

Coolidge Terminal Replacement Project
Environmental Assessment
January 2023

APPENDIX A

CONCEPT REPORT



Concept Design Report

Detroit Department of Transportation (DDOT)
Coolidge Bus Maintenance Facility

Detroit, MI

November 30, 2021



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Executive Summary

As part of reinventing itself and the way bus transit services are delivered to the citizens of Detroit, to address aging and outdated facilities, and as part of a larger facility reorganization effort by the City of Detroit, the Detroit Department of Transportation (DDOT) plans to consolidate bus operation functions from four sites to three sites. The existing sites include Central, Gilbert, Shoemaker, and Coolidge. The Coolidge and Shoemaker Terminal sites have been identified to operate all DDOT bus routes from for the foreseeable future. The Central site will remain to provide heavy overhaul services and supplemental bus parking. The Gilbert facility will be decommissioned and taken out of DDOT's bus service system. As part of this transition, the Coolidge and Shoemaker sites will require capital improvements to accommodate bus operations at each location. This report will focus on future bus operations functions at the Coolidge site. The bus operations functions include:

- Operations administrative spaces, bus driver support spaces
- Bus Storage (indoor bus storage/parking)
- Bus Maintenance (preventive bus maintenance, shops, parts storage)
- Bus Service (fueling, charging, washing, cleaning)
- Non-revenue Vehicle Repair (white-fleet, support vehicle storage, repair, service)
- Plant Maintenance (asset management)
- Radio Dispatch
- Bus Stop Maintenance

Analysis

The existing **Coolidge** site is located in the western part of the City. It includes six existing buildings previously utilized for bus storage, maintenance, service, and operations for up to a 180 bus operation. It was previously investigated for historic significance and has been initially determined to be eligible for listing on the National Register of Historic Places. To accommodate a modern bus, the existing site and buildings would require significant remodel, including building additions and re-configuration, code and ADA upgrades, hazardous soils and site cleanup, and major utility upgrades and reconfiguration.

Recommendation

The Coolidge Terminal site is large enough to accommodate a 216-bus operation and other support functions relocated to this site, but either completely new construction or major rehabilitation and improvements are required to do so. Given the constraints – budget, environmental remediation, condition, and location of existing buildings and infrastructure – an all new construction approach is recommended.

Preferred Alternative for the Coolidge Terminal Site

Figure 1-1 Preferred Alternative for the Coolidge Terminal Site



Next Steps

With the addition of a Construction Manager to the team, more accurate construction cost estimates will be developed to verify conceptual estimates provided by the Planning Team. NEPA and environmental tasks, in coordination with Federal Transit Administration (FTA) and the State Historic Preservation Office (SHPO), will move forward in an effort to better define constraints and mitigation strategies.

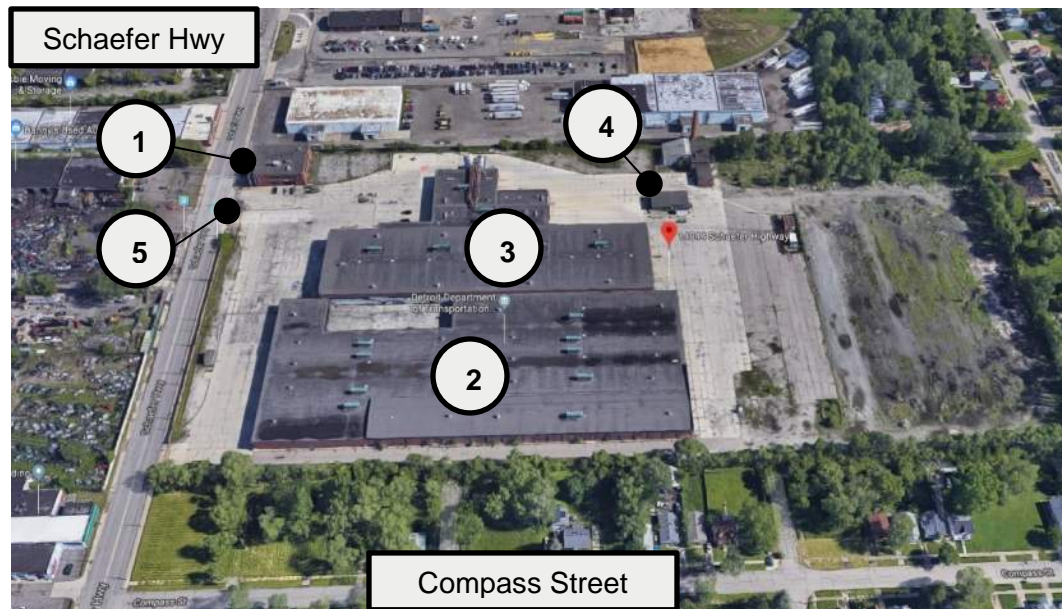
1 Section One – Project Overview

1.1 Introduction

The Detroit Department of Transportation (DDOT) is the largest public transportation operator in the State of Michigan, owning and operating four facilities to service and deploy its fleet of 302 buses. The Shoemaker, Coolidge, and Gilbert facilities were designed dating back as far as the 1920's to perform daily maintenance and operation needs. Outdated site design, fleet restrictions, and inadequate safety and security render the Gilbert Facility, in its current form, to be functionally obsolete. In 2011, the Coolidge Facility site experienced a fire that made the facility inoperable, and it has been closed ever since. Heavy repair, plant maintenance, and administration activities currently occur at DDOT's Central Facility. To optimize the condition, usage, and performance of the City's real estate assets, rehabilitating the Coolidge facility site will allow DDOT to consolidate operations significantly reducing operations at the Central Facility and discontinuing all operations at the Gilbert Facility. Two bus operations and maintenance facilities – Shoemaker and Coolidge – that are strategically located at opposite sides of the city, will support DDOT service for the foreseeable future. DDOT has determined that the revitalization of the Coolidge site is the most cost-effective long-term, investment it can make to support efficient maintenance of buses and improvement of service reliability.

1.2 Site Description

The **Coolidge Terminal** site is located at 14044 Schaefer Hwy, Detroit, MI



The site has two entrance points along Schaefer Highway which borders the west side of the facility. There is a commercial business that borders the north side of the facility. Residential areas border the east and south sides of the property. The existing buildings on site are currently not used. The Operations Terminal is located at the northern entrance near the northwest corner of the site. The Fleet Maintenance, Bus Storage and Service Building is still standing but is unused. The Fueling system is still operational but not utilized. Radio and communications towers on the east side of the site are planned for removal before rehabilitation efforts begin.

The Coolidge site operated as a Bus Terminal and Maintenance Garage and consists of the following buildings:

1. Terminal Building – This building housed the bus operation staff that consisted of drivers, scheduling staff, dispatch, road supervisors, management, and union personal. The facility includes locker room areas, break area, training rooms and office space.
2. Bus Assignment Building - A small building where bus drivers reported to learn of their bus assignment and bus location for that day's shift.
3. Maintenance Garage – A building containing above-ground hoists, pit areas, fueling lanes, bus wash lanes, write-up lanes for bus inspections, indoor coach storage and locker room facilities. The mechanics and coach service attendants (CSA's) utilized this facility to maintain and store the coach fleet.
4. Fare Box House - A structure used to facilitate the removal of fares from the coaches.
5. Guard House – A security building located at the main entrance.

1.3 Purpose and Use

The purpose of this report is to present the DLZ/HDR Team's evaluation of the feasibility of consolidating DDOT's existing operations from four facilities to three and to define the functional requirements and space needs that will serve as the general basis for design for the Coolidge site. This document is intended for Planning Team use, coordination, and budget development efforts, but is also a very helpful tool that encourages DDOT's involvement in the review and verification of data and assumptions.

1.4 The DLZ/HDR Team

The Planning Team, consisting of DLZ, HDR, INTOTO, Somat, and Scales Engineering, has been tasked with evaluating and confirming the feasibility of consolidating DDOT's existing operations from four facilities to three and to provide space needs programming, master planning/concept design and final design of the Coolidge site. This Concept Design Report presents the space needs and design criteria for the Coolidge site to accommodate DDOT's planned consolidation effort.

1.5 Methodology

The most successful facility projects start with understanding the functions or operations to be performed at the facility. The DLZ/HDR Team drew upon its experience in the planning and design of other operations and maintenance facilities throughout the programming and planning processes.

1.6 Report Overview

This report will consist of various sections and appendices. The following is a brief description of the contents of each section.

1.6.1 Section One - Project Overview

This section describes the background of the project and gives an overview of the complete document.

1.6.2 Section Two - Basis for Design

Basis for Design provides a summary of the more qualitative planning issues that were noted during the interview sessions with Operations and Maintenance departments. The summary includes a description of each group's responsibilities, hours of operation, staffing counts, vehicle parking requirements, vehicles maintained, affinities, and a list of key planning issues. All of this is compiled for consideration during the future planning and design efforts.

1.6.3 Section Three - Space Needs Program

This section presents a detailed Space Needs Program which includes a detailed listing of space requirements for the Operations and Maintenance departments to be located at the Coolidge Facility. The intent of the program is to identify program spaces to fulfill future facility needs. Programmed spaces are further defined by their quantity, area, and any remarks significant to the design.

1.6.4 Section Four – Master Planning

Conceptual design based off information gathered

1.6.5 Section Five – Concept Design

1.7 Appendices

1.7.1 Appendix A – Space Needs Program

1.7.2 Appendix B – Design Criteria

1.7.3 Appendix C – Flow Diagrams

1.8 Acknowledgements

The Planning Team would like to acknowledge the efforts and contribution of the DBA and DDOT staff during the feasibility and programming efforts. It is this continued enthusiastic participation that will ensure the realization of the best facility design possible.

2 Section Two – Basis for Design

2.1 Introduction

The purpose of this section is to document and define functional and operational characteristics for Bus Operations, Fleet Maintenance, Parts Storeroom, Plant Maintenance, and Coach Services departments/groups slated to be housed at the Coolidge site. This Basis for Design is an important element in developing the requirements and space needs for the facility both today and into the future. The understanding gained by the Planning Team during the onsite June 2021 Concept Design interview session and virtual stakeholder meetings held throughout the second half of 2021 greatly influences the master plan, concept design, and layout of the facility. The review sessions included an examination of DDOT's overall goal to accommodate its existing bus operations and maintenance facilities functions at Gilbert at the new Coolidge facility. This section summarizes the information gathered over a 6 month period from June 2021 to December 2021 through onsite interview sessions and recurring virtual meetings.

2.1.1 Review Meetings

DDOT Staff provided input on the facility needs from each group/division projected to occupy space at Coolidge and Shoemaker terminal sites.

- Bus Operations
- Fleet Maintenance
- Bus Storage
- Radio Dispatch
- Bus Service (Fuel, Wash, Clean, Charge, Fare Collection)
- Parts Storage
- Plant Maintenance/ Bus Stop Maintenance
- Bus Stop Maintenance

2.1.2 Bus Fleet

DDOT currently operates a fleet of 40' standard and 60' articulated diesel and hybrid buses. DDOT plans to operate 4 electric buses when the Coolidge Facility opens and is contemplating plans to convert a greater portion of the fleet to electric buses. At this moment there is no timetable/plan for the conversion.

2.2 Functional and Operational Design Data

For each of the departments/groups interviewed, the Planning Team identified the group’s function, hours of operation, staffing levels, DDOT vehicle parking requirements, and key planning issues. For staff and vehicle data, tables indicating the projected needs and quantities DDOT expects to be assigned to the facility are included in this report.

2.3 Bus Operations

2.3.1 Function

Bus Operations provides daily operation of the bus service from each terminal location. This includes supervising, window dispatching, operating, and training operators. Radio dispatch will be located downtown with Administration. In the interim, Coolidge will service as a backup.

2.3.2 Staffing

The current hours of operation are 22 hours per day, 7 days per week, with peak traffic between 4:30 am and 7:30 am, and from 3:00 pm to 7:30 pm, Monday through Friday. The following table presents a list of Operations staff by position to be located at Coolidge Terminal.

Table 2-1 Coolidge Bus Operations Staffing

| Staff / Position | 216 BUS | |
|---|------------|------------|
| | Staff | Lockers |
| Superintendent of Transportation Operations | 3 | |
| District Superintendent (Terminal) | 11 | |
| Transportation Emergency Dispatchers | 22 | |
| Transportation Terminal Supervisor | 9 | |
| Service Guard General | 18 | |
| Office Assistant | 1 | |
| Terminal Instructors | 8 | |
| Bus Operators | 432 | 432 |
| Transportation Station Worker (moved from F.M.) | 9 | |
| Transportation Station Worker (bus operations) | 12 | |
| Total | 525 | 432 |

2.3.3 Bus Parking

The following table presents a list of projected buses to be stored at the new Coolidge Terminal.

Table 2-2 Enclosed Bus Parking

| Vehicle Type | 216 BUS |
|--|------------|
| Standard Bus | 162 |
| Articulated Bus | 36 |
| <i>Bus Equivalent (1.5)</i> | 54 |
| Total | 198 |
| <i>Bus Equivalent: 1 articulated bus is equal to 1.5 coach buses</i> | 216 |

2.3.4 Non-Revenue Vehicles

The following table presents a list of non-revenue vehicles for Operations to be located at the new Coolidge Terminal.

Table 2-3 Bus Operations Non-Revenue Vehicles

| Vehicle Type | 216 BUS |
|--------------------|-----------|
| Supervisor Vehicle | 8 |
| Relief Vehicle | 9 |
| Total | 17 |

2.3.5 Key Planning Issues

The following issues should be considered as part of planning and design efforts. Reference Appendix B – Design Criteria for more detailed design information on each space below.

Operations Administration Areas

- Provide a separate Private Office for each. Each office shall include a desk with 2 guest chairs.
- Provide a workstation for each District Superintendent.
- Provide a workstation for each Transportation Terminal Supervisor.
- A workstation for the Office Assistant should be provided. Locate near the Superintendent of Transportation Operations, District Superintendent (Terminal), and Transportation Terminal Supervisor office areas. Locate the Lobby.

Radio Dispatch Suite

General

- The Radio Dispatch Suite should be located adjacent to Terminal Supervisors and Transit Police.
- Plan for Controlled Access to the Dispatch Suite.
- The Dispatch Suite Should be located on a Raised Floor.
- The following spaces need to be accessible from the Dispatch Suite
 - Training Rooms
 - Restrooms
 - Break Areas

- Mother's Room
- Wellness Room

Office Areas

- Provide a separate Private Office for each District Superintendent. Each office shall include a desk with 2 guest chairs. Locate adjacent to and with a view of the Control Center.
- The Assistant Superintendent should have a Private Office with a desk and two chairs adjacent to District Superintendent and Transportation Emergency Dispatchers. Locate adjacent to and with a view of the Control Center.
- Plan for a dedicated Conference/Meeting Room for Radio Dispatch. Size the conference room for 5 people.
- Control Center
 - Provide a room with workstations for the Transportation Emergency Dispatchers (TED). Each workstation console shall accommodate 1 person and be equipped with multiple monitors, a foot pedal, and microphone. The entire workstation can be raised and lowered. Each console shall be oriented toward a video wall.
 - Plan for a workstation console for the TED Training. Locate the console adjacent to TED workstation consoles.
 - A Locker Alcove shall include a separate 1/2-height locker for each TED. Locate alcove accessible from within the Control Center.
 - Provide a Kitchenette area which includes cabinets (upper and lower), counter tops, sink, coffee pot, and under counter refrigerator.
 - Video Wall shall include multiple large size monitors.

Support Areas

- Radio Server Room needs to be adjacent and accessible from within the Control Center.
- Provide a secure File Storage Room. The access point to this room should be from within the Control Center.

Operators' Areas

- The Locker Alcove shall include 1/2-size lockers. Locate alcove adjacent to the Operators' Lobby. Provide one 1/2-size locker per Operator.
- The Mailbox Area shall include 5.5" deep x 18" wide x 5.5" high mailboxes. Plan for one mailbox per Operator plus additional open slots for adjacent bulk fliers. The front of the mailboxes shall be accessible from the Operator's Lobby and the back of the mailboxes should be accessible from the secure Dispatch Area.
- The Bus Operators' Lobby shall include tables and chairs, recreational equipment (pool tables), and an Information Kiosk. Locate in a central area with access to the auxiliary drivers' areas.
- Provide a TV Room directly accessible from the Operators' Lobby to be designed to minimize the noise to or from other areas.
- The Quiet Room needs to be designed with sofas and chairs for multiple people. Locate the room adjacent to the Operators Lobby.

- The Vending Alcove/Kitchenette shall include space for vending machines, a sink, refrigerator, and microwaves. Area needs to be accessible to the Operator's Lobby.
- Provide Men's and Women's Restrooms with showers for Operations staff. Locate adjacent to the Operator's Lobby.
- A Custodial Room shall be provided for storing cleaning supplies and be equipped with a mop sink. Locate adjacent to the restrooms
- The Wellness Room shall include room for exercise equipment. Locate the room adjacent to the Operator's Lobby, Lockers, and the Restrooms.
- Provide a Mother's Room with a counter, sink, refrigerator and a comfortable chair.
- The Union Office should be sized to include a chair, desk, under surface vertical cabinet and work surface with guest chairs.
- Provide a Drug Test Room with two spaces for a counter, small desk, and a unisex restroom. Locate Drug Test Room near Administration areas.

Dispatch Suite Area

The Dispatch Suite area should be a secure area with a clear view of both the Operator's Lobby and the Bus Parking Area. This area should include the following spaces:

- Provide shared workstations for the Transportation Station workers. Locate with a view of the Dispatch window.
- Radio Storage needs to be adjacent to the Radio Dispatch.
- Secured Storage should be located in the Dispatch Area.
- The Dispatch Vestibule Area is a space where the Operators stand while interacting with Dispatchers at each window position. Exit from this area should be directly into the Bus Parking Areas. This area should be enclosed with glass walls to allow a view through the vestibule to the Operator's Lobby.
- Two positions to interact with each Operator shall be located at the window. Positions should be a large open counter area near Dispatcher area.

Operations Administration/Dispatch Support Areas

The Operations Administration/Dispatch Support area should be located near the Dispatch Suite area. This area should include the following spaces:

- The Lobby shall include a public entry and a waiting area with chairs.
- Copy/Workroom/Supply Room shall be sized to include a copier, printers, office supplies storage, file cabinets, and a layout/work area.
- Provide a Multipurpose room sized for staff meetings. This room should be located adjacent to the Operations Administrative Areas.
- Break Room for Administrative staff should include space for tables and chairs, a counter space with room for a sink, microwave and coffee pot, and a refrigerator.
- Locate Lost and Found storage area for items left on buses near Dispatch Area.
- Plan a secure area for storing staff bicycles. This could be an enclosed secure area located outside the Operations Building.

Training Areas

- Plan for a workstation for the Supervising Instructor. Locate the workstation adjacent to the Terminal Instructors.

- Plan for a shared office with workstations for the Terminal Instructors in close proximity to Training Room.
- The Training Room (Operations) will include tables and chairs set up in a classroom style format. Provisions should be made for network connections for computer-based training programs. Also provide the ability to subdivide the room. Storage area for training supplies, A/V equipment, and table/chairs will be required. These storage areas should be accessible from within the Training Room.
- Provide space for a Bus Simulator Room near Training Areas.

2.4 Fleet Maintenance

2.4.1 Function

The Fleet Maintenance staff provides oversight of the bus fleet and white fleet assigned to the facility, general maintenance, and repairs, etc. Support functions include, but are not limited to, general administration, testing, customer service, and maintaining all necessary personnel files.

2.4.2 Staffing

The Fleet Maintenance Staff provide bus maintenance on three shifts, 24 hours per day, 7 days per week. The Day Shift is 6:00 a.m. to 2:30 p.m., 2nd Shift is 2:00 p.m. to 10:30 p.m., and 3rd Shift is 10:00 p.m. to 6:30 a.m., Sunday through Saturday. The following table indicates projected Maintenance Staffing for DDOT's new Coolidge Terminal Bus Program.

Table 2-4 Fleet Maintenance Staffing

| Staff / Position | 216 BUS MASTER PLAN | |
|--------------------------------|---------------------|-----------|
| | Staff | Lockers |
| General Manager | | |
| Administrative Specialist 1 | 1 | |
| Transportation Manager II | | |
| MGMT Infor Sys Admin | | |
| Fleet Engineer | | |
| Rolling Stock Superintendent | 3 | |
| Office Assistant | 1 | |
| Auto Repair Foreman | 9 | 9 |
| General Machinist | 1 | 1 |
| Sheet Metal Worker | 1 | 1 |
| Auto Mechanic | 75 | 75 |
| Automotive Research Assistant | | |
| Vehicle Maintenance Instructor | | |
| Manager (Electronics) | | |
| Supervisor (Electronics) | | |
| Repair (Electronics) | 8 | 8 |
| Total | 99 | 94 |

2.4.3 Non-Revenue Vehicle Parking

Fleet Maintenance will be assigned shop trucks and other non-revenue vehicles used to support the maintenance activities.

Table 2-5 Fleet Maintenance Non-Revenue Vehicles

| Vehicle Type | 216 BUS MASTER PLAN |
|---------------|---------------------|
| Pick up | 3 |
| Totals | 3 |

2.4.4 Vehicles Maintained

Buses and Non-Revenue Vehicles will be maintained at the facility. The following table is a list of projected vehicles to be maintained.

Table 2-6 Vehicle Summary

| Vehicle Type | 216 BUS |
|-----------------------------|------------|
| Standard Bus | 162 |
| Articulated Bus | 36 |
| Non-Revenue Vehicles | 33 |
| Total | 261 |

2.4.5 Key Planning Issues

The following issues should be considered in future planning and design efforts. Reference Appendix B – Design Criteria for more detailed design information on each space below.

Office Areas

- Provide a satellite office. Space shall include a desk and 2 guest chairs. Locate adjacent to the Rolling Stock Superintendent.
- Provide a Private Office for the Rolling Stock Superintendent. Locate adjacent to the Office Assistant.
- Provide a shared office for the Auto Repair Foreman.
- The Auto Repair Foremen share offices with workstations. Locate office with a view of the Repair Bays.
- Provide a workstation for the Office Assistant. Locate the workstation adjacent the Rolling Stock Superintendent and the Lobby.

Shared Areas

- The Lobby shall include a public entry and a waiting area with chairs.
- The Copy/Workroom/Supply Room shall be sized to include a copier, printers, office supplies storage, file cabinets, and a layout/work area. Space will be accessible by Fleet Maintenance Administrative Staff.
- Provide a Conference Room. Space shall be accessible by all Fleet Administrative Staff.
- The Maintenance Manuals Library shall include shelving for service manuals and workstation computer terminals for access to on-line or CD manuals. Workstations will be shared by all Mechanics.
- Break Room for staff should include space for tables and chairs. The Kitchenette will include counter space with room for a sink, microwave, refrigerator, stove, and counter space.

Support Areas

- Secure file storage should be located near office areas and workstations.
- Laundry Service Lockers. Plan for an area for vendor provided Laundry Service Lockers. Locate adjacent to Men's and Women's Restrooms, and an exterior door for pick up and deliveries.
- Men's and Women's Restrooms shall be provided and sized to meet applicable code requirements and daily peak demand use situations. Restrooms shall be provided with toilets, sinks, showers, and lockers.
- Custodial Room shall be provided for storing cleaning supplies and be equipped with a mop sink.

Inspection, Repair Bays

- Provide Repair Bays for Maintaining the Non-Revenue Light/Medium Duty vehicles to be located at this terminal. Each bay will be equipped with vehicle exhaust reels, lubrication reels, vehicle lifts and a workbench with vise.
- Provide Repair Bays for Maintaining the Fleet of Busses to be located at this terminal. Each bay shall be equipped with vehicle exhaust reels, lubrication reels, vehicle lifts, and a workbench with a vise.
- PM/Inspection Bays are designed as bays for inspection and preventive maintenance. These bays will include a Lower Level Work Area with rolling drain pans for easy removal of used fluids.
- Provide Heavy Repair Bays sized for the projected fleet of vehicles to be stored at the facility. Each bay will be equipped with vehicle exhaust reels, lubrication reels, vehicle lift, and a workbench with a vise.

Specialty Bays

- The Tire Bay shall be physically separated from the repair bays. This bay will include a lift, compressed air reels/trapeze, and a workbench. Locate adjacent to the Tire Shop and Storage.

Shop Areas

The following Shop Areas should be located near repair bays:

- Plan for a Hand Wash Sink/Emergency Eye Wash area with 15 linear feet of wall space.
- Provide a Component Repair Shop for maintaining bus underfloor, rooftop, and electrical components. This area includes a workbench, buffer/grinder, drill press, bandsaw, shelving, and parts washer.
- Locate Common Work Areas centrally open to all repair bays. This area includes fixed equipment such as parts washers, drill presses, buffer/grinders, workbenches with a vise, abrasive blast cabinets, etc.
- The Tire Shop is a dedicated area for maintenance of tires. This area will include equipment such as a tire balancer, tire changer, workbench, and inflation cage.
- Provide an Electronics Repair Shop for maintaining the fare boxes and electronic equipment from the buses. Space shall include ESD workbenches, fume extractors, and storage shelving and racks. Locate Shop Adjacent to the Repair Bays.
- Provide a storage area for portable equipment for each shop. Equipment in this area will include jack stands, floor jacks, battery chargers, etc. Locate storage areas open and adjacent to the Repair Bays.

Storage Areas

- Plan for an area to store new and used tires. Locate the area adjacent to the Tire Bays and Tire Shop. Space shall include tire racks for light duty vehicles and, if necessary, a tire carousel for the heavy-duty tires.
- The Battery Room needs to be designed for the storage and charging of bus batteries. The Battery Room is to be located on an exterior wall.

- The Tool Crib needs to be a secure area for the storage of DDOT-supplied tools. Provide access to the Tool Crib through the Material Handling Area.
- The Toolbox Storage area should be sized for space for one toolbox per technician. Separate and secure into one area per shift. Locate adjacent to repair areas.
- Lube/Compressor Room will be sized to include bulk fluid storage tanks with pneumatic pumps, duplex air compressor, and a refrigerated air dryer. Provide double door exterior access for deliveries.

2.5 Parts Storeroom

2.5.1 Function

The Parts Storeroom staff is responsible for receiving, inventorying, storing, and issuing parts, materials, and specialized tools.

2.5.2 Staffing

The following table summarizes Parts and Storeroom staffing for the Coolidge Facility.

Table 2-7 Parts Storeroom Staffing

| Staff / Position | 216 BUS | |
|------------------------------|-----------|-----------|
| | Staff | Lockers |
| Materials Management Manager | 1 | |
| Store Operations Supervisor | 1 | |
| Storekeeper | 11 | 11 |
| Vehicle Operator | 1 | 1 |
| Total | 14 | 12 |

2.5.3 Non-Revenue Vehicles

The following table summarizes Parts Storeroom Non-Revenue Vehicles.

Table 2-8 Parts Storeroom Non-Revenue Vehicles

| Vehicle Type | 216 BUS |
|---------------|----------|
| Pick up | 1 |
| Totals | 1 |

2.5.4 Key Planning Issues

The following issues should be considered in planning and design efforts. Reference Appendix B – Design Criteria for more detailed design information on each space below.

Parts Storeroom

The Parts Storeroom Area should be a secure area with limited access that is located central to the repair areas. This area includes the following spaces:

- Provide a Private office for the Materials Management Manager. Space shall include a desk and two guest chairs. Locate the space adjacent to the Store Operations Supervisor and the Storekeeper workstations.
- Provide a Private office for the Store Operations Supervisor. Space shall include a desk and two guest chairs. Locate the space adjacent to the Materials Management Manager and the Storekeeper workstations.
- Plan for a workstation for each Storekeeper. Locate workstations adjacent to the Parts Window/Counter.
- Plan for a workstation for each Vehicle Operator. Locate the workstation adjacent to the Storekeepers.
- Provide a Parts Window/Counter for technicians to access the Parts Storage. This needs to be a recessed area of the main aisle. Provide a counter and access for a forklift. Plan for space for a printer and shelving for Parts Manuals.
- Parts Storage with drawer cabinets, cabinets, and shelving for small parts.
- Bulk Parts Storage with bulk storage racks, and pallet racks for palletized large parts.
- Provide a dedicated Shipping & Receiving Area with overhead door access to the exterior and the ability to accommodate deliveries at grade by an 18-wheel tractor-trailer.
- As part of Fleet Maintenance, staff will share restroom, locker rooms, break rooms, and other support areas as needed.

2.6 Coach Services

2.6.1 Function

Coach Services provides Fleet Service (Fuel and Wash), and Fare Collection for buses assigned to this terminal. Other maintenance staff (Attendants (CSA)) performs daily servicing (fueling and fare retrieval, topping off fluids, and cleaning both interior and exterior) of the buses assigned to this terminal.

2.6.2 Staffing

The following table summarizes the Coach Services staffing for the new Coolidge Bus Terminal.

Table 2-9 Coach Services Staffing

| Staff / Position | 216 BUS | |
|------------------|-----------|-----------|
| | Staff | Locker |
| Supervisor | 1 | |
| Attendant (CSA) | 28 | 28 |
| Total | 29 | 28 |

2.6.3 Non-Revenue Vehicles

The following table summarizes the Coach Services vehicles.

Table 2-10 Coach Services Non-Revenue Vehicles

| Vehicle Type | 216 BUS |
|--------------|----------|
| Ford Van | 1 |
| Total | 1 |

2.6.4 Key Planning Issues

The following issues should be considered in future planning and design efforts. Reference Appendix B – Design Criteria for more detailed design information on each space below.

Office Areas

Provide the following Coach Services office areas:

- Provide a Private Office for the Supervisor. Space shall include a desk with 2 guest chairs. Locate the office with a view of the Service Lanes.

Support Areas

Provide the following Coach Services Support areas:

- Service Staff Lockers – Two half height tier shall be provided.
- Restrooms shall be provided and sized to meet applicable code requirements.
- Break Room should include space for tables and chairs, a counter space with room for a sink, microwave and coffee pot, and a refrigerator.
- Custodial Room shall be provided for storing cleaning supplies and be equipped with a mop sink.

Storage Areas

- Above ground Fuel Storage shall be provided for all buses and non-revenue vehicles.
 - Provide diesel and gallons of unleaded gasoline in above ground storage tanks.
- Locate Cleaning Supply Storage Room adjacent to Service Lanes.
- Lube/Compressor Room will be sized to include bulk fluid storage tanks with pneumatic pumps, duplex air compressor, and a refrigerated air dryer. Provide double door access for deliveries.

Service Lanes

- Provide Brake Testing Position to analyze bus brake. This space needs to accommodate standard and articulated buses.
- Space shall include a desk, in-ground rollers, and brake analyzer equipment
- Provide Detail Clean Positions for detailed interior bus cleaning.

- Service position(s) shall be provided for fueling, minor cleaning, fluid top off, and fare collection.

Wash Areas

- The Bus Wash shall include drive-through automated bus wash systems for cleaning the exterior of buses.
- The Bus Wash Equipment Room shall be located adjacent to the Wash Bays. This equipment shall include pumps, controls, tanks, and reclaim equipment necessary for drive through wash.
- Chassis Wash Bay shall be designed in order to clean the undercarriage of buses. Space shall be equipped with a flush mounted platform lift.
- Provide a Chassis Wash Equipment Area adjacent to each Chassis Wash Bay for the high-pressure/hot water washers.

2.7 Plant Maintenance

2.7.1 Function

The Plant Maintenance Staff is responsible for the general maintenance of DDOT facilities (Terminals, transit centers, offices). The Staff responsibilities include any electrical, mechanical, plumbing, and/or carpentry work which need upkeep, and small remodel bus stop signage projects. Janitorial services are contracted out.

2.7.2 Staffing

The Plant Maintenance Staff's shift is 6:00 a.m. to 2:30 p.m., Monday through Friday. The following table indicates projected Plant Maintenance Staffing located at DDOT's new Coolidge Bus Terminal.

Table 2-11 Plant Maintenance Staffing

| Staff / Position | 216 BUS MASTER PLAN | |
|---------------------------------|---------------------|----------|
| | Staff | Locker |
| Manager | 1 | |
| Office Assistant | 1 | |
| Building Trade Worker General | 3 | 3 |
| | | |
| Building Maintenance SubForeman | 1 | 1 |
| Building Operator | 2 | 2 |
| Millwrights | 1 | 1 |
| Total | 9 | 7 |

2.7.3 Non-Revenue Vehicles

Table 2-12 Plant Maintenance Vehicles

| Vehicle Type | 216 BUS MASTER PLAN |
|--------------|---------------------|
| Pick up | 5 |
| Total | 5 |

2.7.4 Key Planning Issues

The following issues should be considered in future planning and design efforts. Reference Appendix B – Design Criteria for more detailed design information on each space below.

Office Areas

Plant Maintenance office areas shall include the following:

- Provide a Separate Private Office for the Manager. Space shall include a desk and 2 guest chairs.
- Provide a workstation for the Office Assistant. Locate the workstation adjacent the Manager.
- Each Millwright should have a Workstation near Building Trade Workers, the Building Maintenance SubForeman, and Building Operators, adjacent to the Manager.
- Each Building Trade Worker should have a workstation in close proximity to Building Operators, Millwrights, and the Building Maintenance SubForeman.
- Each Building Maintenance SubForeman should have a Workstation near Building Operators, Millwrights, and Building Trade Workers, near the Manager.
- Each Building Operator should have a Workstation near Millwrights, Building Trade Workers, and the Building Maintenance SubForeman.

Shop Areas

Plant Maintenance

Plant Maintenance Shop areas should be secured and located in close proximity to Plant Maintenance office areas.

- Shop Area will be provided for Plant Maintenance staff use.
- Dedicated storage space for Plant Maintenance shop equipment will be provided. Equipment shall include pallet racks, bulk storage racks, and shelving.
- Provide storage space for Electrical equipment. Locate adjacent to Plant Maintenance Storage area. Electrical storage equipment shall include bulk storage rack, workbench, and shelving.
- Provide storage space for Millwright tools and equipment. Locate adjacent to Plant Maintenance Storage area. Equipment shall include bulk storage racks and shelving.
- Storage space for Carpenter equipment shall be provided. Equipment includes items such as shelving, bulk storage rack and workbench. Locate adjacent to Plant Maintenance Storage area.

- General storage space for miscellaneous items will be provided. Locate adjacent to Plant Maintenance Storage area, and storage areas for Electrical, Millwrights and Carpenters. Equipment shall include wall mounted rack for tools, bulk storage racks, and shelving.

Sign Shop/Storage

- Sign Storage – Plan for an area to store signs, posts, decals, fasteners, etc. Locate the area adjacent to the Sign Shop. All spaces shall be equipped with shelving, arm racks, pallet racks, and bins need to store supplies and equipment.
- Sign Shop shall be provided with a dedicated sign assembly area. The space shall include a workstation, printer/cutter, layout table, roller table, and storage shelving for equipment and supplies necessary to fabricate Bus Stop Signage.

Shelter Shop/Storage

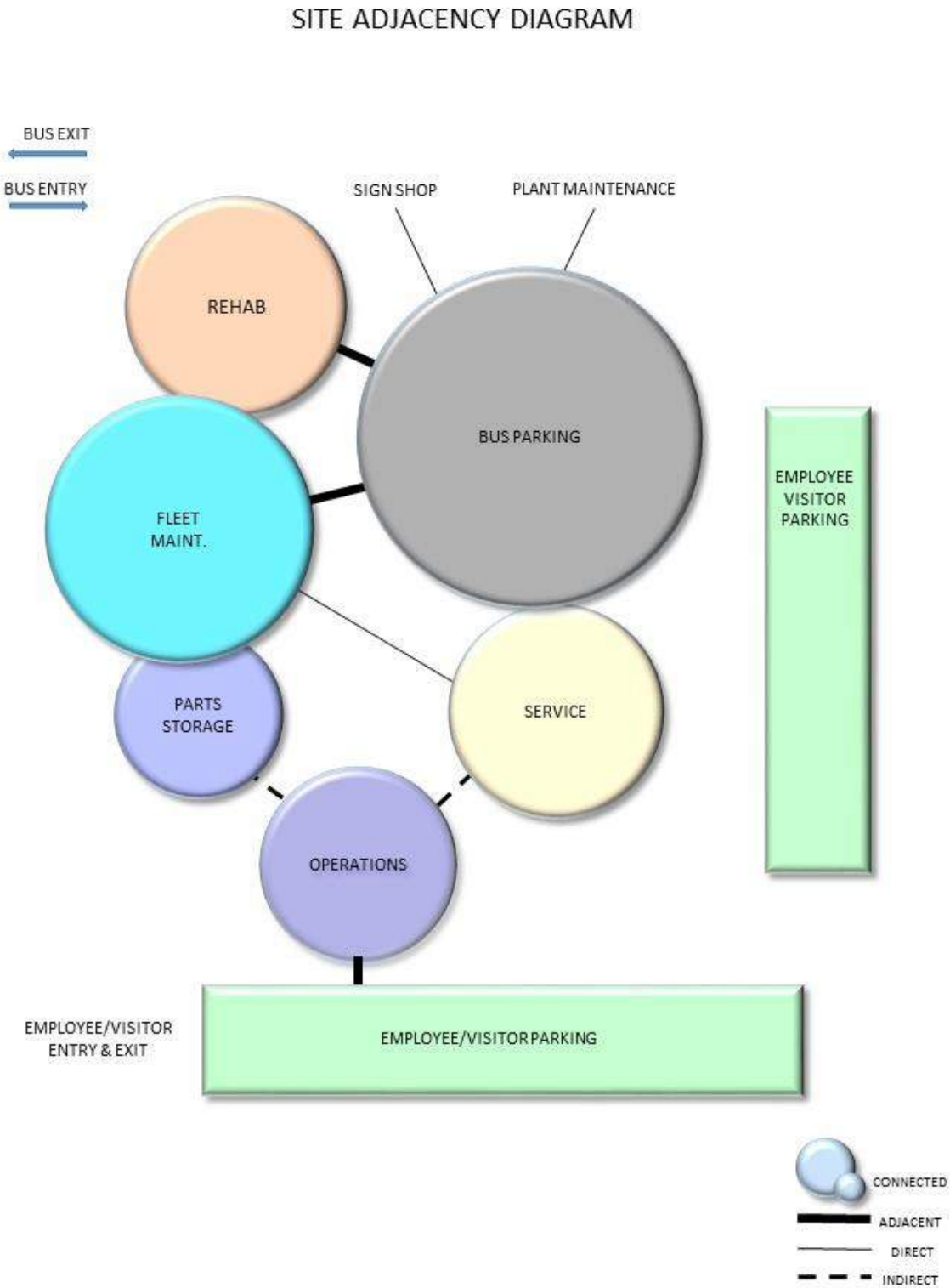
- Shelter Storage - Plan for an area to store bus stop shelters. This space shall be forklift accessible and include circulation space need to safely maneuver shelters. Locate adjacent to the Shelter Maintenance Shop.
- Plan for a Shelter Parts Storage area. This space shall include an open area for roof panels, glass panels, garbage cans, benches, and bike racks. Storage shelving for bulk supplies and materials will also be included in this space. Locate adjacent to the Shelter Maintenance Shop and include exterior overhead door access for deliveries.
- Plan for a Shelter Maintenance Shop for maintaining and fabricating shelters. The space shall include workbenches, layout tables, drill press, buffer grinder, storage shelving, and welding equipment for minor fabrication on shelter. A flammable materials cabinet for paint supplies will also be included.

2.8 General Site Areas

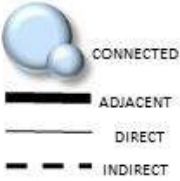
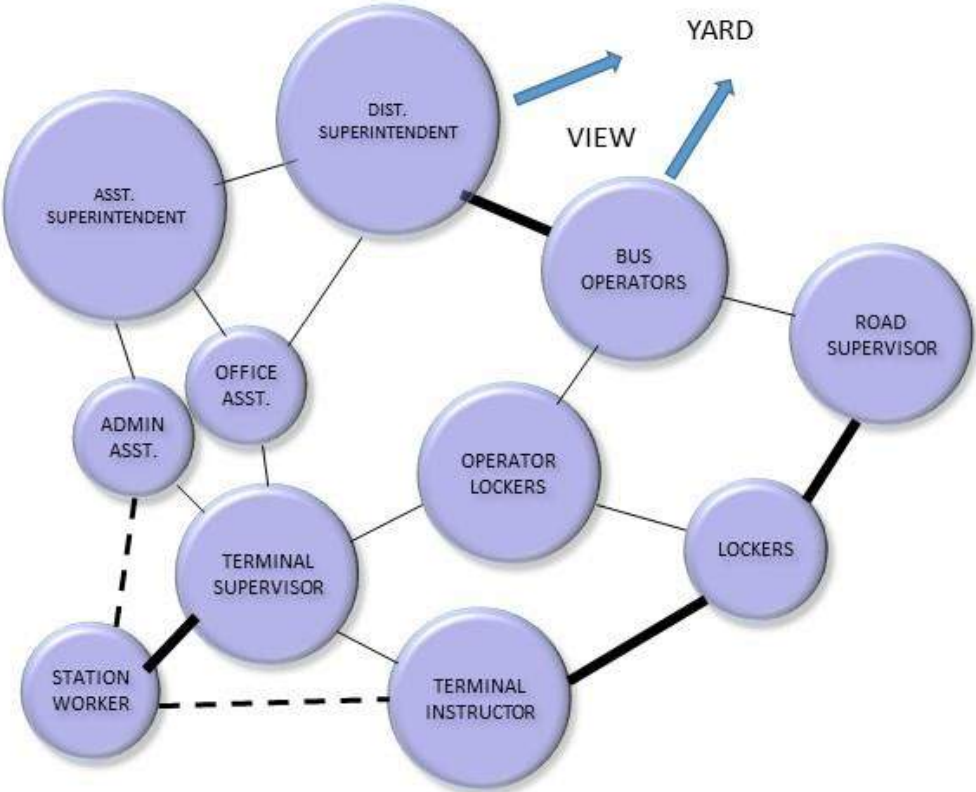
There are specific site requirements necessary to ensure a safe, efficient, and functional facility. These specific requirements include the following:

- Site Security. Use of cameras and limited access points throughout the site. A perimeter fence shall secure the entire site. Security Guard building at bus entry/exit.
- Site circulation for buses should support/promote a counter-clockwise flow of traffic.
- Adequate and efficient bus and employee/visitor parking. Employee parking lot should accommodate spaces for employees during shift changes.
- Visitor parking needs to be provided and designated on the site.
- Support vehicles designated for Operations and Maintenance need to be located near their respective workspace.
- Site lighting should provide efficient and even light throughout the entire site.
- A patio that is accessible by all staff in Operations, and Maintenance areas is desired.
- Handicapped/Disabled Parking as required by code.
- Pedestrian Circulation Areas.
- Appropriate site wayfinding.

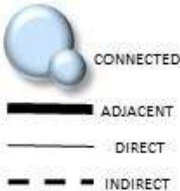
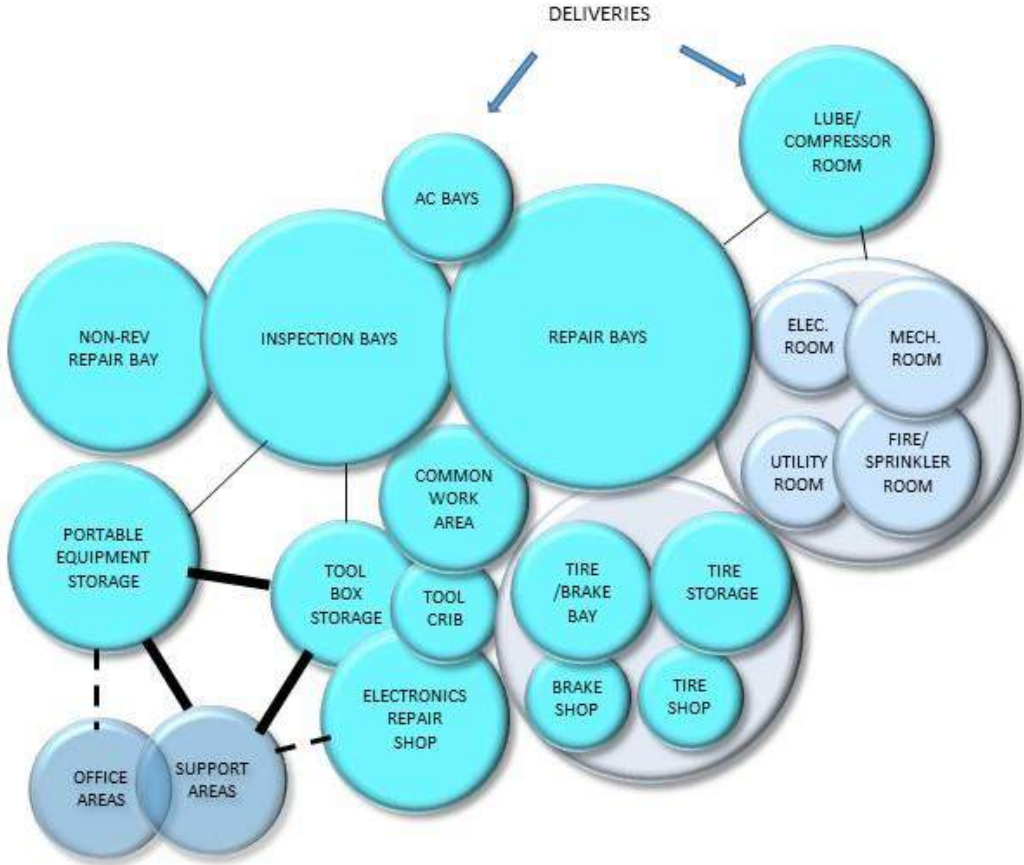
Figure 2-1 Coolidge Facility Adjacency Diagrams



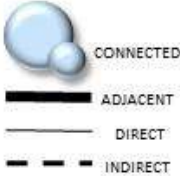
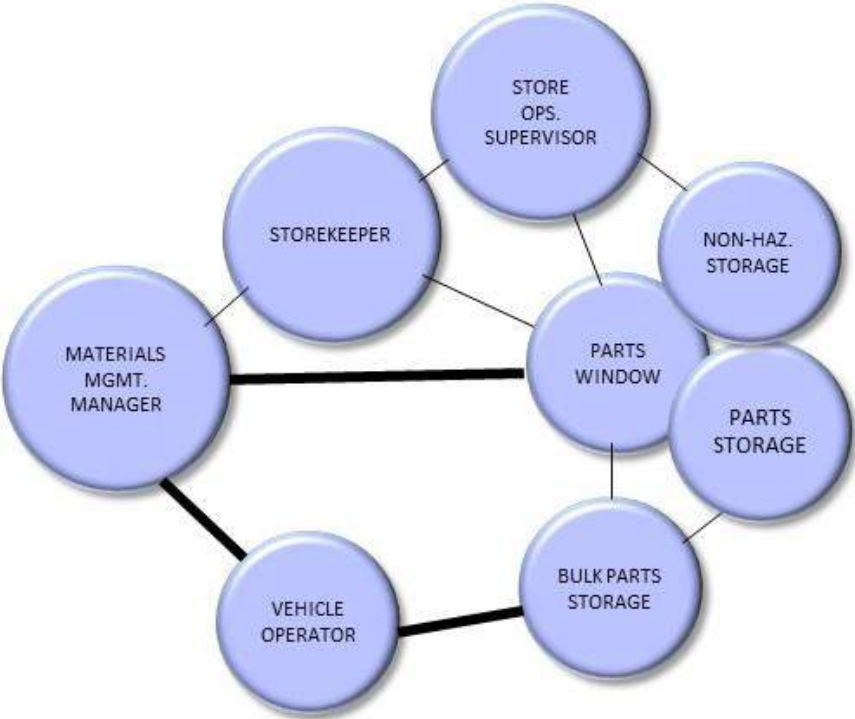
OPERATIONS ADJACENCY DIAGRAM



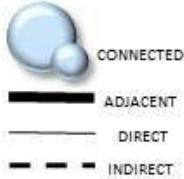
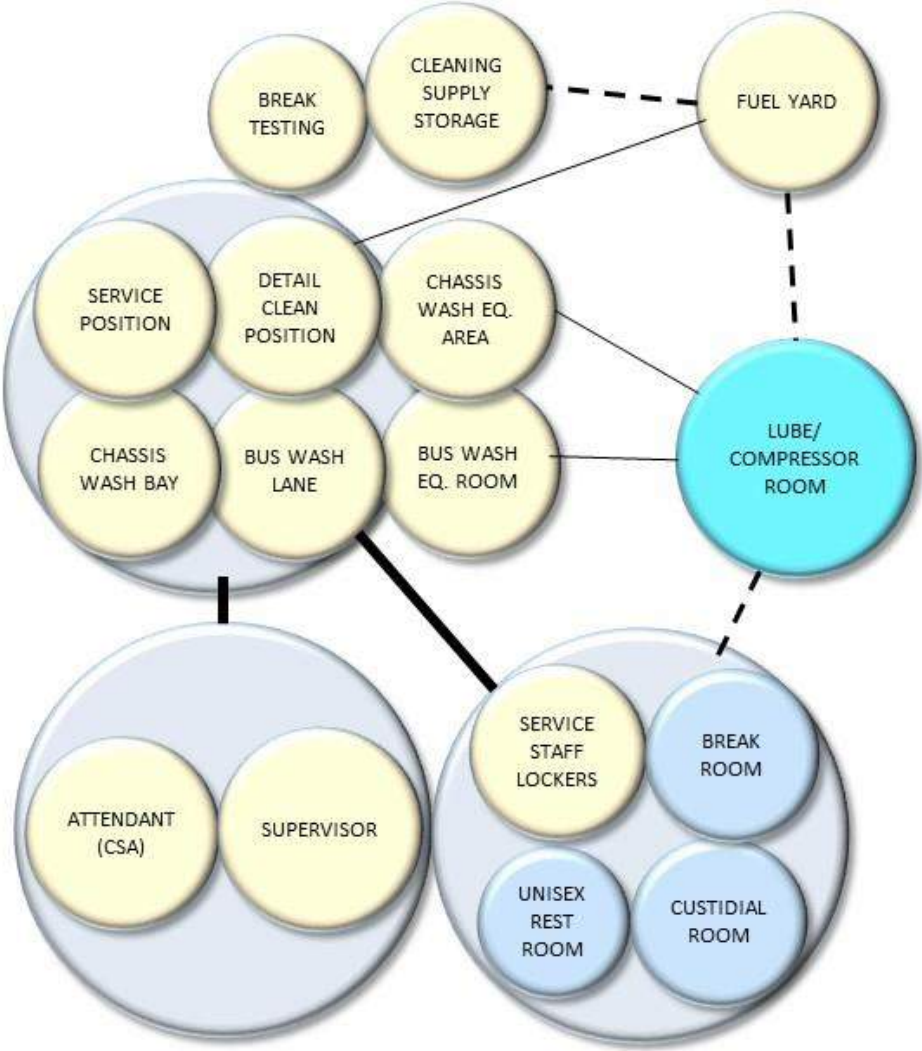
FLEET MAINTENANCE ADJACENCY DIAGRAM



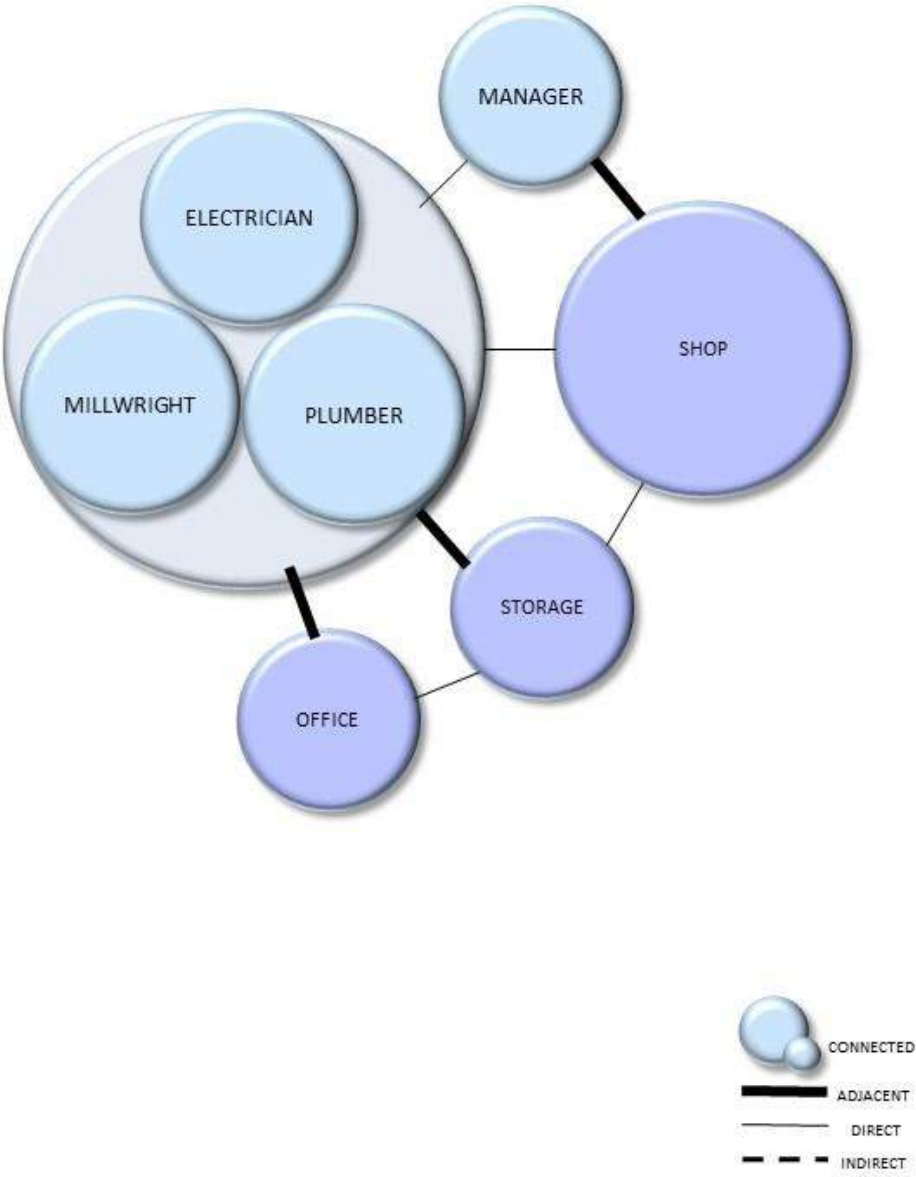
PARTS STOREROOM ADJACENCY DIAGRAM



SERVICE AREAS ADJACENCY DIAGRAM



PLANT /FACILITY MAINTENANCE ADJACENCY DIAGRAM



3 Section Three – Space Needs Program

3.1 Introduction

This chapter presents the Space Needs Program for the DDOT Coolidge Terminal site. Building areas, covered areas, and the exterior areas were developed to meet the operational needs of the office areas, support areas, storage area, maintenance/shop areas, and service area for Operations, Fleet Maintenance, Parts Storage, and Plant Maintenance Shop to be Master Planned at the Coolidge site. The Program information is summarized in a table at the end of this chapter.

3.1.1 Staffing Summary

Facility staffing levels are crucial to the Planning Team when determining the number of parking spaces, size of support facilities, and when developing occupancy levels. The following table is a summary of the existing staff with the projected staffing levels for each department. These staffing levels were developed directly from interview sessions and questionnaires. Refer to Appendix A for a more detailed breakdown of each department's employees.

Table 3-1 Staffing Summary

| Staff / Position | 216 BUS MASTER PLAN | |
|----------------------------|---------------------|------------|
| | Staff | Locker |
| Bus Operations Staffing | 525 | 432 |
| Fleet Maintenance Staffing | 94 | 92 |
| Parts Storeroom Staffing | 14 | 12 |
| Rehab Staffing | 0 | 0 |
| Coach Services Staffing | 29 | 28 |
| Plant Maintenance Staffing | 9 | 7 |
| Bus Stop Maintenance | 0 | 0 |
| Total | 671 | 571 |

3.2 Bus and Non-Revenue Vehicle Summary

Bus and non-revenue vehicle quantities are essential to the Planning Team when determining the size of the required parking areas, storage areas, and support facilities. The following table summarizes the projected number of buses slated for the Coolidge Terminal site. The buses and non-revenue vehicles will be stored and maintained at the facility.

Table 3-2 Bus Summary

| Vehicle Type | 216 BUS MASTER PLAN |
|-----------------------------|---------------------|
| Standard Bus | 162 |
| Articulated Bus | 36 |
| <i>Bus Equivalent (1.5)</i> | 54 |
| Total | 198 |
| <i>Bus Equivalent (1.5)</i> | 216 |

The following table summarizes non-revenue vehicle quantities projected to be accommodated at the Coolidge Bus Terminal.

Table 3-3 Non-Revenue Vehicles Summary

| Vehicle Type | BUS MASTER PLAN |
|-------------------|-----------------|
| Bus Operations | 17 |
| Fleet Maintenance | 3 |
| Parts Storeroom | 1 |
| Rehab | 0 |
| Coach Services | 1 |
| Plant Maintenance | 5 |
| Sign Shop | 7 |
| Total | 32 |

3.3 Rule of Thumb Planning Ratio

The application of planning ratios to vehicle quantities has always been an effective way to calculate the number of repair bays required to maintain buses. These ratios are derived from data and space utilization information gathered from numerous other successful bus maintenance facilities analyzed throughout the country by the HDR staff, over a 25-year period. The following table presents the Repair Bay Ratios and the Ratios utilized for this facility.

Table 3-4 Space Standards and Planning Ratios

| Space | Space Standards | | | Area (SF) | Planning Ratios | | |
|---|-----------------|---|-----|-----------|------------------------|----------------------------|---------------------------------|
| Inspection, Repair Bays | | | | | | | |
| Non-Revenue Repair Bay | 16 | x | 35 | 560 | | | |
| - Recommended Ratio | | | | | 1 | bay for every | 60-75 vehicles to be maintained |
| Repair Bay - Standard Bus | 20 | x | 60 | 1200 | | | |
| - Diesel Bus Fleet Ratio | | | | | 1 | bay for every | 12-15 buses to be maintained |
| - Diesel Bus Fleet Ratio - Program | | | | | 1 | bay for every | 15 buses to be maintained |
| Repair Bay - Articulated Bus | 20 | x | 75 | 1500 | | | |
| - Diesel Bus Fleet Ratio | | | | | 1 | bay for every | 10-12 buses to be maintained |
| - Mixed Diesel/Electric Bus Fleet Ratio | | | | | 1 | bay for every | 13-15 buses to be maintained |
| - Diesel Bus Fleet Ratio - Program | | | | | 1 | bay for every | 12 buses to be maintained |
| Heavy Repair Bay - Standard Bus | 20 | x | 60 | 1200 | | | |
| - Recommended Ratio | | | | | 1 | bay for every | 60-80 buses to be maintained |
| - Space Needs Program | | | | | 1 | bay for every | 80 buses to be maintained |
| Heavy Repair Bay - Articulated Bus | 20 | x | 75 | 1500 | | | |
| - Recommended Ratio | | | | | 1 | bay for every | 25-35 buses to be maintained |
| - Space Needs Program | | | | | 1 | bay for every | 35 buses to be maintained |
| PM Inspection Bay - Standard Bus | 20 | x | 60 | 1200 | 1 | bay for every | 50 buses to be maintained |
| PM/Inspection Bay LLWA - Standard Bus | 20 | x | 60 | 1200 | 1 | LLWA every | 1 PM/Inspection Bay |
| PM/Inspection Bay - Articulated Bus | 20 | x | 75 | 1500 | 1 | bay for every | 50 buses to be maintained |
| PM/Inspection LLWA - Articulated Bus | 20 | x | 75 | 1500 | 1 | LLWA every | 1 PM/Inspection Bay |
| Specialty Bays | | | | | | | |
| Tire Bay | 25 | x | 75 | 1875 | 1 | bay for every | 150 buses to be maintained |
| Service Lanes | | | | | | | |
| Brake Testing Position | 20 | x | 95 | 1900 | 1 | bay for every | 300 buses to be inspected |
| Detail Clean Position | 15 | x | 65 | 975 | 1 | bay for every | 150 buses to be serviced |
| Service Position | 20 | x | 75 | 1500 | 1 | bay for every | 60 buses to be serviced |
| Bus Wash Areas | | | | | | | |
| Bus Wash Lane | 20 | x | 100 | 2000 | 1 | bay for every | 120 buses to be washed |
| Bus Wash Equipment Room | 15 | x | 35 | 525 | 525 for every wash bay | | |
| Chassis Wash Bay | 20 | x | 80 | 1600 | 1 | bay for every | 300 buses to be cleaned |
| Chassis Wash Equipment Area | | | | 100 | 1 | for every Chassis Wash Bay | |
| Bus Storage Areas | | | | | | | |
| Standard Bus | 12 | x | 45 | 540 | | | |
| Articulated Bus | 12 | x | 65 | 780 | | | |
| Down Line/Ready Line - Standard Bus | 12 | x | 45 | 540 | 10% of Total | Standard Bus | |
| Down Line/Ready Line - Articulated Bus | 12 | x | 60 | 720 | 10% of Total | Articulated Bus | |
| New/End of life - Articulated Bus | 12 | x | 60 | 720 | 10% of Total | Articulated Bus | |

3.4 Space Standards

Space standards were applied to the Space Needs Program and generally apply to the Offices, Shops, Bays, and Vehicle Parking Areas. Area requirements in Shops and Storage Areas were derived from functional requirements and equipment space needs. The space standards listed below were utilized to develop the facility space needs program and overall area requirements. The space standards are based on functional needs and requirements established through the design of other facilities, rules of thumb, and specific requirements of each functional group.

Table 3-5 Space Standards

| Staff | Space Standards | Area (SF) | Position |
|--|-----------------|-----------|---------------------------------|
| Office Module B | 10 x 15 | 150 | Superintendent |
| Office Module C | 10 x 12 | 120 | Supervisor/Foreman |
| Shared Office Module A | 12 x 20 | 240 | 4-6 people Foreman, Instructors |
| Shared Office Module B | 10 x 20 | 200 | 2-4 people Foreman, Instructors |
| Shared Office Module C | 12 x 15 | 180 | 2-3 people Foreman, Instructors |
| Shared Office Module D | 10 x 15 | 150 | 1-2 people Foreman, Instructors |
| Shared Office Module E | 10 x 12 | 120 | 1-2 people Foreman, Instructors |
| Workstation Module A | 8 x 10 | 80 | |
| Workstation Module B | 8 x 8 | 64 | Administrative Assistant |
| Workstation Module C | 6 x 8 | 48 | Storekeeper |
| Vehicle Parking | Space Standards | Area (SF) | |
| Employee | 9 x 20 | 180 | |
| Visitor | 9 x 20 | 180 | |
| ADA Parking | 13 x 20 | 260 | |
| Medium | 12 x 25 | 300 | |
| Large | 12 x 35 | 420 | |
| Extra Large | 12 x 45 | 540 | |
| Standard Bus | 12 x 45 | 540 | |
| Articulated Bus | 12 x 65 | 780 | |
| Down Line/Ready Line - Standard Bus | 12 x 45 | 540 | |
| Down Line/Ready Line - Articulated Bus | 12 x 60 | 720 | |
| New/End of life - Articulated Bus | 12 x 60 | 720 | |

3.5 Circulation Factors

The space requirements shown for each function are net usable area. There are three Circulation Factors utilized in the Space Needs Program. These factors are Interior or Building Circulation, Parking Circulation, and Site Circulation Factor.

3.5.1 Interior or Building Circulation (Net: Gross)

This factor is applied to the program as a percentage of the total building square footage. It accounts for miscellaneous building spaces such as hallways, stairwells, rooms, wall thickness, structure, and access requirements.

3.5.2 Parking Lot Circulation

This factor is included to account for the drive aisles, walkways, islands, and other areas created by site and access inefficiencies. This factor equates to 100 percent of the actual space occupied by a vehicle.

3.5.3 Site Circulation Factor

This factor is also applied to the program as a percentage of the total program square footage. It accounts for areas around buildings, site drive aisles, building access, and site access. For new construction, a 100 percent factor is normally applied to account for all site inefficiencies. As such, the better the site conditions, access, easement, etc., the more efficient the site layout can become, reducing this factor to as low as 50 percent.

3.5.4 Circulation Factors

The following is a list of the factors (in general) that have been applied to the program:

Table 3-6 Circulation Factors

| Area | Circulation Factor |
|----------------------------------|--------------------|
| Departments/Area | |
| Bus Operations | 35% |
| Fleet Maintenance Admin | 40% |
| Fleet Maintenance | 25% |
| Parts Storeroom | 25% |
| Rehab | 25% |
| Coach Services | 25% |
| Plant Maintenance | 25% |
| Facility Maintenance | 25% |
| Sign Shop | 25% |
| Enclosed Bus Parking | 30% |
| Enclosed Non-Rev Vehicle Parking | 25% |
| Exterior Areas | |
| Exterior Storage Areas | 50% |
| Exterior Parking Areas | |

| | |
|---------------------------|------|
| Covered Vehicle Parking | 15% |
| Uncovered Vehicle Parking | 100% |
| Down Line / Ready Line | 50% |
| Employee/Visitor Parking | 100% |
| Site Circulation | 60% |

3.6 Space Needs Program Summary

A summary of the Space Needs Program for the Coolidge Bus Terminal follows. This summary table includes the projected square footage needs for building areas, covered areas, exterior areas, and parking areas. These projected space needs are subtotaled into net square footage requirements and converted to the total site acreage requirements for the redeveloped facility. Site circulation, landscaping requirements, and total acres required are also shown.

