

EXPRESS OIL CHANGE & TIRE ENGINEERS

SINGLE BUILDING / RIGHT HAND OIL CHANGE / FRONT ENTER / SIDE TIRE STORAGE

332 OLD DOUGLAS DAM ROAD
SEVIERVILLE, TENNESSEE 37876

ATTENTION AUTHORITY HAVING JURISDICTION

Notice is hereby given that Aho Architects, LLC, the Architect of Record on the above referenced project, will be providing construction administration services on a limited basis, supplemented by a third-party independent engineering consulting service as described below.

This project has been designed by the Architect and Engineers ("Design Team") for its specific location, or adapted from prototypical designs, to comply with the following codes, ordinances, and similar requirements adopted by the Authority Having Jurisdiction ("AHJ"):

- See codes listed on Sheet LS100.

During the Construction Administration Phase of the Project:

- General: The Design Team will respond to inquiries or requests from the Owner or Contractor, specifically related to documents prepared by the Design Team. As is standard in Construction Law and Professional Service Agreements, the Design Team shall not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Project(s), nor shall the Architect be responsible for the Owner's or Contractor's failure to perform the work in accordance with the requirements of the Permit Set Documents. The Architect shall be responsible for the Architect's negligent acts or omissions, but shall not have control over or charge of, and shall not be responsible for, acts or omissions of the Owner, Contractor, or of any other persons or entities performing portions of the work.
- Experienced Contractor: The Owner will use experienced and licensed Contractors familiar with the construction of Projects of this type and in similar locations, and experienced with the applicable building codes, selection of materials and systems, and methods of installation and construction; and able to implement the Permit Set Documents through completion of the Project(s).
- Submittals: The Design Team's Basic Construction Administration Services include review of critical submittals (e.g. shop drawings) by engineering disciplines (Structural). The Design Team shall also review, approve or take other appropriate action on any submittal for which the AHJ requires approval by the Architect/Engineer, as Additional Services.
- Site Visits: The Architect and Design Engineers typically will not be making any site visits unless specifically required to do so.
 - The Owner has been advised and acknowledges that some States and AHJs require the Architect to perform at least some site visits or provide a notice such as this statement.
 - In consideration of this, the Owner will provide site visits, observation, testing, and related work by a third party independent engineering consulting service:
 - The Owner has an agreement with ECS Southeast, LLC., a provider of geotechnical, environmental, construction materials and facilities engineering
 - Experienced Professional Engineers or field technicians under the responsible control of a Professional Engineer will perform site observation, construction materials testing, and required Special Inspections (per IBC Chapter 17; see Schedule of Special Inspections on structural drawings provided) including review of construction for conformance with the permit drawings, supplemental drawings, shop drawings/submittals, and similar relevant documents. Written reports shall be provided, with the Design Team included on the distribution list and involved in resolving any deficiencies noted or other items requiring the Design Team's input.
 - If the above provisions are not acceptable to the AHJ and the AHJ gives notice requiring the Architect to make site visit(s), the Owner has agreed to authorize the Architect's Additional Services and Reimbursable Expenses to comply with the AHJ's requirements.

If you have any questions, or if there is anything else we can do for you, please do not hesitate to contact April Cain, the project manager or Tim Aho, Architect at the address/phone listed below, or by email at HYPERLINKmailto:acain@ahoarch.com acain@ahoarch.com or HYPERLINKmailto:taho@ahoarch.com taho@ahoarch.com. Thank you very much, and we appreciate the opportunity to be involved in this project in your jurisdiction.



*Image above is generic. See Civil for actual site conditions

ARCHITECT

AHO ARCHITECTS, LLC
1855 DATA DRIVE, SUITE 150
HOOVER, ALABAMA 35244
205-983-6000

CIVIL ENGINEER

CIVIL CONSULTANTS, INC.
3528 VANN ROAD, SUITE 105
BIRMINGHAM, ALABAMA 35235
205-655-1991

STRUCTURAL ENGINEER

BARNETT-JONES-WILSON, LLC
125 18TH STREET NORTH
PELL CITY, ALABAMA 35125
205-884-5334

MECHANICAL / PLUMBING ENGINEER

PINNACLE ENGINEERING, INC.
2111 PARKWAY OFFICE CIRCLE, SUITE 125
BIRMINGHAM, ALABAMA 35244
205-733-6912

ELECTRICAL ENGINEER

GIDEON WAMAE, P.E.
4120 OVERLOOK CIRCLE
TRUSSVILLE, ALABAMA 35173
205-413-4112

FINAL



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Title Sheet

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
T100	
Scale	12" = 1'-0"

GENERAL PROJECT NOTES

1. These documents are considered accurate and true to the best knowledge of the Architect at this time, but do not necessarily represent, nor are they intended to represent, actual existing conditions, dimensions, and tolerances. Contractor shall field-verify existing conditions including, but not limited to materials, construction, elevations, and dimensions prior to bidding and undertaking the work. Items of concern shall be brought to the attention of the Architect. Submittal of a proposal (bid) by a Contractor and their Subcontractors shall constitute an acknowledgement and confirmation of having complied with these requirements.
2. All work shall comply with all applicable local, state, and national codes, rules, ordinances and regulations and authorities having jurisdiction.
3. The Contractor shall comply with all applicable provisions of the specifications, including, but not limited to all general conditions, supplementary general conditions, special conditions, and material and construction provisions, which apply to materials or construction methods required by this project.
4. Where warranties are concerned, Contractor shall follow manufacturer's standards and recommendations unless specifically directed otherwise. Any conditions which might negatively affect the warranty shall be brought to the attention of the Architect in advance.
5. The Owner and Contractor shall promptly report to the Architect any defects, suspected defects, or discrepancies in the Architect's work or services of which the Owner or Contractor may become aware, so that the Architect may take measures to minimize the consequences of such a defect. Failure to notify the Architect shall relieve the Architect of costs of remedying the defects above the sum such remedy would have cost had prompt notification been given.
6. Neither the professional activities of the Architect, nor the presence of the Architect or its employees and consultants at a construction site shall relieve the Contractor or others of their obligations, duties, and responsibilities including, but not limited to: construction means and methods, sequence, techniques, or procedures necessary for performing, superintending, or coordinating all portions of the work in accordance with the contract documents and any health and safety precautions required by agencies having jurisdictional authority over the project. The Architect and its personnel have no authority to exercise control over any Contractor or other entity or their employees in connection with their means, methods, or safety precautions. The Contractor is solely responsible for jobsite safety. The Owner, Architect, and their Consultants shall be indemnified and shall be made additional insureds under the Contractor's general liability insurance policy.
7. All work, unless specifically indicated otherwise, shall be the responsibility of the General Contractor and shall be performed by the tradesmen skilled in the required field.
8. "Provide" shall mean to furnish and install, complete and ready for intended use.
9. Provide pressure treated wood where in contact with concrete or masonry.
10. The Contractor shall be responsible for all cutting, fitting, and patching that may be required to complete the work.
11. Dimensions of existing construction and repetitive dimensions are sometimes omitted. Detailed dimensions not indicated may be found on large-scale drawings of the same areas. Drawings are intended to reflect the existing conditions as closely as possible, however, the Contractor shall field verify and accept all existing conditions and dimensions. Notify Architect of any discrepancies affecting the work.
12. Provide all temporary services required to facilitate the work indicated, including but not limited to the following: power, lighting, heat, and water.
13. The Contractor(s) shall provide all barriers, shoring, warning lights, etc. as required to conduct the work and maintain the site in a safe condition consistent with good construction practices and with all applicable rules and regulations.
14. All exist. utility services including domestic water, sanitary sewer, electricity, fuel oil and/or gas shall be disconnected and made safe prior to any demolition work. Any work which might require interruption of utility services to Owner or other tenants, shall be approved and coordinated beforehand with the Owner.
15. It is the intent of the bid and construction documents to indicate complete and fully operational systems (i.e. structural, HVAC, plumbing, electrical, roofing, etc.). The Contractor shall provide operational systems and testing which comply with applicable codes, regulations, and requirements of authorities having jurisdiction.
16. Any work or utility outages which might disrupt the operations of the Owner or others shall be approved and coordinated in advance with the Owner and the Architect. The Contractor shall give the Owner and Architect at least three days advance notice prior to undertaking work which might cause disruption. Activities which produce utility outages, excessive noise, dust and other disruption shall be coordinated with the Owner and Architect. Some of these activities may need to occur at "off hours" to minimize disruption of the Owner's operations.
17. All wood blocking, trim, decking, etc. shall be decay-resistant treated, or as specified.
18. To prepare substrate for all wall mounted items, wall fixture, toilet accessories, etc. - fill all voids in the CMU surface to provide a sound base (provide blocking in stud walls) for all new wall mounted items, fixtures, etc. Install per manufacturer's specifications and recommendations.
19. Do not paint any caulking or sealants which are subject to movement. Control joints shall be caulked after paint and special coating applications. Provide caulking or sealants in colors which match adjacent finished surface as approved by the Architect.
20. Bidders shall be responsible for obtaining a copy of the Geotech Report from the Owner.
21. The project may include some items that are delegated design. Bidders shall ensure these items are covered in their base bid.
22. All questions that affect cost, time, etc. shall be presented in the form of RFI's to the Architect prior to bid.

ENERGY CODE EXEMPTION

Per 2018 International Energy Conservation Code:

C402.1.1 Low Energy Buildings. The following low-energy buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this section, shall be exempt from the building thermal envelope provisions of Section C402:

1. Those with a peak design rate of energy usage less than 3.4 Btu/h x ft2 or 1.0 watt/ft2 of floor area for space conditioning purposes.
2. Those that do not contain "conditioned space".
3. Greenhouses

Per Chapter 2:

Definition of Conditioned Space: An area, room or space that is **enclosed** within the building thermal envelope and is directly or indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors, or ceilings, or where they contain uninsulated ducts, piping or other sources of heating or cooling.

While the Oil Change & Service areas do have radiant heaters, during normal operations, the Oil Change, Service, and Pit areas are **not enclosed** and are outside the building thermal envelope assembly. These areas are separated from the remainder of the building by building thermal envelope assemblies complying with this code. Section C403.12.1 allows radiant heating outside the building. Therefore, these areas shall be exempt from the building thermal envelope provisions of this code.

GENERAL ACCESSIBILITY NOTES

1. All door hardware shall be accessible type per section 404 of the 2017 ICC A117.1 / 2010 ADA Standards.
2. All walking surfaces shall have a maximum slope of 1:20 per section 405 of the 2017 ICC A117.1 / 2010 ADA Standards
3. All floor or ground surfaces shall be stable, firm, and slip resistant per section 302 of the 2017 ICC A117.1 / 2010 ADA Standards
4. Changes in level of 1/4" high maximum shall be permitted to be vertical per section 303 of the 2017 ICC A117.1 / 2010 ADA Standards
5. Provide maneuvering clearances at manual swinging doors per section 404 of the 2017 ICC A117.1 / 2010 ADA Standards
6. ADA mounting heights, dimensions, tolerances, etc. shall apply to all construction and the location of all fixtures, etc. unless specifically noted otherwise.

GENERAL INTERIOR NOTES

1. Quantities (area, perimeter, etc.) shown on finish schedule are approximate and are provided as a convenience to the Contractor. Actual quantities may vary and it is the responsibility of the Contractor to field verify.
2. Anything specified with a directional pattern (e.g. brushed aluminum, wood grain laminate, etc.) the pattern shall go in the same direction as directed by Architect.
3. The Contractor shall provide all necessary blocking in walls for support of all equipment, shelving, accessories, grab bars, and other required elements.
4. Provide pressure treated wood where in contact with concrete or masonry.
5. Ease all edges on casework to prevent sharp corners.
6. Paint all HVAC wall grilles to match adjacent surface color unless otherwise noted or instructed by the Architect.
7. Use moisture resistant gypsum board at all walls subject to moisture unless wall will be subject to standing water or frequent wetting in which case you shall use cementitious backer.
8. Provide thresholds where required. All shall be ADA compliant.
9. All gypsum board to have a level 4 finish unless otherwise indicated.
10. All toilet walls to have moisture resistant paint.

BIDDING INQUIRES

Company:

Contact:

E-Mail:

Phone:

Express Oil Change

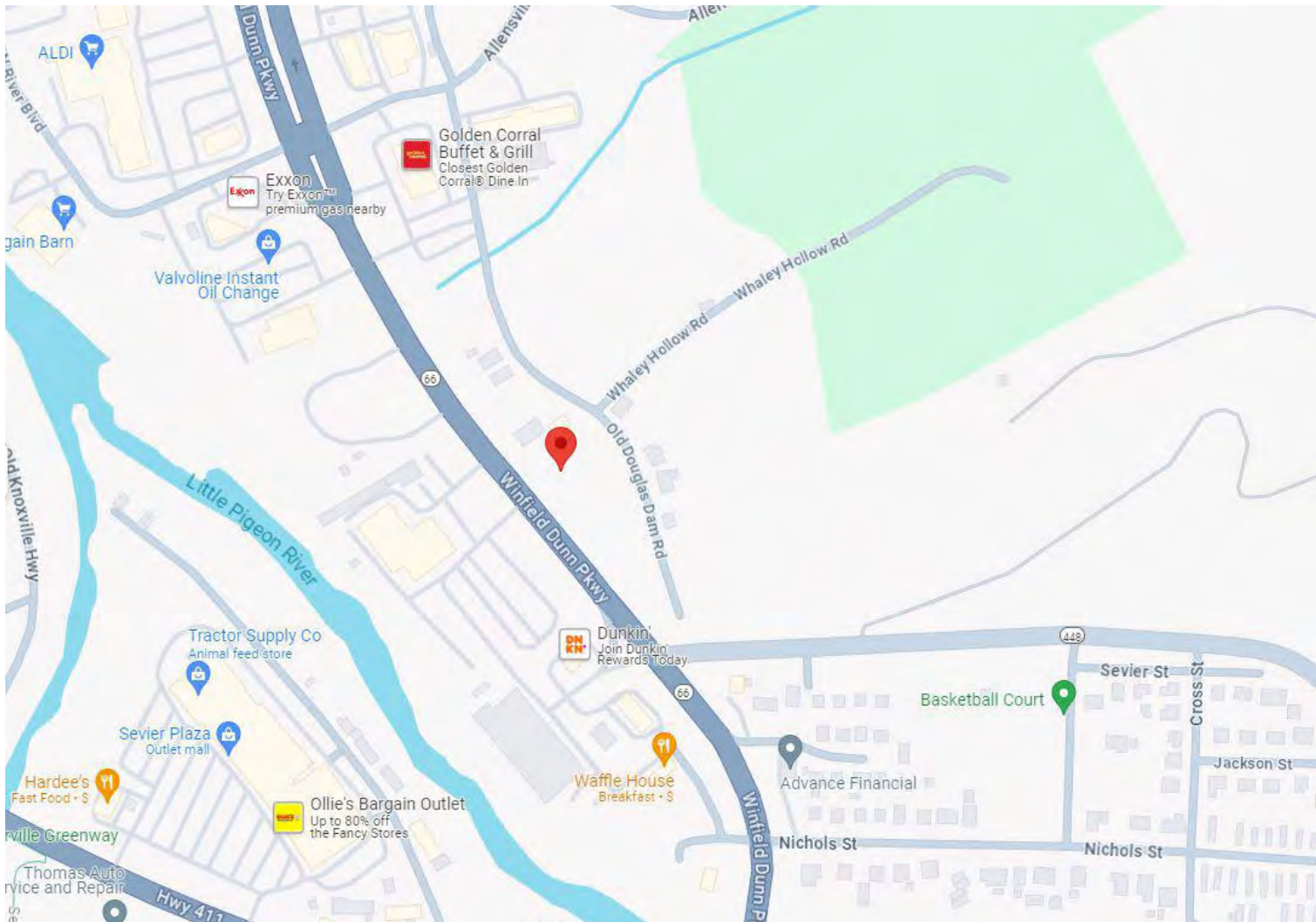
John Davis

jdavis@expressoil.com

205-945-1771

Note:

Sub-contractors to call bidding General Contractor for questions

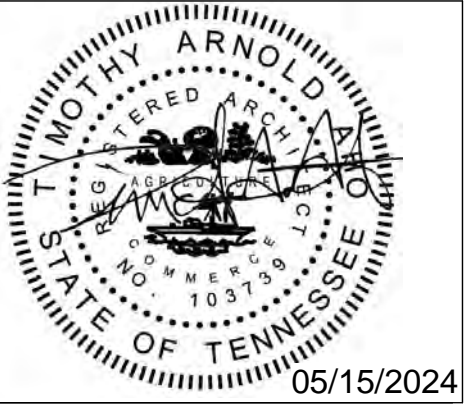


Express Oil Change & Tire Engineers
332 Old Douglas Dam Rd
Sevierville, TN, 37876



Sheet Index

Sheet Number	Sheet Name
T100	Title Sheet
G100	General Information
G200	Architectural Specifications
G201	Architectural Specifications
G202	Architectural Specifications
G300	EOC Standards - Exterior
G301	EOC Standards - Interior
G400	Building COMCheck
LS100	Life Safety / Code Summary
LS101	Life Safety / Code Summary
LS102	Life Safety Plan - Main
LS103	Life Safety - Pit
AS100	Architectural Site Plan
A100	Floor Plan - Main
A101	Pit Floor Plan and Site Details
A102	Foundation Details
A103	Enlarged Floor Plans and Details
A104	Reflected Ceiling Plan - Main
A105	Reflected Ceiling Plan - Pit
A106	Floor Plan - Equipment Platform
A107	Reflected Ceiling Plan - Equipment Platform
A108	Roof Plan
A200	Exterior Elevation - Front (South)
A201	Exterior Elevation - Rear (North)
A202	Exterior Elevation - Right (East)
A203	Exterior Elevation - Left (West)
A300	Building Sections
A301	Building Sections
A302	Building Sections
A303	Building Sections
A400	Wall Types
A600	Interior Elevations
A601	Interior Elevations
A602	Interior Elevations
A605	Interior Dimensional Info.
A610	Floor Finishes - Main
A611	Floor Finishes - Pit
A620	Schedules
A621	Finish Schedules & Head, Jamb, and Sill Details
R100	3D Views
R101	3D Views
S0.1	General Notes
S0.2	Typical Details
S1.1	Foundation Plan
S3.1	Roof Framing Plan
S5.1	Sections and Details
S5.2	Sections and Details
M0.01	Mechanical Legend, Abbreviations and Schedules
M0.02	Mechanical Specifications
M0.03	Mechanical Specifications
M0.04	Mechanical ComCheck
M1.01	Mechanical Floor Plan
M1.02	Partial Mechanical Plans - Pit and Platform
M1.03	Mechanical Roof Plan
M2.01	Mechanical Details
M2.02	Mechanical Details
P0.01	Plumbing Legend, Abbreviations, and Schedules
P0.02	Plumbing Specifications
P0.03	Plumbing Specifications
P1.01	Plumbing Floor Plan Gravity
P1.02	Plumbing Floor Plan Pressure
P1.03	Partial Plumbing Plans - Pit and Platform
P2.01	Plumbing Riser - Gravity
P2.02	Plumbing Riser - Pressure
P2.03	Plumbing Details
E100	General Notes and Fixture Schedules
E101	Symbol Legends and Details
E102	Single Line Diagram and Panelboard Schedules
E103	Details
E104	Site Plan - Electrical
E200	Main Level Plan - Lighting
E201	Pit Level Plan - Lighting
E202	Equipment Platform Plan - Lighting
E300	Main Level Plan - Power & Voice/Data
E301	Pit Level Plan - Power & Voice/ Data
E302	Equipment Platform Plan - Power & Voice/Data
E400	Main Level Plan - Elec. Conn. to Mech.
E401	Equip. Platform Plan - Elec. Conn. to Mech.
E402	Roof Plan - Electrical Connection to Mechanical
E500	Specifications
E600	ComCheck



Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

General Information

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

G100

Scale 12" = 1'-0"

GENERAL NOTES
<div>1. GENERAL CONTRACTOR SHALL ENSURE EACH OF THE FOLLOWING HAVE BEEN REVIEWED BY THE MANUFACTURER FOR COMPLIANCE WITH LOCAL CONDITIONS/REQUIREMENTS PRIOR TO BIDDING/ORDERING/INSTALLING: ROOFING, DOORS, WINDOWS/STOREFRONT, GLAZING, DOOR HARDWARE, PAINT, AND FIRE EXTINGUISHERS.</div> <div>2. GENERAL CONTRACTOR SHALL PROVIDE SUBMITTALS / SHOP DRAWINGS FOR EACH PRODUCT LISTED UNDER ARCHITECTURAL SPECIFICATIONS. ALL SUBMITTALS / SHOP DRAWINGS ARE TO BE APPROVED BY THE OWNER AND/OR THE A/E PRIOR TO ORDERING.</div> <div>3. PROVIDE MANUFACTURER'S STANDARD WARRANTY FOR ALL SPECIFIED PRODUCTS.</div> <div>4. ALL EXTERIOR SIGNAGE, LIGHT BARS, AND SCONCES BY OTHERS.</div> <div>5. ALL FURNITURE AND EQUIPMENT BY OTHERS. COORDINATE PLACEMENT WITH OWNER PRIOR TO ROUGHING IN REQUIRED UTILITIES.</div> <div>6. ALL COMPARABLE PRODUCTS TO BE REVIEWED AND APPROVED BY THE OWNER PRIOR TO BID.</div> <div>7. GC SHALL BE RESPONSIBLE FOR CHECKING WITH THE LOCAL AHJ ON ANY DEFERRED SUBMITTALS THAT MAY BE REQUIRED TO BE APPROVED BY THE AHJ PRIOR TO CONSTRUCTION.</div>

DIVISION 4 - MASONRY
042200 - Concrete Unit Masonry
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by Block USA or a comparable product by an approved manufacturer.
Products:
A. Concrete Masonry Units <div>1. Finish: Smooth and split-face</div> <div>2. Min. Compressive Strength: See Structural</div> <div>3. Density Classification: See Structural</div> <div>4. Provide types, shapes and sizes as indicated</div> <div>5. Integral Water Repellent: Provide RainBloc 80 by ACM Chemistries or a comparable product by an approved manufacturer.</div>
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by Concrete Products Group or Echelon Masonry or approved comparable product by an approved manufacturer.
Products:
B. Structural Half-Highs <div>1. Spec-Brik (CPG) or Quik-Brik (Echelon)</div> <div>2. Size: 8x4x16</div> <div>3. Color: Stanton Blend (CPG) or Richfield Blend (Echelon) with flash.</div>
*Provide full mock-up for Owner's Approval prior to ordering.
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by Argos or an approved comparable product by an approved manufacturer.
Products:
C. Mortar <div>1. Type: See Structural</div> <div>2. Color: Argos Magnolia Dark at cmu and structural half-highs</div> <div>3. Liquid Mortar Additive: Provide RainBloc for Mortar or a comparable product by an approved manufacturer.</div>
Subject to compliance with requirements, provide products indicated below:
Products:
D. Joint Reinforcement <div>1. Type: Hot dipped galvanized, carbon steel (truss)</div> <div>2. Size: 0.187" diameter</div> <div>3. Length: Not less than 10'</div>

DIVISION 5 - METALS
055000- Metal Fabrications
Products:
A. Concrete-filled Steel Pipe Bollards <div>1. Material: Schedule 40 steel pipe</div> <div>2. Height: 3'-6"</div> <div>3. Diameter: 4"</div> <div>4. Finish: Painted (See Finish Schedule)</div>
Installation: See drawings for installation details.

055113- Metal Pan Stairs
Delegated Design: Engage a qualified professional engineer to design stairs and railings and provide sealed calculations and drawings.
Products:
A. Metal Pan Stairs <div>1. Steel Sheet Thickness: 0.067" minimum</div> <div>2. Uniform Load: 100 lb/sf</div> <div>3. Concentrated Load: 300 lb/ applied on an area of 4 sq. in.</div> <div>4. Finish: Painted (See Finish Schedule)</div> <div>5. Uniform and concentrated loads need not be assumed to act concurrently.</div> <div>6. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.</div>
B. Stair Railings <div>1. Rails and Posts: 1 5/8" diameter</div> <div>2. Picket Infill: 1/2" round pickets spaced less than 4 inches clear.</div>
C. Installation: Install per manufacturer's standard written instructions.
D. Warranty: Provide manufacturer's standard material warranty.

055213- Pipe and Tube Railings
Delegated Design: Engage a qualified professional engineer to design stairs and railings and provide sealed calculations and drawings.
A. Handrails & Top Rails of Guards <div>1. Rails and Posts: 1 1/2" diameter</div> <div>2. Uniform Load: 50lb/ft in any direction.</div> <div>3. Concentrated Load: 200 lb/ applied in any direction</div>

055213- Pipe and Tube Railings (continued):
A. Handrails & Top Rails of Guards <div>4. Uniform and concentrated loads need not be assumed to act concurrently.</div> <div>5. Type: F or S</div> <div>6. Material: Schedule 40</div> <div>7. Finish: Painted (See Finish Schedule)</div> <div>8. Seismic Performance: See Structural</div>
B. Infill of Guards <div>1. Concentrated Load: 50 lb/ applied horizontally on an area of 1 SF.</div> <div>2. Infill load and other loads need not be assumed to act concurrently.</div>
Installation: Install stairs and railings according to manufacturers' written instructions and with welded connections.

DIVISION 6 - WOOD, PLASTICS AND COMPOSITES
061000- Rough Carpentry
Products:
A. Framing with Dimensional Lumber (Interior Non-Load-Bearing) <div>1. Thoroughly Dried</div> <div>2. No. 2 Southern Yellow Pine or No. 2 Douglas Fir</div> <div>3. Of sizes, shapes, and lengths required.</div> <div>4. Moisture content shall not exceed 19% at time of installation</div>
B. Miscellaneous Lumber (e.g. Blocking, Furring, etc.) <div>1. Thoroughly Dried</div> <div>2. No. 2 Southern Yellow Pine or No. 2 Douglas Fir</div> <div>3. Of sizes, shapes, and lengths required.</div> <div>4. Moisture content shall not exceed 19% at time of installation</div>
C. Temporary Bracing, Shoring, etc. as required <div>1. Thoroughly Dried</div> <div>2. No. 2 Southern Yellow Pine or No. 2 Douglas Fir</div> <div>3. Of sizes, shapes, and lengths required.</div> <div>4. Moisture content shall not exceed 19% at time of installation</div>
D. Wood Fascia Board (inc. frieze board) <div>1. Thoroughly Dried</div> <div>2. No. 2 Southern Yellow Pine or No. 2 Douglas Fir</div> <div>3. Of sizes, shapes, and lengths required.</div> <div>4. Moisture content shall not exceed 19% at time of installation</div> <div>5. Painted (See Finish Schedule)</div>
E. Plywood (Ceilings) <div>1. Plywood Type: Exposure 1</div> <div>2. Plywood Grade: BC</div> <div>3. Thickness: As indicated on drawings</div> <div>4. Square Edge</div> <div>5. Provide batten strips as indicated on drawings</div> <div>6. Painted (See Finish Schedule)</div> <div>7. Class: C Fire Rating</div> <div>8. Flame Spread Rating 76-200 / Smoke Developed Index <450</div>
F. Plywood decking (roof) <div>1. Plywood Type: Exposure 1</div> <div>2. Plywood Grade: BC</div> <div>3. Thickness: As indicated on drawings</div> <div>4. Square Edge</div>
Note: <div>1. All plywood which has any edge or surface permanently exposed to the weather shall be of the exterior type.</div> <div>2. All wood exposed to weather and/or in contact with masonry or concrete shall be pressure-treated lumber.</div>

061533- Composite Decking
Products:
A. Plastic Decking for Dumpster Enclosure Doors <div>1. Composite plastic lumber</div> <div>2. Solid shapes made from a mixture of cellulose fiber and polyethylene or polypropylene.</div> <div>3. Surface Texture: Smooth.</div> <div>4. Color: See Finish Schedule.</div> <div>5. Size: See dumpster details.</div>
Installation: Install plastic decking according to manufacturers' written instructions.
Warranty: Provide manufacturer's standard material warranty.

064116- Plastic-Laminate-Faced Architectural Cabinets
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by DBIW, LLC or a comparable product by an approved manufacturer.
Products:
A. Plastic-Laminate Faced Architectural Cabinets <div>1. See details on Sheet G301.</div>
Installation: Install plastic laminate according to manufacturers' written instructions.
B. Cabinet Hardware <div>1. See details on Sheet G301.</div>
Installation: Install cabinet hardware according to manufacturers' written instructions.
C. Warranty <div>1. Provide manufacturer's standard material warranty.</div>

066400 Plastic Paneling (Fiberglass Reinforced Panels)
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by Marlite Wall Systems , or a comparable product by one of the following:
1. Kal-Lite
2. Crane Composites
3. Panolam
Product Requirements:
A. Provide standard FRP (Fiber Reinforced Plastic) panels in 4' x 8' textured panels.
B. Color to be selected by Architect from Manufacturer's full range.
C. Conform to all building code requirements for interior finish for smoke and flame spread requirements tested in accordance with ASTM 84
D. Wall required Rating - Class A
Submittals: Submit shop drawings (elevations of each wall) showing location of paneling and trim members.
Installation: A. Install per manufacturer's written standards.
Warranty: A. Provide manufacturer's standard warranty.

DIVISION 7 - THERMAL AND MOISTURE PROTECTION
071900- Water Repellents
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by Ghostshield or a comparable product from an approved manufacturer.
Products:
A. Water Repellant <div>1. ISO-Tek 8540</div> <div>2. Color: Clear</div>
Installation: Install water repellents according to manufacturers' written instructions.
Warranty: Provide manufacturers' standard product warranty.
072100- Thermal Insulation
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by Owens Corning , or a comparable product by one of the following:
1. Johns Manville
2. CertainTeed
Products:
A. Kraft Faced (Vapor Retarder) Batt Insulation: <div>1. EcoTouch PINK Fiberglass Insulation</div> <div>2. R-13 & R-20; where indicated</div>
B. Unfaced Batt Insulation: <div>1. EcoTouch PINK Fiberglass Insulation</div> <div>3. R-38; where indicated</div>
C. Eave Ventilation Troughs: <div>1. Preformed, rigid fiberboard or plastic sheets designed and sized to fit between roof framing members and to provide ventilation between insulated attic space and vented eaves.</div>
D. Rigid Insulation <div>1. R-10 for slab on grade at thermal envelope</div>
Installation: Install insulation and accessories according to manufacturers' written instructions.
Warranty: Provide manufacturers' standard material warranty.
072600 Vapor Retarders
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by Reef Industries , or a comparable product by an approved manufacturer.
Products:
A. Reinforced Under Slab Vapor Retarder: <div>1. Griffolyn 10 Mil Green</div> <div>2. Thickness: 10 mil</div> <div>3. Max Perm Rating: 0.1 perm</div> <div>4. Lap: 12" and tape with manufacturer recommended tape</div>
Installation: Install vapor retarders according to manufacturers' written instructions.
Warranty: Provide manufacturers' standard product warranty.

072726- Fluid-Applied Membrane Air Barrier
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by W.R. Meadows , or a comparable product by an approved manufacturer.
Products:
A. Liquid Membrane Air/Vapor & Liquid Moisture Barrier <div>1. Air-Shield LMP</div>
Installation: Install fluid applied membrane air barriers according to manufacturers' written instructions.
Warranty: Provide manufacturer's standard product warranty.

074113.16- Standing-Seam Metal Roof Panels (Standard)
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by Berridge Manufacturing Co. or comparable product by an approved manufacturer.
Products:
A. Metal Panel: Cee-Lock <div>1. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592.<div>a. Wind Loads: See Structural.</div><div>b. Other Design Loads: See Structural.</div><div>c. Deflection Limits: See Structural.</div></div> <div>2. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft when tested according to ASTM E 1680 and ASTM E 283 at the following test-pressure difference:<div>a. Test-Pressure Difference: 6.24 lb/sq.ft.</div></div> <div>3. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 and ASTM E 331 at the following test-pressure difference:<div>a. Test-Pressure Difference: 15 lb/sq.ft.</div></div> <div>4. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.<div>a. Uplift Rating: UL 90.</div></div> <div>5. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.</div> <div>6. Material: Metallic coated steel</div> <div>7. Nominal Thickness: 24 gauge</div> <div>8. Finish: Two-coat fluoropolymer.</div> <div>9. Color: See Finish Schedule (verify sample with Owner prior to ordering)</div> <div>10. Panel Coverage: 16.5 inches</div> <div>11. Panel Height: 1.5 inches</div> <div>12. Slope: As indicated on roof plan</div>
B. Underlayment <div>1. Two layers of 15# felt.</div>
C. Snowguards <div>1. Provide snowguards if required by AHJ.</div>
D. Ridge/Hip Cap <div>1. Provide preformed ridge/hip cap by roofing manufacturer.</div> <div>2. Color: Match Roof Color.</div> <div>3. Material: Match Roof.</div>
E. Roof Vents <div>1. Provide roof mounted REBE downblast propeller exhaust ventilator by Cook. (See Mech.).</div> <div>2. CFM: As indicated on the mechanical plans.</div> <div>3. Color: Match Roof Color.</div>
Installation: Install metal panels, underlayment, vents, and accessories according to manufacturers' written instructions.

