



**CENTRAL ISSUE FACILITY STANDARD DESIGN  
DEVELOPMENT**

**CORRECTED FINAL DESIGN SUBMISSION  
DESIGN ANALYSIS  
NARRATIVE AND ATTACHMENTS**

**VOLUME I-A**

Central Issue Facility – Large (CIF – Large)

Central Initial Facility – Initial Entry (CIF – Initial Entry)

**W9126G-11-D-0034, 0004**

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## GENERAL DESCRIPTION

### Introduction

The purpose of this document is to describe the interdisciplinary design approach and major elements of the Central Issue Facility Standard Design Development program, in accordance with Southwestern Division AEIM (2003), Technical Instructions (TI) 800-01, U.S. Army Corps of Engineers Design Criteria, dated 20 July 1998, Unified facilities Guide Specifications 3-600-01, Unified Facilities Criteria, Design: FIRE PROTECTION ENGINEERING FOR FACILITIES, 17 April 2003, Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, dated 08 Oct 2003, Unified Facilities Criteria (UFC) 4-021-01, Design and O&M: Mass Notification Systems, dated 18 Dec 2002, Unified Facilities Criteria 3-400-01, Energy Conservation, 5 July 2002 (Including Change 4, August 2008), International Building Code, NFPA Life Safety Codes 13, 90A, 101, All applicable Federal laws and mandates, i.e. EPACT05, EISA 2007, ASHRAE 189.1-2009.

Teng | **exp** Federal is conducting the design of this project under IDIQ Contract No. W9126G-11-D-0034, Delivery Order 0004, which is under the administration of the U.S. Army Corps of Engineers, Fort Worth District Center of Standardization.

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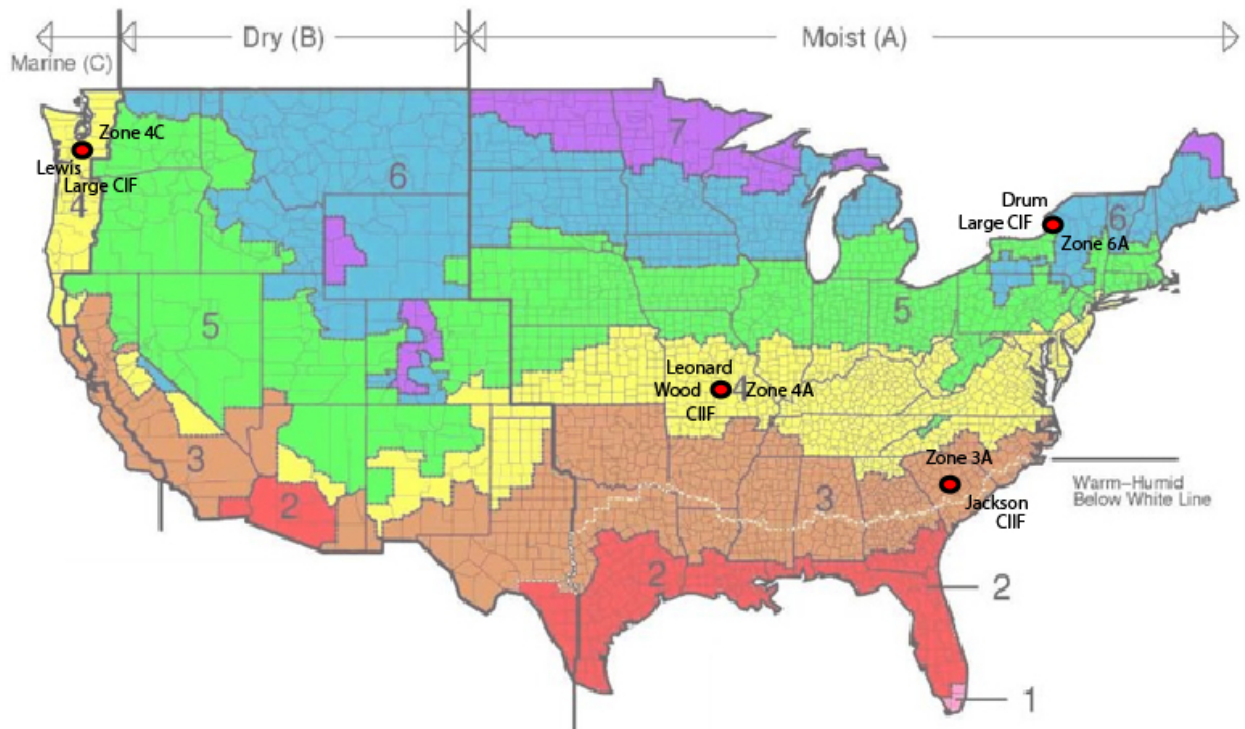
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## PROJECT DESCRIPTION

Teng | **exp** Federal is developing generic Central Issue Facility (CIF) designs that shall be site-adapted for Army Installations in the Continental United States (CONUS). Each design comprises of Central Issue Facility, a covered concrete pad, and associated site work incorporating sustainable design features to obtain LEED 2009 Silver Certification. Designs for the following facility types, sizes, and climactic zones shall be provided to USACE for future site-adapt contracts:

- CIF – Initial Entry | 74,930 square feet  
The CIF – Initial Entry shall be designed with two (2) exterior wall systems; precast concrete and insulated metal panels. The CIF models will be designed for two (2) climactic zones; 3A (Fort Jackson) and 4A (Fort Leonard Wood).
- CIF – Large | 106,500 square feet  
The CIF – Large shall be designed with two (2) exterior wall systems; precast concrete and insulated metal panels. The CIF models will be designed for two (2) climactic zones; 6A (Fort Drum) and 4C (Fort Lewis). The Large CIF shall provide guidance for the construction of Rapid Fielding Initiative (RFI) space which incorporates an additional 16,751 square feet storage space.



The mission of the Central Issue Facility (CIF) is to provide a single point for the receipt, storage, issue, and turn-in of all authorized Organizational Clothing and Individual Equipment (OCIE) items for Soldiers training. The Central Issue Facility (CIF) is comprised of the following functional areas: Administrative Area, Issue / Turn-In Area, and the Warehouse Area. The Administrative Area is intended to be similar, both functionally and technically, to other administration offices in the private sector surrounding the community. The Issue / Turn-In Area is intended to be similar, both functionally and technically, to other retail operations in the private sector surrounding the community. The Site work is composed of parking, access drives, site utilities, site drainage, landscaping, and fencing for each site.

## CIVIL DESIGN

### Site Criteria

The Engineer of Record is responsible for designing a Central Issue Facility - Large (or Central Issue Facility - Initial) and site related supporting features. An example site plan is included in *Attachment B – Rendered Civil Plans and AutoTurn Documentation*. This site plan offers only one solution. Alternative layouts shall be designed to be compatible with the individual site and the most current version of the design criteria references listed below.

### Design Criteria References

- Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards For Buildings, (February 9, 2012)
- Unified Facilities Criteria (UFC) 3-201-02, Landscape Architecture, (February 23, 2009)
- Unified Facilities Criteria (UFC) 3-210-01A, Area Planning, Site Planning, and Design (January 16, 2004)
- Unified Facilities Criteria (UFC) 3-210-02, POV Site Circulation and Parking (January 16, 2004)
- Unified Facilities Criteria (UFC) 3-210-06A, Site Planning and Design (January 16, 2006)
- Unified Facilities Criteria (UFC) 3-230-17FA ,Drainage in Areas other than Airfields (January 16, 2004)
- Unified Facilities Criteria (UFC) 3-230-01, Water Storage, Distribution, and Transmission (November 1, 2012)
- Unified Facilities Criteria (UFC) 3-240-01, Wastewater Collection (November 1, 2012)
- Unified Facilities Criteria (UFC) 3-250-01FA, Pavement Design for Roads, Streets, Walks, and Open Storage Areas (January 16, 2004)
- Unified Facilities Criteria (UFC) 3-600-01, Fire Protection Engineering for Facilities (September 26, 2006)
- ASHRAE Standard 189.1 – 2009, Standard for the Design of High-Performance Green Buildings
- Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines (ADAAG)
- National Fire Protection Association 1
- Energy Independence and Security Act (EISA) Section 438
- Clean Water Act, National Pollutant Discharge Elimination System (NPDES) permit program

### Site components

Site components include all utilitarian outdoor amenities found on an installation. All elements shall be accessible to, and usable by, persons with disabilities in accordance to the applicable guidelines cited in this narrative. Designs shall coordinate specific criteria for all recommended furnishings with the installation personnel. Layout of the site requires enough space to meet the identified requirement for each of the components. Consideration shall be made as to the location of the site features relative to each other. Several functional relationships are indicated below and shall be addressed. The site design shall accommodate the following elements:

### Exterior Shakedown Area

Provide a 3,300 square foot concrete pavement area with canopy. The pad shall be located adjacent to the exit door and the canopy shall be 12'-0" clear height minimum and extend 2'-0" beyond the edges of the pad.

### **Conex Storage Area**

Provide a 4,950 square foot concrete area for Conex storage. It shall be located adjacent to the loading dock hardstand area within the fence and near the Pallet storage area. Drive access is required for forklifts.

### **Pallet Storage Area**

Provide a 5,000 square foot concrete area for pallet storage. It shall be located adjacent to loading dock hardstand area within the fence and near the Conex storage area. Drive access is required for forklifts.

### **Employee Break Area**

Provide a 400 square foot concrete pad on site for employees to utilize for smoke breaks. Pad shall be located at least 25'-0" from any building entrance. An ABA/ADA accessible walkway shall be provided from the building. No tables, gazebo or canopies are provided.

### **Baler Pad**

Provide an 84 square foot concrete pad with cover to accommodate an installation chosen Baler. The pad shall be located against the building, within the fence where it is easily accessible by forklifts and the shipping and receiving area. Cover materials shall relate to the building.

### **Dumpster Pad**

Provide a concrete pad with enclosure that holds one dumpster and one recycling receptacle. Sizes of dumpsters and recycling receptacles shall be coordinated with the installation. Enclosure materials shall relate to the building context and be compatible with the mechanical yard enclosure. The area shall be within the fence and directly accessible by and have adequate overhead clearance for collection vehicles.

### **Forklift Ramp**

Provide direct access to the forklift door from the exterior concrete loading area. Provide a landing at the building. Then turn 90 degrees and ramp down away from the truck docks to finished grade. This allows smaller trucks to back up to the landing for loading and unloading. The ramp and landing shall be 16'-0" wide with a 1'-0" wide by 1'-0" high concrete edge guard with metal railing. Maximum rise of the ramp between landings shall be 2'-0" and maximum slope shall be as recommended by the forklift manufacturer. The handrail at the top landing shall be removable.

### **Truck dock area**

Provide an area of rigid pavement at the loading docks for trucks to park during loading and unloading operations. The concrete should extend 155'-0" away from the building to allow maneuverability of a WB-65 truck (73.5' long). Provide adequate room for two truck docks to be in use and for one additional truck to be waiting. A 30'-0" wide minimum access drive shall be provided. The area shall be fenced with an automated sliding gate (30'-0" maximum width for single leaf) with camera and intercom connectivity at the gate entrance. Operation of the gate shall be controlled from inside the building; the Warehouse Supervisor shall have direct control of the gate from inside their office. The dock area shall be painted or signed as military personnel

only or loading.

The dock shall be depressed at the building at an elevation 4'-0" below finished floor and 2'-0" below outside finished grade. This requires retaining walls on either side of the truck docks of 2'-0" maximum height. These elevations are preferred, but can be adjusted, upon approval from USACE, if the individual site warrants it. Slopes at the truck dock stalls shall be designed to accommodate a WB-65 truck. A trench drain shall be provided at the bottom of the slope near the building.

### **Privately Owned Vehicle (POV) Parking Areas**

Provide a 100 space (75 spaces for CIF - Initial), asphalt parking lot for POVs. Spaces shall be 9'-0" wide by 18.5' deep. A minimum of four spaces (3 for CIF - Initial) shall be designated as accessible and shall be constructed to meet current ABA/ADA requirements for size and slopes. Concrete curb and gutter shall be provided.

- Perpendicular (90 degree) parking is the recommended standard for parking areas having two-way traffic aisles because it has proven to be the most efficient layout. Two-way traffic aisles shall be a minimum of 24 feet wide. Planting islands for 90 degree parking, where required, will be 12'-0" x 37'-0" or larger.
- Vehicle clearances for emergency and service vehicles shall be provided. Maximize space between entrances to the site and limit points of conflict between traffic by providing right angle turns and clear viewing areas.

A bus drop-off area shall be provided within the 100 space parking lot. This area shall be sized to accommodate (2) 40'-0" long busses with M149 "water buffalo" trailers (13.5' long). The bus drop-off shall have a sidewalk on the right side along its entire length for easy exiting and entering of the busses. This sidewalk shall be directly connected to the main entry and exit doors of the building. To minimize the amount of pavement required, the bus drop-off should share an access aisle with parking stalls.

Provide a separate asphalt parking area for Key Personnel. This area shall have ten spaces and be located away from the larger parking area, while still maintaining easy access to the main entrance.

### **Sidewalks**

Provide minimum 10'-0" wide, concrete walks that connect the POV and bus parking to the main entrance and exit doors of the building. The 10'-0" width is required to allow large groups of troops to walk in formation. It is suggested that the walkway to the main entry door for the CIF – Large be 11'-0" wide to match the width of the door opening.

Walkways within the fenced area shall be a minimum of 6'-0" wide. A concrete walkway shall be provided to connect the loading dock parking area to the warehouse entry door.

Walkways may be integrated with emergency and maintenance access roads, minimum of 20'-0" wide, if the access roads meet ABA/ADA guidelines for material and slopes.

Pedestrian walkways shall be separated from POV circulation. Barrier free design shall be implemented throughout this project. Therefore, where walks intersect streets then curb cuts shall



be provided. Ramps and all facility access shall be designed to meet current ABA accessibility guidelines.

### **Emergency Access Drive**

Emergency access shall be provided on two sides of the building at a minimum and be designed in accordance with the current UFC 3-600-01, Fire Protection Engineering for Facilities. If the emergency access drive has a dead end of 150'-0" or greater length, a turnaround shall be provided in accordance with National Fire Protection Association (NFPA) 1: Fire Code. The drive shall have a minimum turning radius of 35'-0" and be made of unconventional material such as permeable pavement as approved by the installation.

Access to the drive shall be prohibited by unauthorized personnel by the use of gates or removable bollards. Removable bollards shall be as such that they can be removed by one person. The fire department shall be provided with everything required for immediate access. Emergency access shall be in accordance with AT/FP requirements.

### **Bicycle Rack**

A 5 bicycle capacity rack shall be provided adjacent to the parking lot. Direct connection to a walkway shall be provided.

### **Transformer Pad**

Provide a concrete pad for the electrical transformer. The top of the pad should be a minimum of 0'-4" above finished grade to protect equipment from ponding of stormwater runoff. The pad shall be placed directly in front of the electrical room offset at the Conventional Construction Standoff Distance of 56'-0". Per USACE direction, it shall be located a minimum of 30'-0" from the Shakedown Area, understanding that this area does not meet the traditional building standards as defined by UFC 4-010-01, but will be occupied periodically by army personnel.

### **Mechanical Equipment Utility Yard**

Provide an area that will enclose the necessary mechanical equipment. The mechanical equipment shall rest upon concrete pads. The top of the pads shall be a minimum of 0'-4" above finished grade to protect equipment from ponding of stormwater runoff. The yard shall be connected to the building and placed directly in front of the mechanical room without blocking the door.

A 20'-0' wide access road shall be provided to the yard. Material shall match that of the emergency access drive. If the access road connects to a public driveway, access shall be prohibited by unauthorized personnel by the use of gates or removable bollards. If it connects to the emergency access drive, no additional barrier is required. Items required for access shall be kept on site or in a central location on the installation.

### **Stormwater Management Area**

Provide permanent stormwater management in accordance with applicable local, state and federal regulations. Best Management Practices (BMPs) should be used wherever possible to provide water quality benefits and reduce the amount of pollutants leaving the site. Predeveloped

hydrology and drainage patterns shall be maintained to the maximum extent possible. Compliance with Section 438 of the Energy Independence and Security Act (EISA) is required.

## **ADDITIONAL SITE REQUIREMENTS**

### **General**

- Design and locate furnishings to meet the applicable Antiterrorism and Force Protection (AT/FP) standoff distances.
- Use recycled / salvage materials wherever possible.
- Design and location of site and its elements shall express an image, character, and scale appropriate to the base.

### **Soil Erosion and Sediment Control**

All local, state, and federal regulations will be adhered to in the design and implementation of erosion and sediment control measures. The proposed facilities and associated parking will disturb more than one acre, therefore, a Stormwater Pollution Prevention Plan (SWPPP) and a National Pollutant Discharge Elimination System (NPDES) permit is required.

### **Landscape**

Proposed plantings must be designed to ensure that site conditions (soil, topography, adjacent uses, and architecture) and climatic criteria (sun, shade, and moisture requirements) are considered in the desired plant design and selection (i.e., form, texture, color, size). The uses and users of the site must also be considered. All plantings must be in accordance with AT/FP requirements.

### **Traffic signage**

Traffic signage shall be designed with Installation standards. Traffic signage shall include parking signage as well as any required signage along adjacent roadways to indicate exits and control traffic as required.

## **UTILITIES**

### **Utility Coordination**

Prior to the start of design, the designer shall identify and contact all applicable utility providers for information on availability of existing utilities. For the purposes of this program, it is assumed that all necessary utilities will be available to the site within the immediate vicinity. The Utility Plan, located within Volume II and III, provides utility routing and general orientation for points of connection for the facility. The plan assumes all utilities are located along a road at the front of the building.

### **Sanitary Sewer**

A 0'-6" sanitary service shall be provided to a point 5' outside the building. A cleanout shall be provided at the 5'-0" line. Connection to the existing main shall be with a manhole unless otherwise approved. Design shall be in accordance with UFC 3-240-01, Wastewater Collection.

## **Water**

An 0'-8" water line shall tap to the existing main and loop around the building. Hydrants shall be provided at 300'-0" maximum spacing and be located adjacent to paved areas that are accessible by the fire department in accordance with UFC 3-600-01, Fire Protection Engineering for Facilities. Shutoff valves shall be provided to allow isolation of pipe sections and shall not be spaced more than 1,500'-0" apart on the loop. Design shall be in accordance with UFC 3-230-01, Water Storage, Distribution and Transmission.

A 0'-3" domestic water service shall be provided to a point 5'-0" outside the building in front of the mechanical room. The service shall connect to the 0'-8" line that loops around the building. A Backflow Preventer (BFP), control valve and meter (if required), shall be supplied at a location as directed by the utility owner.

An 8" fire water service shall be provided to a point 5'-0" outside the building in front of the fire pump room. The service shall connect to the 8" line that loops around the building. A Backflow Preventer (BFP) and Post Indicator Valve (PIV) shall be provided at a location outside the building as approved by the utility owner. A Fire Department Connection (FDC) shall be provided within 150'-0" of a hydrant and where there is easy access by the fire department.

## **Electrical**

Electrical service to the building shall be underground and be provided to a point 5'-0" outside the building in front of the electrical room. It shall connect to existing at the road. A transformer pad shall be provided and placed at the "unobstructed distance" of 56'-0" from the building as defined in UFC 4-010-01. Light poles shall be provided for site lighting. Refer to the Electrical Design section for additional guidance.

## **Telecommunications**

Underground communications lines shall be provided from a connection point at the road to a point 5'-0" outside the building in front of the communications room. Handholes shall be provided at bends in the line. Refer to the Telecommunications Design section for additional guidance.

## **Natural Gas**

Natural gas shall be provided to the mechanical equipment utility yard located adjacent to the building. It shall connect to existing at the road. Refer to the Mechanical Design section for additional guidance relating to required site equipment.

## **Storm Sewer**

Storm sewer shall be designed as required to direct runoff to treatment and / or storage areas in accordance with local and state regulations for permanent stormwater management. Runoff shall not leave the site before being treated unless a downstream treatment facility can be proven to provide treatment for the site. Stormwater calculations shall be required to verify that pipes or channels, both on site and downstream, will be able to effectively handle the storm water runoff.

## **Relocation of Existing Utilities**

Any utilities that need to be relocated to construct the facility shall be coordinated with the utility owner and accomplished in such a manner as to minimize the impact to other users.

## **Grading**

The following standards shall be adhered to for typical grading of the site:

- The first 10'-0" from the building shall be at 5% maximum slope and direct runoff away from the building.
- The maximum slope anywhere on the site shall be 4:1.
- A 1% slope minimum is required in parking areas.

## **Plan Design Assumptions / Justifications**

In order to provide a site plan without a known location, the following assumptions were made:

- AT/FP Minimum Standoff Distance of 12'-0" and a Conventional Construction Standoff Distance of 56'-0" were determined based on the following per UFC 4-010-01:
  - The building is considered a "primary gathering" building as there will be more than 50 personnel routinely occupying the building.
  - The building will be constructed using non load bearing metal panels.
- Roadway access is in the front of the building only.
- Bus Drop-Off was sized to accommodate (2) 40'-0" long busses with M149 "water buffalo" trailers (13.5' long). A 4:1 taper was used at each end of the parking area.
- Loading dock shall have a 5% slope down towards the building resulting in a 40'-0" retaining wall.
- Truck Loading Yard was sized using AutoTURN and WB-65 trucks (73.5' long) with a fifty foot turning radius to ensure maneuverability of each truck when all docks are in use.
- A rainwater harvesting tank is being considered for energy savings purposes and was placed on the site near the proposed mechanical room location. Assume connection will be made to roof drains.
- An emergency access road loops around the building in order to provide access to hydrants placed at the required 300'-0" spacing. This placement assumes both parking and road access will only be in the front of the building.
- The site is mostly flat, but has a ridge line at the center of the site and slopes gradually from the center to the front and back.
- The stormwater management areas will provide storage, at a minimum, of the average amount of 90% of the year's rainfall.
- Tie in to existing road with no curb, but the existing road shall have roadside ditches to handle runoff from the road. Culverts shall be provided under the entrance drives to maintain existing drainage patterns. Assume 18" CMP is adequate.
- Natural gas will be available for connection at the site.
- Sanitary sewer will be available for gravity connection at the site.
- Water has adequate capacity and will be available for connection at the site.
- Power will be available for connection at the site.
- Data and telephone connectivity will be available at the site.

# STRUCTURAL DESIGN

## DESIGN CRITERIA REFERENCES

- Southwestern Division AEIM (2003), latest edition.
- Technical Instructions (TI) 800-01, U.S. Army Corps of Engineers Design Criteria, date 20 July 1998.
- Unified Facilities Guide Specifications (UFGS).
- Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings dated 08 Oct 2003.
- International Building Code, 2012 Edition.

## ROOF FRAMING

The initial entry and large CIF design will both utilize 72 inch deep long span steel roof joists at approximately 10 feet on center. The zone 6A large CIF will have a smaller joist spacing due to the higher snow loads in that region of the country. Within the warehouse space the DLH joists span in the plan north/south direction between the steel end wall framing and an interior joist girder line. Joist girders will also be 72 inches in depth. At the administration portion of the CIF, the DLH joists span in the plan east/west direction. Joists bear on steel beams at both ends for the large CIF and on masonry pilasters on the west end in the initial CIF design. The pilasters were used due to less space being available for steel columns similar to the large CIF. Steel columns are located along the perimeter of the buildings at approximately 30 feet on center.

Steel columns along the interior bearing line will be spaced at approximately 60 feet on center to minimize the number of columns in the space. Joist girders will bear on the interior columns.

The roof deck will consist of type "N" 3 inch steel decking. The thickness of the decking will vary between climatic zones due to difference in diaphragm shear demand. In higher seismic zones such as 4C (Fort Lewis) combined with the precast concrete wall option, the seismic demand is significant. When the required shear exceed the capacity of 16 gauge decking a structural steel sub-diaphragm will be used.

## SECOND FLOOR FRAMING

The second floor framing (initial CIF plan only) consists of 3 inches of normal weight concrete over 2 inch composite steel decking supported by steel beams. Steel beams are not acting composite with the slab.

## MECHANICAL MEZZANINES

Both the initial and large CIF plans have small mezzanine areas for mechanical equipment. Framing will include 2.5 inch normal weight concrete over 1.5 inch composite steel deck supported by steel beams. The concrete masonry walls of the rooms below will be load bearing and provide stability for the mezzanine.

## WALL CONSTRUCTION

The exterior walls will be non-loading bearing and shall be considered curtain wall construction. The design will be completed with both a precast concrete sandwich panel option as well as an insulated metal wall panel option. The curtain wall(s) will be designed to span vertically and transfer out of plane forces (wind pressures etc.) to steel girts located at approximately 8-10 foot on center. The steel girts will transfer the load to the columns. The columns will transfer the load between the roof diaphragm and the foundation. The girts will be the 10 inch square tubes (HSS sections) centered on the gridlines. Clip angles or similar construction will be used to connect the wall panels to the girts. At locations of vertical bracing, W16 girts with a combination web opening and beam splice will be utilized for erection.

## **LATERAL SYSTEM**

The lateral load resisting system will be composed of steel braced frames. The 3A, 4A, and 6A zones will use steel braced frames not specifically detailed for seismic resistance. The 4C zone encompassing Fort Lewis, WA will require special concentric steel braced frames due to higher seismic demands in that region. The lateral load resisting system will be designed for both wind and seismic loads.

## **FOUNDATIONS**

Both the initial entry and large CIF buildings will be supported by shallow concrete foundations. Design parameters are based on previously completed geotechnical reports from each of the (4) basis of design locations. Foundation variance between climatic zones was limited to the size of the column foundations. While required frost depth varies between zones it did not control the final depth of the foundations. Depth of foundations was governed by foundation uplift resistance as well as depth required to resist out of plane wind pressure via passive earth pressure. In general, the foundations indicated on the drawings are subject to change depending on the final site variables present.

## **ARCHITECTURAL DESIGN**

### **Design Criteria References**

- Southwestern Division AEIM (2003), latest edition.
- Technical Instructions (TI) 800-01, U.S. Army Corps of Engineers Design Criteria, date 20 July 1998.
- Unified Facilities Guide Specifications (UFGS).
- International Building Code, 2012 Edition.
- NFPA 101 Life Safety Code
- Architectural Barriers Act Accessibility Standard (ABA)

### **General**

These buildings are being designed with the intent that they could be repurposed for General Warehouse operations and other supply storage areas. Common functional layouts have the warehouse portions and administration functions separated to maintain proper material flow. The CIF will follow a single story configuration maintaining the required clear heights driven by the warehouse function while the CIIF will conform to a two (2) story program with the Administration function located on the second floor and the assembly and issue function on the first floor. This configuration will be flanked by the warehouse operations. Full height walls will provide required separation from the individual occupancies creating a solid and established work flow.

- The proposed facilities maintain mechanical separation from the administration areas.
- Areas of functional spaces are similar to those for the Army Standard for CIF – Large and CIF – Initial Entry designs.
- Size of Queuing / Orientation Area and Assembly / Waiting Area will serve (300) occupants in a 4 hour time frame for the Large CIF and (240) occupants in a 4 hour time frame for the CIF – Initial Entry.
- Fourteen (14) Issue / Turn-In Stations and six (6) Final Processing Stations are in the proposed designs.
- Warehouse Office area is for supervisor only.

### **FUNCTIONAL AND AREA REQUIREMENTS**

Gross building area have been provided based upon Center of Standardization (COS) layouts and the net areas have been revised to reflect standard room sizes provided by the COS and the requirement for increased toilet room facilities. Area requirements for mechanical, electrical and telecommunications rooms shall be as required by function.

### **Accessibility Requirements**

CIF warehouse employees and soldier customers will be able-bodied. Handicapped accessibility is assumed to be needed predominantly to serve civilian office employees at the administrative area. For this reason, the accessible toilet rooms directly access this area. In the event that a physically handicapped visitor or customer requires access to toilet facilities, they may be directed to these rooms. In like manner, the showers included at these areas are not handicapped accessible due to the expected users.

## **FUNCTIONAL SPACE REQUIREMENTS**

### **Administration Area**

The Administration Area includes private and shared offices, an open admin / copy area, restrooms, a team room and multi-purpose room and a break room. The following areas are provided:

- CIF Manager Private office.
- Assistant CIF Manager Private office.
- Administration Area: An administration area adjacent to the CIF and Asst. CIF managers' offices provide open space for three (3) desks.
- Property Book Officer Private office.
- Property Section office with space for four (4) workstations and a copy / fax area.
- Team Room is fitted out similar to an open office.
- Records Holding includes space for two (2) desks and record storage. This area is accessible to the Property Section and to the Administrative Area.
- Multipurpose Room is fitted out as a conference type room. The room accommodates seating for 12. The room shall accommodate multiple tables on locking casters. The furniture shall be easily rearranged to accommodate multiple room settings / configurations. The room includes a low profile ceiling mounted system for a GFGI projector, an automatically operated projection screen at the front of the room and two (2) dry erase boards at least 48" in height.
- Employee Break Room: This break room shall include built-in base cabinets with matching upper wall mounted cabinets. Base cabinet shall include 12 inch drawer and adjustable shelf with a door. Counter space above the base cabinets shall accommodate (2) GFGI microwave ovens, and a built-in single bowl, stainless steel kitchen sink. This area accommodates two (2) refrigerators, three (3) 36 inch tables and twelve (12) chairs and one (1) ice cube machine-dispenser. A vending area in employee break room shall accommodate three full size GFGI vending machines. A space shall be provided for the storage of recyclables. The ice cube machine-dispenser shall be designed for hotel type bucket filling; capable of producing a minimum of 250 pounds of regular ice cubes in 24 hours, with 180 pound capacity. This machine will require a floor drain. Electrical power must be provided for vending machines, ice cube machine- dispenser, refrigerators, and the microwave ovens.
- Vestibules: Vestibules serve as transition spaces between the exterior elements and the facility interior. Minimum depth between exterior and interior doors shall be 7'-0".
- Corridors shall have a minimum clear width of 72 inches. Secondary corridors serving main circulation patterns shall have minimum clear width of 44 inches.
- Male and Female Staff Toilet facilities shall serve the administrative and warehouse personnel assigned to facility and customers. These areas include space for lockers for warehouse employees.
- Janitor Closet shall have a 10 inch deep floor mounted stainless steel mop sink, with hot and cold service faucet, a four holder mop rack and two 18 inch deep by 48 inch long heavy duty stainless steel shelves for storage of cleaning supplies. Janitor Closet shall have space for storage of buckets and vacuum.

### **Issue / Turn-In Area**

The Issue / Turn-In Area shall accommodate the processing of soldiers and others who are obtaining or returning material and shall accommodate administrative program functions. The issue and return processing occurs over a roughly linear arrangement, with served personnel entering the facility, checking in, and obtaining orientation in an entry waiting area. All queuing shall occur indoors. Following check-in and orientation, CIF staff will direct personnel to a number of open Issue / Turn-in stations at which they obtain clothing or equipment. The design



provides private fitting booths and open benches. CIF staff at the Issue / Turn-in stations may draw articles from open bins or shelving behind them, which are replenished through doors opening directly to the warehouse area. They may also assist served personnel at the Issue / Turn-in Aisle via breaks in the continuous countertops. The following areas are provided:

- Reception and Check-In Counter shall be located in-line with the entry to the Queuing / Orientation Hall with a check-in counter area to accommodate soldier initial processing and check-in. The reception desk area shall include a built-in combination work counter and check-in counter. Work counter shall be a minimum of 30 inches high. Work counter shall be furnished with a minimum of six lockable lateral file drawer units. Customer service counter shall be a minimum of 42 inches high with one counter section that is ABA compliant. Staff seating area shall accommodate three (3) persons.
- The Queuing / Orientation Area occurs adjacent to the Reception and Check-In Counter. The Queuing / Orientation Hall shall be located on an opposite side of the building from the Checkout Area. (2) Wall mounted 52" GFGI flat screen TVs are located to include power and communication cables. Design space to accommodate seating arrangement for a minimum of 108 GFGI chairs for the CIF and 240 GFGI chairs for the CIIF.
- Issue Aisle provides space for the served customers for the issue or turn-in of clothing and equipment at the issue stations. Issue aisle shall be adjacent to the Issue Counter Area.
- The Issue / Turn in Area is provided to accommodate issue / turn-in of clothing / equipment over an issue counter. Each of the fourteen (14) issue / turn-in stations shall be minimum 72 inches wide, 36 inches high, and shall be furnished with a full length 30 inches deep built-in counter capable of supporting a minimum of 30 pounds per square foot. Designated floor space shall be provided behind the issue counters for flow racks and back-up storage. The back-up storage space shall accommodate storage bins full of OCIE material for issue.
- Male and Female Toilet facilities shall be provided to service the proposed frequency of customers. Toilet facilities have been maximized to for the larger influx of customers.
- Secure Storage which is normally a warehouse function is located at the end of the Issue / Turn-in stations, to provide greater security for stored items. After personnel have received all articles, CIF staff will direct personnel to an Assembly / Waiting area while staff prepares final paperwork.
- Final Processing shall include a checkout counter area to accommodate final processing and checkout of clothing / equipment. Each of the six (6) checkout stations shall be minimum 60 inches wide, 36 inches high and shall be furnished with a full length 30 inches deep built-in counter capable of supporting a minimum of 30 pounds per square foot.
- Waiting Area: Provide a waiting area to accommodate 240 GFGI seats for the CIF – Initial Entry and 72 GFGI seats for the CIF – Large. This area is adjacent to the Checkout area.

