University of Alaska Fairbanks

University Fire Station and Student Firefighter Training Center

Concept Design

Project No. 2008144 WHNS

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EXECUTIVE SUMMARY

The Whitaker Hall Replacement Fire Station concept design includes the conceptual requirements for a new integrated facility which will be shared between the Fire Department, Police Department and the Community and Technical College. While each department is separate, through programmatic synergies and the sharing of space, they are also linked together within a single building to provide a rich learning experience. Designed as a single phased facility, both capital and long-term operational savings will result.

Using the 2013 programming work as a spring point, in June of 2014 a design charrette was held on campus with the project stakeholders. During the charrette, the program was reviewed and updated to align with current programmatic needs. Working and exploring opportunities as a group, a site design exercise was held to look at the major relationships between primary programmatic elements in various configurations. From this effort a preferred design concept emerged.

Since the kick-off meeting, the development of conceptual site and building plans have been an iterative process. The team investigated multiple concepts to identify the most effective arrangement of the programmatic elements. Sharing of space, separation of operations and response, separation of dirty and clean areas, energy efficiency, sustainability and the isolation of noise were only a handful of issues considered. Externally, campus presence, materiality, vehicle circulation, building access, public and secured parking, as well as environmental conditions were explored. Once the desired arrangement and adjacencies of the building divisions were determined, the individual program elements were incorporated into the selected site/building layout. Using the operational space needs assessment as a guide, floor plan diagrams were developed to determine efficient circulation patterns, establish public and private building zones, and maximize daylighting and ventilation opportunities. The resulting concept and associated phasing is a key element in determining the project budget and moving into the schematic design phase.

Due to separate funding streams, the project is being designed to allow for independent construction phasing with the goal of moving the project forward together if budgetary alignment can occur. At this time that possibility is uncertain. The target is to have an operational facility approximately two years from the capital budget submittal. The project will be constructed using a design/bid/build delivery process.

END OF EXECUTIVE SUMMARY

Concept Design Narratives

CIVIL DESIGN NARRATIVE

Design Parameters
Codes and Standards

- *UAF Design Standards (Division 31, 32 and 33)*
- *2010 UAF Campus Master Plan*

Site Design

Finish floor of the proposed Fire Station has been proposed as 460.5 feet, approximately 8 feet above existing ground. The building has been set approximately 90 feet back from Tanana Loop Road and oriented parallel to the street in order to minimize steep access grades. A dedicated parking area will be provided to the east of the building, with further parking and turning area for fire apparatus to the south of the building. Fire apparatus will exit the building to the north directly onto Tanana Loop Road. Headbolt heater outlets (HBOs) will be provided for all 13 on-site facility parking stalls. Sixty-eight existing parking spaces will be eliminated.

Parking facilities and pedestrian access will be provided adjacent to Fairbanks Street on the east end of the proposed Fire Station. Pedestrian access will be to the second floor of the building via stairs and an ADA ramp. Eleven reserved parking spaces are planned in the east lot. The parking spaces will be reserved for ADA (2), police department (4), fire department (1), Facilities Services (2), 20-minute visitor parking (2). Pedestrian access will be connected to Tanana Loop Road via a 6-foot-wide sidewalk. Fairbanks Street will be realigned and raised approximately 2 feet to provide sufficient space for the parking lot. The realigned Fairbanks Street will be capable of handling WB-62 trucks.

Access to the drive-through fire apparatus bays and CTC apparatus training bays on the south side of the proposed fire station will be provided via a 24-foot-wide access drive west of the building from Tanana Loop Road. The access drive and southern parking/turning area will be elevated an average of 8 feet above existing ground, similar to finish floor. Adequate space has been provided in the southern parking/turning area for fire trucks to turn around in order to access all apparatus bays. An outside turning radius of 50 feet with an inside radius of 35 feet was used as a conservative estimate of turning radii after analysis with AutoTurn. The area is graded at approximately 2% to drain away from the proposed building. A fenced impound area with room for six (6) vehicles and several connexes will be provided on the south end of the parking/turning area.

The CTC apparatus training bay and simulation areas are located to the south side of the building with associated exterior drill areas. The simulation building can additionally be accessed from the east at its second level directly from Fairbanks Street to provide for highly diverse training evolutions.

A drive-through will be installed between the existing parking lots to the west of the facility. This will compensate for the reduced access to Road Tanana Loop by allowing vehicles to circulate through the parking lots. General parking for users of the facility will be available in these parking lots. Existing HBOs will be protected for affected parking spaces.

Outgoing fire apparatus will access Tanana Loop Road via a paved apron on the north side of the proposed building. The apparatus bays are located at the northwest area of the building to avoid conflicts with adjacent intersections along Tanana Loop. Police vehicles access the sally port from the east side of the apron. An additional two (2) dedicated police department parking spaces will be located on the north side of the building with access to the paved apron. Tanana Loop Road has a grade of 4% in this area, which will create a cross slope of 4% as vehicles enter the roadway. This is the maximum allowable cross slope as outlined in Section 32.05.00-1.02.B.4 of the UAF Design Standards. The apron will drain to a storm drain inlet to the west.

Geotechnical Design

Geotechnical recommendations have yet to be provided for structural sections under sidewalks and paved areas. The following sections have been estimated based on recent projects in the area.

- Sidewalks shall receive 6 inches of concrete over 18 inches of non-frost-susceptible (NFS) structural fill.
- Paved areas shall receive 2 inches of asphalt over 6 inches of aggregate base course and 18 inches of NFS structural fill.

Shannon & Wilson (S&W) completed a preliminary subsurface site exploration in 2008. This exploration included the drilling and analysis of one bore hole in the vicinity of the proposed building. The boring encountered frozen ground (loose silt in this case) at a depth of between 9.5 feet to 17 feet with a mixture of gravel and loose silt fill above. The S&W report defines “settlement and consolidation, frost heave, and soil liquefaction” as the major concerns. S&W’s recommendation as outlined in their report is to over-excavate 25 feet and backfill with NFS material prior to construction of the building. Another foundation option would be the use of a deep-pile foundation, bearing in the weathered bedrock.

Finish floor of the proposed Fire Station will be approximately 8 feet above existing ground to allow for gravity feed sewer service and acceptable grades for fire truck access out of the north side of the building onto Tanana Loop. The foundation design has subsequently been revised based on recent discussion with S&W. The building site will be over excavated to a depth of 10 feet below existing ground prior to the placement and compaction of NFS fill to finish grade. Prior to construction of the building foundation, the NFS material for constructing the parking lot will be pre-loaded onto the building site for a period of several months to consolidate underlying soils. Wicking drains will be imbedded into native soils under the building site to speed the consolidation process. This technique was used with great success during construction of Thompson Drive. These are preliminary recommendations; more investigation will be required before better recommendations can be provided.

Utilities

1. **Sanitary Sewer.** The existing sanitary sewer main runs parallel to Tanana Loop approximately 300 feet north of the proposed Fire Station. The sewer main is a 14-inch wood stave pipe that has recently been lined. A 6in Ductile Iron Pipe (DIP) is planned for the sanitary sewer service with 2½ inches of insulation and will gravity feed from the proposed Fire Station to manhole (MH) L11 at a 1% slope. The service line invert will match the sewer main crown at the tie-in. The service will run under Tanana Loop as well as approximately 150 feet of existing parking lot north of Tanana Loop. A cleanout will be installed in the service 5 feet from the face of the proposed building. An additional cleanout will be installed approximately halfway to MH L11 to

allow for maintenance of the long service line. The service line will run over the top of the existing utilidor (with approximately 3ft of vertical clearance) located between Tanana Loop and the proposed Fire Station.

2. **Storm Sewer.** An existing storm drain system runs through the site to the west of the proposed Fire Station, with an outlet located in the middle of the proposed parking area to the southeast of the proposed Fire Station. A 48-inch-diameter storm drain manhole will be added at the outlet and the outlet extended 170 feet to the south with 24-inch corrugated metal pipe (CMP).

   Two 48-inch-diameter storm drain manholes will be added along the north side of the proposed Fire Station in order to accommodate new drainage patterns. These manholes will link to the existing storm drain system to the west of the proposed building via 200 feet of 18-inch CMP storm drain piping.

   Swales, culverts, curb and gutter will be required to route stormwater into an existing drainage swale that runs parallel to Tanana Loop to the south of the site. Stormwater runoff from the southern parking/turning area will surface flow into existing vegetated areas to the south of the building site.

3. **Utilidor.** A recently constructed utilidor runs parallel to Tanana Drive approximately 30 feet north of the proposed Fire Station. A 30-foot x 6-foot x 8-foot (inside dimensions) utilidor service will be constructed to link the mechanical room with the utilidor. A 13-foot x 32-foot x 8-foot utilidor blister will be added at the tie-in to the existing utilidor in order to accommodate utility tie-ins that run along the north side of the existing utilidor.

4. **Fire Hydrants.** Two fire hydrants will be installed on the north side of the building to serve the fire flow needs of the facility. One hydrant will be installed directly out of the utilidor to the west of the facility adjacent to the access drive. The other will be installed approximately 50 feet from the utilidor adjacent to Fairbanks Street behind the sidewalk. This hydrant will be served by a 6in diameter direct bury DIP with 3 inches of insulation. A circulation loop will facilitate circulation of the line for freeze protection. Final fire hydrant placement will be subject to approval by the UAF fire chief.

END OF CIVIL CONCEPT DESIGN NARRATIVE

LANDSCAPE DESIGN NARRATIVE

Existing Landscape Conditions

The project site is comprised largely of unpaved parking with grass covered slopes on its north and east boundaries. Directly east of the project site stands a mature group of native coniferous and deciduous trees and associated understory plants. To the south is open lawn/ meadow and to the west is paved parking.

Landscape Design Parameters

The landscape design for the facility will provide a landscape in accordance with the 2010 Campus Master Plan (CMP) and the 2004 Campus Landscape Plan (CLP). The CMP and CLP require that the following design principles be followed for landscapes on the UAF campus:

- Restore features of the indigenous natural environment and integrate ornamental species.
- Organize the landscape in a purposeful manner that conveys the history, location, culture and educational mission of the university.
- Optimize seasonal and temporal beauty of the subarctic environment.
- Ensure the health, safety and well-being of campus users.
- Create a campus greenway that connects the campus from east to west through a series of formal, interpretive and undeveloped landscapes.

Per the CLP's guidance on landscape for buildings, the landscape design will:

- Highlight primary building entrances with ornamental plants.
- Use plant material that complements the building architecture and tie the project to the larger campus context.
- The landscape design will coordinate with roof drains to collect runoff.
- The landscape will coordinate with snow clearing and snow storage in order to prevent obstruction of these functions.
- Landscape plantings will be utilized to screen parking east of the main entry from Tanana Loop and pedestrian circulation paths.

Planting & Plant Species Selection

Plantings will be designed in accordance with the CLP's guidance to include:

- Use of color, texture, and form of plants in the composition of landscape spaces.
- Meet UAF Design Standards (Section 02900) in the placement of plant materials in relation to buildings and utilities.
- Making planting areas a minimum of 5 feet by 8 feet for flower, groundcover, and shrub beds. Minimum area for tree planting is 10 feet by 10 feet.
- Planting of trees, shrubs, and groundcover in masses within planting areas where possible.

- Provide 40 square feet of water- and air-permeable landscape area at the base of each tree, within the drip zone, using either a tree grate (in highly used pedestrian areas) or groundcover or shrubs and mulch (in low-use areas).
- Will not install lawn on slopes greater than 3:1.
- Will use low-maintenance grasses on slopes steeper than 3:1.
- Will not use nonnative plants that have been identified as noxious and invasive.

Plant species will be selected from the Campus Landscape Plant Palette for grassy meadows and hillsides.

Site Furnishings and other Hardscape Features in the Landscape

Site furnishings will include:

- (2) 30’ flagpoles are provided along the main entry walk.
- (1) Bike rack for (7) bikes.
- A screen wall or fence will be provided around electrical transformers located northeast of the main entry. A screening structure may also be included around the generator if
- If found to be desired as a part of the design process, a bench for seating and a litter receptacle are included near the main building entry.

Codes and Standards to be used

- 2010 UAF Campus Master Plan
- UAF Campus Landscape Plan (CLP) dated June 4, 2004
- UAF Design Standards (Section 02900)
- ANSI Z60.1 American Standard for Nursery Stock

END OF LANDSCAPE CONCEPT DESIGN NARRATIVE

ARCHITECTURAL DESIGH NARRATIVE

Design Parameters
Code Information

- *International Building Code (IBC), 2012Edition*
- *Alaska Fire and Life Safety Regulations, 13 AAC 50, (November 16, 2012)*
- *ANSI Standard A117.1, Accessible and Usable Buildings and Facilities, (ICC A117.1-2009)*

- Occupancy: Designed as Group B but also containing Groups S-2 and R-3. Non-separated occupancies based on the most restrictive allowable building area and height allowances for the occupancy groups. Occupancies not required to be separated with the exception of 1hr construction for group R-3.
- Allowable height is 3 stories and 60 feet.
- Minimum Type of Construction: **VB**. Buildings structural elements, exterior walls and interior walls can be constructed of any materials permitted by code.
- Automatic Sprinkler Protection: Building fully sprinklered by Section 903.3.1.1
- Fire-Resistance Rating for structural frame, bearing walls exterior and interior, nonbearing walls and floor and roof per table 601 = 0hr/ non-rated.
- Special requirements based on use:
    - Elevator shaft 1hr construction
    - Exit stairs 1hr construction
    - Sleeping units separated by 1hr construction
    - Corridor in R-3 occupancy 1hr construction

- Building fully accessible per code.

Existing Site

The projected site for this 66,830 S.F. facility is located approximately where the abandoned Fairbanks Street Connector is located. The topography of the site slopes to the southwest at a 2-3% grade, except for a rather steep slope up to the east where the Fairbanks Street grading is still located, and along the Northern property line as it approaches Tanana Loop. The total elevation change from west to east is +/- 12'-0". From South to north it is +/- 9'-0". Grading for the site is controlled by the elevation of Tanana Loop where the new apparatus bay apron and driveways are located. The Tanana Loop embankment varies from 4 to 10 feet higher than the interior area where the majority of the ESTF is located.

Architectural Design

The site topography provides for a multi-level building, while allowing the necessary on-grade entrances at the fire station, police station and CTC. The building will be organized on three primary floors. Given the site terrain; the facility will be two stories high at Fairbanks Street, three stories high to the west of Fairbanks Street as the grade drops, two stories high at the apparatus bay with one story of support space flanking the bays to the west. Programmed areas will not be required to be stacked over the long-span apparatus bays. A central stairwell and elevator connect the mutli-levels of the building.

The building's primary public entry is oriented toward Tanana Loop and maintains a public connection to the campus core to the northeast of the site. Adjacent parking for visitors relates to the northeast corner and provides line of sight for traffic, both pedestrian and vehicle, traveling on Tanana Loop. Additional police parking impound and evidence storage is provided at the rear, or south, of the building.

Project Phasing

The project will be constructed in phases based on available funding sources. Currently, three (3) phases have been identified.

Phase 1 – Fire station including mech/elec/fan space and vertical circulation from the main entry, two classrooms, shell space for Police Station, Dispatch and CTC, site development
Phase 2 – Police station and dispatch shell space to be built out
Phase 3 – CTC classrooms, faculty offices, simulation building and training bay to be built out.

Materials and Building Finishes

1. Building Envelope

a. Exterior Walls

The exterior wall system is composed of the following elements (coordinated and in compliance with UAF standards and guidelines):

The exterior wall surface will be noncombustible, insulated metal panels with minimum thermal resistance of a minimum of 50, meeting or exceeding ASHRA 90.1 by 30 %.

- The metal panels will be attached to metal stud framing supported by steel framing.
- A continuous layer of 1 inch rigid insulation will be at the interior side of the insulated metal panels and provides a thermal break and additional insulation of R=4.
- An 8-mil vapor retarder will be located at the interior side of the rigid insulation and on the exterior side of the 8 inch metal stud wall framing. Joints will be sealed.
- The 8 inch cold-rolled metal studs will be framed from foundation to roof parapet and provide lateral support for the exterior metal panels. The studs are attached with vertical slide clips to the edge of the floor system to allow for deflection.
- 5/8 inch gypsum wallboard and applied finishes will be installed at the interior face of the stud.
- Verify if a weather/air barrier is to be included.

The exterior wall system is designed to provide a total thermal transmittance of a minimum of 50, meeting or exceeding ASHRA 90.1 by 30 %.. This wall system will also provide an excellent vapor retarder assembly. By locating the vapor retarder on the exterior side of the metal studs, penetrations of the vapor retarder are greatly reduced. Electrical and mechanical systems can be routed through the metal stud cavities without jeopardizing the vapor retarder. The integrity of the vapor retarder is especially critical in humidified buildings. Future interior renovations can be constructed without disruption of the thermal envelope or vapor retarder.

The exterior side of the foundation wall has a 2 inch layer of rigid insulation continuous from top of footing to top of wall. An additional layer of 2 inch rigid insulation will be installed at all areas of the foundation wall that are above grade from the top of the wall to 4 feet below grade. The areas of the wall above grade will be protected with heavy gauge metal flashing. The foundation wall will have bituminous membrane waterproofing.

b. Roof

The roofing system is composed of the following elements:

- Roofing will be single-ply fully adhered EPDM roofing membrane over a wood fiber recovery board. The recovery board will be mechanically attached.
- EPS rigid insulation, with a minimum average thermal resistance of R=60, will be installed below the recovery board and above a layer of gypsum sheathing.
- A bituminous membrane vapor retarder will be installed below the gypsum board and above the roof deck.
- The roof is constructed of 1-1/2 inch metal decking supported by steel joists and steel beam girders.
- The structure of the roofing system is designed to provide a minimum slope of 1/4 inch per foot for drainage. Water will be collected by internal roof drains and discharged safely away from the building. Overflow roof drains and overflow discharge scuppers will be heat traced.

c. Windows

Exterior windows will be:

- Fixed, thermally-broken aluminum windows with triple pane glazing.
- Aluminum frames with triple pane glazing and thermal breaks at exterior windows at main building administration entrance and southern ground floor entry.

d. Doors

Exterior doors will be:

- Glazed, aluminum in aluminum frames at main building and plaza entrances.
- Insulated extra heavy duty, seamless hollow metal in thermally broken metal frames at stair egress doors and the receiving area entrance door.
- Insulated sectional overhead door on 3 inch track with electric operator with draw-bar and worm gear reduction at the apparatus area (Four-fold doors to be priced as an add-alternate), CTC bay and dirty classrooms exterior wall and wall adjacent to the CTC bay.

Exterior doors at main building entrances will receive electronic locks and card access terminals.

2. Building Interior

a. Walls

Walls will be typical light gauge cold-rolled metal stud frame construction, with gypsum wallboard and applied paint. High impact gypsum wallboard will be provided in common hallways, all storage rooms, apparatus support areas, and up to 8'-0" in the apparatus bays.

- Toilet and shower rooms will receive a 4 ft. high glazed ceramic tile wainscot. Shower stalls will have glazed ceramic tile from floor to ceiling.
- Corridor walls will receive radiuses corner guards.
- Storage room and decon/clean room will be faced with a plastic rigid sheet panel
  (In-Pro or equal) wall panel to 8'-0" in height.
- Apparatus bays will have plastic rigid sheet panels to 8'-0" in height. (Masonry alternate)
- CTC bay and simulation building will be constructed of fully grouted and sealed ground face concrete masonry units.
- Sound walls (sound batts) will be incorporated at offices, toilet/shower rooms and between each sleeping room and mechanical areas.
- Fire walls and fire barriers will be constructed of light gauge cold rolled metal stud frame construction with gypsum wallboard and/or gypsum panels to achieve the required fire rating. The firewall will be constructed in such way to allow collapse of construction on either side without causing collapse of the firewall.
- Basement walls in finished spaces will be concrete, furred with 4 inch metal studs, 8-mil vapor retarder, and 5/8 inch of gypsum wallboard with applied finishes.

- Holding areas will be constructed of soling grouted and reinforced ground faced concrete masonry units to be sealed.
- Breach prop infill for the simulation building to be wood framing 16" 0.c. with ¾ " plywood each side
- Elevator shaft in simulation building to be fully grouted and sealed ground face concrete masonry units with elevator doors at three levels.
- Provide precast concrete stair with galvanized metal railings at the simulation building (see plans).

b. Floors

The floor system is composed of 2 inches of concrete on 2 inch metal decking supported by steel beams and girders. The beams will be designed to be composite with the concrete fill to create a stiff floor system.

Floor finishes:

- Administration office areas, hallways, dispatch area will have carpet tile flooring.
- Classrooms will have polished concrete flooring.
- Crew and dormitory spaces will have polished concrete flooring.
- Toilet and shower rooms will have porcelain mosaic tile.
- Apparatus bays and support areas will have slip resistant polished concrete.
- Janitor and mechanical areas will be exposed sealed concrete.
- Stair treads and risers will be precast concrete.
- Vestibules will have walk-off mat flooring.
- Exercise room will have recycled rubber resilient athletic flooring, similar to Mondo Sport impact flooring.
- Ground floor police areas will have polished concrete flooring.

All finished rooms will receive resilient base except rooms with ceramic tile floor will receive ceramic tile base.

b. Ceilings

Finished ceilings:

- Corridors, offices, conference rooms, and training rooms will have suspended acoustical ceilings.
- Vestibules, toilet rooms, apparatus bay support spaces will have painted gypsum wallboard ceilings.
- Apparatus bays, dirty classroom, CTC bays and mechanical areas will have painted exposed structure.

d. Doors

Interior doors and frames:

- Administration areas and sleeping rooms: Interior public rooms will have solid core, hardwood veneer doors in hollow metal frames.
- Those doors entering into and associated with the apparatus bays, CTC bay, CTC simulation building and its support areas will have hollow metal doors and frames.
- Hollow metal doors in hollow metal frames will be provided at mechanical rooms.
- Heavy duty steel rolling doors between the training apparatus bay and simulation building

e. Casework

Casework will be:

- Commercial grade, plywood with dovetail joints on drawers.
- Flush overlay type with concealed hinges.
- Laminate faced with a 3mm edge banding.
- Countertops in kitchen areas and decon/clean room will be stainless steel.

END OF ARCHITECTURAL CONCEPT DESIGN NARRATIVE

STRUCTURAL DESIGN NARRATIVE

Design Parameters
Codes and Standards

- *International Building Code (IBC), 2012 Edition*
- *American Society of Civil Engineers (ASCE) 7-10, Minimum Design Loads for Buildings and Other Structures*
- *American Institute of Steel Construction (AISC) 360-10, Specification for Structural Steel Buildings*
- *American Institute of Steel Construction (AISC) 341-10, Seismic Provisions for Structural Steel Buildings*
- *American Concrete Institute (ACI) 318-11, Building Code Requirements for Structural Concrete*

Building Structural Design

The new building will be constructed using structural steel framing supported by a concrete foundation system. The gravity-load-carrying elements will be designed to resist applicable load combinations involving building dead loads and live loads, along with snow loads and will consist of long-span steel bar joists for the roof over the fire station apparatus bays and open web steel bar joists spanning between interior steel beams for roof and floor areas throughout the remainder of the building. A limited number of interior columns supporting beam lines will be located to avoid conflicts with important facility functions. Cold-formed metal deck will be sized to span between steel bar joists to form the roof diaphragm for resisting both gravity and lateral loads. The lower roofs of the apparatus bay and simulation building area will be sized to resist code prescribed snow drift loading along with live loading as applicable where training exercises are anticipated. The construction of the second and third floor levels will utilize a composite deck, consisting of preformed gauge metal deck and concrete connected to the open web steel joists and structural steel support beams with steel shear studs welded to the tops of the joists and beams and cast into the concrete deck. This composite framing and deck will allow for more efficient joist and beam sections to be used as well as help reduce floor vibration. There will be no interior columns within the apparatus bays. The second level west of apparatus bays supporting mechanical equipment and additional storage will be framed with steel beams spanning between support columns with composite concrete and metal deck to support calculated loads at these locations.

The lateral force resisting system will be designed to resist the wind and seismic loads calculated for this specific building site. It will consist of steel braced frames at selected locations throughout the building in combination with shear walls and possibly moment resisting frames as required. The bracing configuration will be configured to avoid conflict in circulation routes and detailed to be concealed within wall cavities where possible. The concrete retaining wall along the east side of the building will double as a shear wall to resist lateral forces. The masonry partition walls in the simulation bay and building areas will also be designed to resist lateral loads along the plane of the wall and transfer these loads into the foundation system below. The braced frames will be stacked above one another for maximum efficiency where possible. The brace connections will be detailed to ensure that the structure exhibits ductile performance during an earthquake so no sudden brittle failure occurs. The layout of the braces in the structure is dictated by the ultimate configuration of the architectural floor plan. Braces will be located to maximize efficiency yet still work functionally within the building layout.

Foundation Design

The proposed site for the new Emergency Services Facility is located on the southwest corner of the Tanana Loop and the abandoned Fairbanks Street Connector. The site is relatively flat but will require substantial fill to elevate the Apparatus bays where fire trucks are stored to allow for vehicular access on to Tanana Loop Road. As described in the civil narrative, this constitutes a build-up of approximately 8 feet above existing grade level over this site. The building is to push up against the embankment adjacent to the Fairbanks Street Connector to the west. Geotechnical data regarding the site is limited, but preliminary information indicates that the loose sands and gravel with silts would be problematic for the stability of this structure given the possibility of liquefaction during a large seismic event. The Emergency Services Facility will house both the University's firefighting and campus police functions with critical dispatching services for emergency responders. Therefore this building will be considered an essential facility and must remain fully operable during and after any catastrophic event such as a major earthquake. Our geotechnical consultant has recommended some form of ground improvement to consolidate the loose subsurface soils. It is likely that some amount of excavation, say 10 feet below existing grade level, along with compaction of NFS granular fill to approximately 8 feet above existing grade level would be recommended for the building site. To further provide for additional consolidation of subsurface soils, vertical wick drains may be utilized over the building site in combination with preloading of the building site using additional fill material stacked over the prepared building pad to squeeze water from interstitial pore spaces and densify the underlying stratum of loose soil. Additional geotechnical investigation will be required to verify these assumptions for preparing the site prior to commencing with any foundation work.

It is anticipated that some form of ground improvement strategy will prove successful allowing the use of traditional cast-in-place reinforced concrete footings to support the anticipated loads for this structure and remain within the specified allowable bearing pressure recommended by the geotechnical engineer of record. The structural steel columns are to be supported on pedestals overlying isolated spread footings with an 8-inch-wide x 3-foot-deep perimeter stem wall running between pedestals to tie foundation elements together and assist in resisting lateral loads. The east side of the building will utilize a cast-in-place reinforced concrete retaining wall over a continuous strip footing to resist lateral earth loads from the fill material anticipated to be approximately 8 feet above the finished floor at the lower grade level. The retaining wall will extend up to the second floor level some 12 feet above the grade level floor slab. The concrete wall will extend the length of the east side wall and wrap around the north and south ends of the building approximately 61 feet. Structural steel columns along the east wall will bear on concrete pilasters formed into the retaining wall. Masonry CMU partition walls are scheduled to separate the simulation apparatus bay and building from the classroom and storage areas due to the durability of this material and types of training activities anticipated to take place in these areas. A 4-inch reinforced slab on grade will be cast throughout the grade level floor, except that the slab thickness will be increased to 6 inches with appropriate reinforcing steel at those areas subjected to vehicular traffic. Trench drains with sand traps along with collection sumps will be designed and detailed to insure water flows to the drains leaving floor surfaces dry.

The utilities for this building are scheduled to come from an existing utilidor passing just north of the building site. A blister addition to this utilidor will be added to allow piping and conduit, along with maintenance personnel, to enter a small utilidor spur, with inside dimensions of 6'-0" wide x 8'-0" high, which will extend 30 feet to the south from the main utilidor and enter into the mechanical room which is situated on the northwest corner of the building. The utilidor and mechanical room construction will be of cast-in-place reinforced concrete to resist earth loads along with any surcharge loads from vehicles

or equipment. The roof and walls will be insulated and covered with a waterproofing membrane to protect these buried structures against cold and moisture infiltration.

END OF STRUCTURAL CONCEPT DESIGN NARRATIVE

MECHANICAL DESIGN NARRATIVE

Applicable Codes and Standards

- UAF Design Standards
- ASHRAE Handbooks and Standards
- Applicable NFPA Standards
- ICC/ANSI A117.1-03 Accessible and Usable Buildings and Facilities
- ANSI Z-358.1-1998
- SMACNA Standards
- 2012 Uniform Plumbing Code
- 2012 International Mechanical Code
- 2012 International Building Code
- 2012 International Fire Code2006 International Fuel Gas Code
- State of Alaska, Occupational Safety and Health Standards

Design Criteria and Requirements

Location:	64*-49' N Lat, 147*-52' W Long.
Elevation:	436 ft.
99% Winter Design Temp:	-50*F. DB
1% Summer Design Temp:	87*F DB, 72*F WB
Indoor Design Temp:	68*F ± 2*F Winter, 72*F ± 2*F Summer
Indoor Relative Humidity:	35% ± 5% RH Winter (as allowable)
	50% ± 5% RH Summer
Heating Degree Days:	14498 HDD Fahrenheit

Design Ventilation Rates

Office and Teaching	6-8 (AC/Hr)
Garage Spaces	1.5 CFM/FT2
Toilet Rooms	10 AC/Hr
Corridors and Public Spaces	4-10 AC/Hr

These ventilation rates are engineering guidelines subject to the specific requirements of a space, such as cooling load, exhaust load and number of occupants.

Design Ventilation Noise Criteria (NC)

Offices, General	NC-35
Conference Rooms	NC-35
Garage Spaces, General	NC-45
Teaching Areas	NC-40
Common Areas	NC-40

Utilities

The facility will be connected to the University utilidor system, which will provide district chilled water, steam, condensate return, water for domestic use, water for fire protection and apparatus fill, and compressed air. Low temperature waste heat from the power plant could also be extended to the facility to provide the building with low cost heat. District De-ionized water will also be brought into the mechanical room to provide makeup water to the glycol makeup systems. Sanitary sewer and storm water will be brought to the building direct buried connecting to the University infrastructure.

Plumbing Design

Water system will be provided with a water meter with by-pass and pressure reducing station.

All domestic water piping will be Type L copper tubing conforming to ASTM B88 with ANSI 16.22 fittings. The design team will also discuss alternate materials including CPVC, PEX, and Polypropylene (Aquatherm), but will depend on UAF approval. All cold water, hot water and hot water circulation water piping will be insulated to prevent condensation and heat loss.

Valves will be full-port bronze ball with a minimum pressure rating of 150 lb. class. Branch isolation valves will be provided for maintenance and repair. All fixtures and water supply equipment will be provided with isolation valves at the fixture or equipment.

Below-slab waste and storm water piping will be service weight CISPI 301 cast iron no-hub piping with hubless joints, neoprene gaskets and 4 band stainless steel clamping bands. Piping underground exterior to the building will be service weight CISPI 301 cast iron no-hub with hubless joints and MG couplings. Above-ground waste and storm water piping will be cast iron with no-hub fittings, neoprene gaskets, and 4 band stainless steel clamping bands. Vent piping will be cast iron with no-hub fittings with neoprene gaskets and 2 band stainless steel clamping bands. Vent piping will terminate 24 inches above the roof surface.

Plumbing Fixtures

Fixtures will utilize low flow rates to conserve domestic cold water and hot water where possible. Plumbing fixtures and their installation shall conform to the Americans with Disabilities Act access requirements.

General Use Plumbing Fixtures:

- Hose Bibs: Outside hose bibs will be freeze-proof with integral vacuum breaker and inside will be standard single faucet with 3/4-inch hose connection and vacuum breaker. Interior hose bibs in garage areas will be located away from overhead doors and other potential freezing locations.
- Shop Utility Sinks: Wall mounted enameled cast iron with 3-inch floor mounted trap standard, drilled through back splash for 8-inch center faucet. Faucet will be heavy duty with vacuum breaker and threaded hose connection.
- Lavatory/Faucets: Wall hung, vitreous china, concealed arm supports, faucet holes on 4-inch centers with single handle faucet with pop-up drain. Faucets in public areas will be 0.5 gpm. Provide offset drain and ADA insulation. Point of use ASSE 1070 tempering valves will be provided in accordance with the UPC.

- Water Closet: Wall mounted vitreous china water closet with elongated siphon action bowl, open-front seat, exposed 1.28 gpf infrared flush valve.
- Urinal: Wall mounted vitreous china with elongated rim, exposed one pint per flush infrared flush valves.
- Shower: Showers will be modular stalls with pressure balanced anti-scald shower valves with high-limit stops, 2.0 gpm shower head with 6 ft flexible hose.
- Counter Sink: Counter mounted single compartment 18 gauge stainless steel sink. Faucet to be 2.0 gpm, single handle, swing spout.
- Kitchen/Break Room Sink: Counter mounted double compartment 18 gauge stainless steel sink. Faucet to be 2.0 gpm, single handle, swing spout with integral hand held spray. Garbage disposal and "insta-hot" will be included.
- Water Coolers: Dual-level, stainless steel, surface mounted with recessed chiller. Units will include bottle filler stations.
- Clothes Washer Box: A commercial clothes washer and dryer will be provided for the facility. A washer box with integral water hammer arrestors will be provided at the location.
- Janitor Sinks: Janitor sinks will be solid-surface, floor mounted units with wall mounted, double handle faucets with integral vacuum breaker and mop hanging accessories.

Holding Area Plumbing Fixtures

The plumbing fixtures in the Processing, Holding, and Holding Restrooms will be of penitentiary grade, with emphasis on vandal and suicide resistance. Maintenance access for these fixtures will be from plumbing chases.

- Combination Lavatory/Water Closet ("Combi"): Unit will be constructed of 14 gauge, type 304 stainless steel. Water closet will have a concealed pneumatic 1.6 gpf flush valve. Lavatory faucet will utilize a single/tempered water push-button faucet controls. A pin will be provided in the discharge of the unit to prevent items being flushed with the intent to clog the waste lines.
- Shower: Showers will be modular stalls with pressure balanced anti-scald shower valves with high-limit stops. Two shower heads will be provided; a conventional 2.0 gpm vandal resistant shower head and a hand held shower with 60" long hose.
- Floor Drains: Floor drains in the secure areas of the facility will have vandal resistant screens. A flushing floor sink is not included at this time for the holding cells.

Trench Drains

Trench drains will be located in the Apparatus Bays and Sally Port. Trench drains will be provided with a sand trap at the low end of the drain. The drain line from the sand trap will slope at 1/4 inch per foot and will route to a sump pit. The effluent will gravity drain to the oil-water separator which will in turn drain to the sewer system.

Emergency Equipment

A combination emergency shower and eye wash will be provided in the Dirty Classroom. The unit will be ANSI Z358.1 compliant, barrier free, free standing, with overhead deluge shower actuated by pull rod. The face wash will consist of a metal bowl, four spray heads with dust covers and be actuated by push flag.

Additional emergency face wash units will be located in other parts of the facility that are actively working with chemicals including Custodial Closets, Cleaning/Decon, and Apparatus Bays.

Emergency showers and face washes will be fed from a central tempering valve located in the mechanical room, next to the water heater.

Domestic Hot Water Heater
The domestic water system will be a cascading system, with waste heat used to pre-heat the domestic water and a steam-to-water heat exchanger to provide additional "polishing" heat to raise the temperature to 140 degrees. A central tempering valve station will be used to temper the water down to 120 degrees for distribution to the facility. Hot water circulation will be provided for this facility.

Elevator Sump Pump
The elevator pit will be provided with an automatic, float activated sump pump mounted in a sump pit recessed in the elevator pit floor. The sump pump will have a dedicated discharge that will exit the elevator shaft and route up to discharge to building exterior. The pump will have an integrated level switch to control the pump and a hydrocarbon sensor.

Roof Drains
The roof drains and associated piping system will consist of separate roof drain and overflow roof drain systems with each roof drain system routed separately to its discharge point. The primary roof drains will be routed to a storm drain below grade and discharged to the facility storm drainage system. The overflow drain system will discharge to grade through a wall discharge spout to a splash block to provide a visual indication of malfunction of the primary roof drains. Each separate storm drain piping system will collect discharge from roof drains and overflow roof drains to the extent practical to limit the number of discharge points. Overflow discharge spouts will be located away from roadways and pedestrian walkways. The roof drain and overflow roof drain systems will be provided with cleanouts located for easy access throughout the entire drain system for ease of maintenance. All roof drain and overflow roof drain piping will be insulated and provided with vapor barrier to prevent condensation.

When the exterior rain leader runouts exceed 35 feet, they will be hydronically heat traced between the building and the next manhole. When they are 35 feet or less, they will be electrically heat traced.

Vehicle Filling Station
A large diameter supply line will be provided from the fire suppression main to hose connection points in the Apparatus Bay to fill the trucks up between calls. The connection will match the hose connection type on the apparatus.

Compressed Air

The facility will be provided with a shop air compressor that will be used for tools, equipment and general use. A separate SCBA air compressor will be provided to support the public safety missions of the facility.

Shop Compressed Air
The compressed air will be delivered to points of use by Schedule 40 black iron threaded pipe. Points of use will be hose reels with 50 feet of hose.

Compressed air will be routed through the Apparatus Bays as well as stationary maintenance equipment/tools. Additional points of connection with quick disconnects will be located at tool benches and other areas per UAF's direction. Point of use oilers will be provided where appropriate.

SCBA Compressor
A packaged SCBA compressor and fill station will be specified and located in the SCBA Fill Station Room. Provisions for bottle storage will be provided. The SCBA compressor will have a dedicated and filtered air intake to maintain the quality of the breathing air.

Generator

A diesel fueled emergency generator will be provided for the facility. A diesel storage tank will be sized to provide 72 hours of operation. A day/belly tank will be provided at the generator to facilitate heating of the fuel and de-aeration of the fuel. To achieve 72 hour of operation at peak load, the generator will be provided with a 1,000 gallon on-site double walled, skid mounted fuel oil tank with all of the appurtenances needed for operation.

Fuel Dispensing System

There will be no fuel dispensing system for the apparatus in this project.

Heating Design

The design team will explore utilizing waste heat from the chilled water loop and/or waste heat from the power plant and other alternative energy strategies to minimize the energy use of the facility within feasible limit.

Heating Source
The primary source of heat for the facility will be district low pressure (15 psig) steam. A steam to glycol shell & tube heat exchanger will be provided as a secondary source of heat, and a 1/3 – 2/3 steam control valve station with a 2/3 capacity globe valve by-pass shall control the steam supplied to the heat exchangers. Condensate from the heating and domestic hot water heat exchangers will be collected in a receiver with duplex electric pumps. Condensate will be metered down-stream of the pumps.

Steam piping shall be ASTM A-53, schedule 40 steel, with welded fittings. Steam valves shall be cast steel ASTM Class 150. Condensate piping shall be ASTM A-53, schedule 80 steel, with screwed fittings. Condensate valves shall be all bronze gate ASTM Class 150 type. The steam and condensate piping will be insulated to prevent heat gain to the space.

Low-temperature waste heat from the adjacent power plant or from the chilled water system (circulated in the winter) will be explored as a secondary source of heat. A plate-and-frame heat exchanger will be used in parallel with the steam heat exchanger to interface the waste heat with the facility heating glycol system.

Glycol Distribution
A low temperature (110F), 60/40 propylene glycol/de-ionized water solution will be distributed to the facility via duplex pump sets, arranged in main/stand-by configuration, with Variable Frequency Drives

(VFD). Distribution system will also include bladder-type expansion tanks, inline combination air/dirt air separators, and glycol make-up tanks.

Hydronic piping will be Schedule 40 steel piping with welded fittings or type L copper pipe. Alternate materials such as Polypropylene (Aquatherm) and mechanically coupled copper systems will be investigated by the design team and will hinge on approval by UAF. One inch of piping insulation shall be standard for all distribution mains.

Heating Zones
Building heat loss will be offset by the radiant slab to the maximum extent possible with reheat coils in the supply air providing the balance of heat load in finished spaces. Radiant tubing layouts will be designed to provide maximum flexibility for future rezoning where possible. See paragraph Radiant Heating and Cooling below for more information on this system.

Heating of vestibules and other circulation areas will be by cabinet unit heaters providing heating for envelope loss and pickup load. Apparatus Bays will be provided with vertical unit heaters to cover make-up heat losses when overhead doors are opened. Unfinished spaces such as electrical and mechanical utility spaces and storage rooms will be heated by horizontal unit heaters or finned tube where appropriate.

Radiant ceiling panels and finned tube will be strategically placed as required to address any window condensation issues. These units will stage with the radiant floors to heat the space, but will be overridden by a window sash temperature sensor.

Cooling Design

Cooling Source
The primary source of cooling for the building will be provided by the district chilled water system via the utilidor. The district system will connect directly to the building, but will be buffered by a differential pressure valve to allow only the pressure needed into the building with a bypass for emergencies. The district pumps will be providing the system flow through the building so no building cooling pumps will be needed. In the winter time, any cooling required will be handled by the ventilation system.

Glycol Distribution
Two cooling loops will be provided throughout the building. A low temperature (45F) loop will serve the air handler cooling coils on the penthouse level and local air conditioning units within electrical/telecom rooms on the main floors and basement.

A second chilled loop will serve the radiant cooling systems with a moderate temperature (60F, adjustable). The supply temperature to the radiant floors will be reset based on outside air conditions and limited from dropping below the dewpoint temperature of the space to prevent condensation.

The cooling system will be served by a glycol makeup tank controlled off system pressure, an air separator to remove air bubbles from the system, and an expansion tank to accommodate fluid expansion/contraction from installed temperature. A 30/70 percent ethylene glycol/de-ionized water solution will be used as the heat transfer fluid for all cooling systems to match the district system.

Cooling Zones
Building heat gain will be offset by the radiant chilled floors to the maximum extent possible with supply air providing space comfort cooling in the finished spaces. Radiant tubing layouts will be designed to provide maximum flexibility for future rezoning where possible. See paragraph Radiant Heating and Cooling below for more information on this system.

Cooling of unfinished spaces (mechanical and electrical rooms) will be achieved with dedicated air conditioning units served by the low temperature hydronic cooling loop.

Radiant Heating and Cooling Design

Both radiant heating and cooling systems will be used to reduce the amount of distribution energy required to condition the building. 5/8-inch PEX tubing will be imbedded in a concrete slab and the heat transfer medium will be circulated through the tubing to condition the space. The concrete slab will be insulated underneath with 2-inches of spray type insulation suitable for plenum use to limit the heat transfer through the top of the floor assembly only. Heating and cooling will both use a common set of tubes in the concrete to avoid additional tubing costs and to simplify installation.

Each zone will have a dedicated radiant manifold cabinet that contains a common set of supply and return manifolds. A four pipe system consisting of supply and return pipes for both heating and cooling will be piped to the radiant cabinet. The supply manifold will utilize pressure independent control valves on both cooling and heating supplies to limit maximum flow rates and allow for modulation of the flow rates. This will provide complete isolation of the two streams and enable temperature reset strategies to be employed. The return manifold will have a diverting valve installed to return the fluid to the appropriate system and prevent unwanted ghost flows and/or re-heating/re-cooling.

The control strategy for the radiant will utilize a cascading scheme that allows the radiant to assume the base load of the system while the air side system picks up the balance of the heating or cooling load. A common thermostat will control both radiant and air systems. Slab temperature sensors near the top of the floor assembly will monitor the surface temperature and provide feedback to the control system. Rather than an on/off approach the radiant will be programmed to provide a steady surface temperature that is reset depending on outside air temperature. This type of control is preferred to on/off because it offers tighter control and lessens the potential for overshooting room temperature set points.

Snowmelt Design

There is no snowmelt system for this facility.

Ventilation Design

Minimum outside air and ventilation rates will be provided as required by the IBC, IFC and NFPA and recommended by ASHRAE 62.1. Air will be distributed to meet the individual requirements of each space. Sound level design for office spaces is NC 35. Sound levels for mechanical spaces are determined by OSHA requirements.

Ductwork shall be of galvanized steel construction constructed and installed in accordance with SMACNA guidelines. All equipment and specialties shall be accessible. All outside air ductwork will be insulated. Relief and exhaust air ducts will be insulated within 10 feet of the exterior termination point and provided with plenum drains as needed.

Offices and Classrooms
The general ventilation system will be provided by a central air handler with heat recovery. The unit will be provided with glycol pre-heat coil with summer and winter filter configuration. A 60%+ efficient air—to-air heat exchanger will be provided with a hydronic heating coil and chilled glycol cooling coil for final temperature conditioning.

Distribution will be a variable air volume (VAV) system with terminal boxes. Ductwork, sized for medium pressure loss at design conditions which will result in roughly 2000 feet per minute duct velocities, will distribute down the main duct chase with branches serving each floor. The ventilation system will supply ventilation air at 55-68°F in the summertime (adjustable for building wide cooling and reset to save energy) and 72°F in the winter to each space.

The ventilation system will be configured to provide required outside air levels to the space occupants per the latest version of ASHRAE 62.1. The perimeter zones will utilize duct booster coils as required to assist in addressing building heat loss and infiltration.

A gravity return air system will route the air back to the return fan in the penthouse. The supply and return air fans will be designed with variable speed drive to accommodate the building cooling load, filter loading, and future flexibility. Sound attenuators will be added to the air-handling unit to meet the design ventilation noise criteria if necessary.

Positive shut-off control dampers will be used in this system to isolate areas of the facility that are in unoccupied mode either via daily scheduling or just not occupied during normal business hours to conserve energy.

The building general exhaust system and the building relief will be fitted with metal flat plate type heat recovery system if building space allows. These type of systems required the building intake and exhaust to be adjacent. If this is not available, a run-around loop or split heat pipe type heat recovery system can be used to recover heat.

24 Hour Rooms
Spaces that are either occupied or require exhaust 24 hours a day will be served by a dedicated heat recovery unit. Exhaust will be taken from restrooms, locker rooms, holding cells, and evidence storage areas. The equivalent outside air will be passed through the heat recovery unit and used to serve spaces that are occupied 24 hours a day such as dispatch, holding cells, and fire personnel wait/ready rooms.

Detention Core
The Holding Cells and Processing core are anticipated to be ventilated 24 hours a day. Holding rooms and other areas where detainees may be unsupervised will be provided with penitentiary grade, high security grilles that are designed to be anti-ligature and suicide resistant.

Smoke control systems, if required, will be met by having the supply and exhaust air provided by the 24 hour operated heat recovery unit.

Apparatus Bays and Sally Port
A central exhaust system will be provided that consists of an exhaust fan, welded galvanized steel exhaust distribution mains and low point high volume displacement style exhaust system.

Each emergency vehicle bay will be provided with high volume low point exhaust grilles locate within 12" of the floor to pull the vehicle exhaust fumes down and away from the breathing zone. Fresh makeup air will be provide up high ultimately moving the air in the space from top to bottom keeping the vehicle exhaust fumes from affecting the occupants.

The vehicle exhaust will be provided by a central utility set type unit rated and constructed to handle vehicle exhaust. The fan will be sized assuming a 60% diversity factor in active bays. The fan will be provided with a Variable Frequency Drive (VFD) to allow reduction of airflow to match the number of active vehicle bays. When the apparatus bays are not in use, exhaust will ramp down to a general exhaust level in the Apparatus Bays. The exhaust will be activated by nitrogen dioxide (NOX) sensors, carbon monoxide (CO) sensors, and 0-60 minute spring-wound timers located throughout the Main Shop. When activated, the exhaust system will provide 1.5 CFM/SF of exhaust.

A dedicated make-up air unit will be provided to replace the air exhausted from the space. The unit will be hydronically heated and be provided with a VFD to minimize energy usage. The makeup air fan will offset to maintain a constant negative space pressure.

The offices and surrounding rooms will be kept at a positive pressure in comparison to the Apparatus Bays and Sally Port

Due to intermittent operation, a run around loop will be provided to recovery heat from the vehicle exhaust system and to preheat the makeup air.

Kitchenette Exhaust
The kitchen will have a combination microwave/range hood exhaust unit located above the cooking range. The exhaust will be ducted to the outside.

Clothes Dryer Exhaust
Clothes dryer exhaust will be provided to the outside of the building in accordance with the IMC.

Battery Storage
The Battery Alcove will have continuous exhaust providing a ventilation rate of 1 CFM/SF in accordance with the IFC and IMC. Make-up air will be provided by transfer air openings. The room will also be provided with a hydrogen sensor and will alarm upon a concentration of 1% hydrogen.

Evidence Storage
The evidence that is stored in Evidence Storage rooms can create significant IAQ and health issues. These rooms will be provided with 10 ACH of exhaust 24 hours a day and kept at a negative pressure in comparison with surrounding rooms.

A separate locked vented cabinet will be provided to store drug evidence and other smaller articles that are particularly effervescent.

Mechanical Room Ventilation
A ventilation fan assembly with relief air opening will be provided for the mechanical room. The mechanical room ventilation system will be a constant volume, variable temperature system with return air. Outside air will be mixed with return air to provide cooling air. The building chilled water system will provide cooling for the mechanical room ventilation system. The relief air opening will consist of an upturned elbow with control damper that will open when the ventilation fan is operating.

Dehumidification Design

A dehumidification system will be provided to serve the Apparatus Bays, Hose Tower, and Hose Washing Storage rooms employing latent heat recovery, cooling air below dewpoint and reheating, or desiccant type humidification as required.

Fire Suppression Design

A commercial type wet pipe fire protection system in accordance with NFPA 13, for ordinary hazard Group 1 (some spaces may have increased hazard classification depending on the space use) occupancy will be provided.

A fire sprinkler riser, complete with backflow prevention, inspectors test to exterior of building, and main drain shall be provided. A zoned sprinkler system shall be provided by floor, with supervised control valve, flow switch, and inspectors test/drain for each zone. Supervisory and alarm connections to the fire alarm system shall be provided.

The sprinkler system will consist of ASTM A53, schedule 40, black steel pipe. Sprinkler piping shall be oversized as needed to reduce the pressure drop through the system.

Sprinkler types to include:

- Offices, classrooms, and general spaces with finished ceilings will be covered by commercial pendant type heads.
- Apparatus Bays, Sally Port, mechanical and electrical rooms, and unfinished rooms with exposed ceilings will be covered by commercial upright type sprinklers.
- Holding cells and other areas where detainees can be left unsupervised will be provided with penitentiary grade, suicide resistant sprinkler heads. Pre-action or double-interlock systems are not planned for these spaces at this time.

Dry sprinkler heads will be used to provide coverage at exterior canopies as well as interior vestibules, stairwells, and other areas subject to low ambient temperatures.

DDC Design

The mechanical HVAC control system shall be a Direct Digital Control (DDC) micro-processor based system employing distributed processing. Local control shall be accomplished by networked DDC control panels. Each controller shall be capable of stand-alone operation, and shall be complete with battery

backup and manual override capability. Centralized monitoring and control shall be provided through the central processing unit, graphics operator interface and associated peripherals. Sensors shall be electronic. Operators shall be electric. Local control shall include custom sequences of operation for each terminal unit, piece of equipment, and HVAC system. Proportional/Integral/Derivative (PID) control modes shall be employed.

The central processor shall be located in the Penthouse with full access operator terminals located throughout the building. A second central processor shall be located in the Building Manger's office with limited access to DDC time clocks and room HVAC setpoints.

Energy monitoring will be incorporated into the control system to monitor domestic water, low grade waste heat, condensate, and electricity usage. Additional equipment specific meters can be added to the system at the direction of the UAF.

END OF MECHANICAL CONCEPT DESIGN NARRATIVE

ELECTRICAL DESIGN NARRATIVE

Design Parameters
Codes and Standards

- *ADA (2010)* *Americans with Disabilities Act Standards for Accessible Design*
- *ANSI* *American National Standards Institute (Applicable Standards)*
- *ASME A17.1* *Safety Code for Elevators and Escalators*
- *BICSI* *Telecommunications Distribution Methods Manual, 12th Edition*
- *FM* *Factory Mutual (Applicable Standards)*
- *ICC A117.1-2009* *Accessible and Usable Buildings and Facilities*
- *ICC IBC (2009)* *International Building Code*
- *ICC IFC (2009)* *International Fire Code*
- *IEEE* *Institute of Electrical and Electronic Engineers (Applicable Standards)*
- *IES* *Lighting Handbook, 10th Edition*
- *NECA 1-2010* *Standard for Good Workmanship in Electrical Construction*
- *NEMA* *National Electrical Manufacturers' Association (Applicable Standards)*
- *NESC* *National Electrical Safety Code*
- *NFPA 70 (2014)* *National Electrical Code*
- *NFPA 72 (2013)* *National Fire Alarm and Signal Code*
- *NFPA 101 (2012)* *Life Safety Code*
- *NFPA 110 (2013)* *Emergency and Standby Power Systems*
- *NFPA 111 (2013)* *Stored Electrical Energy Emergency and Standby Power Systems*
- *NFPA 1710 (2010)* *Organization and Deployment of Fire Suppression Operations, Emergency medical Operations, and Special Operations to the Public by Career Fire Departments*
- *NFPA 1720 (2014)* *Organization and Deployment of Fire Suppression Operations, Emergency medical Operations, and Special Operations to the Public by Volunteer Fire Departments*
- *TIA* *Telecommunications Industries Association (Applicable Standards)*
- *UL* *Underwriters' Laboratories, Inc. (Applicable Standards)*

Introduction

The following Electrical Design Report provides a description of the electrical system elements for the University of Alaska Fairbanks Fire and Police Station, known in this report as the Emergency Services Facility (ESF). This report addresses anticipated electrical loads and equipment space planning criteria, based on available information, and current project understanding.

Work and equipment locations shall be coordinated with UAF. The design objective is to provide a high degree of reliability, safety, and service maintainability.

Project Scope

The ESF building will serve as the new campus Fire Station, Police Station, and Community and Technical College.

A complete electrical system will be provided to comply with the references listed below and the project requirements. The electrical system will serve mechanical systems, elevator, lighting, receptacles, and owner provided equipment.

A Normal and Priority service will be provided: This will consist of two new services connected to campus feeders as described in the Electrical Distribution section of this report.

The essential electrical system for the ESF will be supplied by a 200kW generator.

The existing parking will be removed to allow for the ESF and changes to vehicular traffic patterns, requiring the following changes to the existing headbolt heater receptacles and other electrical equipment.

- Removal of existing load centers powering headbolt heater receptacles and feeders between load centers and serving panelboard north of adjacent Nenana parking lot.
- Removal of existing headbolt heater receptacles installed on Jersey barriers.
- Removal of four (4) existing headbolt heater posts installed in the Nenana parking lot.
- Removal of four (4) light poles.
- Removal of Transformer 180 and relocation of transformer or re-circuiting of existing loads.

A new grounding electrode system will be installed for the ESF building.

The ESF will require the following room locations and sizes to optimize design functionality and cost effectiveness. Additional coordination and discussion with the Owner is necessary to ensure final room sizes/locations satisfy the owner's project requirements.

A "Main" electrical room should be located near north side of the building at ground level. Additional electrical rooms should be stacked vertically to ease installation and maximize efficiencies of design system distribution. In general, branch circuit panelboards will serve the floors on which they are located.

- 1st Floor "Main" Electrical Room: Estimated 750SF (25'x30'); two (2) exits at opposite ends of the room, the doors shall open in the direction of egress.
- 2nd Floor Electrical Room: 120SF minimum (10'x12'); located above 1st Floor "Main" Electrical Room.
- 3rd Floor Electrical Room: 120SF minimum (10'x12'); located above 2nd Floor Electrical Room.
- Panelboards will be required to be located in rooms throughout the floor plan to allow branch circuit panel boards to be located local to the loads being served by the individual panelboards.

The Telecommunications rooms should be centrally located near the Dispatch center and stacked vertically to ease installation and maximize efficiencies of design system distribution.

- 1st Floor Telecommunications Room: 180SF Minimum (12'x15').
- 2nd Floor Telecommunications Room: 100-110SF Minimum (9'x12'); Located above 1st Floor Telecommunications Room.
- 3rd Floor Telecommunications Room: 100-110SF Minimum (9'x12'); Located above 2nd Floor Telecommunications Room.

- Dispatch Support Room/Area: Additional consideration for room/area required to support Dispatch.

The Generator room should be sized 300SF Minimum (15'x20') and located in the corner of the building where two walls are exposed to air to allow for air intake and exhaust on perpendicular walls. Optionally, the genset may be located exterior to the building.

Low voltage systems work entails fire alarm, telecommunications, public address, CCTV, access control, and other Owner/Vendor-provided systems.

Basic Materials and Methods

1. **Raceways.** Raceways will be provided for all wiring except cable trays and/or j-hooks will be provided for low-voltage wiring for telecommunications and other signaling systems. Wiring will be run concealed in walls and above the ceiling. Raceways will be 1/2 inch diameter or larger. Electrical metallic tubing (EMT) will not be installed below grade or in locations not determined to be "dry." Circuit homeruns for lighting and power shall be no smaller than 3/4 inch in diameter. A minimum of two (2) spare 3/4 inch raceways will be stubbed into accessible ceiling space and capped at all flush mounted panelboards to allow utilization of spare circuit breakers. All raceways and cable trays will contain separate grounding conductors to insure an effective grounding system throughout the facility. Flexible metallic conduit will be used for the extension of the building's fixed raceways to any vibrating or similar equipment.

2. **Wire.** All wiring will be of copper conducting material with insulation type, temperature rating, and arrangement to suit the intended application. Generally wiring in heated interior spaces will be Type THHN/THWN insulation and wire in unheated areas will be Type XHHW insulation. All wiring will be UL Listed or acceptable to AHJ for its intended application. Wiring will be based upon standard American Wire Gauge (AWG) and typical electrical industry sizes. Power wiring will not be permitted in sizes smaller than #12. Fire detection and alarm system notification appliance circuit (NAC) wiring will not be permitted in sizes smaller than #18.

3. **Equipment Grounding Conductor.** An insulated equipment grounding conductor will be required with all feeders and branch circuits, each end terminated on a suitable lug, bus or bushing; the equipment grounding conductors will be sized to comply with NEC, unless otherwise indicated, but not smaller than No. 12 AWG.

4. **Outlet and Junction Boxes.** All outlet and junction boxes will be required to be steel 2-1/8-inch-deep type; single-gang and sectional boxes will not be permitted. Boxes will be required to be at least 4 inches square and be supplied with single-gang plates with plaster extensions where flush mounted. All junction box covers shall include identification of circuit numbers. Boxes mounted exposed to weather elements will be galvanized cast steel or aluminum with threaded hubs. Site distribution will be accomplished with pre-cast concrete handholes, pull boxes, and junction boxes.

5. **Receptacles.** Devices include general receptacles, special receptacles, and other components required to provide convenient points for connection of appliances and/or equipment. All

receptacles on the emergency system circuits will be “red”, located to accommodate equipment and user needs. Special devices will be provided for larger appliances and equipment. Ground fault circuit interrupting (GFCI) devices will be provided at all locations required by the NEC, within 6 feet of wet locations, and where required by the program and where safety issues may arise if such protection was not provided. All GFCI devices will be installed as end-of-circuit type (feed-through type installation not permitted) and rated 20 amperes, 125V. Twist-lock receptacles will be provided as required to coordinate with supplied equipment.

6. **Light Switches.** Devices include switches, dimmers and other components required to provide convenient points of control of lighting fixtures in logical locations for specific uses. Special control will be provided for specific loads such as perimeter and landscape lighting. Switches will be provided for locally controlled lighting. Dimmers may also be provided for lighting units in areas where reduced illumination levels for display, education, training, or other similar activities occur.