074113.16- Standing-Seam Metal Roof Panels (Standard) continued:
Warranty: Provide manufacturers' standard material and product warranties.
074293 Soffit Panels (Standard)
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by James Hardie Building Products, Inc. or a comparable product by an approved manufacturer.
Products:
A. Smooth Vented Soffits <div>1. Structural Performance: Provide soffit systems capable of withstanding the effects of the following loads:<div>a. Wind Loads: See Structural.</div><div>b. Deflection Limits: See Structural.</div></div> <div>2. Net Free Area: 5 sq. in. per linear foot.</div> <div>3. Width: 12"</div> <div>4. Thickness: 0.25"</div> <div>5. Color: Painted, (See Finish Schedule)</div> <div>6. Jointing: Provide paintable PVC "H" Joinder between panels.</div>
Installation: Install soffit panels and accessories according to manufacturers' written instructions.
Warranty: Provide manufacturers' standard material warranty.

077100- Roof Specialties (Standard)
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by Roof Drainage Components & Accessories, Inc. or a comparable product by an approved manufacturer.
Products:
A. Gutters (alum.): <div>1. Style: Smooth Box Gutter - "F" Style</div> <div>2. Size: 5"</div> <div>3. Color: Match Roof Color</div>
B. Downspouts (alum.): <div>1. Style: Smooth Box Downspout</div> <div>2. Size: 3"x4"</div> <div>3. Color: Match Roof Color</div>
C. Downspout boot - Match downspout color - See Civil.
D. Straps <div>1. Smooth Box Downspout Strap.</div> <div>2. Color: Match Roof Color.</div>
E. Gutter Guard <div>1. Continuous screened leaf guard w/ frame.</div> <div>2. Material: Stainless Steel</div>
Installation: Install roof specialties according to manufacturers' written instructions.
Warranty: Provide manufacturers' standard material warranty.

077100- Roof Specialties (Standard)
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by OMG Roofing Products or comparable product by an approved manufacturer.
A. Coping Cap <div>1. Product: Permasnap 2</div> <div>2. 20 gauge w/ kynar finish</div> <div>3. Color to match roof</div> <div>4. Face & Back Dimension: 4 inches minimum (Dumpster / HVAC Enclosure)</div> <div>5. Face & Back Dimension: 8 inches minimum (Building)</div>
Installation: Install roof specialties according to manufacturers' written instructions.
Warranty: Provide manufacturers' standard material warranty.

078443 - Joint Firestopping
Basis-of-Design Product: For joints in or between Fire-Resistance-Rated Construction: Subject to compliance with requirements, provide products indicated below by Tremco , or a comparable product by one of the following:
1. 3M Fire Protection Products
2. Owens Corning
3. Hilti, Inc.
Product Requirements:
A. Provide joint firestopping systems with ratings determined per ASTM E1966 or UL 2079
B. Provide products that upon curing, do not re-emulsify, dissolve, leach, breakdown or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water or other forms of moisture.
C. Provide firestop products that do not contain ethylene glycol.
D. Fire resistance rating must be equal to or exceed the fire resistance rating of the wall, floor or roof in or between which it is installed.
E. Exposed Joint firestopping systems must have a flame-spread and smoke-developed index of less than 25 and 450, respectively, as determined per ASTM E84
Accessories:
A. Provide components of joint firestopping systems, including primers and forming materials, that are needed to install elastomeric fill materials and to maintain ratings required. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing agency for conditions indicated.
Installation:
A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.
B. Install sealants and proper backing according to manufacturers' written instructions.
C. Identify joint firestopping systems with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of joint edge so labels are visible to anyone seeking ot remove joint firestopping system. Include the following on the labels: <div>1. "Warning - Joint Firestopping - Do NOT Disturb. Notify Building Management of Any Damage."</div> <div>2. Contractor's name, address and phone number.</div> <div>3. Designation of applicable testing agency</div> <div>4. Date of Installation</div> <div>5. Manufacturer's name</div> <div>6. Installer's name</div>
Warranty: Provide manufacturers' standard product warranty.



Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date
© 2024 Aho Architects, LLC. All Rights Reserved.		
Architectural Specifications		
Project number	24005	
Date	5/15/2024	
Drawn by	ARC	
Checked by	N/A	
G200		
Scale	12" = 1'-0"	

079200- Joint Sealants
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Tremco</u> , or a comparable product by one of the following:
1. BASF Building Systems
2. Pecora Corporation
3. Dow Corning Corp.
<u>Products:</u>
A. Silicone (for use around plumbing fixtures and around glazing):
1. Spectrem 2
2. Color: Clear
B. Urethane (for use at masonry, control joints, and rough openings)
1. Dymonic 100
2. Color: To match adjacent material color (color and paintable)
C. Joint Sealant Backing:
1. Closed cell material with a surface skin or as approved by sealant manufacturer
<u>Installation:</u>
Install sealants and proper backing according to manufacturers' written instructions.
<u>Warranty:</u>
Provide manufacturers' standard product warranty.

079219- Acoustical Joint Sealants
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>USG</u> or a comparable product by an approved manufacturer.
<u>Products:</u>
A. Acoustical Joint Sealant
1. USG Sheetrock Brand Acoustical Sealant
<u>Installation:</u>
Install sealants according to manufacturers' written instructions.
<u>Warranty:</u>
Provide manufacturer's standard warranty.

DIVISION 08 - OPENINGS
081113- Hollow Metal Doors and Frames (Standard)
<u>Manufacturers:</u>
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>CECO Door Products</u> , or a comparable product by one of the following:
1. Curries Company
2. Steelcraft
3. Or Approved equal
<u>Products:</u>
Materials
A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.
C. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.
Hollow Metal Doors
A. General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMMA 867.
B. Exterior Doors (Energy Efficient): Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A924 A60. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model, ANSI/SDI A250.4 for physical performance level, and HMMMA 867 for door construction.
1. Design: Flush panel.
2. Core Construction: Foamed in place polyurethane and steel stiffened laminated core with no stiffener face welds, in compliance with HMMMA 867 "Laminated Core".
a. Provide 22 gauge steel stiffeners at 6 inches on-center internally welded at 5" on-center to integral core assembly, foamed in place polyurethane core chemically bonded to all interior surfaces. No stiffener face welding is permitted.
b. Thermal properties to rate at a fully operable minimum U-Factor 0.29 and R-Value 3.4, including insulated door, thermal-break frame and threshold.
c. Kerf Type Frames: Thermal properties to rate at a fully operable minimum U-Factor 0.36 and R-Value 2.7, including insulated door, kerf type frame, and threshold.
3. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum 16 gauge (0.053 inch - 1.3-mm) thick steel, Model 2.
4. Vertical Edges: Vertical edges to be mechanically interlocked with hairline seam. Beveled Lock Edge, 1/8 inch in 2 inches (3 mm in 50 mm).
5. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
6. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9".
7. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
C. Exterior Doors: Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level.
1. Design: Flush panel.
2. Level/Model: Level 2 and Physical Performance Level B (Heavy Duty), Minimum 18 gauge (0.042-inch - 1.0-mm) thick steel, Model 2.
3. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
4. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
5. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
D. Interior Doors (Energy Efficient): Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A366 or 620. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level.
1. Design: Flush panel.
2. Core Construction: Steel stiffened laminated core with fiberglass filler with no stiffener face welds, in compliance with HMMMA 867 "Laminated Core".
a. Provide 22 gauge steel-stiffeners at 6 inches on-center internally welded at 5" on-center to integral core assembly. No stiffener face welding is permitted.
b. Acoustical sound transmission rating shall be no less than STC 38 complying with ASTM E 90 and must be visible on factory applied labels.
3. Level/Model: Level 2 and Physical Performance Level A (Heavy Duty), Minimum 18 gauge (0.042 inch - 1.1-mm) thick steel, Model 2.
4. Vertical Edges: Vertical edges to be mechanically interlocked with hairline seam. Beveled Lock Edge, 1/8 inch in 2 inches (3 mm in 50 mm).

081113- Hollow Metal Doors and Frames (Standard) continued:
D. Interior Doors (Energy Efficient):
5. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
6. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9".
7. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
E. Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
1. Design: Flush panel.
a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
2. Level/Model: Level 2 and Physical Performance Level B (Heavy Duty), Minimum 18 gauge (0.042-inch - 1.0-mm) thick steel, Model 2.
3. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet.
4. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
5. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
F. Manufacturers Basis of Design:
1. CECO Door Products (C) Honeycomb Core - Regent Series.
Hollow Metal Frames
A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
B. Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.
1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
2. Manufacturers Basis of Design:
a. CECO Door Products (C) – SQSeries.
b. Curries Company (CU) – M Series.
C. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.
1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
2. Manufacturers Basis of Design:
a. CECO Door Products (C) - SQ Series.
b. Curries Company (CU) - M Series.
D. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.
E. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.
Frame Anchors
A. Jamb Anchors:
1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from A60 metallic coated material, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
2. Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick.
3. Compression Type for Drywall Slip-on (Knock-Down) Frames: Adjustable compression anchors.
4. Windstorm Opening Anchors: Types as tested and required for indicated wall types to meet specified wind load design criteria.
B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.
C. Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.
<u>Installation:</u>
Install hollow metal doors and frames according to manufacturers' written instructions.
<u>Warranty:</u>
Provide manufacturers' standard product warranty.

081416- Flush Interior Wood Doors
Door Construction - General
A. WDMA I.S.1-A Performance Grade: Extra Heavy Duty; Aesthetic Grade: Premium.
B. U-Factor: 0.50
Core Construction
A. Particleboard Core Doors:
1. Particleboard: Wood fiber based materials complying with ANSI A208.1 Particleboard standard. Grade LD-2.
2. Adhesive: Fully bonded construction using Polyurethane (PUR) glue.
3. Blocking: As indicated under article "Blocking".
Veneered Doors for Painted Finish
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ASSA ABLOY Wood Doors (GR): GPD Series.
2. Eggers Industries (EG): Premium Series.
3. Marshfield-Algoma (MF): Signature Series.
4. VT Industries (VT): Artistry Series.
B. Interior Solid Core Doors:
1. Grade: Custom.
2. Faces: Veneer grades as noted below; veneer minimum 1/50-inch (0.5mm) thickness at moisture content of 12% or less.
a. Rotary Sliced Natural Birch, A grade faces.
3. Match between Veneer Leaves: Book match.
4. Assembly of Veneer Leaves on Door Faces:
a. Running Match.
5. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
6. Transom Match: Continuous match.
7. Vertical Edges: Matching same species as faces. Wood or composite material, one piece, laminated, or veneered. Minimum requirements per WDMA section P-1, Performance Standards for Architectural Wood Flush Doors.
8. Horizontal Edges: Solid wood or structural composite material meeting the minimum requirements per WDMA section P-1, Performance Standards for Architectural Wood Flush Doors
9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit sanded before applying face veneers.
10. At doors over 40% of the face cut-out for lights and or louvers, furnish engineered composite lumber core.
Light Frames and Glazing
A. Metal Frames for Light Openings in doors with up to 1-inch thick insulated glazing.
1. Low profile beveled vision lite frame
2. Color: Gray
3. 20 gauge cold rolled steel
4. Mitered and welded corners with counter sunk mounting holes
5. Size as indicated on plans.
B. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with the flush wood door manufacturer's written instructions.
Fabrication
A. Factory fit doors to suit frame opening sizes indicated.
1. Comply with requirements in NFPA 80 for fire rated doors.
2. Undercut: As required per manufacturer's templates and sill condition.
B. Factory machine doors for hardware that is not surface applied. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
2. Metal Astragals: Factory machine astragals and formed steel edges for hardware for pairs of fire rated doors.
C. Openings: Cut and trim openings through doors in factory.
1. Light Openings: Trim openings with moldings of material and profile indicated.
2. Glazing: Comply with applicable requirements in Division 08 Section "Glazing."
<u>Installation</u>
A. Install per manufacturers' standard written instructions.
<u>Warranty</u>
A. Provide manufacturers' standard material warranty.

083113- Access Doors and Frames
<u>Manufacturers:</u>
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Williams Brothers</u> , or a comparable product by an approved manufacturer.
<u>Products:</u>
A. Attic Ladder: Super Simplex Disappearing Stairway
i. Opening Size: 30 inches x 54 inches
ii. Floor to Mezzanine Height: 8' - 10 1/2"
iii. Floor to Ceiling Height: 8' - 0"
iv. Ladder width: 18 inches min.
<u>Installation:</u>
1. Install attic access according to manufacturer's written instructions.
<u>Warranty:</u>
1. Provide manufacturers' standard product warranty.

083613- Sectional Doors (Standard and Hurricane Non-Impact):
<u>Manufacturers:</u>
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Raynor Garage Doors</u> , or a comparable product by an approved manufacturer.
Please note: Overhead Door Company is <u>not</u> an approved manufacturer.
<u>Products:</u>
<u>Notes:</u>
1.) All glazing to have proper labels as required by local AHJ and building codes.
2.) All glazing shall be reviewed and approved by the local distributor to meet the requirements for the region in which the glazing is being installed. Any issues with items specified shall be brought to the attention of the Architect prior to bid.
1.1 MANUFACTURERS
A. Acceptable Manufacturer: Raynor, which is located at: 1101 East River Rd. P. O. Box 448; Dixon, IL 61021-0448; Toll Free Tel: 800-4-RAYNOR; Tel: 815-288-1431; Fax: 888-598-4790; Email: HYPERLINK https://admin.arcat.com/users.pl?action=UserEmail&company=Raynor&coId=35092&rep=&fax=888-598-4790&message=RE%20%20%20Question%20(083601rgd):%20%20&mf= request info (architectsupport@raynor.com); Web:http://www.raynor.com;
B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
1.2 SECTIONAL RIBBED PAN DOOR (Standard Windload)
A. SteelForm as manufactured by Raynor Garage Doors:
1. Doors:
a. Operation:
1) Provide doors designed for manual operation.
b. Jamb Construction:
1) Steel jambs with self-tapping fasteners.
c. Structural Performance Requirements:
1) Wind Loads: See Structural.
2. Sections:
a. SteelForm S24C (Basic):
1) Section end stiles and center stiles to be a minimum 16 gauge galvanized steel. End stiles and center stiles to be riveted to outside face with stainless steel rivets and resistance welded to interior rail.
2) Material: Steel pan construction, 2 inches thick, roll formed from 24 gauge embossed thickness, commercial quality, hot-dipped galvanized (G40) steel complying with ASTM A 653. Exterior of door to have two deep ribs, four pencil grooves, and roll-formed tongues-and-groove joints for weathertight closure.
3) Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.
a) Color: White polyester paint.
b. Seals: Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail. Optional blade seal on top section to prevent airflow above header
c. Trussing: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 1/120th of door width.
3. Windows: Locations to comply with door elevation drawings.
a. Full-view windows consisting of aluminum stile and rail construction and (where applicable) color matched to door exterior with powdercoat paint in specified door sections. - See door elevation sheet.
b. Non-Impact Rated Glazing: 1/4 inch Clear Tempered Glass consisting of one pane of 1/4 inch non-insulated glass.
4. Mounting: Sections mounted in door opening using:
a. Lap Jamb Angle Mounting: section overlap door jambs by 1 inch on each side of door opening.
5. Track:
a. Material: Hot-dipped galvanized steel (ASTM A 653), fully adjustable for adequate sealing of door to jamb or weatherseal.
b. Track Size: 2 inches.
1) Jamb Type: Steel.
a) Mounting: QuikClip. Clip-Angle brackets pre-assembled to continuous angle from floor to door header and continuous angle from door header to door shaft. Angle Size: 2-5/16 x 1-1/4 x 3/32 inches.
6. Counterbalance:
a. Counterbalance System: Provided with aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs on a continuous ball-bearing cross-header shaft.
1) Spring Cycle Requirements: High cycle: 50,000 cycles.
7. Hardware:
a. Hinges and Brackets: Fabricated from galvanized steel.
b. Perimeter Seal: Provide complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.
1) For angle mounted doors provide angle clip-on seal.
c. Furnish door system with locks: Two Interior slide locks with dead bolt provided with hole to receive padlock provided by Owner.
d. Provide leaf spring bumpers.
8. SteelForm Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.
9. Configuration Type: Vertical Lift Clearance: Track must provide 35" available headroom, which will maintain 4" minimum clearance from finish floor to underside of lift equipment.
Follow manufacturer's instructions for installation. Support tracks are to be adequately reinforced with continuous angle attached to structure.

PART 2 EXECUTION
2.1 EXAMINATION
A. Do not install until substrates have been properly prepared. Verify that site conditions are acceptable for installation of doors, operators, controls and accessories. Ensure that openings are square, flush and plumb.
B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
2.2 PREPARATION
A. Clean surfaces thoroughly prior to installation.
B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
2.3 INSTALLATION
A. General: Install door, track and operating equipment complete with all necessary accessories and hardware according to shop drawings, manufacturer's instructions.
B. Lubricate bearings and sliding parts, and adjust doors for proper operation, balance, clearance and similar requirements.

083613- Sectional Doors (Standard and Hurricane Non-Impact) continued:
2.4 PROTECTION
A. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove and legally dispose of construction debris from project site.
B. Remove temporary coverings and protection of adjacent work areas. Repair or replace installed products damaged prior to or during installation.
C. Lubricate bearings and sliding parts, assure weather tight fit around door perimeter and adjust doors for proper operation, balance, clearance and similar requirements. Protect installed products until completion of project.
D. Touch-up, repair or replace damaged products before Substantial Completion.
<u>Installation:</u>
Install sectional doors according to manufacturers' written instructions.
<u>Warranty:</u>
Provide manufacturers' standard product warranty.
084113- Aluminum-Framed Entrances and Storefronts (Standard & Hurricane Non-Impact)
<u>Manufacturers:</u>
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>YKK AP America Inc.</u> , or a comparable product by one of the following:
1. Kawneer
2. Or Approved equal
<u>Products:</u>
A. Exterior Storefront System
1. YES 45 TU
2. Center set.
3. Thermal Barrier: Provide continuous thermal barrier by means of a poured and debridged pocket consisting of a two part, chemically curing high density polyurethane which is bonded to the aluminum by YKK ThermoBond Plus.
4. Materials: Anodized Aluminum; 0.050" minimum thickness.
5. Accessories: As recommended by the manufacturer.
6. Components: Manufacturer's standard extruded aluminum mullions, entrance doors, framing, and indicated shapes, perimeter anchor fillers and steel reinforcing as required.
7. Glazing Stops: Manufacturer's standard glazing stops with EPDM glazing gaskets to prevent water infiltration at the exterior and Dow Corning 995 Structural Silicone Sealant with fixed stops at the interior. Color to match storefront.
8. Finish: See finish schedule.
9. Wind Load: See Structural for design pressures.
10. Door: 35D - Medium Stile
a. Material: 0.050" aluminum min. thickness
b. Finish: See finish schedule.
c. Hardware: See Division 8 Door Hardware
d. Accessories: Manufacturer's standard
e. Glass: See Division 8 Glazing
f. Glazing Stops: Manufacturer's standard
g. Weather-stripping: Manufacturer's standard
B. Interior Storefront System
1. YES 45 FS
2. Center set.
3. Materials: Anodized Aluminum; 0.050" minimum thickness.
4. Accessories: As recommended by the manufacturer.
5. Finish: See finish schedule.
C. Storefront Glazing
1. Glazing: Comply with Division 08 "Glazing"
2. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of light gray resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.
3. Glazing Sealants: As recommended by the manufacturer.
<u>Installation:</u>
Install aluminum-framed entrances and storefronts according to manufacturers' written instructions.
<u>Warranty:</u>
Provide manufacturers' standard product warranty.

087100- Door Hardware (Standard Single Bldg. w/ Side Tire Storage)
<u>Manufacturers:</u>
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by the following manufacturers, or approved equal:
1. MK- McKinney
2. AD- Adams Rite
3. YA- Yale
4. RO- Rockwood
5. NO- Norton
6. PE- Pemko
General Notes:
1. Hardware listed for design criteria, confirm with specific door manufacturer.
2. Finishes for all door hardware are to be as indicated on Finish Schedule.
<u>Hardware Sets:</u>
Set: 1.0
Doors: 1
Description: EXT - ALUM
1 Continuous Hinge MK
1 Deadlatch 4900 x 4591 AD
1 Cylinder Mort / Cyl as required YA
2 Pull BF168 RO
1 Surface Closer CLP8501 NO
1 Mtg Plate as required NO
1 Threshold 271A Pemkote MSES25SS PE
1 Gasketing by door / frame mfg
1 Sweep 315CN PE
Set: 2.0
Doors: 2, 3, 21, 22
Description: BAYS
4 Hinge TA2714 4-1/2" x 4-1/2" MK
1 Cylindrical Lock (classroom) PB 5408LN YA
1 Surface Closer 8501 Reg / PA NO
1 Kick Plate K1050 8" X 2" LDW 4BE CSK NO
1 Door Stop 409 / 446 [as required] RO
1 Gasketing S773D PE
Set: 3.0
Doors: 4
Description: WAITING - ALUM
1 Contious Hinge MK
2 Door Pull BF168 RO
1 Surface Closer 8501 Reg / PA NO
1 Door Stop 409 / 446 [as required] RO
1 Gasketing by door / frame mfg



FINAL		
No.	Description	Date
© 2024 Aho Architects, LLC. All Rights Reserved.		
Architectural Specifications		
Project number		24005
Date		5/15/2024
Drawn by		ARC
Checked by		N/A
G201		
Scale		12" = 1'-0"

087100- Door Hardware (Standard Single Bldg. w/ Side Tire Storage) continued:			
Set: 3.1			
Doors: 9, 19, 20, 23			
Description: EXT- BAYS			
4	Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	MK
1	Exit Device (rim, nightlatch)	7150 WS PB627F	YA
1	Cylinder	Mort / Cyl as required	YA
1	Surface Closer	CLP8501	NO
1	Threshold	271A Permote MSES25SS	PE
1	Gasketing	S773D	PE
1	Rain Guard	346C x LAR	PE
1	Sweep	315CN	PE
Set: 4.0			
Doors: 5			
Description: TOILET			
4	Hinge	TA2714 4-1/2" x 4-1/2"	MK
1	Cylindrical Lock (privacy)	PB 5402LN	YA
1	Mop Plate	K1050 4" X 1" LDW 4BE CSK	RO
1	Door Stop	409 / 446 [as required]	RO
1	Gasketing	S773D	PE
1	Surface Closer	8501 Reg / PA	NO
Set: 5.0			
Doors: 13			
Description: OFFICE			
4	Hinge	TA2714 4-1/2" x 4-1/2"	MK
1	Cylindrical Lock (entry)	PB 5407LN	YA
1	Door Stop	409 / 446 [as required]	RO
1	Threshold	271A Permote MSES25SS	PE
1	Gasketing	S773D	PE
1	Sweep	315CN	PE
1	Surface Closer	8501 Reg / PA	NO
Set: 6.0			
Doors: 14			
Description: BREAK			
4	Hinge	TA2714 4-1/2" x 4-1/2"	MK
1	Passage Set	PB 5401LN	YA
1	Surface Closer	8501 Reg / PA	NO
1	Mop Plate	K1050 4" X 1" LDW 4BE CSK	RO
1	Kick Plate	K1050 8" X 2" LDW 4BE CSK	RO
1	Door Stop	409 / 446 [as required]	RO
1	Gasketing	S773D	PE
Set: 7.0			
Doors: 15			
Description: SHOP TOILET			
4	Hinge	TA2714 4-1/2" x 4-1/2"	MK
1	Cylindrical Lock (privacy)	PB 5402LN	YA
1	Mop Plate	K1050 4" X 1" LDW 4BE CSK	RO
1	Door Stop	409 / 446 [as required]	RO
1	Threshold	271A Permote MSES25SS	PE
1	Gasketing	S773D	PE
1	Sweep	315CN	PE
1	Surface Closer	8501 Reg / PA	NO
Set: 8.0			
Doors: 6, 7, 8, 10, 11, 12, 16, 17, 18, 24, 25, 26			
Description: OH DOOR			
1	Hardware	By door mfg	
Installation: Install door hardware according to manufacturers' written instructions. All door hardware (Interior and Exterior) to be keyed alike.			
Warranty: Provide manufacturers' standard product warranty.			

088000- Glazing (IGU) Standard and Hurricane Non-Impact	
Manufacturers:	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Vitro</u> , or a comparable product by one of the following:	
1.	Guardian Industries Corp.
2.	Or Approved equal
Products:	
Notes:	
1.)	All glazing to have proper labels as required by local AHJ and building codes.
2.)	All glazing shall be reviewed and approved by the local distributor to meet the requirements for the region in which the glazing is being installed. Any issues with items specified shall be brought to the attention of the Architect prior to bid.
A.	GL-1 Insulated Glass Unit Double Glazed Clear Solar Control Insulating Glass Unit Solarban® 90 on Clear 6mm (2) Air 1/2" (12.7mm) Clear 6mm 1. Conformance: ASTM E 2190 2. Outdoor Lite: Clear Float Glass as manufactured by Vitro Architectural Glass a. Conformance: ASTM C 1036, Type 1, Class 1, Quality q3. b. Glass Thickness: 6mm (1/4") c. Magnetic Sputter Vacuum Deposition Coating (MSVD): ASTM C 1376. d. Coating: Solarban® 90 on Surface # 2 e. Heat-Treatment: Tempered; ASTM C 1048, Kind FT; Safety Glazing meets ANSI Z97.1 and CPSC 16CFR-1201 3. Interspace Content: Air 1/2" (12.7mm) 4. Indoor Lite: Clear float glass as manufactured by Vitro Architectural Glass a. Conformance: ASTM C 1036, Type 1, Class 1, Quality q3. b. Heat-Treatment: Tempered; ASTM C 1048, Kind FT; Safety Glazing meets ANSI Z97.1 and CPSC 16CFR-1201 c. Glass Thickness: 6mm (1/4") 5. Performance Requirements: a. Visible Light Transmittance: 51 percent minimum. b. Winter Nighttime U-Factor: 0.29 (Btu/hr*ft²**F) maximum. c. Summer daytime U-Factor: 0.27 (Btu/hr*ft²**F) maximum. d. Shading Coefficient: 0.27 maximum. e. Solar Heat Gain Coefficient: 0.23 maximum. f. Outdoor Visible Light Reflectance: 12 percent maximum.
B.	GL-2 Monolithic Single-Glaze Float-Glass: Monolithic Clear Glass Clear 6mm 1. Clear float glass as manufactured by Vitro Architectural Glass a. Conformance: ASTM C 1036, Type 1, Class 1, Quality q3. b. Heat-Treatment: Tempered; ASTM C 1048, Kind FT; Safety Glazing meets ANSI Z97.1 and CPSC 16CFR-1201 c. Glass Thickness: 6mm (1/4") 2. Performance Requirements: a. Visible Light Transmittance: 89 percent minimum. b. Winter Nighttime U-Factor: 1.02 (Btu/hr*ft²**F) maximum. c. Summer daytime U-Factor: 0.92 (Btu/hr*ft²**F) maximum. d. Shading Coefficient: 0.94 maximum. e. Solar Heat Gain Coefficient: 0.82 maximum. f. Outdoor Visible Light Reflectance: 8 percent maximum.
C.	Glazing Installation 1. Install per manufacturers' standard written instructions.
D.	Glazing warranty 1. Provide manufacturers' standard product warranty.

DIVISION 9 - FINISHES	
092900- Gypsum Board	
Manufacturers::	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Lafarge</u> unless otherwise indicated, or a comparable product by one of the following:	
1.	Georgia-Pacific
2.	USG
3.	National Gypsum
Products:	
A.	Moisture and Mold-Resistant Type: Mold Defense 1. Thickness: 1/2 inch 2. Long Edges: Tapered 3. Finish: Level 4 in areas exposed to view. Level 1 in concealed areas.
B.	Water-resistant Type: Watercheck (@ Toilet Rooms and behind plumbing fixtures) 1. Thickness: 1/2 inch 2. Long Edges: Tapered 3. Finish: Level 4 4. Cuts: All cuts in board shall be covered with special waterproofing sealant as recommended by the manufacturer.
C.	Type X: Firecheck (As Required) 1. Thickness: 5/8" 2. Long Edges: Tapered 3. Finish: Level 4 4. All penetrations and joints to be sealed with fire caulk as recommended by the manufacturer.
Installation: Install gypsum board and accessories according to manufacturers' written instructions.	
Warranty: Provide manufacturers' standard product warranty.	

093013- Ceramic Tiling	
Manufacturer:	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below:	
Products:	
A.	Ceramic Tile: Volume 1.0 by Daltile 1. Size: 12"x12" 2. Color: Intensity Pebble VL72
B.	Epoxy Grout: Kerapoxy by MAPEI 1. Color: 47 Charcoal
C.	Transition Strip: RENO-U 3/8" /10 mm by Schluter Systems 1. Type: ADA Compliant 2. Finish: Satin Anodized Aluminum
Installation: Install ceramic tile and accessories according to manufacturers' written instructions.	
Warranty: Provide manufacturers' standard product warranty.	

096513- Resilient Base and Accessories	
Manufacturers:	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Roppe</u> , or a comparable product by one of the following:	
1.	Johnsonite, a Tarkett Company
2.	Armstrong World Industries
3.	Or Approved equal
Products:	
A.	Rubber Base: Pinnacle Rubber by Roppe 1. Height: 4" 2. Length: Coils in manufacturer's standard length 3. Outside Corners: Job formed 4. Inside Corners: Job formed 5. Color as indicated on finish schedule.
B.	Adhesives: As recommended by the manufacturer
Installation: Install resilient base according to manufacturers' written instructions.	
Warranty: Provide manufacturers' standard product warranty.	

099113- Exterior Painting	
Manufacturer:	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Sherwin Williams</u> .	
Products:	
A.	Masonry: Pro Industrial Urethane Alkyd Enamel Gloss, B54-150 Series
B.	Steel: Pro Industrial Urethane Alkyd Enamel Gloss, B54-150 Series
C.	Wood: Pro Industrial Urethane Alkyd Enamel Gloss, B54-150 Series
D.	Aluminum: Pro Industrial Urethane Alkyd Enamel Gloss, B54-150 Series
Note: Use 1 coat primer as recommended by manufacturer and 2 finish coats unless otherwise recommended by the manufacturer.	
Installation: Install exterior paint according to manufacturers' written instructions.	
Warranty: Provide manufacturers' standard product warranty.	

099123- Interior Painting	
Manufacturer:	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Sherwin Williams</u> .	
Products:	
A.	Masonry: Pro Industrial Pre-Catalyzed Water Based Epoxy Semi-Gloss, K46W151 Series
B.	Steel: Pro Industrial Urethane Alkyd Enamel Gloss, B54-150 Series
C.	Wood: Pro Industrial Urethane Alkyd Enamel Gloss, B54-150 Series
D.	Gypsum Board in Office Area: ProMar 200 Zero VOC Interior Latex Egshel, B20W2600 Series. Use extreme bond primer at vinyl graphics.
E.	Gypsum Board in Bay Area: ProMar 200 Zero VOC Interior Latex Egshel, B20W2600 Series. Use extreme bond primer at vinyl graphics.
F.	Gypsum Board Ceilings: ProMar 200 Zero VOC Interior Latex Flat, B30W2650 Series
G.	Plywood Ceilings: ProMar 200 Zero VOC Interior Latex Flat, B30W2650 Series
H.	Sealed Concrete Floors: ArmorSeal Rexthane I Floor Coating + Shark Grip (1000 HS primer)

099123- Interior Painting (continued):	
Note: Use 1 coat primer as recommended by manufacturer and 2 finish coats unless otherwise recommended by the manufacturer.	
Installation: Install interior paint according to manufacturers' written instructions.	
Warranty: Provide manufacturers' standard product warranty.	

DIVISION 10 - SPECIALTIES	
101419- Dimensional Letter Signage - By others.	

101423.13 Room-Identification Signage	
See drawing on A602.	

102600 - Wall and Door Protection	
Manufacturer:	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>InPro Corporation</u> :	
Products:	
A.	Stainless Steel Flush Mount Corner Guards
B.	Corner Radius:1/8"
C.	Height: 4'-0"
D.	Width: 1 1/2"
E.	Materials: Stainless Steel: Type 430, 16 gauge
F.	Attachment: Pre-drilled beveled holes and phillips head screws.
G.	Finish: Stainless Steel No. 4 satin finish.
H.	Location: As indicated on drawings
J.	Installation: Install per manufacturer's standard written instructions.
K.	Warranty: Provide manufacturers' standard product warranty.

102800- Toilet, Bath, and Laundry Accessories	
The following list of accessories is essentially complete; however, the Contractor shall examine the drawings carefully and shall supply such items not specifically called for to provide a complete installation.	
Manufacturers:	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Bradley Corporation</u> or a comparable product by one of the following:	
1.	Bobrick Washroom Equipment, Inc.
2.	American Specialties, Inc.
3.	Or Approved Equal
Products:	
A.	Robe Hook: Bradley Model 915.
B.	Grab Bars: Bradley Model 8120-00142, Model 8120-00136, and Model 8120-00124
C.	Toilet Tissue Dispenser: Bradley Model 5425 (By Others)
D.	Mirror: Bradley Model 780-02436
E.	Soap Dispenser: Bradley Model 6563 (By Others)
F.	Paper Towel Dispenser: Bradley Model 2494 (By Others)
G.	Under Lavatory Guard: Truebro Lav Guard 2 by IPS Corporation
H.	Baby Changing Station: Bradley Model 9631 (Light Gray)
Installation:	
1. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and heights indicated.	
2. Install grab bars to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.	
Warranty: Provide manufacturers' standard product warranty.	

104413- Fire Department Lock Box	
Manufacturers:	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Knox</u> , or a comparable product by one of the following:	
1.	Kidde
2.	Or Approved Equal
Products:	
A.	Lock Box: 3200 Series Hinged Door Surface Mount i. Color: As indicated on Finish Schedule
Installation: 1. Install fire department lock box in location and height as required by the authorities having jurisdiction. 2. Install per manufacturer's written installation instructions.	
Warranty: Provide manufacturers' standard product warranty.	