Table 3-7 Space Needs Program Summary

| Summary - Space Needs Program 10/25/2021 | | 216 BUS MASTER PLAN | | |
|---|----------------------------------|---------------------|---------------|----------------|
| | | Qty. | | Area (SF) |
| | | Staff | Space | |
| BUILDING AREAS | | | | |
| | Bus Operations | 569 | | 17,960 |
| | Fleet Maintenance Admin | 94 | | 4,928 |
| | Fleet Maintenance | | | 72,710 |
| | Parts Storeroom | 14 | | 9,346 |
| | Rehab | 0 | | 0 |
| | Coach Services | 29 | | 29,548 |
| | Plant Maintenance | 9 | | 11,582 |
| | Bus Stop Maintenance | 0 | | 0 |
| | Enclosed Bus Parking | | 198 | 152,940 |
| | Enclosed Non-Rev Vehicle Parking | | 6 | 1,830 |
| Total Building Areas | | 715 | 204 | 300,844 |
| EXTERIOR AREAS | | | | |
| | Covered Areas | | | 576 |
| | Exterior Areas | | | 4,500 |
| Total Exterior Areas | | | | 5,076 |
| EXTERIOR PARKING AREAS | | | | |
| | Exterior Non-Rev Vehicle Parking | | 34 | 17,000 |
| | Down Line / Ready Line | | 25 | 23,130 |
| | Employee/Visitor Parking | | 347 | 113,580 |
| Total Exterior Parking Areas | | | | 153,710 |
| SUBTOTAL ALL AREAS | | 715 | | 459,630 |
| SITE AREAS | | | | |
| | Landscaping | | | 100,000 |
| | Stormwater | | | 45,000 |
| TOTAL SITE AREAS | | 25% | | 114,908 |
| GRAND TOTAL ALL AREAS | | 715 | | 574,538 |
| | | | Acres: | 13.19 |

4 Section Four – Master Planning

4.1 Overview

The purpose of the Master Planning exercise was to provide DBA and DDOT with the preferred concept of design derived for the Coolidge Bus Maintenance Facility from the Space Needs Program, Basis for Design, and considerations from the Design Criteria. The Coolidge Bus Maintenance Facility Master Planning exercise began on June 3, 2021.

4.2 June 3, 2021: Site Tour

Concept Site Plans A, B, C, and D were presented to the stakeholders during site tour activities on June 3, 2021 in efforts to identify and select the Coolidge site final Concept Design. Initially as part of the agenda, several action items and next steps were identified in order to gain approval for development into a Concept Design:

1. Develop a refreshed Coolidge layout design, programming, and cost estimate
 - a. All stakeholders agreed the plan will require new construction, no adaptive reuse
 - b. Separate fleet maintenance admin and operations in site layout, move operations closer to parking
 - c. Realistic target budget (just Coolidge):
 - i. Total project cost: \$125-138 M
 - ii. Construction portion: \$90-100 M
 - d. Create plant maintenance and bus stop maintenance as a separate line item, leave option to determine where these programs should go or if they are needed at all
2. Land acquisition
 - a. Acquire/transfer DLBA parcels along Ward and Compass
 - b. Don't pursue the independent parcel adjacent to Beth campus
3. Execute master plan assessment
 - a. *Programmatic assessment* for Coolidge, Shoemaker, and Gilbert
 - i. Critical question to answer (among others): Can heavy maintenance be moved to Shoemaker?
 - b. Moving dispatch, transit police, security over to 100 Mack

Figure 4-1 Concept Plan A

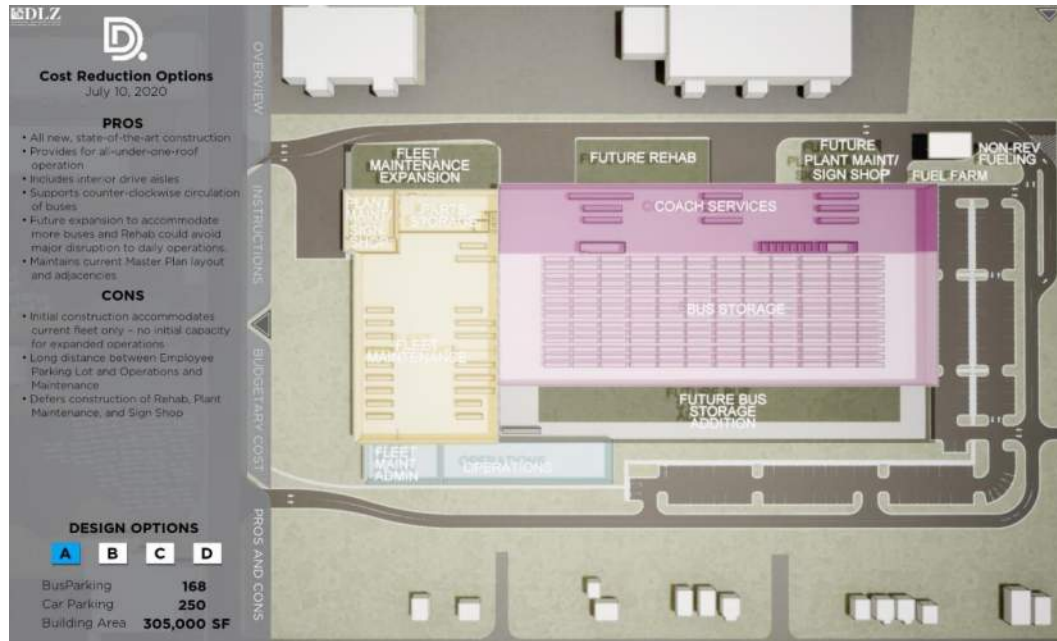


Figure 4-2 Concept Plan B



Figure 4-3 Concept Plan C



Figure 4-4 Concept Plan D



4.3 Summary

The HDR/DLZ team and DDOT leadership arrived at the decision to develop a Facility Master Plan for selecting a final Concept for the Coolidge site. The programmatic solution and concept design for the Coolidge site would be determined subsequent to the development of the FMP. DDOT leadership and the DLZ/HDR team identified the urgent need to evaluate DDOT's existing facilities in order to document arriving at the decision to close Gilbert and Central. The Shoemaker assessment would involve determining if it could take additional operations (like heavy repair) from Central. A programmatic assessment and conditions evaluation at Gilbert would involve identifying costs to repair Gilbert. The DLZ/HDR team was directed to continue progressing the Coolidge Master Plan on a parallel track with assessments to Gilbert and Shoemaker. The DLZ/HDR was also tasked with performing the following activities, relative to Master Planning the Coolidge site.

- a. Master planning efforts to consider the disposition of all existing facilities – Coolidge, Shoemaker, Gilbert, & Central
- b. Re-programming based on new priorities & revising the programming reports
- c. Facility assessments of Gilbert (and possibly Central)
- d. Revisions of previously approved concept design/ site planning
- e. Work associated with additional land-bank owned parcels (if required)
- f. Partial assessment of Central, relative to advanced demolition of the Administration building (already completed)

Upon evaluation of its existing facilities, the decision was made to not vacate Central and to keep heavy repair operations at the site. In addition, no evaluations at Shoemaker would occur as budget limitations would only accommodate Master Planning Coolidge. The DLZ/HDR team continued with refinements of the Coolidge Concept Design, leaning towards a hybrid of Concept A & B. Concept A provides for all-under-one roof operation with interior drive aisles, whereas Concept B splits operations into multiple buildings without the inclusion of interior bus aisles. Consequently, evolution of the Master Plan introduced the idea of phasing the construction and locating parking in the front along Schaefer Highway.

5 Section Five – Conceptual Design

Concept Design activities for the Coolidge site continued with development of Operations, Plant Maintenance, Fleet Maintenance, and Bus Storage/Coach Services building floor plans. This included further refinement of support spaces along with vehicle maintenance and service functions in each building and further refinements to exterior areas including fuel storage and vehicle parking areas. The approved concept meets the 216 bus program, however constructing the full bus program does not align with DDOT's current budgetary restrictions. To meet the current budget the Design Team is phasing construction of the Fleet Maintenance, Bus Storage, and Plant Maintenance buildings.

Operations will be fully built out in Phase 1 because it is a standalone building not requiring vehicle maintenance equipment and does align with DDOT's budget goals. Fleet maintenance and Bus storage will be partially built with plans for expansion in Phase 2. Phase 1 will also allow locating Plant Maintenance storage space within Parts Storage, a vehicle triage bay, functions to half of the lower level work area with equipment. The Planning team also noted the cost benefit of installing all equipment in the lower level work area in Phase 1. The new Coolidge Facility will accommodate 144 buses in Phase 1. Phase 2 will involve additions to Bus Storage and Fleet Maintenance, and construction of a new Plant Maintenance Building. See attached concept site plan and floor plans.

5.3.1 Final Concept Design

Figure 5-1 Conceptual Site Plan



Figure 5-2 Fleet Maintenance Floor Plan (Phase 1)

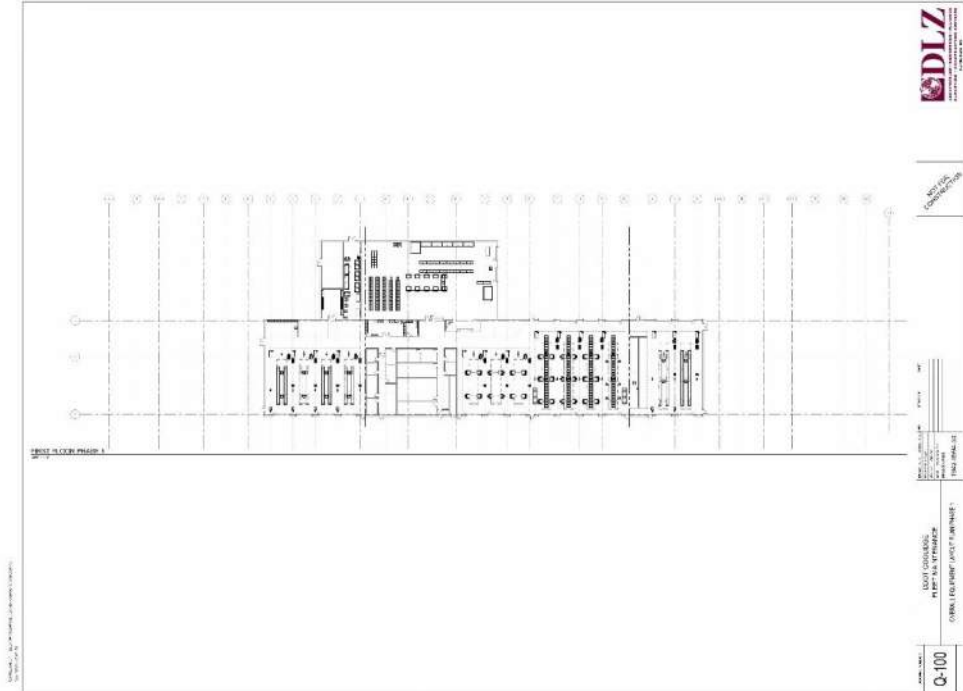


Figure 5-3 Fleet Maintenance Floor Plan (Full Build-out)

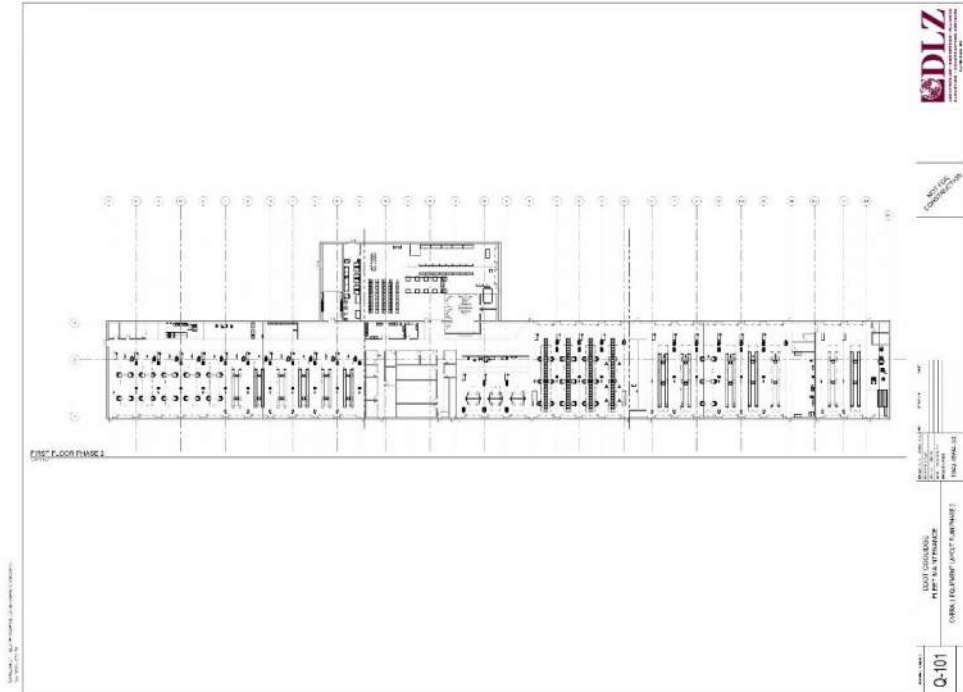


Figure 5-4 Fleet Maintenance LLWA Floor Plan

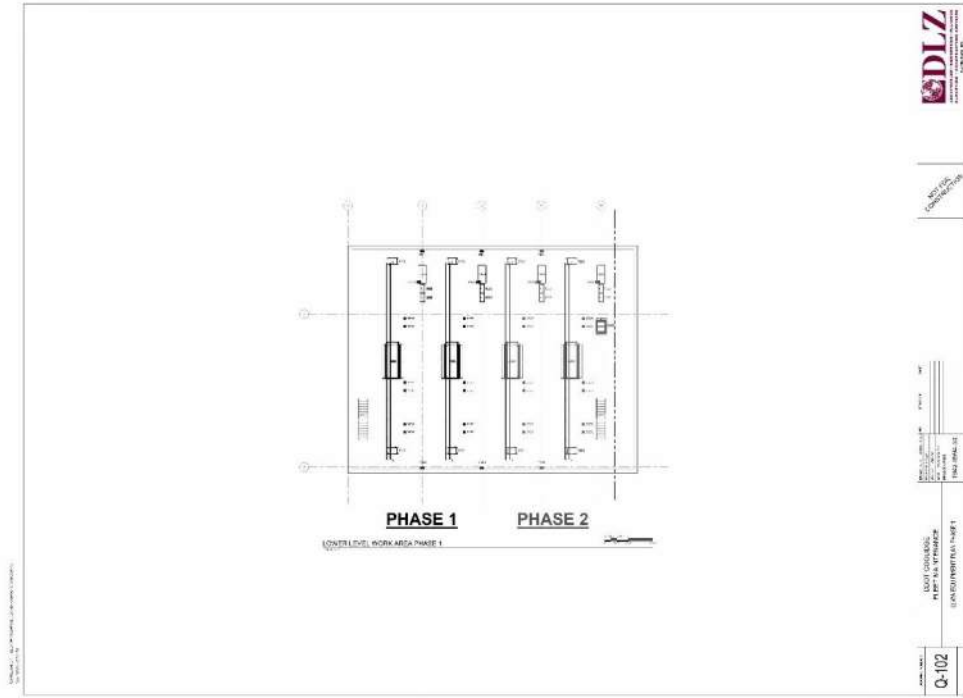


Figure 5-5 Coach Services Floor Plan

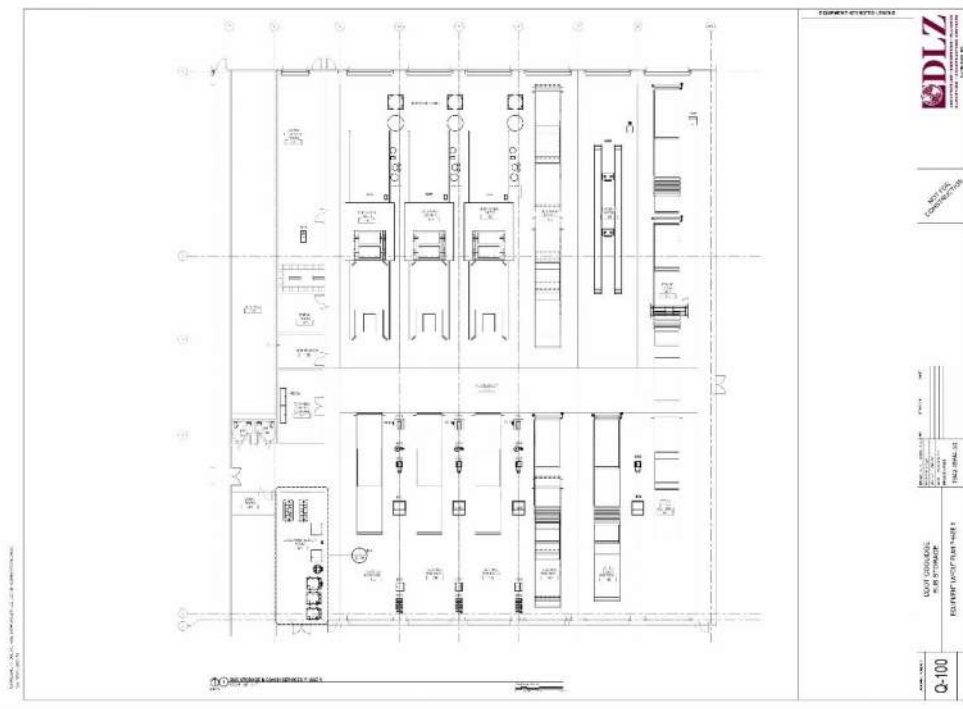


Figure 5-6 Plant Maintenance Floor Plan

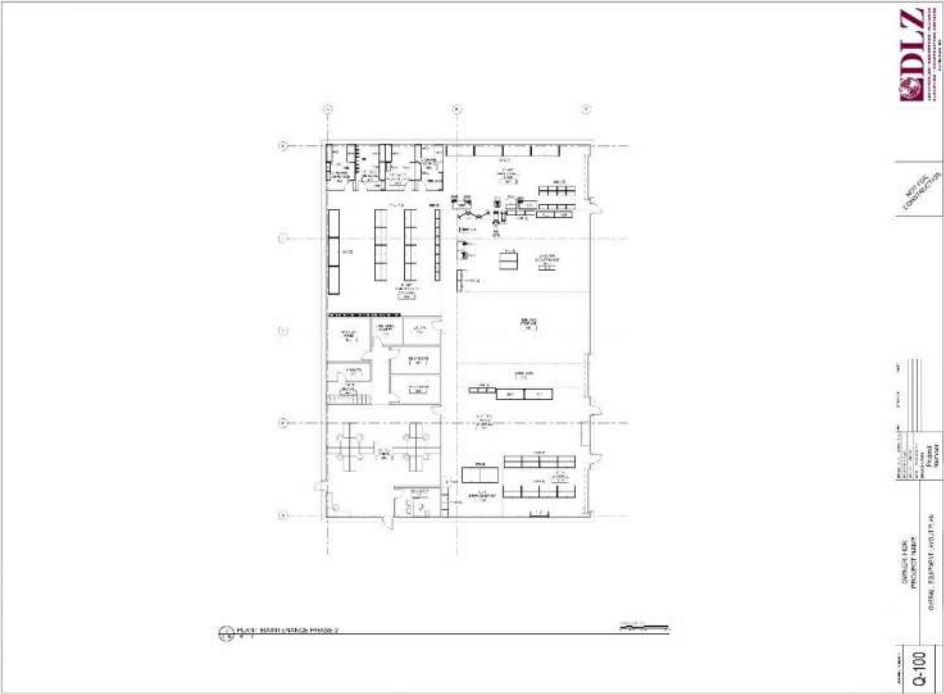


Figure 5-7 Operations Floor Plan

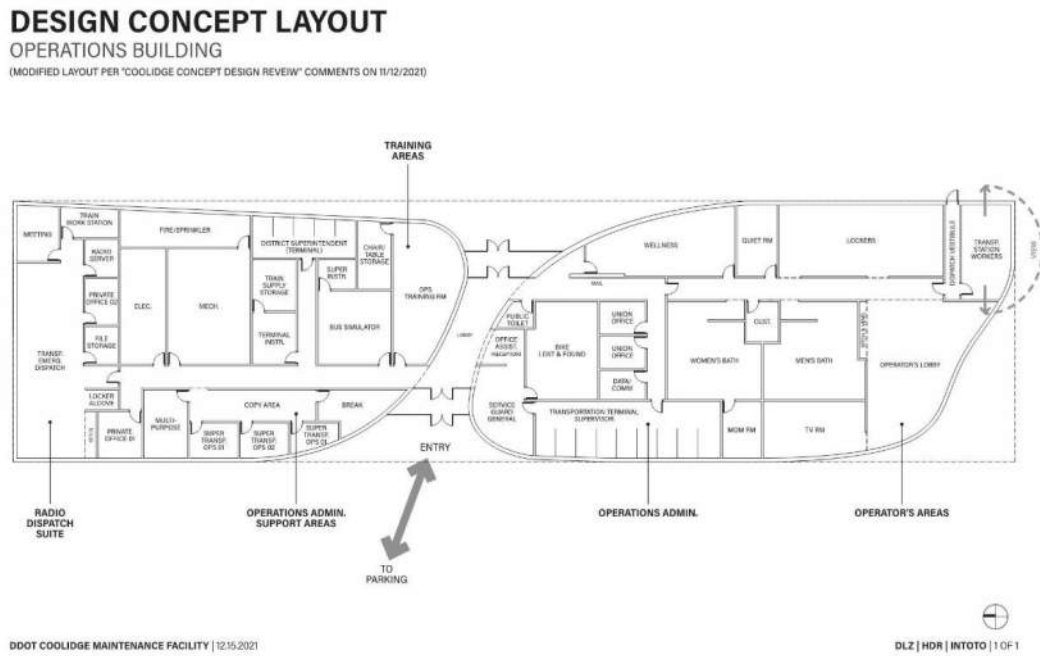


Figure 5-8 Aerial View of Conceptual Site Plan (Phase 1)



Figure 5-9 Aerial View of Conceptual Site Plan (Full Build-out)



Appendix A

Space Needs Program



| Summary - Space Needs Program 10/25/2021 | 150 BUS PROGRAM | | | 216 BUS MASTER PLAN | | | PHASE I PROGRAM | | | |
|---|-----------------|------------|--------------------|---------------------|------------|---------------------|-----------------|------------|---------------------|--|
| | Qty. | | Area (SF) | Qty. | | Area (SF) | Qty. | | Area (SF) | |
| | Staff | Space | | Staff | Space | | Staff | Space | | |
| BUILDING AREAS | | | | | | | | | | |
| BUS OPERATIONS | 347 | | 12,177 | 569 | | 17,960 | 408 | | 17,960 | |
| FLEET MAINTENANCE ADMIN | 48 | | 4,317 | 94 | | 4,928 | 56 | | 4,928 | |
| FLEET MAINTENANCE | | | 34,095 | | | 62,220 | | | 36,195 | |
| PARTS STOREROOM | 4 | | 4,387 | 14 | | 9,346 | 5 | | 4,840 | |
| REHAB | 0 | | 0 | 0 | | 0 | 0 | | 0 | |
| COACH SERVICES | 21 | | 20,338 | 29 | | 27,768 | 23 | | 22,148 | |
| PLANT MAINTENANCE | 0 | | 0 | 9 | | 11,582 | 0 | | 0 | |
| BUS STOP MAINTENANCE | 0 | | 0 | 0 | | 0 | 0 | | 0 | |
| ENCLOSED BUS PARKING | | 138 | 106,770 | | 198 | 152,940 | | 154 | 120,600 | |
| ENCLOSED NON-REV VEHICLE PARKING | | 6 | 1,830 | | 6 | 1,830 | | 6 | 1,830 | |
| TOTAL BUILDING AREAS | 420 | 144 | 183,914 | 715 | 204 | 288,574 | 492 | 160 | 208,501 | |
| EXTERIOR AREAS | | | | | | | | | | |
| COVERED AREAS | | | 576 | | | 576 | | | 576 | Non-Revenue - Unleaded Fuel Lane |
| EXTERIOR AREAS | | | 2,400 | | | 4,500 | | | 2,400 | Parts loading area, dumpsters, generator |
| TOTAL EXTERIOR AREAS | | | 2,976 | | | 5,076 | | | 2,976 | |
| EXTERIOR PARKING AREAS | | | | | | | | | | |
| EXTERIOR NON-REV VEHICLE PARKING | | 13 | 6,500 | | 34 | 17,000 | | 14 | 7,000 | |
| DOWN LINE / READY LINE | | 8 | 6,620 | | 21 | 18,450 | | 9 | 7,610 | |
| EMPLOYEE/VISITOR PARKING | | 205 | 67,292 | | 347 | 113,580 | | 229 | 75,060 | |
| TOTAL EXTERIOR PARKING AREAS | | | 80,412 | | | 149,030 | | | 89,670 | |
| SUBTOTAL ALL AREAS | 420 | | 267,302 | 715 | | 442,680 | 492 | | 301,147 | |
| SITE AREAS | | | | | | | | | | |
| LANDSCAPING | | | 100,000 | | | 100,000 | | | 100,000 | |
| STORMWATER | | | 45,000 | | | 45,000 | | | 45,000 | |
| TOTAL SITE AREAS | 20% | | 145,000 | 25% | | 110,670 | 20% | | 145,000 | |
| GRAND TOTAL ALL AREAS | 420 | | 412,302 | 715 | | 553,350 | 492 | | 446,147 | |
| | | | Acres: 9.47 | | | Acres: 12.70 | | | Acres: 10.24 | |

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | 216 BUS MASTER PLAN | | PHASE I PROGRAM | | Remarks | | |
|--|-----------------|-----------------|----------------|---------------------|----------------|-----------------|----------------|---------------------------------------|-------|-------|
| | | Qty. | | Area | | Qty. | | | Area | |
| | | Staff | Space | (SF) | Staff | Space | (SF) | | Staff | Space |
| ENCLOSED BUS PARKING | | | | | | | | | | |
| Standard Buses | | | | | | | | | | |
| Standard Bus - Diesel | 12 x 45 | 113 | 61,020 | 162 | 87,480 | 122 | 65,880 | | | |
| Standard Bus - Electric | 12 x 45 | 0 | 0 | 0 | 0 | 4 | 2,160 | | | |
| Standard Bus - Hybrid Diesel Electric | 12 x 45 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| <i>Subtotal Standard Buses</i> | | 113 | 61,020 | 162 | 87,480 | 126 | 68,040 | | | |
| Articulated Buses | | | | | | | | | | |
| Articulated Bus - Diesel | 12 x 65 | 25 | 19,500 | 36 | 28,080 | 0 | 0 | | | |
| Articulated Bus - Electric | 12 x 65 | 0 | 0 | 0 | 0 | 28 | 21,840 | 25 percent of the fleet - Articulated | | |
| Articulated Bus - Hybrid Diesel Electric | 12 x 65 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| <i>Subtotal Articulated Buses</i> | | 25 | 19,500 | 36 | 28,080 | 28 | 21,840 | | | |
| <i>Bus Equivalent (1.5)</i> | | 38 | | 54 | | 42 | | | | |
| SUBTOTAL ENCLOSED BUS PARKING | | | | | | | | | | |
| <i>Bus Equivalent</i> | | 138 | 80,520 | 198 | 115,560 | 154 | 89,880 | | | |
| <i>Net: Gross</i> | | 151 | | 216 | | 168 | | | | |
| Circulation/Struct | 30% | | 24,160 | | 34,670 | | 26,970 | | | |
| Drive Aisle Circulation | 0% | | 0 | | 0 | | 0 | Was 50% for interior drive aisle | | |
| Electrical Room | | | 370 | | 530 | | 410 | | | |
| Electrical Room - Electric Bus | | | 500 | | 500 | | 2,000 | | | |
| Data/Comm Room | | | 80 | | 80 | | 80 | | | |
| Mechanical Room | | | 1,050 | | 1,510 | | 1,170 | | | |
| Fire/Sprinkler Room | | | 90 | | 90 | | 90 | | | |
| TOTAL ENCLOSED BUS PARKING | | 138 | 106,770 | 198 | 152,940 | 154 | 120,600 | | | |

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | | 216 BUS MASTER PLAN | | | PHASE I PROGRAM | | | Remarks | |
|---|---------------------------|-----------------|-------|-----------|---------------------|-------|-----------|-----------------|-------|-----------|---------|--|
| | | Qty. | | Area (SF) | Qty. | | Area (SF) | Qty. | | Area (SF) | | |
| | | Staff | Space | | Staff | Space | | Staff | Space | | | |
| BUS OPERATIONS | | | | | | | | | | | | |
| Operations Administration | | | | | | | | | | | | |
| Superintendent of Transportation Operations | 150 | 0 | | 0 | 3 | 3 | | 450 | 0 | | 450 | Private Office |
| District Superintendent (Terminal) | 64 | 0 | | 0 | 11 | 11 | | 704 | 0 | | 704 | Workstation |
| Transportation Emergency Dispatchers | | 0 | | | 22 | | | --- | 0 | | --- | See Radio Dispatch Suite |
| Transportation Terminal Supervisor | 64 | 6 | | 576 | 9 | | | 576 | 6 | | 576 | Workstation |
| Office Assistant | 64 | 1 | | 64 | 1 | | | 64 | 1 | | 64 | Workstation |
| Terminal Instructors | | 6 | | -- | 8 | | | -- | 6 | | -- | See Training Areas |
| Bus Operators | | 300 | | -- | 432 | | | -- | 336 | | -- | See Operator's Areas |
| Bus Operator Student | | 0 | | -- | 0 | | | -- | 0 | | -- | At Shoemaker |
| Transportation Station Worker (moved from F.M.) | | 6 | | -- | 9 | | | -- | 6 | | -- | See Dispatch Suite |
| Transportation Station Worker (bus operations) | | 9 | | -- | 12 | | | -- | 9 | | -- | See Dispatch Suite |
| Service Guard General | 36 | 7 | 2 | 84 | 18 | 6 | | 216 | 7 | 2 | 216 | |
| <i>Subtotal Operations Administration</i> | | 335 | | 724 | 525 | | | 2,010 | 371 | | 2,010 | |
| Radio Dispatch Suite | | | | | | | | | | | | |
| Private Office | 150 | 0 | 0 | 0 | 1 | 1 | | 150 | 1 | 1 | 150 | Private Office |
| Private Office | 120 | 0 | 0 | 0 | 1 | 1 | | 120 | 1 | 1 | 120 | Private Office |
| Meeting Room | 150 | | 0 | 0 | | 1 | | 150 | | 1 | 150 | 5 people |
| <i>Control Center</i> | | | | | | | | | | | | |
| Transportation Emergency Dispatchers | 144 | 0 | 0 | 0 | 22 | 6 | | 864 | 22 | 6 | 864 | Shared Office |
| Training Workstation | 144 | | 0 | 0 | | 1 | | 144 | | 1 | 144 | Shared Office with Dispatch terminals |
| Locker Alcove | 2.0 <i>s/f Dispatcher</i> | | 0 | 0 | | 22 | | 44 | | 22 | 44 | 1/2 height lockers, 1 each per operator |
| Kitchenette | | | 0 | 0 | | 1 | | 40 | | 1 | 40 | Cabinets, counter space, refrigerator, coffe maker |
| Radio Server Room | | | 0 | 0 | | 1 | | 100 | | 1 | 100 | Secure, adjacent to Dispatch terminals |
| File Storage Room | | | 0 | 0 | | 1 | | 100 | | 1 | 100 | Separate secure room |
| <i>Subtotal Radio Dispatch Suite</i> | | 0 | | 0 | 24 | | | 1,712 | 24 | | 1,712 | |

| Space Needs Program October 25, 2021 | | Space Standards | 150 BUS PROGRAM | | | 216 BUS MASTER PLAN | | | PHASE I PROGRAM | | | Remarks |
|--|------------------|-----------------|-----------------|-------|-----------|---------------------|-------|-----------|-----------------|-------|---|---|
| | | | Qty. | | Area (SF) | Qty. | | Area (SF) | Qty. | | Area (SF) | |
| | | | Staff | Space | | Staff | Space | | Staff | Space | | |
| Operators' Areas | | | | | | | | | | | | |
| Bus Operators | 2.00 per Vehicle | 300 | | | 432 | | | 336 | | | Assumes minimum of 30 linear feet with 4 feet clear | |
| Operator Lockers - Two-tier | 2.0 sf/locker | | 300 | 600 | | 432 | 870 | | 432 | 870 | Two-tier 12-inch by 12-inch locker with 36 in. clear. | |
| Operator Mailboxes - 3.5" x 5.5" | | | 315 | 120 | | 454 | 150 | | 454 | 150 | Assumes minimum of 30 linear feet (250 bus) with 4 feet clear | |
| Operators' Lobby | 2.5 sf/Operator | | 300 | 375 | | 68 | 540 | | 68 | 540 | Includes table/chairs seating areas only | |
| - Pool Table | 15 x 18 | | 1 | 270 | | 1 | 270 | | 1 | 270 | | |
| TV Room | 20 sf person | | 1 | 200 | | 1 | 200 | | 1 | 200 | 10 people with wall space for route information | |
| Quiet Room | 20 sf person | | 2 | 200 | | 2 | 200 | | 2 | 200 | 5 people per room | |
| Vending Alcove / Kitchenette | | | 1 | 200 | | 1 | 200 | | 1 | 200 | | |
| Men's Restrooms | | | | 480 | | 1 | 680 | | 1 | 680 | Includes shower(s) | |
| Women's Restrooms | | | | 480 | | 1 | 680 | | 1 | 680 | Includes shower(s) | |
| Custodial Room | | | 1 | 100 | | 1 | 100 | | 1 | 100 | | |
| Wellness Room | | | 1 | 800 | | 1 | 800 | | 1 | 800 | | |
| Mother's Room | | | 1 | 80 | | 1 | 80 | | 1 | 80 | | |
| Union Office | 120 | | 2 | 240 | | 2 | 240 | | 2 | 240 | Private Office | |
| Drug Test Room | | | 1 | 164 | | 1 | 164 | | 1 | 164 | Office with unisex restroom | |
| Subtotal Operators' Areas | | 0 | | 4,309 | 0 | | 5,174 | 0 | | 5,174 | | |
| Dispatch Suite (Window) | | | | | | | | | | | | |
| Transportation Station Worker (bus operations) | 30 | | 6 | 4 | 120 | 12 | 4 | 120 | 7 | 4 | 120 | Main Dispatch to remain at Central (100 Mack) |
| Radio Storage | | | | 1 | 80 | | 1 | 80 | | 1 | 80 | Shared Workstations |
| Dispatch Storage | | | | 1 | 100 | | 1 | 100 | | 1 | 100 | Adjacent to Dispatch |
| Dispatch Vestibule | | | | 1 | 100 | | 1 | 100 | | 1 | 100 | Adjacent to Dispatch |
| Subtotal Dispatch Suite (Window) | | 6 | | 400 | 12 | | 400 | 7 | | 400 | | |
| Operations Administration/Dispatch Support Areas | | | | | | | | | | | | |
| Lobby | | | 1 | 200 | | 1 | 200 | | 1 | 200 | | |
| Copy/Workroom/Supplies | | | | 80 | | 1 | 80 | | | 80 | | |
| Multipurpose Room | 20 sf/ Person | | 1 | 240 | | 1 | 240 | | 1 | 240 | Conference table and chairs, Qty 12 | |
| Break Room | | | 1 | 150 | | 1 | 150 | | 1 | 150 | Including Kitchenette | |
| Lost and Found | | | 1 | 100 | | 1 | 100 | | 1 | 100 | Part of Dispatch Suite, Secure | |
| Bike Lost and Found | | | 1 | 400 | | 1 | 400 | | 1 | 400 | Secure | |
| Subtotal Operations Administration/Dispatch Support Areas | | 0 | | 1,170 | 0 | | 1,170 | 0 | | 1,170 | | |

DDOT Coolidge

Detroit, Michigan

Space Needs Program

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | | 216 BUS MASTER PLAN | | | PHASE I PROGRAM | | | Remarks |
|---|-----------------|-----------------|-------|---------------|---------------------|-------|---------------|-----------------|-------|---------------|--|
| | | Qty. | | Area (SF) | Qty. | | Area (SF) | Qty. | | Area (SF) | |
| | | Staff | Space | | Staff | Space | | Staff | Space | | |
| Training Areas | | | | | | | | | | | |
| Supervising Instructor (transportation equip) | 64 | 0 | 1 | 64 | 0 | 1 | 64 | 0 | 1 | 64 | Workstation |
| Terminal Instructors | 30 sf/ Person | 6 | 1 | 180 | 8 | 1 | 240 | 6 | 1 | 240 | Shared Office |
| Training Room - Operations | 30 sf/ Person | | 1 | 600 | | 1 | 600 | | 1 | 600 | Classroom seating with tables and chairs, Qty.20 |
| Bus Simulator Room | 20 x 20 | | 1 | 400 | | 1 | 400 | | 1 | 400 | |
| Chair/Table Storage | | | 1 | 150 | | 1 | 150 | | 1 | 150 | Access from Training Room |
| Training Supply/Storage Room | | | 1 | 150 | | 1 | 150 | | 1 | 150 | Access from Training Room |
| <i>Subtotal Training Areas</i> | | 6 | | 1,544 | 8 | | 1,604 | 6 | | 1,604 | |
| SUBTOTAL BUS OPERATIONS | | 347 | | 8,147 | 569 | | 12,070 | 408 | | 12,070 | |
| Circ/Mech/Elec/Struc (Net: Gross) | | | | | | | | | | | |
| Circulation/Struct | 35% | | | 2,860 | | | 4,230 | | | 4,230 | |
| Electrical Room | | | | 280 | | | 410 | | | 410 | |
| Data/Comm Room | | | | 100 | | | 100 | | | 100 | |
| Mechanical Room | | | | 560 | | | 820 | | | 820 | |
| Fire/Sprinkler Room | | | | 230 | | | 330 | | | 330 | |
| TOTAL BUS OPERATIONS | | 347 | | 12,177 | 569 | | 17,960 | 408 | | 17,960 | |

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | 216 BUS MASTER PLAN | | PHASE I PROGRAM | | Remarks |
|--|-----------------|-----------------|-------|---------------------|-----------|-----------------|--------------|---|
| | | Qty. | | Qty. | | Qty. | | |
| | | Staff | Space | Staff | Space | Staff | Space | |
| FLEET MAINTENANCE ADMIN | | | | | | | | |
| Office Areas | | | | | | | | |
| Satellite Office | 150 | | 1 | 150 | | 1 | 150 | Satellite Office |
| Rolling Stock Superintendent | 150 | 1 | 1 | 150 | 1 | 1 | 150 | Private Office |
| Administrative Specialist 1 | 64 | 0 | 1 | 0 | 0 | 1 | 0 | Workstation |
| Auto Mechanic | 0 | 39 | | -- | 75 | 1 | -- | |
| Auto Repair Foreman | 120 | 4 | 2 | 240 | 9 | 2 | 240 | Shared Office, Shop Floor |
| Office Assistant | 64 | 1 | 1 | 64 | 1 | 1 | 64 | Workstation |
| Repair (Electronics) | | 3 | | -- | 8 | | -- | |
| <i>Subtotal Office Areas</i> | | 48 | | 604 | 94 | | 604 | |
| Shared Areas | | | | | | | | |
| Lobby | | | 1 | 200 | | 1 | 200 | |
| Copy/Workroom/Supplies | | | 1 | 80 | | 1 | 80 | Adjacent to Office Areas |
| Conference Room | 20 sfl/Person | | 1 | 200 | | 1 | 200 | Conference table and chairs, Qty 10 |
| Manuals Library | | | 1 | 150 | | 1 | 150 | Incl. computer wrkst and shelving manuals |
| Break Room w/Kitchenette | | | 1 | 300 | | 1 | 300 | Include tables, chairs, and cabinets, vending |
| <i>Subtotal Shared Areas</i> | | | 0 | 930 | | 0 | 930 | |
| Support Areas | | | | | | | | |
| Secure File Storage | | | 1 | 80 | | 1 | 80 | Adjacent to Office Areas |
| Laundry Service Lockers | 0.5 sfl/locker | | 46 | 23 | | 92 | 46 | Adjacent to Restrooms |
| Men's Restroom | | | 1 | 550 | | 1 | 550 | |
| Technician Lockers - Mens | 8 | | 46 | 368 | | 92 | 736 | 24-inch by 18-inch locker with 60 in.clear. |
| Women's Restroom | | | 1 | 150 | | 1 | 150 | |
| Technician Lockers - Womens | 8 | | 9 | 72 | | 14 | 112 | 24-inch by 18-inch locker with 60 in.clear. |
| Custodial Room | 100 | | 1 | 100 | | 1 | 100 | |
| <i>Subtotal Support Areas</i> | | | | 1,343 | | | 1,774 | |
| Training Areas | | | | | | | | |
| <i>Subtotal Training Areas</i> | | | | 0 | | | 0 | At Shoemaker |
| SUBTOTAL FLEET MAINTENANCE ADMIN | | 48 | | 2,877 | 94 | | 3,308 | |
| Circ/Mech/Elec/Struc (Net: Gross) | | | | | | | | |
| Circulation/Struct | 40% | | | 1,160 | | | 1,330 | |
| Electrical Room | | | | 90 | | | 100 | |
| Data/Comm Room | | | | 100 | | | 100 | |
| Mechanical Room | | | | 10 | | | 10 | |
| Fire/Sprinkler Room | | | | 80 | | | 80 | |
| TOTAL FLEET MAINTENANCE ADMIN | | 48 | | 4,317 | 94 | | 4,928 | |

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | 216 BUS MASTER PLAN | | PHASE I PROGRAM | | Remarks |
|---|-----------------|-----------------|------------|---------------------|------------|-----------------|------------|---|
| | | Qty. | | Qty. | | Qty. | | |
| | | Staff | Space (SF) | Staff | Space (SF) | Staff | Space (SF) | |
| FLEET MAINTENANCE | | | | | | | | |
| Inspection, Repair Bays | | | | | | | | |
| Non-Revenue Repair Bay | 16 x 35 | 0 | 0 | 3 | 1,680 | 0 | 0 | |
| Repair Bay - Standard Bus | 20 x 60 | 6 | 7,200 | 8 | 9,600 | 7 | 8,400 | |
| Repair Bay - Articulated Bus | 20 x 75 | 2 | 3,000 | 3 | 4,500 | 2 | 3,000 | Must be Drive-through configuration |
| Heavy Repair Bay - Standard Bus | 20 x 60 | 0 | 0 | 4 | 6,000 | 0 | 0 | |
| Heavy Repair Bay - Articulated Bus | 20 x 75 | 0 | 0 | 2 | 3,000 | 0 | 0 | Must be Drive-through configuration |
| PM/Inspection Bay - Standard Bus | 20 x 60 | 2 | 2,400 | 3 | 3,600 | 2 | 2,400 | |
| PM/Inspection LLWA - Standard Bus | 20 x 60 | 2 | 2,400 | 3 | 3,600 | 2 | 2,400 | |
| PM/Inspection Bay - Articulated Bus | 20 x 75 | 1 | 1,500 | 1 | 1,500 | 1 | 1,500 | Must be Drive-through configuration |
| PM/Inspection LLWA - Articulated Bus | 20 x 75 | 1 | 1,500 | 1 | 1,500 | 1 | 1,500 | |
| <i>Subtotal Inspection, Repair Bays</i> | | 11 | 18,000 | 24 | 34,980 | 12 | 19,200 | |
| Specialty Bays | | | | | | | | |
| Tire Bay | 25 x 75 | 1 | 1,875 | 2 | 3,750 | 1 | 1,875 | Must be Drive-through configuration |
| <i>Subtotal Specialty Bays</i> | | 1 | 1,875 | 2 | 3,750 | 1 | 1,875 | |
| Shop Areas | | | | | | | | |
| Hand Wash Sink / Em. Eye Wash | 45 | 2 | 90 | 2 | 90 | 2 | 90 | 15 linear feet of wall space |
| Component Repair | | 1 | 550 | 1 | 1,200 | 1 | 600 | |
| Common Work Area (CWA) | | 2 | 550 | 2 | 700 | 2 | 600 | Locate through our the shop |
| Tire Shop | | | 0 | 1 | 500 | 0 | 0 | Locate adjacent to the Tire Bay |
| Portable Equipment Storage (PES) | | 2 | 400 | 2 | 700 | 2 | 450 | Locate throughout the shop |
| Electronics Repair Shop | | 1 | 500 | 1 | 500 | 1 | 500 | |
| Facility Maintenance Shop/Storage | | 1 | 500 | | | 1 | 500 | |
| <i>Subtotal Shop Areas</i> | | | 2,590 | | 3,690 | | 2,740 | |
| Storage Areas | | | | | | | | |
| New Tire Storage - Carousel | 1.5 sft/tire | 1 | 450 | 1 | 800 | 1 | 500 | Storage 200 tires, locate adjacent to Tire Shop |
| Used Tire Storage - Single Tier | 8.0 sft/tire | 10 | 80 | 15 | 120 | 15 | 120 | |
| Battery Room | | 1 | 500 | 1 | 500 | 1 | 500 | |
| Secure Tool Crib | | 1 | 150 | 1 | 150 | 1 | 150 | |
| Toolbox Storage | 24 sft/ Tech. | 39 | 940 | 75 | 1,800 | 45 | 1,080 | Locate throughout the shop |
| Lube/Compressor Room | | 1 | 1,000 | 1 | 1,000 | 1 | 1,000 | Exterior access for deliveries |
| <i>Subtotal Storage Areas</i> | | | 3,120 | | 4,370 | | 3,350 | |

DDOT Coolidge

Detroit, Michigan

Space Needs Program

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | 216 BUS MASTER PLAN | | PHASE I PROGRAM | | Remarks |
|--|-----------------|-----------------|---------------|---------------------|---------------|-----------------|---------------|---------------------------------------|
| | | Qty. | | Qty. | | Qty. | | |
| | | Staff | Space (SF) | Staff | Space (SF) | Staff | Space (SF) | |
| SUBTOTAL FLEET MAINTENANCE | | 0 | 25,585 | | 46,790 | | 27,165 | |
| Circ/Mech/Elec/Struc (Net: Gross) | | | | | | | | |
| Circulation/Struct | 25% | | 6,400 | | 11,700 | | 6,800 | |
| Electrical Room | | | 520 | | 940 | | 550 | |
| Data/Comm Room | | | 150 | | 150 | | 150 | |
| Mechanical Room | | | 1,280 | | 2,340 | | 1,360 | |
| Fire/Sprinkler Room | | | 160 | | 300 | | 170 | |
| TOTAL FLEET MAINTENANCE | | | 34,095 | | 62,220 | | 36,195 | |
| PARTS STOREROOM | | | | | | | | |
| Parts Storeroom | | | | | | | | |
| Materials Management Manager | 150 | 0 | 1 | 0 | 1 | 1 | 150 | Private Office |
| Store Operations Supervisor | 120 | 0 | 1 | 0 | 1 | 1 | 120 | Private Office |
| Storekeeper | 48 | 4 | 4 | 192 | 11 | 11 | 528 | Workstation |
| Vehicle Operator | 48 | 0 | 1 | 0 | 1 | 1 | 48 | Workstation |
| Parts Window/Counter | 150 | | 1 | 150 | | 1 | 150 | |
| Parts Storage | 20.0 sf/bus | | 1 | 1,500 | | 1 | 4,320 | |
| Bulk Parts Storage (slow moving parts) | 7.5 sf/bus | | 1 | 1,125 | | 1 | 1,620 | |
| High-Density Storage | | | 1 | 140 | | 1 | 140 | |
| Shipping & Receiving Area | 20 x 20 | | 1 | 400 | | 1 | 400 | |
| <i>Subtotal Parts Storeroom</i> | | 4 | | 3,507 | 14 | | 7,476 | |
| SUBTOTAL PARTS STOREROOM | | 4 | 3,507 | 14 | 7,476 | 5 | 3,870 | |
| Circ/Mech/Elec/Struc (Net: Gross) | | | | | | | | |
| Circulation/Struct | 25% | | 880 | | 1,870 | | 970 | |
| Electrical Room | | | --- | | --- | | --- | Assumes shared with Fleet Maintenance |
| Data/Comm Room | | | --- | | --- | | --- | Assumes shared with Fleet Maintenance |
| Mechanical Room | | | --- | | --- | | --- | Assumes shared with Fleet Maintenance |
| Fire/Sprinkler Room | | | --- | | --- | | --- | Assumes shared with Fleet Maintenance |
| TOTAL PARTS STOREROOM | | 4 | 4,387 | 14 | 9,346 | 5 | 4,840 | |

DDOT Coolidge

Detroit, Michigan

Space Needs Program

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | 216 BUS MASTER PLAN | | PHASE I PROGRAM | | Remarks |
|--|-----------------|-----------------|---------------|---------------------|---------------|-----------------|---------------|---|
| | | Qty. | | Qty. | | Qty. | | |
| | | Staff | Space | Staff | Space | Staff | Space | |
| COACH SERVICES | | | | | | | | |
| Office Areas | | | | | | | | |
| Supervisor | 120 | 1 | 120 | 1 | 120 | 1 | 120 | Private Office |
| Attendant (CSA) | | 20 | --- | 28 | --- | 22 | --- | |
| Subtotal Office Areas | | 21 | 120 | 29 | 120 | 23 | 120 | |
| Support Areas | | | | | | | | |
| Service Staff Lockers - Two-tier | 2.50 sf/ locker | 20 | 50 | 28 | 70 | 28 | 70 | Two-tier 12-inch by 18-inch locker with 36 in. clear. |
| Unisex Restroom (RR) | 64 | 2 | 128 | 2 | 128 | 2 | 128 | |
| Break Room | | 1 | 150 | 1 | 150 | 1 | 150 | |
| Custodial Room | 100 | 1 | 100 | 1 | 100 | 1 | 100 | |
| Subtotal Support Areas | | | 428 | | 448 | | 448 | |
| Storage Areas | | | | | | | | |
| Fuel Yard | | | | | 3,000 | | | Assume enclosed above grade tanks |
| Cleaning Supply Storage Room | | 1 | 100 | 1 | 100 | 1 | 100 | |
| Lube/Compressor Room | | 1 | 580 | 1 | 580 | 1 | 580 | |
| Subtotal Storage Areas | | | 680 | | 3,680 | | 680 | |
| Service Lanes | | | | | | | | |
| Brake Testing Position | 20 x 95 | 1 | 1,900 | 1 | 1,900 | 1 | 1,900 | |
| Detail Clean Position | 20 x 70 | 1 | 1,400 | 2 | 2,800 | 2 | 2,800 | |
| Service Position | 20 x 70 | 3 | 4,200 | 4 | 5,600 | 3 | 4,200 | |
| Subtotal Service Lanes | | | 7,500 | | 10,300 | | 8,900 | |
| Wash Areas | | | | | | | | |
| Bus Wash Lane | 20 x 100 | 2 | 4,000 | 2 | 4,000 | 2 | 4,000 | |
| Bus Wash Equipment Room | 15 x 35 | 1 | 1,050 | 1 | 1,050 | 1 | 1,050 | |
| Chassis Wash Bay | 25 x 80 | 1 | 2,000 | 1 | 2,000 | 1 | 2,000 | |
| Chassis Wash Equipment Area | 100 | 1 | 100 | 1 | 100 | 1 | 100 | |
| Subtotal Wash Areas | | | 7,150 | | 7,150 | | 7,150 | |
| SUBTOTAL COACH SERVICES | | 21 | 15,878 | 29 | 21,698 | 23 | 17,298 | |
| Circ/Mech/Elec/Struc (Net: Gross) | | | | | | | | |
| Circulation/Struct | 25% | | 3,970 | | 5,430 | | 4,330 | |
| Electrical Room | | | 200 | | 280 | | 220 | |
| Data/Comm Room | | | 80 | | 80 | | 80 | |
| Mechanical Room | | | 100 | | 140 | | 110 | |
| Fire/Sprinkler Room | | | 110 | | 140 | | 110 | |
| TOTAL COACH SERVICES | | 21 | 20,338 | 29 | 27,768 | 23 | 22,148 | |

DDOT Coolidge

Detroit, Michigan

Space Needs Program

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | | 216 BUS MASTER PLAN | | | PHASE I PROGRAM | | | Remarks |
|--|-----------------|-----------------|----------|-----------|---------------------|---------------|-----------|-----------------|----------|-----------|---|
| | | Qty. | | Area (SF) | Qty. | | Area (SF) | Qty. | | Area (SF) | |
| | | Staff | Space | | Staff | Space | | Staff | Space | | |
| PLANT MAINTENANCE | | | | | | | | | | | |
| Office Areas | | | | | | | | | | | |
| Manager (I and II) | 150 | 0 | 0 | 0 | 1 | 1 | 150 | 0 | 0 | 0 | Private Office |
| Office Assistant | 64 | 0 | 0 | 0 | 1 | 1 | 64 | 0 | 0 | 0 | Workstation |
| Electrician | 64 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | At Shoemaker |
| Millwrights | 64 | 0 | 0 | 0 | 1 | 1 | 64 | 0 | 0 | 0 | Workstation |
| Building Trade Worker General | 64 | 0 | 0 | 0 | 3 | 3 | 192 | 0 | 0 | 0 | Workstation |
| Building Maintenance SubForeman | 64 | 0 | 0 | 0 | 1 | 1 | 64 | 0 | 0 | 0 | Workstation |
| Building Operator | 64 | 0 | 0 | 0 | 2 | 2 | 128 | 0 | 0 | 0 | Workstation |
| Shop Areas | | | | | | | | | | | |
| <u>Plant Maintenance</u> | | | | | | | | | | | |
| Shop | | 0 | 0 | 0 | 1 | 1,000 | | 0 | 0 | 0 | Shared Shop |
| Storage | | 0 | 0 | 0 | 1 | 2,000 | | 0 | 0 | 0 | |
| Storage - Electrical | | 0 | 0 | 0 | 1 | 150 | | 0 | 0 | 0 | Secure |
| Storage - Millwrights | | 0 | 0 | 0 | 1 | 150 | | 0 | 0 | 0 | Secure |
| Storage - Carpenter | | 0 | 0 | 0 | 1 | 150 | | 0 | 0 | 0 | Secure |
| Storage - General | | 0 | 0 | 0 | 1 | 150 | | 0 | 0 | 0 | Secure |
| <u>Sign Shop/Storage</u> | | | | | | | | | | | |
| Sign Storage | | 0 | 0 | 0 | 1 | 800 | | 0 | 0 | 0 | Post, signs, decals, fasenters, etc. |
| Sign Shop/Assembly | | 0 | 0 | 0 | 1 | 500 | | 0 | 0 | 0 | Workbench |
| <u>Shelter Shop/Storage</u> | | | | | | | | | | | |
| Shelter Storage | 8 x 15 | 0 | 0 | 0 | 20 | 2,400 | | 0 | 0 | 0 | Shelter size approx - 13' x 6' |
| Shelter Parts Storage | | 0 | 0 | 0 | 1 | 800 | | 0 | 0 | 0 | Roof panels, glass panels, casing, paint supplies |
| Shelter Maintenance Shop | | 0 | 0 | 0 | 1 | 500 | | 0 | 0 | 0 | Workbench, open floor, minimal welding |
| <i>Subtotal Office Areas/Shop Areas</i> | | 0 | 0 | 0 | 9 | 9,262 | | 0 | 0 | 0 | |
| SUBTOTAL PLANT MAINTENANCE | | | | | | | | | | | |
| Circ/Mech/Elec/Struc (Net: Gross) | | | | | | | | | | | |
| Circulation/Struc | 25% | | | 0 | | 2,320 | | | | 0 | |
| Electrical Room | | | | --- | | --- | | | | --- | Assumes shared with other areas. |
| Data/Comm Room | | | | --- | | --- | | | | --- | Assumes shared with other areas. |
| Mechanical Room | | | | --- | | --- | | | | --- | Assumes shared with other areas. |
| Fire/Sprinkler Room | | | | --- | | --- | | | | --- | Assumes shared with other areas. |
| TOTAL PLANT MAINTENANCE | | 0 | 0 | 0 | 9 | 11,582 | | 0 | 0 | 0 | |

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | | 216 BUS MASTER PLAN | | | PHASE I PROGRAM | | | Remarks |
|--|-----------------|-----------------|-------|--------------|---------------------|-------|--------------|-----------------|-------|--------------|------------------------------------|
| | | Qty. | | Area (SF) | Qty. | | Area (SF) | Qty. | | Area (SF) | |
| | | Staff | Space | | Staff | Space | | Staff | Space | | |
| COVERED AREAS | | | | | | | | | | | |
| Fuel Areas | | | | | | | | | | | |
| Non-Revenue - Unleaded Fuel Lane | 16 x 30 | | 1 | 480 | | 1 | 480 | | 1 | 480 | |
| <i>Subtotal Fuel Areas</i> | | | | 480 | | | 480 | | | 480 | |
| SUBTOTAL COVERED AREAS | | | | | | | | | | | |
| Circ/Mech/Elec/Struc (Net: Gross) | | | | 480 | | | 480 | | | 480 | |
| Circulation/Struct | 20% | | | 96 | | | 96 | | | 96 | |
| TOTAL COVERED AREAS | | | | 576 | | | 576 | | | 576 | |
| EXTERIOR AREAS | | | | | | | | | | | |
| Exterior Storage Areas | | | | | | | | | | | |
| Loading Dock | 20 x 70 | | 0 | 0 | | 1 | 1,400 | | 0 | 0 | Sized for flatbed trailer |
| Trash/Recycling | 100 | | 3 | 300 | | 3 | 300 | | 3 | 300 | |
| Scrap Metal Recycling | 200 | | 1 | 200 | | 1 | 200 | | 1 | 200 | |
| Cardboard Recycling | 100 | | 1 | 100 | | 1 | 100 | | 1 | 100 | |
| Snow Storage | | | | | | | | | | | Incorporated into site circulation |
| Emergency Generator | | | 1 | 1,000 | | 1 | 1,000 | | 1 | 1,000 | |
| <i>Subtotal Exterior Storage Areas</i> | | | 5 | 1,600 | | 7 | 3,000 | | 5 | 1,600 | |
| SUBTOTAL EXTERIOR AREAS | | | | | | | | | | | |
| Circ/Mech/Elec/Struc (Net: Gross) | | | | 1,600 | | | 3,000 | | | 1,600 | |
| Circulation/Struct | 50% | | | 800 | | | 1,500 | | | 800 | |
| TOTAL EXTERIOR AREAS | | | | 2,400 | | | 4,500 | | | 2,400 | |
| ENCLOSED VEHICLE PARKING | | | | | | | | | | | |
| Non-Revenue Fleet | | | | | | | | | | | |
| Small Vehicle Space | 10 x 10 | | 3 | 300 | | 3 | 300 | | 3 | 300 | Forklift, floor scrubber |
| Medium Vehicle Space | 10 x 20 | | 1 | 200 | | 1 | 200 | | 1 | 200 | Bus mover |
| Extra Large Vehicle Space | 12 x 40 | | 2 | 960 | | 2 | 960 | | 2 | 960 | Tow Truck, Service Truck |
| <i>Subtotal Non-Revenue Fleet</i> | | | 6 | 1,460 | | 6 | 1,460 | | 6 | 1,460 | |
| SUBTOTAL ENCLOSED VEHICLE PARKING | | | | | | | | | | | |
| Circ/Mech/Elec/Struc (Net: Gross) | | | | 1,460 | | | 1,460 | | | 1,460 | |
| Circulation/Struct | 25% | | | 370 | | | 370 | | | 370 | |
| Electrical Room | | | | --- | | | --- | | | --- | Assumes shared with other areas. |
| Mechanical Room | | | | --- | | | --- | | | --- | Assumes shared with other areas. |
| Fire/Sprinkler Room | | | | --- | | | --- | | | --- | Assumes shared with other areas. |
| TOTAL ENCLOSED VEHICLE PARKING | | | | 1,830 | | | 1,830 | | | 1,830 | |

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | 216 BUS MASTER PLAN | | PHASE I PROGRAM | | Remarks | | | |
|--|-----------------|-----------------|-----------|---------------------|-------|-----------------|---------------|---------|-----------|--------------|------|
| | | Qty. | | Area | | Qty. | | | Area | | |
| | | Staff | Space | (SF) | Staff | Space | (SF) | | Staff | Space | (SF) |
| EXTERIOR NON-REV VEHICLE PARKING | | | | | | | | | | | |
| Non-Revenue Fleet | | | | | | | | | | | |
| BUS OPERATIONS | 10 x 25 | | 10 | 2,500 | | 17 | 4,250 | | 10 | 2,500 | |
| FLEET MAINTENANCE | 10 x 25 | | 2 | 500 | | 3 | 750 | | 3 | 750 | |
| PARTS STOREROOM | 10 x 25 | | 0 | 0 | | 1 | 250 | | 0 | 0 | |
| REHAB | 10 x 25 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| COACH SERVICES | 10 x 25 | | 1 | 250 | | 1 | 250 | | 1 | 250 | |
| PLANT MAINTENANCE | 10 x 25 | | 0 | 0 | | 5 | 1,250 | | 0 | 0 | |
| BUS STOP MAINTENANCE | 10 x 25 | | 0 | 0 | | 7 | 1,750 | | 0 | 0 | |
| <i>Subtotal Non-Revenue Fleet</i> | | | 13 | 3,250 | | 34 | 8,500 | | 14 | 3,500 | |
| SUBTOTAL EXTERIOR NON-REV VEHICLE PARKING | | | | | | | | | | | |
| Circ/Struc (Net: Gross) | | | 13 | 3,250 | | 34 | 8,500 | | 14 | 3,500 | |
| Circulation | 100% | | | 3,250 | | | 8,500 | | | 3,500 | |
| TOTAL EXTERIOR NON-REV VEHICLE PARKING | | | 13 | 6,500 | | 34 | 17,000 | | 14 | 7,000 | |
| DOWN LINE / READY LINE | | | | | | | | | | | |
| Down Line / Ready Line | | | | | | | | | | | |
| Down Line/Ready Line - Standard Bus | 12 x 45 | | 6 | 3,240 | | 17 | 9,180 | | 7 | 3,510 | |
| Down Line/Ready Line - Articulated Bus | 12 x 65 | | 2 | 1,170 | | 4 | 3,120 | | 2 | 1,560 | |
| <i>Subtotal Down Line / Ready Line</i> | | | 8 | 4,410 | | 21 | 12,300 | | 9 | 5,070 | |
| SUBTOTAL DOWN LINE / READY LINE | | | | | | | | | | | |
| Circ/Struc (Net: Gross) | | | 8 | 4,410 | | 21 | 12,300 | | 9 | 5,070 | |
| Circulation/Struct | 50% | | | 2,210 | | | 6,150 | | | 2,540 | |
| TOTAL DOWN LINE / READY LINE | | | 8 | 6,620 | | 21 | 18,450 | | 9 | 7,610 | |

| Space Needs Program October 25, 2021 | Space Standards | 150 BUS PROGRAM | | | 216 BUS MASTER PLAN | | | PHASE I PROGRAM | | | Remarks |
|--|-----------------|-----------------|------------|---------------|---------------------|------------|----------------|-----------------|------------|---------------|--|
| | | Qty. | | Area (SF) | Qty. | | Area (SF) | Qty. | | Area (SF) | |
| | | Staff | Space | | Staff | Space | | Staff | Space | | |
| EMPLOYEE/VISITOR PARKING | | | | | | | | | | | |
| Employee Parking | | | | | | | | | | | |
| Employee Parking | 9 x 18 | 408 | 194 | 31,428 | 671 | 334 | 54,108 | 459 | 218 | 35,316 | |
| BUS OPERATIONS | | 335 | 157 | 25,434 | 525 | 251 | 40,662 | 375 | 176 | 28,512 | |
| FLEET MAINTENANCE | | 48 | 32 | 5,184 | 94 | 61 | 9,882 | 56 | 36 | 5,832 | |
| PARTS STOREROOM | | 4 | 3 | 486 | 14 | 10 | 1,620 | 5 | 3 | 486 | |
| REHAB | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| COACH SERVICES | | 21 | 2 | 324 | 29 | 3 | 486 | 23 | 3 | 486 | |
| PLANT MAINTENANCE | | 0 | 0 | 0 | 9 | 9 | 1,458 | 0 | 0 | 0 | |
| <i>Subtotal Employee Parking</i> | | 408 | 194 | 31,428 | 671 | 334 | 54,108 | 459 | 218 | 35,316 | |
| Miscellaneous Parking | | | | | | | | | | | |
| Accessible Parking | 13 x 18 | | 6 | 1,404 | | 8 | 1,872 | | 6 | 1,404 | |
| Visitor Parking | 9 x 18 | | 5 | 810 | | 5 | 810 | | 5 | 810 | |
| Motorcycle | | | | | | | -- | | | | |
| Bicycle Parking | | | | | | | -- | | | | |
| <i>Subtotal Miscellaneous Parking</i> | | | 11 | 2,214 | | 13 | 2,682 | | 11 | 2,214 | |
| SUBTOTAL EMPLOYEE/VISITOR PARKING | | | 205 | 33,642 | | 347 | 56,790 | | 229 | 37,530 | |
| Circ/Struc (Net: Gross) | | | | | | | | | | | |
| Circulation | 100% | | | 33,650 | | | 56,790 | | | 37,530 | Includes landscaping 22 SF per parking space |
| TOTAL EMPLOYEE/VISITOR PARKING | | | 205 | 67,292 | | 347 | 113,580 | | 229 | 75,060 | |

Appendix B

Design Criteria



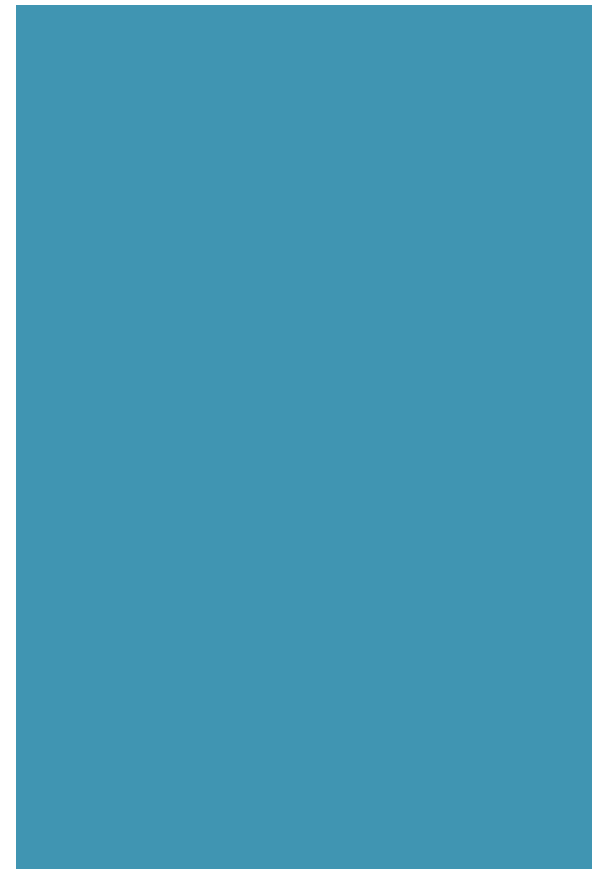
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Design Criteria Abbreviations

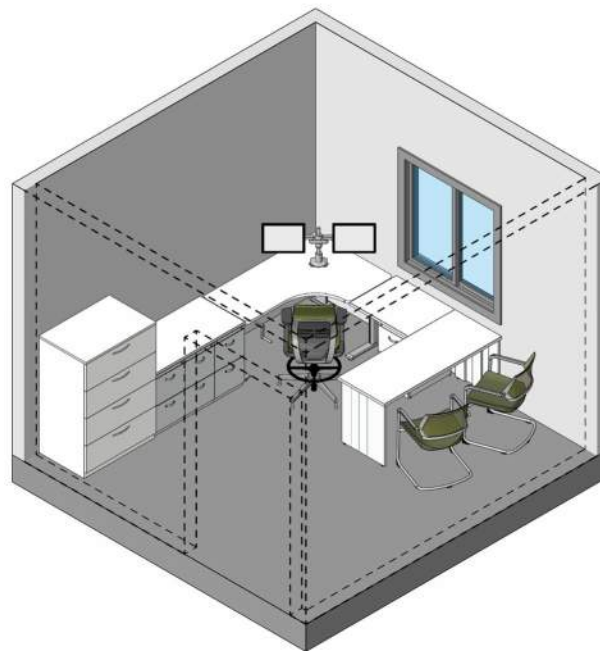
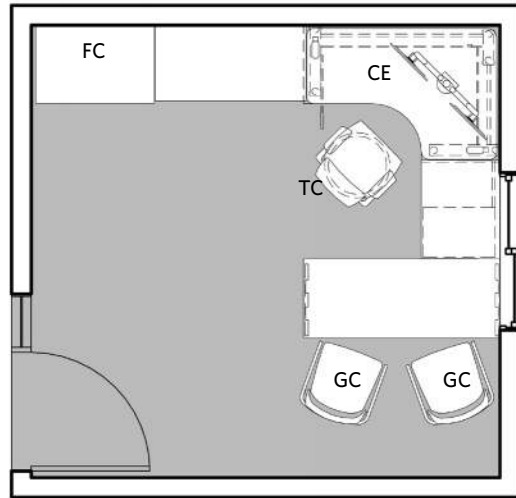
| ABBREVIATIONS | | | | | |
|---------------|---|--|-------|---|---|
| A | = | Amperes | GSF | = | Gross Square Feet |
| ADA | = | American Disabilities Act | H2 | = | Hydrogen |
| AFF | = | Above Finished Floor | HO | = | Hydraulic Oil |
| AHJ | = | Authority Having Jurisdiction | HVAC | = | Heating, Ventilation and Air Conditioning |
| ASHRAE | = | American Society of Heating and Refrigeration Association of Engineers | IBC | = | International Building Code |
| ATF | = | Automatic Transmission Fluid | ICC | = | International Code Council |
| Buses | = | Buses | IDF | = | intermediate distribution frame |
| BICSI | = | Building Industry Consulting Service International | IECC | = | International Energy Conversatoin Code |
| CA | = | Compressed Air | IES | = | Illuminating Engineering Society |
| CE | = | Computer Equipment | IFC | = | International Fire Code |
| CFM | = | Cubic Feet Per Minute | IMC | = | International Mechanical Code |
| CG | = | Chassis Grease | IPC | = | International Plumbing Cod |
| Circ | = | Circulation | K | = | 1,000 Pounds |
| CNG | = | Compressed Natural Gas | lb | = | Pound |
| CO | = | Carbon Monoxide | LED | = | Light Emitting Diode |
| CO2 | = | Carbon Dioxide | LEED | = | Leadership in Energy and Environmental Design |
| CWA | = | Common Work Area | LEL | = | Lower Limit Explosive Limit |
| dB(A) | = | Decibels, A-Weighted | LLWA | = | Lower Level Work Area |
| DEF | = | Diesel Exhaust Fluid | Max | = | Maximum |
| Demo | = | Demolition | MCB | = | Motor Coach Buses |
| Div | = | Division | MDF | = | Main Distribution Frame |
| DX | = | Direct Expansion | Mech | = | Mechanical |
| EC | = | Engine Coolant | Min | = | Minimum |
| Elec | = | Electrical | NEC | = | National Electric Code |
| EO | = | Engine Oil | NFPA | = | National Fire Protection Association |
| fc | = | Foot Candle | NG | = | Natural Gas |
| FPS | = | Feet Per Second | NO2 | = | Nitrogen Dioxide |
| GFI | = | Ground Fault Interrupter | OC | = | Overhead Cabinet |
| GO | = | Gear Oil | OSHA | = | Occupational Safety and Health |
| GPF | = | Gallons Per Flush | PA | = | Public Address |
| GPM | = | Gallons Per Minute | PDI | = | Plumbing and Drainage Institute |
| | | | PDR | = | Production Distribution Repair |
| | | | PES | = | Portable Equipment Storage |
| | | | PSI | = | Pounds Per Square Inch |
| | | | RFID | = | Radio-Frequency Identification |
| | | | RLWP | = | Roof Level Work Platform |
| | | | SF | = | Square Feet |
| | | | Struc | = | Structural |
| | | | TBD | = | To Be Determined |
| | | | TBS | = | ToolBox Storage |
| | | | TC | = | Task Chair |
| | | | Typ | = | Typical |
| | | | UC | = | Used Coolant |
| | | | UO | = | Used Oil |
| | | | UPS | = | Uninterruptible Power Supply |
| | | | VAC | = | Volts AC |
| | | | VCT | = | Vinyl Composite Tile |
| | | | VOC | = | Volatile Organic Compound |
| | | | VSS | = | Video Surveillance System |
| | | | W | = | Water |
| | | | WWF | = | Windshield Washer Fluid |



OFFICE MODULES



PRIVATE OFFICE - 150 SF



FUNCTION

Private office for completing work tasks and holding one on one meetings.