7. **Device Plates.** Stainless steel device plates will be included for all interior general receptacles, special receptacles, and switches. Special device plates will be provided for specific equipment as specified and required for larger appliances and equipment. Weatherproof receptacles and plates shall be gasketed, self-closing, with coated steel and of a configuration that retains its weatherproof rating even when cord(s) are connected.

8. **Motor Starters.** Unless special considerations require selection of other types such as VFDs, etc., starters for automatically controlled motors will generally be horsepower-rated fused combination type full voltage non-reversible (FVNR) controllers. Manually controlled motor starters will be horsepower-rated manual starters for fractional horsepower motors, and possibly some integral horsepower motors where the motor can be left on line during power failures, etc.

   Starters will be equipped with pilot lights, transformers, start-stop pushbuttons, or hand-off-auto (H-O-A) switches as required and connected so control will shut down when the disconnect switch is opened for any reason. All starter enclosures will be NEMA 1 and of steel construction unless another enclosure type is required to suit the application.

   Variable frequency motor drives (VFDs) will be provided where indicated by Mechanical for motors having widely variable loads. VFDs will be stand-alone units furnished by Mechanical.

9. **Switchboards, Distribution Panels, and Branch Circuit Panelboards.** The switchboards will have front and rear access with a main disconnect section and at least two distribution sections; “service” switchboards in addition will include an incoming utility metering section. The depth of the switchboards is expected to be 48 inches, with the majority of the circuits entering through the bottom of the unit. The overcurrent protective devices will be circuit breakers for both main disconnect and branch circuits, with interrupting ratings sufficient to provide a fully rated system. The service disconnect will be an insulated case electronic trip circuit breaker, included with a ground fault relay and trip as required by the NEC for 480 volt services 1000 amps and greater. The switchboard will be provided with transient voltage surge suppression (TVSS) unit. Branch feeder circuit devices in the switchboard will be molded case circuit breakers with electronic trip units.

The distribution panelboards will be similar to the switchboard except depth will be less than 12 inches and the service elements are omitted. Distribution panels will also be limited to below 1000 amps to avoid the need for very large electrical rooms (excluding the room with the switchboard), nor the need for two doors for egress.

Branch Circuit Panelboards will be of deadfront construction, with hinged front trim, copper bussing, bolt-on breakers and full-size, solid neutral type. All overcurrent protective devices will be circuit breakers.

Further consideration/investigation is required for the use of arc fault resistant equipment.

Electrical Distribution

1. **Building Electrical Services and Systems.** Primary power will be routed through an extension of the existing utilidor to serving transformers then into the Main Electrical Room. The facility will have three sources of electrical power, as outlined below.
    a. Normal Power will be supplied from a Campus Feeder not designated as "priority". This means in general that in the event of electrical system disturbance requiring automated shedding of system loads, this Campus Feeder will be shed after loads such as headbolt heaters, but shed before "priority" Campus Feeders. One option would be to extend Feeder 22A from SF6 switch 33G6WSF6 in blister Q-2 (this would fill the SF6 switch, currently there is one (1) spare "way" available). Further consideration for using another feeder or arrangement; possible option would be to extend Feeder 24A, currently used to feed and control lower campus headbolt loads, from SF6 switch 47G6WSF6 in blister X-1 (this would fill the SF6 switch, currently there is one (1) spare "way" available).
    b. Priority Power will be supplied from a Campus Feeder designated as "priority". This means in general that in the event of electrical system disturbance requiring automated shedding of system loads, this Campus Feeder will be shed after all other, or most, Campus Feeders. Campus Feeders designated "priority" may also include automated source-transfer switching schemes if implemented by UAF Utilities. One option would be to extend Feeder 26B from SF6 switch 38G6WSF6 in blister Q-2 (currently there are three (3) spare "ways" available).
    c. Emergency Generator Set: A diesel fueled engine-generator set will be sized for the load. The generator will be standard UL-2200 Listed unit that starts automatically when signaled by one or more automatic transfer switches upon loss of normal power.

The service entrance for the ESF will be in a duct bank from the service transformers and terminating in the metering section of the switchboards. A remote “shunt trip” pushbutton for the switchboard will be enclosed in an exterior locked cabinet for use by the fire department in the event of fire or other emergency requiring de-energization of the building power system. The meter for the switchboard will be located adjacent to the shunt trip enclosure.

Concept design assumes a 480Y/277V normal power switchboard not to exceed 1600 amps for the ESF will be provided. The concept design assumes the normal short-circuit amperes available

at the transformer's secondary is 35,000 symmetrical amps; appropriately rated AIC devices and bus bracing will be sufficient to insure the system is fully rated for the available fault current.

The ESF grounding electrode system will consist of a No. 3/0 BCU routed with the reinforcing rod in the concrete footings, connected to ground rods, and building steel.

2. **Electrical Systems Overview.** The power system will be split into at least three "branches" as described below.
    a. The Normal Branch will supply all loads not considered minimally necessary for unrestricted facility operation, but will be of sufficient capacity to supply all loads. The Normal Branch is normally supplied from the Normal Service Transformer through the Normal Service Disconnect. The Normal Service Disconnect is the "Main" breaker in "Normal Switchboard 1."
    b. The Priority Branch will supply all loads considered minimally necessary for unrestricted facility operation, but will be of sufficient capacity to supply all loads. The Priority Branch is normally supplied from the Priority Service Transformer through the Priority Service Disconnect. The Priority Service Disconnect is the "Main" breaker in "Priority Switchboard 1."
        i. Normal Switchboard 1 and Priority Switchboard 1 are expected to be separate switchboards, but will be cable-linked through a Normal-Priority Tie breaker. The chain consisting of the Normal Service Disconnect breaker, Normal-Priority Tie breaker, and Priority Service Disconnect breaker establish a "main-tie-main" configuration for the utility service supplying the facility.
        ii. The services are normally operated in a split lineup with both service disconnect breakers shut, and the tie open. Both service disconnect breakers and the tie breaker are electrically operated breakers. It will be possible to switch the facility between the normal and priority supplies using a manual open-transition sequence, or a semi-automatic closed-transition sequence. When qualified personnel initiate closed-transition transfer between live sources, phase rotation sensing relays will verify/indicate the phase sequence of the sources match, and a synchronism-check relay will verify/indicate the sources are in phase with each other. Upon seeing conditions are satisfactory, the person will enable the logic to execute the selected transfer sequence automatically after a sort delay to allow the person to move clear of the breakers involved. Note that the closed-transition mode of transfer will be disabled if one of the sources is dead.
    c. The Essential System will supply all loads considered minimally necessary for facility operation. The Essential System is normally supplied through automatic transfer switches connected to Priority Switchboard 1. In the event of priority power supply interruption, the automatic transfer switches will signal a generator set to start and assume the Essential System loads. The Essential System will be split into a Critical Operations Power System or "COPS" branch and an "Optional Standby Branch" through separate automatic transfer switches.

3. **Essential Electrical System.** A 480Y/277V 200kW diesel generator will supply essential loads of the ESF. The generator may require a load bank to assist in startup. Feeders from the generator

(located inside the facility) will be routed into the Main Electrical room where the essential electrical system switchboard will be located.

Concept design assumes the essential electrical system will include one (1) 480Y/277V switchboard rated 400 amps to distribute power to two (2) transfer switches. The transfer switches will include one (1) for the Critical Operations Power Systems (COPS) branch and one (1) for the Optional Standby branch. A generator receptacle connection through a manual transfer switch will be provided for this system to allow for means of connecting a portable or vehicle-mounted generator to the essential electrical system.

The automatic transfer switches will have selectable open-transition or closed-transition transfer modes, and will be equipped with manual bypass elements and a "delayed transition" feature that provides a timed disconnect period between live sources.

Further consideration required to determine arrangement and size rating of electrical equipment for the COPS branch and the Optional Standby branch power. The COPS Branch and Optional Standby Branch transfer switches may optionally be sized to serve as backup to each other; a tie scheme with manually operated interlocked breakers can be installed for this switching.

To comply with code, the essential electrical system will be arranged as follows:

- COPS Branch, limited to circuits for designated critical operations areas (DCOA), required for continuous operations for reasons of public safety, including but not limited to the following:
  - Power Systems
  - HVAC
  - Fire Alarm system and auxiliary functions
  - Security
  - Communications
  - Signaling
  - Uninterruptible power supply (UPS) for illumination of means of egress and exit signs

- Optional Standby Branch, selected circuits to allow building to continue to operate during a loss of normal power but are not critical to its operation, including but not limited to the following:
  - Mechanical equipment for freeze protection
  - Selected telecommunications equipment

In addition the normal power system will supply power to an uninterruptible power supply (UPS) to provide power for illumination of means of egress and exit signs excluding the DCOA.

Further consideration required for the use of UPS's for selected equipment and other critical loads. We anticipate UPS units will be provided in area of equipment that requires it. It is expected that those UPS's will be included with the equipment. Additional design consideration required for a centralized UPS to serve the selective needs of the facility.

4. **Distribution.** Distribution panelboards will be supplied with branch feeders from the switchboard, and will have AIC ratings to provide a fully rated system back to the switchboards. This provides a commonality of breaker types in the 480 volt system and helps assure the ability

to obtain selective coordination in the system. The distribution panelboards will supply power to 480Y/277V loads, lighting panelboards, and step-down transformers providing 208Y/120V for panelboards and loads as required.

Further consideration required to determine quantity and rating of distribution panelboards required for the normal power system and the essential electrical system.

In general normal and emergency lighting will be supplied 277 volts from 480Y/277V panelboards located in electrical rooms.

The individual panelboards will be sized 225 amp in most cases, with spare space to permit at least 25% future additional load to be connected to them without revisions being required.

5. **Power System Study.** The contractor will be required to provide an overcurrent protection device coordination study including short circuit and arc-fault studies with actual equipment to be supplied for appropriate device type, settings, and arc hazard labeling.

6. **Mechanical Equipment.** Mechanical equipment will be served by local distribution panels throughout the floor plan. Mechanical room mechanical equipment will likely required 480V, 3-phase power for large motors, air handling units, supply/return fans, and other equipment, as applicable. VFDs will be required on large motors for optimal control purposes; specified by mechanical.

   Depending on quantity and locations of motors served, a motor control center may be utilized. This will be determined through as the design develops.

   Provide control power and data outlets at Main Mechanical room for building control system. A conduit system will be provided for building control system. The design, installation, and programming of the building control system is by others.

7. **Elevator.** A circuit for an elevator will be provided as required by the manufacturer and code requirements. This includes equipment system power, communications, fire alarm system interface, recall/firefighter service functions, sprinkler coordination, elevator pit lighting and power, and machine room design, as required.

Electrical Site

1. **Headbolt Heater Receptacles.** The headbolt heaters for the site parking will be powered from the building out of a dedicated 208Y/120V panelboard. A total of 13 parking spaces with headbolt heater receptacles are expected under the current design.

   Circuits to headbolt heater receptacles will be No. 10 copper conductors, or as required for voltage drop. No. 12 copper pigtails will be used for connections to the receptacles. The HBH receptacles will be post top mounted using 4-inch steel pipes protected by concrete.

2. **Site Lighting.** Site lighting will include a combination parking lot lighting, pedestrian pathway lighting and building accent lighting. The maintained illumination levels for the site lighting shall meet the IES standard or at minimum 1 footcandle. LEDs with dimming capabilities will be used as the primary light source for the site lighting luminaires.

The luminaires for the parking lot lighting will be pole mounted approximately 28 feet above the ground, 25-foot pole on a 3-foot above grade foundation. Pedestrian pathway lighting will be pole mounted approximately 13 feet above the ground, 12-foot pole on a 1-foot above grade foundation.

The building accent lighting will typically be building mounted. The luminaires will be provided with reflectors with a type distribution to suit the application and location of the individual luminaire.

Other fixtures may be required to complete the lighting system installation (e.g., in response to particular design initiatives from the Landscape Architect). Those units will be selected and specified to be compatible with the general guidelines established by the listed fixtures.

At a minimum the site lighting shall be switched by mechanically held contactors controlled by the DDC system using a photocell input. The lighting contactors shall be provided with a hand-off-auto switch and pilot lights. Separate control for parking lot lighting, pedestrian pathway lighting and building accent lighting will be available if requested and as coordinated with the Owner.

Light fixture quantity and locations to be determined by and coordinated with the site plan.

Interior Lighting

1. **General Design Consideration.**
   Interior illumination levels will conform to IES (Illuminating Engineers Society) standards. General illumination will be provided by LED fixtures applicable for the application with dimming capabilities. The corridors and office spaces will generally be 2- by 2-foot or 2- by 4-foot recessed fixtures in suspended ceilings. Toilets will generally have over mirror lighting and downlights. Other spaces will generally be 2- by 4-foot fixtures, either recessed in suspended ceilings or surface mounted. Apparatus and simulation bays will generally utilize LED high bay type fixtures listed for wet locations. Architectural lighting will be provided to suit public lobby/reception areas, special architectural features, and other formal spaces. Special consideration will be given toward color temperature of LED's. Exit signs will be specified with LED illumination.

   Emergency illumination for means of egress will be provided in accordance with egress plans.

2. **Lighting Control.** Generally the lighting fixtures will be controlled by a wall switch and occupancy sensor. Other rooms requiring manual control of lights for safety include, but are not limited to, mechanical and electrical rooms.

   Further consideration and discussion with the Owner is required for providing areas with dimming, daylighting and/or a digital lighting control system.

Low Voltage-Systems

1. **Telecommunications System.** Voice and data cabling and auxiliary support systems will be designed in accordance with the specific requirements identified by the owner. It is anticipated the horizontal network cabling will be provided by Category 5e UTP (unshielded twisted pair) structured cable and termination system. The network equipment will be rack mounted in the Telecommunications room. Installation will be specified to be in compliance with the requirements outlines in TIA/EIA-568-C.1 "Commercial Building Telecommunication Cabling Standards" including all subsequent addenda to this standard. Modifications to this approach may be applied as specifically indicated by the owner.

2. **Public Address System.** The design for the public address system will consist of a raceway system (if required), speakers, amplifier(s), cabling, cabling support, and connections to allow for a complete and functional system. Speakers shall be provided with built-in volume control with "Off" position. Cabling will consist largely of suitable signal cables routed using J-hooks or otherwise supported in accordance with the code.

3. **CCTV.** The CCTV will require a central monitoring station with the ability to view multiple locations on multiple workstations. There will be a minimum of two workstations. One central monitoring live station will have continuous feeds from selected cameras on multiple (6 to 9) monitors with active monitor in lower center location. The central station will have full control to manipulate the display content. A second station would be provided for reviewing, archiving video segments for records, and maintenance. Further consideration required for a separate control station for the detention area.

   Cameras will be placed to monitor: exterior approaches to the facility and parking area; interior of all entrances, selected corridors/halls between exterior entrance and detention area; detention doors; cell area with views subject to privacy requirements.

   The existing campus central video storage is located in the Butrovich building. A new fiber-optic cable will be required between the new ESF and the Butrovich building to allow for surveillance cameras to tie into the video storage system.

4. **Access Control System.** The Access Control System shall be based upon Campus standard Lenel systems including hardwired exterior entrance and detention area doors; interior spaces for classrooms and/or office areas may utilize wireless or wired card reader/lock systems.

   Intercom stations will be provided at each detention area controlled door, with audio monitoring in the detention area. Access control to the detention cells shall be through detention area m video, intercom and control system.

5. **Fire Detection and Alarm System.** The Fire Detection and Alarm system will be Class A of the addressable and intelligent type. Initiation and alarm circuits will be fault-tolerant and electrically supervised; cabling will consist largely of suitably rated Type MC fire alarm cables supported in accordance with the code, and as approved by the Authority Having Jurisdiction

(AHJ). Upon receiving alarm initiation from any device all notification will be energized to provide a non-coded general evacuation audible alarm and a visual alarm.

Initiating devices will include photoelectric smoke detectors, heat detectors of the combination fixed-temperature and rate-of-rise type, heat detectors of the fixed-temperature only type, manual pull stations and alarm inputs from specific equipment (sprinkler flow or pressure loss alarm switches, etc.). Initiating devices will be distributed throughout interior spaces to provide total coverage smoke detector system.

Notification appliances will include a combination of chime/strobe appliances, and separate chime and strobe appliances; notification appliances will be distributed throughout interior spaces to provide the general evacuation alarm. Each notification appliances will be red with the word "FIRE" in white. The visible notification appliances will have a xenon strobe light with a clear polycarbonate lens. Where sufficient audible signal is present, but obstructions obscure the visual portion of the device from view in certain areas, separate synchronized visual appliances will provided.

The fire alarm system shall be arranged to control functions including but not limited to elevator recall for fire fighter service, elevator shutdown, shutdown of HVAC systems with a capacity greater than 2,000 cfm, close fire/smoke dampers, and door release service through addressable interface modules at the equipment controllers. The control functions for the HVAC systems including the fire/smoke dampers shall be in accordance with International Mechanical Code (IMC) requirements. The fire alarm system shall in addition be arranged to position-monitor the fire/smoke dampers through addressable interface modules at the equipment controllers. A remote annunciator will be located at the main building entrance location.

Contractor shall provide necessary system programming and performance features for a fully functional and code compliant installation.

Electrical Assumptions and Outstanding Issues

The electrical and communications site work is dependent upon the final configuration of the ESF. This has potential impacts to utilities based on new roadway layout, landscape architecture, and civil egress requirements.

A communications antenna is expected to be installed on the roof of the ESF.

Existing campus-wide fire alarm signaling infrastructure will be redirected to the new ESF as directed by UAF. Raceway and cable will need to be routed from the old dispatch center to the new ESF. Required cabling will include the following:

- 1-100 Pair Copper
- 1-24 Strand Multimode
- 1-24 Strand Single Mode

END OF ELECTRICAL CONCEPT DESIGN NARRATIVE

SUSTAINABILITY DESIGN NARRATIVE

Select Features

While the facility will not be LEED Certified, sustainable practices and features will be incorporated to increase the durability, reduce the maintenance and will possibly include the following:

Select features that could be incorporated into the facility:

- Power plant low temperature waste heat in slab for radiant heating
- Water reclamation/gray water systems for apparatus washing, CTC training, irrigation, etc.
- Daylighting to offset power costs
- Lighting system controls and occupancy sensors
- Plug load switching to reduce energy demand
- Highly insulated walls and roof systems
- Appropriate plantings to reduce or eliminate irrigation requirements
- Energy modeling to optimize energy performance
- Indirect feedback monitoring device to encourage energy use awareness
- Energy star appliances
- Direct Digital Control system for precise and weather reactive HVAC
- Recycled content material to reduce impact to environment
- Bike racks to support alternative transportation and reduction of carbon footprint
- Use of adjacent campus parking for overflow parking
- Use of concrete at parking areas to reduce heat island effect
- Minimize foot candles at exterior to reduce light pollution
- Dual flush toilets to reduce water demand
- Waste water heat exchange from upper floor shower areas and washdown
- Commissioning of building energy systems to enhance building performance
- Storage and collection or recyclables to reduce waste
- Incorporate construction waste management plan
- Use of regional materials where appropriate
- Prohibit smoking within and around facility to improve indoor air quality
- Implement a green cleaning program to improve indoor air quality
- Provide educational/informational signage to educate public and occupants on sustainable design.
- Minimum ventilation required in apparatus bays is preferable. Air scrubber (AirVac) in combination with heat recovery ventilation
- Dehumidification in bays and bunker storage rooms
- Pole-mounted photovoltaic array

District Cooling System and Potential Heat Recovery Loop

In the summer months, UAF's central heating and power plant (CHPP) operation is driven by demand for power for the campus facility cooling systems. This means that during the summer months, the campus has considerable excess steam capacity, so additional power must be used to condense the steam with the plant's air cooled condensers. UAF is utilizing this excess steam by creating chilled water with steam absorption chillers. Since the steam is a byproduct of power production and therefore virtually cost free.

During winter months, the campus steam absorption chillers are shut down due to low overall cooling load and the fact that steam is used primarily for heating on campus. The chilled water system will still be circulated pulling heat from various sources with winter cooling loads which can potentially be used as a heat recovery loop supplementing the heating of other buildings. This project is a good candidate to use the low grade heat from the chilled water system in the winter time to supplement to buildings heating load when it can. If the building heating load exceeds the capacity of the heat available in the district chilled water heat recovery loop, the steam system will kick in an provide the additional heat to meet the building demand.

Further discussion is needed to establish what amount of heat might be available from the district chiller water system in the winter, but there is a significant potential that could be realized in this project.

Waste Heat from the Power Plant

The project site is close enough to the UAF power plant, that there is a potential to utilize low grade waste heat from the power plant. This could take the form of the plant blowdown system, a clearwater stream, or some other source which could be brought to the building time to supplement to buildings heating load when it can. If the building heating load exceeds the capacity of the heat available, the steam system will kick in an provide the additional heat to meet the building demand.

Further discussion is needed to establish what amount of waste heat might be available from the UAF power plant and what forms it might take, but there is a significant potential that could be realized in this project.

Building Hydronic Systems

The selection of the heating system for this project was driven by maximizing floor space available for occupants and maintaining a high level of comfort. Traditional perimeter finned tube systems take up valuable, usable space along the exterior walls of a building, and laboratory floor space is exceedingly expensive to construct. Based on this, the design team has decided to employ a radiant floor heating system for the finished spaces in the building. We feel that this is the most efficient and comfortable way to heat a building.

PDC has performed life cycle cost analysis on various types of radiant cooling systems and based on the selection of a radiant floor heating system; the design team suggests that we piggy back the radiant cooling onto the radiant floor heating system, using what is referred to as a common circuit. This entails using the radiant floor tubing cast in the slab for both heating and cooling functions. This ultimately pulls the cost of building cooling out of the ventilation system and puts it into the hydronic system which

is much more energy efficient. This also saves a large amount of construction cost due to reduced duct sizes and no additional cooling terminals in the building.

The radiant cooling has the added benefit of directly absorbing radiation energy from direct sun impingement on radiant cooling surfaces, maximizing cooling efficiency and stopping the "greenhouse" type heating affects.

Building Ventilation Systems Heat Recovery

Heat recovery is employed whenever practical. The primary discharge streams from a fire station are usually exhaust ventilation, either from the building general exhaust system, or specialized exhaust systems, such as vehicle exhaust. These systems will be used to minimize building energy usage. Due to the generally low humidity of the region and frosting issues, heat recovery will focus on sensible heat; though latent heat recovery methods may be applied to high humidity areas such as the hose tower and hose storage room. The apparatus bay has too much potential contaminated air to consider latent heat recovery.

Due to the corrosive and toxic nature of the apparatus bay exhaust system, a run-around style glycol loop will be used to transfer heat out of the exhaust stream to preheat incoming makeup air. The run-around loop is able to utilize standard coils made with better corrosion resistant materials than other heat recovery options. A 3-way valve was used to bypass the exhaust coil to keep the exhaust stream above dew point and prevent frosting of the coil.

The building general exhaust and building relief can utilize the higher efficiency energy recovery wheel (or flat plate heat exchanger heat recovery), which is significantly more efficient that a run-around loop. These are generally smaller loads, but represent a significant amount of energy recovered throughout a heating season.

END OF SUSTAINABILITY CONCEPT DESIGN NARRATIVE

Cost Estimate

HMS Project No. 14104

10% CONCEPTUAL DESIGN SUBMITTAL (REVISION 1)
CONSTRUCTION COST ESTIMATE

WHITAKER HALL NEW REPLACEMENT FIRE STATION, POLICE STATION, AND CTC TRAINING FACILITY (ESF)
UNIVERSITY OF ALASKA
FAIRBANKS, ALASKA

PREPARED FOR:

Bettisworth North
212 Front Street
Fairbanks, Alaska 99707

August 13, 2014

4103 Minnesota Drive • Anchorage, Alaska 99503 p: 907.561.1653 • f: 907.562.0420 • e: mail@hmsalaska.com

HMS Project No.: 14104

NOTES REGARDING THE PREPARATION OF THIS ESTIMATE

DRAWINGS AND DOCUMENTS

Level of Documents:	10% conceptual design drawings and systems narratives
Date:	August 1, 2014
Provided By:	Bettisworth North and their subconsultants of Fairbanks, Alaska and TCA Architecture of Seattle, Washington

RATES

Pricing is based on current material, equipment and freight costs.

Labor Rates:	A.S. Title 36 working 54 hours per week
Premium Time:	13.00%

BIDDING ASSUMPTIONS

Contract:	Standard construction contract without restrictive bidding clauses
Bidding Situation:	Competitive bids assumed
Bid Date:	Summer 2015 for site package, spring 2016 for building package
Start of Construction:	Summer 2015 for site preparation and fill surcharge package, and spring 2016 for the rest of the building package
Months to Complete:	Within (18) months, including lead time for materials, etc. (16 months construction time)

EXCLUDED COSTS

1. A/E design fees
2. Owner's administrative and management costs
3. Furniture and loose furnishings (except those specifically included)
4. Dispatch stations and simulation building equipment
5. Remediation of contaminated soils or abatement of any hazardous materials, if found during construction

NOTES REGARDING THE PREPARATION OF THIS ESTIMATE (Continued)

GENERAL

When included in HMS Inc.'s scope of services, opinions or estimates of probable construction costs are prepared on the basis of HMS Inc.'s experience and qualifications and represent HMS Inc.'s judgment as a professional generally familiar with the industry. However, since HMS Inc. has no control over the cost of labor, materials, equipment or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, HMS Inc. cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from HMS Inc.'s opinions or estimates of probable construction cost.

This estimate assumes normal escalation based on the current economic climate. While the global economic downturn appears to be moderating, it remains unclear how its effects and subsequent economic recovery will affect construction costs. HMS Inc. will continue to monitor this, as well as other international, domestic and local events, and the resulting construction climate, and will adjust costs and contingencies as deemed appropriate.

GROSS FLOOR AREA (PER ARCHITECT)

Level 1	33,802 SF
Level 2	18,226 SF
Level 3	14,802 SF
TOTAL GROSS FLOOR AREA:	**66,830 SF**
Exterior Canopies (4) (Not in GFA)	2,730 SF

HMS Project No.: 14104

10% CONCEPTUAL DESIGN COST SUMMARY

	Material	*Labor*	*Total*	
01 - SITE WORK	$ 1,810,252	$ 1,451,469	$ 3,261,721	
02 - SUBSTRUCTURE	385,886	424,606	810,492	
03 - SUPERSTRUCTURE	1,665,438	1,462,220	3,127,658	
04 - EXTERIOR CLOSURE	1,313,571	686,640	2,000,211	
05 - ROOF SYSTEMS	405,924	353,072	758,996	
06 - INTERIOR CONSTRUCTION	1,081,060	1,115,442	2,196,502	
07 - CONVEYING SYSTEMS	137,340	57,292	194,632	
08 - MECHANICAL	1,945,723	1,806,905	3,752,628	
09 - ELECTRICAL	1,068,702	889,163	1,957,865	
10 - EQUIPMENT	546,540	142,742	689,282	
11 - SPECIAL CONSTRUCTION	47,340	20,815	68,155	
SUBTOTAL:	*$ 10,407,776*	*$ 8,410,366*	*$ 18,818,142*	
12 - GENERAL REQUIREMENTS			4,330,461	
SUBTOTAL:			*$ 23,148,603*	
13 - CONTINGENCIES			4,361,937	
TOTAL ESTIMATED CONSTRUCTION COST (BID 2015 SITE AND 2016 BUILDING):			***$ 27,510,540***	
COST PER SQUARE FOOT:			*$ 411.65*	*/SF*
GROSS FLOOR AREA:			*66,830*	*SF*
ADD ALTERNATE 1 - Substitute 14'0"x14'0" Overhead Bay Doors with Quick Response Doors (12)		***ADD:***	***$ 194,500***	

PRORATED COSTS BY FUNCTIONS:				
Completely Finished Fire Station and Support Areas	$ 16,575,590	$ 454.37	36,480	SF
Police Department, Holding Cells, Etc.	2,775,120	248.00	11,190	SF
CTC Training and Simulation Building	4,311,000	225.00	19,160	SF
Site Work	3,848,830	57.59	66,830	SF
TOTAL CONSTRUCTION COST:	*$ 27,510,540*	*$ 411.65*	*66,830*	*SF*

ELEMENTAL SUMMARY

Element	*Material*	*Labor*	*Total Material/Labor*	*Total Cost*	*Cost per SF*
01 - SITE WORK				*$ 3,261,721*	*$ 48.81*
011 - Hazmat Abatement	$ 0	$ 0	$ 0		0.00
012 - Site Preparation	703,490	681,420	1,384,910		20.72
013 - Site Improvements	424,096	358,234	782,330		11.71
014 - Site Mechanical	156,088	152,748	308,836		4.62
015 - Site Electrical	526,578	259,067	785,645		11.76
02 - SUBSTRUCTURE				*$ 810,492*	*$ 12.13*
021 - Standard Foundations	$ 175,627	$ 249,958	$ 425,585		6.37
022 - Slab on Grade	210,259	174,648	384,907		5.76
023 - Basement	0	0	0		0.00
024 - Special Foundations	0	0	0		0.00
03 - SUPERSTRUCTURE				*$ 3,127,658*	*$ 46.80*
031 - Floor Construction	$ 636,097	$ 607,985	$ 1,244,082		18.62
032 - Roof Construction	821,033	711,145	1,532,178		22.93
033 - Stair Construction	208,308	143,090	351,398		5.26
04 - EXTERIOR CLOSURE				*$ 2,000,211*	*$ 29.93*
041 - Exterior Walls	$ 809,825	$ 543,923	$ 1,353,748		20.26
042 - Exterior Doors and Windows	503,746	142,717	646,463		9.67
05 - ROOF SYSTEMS				*$ 758,996*	*$ 11.36*
051 - Roofing	$ 405,924	$ 353,072	$ 758,996		11.36
052 - Skylights	0	0	0		0.00
06 - INTERIOR CONSTRUCTION				*$ 2,196,502*	*$ 32.87*
061 - Partitions and Doors	$ 432,032	$ 450,282	$ 882,314		13.20
062 - Interior Finishes	396,845	562,236	959,081		14.35
063 - Specialties	252,183	102,924	355,107		5.31
07 - CONVEYING SYSTEMS	*$ 137,340*	*$ 57,292*		*$ 194,632*	*$ 2.91*

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ELEMENTAL SUMMARY

Element	*Material*	*Labor*	*Total Material/Labor*	*Total Cost*	*Cost per SF*
08 - MECHANICAL				*$ 3,752,628*	*$ 56.15*
081 - Plumbing	$ 242,633	$ 306,090	$ 548,723		8.21
082 - HVAC	1,461,932	1,210,754	2,672,686		39.99
083 - Fire Protection	188,238	251,492	439,730		6.58
084 - Special Mechanical Systems	52,920	38,569	91,489		1.37
09 - ELECTRICAL				*$ 1,957,865*	*$ 29.30*
091 - Service and Distribution	$ 243,888	$ 125,789	$ 369,677		5.53
092 - Lighting and Power	385,375	365,652	751,027		11.24
093 - Special Electrical Systems	439,439	397,722	837,161		12.53
10 - EQUIPMENT				*$ 689,282*	*$ 10.31*
101 - Fixed and Movable Equipment	$ 529,805	$ 140,193	$ 669,998		10.03
102 - Furnishings	16,735	2,549	19,284		0.29
11 - SPECIAL CONSTRUCTION	*$ 47,340*	*$ 20,815*		*$ 68,155*	*$ 1.02*
SUBTOTAL DIRECT WORK:	***$ 10,407,776***	***$ 8,410,366***		***$ 18,818,142***	
12 - GENERAL REQUIREMENTS				*$ 4,330,461*	*$ 64.80*
121 - Mobilization			$ 84,000		1.26
122 - Operation Costs			2,468,705		36.94
123 - Profit			1,777,756		26.60
13 - CONTINGENCIES				*$ 4,361,937*	$ 65.27
131 - Estimator's Contingency	12.00%		$ 2,777,832		41.57
132 - Escalation Contingency	6.11%		1,584,105		23.70
TOTAL ESTIMATED CONSTRUCTION COST:				***$ 27,510,540***	***$411.65 /SF***
GROSS FLOOR AREA:					*66,830 SF*

01 - SITE WORK ***012 - Site Preparation***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
PREPARATION								
Site survey and staking	4.20	AC	850.00	3,570	5000.00	21,000	5850.00	24,570
Erosion and pollution control at pavements	82,876	SF	0.03	2,486	0.05	4,144	0.08	6,630
30" silt fencing and stakes	600	LF	3.20	1,920	4.50	2,700	7.70	4,620
SWPPP requirements and maintenance	4	MOS	1500.00	6,000	2500.00	10,000	4000.00	16,000
Traffic signs, barriers and controls	3	MOS	1500.00	4,500	3500.00	10,500	5000.00	15,000
Temporary construction fencing and gates	910	LF	10.20	9,282	4.35	3,959	14.55	13,241
Saw cut 2" AC pavements at roads and parking	488	LF	0.65	317	1.70	830	2.35	1,147
Cut and remove AC pavements	14,175	SF			0.50	7,088	0.50	7,088
Clear site of vegetation	1.75	AC			4800.00	8,400	4800.00	8,400
BUILDING PAD								
Excavate under building pad average 10'0" deep and stockpile	13,962	CY			3.95	55,150	3.95	55,150
Extra for thawing permafrost material for disposal (25% volume)	3,490	CY	17.50	61,075			17.50	61,075
Surcharge excavated area with clean stockpiled material (70% volume)	9,773	CY			3.50	34,206	3.50	34,206

01 - SITE WORK ***012 - Site Preparation***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
BUILDING PAD (Continued)								
Additional imported unclassified fill for surcharge	4,021	CY	6.30	25,332	4.25	17,089	10.55	42,421
Excavate unclassified surcharge material after 3 to 6 months and dispose	4,021	CY			7.50	30,158	7.50	30,158
Dispose surplus stockpile material	4,189	CY			5.75	24,087	5.75	24,087
Vertical wick drains during surcharging, 30'0" o/c	37	EA	500.00	18,500	300.00	11,100	800.00	29,600
Average 8'0" deep additional NFS fill under bedding, compacted	11,912	CY	12.00	142,944	7.00	83,384	19.00	226,328
Dewatering allowance (5% of excavation)	596	CY	8.50	5,066	5.70	3,397	14.20	8,463
PARKING, ETC.								
Grade site for pavements, etc.	82,898	SF			0.20	16,580	0.20	16,580
Average 8'0" deep NFS fill at pavements, compacted	20,000	CY	12.00	240,000	7.00	140,000	19.00	380,000
MISCELLANEOUS								
Soils compaction tests (1 per 1,000 CY)	40	EA	225.00	9,000			225.00	9,000
Earthwork equipment and operator	2.5	MOS	22500.00	56,250	7500.00	18,750	30000.00	75,000
SUBTOTAL:				*$ 586,242*		*$ 502,522*		*$ 1,088,764*

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01 - SITE WORK ***012 - Site Preparation***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
Labor Premium Time	13.00%					65,328		65,328
SUBTOTAL:				*$ 586,242*		*$ 567,850*		*$ 1,154,092*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			117,248		113,570		230,818
TOTAL ESTIMATED COST:				***$ 703,490***		***$ 681,420***		***$ 1,384,910***

01 - SITE WORK ***013 - Site Improvements***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
ROADS AND PARKINGS								
6" D1 compacted leveling course at fire truck lanes	860	CY	19.75	16,985	7.50	6,450	27.25	23,435
6" D1 compacted gravel cap at parking/roads	397	CY	19.75	7,841	7.00	2,779	26.75	10,620
Finish grade surfaces	67,921	SF			0.18	12,226	0.18	12,226
2" AC pavements (605 tons)	46,128	SF	1.38	63,657	1.05	48,434	2.43	112,091
4" AC pavements at truck turn out, etc. (1,572 tons)	21,793	SF	2.50	54,483	1.90	41,407	4.40	95,890
Cut and patch AC pavement at Tanana Loop Road	350	SF	2.20	770	3.50	1,225	5.70	1,995
Match existing pavements	488	LF	1.70	830	2.55	1,244	4.25	2,074
Asphalt density tests (1 per 3,000 SF)	16	EA	200.00	3,200			200.00	3,200
Mark parking stalls	27	EA	15.00	405	22.50	608	37.50	1,013
Mark handicapped accessible symbols	2	EA	18.00	36	45.00	90	63.00	126
Cross hatch marking (1)	160	SF	0.62	99	0.75	120	1.37	219
Handicapped accessible signs, posts and bases	2	EA	162.00	324	130.00	260	292.00	584
Traffic and fire truck signs, posts and bases	4	EA	180.00	720	145.00	580	325.00	1,300

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01 - SITE WORK ***013 - Site Improvements***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
CONCRETE PAVEMENTS								
6" subbase, compacted	277	CY	14.50	4,017	7.00	1,939	21.50	5,956
6" bar reinforced concrete aprons (135 CY)	6,937	SF	5.75	39,888	4.50	31,217	10.25	71,105
6" bar reinforced concrete transformer, dumpster and generator pads (3)	400	SF	5.75	2,300	4.50	1,800	10.25	4,100
6" mesh reinforced concrete walks (166 CY)	8,540	SF	3.90	33,306	3.20	27,328	7.10	60,634
Extra for handicapped curb cuts and ramps (7)	1,148	SF	1.50	1,722	2.75	3,157	4.25	4,879
4'0"x2'0" detectable tile mats	7	EA	180.00	1,260	95.00	665	275.00	1,925
Entrance steps	88	SF	15.00	1,320	22.00	1,936	37.00	3,256
Sidewalk concrete curbs	680	LF	10.20	6,936	12.50	8,500	22.70	15,436
Joint to existing walks (3)	18	LF	5.20	94	8.50	153	13.70	247
42" cable railings at ramps	188	LF	62.00	11,656	25.00	4,700	87.00	16,356
SITE FURNISHINGS, ETC.								
30'0" flag poles and bases	2	EA	2970.00	5,940	1120.00	2,240	4090.00	8,180
Monumental lit facility sign	1	EA	7500.00	7,500	4500.00	4,500	12000.00	12,000
Trash receptacles	2	EA	675.00	1,350	50.00	100	725.00	1,450

01 - SITE WORK ***013 - Site Improvements***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
SITE FURNISHINGS, ETC. (Continued)								
6'0" bench	1	EA	1025.00	1,025	120.00	120	1145.00	1,145
(7) slot bike rack	1	EA	770.00	770	150.00	150	920.00	920
12'0"x8'0" security gates, posts and foundations at impound area and generator	2	EA	2750.00	5,500	1125.00	2,250	3875.00	7,750
8'0" chainlink security fencing, posts and bases at impound area and generator	330	LF	49.50	16,335	17.20	5,676	66.70	22,011
6" concrete filled bollards and bases at overhead doors, etc.	22	EA	385.00	8,470	330.00	7,260	715.00	15,730
6'0" screen wall at transformers	56	LF	55.00	3,080	23.00	1,288	78.00	4,368
LANDSCAPING								
Protect existing vegetation	1	LOT	250.00	250	750.00	750	1000.00	1,000
Trees (various varieties)	51	EA	348.00	17,748	295.00	15,045	643.00	32,793
Shrubs (various varieties)	110	EA	42.00	4,620	25.00	2,750	67.00	7,370
Ground cover, 3'0" o/c each way	900	EA	7.35	6,615	4.25	3,825	11.60	10,440
12" topsoil in planters, etc.	220	CY	18.00	3,960	6.50	1,430	24.50	5,390
4" topsoil to disturbed areas	548	CY	18.00	9,864	6.00	3,288	24.00	13,152

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01 - SITE WORK ***013 - Site Improvements***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
LANDSCAPING (Continued)								
3" bark mulch at trees, shrubs and beds	2,260	SF	0.45	1,017	0.30	678	0.75	1,695
Grass seeding at disturbed areas	40.75	MSF	87.00	3,545	255.00	10,391	342.00	13,936
PVC edging	250	LF	3.90	975	2.50	625	6.40	1,600
18 month landscape maintenance and warranty	1	LOT	3000.00	3,000	5000.00	5,000	8000.00	8,000
SUBTOTAL:				*$ 353,413*		*$ 264,184*		*$ 617,597*
Labor Premium Time	13.00%					34,344		34,344
SUBTOTAL:				*$ 353,413*		*$ 298,528*		*$ 651,941*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			70,683		59,706		130,389
TOTAL ESTIMATED COST:				***$ 424,096***		***$ 358,234***		***$ 782,330***

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01 - SITE WORK ***014 - Site Mechanical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
UTILIDOR								
Construct 6'0"x8'0"x6" thick concrete utilidor extension complete with unistrut and hangers for piping	30	LF	475.00	14,250	390.00	11,700	865.00	25,950
Construct 13'0"x8'0"x6" thick concrete utilidor extension complete with unistrut and hangers for piping	32	LF	565.00	18,080	440.00	14,080	1005.00	32,160
Connection to existing utilidor and new building (2)	40	LF	28.75	1,150	35.50	1,420	64.25	2,570
WATER SERVICE INSIDE UTILIDOR								
6" DI water line (1)	45	LF	22.70	1,022	18.25	821	40.95	1,843
6" fittings and couplings	4	EA	75.00	300	94.00	376	169.00	676
6" gate valve	1	EA	785.00	785	250.00	250	1035.00	1,035
6" connections to existing utilidor piping	1	LOT	180.00	180	225.00	225	405.00	405
6" building connection and sleeve	1	EA	155.00	155	170.00	170	325.00	325
BURIED FIRE WATER LINE								
6" DI pipe and fittings	50	LF	28.00	1,400	25.00	1,250	53.00	2,650
2" HDPE circulation line	50	LF	3.40	170	7.50	375	10.90	545

01 - SITE WORK ***014 - Site Mechanical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
BURIED FIRE WATER LINE (Continued)								
6" fire hydrant assemblies	2	EA	2450.00	4,900	1320.00	2,640	3770.00	7,540
Trenching	133	CY	3.50	466	12.50	1,663	16.00	2,129
6" PVC marker tape	50	LF	0.33	17	0.22	11	0.55	28
BURIED SEWER LINE								
6" DI sewer line with slip on joints	300	LF	21.50	6,450	18.25	5,475	39.75	11,925
6" fittings and couplings	0	EA	75.00		94.00		169.00	
6" yard cleanout	1	EA	395.00	395	250.00	250	645.00	645
6" connection to existing manhole L11	1	EA	120.00	120	185.00	185	305.00	305
6" building connection and sleeve	1	EA	137.00	137	170.00	170	307.00	307
Trenching and backfill	890	CY	3.50	3,115	12.50	11,125	16.00	14,240
6" PVC marker tape	300	LF	0.33	99	0.22	66	0.55	165
STEAM AND HEAT WASTE LINES INSIDE UTILIDOR								
4" insulated steel steam welded pipe	48	LF	40.30	1,934	26.60	1,277	66.90	3,211
2" insulated steel steam welded condensate return	48	LF	18.00	864	15.40	739	33.40	1,603

01 - SITE WORK ***014 - Site Mechanical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
STEAM AND HEAT WASTE LINES INSIDE UTILIDOR (Continued)								
2" insulated steel waste heat line	48	LF	18.00	864	15.40	739	33.40	1,603
2" insulated chilled water line	48	LF	18.00	864	15.40	739	33.40	1,603
4" connection to existing line	1	EA	125.00	125	220.00	220	345.00	345
2" connections to existing lines	3	EA	85.00	255	145.00	435	230.00	690
4" building connection and sleeve	1	EA	145.00	145	120.00	120	265.00	265
2" building connections and sleeves	3	EA	75.00	225	95.00	285	170.00	510
4" to 2" fittings and couplings	10	EA	42.00	420	90.00	900	132.00	1,320
4" valves	2	EA	875.00	1,750	210.00	420	1085.00	2,170
2" valves	6	EA	285.00	1,710	105.00	630	390.00	2,340
4" steam meter	1	EA	3500.00	3,500	400.00	400	3900.00	3,900
2" steam and waste heat meters	2	EA	1100.00	2,200	250.00	500	1350.00	2,700
2" chilled water meter	1	EA	850.00	850	200.00	200	1050.00	1,050
STORM DRAINS								
Excavate and raise existing 48" diameter manhole to finish grade	1	EA	350.00	350	850.00	850	1200.00	1,200

01 - SITE WORK ***014 - Site Mechanical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
STORM DRAINS (Continued)								
48" diameter x 96" deep manholes, covers and frames	2	EA	3250.00	6,500	1970.00	3,940	5220.00	10,440
18" diameter CMP drains	200	LF	18.25	3,650	17.50	3,500	35.75	7,150
24" diameter CMP drains	170	LF	21.50	3,655	19.20	3,264	40.70	6,919
18" joints and couplings	10	EA	48.00	480	75.00	750	123.00	1,230
24" joints and couplings	8	EA	75.00	600	115.00	920	190.00	1,520
18" connections to manholes	4	EA	55.00	220	95.00	380	150.00	600
24" connections to existing	2	EA	70.00	140	150.00	300	220.00	440
Connection fee	0	EA	1500.00		500.00		2000.00	
Trenching and backfill	575	CY	3.50	2,013	12.50	7,188	16.00	9,201
6" PVC marker tape	370	LF	0.33	122	0.22	81	0.55	203
PROPANE GAS								
500 gallon skid mounted gas tank	1	EA	4350.00	4,350	1225.00	1,225	5575.00	5,575
3/4" and 1 1/4" piping to building	20	LF	12.00	240	19.50	390	31.50	630
Gas regulator and meter	1	EA	650.00	650	230.00	230	880.00	880

01 - SITE WORK ***014 - Site Mechanical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
PROPANE GAS (Continued)								
Valves and connections to tank	2	EA	150.00	300	225.00	450	375.00	750
Building sleeve and connection	1	EA	48.00	48	75.00	75	123.00	123
Propane for testing	100	GALS	3.75	375	0.30	30	4.05	405
Note: Tank filled by owner.								
SNOWMELT SYSTEM AT CONCRETE APRONS AND ADA PARKING WALKS								
2" rigid insulation	8,948	SF	0.95	8,501	0.50	4,474	1.45	12,975
2" sand bed	68	CY	23.00	1,564	8.00	544	31.00	2,108
2" to 1 1/2" header pipes (2)	60	LF	18.70	1,122	23.50	1,410	42.20	2,532
3/4" PEX piping stapled to insulation	12,530	LF	1.20	15,036	1.45	18,169	2.65	33,205
Temperature sensors	6	EA	135.00	810	70.00	420	205.00	1,230
Note: Equipment with building systems.								
FUEL OIL								
1,000 gallon double wall above ground fuel tank	1	EA	8500.00	8,500	1950.00	1,950	10450.00	10,450
3/4" to 1" diameter fuel piping and valves connected to generator	1	LOT	350.00	350	500.00	500	850.00	850

01 - SITE WORK ***014 - Site Mechanical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
FUEL OIL (Continued)								
Fuel for testing	300	GALS	4.50	1,350			4.50	1,350
MISCELLANEOUS								
Test all systems	1	LOT	250.00	250	1750.00	1,750	2000.00	2,000
SUBTOTAL:				*$ 130,073*		*$ 112,646*		*$ 242,719*
Labor Premium Time	13.00%					14,644		14,644
SUBTOTAL:				*$ 130,073*		*$ 127,290*		*$ 257,363*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			26,015		25,458		51,473
TOTAL ESTIMATED COST:				***$ 156,088***		***$ 152,748***		***$ 308,836***

01 - SITE WORK ***015 - Site Electrical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
DEMOLITION								
Demolish load center feeding headbolt heaters	2	EA			500.00	1,000	500.00	1,000
Remove headbolt receptacles, conduit and wiring from Jersey barriers	36	EA			125.00	4,500	125.00	4,500
Remove headbolt receptacles, posts, conduit and wiring	4	EA			155.00	620	155.00	620
Remove light poles, fixtures, bases, conduit and wiring	4	EA			750.00	3,000	750.00	3,000
Remove transformer 180 and relocate over new pad	1	EA						By Utility Co.
POWER								
750 KVA pad mounted transformers	2	EA	35500.00	71,000	8750.00	17,500	44250.00	88,500
3/4"x10'0" ground rods	10	EA	52.00	520	127.00	1,270	179.00	1,790
#2/0 bare copper ground wires	100	LF	3.35	335	1.85	185	5.20	520
Ground rod connections	16	EA	28.00	448	55.00	880	83.00	1,328
Transformer bushings and connections	8	EA	245.00	1,960	115.00	920	360.00	2,880
4" diameter RGS conduits for primary and secondary service (2)	500	LF	27.60	13,800	15.50	7,750	43.10	21,550

01 - SITE WORK ***015 - Site Electrical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
POWER (Continued)								
500 KCMIL conductors (16)	11,600	LF	14.80	171,680	4.20	48,720	19.00	220,400
Trenching and marker tape for buried service	140	LF	2.70	378	9.50	1,330	12.20	1,708
AREA LIGHTING								
Flood lights, conduit and wiring to facility sign	3	EA	875.00	2,625	550.00	1,650	1425.00	4,275
24" diameter x 10'0" concrete base, 2'6" above ground	16	EA	545.00	8,720	350.00	5,600	895.00	14,320
Pole bases with (4) 1"x30" anchor bolts	16	EA	85.00	1,360	120.00	1,920	205.00	3,280
25'0" steel poles at parking and roads	16	EA	1130.00	18,080	725.00	11,600	1855.00	29,680
12'0" steel poles at walks	14	EA	850.00	11,900	420.00	5,880	1270.00	17,780
400 watt LED halide fixtures to parking areas	24	EA	990.00	23,760	250.00	6,000	1240.00	29,760
225 watt LED halide fixtures to walkways	14	EA	575.00	8,050	210.00	2,940	785.00	10,990
Photocell, time clock and contactor	1	EA	650.00	650	335.00	335	985.00	985
1" diameter PVC conduits	1,600	LF	2.25	3,600	4.75	7,600	7.00	11,200
#10 wiring (3)	6,870	LF	0.43	2,954	0.67	4,603	1.10	7,557
Trenching and marker tape	1,600	LF	2.70	4,320	9.50	15,200	12.20	19,520

01 - SITE WORK ***015 - Site Electrical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
HEADBOLT HEATER PLUG-INS AT CREW PARKING								
4" diameter x 48" RGS posts and bases	13	EA	185.00	2,405	150.00	1,950	335.00	4,355
Duplex plug-ins, weatherproof	13	EA	87.00	1,131	120.00	1,560	207.00	2,691
1" diameter PVC conduit	400	LF	2.25	900	4.75	1,900	7.00	2,800
1" diameter RGS conduit	80	LF	4.45	356	10.20	816	14.65	1,172
#12 wiring (4)	2,110	LF	0.18	380	0.52	1,097	0.70	1,477
Power circuit connections to headbolt and panel	26	EA	4.50	117	23.50	611	28.00	728
Trenching and marker tape	400	LF	2.70	1,080	9.50	3,800	12.20	4,880
EMERGENCY GENERATOR								
200 KW self-contained generator complete system	1	EA	50200.00	50,200	8635.00	8,635	58835.00	58,835
Insulated and heated enclosure	300	SF	72.50	21,750	28.00	8,400	100.50	30,150
Feeders and conductors to building including trenching (2)	280	LF	44.00	12,320	23.75	6,650	67.75	18,970
Equipment grounding system	1	LOT	500.00	500	1200.00	1,200	1700.00	1,700

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01 - SITE WORK ***015 - Site Electrical***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
DATA/COMM								
4" diameter PVC empty conduit with pull wire inside utilidor (2)	96	LF	13.40	1,286	17.50	1,680	30.90	2,966
MISCELLANEOUS								
Test and tag systems	1	LOT	250.00	250	1750.00	1,750	2000.00	2,000
SUBTOTAL:				*$ 438,815*		*$ 191,052*		*$ 629,867*
Labor Premium Time	13.00%					24,837		24,837
SUBTOTAL:				*$ 438,815*		*$ 215,889*		*$ 654,704*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			87,763		43,178		130,941
TOTAL ESTIMATED COST:				***$ 526,578***		***$ 259,067***		***$ 785,645***

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02 - SUBSTRUCTURE ***021 - Standard Foundations***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
Excavate, backfill and dispose for foundations	1,133	CY	2.20	2,493	10.50	11,897	12.70	14,390
Excavate, backfill and dispose for interior bases	400	CY	2.20	880	8.75	3,500	10.95	4,380
Concrete bases (92)	143	CY	130.00	18,590	85.00	12,155	215.00	30,745
Concrete strip footings	72	CY	130.00	9,360	80.00	5,760	210.00	15,120
Concrete pilasters (92)	25	CY	130.00	3,250	95.00	2,375	225.00	5,625
10" concrete foundation walls	130	CY	130.00	16,900	90.00	11,700	220.00	28,600
10" concrete retaining walls	50	CY	130.00	6,500	90.00	4,500	220.00	11,000
Concrete waste	21	CY	130.00	2,730	80.00	1,680	210.00	4,410
Pump concrete	441	CY	45.00	19,845			45.00	19,845
Concrete core tests	16	EA	185.00	2,960			185.00	2,960
Bar reinforcement to bases	10,725	LBS	0.70	7,508	0.65	6,971	1.35	14,479
Bar reinforcement to footings	4,680	LBS	0.65	3,042	0.60	2,808	1.25	5,850
Bar reinforcement to walls	23,400	LBS	0.75	17,550	0.70	16,380	1.45	33,930
Bar reinforcement to pilasters	5,000	LBS	0.80	4,000	0.75	3,750	1.55	7,750
Formwork to bases	2,583	SF	1.70	4,391	4.80	12,398	6.50	16,789

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02 - SUBSTRUCTURE ***021 - Standard Foundations***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
Formwork to strip footings	3,028	SF	1.50	4,542	4.40	13,323	5.90	17,865
Formwork to pilasters	1,750	SF	2.25	3,938	6.70	11,725	8.95	15,663
Formwork to walls	11,606	SF	1.80	20,891	5.85	67,895	7.65	88,786
Membrane waterproofing to foundations	6,324	SF	1.70	10,751	2.50	15,810	4.20	26,561
2" rigid insulation to walls	4,914	SF	0.95	4,668	0.50	2,457	1.45	7,125
2"x48" rigid insulation under perimeter slab	3,760	SF	0.95	3,572	0.45	1,692	1.40	5,264
12"x1/4" insulated protection board	940	LF	3.50	3,290	2.70	2,538	6.20	5,828
3/4"x14" embedded anchor bolts for base plates	368	EA	8.70	3,202	18.50	6,808	27.20	10,010
5/8"x6" embedded bolts, 32" o/c at perimeter walls	352	EA	2.20	774	8.75	3,080	10.95	3,854
SUBTOTAL:				*$ 175,627*		*$ 221,202*		*$ 396,829*
Labor Premium Time	13.00%					28,756		28,756
TOTAL ESTIMATED COST:				***$ 175,627***		***$ 249,958***		***$ 425,585***

02 - SUBSTRUCTURE ***022 - Slab on Grade***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL UNIT RATE*	*TOTAL MATERIAL/LABOR*
			RATE	*TOTAL*	*RATE*	*TOTAL*		
			$	*$*	*$*	*$*	*$*	*$*
6" subbase, compacted	744	CY	14.50	10,788	6.50	4,836	21.00	15,624
8 mil vapor barrier	33,493	SF	0.07	2,345	0.10	3,349	0.17	5,694
2" sand bed at heated slabs	223	CY	20.00	4,460	7.25	1,617	27.25	6,077
2" rigid insulation at heated slabs	32,112	SF	0.95	30,506	0.50	16,056	1.45	46,562
4" concrete slab	242	CY	130.00	31,460	75.00	18,150	205.00	49,610
6" concrete slab at apparatus bays and sally port	206	CY	130.00	26,780	80.00	16,480	210.00	43,260
Thickened edge slabs	20	CY	130.00	2,600	95.00	1,900	225.00	4,500
Trowel, cure and finish slabs	32,112	SF	0.38	12,203	1.45	46,562	1.83	58,765
Concrete waste	22	CY	130.00	2,860	75.00	1,650	205.00	4,510
Pump concrete	470	CY	45.00	21,150			45.00	21,150
Concrete core tests	4	EA	185.00	740			185.00	740
#4 bar reinforcement to slabs, corners, etc.	35,860	LBS	0.70	25,102	0.65	23,309	1.35	48,411
1 1/2" non-shrink grout at column base plates (92)	108	SF	13.50	1,458	21.70	2,344	35.20	3,802
4" concrete housekeeping pads	250	SF	5.20	1,300	4.15	1,038	9.35	2,338

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02 - SUBSTRUCTURE ***022 - Slab on Grade***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
12" trench drains with grate at apparatus bay and sally port (8)	404	LF	78.00	31,512	25.00	10,100	103.00	41,612
ELEVATOR PIT								
Excavate and backfill	42	CY	2.50	105	14.50	609	17.00	714
12" to 8" concrete slab	7	CY	130.00	910	75.00	525	205.00	1,435
8" walls	5	CY	130.00	650	95.00	475	225.00	1,125
Cure and finish slab	1,055	SF	0.30	317	1.25	1,319	1.55	1,636
Bar reinforcement	1,400	LBS	0.70	980	0.65	910	1.35	1,890
Formwork to walls	384	SF	1.70	653	4.90	1,882	6.60	2,535
24"x24"x24" sump pit and grate	1	EA	335.00	335	220.00	220	555.00	555
24"x60" ladder and brackets	1	EA	385.00	385	255.00	255	640.00	640
Membrane waterproofing to slab and walls	388	SF	1.70	660	2.50	970	4.20	1,630
SUBTOTAL:				*$ 210,259*		*$ 154,556*		*$ 364,815*
Labor Premium Time	13.00%					20,092		20,092
TOTAL ESTIMATED COST:				***$ 210,259***		***$ 174,648***		***$ 384,907***

03 - SUPERSTRUCTURE ***031 - Floor Construction***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
SECOND AND THIRD FLOORS								
Note: Columns and bracings with Roof Structure.								
W-beams and joists	334,500	LBS	1.15	384,675	1.05	351,225	2.20	735,900
4"x4"x1/4" edge angle (1,190'0")	7,973	LBS	1.25	9,966	1.40	11,162	2.65	21,128
Miscellaneous connections, bolts, etc. (12.50%)	42,810	LBS	1.30	55,653	1.40	59,934	2.70	115,587
1 1/2"x18 gauge steel decking	32,793	SF	2.90	95,100	1.10	36,072	4.00	131,172
Overall 4" concrete topping	326	CY	130.00	42,380	75.00	24,450	205.00	66,830
Concrete waste	17	CY	130.00	2,210	75.00	1,275	205.00	3,485
Pump concrete	343	CY	45.00	15,435			45.00	15,435
Cure and finish toppings	32,793	SF	0.30	9,838	1.25	40,991	1.55	50,829
W6x6 - 2.9x2.9 mesh reinforcement	32,793	SF	0.58	19,020	0.35	11,478	0.93	30,498
4" housekeeping pads	350	SF	5.20	1,820	4.15	1,453	9.35	3,273
SUBTOTAL:				*$ 636,097*		*$ 538,040*		*$ 1,174,137*
Labor Premium Time	13.00%					69,945		69,945
TOTAL ESTIMATED COST:				***$ 636,097***		***$ 607,985***		***$ 1,244,082***