104416- Fire Extinguishers	
Manufacturers:	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Amerex Corporation</u> , or a comparable product by one of the following:	
1.	Larsens Manufacturing Company
2.	JL Industries
3.	Or Approved Equal
Products:	
A.	ABC Dry Chemical Extinguisher: Amerex Model B456
B.	Wall Bracket: Amerex Model 0546 Wall
C.	UL and ULC Rating: 4A-80BC
Installation:	
1. Install fire extinguishers in locations and heights indicated and in compliance with requirements of authorities having jurisdiction.	
2. Install fire extinguishers and brackets according to manufacturers' written instructions.	
Warranty: Provide manufacturers' standard product warranty.	

DIVISION 12- FURNISHINGS	
123623.13 Plastic-Laminate-Clad Countertops	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Wilsonart</u> .	
Products:	
A.	Plastic Laminate #1 i. High pressure decorative laminate: NEMA LD3 ii. Grade: HGS iii. Color: 4880-38 Carbon Mesh
B.	Adhesives: as recommended by the manufacturer
Installation: Install plastic laminate according to manufacturers' written instructions.	
Warranty: Provide manufacturers' standard product warranty.	

DIVISION 31- EARTHWORK	
313116- Termite Control	
Provide EPA Registered termiticide acceptable to authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation.	
DIVISION 33 - UTILITIES	
334600- Subdrainage	
Basis-of-Design Product: Subject to compliance with requirements, provide products indicated below by <u>Carlisle</u> .	
Products:	
A.	CCW MiraDrain 6200 and 9800
B.	CCW MiraStop
C.	CCW MiraClay Woven Geotextile
D.	CCW MiraClay Granules or Mastic
Installation: Install subdrainage products according to manufacturers' written instructions.	



Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date
© 2024 Aho Architects, LLC. All Rights Reserved.		
Architectural Specifications		
Project number	24005	
Date	5/15/2024	
Drawn by	ARC	
Checked by	N/A	
G202		
Scale	12" = 1'-0"	

EXPRESS OIL CHANGE & TIRE ENGINEER STANDARDS - EXTERIOR

EXTERIOR

RED BRICK

On newer prototype buildings, the red brick is left unpainted. The Blue Blood stripe extends all the way up to the flashing on the roof down to the top of the bay doors and all the way around the buildings. On Peak buildings, the peak is painted summit gray.

The Bay Doors are painted a bright white. The islands that protect the bay doors are painted Safety Red. Downspouts and gutters to be painted Blue Blood.

If the building does not have a Peak, you must use the GRAY BRICK color scheme.

Must have a Gray, Black, or Blue Roof



3

PAINTED GRAY BRICK

PAINTED GRAY BRICK

Painted buildings include all of the same specs as the RED BRICK buildings except the red brick is painted Summit Gray. Downspouts are painted to match the background of the building.

If the building does not have a Peak, the blue stripe will go all the way around the building.


Must have a Gray, Black, or Blue Roof



4

EXTERIOR

EOC & TE SIGN FOR PEAK BUILDINGS



5


Signage by Others

EXTERIOR

CUSTOM LIGHTBAR (OPTIONAL)

The new lightbar sits underneath the letters and is an aesthetic architectural compliment during the day and catches the viewers attention at night.

The lightbar is to sit even with the top of the bay doors and span across all bay doors.



7

Lightbar by Others

EXTERIOR

CHANNEL LETTERS

White channel letters with 3" depth. Channel letter sizing is dictated by space and also may change due to the local sign regulations. In most cases, these letters are treated as directional signage. In most cases, sizes vary from 18" to 24".

FONT

Interstate Bold Condensed - 50pt tracking

LETTERING FOR FRONT BUILDING

10 MINUTE OIL CHANGE

FULL SERVICE AUTO CARE

TIRE CENTER

LETTERING FOR BACK BUILDINGS

TIRES ALIGNMENT ROTATE & BALANCE

DIAGNOSTICS A/C BRAKES

8

Letters by Others

EXTERIOR

AWNING

The new metal awning adds a nice modern, industrial look to the buildings and features built-in lighting for customers entering and exiting in late afternoons. Standard size is 12' for most buildings.



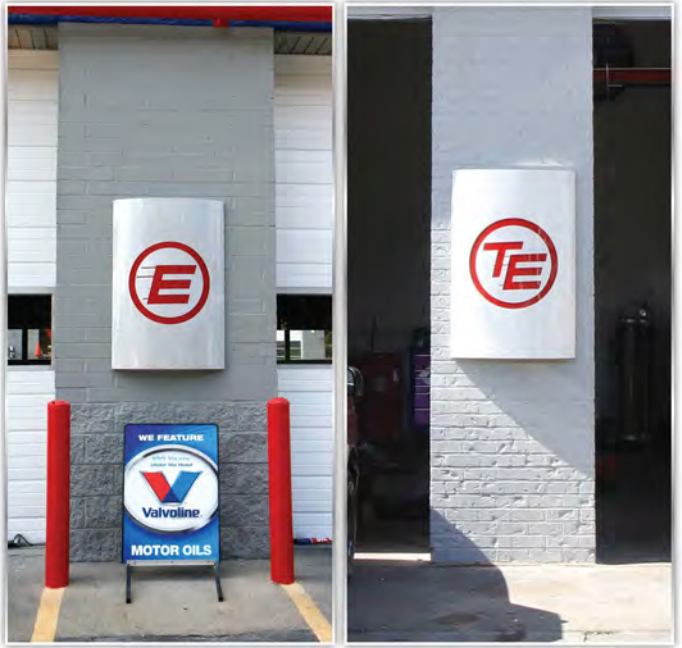
9

Awnings by General Contractor. See Details

BRANDED SCONCES

BRANDED SCONCES

40"x28" aluminum sconces light up your building from top to bottom with a glowing logo in center. E sconces are to be placed on oil change side. TE sconces are to be placed on mechanical side. Sconces to to be evenly spaced between the bay doors, and vertically centered with the bay doors.



10

Branded Sconces by Others

Note: Items shown on this page are EOC standards. See Finish Schedule for actual materials to be used on this project.

No.	Description	Date

COMcheck Software Version COMcheckWeb
Envelope Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: 24005_EOC Sevierville, TN
Location: Sevierville, Tennessee
Climate Zone: 4a
Project Type: New Construction
Vertical Glazing / Wall Area: 6%

Construction Site: 331 Old Douglas Dam Road
Sevierville, Tennessee 37876

Owner/Agent: Jim Davis
Express Oil Change & Tire
Exhaust, Inc.
1807 Southgate Drive
Birmingham, Alabama 35244
2059836000
jdv@expressoil.com

Designer/Contractor: Marc Brunson
AHO ARCHITECTS, LLC
1835 Davis Drive, Suite 150
Foster, Alabama 35244
2059836000
mbrunson@ahoarch.com

Additional Efficiency Packages(s)
Cavity, L7 Reduced, L3 Improved
Reduced Lighting Power, L0 credit

Building Area **Floor Area**
1-Automotive Facility - Nonresidential 668

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor
Roof: Attic Roof, Wood joists, [Bldg. Use 1 - Automotive Facility]	668	88.0	0.0	0.027	0.027
Floor: Unheated Slab-On-Grade, Vertical 2 ft., [Bldg. Use 1 - Automotive Facility] (L)	137	—	15.0	0.520	0.540
NORTH					
Ext. Wall @ Corridor, Wood-Frame, 16in. o.c., [Bldg. Use 1 - Automotive Facility]	90	20.0	0.0	0.064	0.064
Ext. Wall @ Storage 10, Wood-Frame, 16in. o.c., [Bldg. Use 1 - Automotive Facility]	224	20.0	0.0	0.064	0.064
EAST					
Ext. Wall, Wood-Frame, 16in. o.c., [Bldg. Use 1 - Automotive Facility]	817	20.0	0.0	0.064	0.064
Window A, Metal Frame, Fixed, Perf. Specs., Product ID Solarban 90 on clear, SHGC 0.23, PF 0.63, [Bldg. Use 1 - Automotive Facility] (B)	15	—	—	0.270	0.380
Window B, Metal Frame, Fixed, Perf. Specs., Product ID Solarban 90 on clear, SHGC 0.23, PF 0.63, [Bldg. Use 1 - Automotive Facility] (B)	8	—	—	0.270	0.380
Door #2, Wood, Swinging, [Bldg. Use 1 - Automotive Facility]	21	—	—	0.800	0.610
Door #13, Wood, Swinging, [Bldg. Use 1 - Automotive Facility]	21	—	—	0.800	0.610
SOUTH					
Ext. Wall, Wood-Frame, 16in. o.c., [Bldg. Use 1 - Automotive Facility]	228	20.0	0.0	0.064	0.064

Project Title: 24005_EOC Sevierville, TN
Data Filename: Report date: 05/07/24
Page: 1 of 9

Section & Req. ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.5.5 (M413)	Star and elevator shaft vents have mechanical dampers that automatically close. Reference section C403.7.7 for operational details.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Applicable	
C402.7.7 (M413)	Outdoor air and exhaust systems have insulated dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed. Reference section (language for operational details).	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: 24005_EOC Sevierville, TN
Data Filename: Report date: 05/07/24
Page: 6 of 9

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor
Roof: Metal Frame with Thermal Break, Fixed, Perf. Specs., Product ID Solarban 90 on clear, SHGC 0.23, PF 0.63, [Bldg. Use 1 - Automotive Facility] (B)	65	—	—	0.270	0.380
Door #1, Glass (over 50% glazing) Metal Frame, Entrance	21	—	—	0.270	0.770
Ext. Wall, Wood-Frame, 16in. o.c., [Bldg. Use 1 - Automotive Facility] (B)	109	20.0	0.0	0.064	0.064
Ext. Wall, Wood-Frame, 16in. o.c., [Bldg. Use 1 - Automotive Facility]	21	—	—	0.500	0.610
Door #14, Wood, Swinging, [Bldg. Use 1 - Automotive Facility]	21	—	—	0.500	0.610
WEST					
Ext. Wall, Wood-Frame, 16in. o.c., [Bldg. Use 1 - Automotive Facility]	816	20.0	0.0	0.064	0.064
Door #2, Wood, Swinging, [Bldg. Use 1 - Automotive Facility]	21	—	—	0.800	0.610
Door #15, Wood, Swinging, [Bldg. Use 1 - Automotive Facility]	21	—	—	0.800	0.610

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) Fenestration product performance must be certified in accordance with NFRC, and requires supporting documentation.
(c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope FASSES: Design 11% better than code

Envelope Compliance Statement
Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Marc C. Brunson
Name Title Signature Date 05/07/2024

Project Title: 24005_EOC Sevierville, TN
Data Filename: Report date: 05/07/24
Page: 2 of 9

Section & Req. ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 (EL20)	Low-voltage dry-type distribution	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Applicable	
C405.7 (EL21)	Electric motors meet the minimum efficiency requirements of Tables C405.7.1 through C405.7.4 (Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer before certification programs do not exist).	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Applicable	
C405.8.2 (EL20)	Elevation and routing comply with ASME A17.1, CSA 544 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1, CSA 544 or applicable local code when not conveying passengers.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Applicable	
C405.9 (EL20)	Total voltage drop across the combination of feeders and branch circuits <= 3%.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: 24005_EOC Sevierville, TN
Data Filename: Report date: 05/07/24
Page: 7 of 9

COMcheck Software Version COMcheckWeb
Inspection Checklist

Energy Code: 2018 IECC
Requirements: 5.0% were addressed directly in the COMcheck software.
Test in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section & Req. ID	Final Review	Complies?	Comments/Assumptions
C103.2 (P14)	Plans and/or specifications provide all information with which compliance can be determined for the building envelope and document where exceptions to the standard are claimed.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C402.4.1 (P13)	The vertical fenestration area <= 10 percent of the gross above-grade wall area.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C402.4.1 (P11)	The skylight area <= 3 percent of the gross roof area.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C402.4.2 (P14)	In enclosed spaces > 2,500 sq ft directly under a roof with ceiling heights > 15 ft, and used as an office, lobby, atrium, concourse, corridor, storage, communications center, convention center, automotive service, manufacturing, non-refrigerated warehouse, retail store, distribution/wharfing area, the following requirements apply: (a) the skylight area under skylight is >= 1/2 the floor area, (b) the skylight area to daylight zone is >= 3 percent with a skylight VT >= 0.40, or (c) minimum skylight effective aperture >= 1 percent.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C406 (P19)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: 24005_EOC Sevierville, TN
Data Filename: Report date: 05/07/24
Page: 3 of 9

Section & Req. ID	Insulation Inspection	Complies?	Comments/Assumptions
C203.1 (N1)	Roof insulation installed per manufacturer's instructions. Blown or poured loose-fill insulation is installed only where the roof slope is <= 3 in 12.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C402.3.1 (N2)	Insulation installed on a suspended ceiling having ceiling tiles is not being specified for installing assemblies. Continuous insulation board installed >= 2 or more layers with edge joints offset between layers.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C203.3 (N1)	Building envelope insulation is labeled with R-value or insulation certificate providing R-value and other relevant data.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C203.2 (N1)	Above-grade wall insulation installed per manufacturer's instructions.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C105 (N1)	Installed above-grade wall insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.3 (N1)	Installed floor insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.8 (N1)	Radiant panels and associated components, designed for heat transfer from the panel surface to the occupants or indoor space are insulated with a minimum of R-5.3.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C105 (N2)	Installed roof insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports. For some ceiling systems, verification may need to occur during framing inspection.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.3.1 (N1)	All sources of air leakage in the building thermal envelope are sealed, caulked, gasketed, weather stripped or wrapped with moisture vapor-permeable wrapping material to minimize air leakage.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: 24005_EOC Sevierville, TN
Data Filename: Report date: 05/07/24
Page: 8 of 9

Section & Req. ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C203.2 (P14)	Slab edge insulation installed per manufacturer's instructions.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C103.2.1 (P13)	Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C105 (P13)	Installed slab-on-grade insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.4 (P13)	Slab edge insulation depth/length. Slab insulation extending away from building is covered by pavement or >= 10 inches of soil.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: 24005_EOC Sevierville, TN
Data Filename: Report date: 05/07/24
Page: 4 of 9

Section & Req. ID	Final Inspection	Complies?	Comments/Assumptions
C402.3 (P15)	Building envelope contains a continuous air barrier that has been tested and deemed to limit air leakage <= 0.05 cfm/ft².	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C402.5.6 (P17)	Weatherstrips installed on all loading dock cargo door openings and provide direct contact along the top and side of vehicles parked in the doorway.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C406.1.1 (P17)	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturer's information, specifications, programming procedures and means of illustrating to owner how building equipment and systems are intended to be installed, maintained, and controlled.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

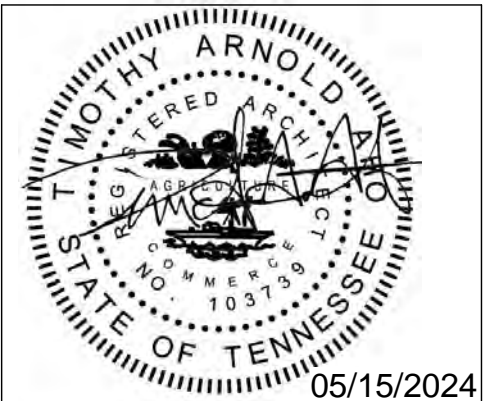
Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: 24005_EOC Sevierville, TN
Data Filename: Report date: 05/07/24
Page: 9 of 9

Section & Req. ID	Framing / Rough-In Inspection	Complies?	Comments/Assumptions
C203.1.3 (P17)	Fenestration products rated in accordance with NFRC.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C203.1.3 (P13)	Fenestration products are certified to performance labels or certificates provided.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C402.4.3 (P13)	Vertical fenestration SHGC value.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.4.3 (P13)	Installed vertical fenestration U-factor and SHGC consistent with label, specifications and as reported in plans and COMcheck reports.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.5.3 (P17)	Vestibules are installed on all building entrances. Doors have self-closing devices.	<input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: 24005_EOC Sevierville, TN
Data Filename: Report date: 05/07/24
Page: 5 of 9



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Building
COMCheck

Project number 24005
Date 5/15/2024
Drawn by ARC
Checked by N/A

G400

Scale

1 General Information

PROJECT INFORMATION

Name of Project:

Single Building / Front Enter / Side Tire Storage

Client:

Express Oil Change & Tire Engineers

Location:

Sevierville, Tennessee

Authority Having Jurisdiction (AHJ):

City: Sevierville County: N/A State: N/A

Square Footage / Stories / Height:

Main Level G.S.F. = 5,654
Pit Level G.S.F. = 1,340
Total G.S.F. = 6,994

Stories = 1 + Pit

Height = 34'-11 5/8"

PROJECT TYPE

☒ New Construction

☐ Addition

☐ Other

☐ Alteration

☐ Change of Occupancy

BUILDING USE

☐ Single Use

☐ Mixed Use (Separated)

☒ Mixed Use (Non-Separated)

Description: Automotive repair garage used for general service on automobiles.

SPRINKLERED

☐ Yes

☐ Partial

☒ No

4 Special Detailed Requirements Based On Use and Occupancy (2021 IBC)

406.8 Repair Garages

☒ Project complies with 406.8 through 406.8.3

413 Combustible Storage

413.1 High-piled storage of combustible materials over 12'-0" or high-hazard commodities over 6'-0"

☒ Yes

☐ No

413.2 Storage of combustible materials in attics, under-floor, and concealed spaces

☐ Yes

☒ No

414 Hazardous Materials

☒ Project complies with 414.2.1 through 414.2.5 (IFC)Control Areas

☒ Number of Control Areas Provided: Entire Building is one control area

Location

☒ Inside

☐ Outside

Use

☒ Open

☐ Closed

☒ Storage Only

Types of Hazardous Materials (Table 307.1.(1) of IBC and 3206.2 of IFC)

☒ Class IIIB Liquids

☒ Actual Storage per control area: 4040.13 gallons

☒ Class IA Flammable Liquids

☒ Actual Storage per control area: 0.94 gallons

☒ Class IB Flammable Liquids

☒ Actual Storage per control area: 3.25 gallons

☒ High-Hazard Commodities per IFC 2018 3203.6 / 3206.2 (Rubber Tires)

☒ Allowable Quantity: 0-500 s.f.

☒ Actual Quantity: X≤500 s.f.

7 Fire And Smoke Protection Systems (2021 IBC)

718.4 Draftstopping in Attics

☒ Yes

☐ No

☐ Not Required

☒ Openings in the partitions shall be protected by self-closing doors with automatic latches constructed as required for the partitions.

☒ Installed in attics and concealed roof spaces such that any horizontal area does not exceed 3,000 s.f.

8 Interior Finishes (2021 IBC)

Table 803.13 Interior Wall and Ceiling Finish Requirements by Occupancy

Group	Exit Enclosures and Exit Passageways	Corridors	Rooms and Enclosed Spaces
S-1	B	B	C
B	A	B	C

804.4.2 Minimum Critical Radiant Flux

☐ Class I

☒ Class II

2 Codes

☒ 2021 International Building Code

☒ 2021 International Plumbing Code

☒ 2018 International Energy Conservation Code

☒ 2017 ICC/ANSI 117.1

☒ 2021 International Fire Code

☒ 2017 National Electrical Code

☒ 2021 International Fuel Gas Code

☒ 2021 International Mechanical Code

5 General Building Heights and Areas (2021 IBC)

504 Building Height and Areas and 506 Building Area (Per Table 504.3, 504.4, and 506.2)

☐ Allowable Building Height = 40'-0"

☒ Actual Building Height = 34'- 11 5/8"

☐ Allowable Number of Stories Above Grade Plane = 1

☒ Actual Number of Stories Above Grade Plane = 1

☐ Allowable Area Factor = 9,000 s.f.

☒ Actual Area = 6,994 s.f. (5654 Main Level + 1340 Pit)

505.3 Equipment Platforms

☒ Project complies with 505.3 through 505.3.3

508 Mixed Use and Occupancy

☐ Mixed Use Occupancy (Separated)

☒ Mixed Use Occupancy (Non-Separated)

☐ Does not apply

No separation required between Group B and Group S-1 Occupancies

9 Fire Protection Systems (2021 IBC)

903 Automatic Sprinkler Systems

903.2.9.1 Repair Garages

☐ Yes

☐ Partial

☒ Not Required

906 Portable Fire Extinguishers

☒ Yes

☐ No

☒ Project complies with 906.1 through 906.10

☒ Project complies NFPA 10

907 Fire Alarm and Detection System

☐ Yes

☒ Not Required

3 Use and Occupancy Classification(s) (2021 IBC)

☐ Assembly Group A-1

☐ Assembly Group A-2

☐ Assembly Group A-3

☐ Assembly Group A-4

☐ Assembly Group A-5

☒ Business Group B

☐ Educational Group E

☐ Factory Group F-1

☐ Factory Group F-2

☐ High-Hazard Group H-1

☐ High-Hazard Group H-2

☐ High-Hazard Group H-3

☐ High-Hazard Group H-4

☐ High-Hazard Group H-5

☐ Institutional Group I-1

☐ Institutional Group I-2

☐ Institutional Group I-3

☐ Institutional Group I-4

☐ Mercantile Group M

☐ Residential Group R-1

☐ Residential Group R-2

☐ Residential Group R-3

☐ Residential Group R-4

☒ Storage Group S-1

☐ Storage Group S-2

☐ Utility & Misc Group U

6 Types of Construction (2021 IBC)

601 General and 602 Construction Classification

☐ Type IA

☐ Type IB

☐ Type IIA

☐ Type IIB

☐ Type IIIA

☐ Type IIIB

☐ Type IV

☐ Type VA

☒ Type VB

Table 601 Fire Resistance Rating Requirements for Building Elements

Building Elements	Hours Required	Hours Provided
Primary Structural Frame	0	0
Bearing Walls (Exterior)	0	0
Bearing Walls (Interior)	0	N/A
Nonbearing Walls & Partitions (Exterior)	0	0
Nonbearing Walls & Partitions (Interior)	0	0
Floor Construction & Associated Secondary Members	0	0
Roof Construction & Associated Secondary Members	0	0

Table 705.5 Fire Resistance Requirements for Exterior Walls Based on Fire Separation Distance

Fire Separation Distance	Rear (North)	Right (East)	Front (South)	Left (West)
X < 5				
5 ≤ X < 10				10'
10 ≤ X < 30		28'		
X ≥ 30	>30'		>30'	

X≥30' for Group B and S-1 = 0 hours

10≤X<30' for Group B and S-1 = 0 hours

10 Means of Egress (2021 IBC)

DT_2021 IBC Table 1004.5 Maximum Floor Area Allowance Per Occupant (Group S-1)

Occupancy Classification	Name	Number	Area	S.F. Per Occupants	No. of Occupants
S-1	Oil Change	5	1271 SF	200	6.36
S-1	Corridor	6	94 SF	200	0.47
S-1	Service	9	2485 SF	200	12.42
S-1	Storage	10	220 SF	300	0.73
S-1	Pit	11	1218 SF	200	6.09
S-1	Storage	12	500 SF	300	1.67
S-1	Storage	13	258 SF	300	0.86
Subtotal			6047 SF		28.60

Please note: For the above calculations the occupant load factor used is the 200 gross square feet occupant factor for Group H-5 Fabrication and Manufacturing Areas, since there is not an occupant factor for repair garages.

DT_2021 IBC Table 1004.5 Maximum Floor Area Allowance Per Occupant (Group B)

Occupancy Classification	Name	Number	Area	S.F. Per Occupants	No. of Occupants
B	Service Writing	1	145 SF	150	0.96
B	Waiting Room	2	129 SF	150	0.86
B	Toilet	3	43 SF	150	0.29
B	Manager	4	51 SF	150	0.34
B	Break Room	7	65 SF	150	0.43
B	Toilet	8	43 SF	150	0.29
Subtotal			477 SF		3.18

10 Means of Egress (2021 IBC)

DT_2021 IBC Sections 1005.3.1 & 1005.3.2 Egress width Stairways and Other Egress Components (Group S-1)

Occupancy Classification	Name	Number	No. of Occupants	Egress - Stairways	Required Stairway Width	Other Egress Components	Required Capacity in Inches
S-1	Oil Change	5	6.36			0.2	1.27
S-1	Corridor	6	0.47			0.2	0.09
S-1	Service	9	12.42			0.2	2.48
S-1	Storage	10	0.73			0.2	0.15
S-1	Pit	11	6.09	0.3	1.83		
S-1	Storage	12	1.67			0.2	0.33
S-1	Storage	13	0.86			0.2	0.17
Subtotal			28.60		1.83		4.50

DT_2021 IBC Table 1005.3.2 Egress width Other Egress Components (Group B)

Occupancy Classification	Name	Number	No. of Occupants	Other Egress Components	Required Capacity in Inches
B	Service Writing	1	0.96	0.2	0.19
B	Waiting Room	2	0.86	0.2	0.17
B	Toilet	3	0.29	0.2	0.06
B	Manager	4	0.34	0.2	0.07
B	Break Room	7	0.43	0.2	0.09
B	Toilet	8	0.29	0.2	0.06
Subtotal			3.18		0.64

Tables 1006.2.1 Spaces with One Exit or Exit Access Doorway

Occupancy	Max Occupant Load	Max Occupant Load Provided	Number of Exits Required	Number of Exits Provided	Max. Common Path of Travel Allowable (Nonsprinkled)	Max. Provided Common Path of Travel (Nonsprinkled)
S-1	29	28.60	1	4	100'-0"	≤ 100' -0"
B	49	3.18	1	1	100'-0"	≤ 100' -0"

Table 1006.3.3 Minimum Number of Exits or Access to Exits Per Story

Occupant Load Per Story	Minimum Number of Exits or Access to Exits from Story	Number of Exits or Access to Exits from Story Provided
1-500	2	5

Table 1017.2 Exit Access Travel Distance

Occupancy	Without Sprinkler System (Feet)	With Sprinkler System	Max Travel Distance Provided (Feet)
S-1	200	N/A	71'-1"
B	200	N/A	87'- 10"

12 Interior Environment (2021 IBC)

1208.1 Minimum Room Widths

Habitable spaces are not less than 7 feet in any plan dimension

☒ Yes

☐ No

1208.2 Minimum Ceiling Heights

Occupiable spaces, habitable spaces, and corridors have a ceiling height of not less than 7 feet 6 inches. Bathrooms, toilet rooms, kitchens, storage rooms, and laundry rooms have a ceiling height of not less than 7 feet.

☒ Yes

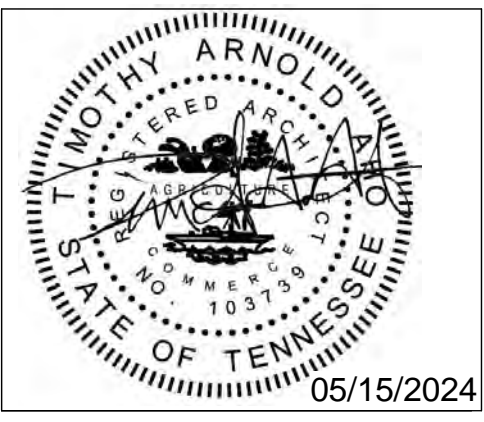
☐ No

1209.2 Attic spaces

Opening not less than 20 inches by 30 inches is provided for attic area with clear height over 30 inches. 30" headroom provided at or above access opening

☒ Yes

☐ Not Required



Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC. All Rights Reserved.

Life Safety / Code Summary

Project number

24005

Date

5/15/2024

Drawn by

ARC

Checked by

N/A

LS100

Scale

12" = 1'-0"

29 Plumbing Systems (2021 IBC)

2902.1 Minimum Number of Required Plumbing Fixtures (Group S-1)

DT_Plumbing Fixture_Group S-1												
Total Occupant Load	Male	Female	Required Water Closets		Water Closets Provided	Required Lavatories		Lavatories Provided	Required Drinking Fountains	Drinking Fountains Provided	Required Service Sinks	Service Sinks Provided
			Male	Female		Male	Female					
28.60	14.3	14.3	0.14	0.14	1	0.14	0.14	1	0.03	1	1	1

2902.1 Minimum Number of Required Plumbing Fixtures (Group B)

DT_Plumbing Fixture_Group B												
Total Occupant Load	Male	Female	Required Water Closets		Water Closets Provided	Required Lavatories		Lavatories Provided	Required Drinking Fountains	Drinking Fountains Provided	Required Service Sinks	Service Sinks Provided
			Male	Female		Male	Female					
3.18	1.59	1.59	0.06	0.06	1	0.04	0.04	1	0.03	1	1	1

2902.2 Separate Facilities

Separate facilities provided for each sex

☐ Yes

☒ Not Required per 2902.2 Exception 2

2902.2.1 Family or assisted use toilet facilities serving as separate facilities

☒ Yes

☐ No

☐ Not Required

2902.3 Employee and public toilet facilities

☒ Employee toilet combined with public toilet facilities

Plumbing Fixture Notes:

(1) High / Low drinking fountain provided for the entire building.

(1) Service Sink provided for the entire building.

(2) Family Assisted-Use Toilet Rooms serving as separate facilities each containing (1) lavatory and (1) water closet provided for the entire building.

2902.3.1 Access

Route to public toilet facilities does not pass through kitchens, storage rooms, or closets and is accessible.

☒ Yes

☐ No

2902.3.3 Location of toilet facilities in occupancies other than covered mall buildings

Located not more than one story above or below the space required to be provided with toilet facilities

☒ Yes

☐ No

Path of travel to such facilities does not exceed 500 feet

☒ Yes

☐ No

2902.4 Signage

☒ Yes

☐ No

Legible sign designating the sex provided in visible location near entrance to toilet facility

☐ Yes

☒ Not Required per 2902.2.1

5 Fire Service Features (2021 IFC)

505.1 Address Identification

☒ Yes

☐ No

☐ Not Required

☒ Project complies 505.1 Address Identification

506 Key Boxes

☒ Yes

☐ No

☐ Not Required

☒ Project complies 506.1 Where Required

23 Motor Fuel-Dispensing Facilities and Repair Garages (2021 IFC)

2311.2.2 Waste oil, motor oil and other Class IIIB Liquids

☒ Project complies with 2311.2.2 Waste oil, motor oil and other Class IIIB liquids.

2311.2.2.1 Tank Location

☒ Project complies with 2311.2.2.1 tank location

☐ Not Applicable

2311.2.3 Drainage and disposal of liquid and oil-soaked waste

☐ Yes

☐ No

☒ Not Required

☒ Garage floors do not contain floor drains.

2311.4 Below-grade areas

☒ Project complies with 2311.4.1 through 2311.4.3

☐ Not Applicable

2311.7 Fire Extinguishers

☒ Project complies with 2311.7 fire extinguishers (See Section 9 Fire Protection Systems)

32 High Piled Combustible Storage (2021 IFC)

3203.6 High-hazard commodities

☒ Yes

☐ No

☒ Project does contain high-hazard commodities (Rubber Tires)

Definitions per Chapter 2 of the International Fire Code

High-piled Combustible Storage. Storage of combustible materials in closely packed piles or combustible materials on pallets, in racks or on shelves where the top of storage is greater than 12'-0" in height. When required by the fire code official, high-piled combustible storage also includes certain high-hazard commodities, such as rubber tires, Group A plastics, flammable liquids, idle pallets, and similar commodities, where the top of storage is greater than 6'-0" in height.

☒ Project does contain high piled combustible storage over 6'-0" (<500 s.f. of rubber tire storage over 6 feet high).

Table 3206.2 General Fire Protection and Life Safety Requirements

Commodity Class	Size of High Piled Storage Area	All Storage Areas			
		Automatic Fire Extinguishing System	Fire Detection System	Building Access	Smoke and Heat Removal
High Hazard	0-500 s.f.	Not Required	Not Required	Not Required	Not Required

Solid-Piled Storage, Shelf Storage and Palletized Storage			
Max. Pile Dimension (Feet)	Max. Permissible Storage Height (Feet)	Max. Pile Volume (Cubic Feet)	
60 feet	Not Required	Not Required	

34 Tire Rebuilding and Tire Storage (2021 IFC)

3409 Indoor Storage Arrangement

☒ Project complies with 3409.1 Pile Dimensions

☒ Pile dimension less than 50'-0" in direction of wheel hole.

☒ Tires stored adjacent to or along one wall shall not extend more than 25'-0" from that wall.

50 Hazardous Materials - General Provisions (2021 IFC)

Table 5003.1.1 (1) Maximum Allowable Quantity Per Control Area of Hazardous Materials Posing a Physical Hazard

☒ Project complies with Table 5003.1.1 (1).

☒ Project contains Class IIIB Liquid Storage that does not exceed 13,200 liquid gallons per control area.

☒ Project contains Class IIIB Liquid Open-System that does not exceed 3,300 liquid gallons per control area.

☒ Project contains Flammable Liquid IA Storage that does not exceed 30 liquid gallons per control area.

☒ Project contains Flammable Liquid IA Open System that does not exceed 10 liquid gallons per control area.

☒ Project contains Flammable Liquid IB Storage that does not exceed 120 liquid gallons per control area.

☒ Project contains Flammable Liquid IB Open System that does not exceed 30 liquid gallons per control area.

☒ Project complies 5003.8.3.1 through 5003.8.3.4

☒ Entire building is one single control area.

57 Flammable and Combustible Liquids (2021 IFC)

5703.2 Fire Protection

☒ Project complies with 5703.2.1 portable fire extinguishers an hose lines. (See Section 9 Fire Protection Systems).