## **Warehouse Area**

The Warehouse area features three main components: bulk Warehouse Storage Area via full-height storage racks, Warehouse Storage Area with open tables or floor level pallets, and a Material Handling Equipment (MHE) / Shipping & Receiving Area to break down and build up containers and pallets and to process material through various operations. The MHE / Shipping & Receiving Area is accessible by three overhead doors on one side building wall, including one door at grade-level for forklift access, and two doors at elevated truck docks with dock levelers. MHE / Shipping & Receiving Area shall directly access the Warehouse Supervisor office and other specialized material processing areas for cleaning, classification and repair. The mechanical mezzanine is above a portion of the Warehouse area on the CIF – Initial Entry and CIF – Large and adjacent to the common wall to allow ductwork and piping to readily service

the Administration and Issue Area. The mezzanine is accessible via a ships ladder. Utility entrance facilities for water and electrical services with exterior access are at grade level on the CIF – Large and CIF – Initial Entry.

The plans provide warehouse clearance of thirty-two (32) feet continuously beneath the structure. Currently planned structural bays will permit standard racking and aisle widths which contain columns beside aisles. Designs include ceiling-mounted fire protection and lighting components corresponding to the layout shown.

- MHE / Shipping and Receiving shall be accommodated at designated floor space adjacent to the loading dock areas.
- Laundry functions shall be provided at a designated floor space within the repair area. This cleaning shall provide limited spot cleaning of some items. Bulk cleaning is performed outside of the CIF.
- Full height Truck loading and unloading shall be accommodated at two of the overhead doors. Each bay is furnished with a 9 foot wide x 10 foot high overhead sectional door for Shipping / Receiving Operations. Door shall be electrically operated with manual override. Loading dock are furnished with all necessary dock accessories, including full-pit dock levelers, and dock bumpers and compression seals. Recessed area for trucks shall 48" below floor height. Truck / trailer bed heights may vary from 36" up to 60". High-capacity, low-maintenance, ergonomically-friendly, full-pit dock levelers accommodate this variable height range (using electric fork lifts). Dock levelers are of sufficient width for safe and efficient fork lift operation and have features intended to prevent lifts from driving off the dock when a truck / trailer is not present. Wedge-type dock seals shall be provided on the sides and top of the door. Dock bumpers 12"d x 24"w x 12"h shall be installed on both sides of each truck bay per manufacturer's specifications. 6 inch diameter bollards are provided on each side of each dock door to protect interior door jambs. Canopies will be provided that protrude no more than 2'-11" from the building exterior face for weather protection for all access doors.
- Forklift Access doors: One forklift access doors shall be provided at the same wall as the truck dock bays. This overhead sectional door shall be 12 feet wide x 14 feet high electrically operated with manual override. Assume the use of 5,000 pound capacity forklifts. These doors also allow vans, pickups and other smaller vehicles to enter the Warehouse for loading and unloading directly from the warehouse floor.
- Forklift Charging Area is for three (3) forklifts / chargers. Forklifts and charging equipment are GFGI.
- All overhead doors have nylon brush-style weather-stripping to prevent the entry of insects and to protect against external weather conditions.
- Classification Area adjacent to the MHE / Shipping & Receiving Area is provided as the designated space for the classification of materials.
- Repair Area adjacent to the MHE / Shipping & Receiving Area is provided as the designated space for the repair of materials.
- Secure Storage provided is a designated space for the secure storage of non-sensitive records. Located adjacent to the Issue / Turn-In Stations. The space contains 24" shelving along one side wall and the back wall.
- Equipment Storage Area is designated adjacent to the Warehouse Storage area for storage of forklifts, cherry pickers, pallet jacks, etc. The forklift charge stations are located in this area.
- Warehouse Office Area: Provide an enclosed and conditioned area in the warehouse to support a warehouse supervisor (1).
- Rack Storage Area: Within the Warehouse Storage area shall be provided an area for storage of goods on pallet racks. The Pallet Rack Storage System is a CFCI item. This system shall be coordinated with Government to provide suitable space, lighting and structural support for the system. Weight is assumed a t a 4,500 pound capacity and an

electric, standup, reach-type lift truck will be used to place and retrieve pallets. The rack system takes full advantage of the 32 foot clear height specified above for the warehouse area. System design is based on 48" wide X 40" deep X 48" high pallets weighing no more than 2,500 pounds each. The current plan includes (482) standard 9'-3" modules in the CIF – Large and (286) units in the CIF – Initial Entry. Each module may accommodate twelve (12) pallets, with ten (10) racked in pairs side by side five high and two on the floor. The total rack capacity at each five-shelf module shall be 25,000 pounds, with 5000 additional pounds stored on the floor beneath each rack.

The designated system uses a standard 9'-3" module (108" open) shelf length. Provide at least two heavy-duty (non-waterfall type) pallet supports per pallet space plus wire shelf decking. Provide heavy duty waterfall type wire decks and 18" steel upright corner post protectors. Post protectors shall be bolted to the floor. Pallet rack system design shall include a 4-inch (minimum) clear space between adjacent pallets and a 4-inch (minimum) clear space between the top of each pallet and the bottom of the shelf beam above it. Pallet rack system design is such that the top of the load on the top shelves is a minimum of 24- inches below the clear unobstructed height required in the warehouse. Assume that a fork lift with a 320" mast will be used to place and retrieve pallets.

- Toilet: One (1) Unisex toilet shall be provided in the Warehouse Area. The toilet should be located in close proximity to the Truck Docks and the Warehouse Supervisor area.
- Corridors shall be provided between pallet racks as required. Corridors shall have a minimum width of 12-feet for fork truck access.
- Mechanical, Electrical, and Telecommunications Rooms: Mechanical rooms shall accommodate space for equipment maintenance / repair access without having to remove other equipment. Mechanical, electrical and telecommunications rooms shall be keyed separately for access by each base. All telecommunications rooms shall be conditioned space and include a gypsum ceiling at 10'-0" AFF. Telecommunications room shall be provided in accordance with the latest I3A Technical Criteria. Refer to Mechanical and Electrical Sections for additional information.

## **ARCHITECTURAL REQUIREMENTS – EXTERIOR DESIGN**

### **Exterior Building Envelope**

#### **Exterior Walls**

The proposed exterior building envelope is a durable high performance system consisting of two (2) proposed options. Precast concrete insulated composite wall panels and insulated metal wall panels to a full height of approximately forty two feet including a parapet above the low-slope roof and a high performance insulated metal wall panel system above an 8'-0" high masonry wainscott. The proposed durable materials comprising these wall systems are for both interior and exterior sides of the wall, as both sides are exposed to truck, container and forklift traffic. Concrete panels will be exposed on the inner side of the concrete panel and exposed gypsum board will be protected with a 20 gauge metal sheet up 8'-0" AFF on the metal wall panel system. The upper portions of the walls incorporate clerestory windows to maximize daylight within the Warehouse area. This clerestory incorporates an aluminum storefront insulated glazing system to maximize thermal performance while allowing day lighting of the space. Typical thermal resistance of the wall assembly is R-30, which shall exceed mandated energy performance goals. A worst case climate zone drives the final R-Value and will be included as the standard design. The entire facility will be designed to provide a complete exterior air barrier system for the flexibility of other functions in the future.

## **Roof**

The roof will be of low slope construction pitched to perimeter drains. Scuppers penetrating the exterior wall, conductor heads and downspouts will convey storm water to site disposal as well as rainwater harvesting. Typical thermal resistance of the roof assembly is R-30, which exceeds mandated energy performance goals. Minimum roof slope for membrane roof systems shall be 1/4 inch per foot, which shall be fully adhered. The roof system is a pitched to both sides with a ridge along the long axis on the main warehouse area and a single sloped roof over the administration area due to the shorter spans. With this system the insulation layer can be maintained easily and only require sloped crickets to drain the water to the scuppers. A single sloped roof was not selected for the warehouse area due to the extreme height difference from one end to the other and the parapet wall would require extra bracing on the low sides. Roof system shall be Underwriters Laboratory (UL 580 Class 90) rated or Factory Mutual Global (FM) I-90 rated. Roof system shall comply with applicable criteria for fire rating.

- Roof Access: Roof access walkways will be included for maintenance and inspection.
- Personal fall arrest systems may be required for workers servicing roof-mounted equipment. All necessary anchorages for attachment of personal fall arrest equipment shall be provided in accordance with applicable codes and criteria.

## **Trim and Flashing**

Conductor heads and downspouts shall be factory pre-finished metal and shall comply with SMACNA Architectural Sheet Metal Manual.

## **Bird Habitat Mitigation**

The design and construction shall eliminate the congregating and nesting of birds at, on, and in the facility.

## **Exterior Doors and Frames**

### **Main Entrance Doors**

Provide aluminum storefront doors and frames with Architectural Class 1 anodized finish, fully glazed, with medium stile for entry into vestibules or corridors. Provide doors complete with frames, framing members, subframes, transoms, sidelights, trim, applied muntins, and accessories. Framing systems shall have thermal-break design. Storefront systems shall comply with wind-load requirements of applicable codes and criteria.

### **Other Exterior Doors**

Galvanized insulated hollow metal exterior doors shall be used for entry to all spaces other than corridors, lobbies, or reception / waiting rooms. Door and frame installation shall comply with applicable codes and criteria. Metal canopies shall be provided to extend out above each pedestrian door.

### **Electrically Operated Sectional Overhead Doors**

Doors shall be industrial class, high-lift sectional overhead doors, electrically operated, with auxiliary hand chain override. In the open position the door shall rise vertically to be stored roughly parallel to the outside wall above the door opening. Doors shall completely close the door opening in the closed position and make the full width and height of the door opening available for use in the open position. Door sections shall be formed from hot-dipped

galvanized steel, and shall ensure a weather tight closure and alignment for full width and height of the door.

### **Exterior Windows**

Insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria.

### **Exterior Glass and Glazing**

Material and installation shall comply with applicable codes and criteria.

### **Thermal Insulation**

Exterior wall and roof / ceiling assemblies shall be provided with thermal transmittance as indicated above, to comply with the proposed energy calculations for the facility.

### **Exterior Louvers**

Exterior louvers shall have bird screens and shall be designed to exclude wind-driven rain. Exterior louvers shall be made to withstand wind loads in accordance with the applicable codes. Louver finish shall be factory applied, in accordance with the exterior color scheme of the facility.

## **ARCHITECTURAL REQUIREMENTS – INTERIOR DESIGN**

### **General**

Provide sustainable materials and furnishings that are easily maintained and replaced. Maximize use of daylighting. Provide interior surfaces that are easy to clean and light in color. Interior spaces should be structured to allow maximum flexibility for future modifications.

### **Interior Doors and Frames**

- Doors shall be painted flush hollow metal or in hollow metal frames as applicable to the function of the space.
- Insulated Hollow Metal Doors are provided at interior door locations at warehouse and other service locations. Stained wood doors are located at offices and similar locations.
- Hollow Metal Frames are a minimum Level 3, 16 gauge, with continuously welded mitered corners and seamless face joints; factory primed.
- Fire-rated and Smoke Control Doors and Frames: Comply with applicable codes, criteria and requirements of labeling authority.
- STC ratings shall be of the sound classification required and shall include the entire door and frame assembly.
- Non-Destructive Emergency Access System (NDEAS): Furnish and install a Knox-Vault 3200 Series (Single Lock Model) mounted at the building exterior adjacent to the main entry.
- All hardware shall be consistent and shall conform to ANSI / BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer.
- Hardware for fire doors shall be installed in accordance with the requirements of applicable codes.

## **Special Acoustical Requirements**

Exterior walls and roof / floor / ceiling assemblies, doors, windows and interior partitions of the Administration and Issue Areas shall be designed to provide for attenuation of external noise sources in accordance with applicable criteria, but no less than the following:

- Interior partitions – STC 42
- Exterior walls – STC 29
- Doors and frames – STC 25
- Separation of Warehouse and Administration – STC 55

Sound conditions and levels for interior spaces, due to the operation of mechanical and electrical systems and devices, shall not exceed levels as recommended by ASHRAE handbook criteria. Provide acoustical treatment for drain lines and other utilities to prevent noise transmission into the offices and other areas requiring noise suppression.

## **Vertical Circulation**

### **Elevators**

The CIF – Initial Entry shall provide a passenger elevator with the following specifications:

- 2,500 lb capacity
- 100 FPM Rated Speed
- Machine-roomless
- 2 Stage Holeless Hydraulic
- 15'-0" Travel
- 7'-0" x 5'-1" Platform
- 3'-6" Door

### **Stairs**

Interior Stair assemblies (CIF – Initial Entry) will consist of metal stringers with concrete filled metal pans. VCT flooring will be included at the landings and non-slip materials on the treads.

### **Toilet Accessories**

The items listed below and all other toilet accessories shall be provided as required for a complete and usable facility. All toilet accessories shall be Type 304 stainless steel with satin finish. Toilet accessories shall include the following:

- Glass Mirror / Shelf - 18 inch by 24 inch glass mirror on stainless steel frame with shelf at each lavatory
- Hands free liquid soap dispenser at each lavatory
- Hands free paper towel dispenser
- Waste receptacle- recess mounted at each lavatory / toilet area
- Sanitary napkin disposal at each female toilet stall
- Toilet paper dispenser- lockable multiple roll toilet paper dispenser at each toilet stall
- Sanitary toilet seat cover dispenser- at each toilet stall
- Grab bars as required by ABA

### **Window Treatment**

Horizontal mini blinds are provided at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout the building. Window stools shall be cast acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

## **Interior Finishes and Features**

The design intent is to develop a facility that meets or exceeds the fundamental needs of the Users with durable, maintainable buildings comprised of clean lines and simple massing that addresses the requisite functional requirements in an aesthetically pleasing manner. Walls of the warehouse administrative area that will be exposed to forklift traffic will be painted CMU or GWB with a 20 gauge steel sheet up to 8'-0" AFF for durability. The majority of interior wall construction at the administrative support areas of the facility will be painted gypsum board on metal framing with vinyl wall base. Corner guards, guardrails and protective wainscoting shall be used at all public interior areas. An FRP (Fiberglass Reinforced Plastic) panel up to 8'-0" AFF will be used in the Queuing, Issue / Turn-In, Reception and Check-Out areas with painted GWB above. Flooring finishes, selected for durability and ease of maintenance, will include porcelain and ceramic tile in the restrooms, vinyl composition tile in the corridor and break room and customer processing areas, modular carpet tiles in the Administrative and Reception areas, and sealed concrete in the Warehouse areas. Office areas in the warehouse will have VCT flooring. Walk-off mats will be provided in the vestibules. Ceiling finishes consist of acoustical ceiling panels in the administration area, break room and corridor, painted moisture resistant GWB in the restrooms, and painted exposed structure in the Warehouse areas.

## **Various Features**

### **Signage**

The project shall provide signage as required by applicable codes and criteria and as indicated on project drawings.

### **Bulletin Boards**

The project shall provide one 4'-0" high and 6'-0" wide bulletin board shall be provided at the entry vestibule closest to the customer assistance desk. Bulletin boards shall have a header panel and have lockable, glazed doors.

### **Corner Guards**

The project shall provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for wall and column outside corners in high traffic areas such as corridors, waiting areas, lobbies, conference and multi-purpose rooms. Factory fabricated end closure caps shall be furnished for top and bottom of surface mounted corner guards.

### **Chair Rail**

Chair rails shall be installed in areas prone to hi-impact use, such as corridors and waiting areas.

### **Casework**

Provide cabinets complying with AWI Quality Standards, Custom Grade. Countertops shall have waterfall front edge. Countertops at toilets and break room shall also have integral covered backsplash. All countertop shall be minimum acrylic polymer solid surfacing material with waterfall front edge and integral covered backsplash.

### **Fire Extinguisher Cabinets and Mounting Brackets**

Furnish and install a fire extinguisher cabinets and mounting brackets as required by applicable codes and criteria.

**Guardrails**

Guardrails shown protect all exterior walls with minimum 17" high single guard rails and all interior walls with minimum 44" high double guard rails adjacent to the defined warehouse storage area.

**FURNITURE**

Teng | **exp** Federal shall design furniture layouts and shall designate the prescribed furniture requirements for each office, space, and area with the applicable standards of finishes. Preliminary furniture layouts will be provided once building functional layouts are confirmed.



# MECHANICAL (HVAC) DESIGN

## Design Criteria References

- Unified Facilities Criteria (UFC) 3-400-02, Design: Engineering Weather Data
- Unified Facilities Criteria (UFC) 3-410-01FA, Heating, Ventilating, and Air Conditioning, with Change 3
- Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings
- ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality
- ASHRAE Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings
- ASHRAE Standard 189.1-2009, Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings
- All other Applicable ASHRAE Handbooks and Guidelines
- 2009 International Mechanical Code
- 2009 International Fuel Gas Code
- ACGIH Industrial Ventilation Manual
- EPACT 2005
- All applicable NFPA Standards

## Load Calculation / Design Conditions

Teng | **exp** Federal will determine heating and cooling loads using government approved computerized load estimating software utilizing weather data in accordance with UFC 3-400-02.

UFC 3-410-01FA will dictate indoor design conditions.

## Energy Analysis

An Energy Analysis will be performed in compliance with Appendix G of ASHRAE 90.1-2007; utilizing calculated energy usage savings in accordance with US Code of Regulations 10 CFR 433, 434, 435 dated Dec. 4, 2006 for energy savings percentage, and calculated energy cost savings in accordance with LEED v3.0 for LEED energy credit points. The energy analysis will be updated throughout the design process to ensure achievement of 30% savings.

## Occupancy Loads

The sensible and latent loads for the occupied spaces will be in accordance with the ASHRAE Handbook – Fundamentals for given occupancy types and activity levels.

## Lighting Loads

Upon completion of the lighting design, Teng | **exp** Federal will use fixture counts and heat release data to calculate the lighting loads in each space.

## Equipment Loads

In Administration / Office spaces, the design will include a 200 watt allowance for each workstation. The design will also include additional loads in the break room and waiting areas to account for kitchen appliances and / or vending machines.

## Heating, Ventilation, and Air Conditioning (HVAC) Systems

System descriptions apply to designs for all Climate Zones except where noted otherwise.

## **Warehouse Storage**

The Warehouse Storage and Inspection areas will be heated to a minimum of 55°F in the winter and mechanically ventilated to within 10°F of ambient conditions in the summer, no mechanical cooling. Warehouse ventilation will be in accordance with the requirements of ASHRAE 62.1. These ventilation rates will be sufficient to promote occupant comfort as well as provide adequate ventilation for proper dispersion of any off-gassing from the electric powered forklift batteries.

A dedicated outside air unit (DOAU) will provide 100% outside air ventilation to the Warehouse Storage Area. The DOAU will include an enthalpy wheel for energy recovery, MERV-8 air filtration, and premium efficiency motors on both the supply and exhaust.

Summer ventilation mode: Propeller type exhaust fans mounted in the exterior wall on one side of the warehouse and intake air louvers on the other side each with motorized dampers will provide for cross-ventilation airflow at a rate designed to maintain a space temperature no greater than 10 degrees above the outdoor ambient temperature.

The forklift battery charging area will have a separate dedicated exhaust system to safely contain and disperse off-gassing from the forklift batteries. The operation of this exhaust will be interlocked with the battery chargers.

### **Climate Zone 3A and 4C**

The space heating system is overhead gas-fired radiant heaters vented through the roof.

### **Climate Zones 4A and 6A**

The space heating system is an in-floor hydronic radiant slab, in lieu of overhead infrared radiant heat. The heat source being in the floor will create a more comfortable and effective solution for these Climate Zones.

### **Climate Zones 4A and 6A**

The hot water system will consist of two indoor, high efficiency (94% rating), condensing type, natural gas fired boilers. For redundancy and to allow for some space heating should one boiler fail to operate, each boiler is sized to provide 67% of the overall building peak heat load. A primary / secondary heating hot water distribution system will distribute the heating hot water throughout the facility.

### **Climate Zones 4A, 4C and 6A**

A transpired solar wall system will preheat the unconditioned outside air entering the facility. The system will duct this air to the inlets of both the dedicated outside air units for both the Warehouse and Office Area. Preheating the entering outside air via a 2-stage transpired solar wall system will provide energy savings during the colder months of the year. Because site orientation has not been selected yet, it is assumed that the transpired solar wall system will be on the exterior surface of the building elevation with the least available surface area. When the transpired wall air temperature exceeds the space heating demand, a bypass damper will divert makeup air from the solar wall system to conventional sidewall louvers.

## **Office Administration / Support Areas**

A dedicated outside air unit (DOAU) will provide 100% outside air ventilation to the variable

refrigerant flow (VRF) system serving the Office Area. The DOAU will include an enthalpy wheel for energy recovery, direct expansion (DX) cooling coil, electric resistance heat, MERV-8 air filtration, variable frequency drives and premium efficiency motors on both the supply and exhaust. This unit will provide nominal heating and cooling to temper the ventilation air supply. Variable airflow control valves will modulate the outside air supply to each zone in accordance with ASHRAE 62.1 to meet the ventilation requirements of a widely fluctuating number of people occupying the space.

An outdoor, grade-mounted, direct expansion (DX) condensing unit will provide cooling to the DX cooling coil in the AHU. This unit will include multiple compressors having multiple stages, along with hot gas bypass, to facilitate precise temperature and humidity control.

The VRF system in the Office Area will consist of distributed fan coil units located within the ceiling space of each building zone. The fan coil units will include a DX refrigerant coils, MERV 13 air filtration, and fully ducted supply, return and outside air. The outdoor unit, an air source heat pump, will distribute refrigerant to the fan coil units via a 3-pipe system that allows for either heating or cooling of individual zones simultaneously.

### **Telecom Rooms**

Dedicated ductless 'mini-split' ceiling or wall-mounted, cassette type heat pump equipment with remote condensing units will serve these spaces. These units will operate independently of the main HVAC system to maintain space temperature year around.

### **Electrical, Water, and Fire Pump Rooms**

Electric unit heaters will heat these spaces to a minimum of 40°F for freeze protection, and thermostatically controlled exhaust fans with interlocked air intake louvers will provide ventilation and ambient space cooling. The ventilation airflow rate is designed to maintain a space temperature no greater than 10 degrees above the outdoor ambient temperature

## **GENERAL REQUIREMENTS**

### **Exhaust Systems**

The exhaust air outlet locations will have adequate separation distance from outdoor air intakes to prevent short circuiting of exhaust air.

Toilet exhaust will be in accordance with ASHRAE Standard 62.1.

### **Testing, Adjusting, Balancing, and Commissioning**

The design team will include testing, adjusting, balancing and commissioning requirements for HVAC systems in the project specifications.

### **Anti-Terrorism/Force Protection**

Emergency shutdown switch(es) will disable the building air distribution systems in accordance with UFC-4-010-01 requirements.

All outside air intakes will be no less than 10 feet (3 meters) above grade in compliance with UFC 4-010-01 requirements.

All outside air intakes and relief and exhaust air outlets will have low leakage dampers and controls in accordance with UFC 4-010-01 requirements.

### **HVAC Equipment Noise**

The design will limit noise generation from the HVAC equipment on the Mechanical Mezzanine in the Warehouse Storage and Inspection Areas as much as possible. All equipment will have vibration isolators, flexible connections on ductwork and piping, and insulation to address thermal losses and gains as well as radiated noise.

The major noise generating equipment, the air cooled condensing unit and heat pump serving the DOAU and VRF systems, is located in an equipment yard area on grade next to the building.

## **PLUMBING DESIGN**

### **Design Criteria References**

- International Plumbing Code (2012 edition)
- Federal Specifications WW-P-541 Plumbing Fixtures
- Unified Facilities Criteria UFC 3-420-01 Design: Plumbing Systems
- ASHRAE 90.1 (latest edition)
- Plumbing and Drainage Institute (PDI-WH-201 1992) Water Hammer Arresters
- Unified Facilities Criteria UFC 3-400-01 Energy Conservation
- American National Standard for Accessible and Useable Buildings and Facilities. (CABO A117.1)
- American Society of Mechanical Engineers ASME A112.19.2 Vitreous China Plumbing Fixture and Hydraulic Requirements for Water Closets and Urinals
- Foundation for Cross-connection control and Hydraulic Research FCCHR-01 Manual of Cross- Connection Control
- National Fire Protection Agency (NFPA-54) - National Fuel Gas Code
- ASHRAE Handbook Chapter 49 Service Water Heating

### **Water and Fire Water Systems**

Teng | **exp** Federal will coordinate and cooperate with the local water authority to provide the required water capacity for the building domestic water and fire protection systems. Design will route separate domestic water and fire protection services into the mechanical room. Incoming service piping and fittings will be ductile iron, and piping will be in sleeve through the slab in the mechanical room.

### **Sanitary, Waste, and Vent System**

Sanitary, waste and vent piping shall be PVC with PVC fittings. Sanitary piping systems shall connect together and exit the buildings at one location. All floor drains shall be cast-iron. Floor drains shall be in the mechanical room, public toilet rooms, and at emergency shower / eyewash stations. Vent piping will be as per code and combined vents shall occur as much as possible to minimize roof penetrations.

## **PLUMBING FIXTURES AND EQUIPMENT**

### **Integral Bowl Lavatory**

Integral bowl lavatories shall be solid surface. Faucet shall be hard-wired sensor type operating at 0.5 gpm flow rate with copper alloy grid drain and P-trap.

### **Wall Hung Lavatory**

Wall hung lavatory shall be the rectangular type with a minimum size of 20 inches by 18 inches. Faucet shall be hard-wired sensor type operating at 0.5 gpm flow rate with copper alloy grid drain and P-trap.

### **Water Closet**

Water closets shall be the wall-mounted elongated vitreous china bowl type with top supply spud and open-front seat. Flush-o-meter valve shall be hard-wired sensor type operating water use per flush is 1.28 gallons.

## **Urinal**

Urinals will be white vitreous china wall hanging with integral trap and extended shields. Hard-wired sensor operated flush-o-meter valve shall be large diaphragm type with vacuum breaker. The maximum water use per flush is .125 gallons.

## **Pantry Sink**

Kitchen sink in the break area shall be 18 gauge stainless steel single bowl sink fitted with gooseneck type faucet without a retractable spray hose. Strainer to be 3" diameter perforated grid type.

## **Electric Water Coolers**

Electric water coolers shall be self-contained, conform to ARI 1010, capacity shall be 8 gallons per hour at 50 degree F with an inlet water temperature of 80 degree F, while residing in a room environment of 90 degree F. Unit shall have self-closing valves with automatic stream regulators, flow control capability, push button actuated. Exposed surfaces of stainless steel shall have a No. 4 general polish. Design shall provide handicapped height as code requires.

## **Mop Sinks**

Mop sink shall be one piece, molder stone, floor mounted 32 inches square. Design will provide brass body drain with nickel bronze strainer and wall mounted faucets with vacuum breaker, integral stops, adjustable wall brace, faucet spout pail hook. Provide with 30 inch hose and 3 mop hanger.

## **Floor Drains**

Floor drains shall be in the rest rooms, mechanical rooms, and in areas with condensate producing equipment. Floor drains shall be cast iron with integral seepage pan, and adjustable perforated, nickel bronze strainer. Floor drains shall be provided with elastomeric traps seals to prevent trap evaporation.

## **Emergency Eye / Face Wash**

Emergency eye / face wash stations shall meet the requirements of ANSI Z358.1, and OSHA. Four eyewash units will be placed where required in accordance with OSHA and ANSI standards. Stations / units will be provided with tempering valves to provide tepid water.

## **Wall Hydrants**

Freeze-proof wall hydrants with vacuum breaker shall be on the exterior of the building, approximately every 150 feet.

## **Hose Bibs**

Hose bibs will be located within the Warehouse area every 200 feet.

## **Domestic Water System**

The system will include a shut off valve meter (connected to DDC system), strainer and a reduced pressure backflow preventer and piping to serve the building domestic water system. The supply lines to each item of equipment or fixtures, except faucet, flush valves, or other control valves, which have integral stops, shall have an accessible shut off valve to enable

isolation of the item for repair and maintenance without interfering with operation of other equipment or fixtures. Reduced pressure backflow preventer shall be provided for the make-up water line to mechanical equipment requiring water. Pipe sizes will be per the International Plumbing Code. All piping in areas with ceilings will be completely concealed. Above ground piping and fittings shall be type "L" copper with brazed joints.

### **Rainwater Harvesting**

The design will capture rain water from half of the exterior downspouts, routing below grade to a 2,000 gallon underground storage tank which will convey non-potable water to flush the water closets and urinals in the building. All of the water closets and urinals will be supplied from this tank utilizing a pumping system to convey the water to the fixtures. The tank will be supplied with make-up city water so that during dry periods tank will remain full.

### **Domestic Water Heater Equipment**

The building will have an electric water heater. The system will generate hot water at 140 degrees F and reduce the temperature to a maximum of 120 degrees F through a mixing valve before it distributes water throughout the building. The water heater shall be mounted on a housekeeping pad in the indicated location on the plans. The heater shall be complete with a control system and shall have ASME rated pressure and temperature relief valves and include a heat trap and expansion tank. The water heater system will include a in-line circulating pump with time clock and aquastat to maintain water temperature at the fixtures for improved functionality.

### **Insulation**

All domestic hot and cold water pipes and all exposed drains and traps for handicapped lavatories shall be insulated. Hot water piping will be insulated for heat conservation and cold water piping will be insulated to prevent condensation.

### **Identification**

Piping identification will be per ANSI requirements. Equipment identification will be with engraved and laminated plastic nameplates.

### **Vibration / Noise Isolation**

The design will use water hammer arrestors to minimize water system noise in accordance with the 2009 International Plumbing Code. Velocities in the domestic water piping shall be maximum of 8 ft./sec. while keeping friction losses to a minimum.

# FIRE PROTECTION DESIGN

## Design Criteria References

- Unified Facilities Criteria (UFC) 1-200-01, General Building Requirements, 16 August 2010
- Unified Facilities Criteria (UFC) 3-600-01, Design: Fire Protection Engineering for Facilities, 26 September 2006, and Change 1 - 14 July 2009 (specifically Section 6-11 “Warehouse and Storage Facilities”)
- Unified Facilities Criteria (UFC) 4-010-01, DOD Minimum Antiterrorism Standards for Facilities, 8 October 2003, Change 1, 22 January 2007
- Unified Facilities Criteria (UFC) 4-021-01, Design and O&M: Mass Notification Systems, 9 April 2008, and Change 1, January 2010
- International Building Code
- NFPA 1 Fire Code
- NFPA 10 Standard for Portable Fire Extinguishers
- NFPA 13 Standard for Installation of Sprinkler Systems
- NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection
- NFPA 24 Standard for the Installation of Private Fire Service Mains and Their Appurtenances
- NFPA 25 Standard for the Inspection, Testing and Maintenance of Water Based Fire Protection Systems
- NFPA 70 National Electric Code (NEC)
- NFPA 72 National Fire Alarm and Signaling Code
- NFPA 90A Standard for the Installation of Air-Conditioning and Ventilating Systems
- NFPA 101 Life Safety Code
- NFPA 291 Recommended Practice for Fire Flow Testing and Marking of Hydrants
- Architectural Barriers Act Accessibility Standard (ABA)

## CIF – LARGE WITHOUT RFI ADDITION

The following analysis was conducted for the Large Central Issue Facility Space *without* the inclusion of the RFI Space.