03 - SUPERSTRUCTURE ***032 - Roof Construction***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
MAIN ROOF								
W-columns	117,760	LBS	1.20	141,312	1.10	129,536	2.30	270,848
W-beams	150,720	LBS	1.15	173,328	1.10	165,792	2.25	339,120
HSS cross bracings	50,240	LBS	1.25	62,800	1.15	57,776	2.40	120,576
LH and K joists	84,830	LBS	1.20	101,796	0.85	72,106	2.05	173,902
Hose drying tower girts	9,000	LBS	1.20	10,800	1.10	9,900	2.30	20,700
Miscellaneous connections, bolts, etc. (12.50%)	51,565	LBS	1.30	67,035	1.40	72,191	2.70	139,226
1 1/2"x18 gauge steel decking	33,802	SF	2.90	98,026	1.10	37,182	4.00	135,208
CANOPIES (4)								
Apparatus bays and entry canopies framing and tie rods	34,125	LBS	1.20	40,950	1.10	37,538	2.30	78,488
1 1/2" deep canopy decking	2,730	SF	2.90	7,917	1.10	3,003	4.00	10,920
MISCELLANEOUS								
Steel inspections, weld tests, etc	1	LOT	25000.00	25,000			25000.00	25,000
100 ton crane and operator	3.5	MOS	22500.00	78,750	6000.00	21,000	28500.00	99,750

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03 - SUPERSTRUCTURE ***032 - Roof Construction***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
MISCELLANEOUS (Continued)								
Temporary shoring for all structures	66,595	SF	0.20	13,319	0.35	23,308	0.55	36,627
SUBTOTAL:				*$ 821,033*		*$ 629,332*		*$ 1,450,365*
Labor Premium Time	13.00%					81,813		81,813
TOTAL ESTIMATED COST:				***$ 821,033***		***$ 711,145***		***$ 1,532,178***

03 - SUPERSTRUCTURE ***033 - Stair Construction***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
INTERIOR STAIRS (5)								
Steel framing, stringers, etc.	46,560	LBS	1.25	58,200	1.20	55,872	2.45	114,072
Precast concrete landings	888	SF	27.50	24,420	8.75	7,770	36.25	32,190
Precast concrete treads	1,440	SF	29.75	42,840	12.00	17,280	41.75	60,120
1 1/2" pipe railings	216	LF	24.50	5,292	14.00	3,024	38.50	8,316
42" high mesh infill panel guardrails	260	LF	68.00	17,680	29.00	7,540	97.00	25,220
24"x14'0" roof ladder	1	EA	1125.00	1,125	540.00	540	1665.00	1,665
24"x18'0" roof ladder	1	EA	1480.00	1,480	750.00	750	2230.00	2,230
HOSE DRYING TOWER STAIRS (4)								
Stair framing	15,850	LBS	1.25	19,813	1.20	19,020	2.45	38,833
Concrete filled landings	192	SF	35.50	6,816	12.50	2,400	48.00	9,216
Concrete filled treads	600	SF	38.00	22,800	14.50	8,700	52.50	31,500
1 1/2" single pipe railings	120	LF	24.50	2,940	14.00	1,680	38.50	4,620
1 1/2" diameter (3) pipe railing	114	LF	43.00	4,902	18.00	2,052	61.00	6,954
SUBTOTAL:				*$ 208,308*		*$ 126,628*		*$ 334,936*

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03 - SUPERSTRUCTURE			*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
	QUANTITY	*UNIT*	*RATE*	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
033 - Stair Construction			*$*	*$*	*$*	*$*	*$*	*$*
Labor Premium Time	13.00%					16,462		16,462
TOTAL ESTIMATED COST:				***$ 208,308***		***$ 143,090***		***$ 351,398***

04 - EXTERIOR CLOSURE ***041 - Exterior Walls***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
WALL CONSTRUCTION								
8" split face reinforced and fully grouted colored CMU walls at simulation building and perimeter	4,458	SF	7.90	35,218	11.45	51,044	19.35	86,262
2" metal furring at CMU	4,458	SF	0.60	2,675	1.15	5,127	1.75	7,802
2" rigid insulation	4,458	SF	0.75	3,344	0.50	2,229	1.25	5,573
8" metal studs, 16" o/c including tracks to main walls above CMU	29,983	SF	1.38	41,377	1.50	44,975	2.88	86,352
8" R-30 batt insulation	29,983	SF	0.95	28,484	0.45	13,492	1.40	41,976
1" rigid insulation	29,983	SF	0.50	14,992	0.30	8,995	0.80	23,987
8 mil vapor retarder	34,441	SF	0.08	2,755	0.12	4,133	0.20	6,888
5/8" Type X gypboard to inner face	32,613	SF	0.64	20,872	1.50	48,920	2.14	69,792
5/8" Dens board to inner face of parapets	1,428	SF	0.72	1,028	1.10	1,571	1.82	2,599
2" Z furrings, 24" o/c for metal panels	29,983	SF	0.68	20,388	1.20	35,980	1.88	56,368
EXTERIOR FINISHES								
4" Corten plate steel panels and trims attached to sheathing horizontal profile	9,955	SF	14.25	141,859	6.50	64,708	20.75	206,567

04 - EXTERIOR CLOSURE ***041 - Exterior Walls***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
EXTERIOR FINISHES (Continued)								
Corten plate steel panels and trims attached to sheathing vertical profile	12,776	SF	15.20	194,195	7.00	89,432	22.20	283,627
4" insulated metal panels	10,452	SF	24.50	256,074	8.20	85,706	32.70	341,780
Metal flashings to doors and windows	1,729	LF	2.20	3,804	2.55	4,409	4.75	8,213
CANOPY SOFFITS								
Metal panel canopy soffits and framing	2,730	SF	12.50	34,125	6.30	17,199	18.80	51,324
MISCELLANEOUS								
24" long wall mounted 'Police' letters	6	EA	135.00	810	50.00	300	185.00	1,110
24" long wall mounted 'Fire' letters	4	EA	135.00	540	50.00	200	185.00	740
36" high overhead door numbers	19	EA	155.00	2,945	62.00	1,178	217.00	4,123
42" balcony cable railings	70	LF	62.00	4,340	25.00	1,750	87.00	6,090
SUBTOTAL:				*$ 809,825*		*$ 481,348*		*$ 1,291,173*
Labor Premium Time	13.00%					62,575		62,575
TOTAL ESTIMATED COST:				***$ 809,825***		***$ 543,923***		***$ 1,353,748***

04 - EXTERIOR CLOSURE ***042 - Exterior Doors and Windows***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
STANDARD DOORS								
3'0"x7'0" insulated hollow metal frames	7	EA	187.00	1,309	70.00	490	257.00	1,799
6'0"x7'0" insulated hollow metal frames	0	EA	220.00		100.00		320.00	
6'0"x7'0" aluminum thermo break frame	1	EA	380.00	380	140.00	140	520.00	520
3'0"x7'0"x1 3/4" insulated hollow metal flush single doors with vision light	7	EA	367.00	2,569	60.00	420	427.00	2,989
3'0"x7'0"x1 3/4" insulated hollow metal flush double doors	0	PR	725.00		120.00		845.00	
3'0"x7'0" insulated tempered glazed aluminum double doors	1	PR	2015.00	2,015	245.00	245	2260.00	2,260
Hollow metal single door hardware sets	7	EA	520.00	3,640	245.00	1,715	765.00	5,355
Hollow metal double door hardware sets	0	EA	770.00		355.00		1125.00	
Glazed aluminum double door hardware sets with panic bar, electronic lock and card reader	3	EA	1875.00	5,625	920.00	2,760	2795.00	8,385
ADA door operators	2	EA	2450.00	4,900	870.00	1,740	3320.00	6,640
SPECIAL DOORS								
14'0"x14'0" insulated steel overhead sectional doors with (6) vision panels, gear and operator	12	EA	8290.00	99,480	2150.00	25,800	10440.00	125,280

04 - EXTERIOR CLOSURE ***042 - Exterior Doors and Windows***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
SPECIAL DOORS (Continued)								
14'0"x14'0" insulated overhead sectional doors with (4) vision panels, gear and operator	2	EA	8040.00	16,080	2040.00	4,080	10080.00	20,160
LOW-E GLAZED ALUMINUM FIXED WINDOWS								
3'0"x1'6" windows	5	EA	255.00	1,275	105.00	525	360.00	1,800
4'0"x5'0" windows	26	EA	990.00	25,740	280.00	7,280	1270.00	33,020
5'0"x2'0" windows	33	EA	525.00	17,325	140.00	4,620	665.00	21,945
4" insulated translucent panel at hose tower (4)	144	SF	33.00	4,752	10.50	1,512	43.50	6,264
Insulated glazed curtain wall system	400	SF	72.00	28,800	15.00	6,000	87.00	34,800
Aluminum FireLite frames with Pilkington Pyrostop glass	3,200	SF	88.75	284,000	19.50	62,400	108.25	346,400
MISCELLANEOUS								
Architectural louvers to mechanical openings (3)	120	SF	33.00	3,960	7.35	882	40.35	4,842
Caulking and sealants to doors and windows, each side	3,448	LF	0.55	1,896	1.65	5,689	2.20	7,585
SUBTOTAL:				*$ 503,746*		*$ 126,298*		*$ 630,044*

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04 - EXTERIOR CLOSURE	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
042 - Exterior Doors and Windows			*$*	*$*	*$*	*$*	*$*	*$*
Labor Premium Time	13.00%					16,419		16,419
TOTAL ESTIMATED COST:				***$ 503,746***		***$ 142,717***		***$ 646,463***

05 - ROOF SYSTEMS ***051 - Roofing***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
CANOPIES (4)								
2 1/2" tapered insulation	2,730	SF	0.95	2,594	0.50	1,365	1.45	3,959
60 mil EPDM roofing	516	SF	2.20	1,135	2.35	1,213	4.55	2,348
Roof edge flashings	414	LF	3.70	1,532	3.20	1,325	6.90	2,857
Roof/wall flashing	273	LF	3.30	901	2.95	805	6.25	1,706
Metal scuppers	8	EA	63.00	504	55.00	440	118.00	944
MAIN ROOF								
1/2" gypboard sheathing	33,802	SF	0.58	19,605	1.00	33,802	1.58	53,407
Reinforced vapor retarder up walls	35,426	SF	0.12	4,251	0.20	7,085	0.32	11,336
(2) layers, 5" rigid insulation, staggered joints	33,802	SF	3.45	116,617	1.50	50,703	4.95	167,320
2" tapered insulation	33,802	SF	0.90	30,422	0.50	16,901	1.40	47,323
1/2" recovery board	33,802	SF	0.65	21,971	0.60	20,281	1.25	42,252
4"x4" cants at perimeters	1,410	LF	1.40	1,974	1.30	1,833	2.70	3,807
60 mil EPDM roofing up walls and cap	35,426	SF	2.20	77,937	2.35	83,251	4.55	161,188
Parapet cap flashings	1,410	LF	5.20	7,332	3.90	5,499	9.10	12,831

05 - ROOF SYSTEMS ***051 - Roofing***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
MAIN ROOF (Continued)								
Roof/wall flashings	294	LF	3.90	1,147	3.50	1,029	7.40	2,176
Roof drain flashings and boots	26	EA	73.00	1,898	85.00	2,210	158.00	4,108
2" concrete pavers above drains	208	SF	3.90	811	1.55	322	5.45	1,133
Flashings to vents, mechanical equipment, etc.	1	LOT	750.00	750	1250.00	1,250	2000.00	2,000
Temporary fall protection railings	1,410	LF	4.40	6,204	3.15	4,442	7.55	10,646
MISCELLANEOUS								
2" pavers over membrane waterproofing at balconies (2)	592	SF	4.55	2,694	3.20	1,894	7.75	4,588
Extra for green roof construction including grass mat and plantings	4,496	SF	8.45	37,991	5.50	24,728	13.95	62,719
SUBTOTAL:				*$ 338,270*		*$ 260,378*		*$ 598,648*
Labor Premium Time	13.00%					33,849		33,849
SUBTOTAL:				*$ 338,270*		*$ 294,227*		*$ 632,497*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			67,654		58,845		126,499
TOTAL ESTIMATED COST:				***$ 405,924***		***$ 353,072***		***$ 758,996***

06 - INTERIOR CONSTRUCTION ***061 - Partitions and Doors***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
PARTITIONS								
8" fully reinforced and grouted CMU walls at dirty classroom, apparatus bays, armory, holding cells, etc.	10,996	SF	7.70	84,669	10.50	115,458	18.20	200,127
Elevator shaft wall system	1,536	SF	3.45	5,299	4.90	7,526	8.35	12,825
Extra for 2-hour walls	2,728	SF	2.70	7,366	3.50	9,548	6.20	16,914
4" metal studs, 16" o/c including tracks	28,736	SF	1.15	33,046	1.25	35,920	2.40	68,966
6" metal studs, 16" o/c including tracks	11,628	SF	1.20	13,954	1.35	15,698	2.55	29,652
5/8" Type X gypboard, each side	80,728	SF	0.64	51,666	1.50	121,092	2.14	172,758
Extra for water resistant gypboard	4,880	SF	0.15	732			0.15	732
2"x blockings to apparatus bay and equipment walls	1,150	LF	0.73	840	1.25	1,438	1.98	2,278
4" sound batts	17,240	SF	0.63	10,861	0.35	6,034	0.98	16,895
6" sound batts	8,140	SF	0.75	6,105	0.40	3,256	1.15	9,361
Acoustic sealants	6,018	LF	0.38	2,287	0.85	5,115	1.23	7,402
4" fire safing	950	LF	2.20	2,090	3.70	3,515	5.90	5,605
6" fire safing	1,089	LF	2.90	3,158	4.45	4,846	7.35	8,004

06 - INTERIOR CONSTRUCTION ***061 - Partitions and Doors***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
DOORS								
3'0"x7'0" hollow metal frames	154	EA	138.00	21,252	70.00	10,780	208.00	32,032
6'0"x7'0" hollow metal frames	3	EA	162.00	486	95.00	285	257.00	771
6'0"x7'0" aluminum frame	1	EA	380.00	380	140.00	140	520.00	520
3'0"x7'0" tempered glazed aluminum double door	1	PR	2150.00	2,150	270.00	270	2420.00	2,420
3'0"x7'0"x1 3/4" hollow metal single doors	84	EA	365.00	30,660	60.00	5,040	425.00	35,700
3'0"x7'0"x1 3/4" hollow metal double doors	2	PRS	720.00	1,440	115.00	230	835.00	1,670
3'0"x7'0"x1 3/4" solid core wood flush single doors at dorms, offices, etc.	70	EA	355.00	24,850	60.00	4,200	415.00	29,050
3'0"x7'0"x1 3/4" solid core wood flush double doors at dorms, offices, etc.	1	PR	710.00	710	115.00	115	825.00	825
Extra for rated doors	90	EA	62.50	5,625			62.50	5,625
Glazed double door hardware set with panic bars	1	EA	1130.00	1,130	550.00	550	1680.00	1,680
Single door hardware sets	154	EA	375.00	57,750	190.00	29,260	565.00	87,010
Double door hardware sets	3	EA	665.00	1,995	295.00	885	960.00	2,880
24"x24" ceiling access doors	24	EA	163.00	3,912	75.00	1,800	238.00	5,712

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06 - INTERIOR CONSTRUCTION ***061 - Partitions and Doors***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
DOORS (Continued)								
12'0"x10'0" coiling doors complete with gear and track at simulation building	2	EA	7540.00	15,080	1850.00	3,700	9390.00	18,780
24'0"x20'0" steel coiling door with (8) vision panels, gear and operator	1	EA	18500.00	18,500	4850.00	4,850	23350.00	23,350
RELIGHTS								
Glazed relights in hollow metal frames	550	SF	38.50	21,175	10.50	5,775	49.00	26,950
MISCELLANEOUS								
Sliding guardrails	36	LF	78.00	2,808	30.00	1,080	108.00	3,888
10'0"x10'0" breach prop infill with 3/4" plywood, each side (2)	20	SF	2.80	56	3.70	74	6.50	130
SUBTOTAL:				*$ 432,032*		*$ 398,480*		*$ 830,512*
Labor Premium Time	13.00%					51,802		51,802
TOTAL ESTIMATED COST:				***$ 432,032***		***$ 450,282***		***$ 882,314***

06 - INTERIOR CONSTRUCTION ***062 - Interior Finishes***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
FLOOR FINISHES								
Concrete sealer and hardener at mechanical, etc.	5,827	SF	0.40	2,331	0.95	5,536	1.35	7,867
Concrete sealer and hardener at treads and landings	2,328	SF	0.40	931	1.10	2,561	1.50	3,492
Heavy duty, slip resistant concrete sealer and hardener at apparatus bays, sally port, etc.	11,836	SF	0.70	8,285	1.85	21,897	2.55	30,182
Polished concrete at classrooms, sleeping rooms, etc.	5,940	SF	2.25	13,365	5.30	31,482	7.55	44,847
Polished concrete at private toilets, kitchen, etc.	18,500	SF	2.25	41,625	5.30	98,050	7.55	139,675
Walk-off mat tiles at vestibules	240	SF	4.80	1,152	1.00	240	5.80	1,392
Carpeting at offices, etc.	3,407	SY	31.00	105,617	9.10	31,004	40.10	136,621
Ceramic tiles at public bathrooms, lockers, showers, etc.	1,306	SF	7.95	10,383	9.50	12,407	17.45	22,790
4" ceramic tile base	392	LF	5.40	2,117	7.10	2,783	12.50	4,900
4" steel bases at apparatus bays	442	LF	3.70	1,635	2.50	1,105	6.20	2,740
4" rubber bases	8,092	LF	1.20	9,710	1.45	11,733	2.65	21,443

06 - INTERIOR CONSTRUCTION ***062 - Interior Finishes***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
WALL FINISHES								
48" ceramic tile wainscot	1,504	SF	7.20	10,829	8.55	12,859	15.75	23,688
96" ceramic tile at showers, etc.	928	SF	7.20	6,682	8.70	8,074	15.90	14,756
48" FRP wainscot	3,200	SF	2.95	9,440	1.80	5,760	4.75	15,200
Full height Inpro panels and trims at kitchen	1,712	SF	4.40	7,533	2.50	4,280	6.90	11,813
Inpro panels with rub rails	3,640	SF	5.35	19,474	2.95	10,738	8.30	30,212
Paint gypboard walls	55,280	SF	0.25	13,820	1.50	82,920	1.75	96,740
CEILING FINISHES								
5/8" painted gypboard ceilings and framing	8,500	SF	2.05	17,425	3.70	31,450	5.75	48,875
2'0"x4'0" suspended acoustic tile ceiling system with seismic bracings	35,535	SF	2.90	103,052	2.20	78,177	5.10	181,229
2'0"x4'0" suspended acoustic tile ceiling system, washable type at kitchens with seismic bracings	1,445	SF	3.05	4,407	2.20	3,179	5.25	7,586
Paint exposed structure, pipes, ducts, etc. at vehicle bays, ambulance, sally port, etc.	17,663	SF	0.25	4,416	1.50	26,495	1.75	30,911
MISCELLANEOUS								
Paint/stain doors and frames	6,720	SF	0.30	2,016	1.70	11,424	2.00	13,440

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06 - INTERIOR CONSTRUCTION ***062 - Interior Finishes***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
MISCELLANEOUS (Continued)								
Paint miscellaneous items allowance	2,000	SF	0.30	600	1.70	3,400	2.00	4,000
SUBTOTAL:				*$ 396,845*		*$ 497,554*		*$ 894,399*
Labor Premium Time	13.00%					64,682		64,682
TOTAL ESTIMATED COST:				***$ 396,845***		***$ 562,236***		***$ 959,081***

06 - INTERIOR CONSTRUCTION ***063 - Specialties***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
TOILET ACCESSORIES								
Unisex restrooms	6	RMS	850.00	5,100	330.00	1,980	1180.00	7,080
Dorm toilets/showers	4	RMS	650.00	2,600	300.00	1,200	950.00	3,800
Single toilet rooms	4	RMS	330.00	1,320	240.00	960	570.00	2,280
Laundry room	1	RM	240.00	240	100.00	100	340.00	340
Janitor rooms	4	RMS	220.00	880	95.00	380	315.00	1,260
MISCELLANEOUS								
Shower room benches (2)	16	LF	62.00	992	28.00	448	90.00	1,440
24"x24"x72" full height gear lockers	48	EA	390.00	18,720	130.00	6,240	520.00	24,960
12"x18"x72" male/female lockers	32	EA	245.00	7,840	70.00	2,240	315.00	10,080
18"x18"x36" sleeping room lockers	48	EA	195.00	9,360	60.00	2,880	255.00	12,240
24" deep full height metal shelving in miscellaneous evidence rooms	450	LF	68.00	30,600	27.00	12,150	95.00	42,750
TV brackets at dining, sleeping rooms, etc.	18	EA	98.00	1,764	55.00	990	153.00	2,754
4'0"x4'0" tack boards	32	EA	136.50	4,368	45.00	1,440	181.50	5,808
12'0"x4'0" marker boards	10	EA	940.00	9,400	115.00	1,150	1055.00	10,550

06 - INTERIOR CONSTRUCTION ***063 - Specialties***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
MISCELLANEOUS (Continued)								
26'0"x9'0" Skyfold folding partition at classroom	1	EA	10500.00	10,500	2250.00	2,250	12750.00	12,750
39'0"x9'0" Skyfold folding partition at classroom	1	EA	13500.00	13,500	2875.00	2,875	16375.00	16,375
9'0"x6'0" projection screens	8	EA	990.00	7,920	185.00	1,480	1175.00	9,400
Door signs, ADA	8	EA	72.00	576	25.00	200	97.00	776
Door signs, standard	129	EA	47.00	6,063	18.00	2,322	65.00	8,385
Fire extinguishers, bracket mounted	10	EA	72.00	720	35.00	350	107.00	1,070
Fire extinguishers, cabinet mounted	16	EA	175.00	2,800	80.00	1,280	255.00	4,080
2"x2"x60" stainless steel corner guards	60	EA	62.50	3,750	28.50	1,710	91.00	5,460
Miscellaneous specialties allowance	1	LOT	10000.00	10,000	3500.00	3,500	13500.00	13,500
CASEWORK								
24" deep base cabinets at classrooms, etc.	140	LF	148.00	20,720	35.00	4,900	183.00	25,620
12" deep wall cabinets	140	LF	123.00	17,220	32.00	4,480	155.00	21,700
24" deep kitchen base cabinets	30	LF	155.00	4,650	37.00	1,110	192.00	5,760
30" deep kitchen island with trash and recycling under	9	LF					With Kitchen Equipment	

06 - INTERIOR CONSTRUCTION ***063 - Specialties***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
CASEWORK (Continued)								
24" deep vanity countertops	24	LF	82.00	1,968	30.00	720	112.00	2,688
24" deep shelves with coat rods	20	LF	29.00	580	10.00	200	39.00	780
24" deep counters	60	LF	82.00	4,920	30.00	1,800	112.00	6,720
18" deep bookshelves	16	LF	67.00	1,072	28.00	448	95.00	1,520
24" deep full height storage units	72	LF	167.00	12,024	50.00	3,600	217.00	15,624
1"x door/window trims	4,560	LF	1.10	5,016	1.25	5,700	2.35	10,716
Miscellaneous casework allowance (to be identified in future phases)	1	LOT	35000.00	35,000	20000.00	20,000	55000.00	55,000
SUBTOTAL:				*$ 252,183*		*$ 91,083*		*$ 343,266*
Labor Premium Time	13.00%					11,841		11,841
TOTAL ESTIMATED COST:				***$ 252,183***		***$ 102,924***		***$ 355,107***

07 - CONVEYING SYSTEMS	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
12'0"x12'0"x8'0" cab elevator to serve (3) stops complete with gear, controls and finishes	1	EA	75700.00	75,700	29500.00	29,500	105200.00	105,200
4'0"x7'0" elevator doors and controls, etc. to practice elevator shaft	3	EA	11750.00	35,250	4250.00	12,750	16000.00	48,000
City permits and inspections	1	LOT	3500.00	3,500			3500.00	3,500
SUBTOTAL:				*$ 114,450*		*$ 42,250*		*$ 156,700*
Labor Premium Time	13.00%					5,493		5,493
SUBTOTAL:				*$ 114,450*		*$ 47,743*		*$ 162,193*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			22,890		9,549		32,439
TOTAL ESTIMATED COST:				***$ 137,340***		***$ 57,292***		***$ 194,632***

08 - MECHANICAL ***081 - Plumbing***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
Water closets, ADA	6	EA	635.00	3,810	220.00	1,320	855.00	5,130
Water closets, standard	22	EA	580.00	12,760	190.00	4,180	770.00	16,940
Wall mounted urinals	6	EA	990.00	5,940	270.00	1,620	1260.00	7,560
Vanity sinks	11	EA	440.00	4,840	170.00	1,870	610.00	6,710
Single bowl sinks	4	EA	485.00	1,940	180.00	720	665.00	2,660
Janitor sinks	3	EA	650.00	1,950	210.00	630	860.00	2,580
Laundry sinks	2	EA	550.00	1,100	190.00	380	740.00	1,480
Kitchen and break room sinks	3	EA	490.00	1,470	180.00	540	670.00	2,010
30"x36" shower pans, drains and valves	7	EA	930.00	6,510	275.00	1,925	1205.00	8,435
Emergency eye wash stations	2	EA	690.00	1,380	250.00	500	940.00	1,880
Dual level water coolers	3	EA	1250.00	3,750	330.00	990	1580.00	4,740
Interior hose bibbs	10	EA	115.00	1,150	100.00	1,000	215.00	2,150
Non-frost exterior hose bibbs	6	EA	155.00	930	125.00	750	280.00	1,680
Clothes washer boxes	2	EA	85.00	170	60.00	120	145.00	290
Trench drains and connections	8	EA	155.00	1,240	125.00	1,000	280.00	2,240

08 - MECHANICAL ***081 - Plumbing***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
Mechanical room drains	3	EA	165.00	495	125.00	375	290.00	870
Toilet/shower drains	11	EA	127.00	1,397	110.00	1,210	237.00	2,607
Floor sinks	6	EA	315.00	1,890	135.00	810	450.00	2,700
14 gallon expansion tank	1	EA	440.00	440	120.00	120	560.00	560
50 GPM oil/water separator at bays	1	EA	3750.00	3,750	845.00	845	4595.00	4,595
30 GPM oil/water separators at bays	2	EA	2550.00	5,100	700.00	1,400	3250.00	6,500
___ GPM, 120 gallon indirect fired hot water heaters with valves, etc.	2	EA	5250.00	10,500	1250.00	2,500	6500.00	13,000
Tempering valves	2	EA	340.00	680	150.00	300	490.00	980
___ GPM, ___ head, ___ HP circulation pumps	2	EA	1500.00	3,000	320.00	640	1820.00	3,640
6" water meter	1	EA	5250.00	5,250	725.00	725	5975.00	5,975
Plumbing fixtures rough-ins including insulation	69	EA	535.00	36,915	955.00	65,895	1490.00	102,810
Drains, etc., rough-ins	66	EA	340.00	22,440	570.00	37,620	910.00	60,060
Laundry rough-ins	2	EA	250.00	500	450.00	900	700.00	1,400
Kitchen equipment rough-ins	1	LOT	550.00	550	1250.00	1,250	1800.00	1,800
Elevator sump pit pump and rough-in	1	EA	845.00	845	500.00	500	1345.00	1,345

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08 - MECHANICAL ***081 - Plumbing***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE *$*	*TOTAL* *$*	*RATE* *$*	*TOTAL* *$*	*UNIT RATE* *$*	*MATERIAL/LABOR* *$*
Insulation to DWV piping	1	LOT	40500.00	40,500	65500.00	65,500	106000.00	106,000
Roof drains	13	EA	185.00	2,405	125.00	1,625	310.00	4,030
Overflow drains	13	EA	225.00	2,925	140.00	1,820	365.00	4,745
4" to 3" cast iron rain leaders and fittings	520	LF	14.50	7,540	22.50	11,700	37.00	19,240
Roof drain connections	26	EA	32.00	832	75.00	1,950	107.00	2,782
MISCELLANEOUS								
Test and disinfect piping	1	LOT	300.00	300	2500.00	2,500	2800.00	2,800
Seismic bracing, hangers and labels	1	LOT	5000.00	5,000	8000.00	8,000	13000.00	13,000
SUBTOTAL:				*$ 202,194*		*$ 225,730*		*$ 427,924*
Labor Premium Time	13.00%					29,345		29,345
SUBTOTAL:				*$ 202,194*		*$ 255,075*		*$ 457,269*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			40,439		51,015		91,454
TOTAL ESTIMATED COST:				***$ 242,633***		***$ 306,090***		***$ 548,723***

08 - MECHANICAL ***082 - HVAC***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
HEATING								
Steam condensate receiver	1	EA	8500.00	8,500	2250.00	2,250	10750.00	10,750
Condensate pumps	2	EA	1625.00	3,250	450.00	900	2075.00	4,150
___ MBH, ___ GPM, steam to glycol shell and tube heat exchanger	1	EA	27500.00	27,500	2850.00	2,850	30350.00	30,350
___ MBH hot water electric back up boilers	2	EA	13500.00	27,000	5000.00	10,000	18500.00	37,000
Boilers controller	1	EA	2650.00	2,650	730.00	730	3380.00	3,380
119 gallon expansion tank	1	EA	3370.00	3,370	390.00	390	3760.00	3,760
4" air separator	1	EA	1780.00	1,780	375.00	375	2155.00	2,155
Boiler manifolds and valves, etc.	2	EA	1850.00	3,700	2775.00	5,550	4625.00	9,250
___ GPM, ___ head, __ HP hydronic pumps	2	EA	2400.00	4,800	430.00	860	2830.00	5,660
___ GPM, ___ head, __ HP radiant heat pumps	2	EA	1865.00	3,730	255.00	510	2120.00	4,240
___ GPM, ___ head, __ HP heating coil pumps	2	EA	1530.00	3,060	240.00	480	1770.00	3,540
___ GPM, ___ head, __ HP radiant cooling pumps	2	EA	2250.00	4,500	270.00	540	2520.00	5,040
50 gallon glycol drum and piping	1	EA	800.00	800	520.00	520	1320.00	1,320

08 - MECHANICAL ***082 - HVAC***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
HEATING (Continued)								
___ GPM, ___ head glycol pump	1	EA	520.00	520	140.00	140	660.00	660
Glycol fluid	550	GALS	12.50	6,875	2.25	1,238	14.75	8,113
10 MBH, 250 CFM wall recessed cabinet unit heaters	3	EA	1130.00	3,390	350.00	1,050	1480.00	4,440
___ MBH, ___ CFM down blast unit heaters at overhead doors	14	EA	1540.00	21,560	410.00	5,740	1950.00	27,300
___ MBH, ___ CFM unit heaters at mechanical rooms	3	EA	840.00	2,520	310.00	930	1150.00	3,450
___ MBH, ___ CFM unit heaters at hose tower	4	EA	935.00	3,740	325.00	1,300	1260.00	5,040
2" rigid insulation in joist spaces	33,028	SF	0.95	31,377	0.50	16,514	1.45	47,891
3/4" PEX piping at radiant heat floors	46,240	LF	1.45	67,048	1.60	73,984	3.05	141,032
Zone control valves and manifolds	8	EA	720.00	5,760	250.00	2,000	970.00	7,760
Tekmar control panel	1	EA	1850.00	1,850	830.00	830	2680.00	2,680
0.90 MBH/LF fin tube baseboards	190	LF	29.50	5,605	17.30	3,287	46.80	8,892
Baseboard enclosure	210	LF	16.35	3,434	9.50	1,995	25.85	5,429
___ CFM air handling unit coils	3	EA					With Air Handling Unit	

08 - MECHANICAL ***082 - HVAC***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
HEATING (Continued)								
1,000 to 3,000 CFM VAV box heating coils	3	EA	930.00	2,790	295.00	885	1225.00	3,675
750 to 500 CFM VAV box heating coils	4	EA	740.00	2,960	250.00	1,000	990.00	3,960
450 to 150 CFM VAV box heating coils	24	EA	525.00	12,600	220.00	5,280	745.00	17,880
6" diameter x 47" high flash recovery vessel	1	EA	1140.00	1,140	355.00	355	1495.00	1,495
10" diameter x 32" blow down separator	1	EA	1425.00	1,425	410.00	410	1835.00	1,835
__ GPM, ___ gallon, __ HP condensate receiver	1	EA	4850.00	4,850	770.00	770	5620.00	5,620
1 1/2"x8,250 lbs. steam traps	1	EA	1420.00	1,420	380.00	380	1800.00	1,800
1 1/4"x1 1/2"x1,500 to 3,000 lbs. steam traps	3	EA	880.00	2,640	290.00	870	1170.00	3,510
3/4"x900 lbs. steam trap	1	EA	655.00	655	270.00	270	925.00	925
Insulated hydronic copper piping (4" to 2")	650	LF	19.75	12,838	24.50	15,925	44.25	28,763
Insulated hydronic copper piping (1 1/2" to 3/4")	2,200	LF	13.30	29,260	17.45	38,390	30.75	67,650
Insulated steel steam piping (3" to 2")	750	LF	22.00	16,500	26.85	20,138	48.85	36,638
Miscellaneous valves and gauges	1	LOT	3500.00	3,500	2000.00	2,000	5500.00	5,500
Seismic bracings, pipe hangers and labels	1	LOT	12500.00	12,500	20000.00	20,000	32500.00	32,500
Heat recovery for HVAC system	1	LOT	25000.00	25,000	35000.00	35,000	60000.00	60,000

08 - MECHANICAL ***082 - HVAC***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
VENTILATION								
10,000 CFM, __ HP air handling unit with filters, coils, plenum, etc. for dorms	1	EA	38500.00	38,500	8500.00	8,500	47000.00	47,000
45,000 CFM, ___ HP air handling unit with filters, coil sections, etc. for admin and support areas	1	EA	173500.00	173,500	33500.00	33,500	207000.00	207,000
21,000 CFM paddle fans at bays	10	EA	425.00	4,250	220.00	2,200	645.00	6,450
3,000 CFM boiler room ventilation fan	1	EA	2850.00	2,850	1120.00	1,120	3970.00	3,970
1,200 CFM fan room fans	2	EA	1550.00	3,100	820.00	1,640	2370.00	4,740
15,000 CFM apparatus bay exhaust fan, Carmon type	1	EA	18500.00	18,500	5500.00	5,500	24000.00	24,000
3,000 CFM apparatus bay exhaust fan, Carmon type	1	EA	4750.00	4,750	1500.00	1,500	6250.00	6,250
1,200 CFM sally port exhaust fan, Carmon type	1	EA	4000.00	4,000	1400.00	1,400	5400.00	5,400
1,000 CFM kitchen hood fan	1	EA	1875.00	1,875	750.00	750	2625.00	2,625
1,200 CFM to 500 CFM exhaust fans	4	EA	1330.00	5,320	650.00	2,600	1980.00	7,920
450 CFM to 250 CFM exhaust fans	6	EA	675.00	4,050	325.00	1,950	1000.00	6,000
Evidence storage room 24-hour exhaust system	1	LOT	7500.00	7,500	3000.00	3,000	10500.00	10,500

08 - MECHANICAL ***082 - HVAC***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
VENTILATION (Continued)								
Lockable vented drug evidence cabinet	1	EA	1850.00	1,850	520.00	520	2370.00	2,370
Dehumidification system for bays	1	LOT	15000.00	15,000	8000.00	8,000	23000.00	23,000
12"x12" diffusers and grilles	40	EA	62.00	2,480	40.00	1,600	102.00	4,080
18"x18" diffusers and grilles	36	EA	98.00	3,528	47.00	1,692	145.00	5,220
24"x24" diffusers and grilles	24	EA	118.00	2,832	58.00	1,392	176.00	4,224
24" diameter duct mounted grilles	20	EA	137.00	2,740	75.00	1,500	212.00	4,240
Dampers, louvers, hoods, etc.	1	LOT	40500.00	40,500	10000.00	10,000	50500.00	50,500
Dryer vents and ducts	2	EA	240.00	480	330.00	660	570.00	1,140
Galvanized sheetmetal ductwork and hangers	38,500	LBS	3.30	127,050	3.85	148,225	7.15	275,275
Stainless steel grease ductwork and hangers for kitchen hoods	500	LBS	18.50	9,250	12.50	6,250	31.00	15,500
Flexible ducts (6" to 8" diameter)	650	LF	3.30	2,145	4.35	2,828	7.65	4,973
2" duct insulation	2,500	SF	1.70	4,250	2.00	5,000	3.70	9,250
2" duct lining	1,700	SF	2.75	4,675	2.20	3,740	4.95	8,415
Smart thermostats and wiring	60	EA	118.00	7,080	70.00	4,200	188.00	11,280

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08 - MECHANICAL ***082 - HVAC***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
VENTILATION (Continued)								
Direct digital controls system complete with microprocessor, programming, etc.	66,830	SF	4.15	277,345	3.70	247,271	7.85	524,616
Remotely tie in DDC into area wide system	1	LOT	1500.00	1,500	2500.00	2,500	4000.00	4,000
DISTRICT CHILLED COOLING SYSTEM								
Heat exchanger	2	LOTS	17500.00	35,000	2500.00	5,000	20000.00	40,000
Add valves and gauges to district cooling lines	2	LOTS	1500.00	3,000	1800.00	3,600	3300.00	6,600
4" to 2" insulated chilled water steel piping to air handling units	1,250	LF	22.00	27,500	26.85	33,563	48.85	61,063
Connections to utilidor pumps and piping	2	LOTS	240.00	480	375.00	750	615.00	1,230
MISCELLANEOUS								
Mechanical mobilization, demobilization, submittals, etc.	1	LOT	3000.00	3,000	7000.00	7,000	10000.00	10,000
Equipment operations training	32	HRS			150.00	4,800	150.00	4,800
Test, balance and commission building systems	350	HRS			150.00	52,500	150.00	52,500
SUBTOTAL:				*$ 1,218,277*		*$ 892,887*		*$ 2,111,164*

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08 - MECHANICAL ***082 - HVAC***	*QUANTITY*	*UNIT*	*MATERIAL* *RATE* *$*	*MATERIAL* *TOTAL* *$*	*LABOR* *RATE* *$*	*LABOR* *TOTAL* *$*	*TOTAL* *UNIT RATE* *$*	*TOTAL* *MATERIAL/LABOR* *$*
Labor Premium Time	13.00%					116,075		116,075
SUBTOTAL:				*$ 1,218,277*		*$ 1,008,962*		*$ 2,227,239*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			243,655		201,792		445,447
TOTAL ESTIMATED COST:				***$ 1,461,932***		***$ 1,210,754***		***$ 2,672,686***

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08 - MECHANICAL ***083 - Fire Protection***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
4" backflow preventer	1	EA	4750.00	4,750	750.00	750	5500.00	5,500
4" wet stand pipe and valves	1	LOT	2500.00	2,500	1800.00	1,800	4300.00	4,300
4" dry stand pipe and valves	1	LOT	3200.00	3,200	2200.00	2,200	5400.00	5,400
Dry system air compressor and valves	1	LOT	2700.00	2,700	850.00	850	3550.00	3,550
Wet pipe sprinkler system	54,994	SF	1.90	104,489	2.50	137,485	4.40	241,974
4" fire truck fill line and valves	1	LOT	5000.00	5,000	7500.00	7,500	12500.00	12,500
Dry pipe sprinkler system at truck bays and support areas	11,836	SF	2.15	25,447	2.70	31,957	4.85	57,404
Dry pipe sprinkler system at canopy	408	SF	2.40	979	3.00	1,224	5.40	2,203
Test and certify system	1	LOT	300.00	300	1700.00	1,700	2000.00	2,000
Design fee	1	LOT	7500.00	7,500			7500.00	7,500
SUBTOTAL:				*$ 156,865*		*$ 185,466*		*$ 342,331*
Labor Premium Time	13.00%					24,111		24,111
SUBTOTAL:				*$ 156,865*		*$ 209,577*		*$ 366,442*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			31,373		41,915		73,288
TOTAL ESTIMATED COST:				***$ 188,238***		***$ 251,492***		***$ 439,730***

08 - MECHANICAL ***084 - Special Mechanical Systems***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
COMPRESSED AIR								
SCBA breathing air compressor and piping	1	EA	25500.00	25,500	10500.00	10,500	36000.00	36,000
House air compressor	1	EA	8500.00	8,500	1500.00	1,500	10000.00	10,000
1 1/2" to 3/4" diameter steel piping	350	LF	7.50	2,625	12.30	4,305	19.80	6,930
PROPANE GAS								
1/2" to 3/4" diameter steel gas piping	250	LF	4.50	1,125	8.75	2,188	13.25	3,313
Gas valves and connections to kitchen equipment	1	LOT	650.00	650	950.00	950	1600.00	1,600
MISCELLANEOUS AREAS								
Rough-ins for special systems at labs	2	LOTS	1500.00	3,000	2250.00	4,500	3750.00	7,500
Rough-ins for special systems at simulation room	1	LOT	2500.00	2,500	3000.00	3,000	5500.00	5,500
MISCELLANEOUS								
Test special systems	1	LOT	200.00	200	1500.00	1,500	1700.00	1,700
SUBTOTAL:				*$ 44,100*		*$ 28,443*		*$ 72,543*
Labor Premium Time	13.00%					3,698		3,698
SUBTOTAL:				*$ 44,100*		*$ 32,141*		*$ 76,241*

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08 - MECHANICAL ***084 - Special Mechanical Systems***	*QUANTITY*	*UNIT*	*MATERIAL* *RATE* *$*	*MATERIAL* *TOTAL* *$*	*LABOR* *RATE* *$*	*LABOR* *TOTAL* *$*	*TOTAL UNIT RATE* *$*	*TOTAL MATERIAL/LABOR* *$*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			8,820		6,428		15,248
TOTAL ESTIMATED COST:				***$ 52,920***		***$ 38,569***		***$ 91,489***

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09 - ELECTRICAL ***091 - Service and Distribution***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
277/480 volt CT and meter bases	2	EA	3500.00	7,000	1500.00	3,000	5000.00	10,000
Main disconnect switches	2	EA	3300.00	6,600	1450.00	2,900	4750.00	9,500
1,600 amp, 3 pole main distribution panel with (2) 200 amp spare circuit breakers	2	EA	22500.00	45,000	8500.00	17,000	31000.00	62,000
400 amp subpanels	3	EA	3750.00	11,250	1920.00	5,760	5670.00	17,010
225 amp subpanels	10	EA	2670.00	26,700	1350.00	13,500	4020.00	40,200
TVSS	2	EA	1250.00	2,500	520.00	1,040	1770.00	3,540
75 KVA transformers	3	EA	4850.00	14,550	2130.00	6,390	6980.00	20,940
45 KVA transformers	2	EA	2250.00	4,500	1700.00	3,400	3950.00	7,900
Equipment grounding	1	LOT	750.00	750	2200.00	2,200	2950.00	2,950
4" to 1 1/4" diameter EMT conduits	350	LF	15.20	5,320	13.50	4,725	28.70	10,045
1" to 3/4" diameter EMT conduits	550	LF	5.40	2,970	8.70	4,785	14.10	7,755
500 KCMIL conductors (8)	2,800	LF	14.75	41,300	4.20	11,760	18.95	53,060
#4/0 conductors (8)	4,400	LF	7.30	32,120	2.95	12,980	10.25	45,100
1/0 ground wire	900	LF	2.70	2,430	1.75	1,575	4.45	4,005

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09 - ELECTRICAL ***091 - Service and Distribution***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
Test and tag service and distribution	1	LOT	250.00	250	1750.00	1,750	2000.00	2,000
SUBTOTAL:				*$ 203,240*		*$ 92,765*		*$ 296,005*
Labor Premium Time	13.00%					12,059		12,059
SUBTOTAL:				*$ 203,240*		*$ 104,824*		*$ 308,064*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			40,648		20,965		61,613
TOTAL ESTIMATED COST:				***$ 243,888***		***$ 125,789***		***$ 369,677***

09 - ELECTRICAL ***092 - Lighting and Power***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
100 watt LED exterior wall mounted fixtures	8	EA	525.00	4,200	160.00	1,280	685.00	5,480
125 watt LED overhead door and canopy fixtures	24	EA	615.00	14,760	185.00	4,440	800.00	19,200
1'0"x4'0" industrial strip lights at mechanical and electrical rooms	50	EA	135.00	6,750	85.00	4,250	220.00	11,000
250 watt metal halide high bay pendant fixtures at apparatus and ambulance bays	94	EA	775.00	72,850	215.00	20,210	990.00	93,060
Damp location fixtures	40	EA	180.00	7,200	90.00	3,600	270.00	10,800
2'0"x2'0" LED lamp dining and exercise room fixtures	60	EA	225.00	13,500	105.00	6,300	330.00	19,800
Kitchen/dining area LED fixtures	32	EA	195.00	6,240	100.00	3,200	295.00	9,440
1'0"x4'0" LED fixtures in lockers, toilets, etc.	36	EA	180.00	6,480	95.00	3,420	275.00	9,900
2'0"x4'0" T-8 lamps direct/indirect fluorescent fixtures in offices, admin, etc.	320	EA	195.00	62,400	95.00	30,400	290.00	92,800
6"x24" LED mirror fixtures	16	EA	148.00	2,368	85.00	1,360	233.00	3,728
6"x48" LED mirror fixtures	12	EA	175.00	2,100	105.00	1,260	280.00	3,360
LED downlights	24	EA	145.00	3,480	90.00	2,160	235.00	5,640
LED wall washers	40	EA	165.00	6,600	95.00	3,800	260.00	10,400

09 - ELECTRICAL ***092 - Lighting and Power***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
Miscellaneous support area fixtures	70	EA	125.00	8,750	80.00	5,600	205.00	14,350
Occupancy sensors	32	EA	117.00	3,744	75.00	2,400	192.00	6,144
LED exit signs	16	EA	162.00	2,592	115.00	1,840	277.00	4,432
LED emergency lights	30	EA	268.00	8,040	127.00	3,810	395.00	11,850
Lighting controls	1	LOT	2500.00	2,500	1800.00	1,800	4300.00	4,300
Overhead door controllers	14	EA	195.00	2,730	150.00	2,100	345.00	4,830
Motor starters, disconnects and connections to HVAC equipment	1	LOT	4250.00	4,250	3500.00	3,500	7750.00	7,750
Motor starters, disconnects and connections to miscellaneous equipment	1	LOT	1800.00	1,800	2000.00	2,000	3800.00	3,800
Switches and devices	620	EA	18.00	11,160	47.00	29,140	65.00	40,300
1 1/2" to 3/4" diameter EMT conduit	14,850	LF	3.20	47,520	5.70	84,645	8.90	132,165
#10 to #12 wiring (4)	59,400	LF	0.28	16,632	0.60	35,640	0.88	52,272
Test and tag lighting and power	1	LOT	500.00	500	2500.00	2,500	3000.00	3,000
Electrical mobilization, demobilization, submittals, etc.	1	LOT	2000.00	2,000	6000.00	6,000	8000.00	8,000

09 - ELECTRICAL ***092 - Lighting and Power***	*QUANTITY*	*UNIT*	*MATERIAL* *RATE* *$*	 *TOTAL* *$*	*LABOR* *RATE* *$*	 *TOTAL* *$*	*TOTAL* *UNIT RATE* *$*	*TOTAL* *MATERIAL/LABOR* *$*
Equipment operations training	20	HRS			150.00	3,000	150.00	3,000
SUBTOTAL:				*$ 321,146*		*$ 269,655*		*$ 590,801*
Labor Premium Time	13.00%					35,055		35,055
SUBTOTAL:				*$ 321,146*		*$ 304,710*		*$ 625,856*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			64,229		60,942		125,171
TOTAL ESTIMATED COST:				***$ 385,375***		***$ 365,652***		***$ 751,027***

09 - ELECTRICAL ***093 - Special Electrical Systems***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
FIRE ALARM SYSTEM								
Class A addressable fire alarm panel with battery back up and automatic dialer	1	EA	6250.00	6,250	2850.00	2,850	9100.00	9,100
Graphic annunciators	3	EA	1425.00	4,275	750.00	2,250	2175.00	6,525
Fire alarm exterior and interior devices, detectors, alarms, conduit and wiring	66,830	SF	2.25	150,368	1.90	126,977	4.15	277,345
Connections to sprinkler, elevator and air handling systems	1	LOT	750.00	750	2500.00	2,500	3250.00	3,250
SECURITY AND CCTV SYSTEM								
TV entrance cabinet	1	EA	935.00	935	370.00	370	1305.00	1,305
TV outlets	50	EA	18.00	900	45.00	2,250	63.00	3,150
Conduit and cabling	1,200	LF	1.70	2,040	4.50	5,400	6.20	7,440
Security head end equipment	1	LOT	4500.00	4,500	2500.00	2,500	7000.00	7,000
Exterior security cameras	8	EA	1850.00	14,800	520.00	4,160	2370.00	18,960
Interior security cameras	20	EA	1370.00	27,400	390.00	7,800	1760.00	35,200
Conduit and signal wiring	2,500	LF	3.10	7,750	5.80	14,500	8.90	22,250

09 - ELECTRICAL ***093 - Special Electrical Systems***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
COMMUNICATIONS AND DATA SYSTEMS								
Headend equipment	1	LOT	2250.00	2,250	1175.00	1,175	3425.00	3,425
4'0"x8'0"x3/4" plywood back board, painted	1	EA	180.00	180	275.00	275	455.00	455
Data/com outlets	60	EA	22.00	1,320	62.00	3,720	84.00	5,040
Telephone outlets	18	EA	16.00	288	48.00	864	64.00	1,152
Ceiling speakers	40	EA	135.00	5,400	80.00	3,200	215.00	8,600
Cable trays	550	LF	17.50	9,625	13.20	7,260	30.70	16,885
1" to 3/4" diameter conduits	1,770	LF	1.90	3,363	5.70	10,089	7.60	13,452
J-hooks	3,500	EA	0.70	2,450	1.90	6,650	2.60	9,100
UTP cabling	6,300	LF	0.85	5,355	1.55	9,765	2.40	15,120
ALERTING SYSTEM								
Complete fire reporting alerting system for fire station, police station and sleeping	1	LOT	35000.00	35,000	20000.00	20,000	55000.00	55,000
FIRE ALARM SYSTEM								
Complete fire alarm system with amplifiers, speakers, conduit and wiring	1	LOT	35500.00	35,500	15000.00	15,000	50500.00	50,500

09 - ELECTRICAL ***093 - Special Electrical Systems***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
ANTENNA AND MISCELLANEOUS SYSTEMS								
Complete antenna system	1	LOT	5000.00	5,000	7000.00	7,000	12000.00	12,000
Access control system	1	LOT	15000.00	15,000	10000.00	10,000	25000.00	25,000
Battery chargers for radio system	1	LOT	3500.00	3,500	900.00	900	4400.00	4,400
Rough-ins for simulator building systems	1	LOT	3000.00	3,000	5000.00	5,000	8000.00	8,000
UPS with conduit and wiring	1	LOT	8500.00	8,500	1850.00	1,850	10350.00	10,350
Police department dispatch system rough-in	1	LOT	10000.00	10,000	15000.00	15,000	25000.00	25,000
MISCELLANEOUS								
Test and tag special systems	1	LOT	500.00	500	4000.00	4,000	4500.00	4,500
SUBTOTAL:				*$ 366,199*		*$ 293,305*		*$ 659,504*
Labor Premium Time	13.00%					38,130		38,130
SUBTOTAL:				*$ 366,199*		*$ 331,435*		*$ 697,634*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			73,240		66,287		139,527
TOTAL ESTIMATED COST:				***$ 439,439***		***$ 397,722***		***$ 837,161***

10 - EQUIPMENT ***101 - Fixed and Movable Equipment***	*QUANTITY*	*UNIT*	*MATERIAL* *RATE* *$*	*MATERIAL* *TOTAL* *$*	*LABOR* *RATE* *$*	*LABOR* *TOTAL* *$*	*TOTAL* *UNIT RATE* *$*	*TOTAL* *MATERIAL/LABOR* *$*
COMMERCIAL GRADE KITCHEN EQUIPMENT								
48"x30" Class 1 range hood and fan with fire suppression system	1	EA	5500.00	5,500	2200.00	2,200	7700.00	7,700
Hobart dishwasher	1	EA	5000.00	5,000	750.00	750	5750.00	5,750
Microwave ovens	4	EA	550.00	2,200	50.00	200	600.00	2,400
36"x36"x60" refrigerators	6	EA	2750.00	16,500	170.00	1,020	2920.00	17,520
(6) burner propane Wolf gas range	1	EA	10500.00	10,500	650.00	650	11150.00	11,150
Double deck ovens	2	EA	7300.00	14,600	250.00	500	7550.00	15,100
24"x14"x42" food lockers	24	EA	285.00	6,840	75.00	1,800	360.00	8,640
42" deep stainless steel food prep table with trash and recycling bins under	9	LF	615.00	5,535	135.00	1,215	750.00	6,750
24" deep stainless steel kitchen counters	38	LF	380.00	14,440	105.00	3,990	485.00	18,430
30" deep stainless steel kitchen counters	6	LF	415.00	2,490	120.00	720	535.00	3,210
Open pot rack shelves	2	EA	350.00	700	75.00	150	425.00	850
(2) pot sinks	2	EA	990.00	1,980	350.00	700	1340.00	2,680
Single pot food prep sink	1	EA	650.00	650	220.00	220	870.00	870

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10 - EQUIPMENT ***101 - Fixed and Movable Equipment***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
RESIDENTIAL APPLIANCES								
36"x36"x60" refrigerators	2	EA	2750.00	5,500	170.00	340	2920.00	5,840
36"x36"x60" ice maker	1	EA	3200.00	3,200	250.00	250	3450.00	3,450
Microwave ovens	2	EA	550.00	1,100	50.00	100	600.00	1,200
Dishwashers	2	EA	1300.00	2,600	200.00	400	1500.00	3,000
(4) burner propane gas ranges and ovens	2	EA	1020.00	2,040	250.00	500	1270.00	2,540
28"x24" range hoods and fans	2	EA	395.00	790	175.00	350	570.00	1,140
14"x36"x72" food pantries	4	EA	750.00	3,000	100.00	400	850.00	3,400
Stacked clothes washer/dryers	2	EA	1320.00	2,640	180.00	360	1500.00	3,000
LAB EQUIPMENT								
MPR fume hood and miscellaneous equipment	2	RMS	7500.00	15,000	2000.00	4,000	9500.00	19,000
CLASSROOMS SMARTIFICATION								
Video conference, smart boards, etc. (budgetary cost by TCA)	1	LOT	400000.00	400,000	100000.00	100,000	500000.00	500,000
MISCELLANEOUS FIRE FIGHTING EQUIPMENT								
24"x60'0" hose storage racks	5	EA						FFE

10 - EQUIPMENT ***101 - Fixed and Movable Equipment***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
MISCELLANEOUS FIRE FIGHTING EQUIPMENT (Continued)								
10'0" trolley with (8) 2" diameter x 24" long pipe rails for hose drying fixed at bottom of hose tower roof	1	LOT	6500.00	6,500	2000.00	2,000	8500.00	8,500
Flammable liquids cabinet	1	EA						FFE
Tool chest	1	EA						FFE
28"x102" steel work bench	1	EA						FFE
30"x120" steel work bench	1	EA						FFE
(72) bottles oxygen storage rack	1	EA						FFE
Remote oxygen bottle fill bench	1	EA						FFE
24"x60" hose washer bench	1	EA						FFE
Remove and reinstall existing fire fighting gear washer	1	EA	500.00	500	1250.00	1,250	1750.00	1,750
MISCELLANEOUS								
Simulation and miscellaneous areas equipment	1	LOT						FFE
Police department equipment	1	LOT						FFE
SUBTOTAL:				*$ 529,805*		*$ 124,065*		*$ 653,870*

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10 - EQUIPMENT ***101 - Fixed and Movable Equipment***	*QUANTITY*	*UNIT*	*MATERIAL* *RATE* *$*	 *TOTAL* *$*	*LABOR* *RATE* *$*	 *TOTAL* *$*	*TOTAL* *UNIT RATE* *$*	*TOTAL* *MATERIAL/LABOR* *$*
Labor Premium Time	13.00%					16,128		16,128

TOTAL ESTIMATED COST:	***$ 529,805***	***$ 140,193***	***$ 669,998***

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10 - EQUIPMENT ***102 - Furnishings***	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE *$*	*TOTAL* *$*	*RATE* *$*	*TOTAL* *$*	*UNIT RATE* *$*	*MATERIAL/LABOR* *$*
Exterior window blinds (64)	873	SF	8.70	7,595	1.20	1,048	9.90	8,643
Interior window blinds	550	SF	8.70	4,785	1.20	660	9.90	5,445
Window black out shades at dorms (10)	200	SF	9.40	1,880	1.50	300	10.90	2,180
Entry mats (3)	225	SF	11.00	2,475	1.10	248	12.10	2,723
Loose furniture and furnishings including dorm furniture	1	LOT						With FFE Budget
SUBTOTAL:				*$ 16,735*		*$ 2,256*		*$ 18,991*
Labor Premium Time	13.00%					293		293
TOTAL ESTIMATED COST:				***$ 16,735***		***$ 2,549***		***$ 19,284***

11 - SPECIAL CONSTRUCTION	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
ARMORY								
3'0"x7'0" security door assembly	1	EA	5750.00	5,750	1250.00	1,250	7000.00	7,000
Pistols and gun racks and shelving	1	LOT	3500.00	3,500	1500.00	1,500	5000.00	5,000
HOLDING CELLS								
3'0"x7'0" holding cell doors with electric lock	4	EA	4200.00	16,800	1300.00	5,200	5500.00	22,000
Combination water closet and sink, including rough-ins	4	EA	3350.00	13,400	1850.00	7,400	5200.00	20,800
SUBTOTAL:				*$ 39,450*		*$ 15,350*		*$ 54,800*
Labor Premium Time	13.00%					1,996		1,996
SUBTOTAL:				*$ 39,450*		*$ 17,346*		*$ 56,796*
Subcontractor's Overhead and Profit on Material and Labor	20.00%			7,890		3,469		11,359
TOTAL ESTIMATED COST:				***$ 47,340***		***$ 20,815***		***$ 68,155***

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12 - GENERAL REQUIREMENTS	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
MOBILIZATION/DEMOBILIZATION								
Mobilize and set-up temporary facilities	1	LOT	3000.00	3,000	9000.00	9,000	12000.00	12,000
Remove temporaries and demobilize	1	LOT	1000.00	1,000	4000.00	4,000	5000.00	5,000
Incidental freight (rest with unit rates)	130	TONS	350.00	45,500	50.00	6,500	400.00	52,000
Miscellaneous air freight	5	TONS	2500.00	12,500	500.00	2,500	3000.00	15,000
SITE MANAGEMENT								
Project manager (part-time)	16	MOS	200.00	3,200	8000.00	128,000	8200.00	131,200
Superintendent	18	MOS	150.00	2,700	13500.00	243,000	13650.00	245,700
Assistant superintendent	10	MOS	100.00	1,000	10500.00	105,000	10600.00	106,000
Quality control (part-time)	15	MOS	125.00	1,875	7500.00	112,500	7625.00	114,375
Field engineering	320	HRS			95.00	30,400	95.00	30,400
Storage connex, site offices, equipment and furnishings	16	MOS	1200.00	19,200	1800.00	28,800	3000.00	48,000
Expediting (part-time)	15	MOS	150.00	2,250	3750.00	56,250	3900.00	58,500
Scheduling and estimating (part-time)	14	MOS	150.00	2,100	4200.00	58,800	4350.00	60,900
Clerical and time keeping	16	MOS	150.00	2,400	3500.00	56,000	3650.00	58,400

HMS Project No.: 14104

12 - GENERAL REQUIREMENTS	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
TEMPORARY FACILITIES								
Maintenance and cleaning of temporary facilities	15	MOS	150.00	2,250	750.00	11,250	900.00	13,500
Consumable supplies	16	MOS	750.00	12,000			750.00	12,000
Temporary utilities and communications	15	MOS	2200.00	33,000	150.00	2,250	2350.00	35,250
Temporary heat	7	MOS	1,400.00	9,800	250.00	1,750	1650.00	11,550
Temporary lighting	15	MOS	1000.00	15,000	350.00	5,250	1350.00	20,250
Fuel for equipment	15	MOS	3500.00	52,500			3500.00	52,500
Temporary water	14	MOS	500.00	7,000			500.00	7,000
Porta-cans and maintenance (4)	16	MOS	700.00	11,200	50.00	800	750.00	12,000
Dumpsters (2)	16	MOS	850.00	13,600			850.00	13,600
Construction debris disposal and fee	16	MOS	300.00	4,800	500.00	8,000	800.00	12,800
EQUIPMENT AND TOOLS								
Construction equipment, trucks, hoists, etc.	16	MOS	6500.00	104,000	500.00	8,000	7000.00	112,000
Compressors, saws, air tools, hand tools, safety hats and other expendables	16	MOS	2700.00	43,200	300.00	4,800	3000.00	48,000

HMS Project No.: 14104

12 - GENERAL REQUIREMENTS	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
MISCELLANEOUS								
Miscellaneous materials testing	1	LOT	10000.00	10,000			10000.00	10,000
Temporary protection	16	MOS	350.00	5,600	650.00	10,400	1000.00	16,000
Printing, photographs, videos and manuals	1	LOT	800.00	800	5000.00	5,000	5800.00	5,800
Shop and as-built drawings, submittal and schedules	1	LOT	2000.00	2,000	12500.00	12,500	14500.00	14,500
Regular clean-up	16	MOS	200.00	3,200	1700.00	27,200	1900.00	30,400
Final clean-up, trade damage and punch list	67,896	SF	0.25	16,974	0.30	20,369	0.55	37,343
LABOR COST								
Premium time (prime)	0	HRS						With Direct Work
Per diem, specialty contractors	450	MD	150.00	67,500			150.00	67,500
Air fares and travel costs, specialty contractors	24	RT	750.00	18,000			750.00	18,000
SUBTOTAL:				*$ 529,149*		*$ 958,319*		*$ 1,487,468*
Home Office	3.00%							609,168
Contractor's profit and overhead based on type of structure and project size including risk factor	8.50%							1,777,756

HMS Project No.: 14104

12 - GENERAL REQUIREMENTS	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
Bonds	0.85%							192,887
Insurances	1.15%							263,182

TOTAL ESTIMATED COST: ***$ 4,330,461***

HMS Project No.: 14104

13 - CONTINGENCIES	*QUANTITY*	*UNIT*	*MATERIAL*		*LABOR*		*TOTAL*	*TOTAL*
			RATE	*TOTAL*	*RATE*	*TOTAL*	*UNIT RATE*	*MATERIAL/LABOR*
			$	*$*	*$*	*$*	*$*	*$*
131 - ESTIMATOR'S CONTINGENCY								
The estimator's allowance for architectural and engineering requirements that are not apparent at an early level of design documentation, including market conditions unknowns	12.00%							$ 2,777,832
132 - ESCALATION CONTINGENCY								
The allowance for escalation from the date of estimate to the proposed bid date of spring 2016 at the rate of 3.50% per annum (21 months)	6.11%							$ 1,584,105

TOTAL ESTIMATED COST:	***$ 4,361,937***

Operational Space Needs Assessment (Program)

SUMMARY

UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY

OPERATIONAL SPACE NEEDS ASSESSMENT

7.3.2014

The Department has **three** shifts. Maximum projected in-service operational staffing in the next 30 years would not increase shift quantity.

