT and the Installation. Required fire access lanes designed for emergency vehicle loads and widths must also be used as sidewalks. When Officers' Quarters are included, assure that access for fire trucks complies with fire protection requirements with access on three sides, including both long sides, of Officers/ Quarters (Senior Leader Quarters) or as determined by the Installation Fire Chief.

G. EXTERIOR MECHANICAL AREA:

- 1) Mechanical and electrical equipment, when required outside, must be screened so as not to be readily visible upon approaching the building. The method of screening must compliment the overall architectural theme of the building by the use of similar materials and appropriate landscaping.
- 2) This equipment will be located next to the mechanical room to the greatest extent possible.
- 3) Service access must be provided.

H. ACCESSIBILITY:

- 1) Handicapped accessibility must conform to the ABA Accessibility Standards for DoD Federal Facilities, unless altered by the requirements below.
- 2) All sidewalks must meet federal accessibility standards.
- 3) Building entrances, lobby, multi-purpose activity room module, restrooms, circulation between these functions, and at least one drinking fountain must be accessible.

I. SIGNAGE:

- 1) Each building in a project will be identified by signage for the convenience of new occupants, visitors, and emergency and service personnel.
- 2) The signage system will include the provision for building identification as assigned by the installation facilities engineer.
- 3) All aspects of the signage system will be coordinated with the installation facilities engineer.
- 4) Exterior signage and building identification will complement the systems already in use on the installation.
- 5) Signage will be simple in design, pleasing in appearance, and functional.
- 6) Each private living suite door or entry recess will be provided with an identification number.
- 7) Each door or recess may also be provided with an insert frame for displaying identification cards of the occupants, if required by the installation.
- 8) Signage criteria are stated in detail in UFC 3-120-01 Sign Standards.

J. SITE STRUCTURES:

- 1) Dumpster Enclosures: Provide screened or enclosed dumpster areas, architecturally compatible with the buildings served and as required by the Installation. Enclosures must be sized to the required number of dumpsters and recycle containers. Located dumpsters in accordance with AT standoff distance requirements.
- 2) Service Yards: Provided mechanical equipment enclosures, sized to allow clearances for maintenance as required by the equipment manufacturer. Locate enclosures in accordance with AT standoff distance requirements. Where top protection is required per AT requirements,

assure adequate height is provided for maintenance without removal of top protection. Design top screening for removal in easily handled sections.

- 3) Utility Pads: Provided concrete exterior utility pads for any mechanical or utility device needed for the building operation. Include all necessary piping, wiring, or utility extensions for the device to function as designed. Locate mechanical equipment near existing or proposed sidewalks, access drives, or parking areas to eliminate the need to construct additional accesses.
- 4) Bollards: Provide 5-foot high, concrete-filled, schedule 80 galvanized steel pipe bollards, painted safety yellow at overhead motorized coiling/roll-up or sectional doors and adjacent to the service yards and building corners where frequent nearby vehicle movement increased the risk of damage by vehicle impact. Provide bollards 5 feet from the edge of electrical and mechanical equipment. Bollards must include concrete footings designed to withstand organization vehicular impact. Minimum required bollards are shown in the floor plans. Provide 6-inch diameter bollards.