### Automatic Fire Sprinkler System

The building will be provided with an automatic wet fire sprinkler system in accordance with UFC 3-600-01 and NFPA 13. The warehouse will be protected by a three zone ESFR fire suppression system to protect the proposed 25 foot high rack storage of Class I-IV and plastic commodities. Each ESFR system shall protect no more than 40,000 sq. ft. The work area will be protected by a standard fire sprinkler system. The fire pump room will be located in the warehouse and will house the three ESFR system valves, the wet system valve and two fire pumps (one redundant), two soft-start fire pump controllers and a pressure maintenance pump (jockey pump) and controller. A free standing fire department connection will be installed a minimum of 40 ft. from the building or the height of the building exterior wall, whichever is greater.

The work area sprinkler system shall have a 3,000 sq. ft design area. The design densities will be light hazard (0.10 gpm/sq.ft.), ordinary hazard group I (0.15 gpm/sq.ft.), and ordinary group II (0.20 gpm/sq.ft.). The hose stream demand for light hazard is 250 gpm, and 500 gpm for Ordinary hazard areas. The warehouse design area will include 12 sprinklers with a hose stream of 500 gpm.

### Fire Alarm and Mass Notification

The building will be provided with a fully addressable type fire alarm system. All fire sprinkler flow



switches, tamper switches, and fire pump monitoring modules will be monitored by the fire alarm system in accordance with NFPA 13, 20, and 72. The fire alarm system and mass notification system panel shall be compatible with the base systems and be located in the telecom or electrical room located in the work area. The front vestibule will be located with a fire alarm remote annunciator panel and a local operating console. The building will be provided with manual pull stations (dual action) at all exit doors to the building. In addition, notification devices (visual and audible) will be provided throughout the warehouse and work areas in accordance with NFPA 72 and UFC 3-600-01. Each strobe location will be provided with two strobes, a clear and amber strobe. The clear strobe actuates upon a fire alarm signal (labeled FIRE) and the amber strobe (labeled ALERT) actuates and takes priority during an event during a mass notification event. Smoke detectors will be provided above all panels, extenders and similar equipment. Duct smoke detectors shall be located as required by NFPA 90A and shall have a test location installed.

**Fire Department Access**

The fire department access shall be as required by UFC 3-600-01 and NFPA 1.

**Fire Water Supply**

No water supply is available since a site location has not been determined. A water analysis will need to be performed and then a hydraulic analysis can be performed for the pressure and flow requirements of the sprinkler system to determine the required fire pump size.

**Fire Hydrant System**

A fire hydrant system shall be provided to meet the requirements of UFC 3-600-01. Fire hydrants shall be located so that all portions of the building exterior is within 300'-0" of a fire hydrant and a fire hydrant will be located within 150'-0" of the fire department connection.

**Portable Fire Extinguishers**

Portable fire extinguisher shall be provided and installed throughout the entire warehouse and work area in accordance with NFPA 10. Provide dry chemical 4A:60B:C extinguishers in all areas unless otherwise modified in drawings.

**Code Analysis – IBC Occupancy**

1. S-1 Storage
2. A-3 Assembly
3. B Business

**Construction Type:** IIA, Building separated into two building by a fire wall and considered non-separated mixed occupancy. See building analysis below.

**Fire Resistive Requirements**

<b>Structural Fire Resistance Ratings (Warehouse)</b>		
<b>Structural Feature</b>	<b>Hourly Rating (Type IIA)</b>	<b>IBC Reference</b>
Bearing & Nonbearing Exterior Walls – With Less Than 5'-0" Fire Separation Distance	2-hour	Table 601/Table 602
Bearing & Nonbearing Exterior Walls – With 5'-0" to less than 30' Fire Separation Distance	1-hour	Table 601/Table 602

Bearing & Nonbearing Exterior Walls – With Greater Than 30'-0" Fire Separation Distance	0-hour	Table 601/Table 602
Bearing Walls – Exterior	1-hour	Table 601
Bearing Walls – Interior	1-hour	Table 601
Nonbearing Walls – Interior	0-hour	Table 601
Structural Frame	1-hour	Table 601
Floor Construction	1-hour	Table 601
Roof Construction – Including Supporting Beams & Joists	1-hour*	Table 601

\* Fire protection of roof structural members not required where all parts of the roof and decking is 20'-0" or more above any floor below.

The warehouse area shall be separated from the work area by a 4-hour fire wall in accordance with UFC 3-600-01, Section 6-11.5.

The columns surrounded by racks in the warehouse shall be protected by 2-hours fire rated construction, fireproofing, or fire sprinkler per UFC 3-600-01, Section 6-11.3.

### Protection of Hazards

Minimum Fire Resistance Rated Separation Requirements			
Building Features	Fire Resistance Rating	IBC Reference	NFPA 101 Reference
Mechanical and Electrical rooms or other similar high hazard areas	1-hour		38.3.2.2
Boiler with equipment over 15 psi & 10 hp., and Fuel Fired Equipment With 400,000 Btu Per Hour Input	1-hour or sprinkler protection	Table 508.2.5	12.3.2.1.1
Rooms containing Fire Pumps	2-hour or 1-hour and sprinkler protection	Table 508.2.5	12.3.2.1.1
Waste and / or Linen Collection Room > 100 Square Feet	1-hour or sprinkler protection	Table 508.2.5	

### Fire Area Limitation and Separation

Warehouse fire areas are limited to 60,000 sq. ft., however, they may be increased to 120,000 sq. ft. if the following are all met:

1. Increase ceiling sprinkler design area by 10-percent.
2. A dedicated looped fire water main with sectional valves.
3. A secondary fire pump is required if system requires a fire pump.

### Fire Area Limitation and Separation

Minimum Opening Protective Fire Resistance Ratings			
Type of Assembly	Required Assembly Rating (hours)	Required Rating (hours)	IBC Reference (Table)
Fire Wall - Openings	4	3-hr on both sides of wall	715.4
Fire Wall –	4	3-hr Class A	715.4

Personnel Doors Only			
Exterior Walls	1	3/4	715.4
Other Interior Fire Barriers	1	3/4	715.4

Fire and Smoke Dampers: All fire and smoke dampers shall be required and installed per NFPA 90A and NFPA 101.

**Interior Finishes**

Occupancy	Exit Enclosure	Exit Access Corridor	Other Spaces
Business	Class A or B	Class A or B	Class A, B or C
	Class I or II	N/A	N/A
Storage	Class A or B	Class A, B or C	Class A, B or C
	Class I or II	N/A	N/A
Assembly	Class A	Class A or B	Class A, B or C
	Class I or II	Class I or II	N/A

- Class A interior wall and ceiling finish-flame spread index, 0-25, smoke developed, 0-450
- Class A interior wall and ceiling finish-flame spread index, 26-75, smoke developed, 0-450
- Class A interior wall and ceiling finish-flame spread index, 76-200, smoke developed, 0-450
- Class I interior floor finish – Critical radiant flux, not less than 0.45 w/cm
- Class II interior floor finish – Critical radiant flux, not more than 0.22 w/cm but less than 0.45 w/cm

**Discharge from Exits**

Exits discharge shall comply with NFPA 101 Section 7.7. Exits shall terminate directly to a public way or an exterior exit.

**Marking, Emergency Lighting and Illumination of Means of Egress**

Marking, emergency and illumination shall be in accordance with NFPA 101, Section 7.8, 7.9, and 7.10, respectively.

**IBC Allowable Height & Area**

The building area is as follows:

- First Floor (warehouse) = 88,649 square feet
- First Floor (building area) = 14,316 square feet
- Total Area = 102,965 square feet

The building height is as follows:

- Building Height (Stories) = 1
- Building Height (feet) = ~45'-0"

The proposed approach for calculating the allowable height and area shall be based on a non-separated use approach after separating the structure by a fire wall. As a result each portion of the building shall be individually classified as to its use and the required type of construction shall be determined by applying the height and area limitations for each occupancy to each separated building (Section 508.3.2).

The following is the allowable height calculation

<b>Allowable Height Calculation (Type IIB Construction)</b>						
<b>Tabular Values &amp; Increases</b>	<b>Group A-3</b>		<b>Group B</b>		<b>Group S-1</b>	
	<b>Stories</b>	<b>Feet</b>	<b>Stories</b>	<b>Feet</b>	<b>Stories</b>	<b>Feet</b>
Tabular Allowable height	2	55'-0"	3	55'-0"	2	55'-0"
Height Increase - Sprinkler	1	20'-0"	1	20'-0"	1	20'-0"
Total Allowable Height	3	75'-0"	4	75'-0"	3	75'-0"

\*Tabular information shown above is from Table 503 of the IBC.

The following is the allowable area calculation

<b>Allowable Area Calculation (Type IIB Construction)</b>			
<b>Tabular Values &amp; Increases</b>	<b>Group A-3</b>	<b>Group B</b>	<b>Group S-1</b>
Tabular Allowable Area Per Floor	9,500 ft <sup>2</sup>	23,000 ft <sup>2</sup>	17,500 ft <sup>2</sup>
Area Increase – Sprinkler	28,500	69,000	52,500
Area Increase – Frontage	7,125	17,250	13,125
Total Allowable Area Per Floor	45,125 ft <sup>2</sup>	109,250 ft <sup>2</sup>	83,125 ft <sup>2</sup>

\*Tabular information above is from Table 503 and the area increase from open frontage and sprinkler is from Section 506.2 and 506.3 respectively.

Since the building gross area is greater than the allowable per the most stringent allowable area and since the warehouse area (S-1) is greater than the allowable Group S-1 area, the building will be separated into two buildings with a fire wall and increase the construction type to IIA.

### Building Separation Analysis

The building will be separated by a 4-hour fire wall (3-hour per IBC, 4-hour per UFC-3-600-01 Section 6-11.5). Therefore, the warehouse area (88,649 sq. ft.) and the building area (14,316 sq. ft.) are considered two buildings. The adjusted allowable area calculation table is as follows:

<b>Allowable Area Calculation (Type IIA Construction)</b>			
<b>Tabular Values &amp; Increases</b>	<b>Group A-3</b>	<b>Group B</b>	<b>Group S-1</b>
Tabular Allowable Area Per Floor	15,500 ft <sup>2</sup>	37,500 ft <sup>2</sup>	26,000 ft <sup>2</sup>
Area Increase – Sprinkler	46,500 ft <sup>2</sup>	112,500 ft <sup>2</sup>	78,000 ft <sup>2</sup>
Area Increase – Frontage	6,975 ft <sup>2</sup>	16,875 ft <sup>2</sup>	16,120 ft <sup>2</sup>
Total Allowable Area Per Floor	68,975 ft <sup>2</sup>	166,875 ft <sup>2</sup>	120,120 ft <sup>2</sup>

As can be seen from the table above, the warehouse building (gross floor area) is less than the allowable floor area and the work area building (gross floor area) is less than the most stringent of the allowable floor area of (A-3 and B).

Therefore, the building shall be constructed of **Type IIA** construction and the building shall have a **4-hr fire wall constructed** between the warehouse area and the work area.

### **CIF – LARGE WITH RFI**

The following analysis was conducted for the Large Central Issue Facility Space *with* the inclusion of the RFI Space.

### **IBC Allowable Height & Area**

The proposed building area is as follows:

- First Floor (warehouse) = 105,017 square feet
- First Floor (building area) = 14,316 square feet
- Total Area = 119,333 square feet

The proposed building height is as follows:

- Building Height (Stories) = 1
- Building Height (feet) = 45'-0"

The building code and life safety analysis for the CIF with RFI (additional 16,368 sq. ft. of warehouse space) will be identical to the above code analysis for the CIF without the RFI.

Therefore, the building shall be constructed of **Type IIA** construction and the building shall have a **4-hr fire wall constructed** between the warehouse area and the work area.

### **CIF – Initial Entry**

The following analysis was conducted for the Central Issue Facility – Initial Entry Space.

### **Automatic Fire Sprinkler System**

The building will be provided with an automatic wet fire sprinkler system in accordance with UFC 3-600-01 and NFPA 13. The warehouse will be protected by a two zone ESFR fire suppression system to protect the proposed 25'-0" high rack storage of Class I-IV, unencapulated and plastic commodities. Each ESFR system shall protect no more than 40,000 sq. ft. The work area will be protected by a standard fire sprinkler system. The fire pump room will be located in the warehouse and will house the two ESFR system valves, the wet system valve and the fire pump, soft-start fire pump controller and a pressure maintenance pump (jockey pump) and controller. A free standing fire department connection will be installed a minimum of 40'-0" from the building or the height of the building exterior wall, whichever is greater.

The work area sprinkler system shall have a 3,000 sq. ft design area. The design densities will be light hazard (0.10 gpm/sq.ft.), ordinary hazard group I (0.15 gpm/sq.ft.), and ordinary group II (0.20 gpm/sq.ft.). The hose stream demand for light hazard is 250 gpm, and 500 gpm for Ordinary hazard areas. The warehouse design area will include 12 sprinklers with a hose stream of 500 gpm.

### **Fire Alarm and Mass Notification**

The building will be provided with a fully addressable type fire alarm system. All fire sprinkler flow switches, tamper switches, and fire pump monitoring modules will be monitored by the fire alarm system in accordance with NFPA 13, 20, and 72. The fire alarm system and mass notification

system panel shall be compatible with the base systems and be located in the telecom or electrical room located in the work area. The front vestibule will be located with a fire alarm remote annunciator panel and a local operating console. The building will be provided with manual pull stations (dual action) at all exit doors to the building. In addition, notification devices (visual and audible) will be provided throughout the warehouse and work areas in accordance with NFPA 72 and UFC 3-600-01. Each strobe location will be provided with two strobes, a clear and amber strobe. The clear strobe actuates upon a fire alarm signal (labeled FIRE) and the amber strobe (labeled ALERT) actuates and takes priority during an event during a mass notification event. Smoke detectors will be provided above all panels, extenders and similar equipment. Duct smoke detectors shall be located as required by NFPA 90A and shall have a test location installed.

**Portable Fire Extinguishers**

Portable fire extinguisher shall be provided and installed throughout the entire warehouse and work area in accordance with NFPA 10. Provide dry chemical 4A:60B:C extinguishers in all areas unless otherwise modified in drawings.

**Fire Department Access**

The fire department access shall be as required by UFC 3-600-01 and NFPA 1.

**Fire Water Supply**

No water supply is available since a site location has not been determined. A water analysis will need to be performed and then a hydraulic analysis can be performed for the pressure and flow requirements of the sprinkler system to determine the required fire pump size.

**Fire Hydrant System**

A fire hydrant system shall be provided to meet the requirements of UFC 3-600-01. Fire hydrants shall be located so that all portions of the building exterior are within 300'-0" of a fire hydrant and a fire hydrant will be located within 150'-0" of the fire department connection.

**Code Analysis - IBC Occupancy**

- 4. S-1 Storage
- 5. A-3 Assembly
- 6. B Business

**Construction Type:** IIB, Building separated into two buildings by a fire wall and considered non-separated mixed occupancy. See building analysis below.

**Fire Resistive Requirements**

<b>Structural Fire Resistance Ratings (Warehouse)</b>		
<b>Structural Feature</b>	<b>Hourly Rating (Type IIB)</b>	<b>IBC Reference</b>
Bearing & Nonbearing Exterior Walls – With Less Than 5' Fire Separation Distance	2-hour	Table 601/Table 602
Bearing & Nonbearing Exterior Walls – With 5' to less than 10' Fire Separation Distance	1-hour	Table 601/Table 602
Bearing & Nonbearing Exterior Walls – With Greater Than 10' Fire Separation Distance	0-hour	Table 601/Table 602
Bearing Walls – Exterior	0-hour	Table 601

Bearing Walls – Interior	0-hour	Table 601
Nonbearing Walls – Interior	0-hour	Table 601
Structural Frame	0-hour	Table 601
Floor Construction	0-hour	Table 601
Roof Construction – Including Supporting Beams & Joists	0-hour*	Table 601

The warehouse area shall be separated from the work area by a 4-hour fire wall in accordance with UFC 3-600-01, Section 6-11.5.

The columns surrounded by racks in the warehouse shall be protected by 2-hours fire rated construction, fireproofing, or fire sprinkler per UFC 3-600-01, Section 6-11.3.

### Protection from Hazards

Minimum Fire Resistance Rated Separation Requirements			
Building Features	Fire Resistance Rating	IBC Reference	NFPA 101 Reference
Mechanical and Electrical rooms or other similar high hazard areas	1-hour		38.3.2.2
Boiler with equipment over 15 psi & 10 hp., and Fuel Fired Equipment With 400,000 Btu Per Hour Input	1-hour or sprinkler protection	Table 508.2.5	12.3.2.1.1
Rooms containing Fire Pumps	2-hour or 1-hour and sprinkler protection	Table 508.2.5	12.3.2.1.1
Waste and/or Linen Collection Room > 100 Square Feet	1-hour or sprinkler protection	Table 508.2.5	

### Fire Area Limitation and Separation

Warehouse fire areas are limited to 60,000 sq. ft., however, they may be increased to 120,000 sq. ft. if the following are all met-

1. Increase ceiling sprinkler design area by 10-percent.
2. A dedicated looped fire water main with sectional valves.
3. A secondary fire pump is required if system requires a fire pump.

### Fire Area Limitation and Separation

Minimum Opening Protective Fire Resistance Ratings			
Type of Assembly	Required Assembly Rating (hours)	Required Rating (hours)	IBC Reference (Table)
Fire Wall - Openings	4	3-hr on both sides of wall	715.4
Fire Wall – Personnel Doors Only	4	3-hr Class A	715.4
Exterior Walls	1	3/4	715.4
Other Interior Fire Barriers	1	3/4	715.4

Fire and Smoke Dampers: All fire and smoke dampers shall be required and installed per NFPA 90A and NFPA 101.

**Interior Finishes**

Occupancy	Exit Enclosure	Exit Access Corridor	Other Spaces
Business	Class A or B	Class A or B	Class A, B or C
	Class I or II	N/A	N/A
Storage	Class A or B	Class A, B or C	Class A, B or C
	Class I or II	N/A	N/A
Assembly	Class A	Class A or B	Class A, B or C
	Class I or II	Class I or II	N/A

- Class A interior wall and ceiling finish-flame spread index, 0-25, smoke developed, 0-450
- Class A interior wall and ceiling finish-flame spread index, 26-75, smoke developed, 0-450
- Class A interior wall and ceiling finish-flame spread index, 76-200, smoke developed, 0-450
- Class I interior floor finish – Critical radiant flux, not less than 0.45 w/cm
- Class II interior floor finish – Critical radiant flux, not more than 0.22 w/cm but less than 0.45 w/cm

**Discharge from Exits**

Exits discharge shall comply with NFPA 101 Section 7.7. Exits shall terminate directly to a public way or an exterior exit.

**Marking, Emergency Lighting and Illumination of Means of Egress**

Marking, emergency and illumination shall be in accordance with NFPA 101, Section 7.8, 7.9, and 7.10, respectively.

**Allowable Height & Area Calculations**

The building area is as follows:

- First Floor (warehouse) = 47,798 square feet
- First Floor (building area) = 16,994 square feet
- Second Floor (building area) = 5,496 square feet
- Total Area = 70,288 square feet

The building height is as follows:

- Building Height (Stories) = 1
- Building Height (feet) = 45'-0"

The proposed approach for calculating the allowable height and area shall be based on a non-separated use approach after separating the structure by a fire wall between the warehouse and the work area. As a result each portion of the building shall be individually classified as to its use and the required type of construction for each building shall be determined by applying the height and area limitations for each occupancy to each separated building (Section 508.3.2).

The following is the allowable height calculation:

<b>Allowable Height Calculation (Type IIB Construction)</b>						
<b>Tabular Values &amp; Increases</b>	<b>Group A-3</b>		<b>Group B</b>		<b>Group S-1</b>	
	<b>Stories</b>	<b>Feet</b>	<b>Stories</b>	<b>Feet</b>	<b>Stories</b>	<b>Feet</b>
Tabular Allowable height	2	55'-0"	3	55'-0"	2	55'-0"



Height Increase - Sprinkler	1	20'-0"	1	20'-0"	1	20'-0"
Total Allowable Height	3	75'-0"	4	75'-0"	3	75'-0"

\*Tabular information shown above is from Table 503 of the IBC.

The following is the allowable area calculation:

<b>Allowable Area Calculation (Type IIB Construction)</b>			
<b>Tabular Values &amp; Increases</b>	<b>Group A-3</b>	<b>Group B</b>	<b>Group S-1</b>
Tabular Allowable Area Per Floor	9,500 ft <sup>2</sup>	23,000 ft <sup>2</sup>	17,500 ft <sup>2</sup>
Area Increase – Sprinkler	19,000	46,000	52,500
Area Increase – Frontage	3,800	9,200	9,100
Total Allowable Area Per Floor	32,300 ft <sup>2</sup>	78,200 ft <sup>2</sup>	79,100 ft <sup>2</sup>

\*Tabular information above is from Table 503 and the area increase from open frontage and sprinkler is from Section 506.2 and 506.3 respectively.

Since the building gross area is greater than the allowable per the most stringent allowable area (assembly) the building would need to be separated by a fire wall. Increasing the construction type to IIA with mixed occupancy non-separated would also not be allowed by the IBC since the gross building area is still greater than the most stringent allowable area of an assembly occupancy.

The fire wall creates two buildings and each building gross area is less than the most stringent allowable area for Type IIB construction.

Therefore, the building shall be constructed of **Type IIB** construction and the building shall have a **4-hour fire wall constructed** between the warehouse area and the work area.

## **ELECTRICAL DESIGN**

### **Electrical Design Criteria, Standards, Codes and Laws**

- AEIM Southwestern Division Architecture and Engineering Instructions Manual
- Army Standard for Central Issue Facility (CIF)
- ASHRAE 90.1 Energy Standard for Buildings Except Low-Rise Residential
- ASHRAE 189.1 Standard for the Design of High-Performance Green Buildings
- EAct 2005 Energy Policy Act of 2005 (Public Law 109-58)
- EISA 2007 Energy Independence and Security Act of 2007 (Public Law 110-140)
- EO 13423 Executive Order 13423 (Federal Environmental / Energy Management)
- IBC International Building Code
- IESNA Lighting Handbook - Reference and Application
- NFPA 70 National Electrical Code
- NFPA 72 National Fire Alarm Code
- NFPA 101 Life Safety Code
- NFPA 780 Standard for the Installation of Lightning Protection Systems
- TI 800-01 Chapter 12 USACE Electrical Design Criteria
- Unified Facilities Criteria (UFC) 3-501-01, Electrical Engineering
- Unified Facilities Criteria (UFC) 3-520-01, Interior Electrical Systems
- Unified Facilities Criteria (UFC) 3-530-01, Design: Interior and Exterior Lighting and Controls
- Unified Facilities Criteria (UFC) 3-575-01, Lightning and Static Electricity Protection Systems
- Unified Facilities Criteria (UFC) 3-600-01, Fire Protection Engineering for Facilities
- Unified Facilities Criteria (UFC) 4-010-01, DOD Minimum Antiterrorism Standards for Buildings
- Unified Facilities Criteria (UFC) 4-021-01, Design and O&M, Mass Notification Systems

### **Electrical Utility Service**

Typical Post primary power distribution systems are owned, maintained, and provided by the local electrical utility company. The electric utility shall extend the existing overhead or underground medium voltage utility line to the site. On-site power distribution provided by the electric utility includes primary taps, underground primary cables and conduits, a concrete transformer pad, a pad mounted service transformer, a “smart” utility meter, and the transformer grounding.

The electric utility transformer is shown on the site plan at a minimum standoff distance of 56 feet from the building per UFC 4-010-01. Each electrical utility company has unique Standard Installation Requirements for transformers, including clearances and accessibility; therefore, the site design is configured with the transformer pad mounted away from the building versus located within the mechanical yard. The mechanical yard is located within the standoff distance and must be fenced on all sides per UFC 4-010-01. This includes the fence rooftop over the mechanical yard, which is not easily removable should the local electric utility require that the transformer be accessible by a truck with an overhead crane/lift. As an option, the mechanical yard layout, size, and access can be reviewed, expanded, and modified to allow installation of the electric utility transformer; however, only with written approval by the electric utility company and in close coordination with the local DPW and project design team.

### **Interior Electrical Distribution**

The anticipated maximum diversified demand load for the Central Issue Facility (CIF) is estimated at approximately 500 kVA and shall be served from the electric utility via a 480Y/277 volt, 3 phase, 4 wire service. The electrical service entrance (SE) equipment shall consist of an 1,200 amp main switchboard with a 100 percent rated 1,000 amp main breaker to allow for future growth or future re-purposing of the facility.

An electrical service, separate from the building electrical service, shall be provided for each of the fire pump(s); therefore, the maximum estimated demand load noted above does not include the fire pump(s). The fire pump(s) are shown on the one-line based on a single reliable electric utility power source in accordance with NFPA. If the local electric utility service is determined to be unreliable based on their outage history, then a permanent standby engine-generator will be required to back-up the fire pump. And, if the project design includes a permanent engine-generator, then it should be sized to carry both the fire pump load and the indicated critical building loads. When a permanent engine-generator is provided versus the tie-in-only provisions for a Government-furnished, Government-installed GFGI temporary portable engine-generator, then the manual transfer switch (MTS) shall be changed to a 4-pole automatic transfer switch (ATS) and the fire pump controller(s) must be changed from single-power source to dual-power source type with integral ATS provisions.

Electrical distribution equipment shall be located indoors within electrical rooms and closets, or in warehouse spaces dedicated solely to electrical equipment. No piping, ducts, or other equip foreign to the electrical equipment shall be permitted in dedicated electrical rooms and closets. Exposed distribution equipment located in the warehouse area shall be protected from vehicles by safety railing or bollards.

Electrical distribution equipment shall include copper bussing and fully rated bolt-on circuit breakers. Series interrupting rating of devices is not allowed. Breakers over 225 Amps shall have adjustable trip settings. Panelboards shall be single-section type, dual-section panelboards are not allowed. The main telecommunication room branch panelboard, serving primarily non-linear loads, shall be oversized or shall include a 200 percent rated neutral bus and incoming neutral conductor. Breakers serving lighting shall be SWD listed. Breakers serving mechanical systems shall be HACR listed. Typical lighting and power branch circuits shall not be loaded more than 80% of the overcurrent device rating. The main switchboard shall include 20 percent space and bus provisions for future breaker additions. Panelboards shall include 20 percent space, with a portion of the space having spare circuit breakers of types and ratings similar to the circuit breakers specified within the panelboard. Panelboards shall include a type-written circuit directory within the panelboard door. Flush mounted panelboards shall include one (1) empty conduit for every three (3) spare circuit spaces. Empty conduits shall be 3/4 inch with nylon pull string stubbed up into the accessible ceiling and capped.

A dedicated panelboard shall serve the fire alarm and mass notification systems and shall include a dedicated feeder and step-down transformer. The dedicated panelboard shall be in accordance with UFC 3-520-01, section 3-2.4.

The SE equipment shall include a dedicated breaker for connection of an external surge suppression device (SPD). The SPD for the SE equipment shall be rated for 100kA per mode of protection (200kA per phase) and shall be located directly above or adjacent to the equipment. The main telecommunication room branch panelboard shall include an SPD rated for 50kA per mode of protection (100kA per phase). SPDs shall be in accordance with UFC 3-520-01, section 3-4.

The digital meter-monitor for the SE and distribution equipment shall include current and voltage transformers, Lonworks and SNVT for remote monitoring, and interconnection to the DDC for

transmitting phase amperage, voltage, and frequency; kW-hours consumption, kW-demand, kVA, kW, kVAR, and power factor at 15 minute intervals to the Post UMCS. Sub-metering and remote monitoring of building HVAC, lighting, plug-loads, and on-site renewable energy systems shall be provided in accordance with ASHREA 189.1.

Step-down transformers shall include 220 degree C insulation, not to exceed a 115 degree C rise capable of carrying continuously 115 percent of the nameplate kVA without exceeding insulation rating at a maximum ambient temperature of 40 degrees C. Transformers shall be ventilated, energy efficient, exceeding the Federal Government's minimum mandate of NEMA TP-1, and shall be in accordance with the U.S. Department of Energy's Candidate Standard Level Three (CSL-3) requirements. Transformers shall include vibration isolation including proper mounting methods and flexible raceway connections. Transformers shall be mounted on concrete housekeeping pads or steel frames supported by warehouse columns.

### **Standby and Backup Power**

Uninterruptible power supply (UPS) systems are not anticipated. A permanent standby engine-generator system is not anticipated; however, provisions shall be included for the connection of a portable standby engine-generator. The fire alarm, mass notification system, and emergency lighting systems shall include integral emergency battery backup.

An exterior fused disconnect switch shall be provided as the connection point for an outdoor standby portable engine-generator. The basis of design (BOD) for the GFGL portable engine-generator is based on a generator output voltage of 480Y/277 volt, 3 phase, 4 wire. A 480 volt, 3-pole, 200 amp disconnect shall be located on the building exterior and shall include 200 amp fuses. Therefore, this BOD limits the critical building load to a maximum of 100kW/125 kVA continuous load served from a 100kW or larger engine-generator operating at 480 volt, 3 phase. The critical building loads shall be interconnected to the SE equipment (normal source) and the exterior generator disconnect (standby source) via a 480 volt, 200 amp, 4-pole manual transfer switch (MTS) with a switched neutral.

The standby source shall be limited to feeding panelboards and transformers serving:

- Interior and exterior lighting
- Fire alarm and mass notification systems
- Final processing/check-out workstation receptacles
- Administrative area Main Telecommunications Equipment Room (TR) receptacles

As noted in the paragraph "Interior Electrical Distribution": If the local electric utility service is determined to be unreliable based on their outage history, then a permanent standby engine-generator will be required to back-up the fire pump. And, if the project design includes a permanent engine-generator, then it should be sized to carry both the fire pump load and the indicated critical building loads. When a permanent engine-generator is provided versus the tie-in-only provisions for a GFGL temporary portable engine-generator, then the manual transfer switch (MTS) shall be changed to a 4-pole automatic transfer switch (ATS) and the fire pump controller(s) must be changed from single-power source to dual-power source type with integral ATS provisions.

### **Raceways**

Secondary electrical service feeders shall be routed underground from the outdoor pad mounted

utility service transformer within a concrete encased PVC conduit ductbank. Two spare empty conduits with nylon pull strings shall be provided within the utility service ductbank. Underground marker tape / wire shall be provided above the service ductbank.

Underground conduits shall be Schedule 40 PVC, except that PVC coated galvanized rigid steel conduit shall be provided for 90° bends and transitions from underground to above grade. Exterior conduits shall be rigid galvanized steel (RGS) conduit. In general exposed and concealed interior conduits shall be galvanized electro-metallic tubing (EMT); except that interior conduits exposed within mechanical rooms, warehouse, and other areas subjected to physical damage shall be RGS conduit, and interior conduits encased in concrete, mortar, or grout shall be RGS conduit. Imbedded RGS conduit is limited to 3/4 inch trade size and shall only be installed in concrete slabs, floors, or toppings with approval by the Structural Engineer. Minimum conduit size shall be 3/4 inch, except that switch legs may be 1/2 inch and flexible connections to light fixtures may be 3/8 inch. Flexible metal conduit is limited to lengths up to 6 feet for final connections to recessed and semi-recessed lighting fixtures, motors, and vibrating equipment. Flexible metal conduit at exterior locations and in areas subject to moisture shall include a liquid tight jacket.