STAFFING OVERVIEW

Component	Division	Staff Move-in	Staff Planned	Parking
F100-F400	Fire Station			12
P100-P1200	Police Station			8
T200	CTC			TBD
S100-S500	Shared			0
B1300	Systems			0
C1400	Site			TBD
Public				14
	TOTAL			TBD
Notes:	Seasonal Equipment Storage			
	Police -Impound lot for 6 vehicles			
	Police - 4 parking spaces inside (garage space required?)			
Total				34

COMPANY STAFFING

Apparatus	Staffing	Existing Quant.	Future Quant.
Truck 11	4 to 6	1	1
Ladder 11	4	1	1
Engine 12	4	1	1
Engine 16	2	0	1
Ambulance	2 to 3	0	1
Tender	2	1	1
Pick-Up	1	3	3
C-10 Chief	1	1	1
C-11 Batt . 1	1	1	1
C-12 Command	1	1	1
POLICE			
Total	12	10	12

BAY CONFIGURATION

Bay-1	Bay-2	Bay-3	Bay-4	Bay-5	Bay-6
Truck 11	Ladder 11	C-11	C-10	Tender	Ambulance
Pick-Up	C-12	Engine 12	Engine 16	Pick-Ups	

COMPONENT SUMMARY

		ASF MOVE IN	ASF PLANNED
F100-F400	FIRE DEPARTMENT	17,642	17,642
P100-P1200	POLICE DEPARTMENT	9,746	9,746
T200	CTC	18,351	18,351
S100-S500	SHARED	4,988	4,988
B1300	SYSTEMS - SEE GROSSING FACTOR	0	0
C1400	SITE REQUIREMENTS	0	0
Total Assignable SF (ASF)		50,726	50,726
Building Grossing Factor (15.5%)		7,862	7,862
GRAND TOTAL FACILITY GSF		58,588	58,588

CIRCULATION GROSSING F

		ADJUSTMENTS	NOTES
Private Offices	25%	25%	
Work Stations	35%	35%	
Support Area	25%	25%	
Dispatch	35%	35%	
Interview/Process (P800&P1000)	35%	35%	
Apparatus Bays	15%	15%	
CTC Simulation Building	5%	5%	

BUILDING GROSSING FACTOR

		ADJUSTMENTS	NOTES
Lobby and Reception	3%	0%	In NSF
Major Inter-facility Circ.	5%	5%	No major Inter-facility Circulation
Vertical Circulation	3%	3%	Assumes multi-story
Mechanical, Electrical	6.5%	5.0%	Reduced for Simulation Building and Apparatus Areas
Structure	2.5%	2.5%	
Contingency	5.0%	0.0%	
Total	**25.0%**	**15.5%**	

FIRE DEPARTMENT
UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY
OPERATIONAL SPACE NEEDS ASSESSMENT

7.3.2014

T C A
architecture • planning

OPERATIONS BASED COMPONENTS				AREA REQUIRED					
F100	ADMINISTRATION	OPERATIONAL CRITERIA		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned
	Public Area								
F-101	Lobby/Waiting Area	REMARKS:							
		ADJACENCIES:	SEE SHARED SPACE S-110 & S-111	0		1	1	0	0
		FURNITURE/EQUIPMENT:							
F-102	Public Toilet Room- Men's	REMARKS:							
		ADJACENCIES:	SEE SHARED SPACE S-112	0		1	1	0	0
		FURNITURE/EQUIPMENT:							
F-103	Public Toilet Room- Women's	REMARKS:							
		ADJACENCIES:	SEE SHARED SPACE S-113	0		1	1	0	0
		FURNITURE/EQUIPMENT:							
			Subtotal (+25% circulation)					0	0
	Private Offices								
F-110	Fire Chief	REMARKS:	Support day-to-day department activities						
		ADJACENCIES:	Administrative offices	200		1	1	200	200
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, small conference table						
F-111	Duty Chief (Battalion)	REMARKS:	Support day-to-day department activities. Bridge function between admin/crew.						
		ADJACENCIES:	Administrative offices, crew spaces	173		1	1	173	173
		FURNITURE/EQUIPMENT:	3 lateral files, wardrobe unit, 2 guest chairs						
F-112	Duty Captain	REMARKS:	Support day-to-day department activities. Bridge function between admin/crew.						
		ADJACENCIES:	Battalion Chief	150	150	1	1	150	150
		FURNITURE/EQUIPMENT:	3 lateral files, wardrobe unit, 2 guest chairs						
F-113	Reception/ Admin	REMARKS:	2 workstations, 1 existing, 1 future, support day-to-day- department activities						
		ADJACENCIES:	Lobby **SHARED WITH POLICE SEE P-302**	120	120	1	1	120	120
		FURNITURE/EQUIPMENT:	Workstation desks, mail slots, lateral files, copy machine						
F-114	University Fire Marshal/Plan Review/Records Storage	REMARKS:	Support day-to-day department activities, conduct plan reviews						
		ADJACENCIES:	Administrative offices	150	150	1	1	150	150
		FURNITURE/EQUIPMENT:	Plan layout counter, lateral files, wardrobe, book storage, 2 guest chairs						
			Subtotal (+25% circulation)					991	991

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OPERATIONS BASED COMPONENTS				AREA REQUIRED					
F100	ADMINISTRATION	OPERATIONAL CRITERIA		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned
	Support Area								
F-131	Copy/Print/Mail/Active Files	REMARKS:	Work area for filing, mail distribution, copying, printing, small projects	224		1	1	224	224
		ADJACENCIES:	Lobby, administrative offices						
		FURNITURE/EQUIPMENT:	Workstation desks, mail slots, lateral files, copy machine						
F-132	Secure Records Storage	REMARKS:	Support sensitive administrative storage, temporary file review	96		1	1	96	96
		ADJACENCIES:	Room 131						
		FURNITURE/EQUIPMENT:	Lateral files, metal shelving						
F-133	Conference Room	REMARKS:	Shared administrative space	294		1	1	294	294
		ADJACENCIES:	Administrative offices, CTC **SHARED WITH POLICE SEE P-211**						
		FURNITURE/EQUIPMENT:	Conference table, smartboard						
F-134	Vending	REMARKS:	Administration and Crew	0		1	1	0	0
		ADJACENCIES:	Administrative offices **SEE S-513**						
		FURNITURE/EQUIPMENT:	2 Full-size machines						
F-135	Staff Toilet Room- Men's	REMARKS:	Sized to support admin. staff, ADA accessible	60	60	1	1	60	60
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	Double TP dispenser, wall-hung W.C., urinal, seat cover dispenser						
F-136	Staff Toilet Room-Women's	REMARKS:	Sized to support admin. staff, ADA accessible	60	60	1	1	60	60
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	Double TP dispenser, wall-hung W.C., seat cover dispenser						
F-137	Custodial	REMARKS:	For facility maintenance for fire station	49	49	1	1	49	49
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	Mop sink, hand sink, cleaning supplies and equipment						
			Subtotal (+25% circulation)					**979**	**979**

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F300	DUTY CREW	OPERATIONAL CRITERIA & ATTRIBUTES		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned
	Private Offices								
F-301	N/A	REMARKS:		0		0	0	0	0
		ADJACENCIES:							
		FURNITURE/EQUIPMENT:							
			Subtotal (+25% circulation)					0	0
	Work Stations								
F-310	N/A	REMARKS:		0		0	0	0	0
		ADJACENCIES:							
		FURNITURE/EQUIPMENT:							
			Subtotal (+35% circulation)					0	0
	Support Area								
F-321	Library/Resource Room	REMARKS:	Department resources, FF study/work space	168		1	1	168	168
		ADJACENCIES:	FF crew spaces **SHARED WITH TRAINING T-230**						
		FURNITURE/EQUIPMENT:	Full-height shelving and cabinets, work counter/work stations, lateral files						
F-322	Laundry	REMARKS:	In-house cleaning of linens	100		1	1	100	100
		ADJACENCIES:	FF crew spaces						
		FURNITURE/EQUIPMENT:	Stacked commercial W/D's, Laundry sink, folding counter, hanging rod						
F-323	Women's Restrooms/Shower	REMARKS:	Single occupant shower/W.C. room, ADA accessible	80	80	2	2	160	160
		ADJACENCIES:	FF crew spaces						
		FURNITURE/EQUIPMENT:	Shower, double TP dispenser, wall-hung W.C., seat cover dispenser, locker cubbies						
F-324	Men's Restroom/Shower	REMARKS:	Single occupant shower/W.C. room, ADA accessible	80	80	2	2	160	160
		ADJACENCIES:	FF crew spaces						
		FURNITURE/EQUIPMENT:	Shower, double TP dispenser, wall-hung W.C., seat cover dispenser, locker cubbies						
F-325	Physical Training/Workout Room	REMARKS:	Sized to support 6 FF at once, high ceiling, natural light, ventilation, sound isolation	0		1	1	0	0
		ADJACENCIES:	FF crew spaces **SEE SHARED SPACE S-324**						
		FURNITURE/EQUIPMENT:	Treadmills, stairmasters, universal, TVs, dedicated circuits, drinking fountain						
F-326	BC Sleeping	REMARKS:	Individual sleeping room for 1 BC	110	110	1	1	110	110
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	3 wardrobe units, bedding storage, side table, 84"L. bed, phone/data						
F-327	Captain Sleeping	REMARKS:	Individual sleeping room for 1 Captain	110	110	1	1	110	110
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	3 wardrobe units, bedding storage, side table, 84"L. bed, phone/data						
F-328	Firefighter Sleeping	REMARKS:	Individual sleeping room for 1 FF	144	144	8	8	1152	1152
		ADJACENCIES:	FF crew spaces						
		FURNITURE/EQUIPMENT:	6 locker/wardrobe units in adjacent hallway alcove, 84"L. bed, chair & desk						
F-329	Locker Alcove (SEE F-328)	REMARKS:	Alcove between hallway and FF sleeping room	0		0	0	0	0
		ADJACENCIES:	FF sleeping rooms						
		FURNITURE/EQUIPMENT:	6 full-height locker/wardrobe units						
			Subtotal (+25% circulation)					2450	2450

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F400	APPARATUS	OPERATIONAL CRITERIA & ATTRIBUTES		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned
	Private Offices								
F-401	Not Used	REMARKS:		0		0	0	0	0
		ADJACENCIES:							
		FURNITURE/EQUIPMENT:							
			Subtotal (+25% circulation)					0	0
	Work Stations								
F-410	Not Used	REMARKS:		0		0	0	0	0
		ADJACENCIES:							
		FURNITURE/EQUIPMENT:							
			Subtotal (+35% circulation)					0	0
	Apparatus Bays								
F-420	Apparatus Bays	REMARKS:	5 double-deep drive-thru bays, ambulance bay, ability to wash vehicles inside bays	8901		1	1	8901	8901
		ADJACENCIES:	FF crew spaces, apparatus support spaces						
		FURNITURE/EQUIPMENT:	Trench drains, exhaust system, hand sink, air drops, shore power.						
			Subtotal (+15% circulation)					10236	10236
	Support Area								
F-430	Cleaning/Decon- EMS & Fire	REMARKS:	Cleaning & disinfecting equipment & PPE per NFPA	215		1	1	215	215
		ADJACENCIES:	Near corner of apparatus bays						
		FURNITURE/EQUIPMENT:	Extractor, stacked W/D, S.S. sink unit w/sprayer, wash down area, hose bibb outside						
F-431	Workbench/Service	REMARKS:	Tool storage, equipment checks, servicing and repair	120		1	1	120	120
		ADJACENCIES:	Apparatus bays						
		FURNITURE/EQUIPMENT:	Workbench, metal shelving, flammable liquids cabinet, tool chest						
F-432	Fire PPE Long-Term Storage	REMARKS:	Personal protection equipment storage	115		1	1	115	115
		ADJACENCIES:	Apparatus bays						
		FURNITURE/EQUIPMENT:	Metal storage shelving, full-height cabinets, hanging rod						
F-433	Fire PPE Day-to-Day Storage	REMARKS:	Personal protection equipment storage, wildland gear storage	504	504	1	1	504	504
		ADJACENCIES:	Along apparatus bay walls						
		FURNITURE/EQUIPMENT:	Gear Grid or equal dryer, hanger, glove, top shelf & additional shelf above						
F-434	Battery Charge Alcove/Radio Storage	REMARKS:	Radio and tool re-charging	30	30	1	1	30	30
		ADJACENCIES:	Hallway to apparatus bays						
		FURNITURE/EQUIPMENT:	Lockable cabinet for radio storage						
			Subtotal (+15% circulation)					1132	1132

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F400	APPARATUS AREA		OPERATIONAL CRITERIA & ATTRIBUTES	Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned
	Support Area								
F-435	Compressor Room	REMARKS:	Tire-filling and shop use, breathing air in separate rooms	162		1	1	162	162
		ADJACENCIES:	Apparatus bays						
		FURNITURE/EQUIPMENT:	Compressor for air-drops and shop, SCBA compressor for breathing air						
F-436	SCBA Compressor/Fill	REMARKS:	Remote SCBA fill station and bottle storage	150		1	1	150	150
		ADJACENCIES:	Apparatus bays						
		FURNITURE/EQUIPMENT:	Metal shelving, workbench w/test station, bottle storage racks						
F-437	Apparatus Wash Alcove	REMARKS:	Grated floor area with wall faucet and floor drain	40		1	1	40	40
		ADJACENCIES:	Apparatus bays						
		FURNITURE/EQUIPMENT:	Apparatus washing equipment, cleaning solutions, mops, brooms, etc.						
F-438	EMS Storage	REMARKS:	Medical supply storage	100		1	1	100	100
		ADJACENCIES:	Apparatus bays						
		FURNITURE/EQUIPMENT:	Metal storage shelving						
F-439	Fire Equipment Storage	REMARKS:	Apparatus and equipment storage, may be partitioned	500		1	1	500	500
		ADJACENCIES:	Apparatus bays						
		FURNITURE/EQUIPMENT:	Metal storage shelving						
F-440	Custodial Supply Storage	REMARKS:	Bulk supply storage	100		1	1	100	100
		ADJACENCIES:	Apparatus bays **Shared with Police and CTC**						
		FURNITURE/EQUIPMENT:	Metal storage shelving						
F-441	Personal Disaster Relief Supplies	REMARKS:	Food, water, blankets (emergency supplies)	100	0	1	1	100	100
		ADJACENCIES:	Direct access to exterior						
		FURNITURE/EQUIPMENT:	Pallet storage						
F-442	Hose Washing / Storage	REMARKS:	Alcove for hose washing equipment	100		1	1	100	100
		ADJACENCIES:	Apparatus bays						
		FURNITURE/EQUIPMENT:	Hosewasher w/water connection, 20' of hose racks 4 tiers high, floor drain						
F-443	Hose Drying Tower	REMARKS:	Hanging and drying hose	300		1	1	300	300
		ADJACENCIES:	Apparatus bays **SHARED WITH CTC**						
		FURNITURE/EQUIPMENT:	Hose hangers, trolley beam, trolley and tackle, ladder, ladder cage w/platforms						
F-444	Bay Toilet Room	REMARKS:	Unisex toilet room for use within apparatus bays	60	60	1	1	60	60
		ADJACENCIES:	Apparatus bays						
		FURNITURE/EQUIPMENT:	Wall-hung W.C., lav, urinal, double TP dispenser, seat cover dispenser, PTD						
			Subtotal (+15% circulation)					**1854**	**1854**
			Component Total Assignable SF (ASF)					**17642**	**17642**

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P100	PUBLIC AREA	OPERATIONAL CRITERIA		Unit SF	Space STD ID	Move-in QTY.	Planned QTY.	NSF Move-in	NSF Planned
	Office / Workstation								
P-101	N/A	REMARKS:						0	0
		ADJACENCIES:							
		FURNITURE/EQUIPMENT:							
			SUBTOTAL (+25% circulation)					0	0
	Support								
P-116	Citizens Report Room	REMARKS:	Separate access from lobby and officer area	100		1	1	100	100
		ADJACENCIES:	Public lobby, police work area						
		FURNITURE/EQUIPMENT:	Table, 2 chairs						
			SUBTOTAL (+25% circulation)					125	125
P200	POLICE ADMIN	OPERATIONAL CRITERIA		Unit SF	Space STD ID	Move-in QTY.	Planned QTY.	NSF Move-in	NSF Planned
	Office / Workstation								
P-201	Police Chief Office	REMARKS:	Support day-to-day department activities	200		1	1	200	200
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, small conference table						
P-202	Supervision Lieutenant & Officer (ICO) Investigations	REMARKS:	Support day-to-day department activities	120		1	1	120	120
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs						
P-203	Administration- Project Officer (Admin Pro 2)	REMARKS:	Support day-to-day administrative department activities	120		1	1	120	120
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs						
P-204	Flex Office- ATF/DEA/Other	REMARKS:	Support activities between department and ATF/DEA	120		1	1	120	120
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs						
			SUBTOTAL (+25% circulation)					700	700
	Support								
P-210	Admin Waiting Area	REMARKS:	Space for waiting within administrative area	42		1	1	42	42
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	3 chairs						
P-211	Admin Conference Room	REMARKS:	Common use within administrative offices	0		1	1	0	0
		ADJACENCIES:	Administrative offices **SHARED WITH FIRE F-133**						
		FURNITURE/EQUIPMENT:	Conference table w/seating for 12, smartboard						
			SUBTOTAL (+25% circulation)					53	53

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OPERATIONS BASED COMPONENTS				AREA REQUIRED					
P300	POLICE RECORDS AREA	OPERATIONAL CRITERIA		Unit SF	Space STD ID	Move-in QTY.	Planned QTY.	NSF Move-in	NSF Planned
	Office / Workstation								
P-301	Records Area	REMARKS:	Admin Assistant (Admin Pro 1), national crime information (NCIC) workstation	200		1	1	200	200
		ADJACENCIES:	Reception/Work Room/Records Storage						
		FURNITURE/EQUIPMENT:	Lateral files, table & chairs, workstations						
P-302	Reception/Admin	REMARKS:	Receptionist	0					
		ADJACENCIES:	Reception **SHARED WITH FIRE F-113**						
		FURNITURE/EQUIPMENT:	Lateral files, table & chairs, workstations						
			SUBTOTAL (+25% circulation)					**0**	**0**
	Support								
P-310	Records Storage- Hard Copy	REMARKS:	Secure room. lockable file cabinets	195		1	1	195	195
		ADJACENCIES:	Administrative offices						
		FURNITURE/EQUIPMENT:	Lateral files						
P-311	Work Room / Area	REMARKS:	Open to reception area	95		1	1	95	95
		ADJACENCIES:	Reception						
		FURNITURE/EQUIPMENT:	Work counter, cabinets, copier, shredder						
			SUBTOTAL (+25% circulation)					**363**	**363**

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P400	DISPATCH	OPERATIONAL CRITERIA		Unit SF	Space STD ID	Move-in QTY.	Planned QTY.	NSF Move-in	NSF Planned
	Office / Workstation								
P-401	Lead Dispatcher IV	REMARKS:	Raised floor	187		1	1	187	187
		ADJACENCIES:	Dispatch center						
		FURNITURE/EQUIPMENT:	Radio counter/console						
P-402	Dispatcher III	REMARKS:	Raised floor	170		1	1	170	170
		ADJACENCIES:	Dispatch center						
		FURNITURE/EQUIPMENT:	Radio counter/console						
P-403	Dispatcher II	REMARKS:	Raised floor	144		1	1	144	144
		ADJACENCIES:	Dispatch center						
		FURNITURE/EQUIPMENT:	Radio counter/console						
P-404	Dispatcher I	REMARKS:	Raised floor	144		1	1	144	144
		ADJACENCIES:	Dispatch center						
		FURNITURE/EQUIPMENT:	Radio counter/console						
P-405	Radio Room Equipment	REMARKS:		200		1	1	200	200
		ADJACENCIES:	Dispatch center						
		FURNITURE/EQUIPMENT:							
			SUBTOTAL (+25% circulation)					1056	1056

	Support								
P-410	Training/Briefing Room	REMARKS:		0		1		0	0
		ADJACENCIES:	SEE BREAKOUT ROOM P-411						
		FURNITURE/EQUIPMENT:							
P-411	Breakout Room	REMARKS:	Common work/training/meeting room for dispatchers	200		1	1	200	200
		ADJACENCIES:	Dispatch						
		FURNITURE/EQUIPMENT:	Conference table, 6 chairs, monitors and smartboard						
P-412	Well Room/Quiet Room	REMARKS:	For dispatcher de-stress, sound proof	80		1	1	80	80
		ADJACENCIES:	Dispatch/Lockers						
		FURNITURE/EQUIPMENT:	1 bed, 1 chair						
P-413	Unisex Toilet Room	REMARKS:	Single occupant	60		1	1	60	60
		ADJACENCIES:	Dispatch						
		FURNITURE/EQUIPMENT:	Wall-hung W.C., lav, seat cover dispenser, double TP dispenser, PTD, coat hook						
P-414	Unisex Lockers	REMARKS:	6 lockers	45		1	1	45	45
		ADJACENCIES:	Dispatch/Unisex toilet room						
		FURNITURE/EQUIPMENT:	12" x 18" lockers						
			SUBTOTAL (+25% circulation)					481	481

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P500	POLICE STAFF SUPPORT	OPERATIONAL CRITERIA		Unit SF	Space	Move-in	Planned	NSF	NSF
	Support								
P-510	Briefing/Roll Call	REMARKS:	Sized to accommodate officers' shifts	576		1	1	576	576
		ADJACENCIES:	Officer's work area						
		FURNITURE/EQUIPMENT:	Seating (table & chairs), AV capabilities & storage, podium, smartboard						
P-511	Briefing/Roll Call Storage	REMARKS:	Supplies, weapons inspection necessities	96		3	3	288	288
		ADJACENCIES:	Briefing/Roll Call						
		FURNITURE/EQUIPMENT:	Metal shelving						
P-512	Break Room	REMARKS:		0		1	1	0	0
		ADJACENCIES:	**SEE SHARED SPACE S-512**						
		FURNITURE/EQUIPMENT:							
P-513	Male Lockers	REMARKS:	(2) showers, lockers, (2) toilets, urinal	385		1	1	385	385
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	(9) foot lockers, (12) 12" x 18" lockers						
P-514	Female Lockers	REMARKS:	(2) showers, lockers, (2) toilets	328		1	1	328	328
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	(5) foot lockers, (5) 12" x 18" lockers						
P-515	Custodial Closet	REMARKS:	For facility maintenance for police station	49		1	1	49	49
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Mop sink, hand sink, cleaning supplies and equipment						
			SUBTOTAL (+25% circulation)					**2033**	**2033**

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P600	POLICE PATROL AREA	OPERATIONAL CRITERIA		Unit SF	Space	Move-in	Planned	NSF	NSF
	Office / Workstation								
P-601	Senior Police Officer (Police 3)	REMARKS:	Workstation for in-house functions	64		1	1	64	64
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs						
P-602	Police Officer (Police 2)	REMARKS:	Workstation for in-house functions	64		1	1	64	64
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs						
P-603	Basic/ Recruit Officer (Police 1)	REMARKS:	Workstation for in-house functions	64		1	1	64	64
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs						
			SUBTOTAL (+25% circulation)					**240**	**240**
	Support								
P-610	Patrol Report Writing	REMARKS:	Space for on-patrol officers to process reports	143		1	1	143	143
		ADJACENCIES:	Officer's area/Evidence area						
		FURNITURE/EQUIPMENT:	Workstations, shared equipment, shared files, media storage, mail slots						
P-611	Village Public Safety Officer (VPSO) workstations	REMARKS:	Community outreach	144		1	1	144	144
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	(6) workstations						
P-612	Armory	REMARKS:	Bench/weapons cleaning, staff accessible weapons, department restricted weapons	144		1	1	144	144
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Workstation, gun cabinets						
			SUBTOTAL (+25% circulation)					**539**	**539**

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P-700	POLICE	OPERATIONAL CRITERIA		Unit SF	Space	Move-in	Planned	NSF	NSF
	Office / Workstation								
P-701	Officer In-charge of Investigations (Police 4)	REMARKS:	Future??? See police admin 202	64		1	1	64	64
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Workstation						
			SUBTOTAL (+25% circulation)					80	80
	Support								
P-710	Secure File Storage	REMARKS:	Alcove space	120		1	1	120	120
		ADJACENCIES:	Officer's area/Investigations						
		FURNITURE/EQUIPMENT:	Lateral files, work counter						
			SUBTOTAL (+25% circulation)					150	150

P800	POLICE INTERVIEW &	OPERATIONAL CRITERIA		Unit SF	Space	Move-in	Planned	NSF	NSF
	Office / Workstation								
P-801	N/A	REMARKS:							
		ADJACENCIES:							
		FURNITURE/EQUIPMENT:							
			SUBTOTAL (+25% circulation)						
	Support								
P-810	Hard/Soft Interview Room	REMARKS:	Soft -Interviewing witnesses and citizens, Hard - Interviewing suspects	80		2	2	160	160
		ADJACENCIES:	Soft- Lobby/Officer work area, Hard - Holding/processing area						
		FURNITURE/EQUIPMENT:	Table and chairs, phone /data, monitoring (camera/microphone)						
P-811	Juvenile Status Offender Waiting Room	REMARKS:	Monitored full-time, view window from hallway, juveniles awaiting parent pick-up	80		1	1	80	80
		ADJACENCIES:	Juvenile holding/processing area						
		FURNITURE/EQUIPMENT:	Table and chairs, phone /data, monitoring (camera/microphone)						
P-812	Uni-sex Toilet/Shower Room	REMARKS:	ADA accessible	65		1	1	65	65
		ADJACENCIES:	Holding/processing area						
		FURNITURE/EQUIPMENT:	Wall-hung W.C., ADA shower, lav, PTD, double TP dispenser, seat cover dispenser						
			SUBTOTAL (+25% circulation)					381	381

POLICE DEPARTMENT
UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY
OPERATIONAL SPACE NEEDS ASSESSMENT

7.3.2014

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P900	EVIDENCE. PROCESSING	OPERATIONAL CRITERIA		Unit SF	Space	Move-in	Planned	NSF	NSF
	Office / Workstation								
P-901	Evidence Tech	REMARKS:	Evidence received from packaging and processed for storage	90		1	1	90	90
		ADJACENCIES:	Evidence Packaging/Evidence Storage						
		FURNITURE/EQUIPMENT:	Workstations, pass through lockers						
			SUBTOTAL (+25% circulation)					113	113
	Support								
P-910	Evidence Packaging	REMARKS:	Initial evidence processing from Temporary Evidence Storage	144		1	1	144	144
		ADJACENCIES:	Holding/processing area/Evidence Tech & Storage						
		FURNITURE/EQUIPMENT:	Work table , workstation						
P-911	Temporary Evidence Storage	REMARKS:	Initial evidence intake	90		1	1	90	90
		ADJACENCIES:	Evidence Packaging						
		FURNITURE/EQUIPMENT:	Metal shelving						
P-912	Evidence Storage	REMARKS:	Secured storage space for evidence after processing	300		1	1	300	300
		ADJACENCIES:	Holding/processing area						
		FURNITURE/EQUIPMENT:	Freezer/refrigerator, moveable high density evidence storage, flammable liquids cabinet, drug						
			SUBTOTAL (+25% circulation)					668	668

POLICE DEPARTMENT
UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY
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P1000	ADULT & JUVENILE	OPERATIONAL CRITERIA		Unit SF	Space	Move-in	Planned	NSF	NSF
	Offices								
P-1001	Juvenile Processing Room	REMARKS:	Initial processing upon arrival	145		1	1	145	145
		ADJACENCIES:	Holding/Vehicle Sallyport						
		FURNITURE/EQUIPMENT:	Staff work station, seating, temporary property storage, finger print						
P-1002	Adult Processing Room	REMARKS:	Initial processing upon arrival	145		1	1	145	145
		ADJACENCIES:	Holding/Vehicle Sallyport						
		FURNITURE/EQUIPMENT:	Staff work station, seating, temporary property storage, finger print						
			SUBTOTAL (+35% circulation)					**392**	**392**
	Support								
P-1010	Adult Holding	REMARKS:	Grouted solid masonry	65		2	2	130	130
		ADJACENCIES:	Holding/processing area						
		FURNITURE/EQUIPMENT:	Bench, combination toilet/sink						
P-1011	Juvenile Holding	REMARKS:	Grouted solid masonry	65		1	1	65	65
		ADJACENCIES:	Holding/processing area						
		FURNITURE/EQUIPMENT:	Bench, combination toilet/sink						
P-1012	Breathalyzer Room	REMARKS:	Breathalyzer testing, separate access from juvenile and adult processing areas	56		1	1	56	56
		ADJACENCIES:	Holding/processing area						
		FURNITURE/EQUIPMENT:	Counter, chair, breathalyzer equipment						
P-1013	Custodial Closet	REMARKS:	For facility maintenance for police station	49		1	1	49	49
		ADJACENCIES:	Holding/processing area						
		FURNITURE/EQUIPMENT:	Mop sink, hand sink, cleaning supplies and equipment						
P-1014	Property Storage	REMARKS:	Lockable door	56		1	1	56	56
		ADJACENCIES:	Holding/processing area						
		FURNITURE/EQUIPMENT:	Lockable cabinets						
			SUBTOTAL (+35% circulation)					**481**	**481**

P1100	VEHICLE SALLY PORT	OPERATIONAL CRITERIA		Unit SF	Space	Move-in	Planned	NSF	NSF
	Administration								
P-1101	N/A	REMARKS:						0	0
		ADJACENCIES:							
		FURNITURE/EQUIPMENT:							
			SUBTOTAL (+25% circulation)					**0**	**0**
	Support								
P-1120	Vehicle Sally Port	REMARKS:	Processing, evidence impound	1025		1	1	1025	1025
		ADJACENCIES:	Holding/processing area - Separate access to juvenile and adult processing						
		FURNITURE/EQUIPMENT:	Decontamination station, floor drains, secured overhead doors						
			SUBTOTAL (+25% circulation)					**1281**	**1281**

POLICE DEPARTMENT
UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY
OPERATIONAL SPACE NEEDS ASSESSMENT

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P1200	POLICE STORAGE	OPERATIONAL CRITERIA		Unit SF	Space	Move-in	Planned	NSF	NSF
	Office / Workstation								
P-1201	N/A	REMARKS:				1	1	0	0
		ADJACENCIES:							
		FURNITURE/EQUIPMENT:							
			SUBTOTAL (+25% circulation)					0	0
	Support								
P-1210	Crime Prevention Program Storage	REMARKS:	Materials storage	100		1	1	100	100
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Metal shelving						
P-1211	Vehicle Equipment Storage	REMARKS:	Materials storage	150		1	1	150	150
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Metal shelving						
P-1212	Uniform & Equipment Storage	REMARKS:	Materials storage	96		1	1	96	96
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Cabinet with shelving, hanging rod and shelf						
P-1213	Bulk Supply Storage	REMARKS:	Materials storage	144		1	1	144	144
		ADJACENCIES:	Officer's area						
		FURNITURE/EQUIPMENT:	Metal shelving						
			SUBTOTAL (+25% circulation)					613	613
			COMPONENT TOTAL ASSIGNABLE SF (ASF)					9746	9746

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UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY
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TCA architecture • planning

OPERATIONS BASED COMPONENTS				AREA REQUIRED						FLR
T200	CTC	OPERATIONAL CRITERIA		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned	
Public										
T-201	Lobby	REMARKS:		0		0	0	0	0	2
		ADJACENCIES:	SEE SHARED SPACE S-111							
		FURNITURE/EQUIPMENT:								
T-202	Vestibule	REMARKS:		0		0	0	0	0	2
		ADJACENCIES:	SEE SHARED SPACE S-110							
		FURNITURE/EQUIPMENT:								
			Subtotal (+25% circulation)					0	0	
Classrooms										
T-210	Fire Service Classroom	REMARKS:	Training and instruction for fire service, fire sciences (CLEAN CLASSROOM)	1,292		3	3	3876	3876	3
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Table and chairs, cabinets, smartboard							
T-211	Law Enforcement Classroom	REMARKS:	Training and instruction related to law enforcement (CLEAN CLASSROOM)	0		1	1	0	0	3
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Table and chairs, cabinets, smartboard							
T-212	EMS Classroom/Paramedic Academy	REMARKS:	Dividable classroom/lab space for paramedic training (CLEAN CLASSROOM)	1962		1	1	1962	1962	3
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Table and chairs, cabinets, smartboard, ambulance/aid car prop, Sim-Man							
T-213	EMS Classroom/EMT	REMARKS:	Dividable classroom/lab space for EMS training (CLEAN CLASSROOM)	1,634		1	1	1634	1634	3
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Table and chairs, cabinets, smartboard							
T-214	Shooting Decisions Simulator	REMARKS:	Ability to set up/partition room for shooting decision training	180		1	1	180	180	1
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Movable, storable partitions							
T-215	Simulation Lab Room	REMARKS:	Space for Sim-Man simulation and testing/storage	0		1	1	0	0	3
		ADJACENCIES:	SEE CTC ROOM T-212							
		FURNITURE/EQUIPMENT:	Sim-Man							
								7652	7652	

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OPERATIONAL SPACE NEEDS ASSESSMENT

7.3.2014

TCA architecture • planning

OPERATIONS BASED COMPONENTS				AREA REQUIRED						
T200	CTC	OPERATIONAL CRITERIA		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned	
	Offices									
T-220	Reception	REMARKS:		0		1	1	0	0	3
		ADJACENCIES:	SHARED WITH F-113 & P-301							
		FURNITURE/EQUIPMENT:								
T-221	Administrative Assistant	REMARKS:	Workstation to support CTC offices	64		1	1	64	64	3
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs							
T-222	Fire Science Professor	REMARKS:	Offices to support fire science training activities	120		1	1	120	120	3
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs							
T-223	Law Enforcement Professor	REMARKS:	One office to support law enforcement training activities	120		1	1	120	120	3
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs							
T-224	EMS Professor	REMARKS:	Offices to support EMS training activities	120		2	2	240	240	3
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit, 2 guest chairs							
T-225	Adjunct Faculty	REMARKS:	One office for occasional support of CTC training activities	120		1	1	120	120	3
		ADJACENCIES:	Classrooms, offices							
		FURNITURE/EQUIPMENT:	Lateral files, wardrobe unit							
			Subtotal (+25% circulation)					**830**	**830**	

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OPERATIONS BASED COMPONENTS				AREA REQUIRED						
T200	CTC	OPERATIONAL CRITERIA		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned	
Support										
T-232	Student Lounge	REMARKS:		0		1	1	0	0	2
		ADJACENCIES:	SEE SHARED SPACES S-322 & S-323							
		FURNITURE/EQUIPMENT:								
T-233	Conference Room	REMARKS:		0		1	1	0	0	2
		ADJACENCIES:	SEE FIRE DEPARTMENT SPACE F-133 & P-211							
		FURNITURE/EQUIPMENT:								
T-234	CTC EMS Storage	REMARKS:	Training materials, equipment and props storage	200		1	1	200	200	1
		ADJACENCIES:	Training Apparatus Bay							
		FURNITURE/EQUIPMENT:	Metal shelving							
T-235	CTC Law Enforcement Storage	REMARKS:	Training materials, equipment and props storage	300		1	1	300	300	1
		ADJACENCIES:	Training Apparatus Bay							
		FURNITURE/EQUIPMENT:	Metal shelving							
T-236	CTC Fire Storage	REMARKS:		0		0	0	0	0	
		ADJACENCIES:	SEE T-253 FIRE SCIENCE STORAGE							
		FURNITURE/EQUIPMENT:								
T-237	Unisex Restroom/Shower	REMARKS:	For training participants, ADA accessible	80		3	3	240	240	2
		ADJACENCIES:	Training area, classrooms							
		FURNITURE/EQUIPMENT:	Wall-hung W.C., w/double TP dispenser, PTD, seat cover dispenser, shower							
			Subtotal (+25% circulation)					**925**	**925**	

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UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY
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TCA architecture • planning

OPERATIONS BASED COMPONENTS				AREA REQUIRED						
T200	CTC	OPERATIONAL CRITERIA		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned	
	Simulation Building									
T-250	Two-Story Concrete Building Prop	REMARKS:	Inside main structure, visual /sound segregated rooms, space modification capabilities	3978		1	1	3978	3978	1 & 2
		ADJACENCIES:	Training apparatus bay, dirty classrooms							
		FURNITURE/EQUIPMENT:	Movable partitions, vent/breach props							
T-251	CTC Apparatus Bay	REMARKS:	Open space for fire, EMS, police training activities	2028		1	1	2028	2028	1
		ADJACENCIES:	Two-story building prop							
		FURNITURE/EQUIPMENT:	Exhaust system, trench drain, OH doors							
T-252	Munitions Storage	REMARKS:	Built to OSHA standards	100		1	1	100	100	1
		ADJACENCIES:	Training apparatus bay **ADDITIVE TO ARMORY P-612**							
		FURNITURE/EQUIPMENT:	Per OSHA standards							
T-253	Fire Science Storage	REMARKS:	Materials storage	1000		1	1	1000	1000	1
		ADJACENCIES:	Training apparatus bay							
		FURNITURE/EQUIPMENT:	Metal shelving							
T-254	Dirty Classroom- FIRE	REMARKS:	For training instructions involving use of gear, equipment, simulation building	1292		1	1	1292	1292	1
		ADJACENCIES:	Training apparatus bay							
		FURNITURE/EQUIPMENT:	Table and chairs, ceiling mounting capabilities							
T-255	EMS Testing	REMARKS:	Workspace for testing/servicing EMS equipment	120		1	1	120	120	1
		ADJACENCIES:	Training apparatus bay							
		FURNITURE/EQUIPMENT:	Workbench, metal shelving							
T-256	Dirty Classroom - Law Enforcement Tactics	REMARKS:		0		1	1	0	0	1
		ADJACENCIES:	**SEE SHOOTING DECISIONS T-214 and T-254 DIRTY CLASSROOM FIRE**							
		FURNITURE/EQUIPMENT:								
T-257	Fireground Simulation	REMARKS:	Visual/sound segregated rooms, space modification capabilities, balcony	0		1	1	0	0	1
		ADJACENCIES:	Training apparatus bay **SEE TWO-STORY BUILDING PROP T-250**							
		FURNITURE/EQUIPMENT:	Movable partitions, vent/breach props							
			Subtotal (+5% circulation)					**8944**	**8944**	

	Component Total Assignable SF (ASF)	**18351**	**18351**

SHARED SPACE
UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY
OPERATIONAL SPACE NEEDS ASSESSMENT

7.3.2014

TCA architecture • planning

OPERATIONS BASED COMPONENTS				AREA REQUIRED						FLR
S100	SHARED	OPERATIONAL CRITERIA		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned	
	Public									
S-110	Weather Vestibule	REMARKS:	Primary entry point, heat loss prevention	88		1	1	88	88	2
		ADJACENCIES:	Public Lobby, exterior							
		FURNITURE/EQUIPMENT:	Emergency phone							
S-111	Public Lobby	REMARKS:	Visitor support, public information, display space, blood pressure checks	552		1	1	552	552	2
		ADJACENCIES:	Vestibule, public toilet rooms							
		FURNITURE/EQUIPMENT:	Chairs, end table, blood pressure monitors, information boards							
S-112	Public Toilet Room- Men's	REMARKS:	Support public and community room	254		1	1	254	254	2
		ADJACENCIES:	Public Lobby							
		FURNITURE/EQUIPMENT:	Wall-hung W.C.s, double TP dispensers, seat cover dispensers, urinals							
S-113	Public Toilet Room- Women's	REMARKS:	Support public and community room	240		1	1	240	240	2
		ADJACENCIES:	Public Lobby							
		FURNITURE/EQUIPMENT:	Wall-hung W.C.s, double TP dispensers, seat cover dispensers							
S-114	Multipurpose Room/EOC	REMARKS:	Convertible EOC- locate conf breakout	560		1	1	560	560	2
		ADJACENCIES:	Public Lobby **(IS THIS SPACE NEEDED?)**							
		FURNITURE/EQUIPMENT:	Chairs, smartboard							
S-115	Community Meeting/Classroom Storage	REMARKS:	Convertible EOC- locate conf breakout	150		1	1	150	150	2
		ADJACENCIES:	Community/Meeting Room **(IS THIS SPACE NEEDED?)**							
		FURNITURE/EQUIPMENT:	Open for furniture storage							
S-116	Custodial Closet	REMARKS:	For facility maintenance of public areas	49		1	1	49	49	2
		ADJACENCIES:	Public toilet rooms							
		FURNITURE/EQUIPMENT:	Mop sink, hand sink, cleaning supplies and equipment							
			Subtotal (+25% circulation)					**2366**	**2366**	

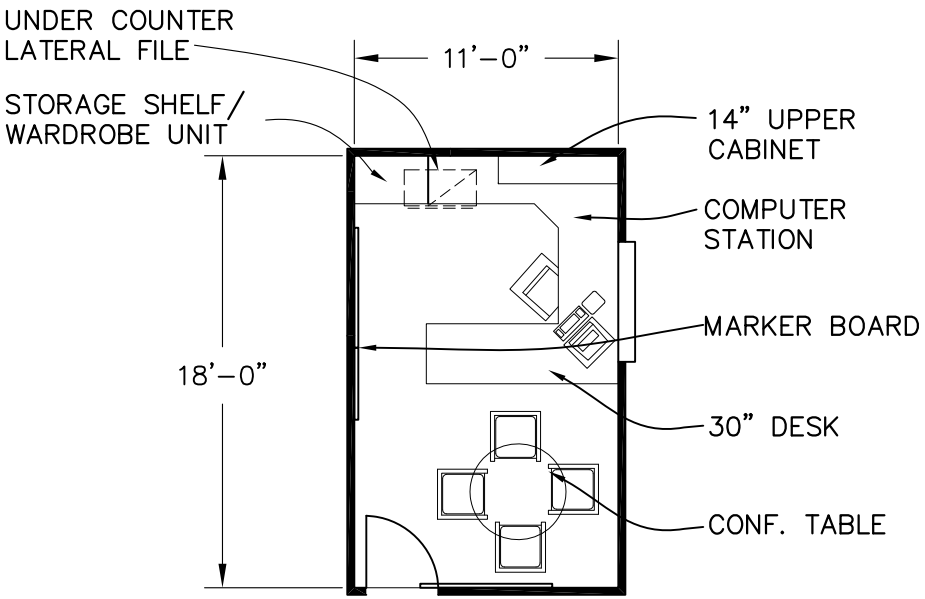
OPERATIONS BASED COMPONENTS				AREA REQUIRED						
S300	SHARED	OPERATIONAL CRITERIA		Unit sf	Space Std.	Move-in Quant.	Planned Quant.	NSF Move-in	NSF Planned	
	Fire and Police									
S-322	Kitchen/Dining	REMARKS:	Cooking, prep and seated dining space for fire, police	675		1	1	675	675	2
		ADJACENCIES:	Central to fire and police stations							
		FURNITURE/EQUIPMENT:	Refrigerators, dishwashers, microwaves, cooktops & ovens, food lockers							
S-323	Dayroom	REMARKS:	Accommodate 10 recliners	672		1	1	672	672	2
		ADJACENCIES:	Kitchen/Dining							
		FURNITURE/EQUIPMENT:	Recliners, phone date, flat screen TV							
S-324	Physical Training	REMARKS:	Sized to support 8 people at once, high ceiling, natural light, ventilation, sound isolation	450		1	1	450	450	1
		ADJACENCIES:	Central to Fire & Police							
		FURNITURE/EQUIPMENT:	Treadmills, stairmasters, universal, TVs, dedicated circuits, drinking fountain							
			Subtotal (+25% circulation)					**2246**	**2246**	

SHARED SPACE
UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY
OPERATIONAL SPACE NEEDS ASSESSMENT

7.3.2014

TCA architecture • planning

OPERATIONS BASED COMPONENTS				AREA REQUIRED						
S500	SHARED	OPERATIONAL CRITERIA		Unit sf	Space Std.	Move-in	Planned	NSF Move-	NSF	
	Administration									
S-512	Break Room	FUNCTION:	Kitchen space for fire, police, CTC admin	300		1	1	300	300	2
		ADJACENCIES:	Central to fire and police station offices							
		FURNITURE/EQUIPMENT:	Tables and chairs, refrigerator, sink, microwave, vending machines							
S-513	Vending	REMARKS:	Administration, Fire & Police	32		1	1	32	32	2
		ADJACENCIES:	Administrative offices							
		FURNITURE/EQUIPMENT:	2 Full-size machines							
			Subtotal (+25% circulation)					375	375	
			Component Total Assignable SF (ASF)					4988	4988	



OPERATIONAL ADJACENCIES:
1. ADMIN OFFICES

0' 5' 10'

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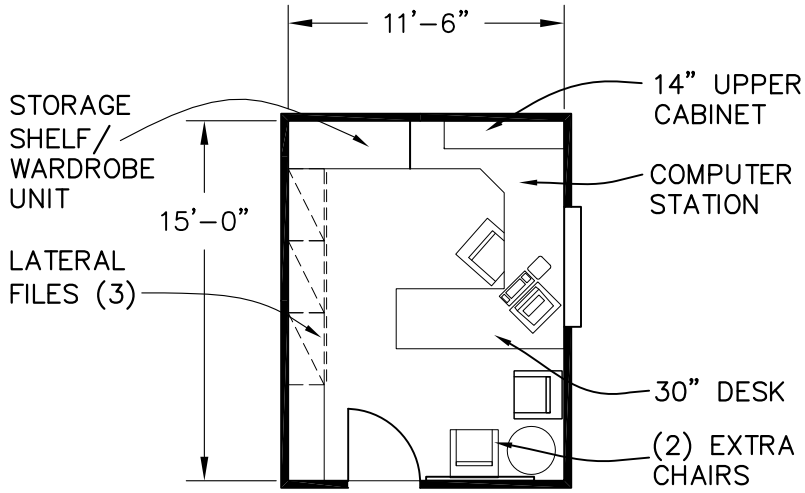
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

CHIEF'S OFFICE

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 200 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: F-110



OPERATIONAL ADJACENCIES:
1. BTWN. CREW & ADMIN.

0' 5' 10'

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ph: 206–522–3830 fx: 206–522–2456

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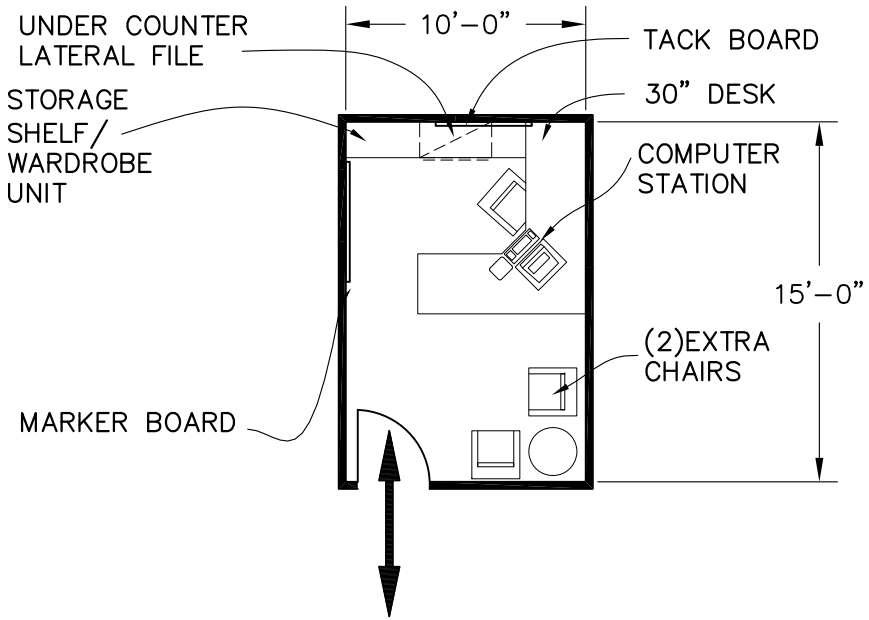
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

DUTY CHIEF (BATTALION)

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 173 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER:

F–111



OPERATIONAL ADJACENCIES:
1. BATT. CHIEF
2. CREW AREA

0' 5' 10'

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ph: 206–522–3830 fx: 206–522–2456

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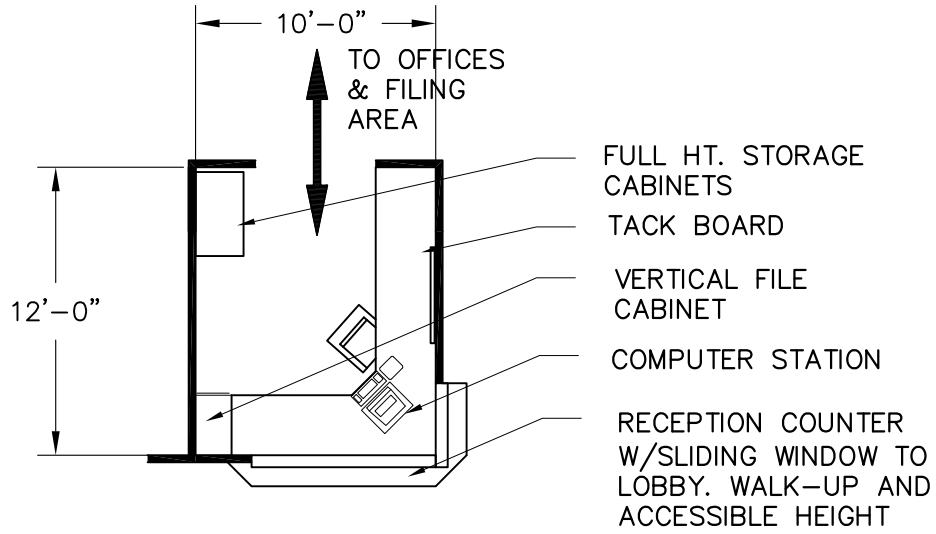
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

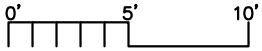
DUTY CAPTAIN

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 150 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: F–112



OPERATIONAL ADJACENCIES:
1. LOBBY
2. COPY/WORK



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ph: 206–522–3830 fx: 206–522–2456

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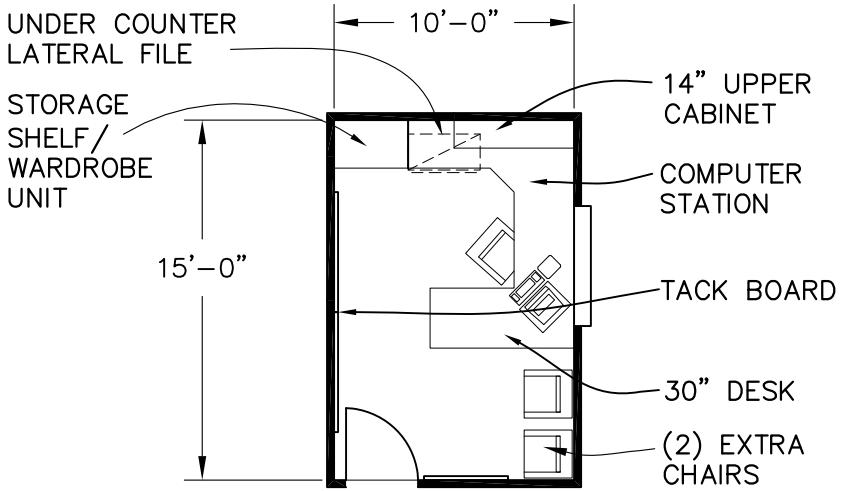
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

RECEPTION/ADMIN.

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: F–113



OPERATIONAL ADJACENCIES:
1. ADMIN OFFICES

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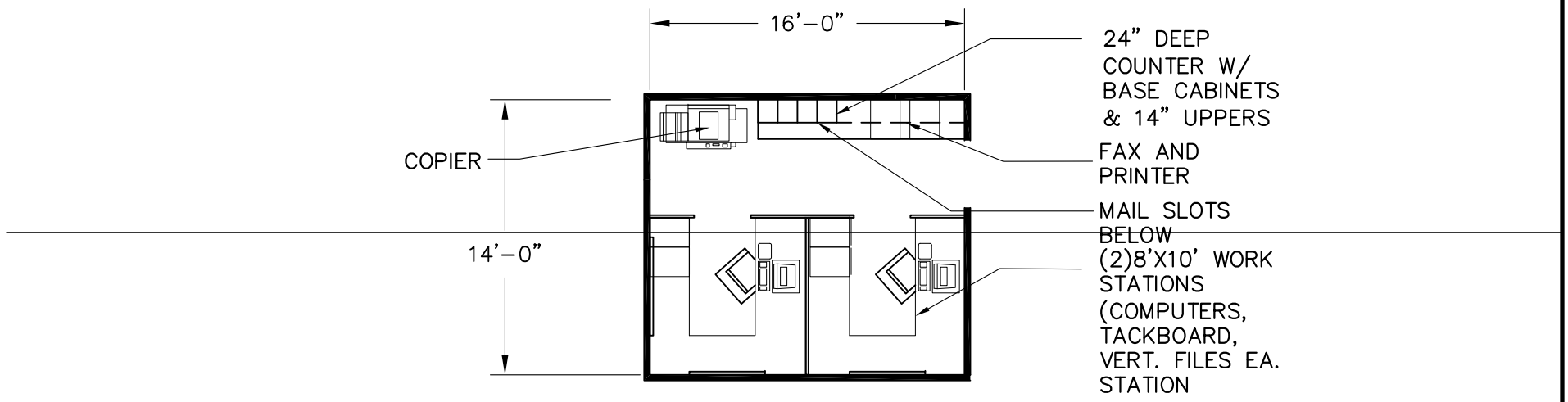
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

UNIVERSITY FIRE MARSHAL/ PLAN REVIEW/RECORDS

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 150 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: F–114



OPERATIONAL ADJACENCIES:
1. PUBLIC ENTRANCE LOBBY
2. ADMIN OFFICES

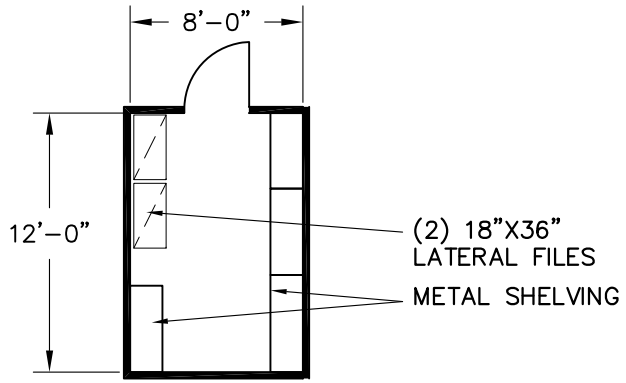
0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

WORKSTATIONS/ COPY/MAIL/FILES

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 224 S.F.
PROJECT NUMBER: 08–13
SPACE NUMBER: F–131



OPERATIONAL ADJACENCIES:

1. COPY/MAIL/FILES

0' 5' 10'

T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

SECURE RECORDS STORAGE

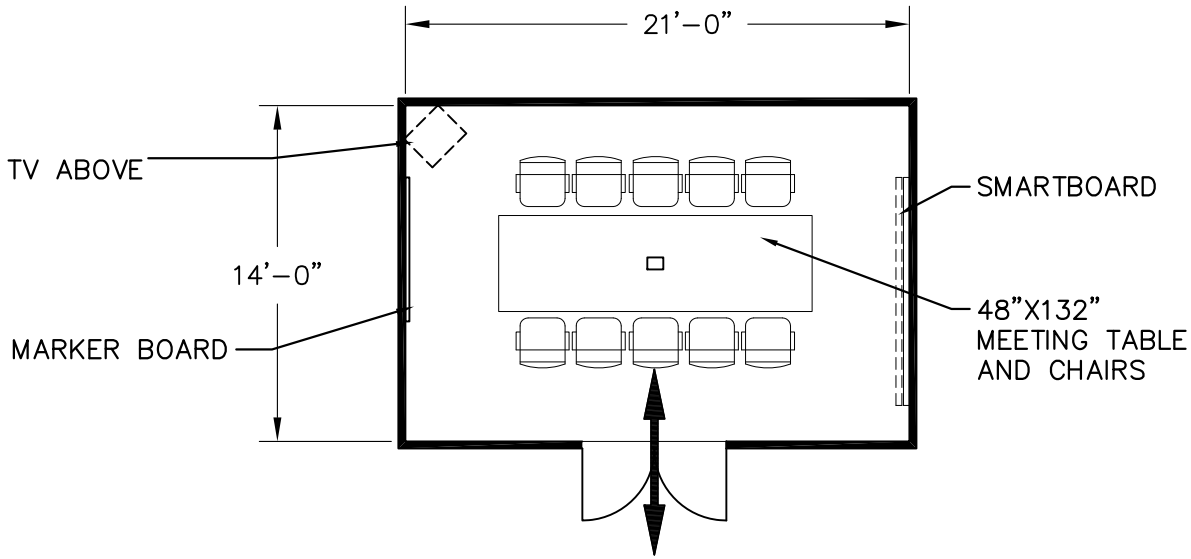
DATE: 7.02.2014

SCALE: 1/8" = 1'-0"

SQUARE FEET: 96 S.F.