☒ Not required. Project does not exceed maximum allowable quantity per control area.

☒ Though not required, the pit itself acts as a secondary containment. There are no drains in the pit.

5/14/2024 12:00:49 PM

LIFE SAFETY SYMBOL LEGEND

Exit Sign

HC
EXIT
32"

Handicap Accessible
Egress Width

32"

Exit from room
(# = minimum clear
width in inches)

Maneuvering
clearances at
manual swinging
doors

#

Travel Distance

1 Hour Rated

Keynote Schedule	
Tag	Text
3	Location of 30" wide refrigerator (By Others).
33	ADA compliant room / exit sign. See Details on Sheet A602.
35	Submersible foundation sump pump. Provide Zoeller M98 or comparable product. Coordinate location with Civil and tie into Civil's storm drainage system.
38	Eyewash station. See Plumbing.
58	Verify location and size of pit exhaust opening with Structural and Mechanical drawings.
59	Gas meter. See Plumbing.
60	Coffee cabinet. See Details on sheet G301.
63	Service Desk. See Details on sheet G301.
108	Gray shading indicates these walls are the boundaries for the building thermal envelope assembly.
144	Electrical meter. See Electrical.
212	HVAC condensing unit. See Mechanical.
214	10K Lift (By Others).
215	12K Lift (By Others).
216	Tire changer (By Others).
217	Wheel balancer (By Others).
218	Brake lathe (By Others).
219	Air compressor (By Others).
220	Scissor lift alignment (By Others). Verify dimensions of alignment pit with Owner / Alignment Lift Manufacturer prior to rough-in.
221	Scissor lift alignment console (By Others). Provide conduit in slab as required. See alignment lift specifications (By Others).
222	Alignment scarecrow (By Others).
223	Work bench (By Others).
224	Strut compressor (By Others).
225	Lube console (By Others).
226	Computer podium (By Others).
227	Cashier computer station (By Others).
229	Rolling drain pan (By Others).
230	Tool cart (By Others).
231	Beverage refrigerator (By Others).
232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.

AHO ARCHITECTS, LLC

www.ahoarch.com

05/15/2024

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Life Safety Plan -
Main

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

LS102

Scale As indicated

1 11_Life Safety Plan_Main
3/16" = 1'-0"

5/14/2024 12:05:57 PM

LIFE SAFETY SYMBOL LEGEND

Exit Sign

HC
EXIT
32"

Handicap Accessible
Egress Width

← 32"

Exit from room
(# = minimum clear
width in inches)

Maneuvering
clearances at
manual swinging
doors

← #

Travel Distance

1 Hour Rated

LIFE SAFETY NOTES

Notes:

- Tanks by others contain 928 gallons and 275 gallons each of Class IIIB Liquids (motor oil). See Chapter 50 on Sheet LS101.
- All equipment by others unless otherwise noted.

Keynote Schedule	
Tag	Text
35	Submersible foundation sump pump. Provide Zoeller M98 or comparable product. Coordinate location with Civil and tie into Civil's storm drainage system.
38	Eyewash station. See Plumbing.
46	Oil tank stairs (By Others).
223	Work bench (By Others).
232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.
233	275-gallon Class IIIB new oil tank (By Others).
234	928-gallon Class IIIB new oil tank (By Others). Provide a 2" concrete walkway cap with non-slip surface over (oil tank By Others). Coordinate with equipment supplier prior to installation.
235	928-gallon Class IIB waste oil tank (By Others). Provide a 2" concrete walkway cap with non-slip surface over (oil tank By Others). Coordinate with equipment supplier prior to installation.

1 10_Life Safety Plan_Pit
3/16" = 1'-0"

AHO ARCHITECTS, LLC

www.ahoarch.com

05/15/2024

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Life Safety - Pit

Project number24005

Date5/15/2024

Drawn byARC

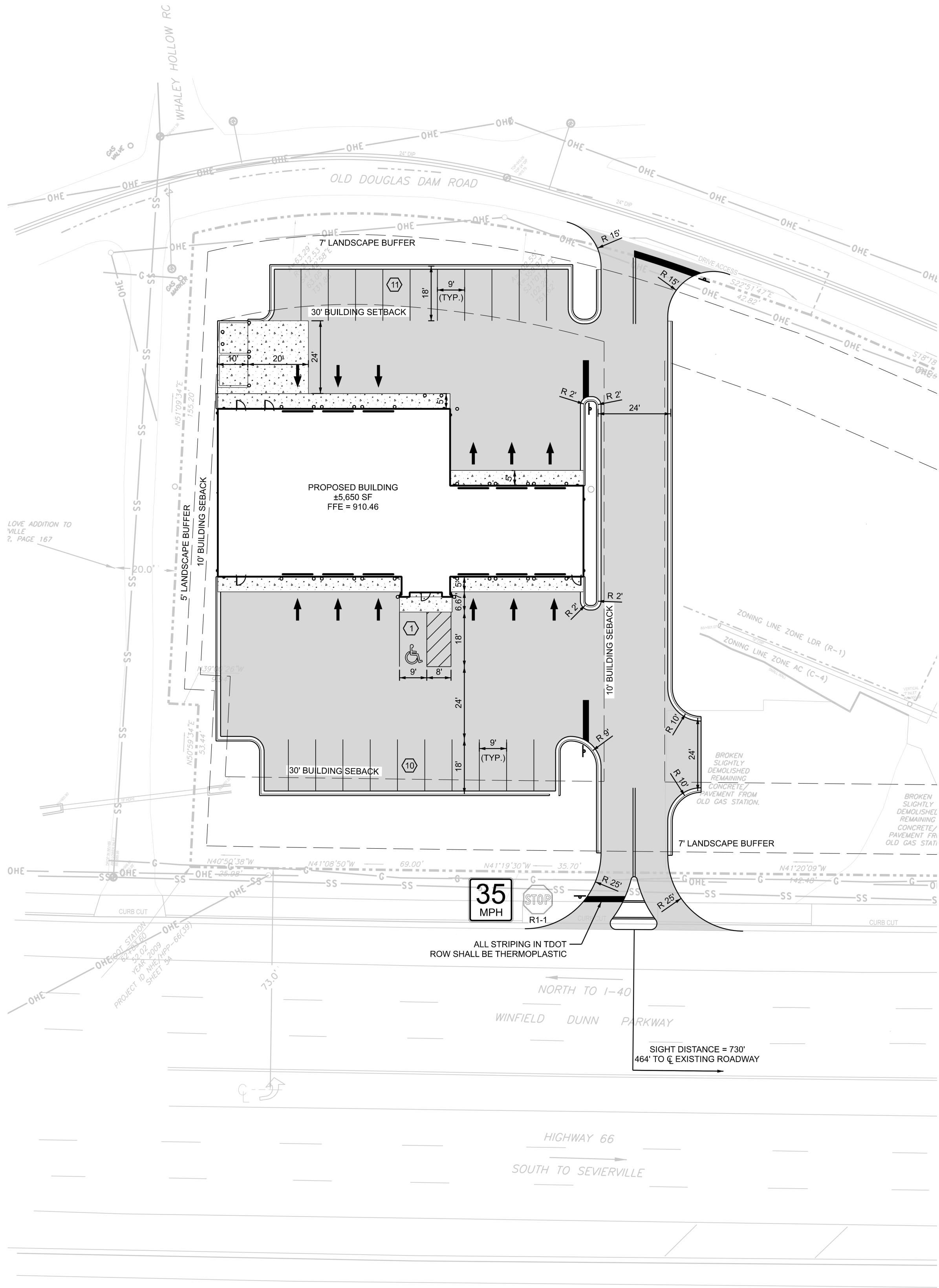
Checked byN/A

LS103

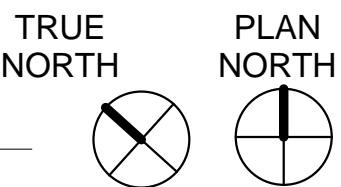
Scale

As indicated

5/15/2024 1:37:21 PM



NOTE:
THIS PLAN IS TO SHOW THE BUILDING AS IT RELATES TO THE SITE. A COMPLETE SET OF CIVIL DRAWINGS ARE TO BE SUBMITTED TO THE AHJ INDEPENDENT OF THIS SUBMITTAL. REFER TO THOSE DRAWINGS FOR ACTUAL INFORMATION.





AHO ARCHITECTS, LLC

www.ahoarch.com



05/15/2024

Express Oil Change & Tire Engineers

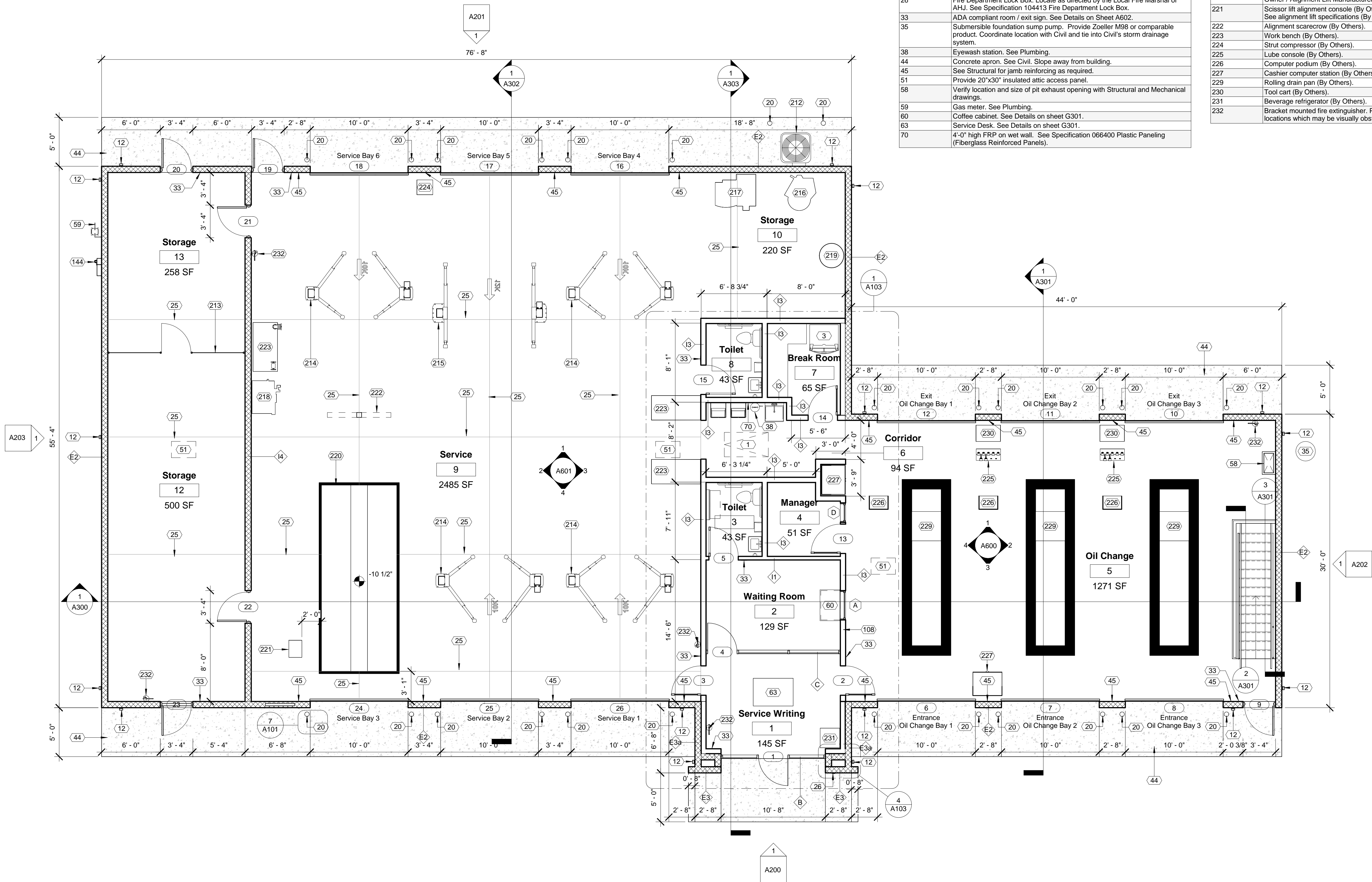
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Architectural Site Plan	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
AS100	
Scale	N.T.S.



Keynote Schedule	
Tag	Text
1	Pull down attic access and ladder. See Specification 083113 Access Doors and Frames.
3	Location of 30" wide refrigerator (By Others).
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.
20	4" diameter painted concrete-filled steel pipe bollard. Color as indicated on Finish Schedule. Paint embedded portion of bollard. Use primer and two finish coats. See Details on sheet A101. See Specification 055000 Metal Fabrications.
25	Control joint. For control joints in concrete floor slabs, coordinate location with equipment layout by others. Max. distance between control joints in slabs not to exceed 12'-0". Control joints in walls shall be 4'-0" max from wall intersection or corner and every 20'-0".
26	Fire Department Lock Box. Locate as directed by the Local Fire Marshal or AHJ. See Specification 104413 Fire Department Lock Box.
33	ADA compliant room / exit sign. See Details on Sheet A602.
35	Submersible foundation sump pump. Provide Zoeller M98 or comparable product. Coordinate location with Civil and tie into Civil's storm drainage system.
38	Eyewash station. See Plumbing.
44	Concrete apron. See Civil. Slope away from building.
45	See Structural for jamb reinforcing as required.
51	Provide 20"x30" insulated attic access panel.
58	Verify location and size of pit exhaust opening with Structural and Mechanical drawings.
59	Gas meter. See Plumbing.
60	Coffee cabinet. See Details on sheet G301.
63	Service Desk. See Details on sheet G301.
70	4'-0" high FRP on wet wall. See Specification 066400 Plastic Paneling (Fiberglass Reinforced Panels).

Keynote Schedule	
Tag	Text
108	Gray shading indicates these walls are the boundaries for the building thermal envelope assembly.
144	Electrical meter. See Electrical.
212	HVAC condensing unit. See Mechanical.
213	Full height chain-link fence with 3'-0" x 7'-0" gate.
214	10K Lift (By Others).
215	12K Lift (By Others).
216	Tire changer (By Others).
217	Wheel balancer (By Others).
218	Brake lathe (By Others).
219	Air compressor (By Others).
220	Scissor lift alignment (By Others). Verify dimensions of alignment pit with Owner / Alignment Lift Manufacturer prior to rough-in.
221	Scissor lift alignment console (By Others). Provide conduit in slab as required. See alignment lift specifications (By Others).
222	Alignment scarecrow (By Others).
223	Work bench (By Others).
224	Strut compressor (By Others).
225	Lube console (By Others).
226	Computer podium (By Others).
227	Cashier computer station (By Others).
229	Rolling drain pan (By Others).
230	Tool cart (By Others).
231	Beverage refrigerator (By Others).
232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.

1 01_Floor Plan_Main
3/16" = 1'-0"



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

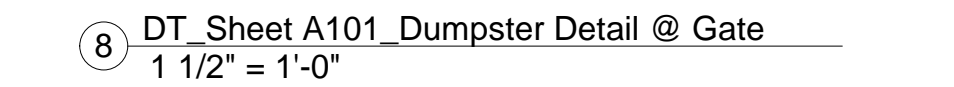
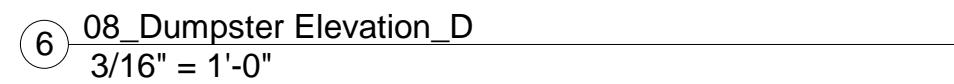
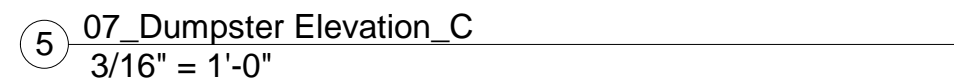
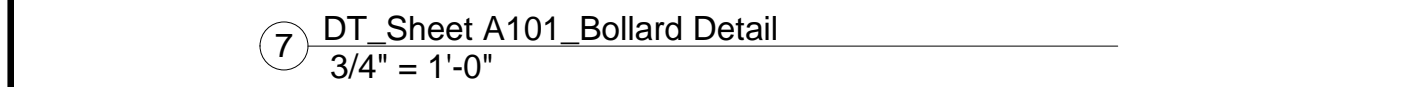
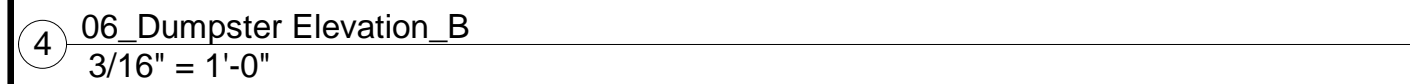
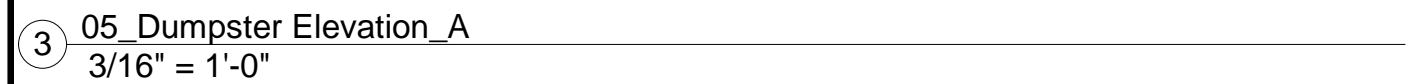
Floor Plan - Main

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

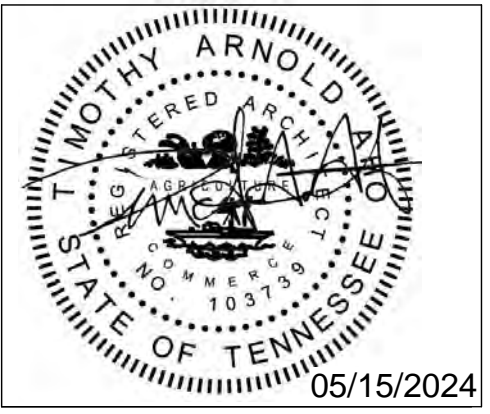
A100

Scale 3/16" = 1'-0"

5/15/2024 1:36:36 PM





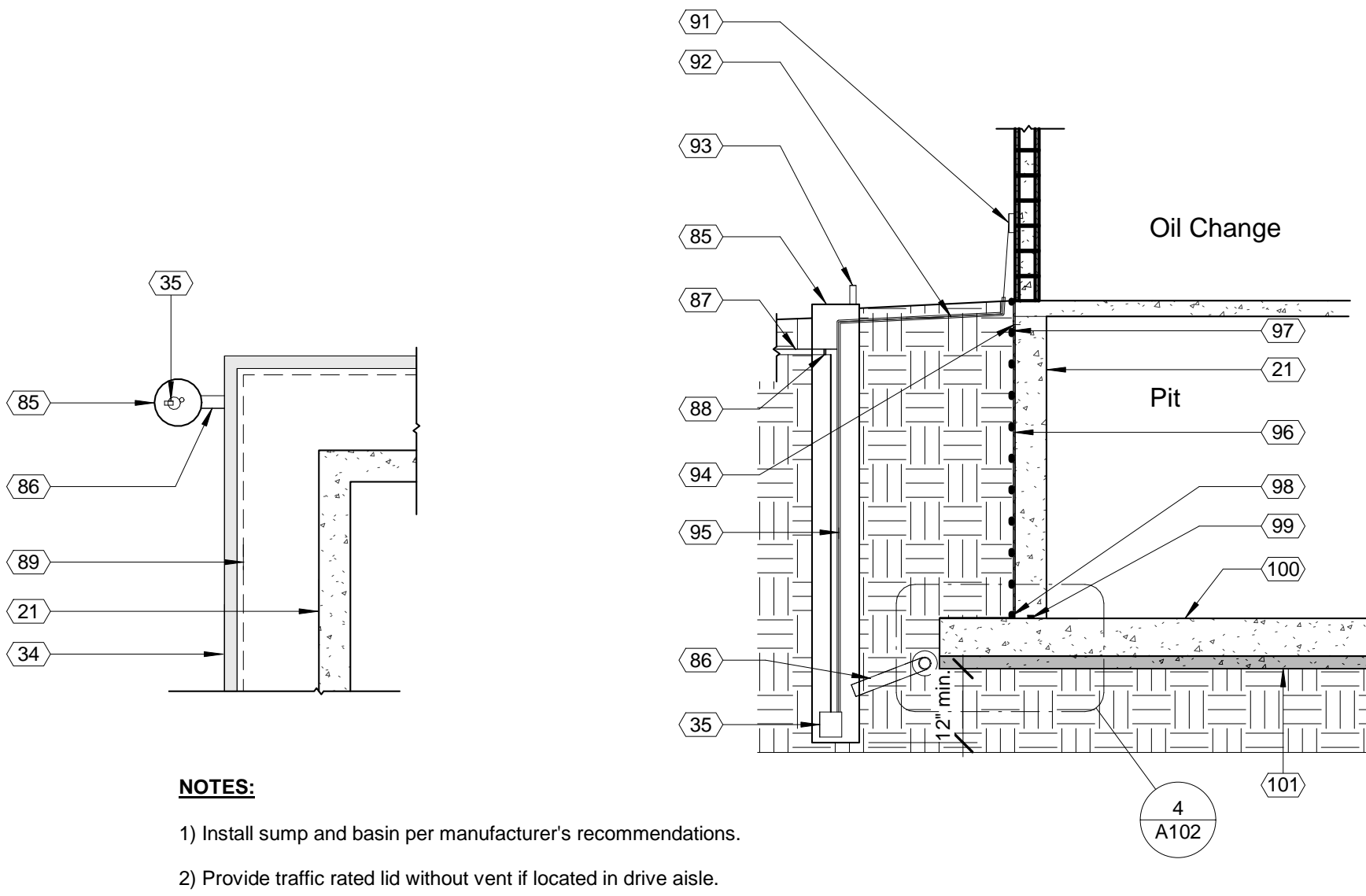
[illegible]

© 2024 Aho Architects, LLC.
All Rights Reserved.

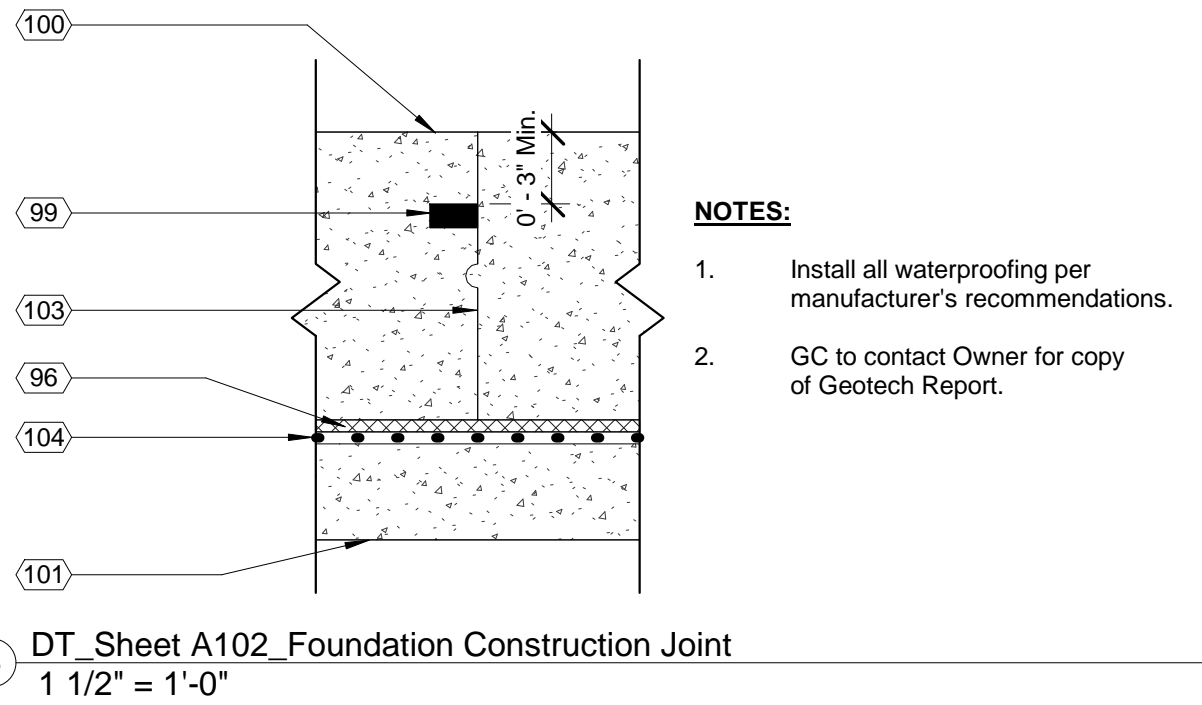
Pit Floor Plan and Site Details

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A101	
Scale	As indicated

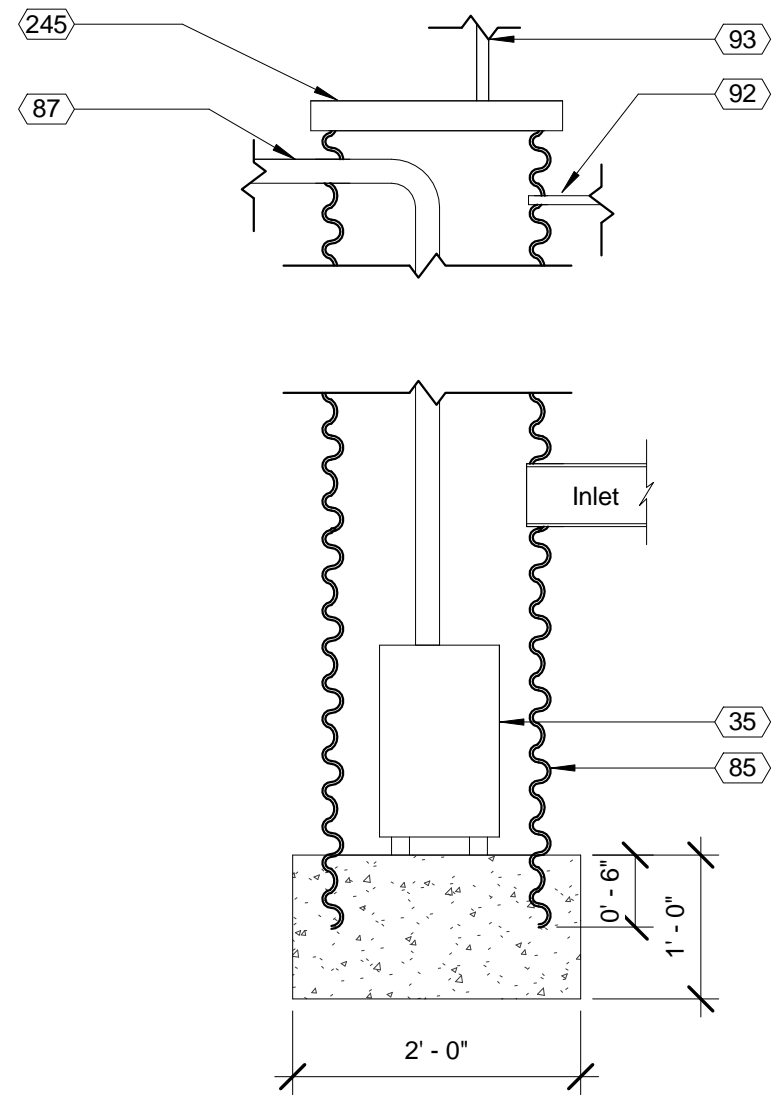


1 DT_Sheet A102_Sump Pump Detail
1/4" = 1'-0"

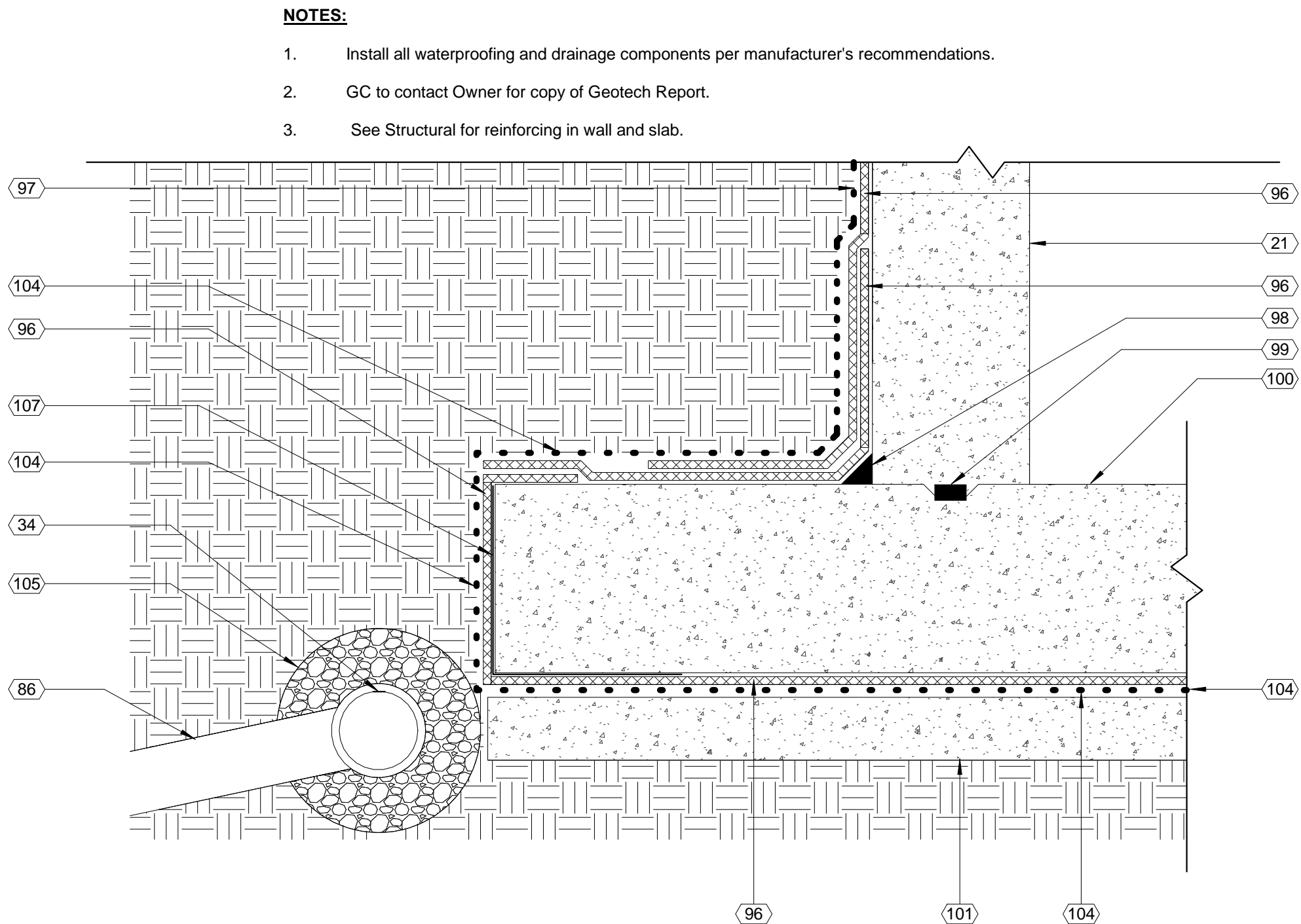


3 DT_Sheet A102_Foundation Construction Joint
1 1/2" = 1'-0"

Keynote Schedule	
Tag	Text
21	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.
34	4" perforated perimeter drain with silt filtration fabric. See Details on Sheet A102.
35	Submersible foundation sump pump. Provide Zoeller M98 or comparable product. Coordinate location with Civil and tie into Civil's storm drainage system.
85	18" diameter black corrugated pipe with inlet fittings and solid heavy duty corrugated locking pipe cover set in concrete with power grommet, or Nyloplast drain basin with inlet fittings and lockable cover and power grommet. Contractor's Option. Set pipe in concrete 2'x2'x1'. Embed pipe 6" into concrete.
86	4" discharge pipe to sump pump.
87	2" discharge pipe from sump pump to storm drainage system. Coordinate with Civil.
88	Install union at serviceable depth.
89	Concrete foundation. See Structural.
91	Provide power for sump pump. See Electrical.
92	Power cord for sump pump to be run in conduit from outlet to sump below grade.
93	2" – 3" vent pipe
94	Fasteners at 12" max o.c. for securing subdrainage to pit wall. Follow manufacturer's installation instructions.
95	Pull rope or wire for submersible sump pump.
96	CCW MiraClay woven geotextile against wall/slab.
97	CCW MiraDrain 6200.
98	CCW MiraClay granules or CCW MiraClay mastic.
99	CCW MiraStop.
100	Concrete slab. See Structural.
101	4" mud slab. See Structural.
103	Construction joint.
104	CCW MiraDrain 9800.
105	3" washed #57 stone wrapped in silt filtration fabric.
107	CCW MiraClay 12" Reinforcing Angle Strip at all outside corners.
245	Lockable cover @ sump pump.