Building wire for power and lighting shall be installed within metal conduits. Low voltage systems wiring as specified in the mechanical, communications and security sections shall be installed within metal conduits, raceways, or cable trays. Fire alarm and mass notification system wiring shall be installed within red-painted boxes and metal conduits, 3/4" minimum, with red-painted bands no more than five feet on center. Building power and lighting conduits shall not be mounted onto or installed within cable trays. Communications wiring systems shall be separate and shall include proper clearance from power and lighting systems. Electrical hangers and seismic control supports shall be specified for ATEP and to withstand local seismic forces.

### **Feeders and Branch Circuits**

Building wiring shall consist of copper conductors with THHN / THWN insulation. Conductors for power and lighting branch circuit wiring shall be a minimum size of AWG No. 12. In general, the design goal shall be to limit voltage drop on feeders to a maximum of 2 percent (1% on the SE feeder and 1% on panelboard feeders) and 3 percent on branch circuits; however, voltage drop shall be limited to an overall maximum of 5 percent from the utility service transformer to each of the branch circuit loads.

Heavy-duty local disconnect switches shall be provided adjacent to mechanical equipment if not integral to the equipment. Interior disconnects shall be rated NEMA 1 and exterior disconnect switches shall be rated NEMA 4X. Motor operated equipment one-half horsepower and larger shall be three-phase and shall be controlled and connected via suitable motor starters or variable frequency drives (VFD). Branch circuits, connections, and local disconnects shall be provided for the following motorized equipment:

- HVAC, plumbing, and fire protection equipment
- Dock levelers, warehouse overhead doors, elevator, and truck entry gate
- Multipurpose room and orientation area motorized video screens

Branch circuits and connections shall be provided for the following electric and electronic equipment:

- Fire alarm and mass notification panels

- DDC and BAS panels
- Main entry and main exit sliding doors
- Automatic latrine valves eyewash audio / visual alarm stations
- Exterior security cameras

The standard design shall include step-down transformer capacities, panelboard breakers, and power feeders to serve Government-furnished, Contractor-installed (GFCI) equipment operating at 208 volt, 3 phase. Additional spare 480V/3Pt breakers shall be included within the 480 volt warehouse panelboard(s) to allow for the possibility of the GFCI equipment operating at 480 volt, 3 phase versus 208 volt, 3 phase. The site specific electrical design requirements for equipment disconnect switches, receptacles, branch circuiting, and breaker quantities must be coordinated with the actual final GFCI equipment selections. Site specific GFCI equipment loads and requirements shall be obtained by Architect-Engineer (AE) design firm to finalize electrical distribution design and branch circuiting. Branch circuits, connections, and local disconnects shall be provided for (GFCI) equipment:

- Bailer
- Kitting/wrapping machines
- Forklift battery chargers

Lighting branch circuits shall be completely separate wiring and raceway systems from power and receptacle branch circuits. Branch circuits feeding receptacles shall be limited to six (6) general purpose receptacle straps per circuit. Each branch circuit shall include a separate neutral conductor, shared neutrals are not allowed. Each conduit homerun shall be limited to: three (3) line-to-neutral single-phase branch circuits; one (1) line-to-line single phase branch circuit; or one (1) three-phase feeder or branch circuit. Where more than three (3) current carrying conductors are specified within a single raceway, the conductor ampacity shall be de-rated in accordance with code.

## **Receptacles**

General receptacles shall be 20 amp, 120 volt duplex specification grade, NEMA 5-20R. Receptacles recessed on each side of a common wall shall be separated by a minimum of 12 inches and shall not be located back-to-back. Receptacle faceplates shall be shall be labeled with panelboard name and circuit number. Receptacles shall include stainless steel faceplates in finished areas and galvanized steel covers in unfinished areas. Receptacles shall be provided for maintenance, convenience, and at the following equipment and / or locations:

- Each wall of each office and multipurpose room
- Each wall of mechanical, TER and TR closets
- At lavatories and in corridors no more than 50' on center
- Orientation and assembly area walls no more than 50' on center
- Multipurpose room and orientation area overhead video projectors
- ATM, printers, copiers, shredders, and fax
- Vending, refrigerators, ice-makers, microwaves, coffee maker, and water coolers
- Warehouse perimeter 50' on center and at columns of center aisle storage racks
- Storage rooms for future conversion to office space

Double duplex (quad) receptacles shall be provided at the following equipment and / or locations:

- Communications systems and racks
- Security systems

- Issue/turn-in and final processing/check-out workstations
- Cable televisions

Ground fault current interrupting (GFCI) type receptacles shall be provided at the mechanical rooms, elevator machine room, lavatories, janitor's closets, and above break room countertops. Exterior GFCI type receptacles with weatherproof while-in-use type covers shall be provided on each face of the building near an entry door and near rooftop and ground mounted equipment. Where exterior receptacles cannot be flush mounted in the existing façade, they shall be mounted in a cast box with threaded hub connection to rigid metal conduit.

### **Grounding and Bonding**

A low-impedance grounding electrode system shall include a main ground bar (MGB) located within the main electrical room, supplemental ground bars located within communications closets, and grounding connections to the incoming metal water service piping, structural steel, concrete encased electrode (Ufer) and supplemental electrodes including an underground ground ring (counterpoise) system of interconnected copper-clad steel ground rods, 10 feet in length and 3/4 inch in diameter, along the perimeter of the building.

A copper grounding conductor with green insulation shall be provided within each feeder and branch circuit conduit. A copper grounding conductor with green insulation routed within non-metallic PVC conduit, or within metallic conduit bonded to the grounding conductor at each end with grounding bushings, shall bond the grounding electrodes, electrical service disconnect, and supplemental ground bars to the MGB. Bare tinned-copper grounding conductors shall bond the lightning protection system to the grounding counterpoise system. The resistance of the grounding system shall be limited to a maximum of 10 ohms.

### **Lightning Protection**

UL Master Labeled lightning protection systems shall be provided in accordance with NFPA 780. The Class I Systems shall include 24 inch aluminum air terminals mounted to the building roof parapet and roof surface bonded with exposed conductors of a suitable material (copper or aluminum) that shall not form an electrolytic couple with roof metals that would cause accelerated corrosion in presence of moisture. Outdoor covered shakedown area air terminals shall be bonded to the covered shakedown area structural steel columns as the down conductor paths. Building down conductors shall be via bare copper and shall be exposed on the exterior of the building façade, routed near roof downspouts where possible. Building down conductors shall route through PVC conduit sleeves where subjected to mechanical damage and from 6 feet above finished grade to 6 inches below finished grade, or to 3 inches below the bottom depth of surface concrete or asphalt. Copper down conductors shall be exothermically welded to the underground counterpoise system.

### **Lighting**

Average lighting level foot-candle (fc) goals:

- 0.2 fc – Site parking and building perimeter (minimum )
- 0.5 fc – Site walkways
- 2 fc – Exterior dock hardstand area
- 5 fc – Exterior main building entry

- 5 fc – Stairways and corridors
- 10 fc – General storage rooms
- 10 fc – Janitor's closets
- 15 fc – Outdoor covered shakedown area
- 15 fc – Latrines and showers
- 15 fc – Warehouse (storage rack aisles)
- 20 fc – Entries and reception (ambient)
- 20 fc – Lactation room (ambient)
- 30 fc – Warehouse (queuing, shipping & receiving)
- 30 fc – Mechanical and electrical rooms
- 30 fc – Copy and break rooms
- 30 fc – Orientation and assembly areas
- 30 fc – Workstations and offices (ambient)
- 40 fc – Multipurpose rooms
- 50 fc – Workstations and offices (tasks)
- 50 fc – Communication closets

Energy efficient interior lighting systems shall be in accordance with energy codes and regulations and shall operate at 277V. Luminaires shall be complete with mounting hardware, optics, integral in-line fuses, energy efficient lamps, and programmed-start fluorescent electronic ballasts, and dimming ballasts or LED drivers for light level tuning with day lighting. In general, interior fluorescent lamps shall be high performance low-mercury linear Super T8 and compact fluorescent types with 3500K color temperature. Linear fluorescent lamp color rendering index (CRI) shall be 85 and compact fluorescent lamp CRI shall be 82. LED-source fixtures shall have a color temperature of 4000K and a minimum CRI of 70. LED luminaires shall be tested in accordance with IESNA LM-79-08, with photometric results publically available. LED fixture lumen maintenance shall be determined in accordance with IESNA LM-80-08, and the L<sub>70</sub> lifetime shall be a minimum of 50,000 hours. LED fixtures shall include a 5 year warranty and a means for future replacement of modular lumen sources and drivers.

Interior building lighting shall include recessed fluorescent fixtures within administrative areas and suspended LED fixtures within high-bay warehouse areas. Luminaires for typical administrative areas and multipurpose rooms shall be recessed 2x4 direct / indirect with a curved drop perforated lamp shield. Latrines shall include 6 inch recessed down lights in circulation areas, and lensed down lights in shower areas. Luminaires for general spaces such as storage rooms shall be 2x4 lensed, recessed type; or surface-mounted wraparound fixture where grid ceilings are not provided. Luminaires for spaces without lay-in ceilings shall be suspended, high efficiency type. Adjustable dock lights shall be located at each warehouse dock door.

Emergency lighting shall be un-switched and shall be provided within stairs, along the path of egress, and at each building entrance. Emergency lighting shall include rechargeable 90 minute battery backup integral within the space luminaires or by wall mounted emergency lighting units where integral battery backup is not possible. Emergency lighting shall be connected to the branch circuit serving the normal lighting, ahead of any local switching. Exit signs shall be white with LED type red backlit lettering and shall include rechargeable 90 minute battery backup. Emergency lighting and exit signs shall include self-diagnostic circuitry to automatically perform testing at regular intervals in accordance with code.



Exterior building lighting shall include surface mounted LED fixtures at outdoor covered shakedown area and façade mounted LED wall packs at each egress and overhead door. Façade mounted lighting at the building egress doors shall include integral rechargeable 90 minute battery backup.

Site lighting systems are typically owned and maintained by the electric utility. Site lighting luminaires, poles, foundations, grounding, branch circuits, and controls shall be provided for walkways, drives, parking, docking area, and the 130 feet setback area behind the building. Final site lighting design shall be prepared by the AE design firm in coordination with the local electrical utility company and the specific Post standards.

### **Lighting Controls**

A master lighting control system (LCS) shall be provided to monitor and control the lighting system energy consumption and usage. Each 277 volt lighting circuit shall route through the LCS to provide for central control and time-of-day control of each circuit, or portions thereof. A master LCS panel shall be located in the main electric room. Remote LCS panels shall be located throughout the building, in close proximity to the load being served. The LCS shall include Lonworks and SNVT for remote monitoring, and connection to the DDC for transmitting lighting system energy consumption and usage data to the Post UMCS.

Occupancy and vacancy sensors shall be dual technology infrared-ultrasonic type and shall be ceiling mounted. Light switches and low-voltage control stations shall be clearly labeled where there are multiple switches at a common location. Pushbuttons of low-voltage control stations shall be engraved with a functional description, and annunciated by a pilot light. Integral dimming type ballasts and drivers shall be provided where day lighting is provided via solar tubes in the Warehouse space.

Interior lighting within private offices, break rooms, team rooms, general storage, and other intermittent use spaces shall be controlled with combination manual-on low voltage switches and vacancy sensors; and, with daylight sensors where day lighting is provided. Interior lighting within the Orientation Area, Assembly Area, Issue / Turn-in Area and Check-out Area shall be provided with time-based control; and, with daylight sensors where day lighting is provided. Multipurpose room lighting shall include multiple switch legs, to allow for presentations. Multipurpose room down lights shall include dimmable ballasts and shall be controlled with a slide type wall box dimmer. Interior lighting within warehouse areas shall be controlled by daylight sensors and by zone with high-bay motion sensors at the ends of each aisle. Latrine lighting shall be controlled with occupancy sensors. Reception and corridor lighting shall be controlled via time clock and manual override manual-on switch. Shower and locker area lighting shall be controlled with 30 minute timer switches. Mechanical, electrical, and communication closet lighting shall be controlled with manual quiet type toggle switches. Manual switches shall be labeled "Turn-Off Lights".

Exterior lighting shall be controlled by the LCS and a digital exterior photocell. Exterior lighting shall be provided from dusk to dawn by a limited quantity of fixtures. The remainder of the exterior fixtures shall be turned off in the late evening, at a time selectable by the user. The outdoor covered shakedown area lighting shall be controlled with a local on-off switch, that will only

energize the fixtures when natural lighting is insufficient.

### **Electrical Calculations**

Microsoft Excel <sup>TM</sup> software shall be utilized to prepare basic electrical short circuit and voltage drop calculations for the CIF standard design. Short circuit calculations for the CIF standard design shall be based on an “infinite” utility bus and 5 percent impedance at the utility service transformer. Individual project site conditions and specific electrical utility fault contributions must be considered for the final electrical short circuit and voltage drop calculations. Final short circuit calculations shall be prepared utilizing SKM <sup>TM</sup> or similar software and shall be prepared by the AE design firm based on local site conditions and the fault data supplied by the local electrical utility company.

Microsoft Excel <sup>TM</sup> shall be utilized to calculate and summarize the electrical loads for the standard CIF.

Final selection of electrical distribution equipment must be obtained to prepare site specific electrical studies. Coordination and arc fault studies shall be prepared by the AE design firm based on local site conditions and the equipment data supplied by the local construction contractor-selected electrical equipment manufacturer.

### **Cathodic Protection**

Individual project site soil conditions must be considered to determine any requirements for cathodic protection systems. Cathodic protection system design shall be prepared by the AE design firm based on local soil conditions.

### **AT/FP**

Per UFC 4-010-01 AT/FP requirements, obstructions within 17 meters (56'-0”) of inhabited buildings of conventional construction, or portions thereof, shall not allow for concealment of explosive devices; therefore, the pad mounted utility service transformer shall be located a minimum of 56'-0” from the building.

Emergency air distribution shut-off switches with descriptive labeling shall be provided for disconnection of the outdoor air supply systems in accordance with AT/FP requirements. The air handling shut-off switches shall be located at the building’s main exit to initiate shut-down of the building air handling systems.

Refer to the Fire Protection Section for information on the Fire Alarm and Mass Notification Systems.

### **Solar Photovoltaic System (Option)**

The solar photovoltaic (PV) system option shall be utility connected and shall consist of direct-current (DC) collectors, assemblies, and balance of system equipment including DC combiners, DC disconnects, inverters, controller, AC disconnect, meter, and interconnection with the main electrical distribution equipment. Solar collectors shall be crystalline silicon (c-Si) type and shall be placed to allow for free airflow, no shading, and alignment within +/- 10 degrees of due south.

Inverters shall be commercial PV grade and high efficiency type. Utility meter shall be revenue grade. Assemblies, including rack frames and mounts, shall be made with non-corrosive metal and stainless steel hardware. The structural design for the PV system collector assembly (wind, snow, seismic, etc.) shall be prepared by the AE design firm. The system controller shall display system status and monitoring data and shall include current and voltage transformers, Lonworks and SNVT for remote monitoring, and interconnection to the DDC for transmitting solar irradiance, array temperature, inverter input and output amperage and voltage per phase, output frequency, and totalized inverter kW-hour output for day, month, and year to the Post UMCS.

The final quantity and rated power of solar PV modules shall be determined by the PV system designer / installer to satisfy the renewable energy requirements based on the local project conditions. The final PV system design shall have adequate capacity to supply the specified percentage of building electrical demand load. Assumptions in estimating the initial PV module quantities:

c-Si module nominal dimensions – 39" x 65" x 2"

c-Si module rated power (STC) – 230 watts

Allowance for dirt, PV module, and PV balance of system losses – 30% loss

Anticipated electrical connected load = 500 kVA

Estimated electrical demand kVA (70% of connected load) = 350 kVA

Estimated electrical demand kW (93% of apparent power) = 325 kW

Option #1 – 3% of the electrical demand load shall be served by the PV system:

$(325,000 \text{ watts} * 3\%) \div (230 \text{ watts} * 70\% \text{ eff.}) = 60 \text{ modules}$

Option #2 – 5% of the electrical demand load shall be served by the PV system:

$(390,000 \text{ watts} * 5\%) \div (230 \text{ watts} * 70\% \text{ eff.}) = 100 \text{ modules}$

The PV system shall include a comprehensive 5 year warranty. The manufacturer shall also repair or replace components of PV modules that fail to exhibit the minimum power output within the specified special warranty period. This special warranty applies to the PV modules only. The specified minimum power output shall be greater or equal to 85 percent for a period of 5 years and greater or equal to 70 percent for a period from year 5 to 20 years.

# TELECOMMUNICATIONS DESIGN

## Design Criteria References

- AEIM Southwestern Division Architecture and Engineering Instructions Manual
- ANSI / TIA / EIA Telecommunication Design Standards
- Army Standard for Central Issue Facility (CIF)
- I3A Technical Criteria for the Installation Information Infrastructure Architecture
- IBC International Building Code
- TI 800-01 Chapter 12 USACE Electrical Design Criteria
- Unified Facilities Criteria (UFC) 3-501-01, Electrical Engineering
- Unified Facilities Criteria (UFC) 3-520-01, Interior Electrical Systems
- Unified Facilities Criteria (UFC) 4-021-01 Design and O&M, Mass Notification Systems

## General

Voice and data systems shall be installed within telecommunications equipment rooms (TER) and telecommunications rooms (TR) in accordance with I3A Technical Criteria and ANSI / TIA / EIA 568 and 569 requirements. The facility shall be connected to the Post telecommunications systems through the outside plant (OSP) system. The telecommunications site infrastructure shall consist of two (2) 4'-0" x4'-0" fiberglass handholes near the property line. Underground telecommunications ductbanks shall consist of concrete encased PVC conduits. Three (3) 0'-4" underground conduits for fiber, copper, and spare shall route from one handhole to the TER, and one (1) 4 inch underground conduit for cable television shall route from the other handhole to the TER. The fiber conduit shall include three (3) 1-1/4 inch polyethylene interducts.

A 48-strand singlemode fiber optic (FO) incoming cable shall be provided from the OSP handhole to the TER and terminated on a 48-port FO patch panel. A 100-pair Category 3 voice copper incoming cable shall be provided from the OSP handhole to the TER and terminated on voice backbone 110-blocks. An RG-11 incoming cable shall be provided from the D-mark handhole to the TER.

Surge protection shall be provided for the following systems: fire alarm, mass notification, telephone, security, television, cable, paging, intercommunications, and data electronics. SPDs shall be in accordance with UFC 3-520-01, section 3-4.

## Interior Telecommunications Distribution

GFGI telecommunications equipment includes data servers, telephone switches, network electronics, computers and monitors, telephone / paging equipment and handsets, televisions, overhead projectors, security equipment and devices, and uninterruptible power supplies (UPS).

Two (2) 4 inch underground conduits shall interconnect the TER and each TR. The fiber conduit shall include three (3) 1-1/4 inch polyethylene interducts. A 12-strand singlemode fiber optic (FO) backbone cable shall be provided from the TER to each TR and shall be terminated on a 24-port FO patch panel. A 50-pair Category 3 voice backbone cable shall be provided from the TER to each TR and shall be terminated on voice backbone 110-blocks.

One power branch circuit panelboard with 3'-0" of clearance in front, and one 19" open relay rack with 3'-0" of clearance in the front and back shall be located in each TER and TR. A ground bar

shall be located in each TER and TR and the open relay rack shall be grounded to the ground bar. The ground bar shall be interconnected the main ground bar located in the main electrical room. A minimum of two walls within each TER and TR shall be covered with white painted 3/4" fire retardant plywood; however, the fire retardant stamp shall not be painted to allow for inspection.

Basket type cable tray shall be installed through the administrative and warehouse areas. Ladder type cable tray shall be installed for vertical transitions from the admin ceiling cavity level, up into to the warehouse structure ceiling space, and back down to the warehouse TER and TR. The cable tray shall be configured in a loop around the administrative core area and shall interconnect to the TER or a local TR. Cable tray interconnecting the warehouse TER and TR shall be routed within the ceiling structure along the center aisle of the warehouse storage racks. Horizontal communications and security cables shall be installed and managed in the basket cable trays. Horizontal cables shall be installed in metal raceways when they exit the cable trays, refer to the Electrical Section for Raceways.

### **Telephone and Data Systems**

Voice and data outlets shall include four Category 6 cables and connections, two white Category 6 cables for voice and two blue Category 6 cables for data. Each cable shall home run to the nearest TER or TR on the floor and shall not exceed 295'-0" in length. Voice and data outlets shall be terminated at 2-1/8" deep double-gang electrical back boxes. Data terminations shall be 8-pin, 8-position jacks utilizing T568A pin / pair configuration at the outlets and the patch panels. Voice terminations shall be made at the TER or TR 110-blocks. Voice and data outlets shall be provided at the following equipment and / or locations:

- Each office, multipurpose room, workstation, and fax
- Storage rooms for future conversion to office space
- Warehouse perimeter 50'-0" on center and at columns of center aisle storage racks

Data-only outlets shall be terminated at 2-1/8" deep double-gang electrical back boxes. Data outlets shall be provided at the following equipment and / or locations:

- Multipurpose room and orientation area overhead video projectors
- ATM, printers, and copiers
- WAP 50'-0" on center at ceilings of administrative and warehouse areas
- Future efficient automobile electrical charging stations (empty conduit only)

Voice-only wall telephone outlets shall be terminated at 2-1/4" deep single-gang electrical back boxes. Wall telephone outlets shall be provided at the following locations:

- Break rooms, exterior dock ramp, and outdoor covered shakedown area
- Mechanical, electrical, elevator machine room, TER and TR

### **Paging and Intercom Systems**

The paging system shall be integrated with the telecommunications system via a telephone interface. GFGI voice handsets shall be utilized for paging system activation and voice messages. The paging system shall allow for up to 8 unique zones and all-call. Paging speakers within administrative areas with lay-in ceilings shall be round recessed type with manual volume control. Paging loudspeakers at exterior locations and in high bay areas shall be directional horn-type. Interior speakers shall be located throughout the warehouse and administrative areas. Exterior speakers shall be weatherproof and listed for wet locations. Exterior speakers shall be

located at the docks and canopies. Paging system speakers shall be separate from the mass notification speakers. A disable circuit shall be provided to mute the general paging system while the mass notification system is broadcasting. GFGI voice paging handsets shall be located at the following locations:

- CIF manager's and supervisor's offices
- Issue / Turn-in and check-out workstations
- Warehouse perimeter 50' on center and at columns of center aisle storage racks
- Outdoor covered shakedown area and exterior dock ramp

The intercom system shall be integrated with the telecommunications system via a telephone interface. An intercom station shall be provided at the truck entry gate kiosk with an underground cable in conduit to the nearest TER or TR for interconnection to the telephone system. Entry through the truck entry gate shall be controlled from the warehouse supervisor's office and the CIF manager's office. Exit through the gate shall be controlled by an exit sensor loop.

### **Television and A/V Systems**

Cable television outlets shall include one RG 6 coaxial cable and an "F" connector. Each cable shall home run to the TER. Cable television cables shall be terminated in a 2-1/4" deep single-gang electrical back box. Cable television outlets shall be provided in CIF manager's office, break room, and on two sides of the multipurpose room, orientation area, and assembly area. A wall mounting kit shall be included for the televisions.

The audio / visual (A/V) system shall consist of empty conduits with plastic bushings and pull strings at the ceilings for overhead projectors in the multipurpose room and orientation area. The empty conduits shall extend to the overhead cable tray, or to the nearest TER or TR. A low profile ceiling mounting kit shall be included for the projectors.

### **Security Systems**

The security surveillance system shall consist of outlet boxes and empty conduits with pull strings for cameras at five (5) exterior building mounted cameras and the truck entry intercom kiosk. The security conduits shall extend to the TER, the cable tray shall not be utilized.

The security monitoring system shall consist of empty conduits and outlet boxes with pull strings for door contacts at each exterior man door and overhead door. The security conduits shall extend to the TER, the cable tray shall not be utilized.

## SUSTAINABLE DESIGN

The following pages briefly describe how the Central Issue Facility Standard Design Development LEED prerequisites and points will be achieved. See *Attachment B – LEED Checklist* for individual climatic zone checklists.

### SUSTAINABLE SITES

#### SSp1 – Construction Activity Pollution Prevention

**Required**

- Prevent loss of soil during construction by stormwater runoff and / or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving streams.
- Prevent polluting the air with dust and particulate matter.

#### SSc1 – Site Selection

**Points (1)**

- The project is not located on prime agricultural land.
- The site finished grade elevation is more than five feet above the elevation of the 100-year flood plain as defined by FEMA.
- It is not located on land which provides habitat for any species on the Federal or State threatened or endangered list.
- It is not within 100 feet of any wetland
- Site selected for development on previously developed site.
- Not public parkland prior to acquisition.

#### SSc3 – Brownfield Redevelopment

**Points (1)  
POSSIBLE**

- Provide description of site contamination and remediation efforts undertaken by the project

#### SSc4.2 – Alternate Transportation – Bicycle Storage and Changing Rooms

**Points (1)**

- Provide secure bicycle racks and / or storage with 200 yards of a building entrance for 5% or more of all building users (measured at peak periods).
  - (100) all building users x (5%) = 5 spots
- Provide shower and changing facilities in the building or with 200 yards of a building entrance for 0.5% of full-time equivalent (FTE) occupants.
  - (60) FTE staff occupants x (.5%) = .3 / 1 total spot

#### SSc4.3 – Alternate Transportation – Low Emitting & Fuel-Efficient Vehicles

**Points (3)**

- Provide preferred parking for these vehicles for 5% of total vehicle parking capacity of the site
  - (60) FTE staff occupants x (5%) = 3 spot

#### SSc4.4 – Alternate Transportation – Parking Capacity

**Points (2)**

- Size parking capacity to meet, but not exceed, minimum local zoning requirements, AND, provide preferred parking for carpools or vanpools for 5% of the total provided parking spaces.

**SSc6.2 – Storm Water – Quality Control****Points (1)**

- Reduce impervious cover and promote infiltration
- Capture and treat stormwater runoff from 90% of the average annual rainfall using acceptable BMP's
- BMP's must be capable of removing 80% of the average annual post development total suspended solids (TSS)

**SSc7.1 – Heat Island Effect – Nonroof****Points (1)****POSSIBLE**

- Provide any combination of the following strategies for 50% of the site hardscape (including roads, sidewalks, courtyards and parking lots)
  - Paving materials with a Solar Reflectance Index (SRI) of at least 29

**SSc7.2 – Heat Island Effect – Roof****Points (1)**

- Install a high albedo roof for at least 75% of the roof area.
  - Prepare roof drawings that show total roof area and the areas of reflective materials
  - List the roofing products, and their emittance percentages, reflectance percentages, SRI values, and slopes. Retain products specifications that verify product characteristics.

**SSc8 – Light Pollution Reduction****Points (1)****POSSIBLE**

- For interior lighting verify that no exterior windows exist
- Determine the zone classification of the project site
- Acquire manufacturer's data for lamps used on a project site
- Prepare a description of the light trespass analysis procedure conducted to determine credit compliance
- Develop a photometric site plan of parking areas that includes footcandle summary tables for light ratio.

**WATER EFFICIENCY****WEp1 – Water Use Reduction****Required**

- Decrease water consumption by 20% over the calculated baseline for the building (not including irrigation)

**WEc1 – Water Efficient Landscaping – Reduce 100%****Points (4)**

- A permanent landscape irrigation system is not required because no new plantings will be provided or temporary irrigation will be removed within (1) year and that the vegetated swale areas will utilize natural means of irrigation.

**WEc2 – Innovative Wastewater Technologies****Points (2)**

- Reduce potable water use for building sewage conveyance by 50% through the use of water-conserving fixtures (e.g., water closets, urinals) or nonpotable water (e.g., captured rainwater, recycled graywater, on-site or municipally treated wastewater).
- Treat 50% of wastewater on-site to tertiary standards. Treated water must be infiltrated or used on-site.



**WEc3 – Water Use Reduction – 35%****Points (3)**

- A water budget calculation demonstrating that occupancy based potable water consumption is reduced by 35% over baseline conditions will be provided in the design stage of this project.
  - 30% - 2 Points
  - 35% - 3 Points
  - 40% - 4 Points

**ENERGY AND ATMOSPHERE****EAp1 – Fundamental Commissioning of the Building’s Energy Systems      Required**

- A specification for commissioning of the building systems will be provided in the design stage of this project. The specification will include an overview of the commissioning process, a list of commissioned features and systems, identification of participants, a description of report including samples, and a listing of the expected reports.

**EAp2 – Minimum Energy Performance      Required**

- Demonstrate a 10% improvement in the proposed building performance rating
- Calculate the baseline performance rating according to the building performance rating method in Appendix G of ANSI / ASHRAE / IESNA Standard 90.1-2007

**EAp3 – Fundamental Refrigerant Management      Required**

- Zero use of CFC-based refrigerants in new base building HVAC&R systems.

**EAc1 – Optimize Energy Performance – *Savings Varies per Region*      Points (10-15)**

- A design narrative will be provided in the design stage of this project highlighting energy saving measures incorporated in the building design.
- In order to meet LEED Silver requirements, successful DBGC designer could submit CIR to USGBC for variance on baseline system requirements as described by ASHRAE 90.1 which places this building type into category 7. Building type 3, a less efficient baseline system, as described by ASHRAE 90.1 is described with the following characteristics; fan control: constant volume, cooling type: direct expansion, heating type: fossil fuel furnace (natural gas).

**EAc2 – On-Site Renewable Energy – *Savings Varies per Region*      Points (4-7)**

- Use on-site renewable energy systems to offset building energy costs. Calculate project performance by expressing the energy produced by the renewable systems as a percentage of the building’s annual energy cost and use the table below to determine the number of points achieved.
  - 1% - 1 Point
  - 3% - 2 Points
  - 5% - 3 Points
  - 7% - 4 Points
  - 9% - 5 Points
  - 11% - 6 Points
  - 13% - 7 Points

**EAc3 – Enhanced Commissioning****Points (2)**

- Provide the systems manual that covers the commissioned systems, and provides future operating staff with information needed to understand and optimally operate the commissioned systems. If the systems manual is pending completion of Commissioning, upload a draft of the systems manual.
- Provide the contract between owner and CxA ensuring CxA involvement post-construction. Financial information may be redacted / omitted.

**EAc4 – Enhanced Refrigerant Management****Points (2)**

- Select refrigerants and heating, ventilating, air conditioning and refrigeration (HVAC&R) that minimize or eliminate the emission of compounds that contribute to ozone depletion and global climate change.

**EAc5 – Measurement and Verification****Points (3)**

- Provide the Measurement and Verification Plan consistent with Option B: Energy Conservation Measure Isolation in IPMVP Volume III.
- Provide the Measurement and Verification Plan consistent with Option D: Calibrated Simulation (Estimated Savings Method) in IPMVP Volume III.

**MATERIALS AND RESOURCES****MRp1 – Storage & Collection of Recyclables****Required**

- An area will be dedicated for the separation, collection and storage of materials for recycling including paper, glass, plastic and metals.

**MRc2 – Construction Waste Management****Points (2)**

- Recycle and or salvage 75% of construction, demolition and land clearing waste.

**MRc4 – Recycled Content****Points (2)**

- Use materials with recycled content such that the sum of postconsumer recycled content plus 1/2 of the preconsumer<sup>3</sup> content constitutes at least 20%, based on cost, of the total value of the materials in the project.

**MRc5 – Regional Materials – 10%****Points (1)****(1) POSSIBLE**

- A minimum of 10% of building materials for this project that are manufactured regionally within a radius of 500 miles will be specified. The specifications will be developed around local and regional materials. Of those regionally manufactured materials, 50% of the materials will be specified to be extracted, harvested or recovered within 500 miles
- The specifications and contractor submittals highlighting local materials installed will be submitted post construction.
- A spreadsheet of all materials used on the project highlighting locally manufactured materials. Including the location of the material manufacturer to the project site, the costs of all materials for the project, and calculations demonstrating that 10% of building materials are manufactured within 500 miles of the project site will be submitted post construction.
- Calculations showing that 50% of the 10% manufactured locally will be submitted post construction.

**MRc7 – Certified Wood****Points (1)**

- Use 50%(based on cost) of wood based materials and products that are certified in accordance with the Forest Stewardship Council's Principles and criteria for wood building components.