PROJECT NUMBER: 08-13

SPACE NUMBER: F-132



OPERATIONAL ADJACENCIES:

1. FIRE, POLICE, CTC OFFICES

0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

CONFERENCE ROOM

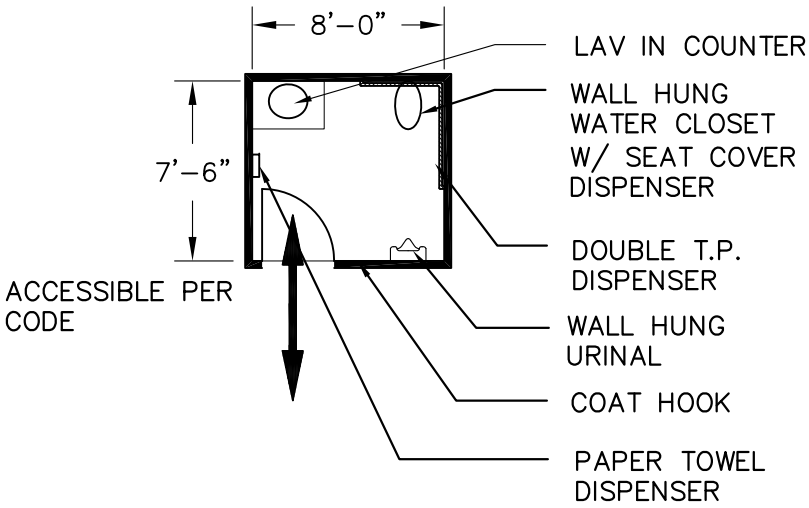
DATE: 7.02.2014

SCALE: 1/8" = 1'–0"

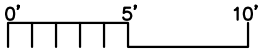
SQUARE FEET: 294 S.F.

PROJECT NUMBER: 08–13

SPACE NUMBER: F–133



OPERATIONAL ADJACENCIES:
1. ADMIN. OFFICES

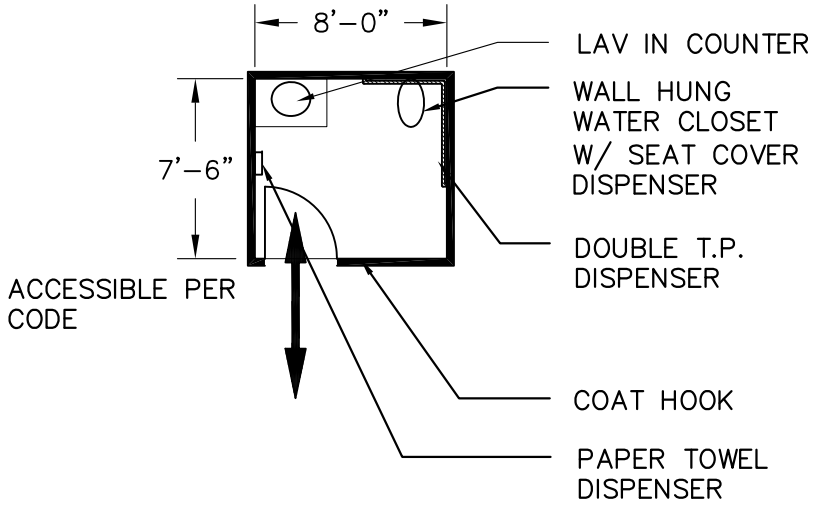


T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

MEN'S STAFF TOILET

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 60 S.F.
PROJECT NUMBER: 08-13
SPACE NUMBER: F-135



OPERATIONAL ADJACENCIES:
1. ADMIN. OFFICES

0' 5' 10'

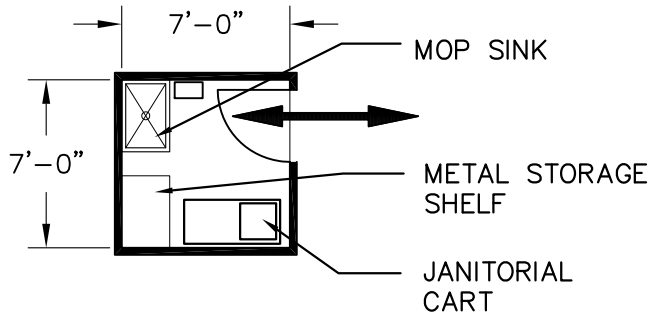
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

WOMEN'S STAFF TOILET

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 60 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: F-136



OPERATIONAL ADJACENCIES:
1. TOILET ROOMS

0' 5' 10'

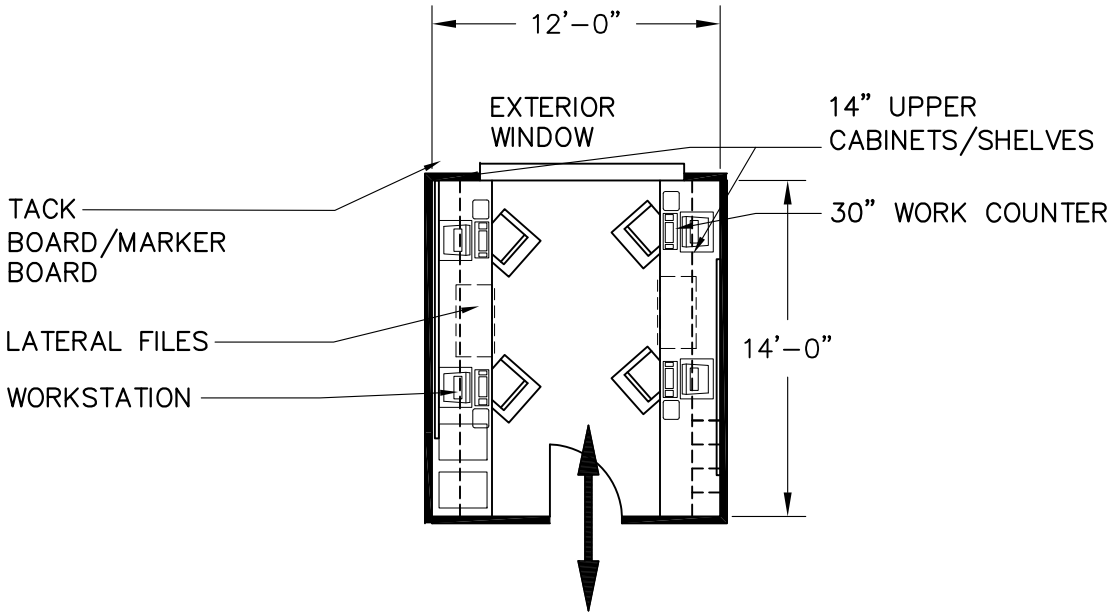
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

CUSTODIAL

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 49 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: F-137



OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS
2. CREW

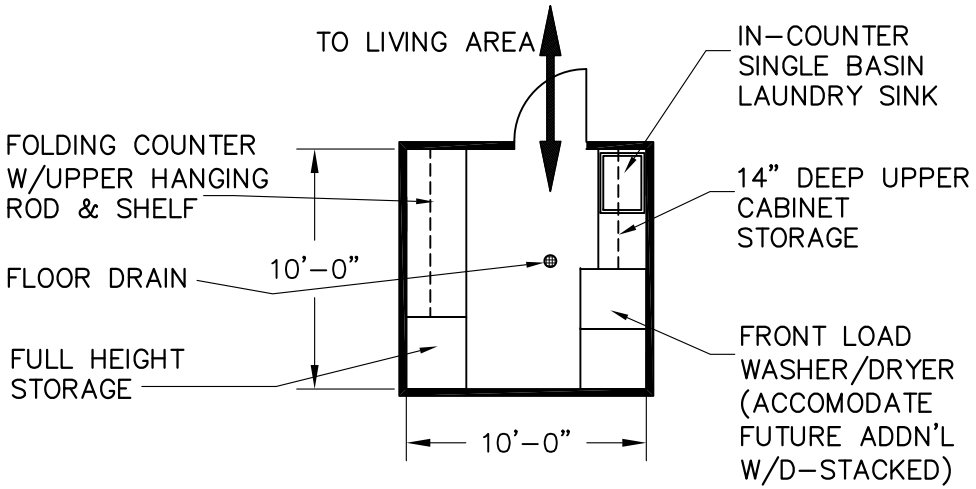
5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

LIBRARY/RESOURCE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 168 S.F.
PROJECT NUMBER: 08–13
SPACE NUMBER: F–321



OPERATIONAL ADJACENCIES:

1. CREW AREA

0' 5' 10'

T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

LAUNDRY

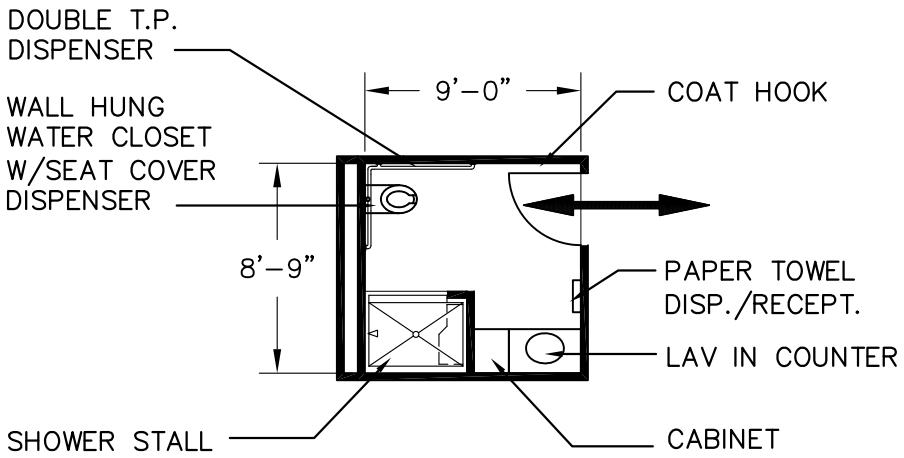
DATE: 7.02.2014

SCALE: 1/8" = 1'-0"

SQUARE FEET: 100 S.F.

PROJECT NUMBER: 08-13

SPACE NUMBER: F-322



OPERATIONAL ADJACENCIES:
1. CREW AREA

0' 5' 10'

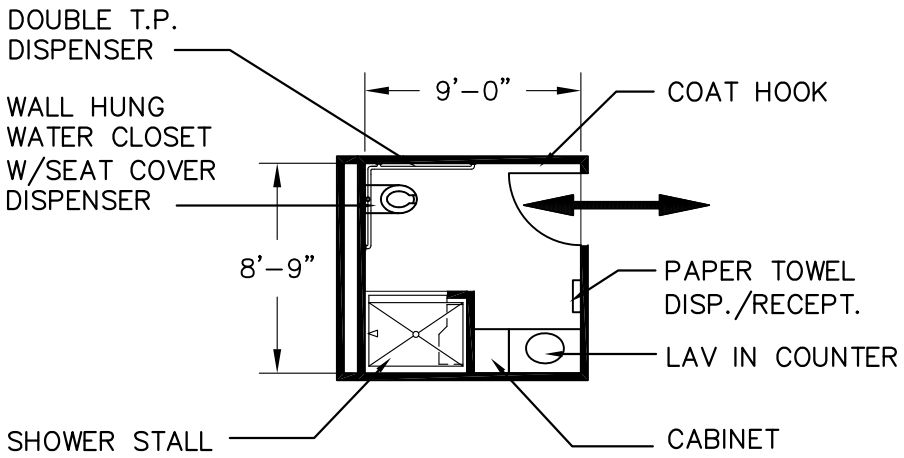
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

WOMEN'S RESTROOM/SHOWER

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 2@80 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: F-323



OPERATIONAL ADJACENCIES:
1. CREW

0' 5' 10'

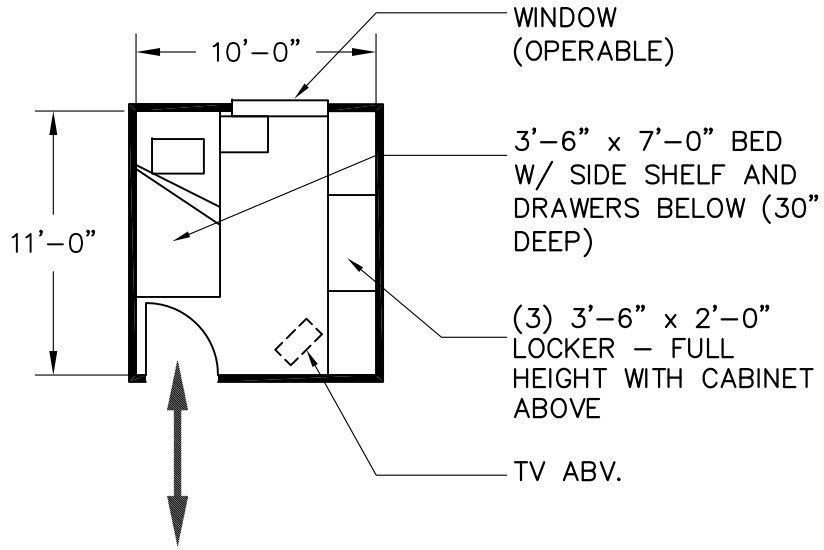
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

MEN'S RESTROOM/SHOWER

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 2@80 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: F-324



OPERATIONAL ADJACENCIES:

1. CREW AREA

0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

BC SLEEPING

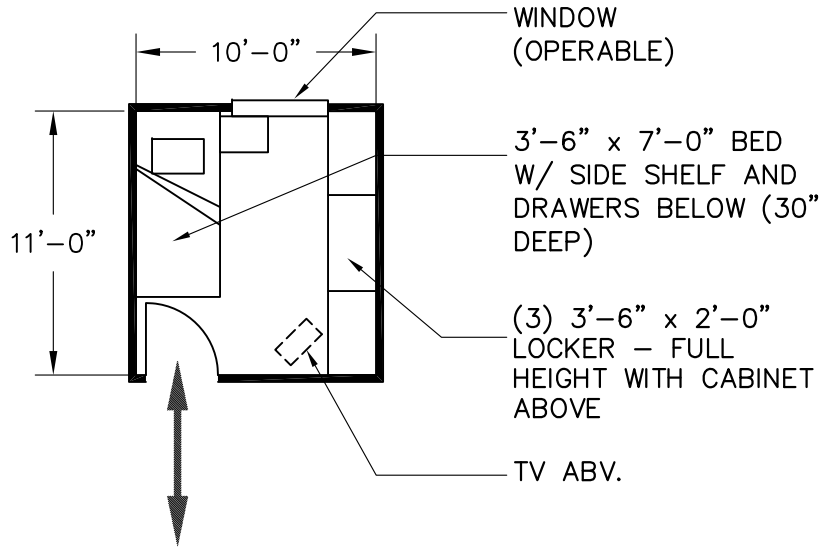
DATE: 7.02.2014

SCALE: 1/8" = 1'–0"

SQUARE FEET: 110 S.F.

PROJECT NUMBER: 08–13

SPACE NUMBER: F–326



OPERATIONAL ADJACENCIES:
1. CREW AREA

0' 5' 10'

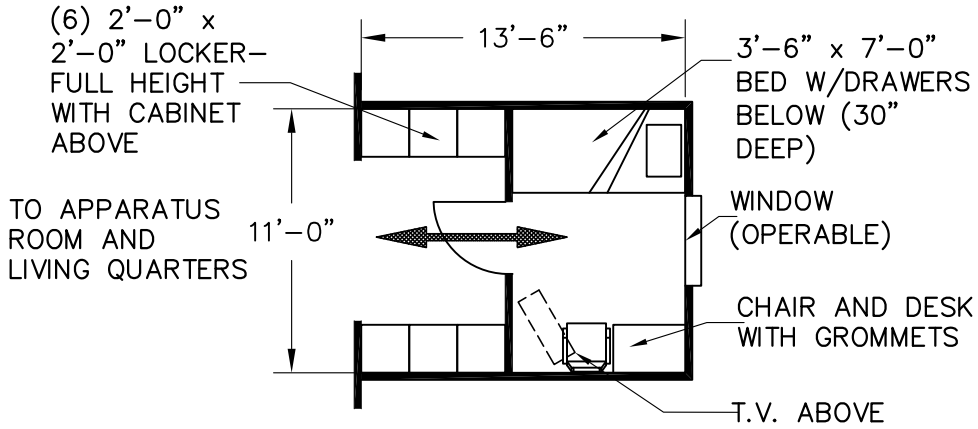
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

CAPTAIN SLEEPING

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: F–327



OPERATIONAL ADJACENCIES:

1. CREW AREA

0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

FIREFIGHTER SLEEPING

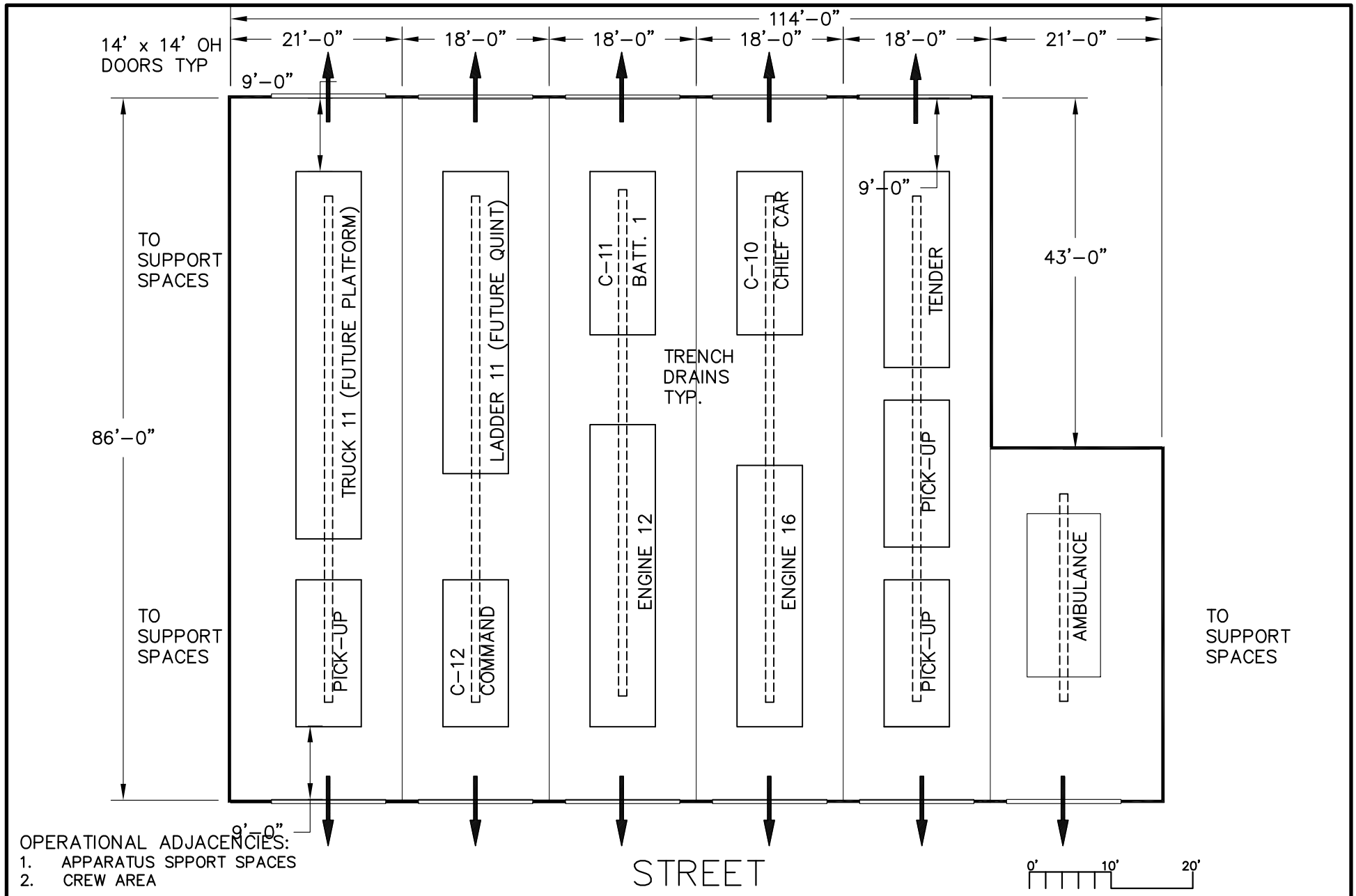
DATE: 7.02.2014

SCALE: 1/8" = 1'–0"

SQUARE FEET: 144 S.F.

PROJECT NUMBER: 08–13

SPACE NUMBER: F–328



OPERATIONAL ADJACENCIES:
1. APPARATUS SPPORT SPACES
2. CREW AREA

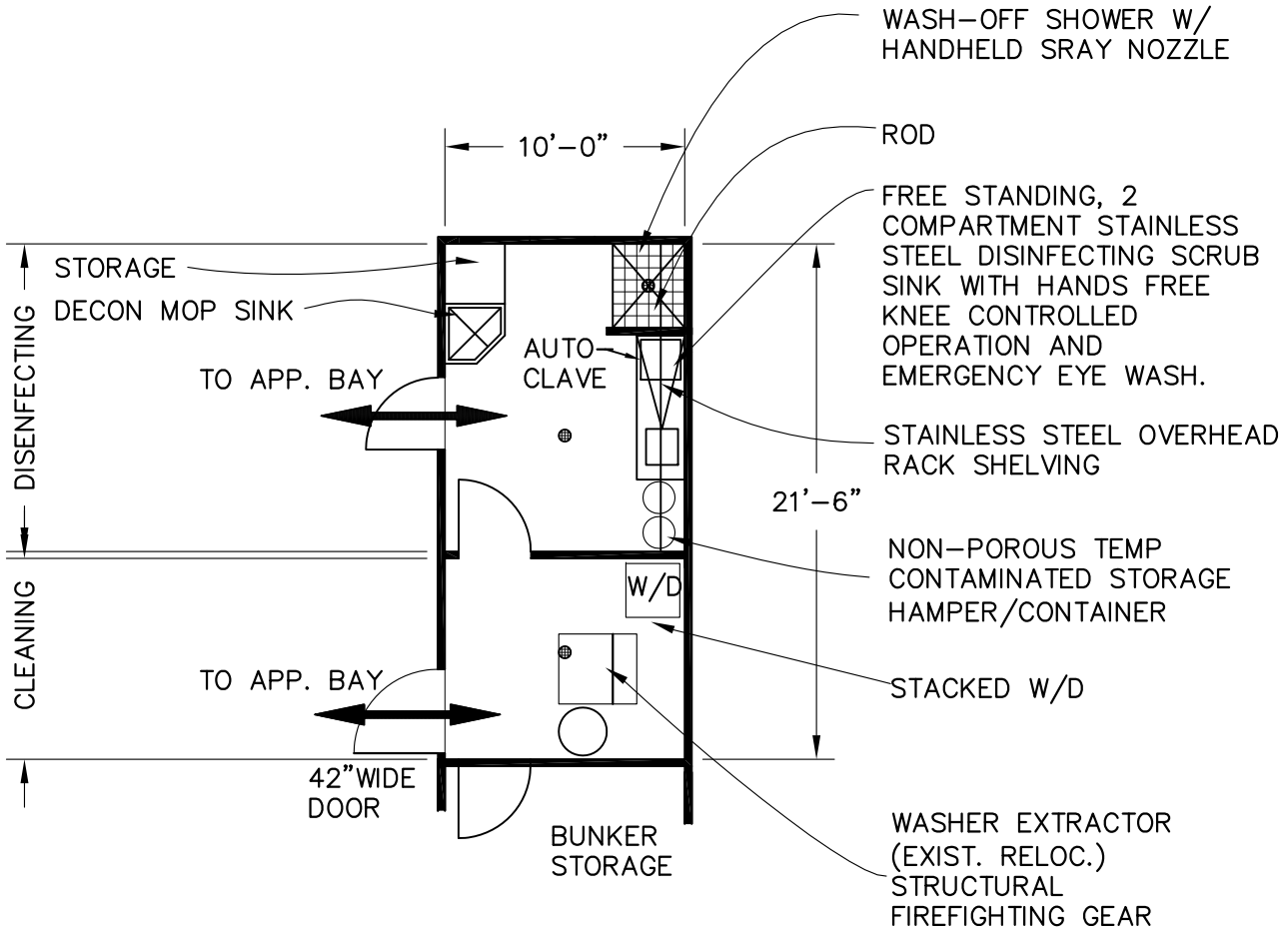
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY

FAIRBANKS , ALASKA

APPARATUS BAYS

DATE: 7.02.2014
SCALE: 1/16" = 1'–0"
SQUARE FEET: 8,798 S.F.
PROJECT NUMBER: 08–13
SPACE NUMBER: F–420



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

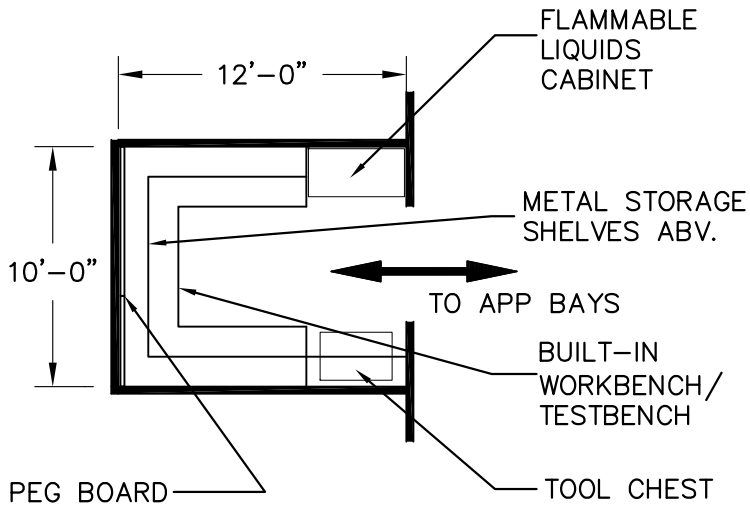
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

CLEANING/DECON

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 215 S.F.
PROJECT NUMBER: 08–13
SPACE NUMBER:

F–430



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

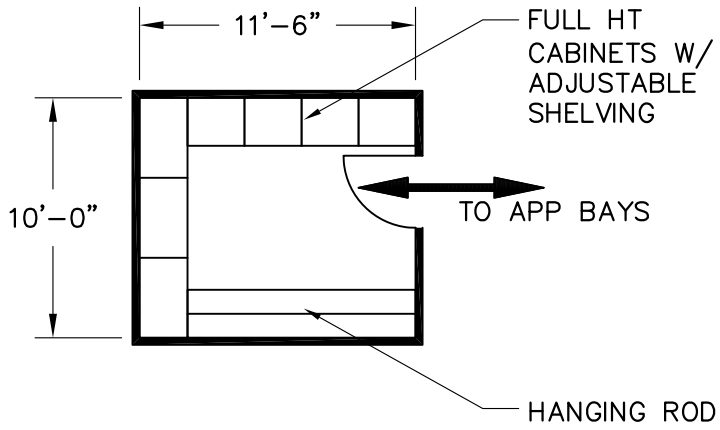
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

WORKBENCH/SERVICE

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: F-431



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

0' 5' 10'

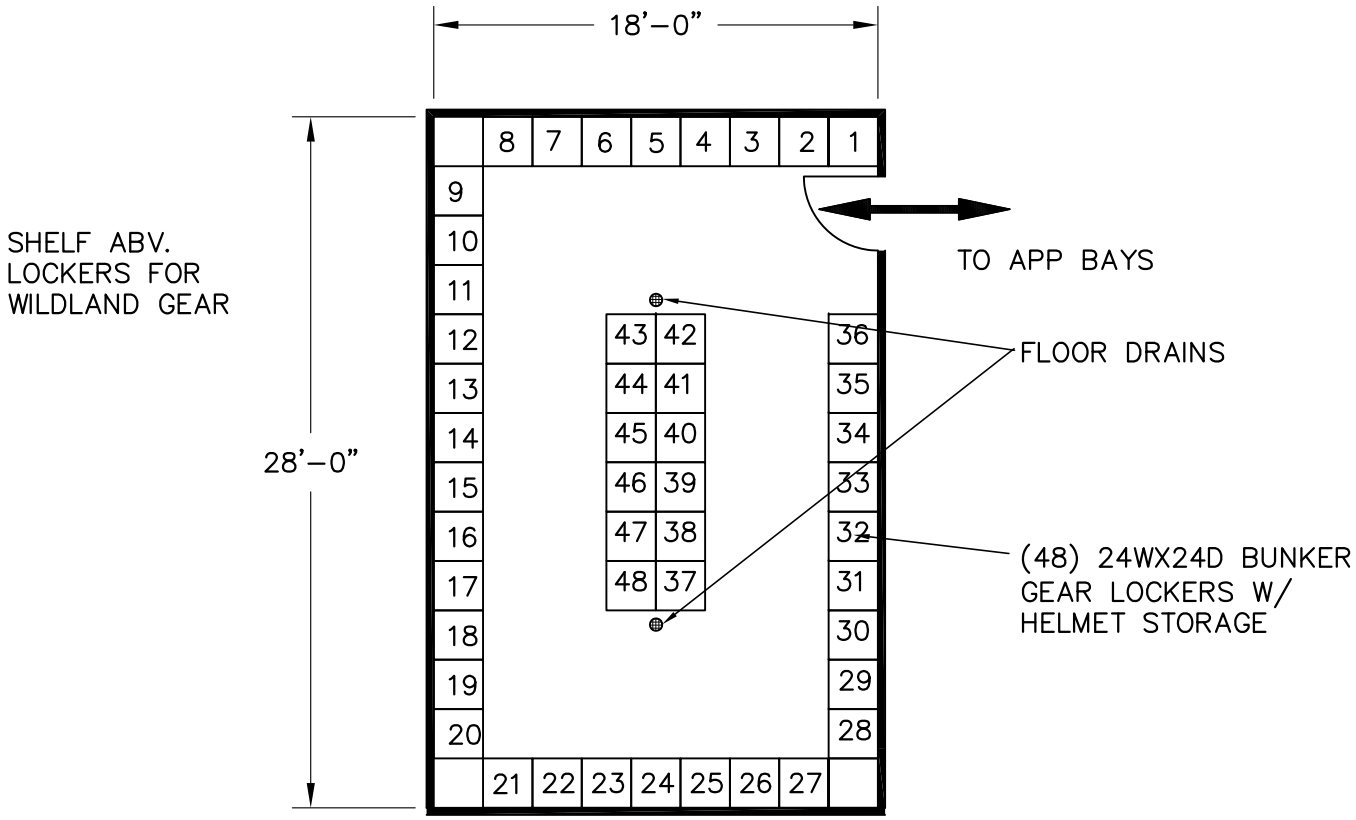
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

FIRE PPE LONG–TERM STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 115 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: F–432



(48) 24"X 24" (4 S.F. EA) BUNKER GEAR LOCKERS

OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

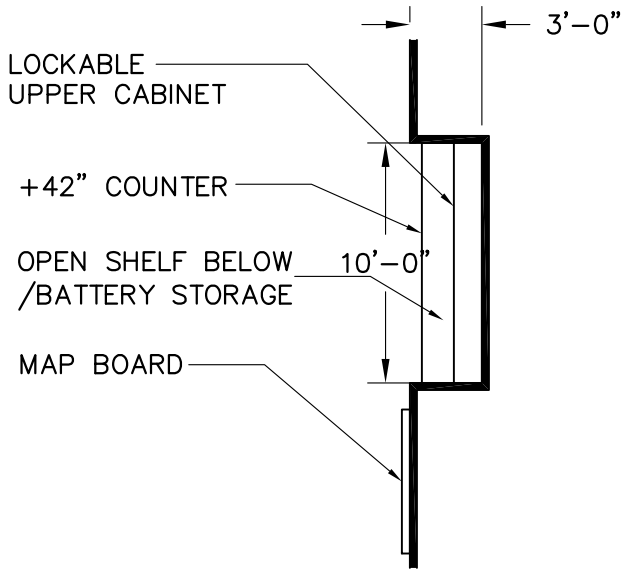
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

FIRE PPE DAY–TO–DAY STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 504 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: F–433



OPERATIONAL ADJACENCIES:
1. HLWY. TO BAY

0' 5' 10'

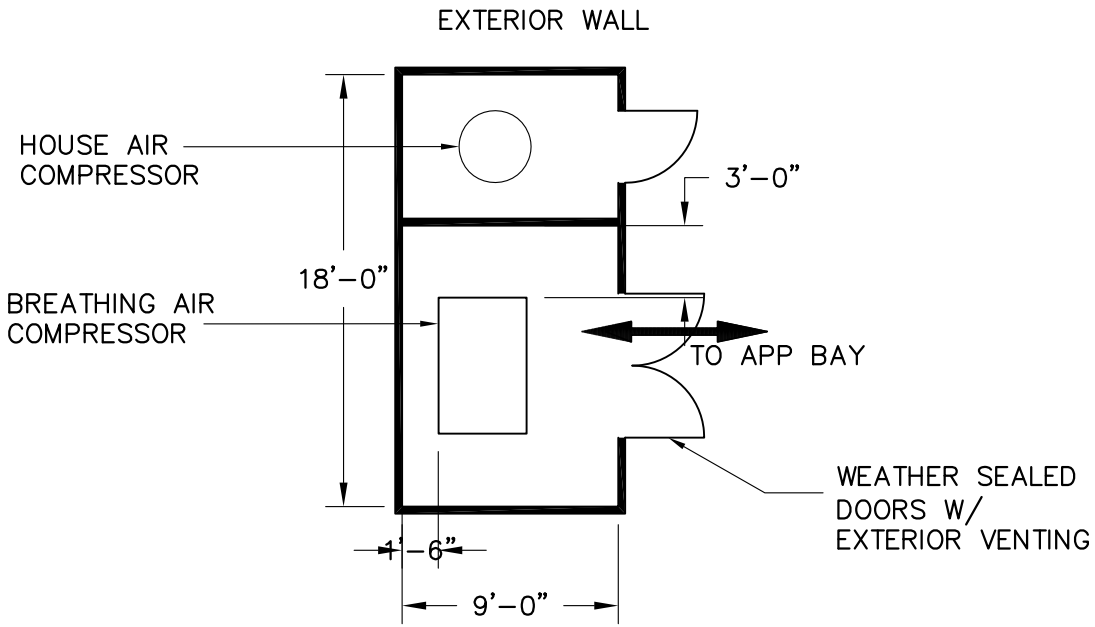
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

BATTERY CHARGE ALCOVE

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 30 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: F-434



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

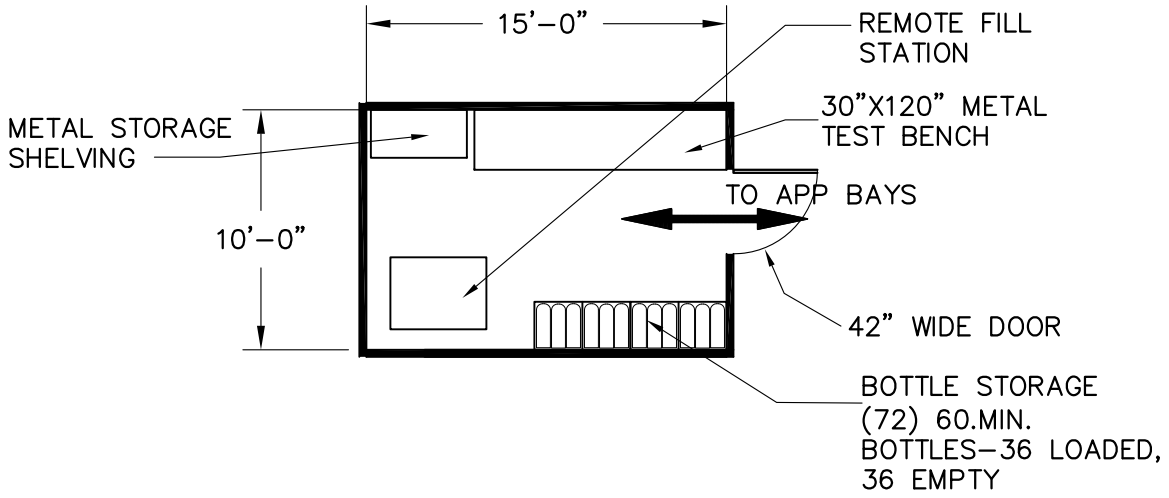
0' 5' 10'

T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

SCBA/HOUSE COMPRESSOR ROOMS

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 162 S.F.
PROJECT NUMBER: 08-13
SPACE NUMBER: F-435



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

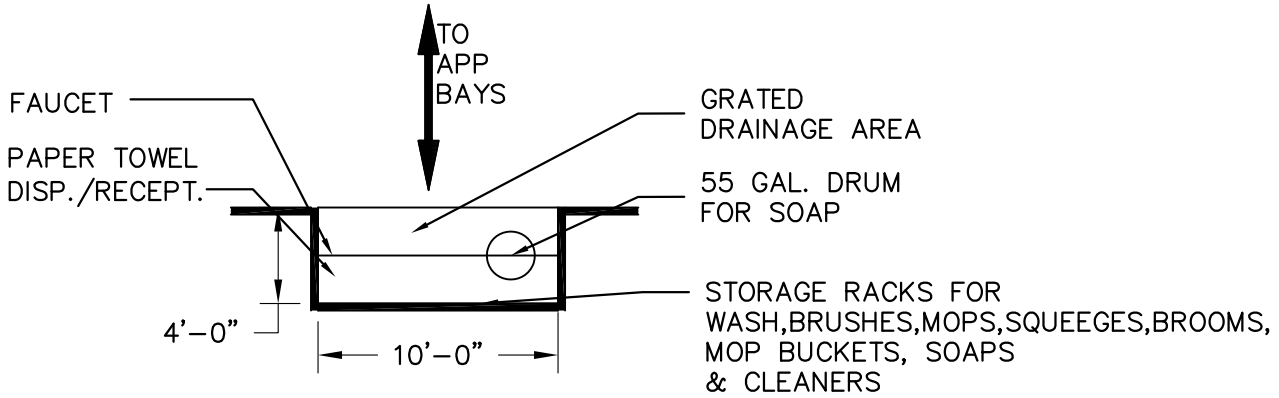
0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

SCBA FILL STATION

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 150 S.F.
PROJECT NUMBER: 08–13
SPACE NUMBER: F–436



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

0' 5' 10'

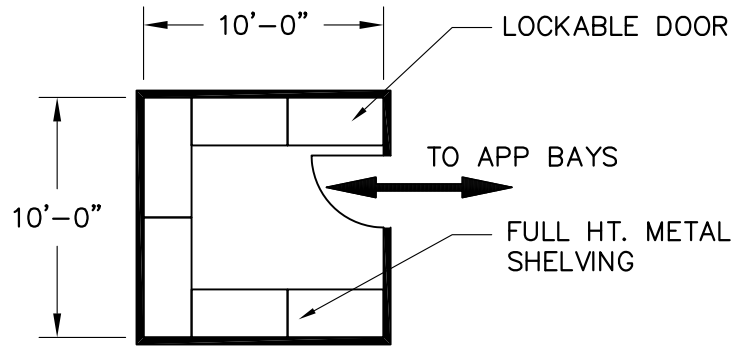
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

APPARATUS WASH ALCOVE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 40 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: F–437



0' 5' 10'

OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

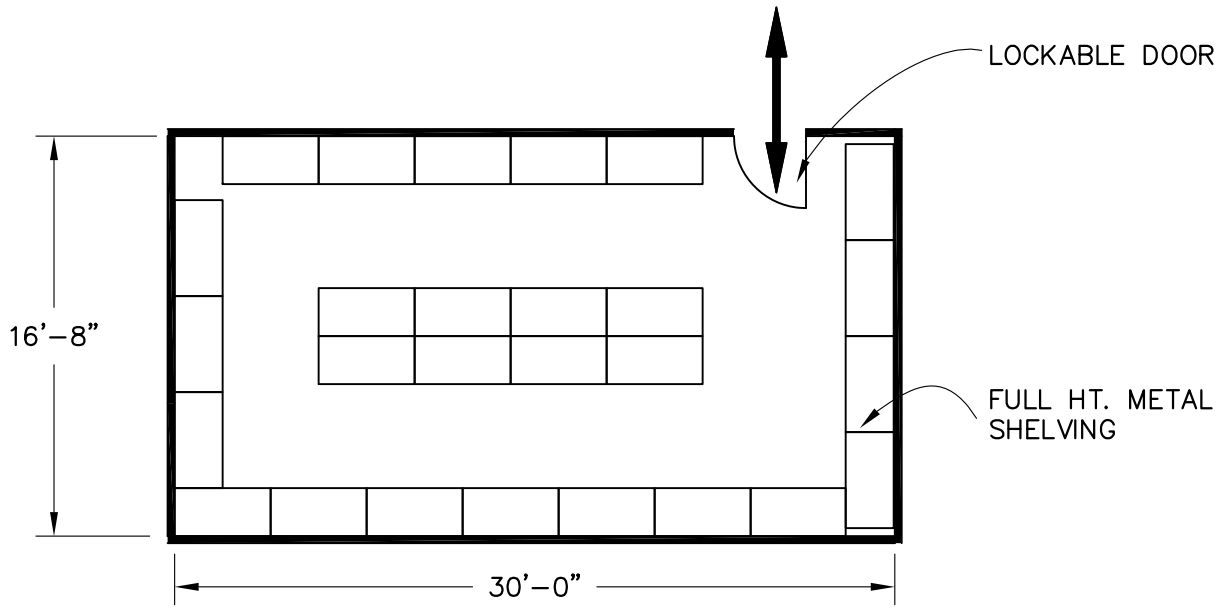
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

EMS STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 100 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: F–438



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY
2. POSSIBLY ON MEZZANINE

0' 5' 10'

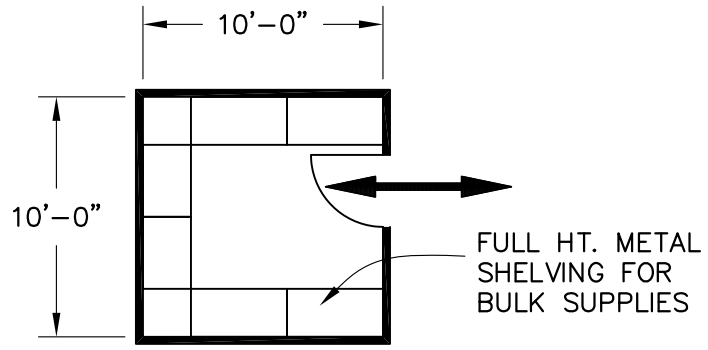
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

FIRE EQUIPMENT STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 500 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: F–439



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY
2. MEZZANINE LEVEL

0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

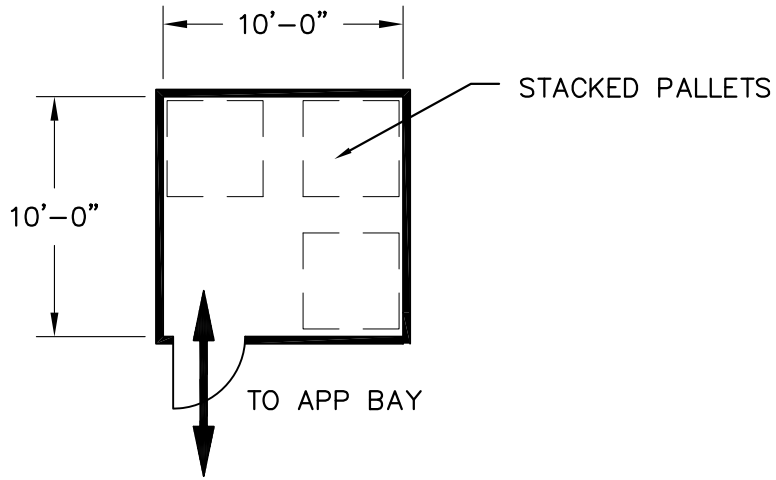
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

CUSTODIAL SUPPLY

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 100 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER:

F–440



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY
2. EXTERIOR

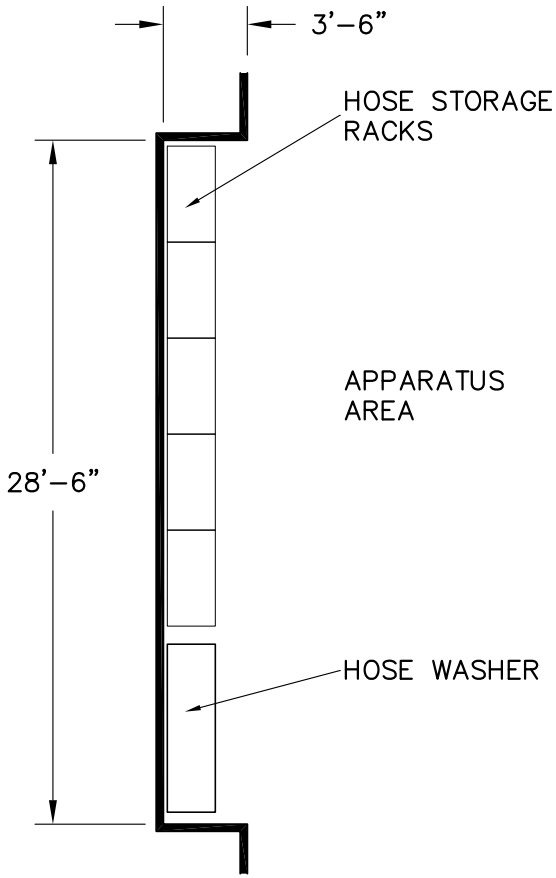
0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

PERSONAL DISASTER RELIEF SUPPLY

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 100 S.F.
PROJECT NUMBER: 08–13
SPACE NUMBER: F–441



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

0' 5' 10'

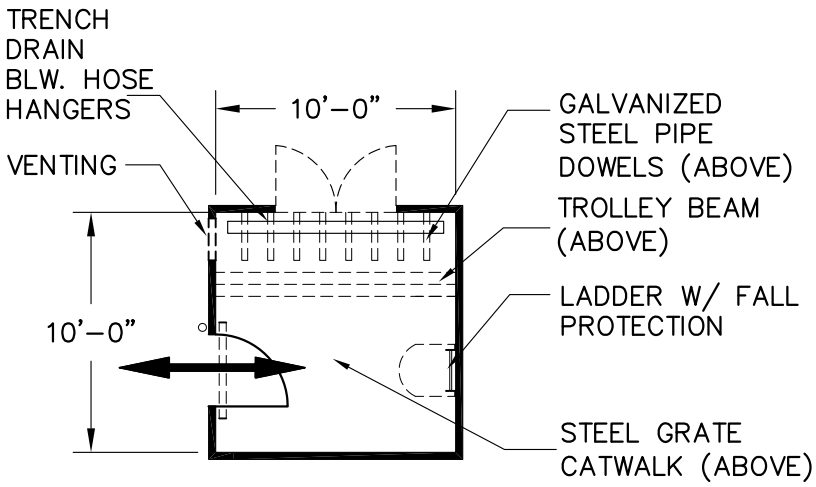
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

HOSE WASHING/ STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 100 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: F-442



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

0' 5' 10'

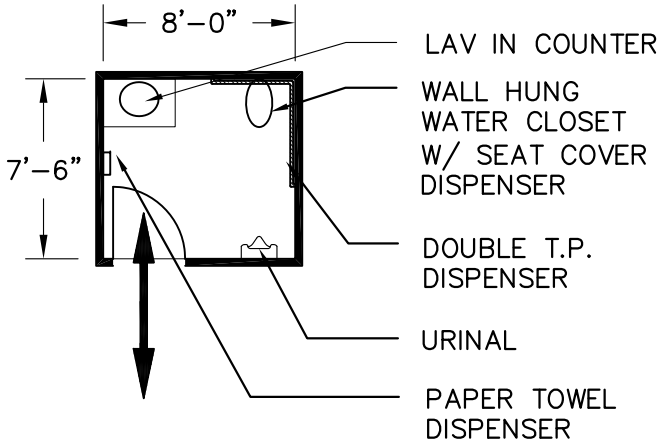
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

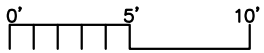
HOSE DRYING TOWER

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 3X100=300 S.F

PROJECT NUMBER: 08–13
SPACE NUMBER: F–443



OPERATIONAL ADJACENCIES:
1. APPARATUS BAY

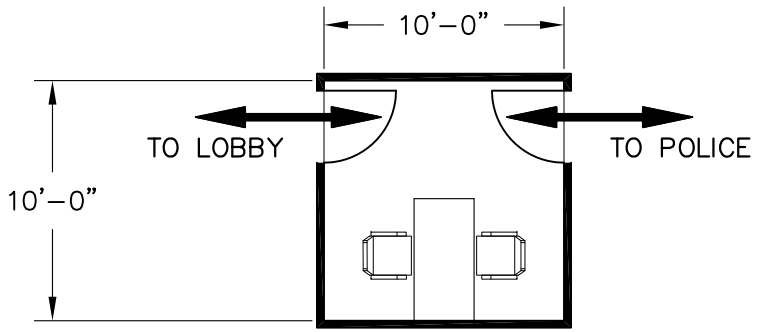


T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

BAY TOILET ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 60 S.F.
PROJECT NUMBER: 08-13
SPACE NUMBER: F-444



OPERATIONAL ADJACENCIES:
1. PUBLIC LOBBY
2. POLICE WORK AREA

0' 5' 10'

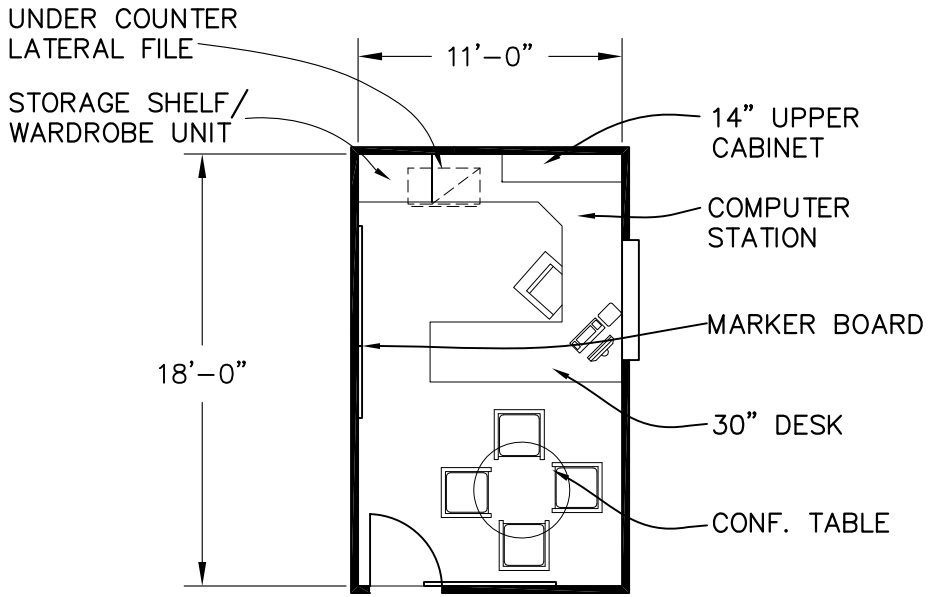
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

CITIZENS REPORT ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 100 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-116



OPERATIONAL ADJACENCIES:
1. POLICE ADMIN.

0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

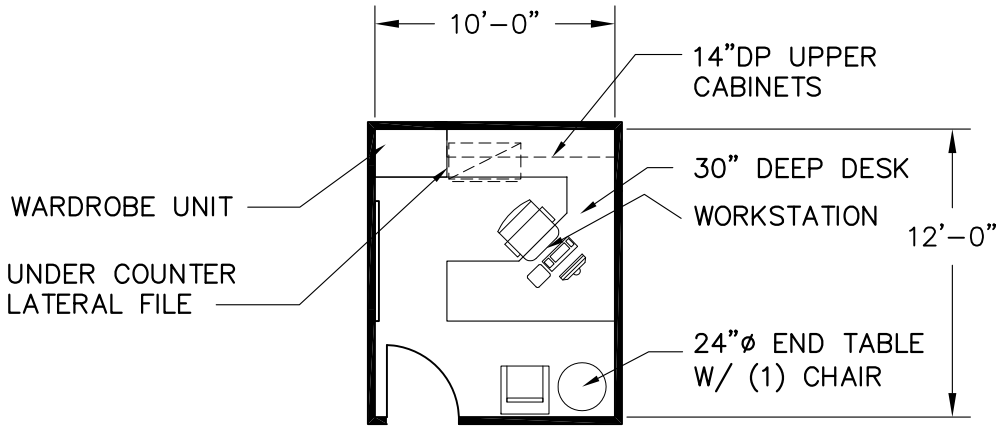
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

POLICE CHIEF OFFICE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 200 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER:

P-201



OPERATIONAL ADJACENCIES:
1. POLICE ADMIN.

0' 5' 10'

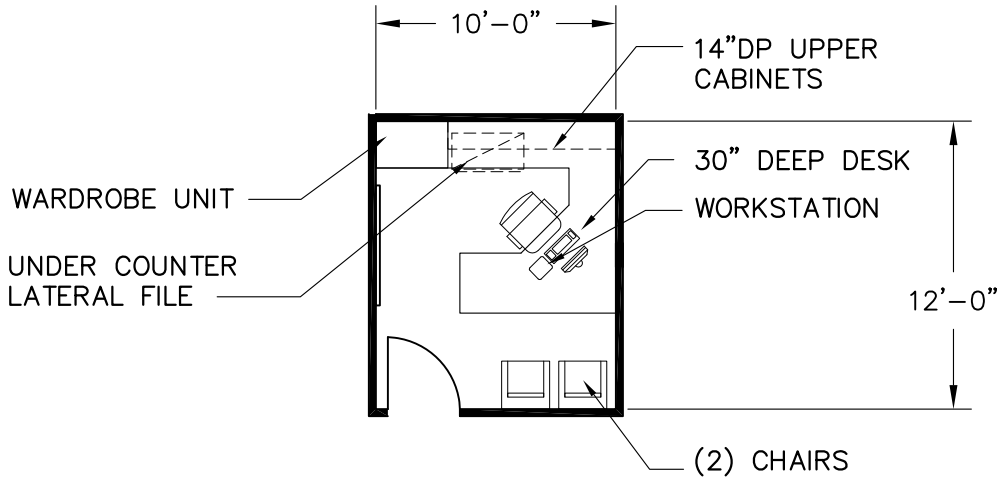
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

SUPERVISION LIEUTENANT & OFFICER (ICO) INVESTIGATIONS

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-202



OPERATIONAL ADJACENCIES:
1. POLICE ADMIN.

0' 5' 10'

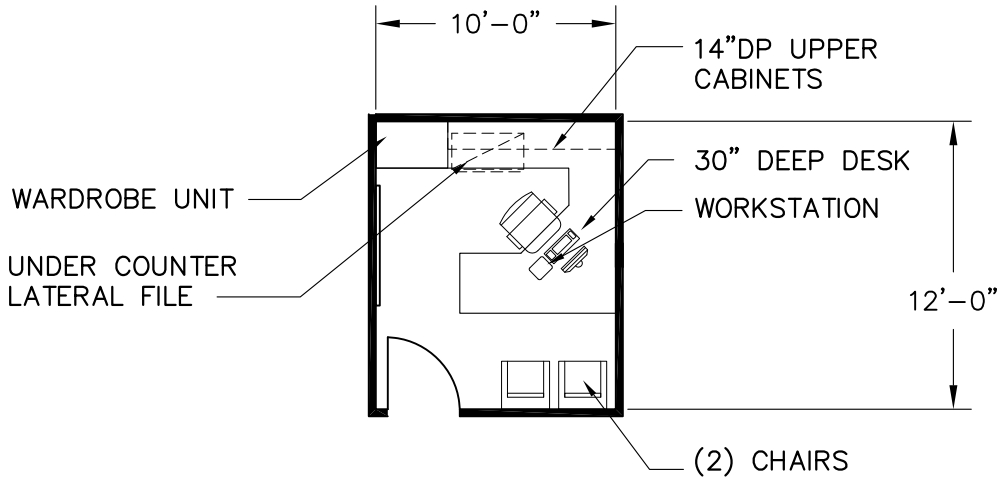
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

ADMINISTRATION – PROJECT OFFICER

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 150 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-203



OPERATIONAL ADJACENCIES:
1. POLICE ADMIN.

0' 5' 10'

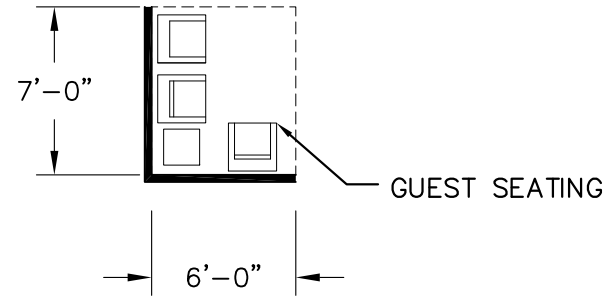
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

FLEX OFFICE – ATF/ DEA/ OTHER

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-204



OPERATIONAL ADJACENCIES:
1. POLICE ADMIN.

0' 5' 10'

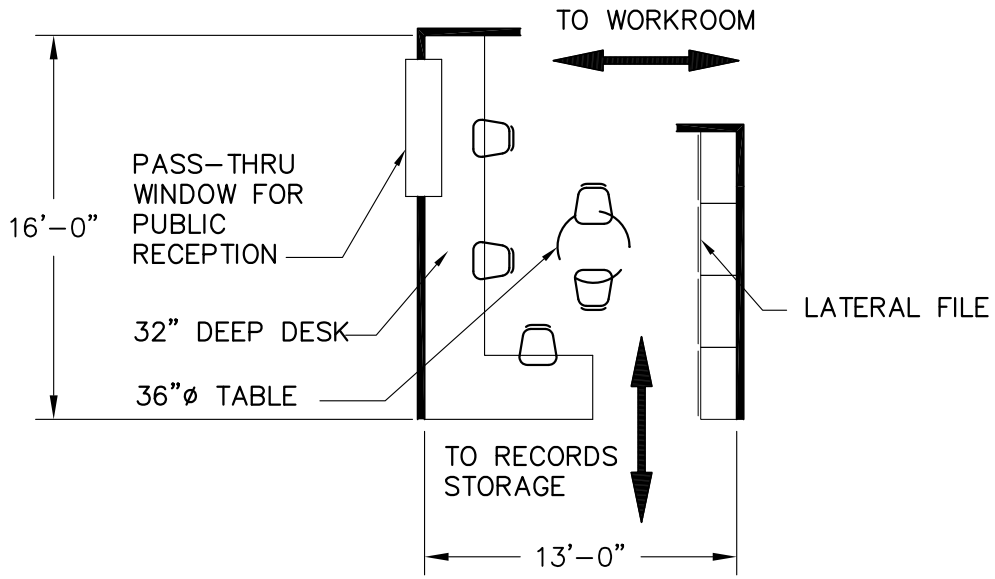
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

ADMIN WAITING AREA

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 42 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-210



OPERATIONAL ADJACENCIES:
1. POLICE ADMIN.