### 3.5 **ARCHITECTURAL REQUIREMENTS**

- A. GENERAL: Provide durable and easily maintainable materials. Do not use exterior materials that require periodic repainting or refinishing processes. Material exposed to weather must be factory finished, integrally colored, or provided with intrinsic weathering finish.
- B. ROOF ACCESS: Provided lockable roof access hatches at the top of stairs as required by UFC 3-600-01 Fire Protection Engineering for Facilities for buildings over three stories. Include ladder, top ladder extension, and lockable ladder guard for each roof access.
- C. EXTERIOR OPENINGS:
  - 1) Storefronts (Main Entrances): Provide aluminum storefront doors and frames with Architectural Class 1 anodized finish, fully glazed with insulating glass units, having medium or wide stiles for entry into lobbies or corridors. Framing systems must have thermal-break design. Storefront systems must comply with wind load requirements of applicable codes and criteria including UFC 4-010-01, DoD Minimum Antiterrorism Standoff Distances for Buildings.
  - 2) Windows: Provide insulated glass units in high efficiency window systems with thermally broken frames complying with applicable codes and criteria including UFC 4-010-01, DoD Minimum Antiterrorism Standoff Distances for Buildings. Window sills must be designed for drainage and discouraging bird nesting. Where operable windows are used, aluminum framed insect screens must be provided. Window operability must be determined by the Installation.
  - 3) Exterior Doors and Frames: All exterior doors must be minimum 3'-0" wide, including those used in double door openings.
    - a) Exterior Insulated Hollow Metal Doors & Frames: Provide insulated hollow metal exterior doors for entry to all spaces other than corridors or lobbies. Doors must be minimum Level 3, physical performance Level A, Model 2 flush, seamless. Frames must be Level 4, 12-gauge, with continuously welded mitered corners and seamless face joints. Doors and frames must be A60 galvanized, in compliance with ASTM A653 and must be factory primed for field paint.
    - b) Exterior Overhead Doors: Overhead doors, where required, must be insulated, motorized, coiling/roll up or sectional doors with factory finish.
  - 4) Hardware:

- a) **Door Hardware:** All door hardware must be Grade 1 for heavy duty use. Keying must be coordinated with the Installation. Cores must have not less than seven pins; cylinders must have key-removable type cores.
- b) **Electronic Access System:** When the Installation requires electronic access, all main entry doors must be included.

**D. INTERIOR REQUIREMENTS:**

- 1) **Interior Doors:** All interior doors must be minimum 3'-0" wide, including those used in double door openings.
  - a) **Interior Wood Doors:** All interior doors for all facility types must be solid core wood unless otherwise indicated. Provide flush solid core wood doors conforming to WDMA I.S.-1A. Stile edges must be non-finger jointed hardwood compatible with face veneer. Provide Architectural Woodwork Institute (AWI) Grade A hardwood face veneer for transparent finished doors.
  - b) **Interior Insulated Hollow Metal Doors:** When indicated for use, hollow metal; doors for interior use must be factory primed and comply with ANSI A250.8/SDI 100. Doors must be minimum Level 2, physical performance Level B, Model 2, flush, seamless.
  - c) **Interior Hollow Metal Frames:** All interior door frames must be hollow metal unless otherwise indicated. Interior hollow metal frames must be factory primed and comply with ANSI A250.8/SDI 100. Frames must be minimum Level 2, 16 gauge, with continuously welded mitered corners and seamless face joints.

**E. ACOUSTICAL REQUIREMENTS:**

- 1) **Interior Acoustics:** Design for acoustics, in order to coordinate with the architecture, mechanical and structural design. A comprehensive acoustical design must include considerations for sound isolation, building mechanical system noise and vibration control, and room finishes.
- 2) There are basically two types of sound transmission; airborne and structure borne. Airborne sound is transmitted through the air (i.e., music). Structural borne sound is transmitted through a material by vibrations and re-radiated to another point. (i.e., upper floor foot traffic). Sound transmission requirements are performance based. Comply with UFC 3-101-01 Architecture.

**3.5.1 FINISHES AND INTERIOR SPECIALTIES**

- A. **GENERAL:** Minimum interior finishes must be as indicated in the finish schedules. Higher grade finishes may be proposed, however, due to durability issues with these transient facilities, may not be acceptable.
- B. **INTERIOR FINISHES:**
  - 1) **Minimum Finish Requirements:** Where concrete masonry units (cmu) are required as the room finish in the drawings on the finish schedules, alternative high impact finishes may be used, including high impact gypsum board and high impact plaster coating. Impact resistance must be as approved by the Installation.
    - a) **Walls:** All gypsum board must achieve a score of 10, the highest level of performance for mold resistance under the ASTM D 3273 test method. Gypsum board wall finish must be minimum Level 4 or 5 finish in accordance with GA 214.