**INDOOR ENVIRONMENTAL QUALITY****IEQp1 – Minimum IAQ Performance****Required**

- The HVAC systems will comply with Sections 4-7 of ASHRAE 62.1-2007.

**IEQp2 – Environmental Tobacco Smoke (ETS) Control****Required**

- All military buildings are designated as non-smoking

**EQc1 – Outdoor Air Delivery Monitoring****Points (1)**

- Drawings and specifications will be provided in the design stage of this project highlighting the permanent carbon dioxide monitoring system. Outdoor Air Delivery Monitoring should specify that all monitoring equipment should be configured to generate an alarm when airflow values or carbon dioxide (CO<sub>2</sub>) levels vary by 10% or more from the design values as prescribed.

**IEQc3.1 – Construction IAQ Management Plan – During Construction****Points (1)**

- During construction meet or exceed the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd Edition 2007, ANSI / SMACNA008-2008 (Chapter 3.)
- Protect stored on-site or installed absorptive materials from moisture damage.
- If permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 shall be used at each return air grille, as determined by ASHRAE 52.2-1999. Replace all filtration media immediately prior to occupancy.

**IEQc3.2 – Construction IAQ Management Plan – Before Occupancy****Points (1)**

- After construction ends, prior to occupancy and with all interior finishes installed, perform a building flushout by supplying a total air volume of 14,000 cu.ft. of outdoor air per sq.ft. of floor area while maintaining an internal temperature of at least 60 degrees F and relative humidity no higher than 60%.

**IEQc4.1 – Low-Emitting Materials – Adhesives and Sealants****Points (1)**

- Adhesives that will be specified will meet or exceed the VOC limits of South Coast Air Quality management District Rule #1168 and all sealant used as filler must meet or exceed Bay Area Air Resources Board Reg8, Rule 51. The specification will reflect these requirements.
- Cut sheets and material Data Sheet (MSDS) for each adhesive used in the building highlighting VOC limits will be submitted post construction.

**IEQc4.2 – Low-Emitting Materials – Paints and Coatings****Points (1)**

- Paints and coatings will meet or exceed the VOC and chemical component limits of Green Seal Requirements. The specification will reflect these requirements.

**IEQc4.3 – Low-Emitting Materials – Flooring Systems****Points (1)**

- Carpet systems will meet or exceed the Carpet and Rug Institute Green Label Indoor air Quality Test Program. The specification will reflect these requirements.

**IEQc4.4 – Low-Emitting Materials – Composite Wood & Agrifiber Products Points (1)**

- Provide a listing of each composite wood and agrifiber product installed in the building interior. Confirm that the product does not contain any added urea-formaldehyde.

**IEQc5 – Indoor Chemical and Pollutant Source Control Points (1)**

- Employ entry systems (grills) to capture particulates and provide housekeeping areas with dedicated exhaust ventilation systems.
- In mechanically ventilated buildings, install new air filtration media in regularly occupied areas prior to occupancy; these filters must provide minimum efficiency reporting value (MERV) of 13 or higher. Filtration should be applied to process both return and outside air that is delivered as supply air.

**IEQc6.1 – Controllability of Systems – Lighting Points (1)**

- Provide individual lighting controls for 90% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences.  
AND
- Provide lighting system controllability for all shared multi-occupant spaces to enable lighting adjustment that meets group needs and preferences.

**EQc7.1 – Thermal Comfort - Design Points (1)**

- Provide a comfortable thermal environment that promotes occupant productivity and well-being.

**EQc8.1 – Daylight & Views – Daylight Points (1)**

- Provide a minimum glazing factor of 2% in a minimum of 75% of all regularly occupied areas.

**INNOVATION & DESIGN PROCESS Points (1)**

**IDc1.1 - Pilot Credit 10: WE - Sustainable Wastewater Management**

- Reuse building wastewater on site. Use water from approved non-potable sources including:
  - recycled wastewater (on-site or municipally supplied)
  - air conditioner condensate
  - rainwater
  - steam system condensate
  - fluid cooler discharge water
  - ice machine condensate

**IDc2 – LEED Accredited Professional Points (1)**

- At least one principal participant of the project team shall be a LEED Accredited Professional (AP).

**REGIONAL PRIORITY CREDITS**

**RPc1.1 – RPc1.4 Points (1 x 4 POSSIBLE)**

- Earn 1 of the 6 Regional Priority Credits (credits identified by the USGBC Regional Councils and Chapters as having additional regional environmental importance). Project teams must meet or exceed the threshold listed to earn an RPC point.

## **Attachment A – Room by Room Analysis**



## **CENTRAL ISSUE FACILITY STANDARD DESIGN DEVELOPMENT**

### **CORRECTED FINAL DESIGN SUBMISSION ROOM BY ROOM ANALYSIS**

Central Issue Facility – Large (CIF – Large)

Central Initial Facility – Initial Entry (CIF – Initial Entry)

**W9126G-11-D-0034, 0004**

## 1 GENERAL

This Room by Room Analysis defines minimum requirements for planning and development of Central Issue Facilities. This Analysis includes information on applicable standards and codes, site planning, exterior construction / structural design, interior space design and utilities.

### 1.1 SCOPE

- a) This Analysis shall be applied to the design of new Central Issue Facilities.
- b) This Analysis is intended for use with appropriate design guides and codes (e.g., IBC, IFC, and NFPA).
- c) This Analysis will not cover all factors and requirements necessary to complete each and every specific project. It is the responsibility of the Project Lead, or similar person of responsibility, to provide the project specific Statement of Requirements (SOR) before the Design Team can complete its project specific Scope of Work.

### 1.2 REFERENCES

The following normative documents contain requirements that, through reference in this text, constitute requirements of this technical practice. Parties to agreements based on this technical practice are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

#### Unified Facilities Guide Specifications (UFGS)

Unified Facilities Criteria (UFC) 1-200-01	General Building Requirements, 16 August 2010
Unified Facilities Criteria (UFC) 3-400-01	Energy Conservation
Unified Facilities Criteria (UFC) 3-201-02	Landscape Architecture
Unified Facilities Criteria (UFC) 3-210-01A	Area Planning, Site Planning, and Design
Unified Facilities Criteria (UFC) 3-210-02	POV Site Circulation and Parking
Unified Facilities Criteria (UFC) 3-210-06A	Site Planning and Design
Unified Facilities Criteria (UFC) 3-230-01	Water Storage, Distribution, and Transmission
Unified Facilities Criteria (UFC) 3-230-17FA	Drainage in Areas other than Airfields
Unified Facilities Criteria (UFC) 3-240-01	Wastewater Collection
Unified Facilities Criteria (UFC) 3-250-01FA	Pavement Design for Roads, Streets, Walks, and Open Storage Areas
Unified Facilities Criteria (UFC) 3-400-02	Design: Engineering Weather Data
Unified Facilities Criteria (UFC) 3-410-01FA	Heating, Ventilating, and Air Conditioning
Unified Facilities Criteria (UFC) 3-420-01	Design: Plumbing Systems
Unified Facilities Criteria (UFC) 3-501-01	Electrical Engineering
Unified Facilities Criteria (UFC) 3-520-01	Interior Electrical Systems
Unified Facilities Criteria (UFC) 3-530-01	Design: Interior and Exterior Lighting and Controls
Unified Facilities Criteria (UFC) 3-575-01	Lightning and Static Electricity Protection Systems
Unified Facilities Criteria (UFC) 3-600-01	Design: Fire Protection Engineering for Facilities
Unified Facilities Criteria (UFC) 4-010-01	DoD Minimum Antiterrorism Standards for Buildings
Unified Facilities Criteria (UFC) 4-021-01	Design and O&M: Mass Notification Systems

### **National Fire Protection Association (NFPA)**

NFPA 1	Fire Code
NFPA 10	Standard for Portable Fire Extinguishers
NFPA 13	Installation of Sprinkler Systems.
NFPA 20	Standard for Installation of Stationary Pumps for Fire Protection
NFPA 24	Standard for Installation of Private Fire Service Mains and Their Appurtenances
NFPA 25	Standard for the Inspection, Testing and Maintenance of Water Based Fire Protection Systems
NFPA 54	National Fuel Gas Code
NFPA 70	National Electric Code (NEC)
NFPA 72	National Fire Alarm and Signaling Code
NFPA 90A	Standard for the Installation of Air-Conditioning and Ventilating Systems
NFPA 101	Life Safety Code
NFPA 291	Recommended Practice for Fire Flow Testing and Marking of Hydrants
NFPA 780	Standard for the Installation of Lightning Protection Systems

### **American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)**

ASHRAE 62.1-2007	Ventilation for Acceptable Indoor Air Quality
ASHRAE 90.1	Energy Standard for Buildings Except Low-Rise Residential
ASHRAE 189.1	Standard for the Design of High-Performance Green Buildings
ASHRAE Handbook Ch. 49	Service Water Heating

### **American Society for Testing and Materials (ASTM)**

ASTM C150	Specification for Portland Cement
ASTM E119	Method for Fire Tests of Building Construction and Materials

### **Underwriters Laboratories (UL)**

UL 1709	Standard for Safety Rapid Rise Fire Tests of Protection Materials for Structural Steel
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### **Other**

AEIM Southwestern Division Architecture and Engineering Instructions Manual, latest edition  
Technical Instructions (TI) 800-01, U.S. Army Corps of Engineers Design Criteria  
Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines (ADAAG)  
Architectural Barriers Act Accessibility Standard (ABA)  
International Building Code  
International Mechanical Code  
International Plumbing Code  
International Fuel Gas Code  
American Society of Mechanical Engineers (ASME) A112.19.2 Vitreous China Plumbing  
American National Standard for Accessible and Useable Buildings and Facilities. (CABO A117.1)  
All applicable Federal laws and mandates, i.e. EPACT05, EISA 2007, ASHRAE 189.1-2009  
ACGIH Industrial Ventilation Manual



Federal Specifications WW-P-541 Plumbing Fixtures  
Plumbing and Drainage Institute (PDI-WH-201 1992) Water Hammer Arresters  
Fixture and Hydraulic Requirements for Water Closets and Urinals  
EO 13423 Executive Order 13423 (Federal Environmental / Energy Management)  
Clean Water Act, National Pollutant Discharge Elimination System (NPDES) permit program  
IESNA Lighting Handbook - Reference and Application  
ANSI / TIA / EIA Telecommunication Design Standards  
I3A Technical Criteria for the Installation Information Infrastructure Architecture

## **2 INTRODUCTION TO STANDARDS**

### **2.1 PURPOSE OF STANDARDS**

This document serves as a space planning and design guideline for all future Central Issue Facilities. These standards set a minimum basis of design that is to be utilized by Architects and Engineers (in this document referred to as the Designer). If an addition to an existing facility is required, this document can be interpreted by the user to accommodate the addition, but the document is written specifically for full service facilities.

There are three main purposes for this Analysis:

- a) To aid Project Managers in developing new Central Issue Facilities projects Statement of Requirements (SOR) as each specific need arises.
- b) To aid Project Managers in the development of initial project budgets by establishing a consistent SOR for development of costs orders of magnitude.
- c) To aid the Designer in the development of design and construction of new Central Issue Facilities.

This document is not intended to replace progressive architecture/engineering or to impede the constant search for new designs, new materials or new methods that permit better and more economical designs in the future.

### **2.2 GENERAL REQUIREMENTS**

The Central Issue Facility shall be of commercial construction standards. It will be comprised of the following areas:

- Administration
- Building Services
- Building Support
- Circulation
- Issue / Turn-In
- Warehouse
- Rapid Fielding Initiative (RFI) (as required)

Additionally, all CIFs shall:

- a) Be protected by an automatic fire suppression system and full detection system in all areas including closets and any conditioned spaces.
- b) Meet LEED Silver certification criteria.
- c) Provide Recycling areas.

Planning for each type of facility is defined further in section 6. INTERIOR SPACE DESIGN.

### **2.3 CODES AND ARMY STANDARDS**

This document is to be used in conjunction with ARMY specifications, design criteria standards as well as federal, state and local codes and best practices methods.

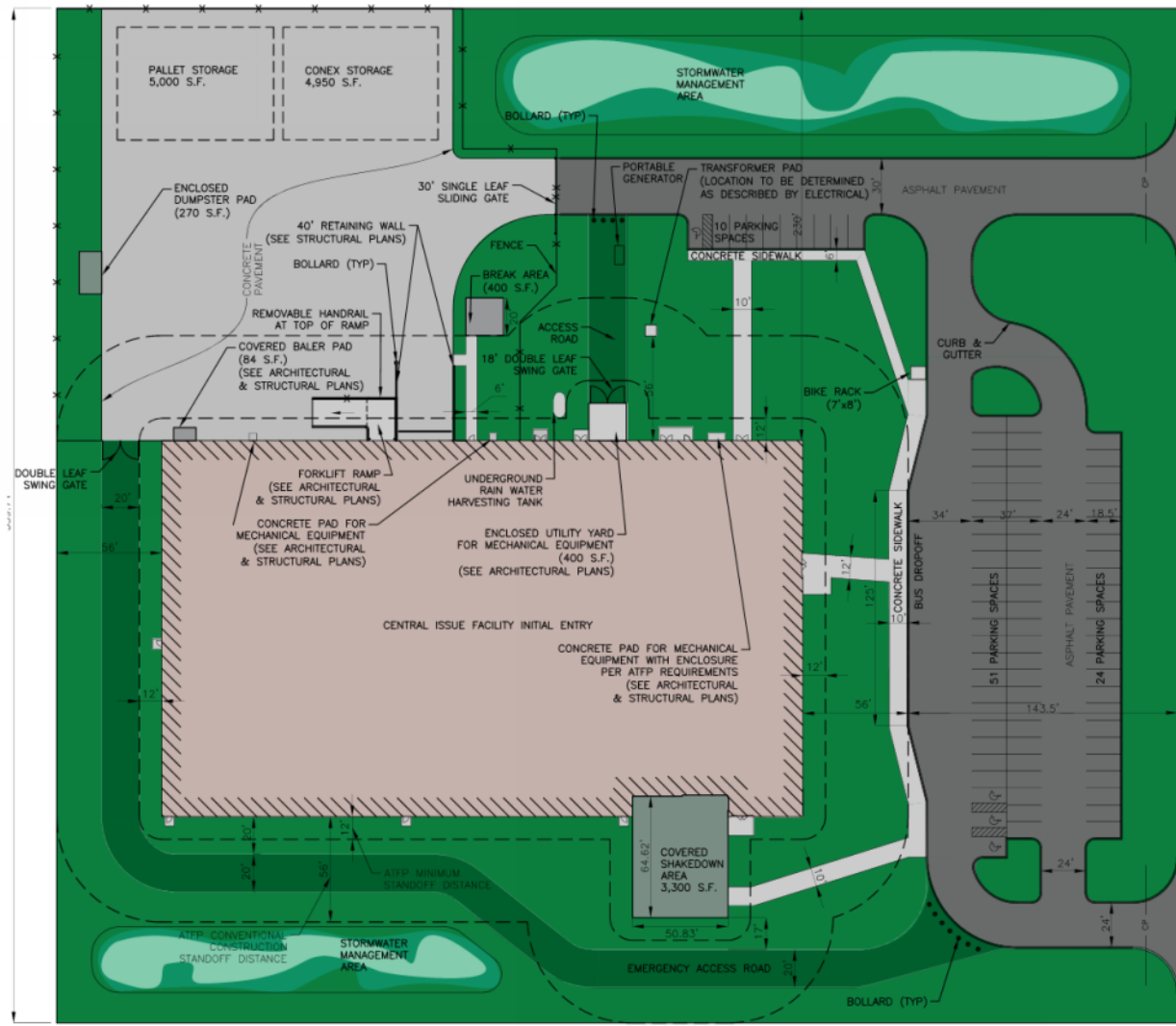
### 3 PLANNING for an INHERENTLY SAFER DESIGN

#### 3.1 GENERAL DESIGN GUIDELINES

There are multiple technical issues which need to be addressed when laying out a site for a new facility. Specific codes and ARMY standards that must be adhered to for site planning are listed in section 2.3 CODES & ARMY STANDARDS of this document.

The following is a list of general guidelines to consider for the layout of a facility site:

- a) Vehicular Access to any loading dock shall be coordinated with the external site layout, as well as, the interior space layout.
- b) Coordinate with the electrical designer where heat trace is required for underground utilities.
- c) If the new facility is located adjacent to existing site infrastructure coordination between existing and proposed should be carefully considered with minimal impact on the functions of existing infrastructure. In addition, the distance of the new facility from any existing hazardous facility shall be reviewed against Life Safety standards.



Proposed Site Plan for CIF – Initial Entry

### 3.2 SQUARE FOOTAGE REQUIREMENTS

The following charts represent the required square footages based by buildings.

<b>Administrative Area</b>							
NOTE: Specific facilities may require fewer personnel or a different mix of administrative spaces. The net area of Administrative spaces that are not required by a particular facility may be added to the net area of other spaces to maintain the designated Overall Gross Square Footage.							
<b>NET AREA</b>							
<b>SPACE</b>	<b>CIF Large</b>			<b>CIF Initial Entry</b>			<b>REMARKS</b>
	Quantity	Net Area SF	Total Net SF	Quantity	Net Area SF	Total Net SF	
Reception		195	195		280	280	
CIF Manager	1	120	120	1	120	120	
CIF Asst Manager	1	125	125	1	120	120	
Administration	1	325	325	1	345	345	
Multipurpose Room	1	505	505	1	500	500	
Property Book Office	1	120	120	1	120	120	
GP Storeroom	1	100	100	1	105	105	
Property Section Admin	1	580	580	1	750	750	
Vending	1	105	105	1	125	125	
Team Room	1	150	150	1	280	280	
Lactation Room	1	50	50	1	65	65	
Records Holding	1	275	275	1	235	235	
Closet	1	35	35	1	65	65	
<b>Administrative Area Total</b>			<b>2,685</b>			<b>2,985</b>	

<b>Building Services</b>							
NOTE: Specific facilities may require fewer personnel or a different mix of administrative spaces. The net area of Administrative spaces that are not required by a particular facility may be added to the net area of other spaces to maintain the designated Overall Gross Square Footage.							
<b>NET AREA</b>							
<b>SPACE</b>	<b>CIF Large</b>			<b>CIF Initial Entry</b>			<b>REMARKS</b>
	Quantity	Net Area SF	Total Net SF	Quantity	Net Area SF	Total Net SF	
Men's Room - Visitor	1	190	190	1	305	305	Restroom size to be Fixture Quantity Dependent
Women's Room - Visitor	1	240	240	1	230	230	
Men's Room - Staff	1	280	280	1	230	230	
Women's Room - Staff	1	290	290	1	235	235	
Women's Room	0	0	0	1	275	275	
Men's Room	0	0	0	1	285	285	
Toilet	1	45	45	1	85	85	
Break Room	1	425	425	1	505	505	
<b>Building Services Total</b>			<b>1,470</b>			<b>2,150</b>	

**Building Support**

NOTE: The net area of Building Support spaces that are not required by a particular facility may be added to the net area of other spaces to maintain the designated Overall Gross Square Footage.

SPACE	NET AREA						REMARKS
	CIF Large			CIF Initial Entry			
	Quantity	Net Area SF	Total Net SF	Quantity	Net Area SF	Total Net SF	
Electrical Room	1	400	400	1	390	390	
Telephone Equipment Room	1	160	160	1	195	195	
Fire Protection Room	1	305	305	1	380	380	As required
Mechanical Room	1	535	535	1	670	670	
Telecom Room	1	50	50	1	30	30	
Telecom Room	3	40	120	1	65	65	
Janitor's Closet	1	35	35	1	50	50	
Electrical Closet		0	0	1	30	30	
<b>Building Support Totals</b>			<b>1,605</b>			<b>1,810</b>	

**Circulation**

NOTE: The net area of Circulation spaces that are not required by a particular facility may be added to the net area of other spaces to maintain the designated Overall Gross Square Footage.

SPACE	NET AREA						REMARKS
	CIF Large			CIF Initial Entry			
	Quantity	Net Area SF	Total Net SF	Quantity	Net Area SF	Total Net SF	
Main Entrance Vestibule	1	170	170	1	135	135	
Main Exit Vestibule	1	255	255	1	155	155	
Vestibule		0	0	1	155	155	
Pass-Thru	1	145	145	1	185	185	
Corridor	1	435	435	1	1650	1650	
Stairs				2	240	480	
Elevator				1	60	60	
<b>Circulation Totals</b>			<b>1,005</b>			<b>2,820</b>	

**Issue / Turn-In**

NOTE: The net area of Issue / Turn-In spaces that are not required by a particular facility may be added to the net area of other spaces to maintain the designated Overall Gross Square Footage.

SPACE	NET AREA						Remarks
	CIF Large			CIF Initial Entry			
	Quantity	Net Area SF	Total Net SF	Quantity	Net Area SF	Total Net SF	
Issue / Turn-In		1955	1955		1,320	1,320	
Issue / Turn-In Support		2430	2430		2510	2510	
Special Mos / Turn-In / Issue	1	380	380	1	450	450	
Queuing / Orientation		1885	1885		3265	3265	
Fitting Room	7	30	210	6	40	240	
Assembly / Waiting		675	675		3120	3120	
Final Processing / Checkout		995	995		1500	1500	
Carts		55	55		140	140	Cart Quantity Dependent
Corridor				1	145	145	
<b>Issue / Turn-In Totals</b>			<b>8,585</b>			<b>12,690</b>	

**Warehouse**

NOTE: The net area of Warehouse spaces that are not required by a particular facility may be added to the net area of other spaces to maintain the designated Overall Gross Square Footage.

SPACE	NET AREA						Remarks
	CIF Large			CIF Initial Entry			
	Quantity	Net Area SF	Total Net SF	Quantity	Net Area SF	Total Net SF	
Shipping / Receiving		24,050	24,050		15,100	15,100	
Warehouse Storage		60,848	60,848		31,030	31,030	
Secure Storage	1	340	340	1	375	375	
Repair	1	340	340	1	340	340	
Classification	1	340	340	1	340	340	
Warehouse Office	1	340	340				
GP Storeroom	1	100	100				
Recycle / Storage	1	110	110	1	175	175	
Warehouse Supervisor	1	105	105	1	125	125	
Kitting Area	2	110	220	2	180	360	
Forklift Charging		220	220		390	390	
<b>Warehouse Totals</b>			<b>87,013</b>			<b>48,235</b>	

**RFI**

NOTE: The RFI is included when requested by the Installation.

SPACE	NET AREA						Remarks
	CIF Large			CIF Initial Entry			
	Quantity	Net Area SF	Total Net SF	Quantity	Net Area SF	Total Net SF	
RFI		16,751	16,751		0	0	
<b>RFI Total</b>			<b>16,751</b>			<b>0</b>	

**Totals**

	CIF Large	CIF Initial Entry
<b>Net Building Area</b>	<b>119,114</b>	<b>70,960</b>
<b>Allowance for Exterior Walls @ 2%</b>	<b>2,382</b>	<b>1,414</b>
<b>Total Building GSF</b>	<b>121,496</b>	<b>72,395</b>

## 4 ARCHITECTURAL DESIGN

### 4.1 GENERAL DESIGN GUIDELINES

#### 4.1.1 Structural Design

Design and construct as a complete system in accordance with the following applicable criteria:

- Column spacing shall not be less than 25 feet in the long direction of building and 60 feet (in warehouse) in the narrow direction. Columns are to be spaced in such a way as to allow standard industrial shelving for palletized loading. Shelving shall be constructed in a back-to-back double row configuration with no interspersed single rows. Preference is to have no freestanding columns in open warehouse space.
  
- Live Loads: Design live loads shall be per the IBC but not lower than the following minimums.
  1. Primary roof members, exposed to work floor (in addition to the uniform load): Single panel point on lower chord of roof trusses or any point along primary structural members supporting roofs.....2,000 pounds
  2. Floor slab:
  3. Warehouse (slab on grade): The most stringent loading of the following:
    - a) Uniform Load.....300 psf
    - b) Fork lift with lifting capacity of .....5,000 lb
    - c) Pallets with average weight of 1200 lb each will be stacked 6 high in pallets storage racks with the first pallet sitting on the floor. (Maximum pallet weight is 2500 lb). Slab shall be designed for all loads induced on slab by racking system.
  4. Administration (slab on grade).....250 psf
  5. Mezzanine (elevated slab).....150 psf

#### 4.1.2 Architectural Design

Exterior walls and roof/floor/ceiling assemblies, doors, windows and interior partitions shall be designed to provide for attenuation of external noise sources such as airfields in accordance with applicable criteria, but no less than the following:

- a) Interior partitions – STC 42
- b) Exterior walls – STC 49
- c) Doors and frames – STC 35
- d) Ceilings - CAC 38

Due to the operation of mechanical and electrical systems and devices, sound conditions and levels for interior spaces shall not exceed levels as recommended by ASHRAE handbook criteria. Provide acoustical treatment for drain lines and other utilities to prevent noise transmission into the offices and other areas requiring noise suppression.

All exterior doors from the facility shall not have a step in the case of an emergency. The exterior pathways from activity room and corridor doors shall meet ADA. Exterior Doors: Provide galvanized insulated hollow metal exterior doors for entry to all spaces other than corridors, lobbies, or



reception/waiting rooms. Doors and frames shall comply with applicable codes and criteria. Doors shall be heavy duty (grade 2) insulated with 18-gage steel cladding; top edge closed flush; A60 galvanized. Frames shall be 12-gauge, with continuously welded mitered corners and seamless face joints. Doors and frames shall be constructed of hot dipped zinc coated steel sheet, complying with ASTM A653, Commercial Steel, Type B, minimum A40 coating weight; factory primed. Fire-rated openings shall comply with applicable codes, and the requirements of the labeling authority. Door and frame installation shall comply with applicable codes and criteria. Exit devices shall be installed all building egress doors. Provide aluminum storefront doors and frames where indicated.

Interior Wood Doors: Provide flush solid core wood doors with Grade A hardwood face veneer for transparent finish. Stile edges shall be non-finger jointed hardwood compatible with face veneer. Provide wood doors at all interior locations except noted otherwise. Hollow Metal Frames: Comply with ANSI A250.8/SDI 100. Frames shall be minimum Level 3, 16 gauge, with continuously welded mitered corners and seamless face joints; factory primed.

Finish Hardware: All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided. The Installation's keying system is Best Access Systems B.A.S.I.S. G. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. Plastic cores are unacceptable. Provide closers for all exterior doors, all doors opening to corridors and as required by codes.

Where exterior windows are provided the following requirements shall be met. Shall comply with ATFP requirements.

Safety glass shall be provided where required by code or Authorities Having Jurisdiction, with a manufacturer's label indicating that the glass is safety glass.

Refer to the Army Standard for additional information on View Windows and Vision Panels. View Windows extend from 18"-24" above the floor to the height of the top of the door. Vision Panels extend from 54" above the floor to the height of the top of the door. • Wall, ceiling and floor finishes and movable partitions shall conform to the requirements of the IBC, NFPA and UFC 3-600-01 Fire Protection Engineering for Facilities. Where code requirements conflict, the most stringent code requirement shall apply.

Provide sustainable materials and furnishings that are easily maintained and replaced. Maximize use of day lighting. Provide interior surfaces that are easy to clean and light in color. Interior spaces should be structured to allow maximum flexibility for future modifications.

Carpet shall be minimum of 2 yarn ply, modular tile conforming to ISO 2551, ASTM D 418, ASTM D 5793, ASTM D 5848, solution dyed, tufted, cut and loop pile, commercial 100% branded (federally registered trademark) nylon continuous filament. Vinyl composition tile (VCT) shall be minimum 1/8 inch thick, conforming to ASTM F 1066, Class 2, through pattern tile, Composition 1, asbestos free, with color and pattern uniformly distributed throughout the thickness of the tile.

Where ceramic or quarry tile is provided, grout shall be non-staining and resistant to liquid absorption.

Walls: All wall finish shall be minimum 5/8" painted gypsum board, except where stated otherwise. Gypsum board shall be paperless gypsum board. Use impact resistant paperless gypsum board in corridors and storage rooms. Gypsum wall board shall not be used as a wall finish in the warehouse area below 8 feet above finish floor. The warehouse side of all gypsum wall board partitions shall have a minimum 20 gage sheet metal finish up to a height of 8 feet above the finish floor.

Corner guards are to be provided on all outside corners of interior walls.

All ceiling finishes shall be minimum 5/8" painted gypsum board, except where stated otherwise. Gypsum board shall be paperless gypsum board.

Unless noted otherwise in this document, all ceiling heights shall be a nominal 9'-0".

In storage rooms where shelves are provided, interior shall be marked with a red line 1 inch in width and located 18 inches below the lowest point of the sprinkler head.

Window Treatment: Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

Provide interior signage as required by applicable codes and criteria.

Toilet partition doors shall include latching hardware and coat hooks.

If automatic flushing toilets are used, the sensors must be hard wired and not battery operated.

The exterior envelope, or shell, of the facility includes roof construction, exterior wall construction, superstructure construction and soffit construction. The construction of this envelope must plan and accommodate for multiple variables listed below. Where the term exterior construction or exterior envelope is written below, this is comprised of roof construction, exterior wall construction, superstructure construction and soffit construction:

The design of the exterior construction shall minimize the amount of heat loss to as little as possible, as well as minimize interior temperature differentials as efficiently as possible. Exterior walls should be designed with a minimum thermal resistance (R-value) of 35. The roof should be designed with an R-value of 52. Where facilities are elevated above grade the enclosed soffit below shall be designed with an R-value of 43.

The exterior envelope must resist air and/or water infiltration from wind and wind driven snow or rain. The exterior envelope should be designed and constructed as a whole barrier system. The material used for the skin of the exterior construction shall withstand design wind loads.

Construction for the entire exterior envelope shall consist of fire resistant and non-combustible materials.

Regarding security and safety, the natural risks, hazards and disasters local to the area shall be considered and anticipated. Appropriate security for building occupants and assets shall also be provided.

Penetrations through any part of the exterior envelope should be kept to a minimum. If this is unavoidable, careful consideration shall be given to the detail design of the penetration to maintain the thermal and vapor integrity of the exterior construction.

Fenestrations such as windows and doors need to be selected based on insulating properties and durability against winds. It is suggested that windows are set flush to the exterior envelope so that there is a complete single exterior surface. Special detail design consideration should be made for the perimeter of the window as it is common that this is the location where the envelope will lose its integrity. In cases where metal is used for windows and doors, a thermal break shall be provided. In general, for both doors and windows, the most efficient products readily available on the market at the time of construction should be used.

Another type of fenestration – louvers – shall be designed to decrease air velocity and keep snow from filtering into the facility interior.

It is suggested that the color of the roofing material be a light color with a high solar reflectance to limit solar gain. The slope of the roof should be as low as possible with a slope of 1:12 being the minimum allowed. Roof overhangs shall be avoided due to wind uplift.

All exterior entrance and exit components shall be designed to assure the utmost safety for the occupants.

#### **4.1.3 Mechanical Design**

- Equipment shall be located internally in as much as possible due to climatic conditions. Consideration for removal and/or replacement of equipment shall be considered. All access points must be designed to support maximum equipment loads should equipment removal and replacement be necessary.
- Building shall be heated and cooled in accordance with the latest version of ASHRAE criteria and the International Mechanical Code.
- Plumbing systems shall be designed in accordance with the latest version of International Plumbing Code.
- The fire protection system shall be designed in accordance with latest version of the applicable NFPA and UFC criteria

#### **4.1.4 Fire Alarm Design**

- There shall be one complete addressable Fire Alarm System for each building. This system shall consist of a Fire Alarm Panel, a communication device, initiating devices and notification devices. Class type addressable systems shall be installed according to the local fire marshal.

- The fire alarm system shall be designed by a professional Fire Protection Engineer and installed by a National Institute for Certification of Engineering Technologies (NICET) 3 technician.
- All software, software locks, special tools and any other proprietary equipment required to maintain, add devices to or delete devices from the system, or test the Fire Alarm system shall become property of the Government and be furnished to the Contracting Officer's Representative prior to final inspection of the system.
- Mass notification system shall meet intelligibility requirements up to a distance of 30' from the building's perimeter and in all court yards. Visible notification appliances are not required on the building's exterior walls.
- A zoned paging system shall be provided throughout the facility and integrated with the telephone system. System may utilize mass notification amplifiers and speakers, but shall be overridden by the mass notification system if mass notification system is activated while the paging system is being utilized. System shall have a minimum capacity of eight zones. Facility shall be zoned per user requirements.