RELATIONSHIP TO OTHER AREAS

- Case specific; reference general module: office areas specific to each group

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

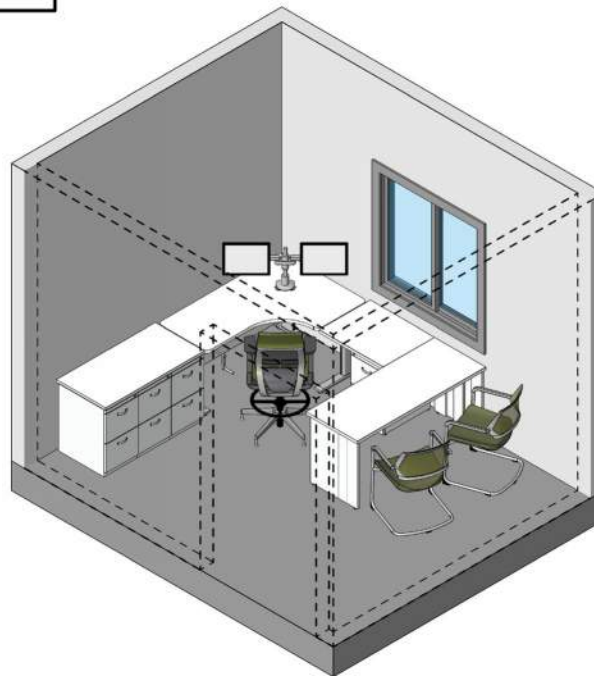
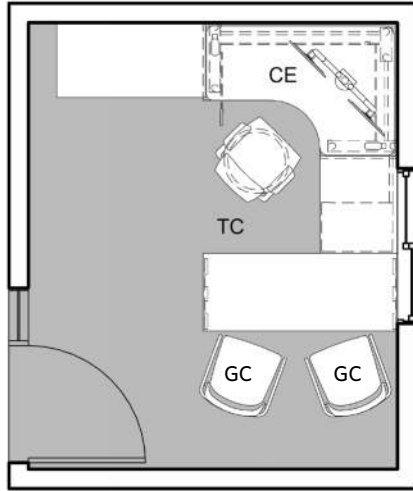
TYPICAL EQUIPMENT/FURNISHINGS

- Task chair
- Sit/stand workstation
- Under surface vertical file/drawer cabinets
- Storage Cabinets
- Guest chairs

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards
- Flooring:
 - ✓ Carpet tile floor with rubber base for Administration or Operations areas
 - ✓ Resilient floor covering with base or sealed concrete.
- Walls:
 - ✓ Gypsum board on metal studs or painted masonry
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile
- Doors: Secure entry 3'-0" door with loadable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degree Fahrenheit
 - ✓ Cooling set point: 74 degree Fahrenheit
- Electrical
 - ✓ General purpose duplex receptacles
- Lighting Control:
 - ✓ LED lighting (35 footcandles)
 - ✓ Occupancy sensors
 - ✓ Task lighting (recommended)

PRIVATE OFFICE - 120 SF



FUNCTION

Private office for completing work tasks and holding one on one meetings.

RELATIONSHIP TO OTHER AREAS

- Case specific; reference general module: office areas specific to each group

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

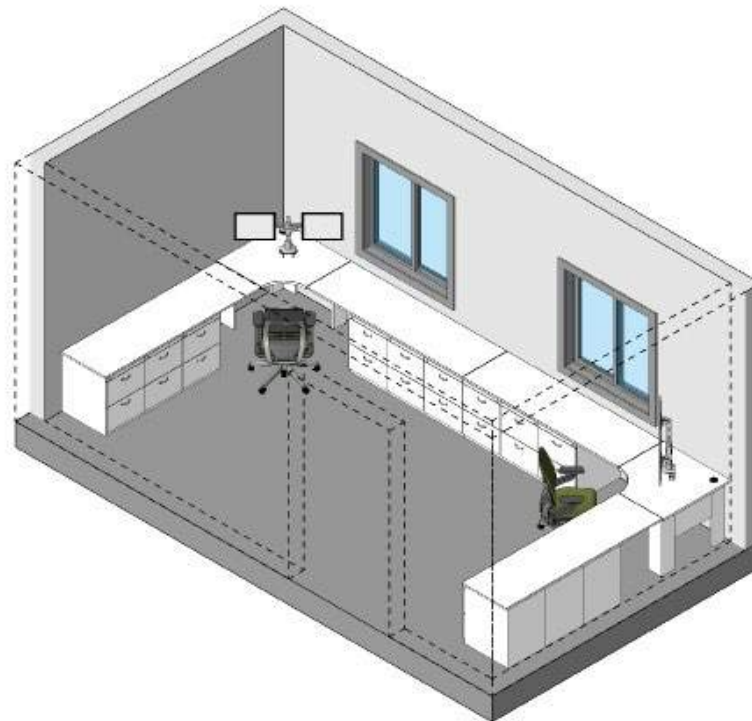
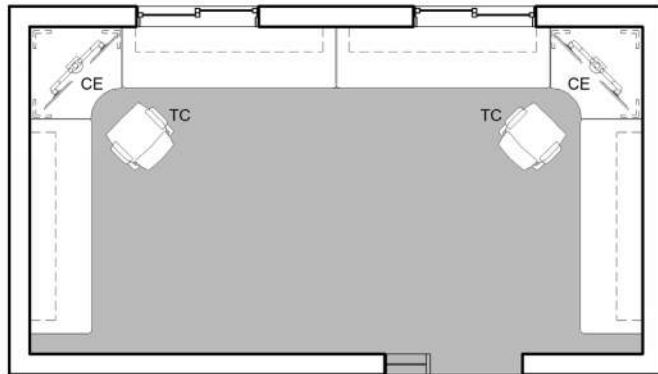
TYPICAL EQUIPMENT/FURNISHINGS

- Task chair
- Sit/stand workstation
- Under surface vertical files
- Cabinets
- Guest chairs

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Carpet tile floor with rubber base for Administration or Operations areas (recommended)
 - ✓ Resilient floor covering with base for maintenance areas (recommended).
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" door with loadable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degree Fahrenheit
 - ✓ Cooling set point: 74 degree Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (35 foot candles average)
 - ✓ Provide (four minimum) general purpose duplex receptacles and a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
 - ✓ Provide box and conduit rough-ins to three other locations in room
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

SHARED OFFICE



FUNCTION

Shared office for completing work tasks and holding one on one meetings.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

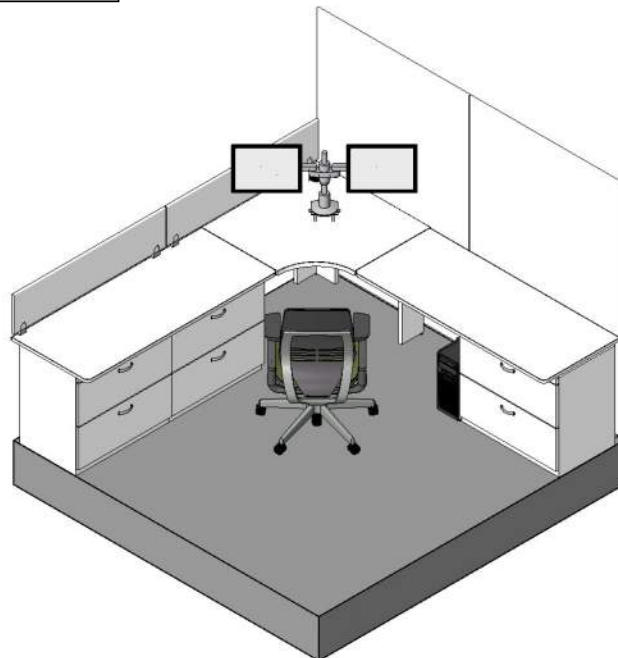
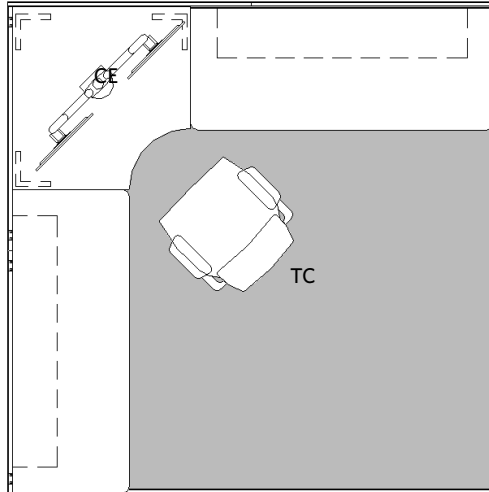
TYPICAL EQUIPMENT/FURNISHINGS

- Task chair.
- Guest chairs
- TMC 60" by 30" typical sit/stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Carpet tile floor with rubber base for Administration or Operations areas (recommended)
 - ✓ Resilient floor covering with base for maintenance areas (recommended).
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" door with loadable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degree Fahrenheit
 - ✓ Cooling set point: 74 degree Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (35 foot candles average)
 - ✓ Provide (four minimum) general purpose duplex receptacles and a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
 - ✓ Provide box and conduit rough-ins to three other locations in room
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

WORKSTATION - 64 SF



FUNCTION

Open office workstation to complete work tasks.

RELATIONSHIP TO OTHER AREAS

- Case specific; reference office general module: office areas specific to each group

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

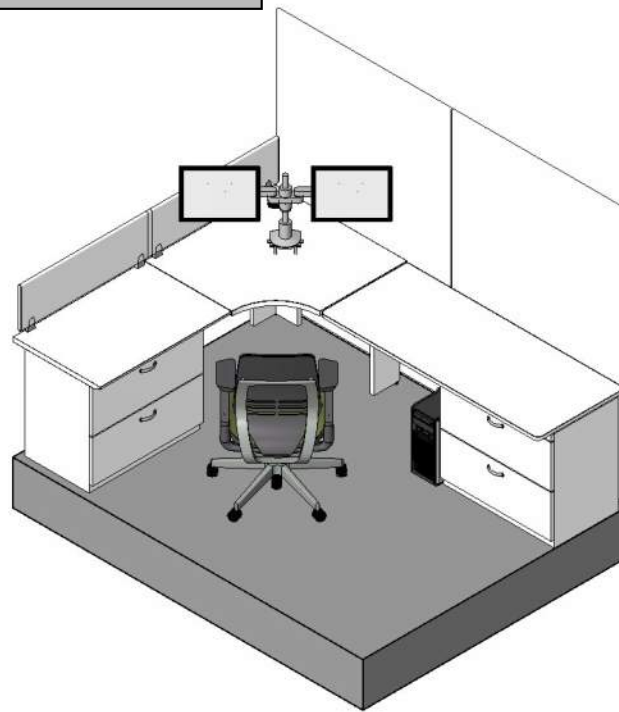
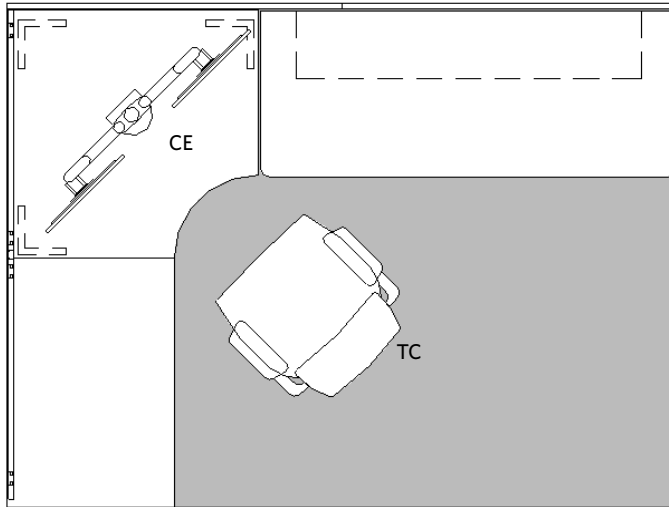
TYPICAL EQUIPMENT/FURNISHINGS

- Task chair
- TMC 60" by 30" typical sit/stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Carpet tile floor with rubber base for Administration or Operations areas (recommended)
 - ✓ Resilient floor covering with base for maintenance areas (recommended).
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" door with loadable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degree Fahrenheit
 - ✓ Cooling set point: 74 degree Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (35 foot candles average)
 - ✓ Provide (two minimum) general purpose duplex receptacles and a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
 - ✓ Provide box and conduit rough-ins to three other locations in room
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

WORKSTATION - 48 SF



FUNCTION

Open office workstation to complete work tasks.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

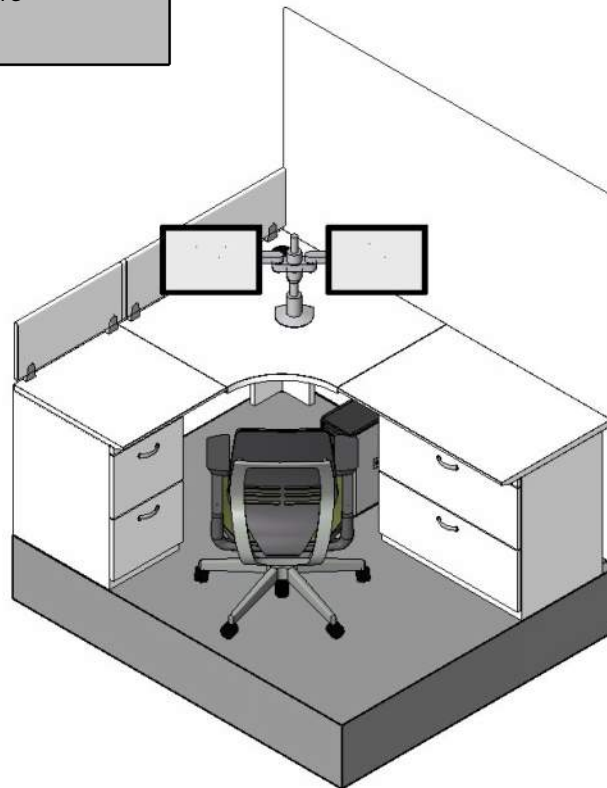
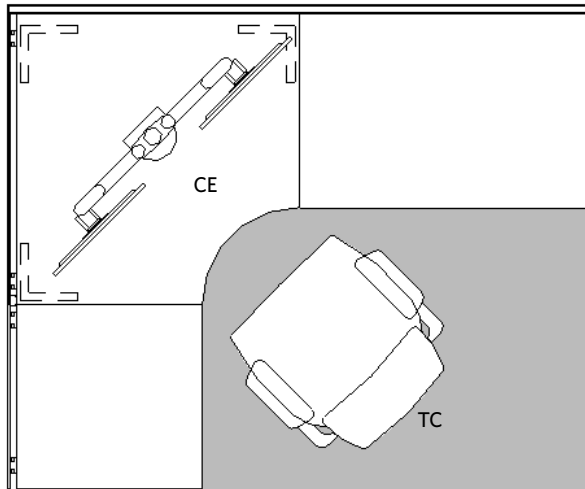
TYPICAL EQUIPMENT/FURNISHINGS

- Task chair.
- TMC 60" by 30" typical sit/stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Carpet tile floor with rubber base for Administration or Operations areas (recommended)
 - ✓ Resilient floor covering with base for maintenance areas (recommended).
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" door with loadable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degree Fahrenheit
 - ✓ Cooling set point: 74 degree Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (35 foot candles average)
 - ✓ Provide (two minimum) general purpose duplex receptacles and a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
 - ✓ Provide box and conduit rough-ins to three other locations in room
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

WORKSTATION - 30 SF



FUNCTION

Open office workstation to complete work tasks.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Task chair.
- TMC 60" by 30" typical sit/stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files

TYPICAL DESIGN FEATURES

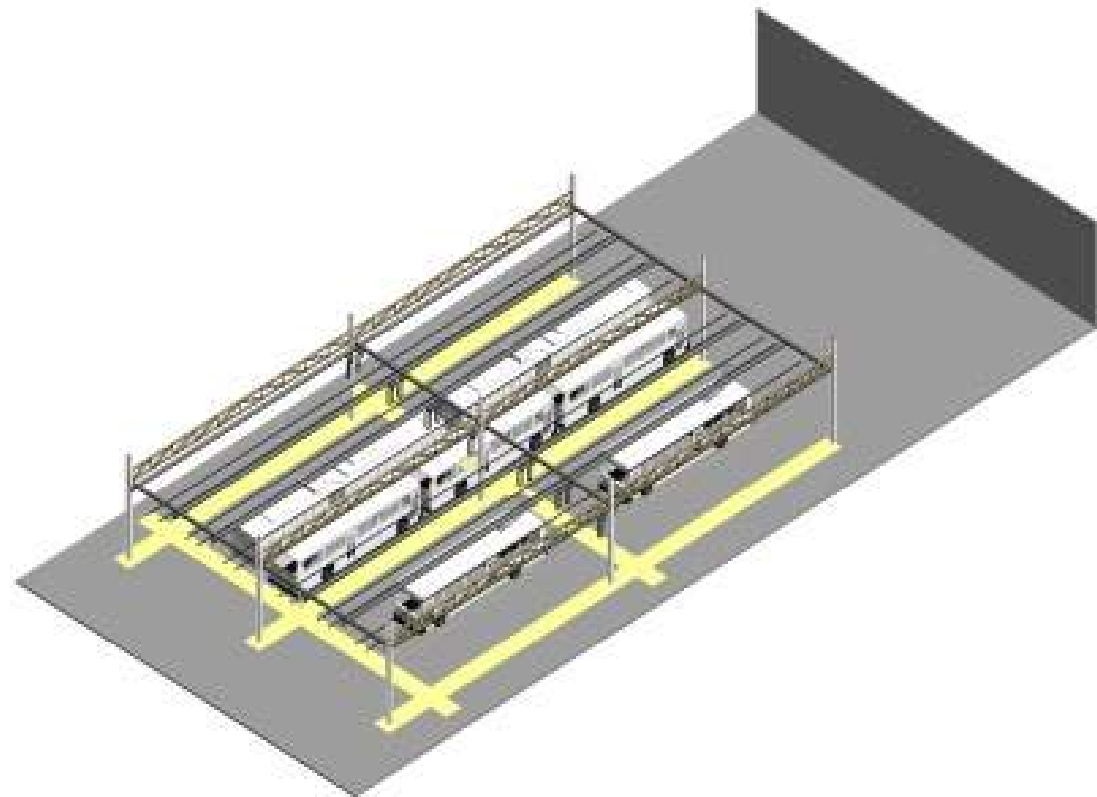
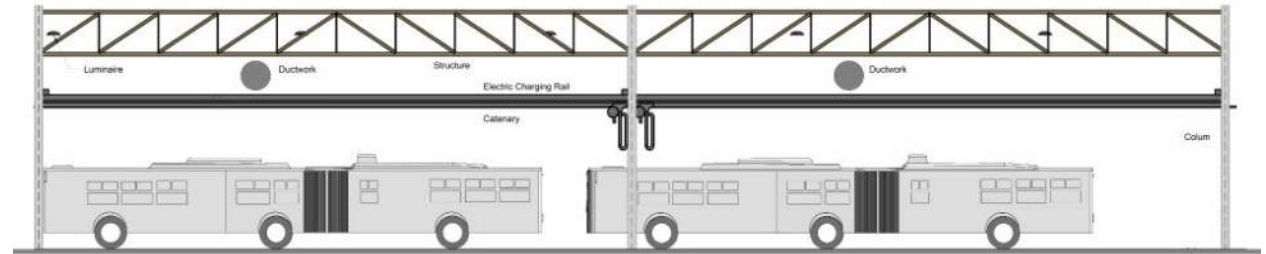
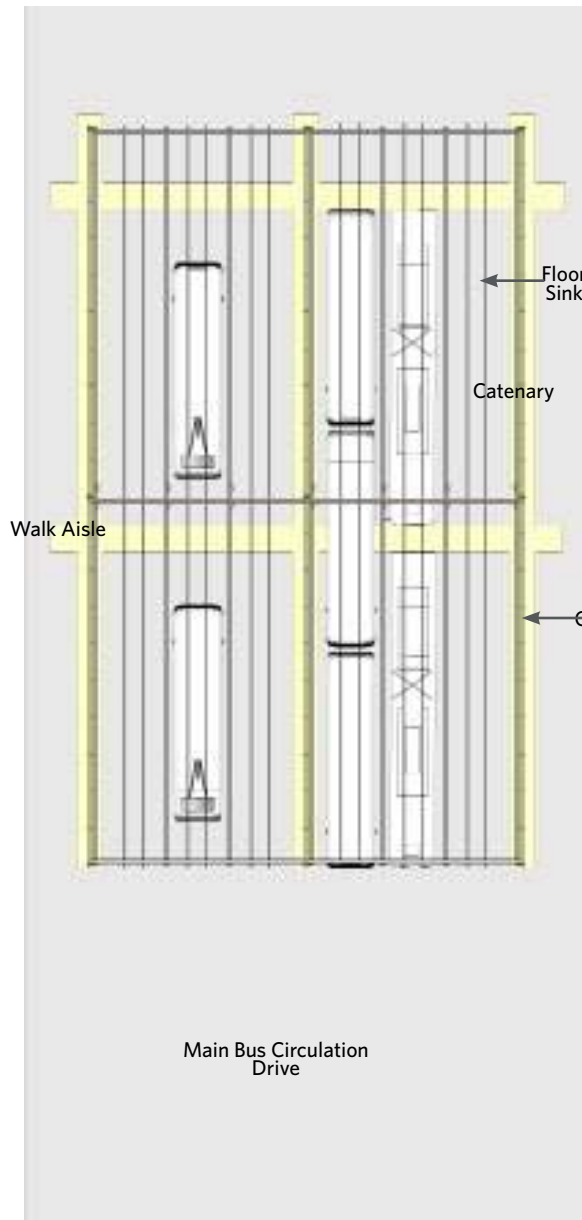
- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Carpet tile floor with rubber base for Administration or Operations areas (recommended)
 - ✓ Resilient floor covering with base for maintenance areas (recommended).
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" door with loadable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degree Fahrenheit
 - ✓ Cooling set point: 74 degree Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (35 foot candles average)
 - ✓ Provide (two minimum) general purpose duplex receptacles and a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
 - ✓ Provide box and conduit rough-ins to three other locations in room
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)



PARKING



ENCLOSED BUS PARKING



ENCLOSED BUS PARKING

FUNCTION

Dedicated area to park 40' and 60' buses.

RELATIONSHIP TO OTHER AREAS

- Access to Coach Services
- Access to Operations (Operator's Lobby)
- Access to Fleet Maintenance

RECOMMENDED CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures
- 12'-0" wide x 65'-0" long per space (60' bus)
- 12'-0" wide x 45'-0" long per space (40' bus)

TYPICAL EQUIPMENT/FURNISHINGS

- Charging infrastructure:
Electric charging overhead and installed when fleet is transitioned

TYPICAL DESIGN FEATURES

- Two 60' buses should be able to park in the place of three 40' buses

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, with light colored finish, concrete or masonry
 - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors:
 - ✓ Personnel door with view panel to meet applicable code exit requirements
 - ✓ Exterior of building overhead doors: High-lifting sectional, steel, insulated, 14'-0" by 14'-0" with view panels, automatic operator, detection loops
 - ✓ Bollards on exterior at jambs of overhead door (two)

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment

MECHANICAL CONSIDERATIONS

- Ventilation:
 - ✓ As required for storage and minor maintenance of buses.
 - ✓ Buses may be idling and moving within the space.

PLUMBING CONSIDERATIONS

- Trench drain with removable grate covers to central sediment and oil interceptor.
- 3/4" water hose bibb with standard faucet at rear of bay 2'-0" AFF (one per twelve bays (40 parking stalls))
- Compressed air:
 - ✓ 2" compressed air piping loop (minimum)
 - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge and quick disconnects at 4'-0" AFF (one per four parking stalls)
 - ✓ Provide 3/8" disconnects at locations to be determined during detailed design
 - ✓ As required by equipment
- Additional plumbing connections (water, gas, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles on every column
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation (5 fc average)
 - ✓ Fixtures located to illuminate around the vehicles
 - ✓ Luminaires shall be placed between every row of buses to allow illumination between buses
- Communications: Paging/intercom system speakers with 100 percent coverage of all parking stalls



BUS OPERATIONS



GENERAL MODULE: OFFICE AREAS

**DISTRICT SUPERINTENDENT
(TERMINAL)**

- Reference Office Module
Private Office - 150 SF

**TRANSPORTATION TERMINAL
SUPERVISOR**

- Reference Office Module
Private Office - 120 SF

OFFICE ASSISTANT

- Reference Office Module
Workstation - 64 SF
- Adjacent to District Superintendent,
Terminal Supervisor, and Lobby.

TERMINAL INSTRUCTORS

- Reference Office Module
Shared Office
- Adjacent to Training Areas

**ADMINISTRATIVE ASSISTANT
(TRAINING)**

- Reference Office Module
Workstation - 64 SF
- Adjacent to Training Areas and Terminal
Instructors

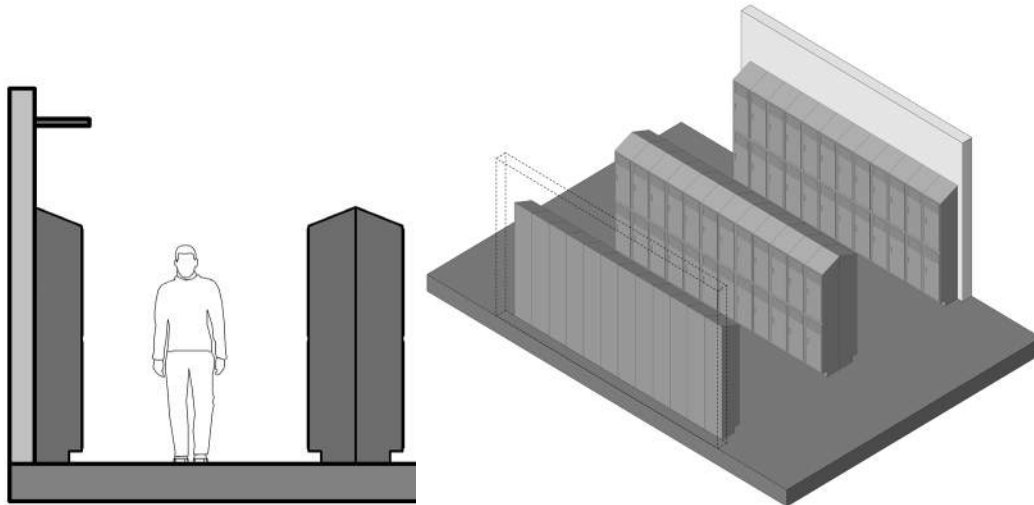
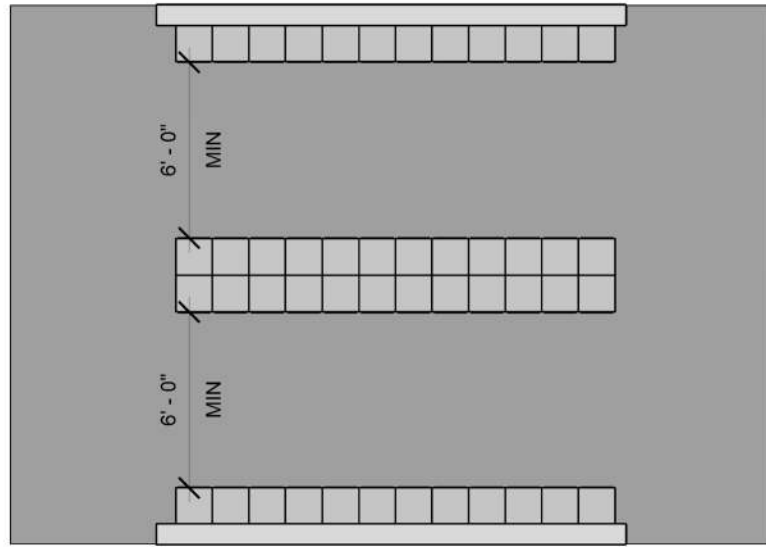
UNION OFFICE

- Reference Office Module
Private Office - 120 SF
- Adjacent to Operator's Lobby

**TRANSPORTATION STATION
WORKER**

- Reference Office Module
Private Office - 120 SF
- Adjacent to Operator's Lobby

OPERATOR LOCKERS - TWO TIER



FUNCTION

Alcove for the Operators to store personal gear and clothing in half-height lockers. Co-ed locker area, changing area in respective restrooms.

RELATIONSHIP TO OTHER AREAS

- Connected to Operator's Lobby
- Adjacent to Restroom/Showers

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

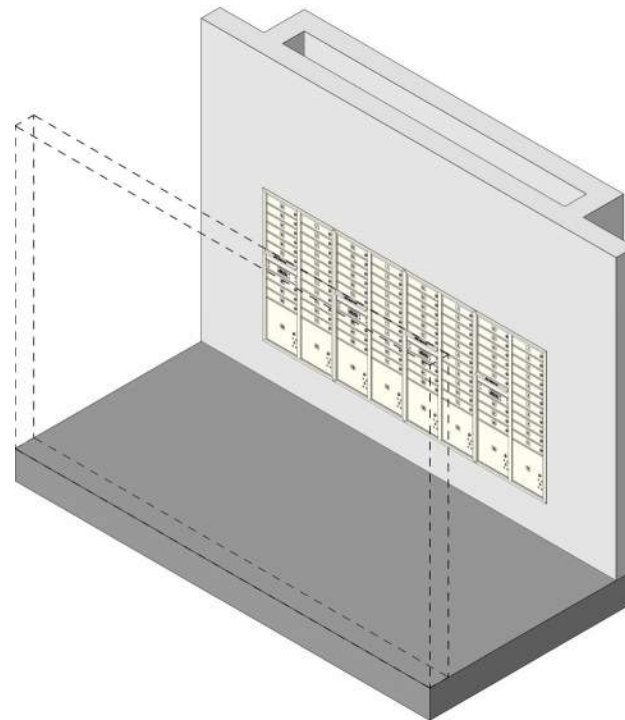
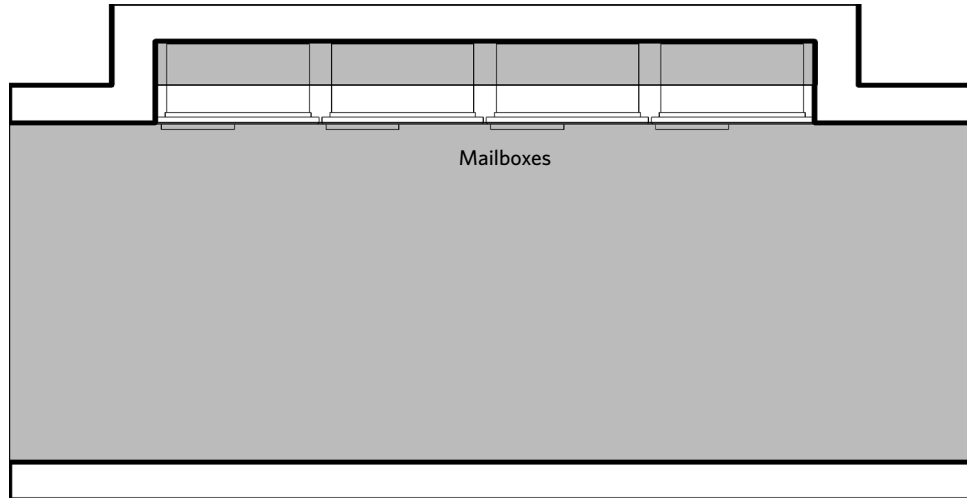
TYPICAL EQUIPMENT/FURNISHINGS

- Heavy duty, two tier, 3'-0", half-height lockers; one each per Operator assigned to the facility

TYPICAL DESIGN FEATURES

- Flooring:
 - ✓ VCT or finished concrete
- Walls: Painted masonry or gypsum
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
- Mechanical:
 - ✓ Heating
 - ✓ Cooled
- Electrical:
 - ✓ General purpose duplex receptacles
- Lighting Control:
 - ✓ Dimmable, indirect lighting
 - ✓ LED lighting (20 fc average)
 - ✓ Occupancy sensors

OPERATOR'S MAILBOXES



FUNCTION

Area for drivers to pick up route, human resource information, and any special instructions

RELATIONSHIP TO OTHER AREAS

- Adjacent to Dispatch and Drivers' Room
- Rear access from Dispatch

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

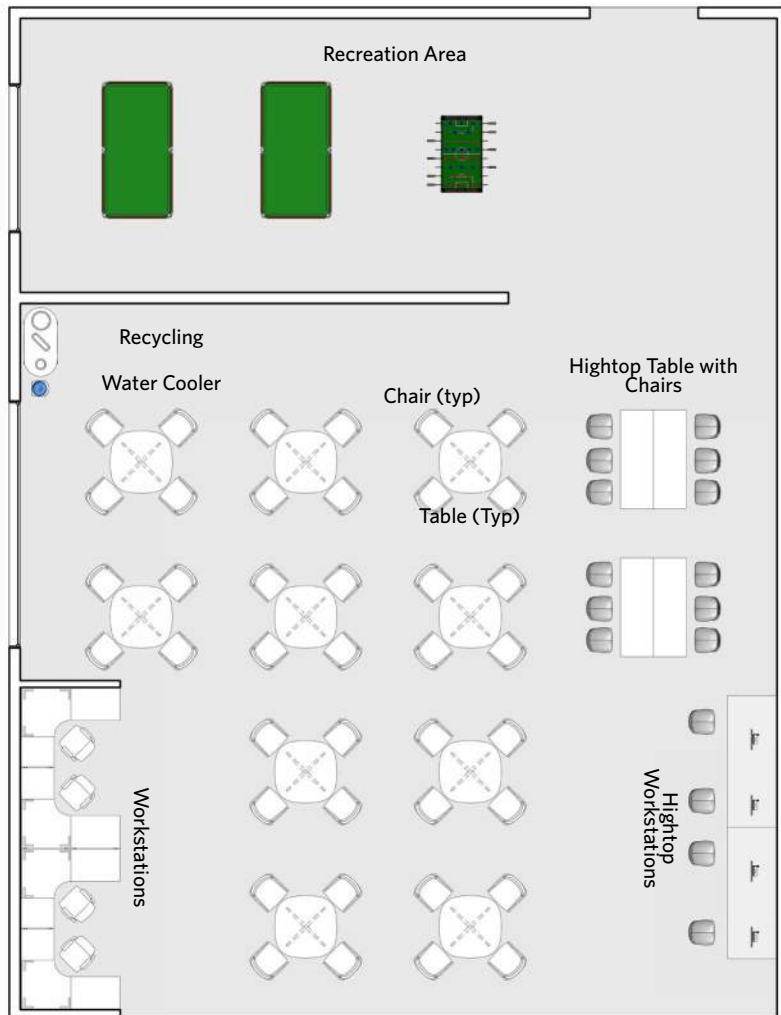
TYPICAL EQUIPMENT/FURNISHINGS

- 1 mail box per bus operator.

TYPICAL DESIGN FEATURES

- Flooring:
 - ✓ Resilient floor covering with rubber base or sealed concrete.
- Walls:
 - ✓ Gypsum board on metal studs or painted masonry.
- Ceiling:
 - ✓ Painted exposed structure or acoustical ceiling.
- Doors:
 - ✓ None, open to Driver's Day Room
- Mechanical
 - ✓ Heated
 - ✓ Cooled
- Electrical:
 - ✓ General purpose duplex receptacles.
- Lighting:
 - ✓ LED lighting (20 fc)

OPERATOR'S LOBBY



OPERATOR'S LOBBY

FUNCTION

Area for Operators to gather, take breaks, and relax between shifts.

RELATIONSHIP TO OTHER AREAS

- Connected to Kitchenette/Vending
- Adjacent to:
 - ✓ TV Room
 - ✓ Quiet Room
 - ✓ Restrooms
 - ✓ Lockers
 - ✓ Mailboxes
 - ✓ Operator Check-In
 - ✓ Dispatch/Receiver

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

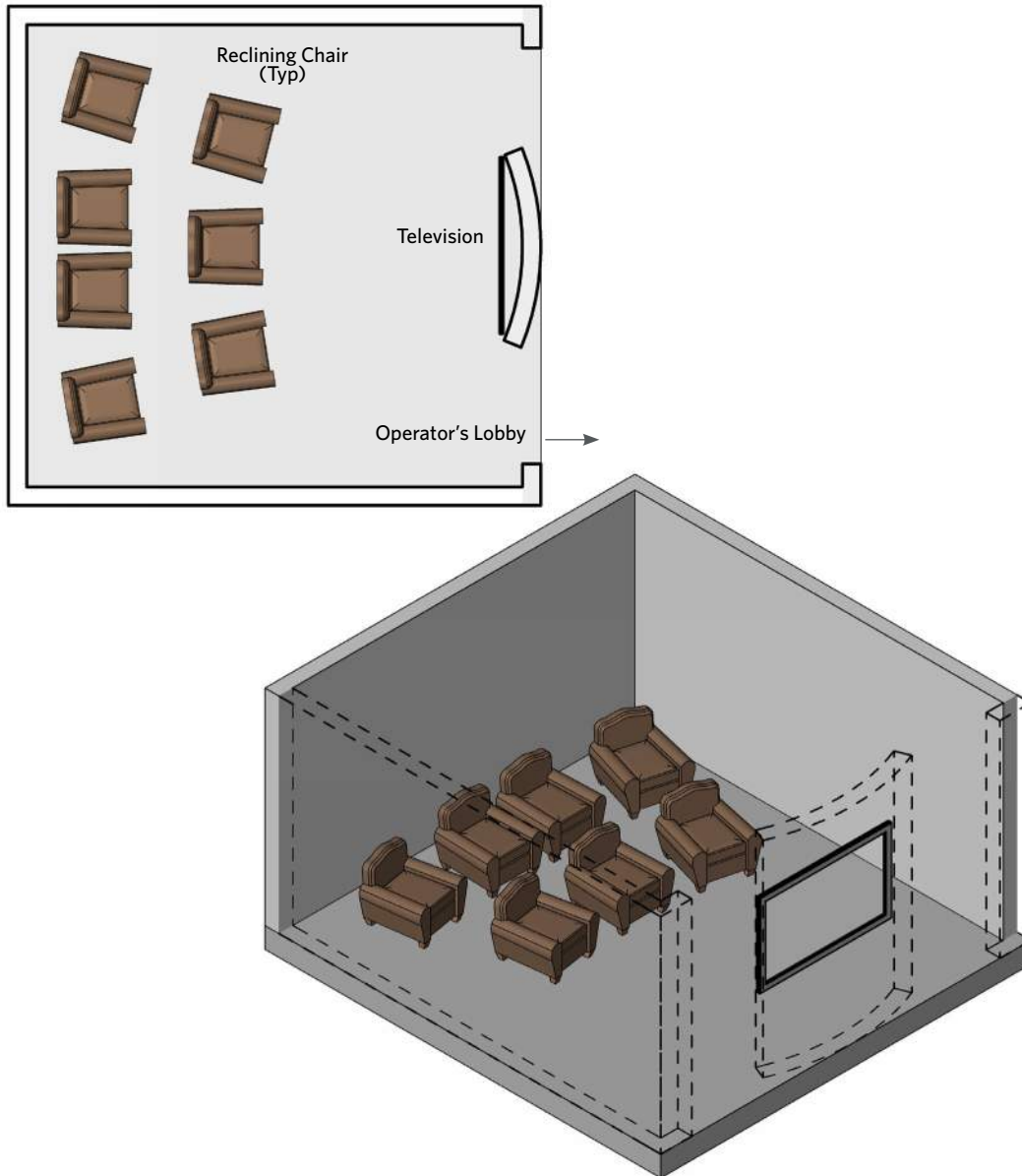
TYPICAL EQUIPMENT/FURNISHINGS

- | | |
|---|---|
| <ul style="list-style-type: none"> ▪ Computer workstations ▪ Tables and chairs (no tables with attached chairs) ▪ Message and information televisions ▪ Chairs ▪ End tables ▪ Bulletin boards ▪ Recreation equipment | <ul style="list-style-type: none"> ▪ Pool tables ▪ Route boards ▪ Alcove with workstation for incident reporting |
|---|---|

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Furniture: Use Owner furniture standards (if applicable)
 - ✓ Flooring: Resilient floor covering with base or finished concrete.
 - ✓ Walls:
 - Gypsum board on metal studs or painted masonry
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile
 - ✓ Doors:
 - Single leaf 3'-0" doors (two minimum) with lockable lever set hardware
- Daylighting: Exterior window desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
 - ✓ LED Lighting in accordance with IES recommendation (30 fc average)
 - ✓ Provide general purpose duplex receptacles
 - ✓ Provide one data outlet with four data ports at each workstation
- Lighting:
 - ✓ Task lighting at work stations

TV ROOM



FUNCTION

Enclosed room for Operators to watch television between, before, and after shifts

RELATIONSHIP TO OTHER AREAS

- Adjacent to Operator's Lobby

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

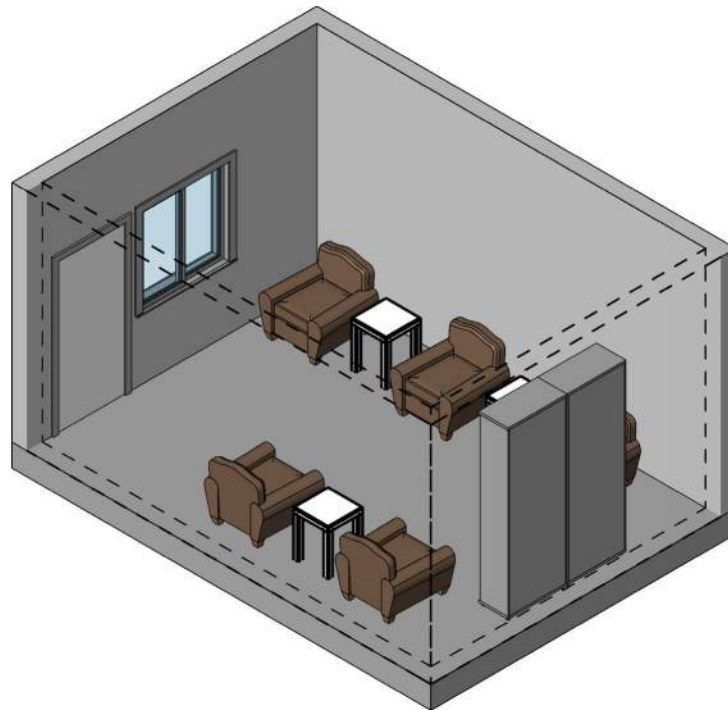
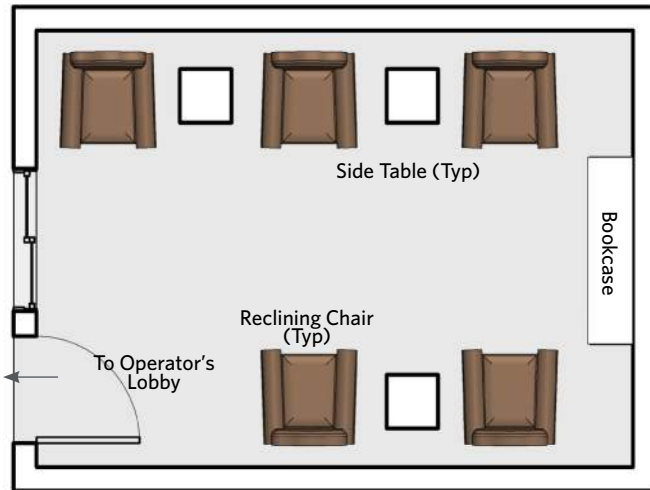
TYPICAL EQUIPMENT/FURNISHINGS

- Television
- Chairs
- End tables
- Table and chairs

TYPICAL DESIGN FEATURES

- Flooring:
 - ✓ Resilient floor covering with base (recommended)
- Walls:
 - ✓ Gypsum board on metal studs with wall finishes or painted masonry
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile
- Daylighting: No exterior openings
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (15 fc indirect lighting average)
 - ✓ General purpose duplex receptacles
- Lighting Control:
 - ✓ Dimmable, indirect lighting with occupancy sensor

QUIET ROOM



FUNCTION

Enclosed room for Operators to relax between, before, after shift.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Operator's Lobby

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

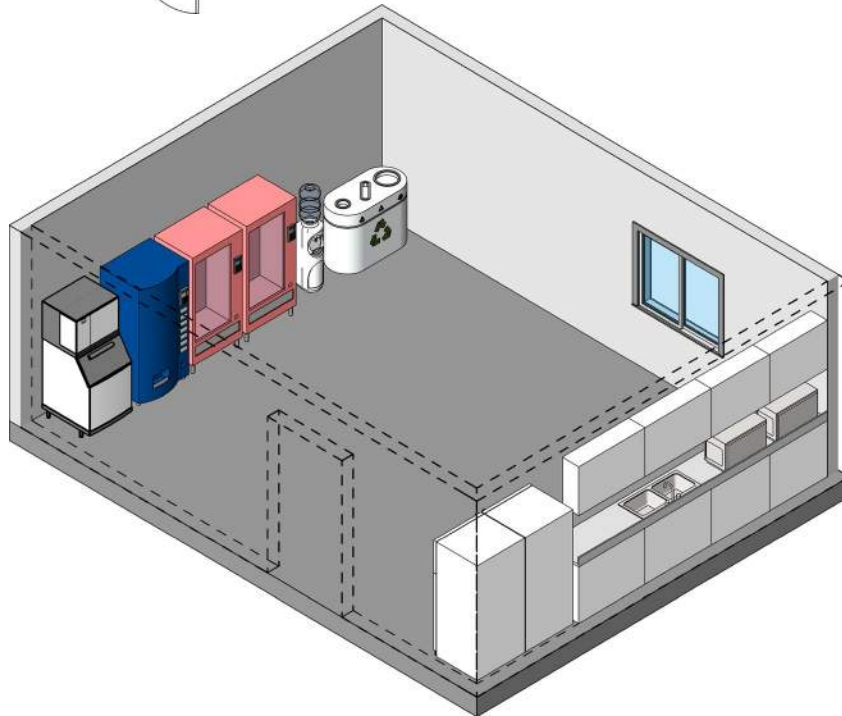
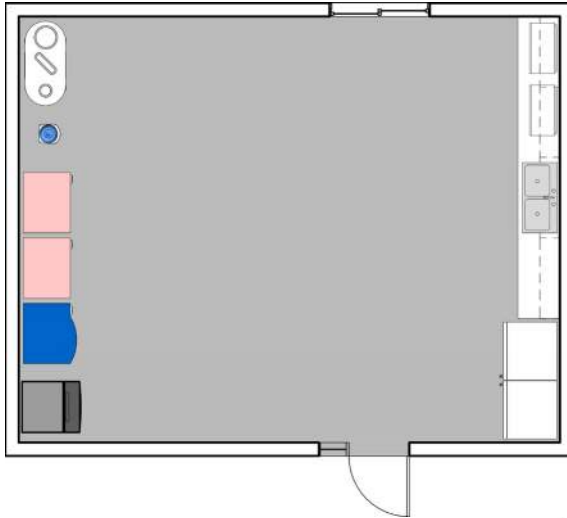
TYPICAL EQUIPMENT/FURNISHINGS

- Chairs
- Bookcase
- End tables

TYPICAL DESIGN FEATURES

- Flooring:
 - ✓ Carpet tile floor with rubber base or resilient floor covering with base (recommended)
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" door
- Daylighting: Exterior window
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc indirect lighting average)
 - ✓ General purpose duplex receptacles
- Lighting Control:
 - ✓ Dimmable, indirect lighting with occupancy sensor
 - ✓ Task lighting

VENDING



FUNCTION

Area used for staff to prepare and store food.

RELATIONSHIP TO OTHER AREAS

- Connected to Operator's Lobby

RECOMMENDED CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Counter, upper and lower cabinets, sink with water filter, microwaves, refrigerators, coffee maker, ice maker, water coolers, vending machines, trash/recycling/compost bins

TYPICAL DESIGN FEATURES

- Flooring:
 - ✓ Resilient floor covering with rubber base or sealed concrete.
- Walls:
 - ✓ Gypsum board on metal studs or painted masonry.
 - ✓ Wall protection as necessary.
- Ceiling:
 - ✓ Painted exposed structure of acoustical ceiling.
- Doors:
 - ✓ Door (material?)
- Daylighting:
 - ✓ Exterior window
- Mechanical:
 - ✓ Heated
 - ✓ Cooled
- Electrical:
 - ✓ General purpose duplex receptacles.
- Lighting
 - ✓ LED Lighting (20 fc)

MEN'S & WOMEN'S RESTROOMS

FUNCTION

Restroom for male and female employees.

RELATIONSHIP TO OTHER AREAS

- To be developed.

RECOMMENDED CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

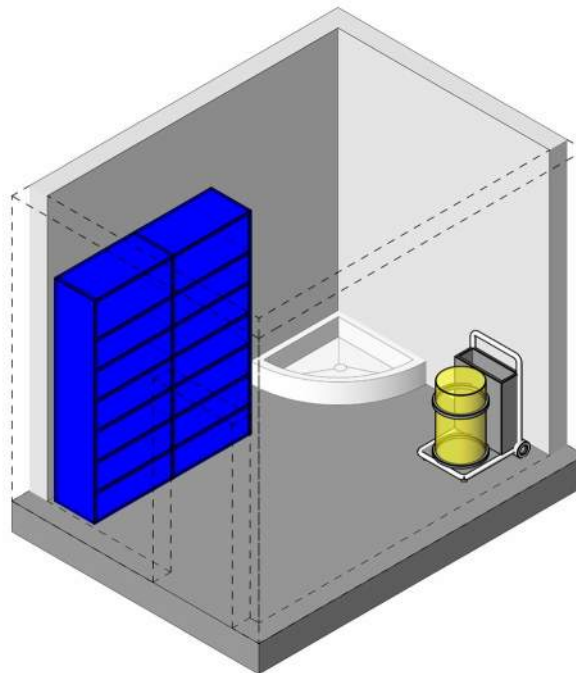
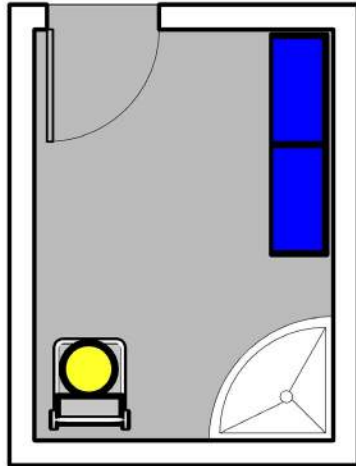
TYPICAL EQUIPMENT/FURNISHINGS

- Toilet
- Urinal
- Sink
- Mirror
- Hand dryer
- Paper towel dispenser

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Floor and walls: Ceramic tile floor covering and wall covering
 - ✓ Ceiling: Epoxy painted drywall ceiling
- Plumbing: Toilets, urinals, and wash sinks; as required by code
- Electrical:
 - ✓ Florescent/LED lighting, bi-level switching, task lighting over counters
 - ✓ General purpose duplex receptacles, 120 VAC, 20 A, GFI protected where required by code
 - ✓ As required by equipment
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, exhaust, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit

CUSTODIAL ROOM



FUNCTION

Enclosed area for janitorial supplies and mop sink.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Restrooms

RECOMMENDED CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

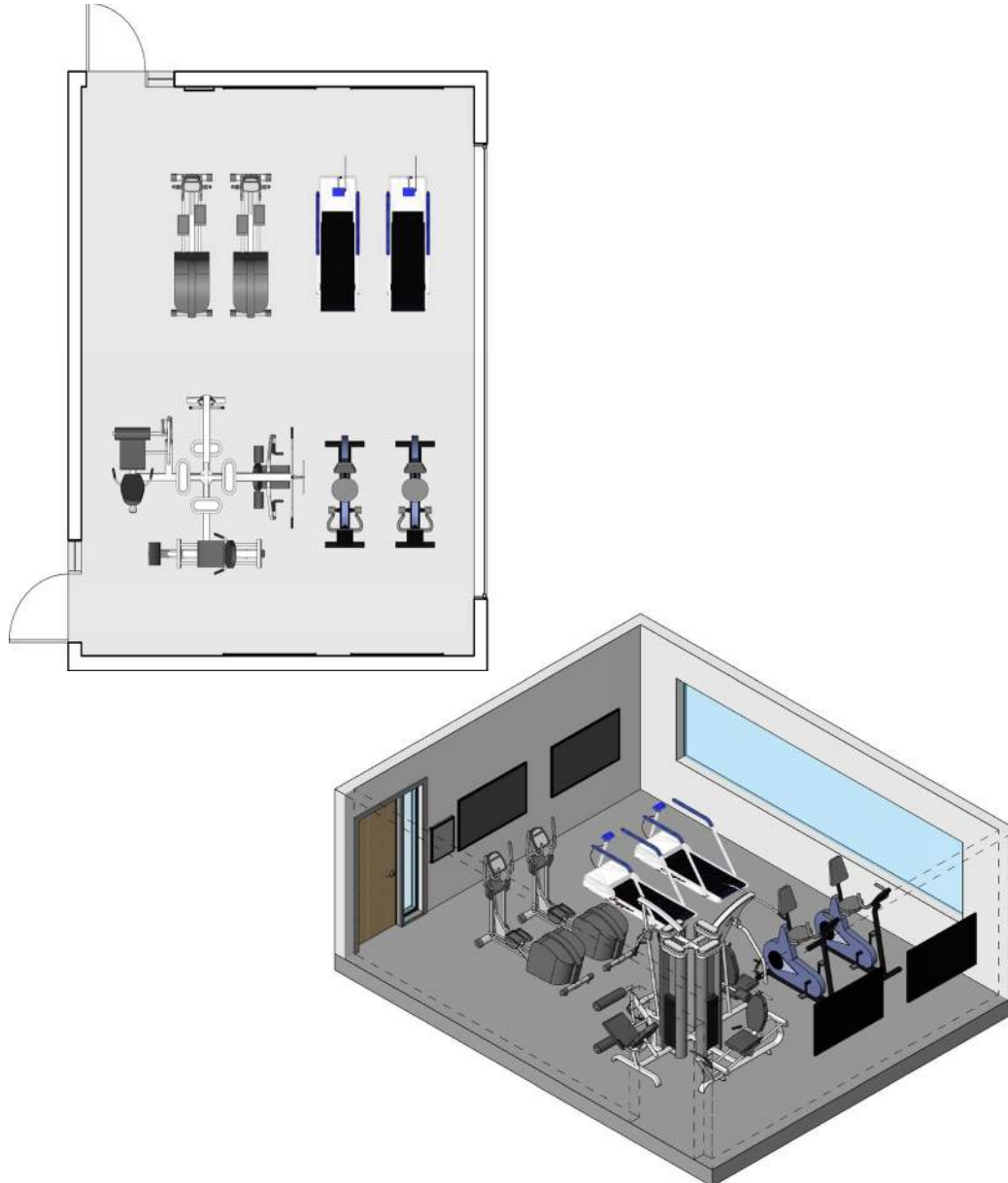
TYPICAL EQUIPMENT/FURNISHINGS

- Mop sink
- Metal shelving

TYPICAL DESIGN FEATURES

- Secure area
- Architectural
 - ✓ Floor: Exposed concrete slab
 - ✓ Walls: Soil and grease resistant
 - ✓ Ceiling: Painted exposed structure
- Plumbing: Water supply to mop sink
- Electrical:
 - ✓ Florescent or LED lighting
 - ✓ General purpose duplex receptacles, 120 VAC,
 - ✓ 20 A, GFI protected as required by code
 - ✓ As required by equipment
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, exhaust, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit

WELLNESS ROOM



FUNCTION

Enclosed area with exercise equipment for employee fitness.

RELATIONSHIP TO OTHER AREAS

- Accessible from the Operator's Lobby, Lockers, and Restrooms and Showers

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

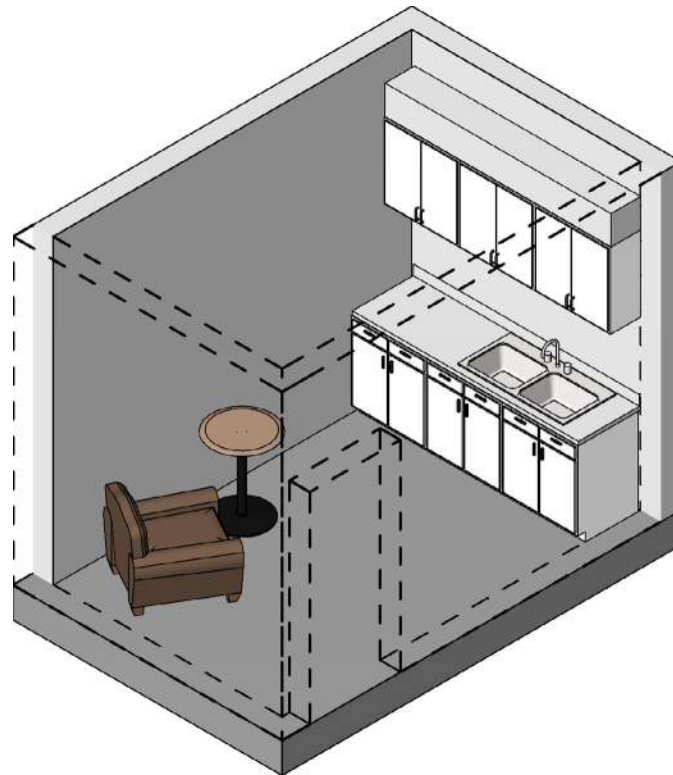
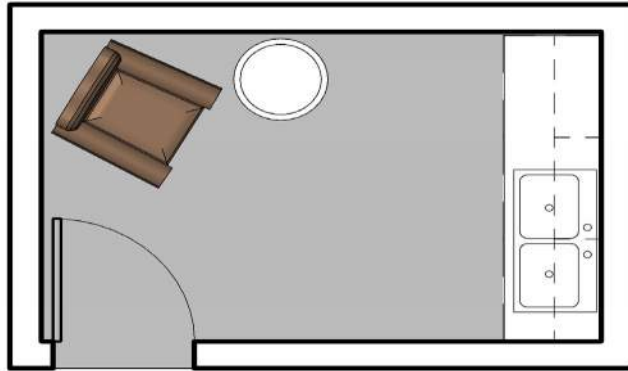
TYPICAL EQUIPMENT/FURNISHINGS

- Miscellaneous fitness equipment determined by the Owner
- Television

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Floor: Athletic rubber floor tiles with base (recommended)
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile (recommended)
 - ✓ Doors: Single leaf 3'-0" doors
- Daylighting: Exterior window desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Electrical:
 - ✓ Rough-in for equipment
- Power:
 - ✓ LED Lighting in accordance with IES recommendation (25 fc average)
 - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting:
 - ✓ Dimmable, indirect lighting with occupancy sensor
 - ✓ Task lighting (recommended)

MOTHER'S ROOM



FUNCTION

Dedicated room for personal privacy and storage or first aid supplies and personal care items.