2 DT_Sheet A102_Sump Pump Pipe Section
3/4" = 1'-0"



4 DT_Sheet A102_Foundation Waterproofing
1 1/2" = 1'-0"

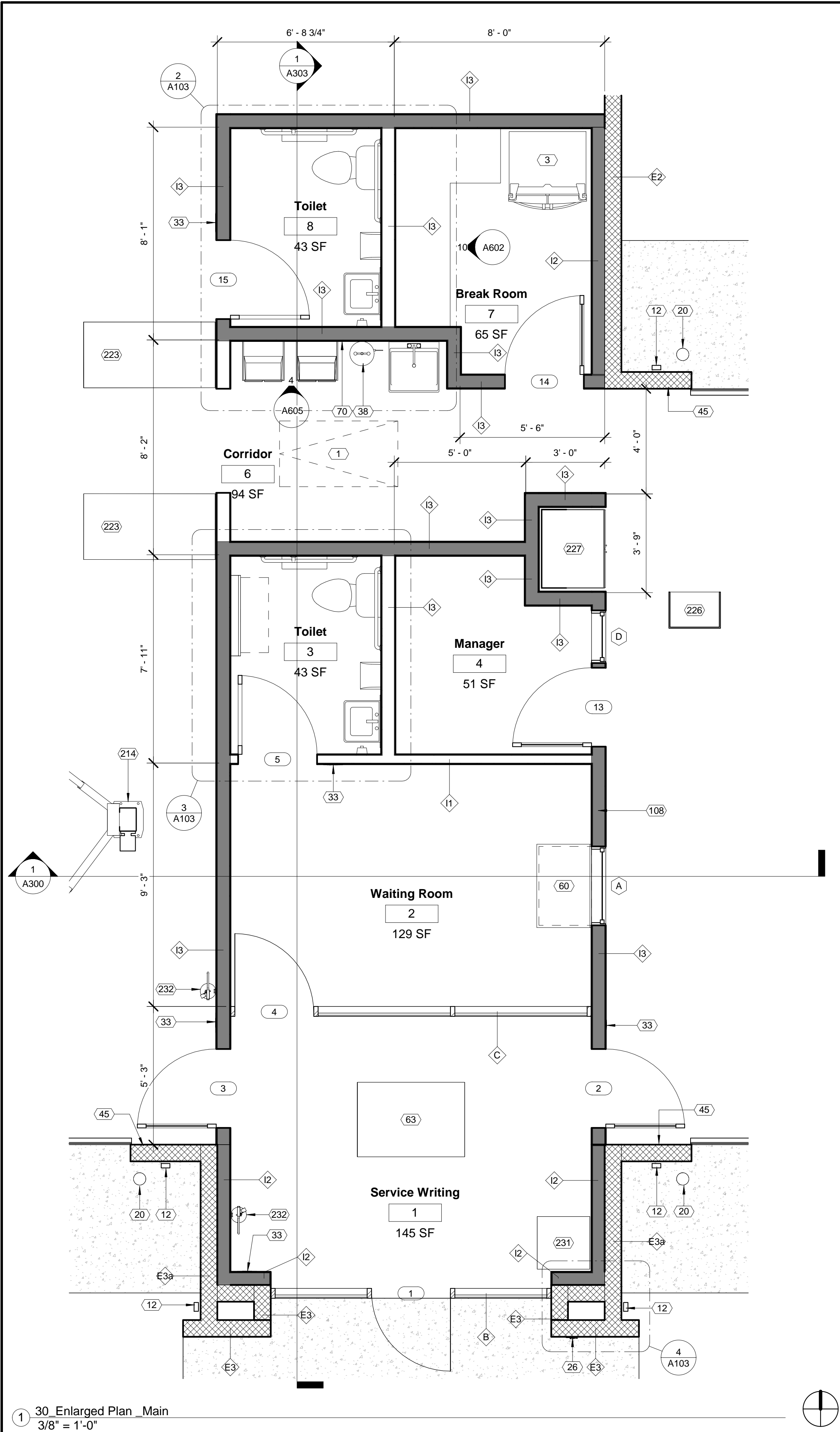


Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

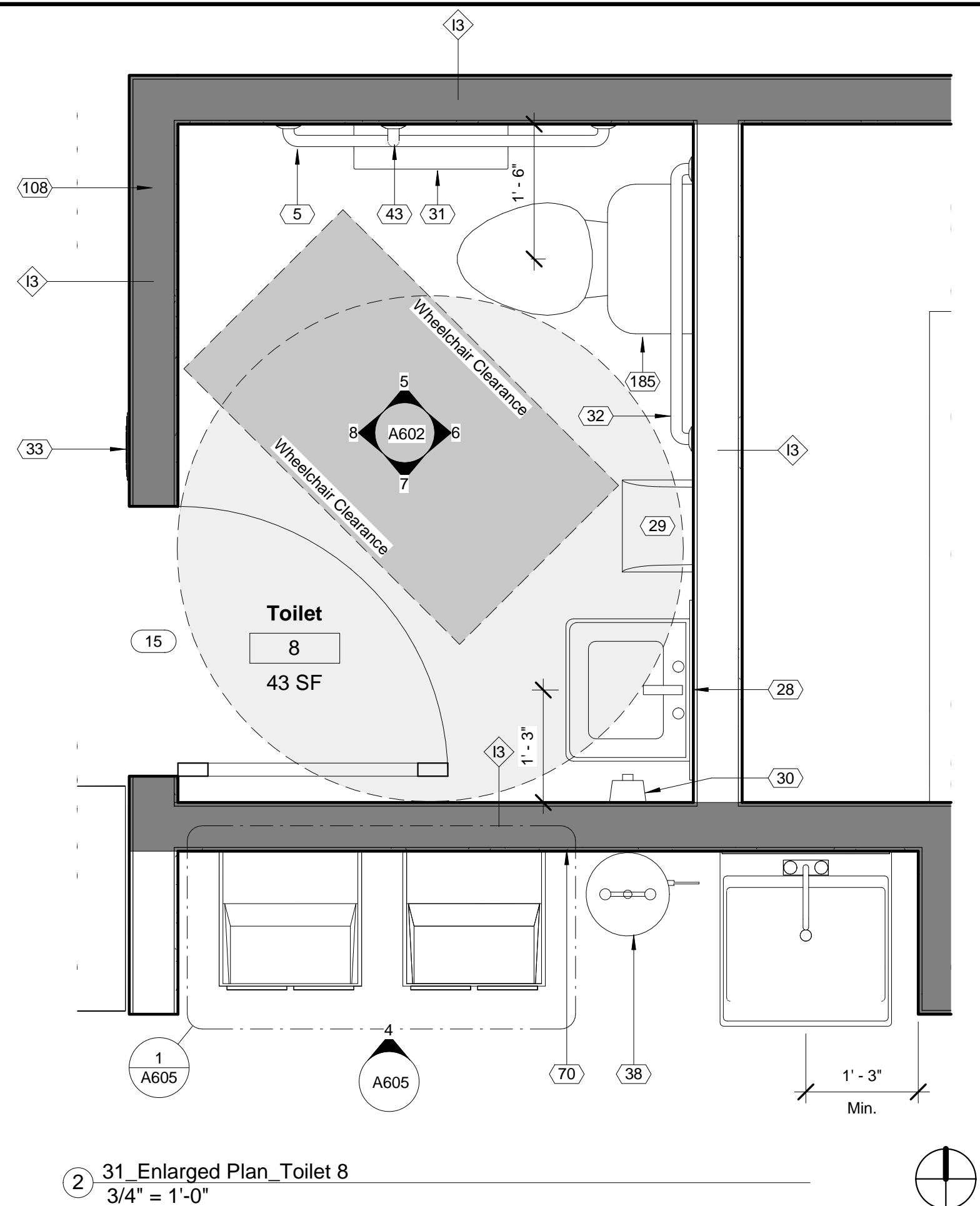
FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

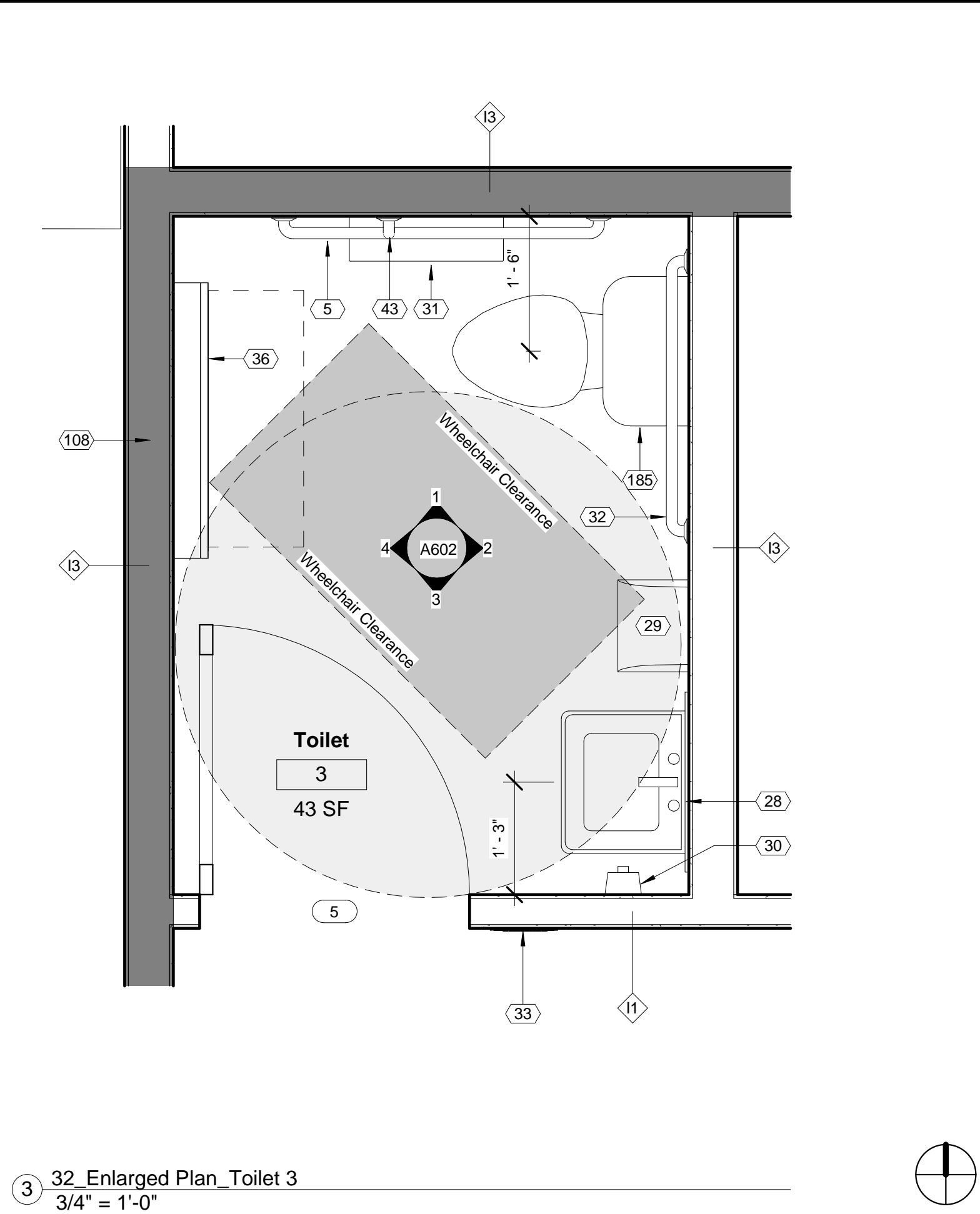
Foundation Details	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
A102	
Scale	As indicated



30 Enlarged Plan Main
3/8" = 1'-0"

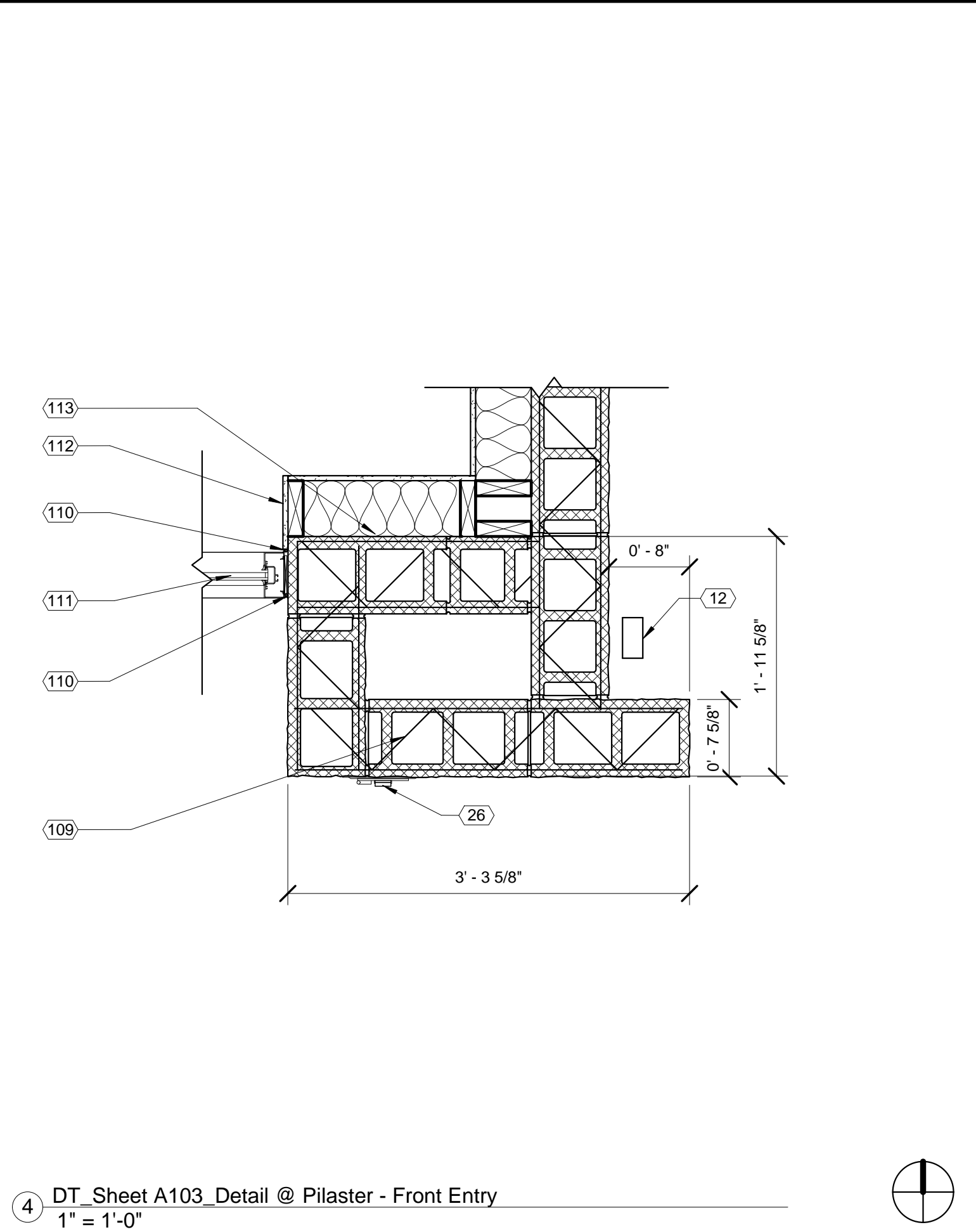


31 Enlarged Plan Toilet 8
3/4" = 1'-0"



32 Enlarged Plan Toilet 3
3/4" = 1'-0"

Keynote Schedule	
Tag	Text
1	Pull down attic access and ladder. See Specification 083113 Access Doors and Frames.
3	Location of 30" wide refrigerator (By Others).
5	42" grab bar with blocking in walls as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.
20	4" diameter painted concrete-filled steel pipe bollard. Color as indicated on Finish Schedule. Paint embedded portion of bollard. Use primer and two finish coats. See Details on sheet A101. See Specification 055000 Metal Fabrications.
26	Fire Department Lock Box. Locate as directed by the Local Fire Marshal or AHJ. See Specification 104413 Fire Department Lock Box.
28	Framed mirror. See Specification 102800 Toilet, Bath, and Laundry Accessories.
29	Automatic Towel Dispenser (By others). Provide blocking in wall as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
30	Wall mounted soap dispenser (By Others). Provide blocking in wall as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
31	Jumbo Dual Roll Toilet Tissue dispenser (By Others). Provide blocking in wall as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
32	36" grab bar with blocking in walls as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
33	ADA compliant room / exit sign. See Details on Sheet A602.
36	Surface mounted baby changing station with blocking in walls as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
38	Eyewash station. See Plumbing.
43	24" vertical grab bar with blocking in walls as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
45	See Structural for jamb reinforcing as required.
60	Coffee cabinet. See Details on sheet G301.
63	Service Desk. See Details on sheet G301.
70	4'-0" high FRP on wet wall. See Specification 066400 Plastic Paneling (Fiberglass Reinforced Panels).
108	Gray shading indicates these walls are the boundaries for the building thermal envelope assembly.
109	Horizontal joint reinforcement at 16" o.c. vertical.
110	Sealant with backer rod.
111	Aluminum storefront with insulated glazing. See Details on sheet A620.
112	Painted 1/2" gypsum board on 2x6 wood studs at 16" o.c. with kraft-face R-20 batt insulation (kraft in contact with gypsum board). See Details on sheet A400.
113	Fluid applied vapor permeable air barrier. See Specification 072726 Fluid Applied Membrane Air Barrier.
185	Flush valve on transfer side of water closet.
214	10K Lift (By Others).
223	Work bench (By Others).
226	Computer podium (By Others).
227	Cashier computer station (By Others).
231	Beverage refrigerator (By Others).
232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.



DT_Sheet A103_Detail @ Pilaster - Front Entry
1" = 1'-0"

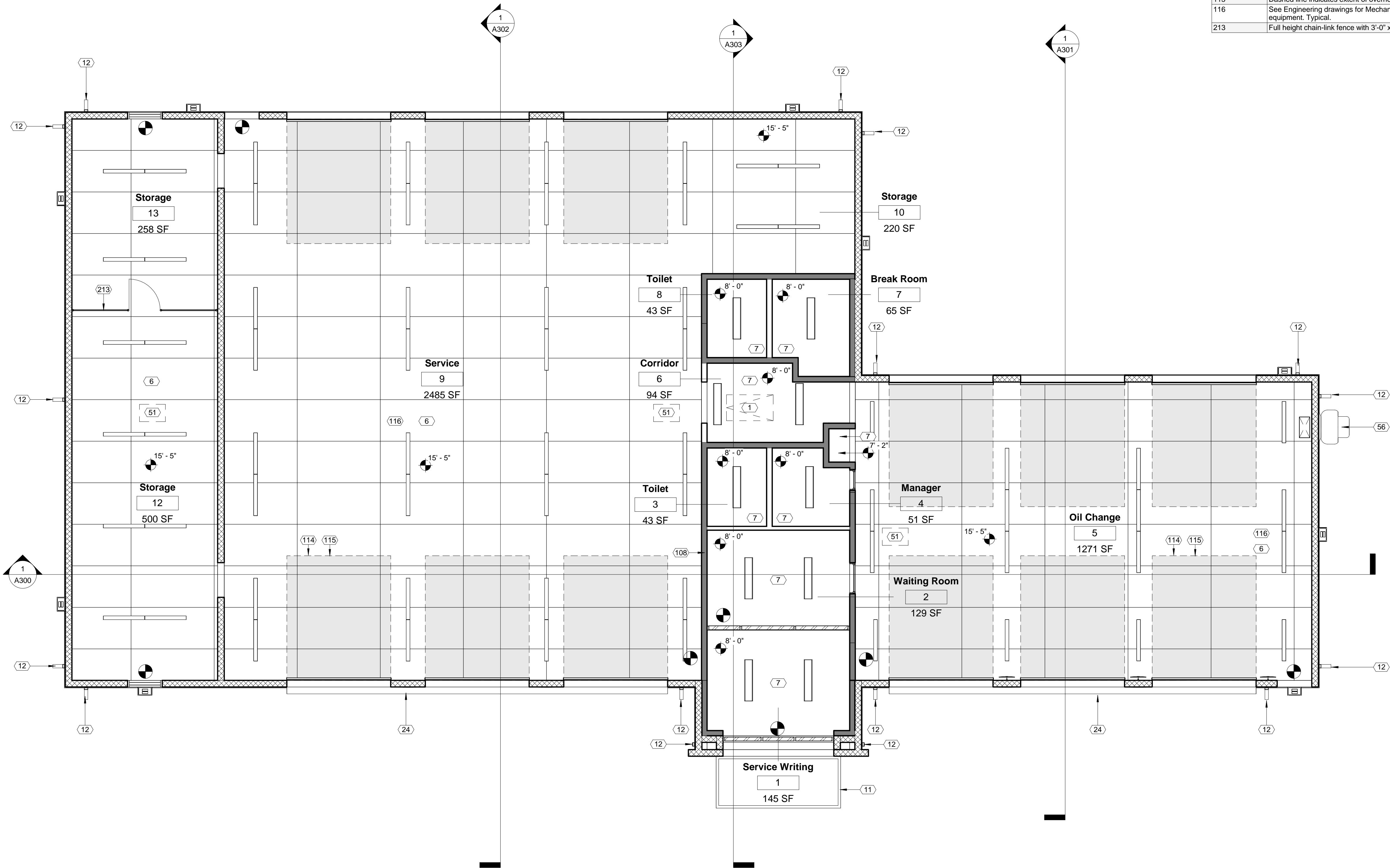


Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Enlarged Floor Plans and Details	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
A103	
Scale	As indicated



Keynote Schedule	
Tag	Text
1	Pull down attic access and ladder. See Specification 083113 Access Doors and Frames.
6	Painted 1/2" thick fire-rated plywood with 1/4" x 1 1/4" fire-rated painted wood batten strips at seams, secured to underside of roof trusses. Provide painted 1"x4" fire-rated wood trim at perimeter.
7	Painted 1/2" gypsum board ceiling. 5/8" Type X where indicated.
11	Pre-finished metal canopy. See Details on sheet A303 (A302 for OC Building Only).
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.
24	Lightbar (By Others). Provide blocking as required. See Electrical.
51	Provide 20"x30" insulated attic access panel.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
108	Gray shading indicates these walls are the boundaries for the building thermal envelope assembly.
114	Contractor to ensure overhead door, track, etc. meets the minimum vertical clearance required for equipment (By Others). Typical.
115	Dashed line indicates extent of overhead doors. Typical.
116	See Engineering drawings for Mechanical/Electrical/Plumbing fixtures and equipment. Typical.
213	Full height chain-link fence with 3'-0" x 7'-0" gate.



AHO ARCHITECTS, LLC

www.ahoarch.com



05/15/2024

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Reflected Ceiling
Plan - Main

Project number24005

Date5/15/2024

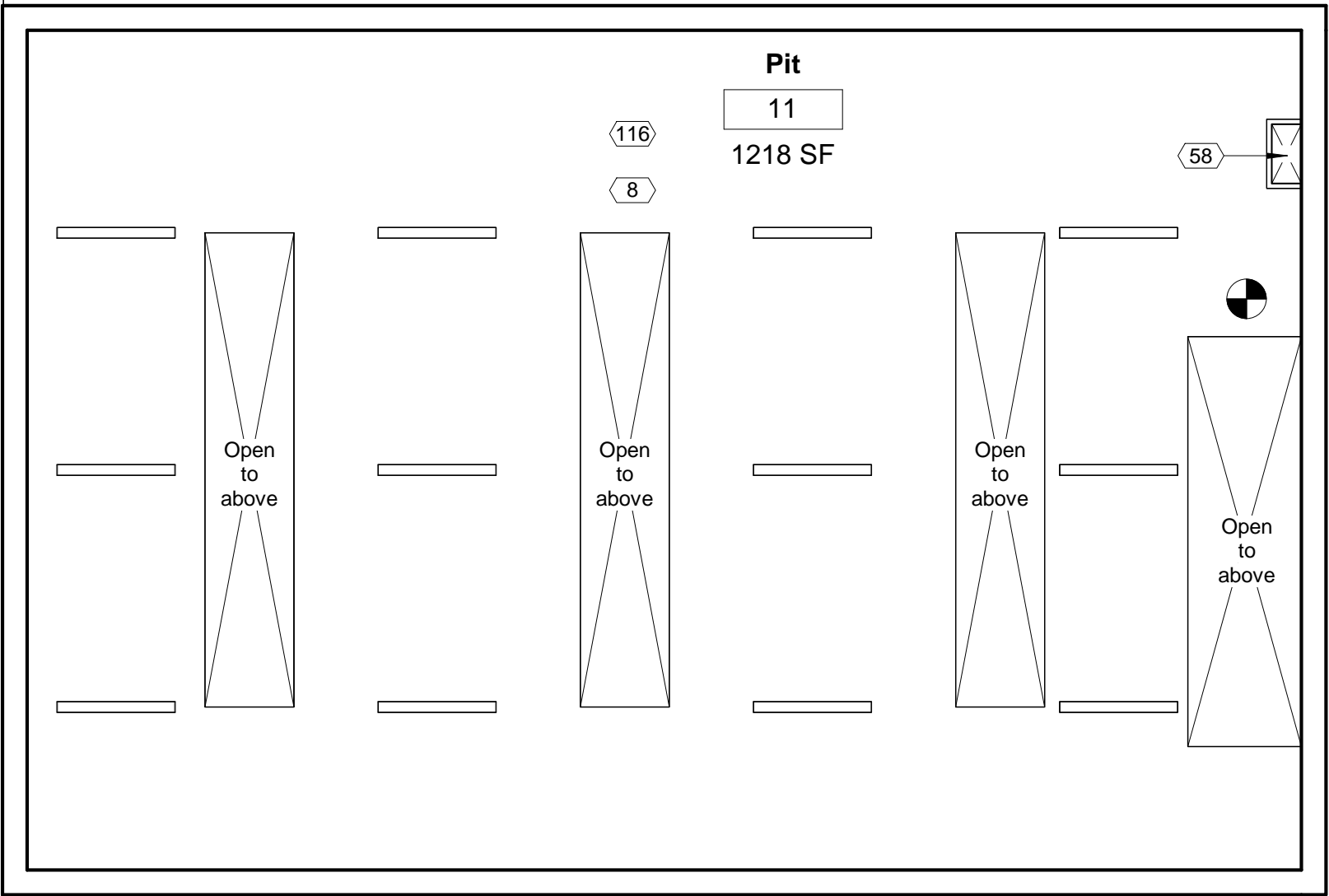
Drawn byARC

Checked byN/A

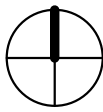
A104

Scale3/16" = 1'-0"

Keynote Schedule	
Tag	Text
8	Exposed to structure above.
58	Verify location and size of pit exhaust opening with Structural and Mechanical drawings.
116	See Engineering drawings for Mechanical/Electrical/Plumbing fixtures and equipment. Typical.



1 00_RCP_Pit
3/16" = 1'-0"





www.ahoarch.com



05/15/2024

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Reflected Ceiling
Plan - Pit

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A105

Scale	3/16" = 1'-0"
-------	---------------

- NOTES:**
- Equipment platform is designed for mechanical equipment only. This space is not intended for occupants other than during general maintenance.

Keynote Schedule	
Tag	Text
1	Pull down attic access and ladder. See Specification 083113 Access Doors and Frames.
11	Pre-finished metal canopy. See Details on sheet A303 (A302 for OC Building Only).
24	Lightbar (By Others). Provide blocking as required. See Electrical.
51	Provide 20"x30" insulated attic access panel.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
108	Gray shading indicates these walls are the boundaries for the building thermal envelope assembly.
116	See Engineering drawings for Mechanical/Electrical/Plumbing fixtures and equipment. Typical.
232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

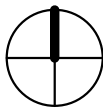
© 2024 Aho Architects, LLC.
All Rights Reserved.

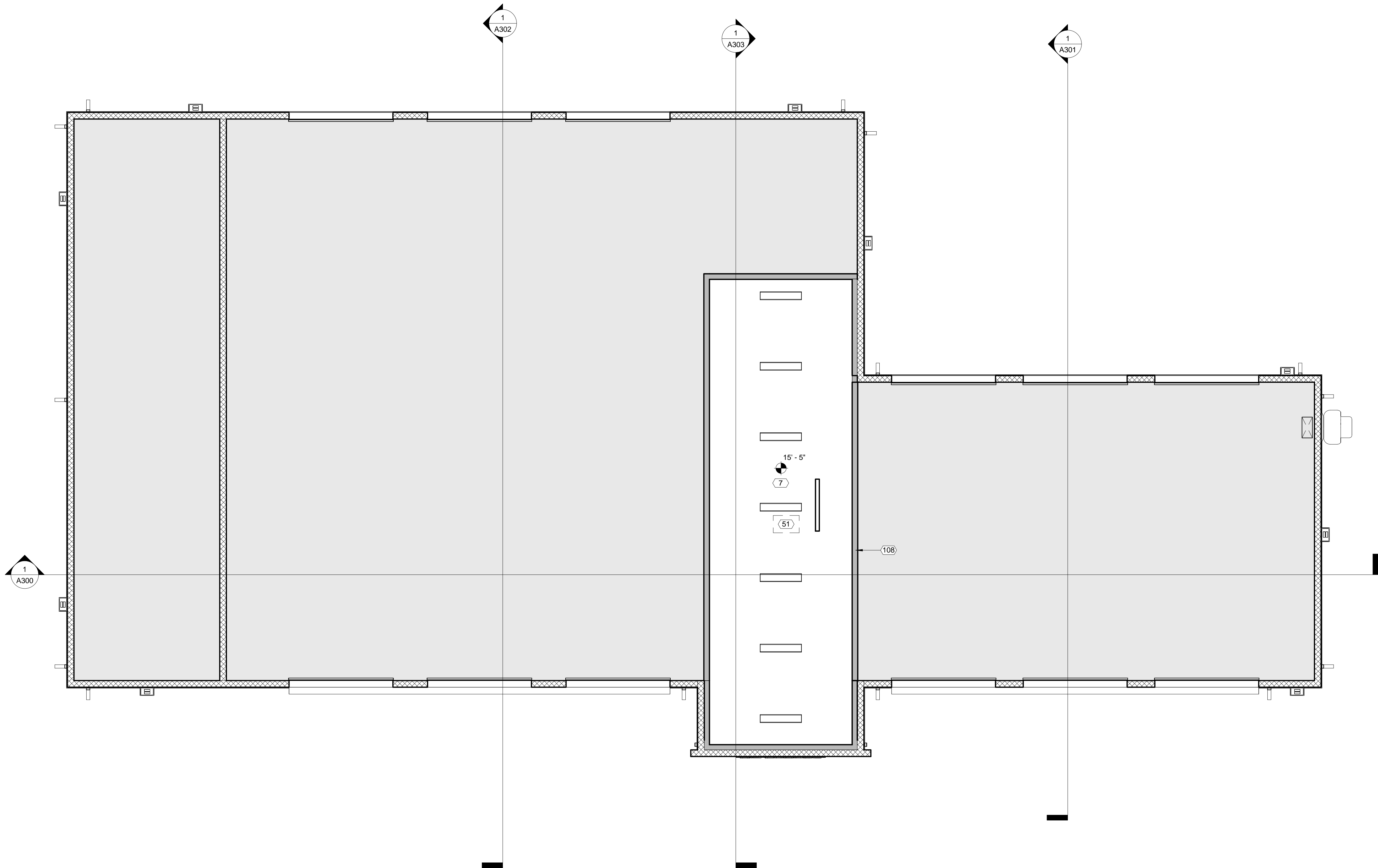
Floor Plan -
Equipment
Platform

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A106

Scale 3/16" = 1'-0"





Keynote Schedule	
Tag	Text
7	Painted 1/2" gypsum board ceiling. 5/8" Type X where indicated.
51	Provide 20"x30" insulated attic access panel.
108	Gray shading indicates these walls are the boundaries for the building thermal envelope assembly.

① 02_RCP_Equip. Platform
3/16" = 1'-0"



AHO ARCHITECTS, LLC

www.ahoarch.com



05/15/2024

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL		
No.	Description	Date

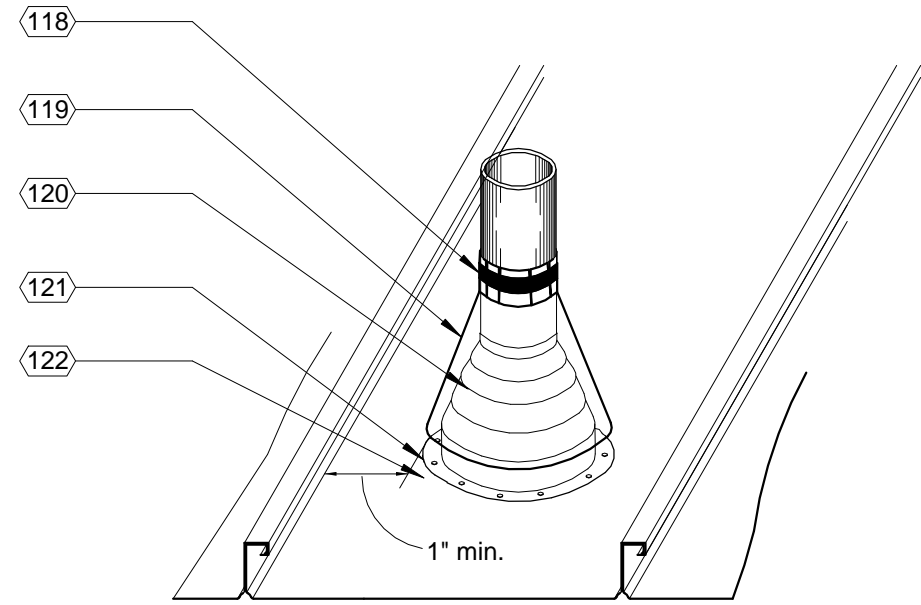
© 2024 Aho Architects, LLC.
All Rights Reserved.