- b) Counter Tops: Provide solid polymer countertops/vanities and integral backsplashes. Include 4 inch solid polymer skirts for vanities and waterfall edges for countertops.
  - c) Window Stools: Provide solid polymer window sills.
  - d) Flooring:
    - 1. Recommended finish in the living room, bedroom, and corridors is carpet.
    - 2. Ceramic mosaic tile should be used in the bathrooms.
    - 3. Kitchen floor options include, but are not limited to, quarry tile, vinyl composition tile, vinyl sheet flooring, and ceramic tile.
    - 4. Carpeting, to match the bedroom and circulation, is suggested for the closets.
    - 5. Floor to ceiling STC value must be a minimum of 45.
    - 6. The IIC of the floor construction must be at least 50 dB.
  - e) WALLS:
    - 1. Standard wall construction in the living units is gypsum wall board on metal studs at 16" on center. Wall board thickness will meet the required fire rating.
    - 2. Standard wall finish in the living units is paint. Options include vinyl wall covering, textured materials, and wainscots.
    - 3. Heavy duty vinyl wall covering or textured wall coating is recommended in the corridors.
    - 4. Walls in the bathrooms should be full height ceramic tile in the tub/shower area. Remainder of the wall must be durable and painted, vinyl wall covering, or a tile wainscot if desired.
    - 5. Interior partitions may be patterned CMU (scored, split-face, waffle, ribbed), or CMU finished with plaster in lieu of gypsum wall board. CMU partitions are discouraged due to their limited aesthetics and livability, difficulty of repair, non-tackable surface, and increase in gross building area consumed by walls.
    - 6. The required STC rating of corridor walls and party walls is a minimum of 45. The minimum STC rating of interior partitions within the living unit is 35.
- 3) CEILINGS:
- 1. Suspended gypsum wall board ceiling system is recommended. Provide ceiling access panels as required.
  - 2. Minimum ceiling height in the living and sleeping areas is 8'-0". The recommended ceiling height for an added sense of spaciousness and livability is 8'-8".
  - 3. Minimum ceiling height in the kitchen, bath, circulation and storage areas should be at least 7'-8". The recommended ceiling height is 8'-0".
- 4) DOORS AND WINDOWS:

1. Doors should be solid-core wood doors in hollow metal frames. Doors and frames that provided access into the corridor must be Class C.
2. Entry doors must be provided with security “peep-hole”.
3. Locksets to living units must be type F-13, ANSI Std A156.2 with removable cores.
4. The deadbolt throw for the lock will be one inch. The lockset will allow operation of the latchbolt by a key from the outside and a turn knob from the inside.
5. Windows must be, as a minimum, double glazed with anodized aluminum frames.
6. Window style may be casement, double-hung, single-hung, sliding, or whatever best suits the architectural theme and the desires of the installation.
7. Windows in the living units must be operable. Insect screens must be provided.
8. In addition to any architectural treatments on the façade of the building to reduce solar gain, sun control will be provided for by draperies or blinds.

C. INTERIOR SPECIALTIES:

- 1) Signage & Directories: Provide a comprehensive signage package for each facility including changeable directories, way-finding signage, and room signage with room numbers and changeable room names.
- 2) Restroom, Bath, and Shower Accessories: Provide commercial grade, heavy duty toilet accessories with metal finish. (Type 304 stainless steel when available.)
- 3) Wall Protection:
  - a) Chair Rail: Provide chair rails in areas prone to chair height impacts including conference rooms, waiting areas, and common use areas.
  - b) Corner Guards: Provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for all column outside corners in high traffic areas such as corridors, waiting areas, lobbies, conference and common use rooms. Factory fabricated end closure caps must be furnished for top and bottom of corner guards.