0' 5' 10'

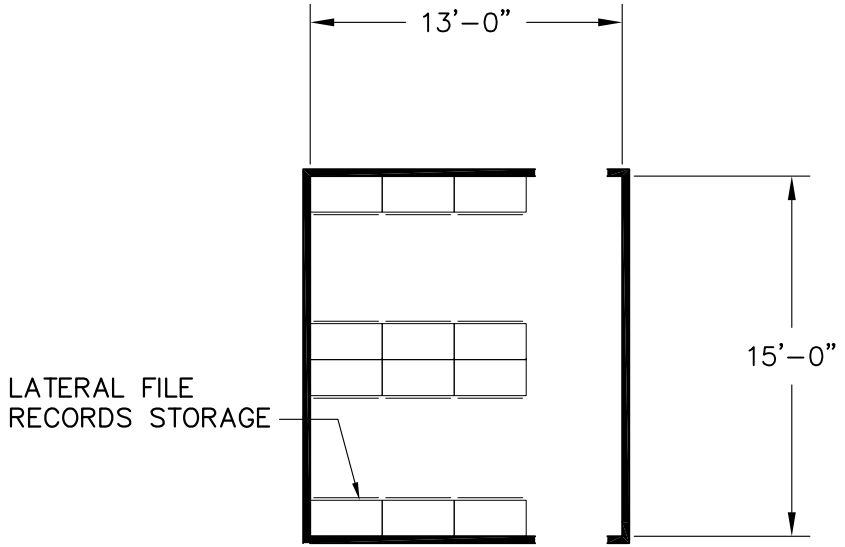
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

RECORDS AREA

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 200 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-301



OPERATIONAL ADJACENCIES:
1. POLICE ADMIN.

0' 5' 10'

T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

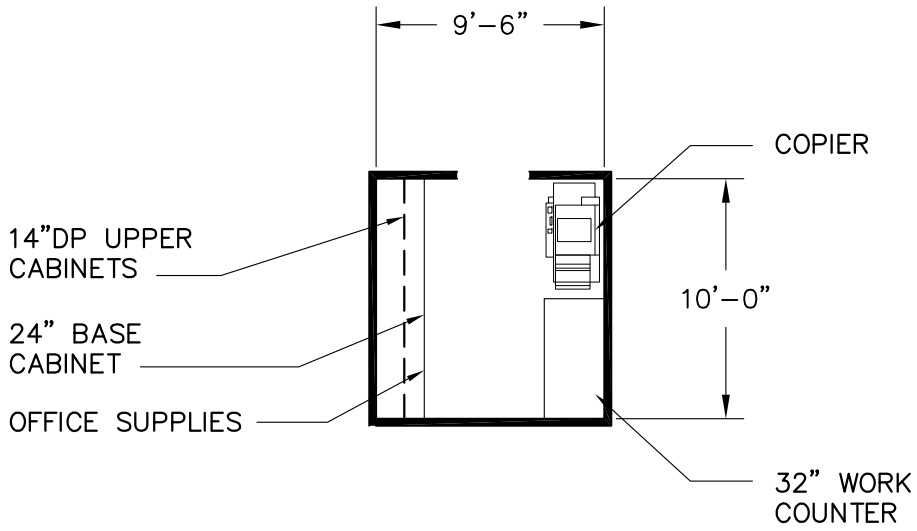
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

RECORDS STORAGE - HARD COPY

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 195 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER:

P-310



OPERATIONAL ADJACENCIES:
1. POLICE ADMIN.

0' 5' 10'

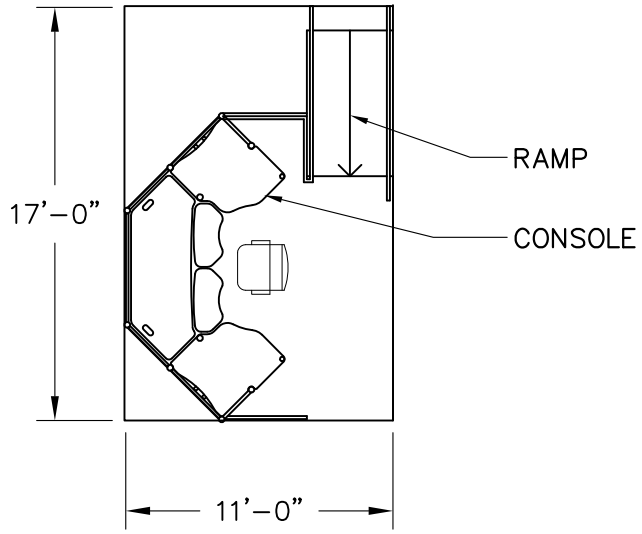
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

WORK ROOM/ AREA

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 95 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-311



OPERATIONAL ADJACENCIES:
1. CENTRAL WITHIN POLICE STATION

0' 5' 10'

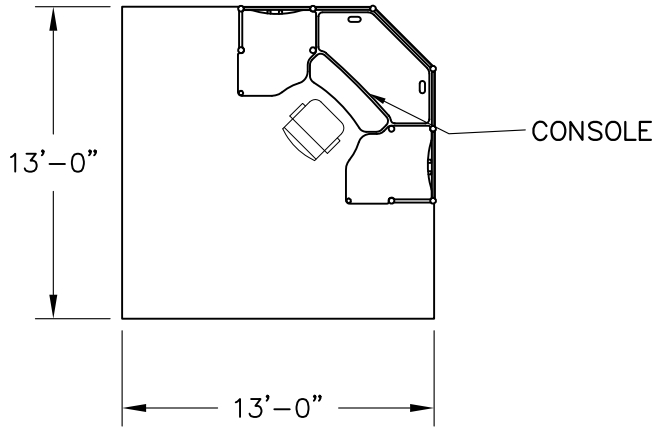
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

LEAD DISPATCH IV

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 187 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-401



OPERATIONAL ADJACENCIES:
1. CENTRAL WITHIN POLICE STATION

0' 5' 10'

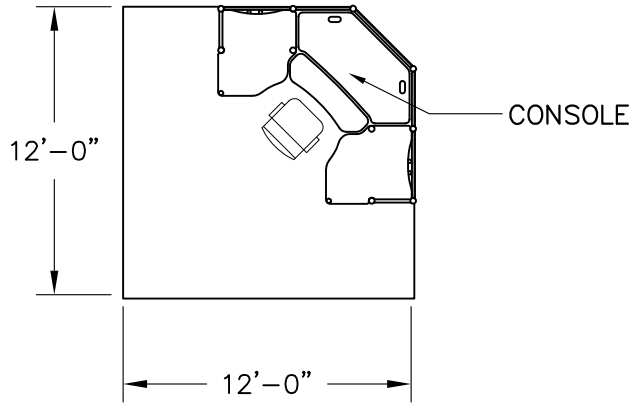
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

DISPATCHER III

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 170 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-402



OPERATIONAL ADJACENCIES:
1. CENTRAL WITHIN POLICE STATION

0' 5' 10'

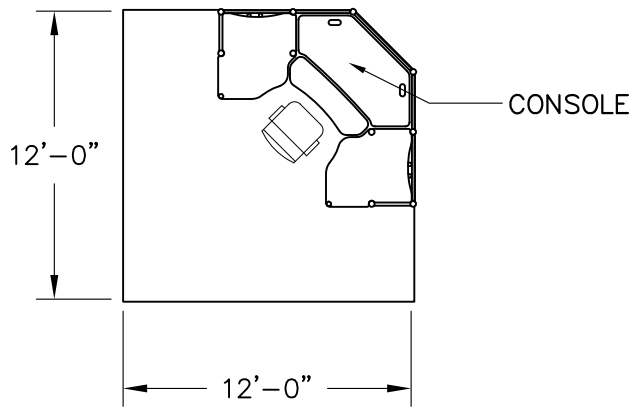
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

DISPATCHER II

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 170 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-403



OPERATIONAL ADJACENCIES:
1. CENTRAL WITHIN POLICE STATION

0' 5' 10'

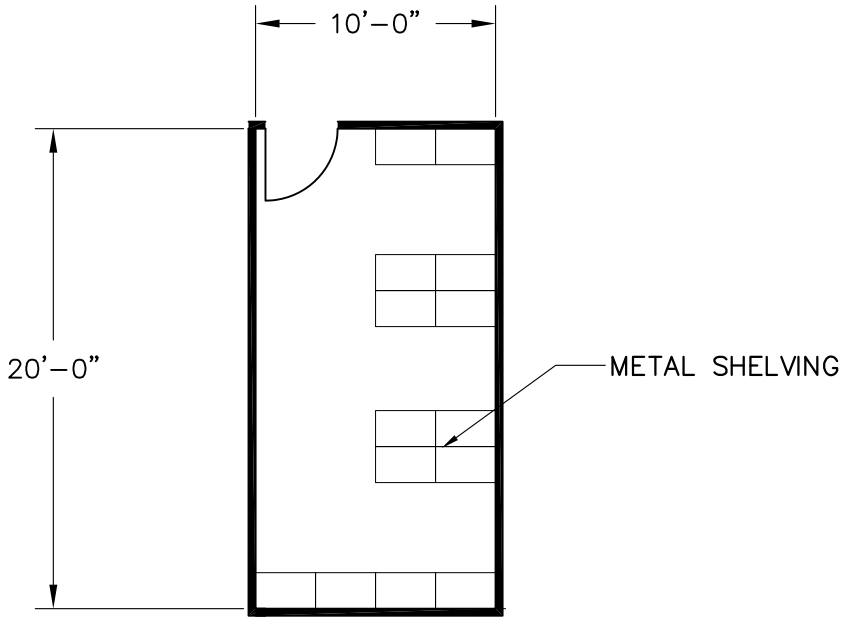
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

DISPATCHER I

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 3@144 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-404



OPERATIONAL ADJACENCIES:
1. CENTRAL WITHIN POLICE STATION

0' 5' 10'

T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

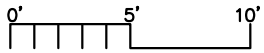
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

RADIO ROOM EQUIPMENT

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 200 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-405

SEE BREAKOUT ROOM 411



T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

TRAINING/ BRIEFING ROOM

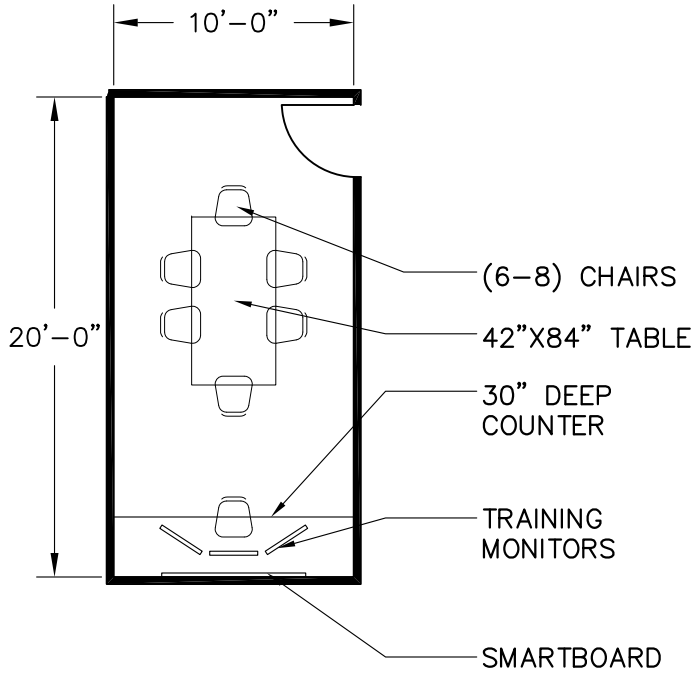
DATE: 7.02.2014

SCALE: 1/8" = 1'-0"

SQUARE FEET: 0 S.F.

PROJECT NUMBER: 08-13

SPACE NUMBER: P-410



OPERATIONAL ADJACENCIES:
1. DISPATCH CENTER

0' 5' 10'

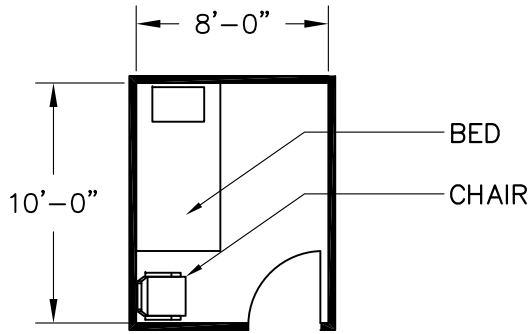
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

BREAKOUT ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 200 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-411



OPERATIONAL ADJACENCIES:
1. DISPATCH CENTER

0' 5' 10'

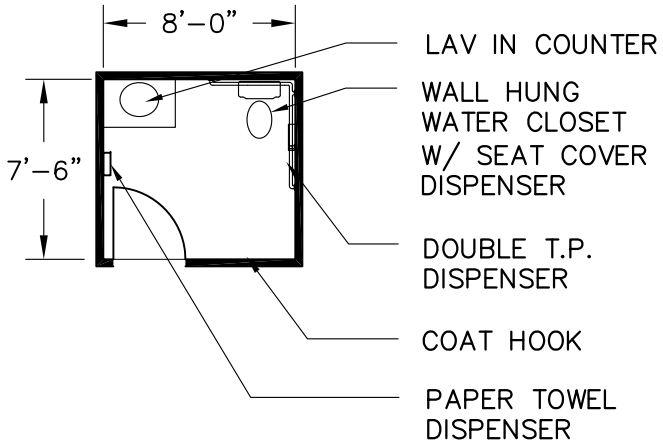
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

WELL ROOM/ QUIET ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 80 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-412



OPERATIONAL ADJACENCIES:
1. DISPATCH CENTER

0' 5' 10'

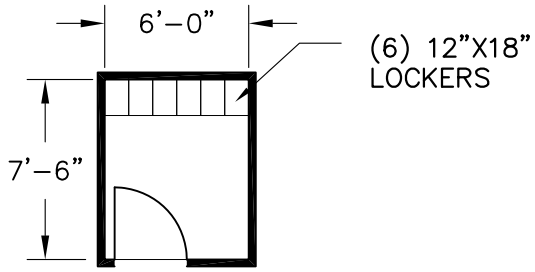
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

UNISEX TOILET ROOM (IN DISPATCH ROOM)

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 60 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-413



OPERATIONAL ADJACENCIES:
1. DISPATCH CENTER

0' 5' 10'

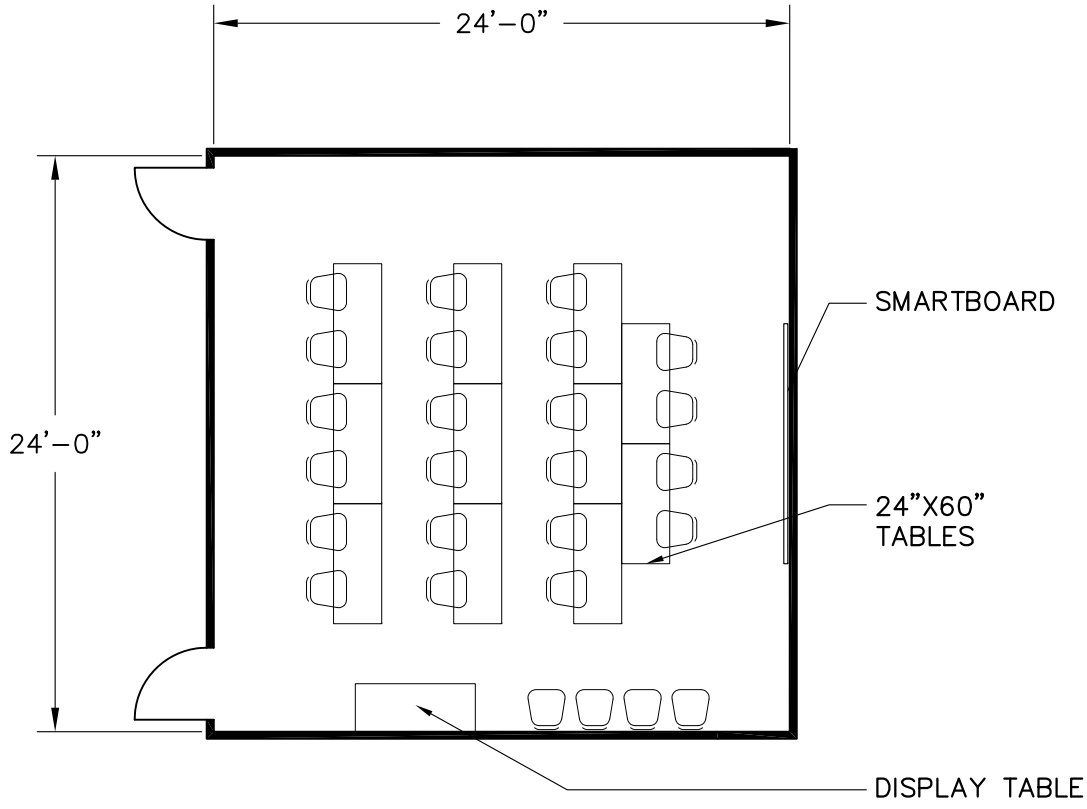
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

UNISEX LOCKER ROOM (IN DISPATCH ROOM)

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 45 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-414



OPERATIONAL ADJACENCIES:
1. CENTRAL WITHIN POLICE STATION

0' 5' 10'

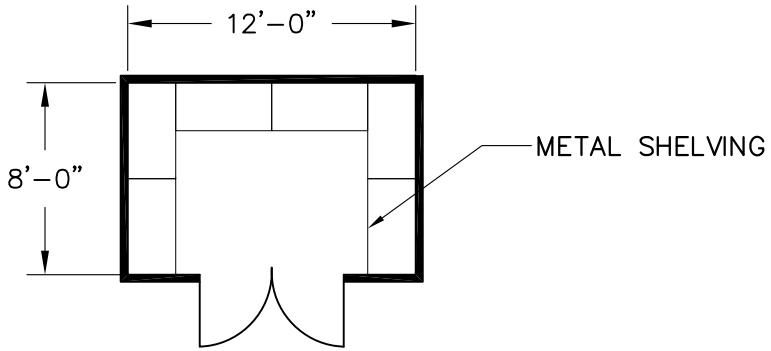
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

BRIEFING/ ROLL CALL

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 576 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-510



OPERATIONAL ADJACENCIES:
1. BRIEFING/ROLL CALL ROOM

0' 5' 10'

T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

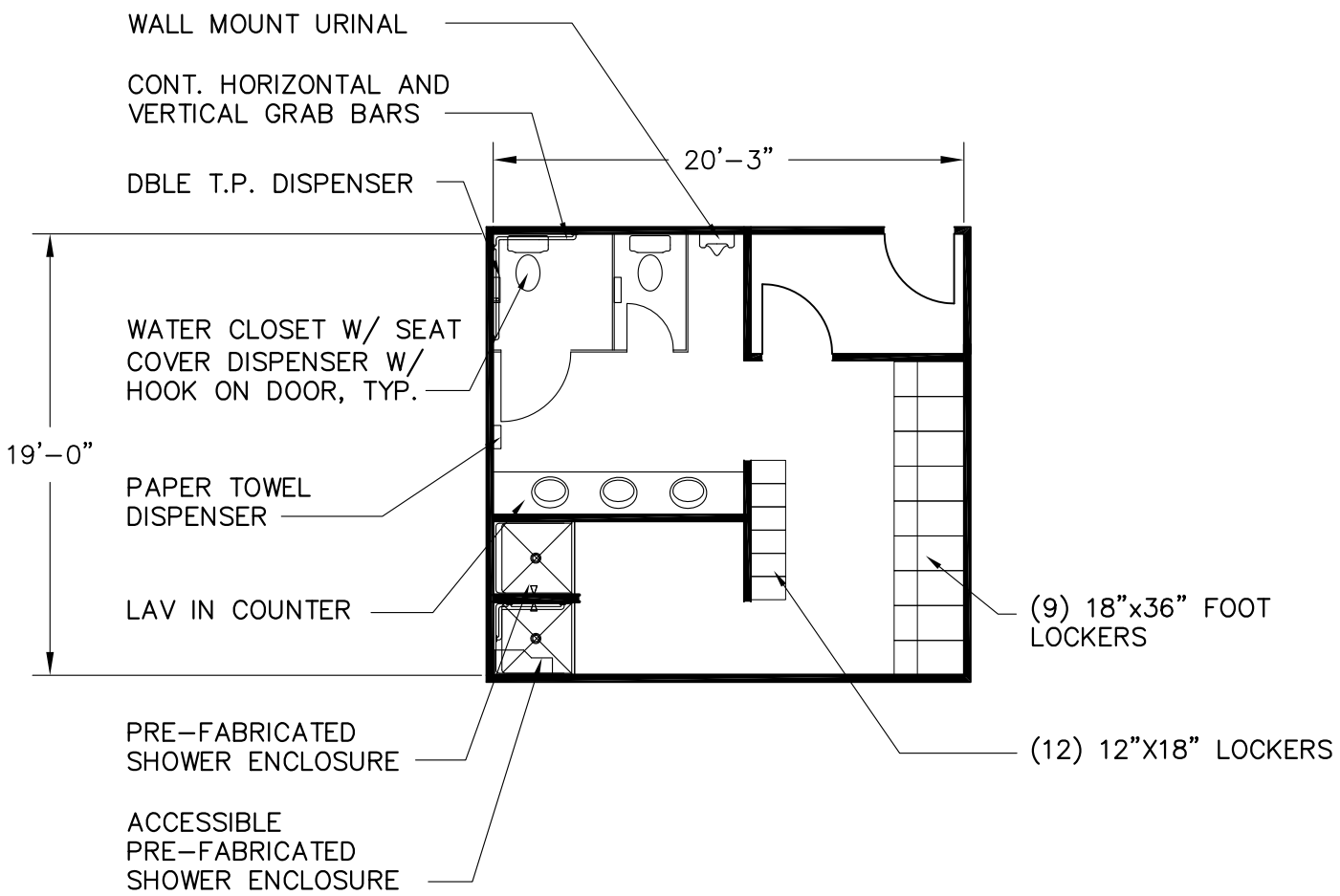
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

BRIEFING/ ROLL CALL STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 96 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER:

P-511



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

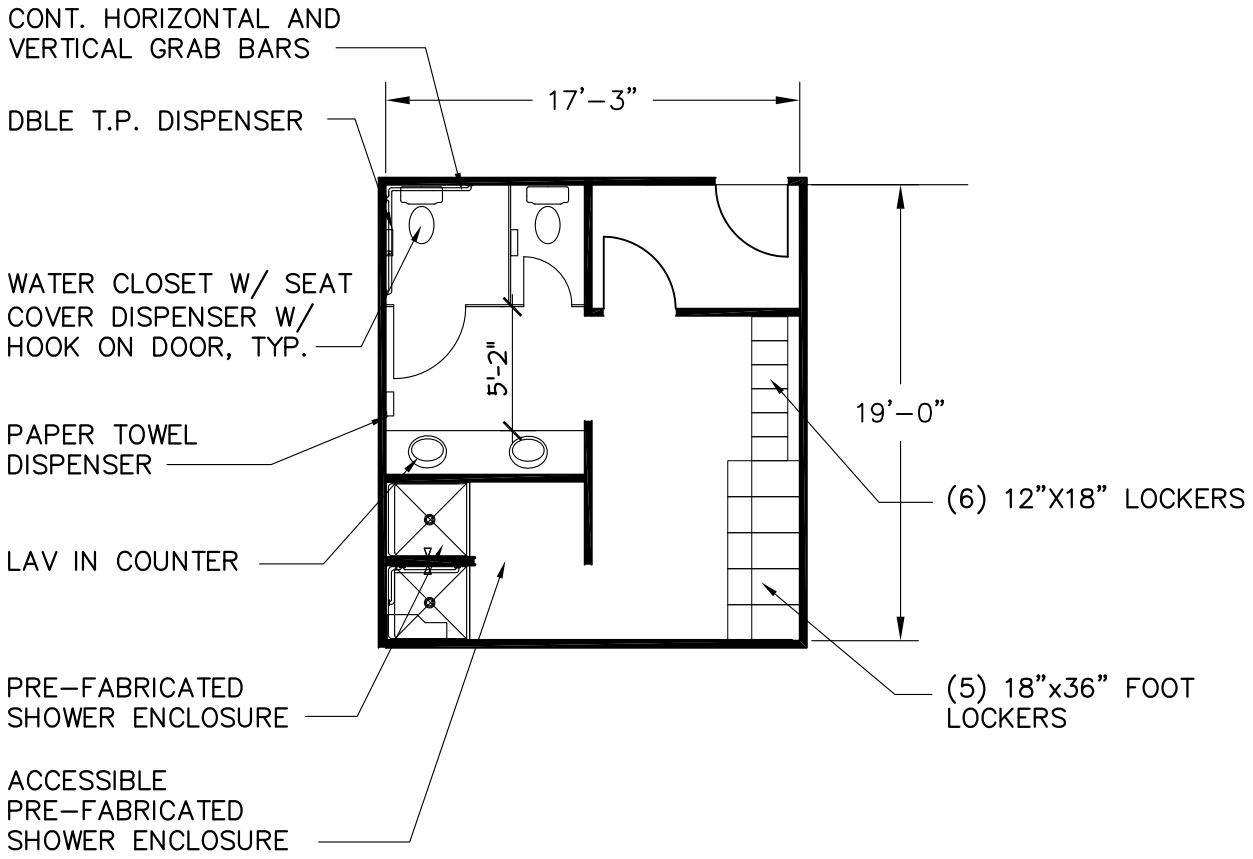
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

MALE LOCKER ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 385 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER:

P-513



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

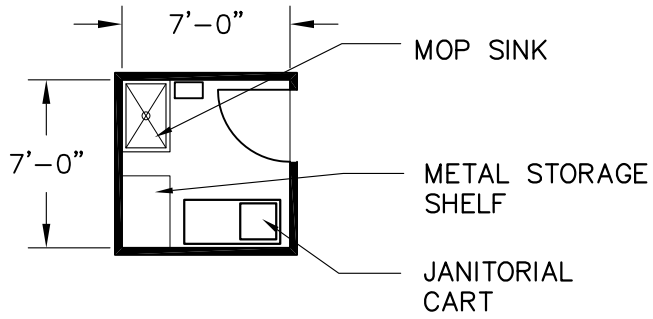
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

FEMALE LOCKER ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 328 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-514



OPERATIONAL ADJACENCIES:
1. OFFICER'S LOCKER ROOMS

0' 5' 10'

T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

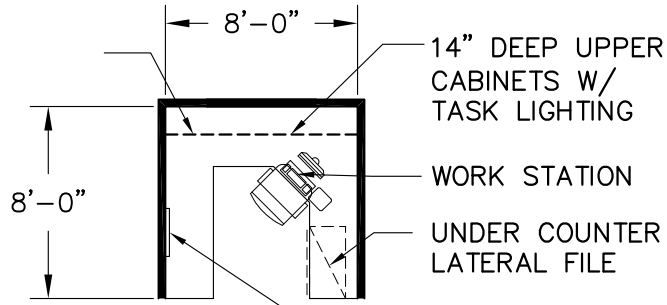
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

CUSTODIAL CLOSET

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 49 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER:

P-515



ALT. WORKSTATION
64 S.F.

OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

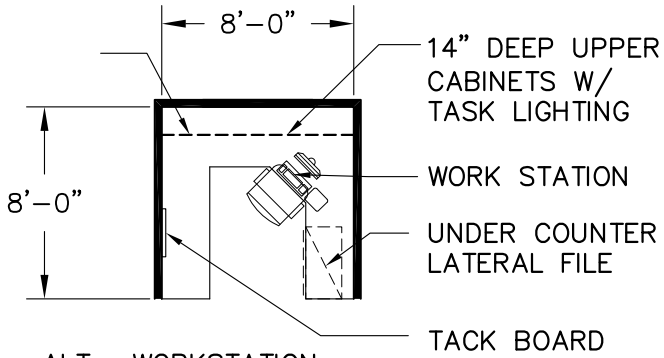
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

SENIOR POLICE OFFICER

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 64 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-601



ALT. WORKSTATION
64 S.F.

OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

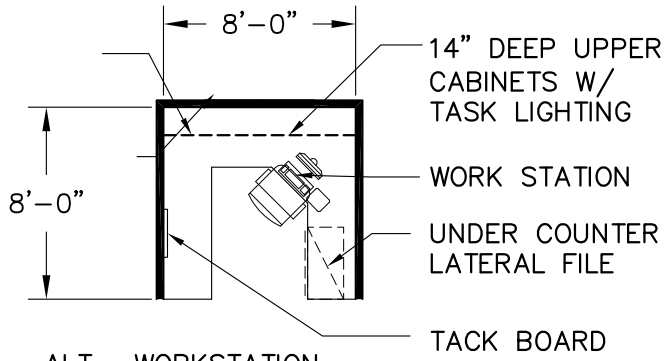
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

POLICE OFFICER

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 64 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-602



ALT. WORKSTATION
64 S.F.

OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

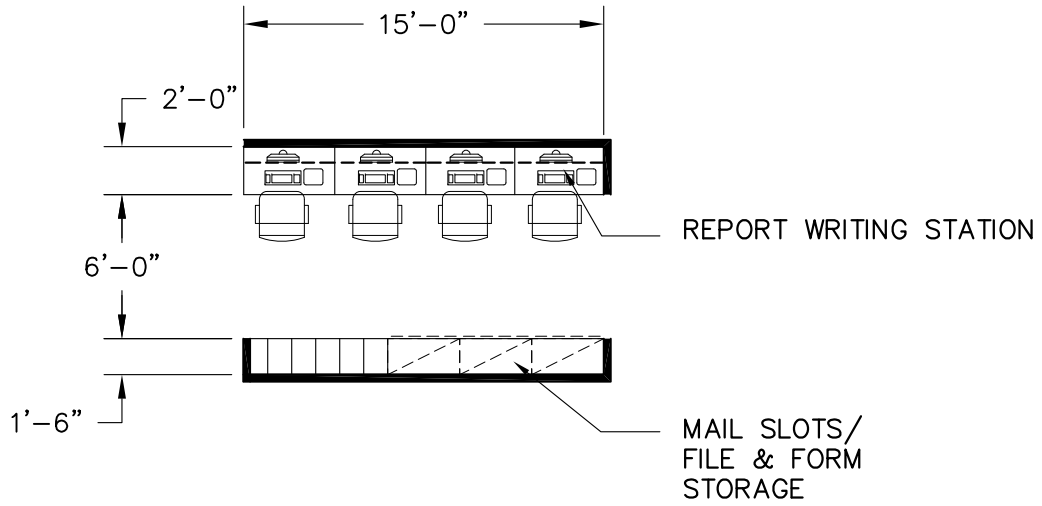
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

BASIC/ RECRUIT OFFICER

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 64 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-603



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

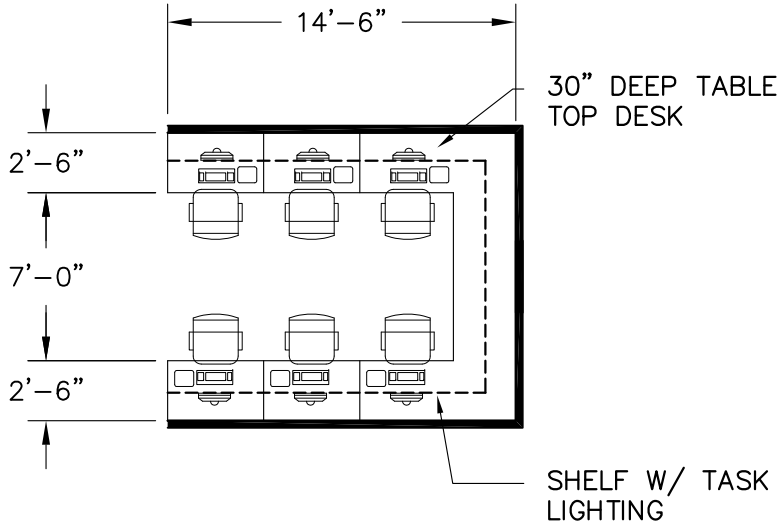
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

PATROL REPORT WRITING

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 143 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-610



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

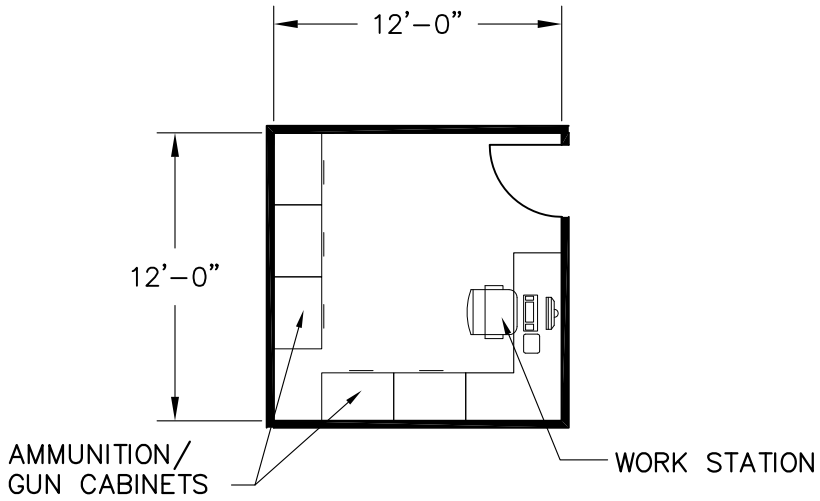
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

VILLAGE PUBLIC SAFETY OFFICER (VPSO) WORKSTATIONS

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 144 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-611



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

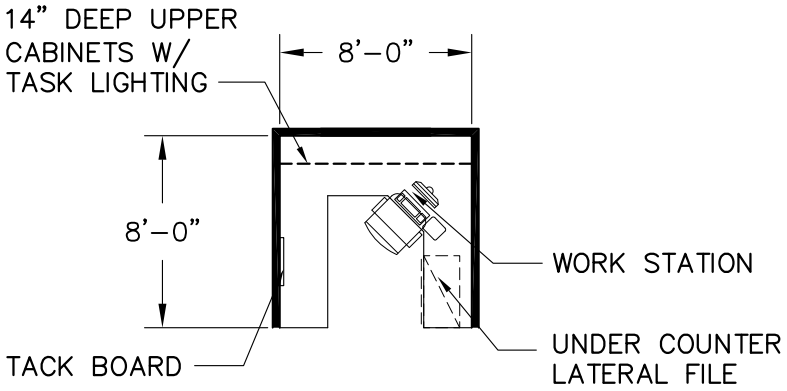
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

ARMORY

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 144 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-612



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

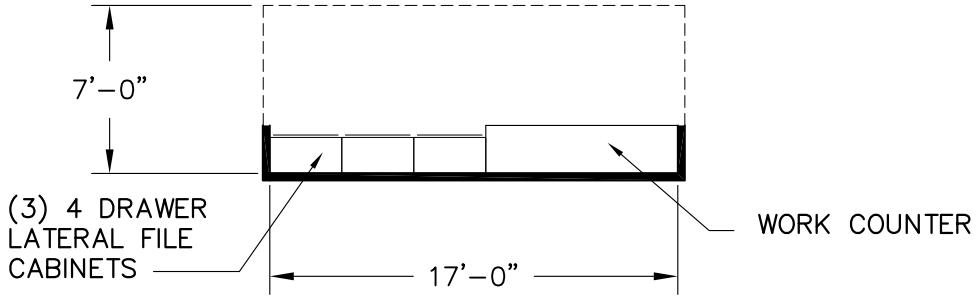
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

OFFICER IN-CHARGE OF INVESTIGATIONS FUTURE

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 64 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER:

P-701



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

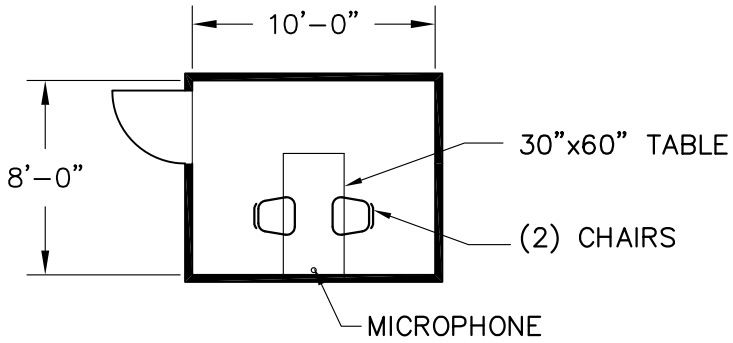
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

SECURE FILE STORAGE/ WORK COUNTER

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER:

P-710



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

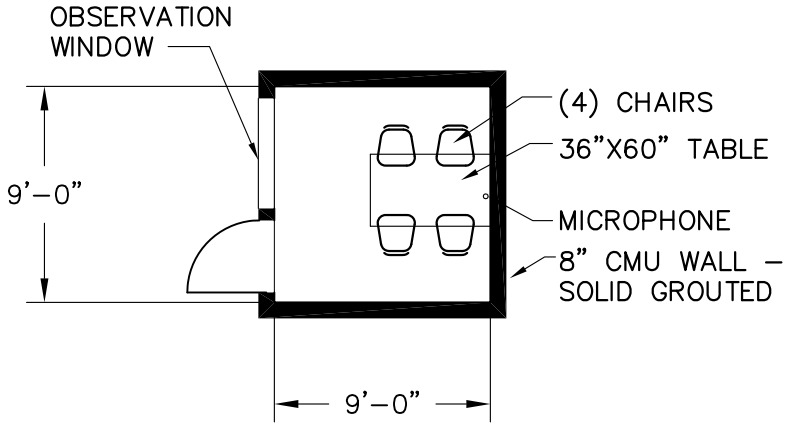
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

HARD/ SOFT INTERVIEW ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 2@80 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-810



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

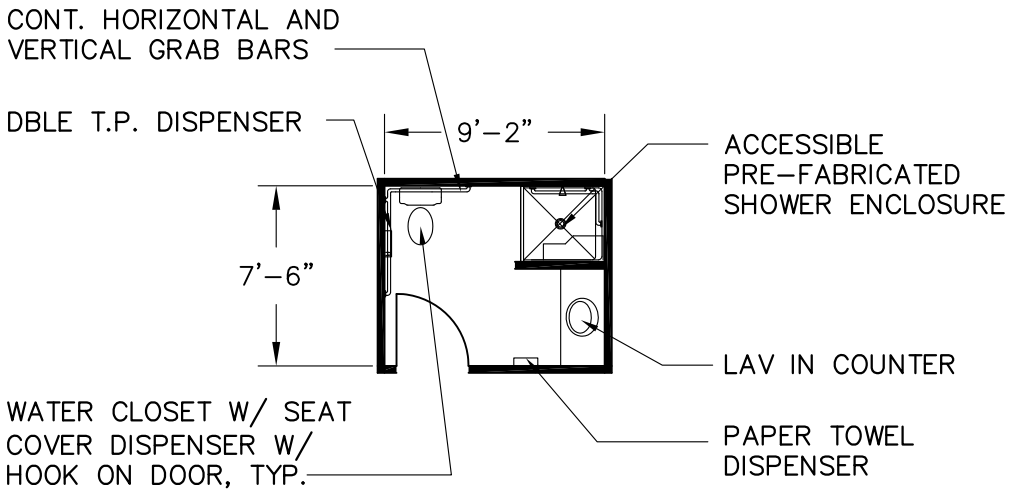
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

JUNENILE STATUS OFFENDER WAITING ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 80 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-811



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

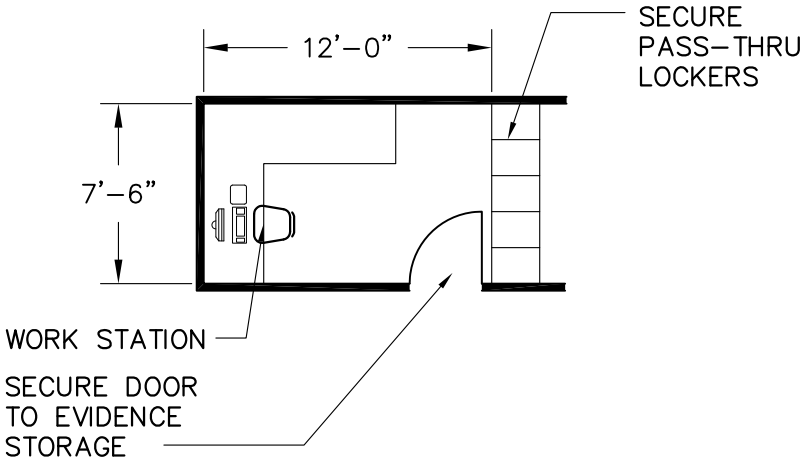
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

UNISEX TOILET/ SHOWER ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 65 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-812



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

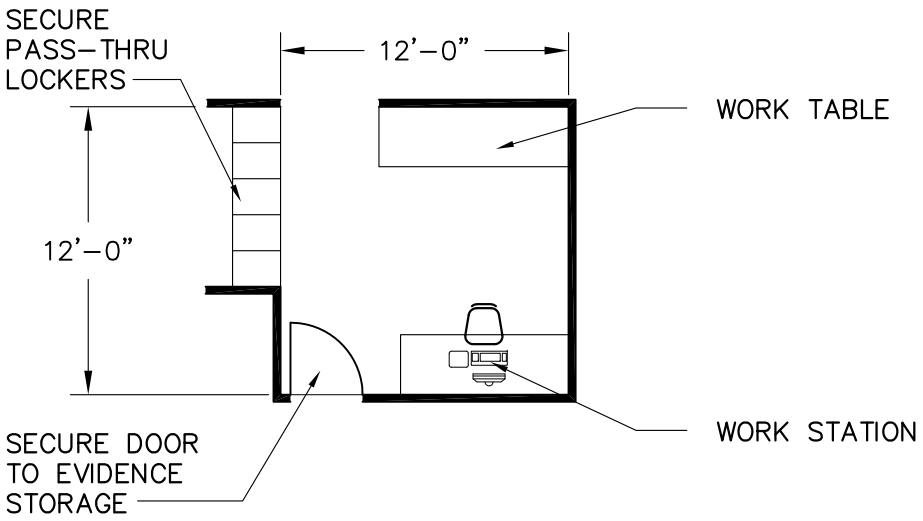
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

EVIDENCE TECH ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 90 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-901



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

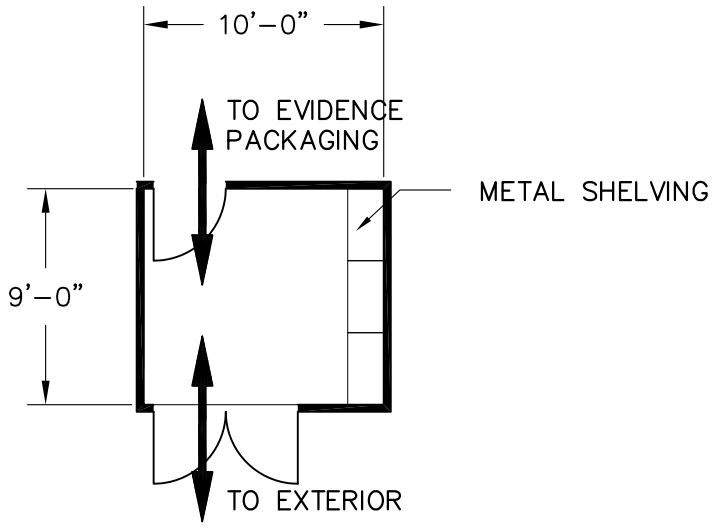
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

EVIDENCE PACKAGING ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 144 S.F.

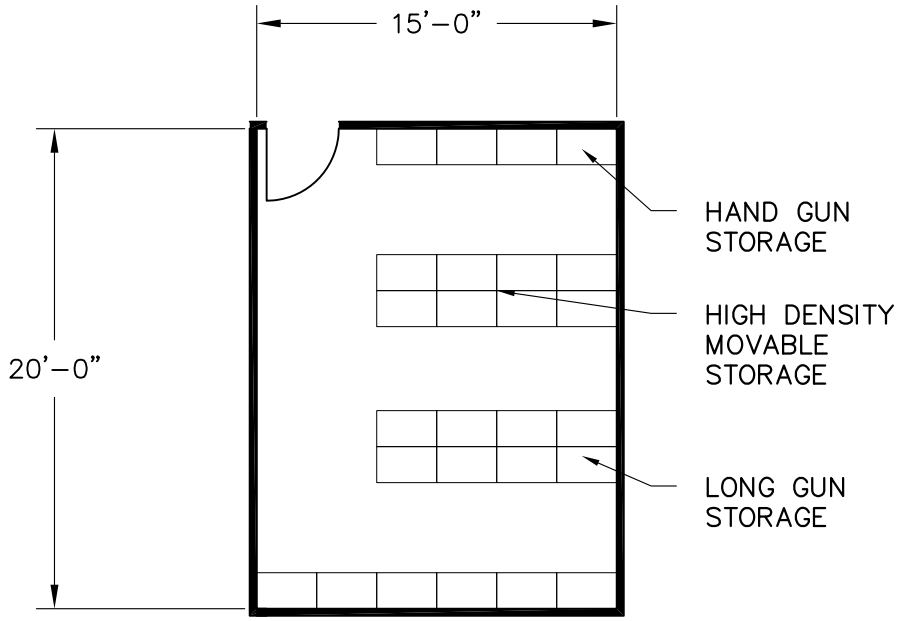
PROJECT NUMBER: 08–13
SPACE NUMBER: P-910



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

T A architecture · planning ph: 206–522–3830 fx: 206–522–2456	UNIVERSITY OF ALASKA FAIRBANKS EMERGENCY SERVICES FACILITY FAIRBANKS , ALASKA	TEMPORARY EVIDENCE STORAGE	DATE: 7.02.2014 SCALE: 1/8" = 1'–0" SQUARE FEET: 90 S.F.	PROJECT NUMBER: 08–13 SPACE NUMBER: P-911



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

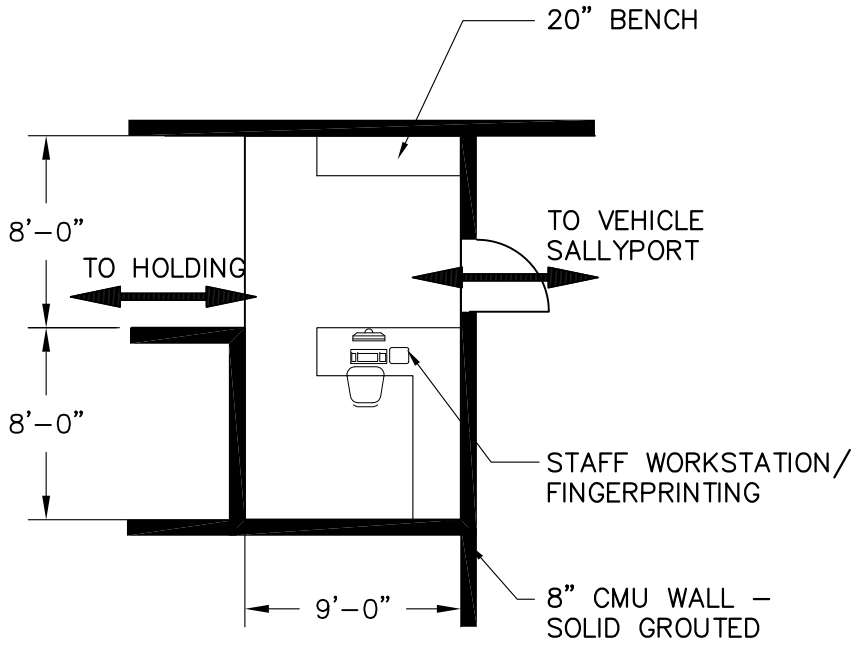
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

EVIDENCE STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 300 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-912



OPERATIONAL ADJACENCIES:

1. HOLDING/PROCESSING AREA

0' 5' 10'

T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

JUVENILE PROCESSING ROOM

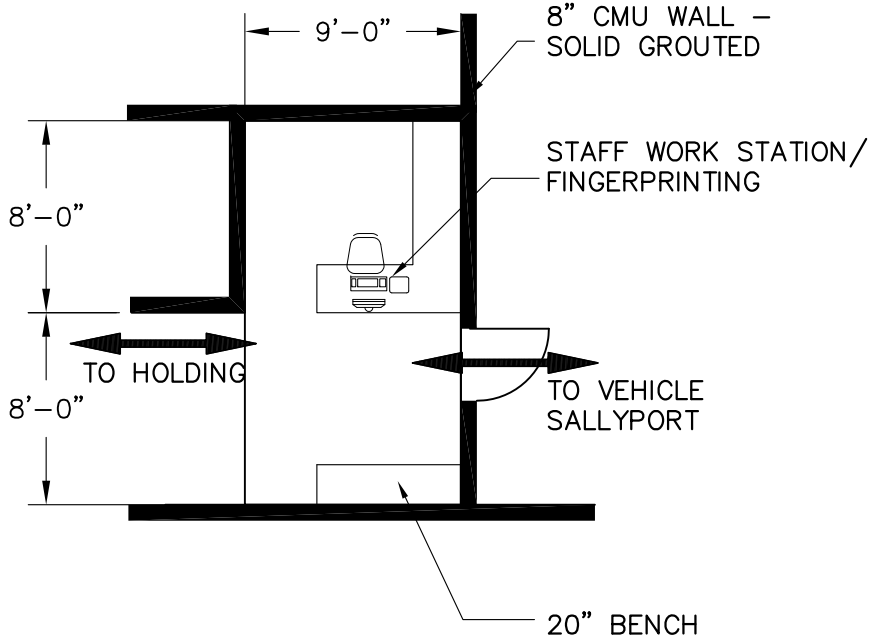
DATE: 7.02.2014

SCALE: 1/8" = 1'-0"

SQUARE FEET: 145 S.F.

PROJECT NUMBER: 08-13

SPACE NUMBER: P-1001



OPERATIONAL ADJACENCIES:

1. HOLDING/PROCESSING AREA

0' 5' 10'

T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

ADULT PROCESSING ROOM

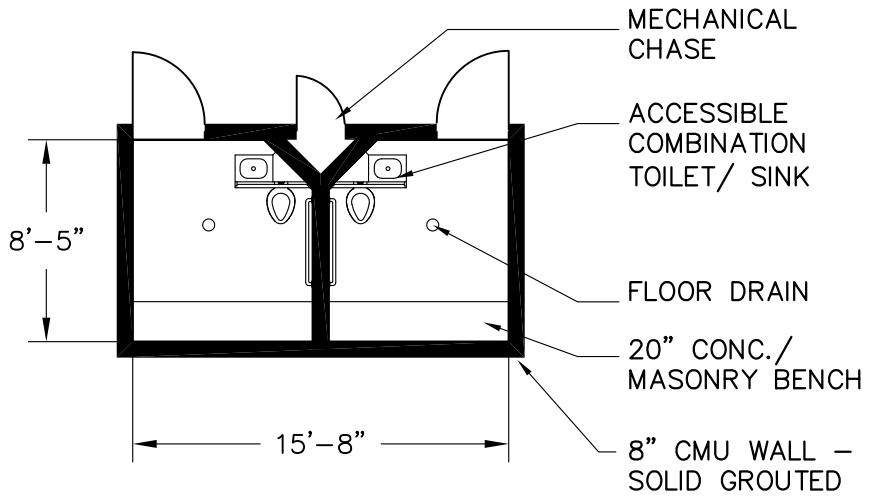
DATE: 7.02.2014

SCALE: 1/8" = 1'–0"

SQUARE FEET: 145 S.F.

PROJECT NUMBER: 08–13

SPACE NUMBER: P-1002



OPERATIONAL ADJACENCIES:

1. HOLDING/PROCESSING AREA

0' 5' 10'

T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

ADULT HOLDING

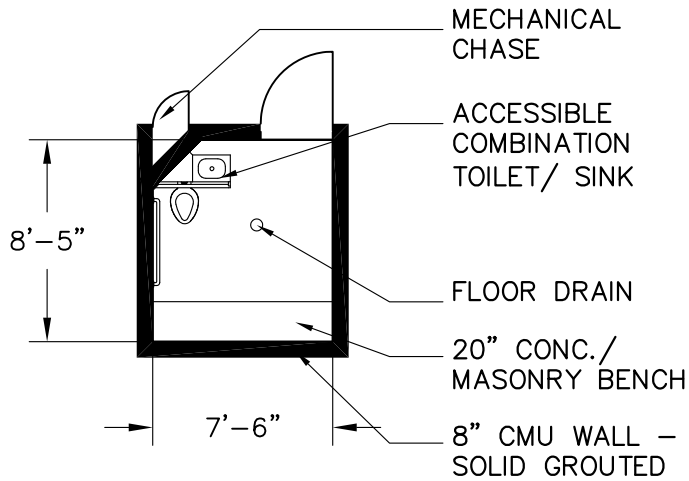
DATE: 7.02.2014

SCALE: 1/8" = 1'-0"

SQUARE FEET: 2@65 S.F.

PROJECT NUMBER: 08-13

SPACE NUMBER: P-1010



OPERATIONAL ADJACENCIES:
1. HOLDING/PROCESSING AREA

0' 5' 10'

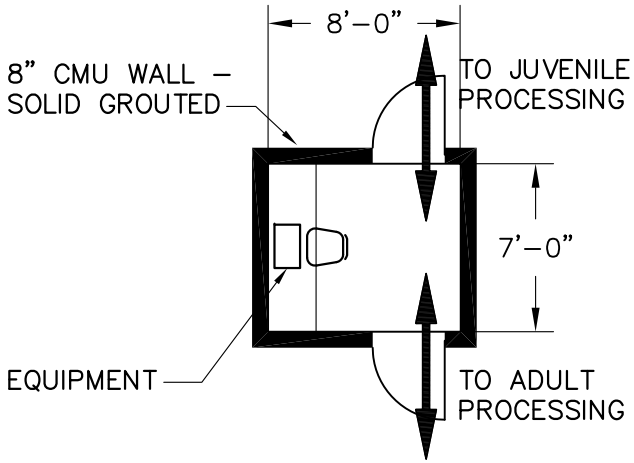
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

JUVENILE HOLDING

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 65 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-1011



OPERATIONAL ADJACENCIES:
1. HOLDING/PROCESSING AREA

0' 5' 10'

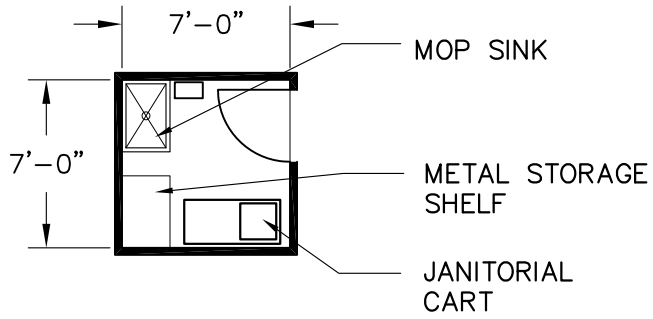
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

BREATHALYZER ROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 56 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-1012



OPERATIONAL ADJACENCIES:
1. OFFICER LOCKER ROOOMS

0' 5' 10'

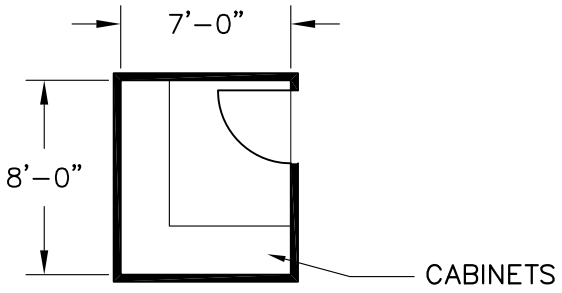
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

CUSTODIAL CLOSET

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 50 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-1013



OPERATIONAL ADJACENCIES:
1. HOLDING/PROCESSING AREA

0' 5' 10'

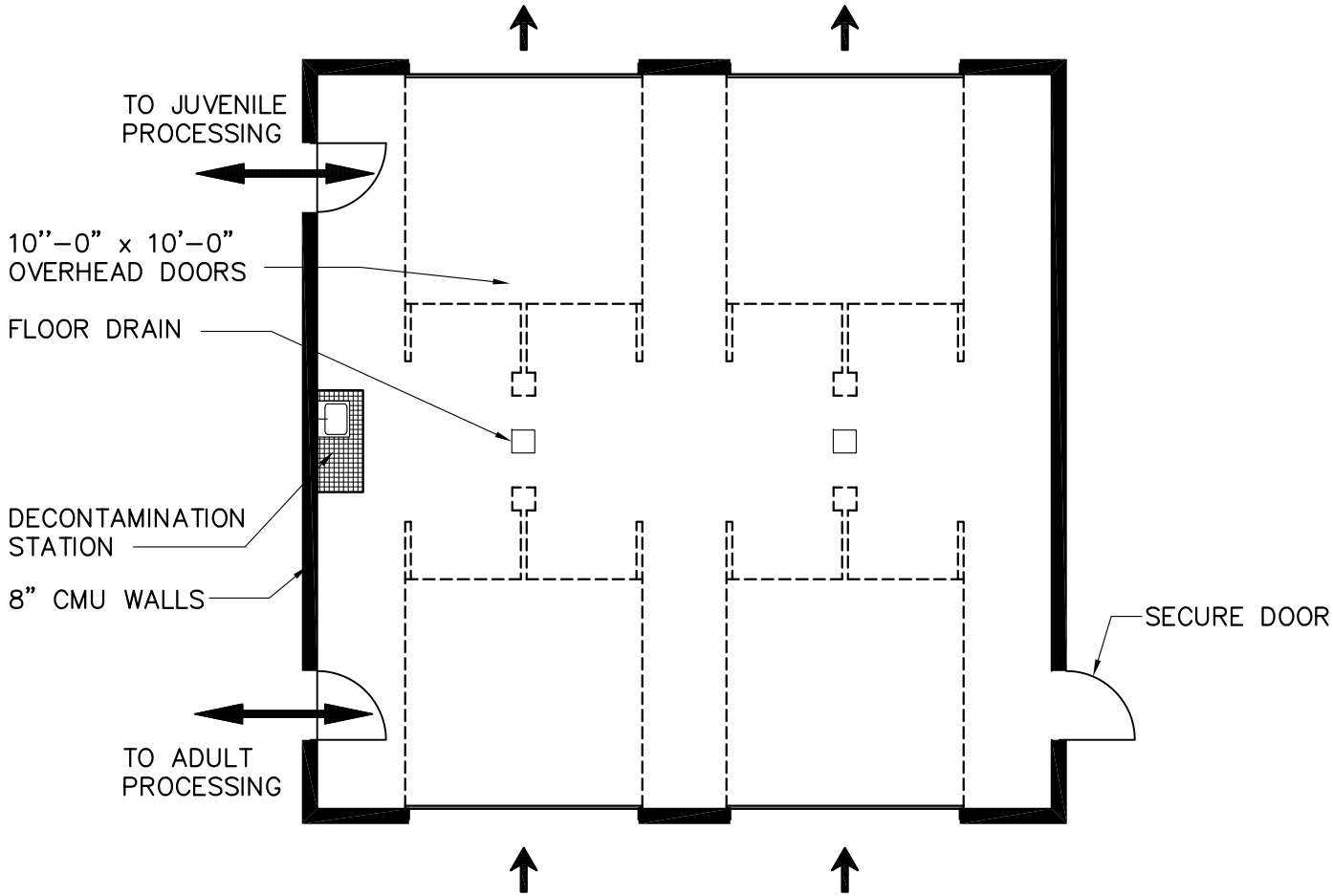
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

PROPERTY STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 56 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: P-1014



OPERATIONAL ADJACENCIES:

1. HOLDING/PROCESSING AREA

0' 5' 10'

T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

VEHICLE SALLY PORT

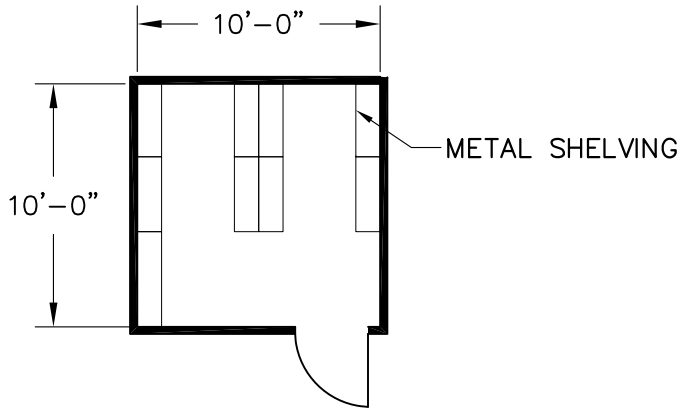
DATE: 7.02.2014

SCALE: 1/8" = 1'-0"

SQUARE FEET: 1025 S.F.