Reflected Ceiling
Plan - Equipment
Platform

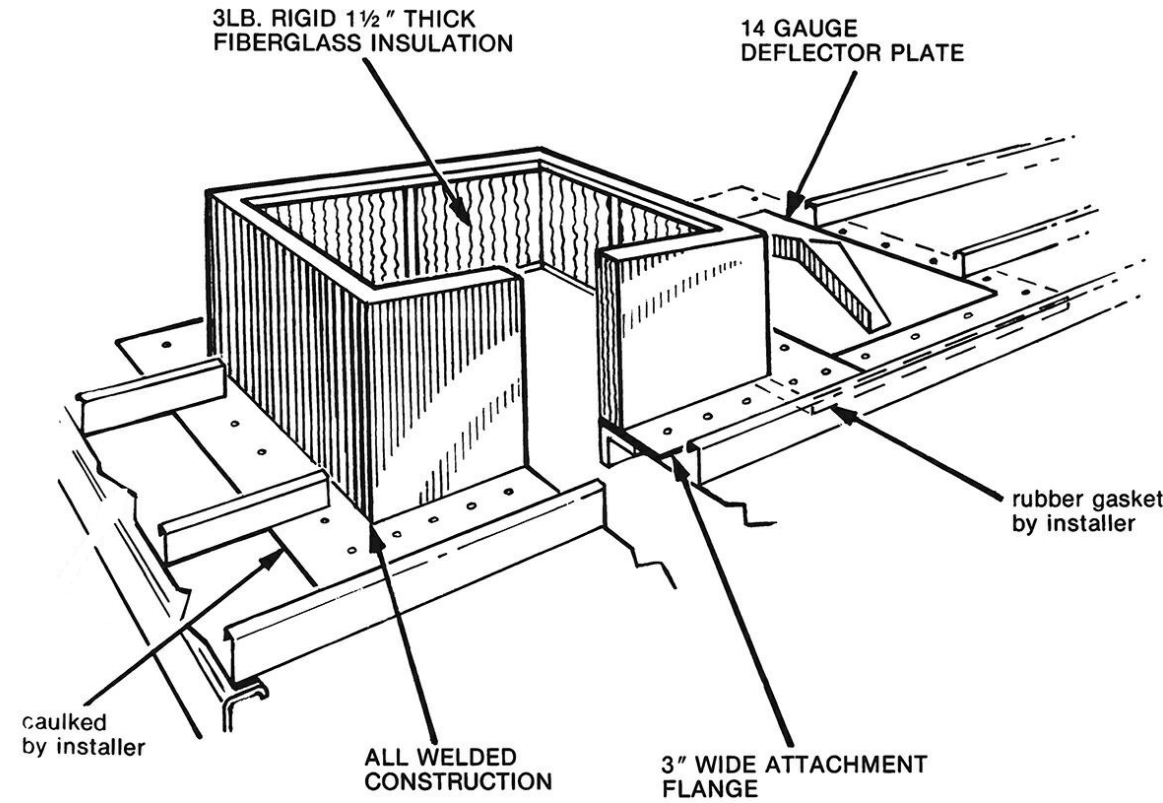
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A107

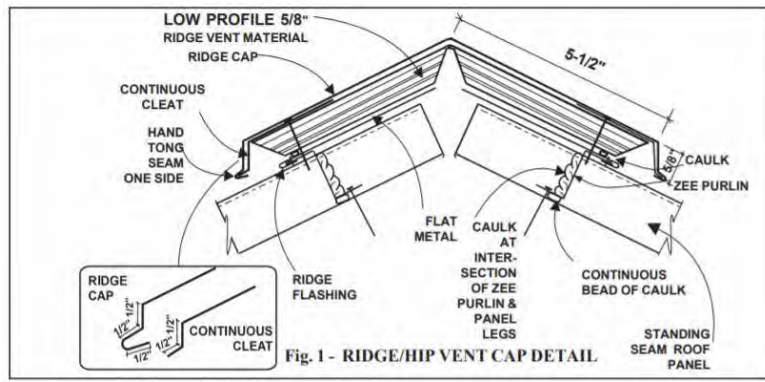
Scale	3/16" = 1'-0"
-------	---------------



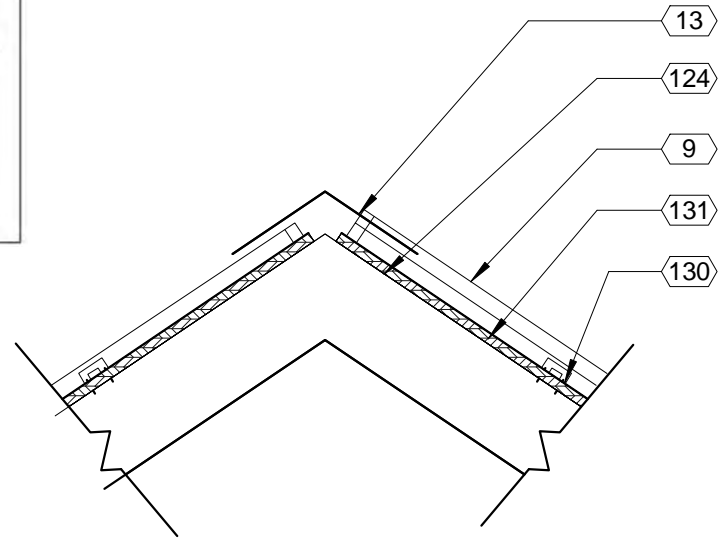
2 DT_Sheet A108_SSMR Roof Penetration Detail
1 1/2" = 1'-0"



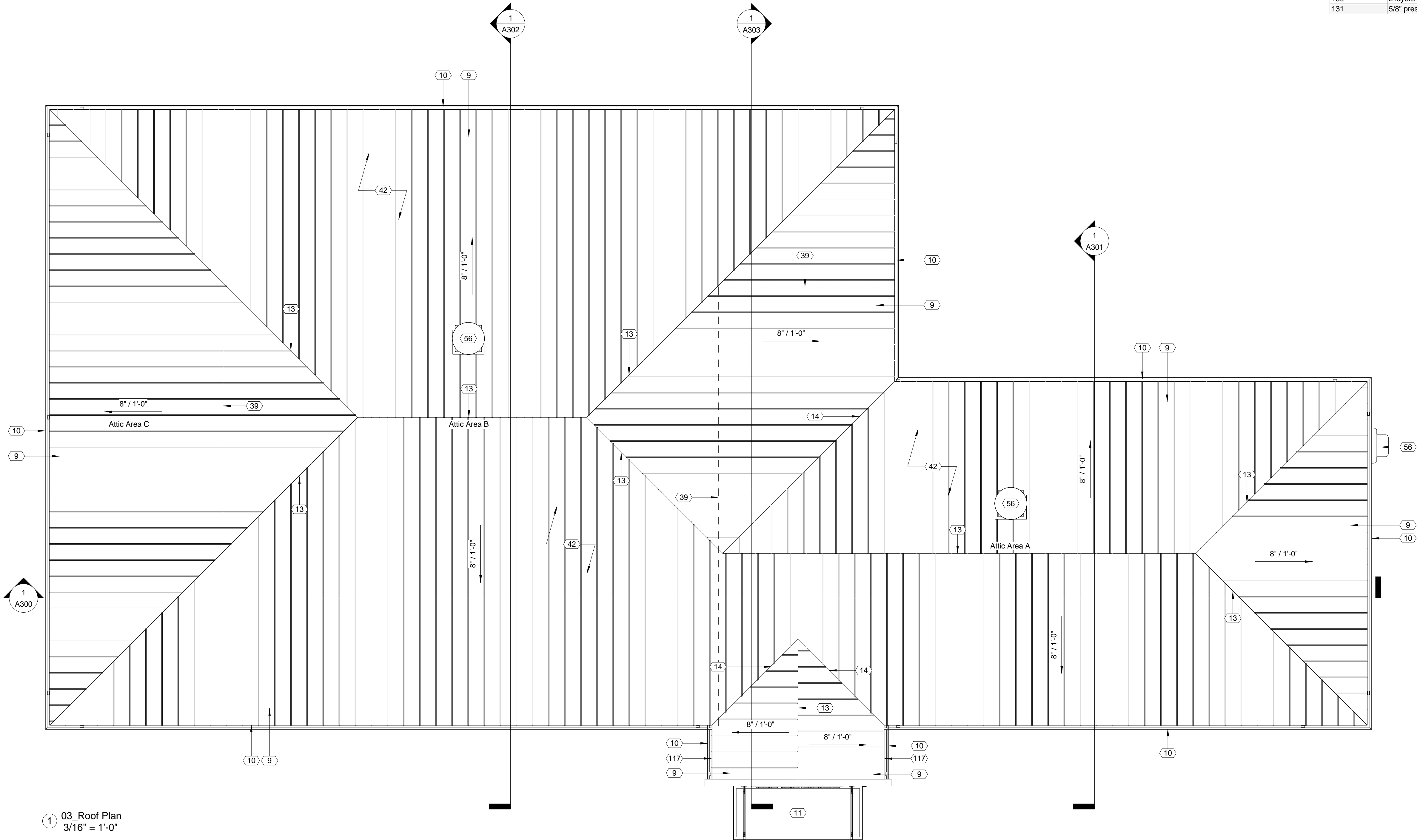
3 DT_Sheet A108_SSMR Roof Curb Detail
1 1/2" = 1'-0"



4 DT_Sheet A108_Ridge-Hip Detail_Concealed Venting
1" = 1'-0"



Keynote Schedule	
Tag	Text
9	Pre-finished standing seam metal roof system. See Specification 074113.16 Standing Seam Metal Roof Panels. See Finish Schedule for color.
10	Pre-finished metal gutter system. See Specification 077100 Roof Specialties.
11	Pre-finished metal canopy. See Details on sheet A303 (A302 for OC Building Only).
13	Pre-finished metal hip and ridge cap by metal roofing manufacturer. Provide concealed ridge venting if indicated. Color to match roof. See Specification 074113.16 Standing Seam Metal Roof Panels.
14	Pre-finished metal valley flashing. Color to match roof.
39	Provide attic draftstop partition and access door per IBC. Wall shall read "Seal All Penetrations" every 25'-0" o.c. Attic "Floor" area within draftstop areas shall not exceed 3,000 s.f. Draftstop materials shall not be less than 1/2" gypsum board adequately supported. The integrity of draftstop shall be maintained. Provide 1 opening per partition, protected by a self-closing door constructed as required for the partition with automatic latch. Door shall not be less than 20"x30" which is required for attic access specified in Section 1209.2 of the IBC. Provided max. 3,000 s.f. area is not exceeded, draftstop locations shall align with structural supports.
42	Paint all roof penetrations to match roof color.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
117	No roof overhang at entry gable. See Structural.
118	Stainless steel draw band.
119	Metal storm collar. Finish to match roof.
120	Rubber boot. Cut to suit pipe penetration.
121	Rivet boot to panel with continuous bead of sealant between boot and panel.
122	When pipe is fixed to structure and not designed to float with roof panel, cut hole in panel to allow for thermal expansion.
124	Pre-engineered wood roof truss. See Structural.
130	2 layers of #15 roofing felt.
131	5/8" pressure treated plywood decking. See Structural.



1 03_Roof Plan
3/16" = 1'-0"



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

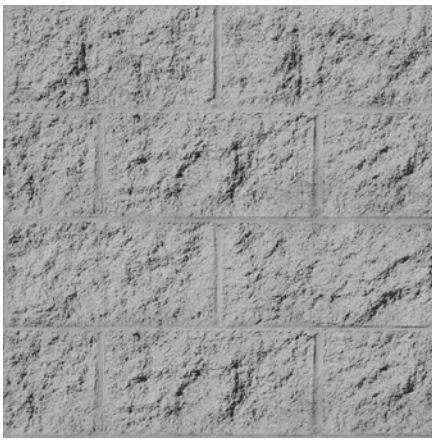
Roof Plan

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A108

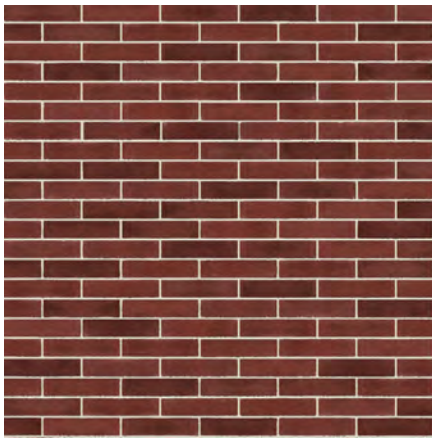
Scale As indicated

EXTERIOR FINISH MATERIAL LEGEND



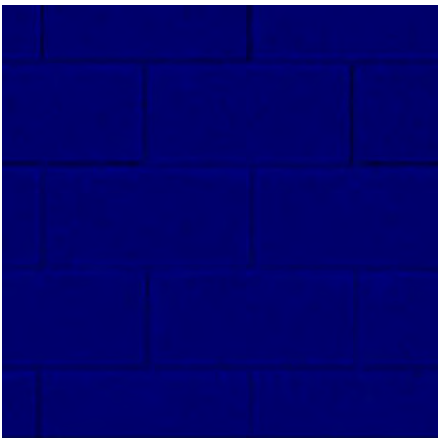
PAINTED SPLIT-FACE CMU

Color: SW7669 Summit Gray
Manuf: Sherwin Williams



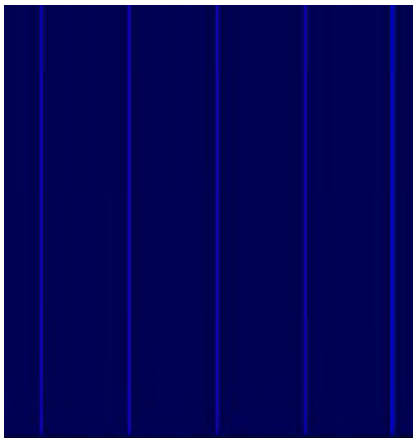
STRUCTURAL HALF-HIGHS

Color: Richfield Blend
Manuf: Echelon



EXTERIOR PAINT

Color: SW6966 Blueblood
Manuf: Sherwin Williams



ROOF

Color: Royal Blue
Manuf: Berridge



HM DOORS

Color: SW7669 Summit Gray
Manuf: Sherwin Williams



STOREFRONT DOORS

Color: Clear Anodized Aluminum
Manuf: YKK

NOTE:

Align top of exterior wall packs with bottom of banding at 12'-0" a.f.f. Do not locate exterior wall packs on side of building that contains illuminated lightbars or sconces by others, unless at exit doors as indicated on the Electrical Drawings.

Keynote Schedule	
Tag	Text
9	Pre-finished standing seam metal roof system. See Specification 074113.16 Standing Seam Metal Roof Panels. See Finish Schedule for color.
10	Pre-finished metal gutter system. See Specification 077100 Roof Specialties.
11	Pre-finished metal canopy. See Details on sheet A303 (A302 for OC Building Only).
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.
13	Pre-finished metal hip and ridge cap by metal roofing manufacturer. Provide concealed ridge venting if indicated. Color to match roof. See Specification 074113.16 Standing Seam Metal Roof Panels.
15	1x pressure treated painted fascia board, continuous.
16	Painted structural half-highs. See Specification 042200 Concrete Unit Masonry.
17	Painted 8" split-face CMU (bond beam where indicated, see Structural). As required, provide painted smooth-face, grout filled "U" block bond beam at lightbars only. As required, paint CMU lintel above OH doors as indicated on finish schedule. See Structural. See Specification 042200 Concrete Unit Masonry.
18	Unpainted structural half-highs. See Specification 042200 Concrete Unit Masonry.
19	Painted 8" split-face CMU (bond beam where indicated, see Structural). See Specification 042200 Concrete Unit Masonry.
20	4" diameter painted concrete-filled steel pipe bollard. Color as indicated on Finish Schedule. Paint embedded portion of bollard. Use primer and two finish coats. See Details on sheet A101. See Specification 055000 Metal Fabrications.
21	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.
22	Signage (By Others). Provide blocking as required. See Electrical.
23	Wall sconce (By Others). Provide blocking as required. See Electrical. Locate junction box for sconces 5'-0" a.f.f. vertically and 4" from center horizontally. Verify with sign company prior to rough-in.
24	Lightbar (By Others). Provide blocking as required. See Electrical.
25	Control joint. For control joints in concrete floor slabs, coordinate location with equipment layout by others. Max. distance between control joints in slabs not to exceed 12'-0". Control joints in walls shall be 4'-0" max from wall intersection or corner and every 20'-0".
26	Fire Department Lock Box. Locate as directed by the Local Fire Marshal or AHJ. See Specification 104413 Fire Department Lock Box.
27	Pre-finished metal coping at exposed tops only over self-adhered membrane flashing and pressure treated wood blocking Slope to drain. Color to match roof.
35	Submersible foundation sump pump. Provide Zoeller M98 or comparable product. Coordinate location with Civil and tie into Civil's storm drainage system.
47	Provide address identification as directed by the Local Fire Marshal or AHJ.
53	Conduit to be centered horizontally for lights in canopy. Verify with sign company prior to rough-in.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
68	1x pressure treated painted frieze board, continuous.



01_ Exterior Elevation_Front (South)
3/16" = 1'-0"



www.ahoarch.com



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Exterior Elevation -
Front (South)

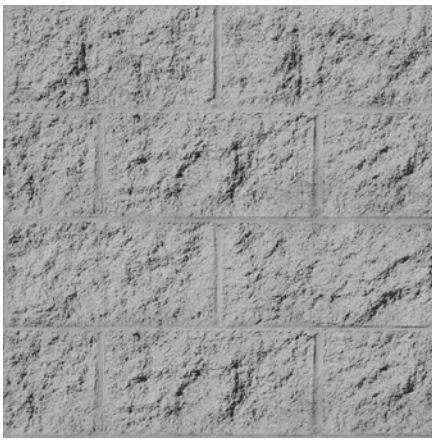
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A200

Scale 3/16" = 1'-0"

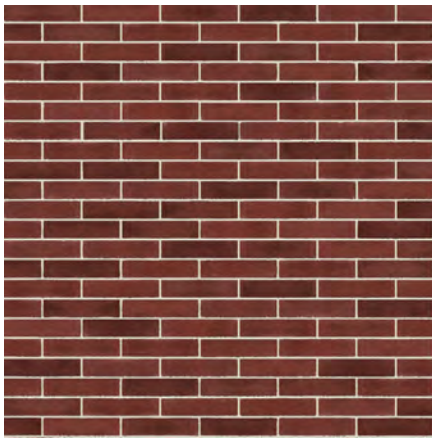
5/14/2024 11:58:12 AM

EXTERIOR FINISH MATERIAL LEGEND



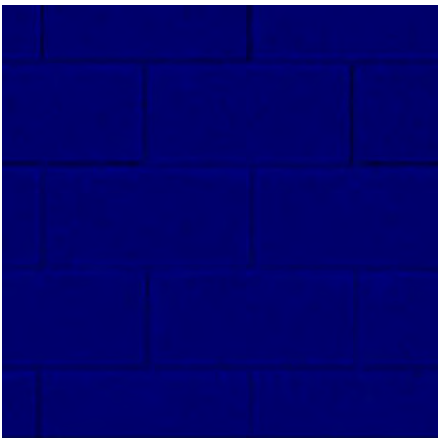
PAINTED SPLIT-FACE CMU

Color: SW7669 Summit Gray
Manuf: Sherwin Williams



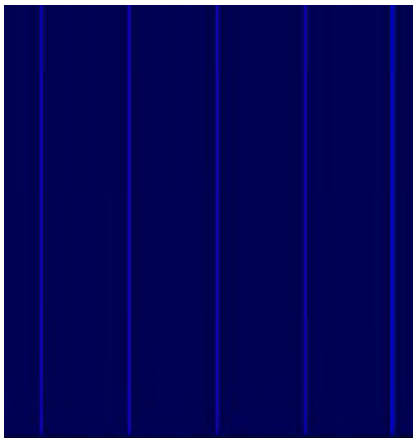
STRUCTURAL HALF-HIGHS

Color: Richfield Blend
Manuf: Echelon



EXTERIOR PAINT

Color: SW6966 Blueblood
Manuf: Sherwin Williams



ROOF

Color: Royal Blue
Manuf: Berridge



HM DOORS

Color: SW7669 Summit Gray
Manuf: Sherwin Williams



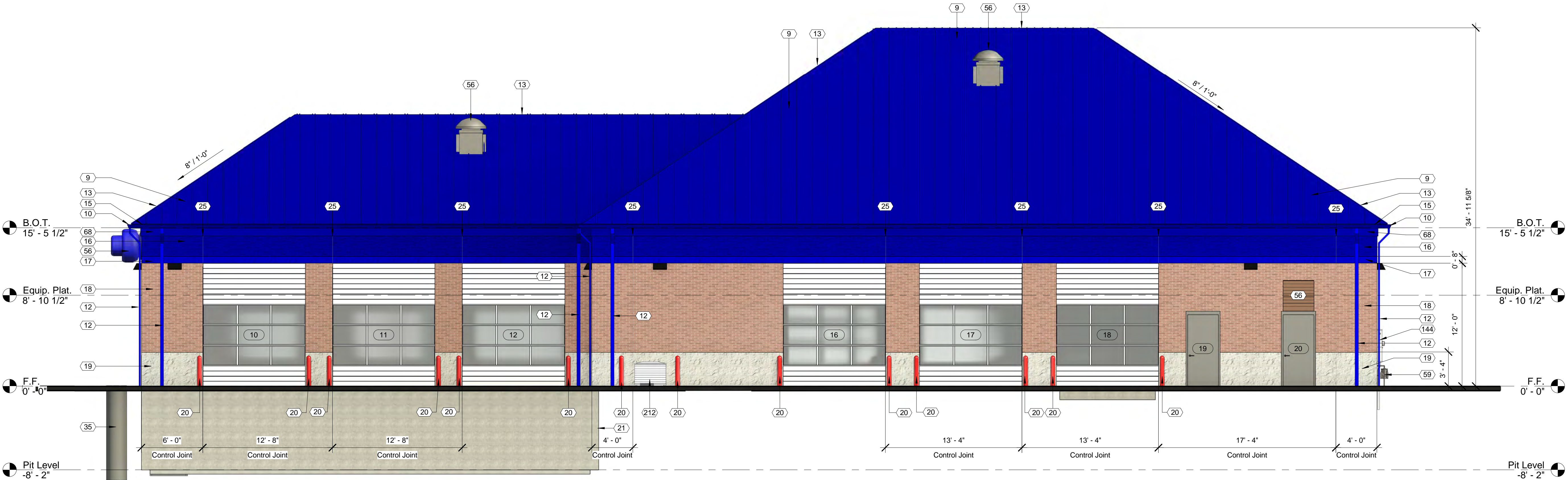
STOREFRONT DOORS

Color: Clear Anodized Aluminum
Manuf: YKK

Keynote Schedule	
Tag	Text
9	Pre-finished standing seam metal roof system. See Specification 074113.16 Standing Seam Metal Roof Panels. See Finish Schedule for color.
10	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.
12	Pre-finished metal hip and ridge cap by metal roofing manufacturer. Provide concealed ridge venting if indicated. Color to match roof. See Specification 074113.16 Standing Seam Metal Roof Panels.
13	1x pressure treated painted fascia board, continuous.
15	Painted structural half-highs. See Specification 042200 Concrete Unit Masonry.
16	Painted 8" split-face CMU (bond beam where indicated, see Structural). As required, provide painted smooth-face, grout filled "U" block bond beam at lightbars only. As required, paint CMU lintel above OH doors as indicated on finish schedule. See Structural. See Specification 042200 Concrete Unit Masonry.
17	Unpainted structural half-highs. See Specification 042200 Concrete Unit Masonry.
18	Painted 8" split-face CMU (bond beam where indicated, see Structural). See Specification 042200 Concrete Unit Masonry.
19	4" diameter painted concrete-filled steel pipe bollard. Color as indicated on Finish Schedule. Paint embedded portion of bollard. Use primer and two finish coats. See Details on sheet A101. See Specification 055000 Metal Fabrications.
20	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.
21	Control joint. For control joints in concrete floor slabs, coordinate location with equipment layout by others. Max. distance between control joints in slabs not to exceed 12'-0". Control joints in walls shall be 4'-0" max from wall intersection or corner and every 20'-0".
25	Submersible foundation sump pump. Provide Zoeller M98 or comparable product. Coordinate location with Civil and tie into Civil's storm drainage system.
35	Metal louver or vent. Color to match adjacent surface. See Mechanical.
56	Gas meter. See Plumbing.
59	1x pressure treated painted frieze board, continuous.
68	Electrical meter. See Electrical.
144	HVAC condensing unit. See Mechanical.
212	

NOTE:

Align top of exterior wall packs with bottom of banding at 12'-0" a.f.f. Do not locate exterior wall packs on side of building that contains illuminated lightbars or sconces by others, unless at exit doors as indicated on the Electrical Drawings.



02_Exterior Elevation_Rear (North)
3/16" = 1'-0"



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

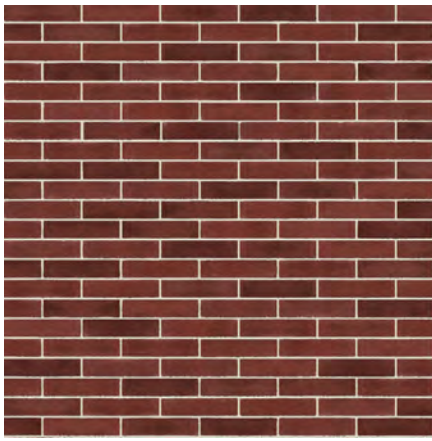
Exterior Elevation -
Rear (North)

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

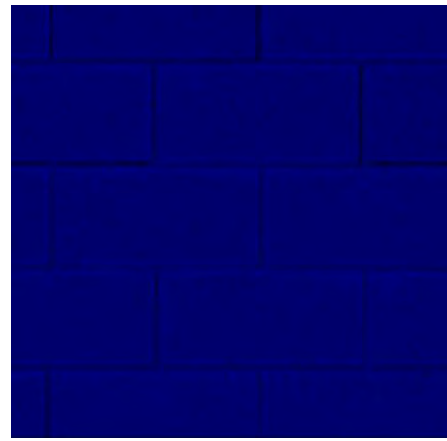
A201

Scale 3/16" = 1'-0"

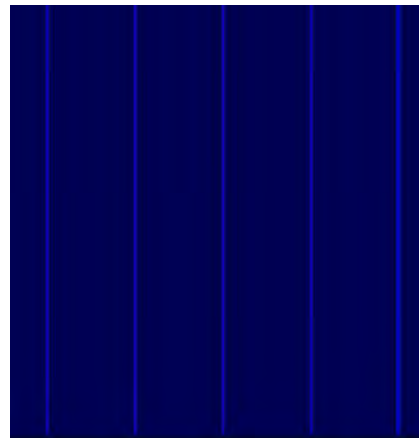
Color: SW7669 Summit Gray
Manuf: Sherwin Williams



Color: Richfield Blend
Manuf: Echelon



Color: SW6966 Blueblood
Manuf: Sherwin Williams



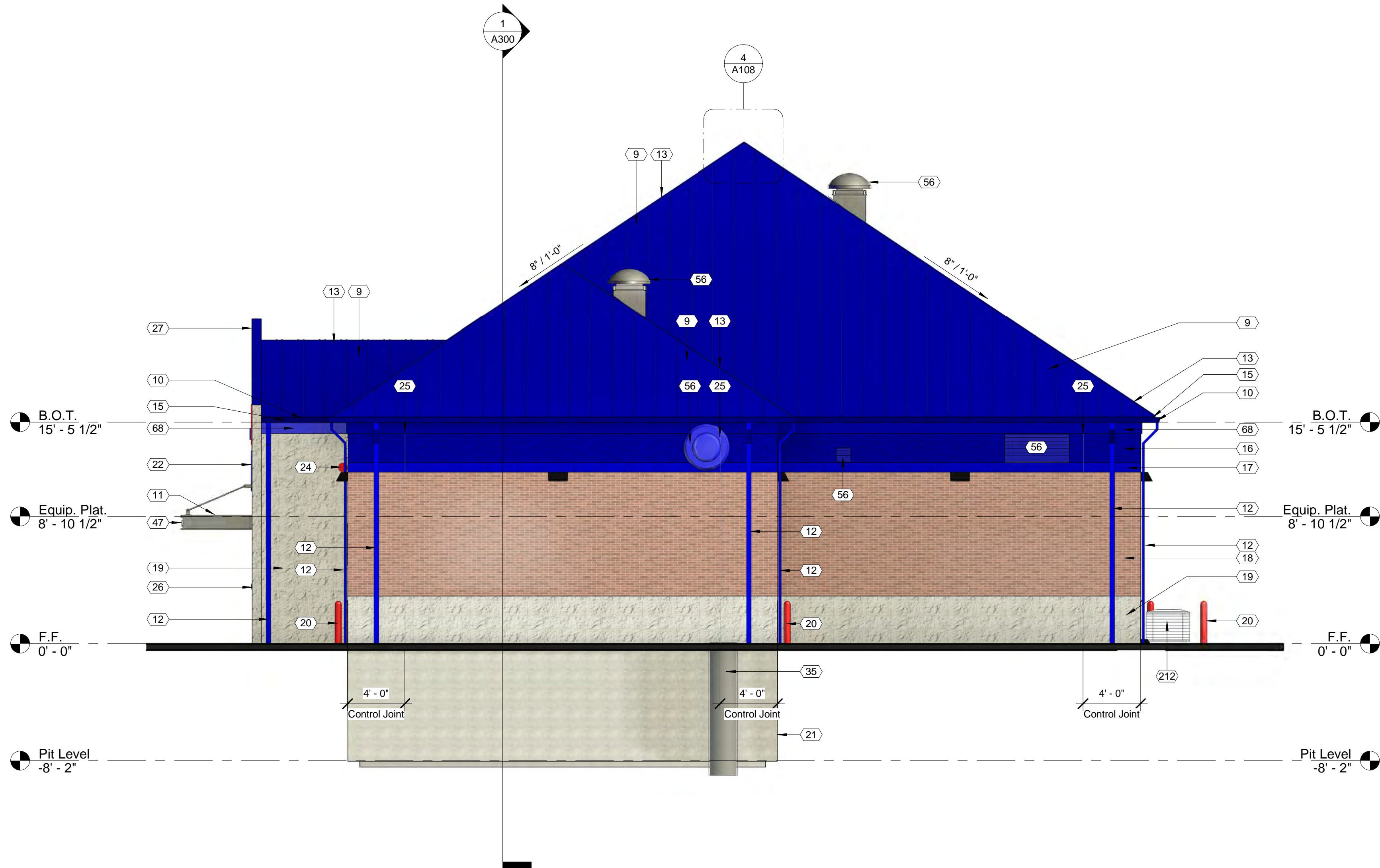
Color: Royal Blue
Manuf: Berridge



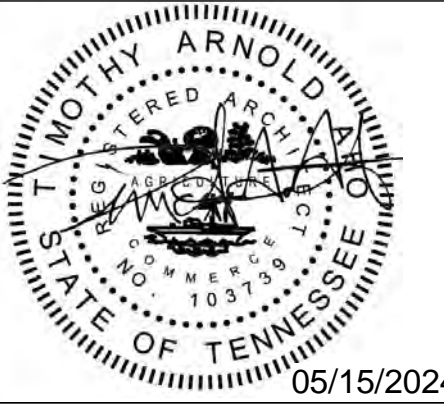
Color: SW7669 Summit Gray
Manuf: Sherwin Williams

Color: Clear Anodized Aluminum
Manuf: YKK

Align top of exterior wall packs with bottom of banding at 12'-0" a.f.f. Do not locate exterior wall packs on side of building that contains illuminated lightbars or sconces by others, unless at exit doors as indicated on the Electrical Drawings.



Tag	Text
9	Pre-finished standing seam metal roof system. See Specification 074113.16 Standing Seam Metal Roof Panels. See Finish Schedule for color.
10	Pre-finished metal gutter system. See Specification 077100 Metal Roofing Specifications.
11	Pre-finished metal canopy. See Details on sheet A303 (A302 for OC Building Only).
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specifications.
13	Pre-finished metal hip and ridge cap by metal roofing manufacturer. Provide concealed ridge venting if indicated. Color to match roof. See Specification 074113.16 Standing Seam Metal Roof Panels.
15	1x pressure treated painted fascia board, continuous.
16	Painted structural half-highs. See Specification 042200 Concrete Unit Masonry.
17	Painted 8" split-face CMU (bond beam where indicated, see Structural). As required, provide painted smooth-face, grout filled "U" block bond beam at lightbars only. As required, paint CMU lintel above OH doors as indicated on finish schedule. See Structural. See Specification 042200 Concrete Unit Masonry.
18	Unpainted structural half-highs. See Specification 042200 Concrete Unit Masonry.
19	Painted 8" split-face CMU (bond beam where indicated, see Structural). See Specification 042200 Concrete Unit Masonry.
20	4" diameter painted concrete-filled steel pipe bollard. Color as indicated on Finish Schedule. Paint embedded portion of bollard. Use primer and two finish coats. See Details on sheet A101. See Specification 055000 Metal Fabrications.
21	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.
22	Signage (By Others). Provide blocking as required. See Electrical.
24	Lightbar (By Others). Provide blocking as required. See Electrical.
25	Control joint. For control joints in concrete floor slabs, coordinate location with equipment layout by others. Max. distance between control joints in slabs not to exceed 12'-0". Control joints in walls shall be 4'-0" max from wall intersection or corner and every 20'-0".
26	Fire Department Lock Box. Locate as directed by the Local Fire Marshal or AHJ. See Specification 104413 Fire Department Lock Box.
27	Pre-finished metal coping at exposed tops only over self-adhered membrane flashing and pressure treated wood blocking Slope to drain. Color to match roof.
35	Submersible foundation sump pump. Provide Zoeller M98 or comparable product. Coordinate location with Civil and tie into Civil's storm drainage system.
47	Provide address identification as directed by the Local Fire Marshal or AHJ.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
68	1x pressure treated painted frieze board, continuous.
212	HVAC condensing unit. See Mechanical.