**3.6 STRUCTURAL REQUIREMENTS:**

- A. GENERAL: Select the structural systems that is appropriate to the exterior material choice and is the most economical, considering local construction practices. Comparative cost studies must be made between the most apparent competitive systems, and will take into account architectural, mechanical, electrical, and other features where they vary between systems under study.
- B. System design and construction must meet all applicable criteria identified herein.
- C. BUILDING CATEGORY (per UFC 1-200-01)  
Senior Leaders Quarters: II
- D. SEISMIC IMPORTANCE FACTOR (IE)  
Senior Leaders Quarters: 1.0

**3.7 NOT USED**

### **3.8 PLUMBING REQUIREMENTS**

- A. GENERAL: System design and construction must meet all applicable criteria identified herein.
- B. DOMESTIC WATER:
  - 1) Water Service: The domestic water service to the building must enter the building in the mechanical room. The water service must be provided with a reduced pressure backflow preventer to isolate each building from the base water system. A main shut-off valve must be provided inside each building, coordinate location with the Installation.
  - 2) Water Distribution: A horizontal water distribution system must serve the building, with isolation valves at each branch to common areas serving two or more fixtures, and at each wall hydrant or equipment connection. Water connections for mechanical equipment systems make-up will be isolated from the domestic water system with a reduced pressure backflow preventer.
- C. SANITARY SYSTEM: A sanitary drain, waste and vent system will extend from the connection to the site utility system to all fixtures and equipment requiring service. Drainage and vent stacks must extend vertically and be vented through the roof. Trap primers must be provided for drains susceptible to loss of water seal by evaporation.
- D. FLOOR DRAINS: Floor drains must be provided in mechanical rooms, janitor rooms, vending machine areas, restrooms, laundries, and for equipment requiring drainage. All floor drains must be automatically primed by single trap primers.
- E. WALL HYDRANTS: Wall hydrants must be provided at a maximum spacing interval of 150 feet around the perimeter of the building. Wall hydrants must be box type, freeze-proof, with integral vacuum breaker/backflow preventer.
- F. WATER HAMMER ARRESTERS: Water hammer arresters will be provided for shock suppression. The placement of water hammer arresters must be as referenced in the IPC.
- G. GAS DISTRIBUTION: The design and installation of interior natural gas distribution systems must be in accordance with manufacturer's recommendations and the applicable sections of ASME B31.8, NFPA 54.

### **3.9 COMMUNICATIONS AND SECURITY SYSTEMS**

- A. GENERAL: System design and construction must meet all applicable criteria identified herein.
- B. TELECOMMUNICATIONS SYSTEMS:
  - 1) Connectivity:
    - a) Senior Leader Quarters (SLQ): Provide each SLQ sleeping room with a single 8P8C voice outlet.
    - b) Common Areas: Provide data/internet ports along walls and for television.
    - c) Utility Rooms: Provide each utility room with at least one wall phone outlet located near the entrance door including mechanical, electrical, and telecommunications rooms.
  - 2) CATV:
    - a) Senior Leader Quarters (SLQ): Provide each SLQ sleeping room with one CATV outlet.
    - b) Common Areas: Provide CATV for television.

C. AUDIO/VISUAL SYSTEMS & INFRASTRUCTURE:

- 1) Projectors: Provide power where projectors to be installed. Projectors are GF&I by the Installation, not included in the FF&E Package.
- 2) PA Systems: Provide power and conduit with pull wire where public address (PA) systems will be installed. PA systems are GF&I by the Installation, not included in FF&E Package.

D. SECURED COMMUNICATIONS: (NOT USED)

E. SECURED INFRASTRUCTURE/SYSTEMS: (NOT USED)

**3.10 ELECTRICAL REQUIREMENTS:**

A. GENERAL: System design and construction must meet all applicable criteria identified herein.

B. INTERIOR ELECTRICAL SYSTEM:

- 1) Transient Voltage Surge Suppression (TVSS): Transient voltage surge suppression (TVSS) must be provided for all buildings. TVSS devices must parallel the operating devices in providing a path to ground for an electrical surge and thereby limiting the magnitude of the transient voltage surges on the system. TVSS devices must be mounted adjacent to or integral with the main distribution panel in accordance with the manufacturer's recommendation. TVSS devices must be hard wired into the electrical distribution system utilizing a circuit breaker connection. TVSS units must be tested in accordance with IEEE C62.45 using IEEE C62.41 Category B waveform. Units must be UL 1449 listed and labeled. The modes of protection must be the normal mode (L-N, L-L) and common mode (L-G, N-G). TVSS units must include self-diagnostic and self-testing capabilities, a resettable transient event counter, and a local audible alarm with mute capability.
- 2) Receptacles: Receptacles must be provided adjacent to all CATV and data jack locations.
- 3) Spare Capacity: All switchboards, panelboard, load centers, and feeders must be designed with 15% spare capacity for future additions and changes.