RELATIONSHIP TO OTHER AREAS

- Accessible from department office areas

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

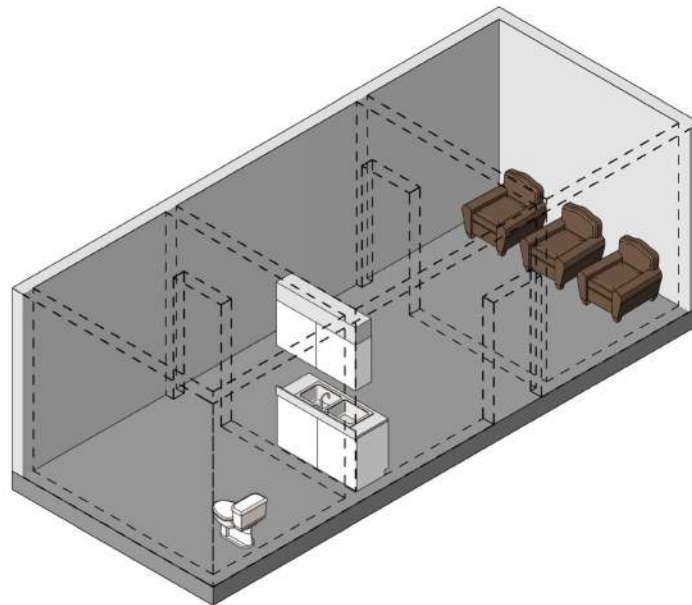
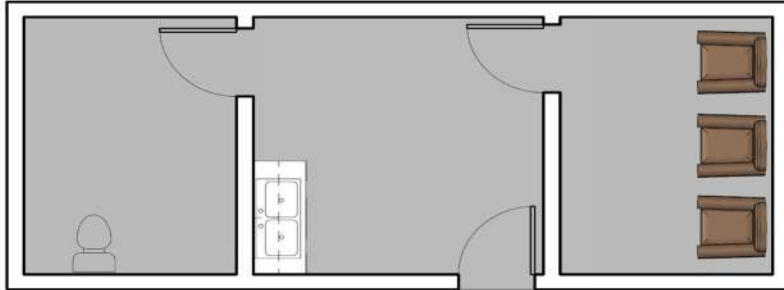
TYPICAL EQUIPMENT/FURNISHINGS

- Sink with countertops and cabinets
- Secure storage for equipment and supplies
- Lockers
- Side tables
- Refrigerator
- Chairs

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Flooring: Resilient floor covering with base or finished concrete (recommended)
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile (recommended)
 - ✓ Doors:
 - Single leaf lockable 3'-0" door with loadable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Plumbing: rough-in for fixtures
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc indirect lighting average)
 - ✓ Provide general purpose duplex receptacles (three minimum)
 - ✓ Provide one GFCI outlet above counter
- Lighting:
 - ✓ Dimmable, indirect lighting with occupancy sensor
 - ✓ Task lighting (recommended)

DRUG TEST ROOM



FUNCTION

Dedicated room for personal privacy and storage or first aid supplies and personal care items.

RELATIONSHIP TO OTHER AREAS

- Restroom only accessible from Drug Testing Room

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Desk, chairs, and storage cabinets

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Carpet floor covering in waiting area
 - ✓ VCT floor covering in Drug Testing Room
 - ✓ Ceramic tile floor and wall covering in restroom
 - ✓ Acrylic latex-painted metal stud/gypsum board walls
 - ✓ Suspended tile ceiling
- Power:
 - ✓ General purpose GIF duplex receptacles, 120VAC, 20A
- Lighting:
 - ✓ Florescent lighting

DISPATCH SUITE



FUNCTION

Area for Operators to report, receive information, and write reports.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Gilley Room
- Adjacent to Dispatch/Receiver

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

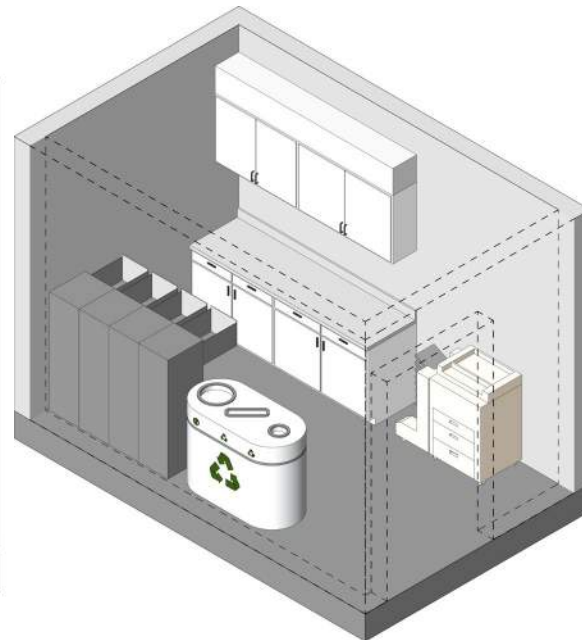
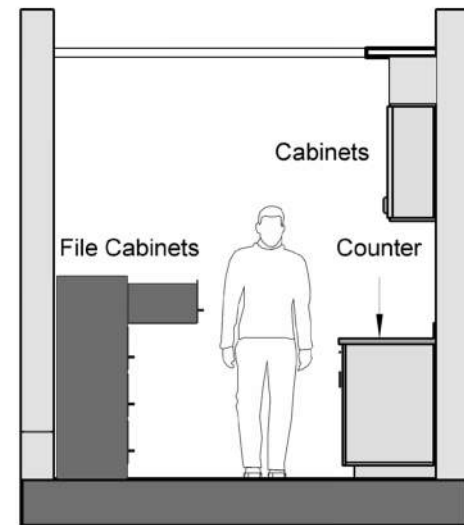
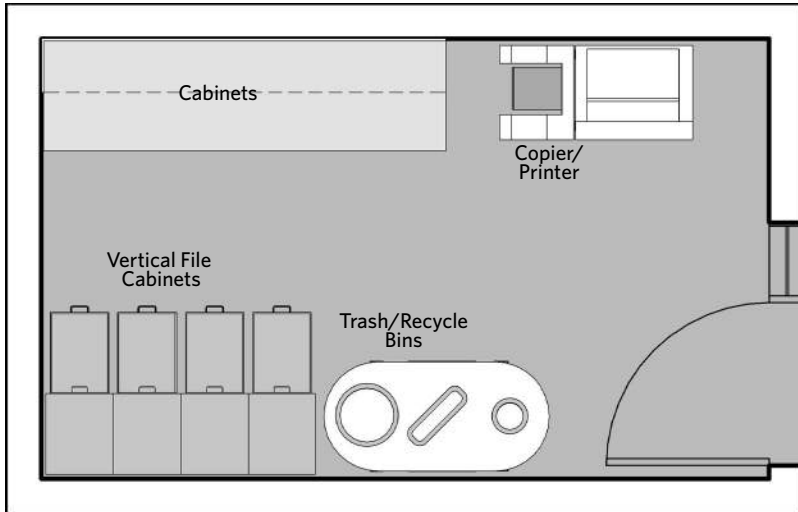
TYPICAL EQUIPMENT/FURNISHINGS

- Computer workstations
- Bulletin board
- Standing counter height

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Flooring: Resilient floor covering with base or finished concrete (recommended)
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile (recommended)
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
 - ✓ LED lighting in accordance with IES recommendation (20 fc of indirect lighting average, no glare)
 - ✓ Provide general purpose duplex receptacles (six minimum)
 - ✓ Provide one data outlet with four data ports at each workstation
 - ✓ Provide box and conduit rough-ins to three other locations in room
- Lighting:
 - ✓ Dimmable, indirect lighting with occupancy sensor
 - ✓ Task lighting (recommended)

COPY/WORKROOM/SUPPLIES



FUNCTION

Dedicated alcove or room for copier/printer/scanner/fax machine, storage for office supplies, and work surface

RELATIONSHIP TO OTHER AREAS

- Access to all office areas

RECOMMENDED CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

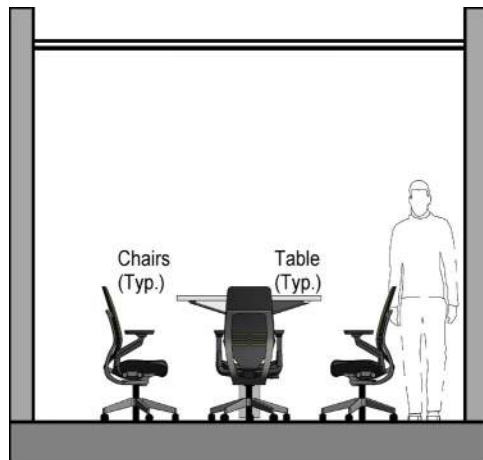
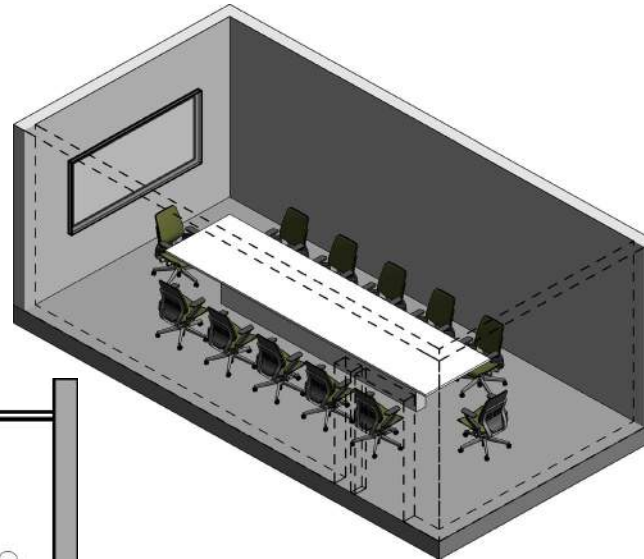
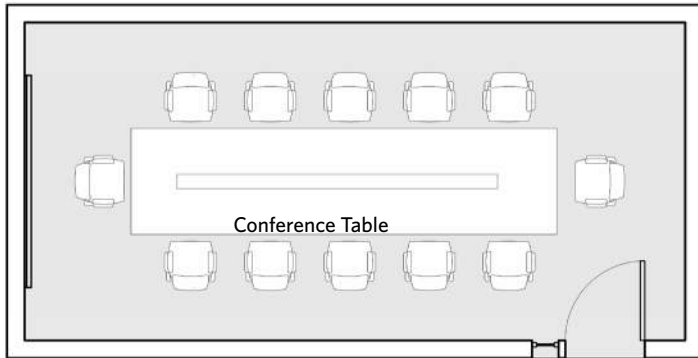
TYPICAL EQUIPMENT/FURNISHINGS

- Copier/printer/scanner/fax machine
- Work surface with cabinets below and above
- Filing cabinets

TYPICAL DESIGN FEATURES

- Flooring: Resilient floor covering with base or finished concrete
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide sufficient number of general purpose duplex receptacles to charge all radios without the use of multiple plug strips.
 - ✓ Provide one data outlet with four data ports
 - ✓ Provide box conduit rough-ins to three other locations in the room
- Lighting Control:
 - ✓ Dimmable, indirect lighting with occupancy sensor
 - ✓ Task lighting (recommended)

MULTIPURPOSE ROOM



FUNCTION

Room to accommodate up to 10 people for meetings.

RELATIONSHIP TO OTHER AREAS

- Accessible from all departments in the building

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

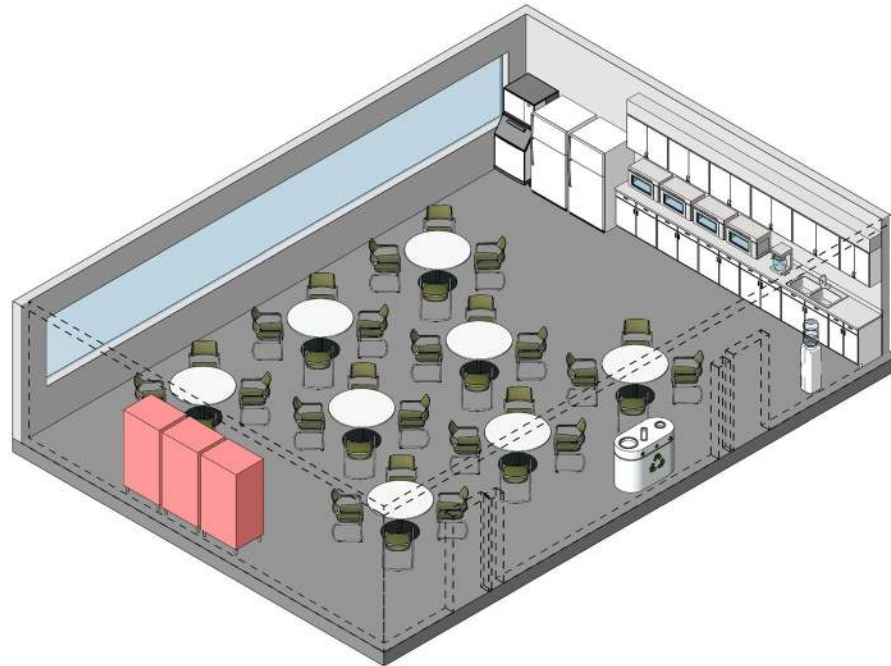
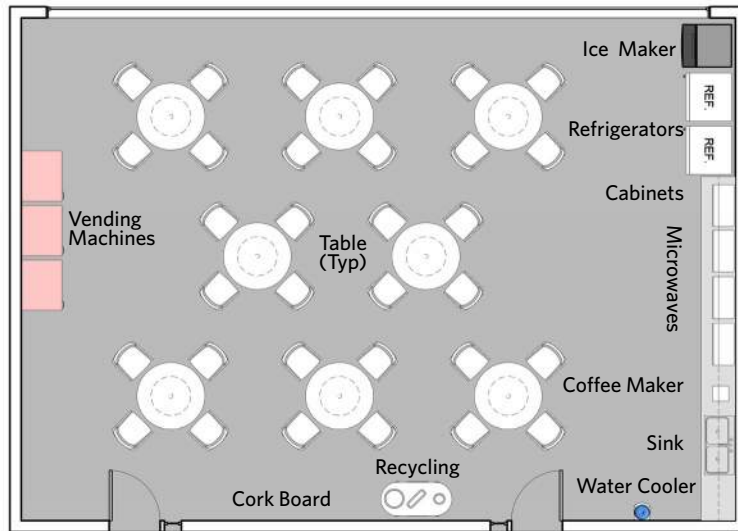
TYPICAL EQUIPMENT/FURNISHINGS

- Table
- Chairs
- White board and/or television

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Furniture: Use Owner furniture standards (if applicable)
 - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended).
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile (recommended)
 - ✓ Doors:
 - Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
 - ✓ LED lighting in accordance with IES recommendations (30 fc average)
 - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
 - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
 - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

BREAK ROOM/KITCHENETTE/VENDING



FUNCTION

Dedicated room for staff to prepare and store food, take breaks and eat.

RELATIONSHIP TO OTHER AREAS

- Centrally located
- Access to all office areas and Restrooms

RECOMMENDED CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

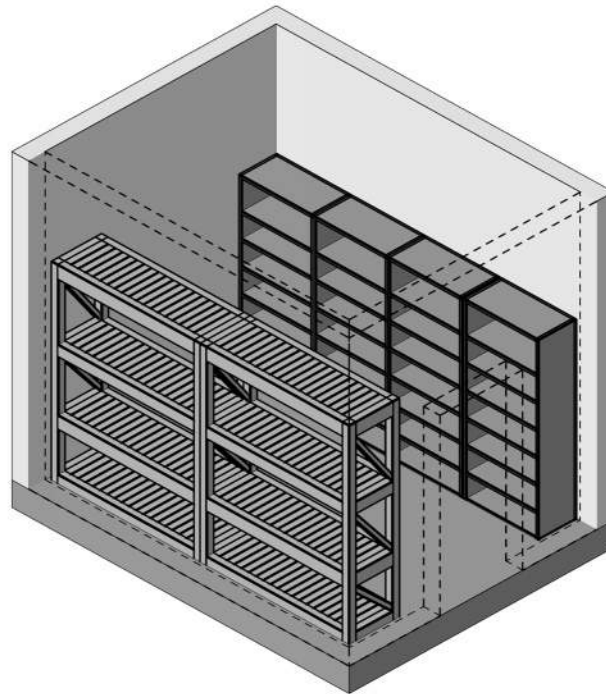
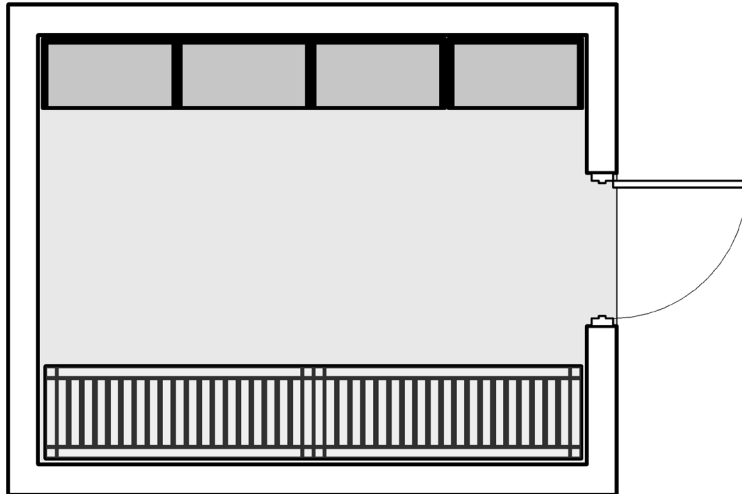
TYPICAL EQUIPMENT/FURNISHINGS

- Counter space, upper and lower cabinets, sink, microwaves, refrigerators, coffee maker, ice maker, water filter, vending machines, water coolers, tables, chairs, trash/recycling/compost bins

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Resilient floor covering with base or finished concrete (recommended)
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" doors (two minimum) with lockable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window desired
- Plumbing: rough in for equipment
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Provide CO2 detection
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide enough outlets to power all vending machines, kitchen equipment and allow convenience outlets within the dining area.
 - ✓ Provide data outlets with four data ports (two minimum)
 - ✓ Provide five GFCI outlets above kitchenette counter
- Lighting Control:
 - ✓ Dimmable, indirect lighting with occupancy sensor
 - ✓ Task lighting (recommended)

LOST AND FOUND



FUNCTION

Secure area for the storage of lost and found items and files..

RELATIONSHIP TO OTHER AREAS

- Adjacent to Dispatch

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

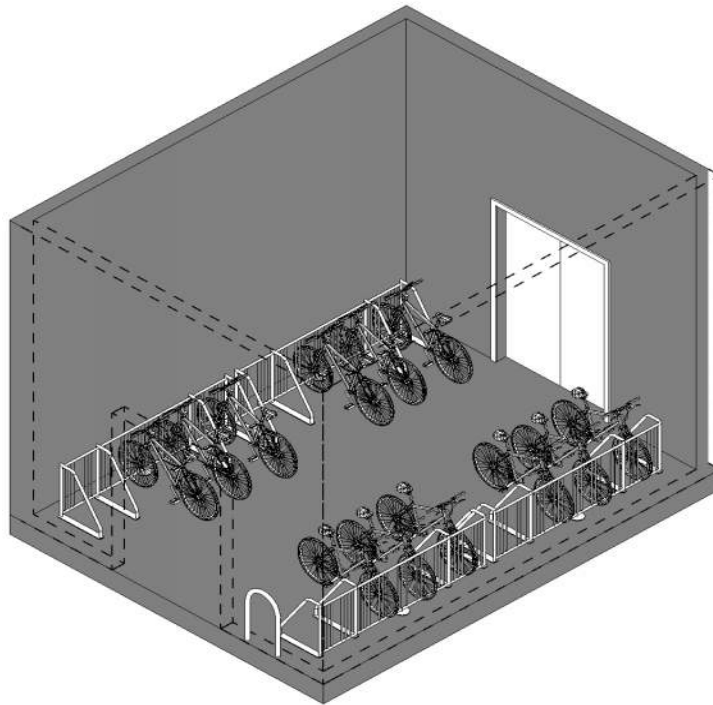
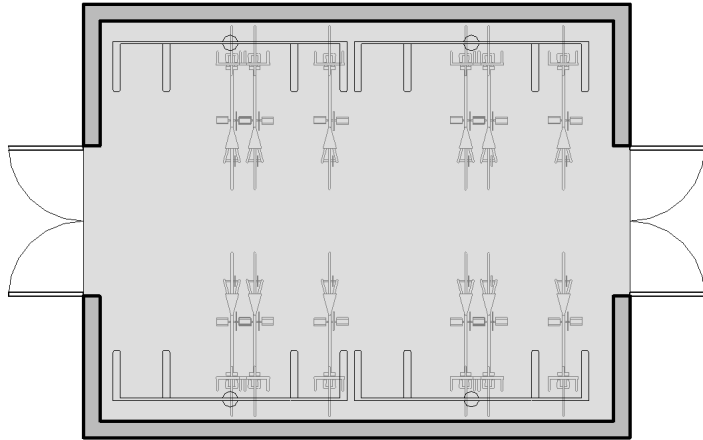
TYPICAL EQUIPMENT/FURNISHINGS

- Shelving
- Racking

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Flooring: Resilient floor covering with base or finished concrete
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
 - ✓ Doors:
 - Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Daylighting: No exterior exposure
- Mechanical:
 - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Keep consistent humidity levels
- Power:
 - ✓ LED lighting in accordance with IES recommendation (35 fc average)
 - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

BIKE LOST AND FOUND



FUNCTION

Secure area for the storage of bicycles.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Dispatch

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Shelving
- Racking

TYPICAL DESIGN FEATURES

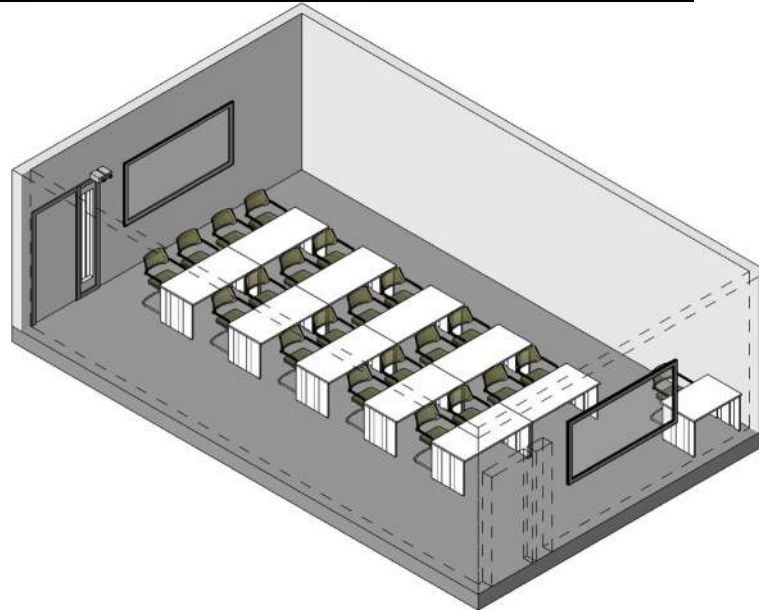
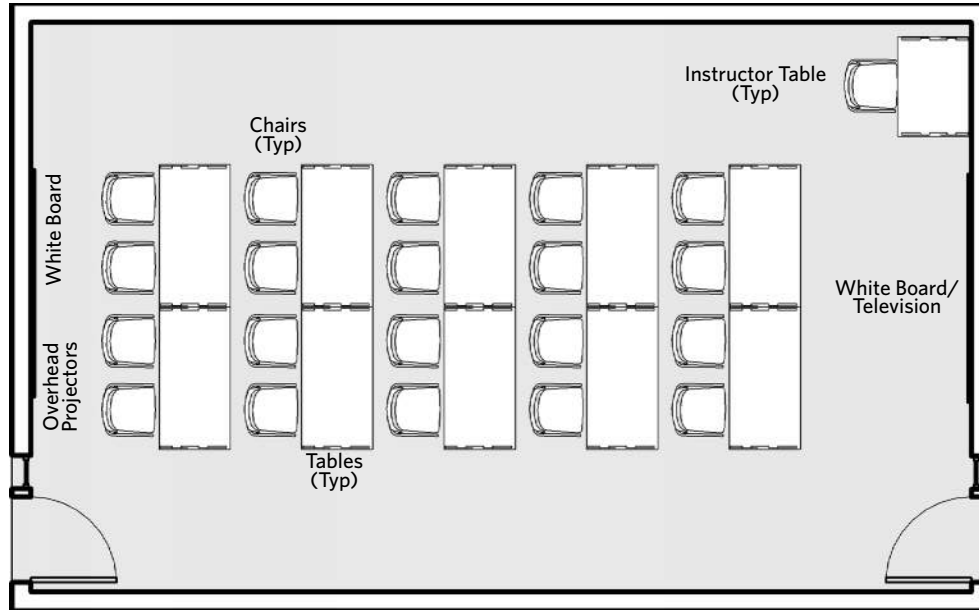
- Architectural:
 - ✓ Flooring: Resilient floor covering with base or finished concrete
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
 - ✓ Doors:
 - Double leaf 3'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Daylighting: No exterior exposure
- Mechanical:
 - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Keep consistent humidity levels
- Power:
 - ✓ LED lighting in accordance with IES recommendation (35 fc average)
 - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors



TRAINING AREAS



TRAINING ROOM - OPERATIONS



FUNCTION

Room for up to a 20 person meeting or training

RELATIONSHIP TO OTHER AREAS

- Accessible from all departments in the building

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

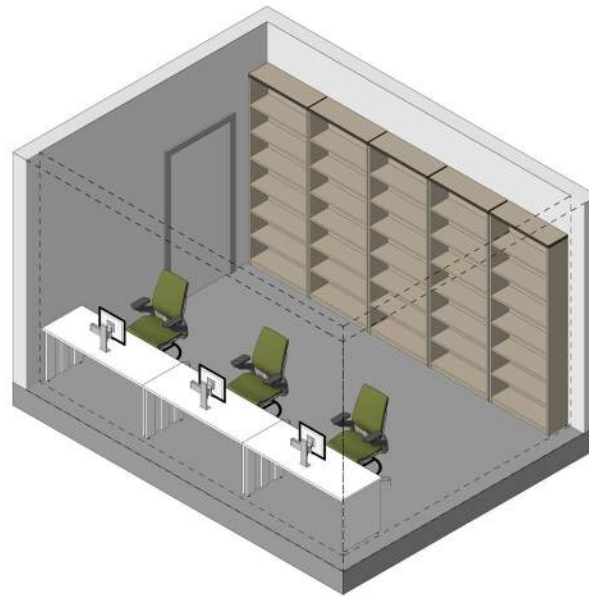
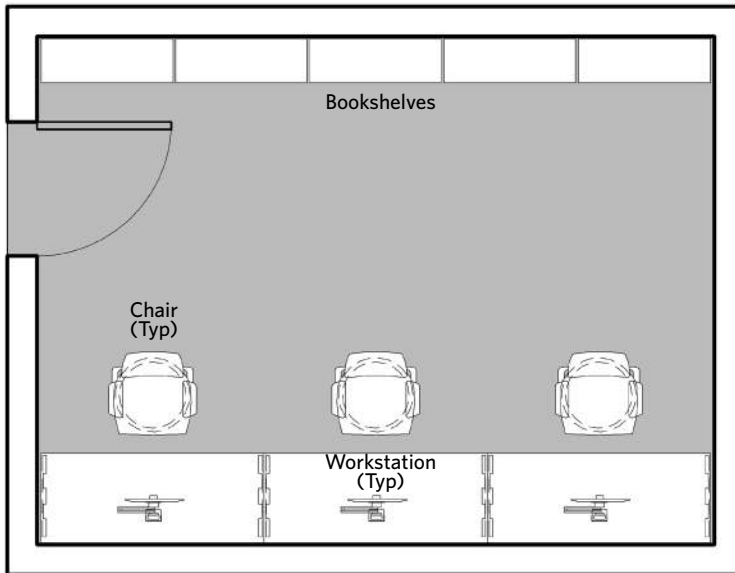
TYPICAL EQUIPMENT/FURNISHINGS

- Mayline Cohere Flip/nest table 60" by 30" laminate
- Cool mesh nesting chairs
- Overhead projectors
- White board/Television

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Carpet tile floor with rubber base or resilient floor covering with base (recommended)
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" doors with lockable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Electrical:
 - ✓ LED lighting in accordance with IES recommendations (30 fc average)
 - ✓ Provide sufficient amount of outlets in the floor to power all training computers within the space (a minimum of one for each desk), teaching equipment, and convenience outlets.
 - ✓ Provide sufficient amount of data outlets in the floor to feed all training computers within the space (a minimum of one for each desk), teaching equipment.
 - ✓ Provide box and conduit rough-ins to three other locations in the room
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

MANUALS LIBRARY



FUNCTION

Enclosed area for storage and reference of vehicle maintenance reference manuals and materials

RELATIONSHIP TO OTHER AREAS

- Adjacent to Repair Bays
- Adjacent to Maintenance-Administration open office area

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

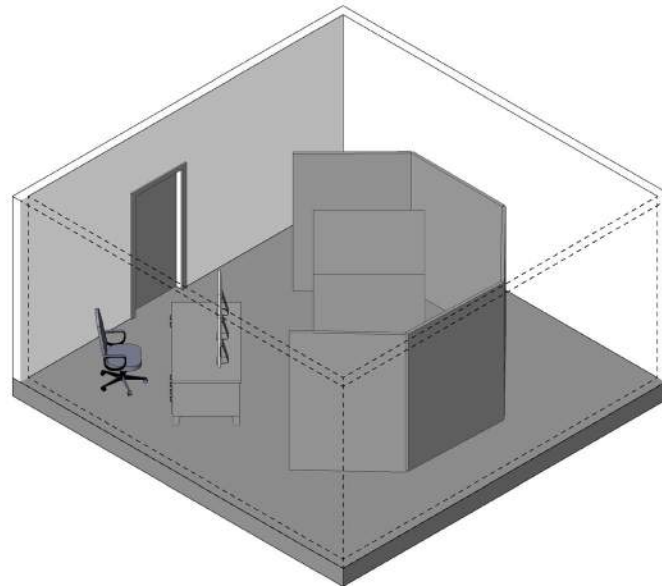
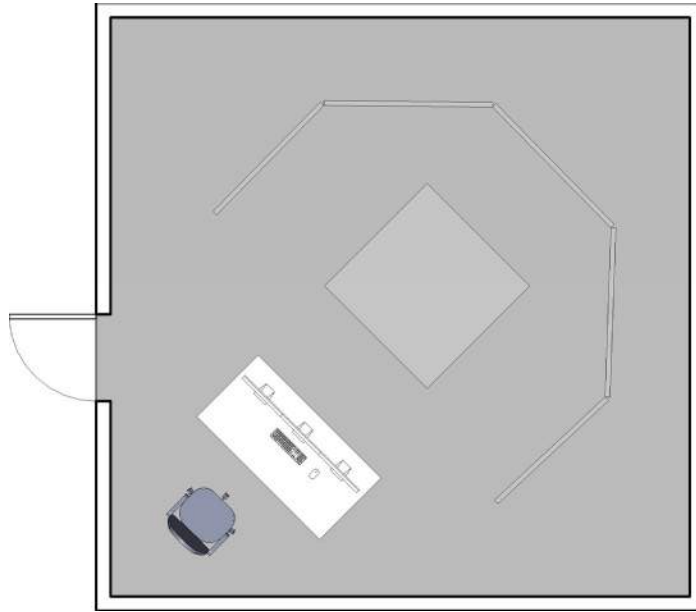
TYPICAL EQUIPMENT/FURNISHINGS

- Workstations
- Bookshelves
- Chairs

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Resilient floor covering with base or finished concrete (recommended)
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
- Doors: Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc of indirect lighting average)
 - ✓ Provide general purpose duplex receptables and a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
 - ✓ Provide box and conduit rough-ins to three other locations in room
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

SIMULATOR ROOM



FUNCTION

Room for computer-based simulator training for staff.

RELATIONSHIP TO OTHER AREAS

- Accessible to all departments in the building
- Adjacent to Training Office area

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

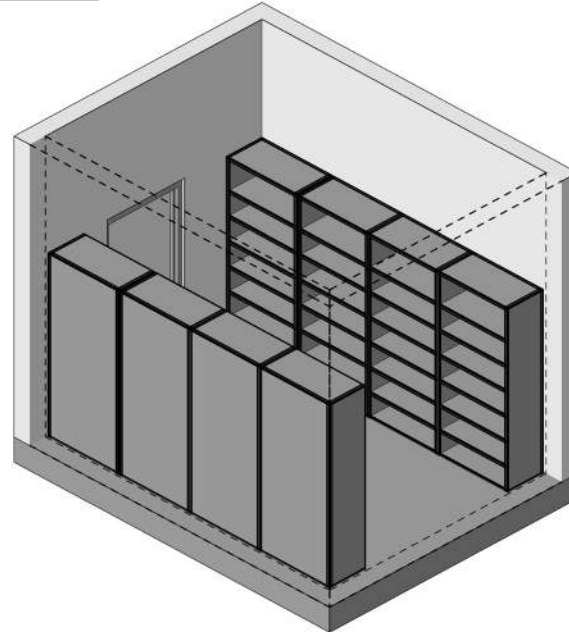
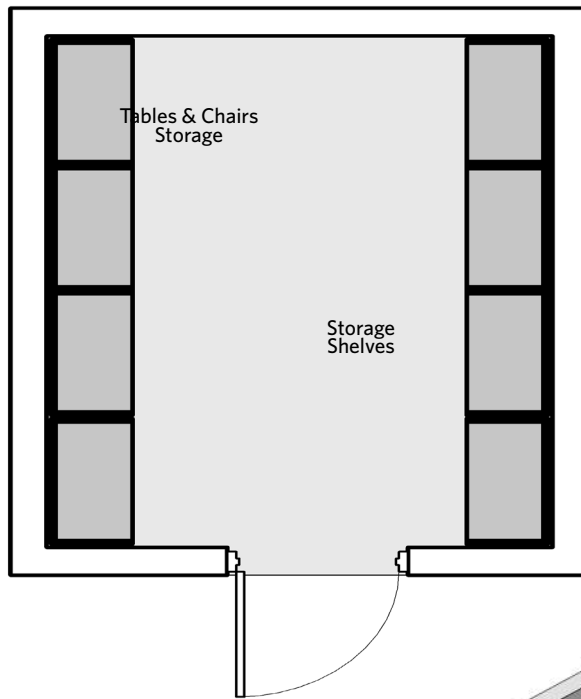
TYPICAL EQUIPMENT/FURNISHINGS

- Simulators
- Whiteboard and/or television

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Furniture: Use Owner furniture standards (if applicable)
 - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended).
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile (recommended)
 - ✓ Doors:
 - Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
 - ✓ LED lighting in accordance with IES recommendations. (20 fc indirect lighting average) (no glare)
 - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the workstation and simulator
 - ✓ Provide one data outlet with four data ports in the floor under the middle of the workstation and simulator
 - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

TRAINING SUPPLY/STORAGE ROOM



FUNCTION

Secure room for training aid materials and supplies.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Classroom and Computer Lab

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

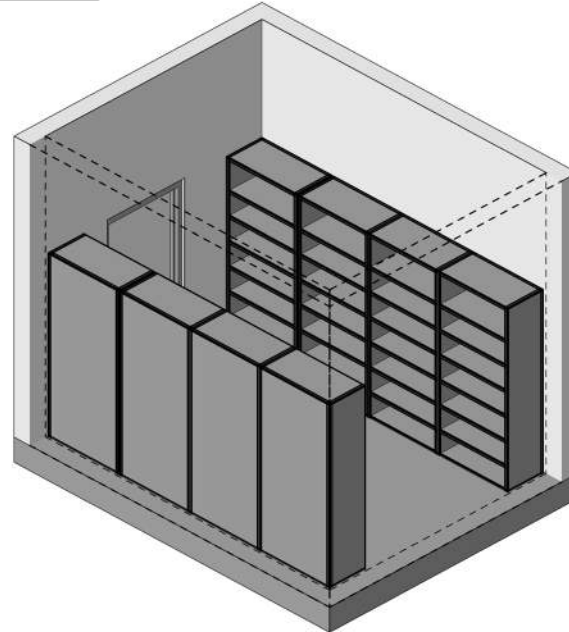
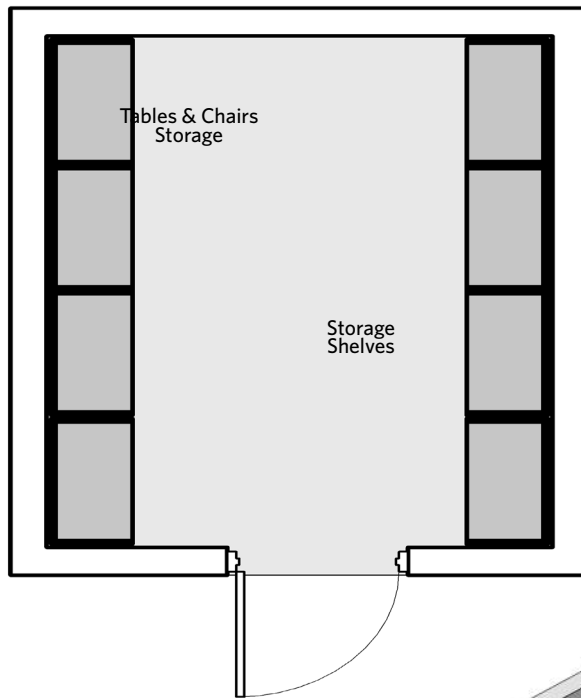
TYPICAL EQUIPMENT/FURNISHINGS

- Shelves
- Racks
- Tables & Chairs storage (as needed)

TYPICAL DESIGN FEATURES

- Flooring:
 - ✓ Resilient floor covering with base or finished concrete
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
- Doors: Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: No exterior exposure
- Mechanical:
 - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Keep consistent humidity levels
- Electrical:
 - ✓ LED lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide (three minimum) general purpose duplex receptacles
- Lighting Control:
 - ✓ Dimmable, indirect lighting with occupancy sensors

CHAIR/TABLE STORAGE



FUNCTION

Secure room for chairs and tables.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Classroom and Computer Lab

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Tables & Chairs storage (as needed)

TYPICAL DESIGN FEATURES

- Flooring:
 - ✓ Resilient floor covering with base or finished concrete
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
- Doors: Single leaf 4'-0" door with lockable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: No exterior exposure
- Mechanical:
 - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Keep consistent humidity levels
- Electrical:
 - ✓ LED lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide (three minimum) general purpose duplex receptacles
- Lighting Control:
 - ✓ Dimmable, indirect lighting with occupancy sensors



FLEET MAINTENANCE ADMINISTRATION



GENERAL OFFICE MODULES: OFFICE AREAS

GENERAL MANAGER

- Reference Office Module
Private Office - 150 square foot
- Adjacent to Superintendent

ROLLING STOCK SUPERINTENDENT

- Reference Office Module
Private Office - 120 square foot
- View of Repair Bays and Shops
- Adjacent to:
 - ✓ Assistant Superintendent
 - ✓ General Manager

OFFICE ASSISTANT

- Reference Office Module
Workstation - 64 square foot
- Adjacent to:
 - ✓ General Manager
 - ✓ Superintendent
 - ✓ Lobby

AUTO REPAIR FOREMAN

- Reference Office Module
Shared Office

MANAGER (ELECTRONICS)

- Reference Office Module
Private Office - 150 square foot
- View of Repair Bays and Shops
- Adjacent to:
 - ✓ Assistant Superintendent
 - ✓ Superintendent

SUPERVISOR (ELECTRONICS)

- Reference Office Module
Private Office - 120 square foot
- Adjacent to:
 - ✓ Electronics Manager
 - ✓ Electronics Shop

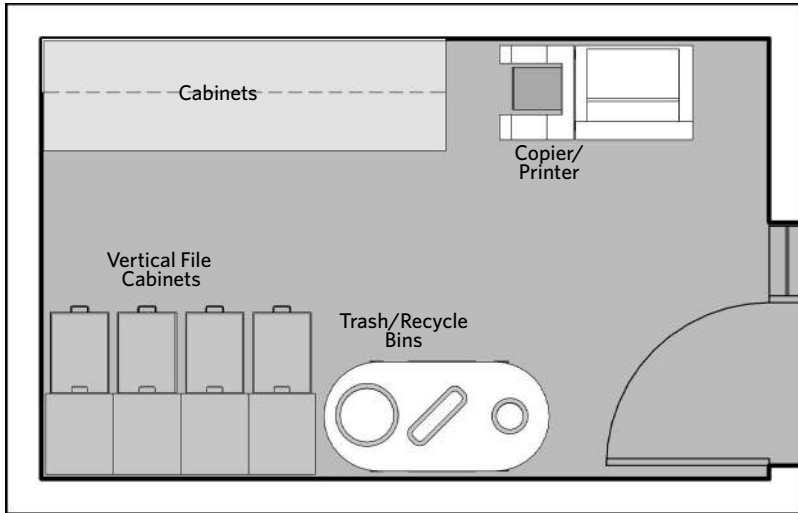
AUTOMOTIVE RESEARCH ASSISTANT

- Reference Office Module
Workstation - 64 square foot
- Adjacent to:
 - ✓ Vehicle Maintenance Instructor
 - ✓ Training
 - ✓ Room Maintenance

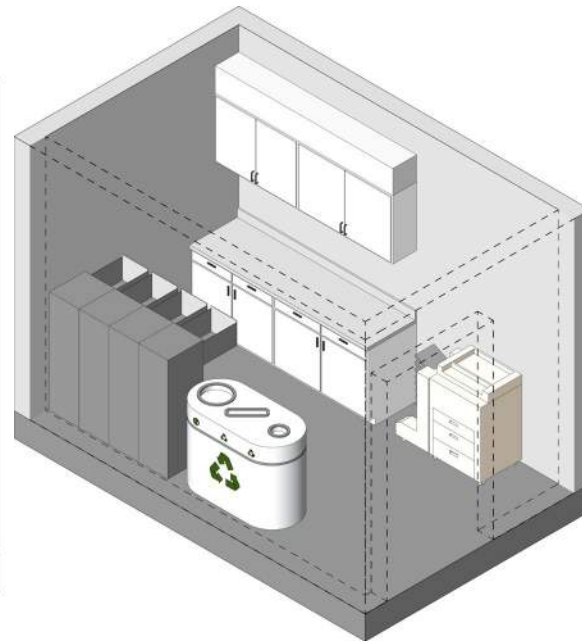
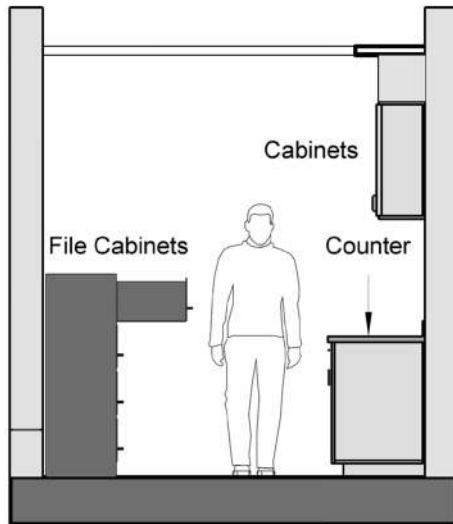
VEHICLE MAINTENANCE INSTRUCTOR

- Reference Office Module
Private Office - 120 square foot
- Adjacent to:
 - ✓ Automotive Research Assistance
 - ✓ Training Room - Maintenance

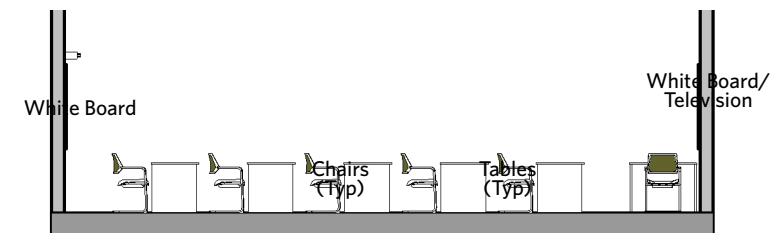
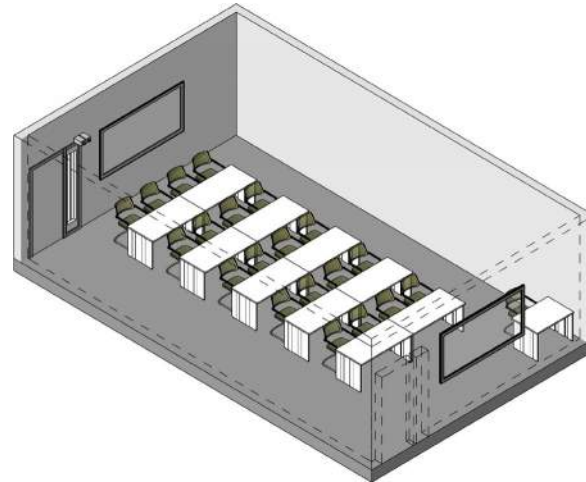
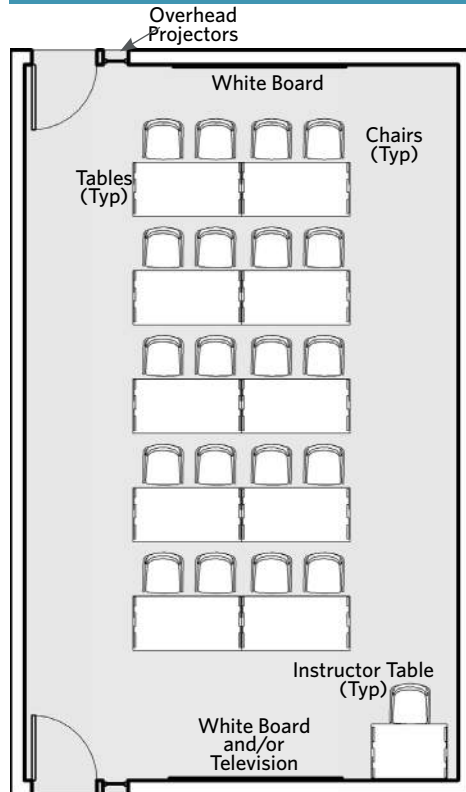
COPY/WORKROOM/SUPPLIES



| FUNCTION |
|---|
| Dedicated alcove or room for copier/printer/scanner/fax machine, storage for office supplies, and work surface |
| RELATIONSHIP TO OTHER AREAS |
| <ul style="list-style-type: none"> Access to all office areas |
| RECOMMENDED CRITICAL DIMENSIONS |
| <ul style="list-style-type: none"> 9' -0" vertical clearance (minimum) |
| TYPICAL EQUIPMENT/FURNISHINGS |
| <ul style="list-style-type: none"> Copier/printer/scanner/fax machine Work surface with cabinets below and above Filing cabinets |
| TYPICAL DESIGN FEATURES |
| <ul style="list-style-type: none"> Flooring: Resilient floor covering with base or finished concrete Walls: <ul style="list-style-type: none"> ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring) ✓ Wall protection as needed Ceiling: Acoustical ceiling tile (recommended) Doors: Single leaf 3'-0" door with lockable lever set hardware (recommended) <ul style="list-style-type: none"> ✓ Electronically secured entry (as required) Mechanical: <ul style="list-style-type: none"> ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code) ✓ Heating set point: 68 degrees Fahrenheit ✓ Cooling set point: 74 degrees Fahrenheit Electrical: <ul style="list-style-type: none"> ✓ LED Lighting in accordance with IES recommendation (20 fc average) ✓ Provide sufficient number of general purpose duplex receptacles to charge all radios without the use of multiple plug strips. ✓ Provide one data outlet with four data ports ✓ Provide box conduit rough-ins to three other locations in the room Lighting Control: <ul style="list-style-type: none"> ✓ Dimmable, indirect lighting with occupancy sensor ✓ Task lighting (recommended) |



CONFERENCE ROOM



FUNCTION

Room for staff training. This space accommodates 20 students and one instructor.

RELATIONSHIP TO OTHER AREAS

- Accessible to all departments in the building
- Adjacent to Training Office area

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

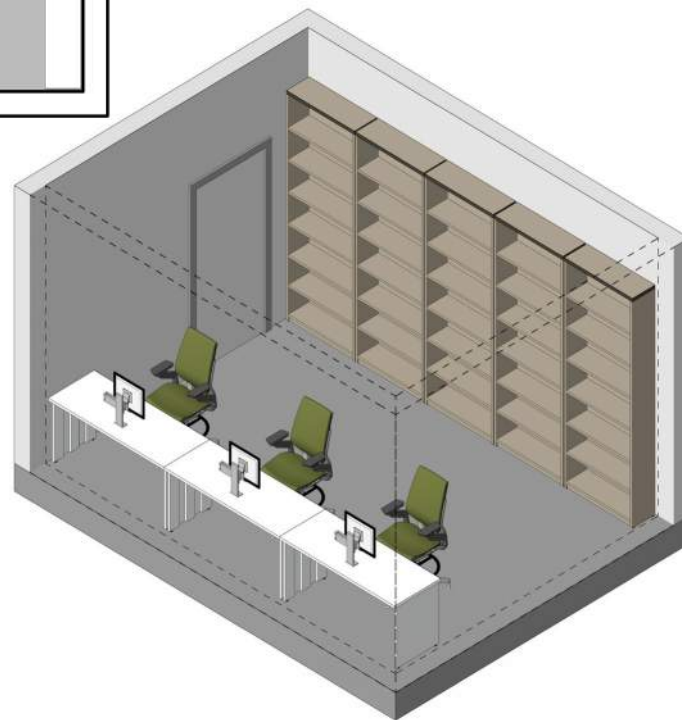
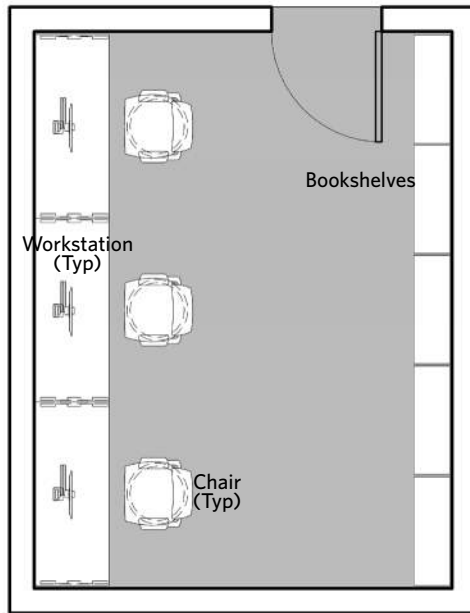
TYPICAL EQUIPMENT/FURNISHINGS

- Mayline Cohere Flip/nest table 60" by 30" laminate
- Cool mesh nesting chairs
- Whiteboard and/or television
- Overhead projector

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Furniture: Use Owner furniture standards (if applicable)
 - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended).
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile (recommended)
 - ✓ Doors:
 - Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Provide CO2 detection
- Power:
 - ✓ LED lighting in accordance with IES recommendations (35 fc average)
 - ✓ Provide sufficient amount of outlets in the floor to power all training computers within the space (a minimum of one for each desk), teaching equipment, and convenience outlets
 - ✓ Provide sufficient amount of data outlets in the floor to feed all training computers within the space (a minimum of one for each desk), teaching equipment
 - ✓ Provide box and one inch or larger conduit rough-ins every ten feet in all walls in room
 - ✓ Lighting:
 - ✓ Dimmable, indirect lighting with vacancy sensor

MANUALS LIBRARY



FUNCTION

Enclosed area for storage and reference of vehicle maintenance reference manuals and materials.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Repair Bays
- Adjacent to Maintenance-Administration open office area

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

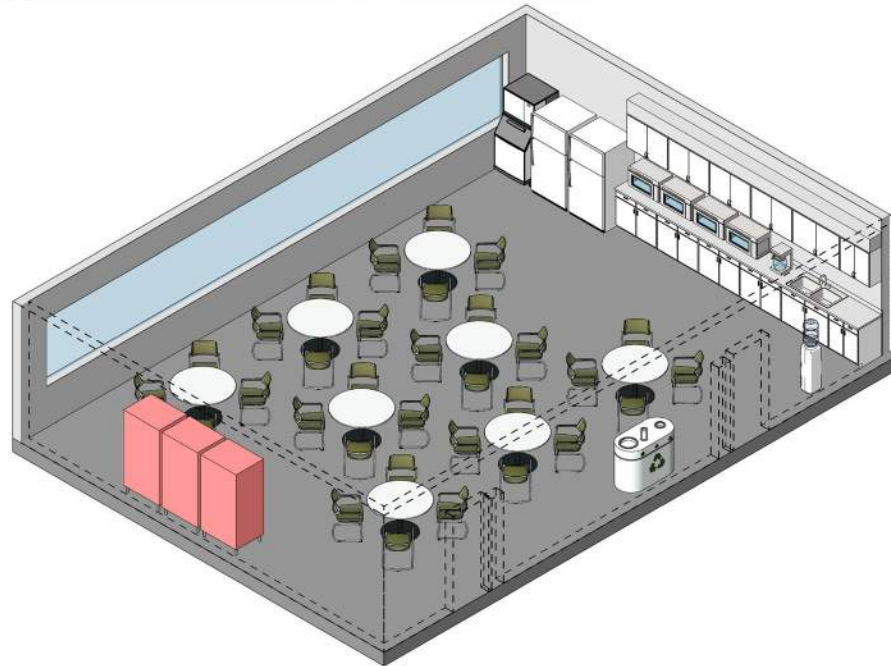
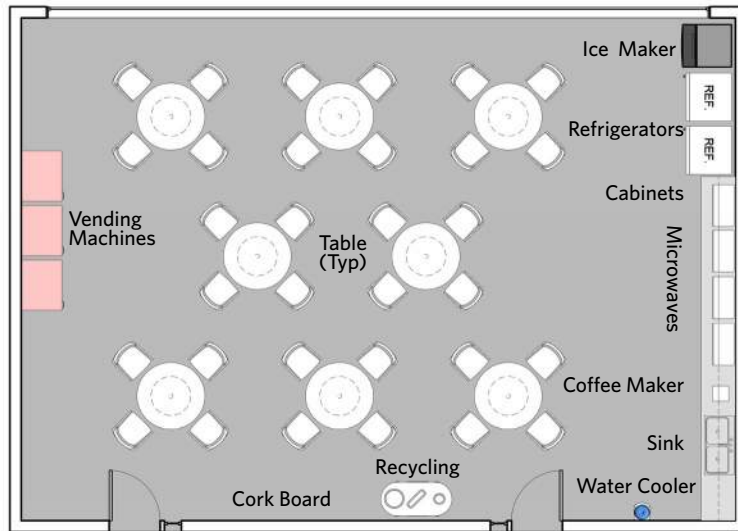
TYPICAL EQUIPMENT/FURNISHINGS

- Workstations
- Bookshelves
- Chairs

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Furniture: Use Owner furniture standards (if applicable)
 - ✓ Flooring: Resilient floor covering with base or finished concrete (recommended)
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
 - ✓ Doors:
 - Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc of indirect lighting average)
 - ✓ Provide general purpose duplex receptacles and a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
 - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in room
- Lighting:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

BREAK ROOM/KITCHENETTE/VENDING



FUNCTION

Enclosed room for use by staff as a break area.

RELATIONSHIP TO OTHER AREAS

- Centrally located
- Access to all office areas, repair areas, and Restrooms

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

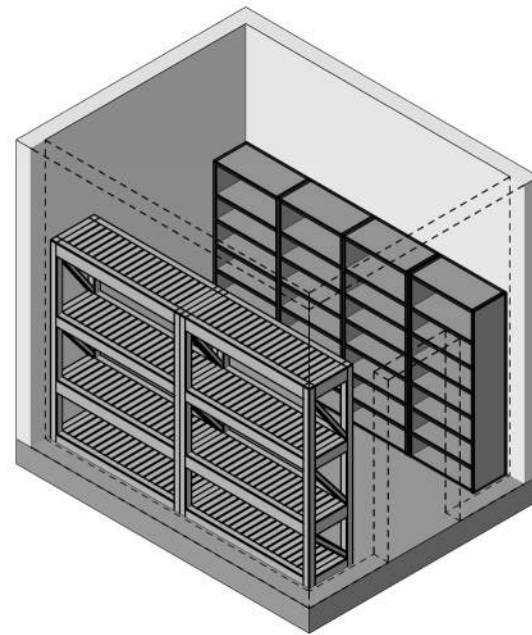
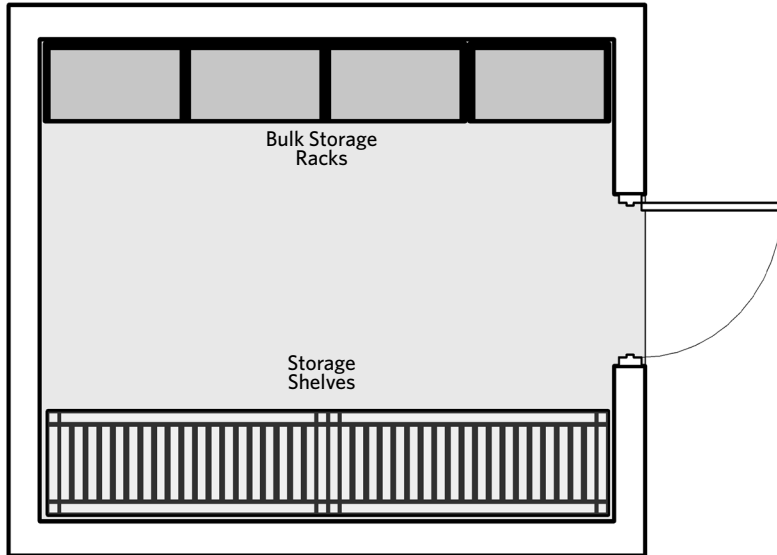
TYPICAL EQUIPMENT/FURNISHINGS

- Counter space, upper and lower cabinets, sink, microwaves, refrigerators, coffee maker, ice maker, water filter, vending machines, water coolers, tables, chairs, trash/recycling/compost bins

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Furniture: Use Owner furniture standards (if applicable)
 - ✓ Flooring: Resilient floor covering with base or finished concrete (recommended)
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile (recommended)
 - ✓ Doors:
 - Single leaf 3'-0" doors (two minimum) with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Daylighting: Exterior window desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Provide CO2 detection
- Plumbing: Rough in for equipment
- Power:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide enough outlets to power all vending machines, kitchen equipment and allow convenience outlets within the dining area.
 - ✓ Provide data outlets with four data ports (two minimum)
 - ✓ Provide five GFCI outlets above kitchenette counter
- Lighting:
 - ✓ Dimmable, indirect lighting with occupancy sensor
 - ✓ Task lighting (recommended)

SECURE RECORDS STORAGE



FUNCTION

Secure area for the storage of files and records.

RELATIONSHIP TO OTHER AREAS

- N/A

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

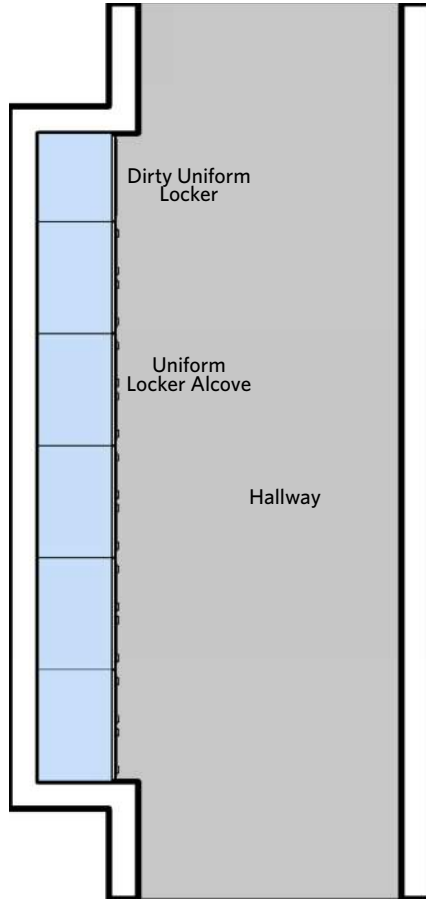
TYPICAL EQUIPMENT/FURNISHINGS

- Shelving
- Racking

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Flooring: Resilient floor covering with base or finished concrete
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
 - ✓ Doors:
 - Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Daylighting: No exterior exposure
- Mechanical:
 - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Keep consistent humidity levels
- Power:
 - ✓ LED lighting in accordance with IES recommendation (35 fc average)
 - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

LAUNDRY SERVICE LOCKERS



FUNCTION

Co-ed locker area with an alcove for vendors to drop off and pick up uniforms (changing areas are located in the respective restrooms).