#### **4.1.5 Electrical Design**

- Interior lighting controls and lighting power density shall be provided in accordance with ASHRAE 189.1. Design illuminance shall meet IESNA. All compact fluorescent lamps shall be a minimum of 13 watts. Provided lighting levels shall be within +/- 10% of required lighting levels. All interior areas, other than the Warehouse, shall be illuminated using fluorescent or LED lighting fixtures.
- Voice/data outlets shall be two 8-pin modular (RJ45 type) outlet/connector in a double gang outlet faceplate, one connector labeled voice use and one labeled data use. Copper outlet/connector must be TIA/EIA Category 6 for all projects. All connectors must be 8-pin/8-position insulation displacement terminations wired per T568A (default configuration).
- Wireless access point (WAP): Provide WAP outlets to the building with one-Cat 6, unshielded twisted pair (UTP) cable, to a standard 8-pin modular connector for each wireless WAP outlet. WAP outlets shall be installed in accordance with the Technical Guide for I3A.
- Wall mounted receptacles and dual port (voice/data) communication outlets shall generally be mounted 18" above finished floor unless otherwise noted. Above counter receptacles shall be mounted in the vertical wall space 6" above the counter-top unless otherwise noted.
- Wall mounted CATV outlets shall generally be mounted 7' above finished floor unless otherwise noted.
- Per code, emergency lighting shall be provided in the Mechanical Room.
- Provide mass notification system in accordance with UFC 4-021-01.
- Electrical circuit breaker panels may be located in the corridors if they are provided with locks.
- GFCI outlets shall be installed per electrical code.

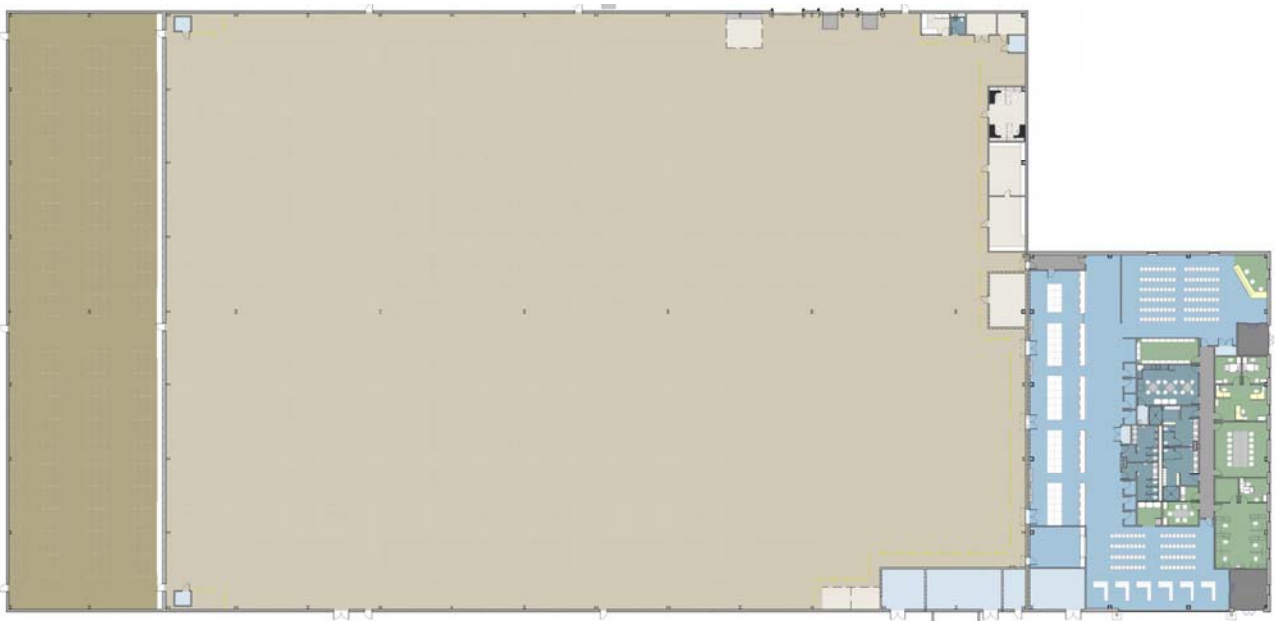
## 5 INTERIOR SPACE DESIGN

### 5.1 GENERAL GUIDELINES FOR INTERIOR SPACE PLANNING

For both facility types there are similar guidelines for interior space planning that apply. For the purposes of this document facilities are broken down into seven main categories:

1. Administration
2. Building Services
3. Building Support
4. Circulation
5. Issue / Turn-In
6. Warehouse
7. RFI

For the facility to function, these areas shall have efficient interfaces between one another.



CIF – Large

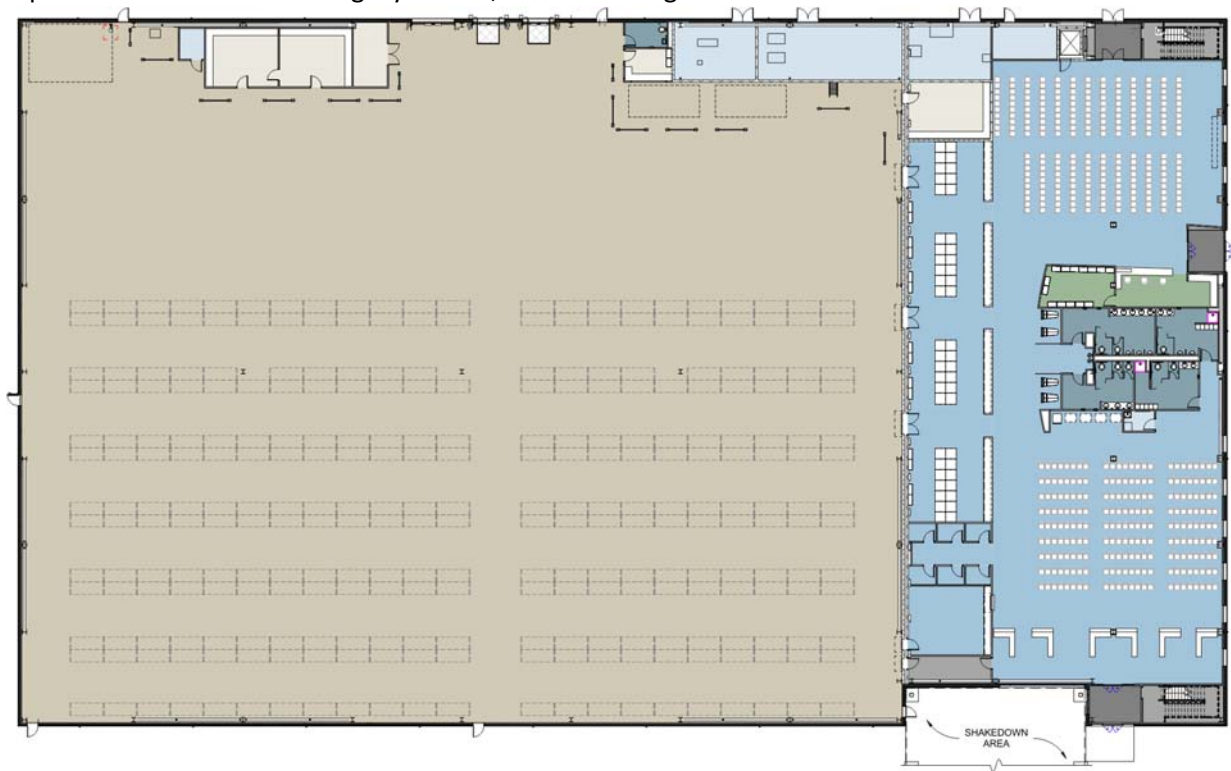
#### 5.1.1 Security and Safety

The facilities shall be designed to ensure the occupants' health, safety and well-being. Fully integrated fire protection and detection systems shall be provided as well as careful consideration of indoor air quality, ergonomics and accident prevention to ensure good health and safety.

### 5.1.2 Adjacencies

Warehouse functions should remain separate from Office whenever possible.

Adequate separation of noisy areas should be provided (shared common areas, warehouse space, mechanical rooms, etc.) from quieter spaces (offices). This includes acoustical construction measures such as vibration and impact resistant materials to resolve sound transmission between spaces. Telephone, cable television, convenience outlets and mechanical ducts must not compromise the acoustical integrity of wall, floor or ceiling assemblies.



CIF – Initial Entry

### 5.1.3 Circulation

All main circulation paths shall be well marked and provide easy access for all occupants. The paths shall be sized wide and spacious enough to allow for easy movement of large groups of people as well as housekeeping and maintenance carts. Materials and finishes shall be light and bright, with the ability to withstand heavy traffic. Natural light should be introduced whenever possible. An institutional appearance for interior corridors shall be avoided.

The arrangement of circulation, horizontal and vertical for the Initial Entry Facility, is an important element of interior space planning for both facility types. Corridors shall efficiently link the seven different categories of interior space. It is best to keep long corridors to a minimum wherever possible.

In some cases, the corridors in the interior space layout may need to accommodate facility expansion. Careful design consideration shall be given to these areas for their use pre and post expansion.

As designed the Initial Entry Facility provides 2 communicating stairs. They may or may not be part of the life safety plan, but they should be located as remotely as possible as allowed by code.

Elevators shall be provided for vertical circulation for the Initial Entry as required by ADA. These may be adjacent to the communicating stairs.

#### **5.1.4 Interior Finishes**

It is suggested that finishes be a panel / tile type where applicable, i.e. carpet tile, vinyl composite tile, acoustic ceiling tile, etc. These types of products better fit within the modular method of construction, as well as provide ease of maintenance and replacement if required. The furniture and finishes used in the interior shall be of high durability to respond to the overall requirements for a durable life-cycle. These items shall be contemporary and timeless in design to last through the years of use while avoiding short-lived trends and design fads.

All finishes shall be a minimum of commercial grade / quality and able to withstand extreme use for the design life cycle of either facility type. All counter surfaces and floor surfaces need to be cleanable and easily maintainable, as well as wall surfaces that are within high traffic areas. The furniture chosen shall be of a solid base construction with durable and easily cleanable surfaces and upholstery, and shall be easy to move for cleaning and flexibility of layout.

Special consideration should be given to the choices of interior finish materials and furniture with regards to off gassing. The exterior construction of both facility types is required to be air and water tight to resist the outside climate. This results in tightly sealed construction. Harmful air on the interior can be mitigated by mechanical ventilation, however, it is best to reduce the amount of off gassing from interior finishes and furniture as much as possible when first choosing interior finishes.

#### **5.1.5 Atmosphere**

The heating, cooling and ventilation systems shall be designed to provide a comfortable thermal environment that supports the occupants' productivity and well-being. The internal layout shall be designed to promote good air flow as well as maintain an even internal temperature, especially at exterior walls, windows and doors. Lighting shall be designed to enhance the interior layout.

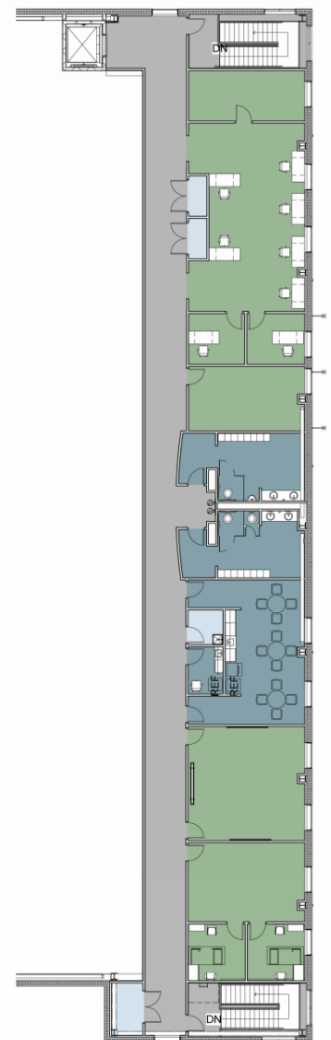
## 5.2 ADMINISTRATIVE SPACES

Administrative Spaces refer to the areas that are used by those who work in the facility that control the day to day operations. Aside from the vending and reception areas, these spaces are to congregate in one location and be near the main entrances and Issue / Turn-In areas.

Physically separating the administrative areas from the potentially noisy Issue / Turn-In areas using full height walls, doors and appropriate insulation delivers quiet work areas for employees that will be using these spaces. Additionally, conflicts are minimized between employees and the soldiers utilizing the facility by providing all of the building services for the employees within this separated location. See Section 5.3 for description of Building Services.



CIF – Large  
Administrative Area



CIF – Initial Entry  
Second Floor Administrative Area



## **SPACE: RECEPTION**

**FUNCTIONAL DESCRIPTION:** A space to greet and check in soldiers upon their entrance to the facility.

**ADJACENCIES:** Shall be located in plain sight, just after the entrance vestibule and before the Issue / Turn-In areas.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION / SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION / SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel stud partitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION / SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls. A "designer" ceiling system may be used in this area.

**DOORS/FRAME:** Salient characteristics include durability. Counter height swing gates are required. Gates to match reception desk in finish and material. Swing of gate shall not interfere with corridor traffic.

**CABINET CONSTRUCTION / SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance and repair. Cabinets shall be a minimum of Architectural Woodworking Institute (AWI) 400B, Custom Grade. Counter tops shall be provided at both standing height and ADA height. Work surfaces behind counter tops shall be at standard working height, and shall allow for mobile pedestals to be placed under the work surface. Countertop shall be appropriate as a writing surface, and shall be solid surfacing. All edges shall be eased or rounded.

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** A minimum of 3 quad outlets shall be provided. In addition, a duplex outlet shall be provided in each area with the raised counter for convenience. The outlets shall be located evenly spaced along the reception counter, and are in addition to the wall outlets required by code.

**LIGHTING:** Provide ambient lighting level of 20 footcandles average (+/- 10%), with increased illumination levels at desk workstations. Controlled shall be time-based, provided by the lighting control system.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (1) Built in U-shaped combination 30” high work counter and 42” high customer service counter, (3) task chairs, (6) lockable file drawers.

**SPECIAL REQUIREMENTS:**

**ADDITIONAL INFORMATION:** N/A

## **SPACE: CIF MANAGER'S OFFICE**

**FUNCTIONAL DESCRIPTION:** A private office for the CIF Manager.

**ADJACENCIES:** Shall be located within the administration function area directly adjacent to the CIF Assistant Manager's Office and the open Administration Office area. It should be in close proximity to a copier and printer.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** CIF Manager

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel stud partitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

**VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 30 footcandle (+/- 10%) average illumination throughout the room, and 50 footcandles (+/- 10%) at the desk task area with task lighting. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (1) desk, (1) managerial chair, (1) guest chair, (1) bookcase, (1) four drawer lateral filing cabinets (or an equal quantity of filing space), and personal storage.

**SPECIAL REQUIREMENTS:** Copier/scanning station in the Area shall be located along an interior circulation path and will be enclosed with walls extending to underside of deck above, and door equipped with closer.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: CIF ASSISTANT MANAGER'S OFFICE**

**FUNCTIONAL DESCRIPTION:** A private office for the Assistant Manager.

**ADJACENCIES:** Shall be located within the administration function area directly adjacent to the CIF Manager's Office and the open Administration Office area. It should be in close proximity to a copier and printer.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** CIF Assistant Manager

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

### **VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 30 footcandle (+/- 10%) average illumination throughout the room, and 50 footcandles (+/- 10%) at the desk task area with task lighting. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (1) desk, (1) managerial chair, (1) guest chair, (1) bookcase, (1) four drawer lateral filing cabinets (or an equal quantity of filing space), and personal storage.

**SPECIAL REQUIREMENTS:** Copier/scanning station in the Area shall be located along an interior circulation path and will be enclosed with walls extending to underside of deck above, and door equipped with closer.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: ADMINISTRATION OPEN OFFICE AREA**

**FUNCTIONAL DESCRIPTION:** An open office area for Administrative personnel.

**ADJACENCIES:** Shall be located within the administration function area directly adjacent to the CIF Manager's Office and the CIF Assistant Manager's Office. It should be in close proximity to a copier and printer.

**AREA:** See Minimum Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for wall and column outside corners. Factory fabricated end closure caps shall be furnished for top and bottom of surface mounted corner guards.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

### **VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide a minimum of 2 (two) duplex receptacles for each workstation. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 30 footcandle (+/- 10%) average illumination throughout the room, and 50 footcandles (+/- 10%) at the desk task area with task lighting. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet for each workstation. Provide data outlets along an interior circulation path and adjacent to wall mount duplex receptacle to support copier/scanner stations.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** Copier/scanning station in the Area shall be located along an interior circulation path and will be enclosed with walls extending to underside of deck above, and door equipped with closer.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (3) L-shaped desks, (3) task chairs, (4) visitor chairs, copier/scanner station, (1) four drawer lateral file (or an equal quantity of filing space), (2) bookcases and personal storage.

**ADDITIONAL INFORMATION:** N/A



## **SPACE: MULTIPURPOSE ROOM**

**FUNCTIONAL DESCRIPTION:** A conference type room with a seating capacity for 12 that is capable of accommodating multiple tables and chairs in different configurations and is easily rearranged.

**ADJACENCIES:** Shall be located within the administration function area.

**AREA:** See Minimum Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

### **VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 40 footcandle (+/- 10%) average illumination throughout the room. Include dimmable compact fluorescent downlights for use during presentations. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (2) half moon tables, (4) rectangular tables, and (12) task chairs. All furnishings to be on casters.

**SPECIAL REQUIREMENTS:** Ceiling mounted projector and projection screen mounted at the front of the room, (2) dry erase boards.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: PROPERTY BOOK OFFICE**

**FUNCTIONAL DESCRIPTION:** A private office for the Property Book Officer.

**ADJACENCIES:** Shall be located within the administration function area. It should be in close proximity to a copier and printer.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxex or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel stud partitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

### **VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 30 footcandle (+/- 10%) average illumination throughout the room, and 50 footcandles (+/- 10%) at the desk task area with task lighting. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (1) L-shaped double pedestal modular desk, (1) hutch, (1) managerial chair, (1) guest chair, 1) four drawer lateral filing cabinet (or an equal quantity of filing space), and personal storage.

**SPECIAL REQUIREMENTS:** Copier/scanning station in the Area shall be located along an interior circulation path and will be enclosed with walls extending to underside of deck above, and door equipped with closer.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: PROPERTY SECTION ADMINISTRATION**

**FUNCTIONAL DESCRIPTION:** An open office area with four workstations for Administrative personnel.

**ADJACENCIES:** Shall be located within the administration function area directly adjacent to the Property Book Office. It should be in close proximity to a copier and printer.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for wall and column outside corners. Factory fabricated end closure caps shall be furnished for top and bottom of surface mounted corner guards.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF)

**DOORS/FRAME:** Wood Doors

**SPECIAL ELECTRICAL REQUIREMENTS:** Provide under floor power and data/voice cabling to workstations using floor monuments or panel in-feeds. Provide a minimum of two duplex power outlets and three data/voice outlets per workstation, or as required by the facility.

### **VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide a minimum of 2 (two) duplex receptacles for each workstation. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 30 footcandle (+/- 10%) average illumination throughout the room, and 50 footcandles (+/- 10%) at the desk task area with task lighting. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet for each workstation. Provide data outlets along an interior circulation path and adjacent to wall mount duplex receptacle to support copier/scanner stations.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** Copier/scanning station in the Area shall be located along an interior circulation path and will be enclosed with walls extending to underside of deck above, and door equipped with closer.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (4) modular workstations with work surfaces, (4) task chairs, (4) file pedestals, overhead storage with a light and personal storage.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: GENERAL PURPOSE STOREROOM**

**FUNCTIONAL DESCRIPTION:** A general storage room for office supplies and other general items.

**ADJACENCIES:** Shall be located within the administration function area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 10 foot candles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** Built-in steel shelving, 24" deep, 3 rows high, at 21" O.C. The bottom shelf shall be set 24" AFF and all shelves shall be capable of supporting a minimum weight of 30 lbs per lineal foot.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: VENDING**

**FUNCTIONAL DESCRIPTION:** An area that accommodates three (3) vending machines for snacks and drinks and one (1) ice cube machine-dispenser.

**ADJACENCIES:** Shall be located adjacent to the Issue/Turn-In area and near the Employee Break Room.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Used by staff and visitors.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 30 foot candles (+/- 10%) with time-based control.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** Vending Machines

**ADDITIONAL INFORMATION:** N/A



## **SPACE: TEAM ROOM**

**FUNCTIONAL DESCRIPTION:** A small conference room.

**ADJACENCIES:** Shall be located within the administration function area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Used by staff and visitors.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 30 footcandle (+/- 10%) average illumination throughout the room, and 50 footcandles (+/- 10%) at the desk task area with task lighting. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (6) person oval conference table, (6) chairs, (2) 4-drawer vertical files

**ADDITIONAL INFORMATION:** N/A

## **SPACE: LACTATION ROOM**

**FUNCTIONAL DESCRIPTION:** A private room used by nursing mothers.

**ADJACENCIES:** Shall be located within the administration function area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** 1 occupant.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Sink

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 20 footcandles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (1) chair, (1) refrigerator

**ADDITIONAL INFORMATION:** N/A

## **SPACE: RECORDS HOLDING**

**FUNCTIONAL DESCRIPTION:** A storage room for records.

**ADJACENCIES:** Shall be located within the administration function area adjacent to the Property Section Office.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxex or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 10 footcandles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

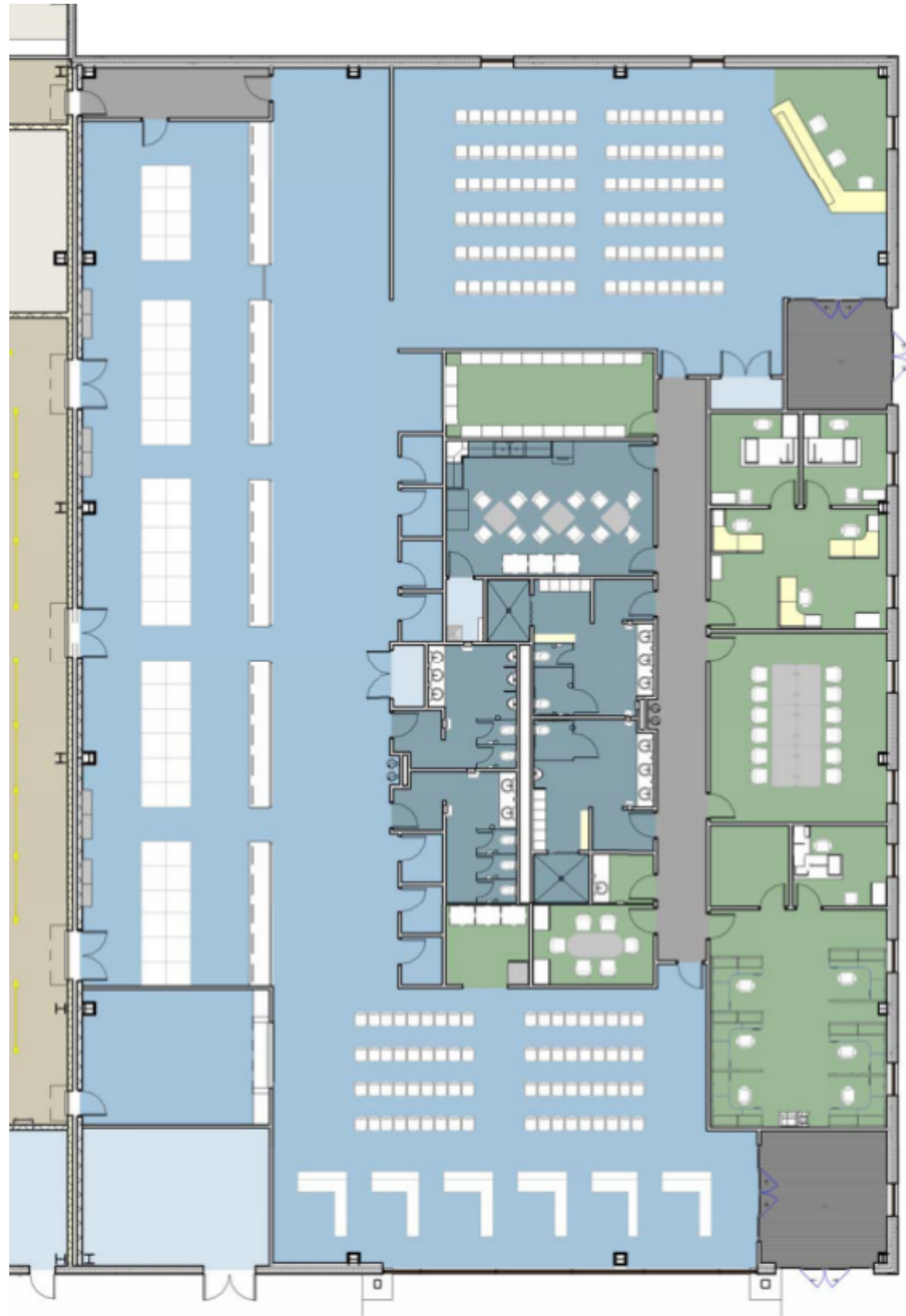
**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (20) 4-drawer vertical files.

**ADDITIONAL INFORMATION:** N/A

### 5.3 BUILDING SERVICES SPACES

Building Services spaces are the areas that serve both the temporary and every day occupants. Building services are allocated separately for administrative staff and the soldiers who utilize the facility.

These areas shall be located adjacent to the other defined spaces that will be regularly occupied (i.e. Administrative, Warehouse and Issue / Turn-In areas) and be sized to accommodate the appropriate users.



CIF – Large  
Administrative Area



CIF – Initial Entry  
First Floor Area

## **SPACE: EMPLOYEE BREAK ROOM**

**FUNCTIONAL DESCRIPTION:** A common room to be used by staff during break times.

**ADJACENCIES:** Shall be located within the administration function area directly accessible from the corridor.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Salient characteristics include durability. Doors, frames, and hardware shall be able to withstand constant opening and closing. Doors shall be provided with self-closing device.

**VISION PANELS/VIEW WINDOWS:** N/A

**CABINET CONSTRUCTION/SURFACE PERFORMANCE:** Contractor shall provide 50 linear feet of base cabinets, 24" deep, 34" high, with an integral 4" high back-splash. Except for the ADA cut-out under the sink, base cabinets shall include one drawer and one internal adjustable shelf, with door. The cabinet top, edges, and back-splash shall be high pressure plastic laminate finish. All other surfaces shall be laminated. Matching wall-mounted cabinets will be provided by Contractor.

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Provide kitchen sink and associated plumbing. Plumbing systems shall meet the criteria requirements set forth in the latest version of the International Plumbing Code criteria.

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 30 footcandle (+/- 10%) average illumination throughout the room. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (3) round tables, (12) chairs, (1) refrigerator, (1) microwave

**ADDITIONAL INFORMATION:** N/A

## **SPACE: TOILETS**

**FUNCTIONAL DESCRIPTION:** Toilet Rooms - (2) Men, (2) Women and (1) Unisex.

**ADJACENCIES:** (1) Men's and (1) Women's room shall be located within the Administration function area adjacent to the Lactation room. (1) Men's and (1) Women's room shall be located within the Issue / Turn-In Area. (1) Unisex bathroom shall be located within the Warehouse.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include shall be easy to clean and maintain, and shall be durable. A coved wall base material, appropriate for the flooring material used, is required. Rooms to have non-slip unglazed ceramic with static coefficient of 0.6 or better.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include shall be easy to clean and maintain, and shall be durable. On all walls, a minimum 48" tall wainscot is required that is impervious to water and be able to withstand daily sanitizing. Walls extend to structural deck above with smooth ceramic wall tile finish to a height of 48" and with painted GWB on all remaining wall surfaces.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and free of sags or other defects. Ceilings will be moisture-resistant plaster or pointed-and-taped gypsum board.

**DOORS/FRAME:** Salient characteristics include durability. Doors, frames, and hardware shall be able to withstand constant opening and closing. Doors shall be provided with self-closing device.

**VISION PANELS/VIEW WINDOWS:** N/A

**CABINET CONSTRUCTION/SURFACE PERFORMANCE:** Toilet countertops and all other countertops with sinks shall have integral coved backsplash. Toilet countertops shall be minimum ½-inch thick cast 100 percent acrylic polymer solid surfacing material with waterfall front edge and integral coved backsplash. Provide cabinets complying with AWI Quality Standards. Countertops shall have waterfall front edge. Toilet countertops and all other countertops with sinks shall have integral coved backsplash. Toilet countertops shall be minimum ½-inch thick cast 100 percent acrylic polymer solid surfacing material with waterfall front edge and integral coved backsplash.

**TOILET PARTITION / ACCESSORIES:** Floor mounted, overhead braced partitions. Toilet Accessories: Furnish and install the items listed below and all other toilet accessories necessary for a complete and usable facility. All toilet accessories shall be Type 304 stainless steel with satin finish. Each room to include ADA compliant mirror, soap dispenser for each lavatory, paper towel dispenser / trash receptacle, and toilet paper dispenser for each WC. At least one of each fixture type per restroom to be ADA compliant (includes required grab bars, mounting heights of fixtures, etc.). Provide following fixtures: Men: (1) WC, (1) Urinal, (2) Lavatory, Women: (2) WC, (2) Lavatories.

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** A minimum (1) ADA compliant water closet, and (1) ADA compliant lavatory in each. A floor drain is required in this area that shall be self-priming, or designed to prevent sewer gases from entering the occupied space by a proven and maintenance-free design. Toilet area plumbing systems shall meet the criteria requirements set forth in the latest version International Plumbing Code criteria.

**ELECTRICAL:** Provide 1 (one) GFCI outlet near the lavatory.

**LIGHTING:** Provide lighting level at 15 footcandles (+/- 10%) and controlled by occupancy sensor(s). Ensure appropriate lighting is provided above the mirror. Highlight task areas within lavatory.

**TELECOMMUNICATION:** N/A

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

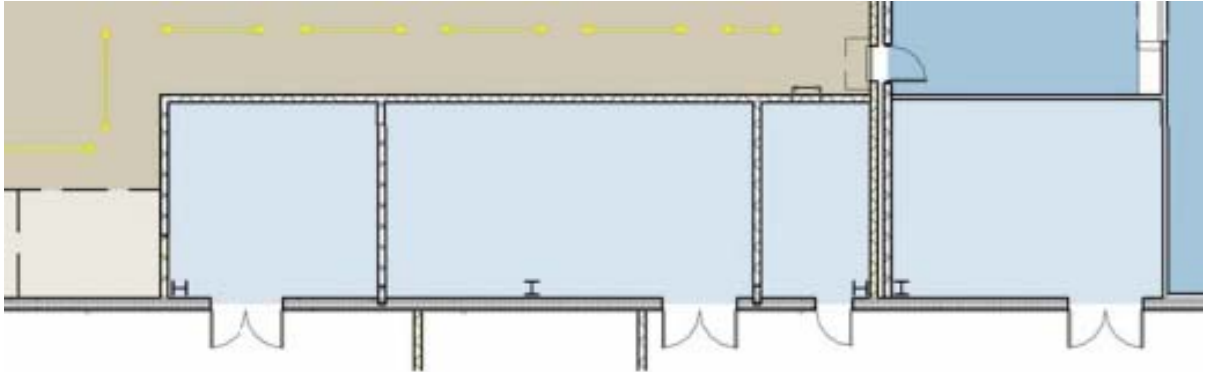
**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

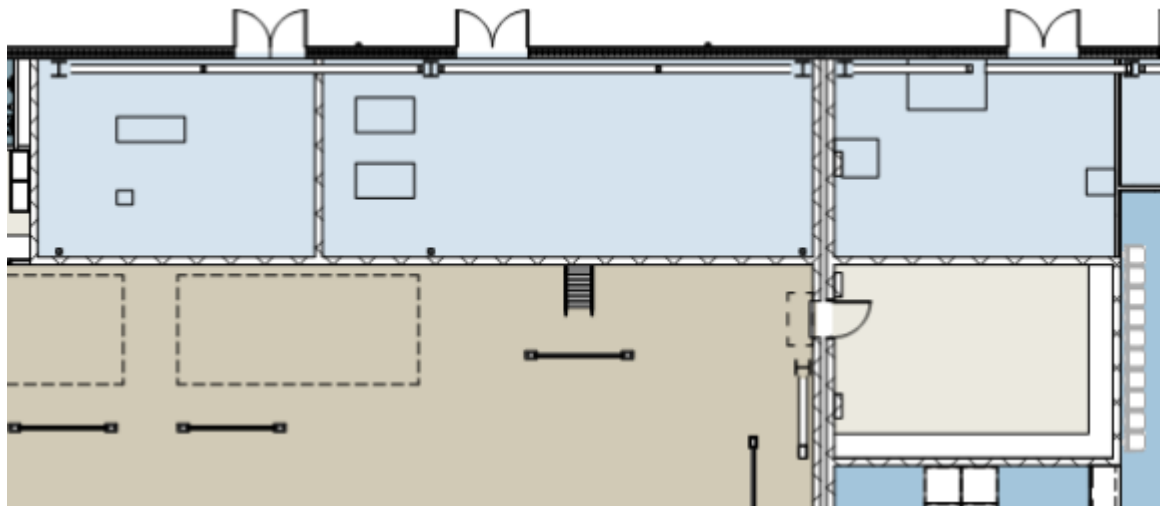


**5.4 BUILDING SUPPORT SPACES**

Building Support Spaces are the areas that provide service and support, such as utility rooms, that enable all other building spaces to function as required every day.