A. EXTERIOR LIGHTING SYSTEM: Exterior lighting systems must be provided per the site design contract. Areas include sidewalks, roadways, service yards, facility aprons, open storage areas, and parking areas. Poles located within the service yards, facility aprons, and hardstand parking areas must be located and protected to minimize damage from vehicles. Building mounted light fixtures may be used around the building perimeter to supplement pole mounted light fixtures. Coordinate the control of the exterior lighting with the Installation.

B. INTERIOR LIGHTING SYSTEM:

- 1) Security Lighting: Security lighting must be provided at service entrances and at utility rooms. Wall mounted security lighting fixtures must be shrouded to minimize glare.
- 2) Exit and Emergency Lighting: Illuminated exit signs and egress/emergency lighting must be provided by self-contained emergency battery units for all emergency exits and passageways as required by NFPA 101. Exit signs must be LED type, letter color per Installation. If installed on a switched circuit, emergency lighting must be configured so that the emergency lamp is illuminated regardless of the position of the control switch.
- 3) Sensors: Occupancy sensors (auto on with movement and auto off with no movement) must be utilized for lighting control in the public restrooms, latrine/showers and all vertical/horizontal



circulation spaces. All other spaces must be provided with vacancy sensors (manual on or manual off and auto off with no movement).

- C. GROUNDING: Grounding points must be provided on 40-foot centers (maximum) and coordinated with the parking layout. Provide a minimum of one grounding point for every eight vehicles parked in a double row, and one grounding point for every four vehicles parked in a single row configuration.

### **3.11 HEATING VENTILATING AND AIR-CONDITIONING (HVAC) REQUIREMENTS:**

A. GENERAL: System design and construction must meet all applicable criteria identified herein.

B. HVAC DESIGN CONDITIONS:

- 1) Outdoor Design Temperature, Cooling: The outdoor design temperature for comfort cooling must be the 1% dry bulb and the corresponding wet bulb temperature for the locale or the 1% dehumidification dewpoint temperature and the corresponding dry bulb temperature, whichever produces the greater cooling load.
- 2) Outdoor Design Temperature, Heating: The outdoor design temperature for heating must be the 99% dry bulb temperature for the locale.
- 3) Indoor Design Temperature, Cooling: The indoor design temperature for comfort cooling must be 15 degrees F less than the 1% outdoor air temperature, but will be no lower than 75 degrees F, nor any greater than 78 degrees F.
- 4) Indoor Design Temperature, Heating: The indoor design temperature for comfort heating must be 68 degrees F. Winter humidification must be required where the indoor relative humidity is expected to fall below 20%.
- 5) Indoor Design, Humidity: The indoor design relative humidity must be 50%.

### **3.12 ENERGY CONSERVATION REQUIREMENTS:**

The building, including the building envelope, HVAC systems, service water heating, power, and lighting systems must meet the mandatory provisions and the prescriptive path requirements of ASHRAE 90.1.

Design the building including the building envelope, HVAC systems, service water heating, power and lighting systems to achieve a non-plug load energy performance that is at least 40% below the consumption of a baseline building meeting the minimum requirements of ANSI/ASHRAE/IESNA 90.1. Plug/Process loads must be included in the building energy modeling but are subtracted in the final calculation for Energy Performance (Examples of Plug or Process loads are computers, elevator, and food service equipment).

### **3.13 FIRE PROTECTION CRITERIA:**

- A. GENERAL: Fire protection designs will conform to the requirements of applicable standards contained in the current edition of UFC 3-600-01, Fire Protection Engineering for Facilities. All SOQs buildings require full protection throughout by an automatic sprinkler system in accordance with NFPA and UFC documents. Suggested use and occupancy classifications are as follows:

IBC, Group R-2, Apartment houses, NFPA 101, Apartment Building.