RELATIONSHIP TO OTHER AREAS

- Accessible from Men's and Women's Lockers/Showers/Restroom
- Adjacent to an exterior door for vendor pickup/drop off

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

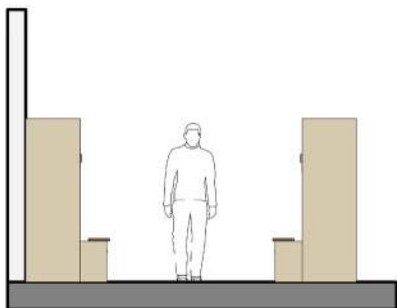
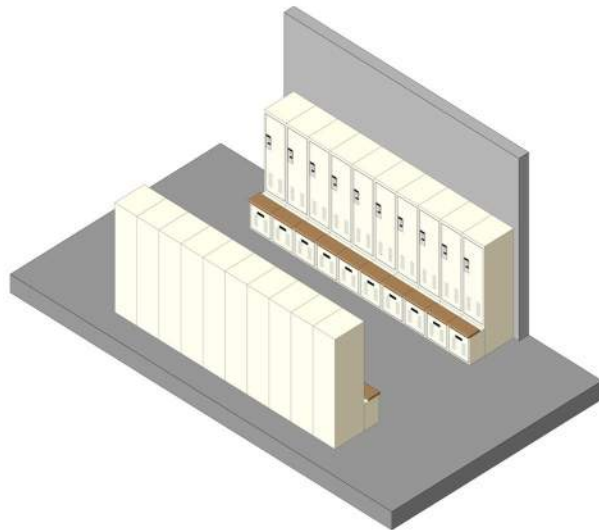
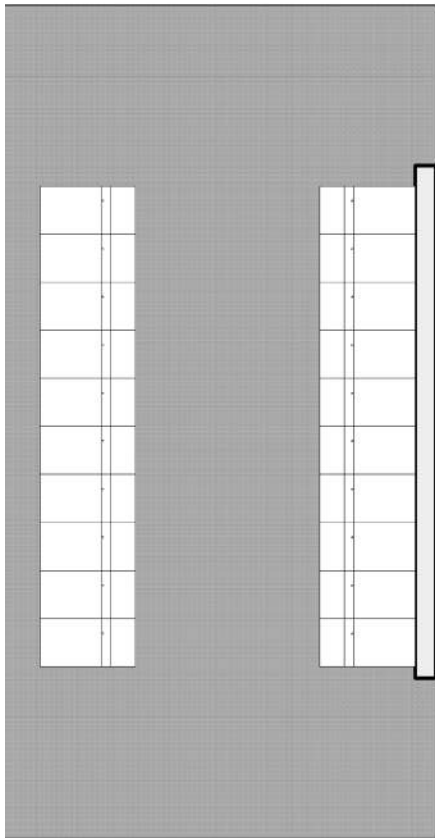
TYPICAL EQUIPMENT/FURNISHINGS

- Vendor provided well-ventilated uniform lockers, bin for dirty uniforms

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Flooring: Resilient floor covering with base or finished concrete (recommended)
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Power: LED lighting in accordance with IES recommendation (15 fc average)
- Lighting: Dimmable, indirect lighting with occupancy sensor

TECHNICIAN LOCKERS - MEN'S AND WOMEN'S



FUNCTION

Locker area for each male and female Bus Maintenance employee

RELATIONSHIP TO OTHER AREAS

- Access by Repair and Shop Areas
- Located within each Men's and Women's Restroom

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

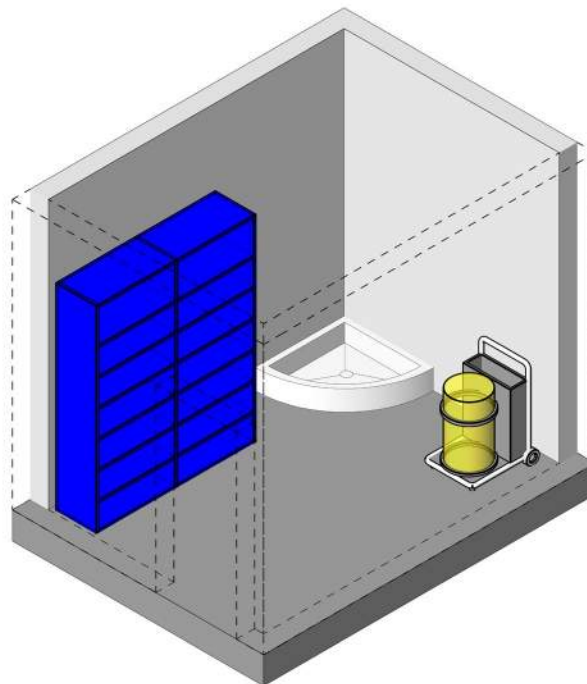
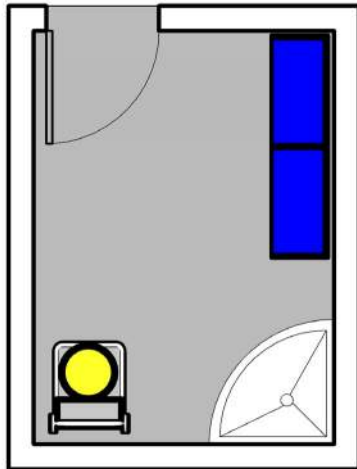
TYPICAL EQUIPMENT/FURNISHINGS

- 6'-0" high gear, well-ventilated lockers with built-in bench
- Lockers must be ADA compliant
- and have mirrors
- Locker Dimensions: 24" by 24"
- Lockers to have sloped tops

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Flooring: Resilient floor covering or finished concrete (recommended)
 - ✓ Walls:
 - Tile covering or finished masonry
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
 - ✓ Doors: Single leaf 3'-0" door
- Mechanical:
 - ✓ Provide appropriate balanced cooling, heating, ventilation, and exhaust (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
 - ✓ LED Lighting in accordance with IES recommendation (15 fc average)
 - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting:
 - ✓ Dimmable, indirect lighting with occupancy sensor
 - ✓ Task lighting (recommended)

CUSTODIAL ROOM



FUNCTION

Enclosed area for janitorial supplies and mop sink.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Restrooms

RECOMMENDED CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

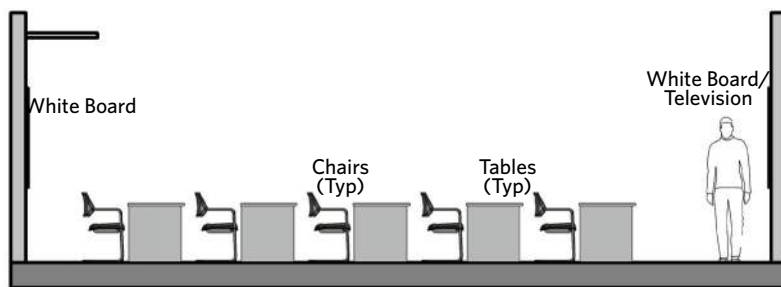
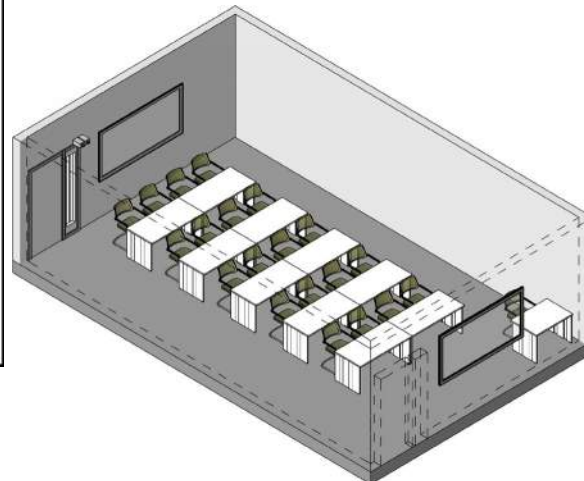
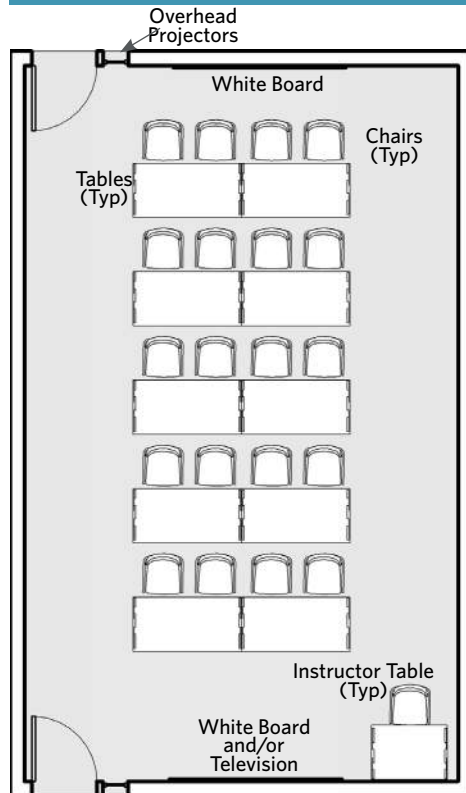
TYPICAL EQUIPMENT/FURNISHINGS

- Mop sink
- Metal shelving

TYPICAL DESIGN FEATURES

- Secure area
- Architectural
 - ✓ Floor: Exposed concrete slab
 - ✓ Walls: Soil and grease resistant
 - ✓ Ceiling: Painted exposed structure
- Plumbing: Water supply to mop sink
- Electrical:
 - ✓ Florescent or LED lighting
 - ✓ General purpose duplex receptacles, 120 VAC,
 - ✓ 20 A, GFI protected as required by code
 - ✓ As required by equipment
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, exhaust, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit

TRAINING ROOM - MAINTENANCE



FUNCTION

Room(s) for staff training. This space accommodates 20 students and one instructor.

RELATIONSHIP TO OTHER AREAS

- Accessible to all departments in the building
- Adjacent to Training Office area

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

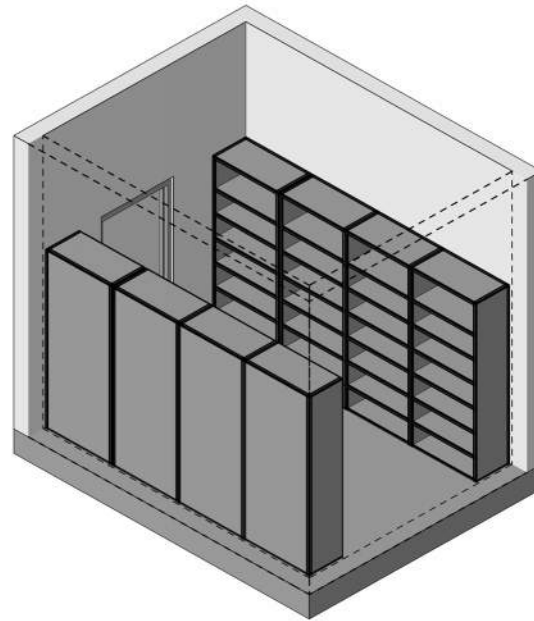
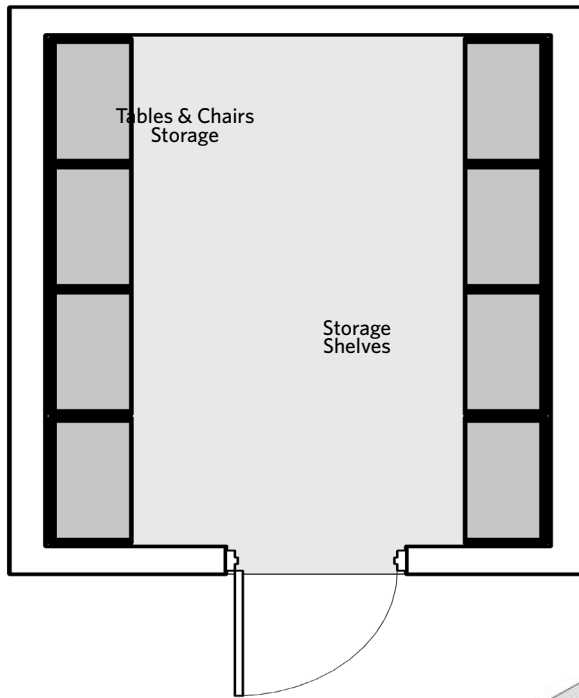
TYPICAL EQUIPMENT/FURNISHINGS

- Mayline Cohere Flip/nest table 60"
- Cool mesh nesting chairs
- Whiteboard and/or television by 30" laminate
- Overhead projector

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Furniture: Use Owner furniture standards (if applicable)
 - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended).
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile (recommended)
 - ✓ Doors:
 - Single leaf 3'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Provide CO2 detection
- Power:
 - ✓ LED lighting in accordance with IES recommendations (35 fc average)
 - ✓ Provide sufficient amount of outlets in the floor to power all training computers within the space (a minimum of one for each desk), teaching equipment, and convenience outlets
 - ✓ Provide sufficient amount of data outlets in the floor to feed all training computers within the space (a minimum of one for each desk), teaching equipment
- Lighting:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)

TRAINING SUPPLY/STORAGE ROOM



FUNCTION

Secure room for storage of training aid materials and supplies.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Classroom and Computer Lab

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

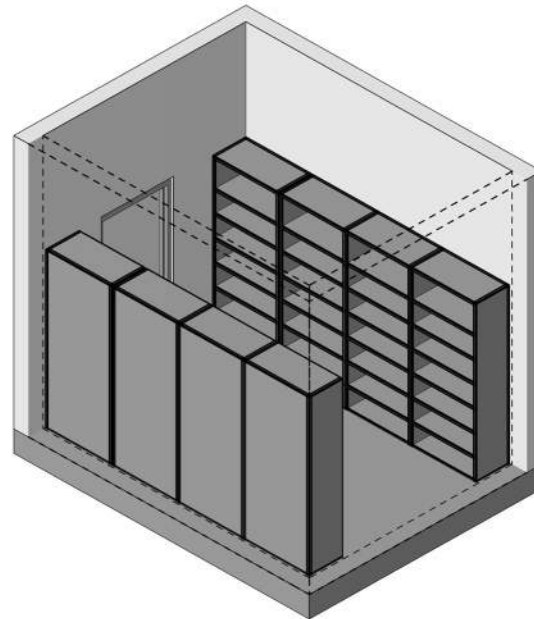
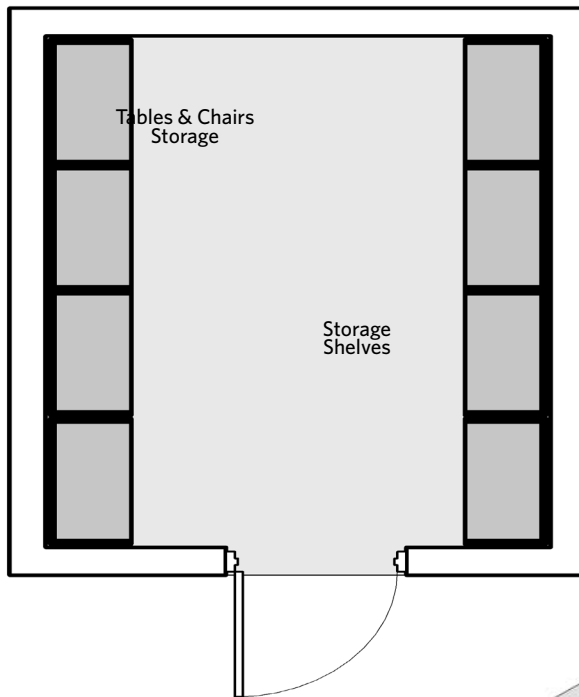
TYPICAL EQUIPMENT/FURNISHINGS

- Shelves
- Includes Tables and Chairs storage (as needed)

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Flooring: Resilient floor covering with base or finished concrete
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
 - ✓ Doors:
 - Single leaf 4'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Daylighting: No exterior exposure
- Mechanical:
 - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Keep consistent humidity levels
- Power:
 - ✓ LED lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

CHAIR/TABLE STORAGE



FUNCTION

Secure room for storage of chairs and tables

RELATIONSHIP TO OTHER AREAS

- Adjacent to Classroom and Computer Lab

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Shelves
- Includes Tables and Chairs storage (as needed)

TYPICAL DESIGN FEATURES

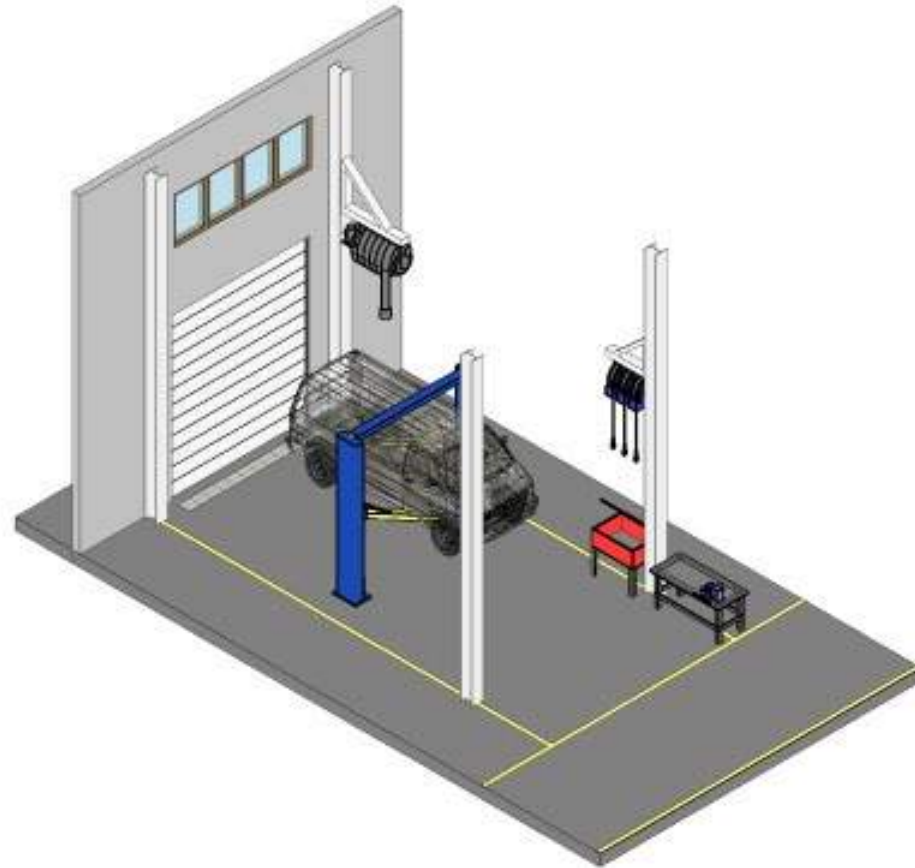
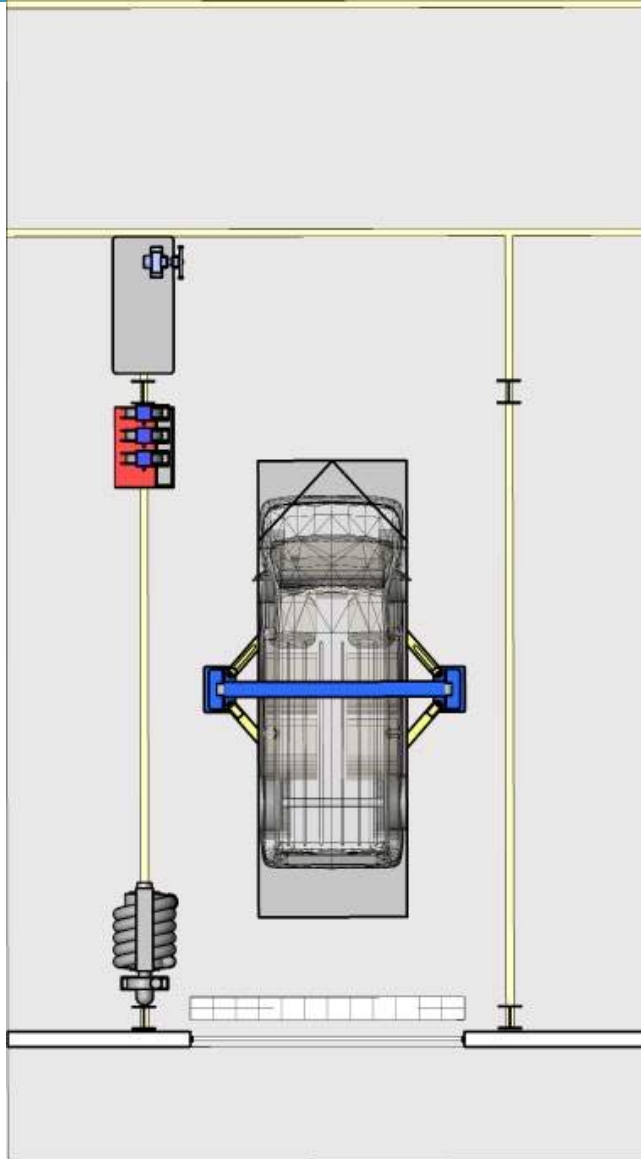
- Architectural:
 - ✓ Flooring: Resilient floor covering with base or finished concrete
 - ✓ Walls:
 - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - Wall protection as needed
 - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
 - ✓ Doors:
 - Single leaf 4'-0" door with lockable lever set hardware (recommended)
 - Electronically secured entry (as required)
- Daylighting: No exterior exposure
- Mechanical:
 - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Keep consistent humidity levels
- Power:
 - ✓ LED lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors



FLEET MAINTENANCE



NON-REVENUE BAY



NON-REVENUE BAY

FUNCTION

Bay space to perform general repair and maintenance on on-revenue vehicles.

RELATIONSHIP TO OTHER AREAS

- Access to Common Work Area, Parts Storage, Portable Equipment Storage Areas, and Maintenance Office areas

RECOMMENDED CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures
- 20'-0" wide by 75'-0" long

TYPICAL EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix C: Equipment Manual for specific project equipment
- Electric charging rail installed when fleet is transitioned to Buses

TYPICAL DESIGN FEATURES

- Forklift access
- Natural daylighting desired
- Roof Level Work Platform (RLWP) with fall protection

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
 - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors: Personnel door with view panel to meet applicable code exit requirements

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- As required by equipment
- Ventilation:
 - ✓ 1.5 CFM exhaust per square foot of floor area
 - ✓ Return air openings in areas used for repair or servicing vehicles shall not be less than 18" above floor level accordance with NFPA 30A and ASHRAE 62.1
- Heating set point: 65 degrees Fahrenheit
- In-floor radiant heat (if desired)

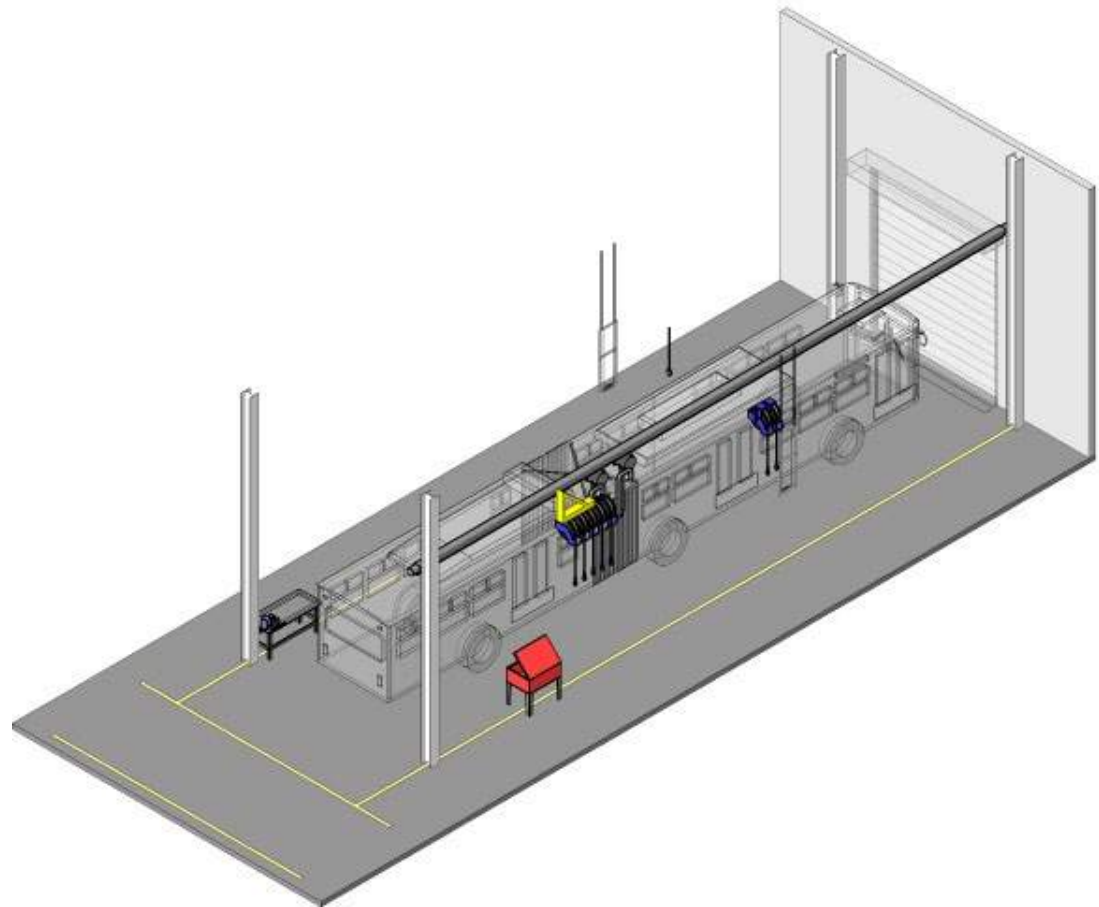
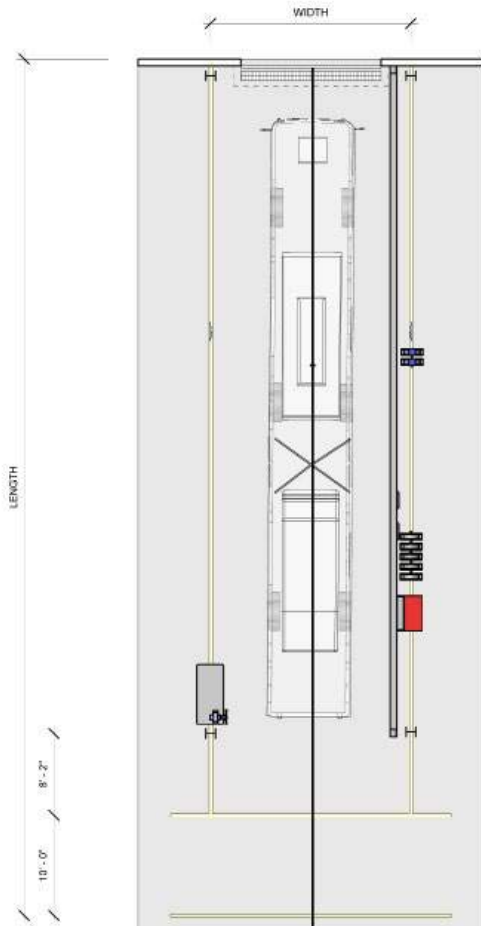
PLUMBING CONSIDERATIONS

- Lubrication reel bank (shared one per two bays)
- 3/4" water hose bibb with standard faucet at rear of bay 2'-0" AFF (one per three bays)
- Compressed air:
 - ✓ 2" compressed air piping loop (minimum)
 - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects at 4'-0" AFF
 - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
 - ✓ As required by equipment
- Additional plumbing connections (water, gas, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
 - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum (75 fc average)
 - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
 - ✓ Paging/intercom system speakers
 - ✓ Data conduit on columns at each bay

STANDARD REPAIR BAY



STANDARD REPAIR BAY

FUNCTION

Perform general repair and maintenance on Diesel and Electric buses.

RELATIONSHIP TO OTHER AREAS

- Access to Common Work Area, Parts Storage, Portable Equipment Storage Areas, and Maintenance Office areas

RECOMMENDED CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures
- Width: 60' (standard bus) or 75' (articulated bus.)

TYPICAL EQUIPMENT/FURNISHINGS

- Severe use workbench with vise (one per bay), parts cleaning tank (shared), lubrication reel (shared per two bays) (ATF, EO, EC), vehicle exhaust (one per bay), air/electric trapeze, electric charging rail installed for electric buses.

TYPICAL DESIGN FEATURES

- Forklift access
- Natural daylighting desired
- Roof Level Work Platform (RLWP) with fall protection

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
 - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors: Personnel door with view panel to meet applicable code exit requirements

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- As required by equipment
- Ventilation:
 - ✓ 1.5 CFM exhaust per square foot of floor area
 - ✓ Return air openings in areas used for repair or servicing vehicles shall not be less than 18" above floor level accordance with NFPA 30A and ASHRAE 62.1
- Heating set point: 65 degrees Fahrenheit
- In-floor radiant heat (if desired)

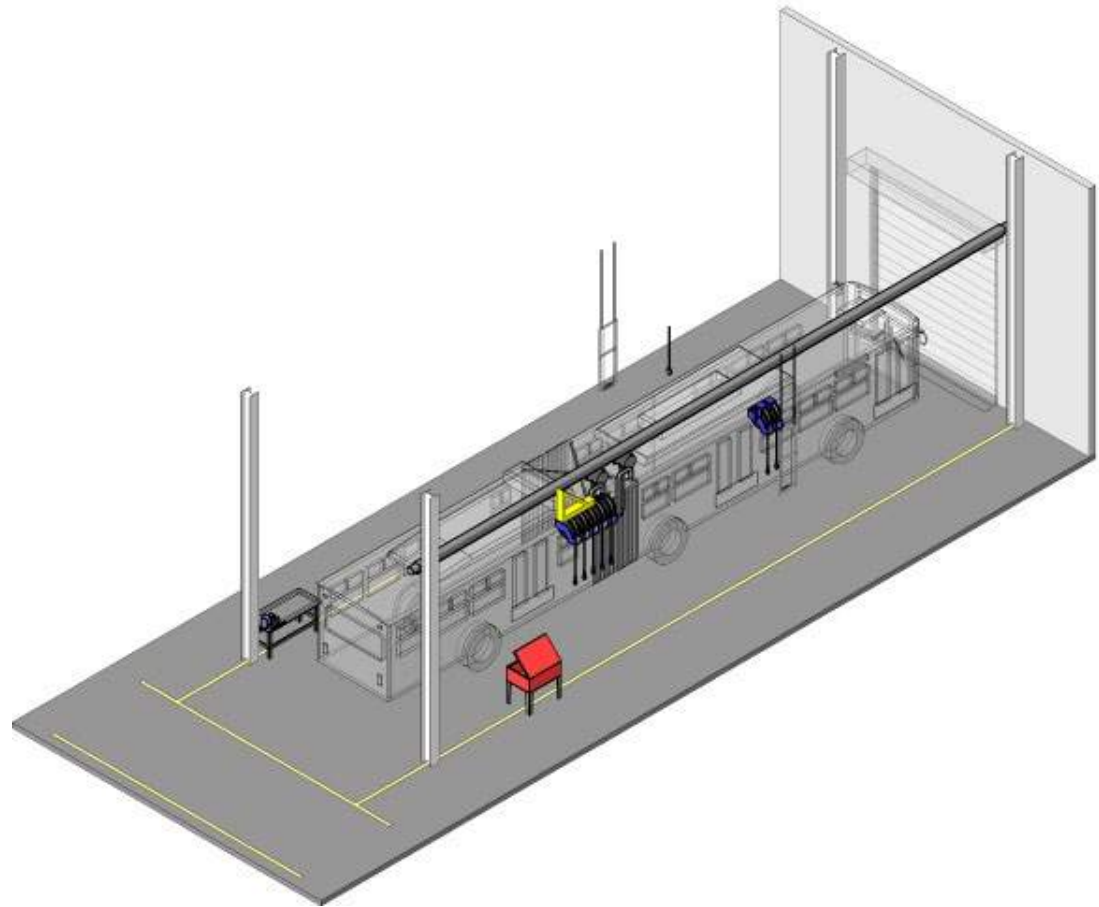
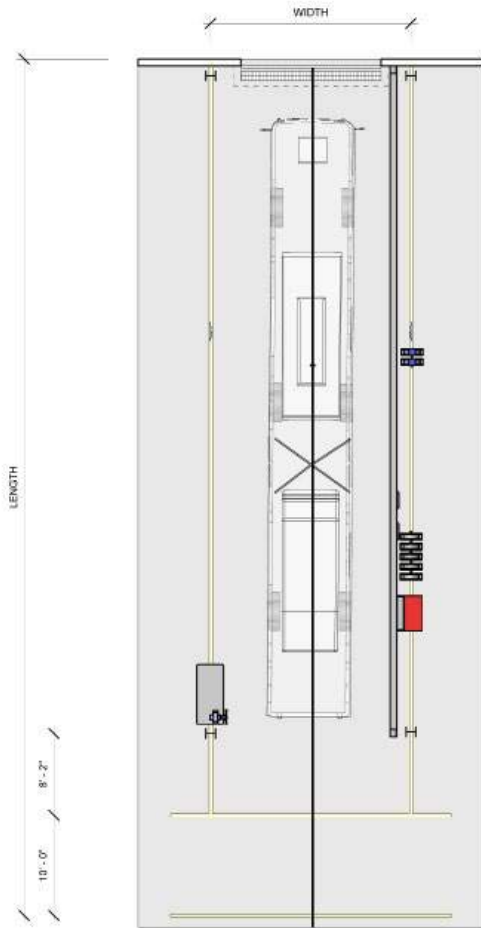
PLUMBING CONSIDERATIONS

- Trench drain at overhead door with removable cover to sediment and oil interceptor (one each)
- Lubrication reel bank (shared one per two bays)
- 3/4" water hose bibb with standard faucet at rear of bay 2'-0" AFF (one per three bays)
- Compressed air:
 - ✓ 2" compressed air piping loop (minimum)
 - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects at 4'-0" AFF
 - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
 - ✓ As required by equipment
- Additional plumbing connections (water, gas, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
 - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum (75 fc average)
 - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
 - ✓ Paging/intercom system speakers
 - ✓ Data conduit on columns at each bay

HEAVY REPAIR BAY



HEAVY REPAIR BAY

FUNCTION

Perform heavy repair and maintenance on Diesel and Electric buses.

RELATIONSHIP TO OTHER AREAS

- Access to Common Work Area, Parts Storage, Portable Equipment Storage Areas, and Maintenance Office areas

RECOMMENDED CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures
- Width: 60' (standard bus) or 75' (articulated bus.)

TYPICAL EQUIPMENT/FURNISHINGS

- Severe use workbench with vise (one per bay), parts cleaning tank (shared), lubrication reel (shared per two bays) (ATF, EO, EC), vehicle exhaust (one per bay), air/electric trapeze, electric charging rail installed for electric buses.

TYPICAL DESIGN FEATURES

- Forklift access
- Natural daylighting desired
- Roof Level Work Platform (RLWP) with fall protection

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
 - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors: Personnel door with view panel to meet applicable code exit requirements

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- As required by equipment
- Ventilation:
 - ✓ 1.5 CFM exhaust per square foot of floor area
 - ✓ Return air openings in areas used for repair or servicing vehicles shall not be less than 18" above floor level accordance with NFPA 30A and ASHRAE 62.1
- Heating set point: 65 degrees Fahrenheit
- In-floor radiant heat (if desired)

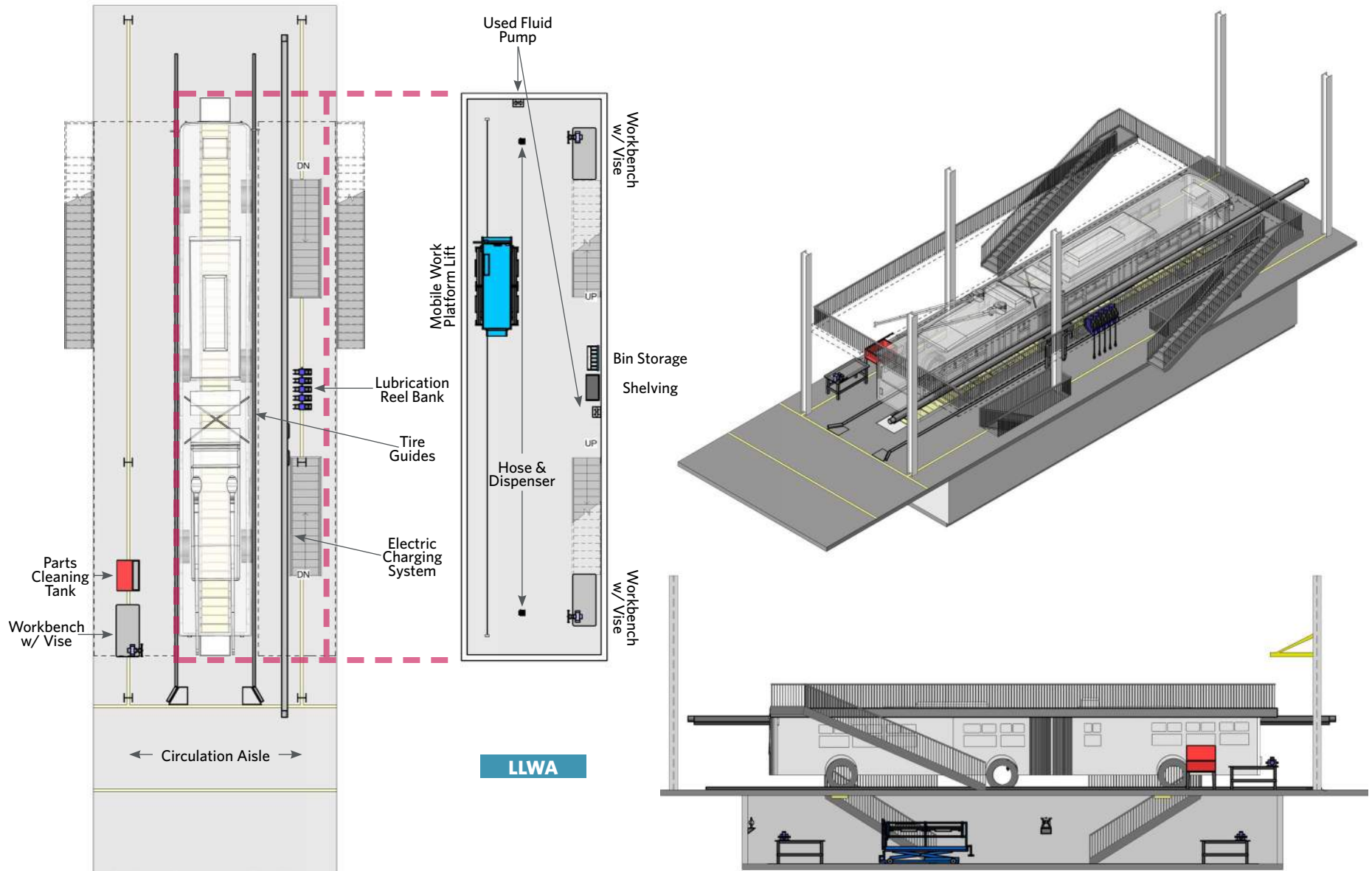
PLUMBING CONSIDERATIONS

- Trench drain at overhead door with removable cover to sediment and oil interceptor (one each)
- Lubrication reel bank (shared one per two bays)
- 3/4" water hose bibb with standard faucet at rear of bay 2'-0" AFF (one per three bays)
- Compressed air:
 - ✓ 2" compressed air piping loop (minimum)
 - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects at 4'-0" AFF
 - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
 - ✓ As required by equipment
- Additional plumbing connections (water, gas, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
 - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum (75 fc average)
 - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
 - ✓ Paging/intercom system speakers
 - ✓ Data conduit on columns at each bay

PM/INSPECTION BAY WITH LOWER LEVEL WORK AREA



PM/INSPECTION BAY WITH LOWER LEVEL WORK AREA

FUNCTION

Bay space to perform preventive maintenance such as inspections, and underfloor component replacement or repair on buses with a Lower Level Work Area (LLWA). Roof top component repair or replacement with an Upper Level Work Platform (ULWP) are performed in this area as well.

RELATIONSHIP TO OTHER AREAS

- Access to Common Work Area, Parts Storage, Portable Equipment Storage Areas, and Maintenance Office areas

RECOMMENDED CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures
- 20'-0" wide by 75'-0" long
- LLWA: 60'-0" long by 10'-0" wide by 8'-6" depth (min.)

TYPICAL EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix C: Equipment Manual for specific project equipment
- Electric charging rail installed when fleet is transitioned to Busess
- Lockout/tag out system required when bus is in position

TYPICAL DESIGN FEATURES

- Forklift access
- Natural daylighting desired
- LLWA
- ULWP
- Tire guides are required to assist with the maneuvering into the bay
- Lockout/tag out system for access to ULWP

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
 - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors: Personnel door with view panel to meet applicable code exit requirements

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access
- LLWA opening to support bridge jacks

MECHANICAL CONSIDERATIONS

- As required by equipment
- Ventilation:
 - ✓ 1.5 CFM exhaust per square foot exhaust
 - ✓ Return openings in areas used for repair or servicing vehicles shall not be less than 18" above floor level accordance with NFPA 30A and ASHRAE 62.1
- Heating set point: 65 degrees Fahrenheit
- In-floor radiant heat (if desired)
- LLWA:
 - ✓ Minimum 1 CFM per square foot of LLWA floor area at all times the building is occupied or when vehicles are parked over these areas.
 - ✓ Exhaust shall be taken from a point within 1'-0" of the floor

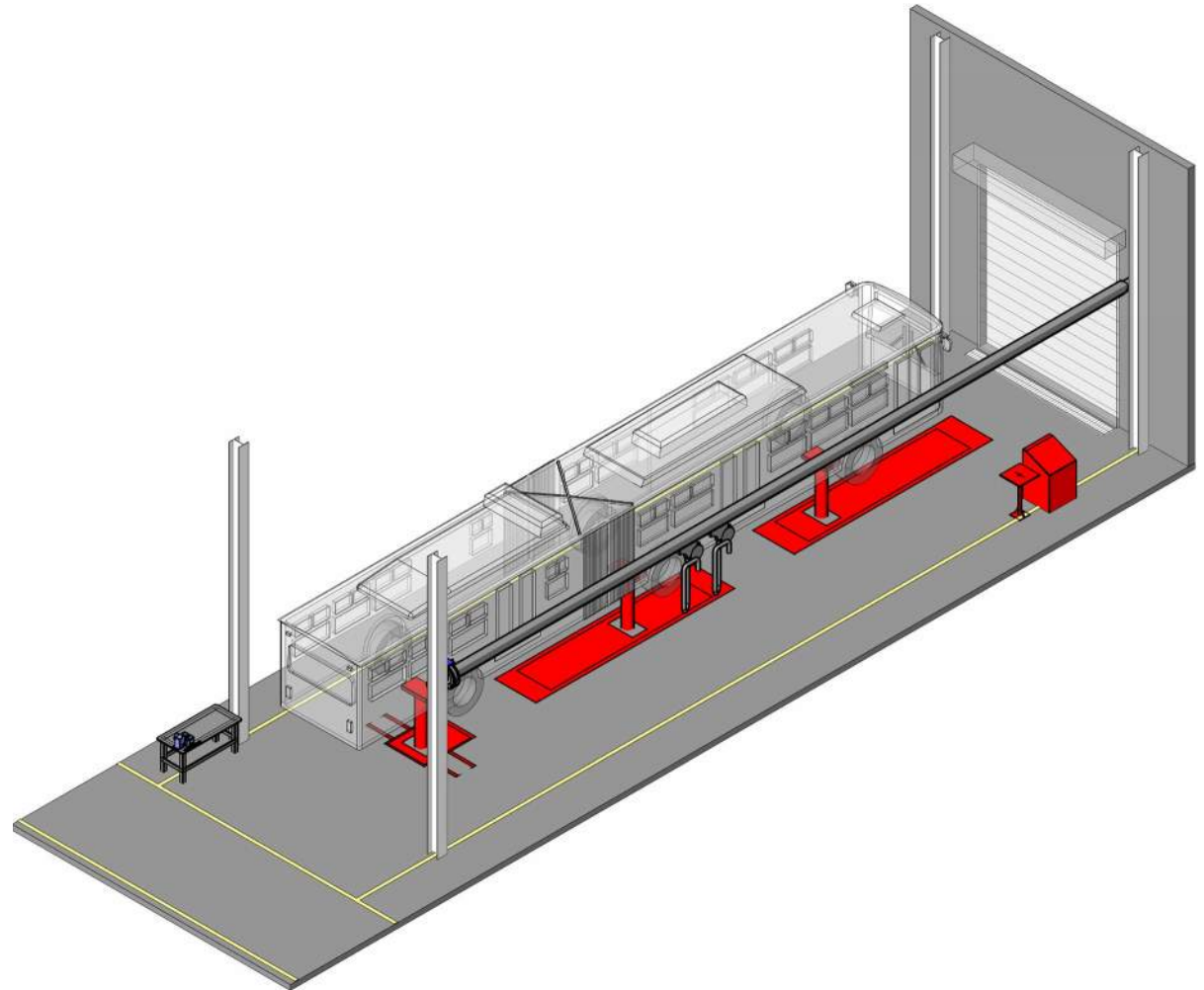
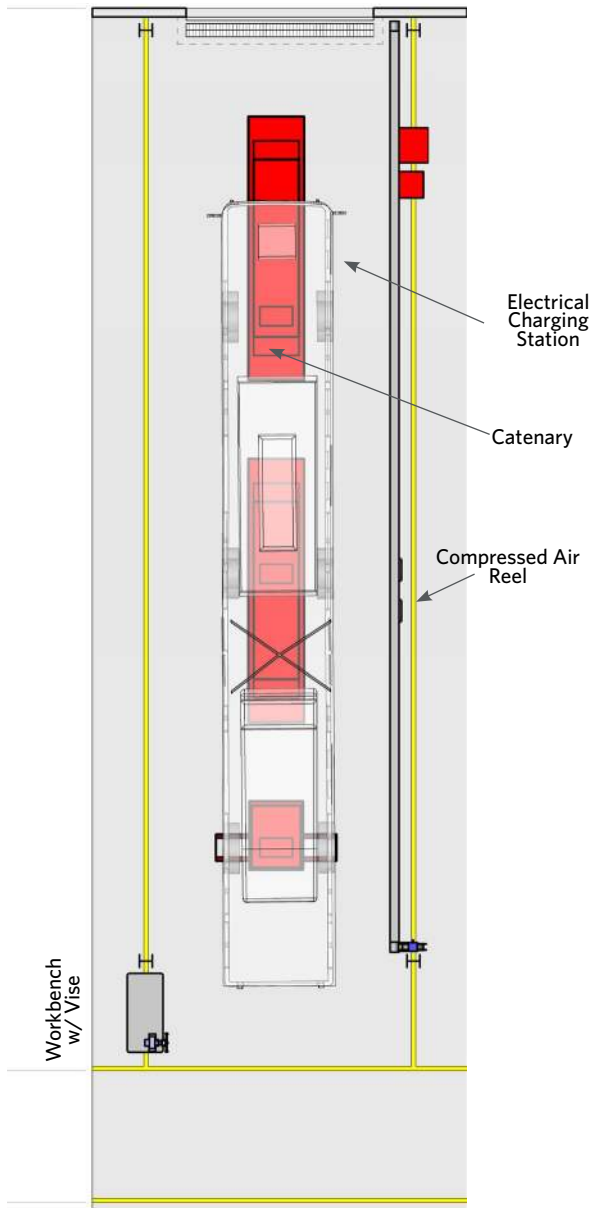
PLUMBING CONSIDERATIONS

- 3/4" water hose bibb with standard faucet at rear of bay on main and LLWA level, 2'-0" AFF (one per bay)
- Compressed air:
 - ✓ 2" compressed air piping loop (minimum)
 - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects at 4'-0" AFF
 - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
 - ✓ Provide on Main Level, ULWP, and LLWA
 - ✓ As required by equipment
- Additional plumbing connections (water, gas, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
 - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum (75 fc average)
 - ✓ Explosion proof LED lighting in pit
 - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
 - ✓ Paging/intercom system speakers
 - ✓ Data conduit on columns at each bay

BUS TIRE BAY



BUS TIRE BAY

FUNCTION

Perform tire replacement and repair buses.

RELATIONSHIP TO OTHER AREAS

- Access to repair bays.
- Adjacent to Tire Shop and Tire Storage

RECOMMENDED CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures
- 20'-0" wide by 75'-0" long
- 5' walkway for exit path

TYPICAL EQUIPMENT/FURNISHINGS

- Severe use workbench with vise (one per bay), air/electric trapeze, in-ground lift

TYPICAL DESIGN FEATURES

- Forklift access
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
 - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- As required by equipment
- Ventilation:
 - ✓ 1.0 CFM per square foot for continuous exhaust.
- Heating set point: 65 degrees Fahrenheit
- In-floor radiant heat (if desired)
- CO and NOx detection

PLUMBING CONSIDERATIONS

- Lubrication reel bank (shared one per two bays)
- 3/4" water hose bibb with standard faucet at rear of bay 2'-0" AFF (one per three bays)
- Compressed air:
 - ✓ 2" compressed air piping loop (minimum)
 - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects at 4'-0" AFF
 - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
 - ✓ As required by equipment
- Additional plumbing connections (water, gas, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

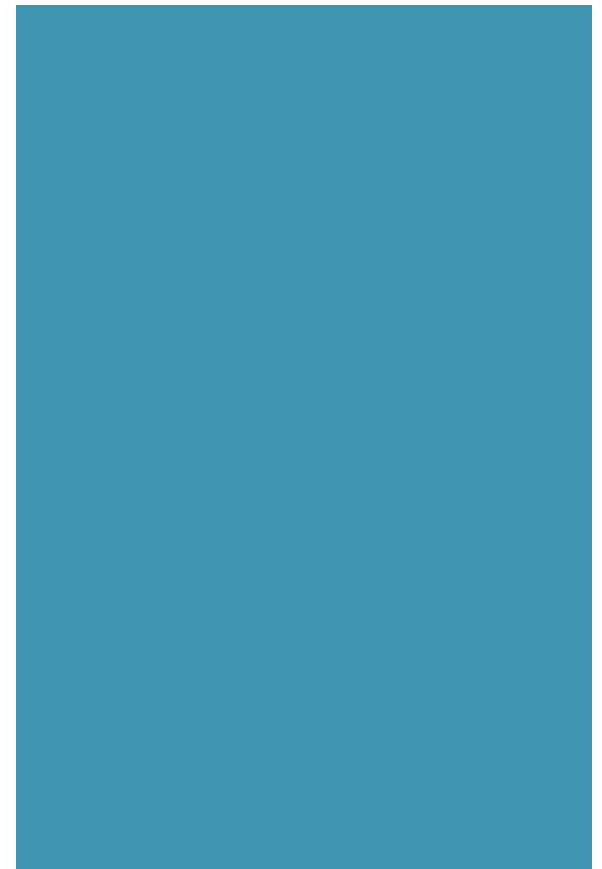
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
 - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum (25 fc average)
 - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
 - ✓ Paging/intercom system speakers
 - ✓ Data conduit on columns at each bay

FIRE SUPPRESSION CONSIDERATIONS

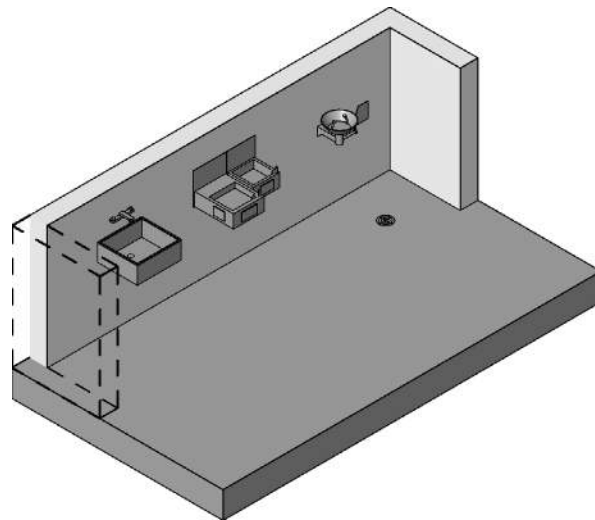
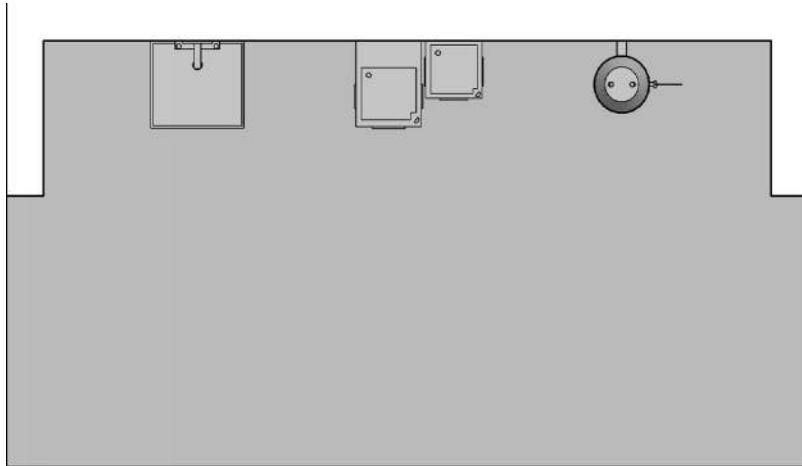
The fire protection and pyrotechnics experts on the detailed design team will be responsible for devising a robust fire protection system for the tire bay and tire shop/storage areas that minimizes risk to the shop and any joint development above. Review and recommendations provided by the experts will include, but not be limited to, the location, ventilation, and



SHOP AREAS



HANDWASH SINK / EMERGENCY EYE WASH



FUNCTION

Dedicated area for hand wash sink, eye wash station, and a drinking fountain

RELATIONSHIP TO OTHER AREAS

- Accessible from all Repair and Shop areas

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance

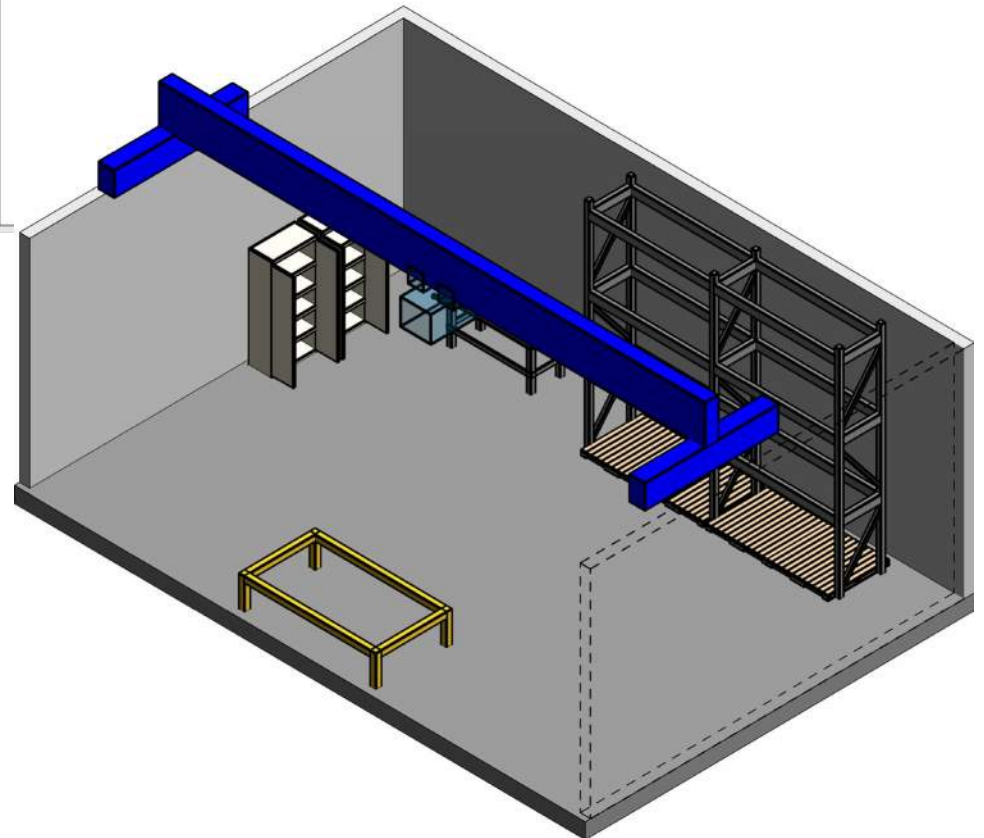
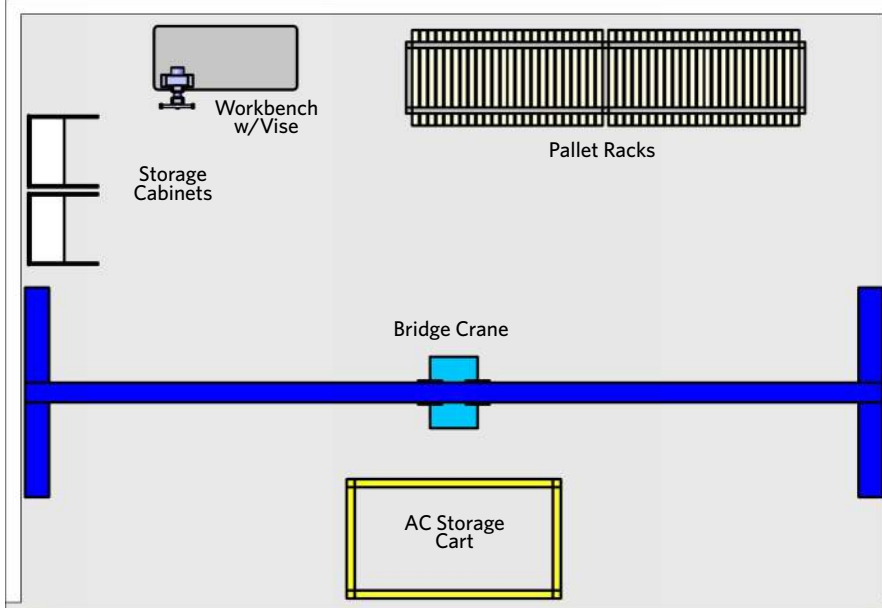
TYPICAL EQUIPMENT/FURNISHINGS

- Deep stainless steel sink
- Eye wash station
- Drinking foundation

TYPICAL DESIGN FEATURES

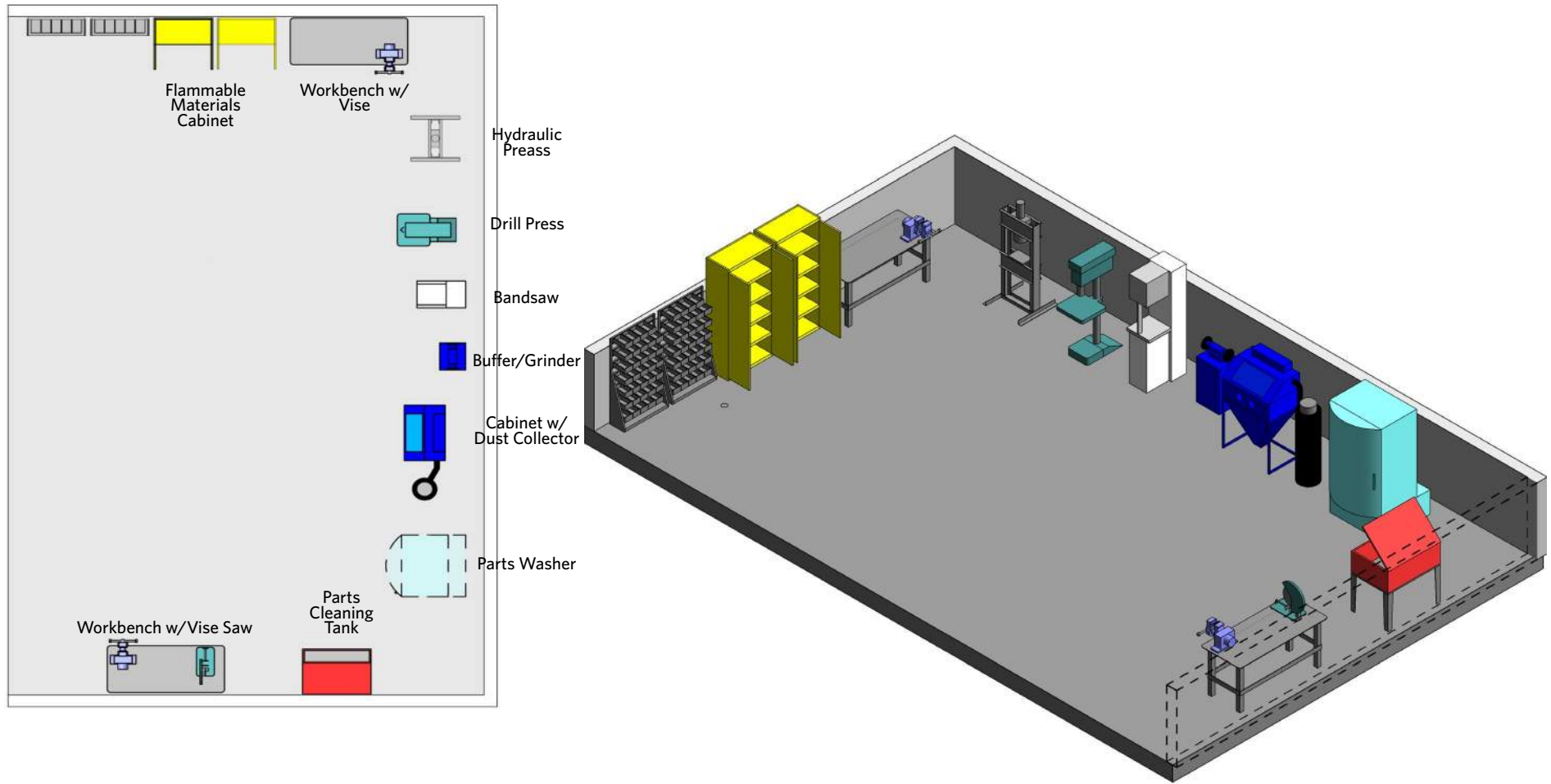
- Floor: Exposed concrete floor
- Walls: Enamel painted masonry
- Ceiling: Painted exposed structure ceiling
- Plumbing:
 - ✓ Floor drain
 - ✓ As required by code and equipment
- Electrical:
 - ✓ Florescent or LED lighting
 - ✓ Route conduit from above
 - ✓ General purpose duplex receptacles, 120 VAC, 20 A, GFI protected on walls at 3'-6" AFF as required by equipment and code
 - ✓ As required by equipment, receptacles/disconnects on walls

AC SHOP/STORAGE



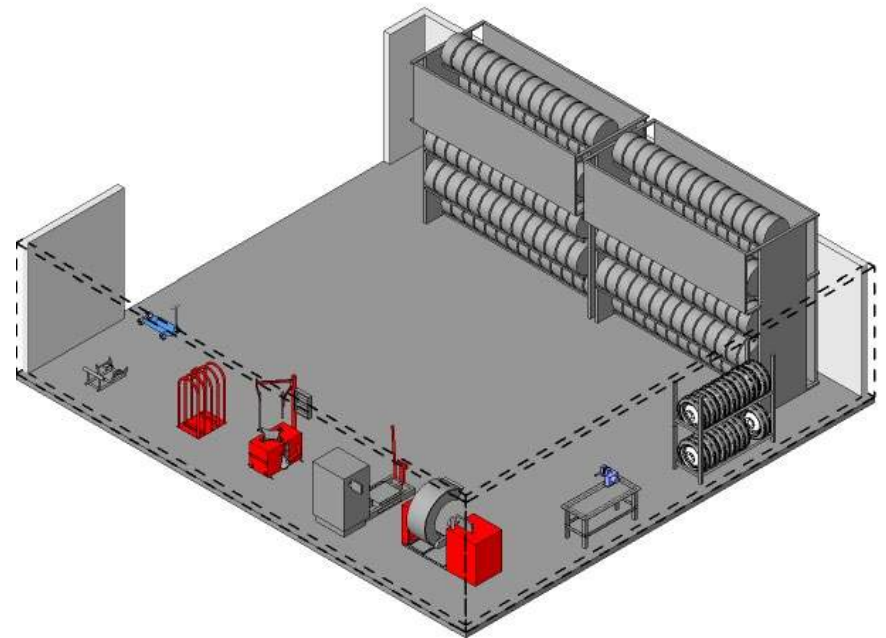
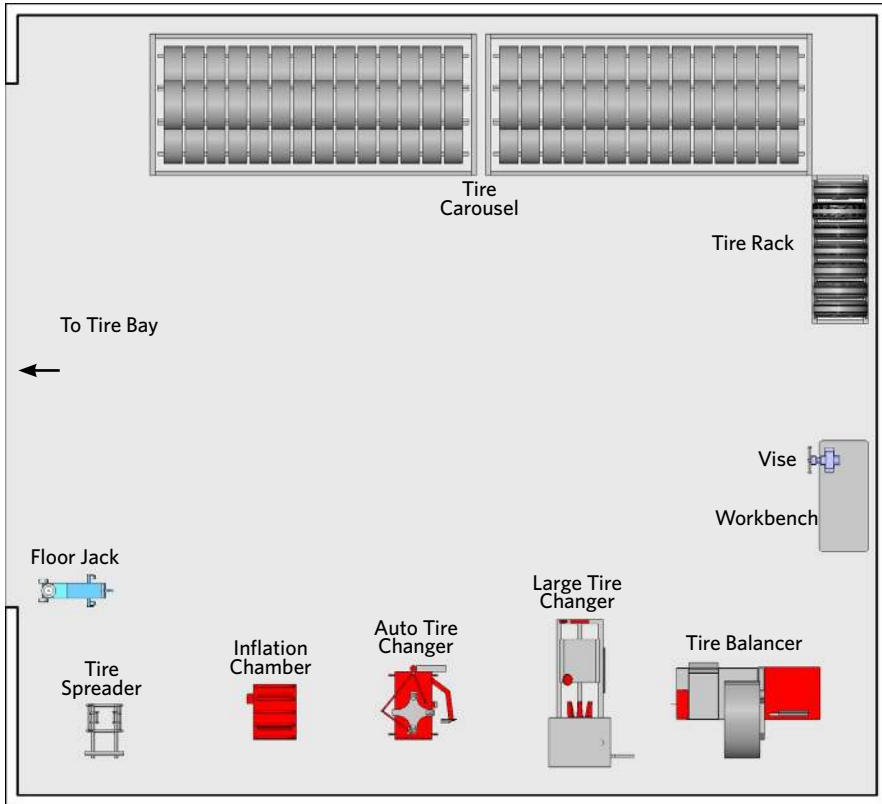
| AC SHOP/STORAGE | | |
|--|---|--|
| FUNCTION | ARCHITECTURAL CONSIDERATIONS | PLUMBING CONSIDERATIONS |
| Designated shop for repair and storage of air conditioning units for buses. | <ul style="list-style-type: none"> ▪ Finishes: <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish | <ul style="list-style-type: none"> ▪ Compressed air drop: <ul style="list-style-type: none"> ✓ 2" compressed air piping loop (minimum) ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects at 4'-0" AFF ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design ✓ As required by equipment ▪ Water: 3/4" water hose bibb with standard hose bibb at 2'-0" AFF ▪ As required by equipment |
| RELATIONSHIP TO OTHER AREAS | STRUCTURAL CONSIDERATIONS | ELECTRICAL CONSIDERATIONS |
| <ul style="list-style-type: none"> ▪ Adjacent to Bus Preventive Maintenance Bay | <ul style="list-style-type: none"> ▪ Control joints in floor slab at adequate spacing ▪ Structure as needed to support equipment ▪ Floor slab designed to accommodate in-floor radiant heat (if desired) ▪ Floor slab designed to accommodate forklift access | <ul style="list-style-type: none"> ▪ Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide general purpose duplex receptacles (four minimum) on walls and columns ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column ✓ As required by equipment ▪ Lighting: <ul style="list-style-type: none"> ✓ LED lighting in accordance with IES recommendation minimum (50 fc average) ✓ Fixtures located to illuminate work spaces and around the vehicles ▪ Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers ✓ Data conduit on columns and/or walls |
| RECOMMENDED CRITICAL DIMENSIONS | MECHANICAL CONSIDERATIONS | |
| <ul style="list-style-type: none"> ▪ 19'-0" vertical clearance to structure and fixtures | <ul style="list-style-type: none"> ▪ In-floor radiant heat (if desired) ▪ Heating set point: 65 degrees Fahrenheit ▪ General ventilation (per code) ▪ As required by equipment | |
| TYPICAL EQUIPMENT/FURNISHINGS | | |
| <ul style="list-style-type: none"> ▪ Typical equipment is shown, reference Appendix C: Equipment Manual for specific project equipment | | |
| TYPICAL DESIGN FEATURES | | |
| <ul style="list-style-type: none"> ▪ Forklift access ▪ Physically separated from other areas to prevent migration of noise, dirt and fumes, if possible ▪ Natural daylighting desired | | |

COMMON WORK AREA



| COMMON WORK AREA | | |
|---|--|---|
| <p>FUNCTION</p> <p>Designated area for common fixed shop equipment which supports all repair bays and associated shop areas</p> | <p>ARCHITECTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Finishes <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish • Doors: None | <p>PLUMBING CONSIDERATIONS</p> <ul style="list-style-type: none"> • Compressed air drop: <ul style="list-style-type: none"> ✓ 2" compressed air piping loop (minimum) ✓ Compressed air drops with cut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects at 4'-0" AFF ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design ✓ As required by equipment • Water: 3/4" water hose bibb with standard hose bibb at 2'-0" AFF • As required by equipment |
| <p>RELATIONSHIP TO OTHER AREAS</p> <ul style="list-style-type: none"> • Access from Maintenance office areas • Adjacent to Repair Bays, Parts Room, and Portable Equipment Storage • Located on First Floor | <p>STRUCTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Control joints in floor slab at adequate spacing • Structure as needed to support equipment • Floor slab designed to accommodate in-floor radiant heat (if desired) • Floor slab designed to accommodate forklift access | <p>ELECTRICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Lighting: LED lighting in accordance with IES recommendation minimum, 50 fc average, fixtures located to illuminate work spaces • Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide (ten minimum) general purpose duplex receptacles on walls and columns ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column ✓ As required by equipment • Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers ✓ Data conduit on columns and/or walls |
| <p>RECOMMENDED CRITICAL DIMENSIONS</p> <ul style="list-style-type: none"> • 16'-0" to vertical clearance to structure and fixtures | <p>MECHANICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Heating set point: 65 degrees Fahrenheit • General ventilation (per code) • In-floor radiant heat (if desired) • As required by equipment | |
| <p>TYPICAL EQUIPMENT/FURNISHINGS</p> <ul style="list-style-type: none"> • Severe use workbench(es) with vise • Buffer grinder with dust collector • Hydraulic press • Drill press • Abrasive blast cabinet • Horizontal bandsaw • Cut-off saw • Parts washer | | |
| <p>TYPICAL DESIGN FEATURES</p> <ul style="list-style-type: none"> • Half-height 54" walls on 3 sides for utilities and to prevent blocking vision of shop from office areas and repair bays • Forklift access • Natural Daylighting desired | | |

TIRE SHOP/STORAGE



TIRE SHOP/STORAGE

FUNCTION

Repair, changing, balancing, and storage of tires

RELATIONSHIP TO OTHER AREAS

- Adjacent to Bus Tire Bay
- Access to Common Work Area and Parts Storage

RECOMMENDED CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures

TYPICAL EQUIPMENT/FURNISHINGS

- Severe-use workbench with vise
- Air/hydraulic floorjack
- Inflation chamber
- Tire changers
- Tire balancer
- Tire spreader
- Tire racks
- Tire carousel

TYPICAL DESIGN FEATURES

- Forklift access
- Access to exterior for delivery of tires
- Physically separated with full height walls from other areas to prevent migration of noise, dirt, and fumes
- Natural Daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
 - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: None

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed for equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment

PLUMBING CONSIDERATIONS

- Compressed air:
 - ✓ 2" compressed air piping loop (minimum)
 - ✓ Compressed air drops with cut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects at 4'-0" AFF
 - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
 - ✓ As required by equipment
- As required by equipment

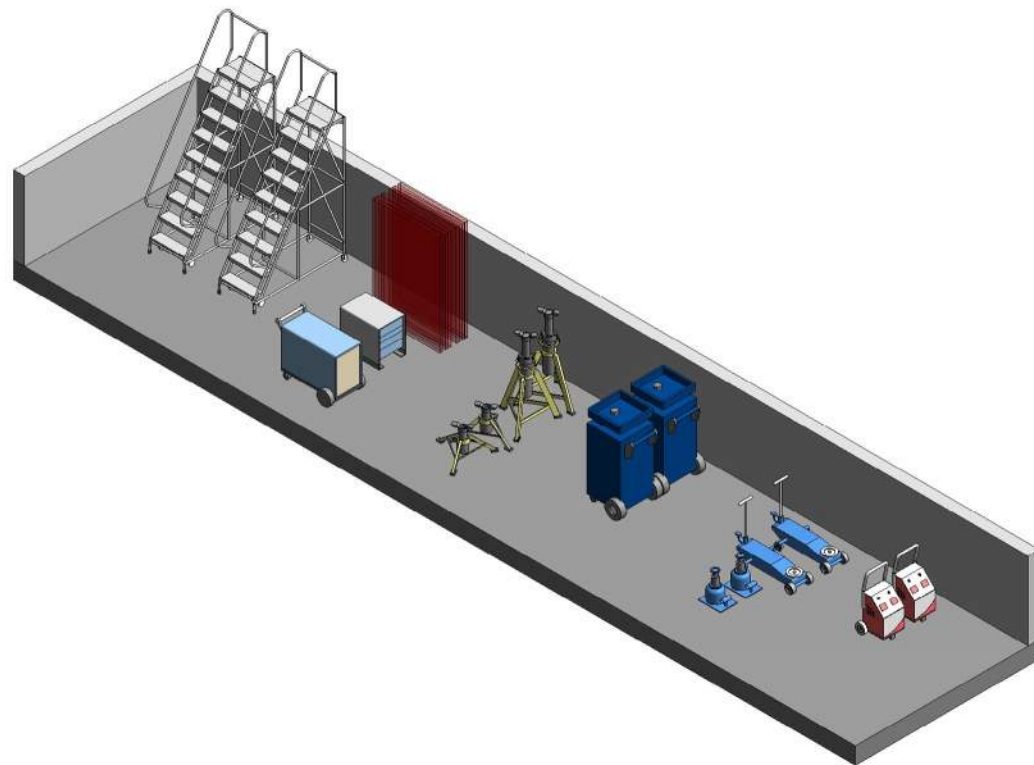
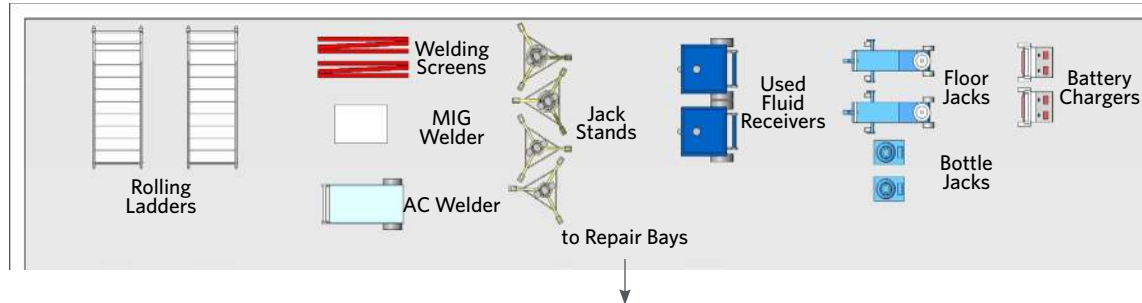
ELECTRICAL CONSIDERATIONS

- Lighting: LED lighting in accordance with IES recommendation minimum, 15 fc average in Storage Area and 25 fc average in Shop Area, fixtures located to illuminate work spaces and around the vehicles
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide (five minimum) general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Communications:
 - ✓ Paging/intercom system speakers
 - ✓ Data conduit on columns and/or walls

ELECTRICAL CONSIDERATIONS

The fire protection and pyrotechnics experts on the detailed design team will be responsible for devising a robust fire protection system for the tire bay and tire shop/storage areas that minimizes risk to the Yard and any joint development above. Review and recommendations by the experts will include, but not be limited to, the location, ventilation, and fire suppression systems for Coolidge's tire facilities.