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

[illegible]

© 2024 Aho Architects, LLC.
All Rights Reserved.

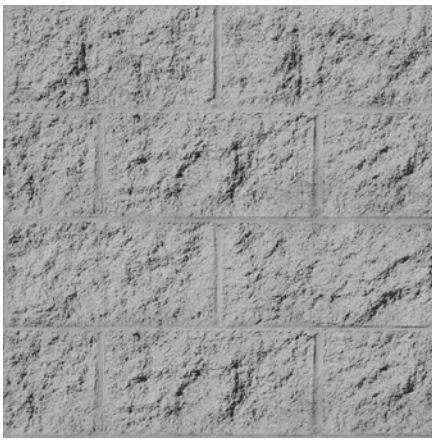
Exterior Elevation -
Right (East)

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A202

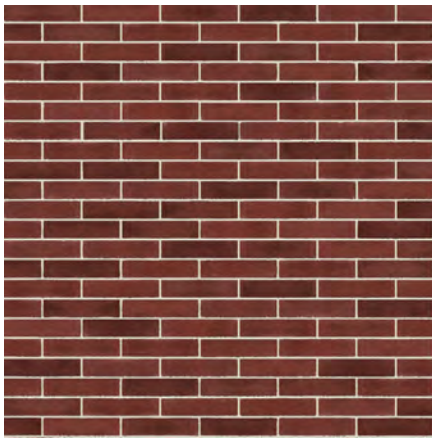
Scale $3/16" = 1'-0"$

EXTERIOR FINISH MATERIAL LEGEND



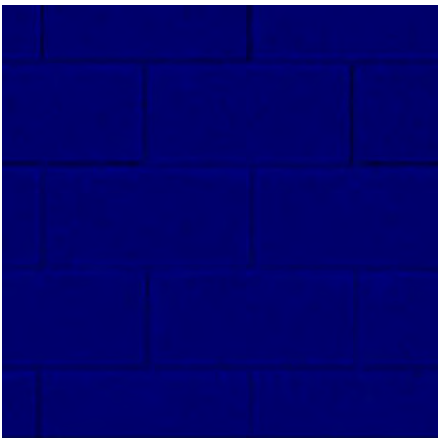
PAINTED SPLIT-FACE CMU

Color: SW7669 Summit Gray
Manuf: Sherwin Williams



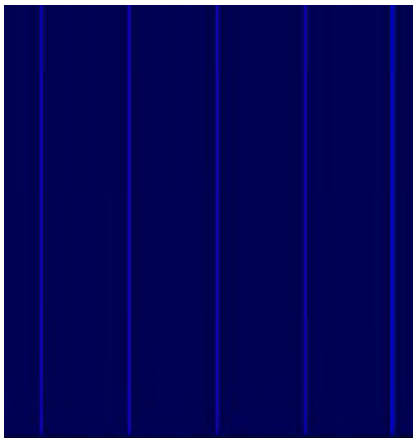
STRUCTURAL HALF-HIGHS

Color: Richfield Blend
Manuf: Echelon



EXTERIOR PAINT

Color: SW6966 Blueblood
Manuf: Sherwin Williams



ROOF

Color: Royal Blue
Manuf: Berridge



HM DOORS

Color: SW7669 Summit Gray
Manuf: Sherwin Williams



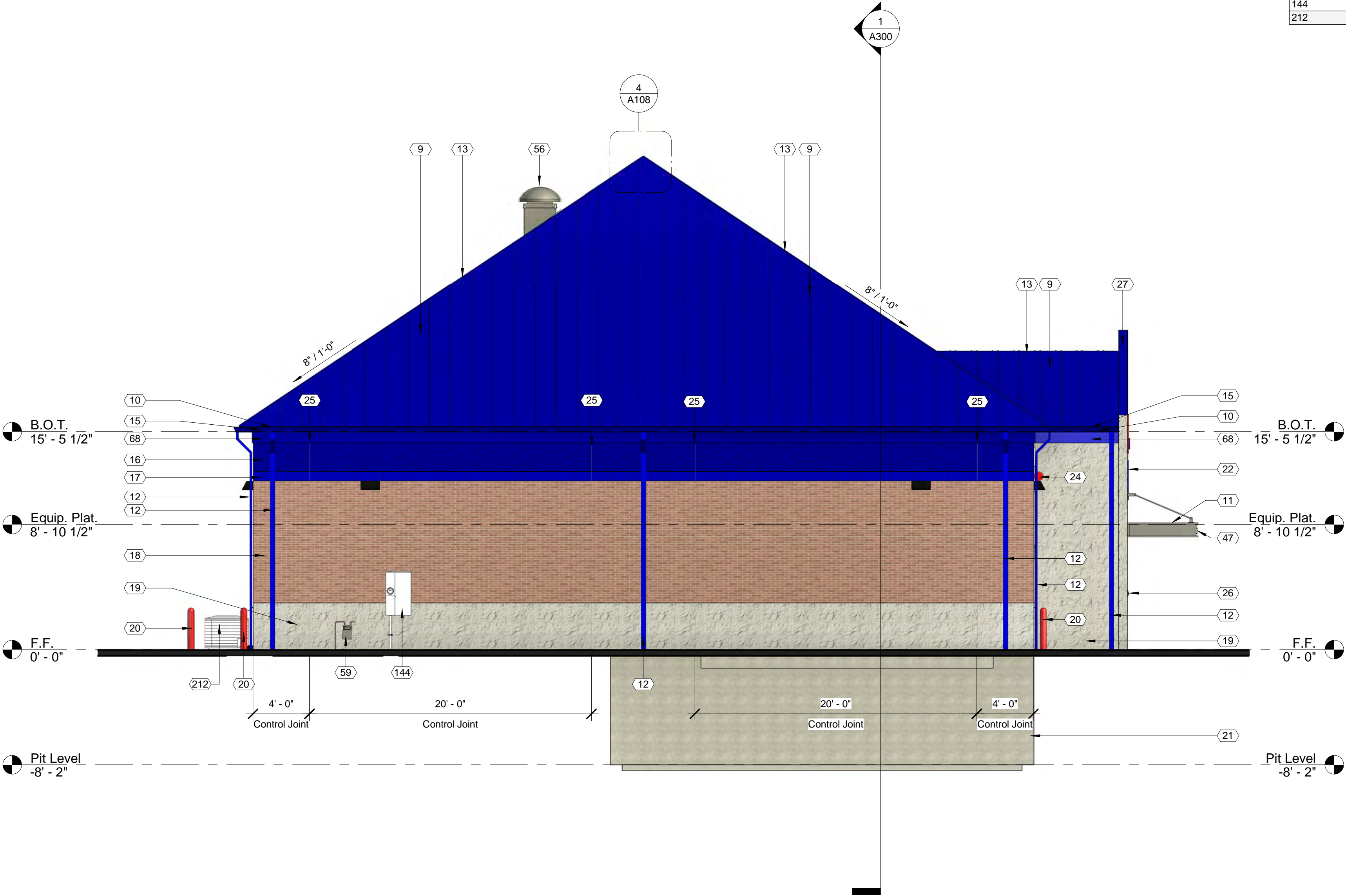
STOREFRONT DOORS

Color: Clear Anodized Aluminum
Manuf: YKK

Keynote Schedule	
Tag	Text
9	Pre-finished standing seam metal roof system. See Specification 074113.16 Standing Seam Metal Roof Panels. See Finish Schedule for color.
10	Pre-finished metal gutter system. See Specification 077100 Roof Specialties.
11	Pre-finished metal canopy. See Details on sheet A303 (A302 for OC Building Only).
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.
13	Pre-finished metal hip and ridge cap by metal roofing manufacturer. Provide concealed ridge venting if indicated. Color to match roof. See Specification 074113.16 Standing Seam Metal Roof Panels.
15	1x pressure treated painted fascia board, continuous.
16	Painted structural half-highs. See Specification 042200 Concrete Unit Masonry.
17	Painted 8" split-face CMU (bond beam where indicated, see Structural). As required, provide painted smooth-face, grout filled "U" block bond beam at lightbars only. As required, paint CMU lintel above OH doors as indicated on finish schedule. See Structural. See Specification 042200 Concrete Unit Masonry.
18	Unpainted structural half-highs. See Specification 042200 Concrete Unit Masonry.
19	Painted 8" split-face CMU (bond beam where indicated, see Structural). See Specification 042200 Concrete Unit Masonry.
20	4" diameter painted concrete-filled steel pipe bollard. Color as indicated on Finish Schedule. Paint embedded portion of bollard. Use primer and two finish coats. See Details on sheet A101. See Specification 055000 Metal Fabrications.
21	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.
22	Signage (By Others). Provide blocking as required. See Electrical.
24	Lightbar (By Others). Provide blocking as required. See Electrical.
25	Control joint. For control joints in concrete floor slabs, coordinate location with equipment layout by others. Max. distance between control joints in slabs not to exceed 12'-0". Control joints in walls shall be 4'-0" max from wall intersection or corner and every 20'-0".
26	Fire Department Lock Box. Locate as directed by the Local Fire Marshal or AHJ. See Specification 104413 Fire Department Lock Box.
27	Pre-finished metal coping at exposed tops only over self-adhered membrane flashing and pressure treated wood blocking Slope to drain. Color to match roof.
47	Provide address identification as directed by the Local Fire Marshal or AHJ.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
59	Gas meter. See Plumbing.
68	1x pressure treated painted frieze board, continuous.
144	Electrical meter. See Electrical.
212	HVAC condensing unit. See Mechanical.

NOTE:

Align top of exterior wall packs with bottom of banding at 12'-0" a.f.f. Do not locate exterior wall packs on side of building that contains illuminated lightbars or sconces by others, unless at exit doors as indicated on the Electrical Drawings.



04 Exterior Elevation_Left (West)
3/16" = 1'-0"



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

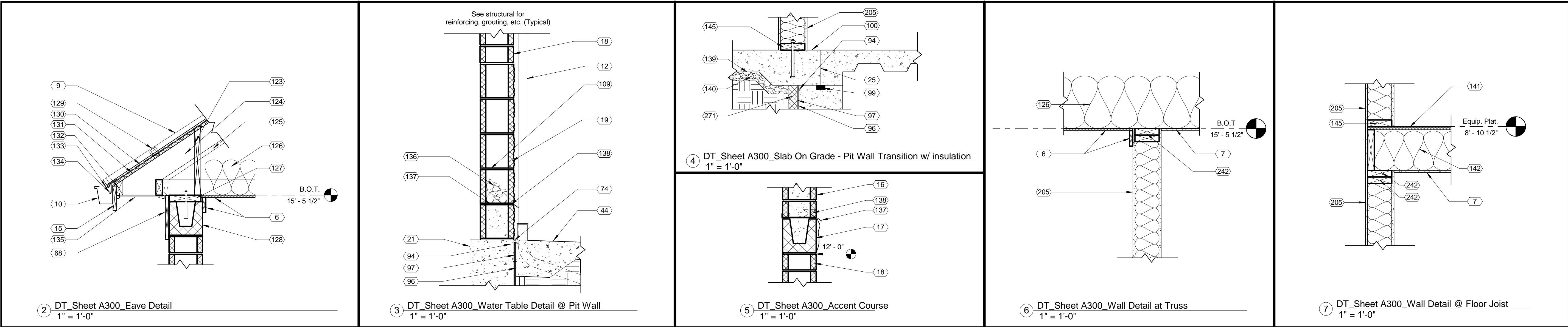
© 2024 Aho Architects, LLC.
All Rights Reserved.

Exterior Elevation -
Left (West)

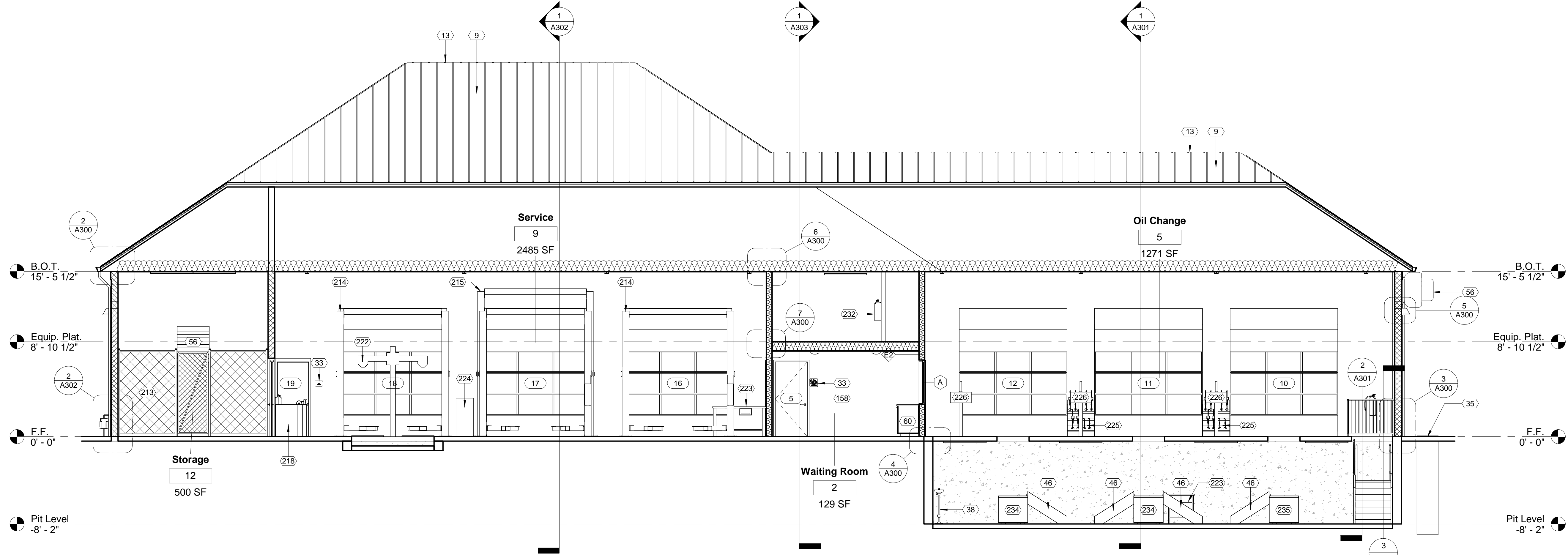
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A203

Scale 3/16" = 1'-0"



Keynote Schedule		Keynote Schedule		Keynote Schedule		Keynote Schedule		Keynote Schedule	
Tag	Text	Tag	Text	Tag	Text	Tag	Text	Tag	Text
6	Painted 1/2" thick fire-rated plywood with 1/4" x 1 1/4" fire-rated painted wood batten strips at seams, secured to underside of roof trusses. Provide painted 1"x4" fire-rated wood trim at perimeter.	19	Painted 8" split-face CMU (bond beam where indicated, see Structural). See Specification 042200 Concrete Unit Masonry.	94	Fasteners at 12" max o.c. for securing subdrainage to pit wall. Follow manufacturer's installation instructions.	133	Field cut seam and form pan around eave flashing.	218	Brake lathe (By Others).
7	Painted 1/2" gypsum board ceiling, 5/8" Type X where indicated.	21	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.	96	CCW MiraClay woven geotextile against wall/slab.	134	Eave flashing with drip edge.	222	Alignment scarecrow (By Others).
9	Pre-finished standing seam metal roof system. See Specification 074113.16 Standing Seam Metal Roof Panels. See Finish Schedule for color.	25	Control joint. For control joints in concrete floor slabs, coordinate location with equipment layout by others. Max. distance between control joints in slabs not to exceed 12'-0". Control joints in walls shall be 4'-0" max from wall intersection or corner and every 20'-0".	97	CCW MiraDrain 6200.	135	Painted vented soffit with paintable PVC "H" jointers between panels, fastened to pressure treated 2"x4" wood blocking. See Specification Section 074293 Soffit Panels.	223	Work bench (By Others).
10	Pre-finished metal gutter system. See Specification 077100 Roof Specialties.	33	ADA compliant room / exit sign. See Details on Sheet A602.	99	CCW MiraStop.	136	Pea gravel above aluminum through wall flashing.	224	Strut compressor (By Others).
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.	35	Submersible foundation sump pump. Provide Zoeller M98 or comparable product. Coordinate location with Civil and tie into Civil's storm drainage system.	100	Concrete slab. See Structural.	137	Aluminum through wall flashing.	225	Lube console (By Others).
13	Pre-finished metal hip and ridge cap by metal roofing manufacturer. Provide concealed ridge venting if indicated. Color to match roof. See Specification 074113.16 Standing Seam Metal Roof Panels.	38	Eyewash station. See Plumbing.	109	Horizontal joint reinforcement at 16" o.c. vertical.	138	Drainable weeps at every third mortar joint.	226	Computer podium (By Others).
15	1x pressure treated painted fascia board, continuous.	44	Concrete apron. See Civil. Slope away from building.	123	Blocking. See Structural.	139	10 mil vapor barrier. See Specification 072600 Vapor Retarders.	232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.
16	Painted structural half-highs. See Specification 042200 Concrete Unit Masonry.	46	Oil tank stairs (By Others).	124	Pre-engineered wood roof truss. See Structural.	140	4" porous fill. See Geotechnical Report.	234	928-gallon Class IIIB new oil tank (By Others). Provide a 2" concrete walkway cap with non-slip surface over (oil tank By Others). Coordinate with equipment supplier prior to installation.
17	Painted 8" split-face CMU (bond beam where indicated, see Structural). As required, provide painted smooth-face, grout filled "U" block bond beam at lightbars only. As required, paint CMU lintel above OH doors as indicated on finish schedule. See Structural. See Specification 042200 Concrete Unit Masonry.	56	Metal louver or vent. Color to match adjacent surface. See Mechanical.	125	Insulation baffle.	141	3/4" tongue and groove plywood on wood joists. See Structural.	235	928-gallon Class IIB waste oil tank (By Others). Provide a 2" concrete walkway cap with non-slip surface over (oil tank By Others). Coordinate with equipment supplier prior to installation.
18	Unpainted structural half-highs. See Specification 042200 Concrete Unit Masonry.	60	Coffee cabinet. See Details on sheet G301.	126	Unfaced R-38 batt insulation. See Specification 072100 Thermal Insulation.	142	Unfaced R-30 batt insulation. See Specification 072100 Thermal Insulation.	242	2x pressure treated wood top plate.
		68	1x pressure treated painted frieze board, continuous.	127	2x pressure treated wood nailer.	145	2x pressure treated wood sill plate.	271	R-10 continuous rigid insulation for 24" below slab at perimeter of thermal envelope.
		74	1/2" expansion joint with backer rod and sealant.	128	Painted smooth-face 8" concrete-filled "U" block bond beam. Condition varies. See Structural.	158	Vinyl letters (By Others).		
				129	"H" clips at mid-span on standing seam metal roof.	205	1 layer of 1/2" painted gypsum board on both sides of 2"x6" wood studs at 16" o.c. Infill with kraft-faced R-20 batt insulation. Kraft in contact with gypsum board.		
				130	2 layers of #15 roofing felt.	213	Full height chain-link fence with 3'-0" x 7'-0" gate.		
				131	5/8" pressure treated plywood decking. See Structural.	214	10K Lift (By Others).		
				132	2x wood sub-fascia, continuous.	215	12K Lift (By Others).		

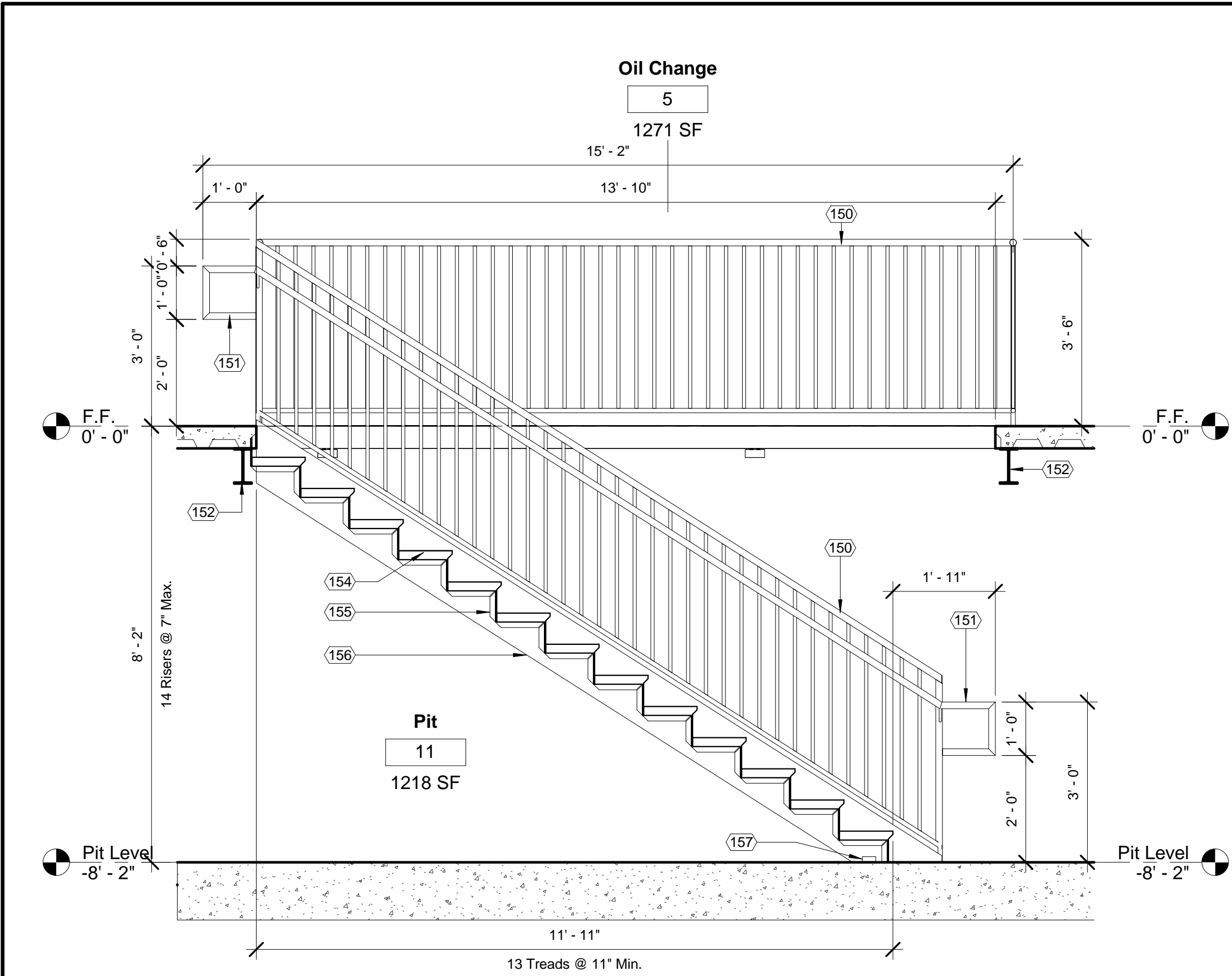


1 Building Section 1
3/16" = 1'-0"

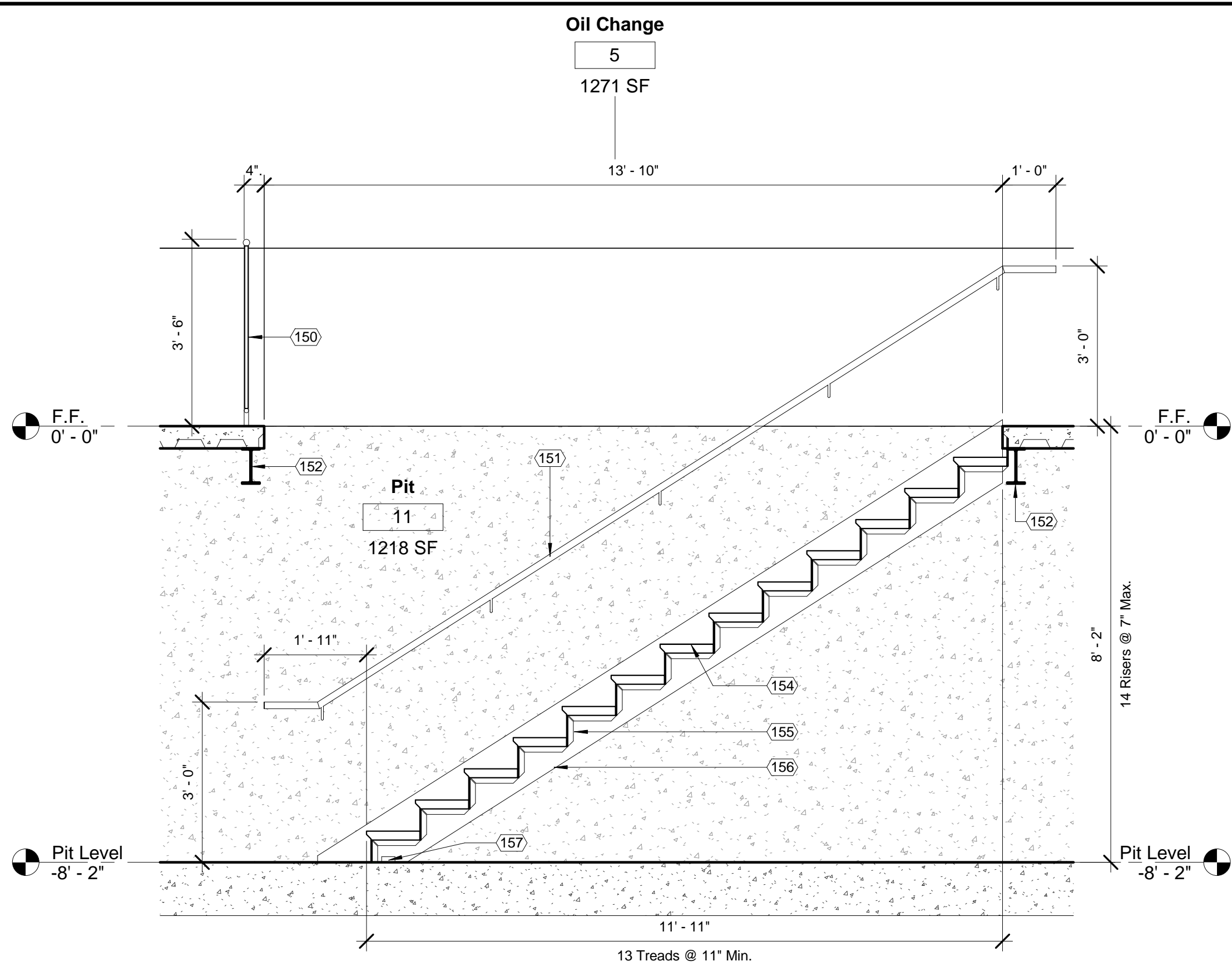
FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

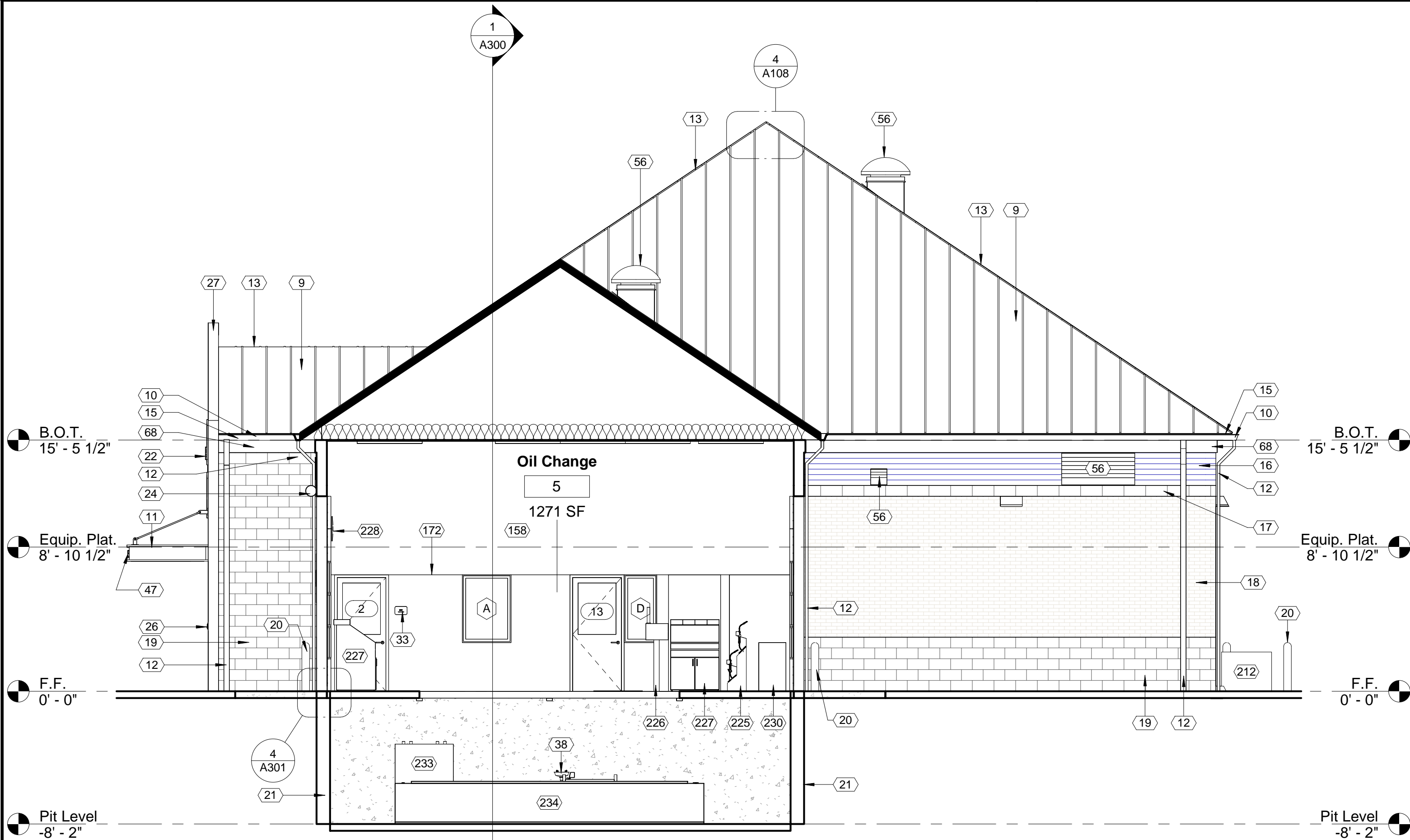
Building Sections	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
A300	
Scale	As indicated



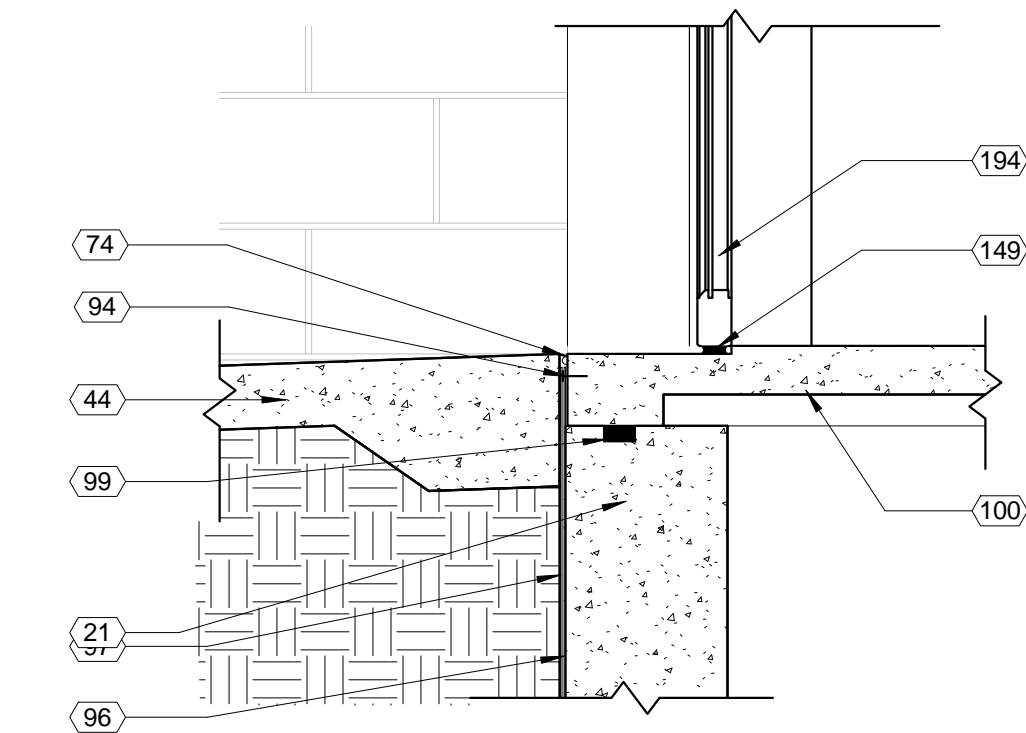
2 Stair Section 1
1/2" = 1'-0"



3 Stair Section 2
1/2" = 1'-0"



1 Building Section 2
3/16" = 1'-0"



4 DT_Sheet A301_Slab Detail @ Pit Wall
1" = 1'-0"

Keynote Schedule	
Tag	Text
9	Pre-finished standing seam metal roof system. See Specification 074113.16 Standing Seam Metal Roof Panels. See Finish Schedule for color.
10	Pre-finished metal gutter system. See Specification 077100 Roof Specialties.
11	Pre-finished metal canopy. See Details on sheet A303 (A302 for OC Building Only).
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.
13	Pre-finished metal hip and ridge cap by metal roofing manufacturer. Provide concealed ridge venting if indicated. Color to match roof. See Specification 074113.16 Standing Seam Metal Roof Panels.
15	1x pressure treated painted fascia board, continuous.
16	Painted structural half-highs. See Specification 042200 Concrete Unit Masonry.
17	Painted 8" split-face CMU (bond beam where indicated, see Structural). As required, provide painted smooth-face, grout filled "U" block bond beam at lightbars only. As required, paint CMU lintel above OH doors as indicated on finish schedule. See Structural. See Specification 042200 Concrete Unit Masonry.
18	Unpainted structural half-highs. See Specification 042200 Concrete Unit Masonry.
19	Painted 8" split-face CMU (bond beam where indicated, see Structural). See Specification 042200 Concrete Unit Masonry.
20	4" diameter painted concrete-filled steel pipe bollard. Color as indicated on Finish Schedule. Paint embedded portion of bollard. Use primer and two finish coats. See Details on sheet A101. See Specification 055000 Metal Fabrications.
21	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.
22	Signage (By Others). Provide blocking as required. See Electrical.
24	Lightbar (By Others). Provide blocking as required. See Electrical.
26	Fire Department Lock Box. Locate as directed by the Local Fire Marshal or AHJ. See Specification 104413 Fire Department Lock Box.
27	Pre-finished metal coping at exposed tops only over self-adhered membrane flashing and pressure treated wood blocking Slope to drain. Color to match roof.
33	ADA compliant room / exit sign. See Details on Sheet A602.
38	Eyewash station. See Plumbing.
44	Concrete apron. See Civil. Slope away from building.
47	Provide address identification as directed by the Local Fire Marshal or AHJ.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
68	1x pressure treated painted frieze board, continuous.
74	1/2" expansion joint with backer rod and sealant.
94	Fasteners at 12" max o.c. for securing subdrainage to pit wall. Follow manufacturer's installation instructions.
96	CCW MiraClay woven geotextile against wall/slab.
97	CCW MiraDrain 6200.
99	CCW MiraStop.
100	Concrete slab. See Structural.
149	1/2" recess at scheduled door. See Structural.
150	Painted guardrail with painted 1/2" round pickets at 4" max o.c. See Finish Schedule for color. See Specification 055213 Pipe and Tube Railings.
151	Painted 1-1/2" outside diameter pipe handrail. Return handrail to guard/wall. Typical. See Finish Schedule for color. See Specification 055213 Pipe and Tube Railings.
152	Paint all structural steel P-5 Safety Yellow.
154	Concrete filled pre-fabricated metal pan stair treads with safety yellow abrasive nosing, full grit, full length, adhered and fastened. Typical. See Finish Schedule for color. See Specification 055113 Metal Pan Stairs.
155	1-1/4" steel angle clips.
156	10" steel channel stringer. See Finish Schedule for color. See Specification 055113 Metal Pan Stairs.
157	3"x3"x3-1/4" angle floor clip.
158	Vinyl letters (By Others).
172	Ensure paint line occurs at top of door and window frames. Ensure all openings, alcoves and windows align with top of door frame. Typical in Oil and Service Bays.
194	Scheduled door. See plans for details.
212	HVAC condensing unit. See Mechanical.
225	Lube console (By Others).
226	Computer podium (By Others).
227	Cashier computer station (By Others).
228	Convex mirrors (By Others).
230	Tool cart (By Others).
233	275-gallon Class IIIB new oil tank (By Others).
234	928-gallon Class IIIB new oil tank (By Others). Provide a 2" concrete walkway cap with non-slip surface over (oil tank By Others). Coordinate with equipment supplier prior to installation.