PROJECT NUMBER: 08–13

SPACE NUMBER: P-1120



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

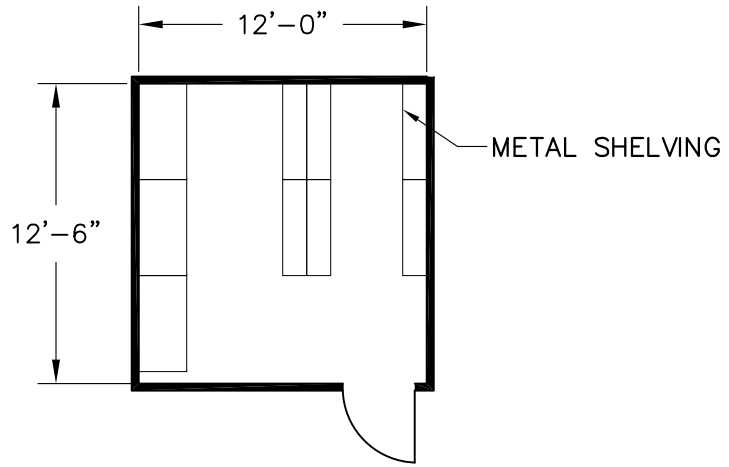
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

CRIME PREVENTION PROGRAM STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 100 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-1210



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

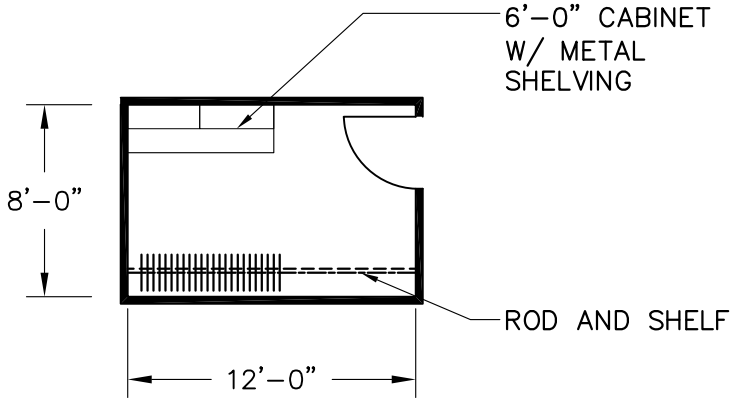
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

VEHICLE EQUIPMENT STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 150 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-1211



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

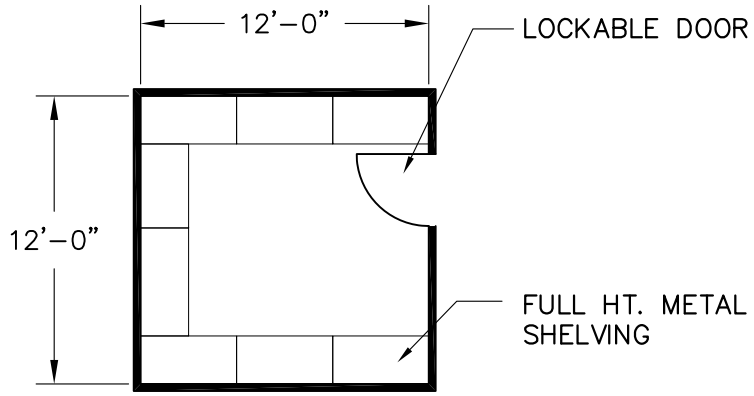
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

UNIFORM & EQUIPMENT STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 96 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-1212



OPERATIONAL ADJACENCIES:
1. OFFICER'S AREA

0' 5' 10'

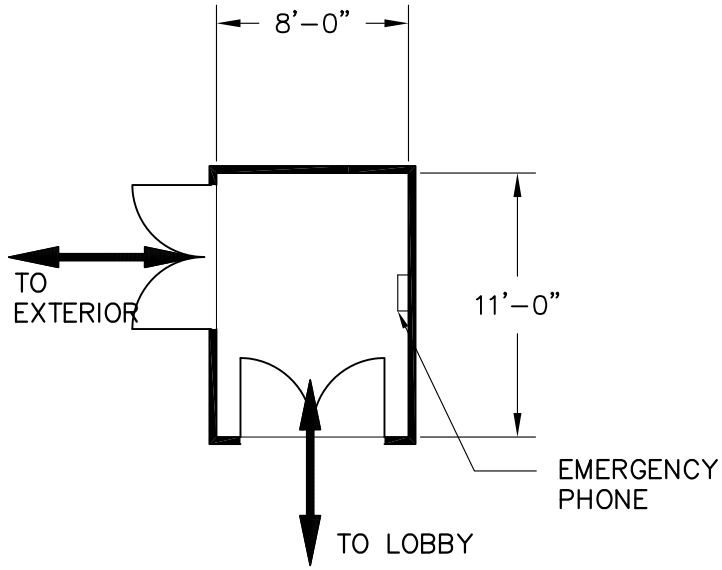
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

BULK SUPPLY STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 144 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: P-1213



OPERATIONAL ADJACENCIES:
1. EXTERIOR
2. PUBLIC LOBBY

0' 5' 10'

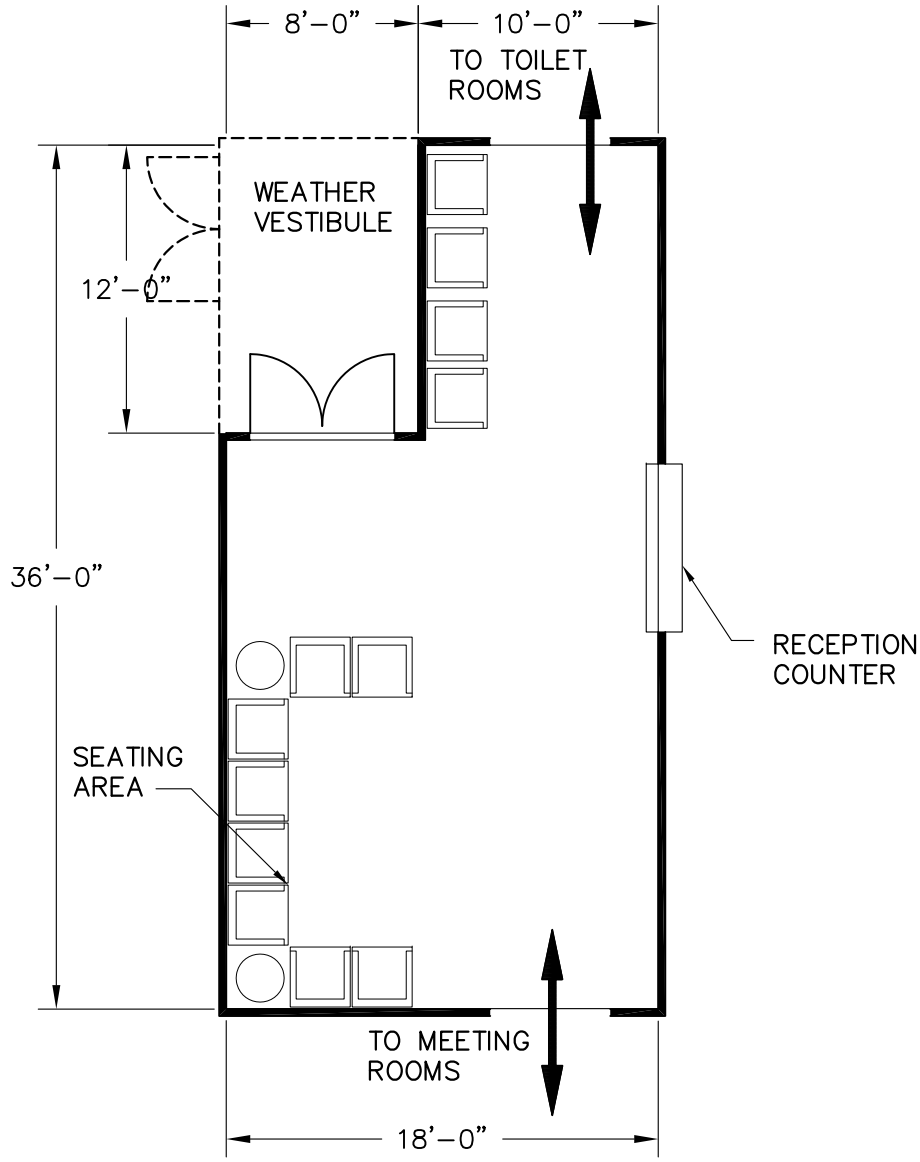
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

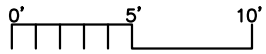
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

WEATHER VESTIBULE

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 88 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: S-110





OPERATIONAL ADJACENCIES:
1. COMMUNITY ROOM
2. ADMIN OFFICES

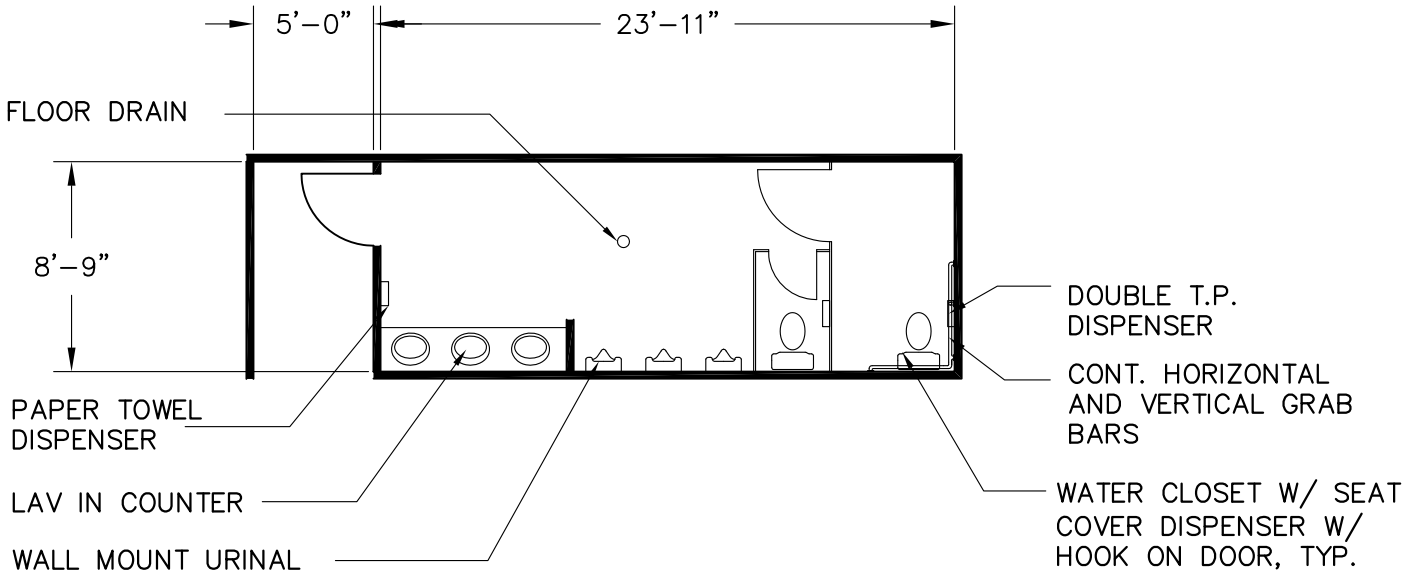
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

PUBLIC LOBBY

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 552 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: S-111



OPERATIONAL ADJACENCIES:
1. PUBLIC LOBBY

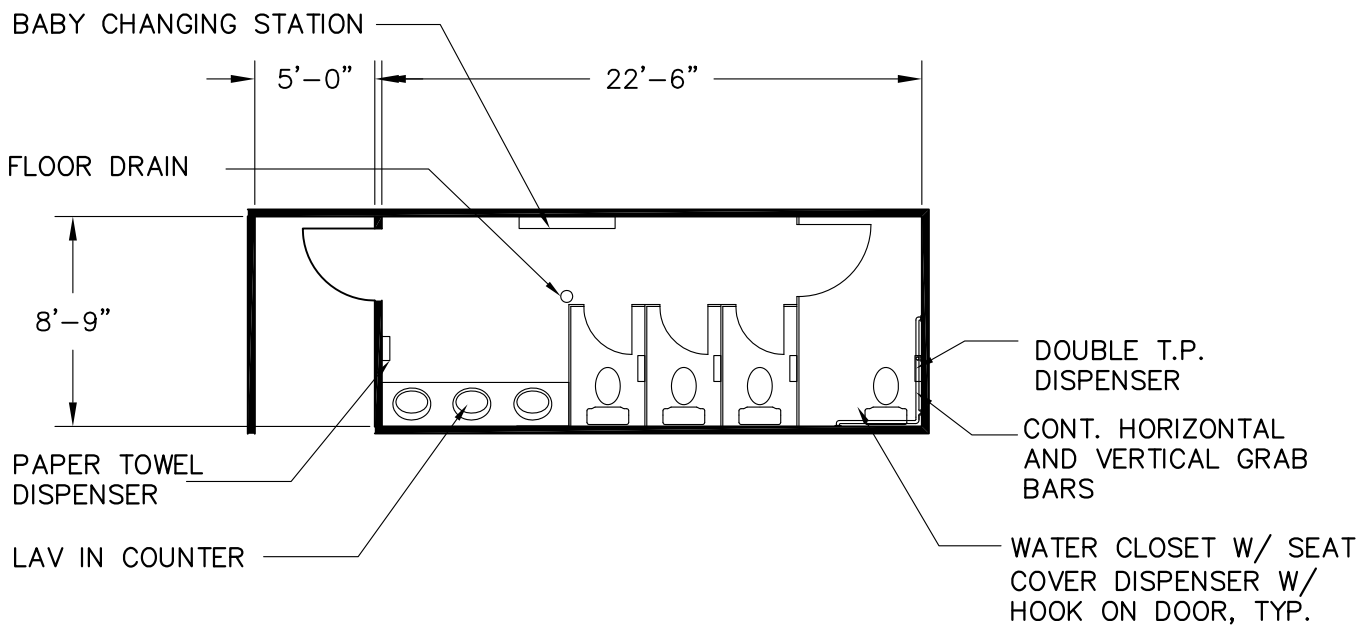
0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

PUBLIC TOILET ROOM–MEN'S

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 254 S.F.
PROJECT NUMBER: 08–13
SPACE NUMBER: S-112



OPERATIONAL ADJACENCIES:
1. PUBLIC LOBBY

0' 5' 10'

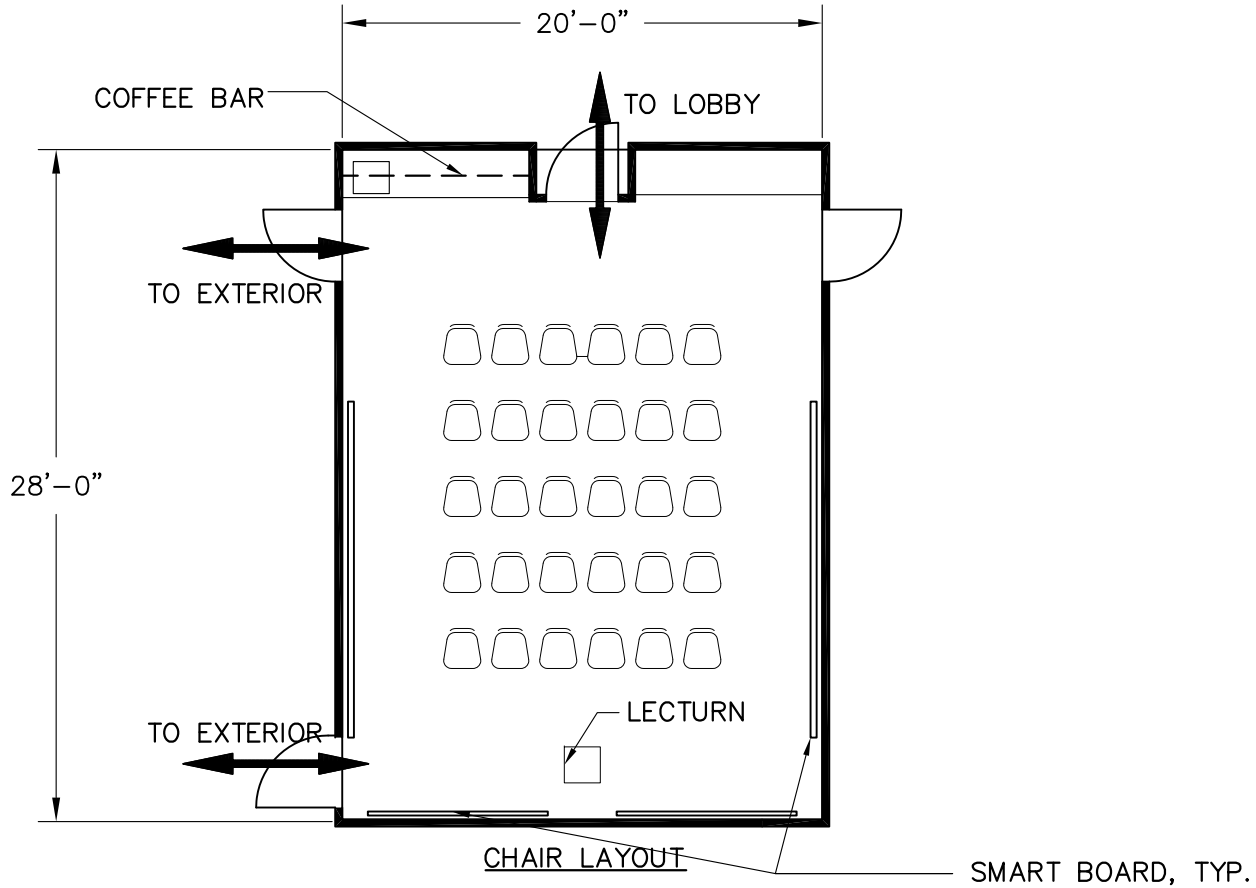
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

PUBLIC TOILET ROOM-WOMEN'S

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 240 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: S-113



OPERATIONAL ADJACENCIES:
1. PUBLIC LOBBY

0' 5' 10'

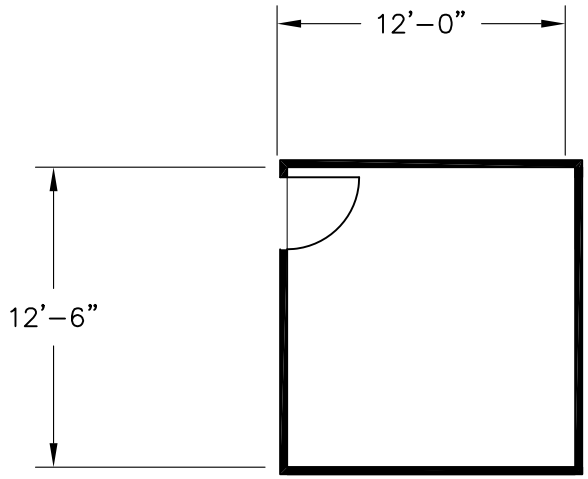
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

MULTIPURPOSE ROOM /EOC

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 560 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: S–114



OPERATIONAL ADJACENCIES:
1. COMMUNITY ROOM

0' 5' 10'

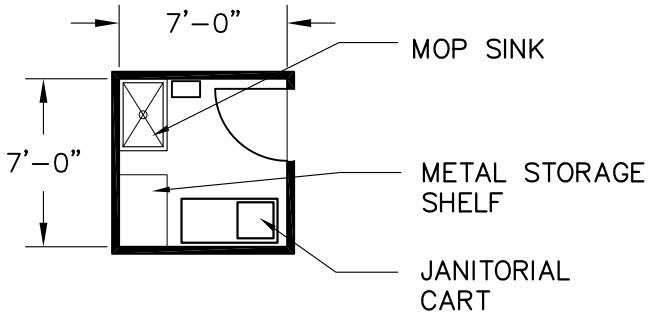
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

MULTIPURPOSE ROOM/EOC STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 150 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: S-115



OPERATIONAL ADJACENCIES:
1. COMMUNITY ROOM

0' 5' 10'

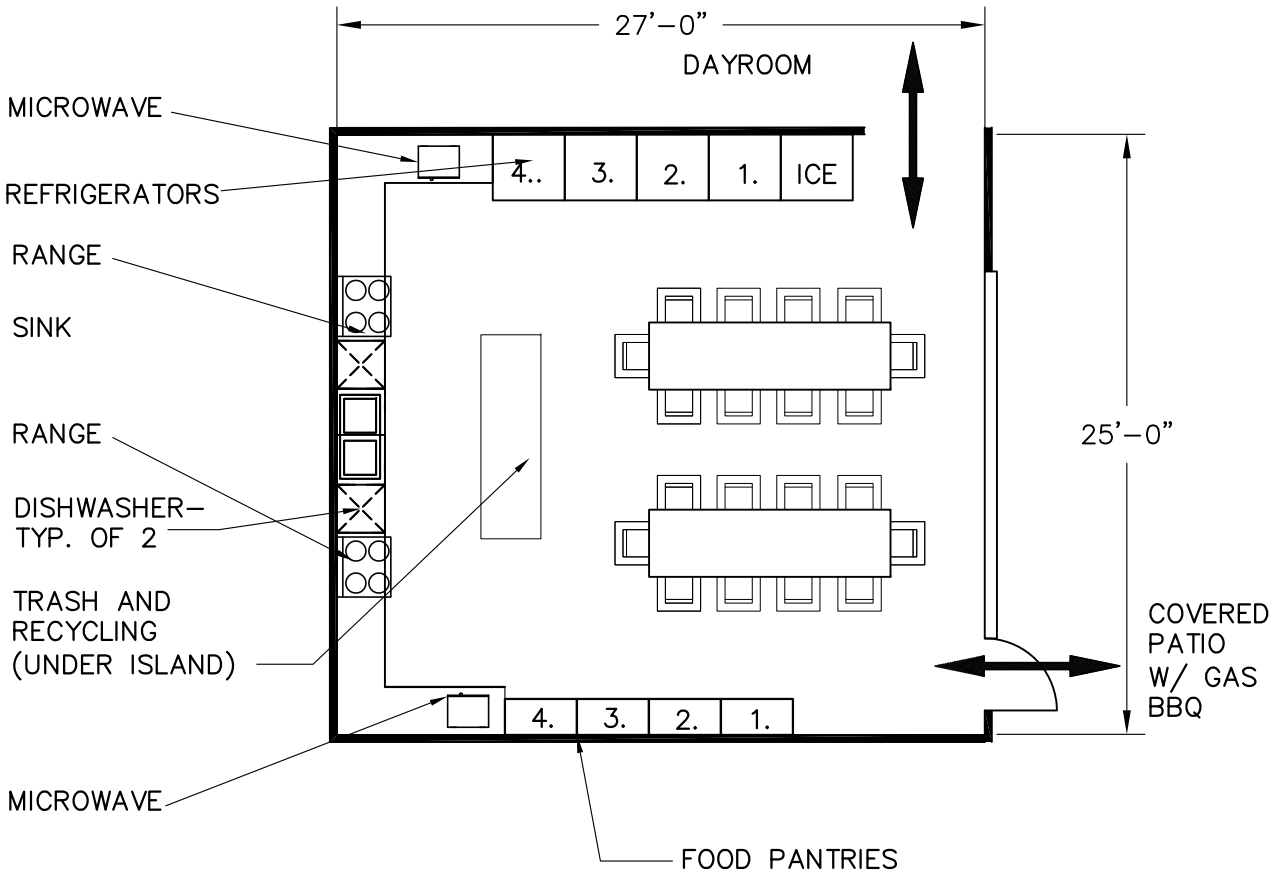
T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

CUSTODIAL

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 49 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: S-116



OPERATIONAL ADJACENCIES:
1. FIRE AND POLICE

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

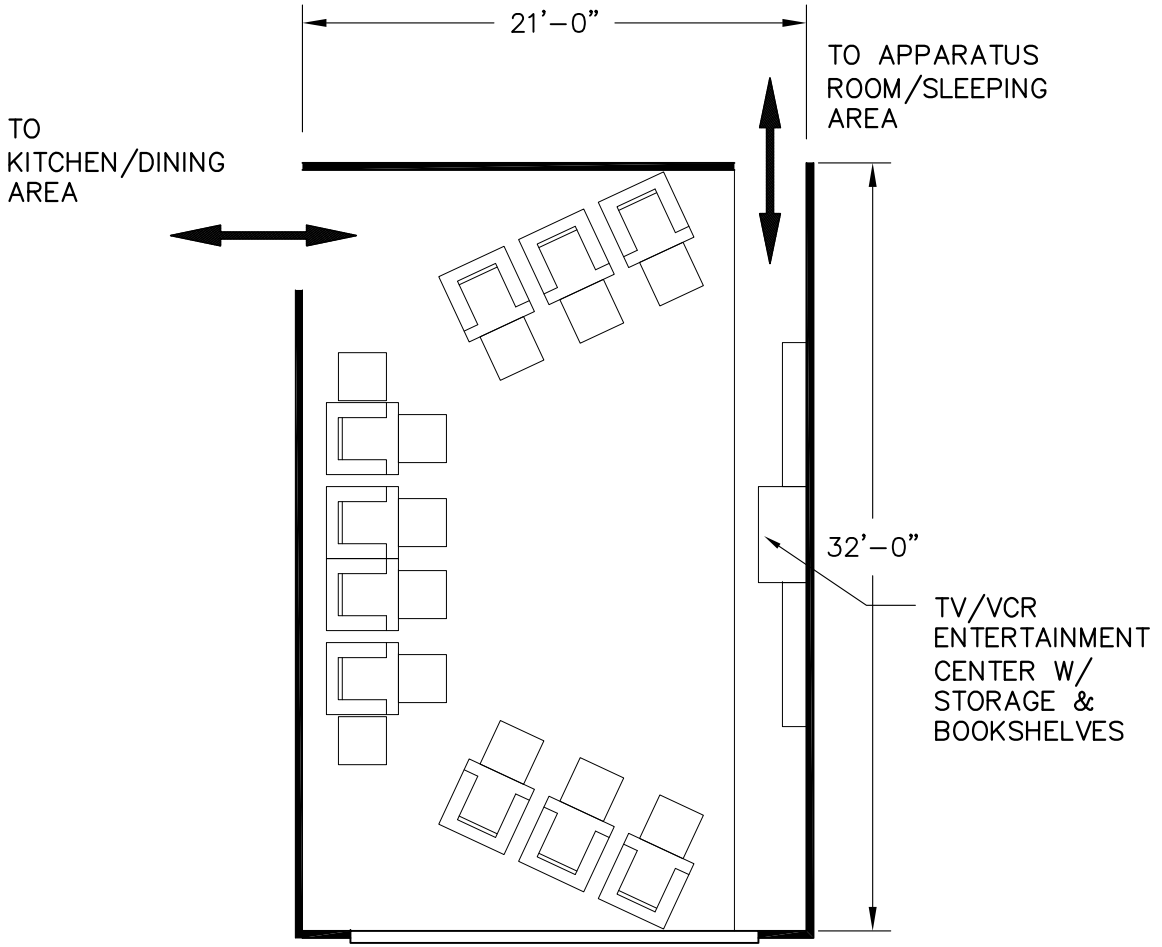
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

KITCHEN/DINING

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 675 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER:

S–322



OPERATIONAL ADJACENCIES:
1. FIRE & POLICE

0' 5' 10'

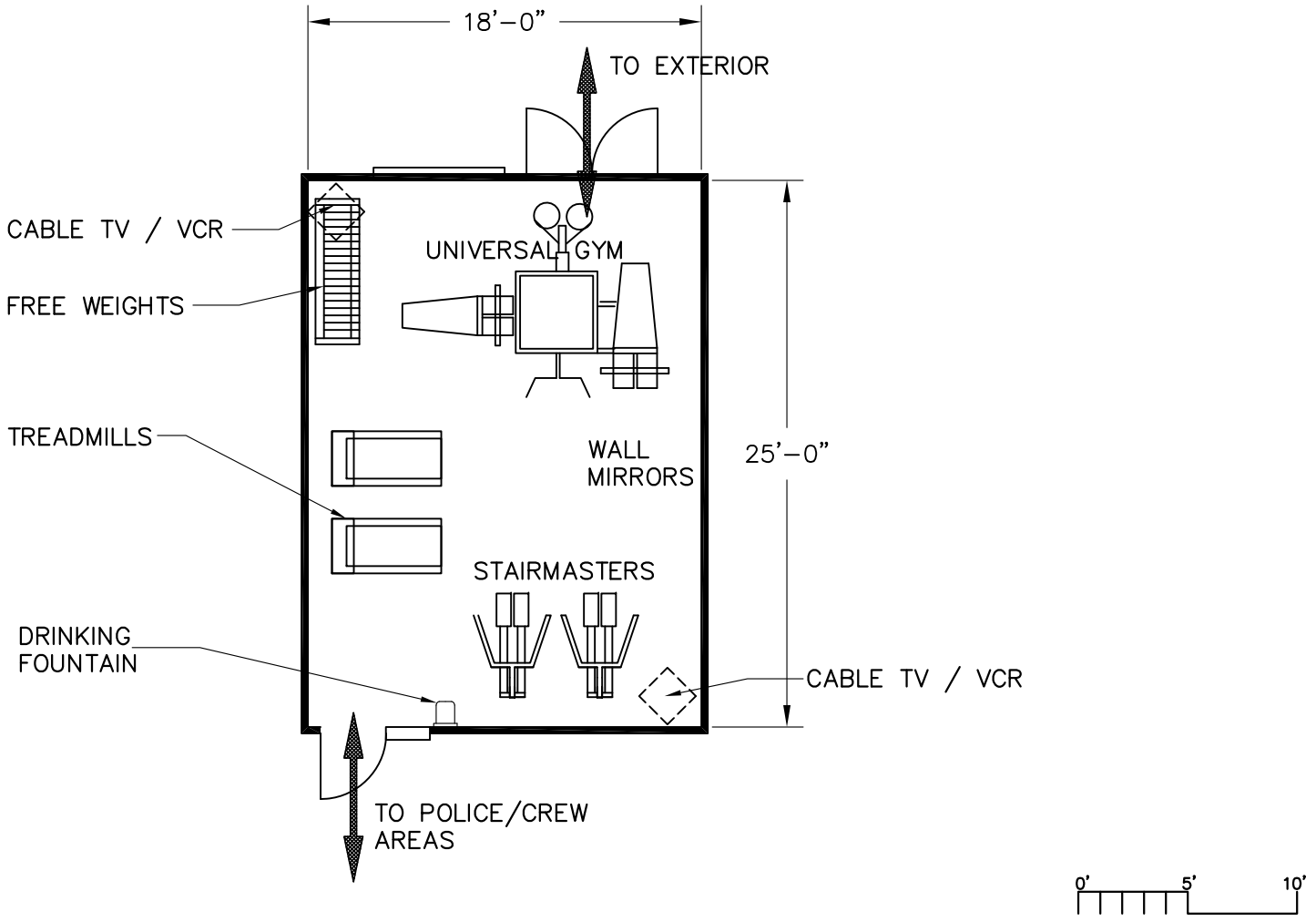
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

DAYROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 672 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: S–323



OPERATIONAL ADJACENCIES:
1. FIRE & POLICE CREW

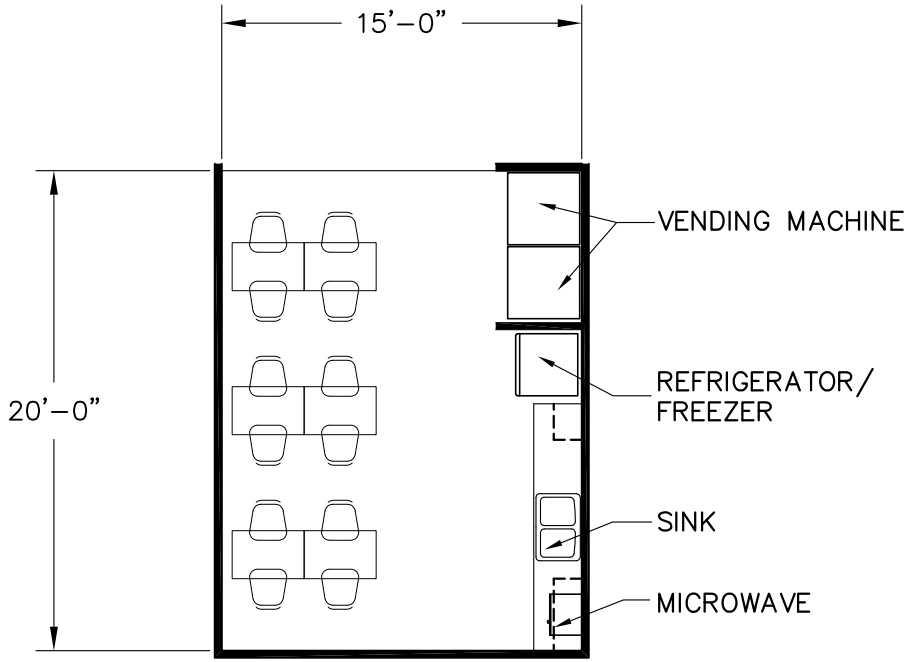
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

PHYSICAL TRAINING

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 450 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: S-324



OPERATIONAL ADJACENCIES:

1. FIRE & POLICE ADMIN. OFFICES (SHARED)

0' 5' 10'

T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

BREAK ROOM

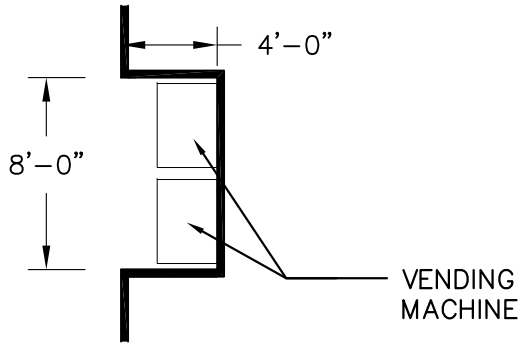
DATE: 7.02.2014

SCALE: 1/8" = 1'–0"

SQUARE FEET: 300 S.F.

PROJECT NUMBER: 08–13

SPACE NUMBER: S-512



OPERATIONAL ADJACENCIES:
1. POLICE & FIRE

0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

VENDING

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 32 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: S–513

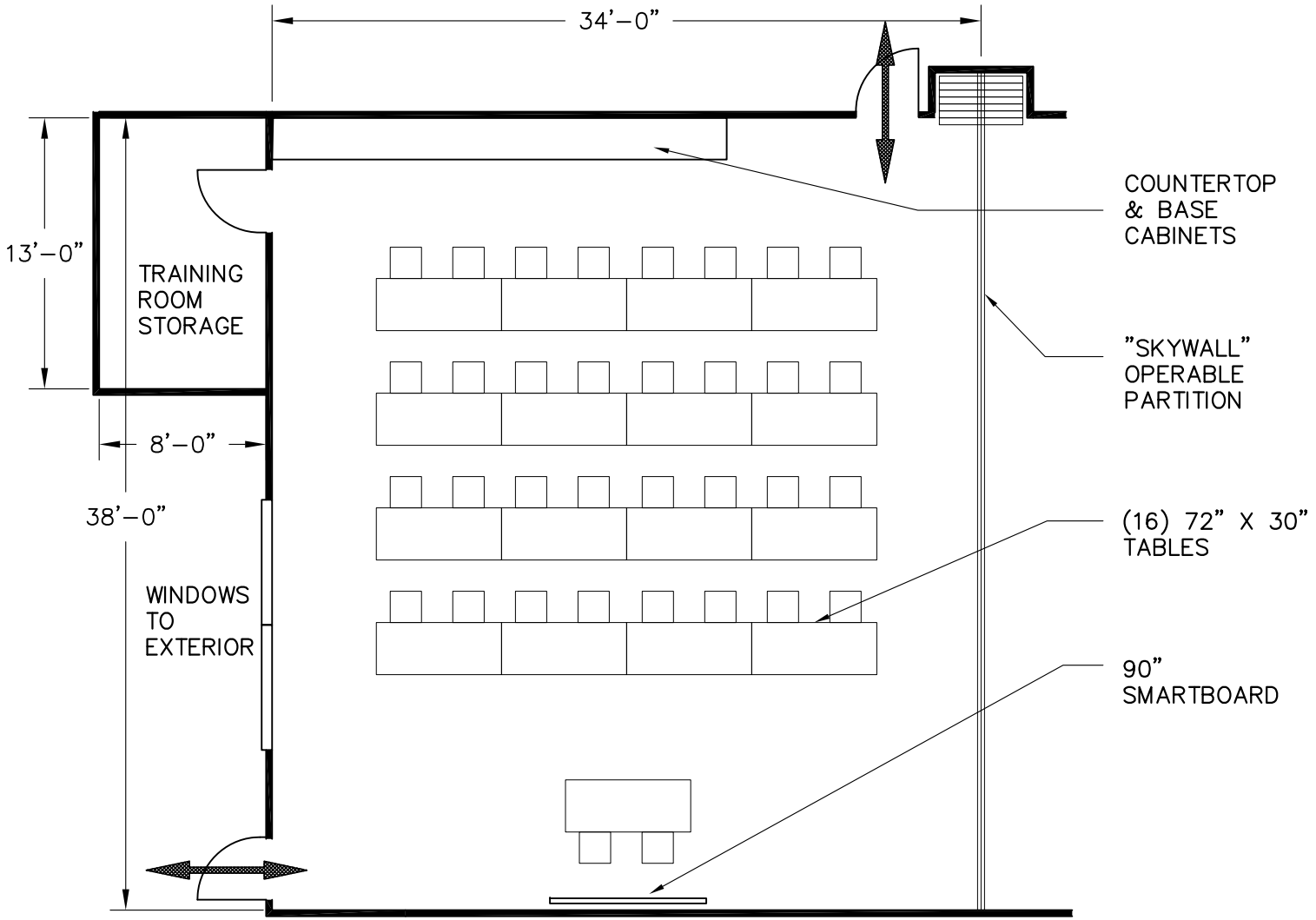


TABLE LAYOUT

0' 5' 10'

OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS
2. CREW AREA

T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

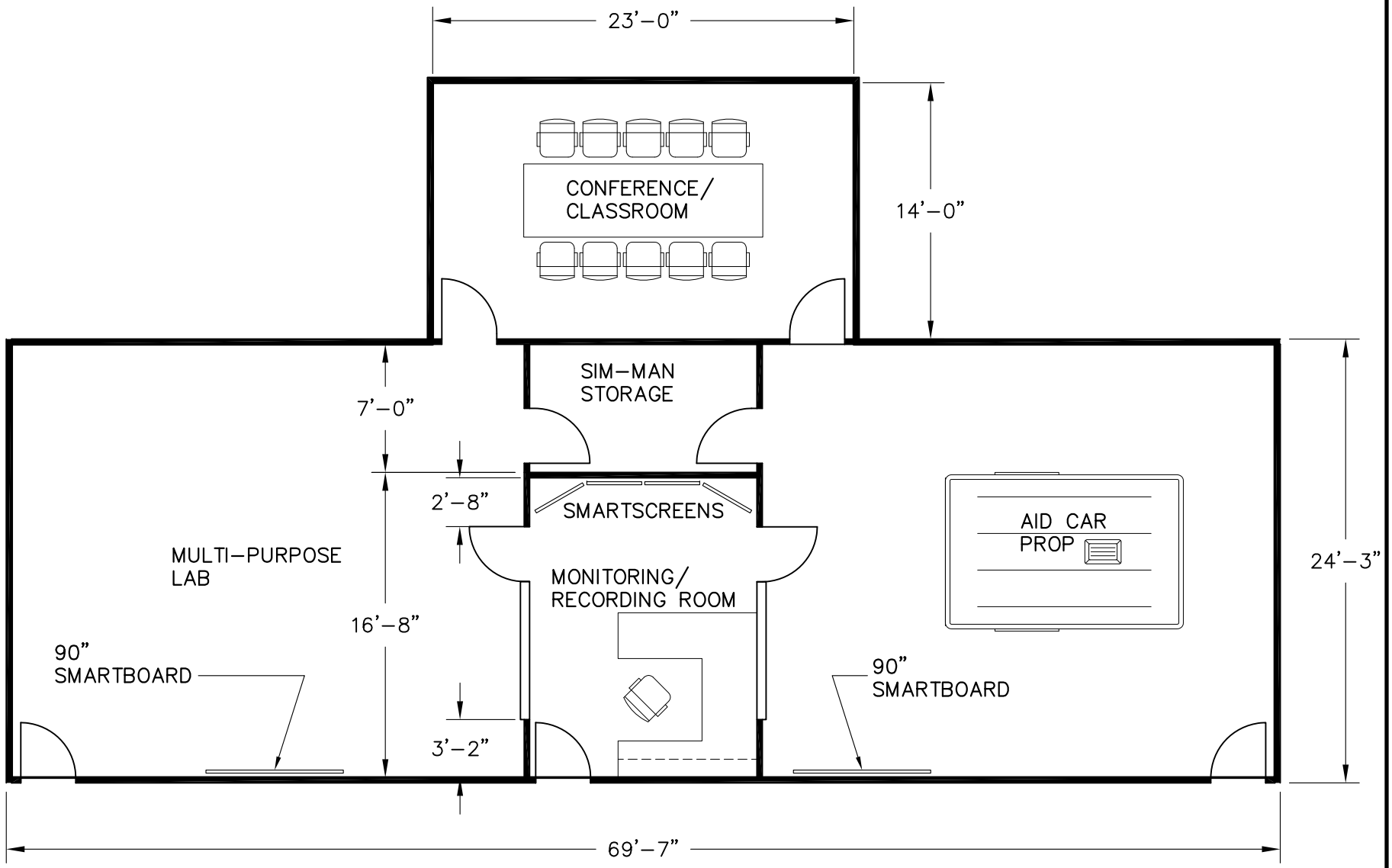
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

FIRE SERVICE/ LAW ENFORCEMENT CLEAN CLASSROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 1,292 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER:

T–210



OPERATIONAL ADJACENCIES:

1. CTC CLASSROOMS/ADMIN

T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

PARAMEDICS/EMT CLASSROOM/LAB (AID CAR & SIM–MAN)

DATE: 7.02.2014

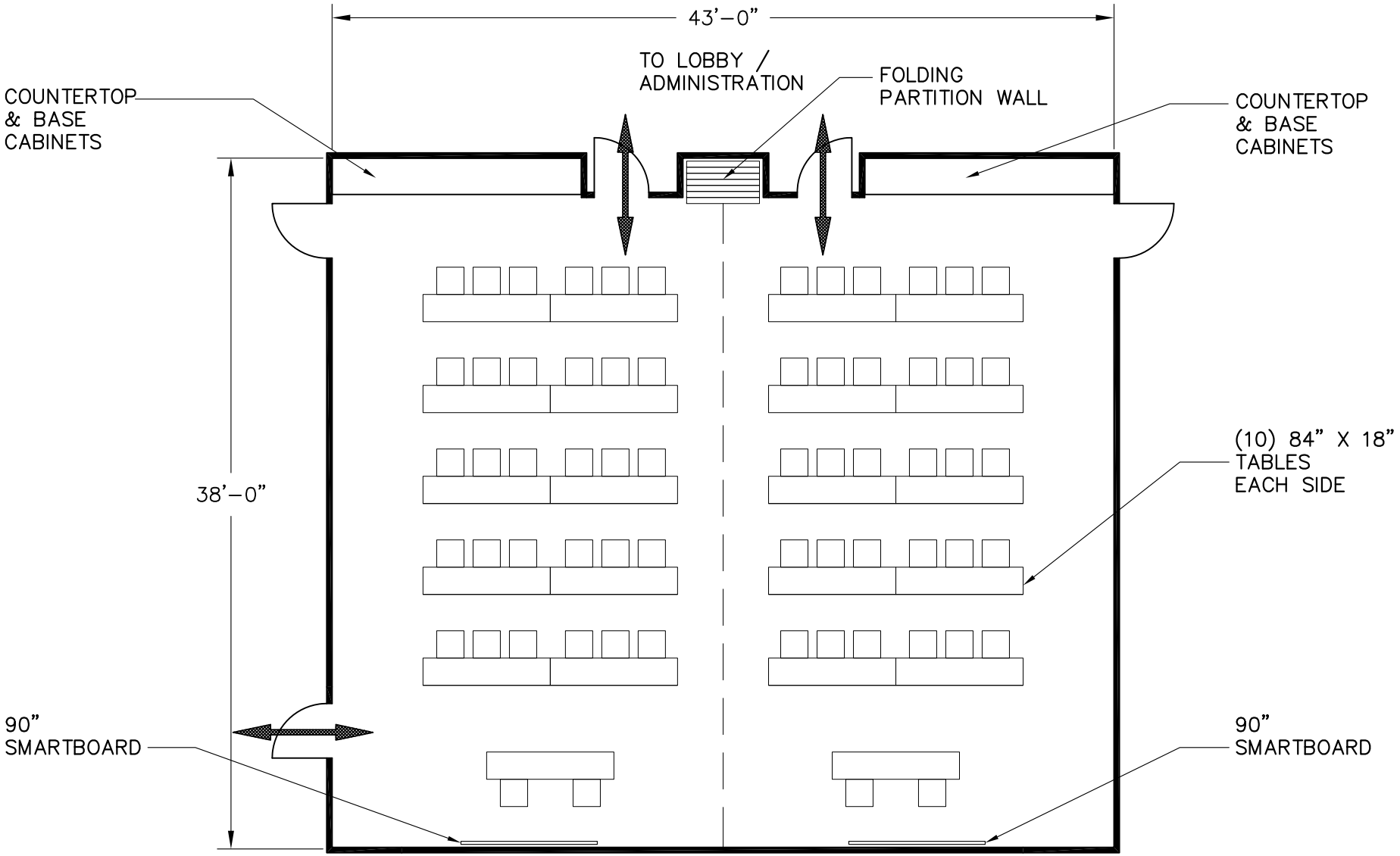
SCALE: 1/8" = 1'–0"

SQUARE FEET: 1,962 S.F.

PROJECT NUMBER: 08–13

SPACE NUMBER:

T–212



OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS

EMT CLASSROOM

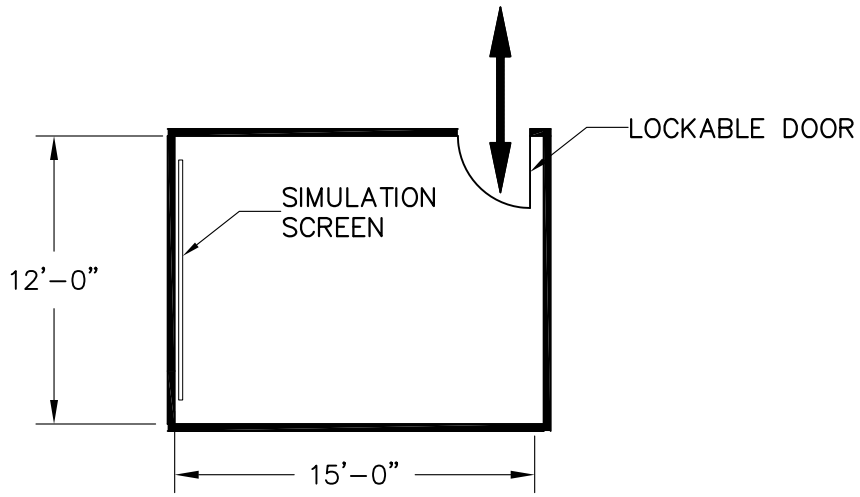
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

EMT CLASSROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 1,634 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–213



OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS, APPARATUS BAY

0' 5' 10'

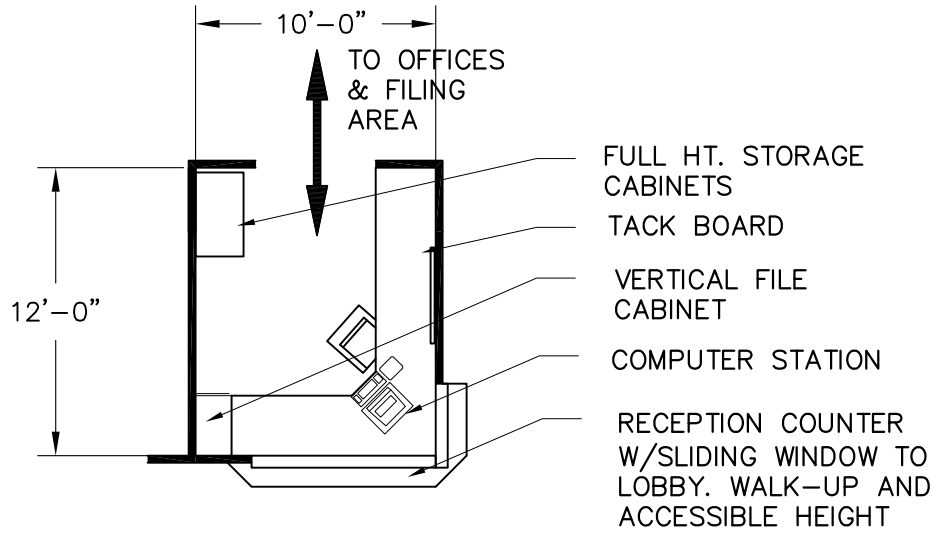
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

LAW ENFORCEMENT DIRTY CLASSROOM (SHOOTING DECISION LAB)

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 180 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–214



OPERATIONAL ADJACENCIES:
1. CTC OFFICES
2. FIRE ADMIN.
3. PLICE ADMIN.

0' 5' 10'

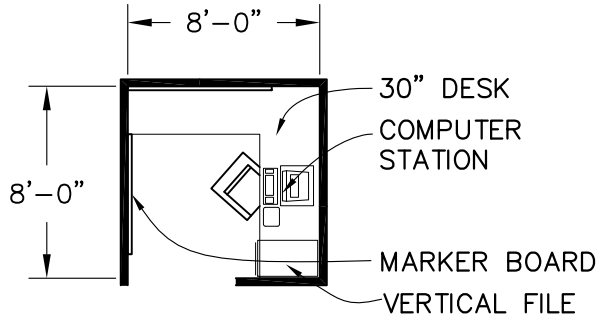
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

RECEPTION

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–220



OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS

0' 5' 10'

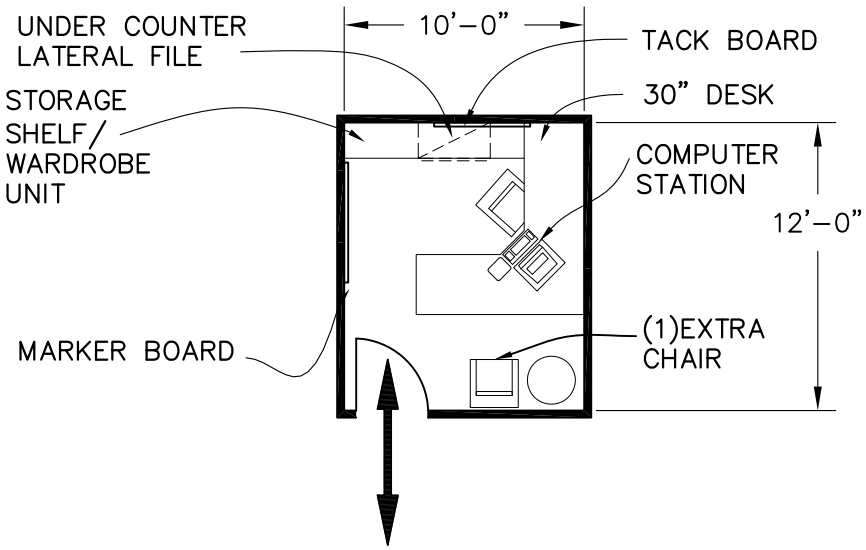
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

ADMINISTRATIVE ASSISTANT

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 64 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–221



OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS

0' 5' 10'

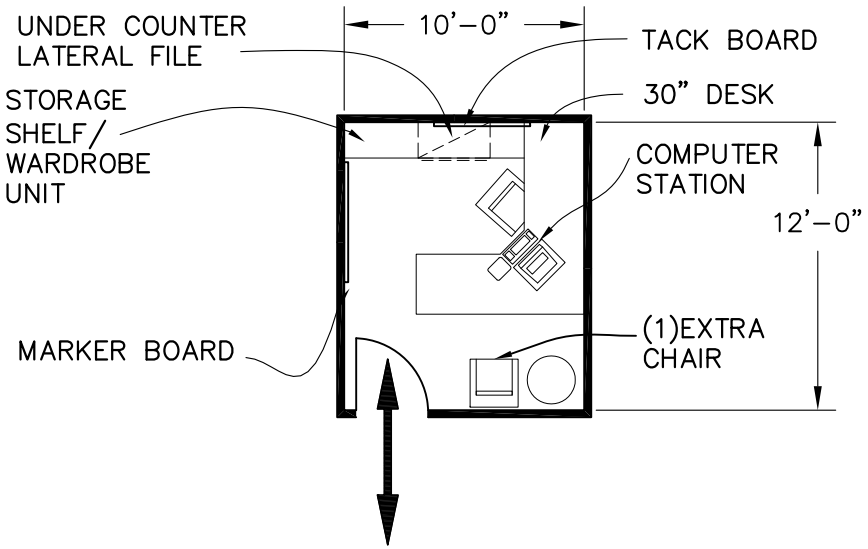
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

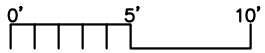
FIRE SCIENCE PROFESSOR

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–222



OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS



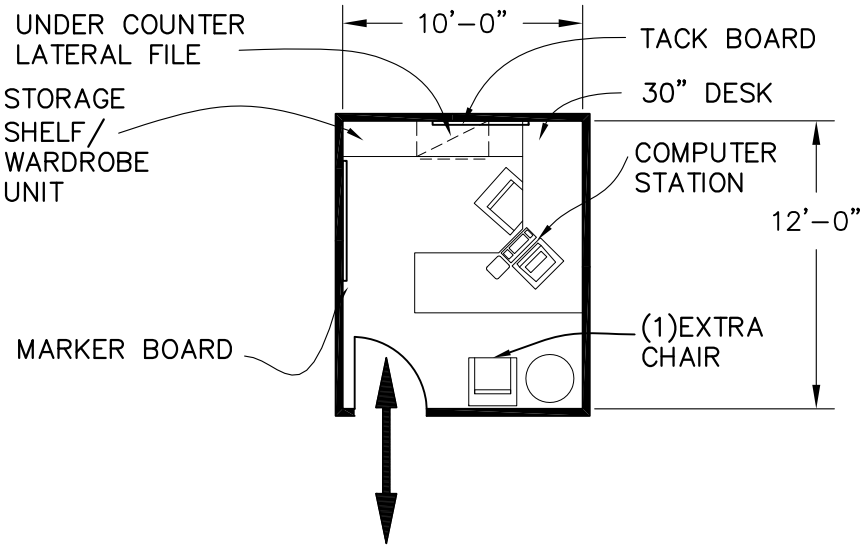
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

LAW ENFORCEMENT PROFESSOR

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–223



OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS

0' 5' 10'

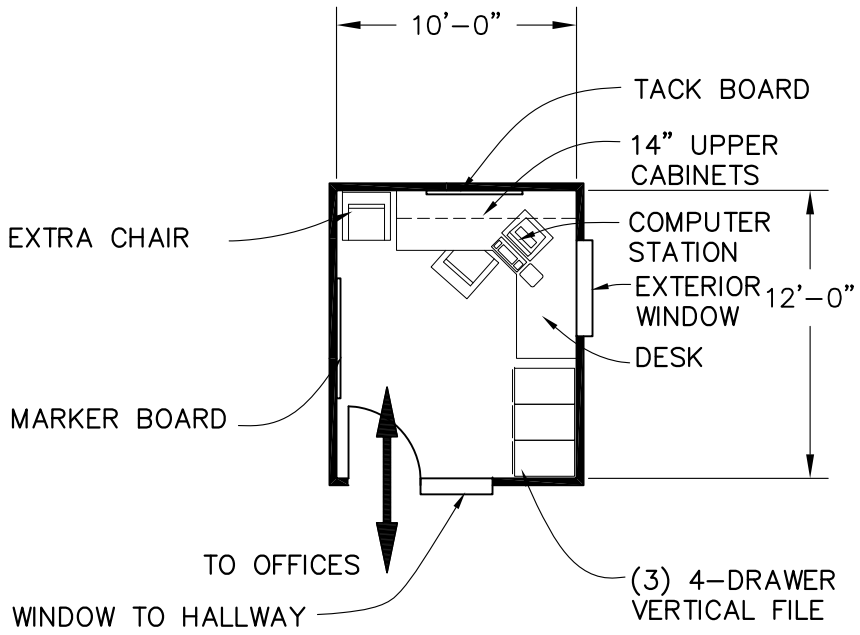
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

EMS PROFESSOR

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–224



OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS

0' 5' 10'

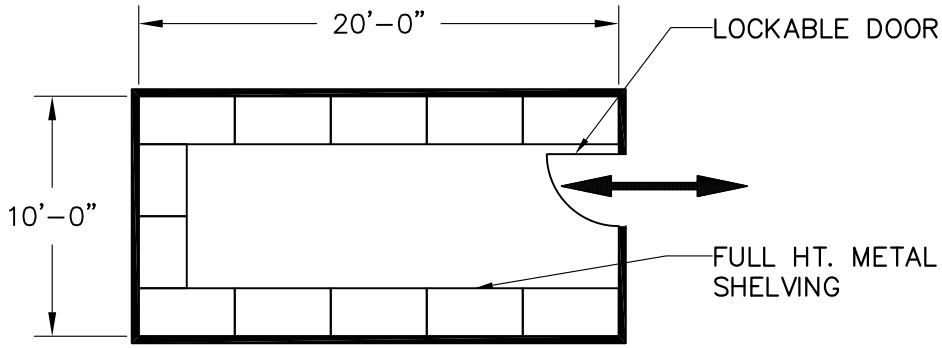
T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

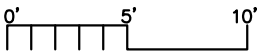
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY SERVICES FACILITY
FAIRBANKS , ALASKA

ADJUNCT FACULTY

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–225





OPERATIONAL ADJACENCIES:
1. CTC APPARATUS BAY

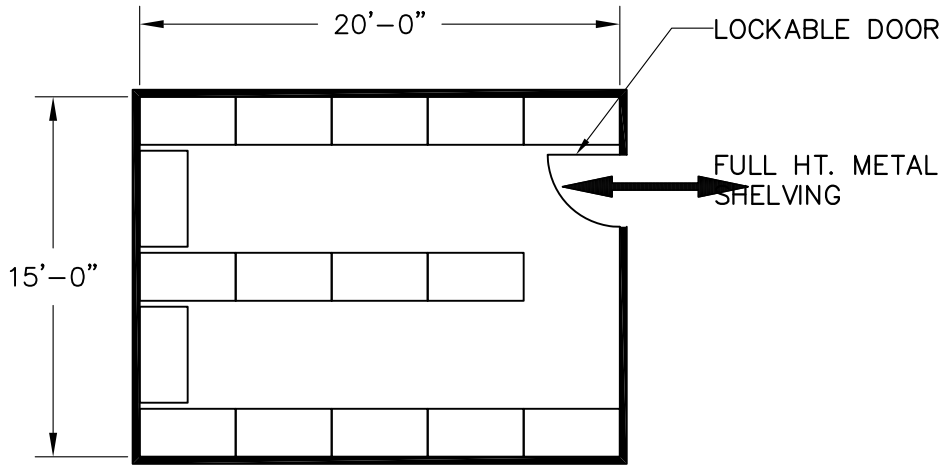
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

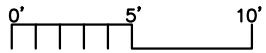
UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

EMS TRAINING STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 200 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–234





OPERATIONAL ADJACENCIES:
1. CTC APPARATUS BAY

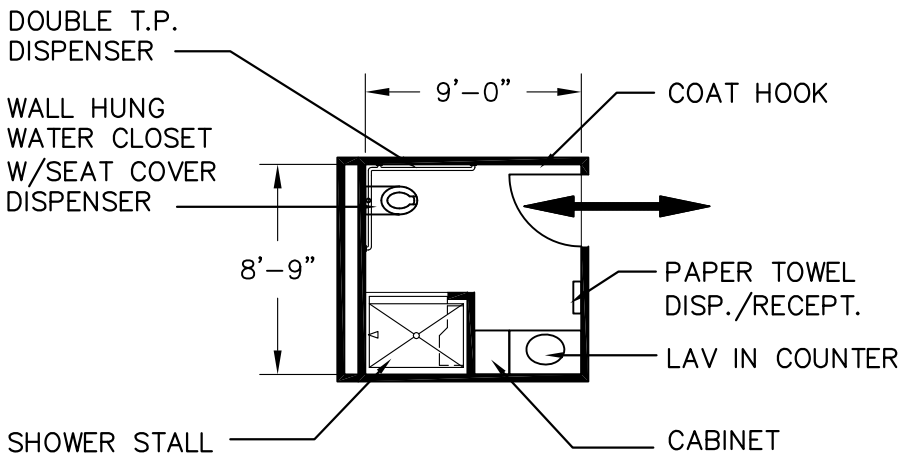
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

LAW ENFORCEMENT STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 300 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–235



OPERATIONAL ADJACENCIES:

1. CTC CLASSROOMS/OFFICES

0' 5' 10'

T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

CTC UNISEX RESTROOM/SHOWER

DATE: 7.02.2014

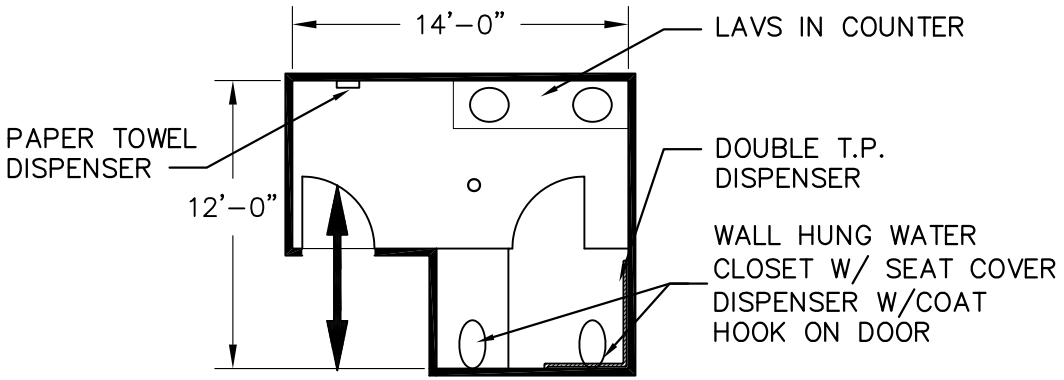
SCALE: 1/8" = 1'-0"

SQUARE FEET: 3@80 S.F.