PORTABLE EQUIPMENT STORAGE



FUNCTION

A dedicated area for storage of portable shop equipment

RELATIONSHIP TO OTHER AREAS

- Access to all Repair Bays and all shop areas

RECOMMENDED CRITICAL DIMENSIONS

- 16'-0" vertical clearance to structure and fixtures

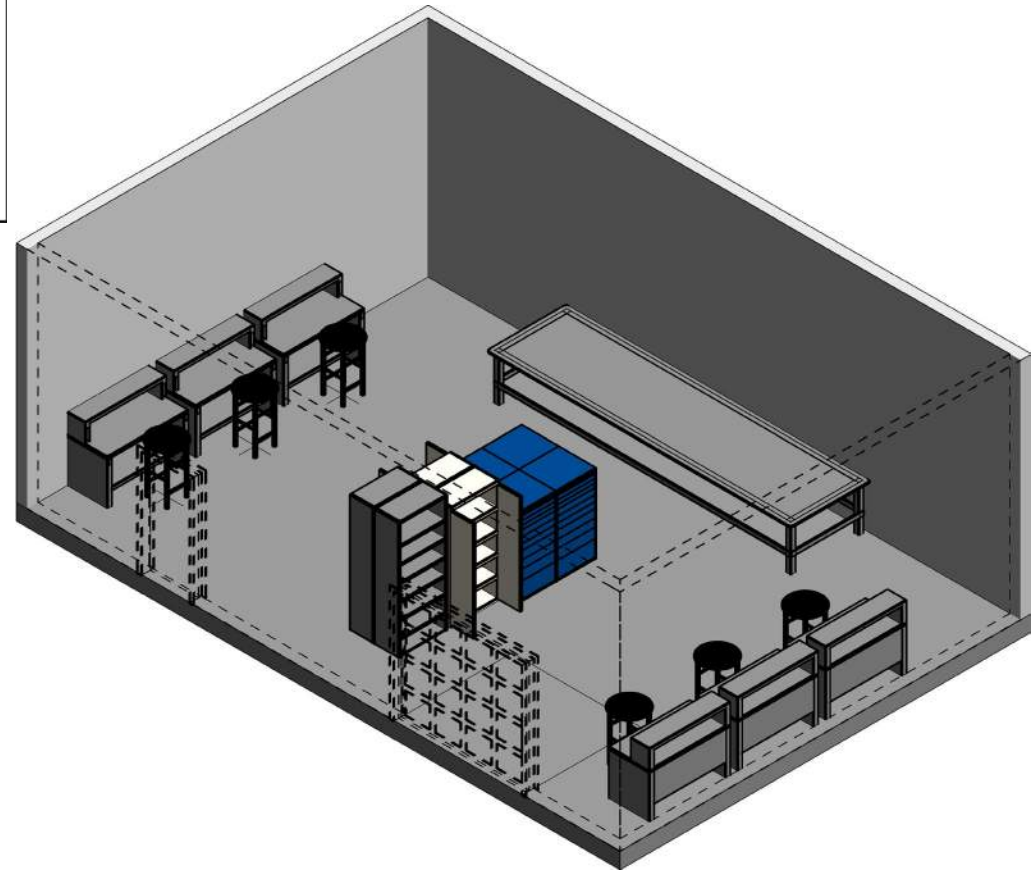
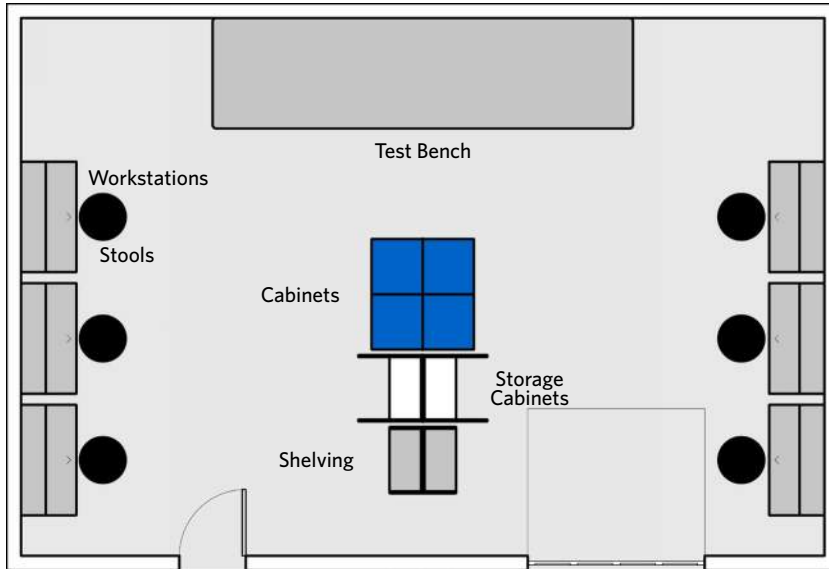
TYPICAL EQUIPMENT/FURNISHINGS

- Portable equipment including chargers, work platforms, but not limited to: Service welders, welding screens, etc. jacks, bottle jacks, jack stands, ladders, diagnostic equipment, used fluid drain pans, battery

TYPICAL DESIGN FEATURES

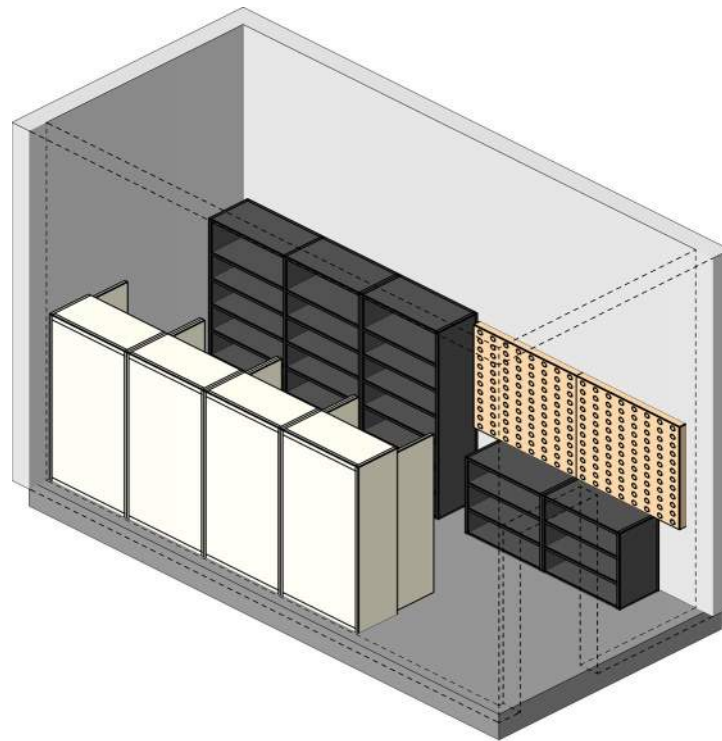
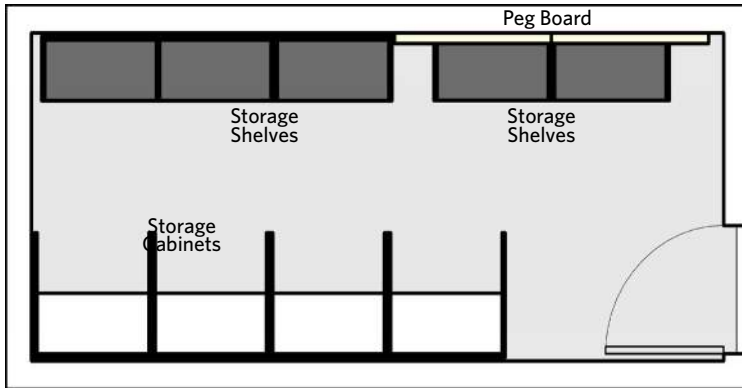
- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finish
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum, 20 fc average, fixtures located to illuminate work spaces
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide (ten minimum) general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

ELECTRONICS REPAIR SHOP



| ELECTRONICS REPAIR SHOP | | |
|---|---|--|
| <p>FUNCTION</p> <p>Enclosed area for repairing and modifying bus electronic and computer control systems. Radio equipment, electrical signage, and other electrical equipment is installed and maintained in this space.</p> | <p>ARCHITECTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Finishes: <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, light colored finish • Doors: <ul style="list-style-type: none"> ✓ Personnel doors with view panels to meet applicable code exit requirements ✓ Overhead door (if desired): High-lifting sectional, steel, insulated, 10'-0" by 10'-0" with view panels, automatic operator, interior and exterior push button controls | <p>PLUMBING CONSIDERATIONS</p> <ul style="list-style-type: none"> • Compressed air drop: <ul style="list-style-type: none"> ✓ 2" compressed air piping loop (minimum) ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, and quick disconnects at 4'-0" AFF ✓ Provide disconnects for 3/8" impact tools at locations to be determined during detailed design ✓ As required by equipment • As required by equipment |
| <p>RELATIONSHIP TO OTHER AREAS</p> <ul style="list-style-type: none"> • Adjacent to Electronic Shop Workstations | <p>STRUCTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Control joints in floor slab at adequate spacing • Structure as needed to support equipment • Floor slab designed to accommodate in-floor radiant heat (if desired) | <p>ELECTRICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide general purpose duplex receptacles (four minimum) on walls and columns ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column ✓ As required by equipment • Lighting: <ul style="list-style-type: none"> ✓ LED lighting in accordance with IES recommendation minimum (50 fc average) ✓ Fixtures located to illuminate work spaces • Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers ✓ Data conduit on columns and/or walls |
| <p>RECOMMENDED CRITICAL DIMENSIONS</p> <ul style="list-style-type: none"> • 16'-0" vertical clearance to structure and fixtures | <p>MECHANICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • In-floor radiant heat (if desired) • Cooling set point: 74 degrees Fahrenheit • Heating set point: 65 degrees Fahrenheit • General ventilation (per code) • As required by equipment • Relative humidity: 50 percent | |
| <p>TYPICAL EQUIPMENT/FURNISHINGS</p> <ul style="list-style-type: none"> • Typical equipment is shown, reference Appendix C: Equipment Manual for specific project equipment | | |
| <p>TYPICAL DESIGN FEATURES</p> <ul style="list-style-type: none"> • Dust proof required for electrical components | | |

SECURE TOOL CRIB



FUNCTION

Secure area for storing specialized tools and equipment

RELATIONSHIP TO OTHER AREAS

- Access to Repair Bays and Shops
- Adjacent to Parts Room and Maintenance Offices

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

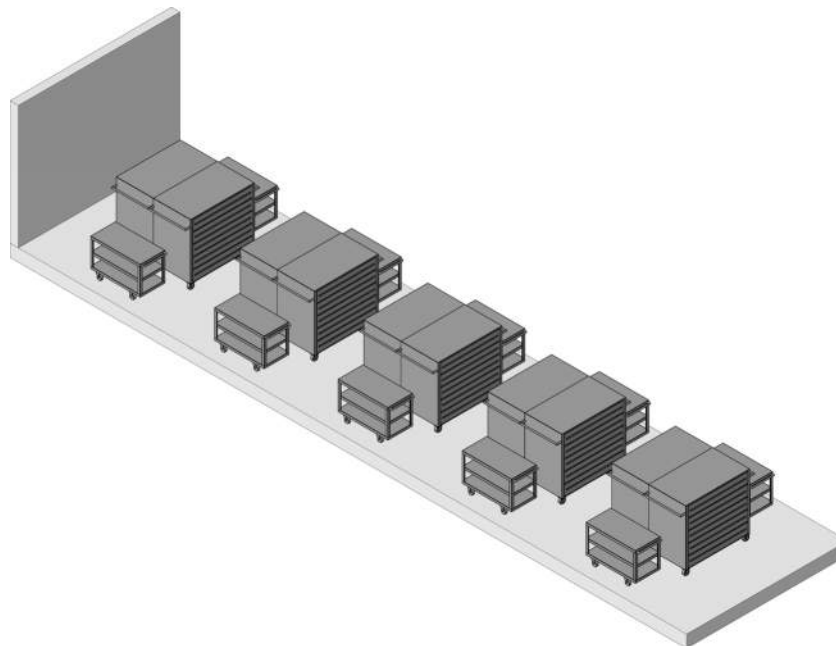
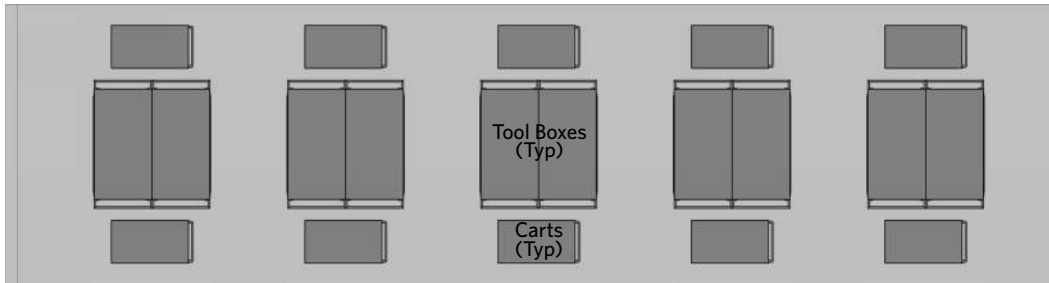
TYPICAL EQUIPMENT/FURNISHINGS

- Peg board
- Storage shelving
- Cabinets

TYPICAL DESIGN FEATURES

- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum, 20 fc average
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide (ten minimum) general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

TOOLBOX STORAGE



FUNCTION

Dedicated area for the storage of toolboxes and carts

RELATIONSHIP TO OTHER AREAS

- Access to all repair bays and all shop areas

RECOMMENDED CRITICAL DIMENSIONS

- 16'-0" vertical clearance to structure and fixtures

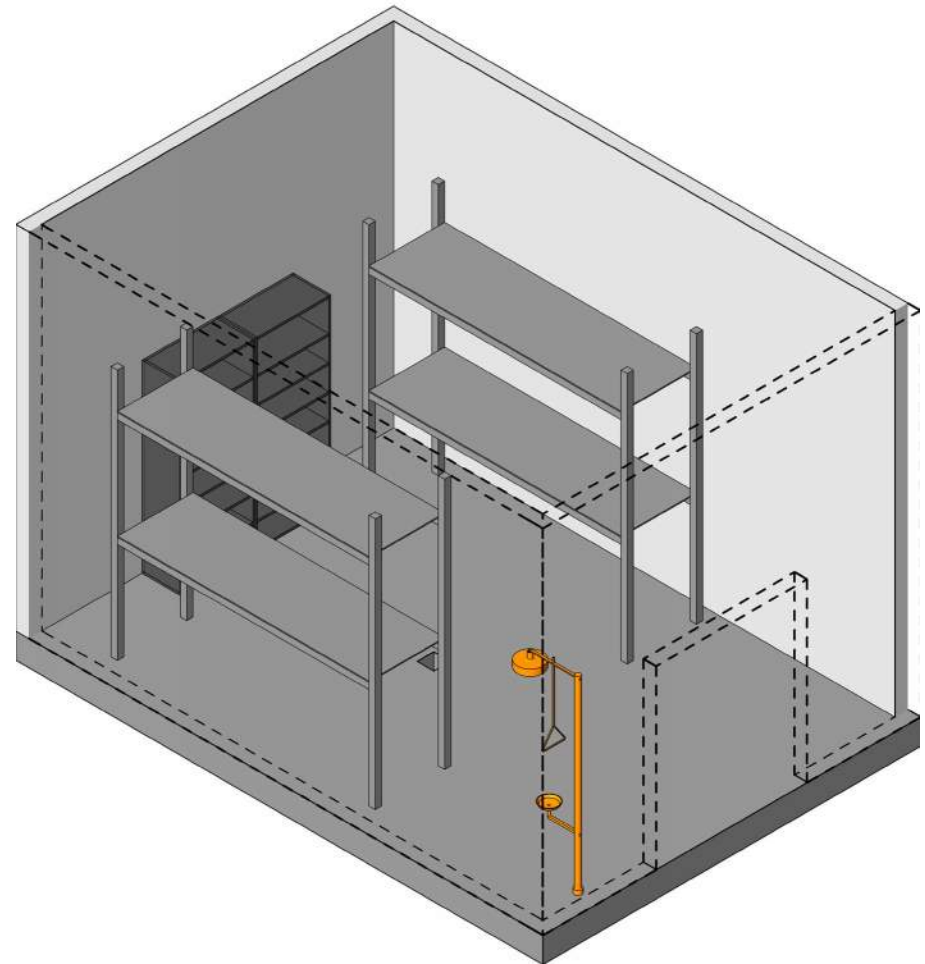
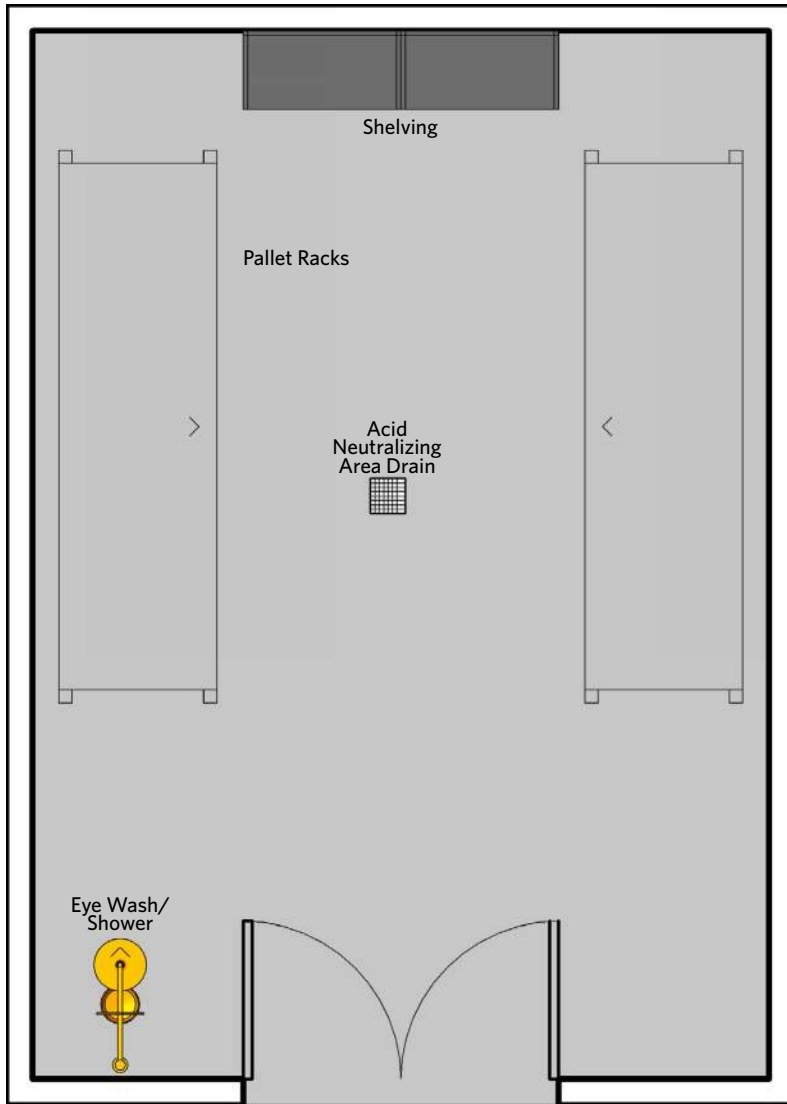
TYPICAL EQUIPMENT/FURNISHINGS

- Toolboxes
- Carts

TYPICAL DESIGN FEATURES

- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum, 20 fc average, fixtures located to illuminate work spaces
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide (ten minimum) general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

ELECTRIC BUS BATTERY STORAGE



| ELECTRIC BUS BATTERY STORAGE | | |
|---|--|---|
| <p>FUNCTION</p> <p>Enclosed and secure room for storage of bus batteries and components.</p> | <p>ARCHITECTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Finishes: <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete, and treated with chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry, with polyurea coatings for acid and chemical resistance ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish • Doors: <ul style="list-style-type: none"> ✓ Personnel door with view panel to meet applicable code exit requirements ✓ Double 3'-0" wide doors | <p>PLUMBING CONSIDERATIONS</p> <ul style="list-style-type: none"> • Tempered water: Connection to emergency eye wash/shower • Acid neutralizing floor drain and piping to acid dilution tank |
| <p>RELATIONSHIP TO OTHER AREAS</p> <ul style="list-style-type: none"> • Access from Repair Bays and Shops | <p>STRUCTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Control joints in floor slab at adequate spacing • Structure as needed to support equipment • Floor slab designed to accommodate in-floor radiant heat (if desired) • Floor slab designed to accommodate forklift access | <p>ELECTRICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide general purpose duplex receptacles on walls ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench ✓ As required by equipment • Lighting: <ul style="list-style-type: none"> ✓ LED lighting in accordance with IES recommendation minimum, explosion proof (20 fc average) ✓ Fixtures located to illuminate work spaces • Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers ✓ Data conduit on columns at each bay |
| <p>RECOMMENDED CRITICAL DIMENSIONS</p> <ul style="list-style-type: none"> • 12'-0" vertical clearance to structure and fixtures (minimum) | <p>MECHANICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Heating set point: 65 degrees Fahrenheit • Exhaust (per code) • General ventilation (per code) • As required by equipment | |
| <p>TYPICAL EQUIPMENT/FURNISHINGS</p> <ul style="list-style-type: none"> • Emergency eyewash/shower • Typical equipment is shown, reference Appendix C: Equipment Manual for specific project equipment | | |
| <p>TYPICAL DESIGN FEATURES</p> <ul style="list-style-type: none"> • Acoustically and physically separated from other areas to prevent migration of noise, dirt, and fumes | | |



PARTS STOREROOM



GENERAL OFFICE MODULES: OFFICE AREAS

**MATERIAL MANAGEMENT
MANAGER**

- Reference Office Module
Private Office - 150 square foot
- Adjacent to Parts Storeroom

STORE OPERATIONS SUPERVISOR

- Reference Office Module
Private Office - 120 square foot
- Adjacent to Parts Storeroom

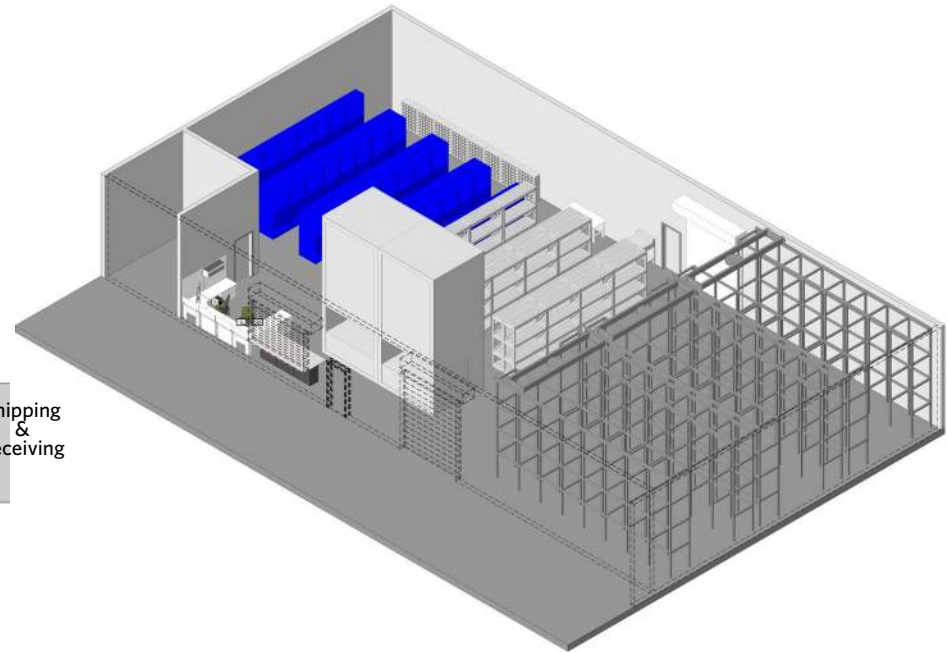
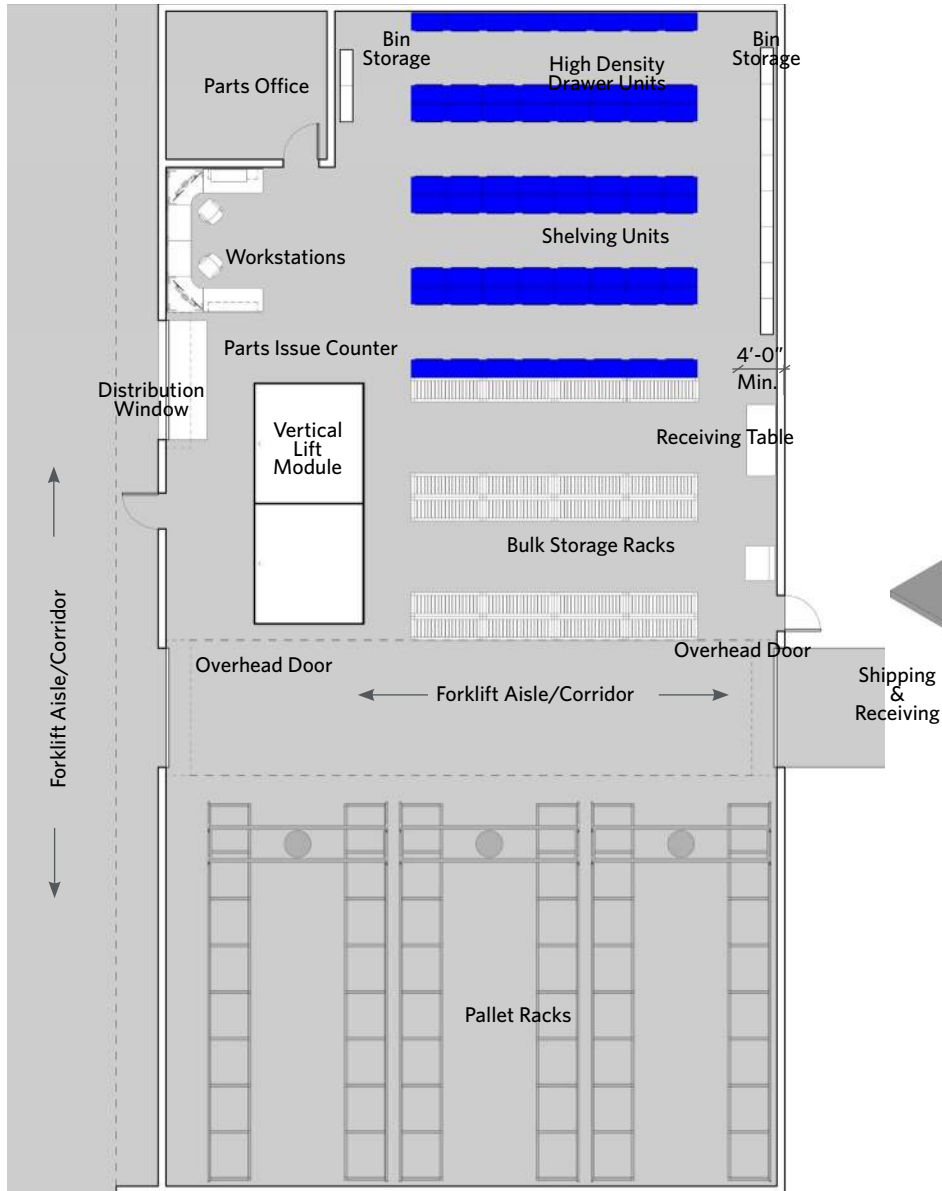
STOREKEEPER

- Reference Office Module
Workstation - 48 square foot
- Adjacent to:
 - ✓ Parts Window
 - ✓ Parts Storeroom

VEHICLE OPERATOR

- Reference Office Module
Workstation - 48 square foot
- Adjacent to Parts Storeroom

PARTS WINDOW/PARTS STORAGE/SHIPPING & RECEIVING AREA



PARTS WINDOW/PARTS STORAGE/SHIPPING & RECEIVING AREA

FUNCTION

Dedicated secure area for receiving, storage, and issuing of parts, material, and specialized tools

RELATIONSHIP TO OTHER AREAS

- Access to exterior for deliveries
- Adjacent to Parts Office
- Access from Repair Bays and Shops

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance below mezzanine (minimal)(if desired)
- 15'-0" vertical clearance above Mezzanine (minimum)(if desired)
- 20'-0" clear for high bay pallet storage (minimum)
- VLM or stack system can be any desired height

TYPICAL EQUIPMENT/FURNISHINGS

- Shelves
- Bulk racks
- Pallet racks
- Cabinets
- VLM
- Modular Drawer Units

TYPICAL DESIGN FEATURES

- Exterior access for deliveries
- Provide Issue Counter with stainless steel top and fire rated rolling overhead door
- Provide staging area for shipping/receiving with an overhead door to exterior of building
- Forklift access

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
 - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities with light colored finish
- Doors:
 - ✓ Personnel door with view panel to meet applicable code exit requirements
 - ✓ Exterior overhead door: High-lifting sectional, steel, insulated 10'-0" by 12'-0" with view panels, automatic operator, interior and exterior push button controls with lockout on exterior
 - ✓ Overhead door at Issue Window
 - ✓ Interior overhead door: coiling steel, 10'-0" by 12'-0", automatic operator, push controls, lockable

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- Cooling set point: 74 degrees Fahrenheit
- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- In-floor radiant heat (if desired)
- As required by equipment

PLUMBING CONSIDERATIONS

- Water: 3/4" water hose bibb with standard hose bibb at 2'-0" AFF
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Lighting: LED lighting in accordance with IES recommended lighting levels for Parts Window, Shipping/Receiving, and shopkeeper 35 fc average, Storage Area 20 fc average, fixtures located to illuminate work spaces
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles on walls and column workstations
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column workstations
 - ✓ As required by equipment
- Communications:
 - ✓ Paging/intercom system speakers
 - ✓ Data conduit on columns and/or walls



COACH SERVICES

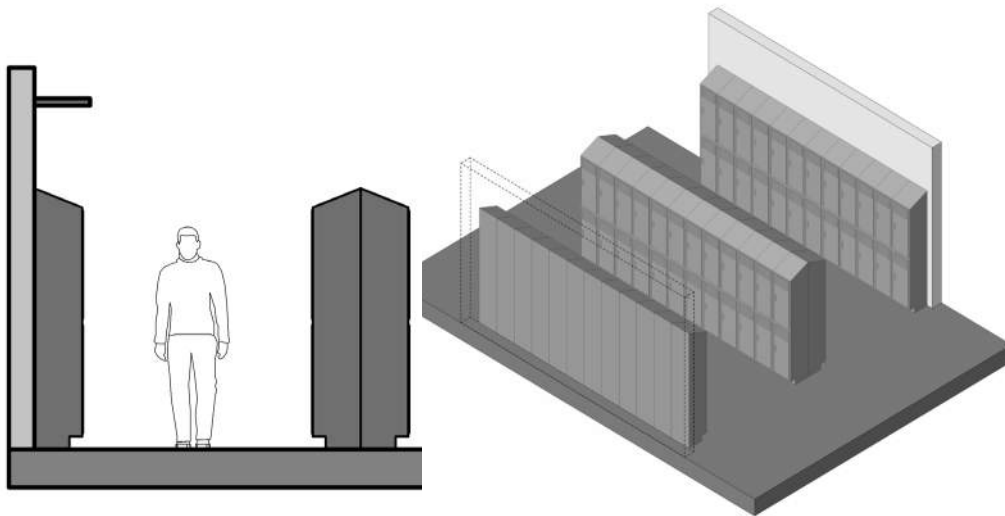
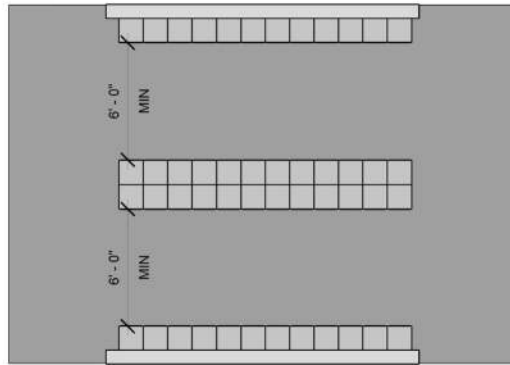


GENERAL OFFICE MODULES: OFFICE AREAS

SUPERVISOR

- Reference Office Module
Private Office - 120 square foot
- Adjacent to Service Lanes
- View of Service Lanes

SERVICE STAFF LOCKERS - TWO-TIER



FUNCTION

Alcove for service staff to store personal gear and clothing in half-height lockers. Co-ed locker area, changing area in respective restrooms.

RELATIONSHIP TO OTHER AREAS

- Connected to Operator's Lobby
- Adjacent to Restroom/Showers

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

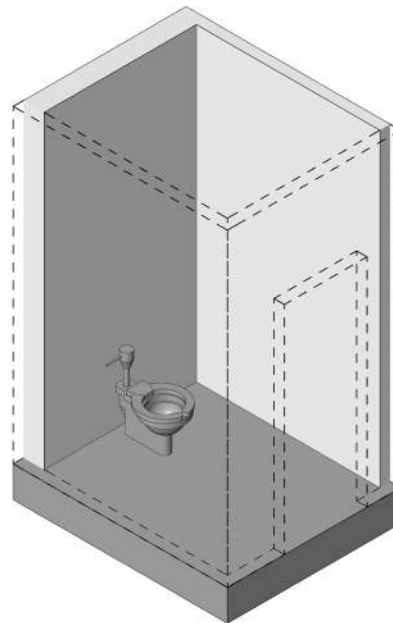
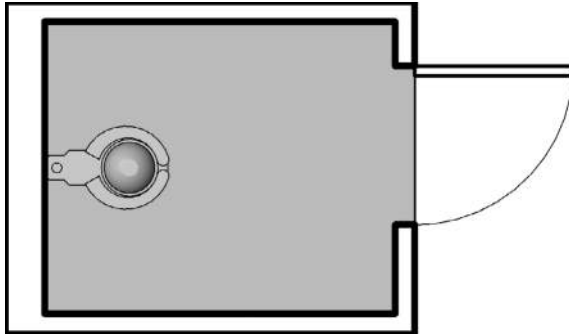
TYPICAL EQUIPMENT/FURNISHINGS

- Heavy duty, two tier, 3'-0", well-ventilated, half-height lockers; one each per Operator assigned to the facility

TYPICAL DESIGN FEATURES

- Flooring:
 - ✓ Tile covering or finished concrete (recommended)
- Walls: Painted masonry (recommended)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
- Mechanical:
 - ✓ Provide appropriate balanced cooling, heating, ventilation, and exhaust (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide (six minimum) general purpose duplex receptacles
- Lighting Control:
 - ✓ Dimmable, indirect lighting with occupancy sensor

UNISEX RESTROOM



FUNCTION

Restroom for male and female employees,

RELATIONSHIP TO OTHER AREAS

- To be developed

RECOMMENDED CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

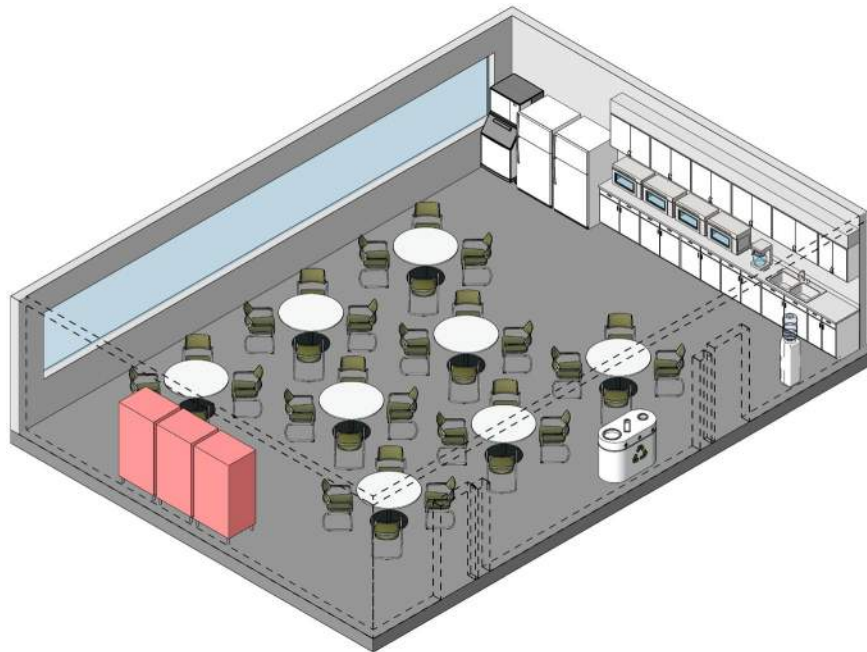
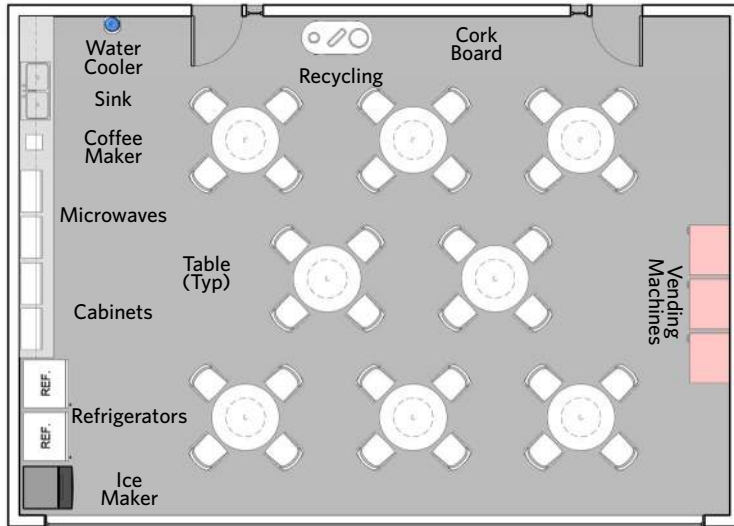
TYPICAL EQUIPMENT/FURNISHINGS

- Toilet, urinal, sink, mirror, hand dryer

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Floor and walls: Ceramic tile floor covering and wall covering
 - ✓ Ceiling: Epoxy painted drywall ceiling
- Plumbing: Toilets, urinals, and wash sinks; as required by code
- Electrical:
 - ✓ Florescent/LED lighting, bi-level switching, task lighting over counters
 - ✓ General purpose duplex receptacles, 120 VAC, 20 A, GFI protected where required by code
 - ✓ As required by equipment
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, exhaust, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit

KITCHENETTE/VENDING



FUNCTION

Enclosed room used as a break area for staff.

RELATIONSHIP TO OTHER AREAS

- Centrally located
- Access to all office areas, repair areas, and Restrooms

RECOMMENDED CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

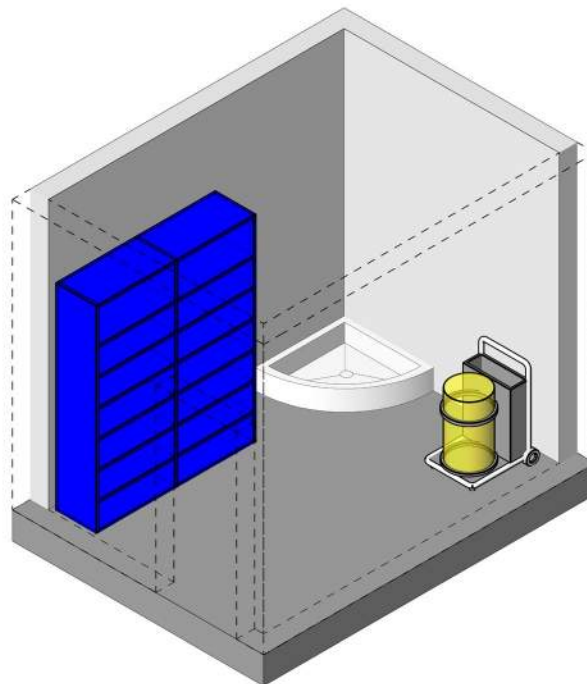
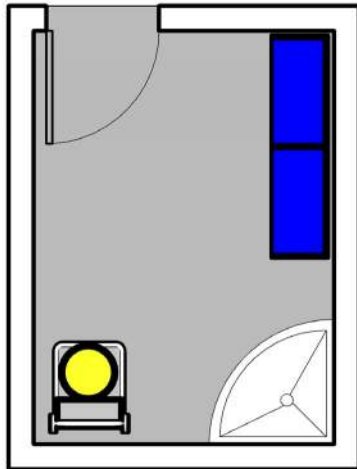
TYPICAL EQUIPMENT/FURNISHINGS

- Counter space, upper and lower cabinets, sink, microwaves, refrigerators, coffee maker, ice maker, water filter, vending machines, water coolers, tables, chairs, trash/recycling/compost bins

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Resilient floor covering with base or finished concrete (recommended)
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" doors (two minimum) with lockable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window desired
- Plumbing: rough in for equipment
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Provide CO2 detection
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide enough outlets to power all vending machines, kitchen equipment and allow convenience outlets within the dining area.
 - ✓ Provide five GFCI outlets above kitchenette counter.
 - ✓ Provide data outlets with four data ports (two minimum)
- Lighting Control:
 - ✓ Dimmable, indirect lighting with occupancy sensor
 - ✓ Task lighting (recommended)

CUSTODIAL ROOM



FUNCTION

Enclosed area for janitorial supplies and mop sink.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Restrooms

RECOMMENDED CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Mop sink
- Metal shelving

TYPICAL DESIGN FEATURES

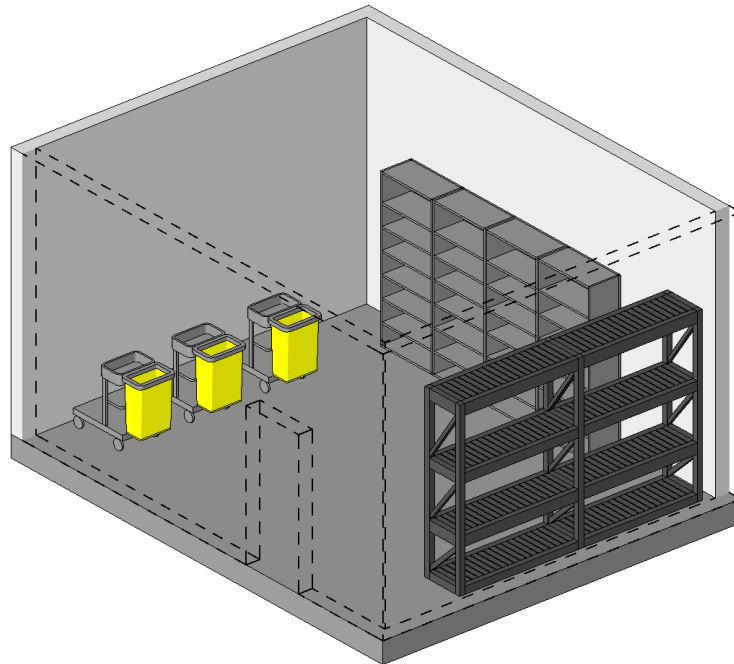
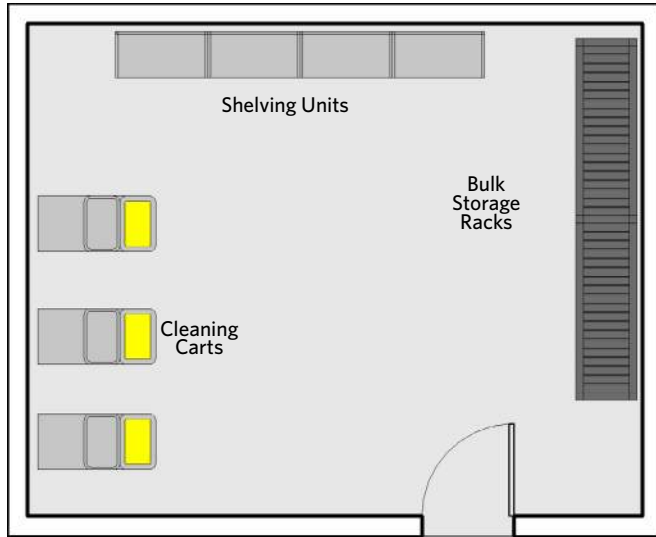
- Secure area
- Architectural
 - ✓ Floor: Exposed concrete slab
 - ✓ Walls: Soil and grease resistant
 - ✓ Ceiling: Painted exposed structure
- Plumbing: Water supply and waste to mop sink as required by code
- Electrical:
 - ✓ Florescent or LED lighting
 - ✓ General purpose duplex receptacles, 120 VAC,
 - ✓ 20 A, GFI protected as required by code
 - ✓ As required by equipment
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, exhaust, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit



STORAGE AREAS



CLEANING SUPPLY STORAGE ROOM



FUNCTION

Secure room for storage of vehicle cleaning equipment.

RELATIONSHIP TO OTHER AREAS

- Adjacent to service position

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

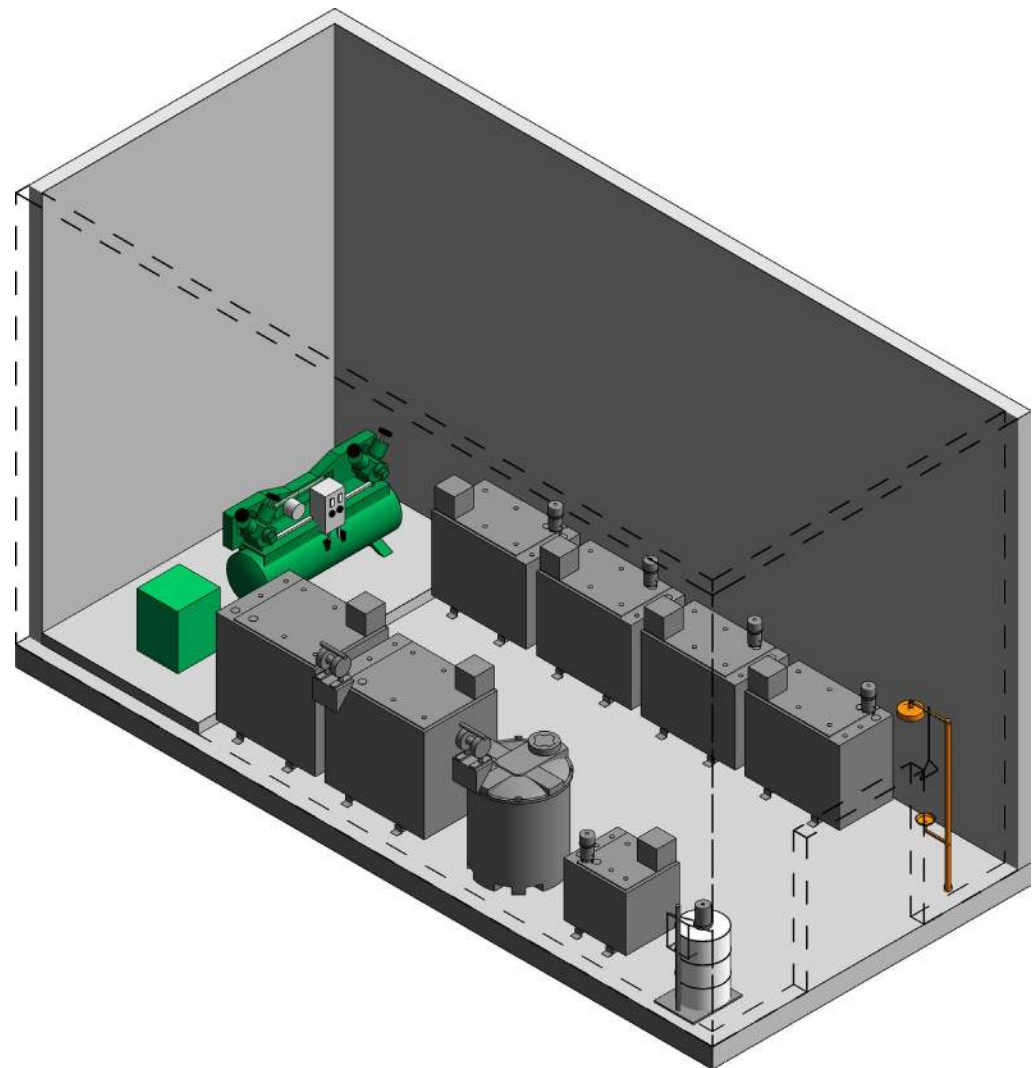
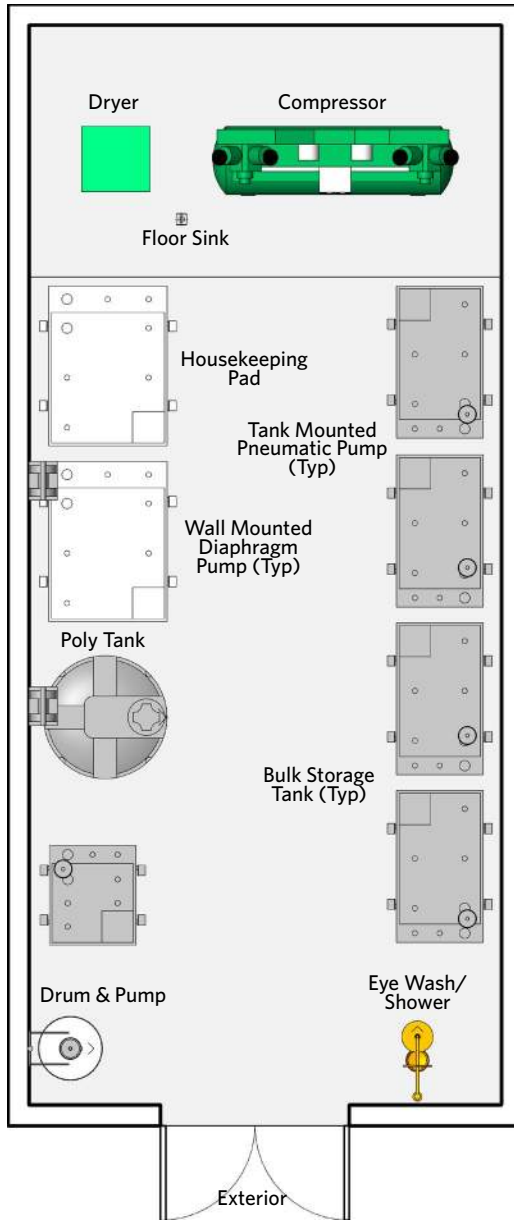
TYPICAL EQUIPMENT/FURNISHINGS

- Shelves
- Racks
- Cleaning carts

TYPICAL DESIGN FEATURES

- Architectural:
 - ✓ Flooring: finished concrete (recommended)
 - ✓ Walls: Soil and grease resilient, with light color finish
 - ✓ Ceiling: Painted exposed structure
 - ✓ Doors:
 - Personnel door with view panels to meet applicable code exit requirements.
 - Electronically secured entry (as required)
- Mechanical: Provide appropriate balanced cooling, heating, and ventilation (per code)
- Power:
 - ✓ LED lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

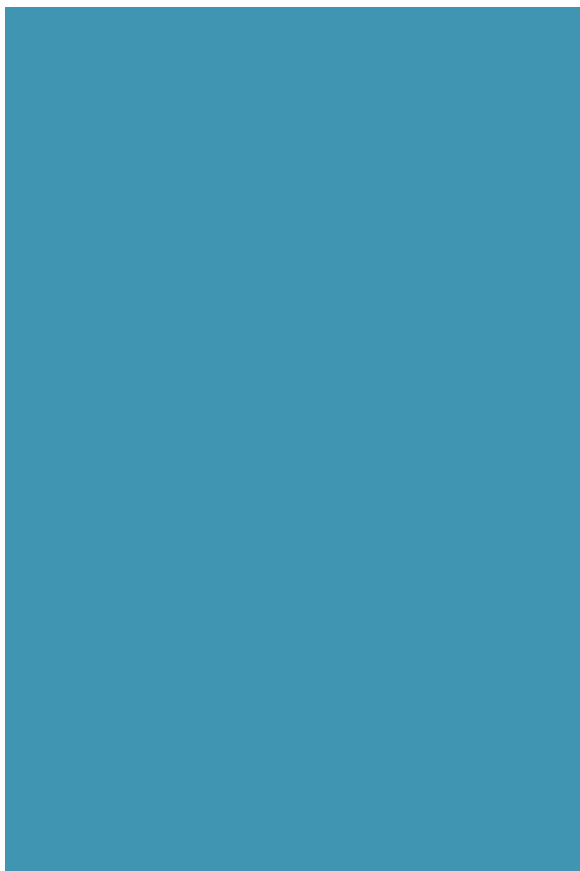
LUBE/COMPRESSOR ROOM



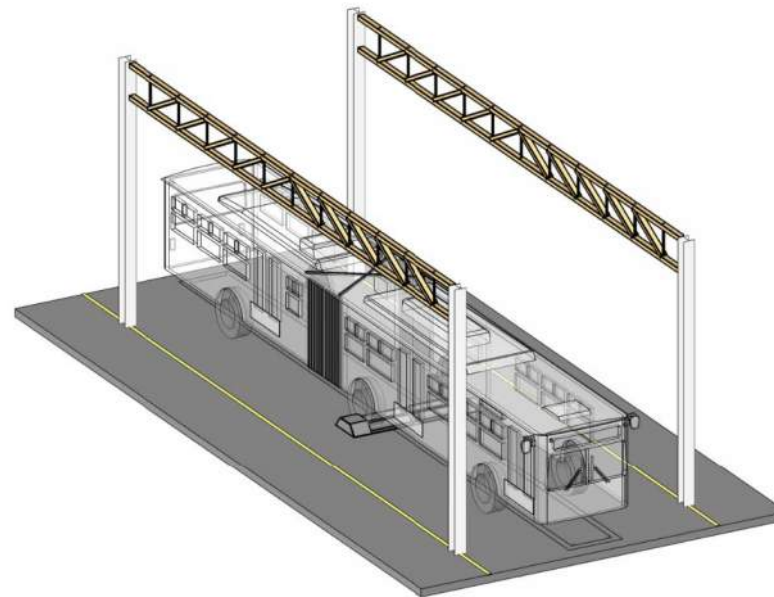
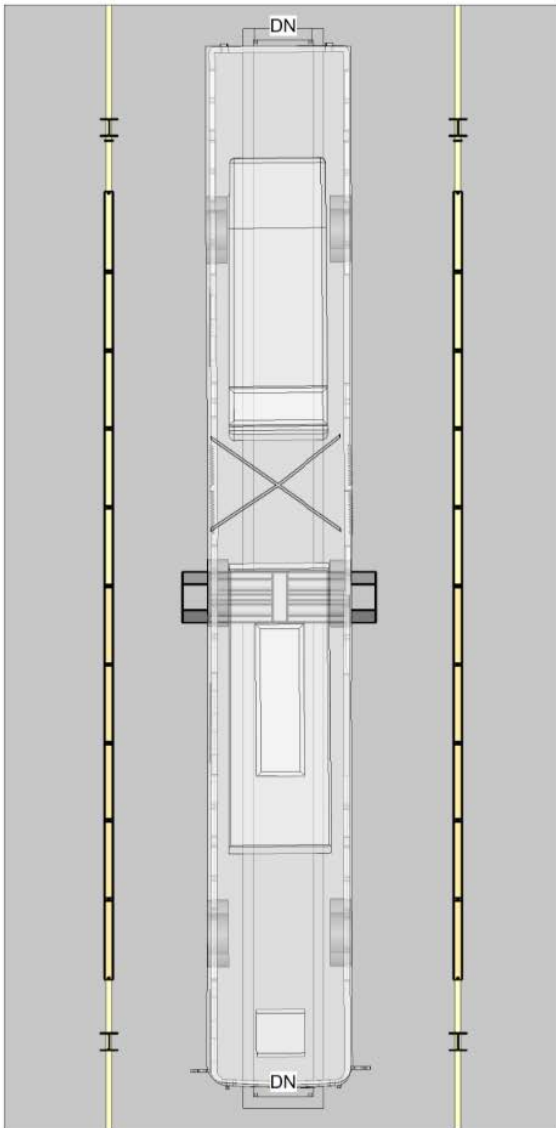
| LUBE/COMPRESSOR ROOM | | |
|---|---|--|
| FUNCTION | ARCHITECTURAL CONSIDERATIONS | PLUMBING CONSIDERATIONS |
| Enclosed room for storage and central distribution of lubricants. Space shall include a compressor(s) and refrigerated air dryer(s). | <ul style="list-style-type: none"> • Finishes: <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, light colored finish sound absorption material ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish sound absorption material • Doors: <ul style="list-style-type: none"> ✓ Personnel door with view panel to meet applicable code exit requirements ✓ Double 6'-0" wide door with interior exit device ✓ No thresholds • Acoustics: Determine based on equipment and location of adjacent spaces | <ul style="list-style-type: none"> • Compressed air: <ul style="list-style-type: none"> ✓ Duplex air compressor, air dryer, and air receiver ✓ Floor sink between air compressor and dryer. Plumb to central sediment and oil interceptor ✓ 2" compressed air piping loop (minimum) started in the Lube/Compressor Room ✓ Compressed air line with 3/8" and 1/2" cut-off valve, separator, regulator with gauge, lubricator, and quick disconnect on wall at 4'-0" AFF ✓ Connect to lubricant pumps • Tank mount all piston lubricant pump(s) • Wall mount all diaphragm pump(s) • CG pump mounted to an air operated hoist (if required) • Plumb tanks to corresponding lube reel banks located in the Repair Bays • Plumb UO and UC tanks to corresponding pumps located in the Repair Bays (if required) • 3/4" water hose bib with standard faucet 2'-0" AFF • Emergency eyewash |
| RELATIONSHIP TO OTHER AREAS | STRUCTURAL CONSIDERATIONS | ELECTRICAL CONSIDERATIONS |
| <ul style="list-style-type: none"> • Access to exterior for deliveries | <ul style="list-style-type: none"> • 6" housekeeping pad for both the air compressor and refrigerated air dryer • Structure as needed to support equipment • Containment pit for 110% of largest tank (per local code) | <ul style="list-style-type: none"> • Lighting: LED lighting in accordance with IES recommendation minimum, 25 fc average, fixtures located to illuminate work spaces • Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide (four minimum) general purpose duplex receptacles on walls ✓ Lube/Compressor: 25 fc ✓ As required by equipment |
| RECOMMENDED CRITICAL DIMENSIONS | MECHANICAL CONSIDERATIONS | |
| <ul style="list-style-type: none"> • 16'-0" vertical clearance to structure and fixtures | <ul style="list-style-type: none"> • Mechanical: <ul style="list-style-type: none"> ✓ Heating set point: 55 degrees Fahrenheit ✓ Exhaust: Minimum 1.0 CFM per square foot ✓ Negative pressurization ✓ As required by equipment | |
| TYPICAL EQUIPMENT/FURNISHINGS | | |
| <ul style="list-style-type: none"> • Above grade fluid storage tanks, air piston and diaphragm pumps, drums, and a poly tank • Air compressor • Air dryer | | |
| TYPICAL DESIGN FEATURES | | |
| <ul style="list-style-type: none"> • Exterior access for deliveries • Acoustically and physically separated from other areas to prevent migration of noise, dirt, and fumes | | |