CIF – Large Building Support Spaces



CIF – Initial Entry Building Support Spaces

## **SPACE: MECHANICAL ROOM**

**FUNCTIONAL DESCRIPTION:** This area houses mechanical equipment that services the building. It shall accommodate space for equipment maintenance/repair access without having to remove other equipment. Deadbolt locks shall be keyed separately for access by Installation maintenance personnel. Filter changes and preventative maintenance shall be performed without requiring access to the facility.

**ADJACENCIES:** Shall be accessible from the exterior.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Installation Maintenance personnel.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, durable, easily repairable, and easy to maintain. A base material, appropriate for the flooring material used, is required. Base shall be seamless except at inside corners.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, repairable, easy to maintain, and durable. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Also, wall surface shall be durable so that impacts from buggies and carts do not damage the wall.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Shall have a minimum STC rating of 45.

**DOORS/FRAME:** Finish Hardware: All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided. The Installation's keying system is Best Access Systems B.A.S.I.S. G. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. Plastic cores are unacceptable. Provide closers for all exterior doors, all doors opening to corridors and as required by codes. Exit devices shall be installed all building egress doors.

**VISION PANELS/VIEW WINDOWS:** N/A

**CABINET CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**HVAC:** Provide heating and ventilation in accordance with the latest version of ASHRAE and International Mechanical Code requirements.

**PLUMBING:** Provide floor drains with deep traps or trap inserts.

**ELECTRICAL:** In addition to NFPA 70 requirements, provide a minimum of (2) 125-volt duplex receptacles.

**LIGHTING:** Provide lighting level at 30 footcandles (+/- 10%) and controlled by a manual switch.

**TELECOMMUNICATION:** Provide 1 (one) wall mount telephone outlet at 48" above finish floor.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: FIRE PROTECTION ROOM**

**FUNCTIONAL DESCRIPTION:** This area houses fire protection equipment that services the building. It shall accommodate space for equipment maintenance/repair access without having to remove other equipment. Deadbolt locks shall be keyed separately for access by Installation maintenance personnel. Preventative maintenance shall be performed without requiring access to the facility.

**ADJACENCIES:** Shall be accessible from the exterior.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Installation Maintenance personnel.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, durable, easily repairable, and easy to maintain. A base material, appropriate for the flooring material used, is required. Base shall be seamless except at inside corners.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, repairable, easy to maintain, and durable. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Also, wall surface shall be durable so that impacts from buggies and carts do not damage the wall.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Shall have a minimum STC rating of 45.

**DOORS/FRAME:** Finish Hardware: All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided. The Installation's keying system is Best Access Systems B.A.S.I.S. G. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. Plastic cores are unacceptable. Provide closers for all exterior doors, all doors opening to corridors and as required by codes. Exit devices shall be installed all building egress doors.

**VISION PANELS/VIEW WINDOWS:** N/A

**CABINET CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**HVAC:** Provide heating and ventilation in accordance with the latest version of ASHRAE and International Mechanical Code requirements.

**PLUMBING:** Provide floor drains with deep traps or trap inserts.

**ELECTRICAL:** In addition to NFPA 70 requirements, provide a minimum of (2) 125-volt duplex receptacles.

**LIGHTING:** Provide lighting level at 30 footcandles (+/- 10%) and controlled by a manual switch.

**TELECOMMUNICATION:** Provide 1 (one) wall mount telephone outlet at 48" above finish floor.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: ELECTRICAL ROOM**

**FUNCTIONAL DESCRIPTION:** This area houses electrical equipment that services the building. It shall accommodate space for equipment maintenance/repair access without having to remove other equipment. Deadbolt locks shall be keyed separately for access by Installation maintenance personnel. Preventative maintenance shall be performed without requiring access to the facility.

**ADJACENCIES:** Shall be accessible from the exterior.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Installation maintenance personnel.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, durable, easily repairable, and easy to maintain. A base material, appropriate for the flooring material used, is required. Base shall be seamless except at inside corners. The flooring shall be vinyl composition tile with 4" rubber base. Walls to be painted GWB with suspended grid and tile at 9'-0"

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, repairable, easy to maintain, and durable. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Also, wall surface shall be durable so that impacts from buggies and carts do not damage the wall.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Shall have a minimum STC rating of 45.

**DOORS/FRAME:** Finish Hardware: All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided. The Installation's keying system is Best Access Systems B.A.S.I.S. G. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. Plastic cores are unacceptable. Provide closers for all exterior doors, all doors opening to corridors and as required by codes. Exit devices shall be installed all building egress doors.

**VISION PANELS/VIEW WINDOWS:** N/A

**CABINET CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**HVAC:** Provide heating and ventilation in accordance with the latest version of ASHRAE and International Mechanical Code requirements.

**PLUMBING:** N/A

**ELECTRICAL:** In addition to NFPA 70 requirements, provide a minimum of (2) 125-volt duplex receptacles.

**LIGHTING:** Provide lighting level at 30 footcandles (+/- 10%) and controlled by a manual switch.

**TELECOMMUNICATION:** Provide 1 (one) wall mount telephone outlet at 48" above finish floor.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: TELEPHONE EQUIPMENT ROOM**

**FUNCTIONAL DESCRIPTION:** This area is the telecom service entrance and main equipment room that services the building. It shall accommodate space for equipment maintenance/repair access without having to remove other equipment. The room shall be keyed separately for access by Installation maintenance personnel. Preventative maintenance shall be performed without requiring access to the facility. Refer to paragraph 3.3 ELECTRICAL REQUIREMENTS for additional information.

**ADJACENCIES:** Shall be accessible from the exterior.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** IT personnel.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, durable, easily repairable, and easy to maintain. A base material, appropriate for the flooring material used, is required. Base shall be seamless except at inside corners. The flooring shall be vinyl composition tile with 4" rubber base. Walls to be painted GWB with suspended grid and tile at 9'-0"

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, repairable, easy to maintain, and durable. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Also, wall surface shall be durable so that impacts from buggies and carts do not damage the wall.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Shall have a minimum STC rating of 45.

**DOORS/FRAME:** Finish Hardware: All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided. The Installation's keying system is Best Access Systems B.A.S.I.S. G. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. Plastic cores are unacceptable. Provide closers for all exterior doors, all doors opening to corridors and as required by codes. Exit devices shall be installed all building egress doors.

**VISION PANELS/VIEW WINDOWS:** N/A

**CABINET CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**HVAC:** Provide heating and ventilation in accordance with the latest version of ASHRAE and International Mechanical Code requirements.

**PLUMBING:** N/A

**ELECTRICAL:** In addition to NFPA 70 requirements, provide a minimum of 2 (two) duplex receptacles.

**LIGHTING:** Provide lighting level at 50 footcandles (+/- 10%) and controlled by a manual switch.

**TELECOMMUNICATION:** Provide 1 (one) wall mount telephone outlet at 48" above finish floor.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: TELECOM ROOMS**

**FUNCTIONAL DESCRIPTION:** There are (4) telecom distribution rooms.

**ADJACENCIES:** Located adjacent to the area they serve.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** IT personnel.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, durable, easily repairable, and easy to maintain. A base material, appropriate for the flooring material used, is required. Base shall be seamless except at inside corners. The flooring shall be vinyl composition tile with 4" rubber base. Walls to be painted GWB with suspended grid and tile at 9'-0"

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, repairable, easy to maintain, and durable. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Also, wall surface shall be durable so that impacts from buggies and carts do not damage the wall.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Shall have a minimum STC rating of 45.

**DOORS/FRAME:** Wood Doors.

**VISION PANELS/VIEW WINDOWS:** N/A

**CABINET CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**HVAC:** Provide heating and ventilation in accordance with the latest version of ASHRAE and International Mechanical Code requirements.

**PLUMBING:** N/A

**ELECTRICAL:** In addition to NFPA 70 requirements, provide a minimum of 2 (two) duplex receptacles.

**LIGHTING:** Provide lighting level at 50 footcandles (+/- 10%) and controlled by a time-based shutoff switch.

**TELECOMMUNICATION:** Provide 1 (one) wall mount telephone outlet at 48" above finish floor.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A



## **SPACE: JANITOR'S CLOSET**

**FUNCTIONAL DESCRIPTION:** A storage room for janitor's equipment and cleaning supplies.

**ADJACENCIES:** Shall be located adjacent to the administration function area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Floors shall be able to keep water from getting under the flooring material. A base material, appropriate for the flooring used, is required. Base shall be sealed to the flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Walls shall be able to withstand moving mop buckets and other janitorial supplies. Walls shall be moisture and mildew resistant GWB with a low-maintenance finish such as egg-shell latex paint. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Provide moisture resistant GWB with semi-gloss latex paint.

**DOORS/FRAME:** Salient characteristics include durability. Doors, frames and hardware shall be able to withstand constant opening and closing. Doors shall be fitted with a locking mechanism and lever type handle that allows the door to be opened from the inside while locked. Doors shall be provided with self-closing device.

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide local exhaust vent ventilation, heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Provide a 10" deep floor mounted, stainless steel, utility (mop) sink with hot and cold service faucet. A floor drain is required in this area that shall be self-priming, or designed to prevent sewer gases from entering the occupied space by a proven and maintenance free design. Provide a vacuum breaker. Follow the latest version of International Plumbing Code criteria.

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 10 foot candles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

### **SPECIAL REQUIREMENTS:**

- A 4 capacity mop/broom rack

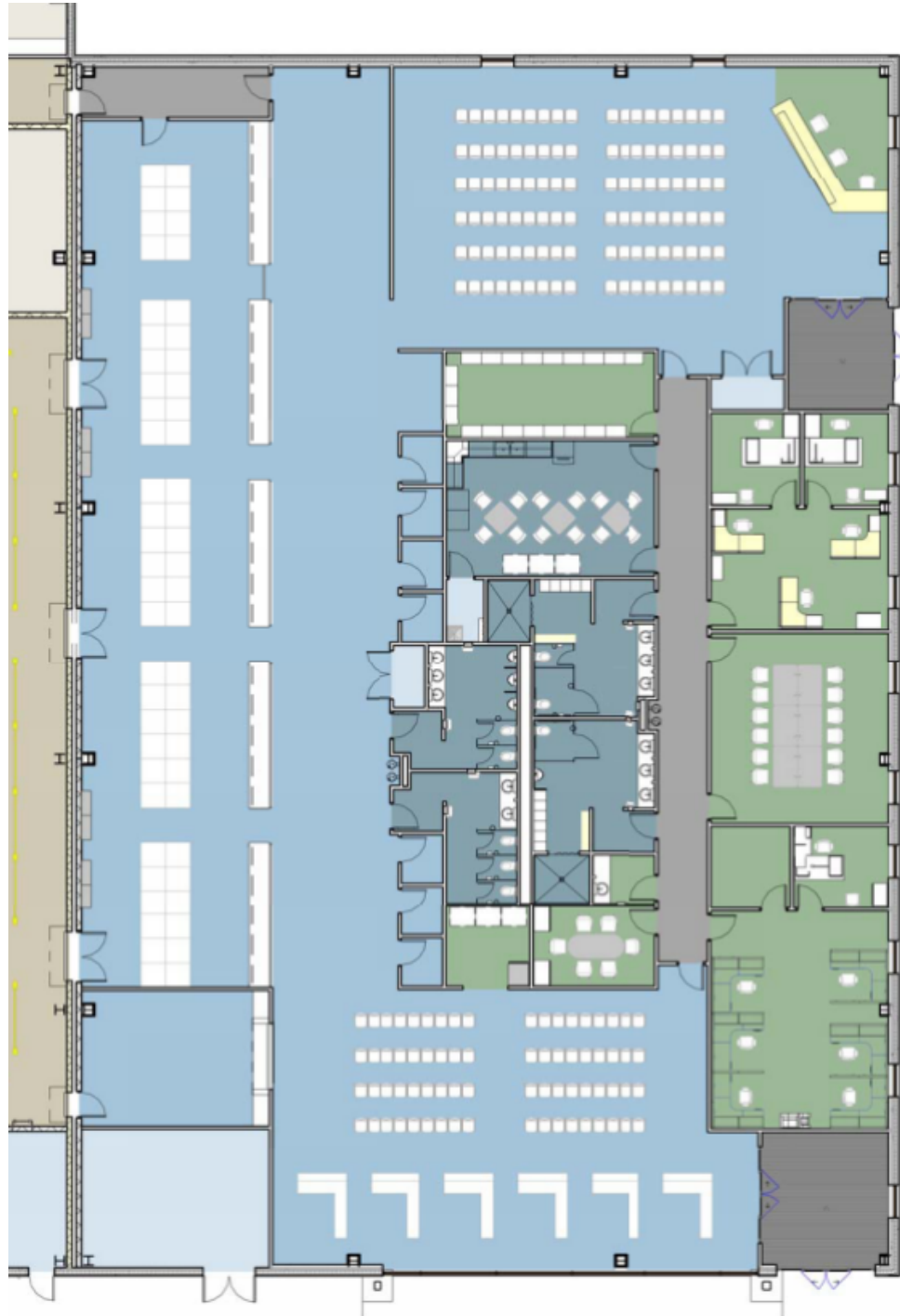
- (1) 18" deep by 72" long heavy duty stainless steel shelves for storage of cleaning supplies. Shelves shall be able to support 100 pounds per lineal foot.
- Space for storage of buckets and vacuum.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

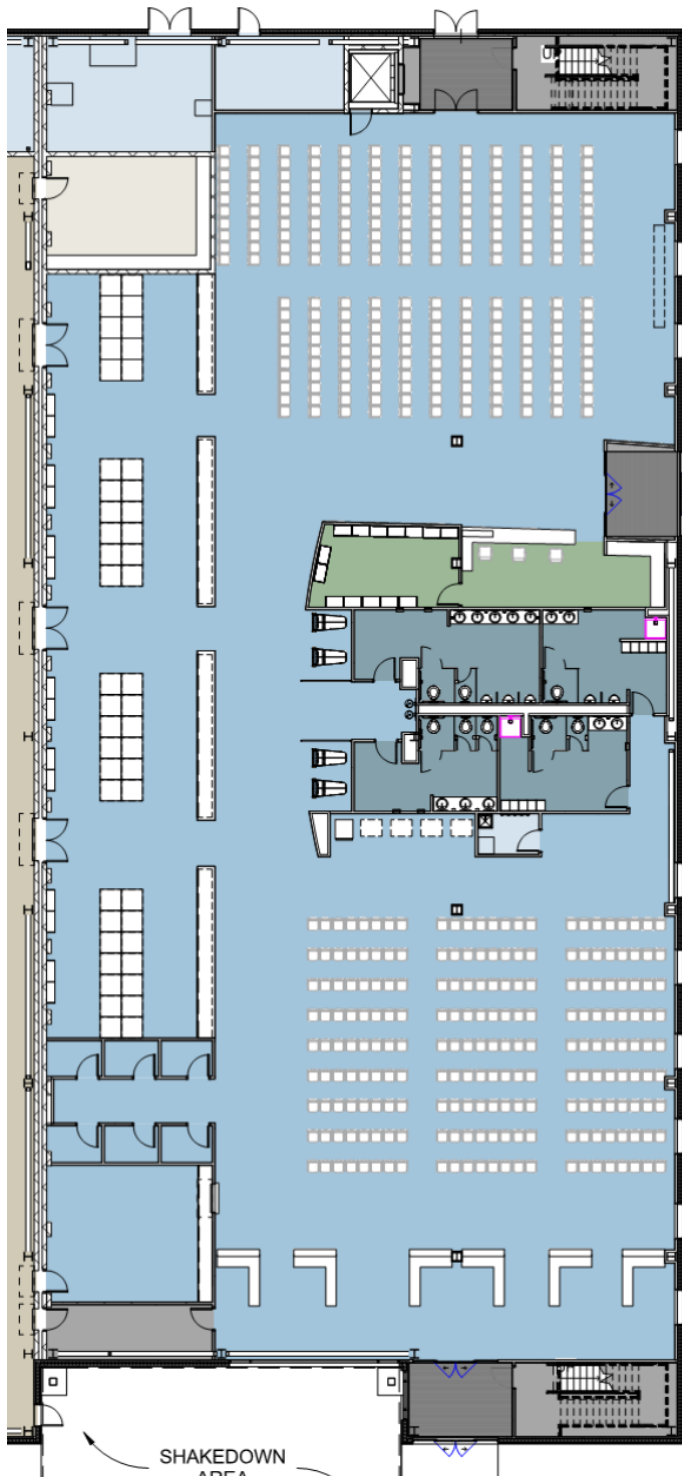
**ADDITIONAL INFORMATION:** N/A

**5.5 CIRCULATION SPACES**

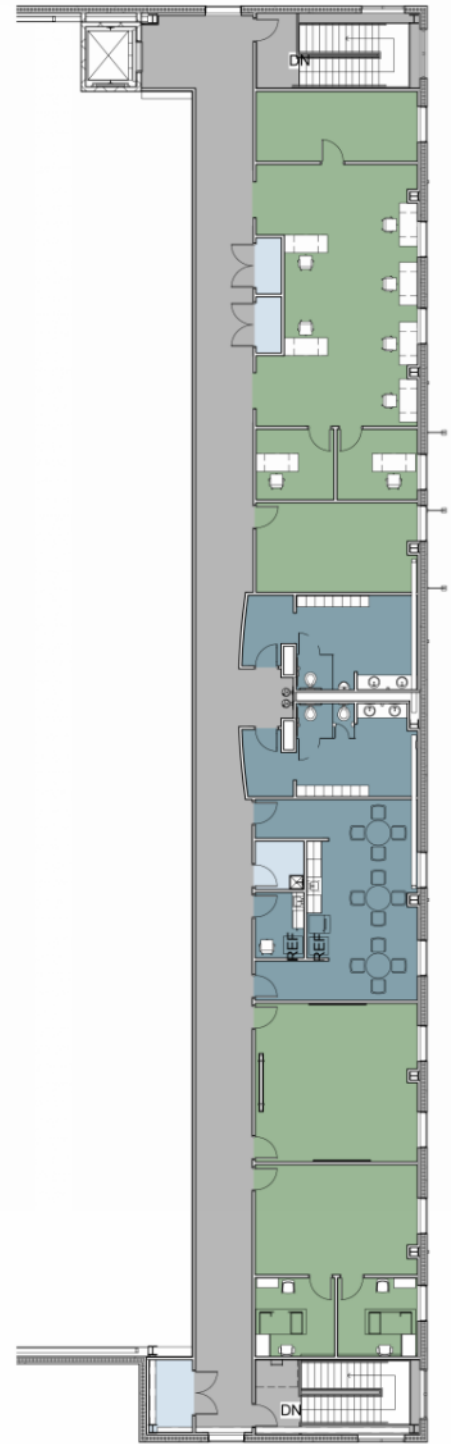
Circulation Spaces are transition spaces that provide connectivity between all of the spaces in the facility, or in some cases connection to the exterior.



CIF – Large  
Administrative Area



CIF – Initial Entry  
First Floor Area



CIF – Initial Entry  
Second Floor Administrative Area

## **SPACE: VESTIBULE**

**FUNCTIONAL DESCRIPTION:** (2) Vestibules shall serve as the entrances/exits to the facility to/from the exterior. A minimum of 7-feet shall be provided between exterior and interior doors. Mechanical air transfer shall be minimized. Flooring shall help remove excess dirt from shoes.

**ADJACENCIES:** Vestibules shall connect to parking areas. Entry Vestibule shall open to reception desk. Exit Vestibule shall be adjacent to Shakedown Area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** All users of the facility.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Flooring shall be non-slip. Provide a 4" covered wall base material, appropriate for the flooring material used. Provide a depressed walk-off mat.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, repairable, easy to maintain, and durable. Painted GWB walls. Provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for wall and column outside corners. Factory fabricated end closure caps shall be furnished for top and bottom of surface mounted corner guards.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include resistance to environmental conditions, such as changes in air pressure and high humidity, and shall be durable. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls. Provide painted GWB.

**DOORS/FRAME:** Salient characteristics include durability. Doors, frames and hardware shall be able to withstand constant opening and closing. Provide aluminum storefront doors and frames with Architectural Class 1 anodized finish, fully glazed, with medium or wide stile for entry into lobbies or corridors. Provide doors complete with frames, framing members, sub frames, transoms, sidelights, trim, applied mountings, and accessories. Framing systems shall have thermal-break design. Storefront systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria, including applicable ATFP requirements.

- **Finish Hardware:** All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided. The Installation's keying system is Best Access Systems B.A.S.I.S. G. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Plastic cores are unacceptable. Provide closers and exit devices

### **ENTRY DOOR REQUIREMENTS:**

- **Special Hardware and Electrical Requirements:** Provide an Intrusion Detection System (IDS) for each entry door. Intrusion Detection System shall include control panel, balanced magnetic switches and motion sensors unless specified otherwise.
- **Non Destructive Emergency Access System (NDEAS):** Furnish and install a Knox-Vault 4400 Series (Single Lock Model) mounted on the exterior, adjacent to the Main Entry.
- **Auxiliary hardware:** provide wall or floor stops for all exterior doors that do not have overhead holder/stops. Provide other hardware as necessary for a complete installation.  
**Automatic Door Operation:** Provide ADA approved automatic door operators at outer and inner doors for handicapped accessibility.

**SPECIAL ELECTRICAL REQUIREMENTS:** Provide a buzzer at inner set of doors that sounds at the reception desk. Provide intercom connection with Reception Desk. Provide power for lock mechanism at inner doors.

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** N/A

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 20 foot candles (+/- 10%) and controlled by occupancy sensor(s).

**TELECOMMUNICATION:** Provide junction box and raceway for CCTV camera. Note that power for camera is provided as part of data cable. Confirm exact location of the CCTV camera with end users. Provide 1 (one) wall mount duplex receptacle for housekeeping purposes. Provide lighting level at 10 foot candles (+/- 10%) and controlled by occupancy sensor(s).

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:**

- (1) bulletin board measuring 4'-0" high and 6'-0" wide. Provide bulletin boards with a header panel with lockable, glazed doors.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: PASS-THRU or CORRIDOR**

**FUNCTIONAL DESCRIPTION:** Main Circulation spaces. Provide minimum width of 6 feet.

**ADJACENCIES:** Located as needed to connect two or more spaces.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff.

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Provide a 4" covered wall base material, appropriate for the flooring material used. Base shall be seamless except at inside corners.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to clean, repairable, easy to maintain, and durable Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Also, wall surface shall be durable so that impacts from carts do not damage the wall. Provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for wall and column outside corners. Factory fabricated end closure caps shall be furnished for top and bottom of surface mounted corner guards. Chair rails shall be installed in areas prone to hi-impact use.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Salient characteristics include durability. Doors, frames and hardware shall be able to withstand constant opening and closing. All doors that open into the corridor, that are not located within a recessed alcove, must swing 180 degrees to avoid reducing the usable corridor width. Only infrequently-used doors, such as janitor's closet, may open into the corridor without a recess. Doors leading to the outside from the corridor must also be provided with a side light.

- **Finish Hardware:** All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided. The Installation's keying system is Best Access Systems B.A.S.I.S. G. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. Plastic cores are unacceptable. Provide closers for all exterior doors, all doors opening to corridors and as required by codes. Exit devices shall be installed all building egress doors.

**VISION PANELS/VIEW WINDOWS:** Window Treatment: Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** N/A

**ELECTRICAL:** Provide a minimum of one duplex receptacle per corridor for housekeeping purpose. Receptacles shall not exceed 25 feet apart. Provide ceiling mount receptacles for wireless access point (WAP). Coordinate location of receptacles with WAP locations.

**LIGHTING:** Provide lighting level at 5 foot candles (+/- 10%) and controlled by occupancy sensor(s).

**TELECOMMUNICATION:** Provide junction box and raceway for CCTV camera. Note that power for camera is provided as part of data cable. Confirm exact location of the CCTV camera with end users. Provide 1 (one) wall mount duplex receptacle for housekeeping purposes. Provide lighting level at 10 foot candles (+/- 10%) and controlled by occupancy sensor(s).

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:**

- Corridor shall have a minimum clear width of no less than 6'-0". To allow for bulletin boards and other projections, recommend maintaining a clear width between walls of at least 6'-2".

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

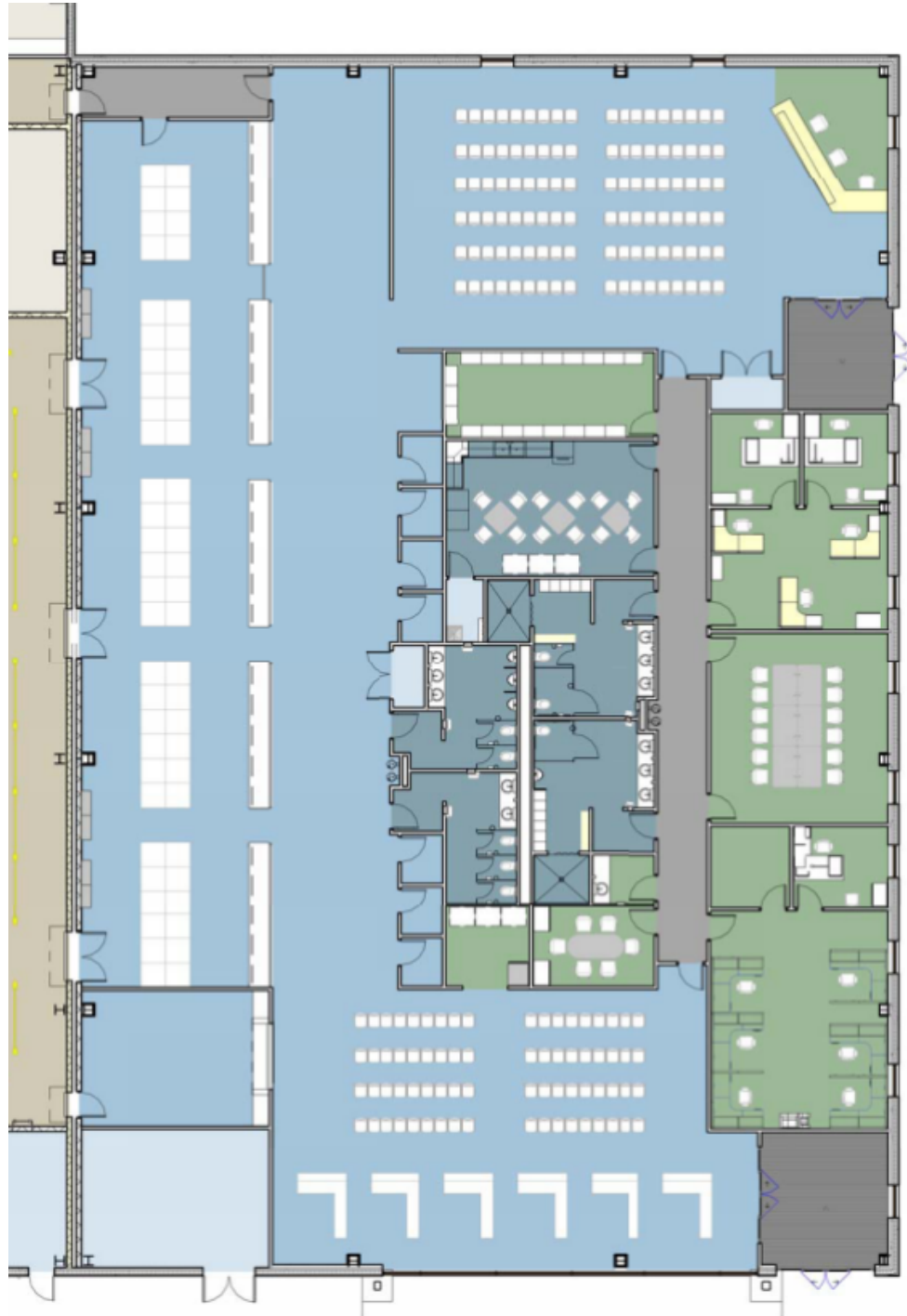
**ADDITIONAL INFORMATION:** N/A



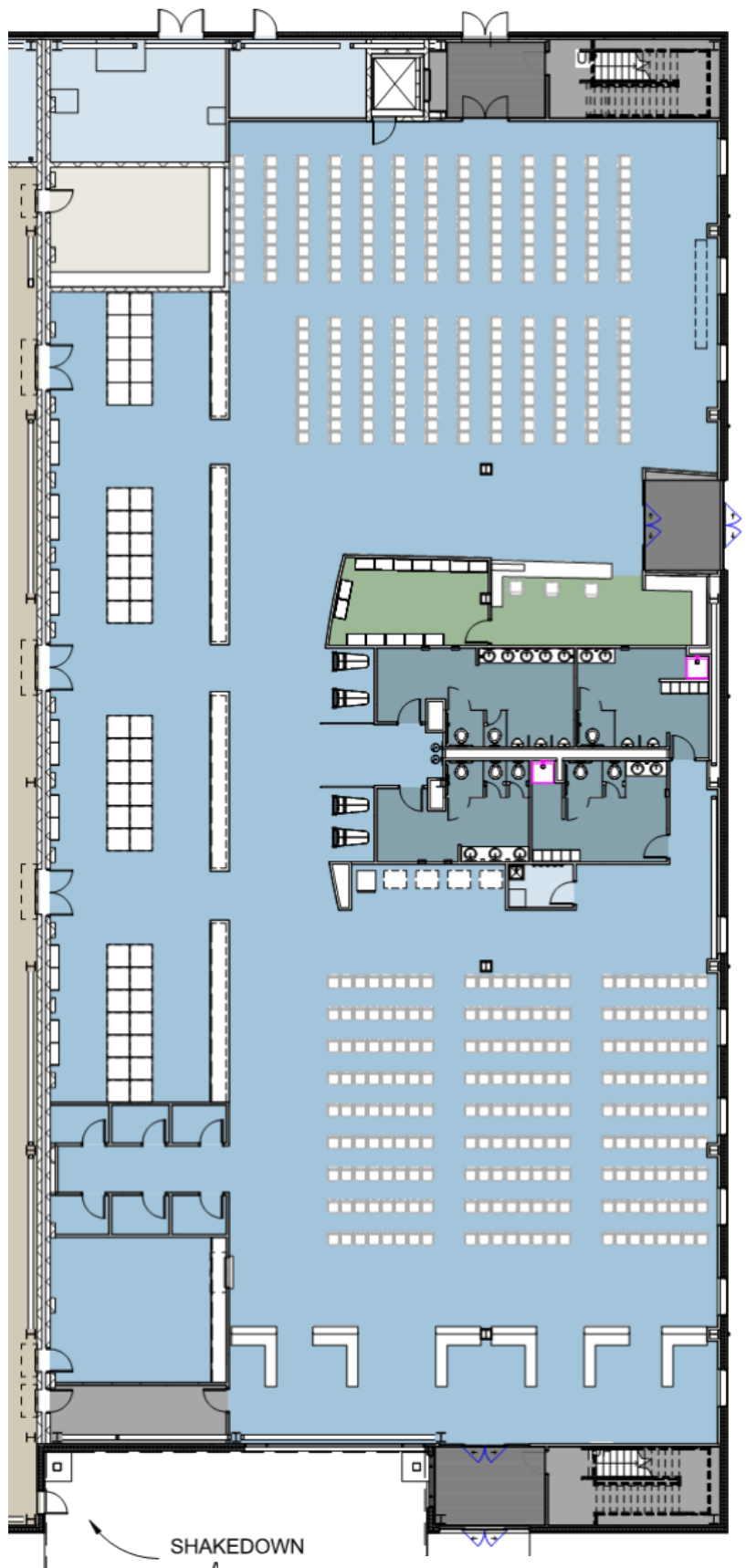
## 5.6 ISSUE / TURN-IN SPACES

Issue / Turn-In Spaces are the areas that facilitate the distribution, exchange and turn-in of all authorized Organizational Clothing and Individual Equipment (OCIE) to soldiers.