- B. **FIRE PUMP:** A fire pump or fire booster pump must be provided if required, based on the available flow and pressure. (Prior to award, contractors must use the flow test data provided. After award, designer of record must be responsible for performing a hydrant flow test.) Data from this test must be used as the basis for design as indicated above for automatic sprinkler protection. When a fire pump is required, an additional room must be created, preferably within or near the mechanical room, changing the building floor plan without adding to the total floor area. These changes must be made during design and will require COS approval.
- C. **FIRE DETECTION AND ALARM SYSTEMS:** In the following spaces, smoke detection devices must be individually monitored and addressed. Tampering with a smoke detector must transmit a trouble signal to the Fire Department. A smoke detector with sounder must be provided. The fire alarm system must be programmed so that the activation of the smoke detector must activate the sounder in the sleeping room, but must be connected to the FACP for supervision only and must not activate the general alarm.
- 1) Senior Leaders Quarters and Sleeping Bays.

### 3.14 **EQUIPMENT AND FURNITURE REQUIREMENTS:**

- A. **PRIMARY SPACES:** Furniture per UFC 3-120-10 Interior Design
- 1) **LIVING ROOM**
- a. Sofa with coffee table
  - b. Desk and chair
  - c. Dining table and chairs in Field Grade unit
  - d. Stools for breakfast bar
- 2) **BEDROOMS**
- a. Double bed
  - b. Nightstand
  - c. Dresser
  - d. Chair
  - e. Desk and chair, if not provided in Living room
- 3) **KITCHEN**
- a. Double sink. Stainless steel is recommended
  - b. Range and oven. 21" range minimum in Company Grade units, and 30" range minimum in Field Grade units
  - c. Refrigerator. 14 cu. Ft. minimum in Company Grade units, and 17 cu. Ft. minimum in Field Grade units
  - d. Dishwasher
  - e. Disposal. This is not mandatory in overseas areas
  - f. Base cabinets where possible. At least one bank of drawers should be provided
  - g. Above counter wall cabinets as shown. Clearances are given below:
    - 1. Over sink, refrigerator, and breakfast bar: minimum 6'-0" above floor
    - 2. Other cabinets: minimum of 18" above counter
    - 3. Range hood: minimum of 18" above range
    - 4. Cabinets may extend to the ceiling to increase storage area
    - 5. Wall cabinets should be 12 ½" deep except over the refrigerator where they can be 24" deep

- 4) BATH:
  - a. Tub with shower
  - b. Water closet
  - c. Lavatory in countertop
  - d. Mirror above vanity
  - e. Medicine cabinet

- 5) OTHER AREAS:
  - 1. Circulation between the bedroom and bath will contain a full-view mirror in the Company Grade units.
  - 2. Hall closet in the Field Grade units will have mirrored doors.
  - 3. Closets must be provided with hanging rods with shelves above. The actual arrangement will be provided by the final designer.

B. EQUIPMENT: Reference the furniture layouts on the drawings and the specific requirements in this section.

**3.15 FACILITY SPECIFIC REFERENCES: (NOT USED)**

## **ATTACHMENT A: STANDARD DESIGN DRAWINGS**

All Drawings are in compliance with USACE A/E/C CADD Standards.

### **SENIOR LEADER QUARTERS**

A-101	BUILDING KEY PLANS
A-103	FIRST FLOOR PLAN
A-104	SECOND FLOOR PLAN
A-105	THIRD THRU FIFTH FLOOR PLAN
A-106	SIXTH FLOOR PLAN
A-201	EXTERIOR ELEVATIONS
A-202	EXTERIOR ELEVATIONS
A-308	BUILDING SECTION
A-309	PARTIAL BUILDING SECTION
A-310	PARTIAL BUILDING SECTION
A-405	COMPANY GRADE TYPICAL LIVING UNIT MODULE
A-406	FIELD GRADE TYPICAL LIVING UNIT MODULE