SERVICE LANES

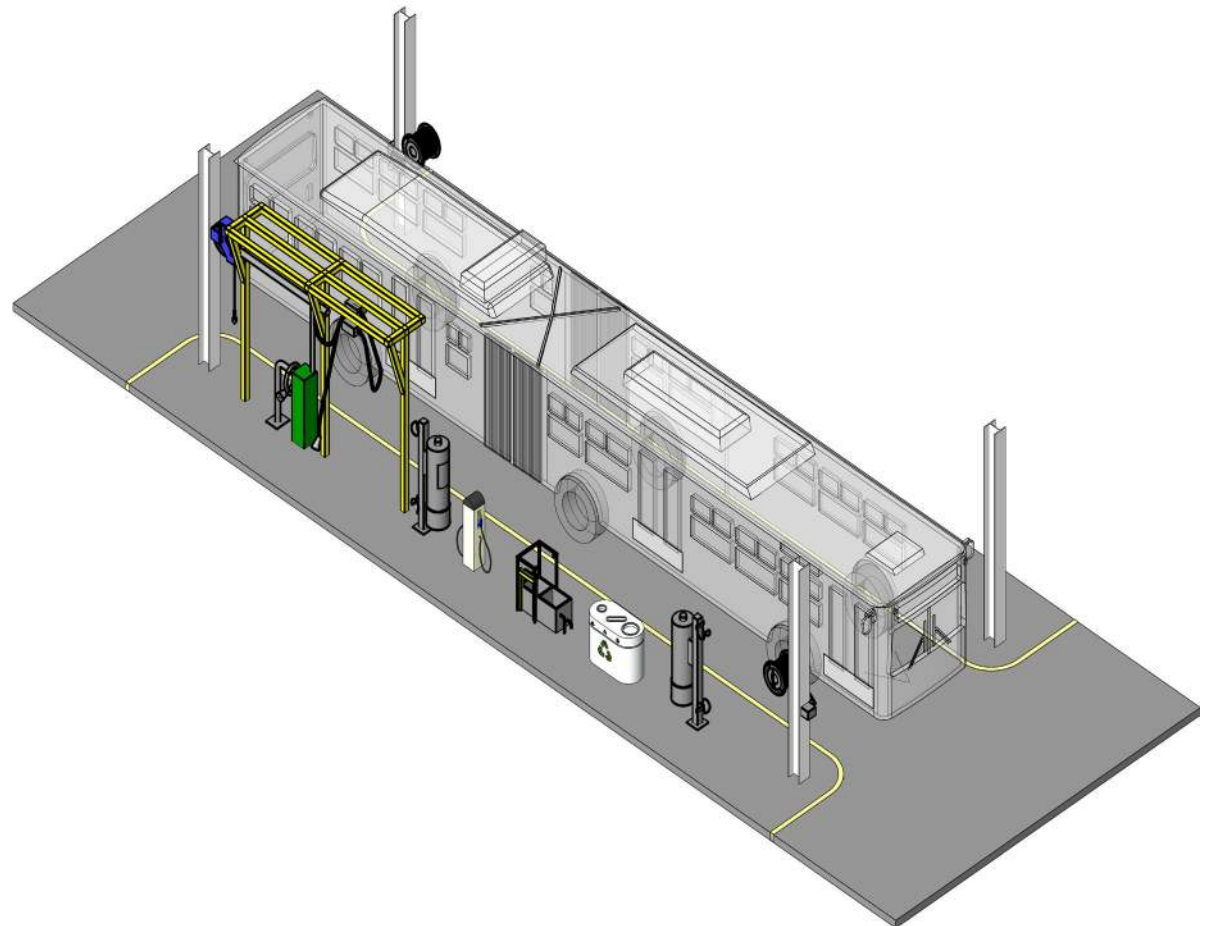
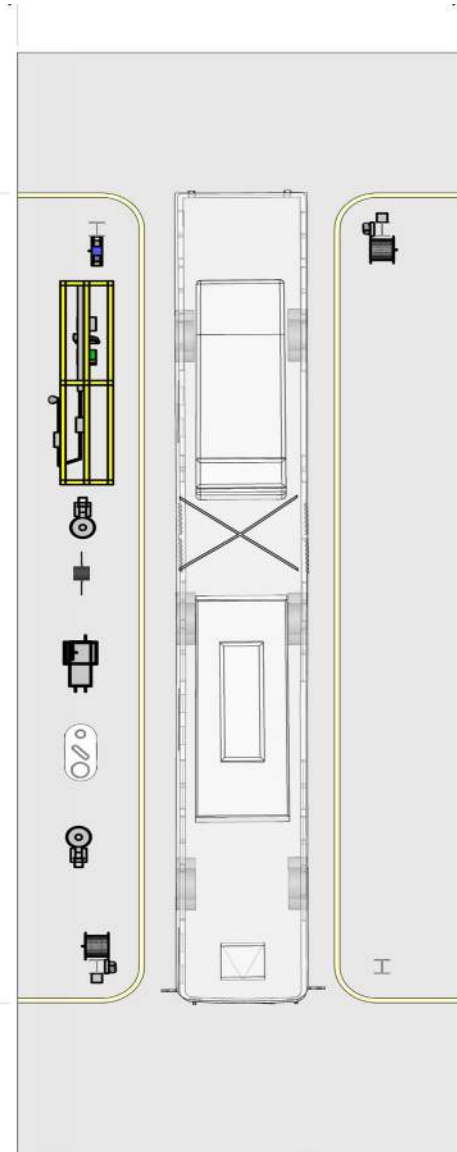


BRAKE TESTING POSITION



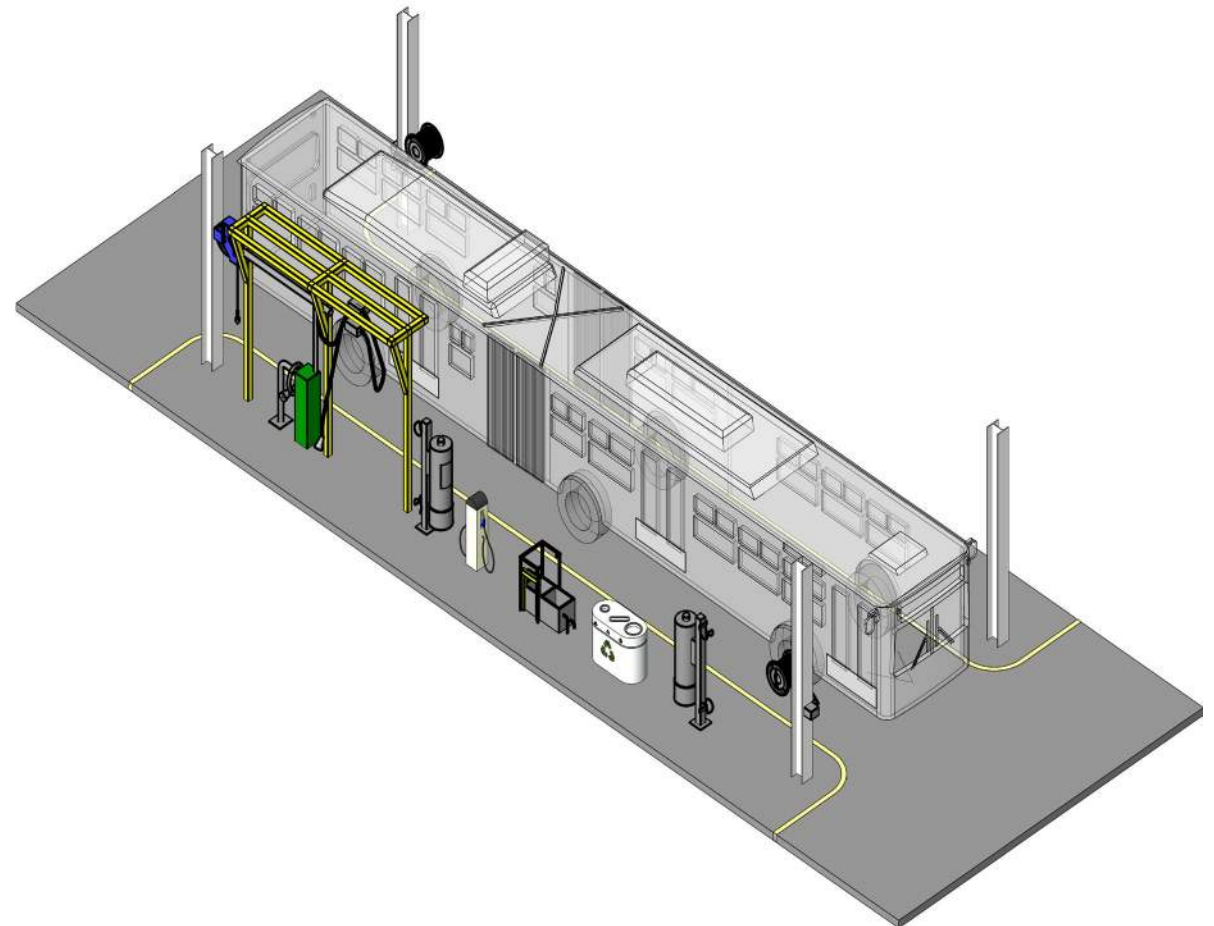
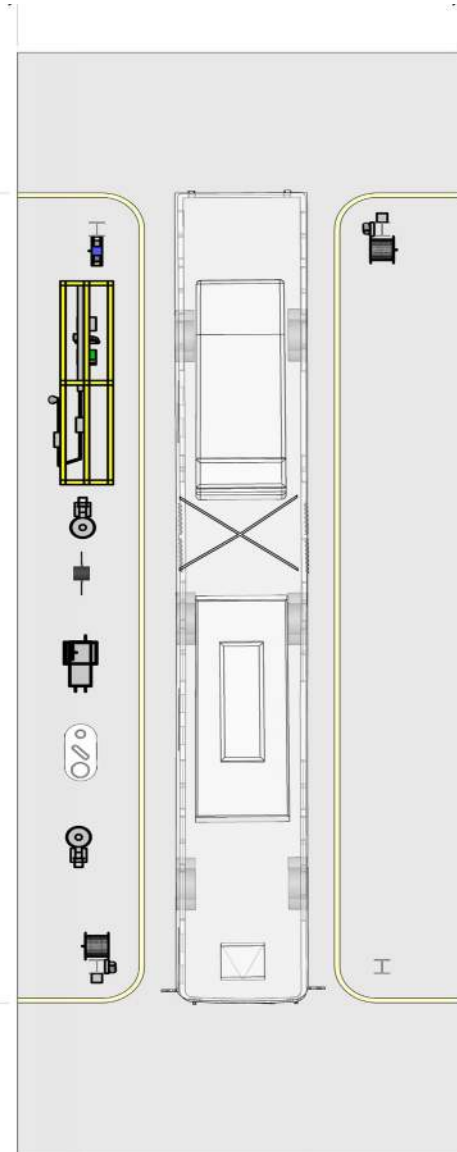
| BRAKE TESTING POSITION | | |
|--|-------------------------------------|----------------------------------|
| FUNCTION To be developed | ARCHITECTURAL CONSIDERATIONS | PLUMBING CONSIDERATIONS |
| RELATIONSHIP TO OTHER AREAS | | ELECTRICAL CONSIDERATIONS |
| RECOMMENDED CRITICAL DIMENSIONS | | |
| TYPICAL EQUIPMENT/FURNISHINGS | STRUCTURAL CONSIDERATIONS | |
| TYPICAL DESIGN FEATURES | MECHANICAL CONSIDERATIONS | |

SERVICE POSITION



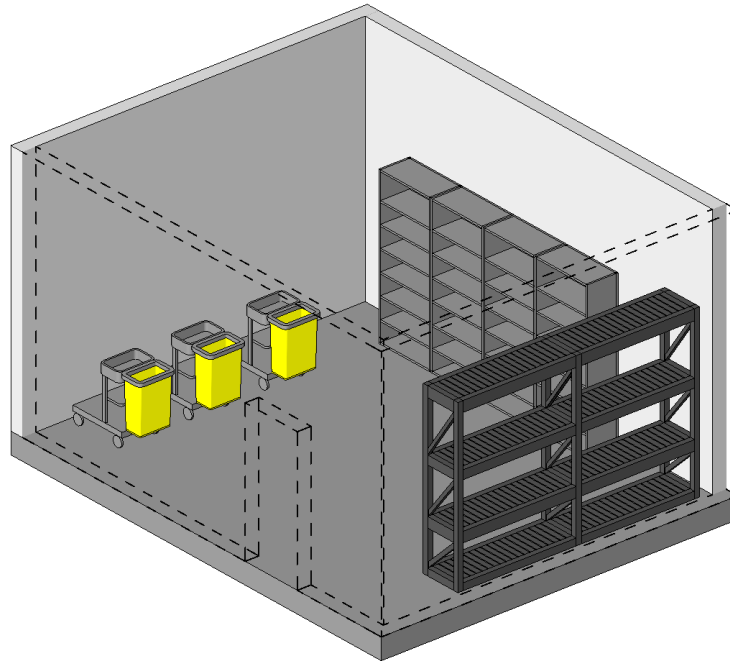
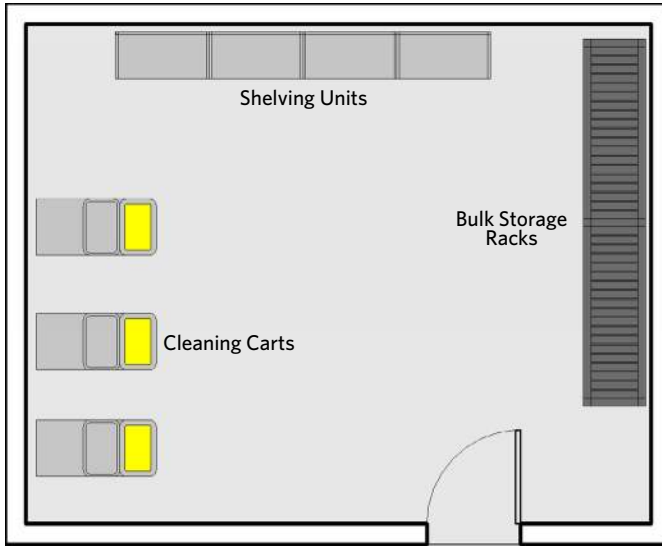
| SERVICE POSITION | | |
|---|--|---|
| FUNCTION | ARCHITECTURAL CONSIDERATIONS | PLUMBING CONSIDERATIONS |
| Dedicated bay used for nightly servicing (fare recovery and/or interior clean) fluid level checks, tire pressure. Also serves as detail bay cleaning position (when needed). | <ul style="list-style-type: none"> ▪ Finishes <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish ▪ Doors: None | <ul style="list-style-type: none"> ▪ 3/4" hot water hose bib with standard faucet, 2'-0" AFF (one per mop sink) ▪ As required by equipment |
| RELATIONSHIP TO OTHER AREAS | STRUCTURAL CONSIDERATIONS | ELECTRICAL CONSIDERATIONS |
| <ul style="list-style-type: none"> ▪ Adjacent to Cleaning Equipment Storage | <ul style="list-style-type: none"> ▪ Control joints in floor slab at adequate spacing ▪ Floor slab designed to accommodate in-floor radiant heat (if desired) ▪ Structure as needed to support equipment | <ul style="list-style-type: none"> ▪ Lighting: LED lighting in accordance with IES recommendation minimum, 20 fc average, fixtures located to illuminate work spaces and around the vehicles ▪ Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide (four minimum) general purpose duplex receptacles on walls, columns, and between overhead doors ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench ✓ As required by equipment ▪ Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers ✓ Data conduit on columns at each lane/fuel position |
| RECOMMENDED CRITICAL DIMENSIONS | MECHANICAL CONSIDERATIONS | |
| <ul style="list-style-type: none"> ▪ 16'-0" vertical clearance ▪ 20'-0" wide by 70'-0" long ▪ 8'-0" island ▪ 12'-0" lane | <ul style="list-style-type: none"> ▪ Wall mounted or overhead vehicle exhaust system with exhaust hose on a motorized reel with integral exhaust fan and automatic fan switch ▪ As required by equipment ▪ 1.0 CFM per square foot continuous exhaust at ceiling to clear any hazardous gas accumulation; 4 air changes per hour activated by gas detection system or manually for emergency ventilation ▪ No heating devices with open flame or heaters with temperatures greater than 800 degrees F Class 1 Division 2 rated (used for alternative fuels only) ▪ Heating set point: 65 degrees Fahrenheit ▪ In-floor radiant heat (if desired) | |
| TYPICAL EQUIPMENT/FURNISHINGS | | |
| <ul style="list-style-type: none"> ▪ Revenue collection vault ▪ Stand up desk with stool ▪ Mop sinks ▪ Lubrication reel bank ▪ Dispenser with Fuel Tram ▪ Vacuum system ▪ Fuel Management Terminal | | |
| TYPICAL DESIGN FEATURES | | |
| <ul style="list-style-type: none"> ▪ Forklift access ▪ Natural Daylighting desired | | |

DETAIL CLEAN POSITION



| SERVICE POSITION | | |
|---|--|---|
| FUNCTION | ARCHITECTURAL CONSIDERATIONS | PLUMBING CONSIDERATIONS |
| Dedicated bay used for nightly servicing (fare recovery and/or interior clean) fluid level checks, tire pressure. Also serves as detail bay cleaning position (when needed). | <ul style="list-style-type: none"> • Finishes <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish • Doors: None | <ul style="list-style-type: none"> • 3/4" hot water hose bib with standard faucet, 2'-0" AFF (one per mop sink) • As required by equipment |
| RELATIONSHIP TO OTHER AREAS | STRUCTURAL CONSIDERATIONS | ELECTRICAL CONSIDERATIONS |
| <ul style="list-style-type: none"> • Adjacent to Cleaning Equipment Storage | <ul style="list-style-type: none"> • Control joints in floor slab at adequate spacing • Structure as needed to support equipment | <ul style="list-style-type: none"> • Lighting: LED lighting in accordance with IES recommendation minimum, 20 fc average, fixtures located to illuminate work spaces and around the vehicles • Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide (four minimum) general purpose duplex receptacles on walls, columns, and between overhead doors ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench ✓ As required by equipment • Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers ✓ Data conduit on columns at each lane/fuel position |
| RECOMMENDED CRITICAL DIMENSIONS | MECHANICAL CONSIDERATIONS | |
| <ul style="list-style-type: none"> • 16'-0" vertical clearance • 20'-0" wide by 70'-0" long • 8'-0" island • 12'-0" lane | <ul style="list-style-type: none"> • Wall mounted or overhead vehicle exhaust system with exhaust hose on a motorized reel with integral exhaust fan and automatic fan switch • As required by equipment • 1.0 CFM per square foot continuous exhaust at ceiling to clear any hazardous gas accumulation; 4 air changes per hour activated by gas detection system or manually for emergency ventilation • No heating devices with open flame or heaters with temperatures greater than 800 degrees F Class 1 Division 2 rated (used for alternative fuels only) • Heating set point: 65 degrees Fahrenheit • In-floor radiant heat (if desired) | |
| TYPICAL EQUIPMENT/FURNISHINGS | | |
| <ul style="list-style-type: none"> • Revenue collection vault • Stand up desk with stool • Mop sinks • Lubrication reel bank • Dispenser with Fuel Tram • Vacuum system | | |
| TYPICAL DESIGN FEATURES | | |
| <ul style="list-style-type: none"> • Forklift access • Natural Daylighting desired | | |

CLEANING EQUIPMENT STORAGE



FUNCTION

Secure room for storage of vehicle cleaning equipment.

RELATIONSHIP TO OTHER AREAS

- Adjacent to service position

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance (minimum)

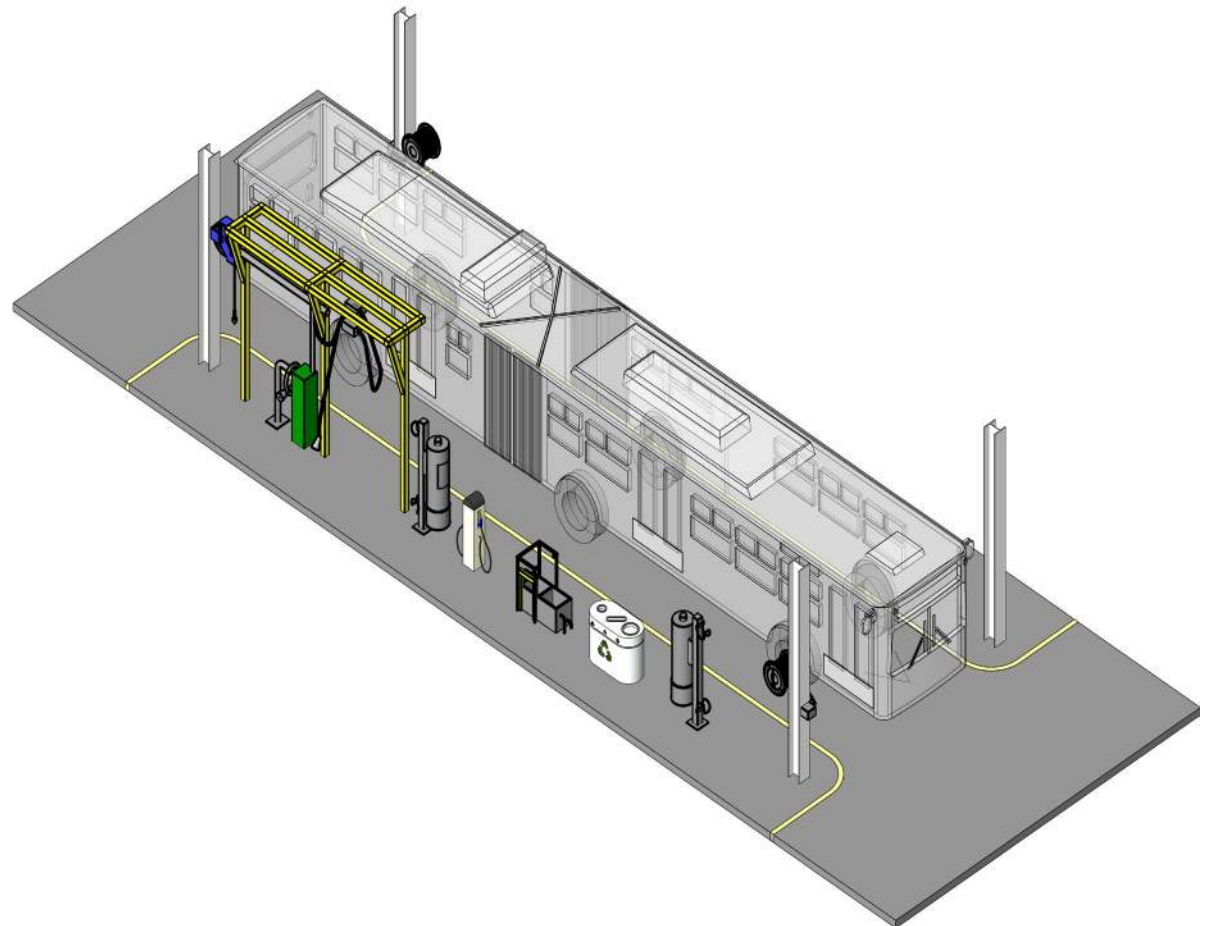
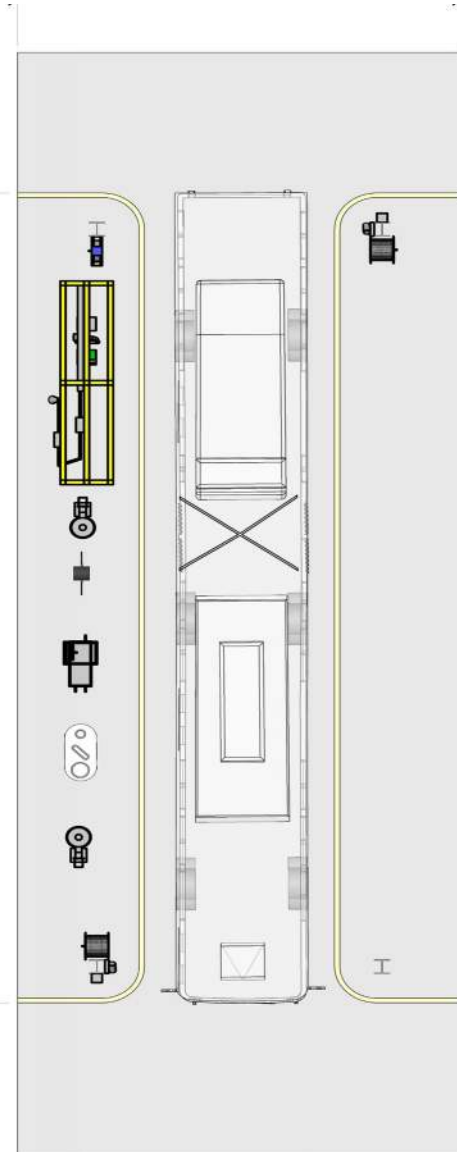
TYPICAL EQUIPMENT/FURNISHINGS

- Shelves
- Racks
- Cleaning carts

TYPICAL DESIGN FEATURES

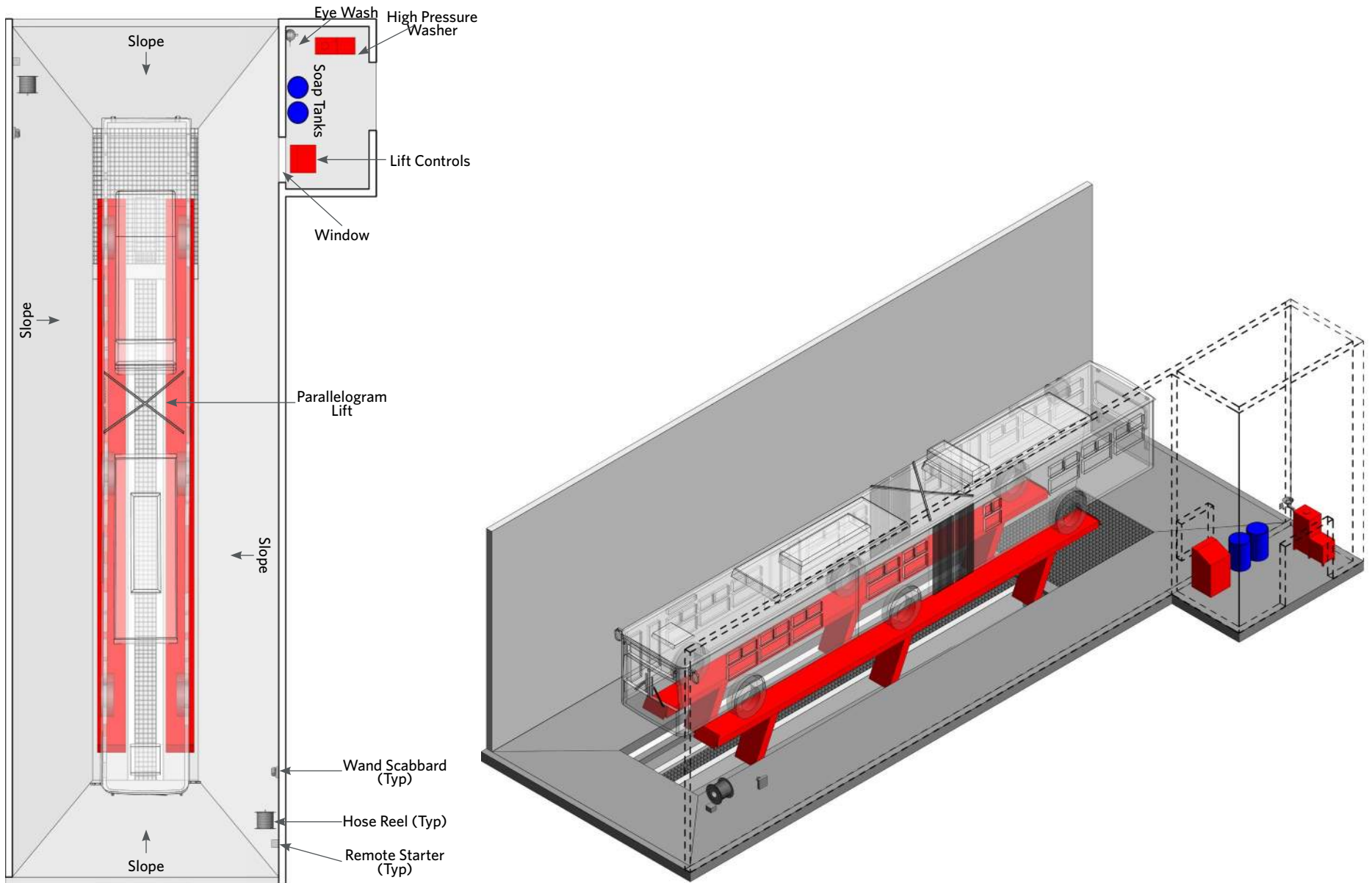
- Flooring: finish concrete (recommended)
- Walls: Soil and grease resistant, light color finish
- Ceiling: Painted exposed structure
- Doors: Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Mechanical: Provide appropriate balanced cooling, heating, and ventilation (per code)
- Electrical:
 - ✓ LED lighting in accordance with IES recommendation (20 fc average) .
Provide general purpose duplex receptacles
- Lighting controls:
 - ✓ Occupancy sensors

DRIVE THROUGH BUS WASH



| DRIVE THROUGH BUS WASH | | |
|---|--|---|
| <p>FUNCTION</p> <p>Dedicated bay used for nightly servicing (fare recovery and/or interior clean) fluid level checks, tire pressure. Also serves as detail bay cleaning position (when</p> | <p>ARCHITECTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Finishes <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish • Doors: None | <p>PLUMBING CONSIDERATIONS</p> <ul style="list-style-type: none"> • 3/4" hot water hose bib with standard faucet, 2'-0" AFF (one per mop sink) • As required by equipment |
| <p>RELATIONSHIP TO OTHER AREAS</p> <ul style="list-style-type: none"> • Adjacent to Cleaning Equipment Storage | <p>STRUCTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Control joints in floor slab at adequate spacing • Structure as needed to support equipment | <p>ELECTRICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Lighting: LED lighting in accordance with IES recommendation minimum, 20 fc average, fixtures located to illuminate work spaces and around the vehicles • Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide (four minimum) general purpose duplex receptacles on walls, columns, and between overhead doors ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench ✓ As required by equipment • Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers ✓ Data conduit on columns at each lane/fuel position |
| <p>RECOMMENDED CRITICAL DIMENSIONS</p> <ul style="list-style-type: none"> • 16'-0" vertical clearance • 20'-0" wide by 70'-0" long • 8'-0" island • 12'-0" lane | <p>MECHANICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Wall mounted or overhead vehicle exhaust system with exhaust hose on a motorized reel with integral exhaust fan and automatic fan switch • As required by equipment • 1.0 CFM per square foot continuous exhaust at ceiling to clear any hazardous gas accumulation; 4 air changes per hour activated by gas detection system or manually for emergency ventilation • No heating devices with open flame or heaters with temperatures greater than 800 degrees F Class 1 Division 2 rated (used for alternative fuels only) • Heating set point: 65 degrees Fahrenheit • In-floor radiant heat (if desired) | |
| <p>TYPICAL EQUIPMENT/FURNISHINGS</p> <ul style="list-style-type: none"> • Revenue collection vault • Stand up desk with stool • Mop sinks • Lubrication reel bank • Dispenser with Fuel Tram • Vacuum system | | |
| <p>TYPICAL DESIGN FEATURES</p> <ul style="list-style-type: none"> • Forklift access • Natural Daylighting desired | | |

CHASSIS WASH BAY



CHASSIS WASH BAY

FUNCTION

Chassis Wash Bay: Enclosed bay for washing of underside of buses before bringing into repair bays. Wash Equipment Room: A room adjacent to the Wash Bay for high pressure washer and soap drums.

RELATIONSHIP TO OTHER AREAS

- Access to all other shop areas

RECOMMENDED CRITICAL DIMENSIONS

- 19'-0" vertical clearance
- 20'-0" wide by 75'-0" long

TYPICAL EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix C: Equipment Manual for specific project equipment

TYPICAL DESIGN FEATURES

- Forklift access
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
- Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer
- Walls: Soil and grease resistant, with light colored finished concrete or masonry, with polyurea coatings treatment for wet and moisture protection
- Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors: Personnel doors with view panels to meet applicable code exit requirements

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structural grating over sump pit to accommodate H-20 loading
- Large grated sump with side drain for overflow
- Slope floor to trench drain and sump pit
- Structure as needed to support equipment

MECHANICAL CONSIDERATIONS

- Special ventilation to remove moisture
- Water resistant heating system
- In-floor radiant heating (if desired)
- As required by equipment
- Exhaust:
 - ✓ Minimum 10 air changes per hour when wash equipment is activated.
 - ✓ Minimum one air change per hour when wash equipment is inactive
- Heating set point: 55 degrees Fahrenheit

PLUMBING CONSIDERATIONS

- Compressed air:
 - ✓ 2" compressed air piping loop (minimum)
 - ✓ As required by equipment
- Wash connections from high pressure washer to wand scabbard on both sides of bay
- Water connection to emergency eye wash/shower station
- Trench drain area (with removable cover) to central sediment and oil inceptor
- Large grated sump with side drain overflow to central sediment and oil inceptor
- Additional plumbing connections (water, gas, drainage,

ELECTRICAL CONSIDERATIONS

- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide waterproof duplex receptacles (four minimum) on walls
- Lighting:
 - ✓ Sealed LED water tight lighting fixtures with no external reset device on walls (20 fc average)
 - ✓ Fixtures located to illuminate work space and around vehicles
- Communications: Paging/intercom system speakers



PLANT MAINTENANCE



GENERAL OFFICE MODULES: OFFICE AREAS

**MANAGER
PLANT MAINTENANCE**

- Reference Office Module
Private Office - 150 square foot

**MANAGER
SIGN SHOP**

- Reference Office Module
Private Office - 150 square foot

**SUPERVISOR
SIGN SHOP**

- Reference Office Module
Private Office - 150 square foot

**ELECTRICIAN
PLANT MAINTENANCE**

- Reference Office Module
Workstation - 64 square foot

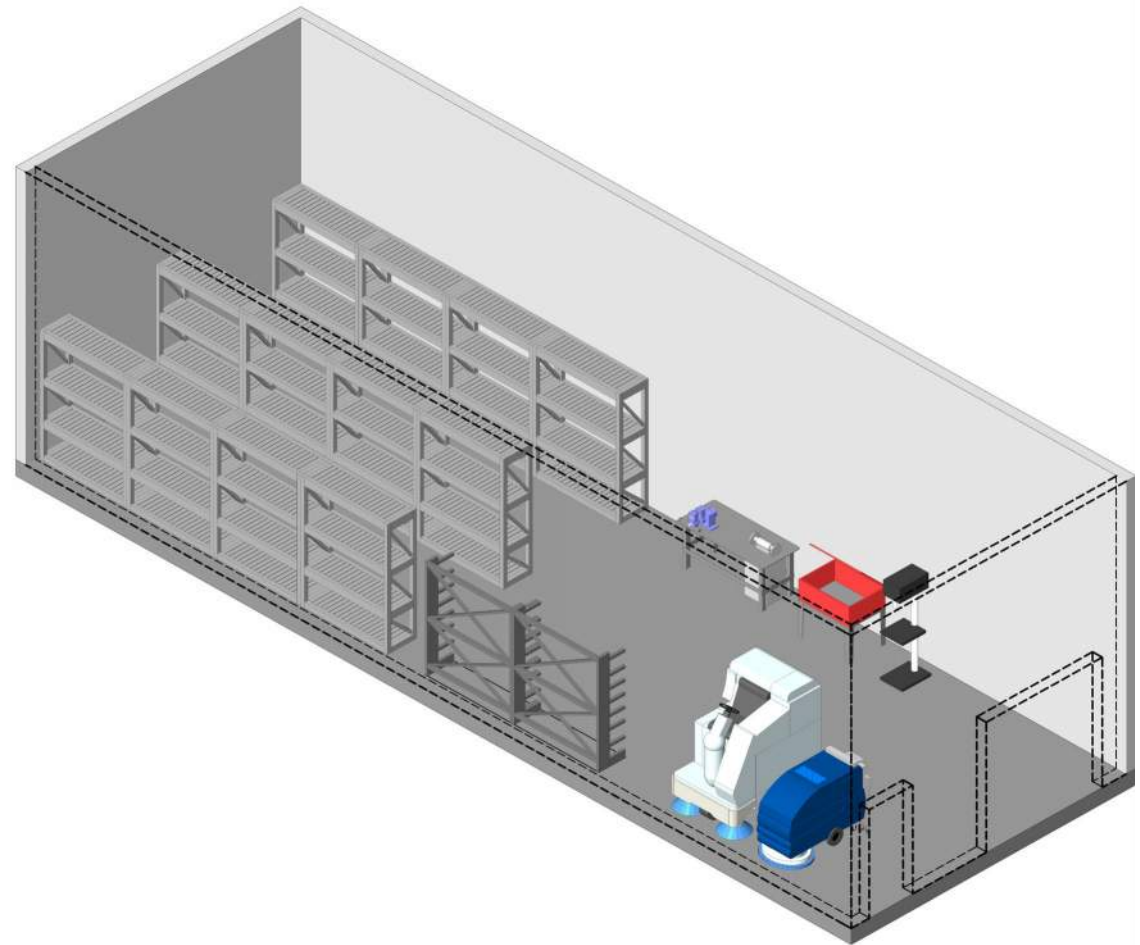
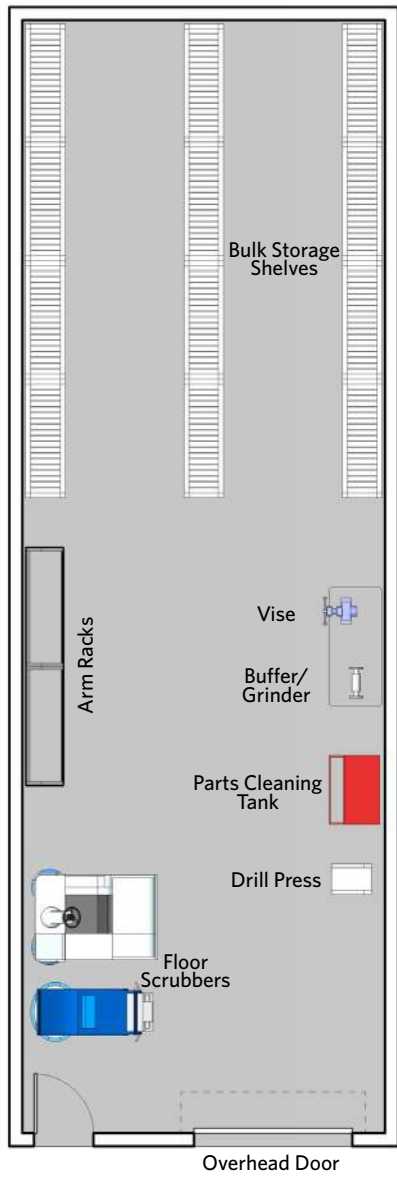
**PLUMBER
PLANT MAINTENANCE**

- Reference Office Module
Workstation - 64 square foot

**MILLWRIGHTS
SIGN SHOP**

- Reference Office Module
Workstation - 64 square foot

SHOP - MAINTENANCE



SHOP - MAINTENANCE

FUNCTION

Enclosed, secure shop and materials storage and upkeep of materials related to maintenance buildings and site grounds.

RELATIONSHIP TO OTHER AREAS

- Access to all Restroom/Showers and Break/Crew Room

RECOMMENDED CRITICAL DIMENSIONS

- 14'-0" vertical clearance to structure and clearance

TYPICAL EQUIPMENT/FURNISHINGS

- Severe use workbench with vise
- Buffer/grinder
- Drill press
- Parts cleaning tank
- Shelving units
- Arm racks
- Floor scrubbers

TYPICAL DESIGN FEATURES

- Forklift access
- Electronically secured entry

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, with light colored finish, made of concrete or masonry
 - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, light colored finish
- Doors:
 - ✓ Personnel door with view panel to meet applicable code exit requirements
 - ✓ Exterior overhead doors: High lifting sectional, steel, insulated, 10'-0" by 12'-0" with view panels. Automatic operator, interior and exterior push button controls with lockout on exterior
 - ✓ Bollards on exterior at jambs of overhead door (two each)

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)

MECHANICAL CONSIDERATIONS

- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- In-floor radiant heat (if desired)
- As required by equipment.

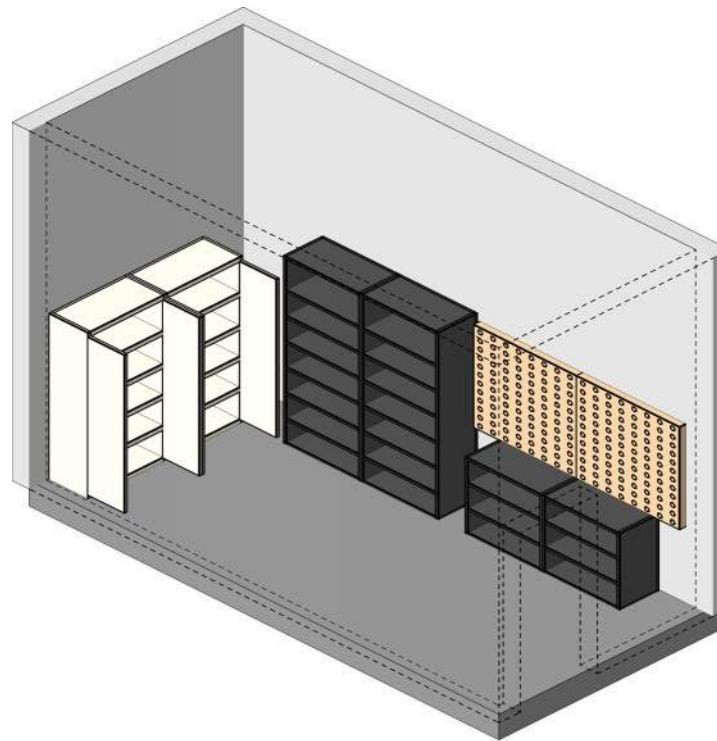
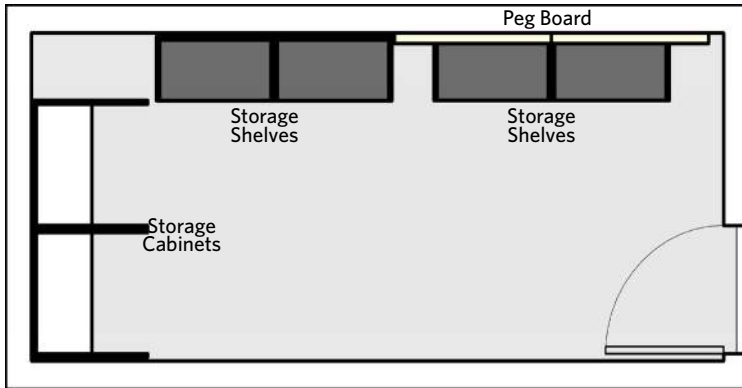
PLUMBING CONSIDERATIONS

- Compressed air drop:
 - ✓ 2" compressed air piping loop (minimum)
 - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects at 4'-0" AFF
 - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
 - ✓ As required by equipment
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum (20 fc average)
 - ✓ Fixtures located to illuminate work spaces
- Communications:
 - ✓ Paging/intercom system speakers
 - ✓ Data conduit on columns and/or walls

STORAGE - ELECTRICAL



FUNCTION

Secure area for storing specialized tools and equipment

RELATIONSHIP TO OTHER AREAS

- To be developed

RECOMMENDED CRITICAL DIMENSIONS

- 16'-0" vertical clearance to structure and fixtures

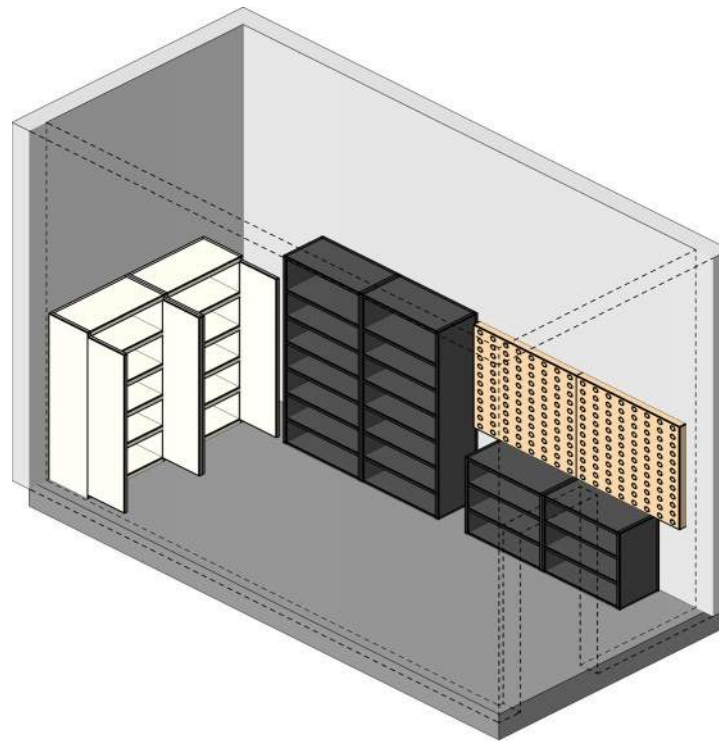
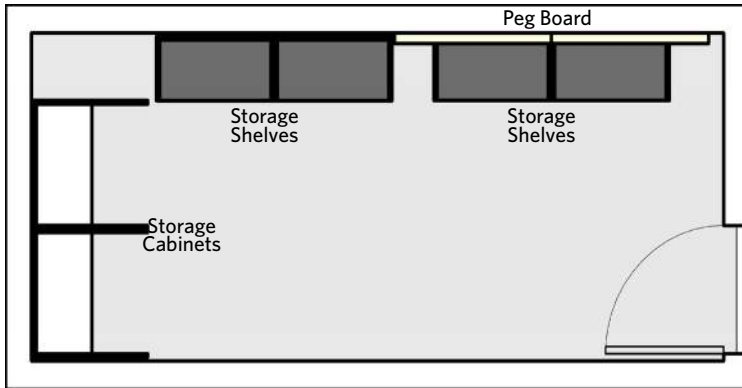
TYPICAL EQUIPMENT/FURNISHINGS

- Peg board
- Storage shelving
- Cabinets

TYPICAL DESIGN FEATURES

- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum, 20 fc average
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide (ten minimum) general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

STORAGE - HVAC



FUNCTION

Secure area for storing specialized tools and equipment

RELATIONSHIP TO OTHER AREAS

- Access to Repair Bays and Shops
- Adjacent to Parts Room and Maintenance Offices

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

TYPICAL EQUIPMENT/FURNISHINGS

- Peg board
- Storage shelving
- Cabinets

TYPICAL DESIGN FEATURES

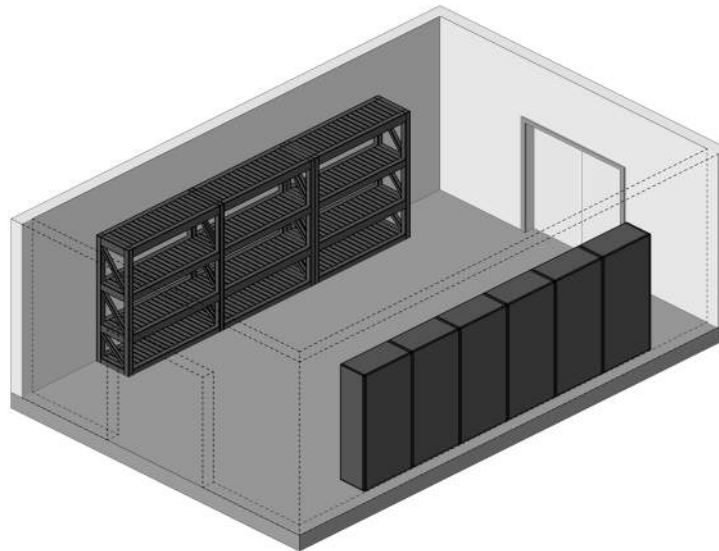
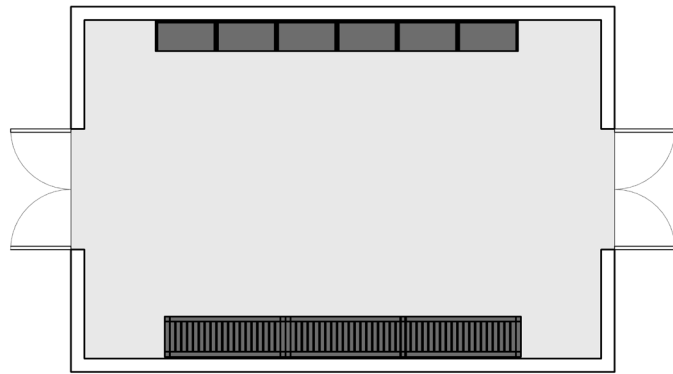
- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum, 20 fc average
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide (ten minimum) general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access



SIGN SHOP



SIGN STORAGE



FUNCTION

Secure area for storing specialized tools and equipment

RELATIONSHIP TO OTHER AREAS

- Access to Repair Bays and Shops
- Adjacent to Parts Room and Maintenance Offices

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

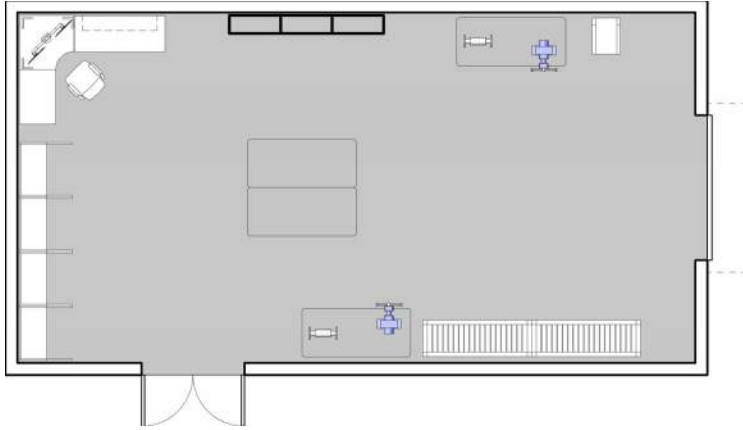
TYPICAL EQUIPMENT/FURNISHINGS

- Peg board
- Storage shelving
- Cabinets

TYPICAL DESIGN FEATURES

- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum, 20 fc average
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide (ten minimum) general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

SIGN SHOP



SHELTER SHOP/ASSEMBLY/MAINTENANCE

FUNCTION

Designated shop area for fabricating, maintaining, and repairing shelters

RELATIONSHIP TO OTHER AREAS

- To be developed

RECOMMENDED CRITICAL DIMENSIONS

- 19'-0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Severe use workbench with vise
- Layout tables
- Storage cabinets
- Drill press
- Bin storage
- Bulk storage
- Workstation

TYPICAL DESIGN FEATURES

- Forklift access and overhead crane access.
- Architectural
 - ✓ Finishes
 - Floor: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer and hardener
 - Walls: Soil and grease resistant, light colored finish
 - Ceiling: Painted exposed structure, light colored finish
 - ✓ Doors
 - Hollow metal personnel doors with view panels to meet applicable code exit requirements
 - Exterior overhead door: High-lifting sectional, steel,

TYPICAL DESIGN FEATURES

- insulated, 14' x 14', with view panels, automatic operator, interior and exterior push button controls, and lockout on exterior
- ✓ Bollards on exterior at jambs of overhead door (2 each)
- ✓ Maximize natural lighting
- Structural
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Structure as needed to support equipment
- Mechanical
 - ✓ In-floor radiant heat (if desired)
 - ✓ As required by equipment
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
- Plumbing
 - ✓ 3/4" water hose bib with standard faucet at rear of bay 2'-0" AFF
 - ✓ Compressed air line with cut-off valve, separator, regulator with gauge, lubricator, and quick disconnect at 4'-0" AFF
 - ✓ Provide disconnects for 1/2" and 1" impact tools at locations to be determined during detailed design
 - ✓ As required by equipment
- Lighting
 - ✓ Florescent lighting, 70 fc average, local switching controlled by amount of natural light
 - Lighting design to meet targeted LEED points to minimize need for task lighting
- ✓ Power
 - Welding outlets, 208VAC, 1ph, 50A and 480VAC, 3 ph, 30A at 3'-6" AFF

4 Design Criteria

**MANAGER
PLANT MAINTENANCE**

- Reference Office Module
Private Office - 150 square foot

**ADMINISTRATIVE ASSISTANT
PLANT MAINTENANCE**

- Reference Office Module
Workstation - 64 square feet

**QUALITY MANAGER
PLANT MAINTENANCE**

- Reference Office Module
Workstation - 64 square feet

**CARPENTER
PLANT MAINTENANCE**

- Reference Office Module
Workstation - 64 square foot

**MILLWRIGHTS
PLANT MAINTENANCE**

- Reference Office Module
Workstation - 64 square foot

**STOREKEEPER
PLANT MAINTENANCE**

- Reference Office Module
Workstation - 64 square feet

**ELECTRICIAN
PLANT MAINTENANCE**

- Reference Office Module
Workstation - 64 square foot

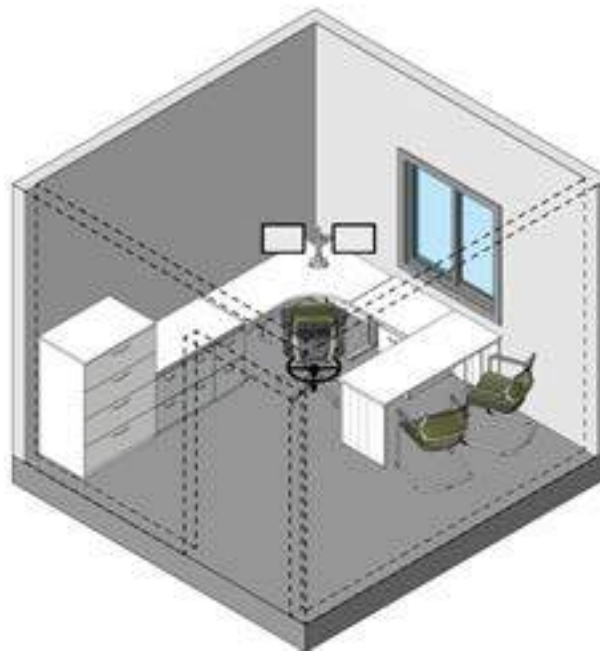
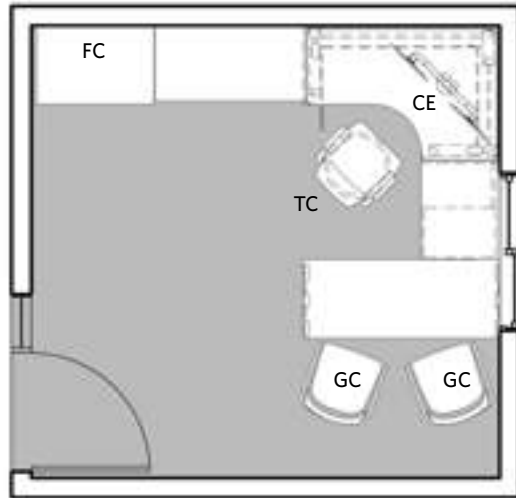
**MANAGER
BUS STOP MAINTENANCE**

- Reference Office Module
Private Office - 150 square foot

**SUPERVISOR
BUS STOP MAINTENANCE**

- Reference Office Module
Private Office - 120 square foot

PRIVATE OFFICE - 150 SF



FUNCTION

Private office for completing work tasks and holding one on one meetings.

RELATIONSHIP TO OTHER AREAS

- Case specific; reference office general module: office areas specific to each group

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Task chair
- Sit/stand workstation
- Under surface vertical file/drawer cabinets
- Storage Cabinets
- Guest chairs

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards
- Flooring:
 - ✓ Carpet tile floor with rubber base for Administration or Operations areas
 - ✓ Resilient floor covering with base or sealed concrete.
- Walls:
 - ✓ Gypsum board on metal studs or painted masonry
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile
- Doors: Secure entry 3'-0" door with loadable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degree Fahrenheit
 - ✓ Cooling set point: 74 degree Fahrenheit
- Electrical
 - ✓ LED Lighting in accordance with IES recommendation (35 foot candles average)
 - ✓ Provide (four minimum) general purpose duplex receptacles. One on each wall with one being a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)
 - ✓ Provide daylight harvesting where applicable

WORKSTATION - 64 SF

FUNCTION

Open office workstation to complete work tasks.

RELATIONSHIP TO OTHER AREAS

- Case specific; reference office general module: office areas specific to each group

RECOMMENDED CRITICAL DIMENSIONS

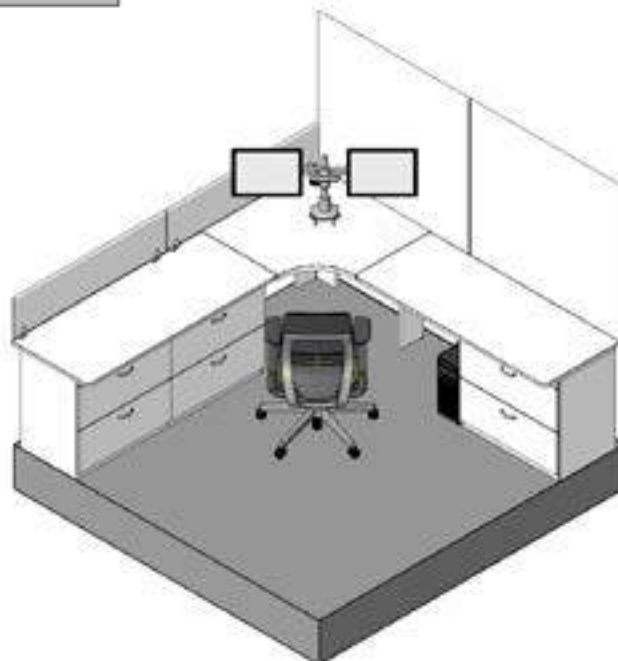
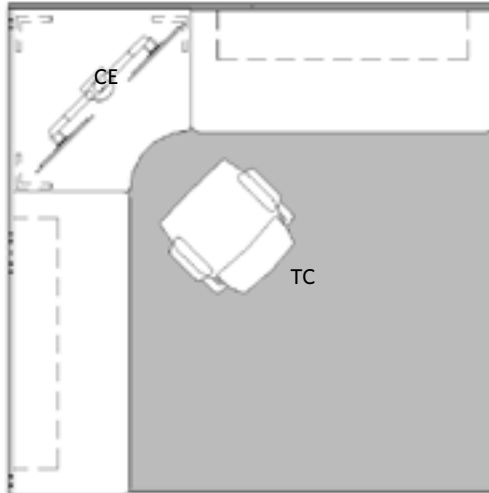
- 9'-0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

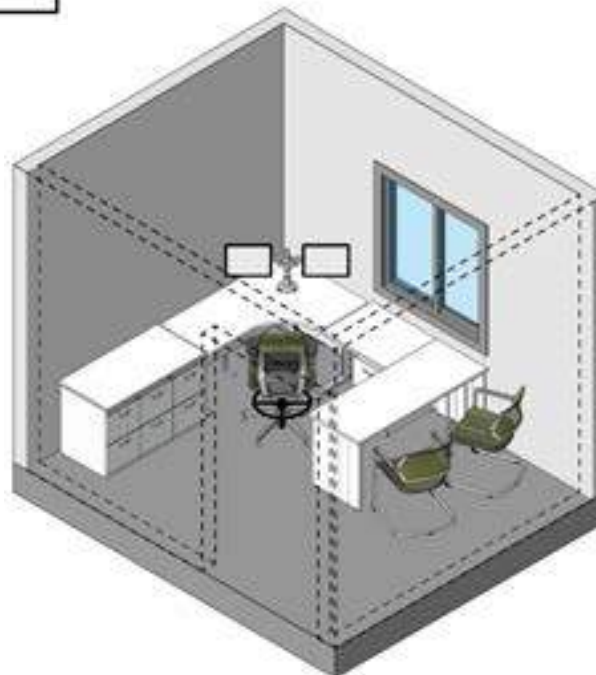
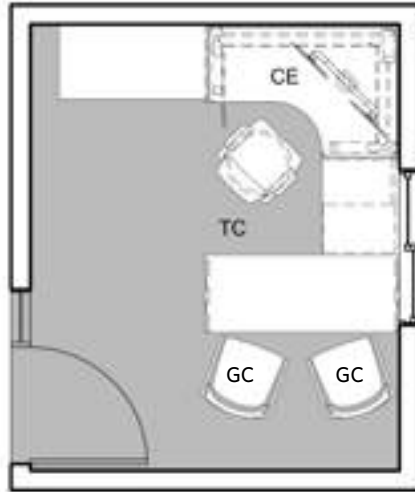
- Task chair
- TMC 60" by 30" typical sit/stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Carpet tile floor with rubber base for Administration or Operations areas (recommended)
 - ✓ Resilient floor covering with base for maintenance areas (recommended).
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" door with loadable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degree Fahrenheit
 - ✓ Cooling set point: 74 degree Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (35 foot candles average)
 - ✓ Provide (two minimum) general purpose duplex receptacles. One on each wall with one being a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)
 - ✓ Provide daylight harvesting where applicable



PRIVATE OFFICE - 120 SF



FUNCTION

Private office for completing work tasks and holding one on one meetings.

RELATIONSHIP TO OTHER AREAS

- Case specific; reference office general module: office areas specific to each group

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

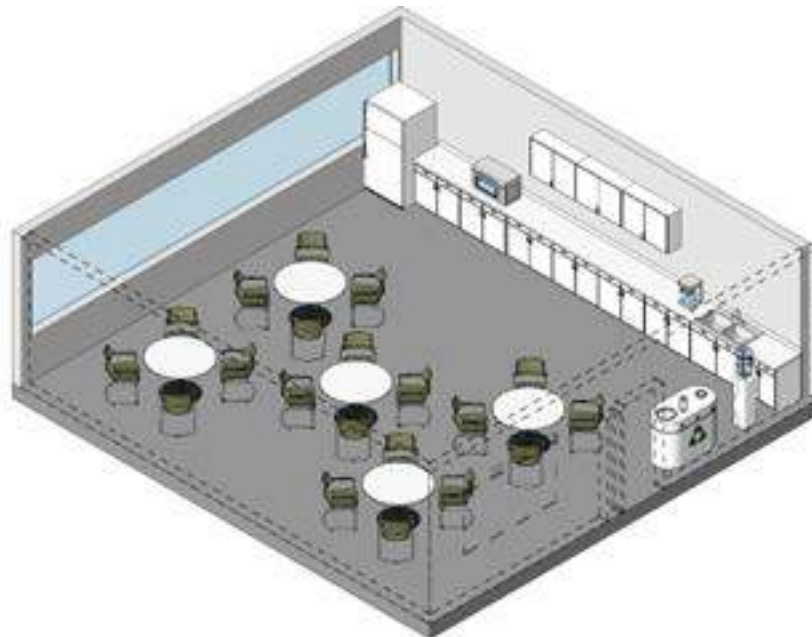
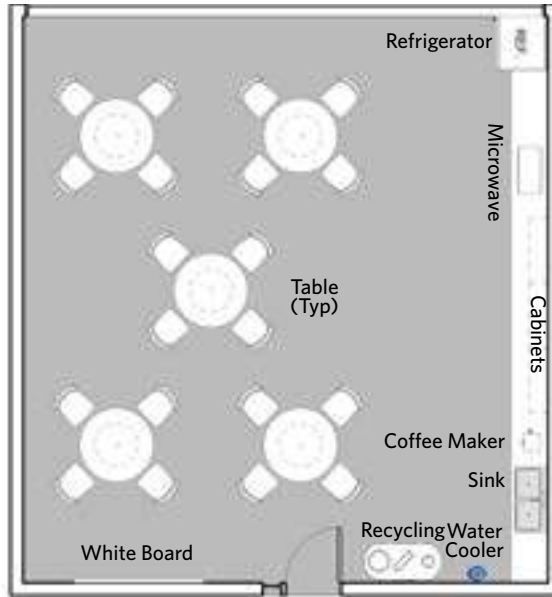
TYPICAL EQUIPMENT/FURNISHINGS

- Task chair
- Sit/stand workstation
- Under surface vertical files
- Cabinets
- Guest chairs

TYPICAL DESIGN FEATURES

- Furniture: Use Owner furniture standards (if applicable)
- Flooring:
 - ✓ Carpet tile floor with rubber base for Administration or Operations areas (recommended)
 - ✓ Resilient floor covering with base for maintenance areas (recommended).
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile (recommended)
- Doors: Single leaf 3'-0" door with loadable lever set hardware (recommended)
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degree Fahrenheit
 - ✓ Cooling set point: 74 degree Fahrenheit
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (35 foot candles average)
 - ✓ Provide (four minimum) general purpose duplex receptacles. One on each wall with one being a quad receptacle at each workstation
 - ✓ Provide one data outlet with four data ports at each workstation
- Lighting Control:
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting (recommended)
 - ✓ Provide daylight harvesting where applicable

REPAIR (CREW ROOM)



FUNCTION

Dedicated area for Bus Stop Maintenance staff to meet for daily crew meetings. Space will include a small kitchenette.