The layout of the spaces is important and should consider the required procedure and allow for a smooth transition between each space. Movement from space to space shall be obvious, sequential and progressive from facility entry to exit.



CIF – Large  
Administrative Area



CIF – Initial Entry  
First Floor Area

## **SPACE: QUEUING / ORIENTATION AREA**

**FUNCTIONAL DESCRIPTION:** This is a seating area for groups of soldiers for orientation.

**ADJACENCIES:** Shall be located within the Issue / Turn-In Area adjacent to the reception and check-in counter. This area shall be located on the opposite end of the building from the Checkout Area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Soldiers

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel stud partitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid. Provide chair rails and corner guards throughout.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** N/A

### **VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 125-volt wall mount duplex receptacles at 25 foot spacing along perimeter walls.

**LIGHTING:** Provide lighting level at 30 foot candles (+/- 10%) with time-based control from the lighting control system.

**TELECOMMUNICATION:** Provide (2) CATV outlet and at least (1) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (120) chairs

**SPECIAL REQUIREMENTS:**

- (2) 52" GFGI flat screen TVs.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: ISSUE / TURN-IN**

**FUNCTIONAL DESCRIPTION:** This area is where the soldiers are either issued or turn-in clothing and equipment.

**ADJACENCIES:** Shall be located within the Issue / Turn-In Area after the waiting area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Soldiers

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

### **VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 30 foot candles (+/- 10%) with time-based control from the lighting control system.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (2) half moon tables, (4) rectangular tables, and (12) task chairs. All furnishings shall be on casters.

**SPECIAL REQUIREMENTS:** Ceiling mounted projector and projection screen mounted at the front of the room, (2) dry erase boards.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: ISSUE / TURN-IN SUPPORT**

**FUNCTIONAL DESCRIPTION:** This area is where the soldiers are either issued or turn-in clothing and equipment. It includes a counter area and designated floor space behind the counters for floor racks and back-up storage.

**ADJACENCIES:** Shall be located within the Issue / Turn-In Area adjacent to the Queuing / Orientation Area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 30 foot candles (+/- 10%) with time-based control from the lighting control system.

**TELECOMMUNICATION:** Provide (1) CATV outlet and at least (1) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (12) built-in work counters and twelve counter-height stools with casters or glides and a foot ring.

**SPECIAL REQUIREMENTS:** Provide 69" wide x 42" high issue station, and a full length 24" deep minimum built-in counter capable of supporting a minimum of 30 psf.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: SPECIAL MOS ISSUE / TURN-IN**

**FUNCTIONAL DESCRIPTION:** This area accommodates the issue/turn-in of special/unique equipment. It includes a built-in counter and built-in storage shelving along the side walls.

**ADJACENCIES:** Shall be located within the Issue / Turn-In Area adjacent to the Issue / Turn-In Support area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 30 foot candles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide (1) CATV outlet and at least (1) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):**

**SPECIAL REQUIREMENTS:**

- Provide 24" deep steel storage shelving, three rows high, at 21" O.C. The bottom shelf shall be set 24" AFF and shelving shall be capable of supporting a minimum weight of 30 pounds per lineal foot.
- Provide a full length, 42" high x 30" deep built-in counter capable of supporting a minimum of 30 psf.

**ADDITIONAL INFORMATION:** N/A



## **SPACE: ASSEMBLY / WAITING AREA**

**FUNCTIONAL DESCRIPTION:** This is a waiting area with seating used by soldiers after they receive all of their clothing/equipment.

**ADJACENCIES:** Shall be located within the Issue / Turn-In Area adjacent to the Final Processing / Checkout Area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Soldiers

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid. Provide chair rails and corner guards throughout.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 30 foot candles (+/- 10%) with time-based control from the lighting control system.

**TELECOMMUNICATION:** Provide (1) CATV outlet and at least (1) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (60) seats

**SPECIAL REQUIREMENTS:** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: FINAL PROCESSING / CHECKOUT**

**FUNCTIONAL DESCRIPTION:** This is a counter area to accommodate final processing and checkout of clothing/equipment. It shall resemble a “grocery store” style checkout kiosk.

**ADJACENCIES:** Shall be located within the Issue / Turn-In Area adjacent to the Assembly / Waiting area and the building exit.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4” coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid. Provide chair rails and corner guards throughout.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24” x 24” tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 30 foot candles (+/- 10%) with time-based control from the lighting control system.

**TELECOMMUNICATION:** Provide (1) CATV outlet and at least (1) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (6) combination work counter/customer service checkout counters, (6) counter-height stools with locking casters. The work counter shall be furnished with lockable lateral file drawers.

**SPECIAL REQUIREMENTS:**

- Checkout station counter shall accommodate a workstation and a laser printer.
- Each checkout station shall be minimum 36" wide x 48" high and 30 inches deep with a return of 96" wide, 36" high and 30" deep built-in counter capable of supporting a minimum of 30 pounds per square foot.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: FITTING ROOM**

**FUNCTIONAL DESCRIPTION:** This is a small room where individual soldiers can try on clothing.

**ADJACENCIES:** Shall be located within the Issue / Turn-In Area adjacent to the Issue / Turn-In Support counters.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Soldiers

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel stud partitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid. Provide chair rails and corner guards throughout.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood doors.

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 15 foot candles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** N/A

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** Provide three vandal-resistant clothes hooks – 'BOBRICK Type B-983' or equal in each fitting room. These will be installed as part of construction with four ¼-20 x 2 ½" tamper-resistant, flat-head, hex-socket, stainless steel machine screws ILO four ¼-20 x 2 ½" supplied by the manufacturer.

**SPECIAL REQUIREMENTS:** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: CARTS**

**FUNCTIONAL DESCRIPTION:** This is a space to store GFGI shopping carts.

**ADJACENCIES:** Shall be located within the Issue / Turn-In Area adjacent to the Issue / Turn-In Support counters.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Soldiers

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid. Provide chair rails and corner guards throughout.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 30 foot candles (+/- 10%) with time-based control from the lighting control system.

**TELECOMMUNICATION:** N/A

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

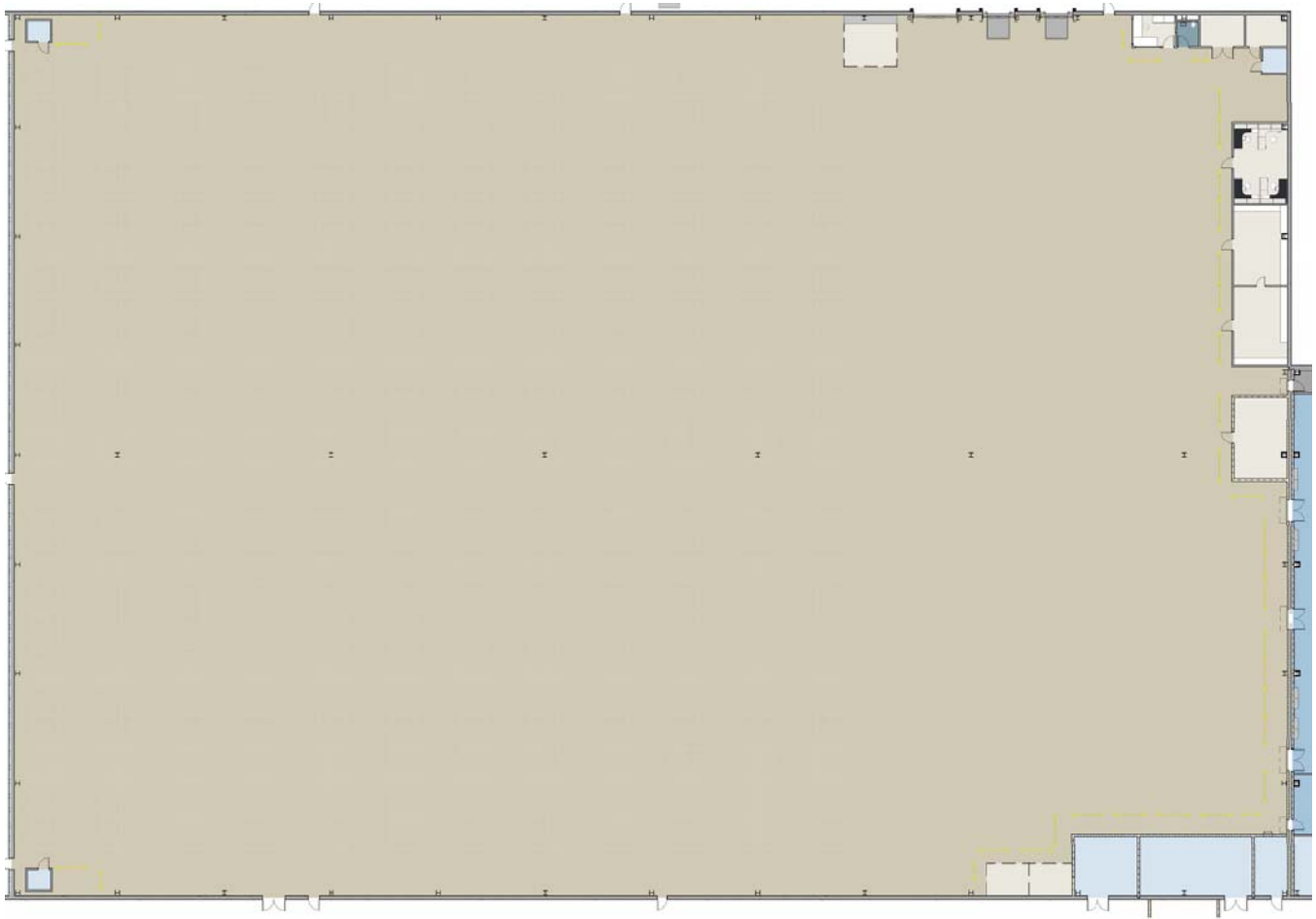
**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**SPECIAL REQUIREMENTS:** N/A

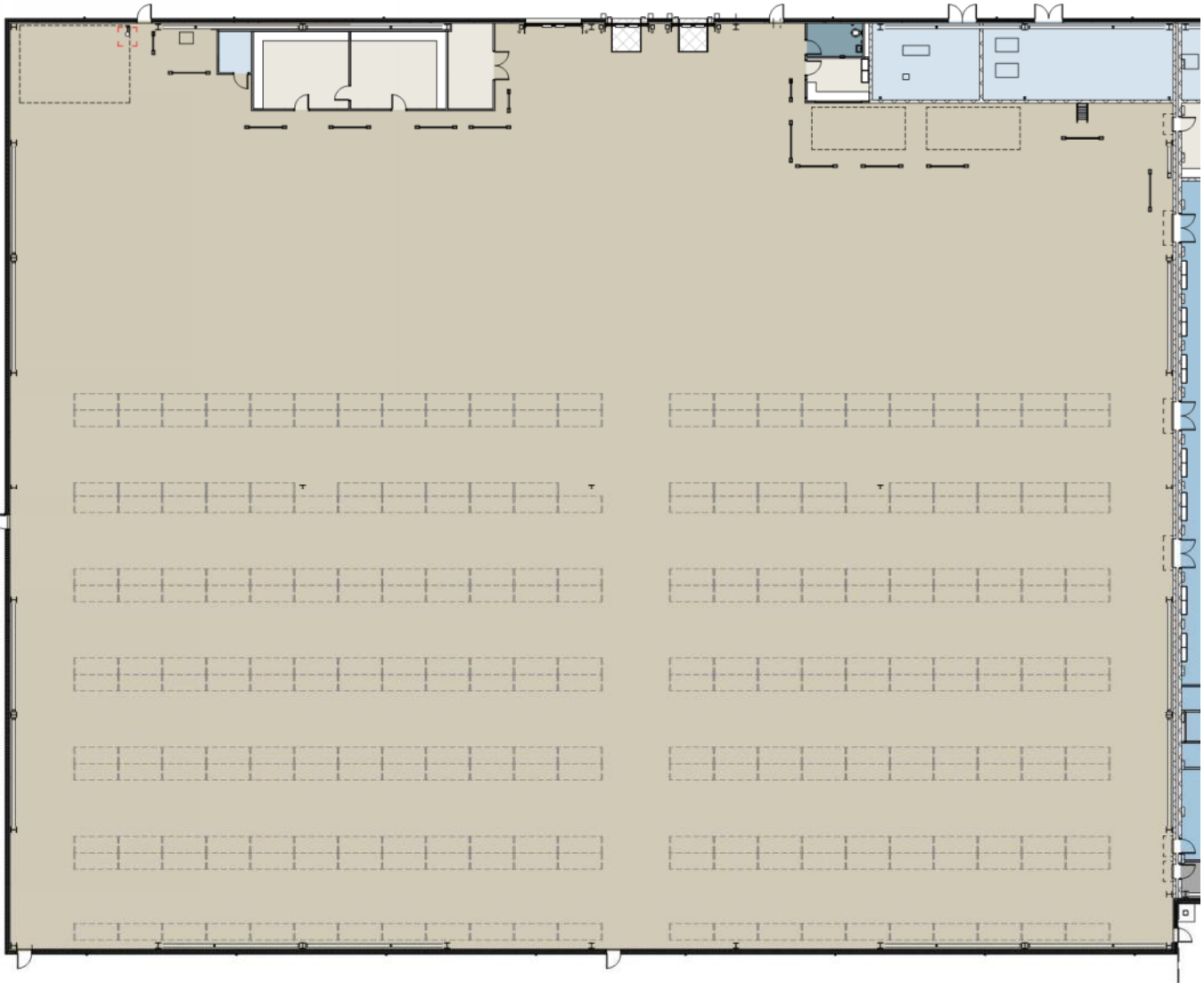
**ADDITIONAL INFORMATION:** N/A

**5.7 WAREHOUSE SPACES**

Warehouse Spaces are the areas that facilitate the receipt, storage, and shipping of goods for the facility.



CIF – Large  
Warehouse Space



CIF – Initial Entry  
Warehouse Space

## **SPACE: WAREHOUSE STORAGE**

**FUNCTIONAL DESCRIPTION:** This is a pallet rack area for storage of goods.

**ADJACENCIES:** Warehouse storage is adjacent to Shipping / Receiving area and the Issue / Turn-In Support area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Due to the operation of mechanical and electrical systems and devices, sound conditions and levels for interior spaces shall not exceed levels as recommended by ASHRAE handbook criteria.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide duplex receptacles along warehouse wall. Provide duplex receptacles in warehouse and mount on storage racks or columns at 48" minimum above finished floor. Receptacles shall not exceed 25 feet apart.

**LIGHTING:** Provide lighting level at 15 footcandles (+/- 10%) and controlled by occupancy sensors for individual aisle groups. Luminaires shall incorporate daylight harvesting dimming controls.

**TELECOMMUNICATION:** Provide voice communication between offices, shipping/receiving and all areas of the warehouse.

**FIRE PROTECTION:** The warehouse will be protected with an ESFR fire suppression system. Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A/

**SPECIAL REQUIREMENTS:** Pallet Racks that provide a minimum of 1,302 pallet spaces (including floor and top shelf locations).

**ADDITIONAL INFORMATION:** N/A



## **SPACE: SHIPPING / RECEIVING**

**FUNCTIONAL DESCRIPTION:** This area is where loading and unloading of trucks will occur.

**ADJACENCIES:** This area is adjacent to the exterior truck-dock hardstand and the interior Warehouse Storage area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Due to the operation of mechanical and electrical systems and devices, sound conditions and levels for interior spaces shall not exceed levels as recommended by ASHRAE handbook criteria.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** N/A

### **DOORS/FRAME:**

- Vertical Lift doors: Provide 10'H x 8'W sectional or rollup doors at truck docks, openings to exterior dock and for ventilation purposes. For safety reasons provide eyebrows of sufficient width and depth to protect forklift drivers from the elements during inclement weather.
- Truck And Pedestrian Doors - The (xx) large dock rollup doors shall be a minimum of 10'w x 12'h. One 3'-0 x 6'-8" pedestrian door shall also be provided. All doors shall have nylon brush-style weather-stripping to prevent the entry of insects and to protect against external weather conditions.
- Finish Hardware: All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided. The Installation's keying system is Best Access Systems B.A.S.I.S. G. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. Plastic cores are unacceptable. Provide closers for all exterior doors, all doors opening to corridors and as required by codes. Exit devices shall be installed all building egress doors.
- Electrically Operated Sectional Overhead Doors: Doors shall be industrial class, high-lift sectional overhead doors, electrically operated, with auxiliary hand chain override. In the open position, the horizontal portion of the door shall be aligned with the angle of the roof structural elements; and shall be no more than 6 inches below the bottom of the roof structural elements. Doors shall consist of horizontal sections hinged together which operate in a system of tracks to completely close the door opening in the closed position and make the full width and height of the door opening available for use in the open position. Provide a permanent label on the door indicating the name and address of the manufacturer. Doors, components, and methods of installation shall be designed in accordance with DASMA 102. Minimum design wind load shall be 20 psf. Maximum wind load deflection of the door shall not exceed the door height in inches divided by 120 and the door width in inches divided by 120. Doors shall be operable during design wind load when tested in

accordance with ASTM E 330. Door sections shall be formed from hot-dipped galvanized steel not lighter than 16 gage with longitudinal integral reinforcing ribs. Meeting rails shall have interlocking joints to ensure a weather tight closure and alignment for full width of the door. Provide sections of the height indicated or the manufacturer's standard. Do not exceed 24 inch height for intermediate sections. Bottom sections may be varied to suit door height. Do not exceed 30 inch height for bottom section. Door sections shall be insulated and shall provide a "U" factor of 0.14 or less when tested in accordance with ASTM C 1363. Interior of door sections shall be covered with steel sheets of not lighter than 20 gage to completely enclose the insulating material. Provide galvanized steel tracks not lighter than 10 gage. Provide vertical tracks with continuous steel angle not lighter than 10 gage for installation to walls. Incline vertical track through use of adjustable brackets to obtain a weather tight closure at jambs. Reinforce horizontal track with galvanized steel angle; support from track ceiling construction with galvanized steel angle and cross bracing to provide a rigid installation. Provide hinges, brackets, rollers, locking devices, and other hardware required for complete installation. Counterbalance doors with an oil-tempered, helical-wound torsion spring mounted on a steel shaft. Provide adjustable spring tension; connect spring to doors with cable through cable drums. Provide cable safety factor of at least 7 to 1. Provide operators of the type recommended by the door manufacturer. Operators shall include electric motor, machine-cut reduction gears, steel chain and sprockets, magnetic brake, brackets, pushbutton controls, limit switches, magnetic reversing contactor, a manual operator as specified below for emergency use and other accessories necessary for operation. The electric operator shall be designed so that the motor may be removed without disturbing the limit switch timing and without affecting the manual operator. The manual operator shall be clutch controlled so that it may be engaged and disengaged from the floor; operation shall not affect limit switch timing. Provide an electrical or mechanical device that disconnects the motor from the operating mechanism when the manual operator is engaged. Provide a galvanized, endless chain operating over a sprocket. Extend chain to within 4 feet of the floor and mount on inside of building. Obtain reduction by use of roller chain and sprocket drive or gearing. Provide chain cleat and pin for securing operator chain. The force required to operate the door shall not exceed 35 pounds. Each door motor shall have an enclosed, across-the-line type, magnetic reversing contactor, thermal overload and undervoltage protection, solenoid-operated brake, limit switches, and control switches. Locate control switches at least 5 feet above the floor so the operator will have complete visibility of the door at all times. Control equipment shall conform to NEMA ICS 1 and NEMA ICS 2. Control enclosures shall be NEMA ICS 6, Type 12 or Type 4, except that contactor enclosures may be Type 1. Each control switch station shall be of the three-button type; buttons shall be marked "OPEN," "CLOSE," and "STOP." The "OPEN" and "STOP" buttons shall require only momentary pressure to operate. The "CLOSE" button shall require constant pressure to maintain the closing motion of the door. If the door is in motion and the "STOP" button is pressed or the "CLOSE" button released, the door shall stop instantly and remain in the stop position; from the stop position, the door may be operated in either direction by the "OPEN" or "CLOSE" buttons. Pushbuttons shall be full-guarded to prevent accidental operation. Provide limit switches to automatically stop doors at the fully open and closed positions. Limit switch positions shall be readily adjustable. Provide a safety device on the bottom edge of electrically operated doors. The device shall immediately stop and reverse the door in its closing travel upon contact with an obstruction in the door opening or upon failure of the device or any component of the control system and cause the door to return to the full open position. The door-closing circuit shall be automatically locked out and the door shall be operable manually until the failure or damage has been corrected. Do not use the safety device as a limit switch. Each sectional overhead door shall be furnished with a "headache bar" on the interior and exterior side of the facility. Set bottom of each "headache bar" 6-inches below bottom of door head height and 4-feet from face of door. Each

interior “headache bar” shall be suspended from a pair of steel cables mounted on the roof structure. Each exterior “headache bar” shall be suspended from a pair of steel cables mounted on the roof structure or suspended from a pair of steel cables mounted on the upper arm of a structural steel tube “□” structure set in concrete on one side of the door. Use one structural steel tube “□” structure on each side of doors wider than 10-feet. Length of “headache bar” shall be minimum 80% the width of the door and shall be centered on the door width.

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating, ventilation, and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide duplex receptacles along warehouse wall. Provide duplex receptacles in warehouse and mount on storage racks or columns at 48” minimum above finished floor. Receptacles shall not exceed 25 feet apart.

**LIGHTING:** Provide lighting level at 30 footcandles (+/- 10%) and controlled by occupancy sensors for individual area groups. Luminaires shall incorporate daylight harvesting dimming controls.

**TELECOMMUNICATION:** Provide voice communication between offices, shipping/receiving and all areas of the warehouse.

**FIRE PROTECTION:** The warehouse will be protected with an ESFR fire suppression system. Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**SPECIAL REQUIREMENTS:** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: SECURE STORAGE**

**FUNCTIONAL DESCRIPTION:** A room for the secure storage of non-sensitive records.

**ADJACENCIES:** Shall be located within the Warehouse area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxez or Equal). A 4" covered wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Wall construction of this room enclosure shall comply with the requirements of AR 190-51 Appendix B (B-1 & B-2, Risk Level II) and shall be painted.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Ceiling construction of this room enclosure shall comply with the requirements of AR 190-51 Appendix B (B-1 & B-2, Risk Level II) and shall be painted.

**DOORS/FRAME:** Wood Doors

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 10 foot candles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** Built-in steel shelving, 24" deep, 3 rows high, at 21" O.C. The bottom shelf shall be set 24" AFF and all shelves shall be capable of supporting a minimum weight of 30 lbs per lineal foot.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: REPAIR ROOM**

**FUNCTIONAL DESCRIPTION:** A designated conditioned space for the repair of materials.

**ADJACENCIES:** Shall be located within the Warehouse area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 40 foot candles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** Built-in steel shelving along one side wall and the back wall. Shelving to be 24" deep, 3 rows high, at 21" O.C. The bottom shelf shall be set 24" AFF and all shelves shall be capable of supporting a minimum weight of 30 lbs per lineal foot.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: CLASSIFICATION ROOM**

**FUNCTIONAL DESCRIPTION:** A designated conditioned space for the classification of materials.

**ADJACENCIES:** Shall be located within the Warehouse area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 40 foot candles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** Built-in steel shelving along one side wall and the back wall. Shelving to be 24" deep, 3 rows high, at 21" O.C. The bottom shelf shall be set 24" AFF and all shelves shall be capable of supporting a minimum weight of 30 lbs per lineal foot.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: WAREHOUSE OFFICE AREA**

**FUNCTIONAL DESCRIPTION:** An enclosed office area for Warehouse personnel.

**ADJACENCIES:** Shall be located within the Warehouse.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy cleaning, maintenance, and repair. Use of a low profile raised floor required (Reinforced FreeAxex or Equal). A 4" coved wall base material, appropriate for the flooring material used, is required. Area consists of carpet tile flooring.

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for wall and column outside corners. Factory fabricated end closure caps shall be furnished for top and bottom of surface mounted corner guards.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

### **VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide a minimum of 2 (two) duplex receptacles for each workstation. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 30 footcandle (+/- 10%) average illumination throughout the room, and 50 footcandles (+/- 10%) at the desk task area with task lighting. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet for each workstation. Provide data outlets along an interior circulation path and adjacent to wall mount duplex receptacle to support copier/scanner stations.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** N/A

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (4) modular work stations with work surfaces, file pedestals and overhead storage, (4) task chairs

**ADDITIONAL INFORMATION:** N/A



## **SPACE: GENERAL PURPOSE STOREROOM**

**FUNCTIONAL DESCRIPTION:** A general storage room for office supplies and other general items.

**ADJACENCIES:** Shall be located within the Warehouse area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 10 foot candles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** Built-in steel shelving, 24" deep, 3 rows high, at 21" O.C. The bottom shelf shall be set 24" AFF and all shelves shall be capable of supporting a minimum weight of 30 lbs per lineal foot.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: RECYCLE / STORAGE**

**FUNCTIONAL DESCRIPTION:** A room used to store materials to be recycled.

**ADJACENCIES:** Shall be located within the Warehouse area.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel studpartitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide lighting level at 30 foot candles (+/- 10%) and controlled by vacancy sensor(s).

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**SPECIAL REQUIREMENTS:** Recycling Bins.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** N/A

**ADDITIONAL INFORMATION:** N/A

## **SPACE: WAREHOUSE SUPERVISOR**

**FUNCTIONAL DESCRIPTION:** A private office for the Warehouse Supervisor.

**ADJACENCIES:** Shall be located within the warehouse area directly adjacent to the Shipping/Receiving area. It should be in close proximity to a copier and printer.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Warehouse Supervisor

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include easy to repair, easy to maintain, and durable. Standard floor-to-ceiling steel stud partitions. Wall material shall have the ability to absorb pushpins. Wall surface shall be able to withstand tape peeling. Painted GWB walls. Extend walls to underside of ceiling grid.

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** Salient characteristics include ease of accessibility to mechanical system above ceiling, durable, and shall provide an aesthetically pleasing surface, free of sags or other defects. Use of a Screw-slot grid, acoustical locking angle and 24" x 24" tegular tile (9'-0" AFF). Ceiling grid shall provide a level termination and horizontal support for walls.

**DOORS/FRAME:** Wood Doors

### **VISION PANELS/VIEW WINDOWS:**

- **Exterior windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Operable windows shall be furnished with locks, and fiberglass or aluminum insect screens removable from the inside. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.
- **Window Treatment:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. Uniformity of window covering color and material shall be maintained throughout the building.

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** Not applicable for this area

**ELECTRICAL:** Provide 1 (one) wall mount duplex receptacle per wall in conjunction with the proposed equipment, furniture layouts and for general purpose use. Provide one duplex receptacle adjacent to CATV outlet.

**LIGHTING:** Provide dual-level lighting ambient lighting. Provide 30 footcandle (+/- 10%) average illumination throughout the room, and 50 footcandles (+/- 10%) at the desk task area with task lighting. Control with a vacancy sensor and low voltage override pushbuttons.

**TELECOMMUNICATION:** Provide 1 (one) CATV outlet and at least 1 (one) voice/data outlet in conjunction with the proposed furniture layouts.

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (1) desk, (1) managerial chair, (1) guest chair, (1) bookcase, (1) four drawer lateral filing cabinets (or an equal quantity of filing space), and personal storage.

**SPECIAL REQUIREMENTS:** Copier/scanning station in the Area shall be located along an interior circulation path and will be enclosed with walls extending to underside of deck above, and door equipped with closer.

**ADDITIONAL INFORMATION:** N/A

## **SPACE: KITTING AREA**

**FUNCTIONAL DESCRIPTION:** A designated floor space area to accommodate kitting machines.

**ADJACENCIES:** Shall be located within the warehouse along a wall.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria.

**PLUMBING:** N/A

**ELECTRICAL:** Provide a dedicated circuit with disconnect switch for each Kitting machine.

**LIGHTING:** Lighting design for the Kitting Area shall be similar to that for the open Shipping/Receiving portion of the Warehouse.

**TELECOMMUNICATION:** N/A

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (1) desk, (1) managerial chair, (1) guest chair, (1) bookcase, (1) four drawer lateral filing cabinets (or an equal quantity of filing space), and personal storage.

**SPECIAL REQUIREMENTS:** (3) GFGI Kitting machines

**ADDITIONAL INFORMATION:** N/A

## **SPACE: FORKLIFT CHARGING AREA**

**FUNCTIONAL DESCRIPTION:** A designated floor space area to accommodate forklift charging.

**ADJACENCIES:** Shall be located within the warehouse along a wall.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria. Provide for sufficient diffusion and ventilation of gases from forklift storage batteries to prevent the accumulation of explosive mixtures.

**PLUMBING:** N/A

**ELECTRICAL:** Provide a dedicated circuit with disconnect switch for each forklift battery charging station.

**LIGHTING:** Lighting design for the Forklift Charging Area shall be similar to that for the open Shipping/Receiving portion of the Warehouse.

**TELECOMMUNICATION:** N/A

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (1) desk, (1) managerial chair, (1) guest chair, (1) bookcase, (1) four drawer lateral filing cabinets (or an equal quantity of filing space), and personal storage.

**SPECIAL REQUIREMENTS:** GFGI Forklift Charging Equipment

**ADDITIONAL INFORMATION:** N/A

## **5.8 Rapid Fielding Initiative (RFI)**

The RFI provides additional warehouse space for the storage of specialized items.

## **SPACE: RFI**

**FUNCTIONAL DESCRIPTION:** A designated floor space area to accommodate forklift charging.

**ADJACENCIES:** Shall be located within the warehouse along a wall.

**AREA:** See Square Footage Requirements

**OCCUPANTS:** Staff

**MINIMUM FLOOR and WALL BASE CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM WALL CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**MINIMUM CEILING CONSTRUCTION/SURFACE PERFORMANCE:** N/A

**DOORS/FRAME:** N/A

**VISION PANELS/VIEW WINDOWS:** N/A

**HVAC:** Provide heating and air conditioning in accordance with the latest edition of ASHRAE criteria. Provide for sufficient diffusion and ventilation of gases from forklift storage batteries to prevent the accumulation of explosive mixtures.

**PLUMBING:** N/A

**ELECTRICAL:** Provide a dedicated circuit with disconnect switch for each forklift battery charging station.

**LIGHTING:** Provide lighting level at 15 footcandles (+/- 10%) and controlled by occupancy sensors for individual aisle groups. Luminaires shall incorporate daylight harvesting dimming controls.

**TELECOMMUNICATION:** N/A

**FIRE PROTECTION:** Provide per latest version of NFPA and UFC criteria.

**FURNITURE/FIXTURES/EQUIPMENT (FF&E):** (1) desk, (1) managerial chair, (1) guest chair, (1) bookcase, (1) four drawer lateral filing cabinets (or an equal quantity of filing space), and personal storage.

**SPECIAL REQUIREMENTS:** GFGI Forklift Charging Equipment

**ADDITIONAL INFORMATION:** N/A