PROJECT NUMBER: 08-13

SPACE NUMBER:

T-237



OPERATIONAL ADJACENCIES:
1. CTC CLASSROOMS/OFFICES

0' 5' 10'

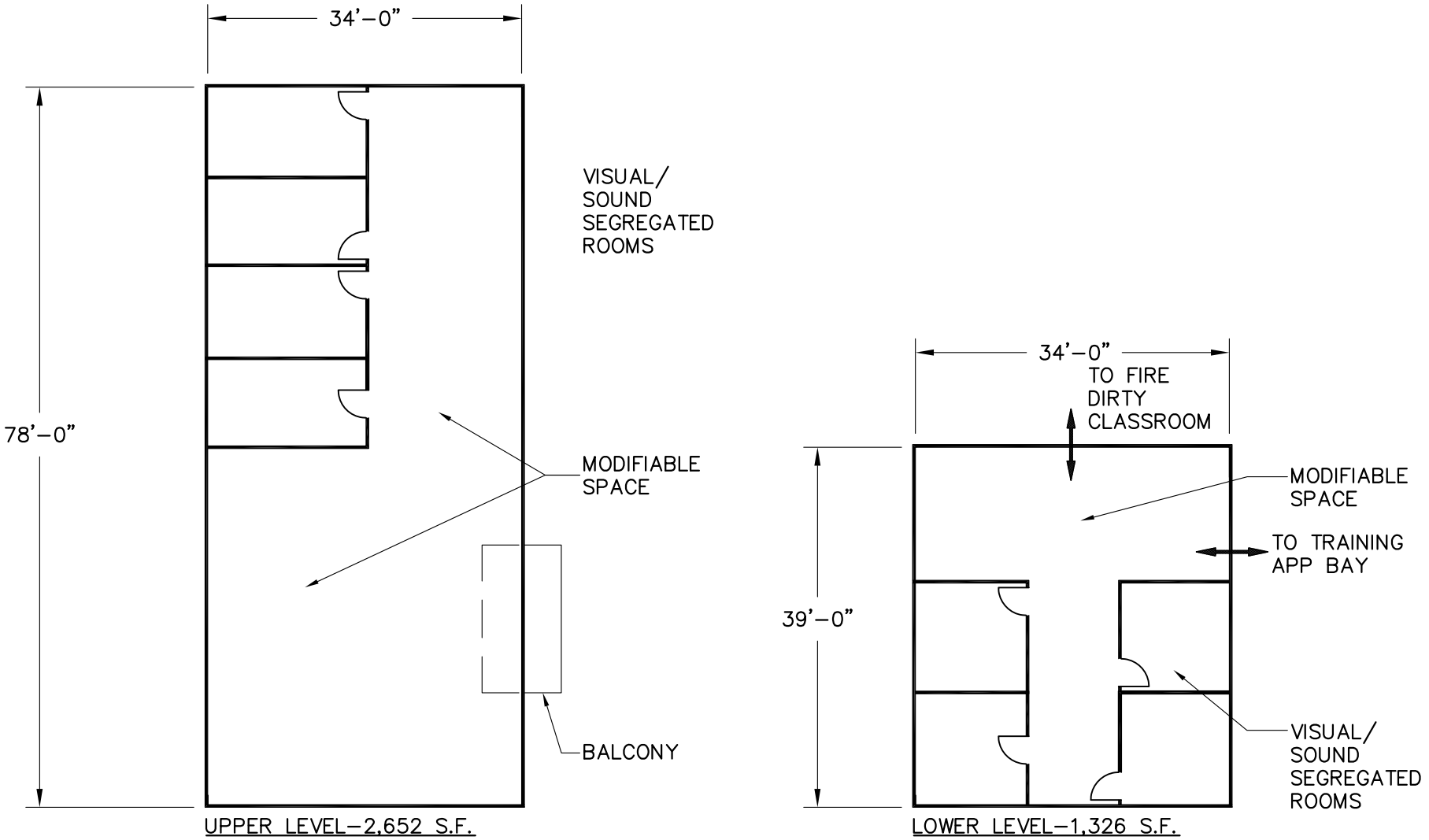
T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

CTC WOMEN'S RESTROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 138 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–238



OPERATIONAL ADJACENCIES:
1. APPARATUS SPPORT SPACES
2. CREW AREA

0' 10' 20'

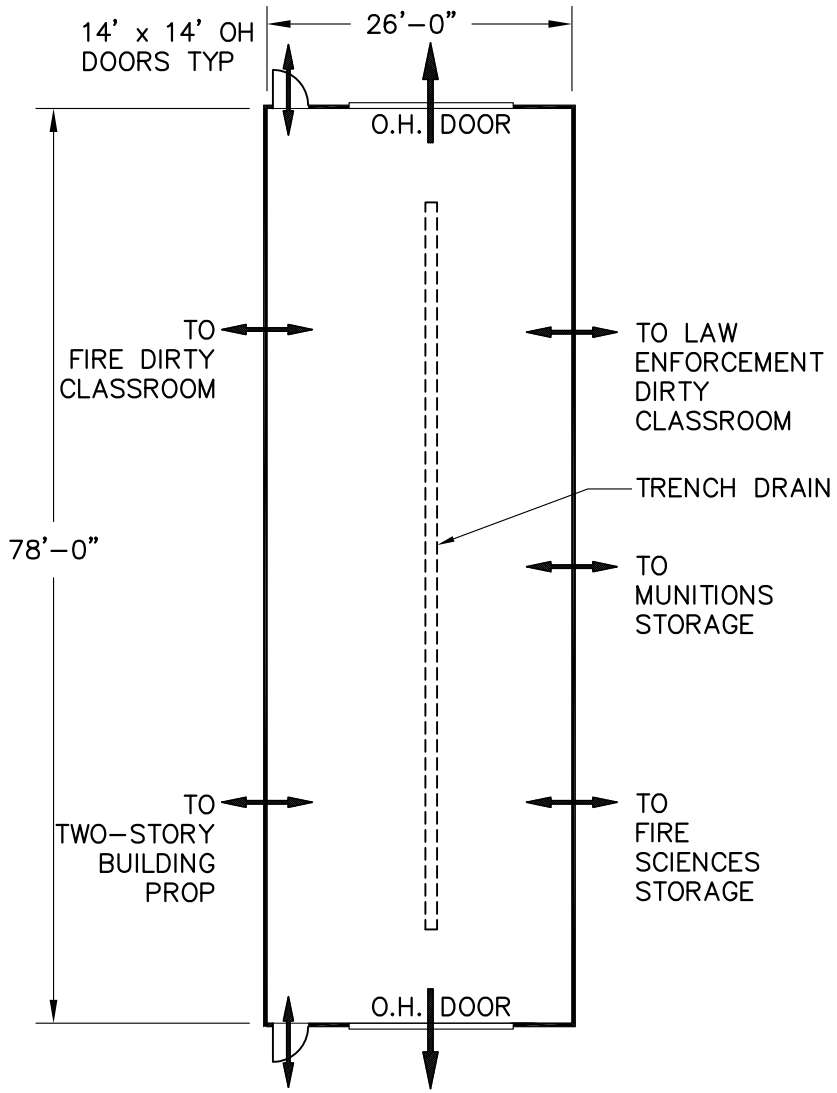
T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

UNIVERSITY OF ALASKA
FAIRBANKS EMERGENCY
SERVICES FACILITY
FAIRBANKS , ALASKA

SIMULATION BUILDING

DATE: 7.02.2014
SCALE: 1/16" = 1'-0"
SQUARE FEET: 3,978 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: T-250



OPERATIONAL ADJACENCIES:
1. APPARATUS SPPORT SPACES
2. CREW AREA

0' 10' 20'

T A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

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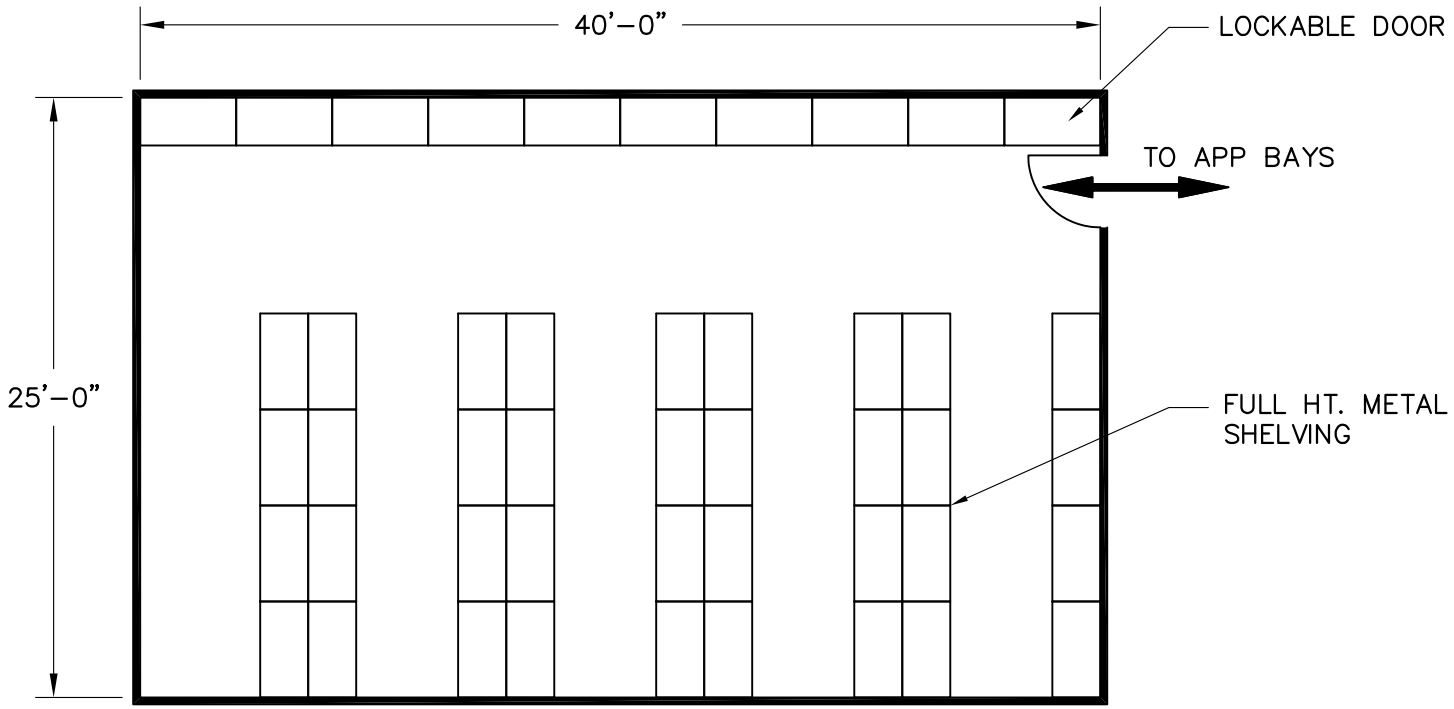
SERVICES FACILITY
FAIRBANKS , ALASKA

TRAINING APPARATUS BAY

DATE: 7.02.2014
SCALE: 1/16" = 1'-0"
SQUARE FEET: 2,028 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER:

T-251



OPERATIONAL ADJACENCIES:
1. CTC APPARATUS BAY

0' 5' 10'

T C A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

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SERVICES FACILITY
FAIRBANKS , ALASKA

FIRE SCIENCES STORAGE

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 1000 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–253

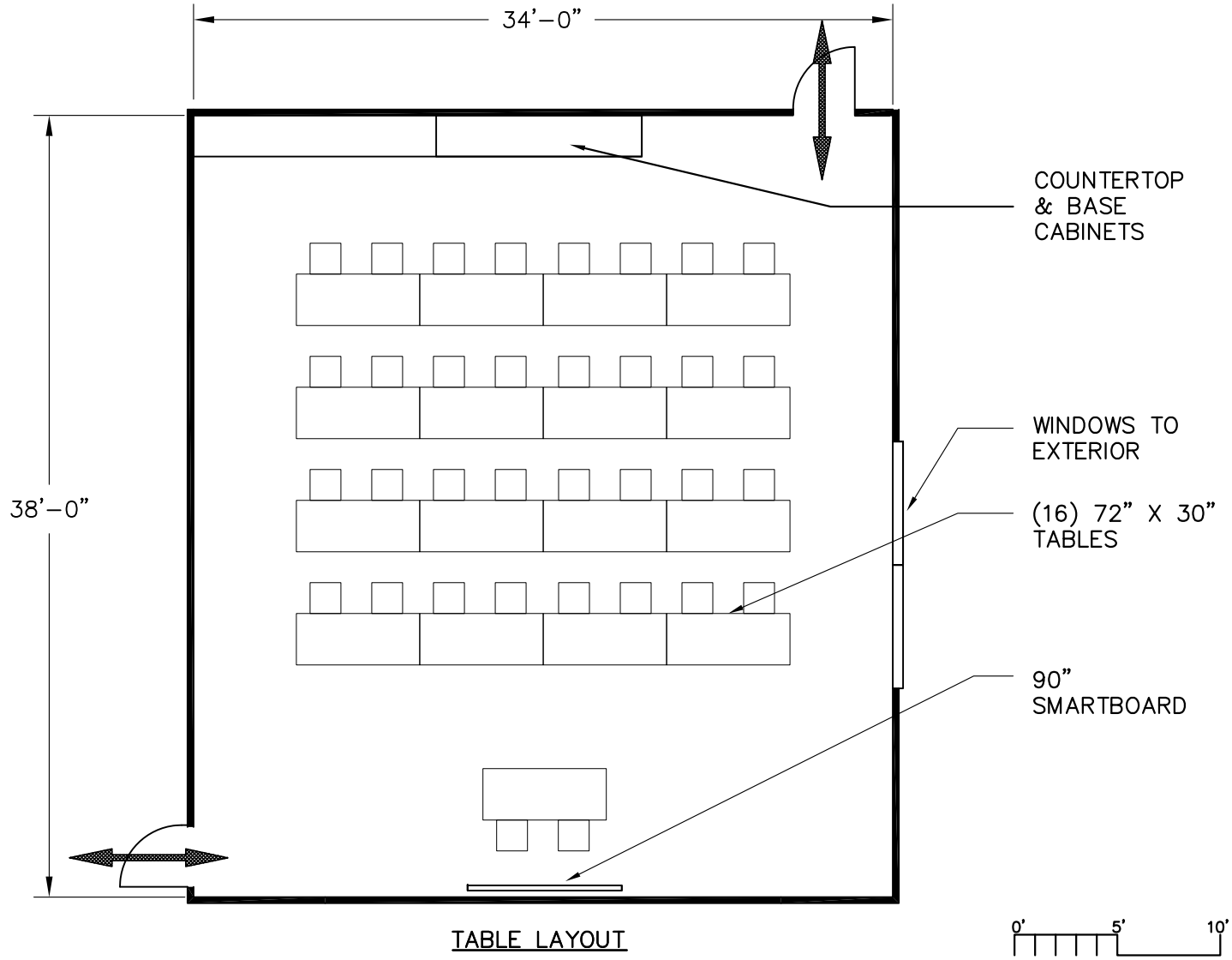

TABLE LAYOUT

OPERATIONAL ADJACENCIES:
1. SIMULATION BUILDING

T A
architecture · planning
ph: 206–522–3830 fx: 206–522–2456

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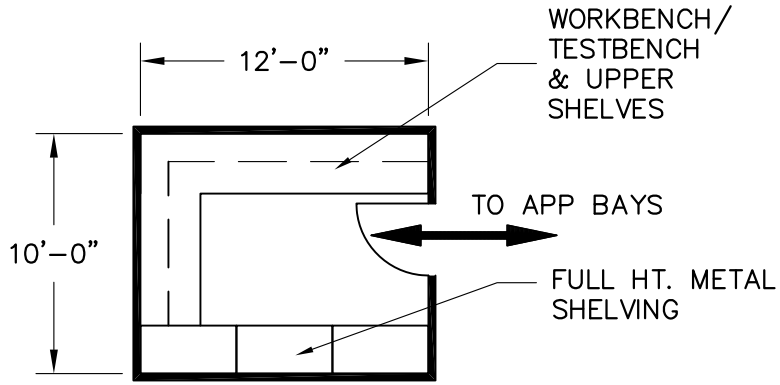
FAIRBANKS , ALASKA

FIRE SCIENCES DIRTY CLASSROOM

DATE: 7.02.2014
SCALE: 1/8" = 1'–0"
SQUARE FEET: 1,292 S.F.

PROJECT NUMBER: 08–13
SPACE NUMBER: T–254



OPERATIONAL ADJACENCIES:
1. TRAINING APPARATUS BAY

T C A
architecture · planning
ph: 206-522-3830 fx: 206-522-2456

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SERVICES FACILITY
FAIRBANKS , ALASKA

EMS TESTING

DATE: 7.02.2014
SCALE: 1/8" = 1'-0"
SQUARE FEET: 120 S.F.

PROJECT NUMBER: 08-13
SPACE NUMBER: T-255

Concept Drawings


EXISTING SEWER MAIN 14" WSP
MH L11
300'x6" SANITARY SEWER SERVICE, CONNECT TO MH L11
SS C.O.
LADDER TRUCK TURNING PATH
EXISTING STORM SEWER
HYDRANT
RAISE EXISTING STORM DRAIN MANHOLE TO FINISH GRADE
6"x6' PCC
EXISTING UTILIDOR
UAF Ladder Truck
TANANA LOOP
EXISTING UTILIDOR
6"x6' PCC
13'X32' UTILIDOR BLISTER
40'R
20'R
1.5%
4%
2.5%
2" AST
24'
30'x18" CMP
PROPOSED SD MH
170'x18" CMP
PROPOSED SD MH
2 PARKING SPACES WITH HBO
POLICE
POLICE
STAIRS
MATCH EXISTING PARKING LOT
3.4%
6" ACC
SS C.O.
NENANA
30'x6'x8' UTILIDOR EXTENSION
50'x6" DIP
50'x2" HDPE
TRANSFORMER (2)
HYDRANT
FIRST FLOOR BELOW GRADE
2ND FLOOR PEDESTRIAN ACCESS
PROPOSED FIRE STATION
FF(2nd STORY)=472.5'
FF(1st STORY)=460.5'
6"x6' PCC
EXISTING BUS STOP
3:1
EXTERIOR SIMULATION TRAINING
ADA RAMP
LADDER TRUCK TURNING PATH
ADA
ADA
20 MIN
20 MIN
FIRE
POLICE
POLICE
POLICE
POLICE
FACILITY
FACILITY
20'x18" CMP
PROPOSED SD MH
PARKING & TURNING AREA
2ND FLOOR PEDESTRIAN ACCESS
160'
FILL LIMIT
150' OFFSET FROM ARRC
2%
A
C-102
11 PARKING SPACES WITH HBO
6"x6' PCC
8' CHAIN LINK FENCE
12' WIDE GATE
12' WIDE GATE
IMPOUND AREA
BACKUP GENERATOR AND FUEL TANK
38'
24'
EXISTING STORM SEWER
150'
EXTEND STORM DRAIN 170'x24" CMP
74'
27'
FILL LIMIT
6"x6' PCC
Paved Parking
Unpaved Parking
Sidewalk
Curb
Ditch

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ARCHITECTURE PLANNING LANDSCAPE INTERIORS

PDC INC. ENGINEERS
1028 Aurora Drive, Fairbanks, Alaska 99709-5529

PROJECT NO: 2008144 WHNS

Whitaker Hall Replacement Fire Station

590 University Ave, Suite 200
University of Alaska Fairbanks

CONCEPT DESIGN SUBMITTAL

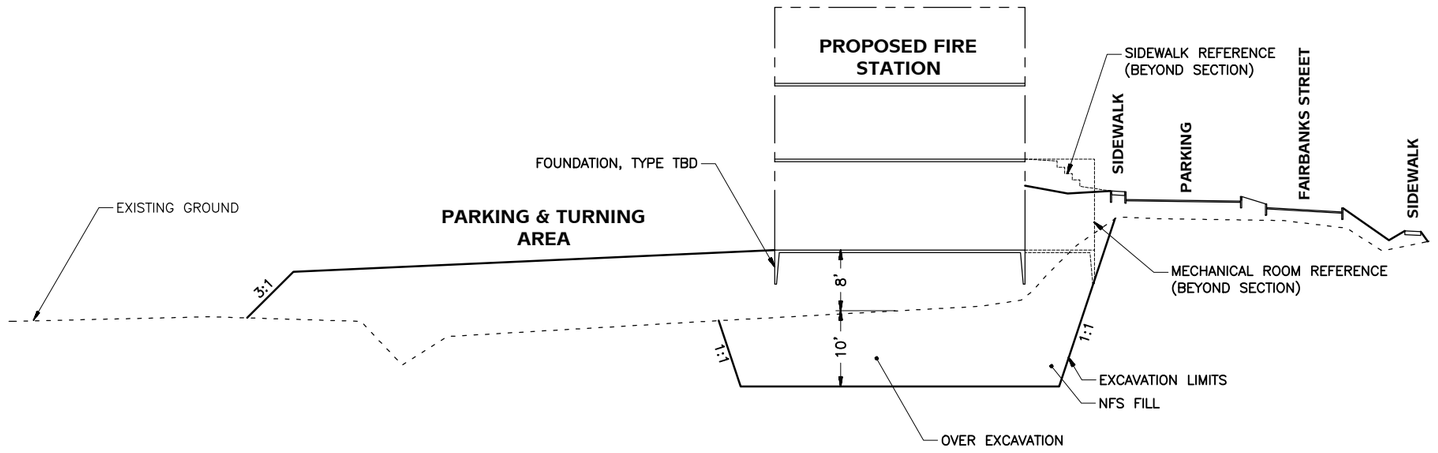
CONSULTANT:

PROJECT NO:	14-155
DATE:	08/01/2014
DRAWN BY:	RJP
CHECKED BY:	NBF

Symbol	Description	Date

SCHEMATIC SITE PLAN

C-101



A / C-102 **SECTION: SITE WITH REFERENCE TO 2ND FLOOR ENTRY SIDEWALK**

HORZ: 1"=30'
VERT: 1"=10'

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CHECKED BY:	NB

Symbol	Description	Date

DETAILS

C-102

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CONSULTANT:

PROJECT NO:	14-155
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CHECKED BY:	

Symbol	Description	Date

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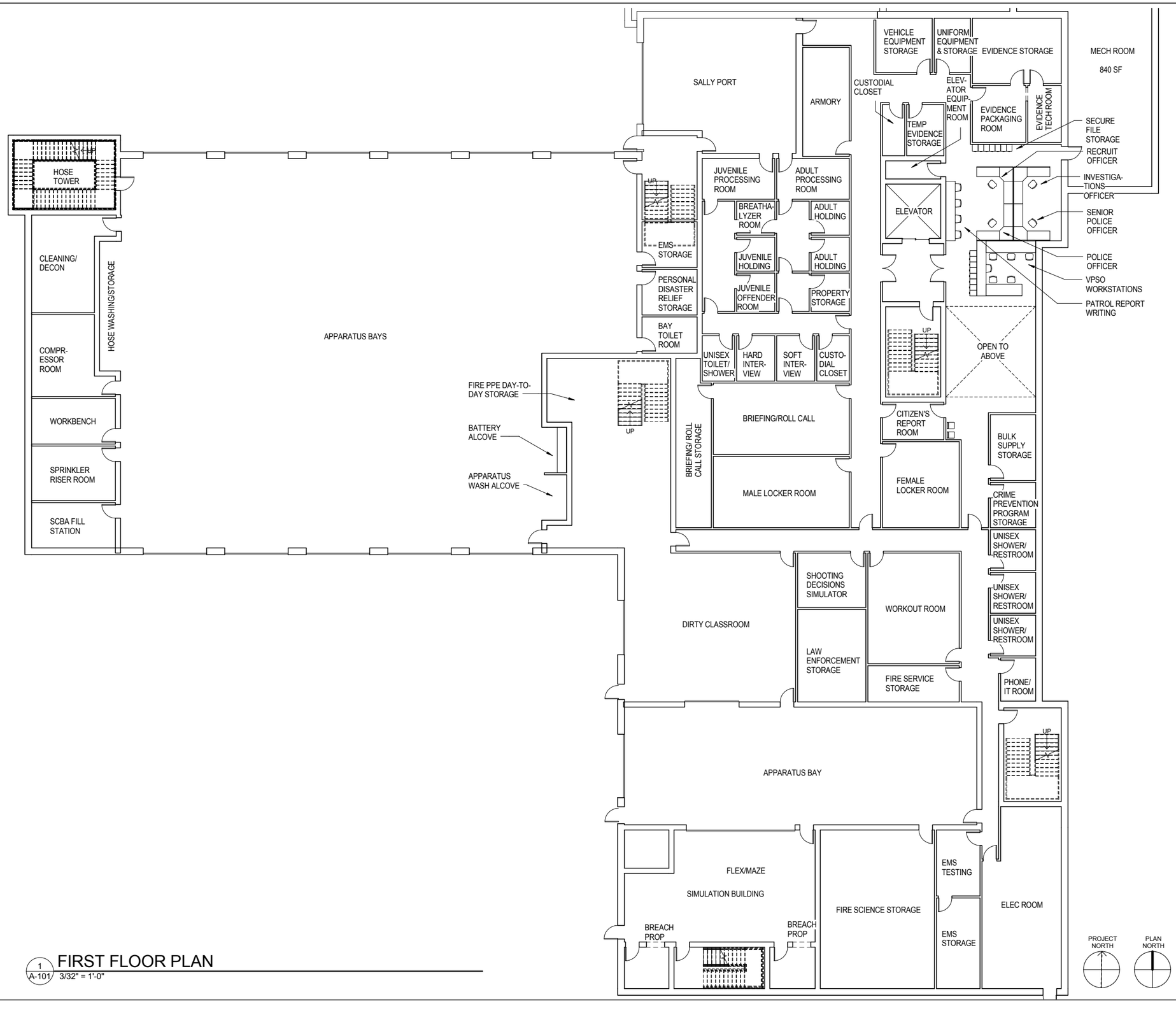

1 A-101 FIRST FLOOR PLAN
3/32" = 1'-0"

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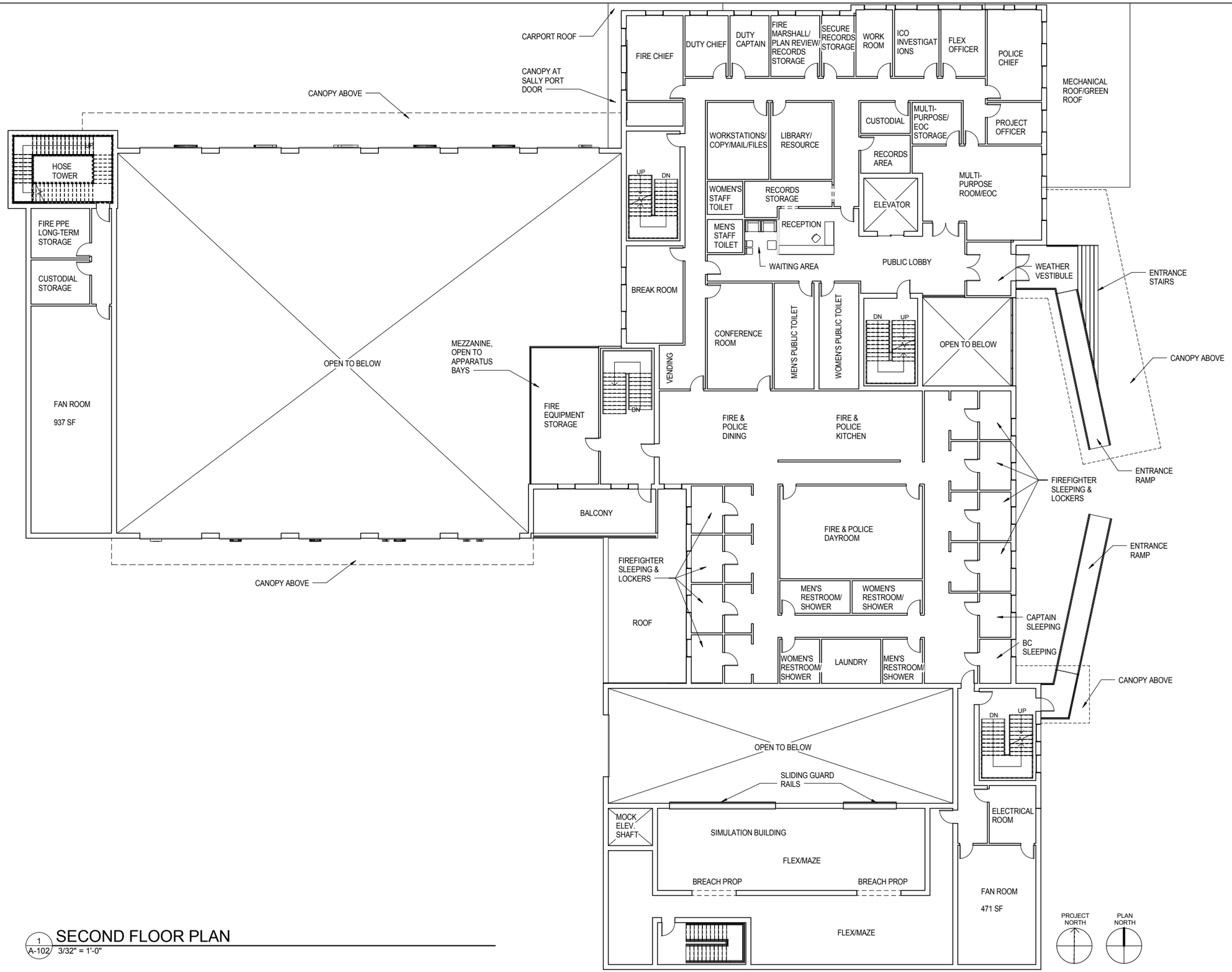
CHECKED BY:	FB, TV

Symbol	Description	Date

FIRST FLOOR PLAN

A-101



1 A-102 SECOND FLOOR PLAN

3/32" = 1'-0"

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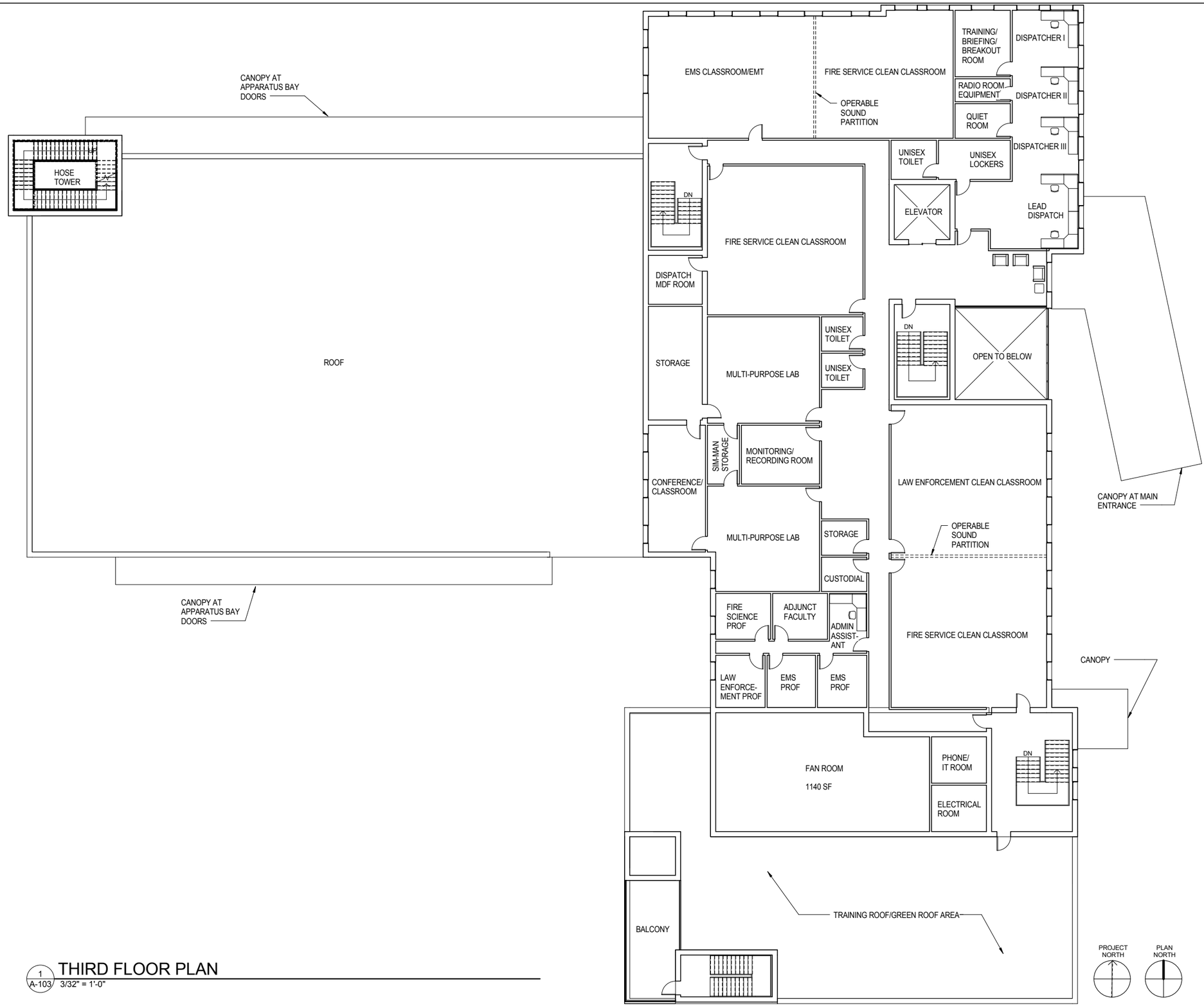
SECOND FLOOR PLAN

A-102



1 A-103 THIRD FLOOR PLAN
3/32" = 1'-0"

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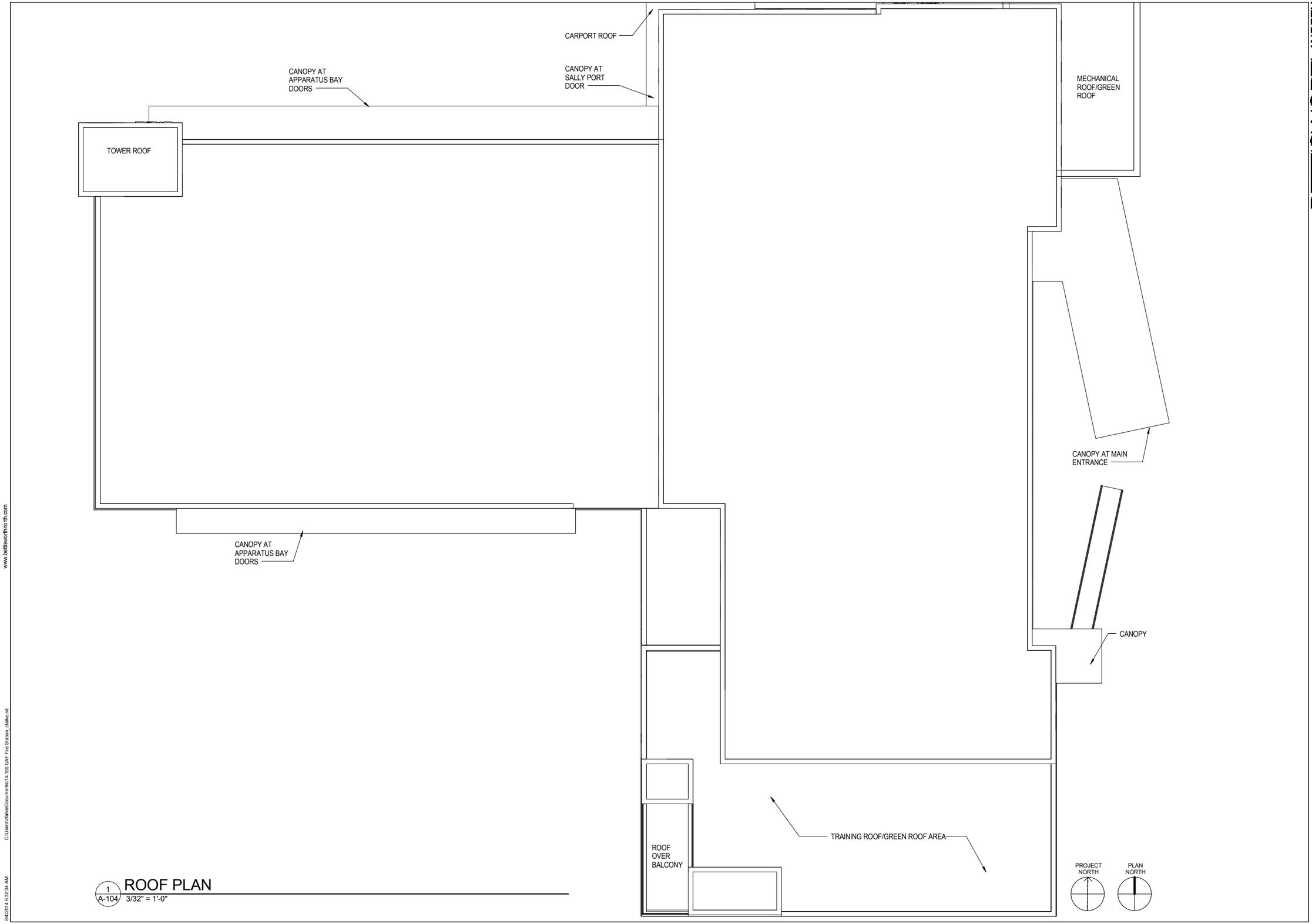
THIRD FLOOR PLAN

A-103



1 A-104 ROOF PLAN
3/32" = 1'-0"

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ROOF PLAN

A-104

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1 PLAN 1 PHASING
1/16" = 1'-0"

PROJECT NORTH

PLAN NORTH

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FIRST FLOOR PHASING

A-111

1 PLAN 2 PHASING
1/16" = 1'-0"

PROJECT NORTH

PLAN NORTH

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SECOND FLOOR PHASING

A-112

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1 PLAN 3 PHASING
1/16" = 1'-0"

PROJECT NORTH

PLAN NORTH

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Symbol	Description	Date

THIRD FLOOR PHASING

A-113

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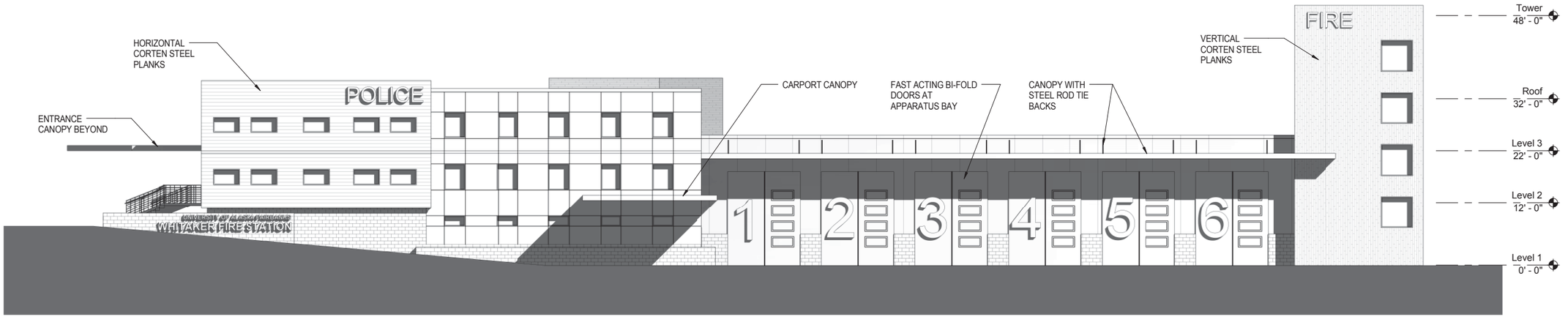
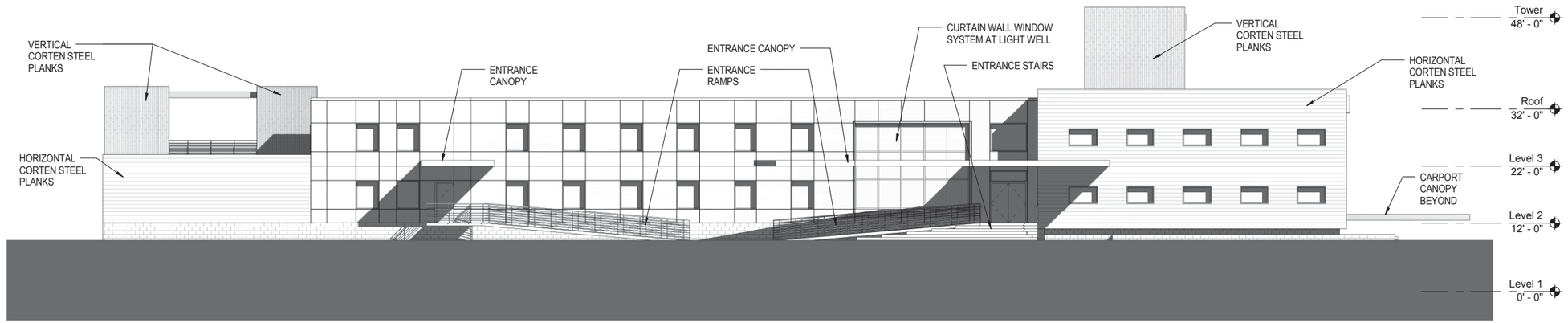


1 NORTH ELEVATION
3/32" = 1'-0"



3 EAST ELEVATION
3/32" = 1'-0"

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PROJECT NO:	14-155
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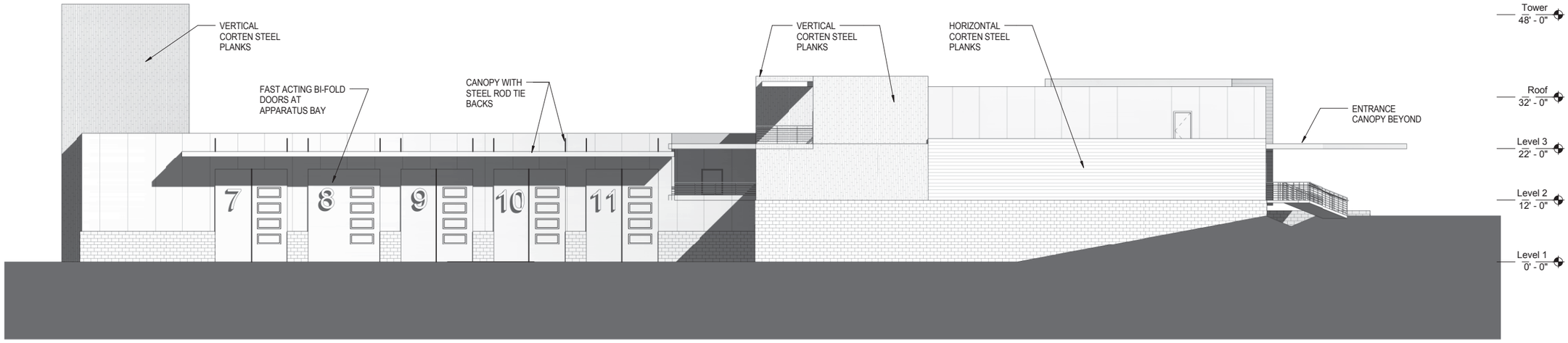
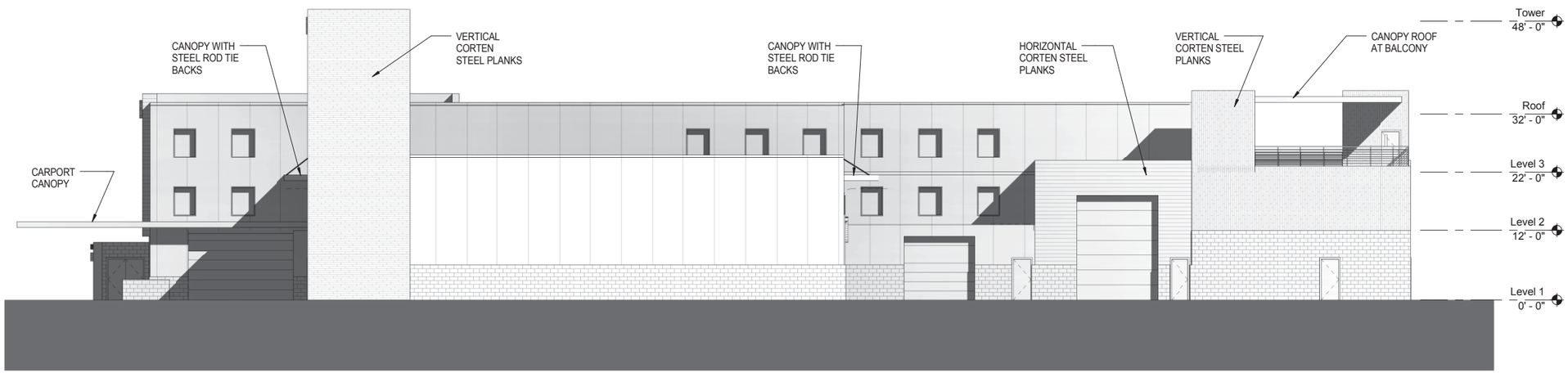
Symbol	Description	Date

EXTERIOR ELEVATIONS

A-301



1 SOUTH ELEVATION
3/32" = 1'-0"



2 WEST ELEVATION
3/32" = 1'-0"

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Symbol	Description	Date

EXTERIOR ELEVATIONS

A-302

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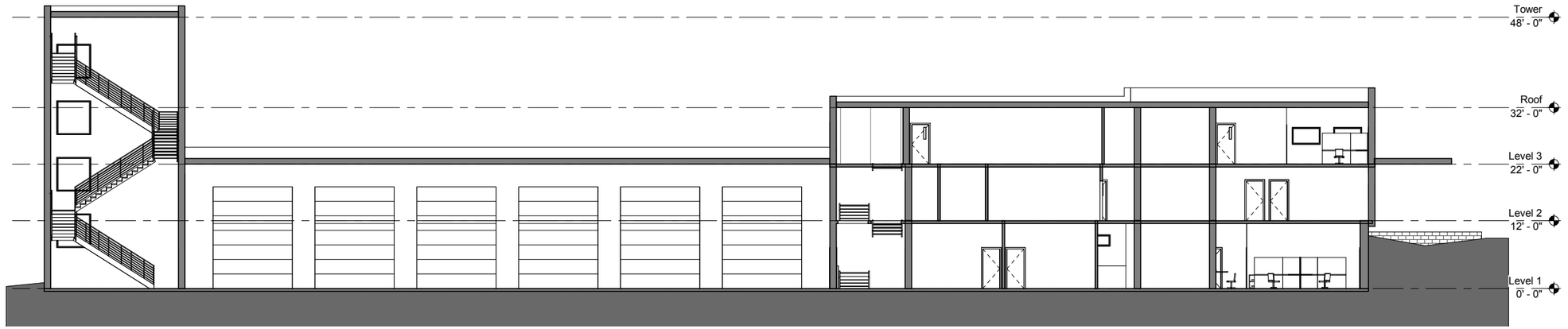
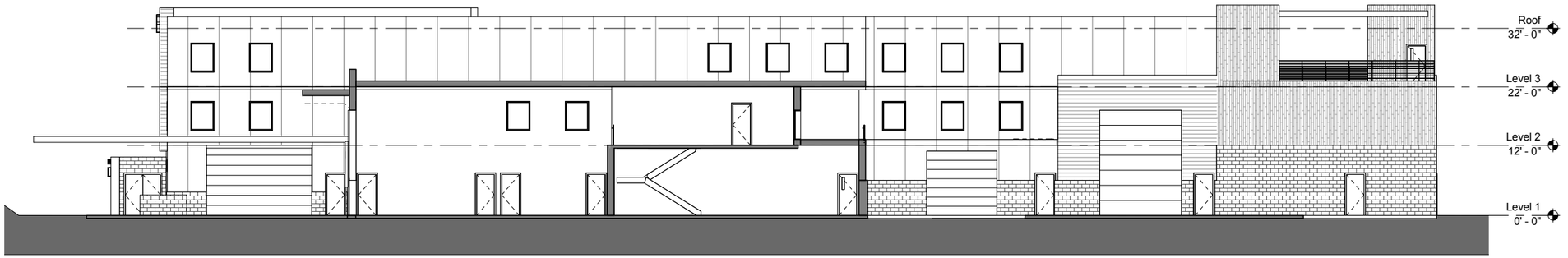
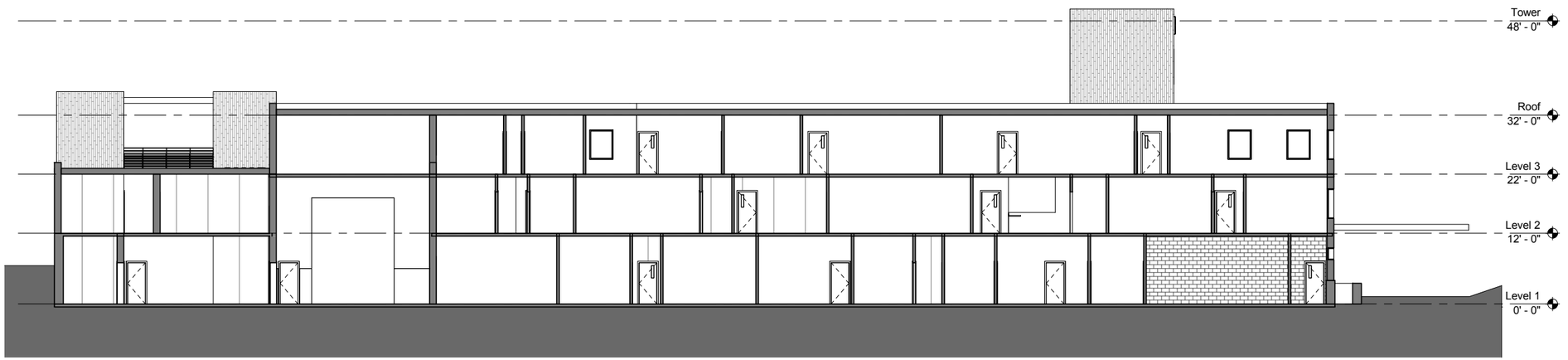


1 EAST-WEST SECTION
3/32" = 1'-0"



2 NORTH-SOUTH SECTION 01
3/32" = 1'-0"



3 NORTH-SOUTH SECTION 02
3/32" = 1'-0"

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BUILDING SECTIONS

A-311

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FIRE

POLICE

CTC

SHARED

SYSTEMS

FIRST FLOOR PLAN
WHITAKER HALL REPLACEMENT FIRE STATION 1” = 30’-0”

BETTISWORTH NORTH
ARCHITECTS AND PLANNERS

FIRE

POLICE

CTC

SHARED

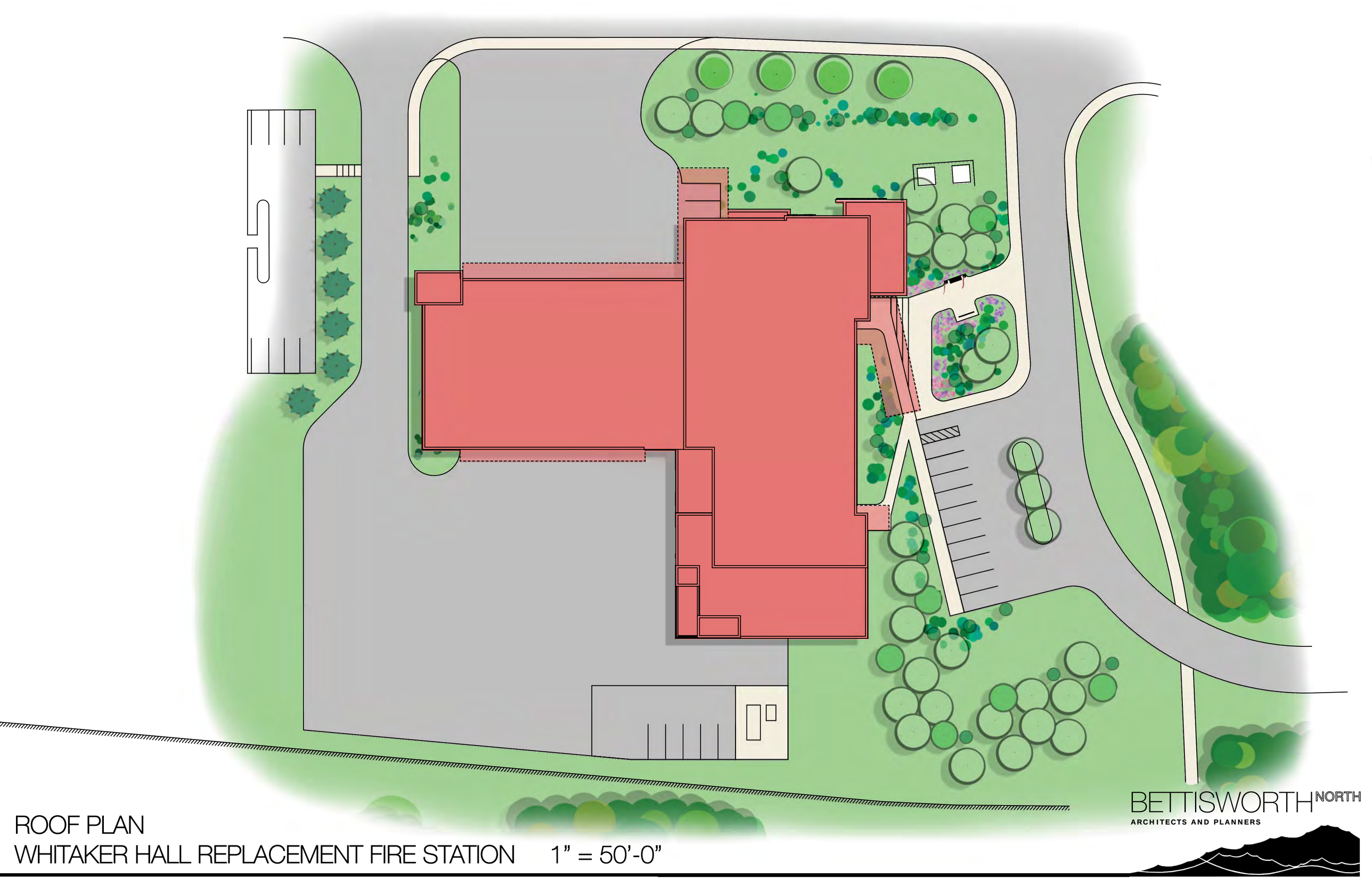
SYSTEMS

SECOND FLOOR PLAN
WHITAKER HALL REPLACEMENT FIRE STATION 1” = 30’-0”

BETTISWORTH NORTH
ARCHITECTS AND PLANNERS

THIRD FLOOR PLAN
WHITAKER HALL REPLACEMENT FIRE STATION 1” = 30’-0”

BETTISWORTH NORTH
ARCHITECTS AND PLANNERS



ROOF PLAN
WHITAKER HALL REPLACEMENT FIRE STATION 1” = 50’-0”

BETTISWORTH NORTH
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MAIN FLOOR PLAN
WHITAKER HALL REPLACEMENT FIRE STATION 1” = 30’-0”

BETTISWORTH NORTH
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212 FRONT STREET FAIRBANKS, ALASKA 99701
PHONE» (907) 456-5780 FAX» (907) 451-8522

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