RELATIONSHIP TO OTHER AREAS

- Centrally located
- Access to all office areas and Restrooms

RECOMMENDED CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

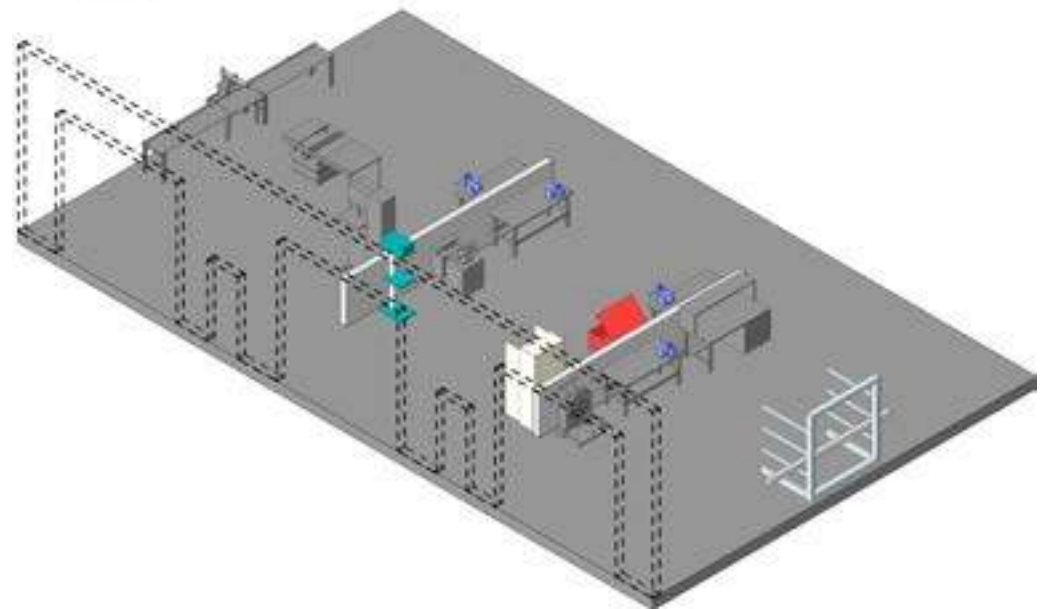
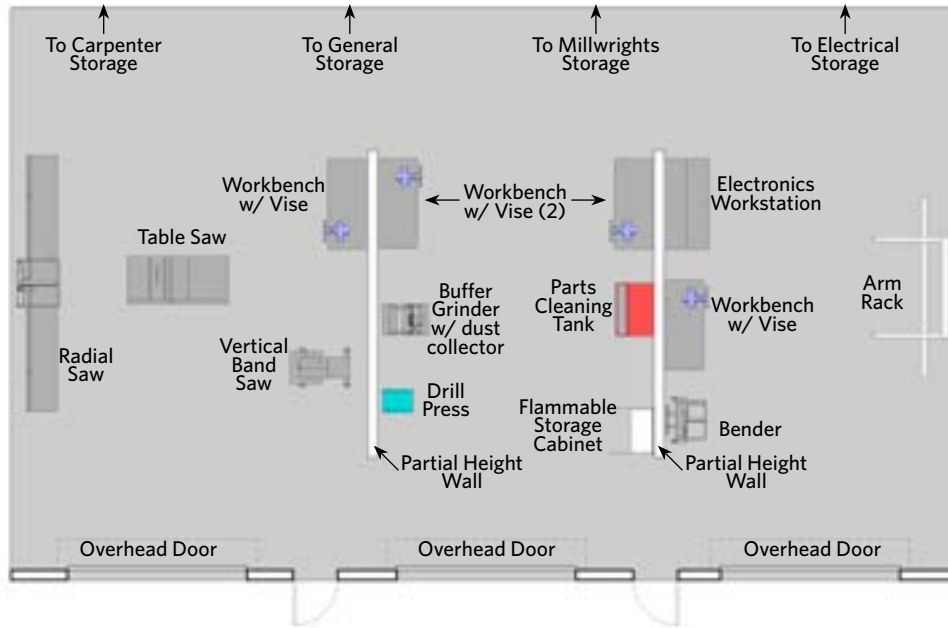
TYPICAL EQUIPMENT/FURNISHINGS

- Counter space, upper and lower cabinets, sink, microwave, refrigerator, coffee maker, water filter, water cooler, tables, chairs, trash/recycling/compost bins

TYPICAL DESIGN FEATURES

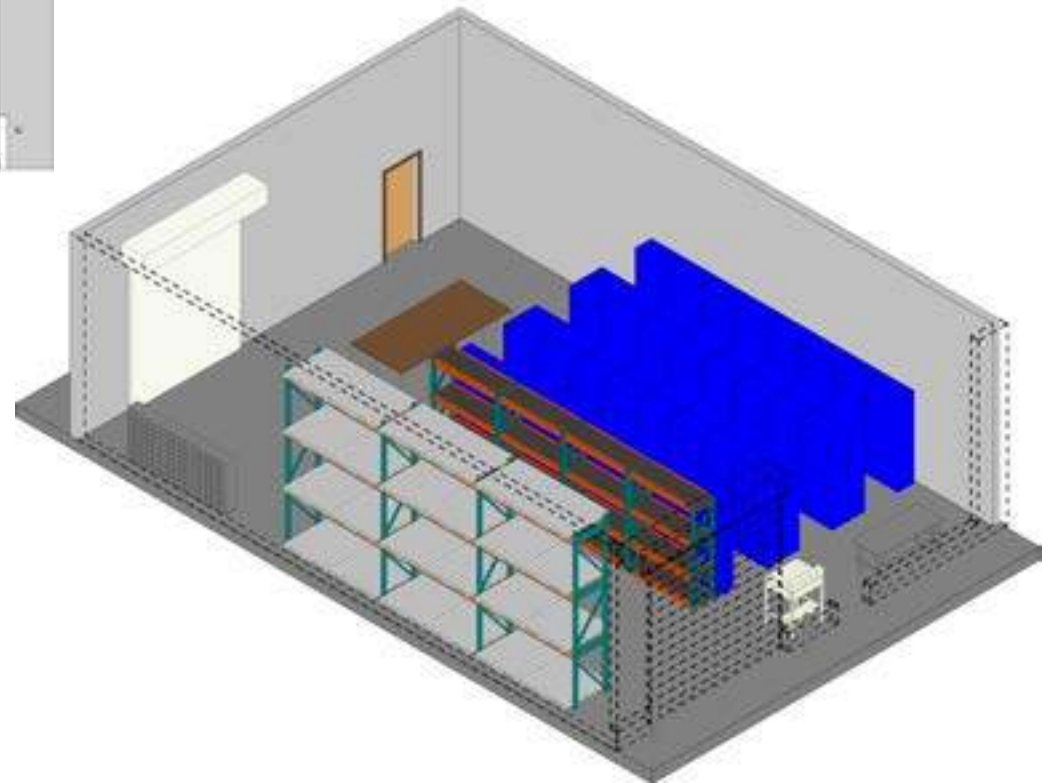
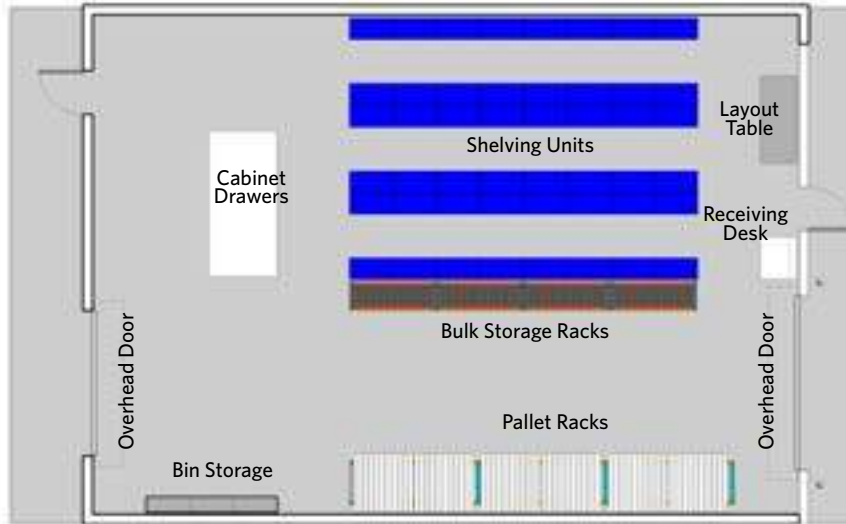
- Flooring:
 - ✓ Resilient floor covering with base or finished concrete
- Walls:
 - ✓ Gypsum board on metal studs (typical) with wall finishes or painted masonry
 - ✓ Wall protection as needed
- Ceiling: Acoustical ceiling tile
- Doors: Single 3'-0" doors (two minimum) with lockable lever set hardware
 - ✓ Electronically secured entry (as required)
- Daylighting: Exterior window
- Plumbing: as required by equipment
- Mechanical:
 - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
 - ✓ Heating set point: 68 degrees Fahrenheit
 - ✓ Cooling set point: 74 degrees Fahrenheit
 - ✓ Provide CO2 detection
- Electrical:
 - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
 - ✓ Provide enough outlets to power all vending machines, kitchen equipment and allow convenience outlets within the dining area.
 - ✓ Provide data outlets with four data ports (two minimum)
 - ✓ Provide five GFCI outlets above kitchenette counter
- Lighting Control:
 - ✓ Dimmable, indirect lighting with occupancy sensor

PLANT MAINTENANCE SHOP



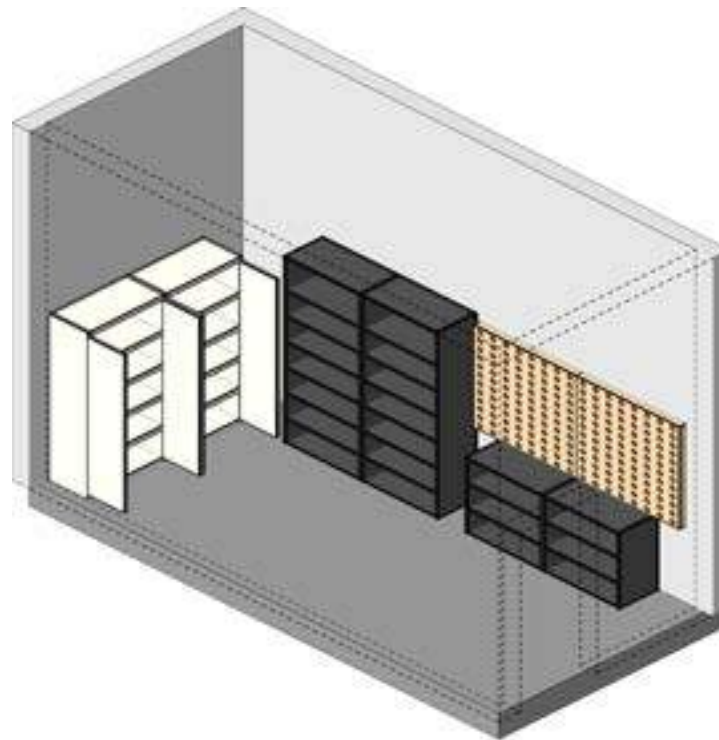
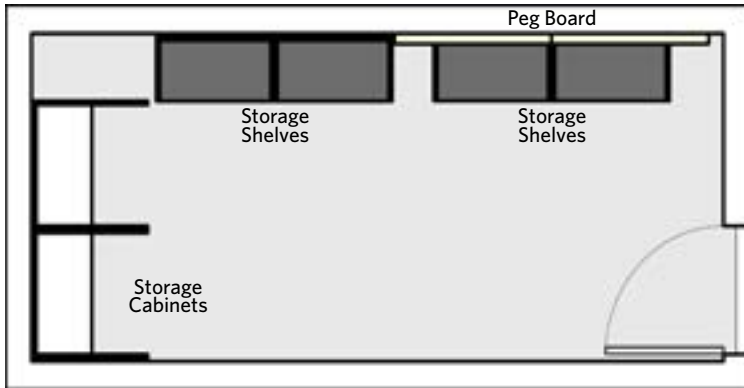
| PLANT MAINTENANCE SHOP | | |
|---|---|---|
| FUNCTION | ARCHITECTURAL CONSIDERATIONS | PLUMBING CONSIDERATIONS |
| <p>Open shop area which can be utilized by all Plant Maintenance staff for testing and maintenance of facilities equipment and minor carpentry work.</p> | <ul style="list-style-type: none"> • Finishes: <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, with light colored finish, made of concrete or masonry ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, light colored finish • Doors: <ul style="list-style-type: none"> ✓ Personnel door with view panel to meet applicable code exit requirements ✓ Exterior overhead doors: High lifting sectional, steel, insulated, 12'-0" by 12'-0" with view panels. Automatic operator, interior and exterior push button controls with lockout on exterior ✓ Bollards on exterior at jambs of overhead door (two each) | <ul style="list-style-type: none"> • Compressed air drop: <ul style="list-style-type: none"> ✓ 2" compressed air piping loop (minimum) ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, and quick disconnects at 4'-0" AFF ✓ As required by equipment • As required by equipment • Emergency eye wash as required |
| <p>RELATIONSHIP TO OTHER AREAS</p> <ul style="list-style-type: none"> • Access to all Restroom/Showers and Break/Crew Room | | |
| <p>CRITICAL DIMENSIONS</p> <ul style="list-style-type: none"> • 14'-0" vertical clearance to structure and clearance | | |
| <p>EQUIPMENT/FURNISHINGS</p> <ul style="list-style-type: none"> • Carpentry Area <ul style="list-style-type: none"> ✓ Workbench with vise ✓ Vertical bank saw ✓ Radial arm saw ✓ Table Saw • General Shop <ul style="list-style-type: none"> ✓ Workbenches with vises ✓ Drill press ✓ Buffer/grinder ✓ Parts cleaning ✓ Flammable materials cabinet • Testing Shop <ul style="list-style-type: none"> ✓ Electronic workstation ✓ Workbench with vise ✓ Arm Rack ✓ Pipe Bender | <p>STRUCTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Control joints in floor slab at adequate spacing • Structure as needed to support equipment • Floor slab designed to accommodate in-floor radiant heat (if desired) | <p>ELECTRICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Lighting: <ul style="list-style-type: none"> ✓ LED lighting in accordance with IES recommendation minimum (20 fc average) ✓ Lighting control by switch(es) • Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide general purpose duplex receptacles on walls and columns ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column ✓ As required by equipment ✓ • Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers ✓ Data conduit on columns and/or walls ✓ |
| <p>DESIGN FEATURES</p> <ul style="list-style-type: none"> • Forklift access • Electronically secured entry | <p>MECHANICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Heating set point: 65 degrees Fahrenheit • General ventilation (per code) • As required by equipment. | |

PLANT MAINTENANCE STORAGE



| PLANT MAINTENANCE STORAGE | | | |
|--|--|---|--|
| FUNCTION | ARCHITECTURAL CONSIDERATIONS | PLUMBING CONSIDERATIONS | |
| Dedicated secure area for receiving, and storing parts, materials, and specialized tools | <ul style="list-style-type: none"> • Finishes: <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities with light colored finish • Doors: <ul style="list-style-type: none"> ✓ Personnel door with view panel to meet applicable code exit requirements ✓ Exterior overhead door: High-lifting sectional, steel, insulated 12'-0" by 12'-0" with view panels, automatic operator, interior and exterior push button controls with lockout on exterior ✓ Overhead door at Issue Window ✓ Interior overhead door: coiling steel, 12'-0" by 12'-0", automatic operator, push controls, lockable | <ul style="list-style-type: none"> • As required by equipment | |
| RELATIONSHIP TO OTHER AREAS | | <ul style="list-style-type: none"> • Control joints in floor slab at adequate spacing • Structure as needed to support equipment • Floor slab designed to accommodate in-floor radiant heat (if desired) • Floor slab designed to accommodate forklift access | ELECTRICAL CONSIDERATIONS |
| <ul style="list-style-type: none"> • Adjacent to Plant Maintenance Shop | | | <ul style="list-style-type: none"> • Lighting: <ul style="list-style-type: none"> ✓ LED lighting in accordance with IES recommended lighting levels for Parts Window, Shipping/Receiving, and shopkeeper 35 fc average ✓ Storage Area 20 fc average, fixtures located to illuminate work spaces ✓ Lighting control by switch(es) • Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide general purpose duplex receptacles on walls and column workstations ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column workstations ✓ As required by equipment • Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers ✓ Data conduit on columns and/or walls |
| CRITICAL DIMENSIONS | | | <ul style="list-style-type: none"> • 16'-0" vertical clearance to structure and fixtures |
| EQUIPMENT/FURNISHINGS | <ul style="list-style-type: none"> • Heating set point: 65 degrees Fahrenheit • General ventilation (per code) • As required by equipment | | |
| <ul style="list-style-type: none"> • Shelves • Bulk racks • Pallet racks • Cabinets • Modular Drawer Units | | | |
| DESIGN FEATURES | | | |
| <ul style="list-style-type: none"> • Exterior access for deliveries • Provide staging area for shipping/receiving with an overhead door to exterior of building • Forklift access | | | |

STORAGE - ELECTRICAL



FUNCTION

Secure area for storing specialized tools and equipment

RELATIONSHIP TO OTHER AREAS

- Adjacent to Plant Maintenance Shop

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

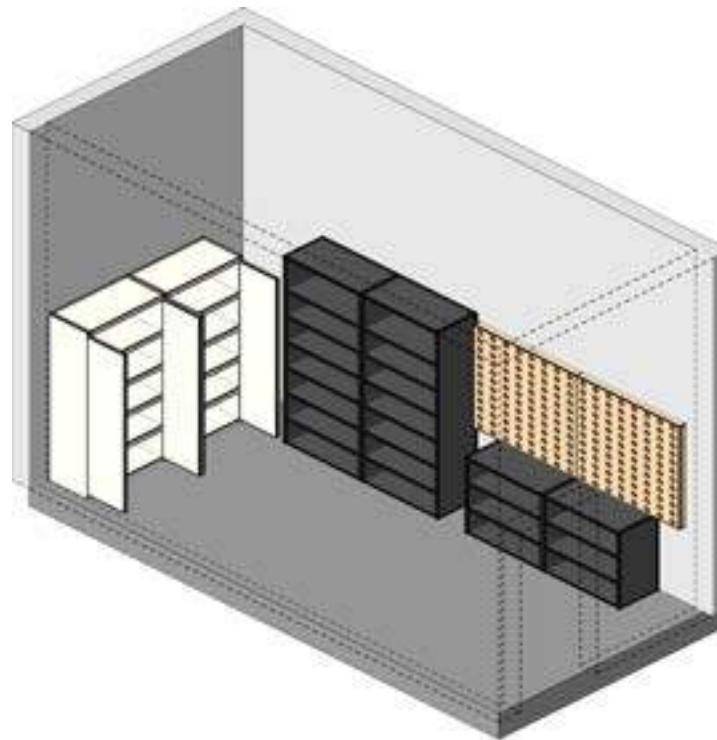
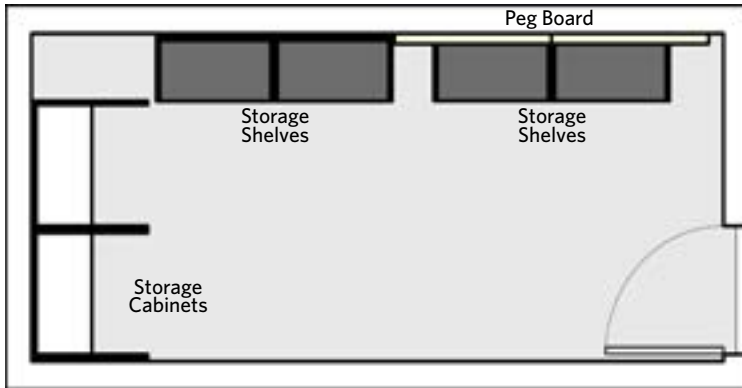
TYPICAL EQUIPMENT/FURNISHINGS

- Peg board
- Storage shelving
- Cabinets

TYPICAL DESIGN FEATURES

- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum, 20 fc average
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

STORAGE - MILLWRIGHTS



FUNCTION

Secure area for storing specialized tools and equipment

RELATIONSHIP TO OTHER AREAS

- Adjacent to Plant Maintenance Shop

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

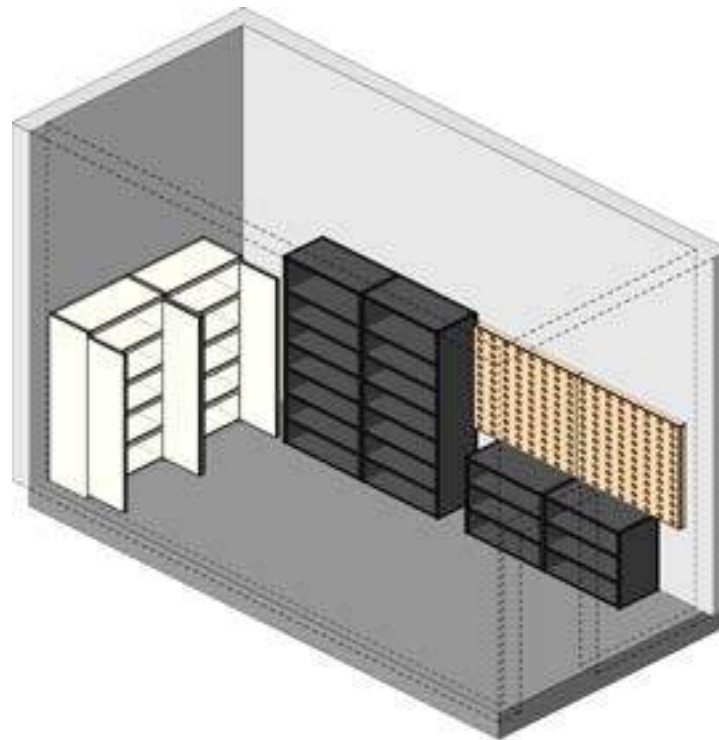
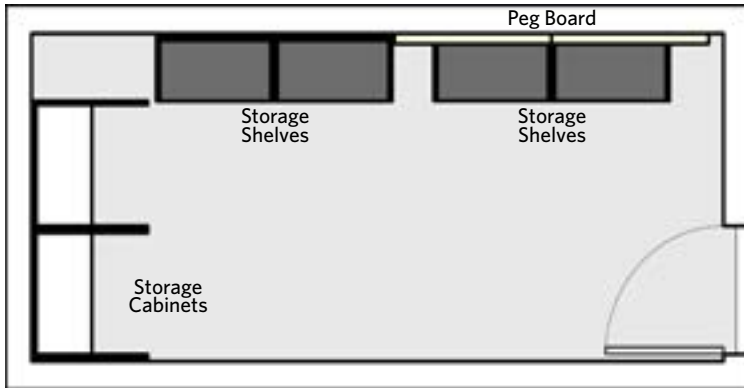
TYPICAL EQUIPMENT/FURNISHINGS

- Peg board
- Storage shelving
- Cabinets

TYPICAL DESIGN FEATURES

- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum, 20 fc average
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

STORAGE - CARPENTER



FUNCTION

Secure area for storing specialized tools and equipment

RELATIONSHIP TO OTHER AREAS

- Adjacent to Plant Maintenance Shop

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

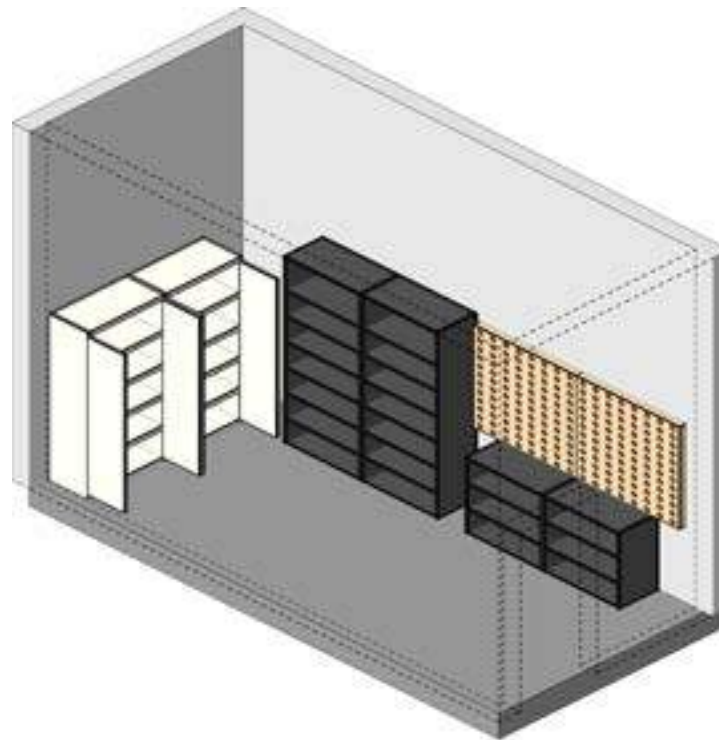
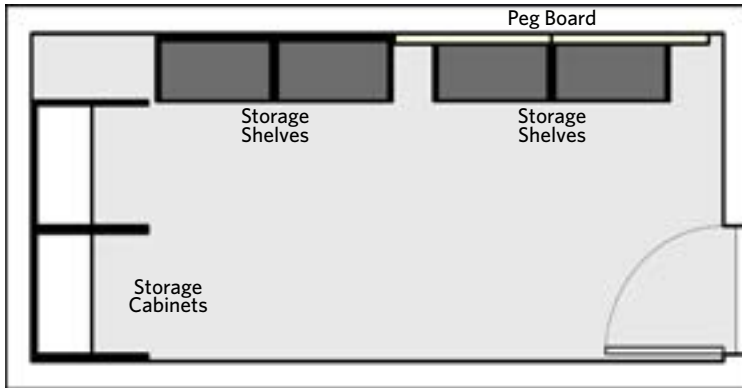
TYPICAL EQUIPMENT/FURNISHINGS

- Peg board
- Storage shelving
- Cabinets

TYPICAL DESIGN FEATURES

- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum, 20 fc average
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

STORAGE - GENERAL



FUNCTION

Secure area for storing specialized tools and equipment

RELATIONSHIP TO OTHER AREAS

- Adjacent to Plant Maintenance Shop

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

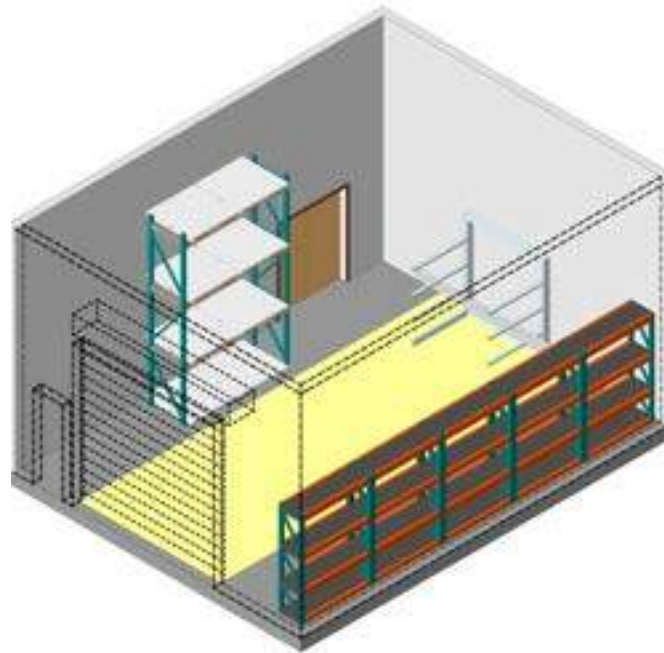
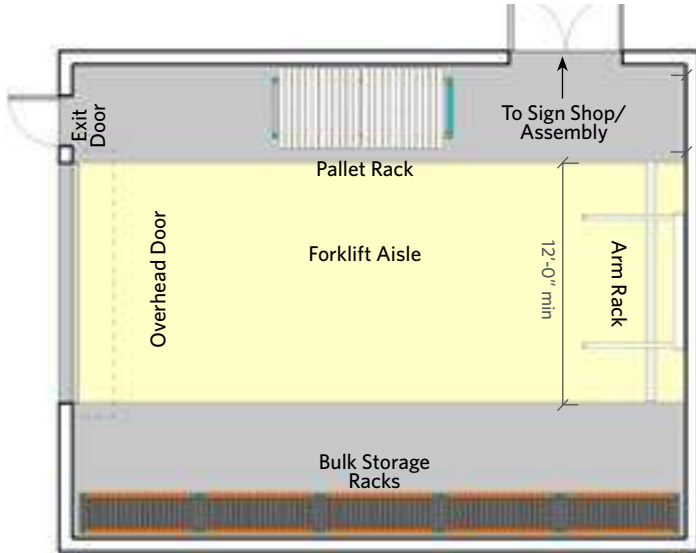
TYPICAL EQUIPMENT/FURNISHINGS

- Peg board
- Storage shelving
- Cabinets

TYPICAL DESIGN FEATURES

- Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Mechanical: In-floor radiant heat (if desired)
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum, 20 fc average
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles on walls and columns
 - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

SIGN STORAGE



FUNCTION

Secure area for storing specialized tools and equipment for sign fabrication, sign maintenance, and installation.

RELATIONSHIP TO OTHER AREAS

- Access to Sign Shop/Assembly
- Adjacent to Office Areas
- Access to restrooms and break room

RECOMMENDED CRITICAL DIMENSIONS

- 14'-0" vertical clearance (minimum)

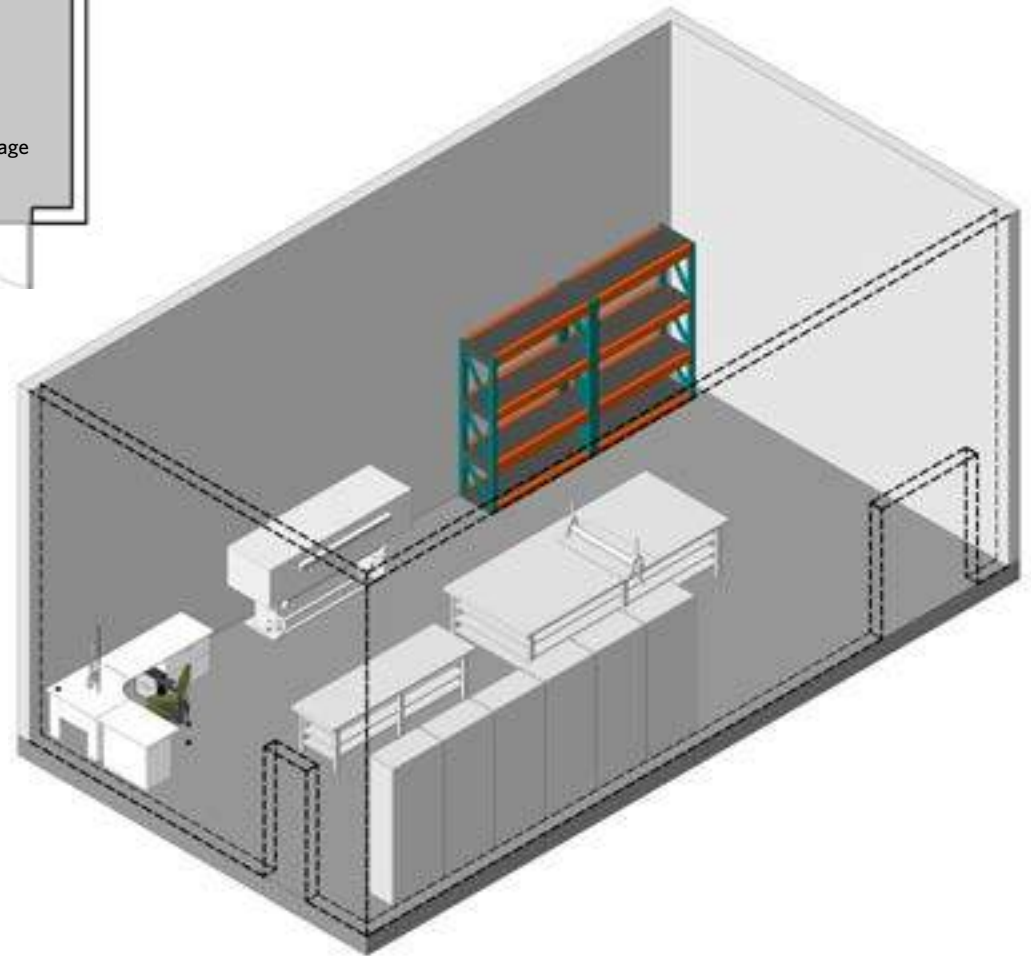
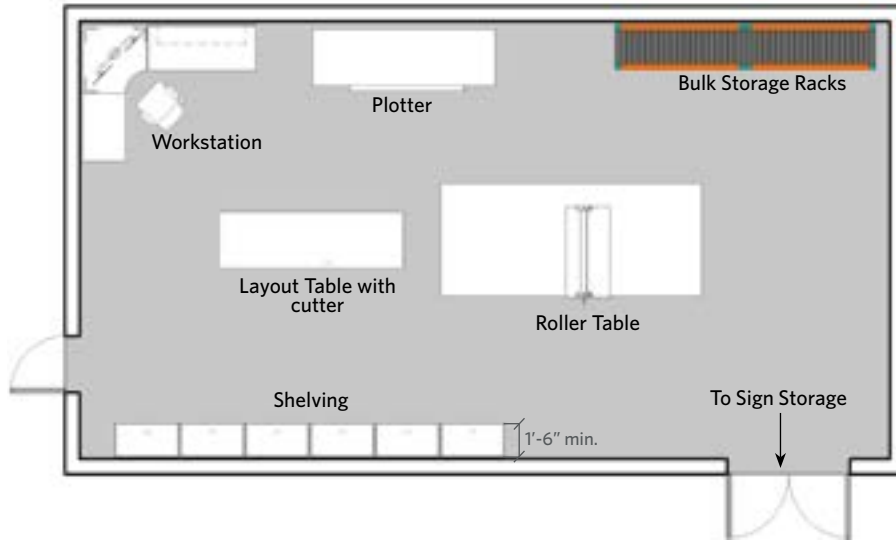
TYPICAL EQUIPMENT/FURNISHINGS

- Pallet Rack
- Arm Rack
- Bulk Storage Racks

TYPICAL DESIGN FEATURES

- Flooring: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer
- Walls: Soil and grease resistant, light colored finished concrete or masonry
- Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Doors: 3'-0" personnel door with view panels to meet applicable code exit requirements. 12'x12' exterior access overhead doors.
- Mechanical:
 - ✓ Heating set point: 65 degrees Fahrenheit
 - ✓ General ventilation (per code)
 - ✓ As required by equipment
- Lighting:
 - ✓ LED lighting in accordance with IES recommendation minimum, 20 fc average
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles on walls and columns
 - ✓ As required by equipment
- Structure:
 - ✓ Control joints in floor slab at adequate spacing
 - ✓ Structure as needed to support equipment
 - ✓ Floor slab designed to accommodate forklift access

SIGN SHOP/ASSEMBLY



SIGN SHOP/ASSEMBLY

FUNCTION

Enclosed secure shop for fabrication of signs, including a workstation for creating the signs, a plotter for printing the signs on vinyl, a layout table for cutting and setup of the signs, a table with roller for attaching the decals and signs to the sign blanks. And storage for vinyl, sign blanks, and decals.

RELATIONSHIP TO OTHER AREAS

- Adjacent to sign storage
- Access to restroom/showers, break/crew room, office area

RECOMMENDED CRITICAL DIMENSIONS

- 12'-0" vertical clearance (minimum)

TYPICAL EQUIPMENT/FURNISHINGS

- Layout tables with sign rollers
- Storage shelving and racks
- Vinyl cutter/plotter workstation

TYPICAL DESIGN FEATURES

- Natural Daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer
- Walls: Acoustical tile ceiling
- Doors:
 - ✓ Personnel door with view panel to meet applicable code exit requirements
 - ✓ Double 3'-0" wide hollow metal doors; no threshold

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab to adequate spacing
- Structures as needed to support equipment

MECHANICAL CONSIDERATIONS

- As required by equipment
- Provide appropriate balanced cooling, heating, and ventilation (per code)
- Heating set point: 68 degrees Fahrenheit
- Cooling set point: 74 degrees Fahrenheit

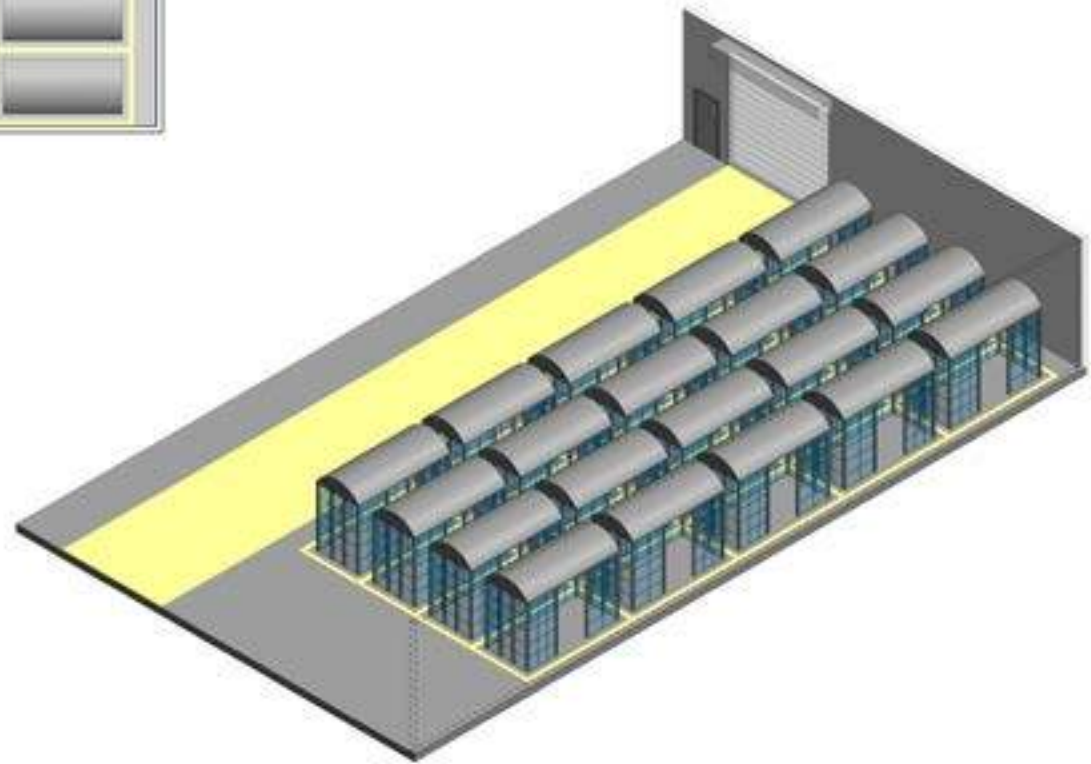
PLUMBING CONSIDERATIONS

- Compressed air:
 - ✓ Main line looped
 - ✓ Compressed air drops; cut off valve, union, separator, and regulator with gauge, 4'-0" AFF
 - ✓ As required by equipment

ELECTRICAL CONSIDERATIONS

- Lighting:
 - ✓ LED lighting, 30 fc average, fixtures located to illuminate work spaces and storage area
 - ✓ Lighting controlled by switches
 - ✓ Dimmable, indirect lighting with vacancy sensor
 - ✓ Task lighting
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ General-purpose duplex receptacles, 120 VAC, protected on walls, columns, and between OH doors
 - ✓ As required by equipment
- Communications:
 - ✓ Paging/Intercom system speakers
 - ✓ Data for workstation

SHELTER STORAGE



SHELTER STORAGE

FUNCTION

Dedicated open secure area for receiving, storing, and issuing of new and used shelters.

RELATIONSHIP TO OTHER AREAS

- Access to exterior for deliveries
- Access to Shelter Shop and Storage

RECOMMENDED CRITICAL DIMENSIONS

- Vertical clearance: 16'-0" (minimum) to bridge crane (hook)

EQUIPMENT/FURNISHINGS

- Overhead bridge crane

TYPICAL DESIGN FEATURES

- Exterior access for deliveries
- Provide staging area for shipping/receiving with an overhead door to exterior of building
- Forklift access

ARCHITECTURAL CONSIDERATIONS

- Finishes:
 - ✓ Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer
 - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
 - ✓ Ceilings: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors:
 - ✓ 3'-0" personnel door with view panel to meet applicable code exit requirements
 - ✓ Exterior overhead door: High-lifting sectional, steel, insulated 14'-0" by 14'-0" with view panels, automatic operator, interior and exterior push button controls with lockout on exterior

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab to adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- As required by equipment

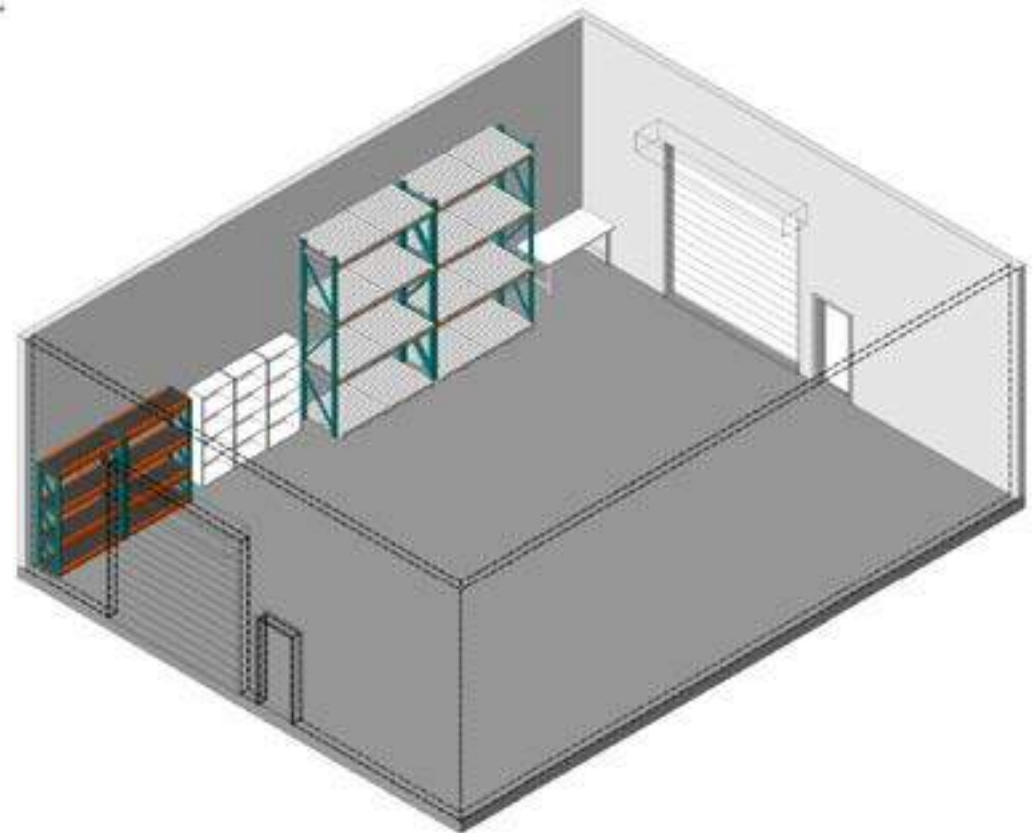
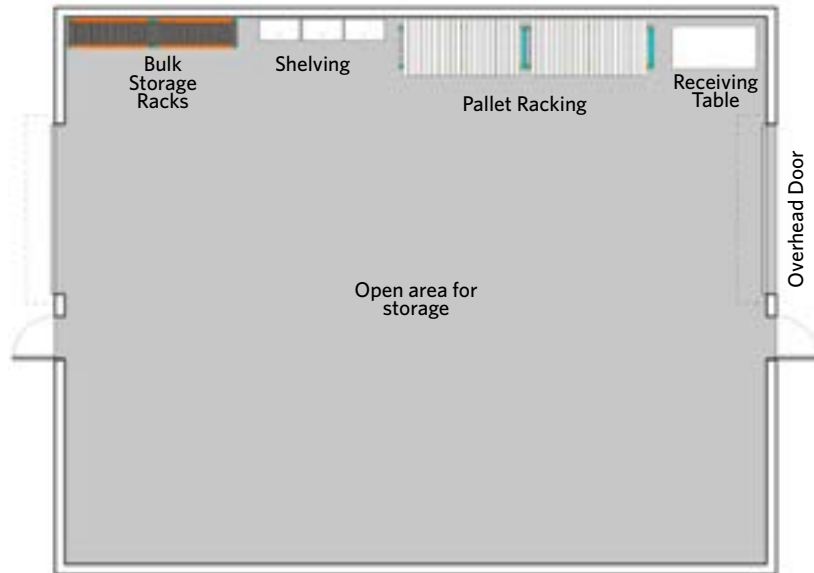
PLUMBING CONSIDERATIONS

- As required by equipment

ELECTRICAL CONSIDERATIONS

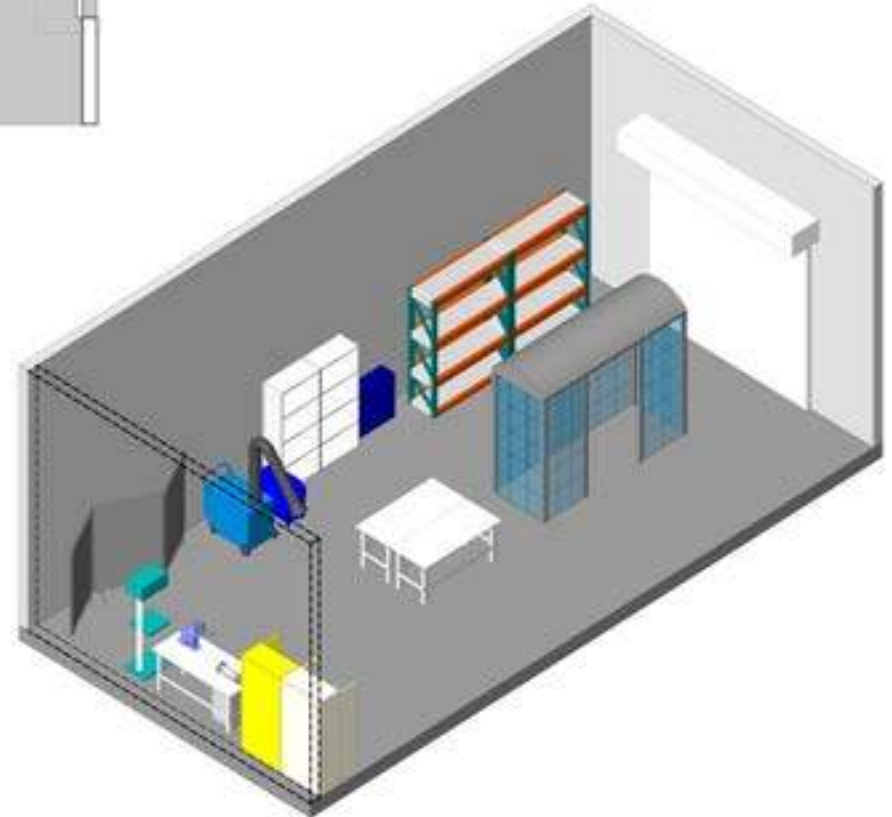
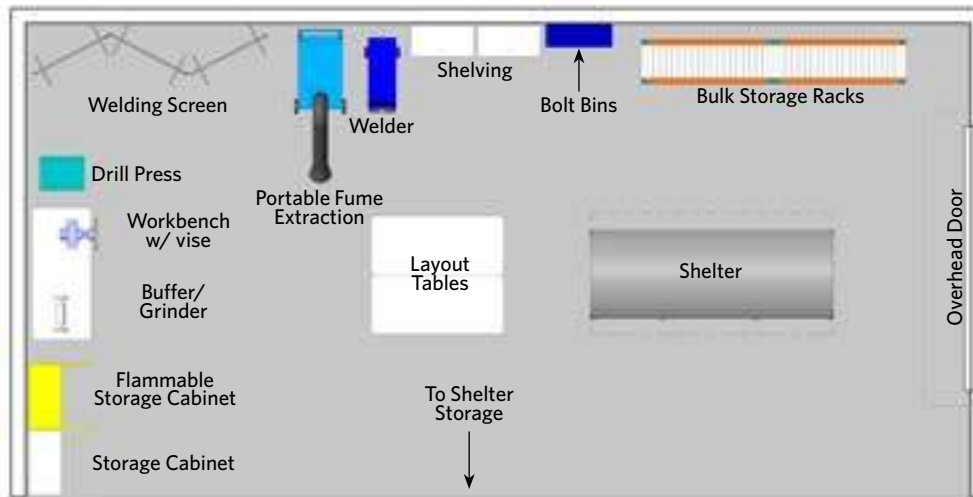
- Lighting:
 - ✓ LED lighting in accordance with IES recommended lighting levels (20 fc average)
 - ✓ Fixtures located to illuminate work spaces
- Power:
 - ✓ All receptacles and outlets at 3'-6" AFF
 - ✓ Provide general purpose duplex receptacles on wall or column
 - ✓ As required by equipment

SHELTER PARTS STORAGE



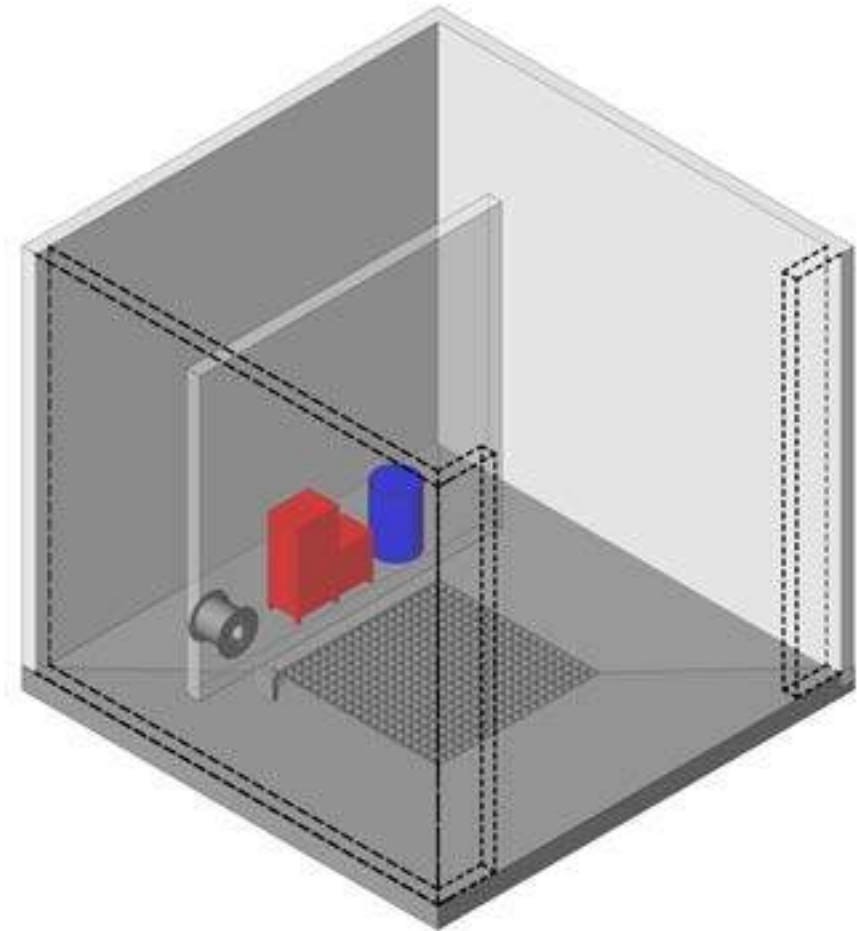
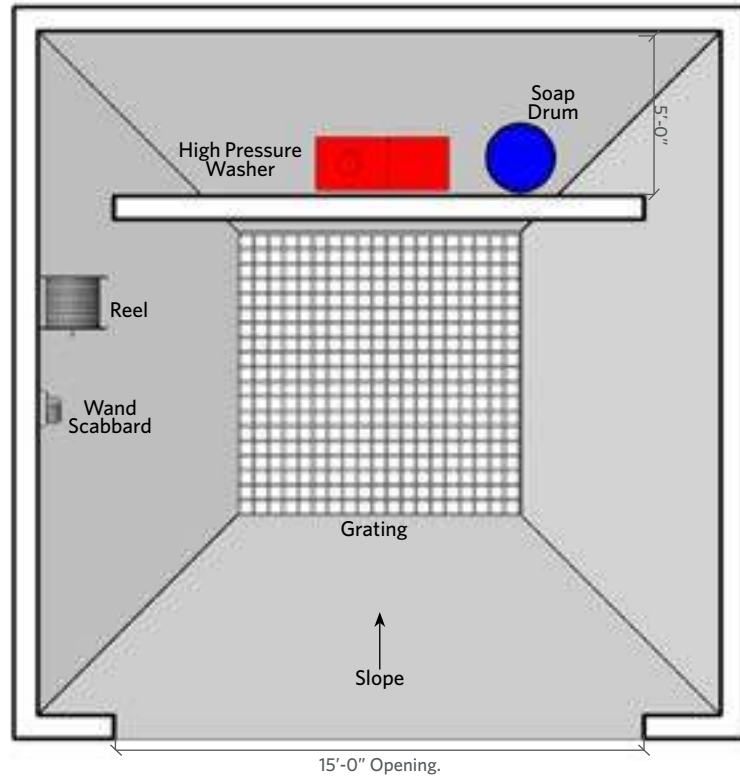
| SHELTER PARTS STORAGE | | |
|--|--|--|
| FUNCTION | ARCHITECTURAL CONSIDERATIONS | PLUMBING CONSIDERATIONS |
| <p>Dedicated secure area for receiving, storage, and issuing of parts, material, and specialized tools</p> | <ul style="list-style-type: none"> • Finishes: <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities with light colored finish • Doors: <ul style="list-style-type: none"> ✓ Personnel door with view panel to meet applicable code exit requirements ✓ Exterior overhead door: High-lifting sectional, steel, insulated 10'-0" by 12'-0" with view panels, automatic operator, interior and exterior push button controls with lockout on exterior | <ul style="list-style-type: none"> • As required by equipment |
| RELATIONSHIP TO OTHER AREAS | ELECTRICAL CONSIDERATIONS | |
| <ul style="list-style-type: none"> • Exterior access for deliveries • Access to Break Room, restrooms, office areas • Adjacent to Shelter Maintenance Shop | <ul style="list-style-type: none"> • Lighting: <ul style="list-style-type: none"> ✓ LED lighting in accordance with IES recommended lighting levels shopkeeper 35 fc average ✓ Storage Area 20 fc average, fixtures located to illuminate work spaces ✓ Lighting controlled by switches • Power: <ul style="list-style-type: none"> ✓ All receptacles and outlets at 3'-6" AFF ✓ Provide general purpose duplex receptacles on walls and column workstations ✓ Dedicated double duplex computer receptacle, adjacent to data conduit on wall or column workstations ✓ As required by equipment • Communications: <ul style="list-style-type: none"> ✓ Data conduit on columns and/or walls | |
| CRITICAL DIMENSIONS | STRUCTURAL CONSIDERATIONS | |
| <ul style="list-style-type: none"> • 16'-0" vertical clearance | <ul style="list-style-type: none"> • Control joints in floor slab at adequate spacing • Structure as needed to support equipment • Floor slab designed to accommodate forklift access | |
| EQUIPMENT/FURNISHINGS | MECHANICAL CONSIDERATIONS | |
| <ul style="list-style-type: none"> • Shelves • Bulk racks • Pallet racks • Receiving Table | <ul style="list-style-type: none"> • Heating set point: 65 degrees Fahrenheit • General ventilation (per code) • As required by equipment | |
| DESIGN FEATURES | | |
| <ul style="list-style-type: none"> • Exterior access for deliveries • Provide staging area for shipping/receiving with an overhead door to exterior of building • Forklift access | | |

SHELTER MAINTENANCE SHOP



| SHELTER MAINTENANCE SHOP | | |
|---|---|--|
| <p>FUNCTION</p> <p>Designated shop area for maintaining, and repairing shelters.</p> <p>RELATIONSHIP TO OTHER AREAS</p> <ul style="list-style-type: none"> • Adjacent to shelter parts storage • Access to restrooms, locker rooms, and break rooms <p>RECOMMENDED CRITICAL DIMENSIONS</p> <ul style="list-style-type: none"> • 16'-0" vertical clearance (minimum to bridge crane hook) <p>TYPICAL EQUIPMENT/FURNISHINGS</p> <ul style="list-style-type: none"> • Severe use workbench with vise • Layout table • Flammable Storage cabinet • Storage cabinet • Drill press • Bin storage • Buffer/Grinder • Bulk storage • Welder • Welding screen • Portable Fume Extractor • Shelving <p>TYPICAL DESIGN FEATURES</p> <ul style="list-style-type: none"> • Forklift access • Overhead Crane Access | <p>ARCHITECTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Finishes <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, light colored finish ✓ Ceiling: Painted exposed structure, light colored finish • Doors <ul style="list-style-type: none"> ✓ Hollow metal personnel doors with view panels to meet applicable code exit requirements ✓ Exterior overhead door: High-lifting sectional, steel, insulated, 12' x 12', with view panels, automatic operator, interior and exterior push button controls, and lockout on exterior • Bollards on exterior at jambs of overhead door (2 each) • Maximize natural lighting <p>STRUCTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Control joints in floor slab at adequate spacing • Structure as needed to support equipment <p>MECHANICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • As required by equipment • Heating set point: 65 degrees Fahrenheit • General ventilation (per code) | <p>PLUMBING CONSIDERATIONS</p> <ul style="list-style-type: none"> • 3/4" water hose bib with standard faucet at rear of bay 2'-0" AFF • Compressed air line with cut-off valve, separator, regulator with gauge, lubricator, and quick disconnect at 4'-0" AFF • As required by equipment <p>ELECTRICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> • Lighting: <ul style="list-style-type: none"> ✓ LED lighting, 70 fc average, local switching • Power: <ul style="list-style-type: none"> ✓ Welding outlets, 208VAC, 1ph, 50A and 480VAC, 3 ph, 30A at 3'-6" AFF ✓ General purpose duplex receptacles, 120VAC, 20A, on walls, at 3'-6" AFF ✓ As required by equipment • Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speakers |

SHELTER WASH AREA



| SHELTER WASH AREA | | |
|--|---|--|
| <p>FUNCTION</p> <p>Area for washing for washing shelters and other bus stop equipment using a high pressure washer.</p> | <p>SUSTAINABLE DESIGN CRITERIA</p> <ul style="list-style-type: none"> Utilize day lighting strategies Provide user-adjustable comfort and lighting controls Lighting designed to meet targeted LEED points | <p>PLUMBING CONSIDERATIONS</p> <ul style="list-style-type: none"> Containment sump 6" to 8" overflow to sediment and oil interceptor 3/4" water hose bibb with standard faucet, 2'-0" AFF As required by equipment |
| <p>RELATIONSHIP TO OTHER AREAS</p> <ul style="list-style-type: none"> Adjacent to shelter storage and shelter maintenance. | <p>ARCHITECTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> Finishes <ul style="list-style-type: none"> ✓ Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer ✓ Walls: Soil and grease resistant, light colored finish ✓ Ceiling: Painted exposed structure, light colored finish | <p>ELECTRICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> Lighting: <ul style="list-style-type: none"> ✓ Wet location fixtures, 25 fc average, located to illuminate workspace Power: <ul style="list-style-type: none"> ✓ All conduit and electrical boxes sealed for a wet environment ✓ All receptacles and outlets mounted at 3'-6" AFF ✓ As required by equipment Communications: <ul style="list-style-type: none"> ✓ Paging/intercom system speaker |
| <p>RECOMMENDED CRITICAL DIMENSIONS</p> <ul style="list-style-type: none"> 16'-0" vertical clearance to hook of bridge crane above | <p>STRUCTURAL CONSIDERATIONS</p> <ul style="list-style-type: none"> Cast-in-place below grade containment sump with structural grating Structure as needed to support equipment and bridge crane | |
| <p>TYPICAL EQUIPMENT/FURNISHINGS</p> <ul style="list-style-type: none"> High pressure washer with remote wash wands with Scabbard, push button controls, and hose reels Soap drum(s) Access to bridge crane | <p>MECHANICAL CONSIDERATIONS</p> <ul style="list-style-type: none"> Special ventilation to remove moisture; low air supply to eliminate steam Water resistant heating system As required by equipment | |
| <p>TYPICAL DESIGN FEATURES</p> <ul style="list-style-type: none"> Includes a large containment sump with grated area 10'-0" (minimum) high walls to minimize over spray and allow bridge crane to pass over the space | | |

Appendix C

Flow Diagrams



Key Issues – Flow Diagrams

- Bus Driver

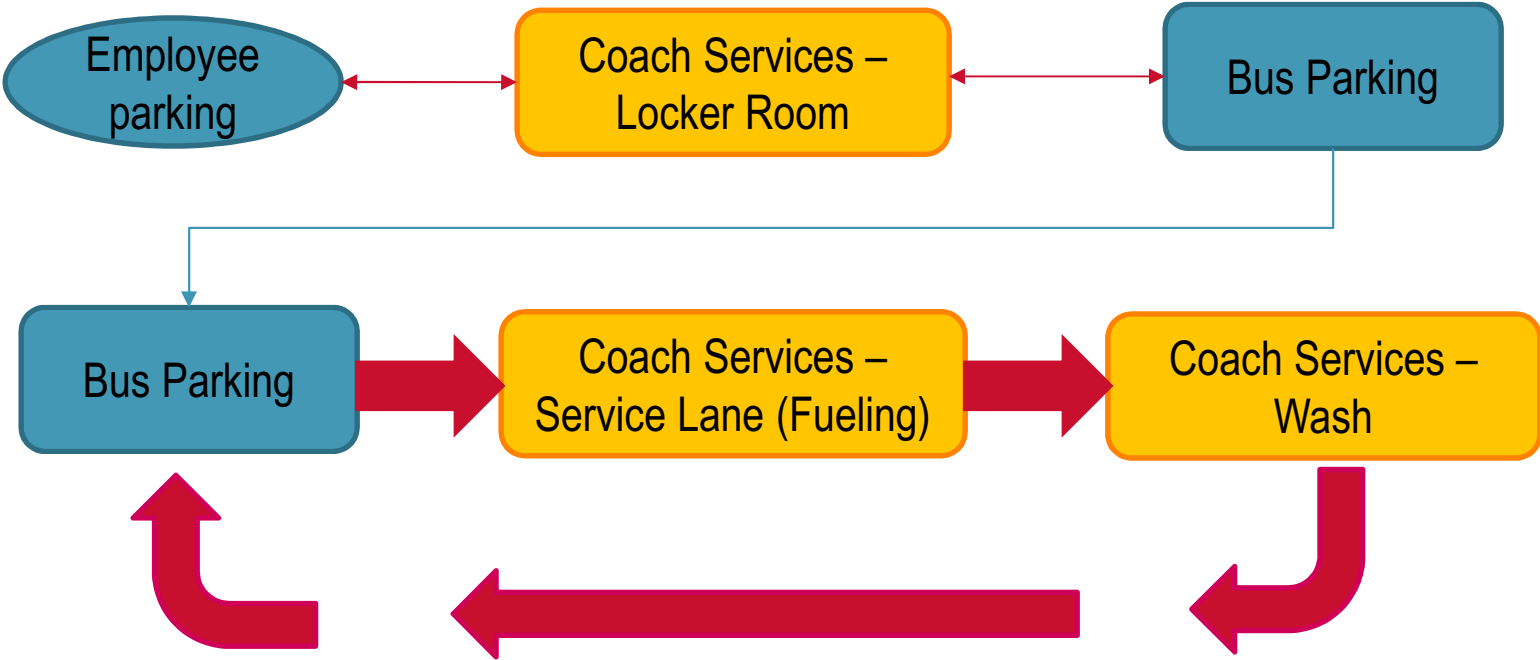


- Bus Mechanic



Key Issues – Flow Diagrams

- Coach Services Attendant



| OMF SITE MATRIX | | | | | | | | | | | | |
|--|--|------|--------|---|------|--------|---|------|--------|---|------|--------|
| | Concept 2A 168 Bus Maintenance Facility | | | Concept 2B 204 Bus Maintenance Facility | | | Concept 2C 204 Bus Maintenance Facility | | | Concept 2D 250 Bus Maintenance Facility | | |
| | All New Construction | | | New Bus Storage and Coach Services; New Fleet Maintenance Building; New Operations and Fleet Admin Building; New Plant Maintenance/Sign Shop Building | | | New Bus Storage and Coach Services; New Fleet Maintenance Building; New Operations and Fleet Admin Building; New Plant Maintenance/Sign Shop Building | | | Renovate existing Coach Services/Maintenance/Bus Storage; New Fleet Maintenance; Renovate existing Operations with addition | | |
| | Pros | Cons | Rating | Pros | Cons | Rating | Pros | Cons | Rating | Pros | Cons | Rating |
| Reuse (10%) | | ✓ | POOR | ✓ | | GOOD | | ✓ | POOR | ✓ | | BEST |
| Expansion (10%) | ✓ | | GOOD | ✓ | | GOOD | ✓ | | BEST | ✓ | | GOOD |
| Circulation (15%) | ✓ | | GOOD | | ✓ | POOR | ✓ | | FAIR | | ✓ | POOR |
| Efficiency (15%) | ✓ | | GOOD | | ✓ | POOR | ✓ | | FAIR | | ✓ | FAIR |
| Adjacency (10%) | ✓ | | FAIR | | ✓ | POOR | ✓ | | GOOD | | ✓ | FAIR |
| Scheduling of Maintenance Activities (10%) | ✓ | | GOOD | ✓ | | FAIR | ✓ | | BEST | | ✓ | FAIR |
| Cross-circulation (10%) | | ✓ | POOR | ✓ | | GOOD | ✓ | | FAIR | | ✓ | POOR |
| Security (10%) | ✓ | | FAIR | ✓ | | GOOD | ✓ | | GOOD | ✓ | | FAIR |
| Snow removal (10%) | ✓ | | GOOD | ✓ | | BEST | ✓ | | GOOD | ✓ | | FAIR |
| SCORE | 80% | | | 60% | | | 90% | | | 40% | | |