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

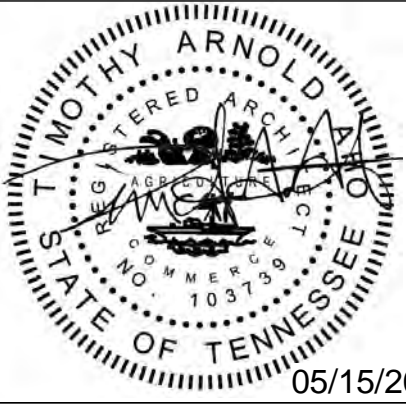
© 2024 Aho Architects, LLC.
All Rights Reserved.

Building Sections

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A301

Scale As indicated



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Building Sections

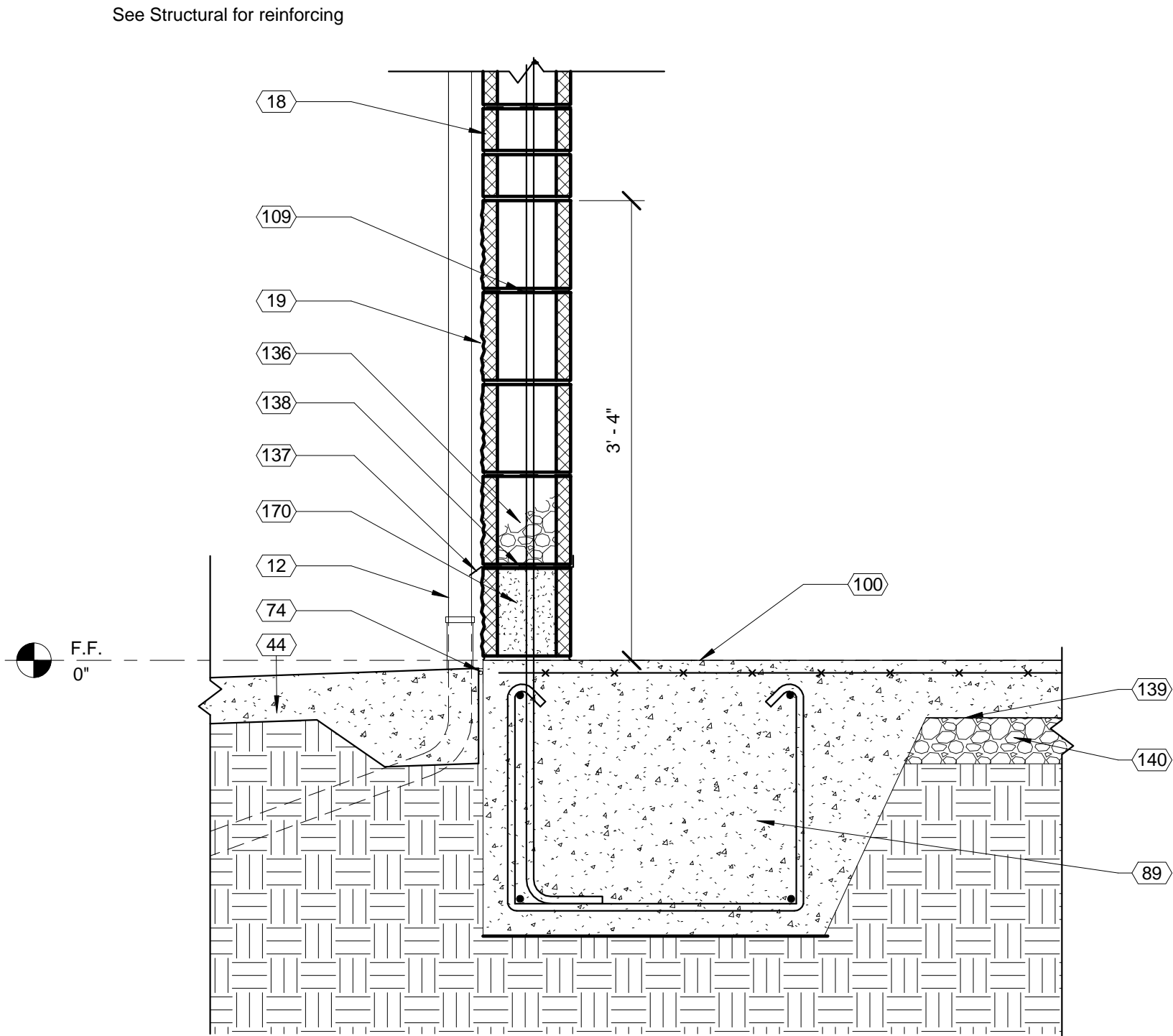
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A302

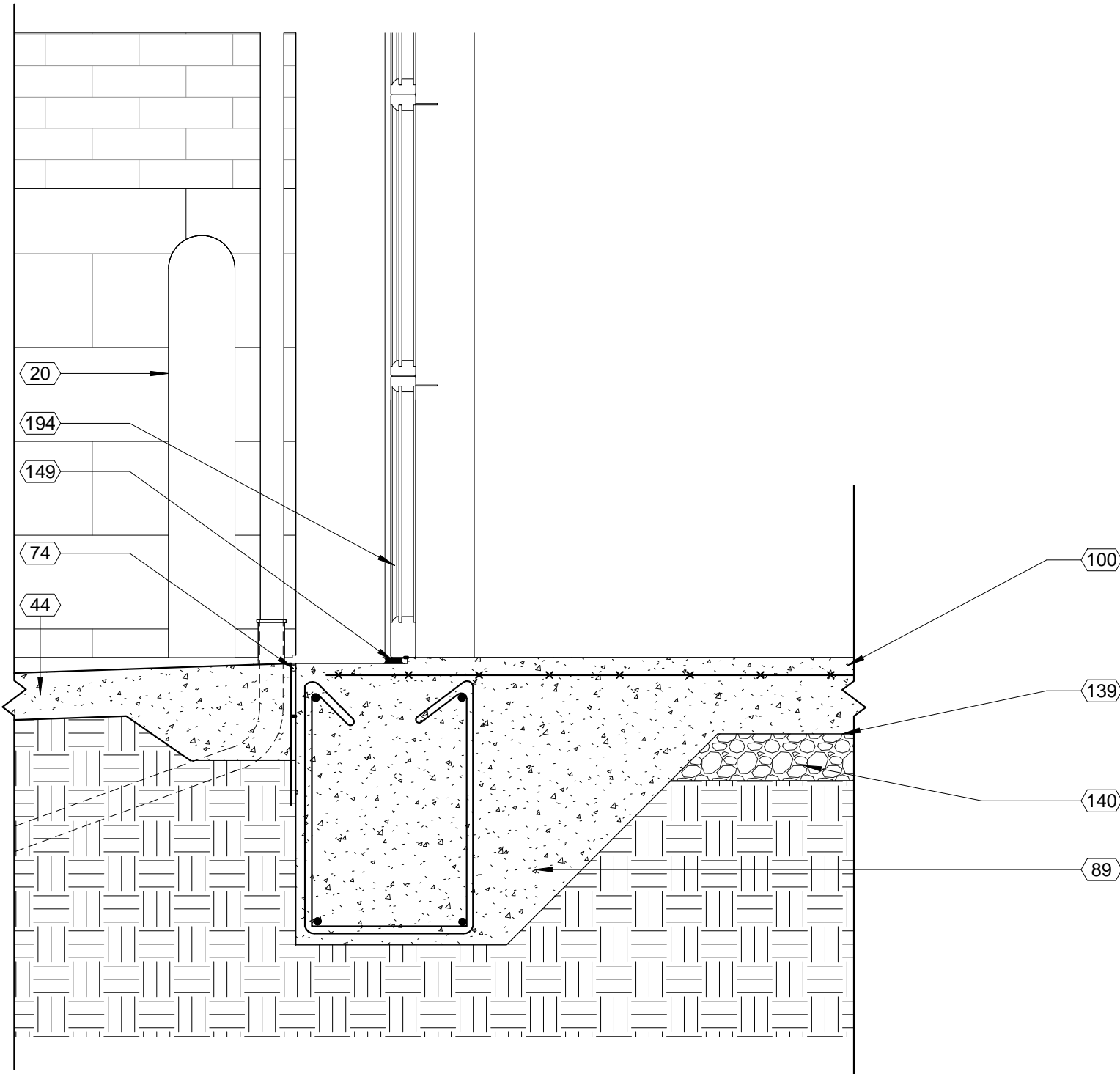
Scale As indicated

5/14/2024 11:58:58 AM

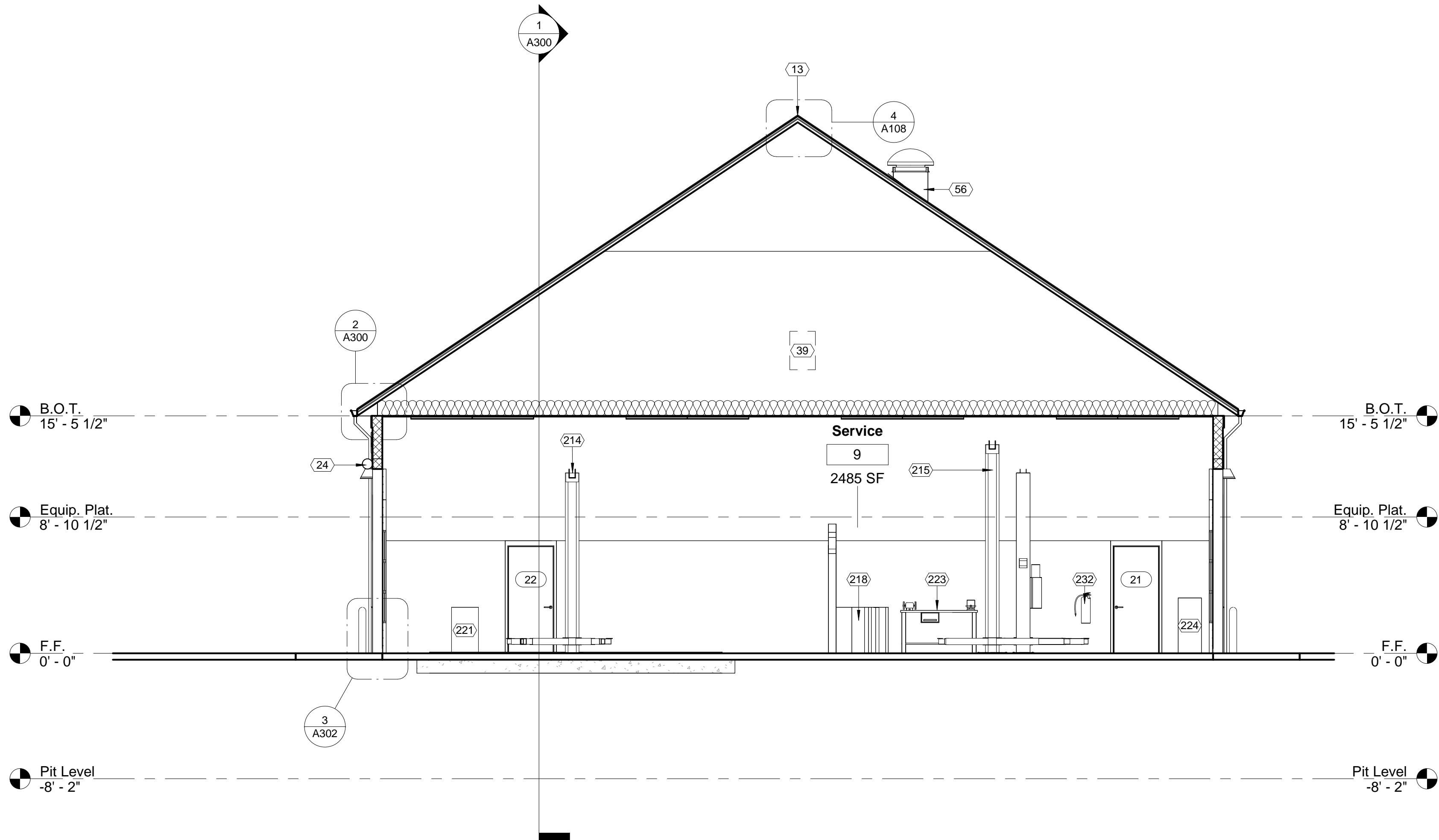
Keynote Schedule	
Tag	Text
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.
13	Pre-finished metal hip and ridge cap by metal roofing manufacturer. Provide concealed ridge venting if indicated. Color to match roof. See Specification 074113.16 Standing Seam Metal Roof Panels.
18	Unpainted structural half-highs. See Specification 042200 Concrete Unit Masonry.
19	Painted 8" split-face CMU (bond beam where indicated, see Structural). See Specification 042200 Concrete Unit Masonry.
20	4" diameter painted concrete-filled steel pipe bollard. Color as indicated on Finish Schedule. Paint embedded portion of bollard. Use primer and two finish coats. See Details on sheet A101. See Specification 055000 Metal Fabrications.
24	Lightbar (By Others). Provide blocking as required. See Electrical.
39	Provide attic draftstop partition and access door per IBC. Wall shall read "Seal All Penetrations" every 25'-0" o.c. Attic "Floor" area within draftstop areas shall not exceed 3,000 s.f. Draftstop materials shall not be less than 1/2" gypsum board adequately supported. The integrity of draftstop shall be maintained. Provide 1 opening per partition, protected by a self-closing door constructed as required for the partition with automatic latch. Door shall not be less than 20"x30" which is required for attic access specified in Section 1209.2 of the IBC. Provided max. 3,000 s.f. area is not exceeded, draftstop locations shall align with structural supports.
44	Concrete apron. See Civil. Slope away from building.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
74	1/2" expansion joint with backer rod and sealant.
89	Concrete foundation. See Structural.
100	Concrete slab. See Structural.
109	Horizontal joint reinforcement at 16" o.c. vertical.
136	Pea gravel above aluminum through wall flashing.
137	Aluminum through wall flashing.
138	Drainable weeps at every third mortar joint.
139	10 mil vapor barrier. See Specification 072600 Vapor Retarders.
140	4" porous fill. See Geotechnical Report.
149	1/2" recess at scheduled door. See Structural.
170	Fill first course of CMU with grout.
194	Scheduled door. See plans for details.
214	10K Lift (By Others).
215	12K Lift (By Others).
218	Brake lathe (By Others).
221	Scissor lift alignment console (By Others). Provide conduit in slab as required. See alignment lift specifications (By Others).
223	Work bench (By Others).
224	Strut compressor (By Others).
232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.



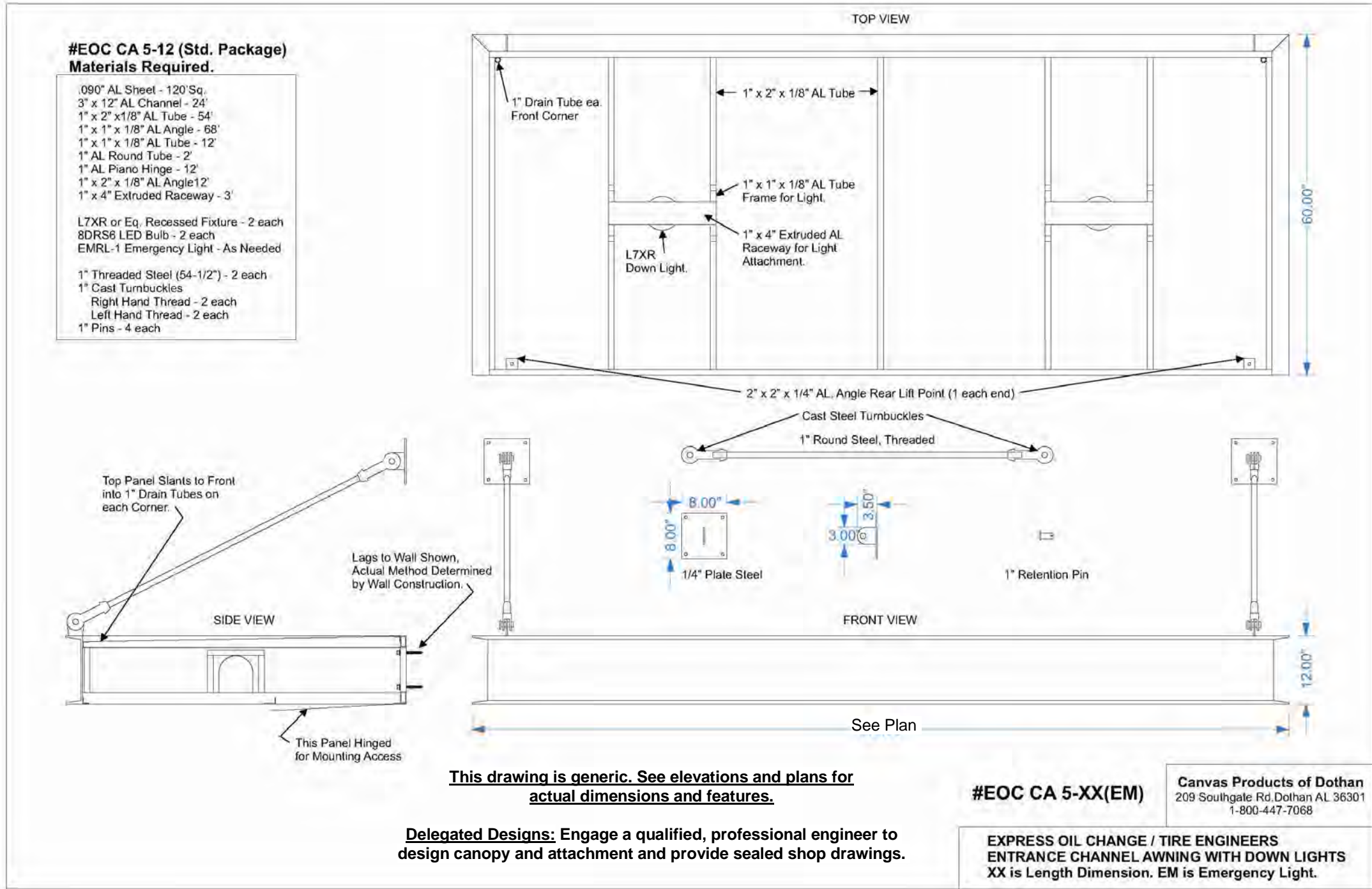
2 DT_Sheet A302_Slab On Grade
1" = 1'-0"



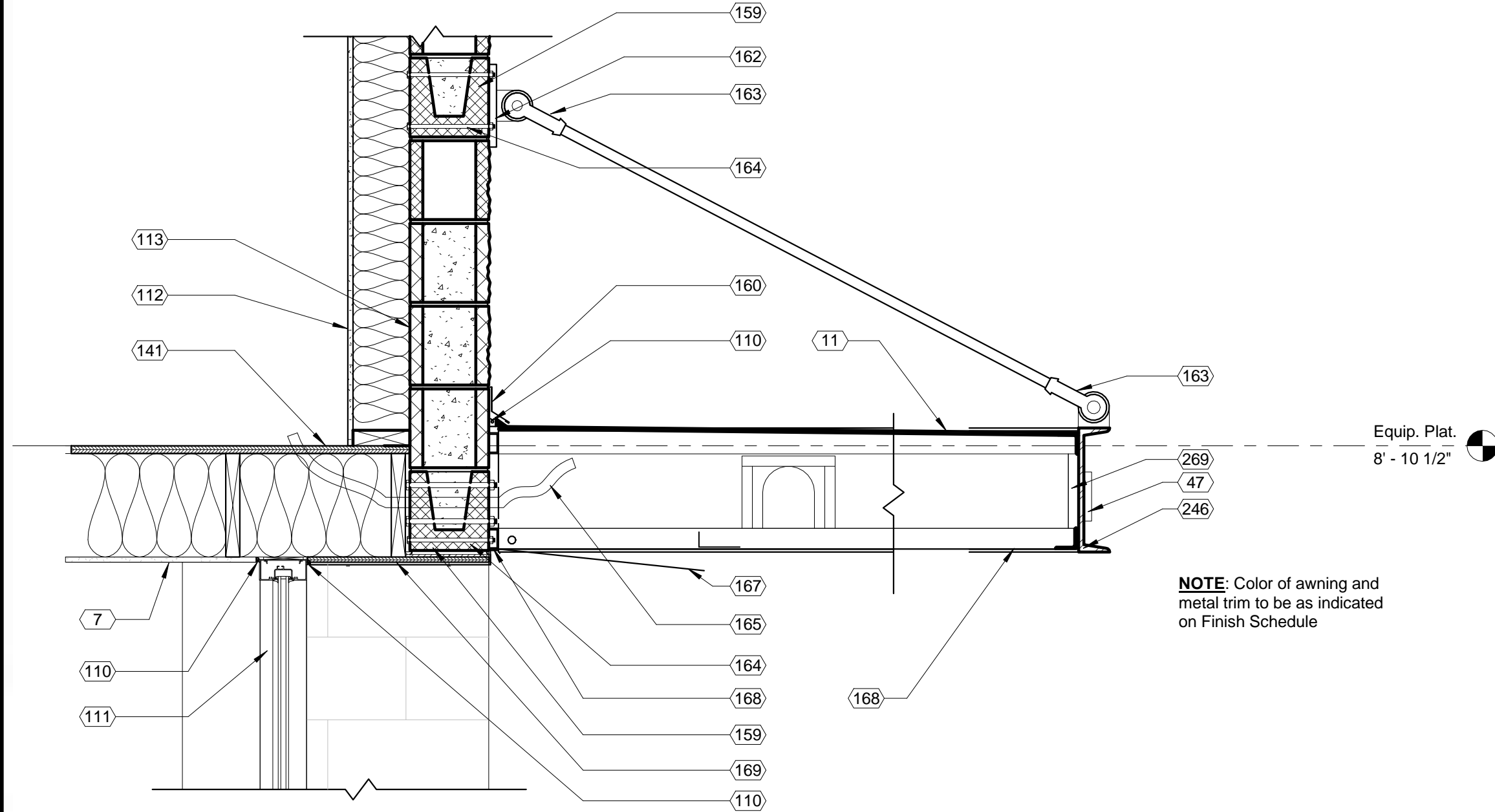
3 DT_Sheet A302_Slab on Grade @ OH Door
1" = 1'-0"



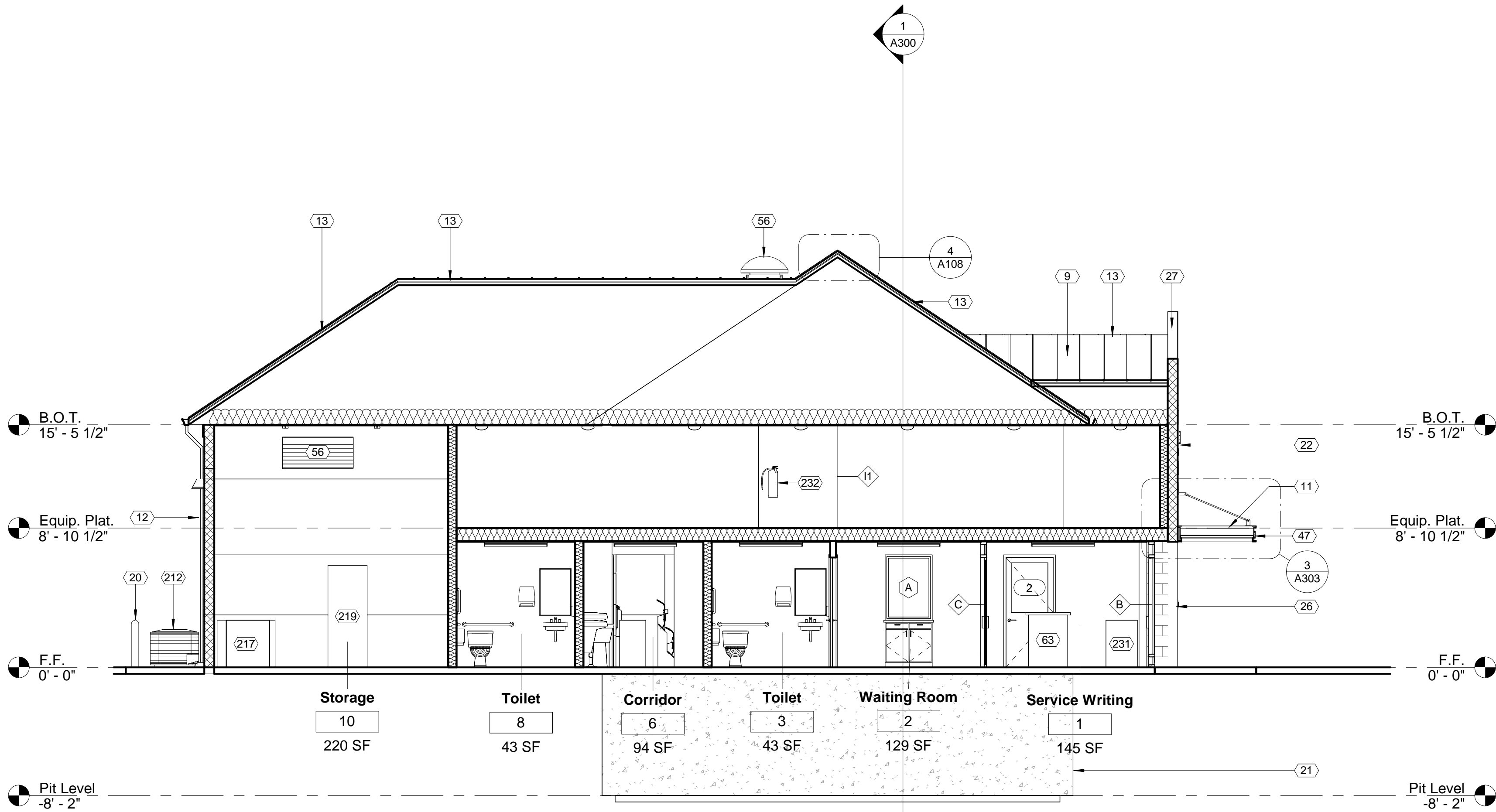
1 Building Section 3
3/16" = 1'-0"



2 DT_Sheet A303_Awning Details
N.T.S.

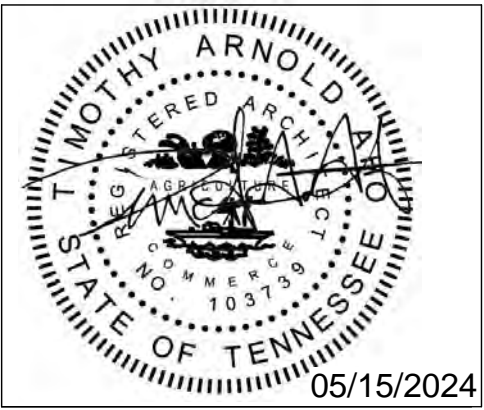


3 DT_Sheet A303_Awning Section
1" = 1'-0"



1 Building Section 4
3/16" = 1'-0"

Keynote Schedule	
Tag	Text
7	Painted 1/2" gypsum board ceiling. 5/8" Type X where indicated.
9	Pre-finished standing seam metal roof system. See Specification 074113.16 Standing Seam Metal Roof Panels. See Finish Schedule for color.
11	Pre-finished metal canopy. See Details on sheet A303 (A302 for OC Building Only).
12	Pre-finished metal downspout and boot piped to storm drainage system. See Civil for tie-in. See Specification 077100 Roof Specialties.
13	Pre-finished metal hip and ridge cap by metal roofing manufacturer. Provide concealed ridge venting if indicated. Color to match roof. See Specification 074113.16 Standing Seam Metal Roof Panels.
20	4" diameter painted concrete-filled steel pipe bollard. Color as indicated on Finish Schedule. Paint embedded portion of bollard. Use primer and two finish coats. See Details on sheet A101. See Specification 055000 Metal Fabrications.
21	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.
22	Signage (By Others). Provide blocking as required. See Electrical.
26	Fire Department Lock Box. Locate as directed by the Local Fire Marshal or AHJ. See Specification 104413 Fire Department Lock Box.
27	Pre-finished metal coping at exposed tops only over self-adhered membrane flashing and pressure treated wood blocking Slope to drain. Color to match roof.
47	Provide address identification as directed by the Local Fire Marshal or AHJ.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
63	Service Desk. See Details on sheet G301.
110	Sealant with backer rod.
111	Aluminum storefront with insulated glazing. See Details on sheet A620.
112	Painted 1/2" gypsum board on 2x6 wood studs at 16" o.c. with kraft-face R-20 batt insulation (kraft in contact with gypsum board). See Details on sheet A400.
113	Fluid applied vapor permeable air barrier. See Specification 072726 Fluid Applied Membrane Air Barrier.
141	3/4" tongue and groove plywood on wood joists. See Structural.
159	Painted smooth-face grout-filled CMU where canopy attaches to wall construction. See Structural.
160	Pre-finished aluminum flashing to match color of canopy. Turn out onto canopy.
162	Pre-finished 8"x8"x1/4" steel plate anchored to wall using through wall fasteners by Canopy manufacturer's designated design.
163	Pre-finished 1" cast steel turnbuckle with 1" threaded steel rod and 1" pins.
164	Anchor canopy to wall using through wall fasteners by Canopy manufacturer's designated design.
165	Provide a 1" flexible conduit extending 12" beyond the face of the wall for canopy lighting. See Electrical.
167	Pre-finished hinged panel for mounting access. Color to match canopy.
168	1"x2" aluminum tube. Typical.
169	Pre-finished metal over 1/2" pressure treated plywood. Terminate at aluminum storefront. Turn up pre-finished metal 1" at edge where metal meets canopy. Secure panel to plywood with fasteners compatible with type and color of metal being used.
212	HVAC condensing unit. See Mechanical.
217	Wheel balancer (By Others).
219	Air compressor (By Others).
231	Beverage refrigerator (By Others).
232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.
246	3"x12" aluminum channel.
269	1" drain tube beyond. Slope top panel of canopy toward the drain tube at the front of the canopy.



Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Building Sections	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
A303	
Scale	As indicated

E1

Refer to structural drawings for reinforcing and other information

Install all waterproofing per manufacturer's recommendations.

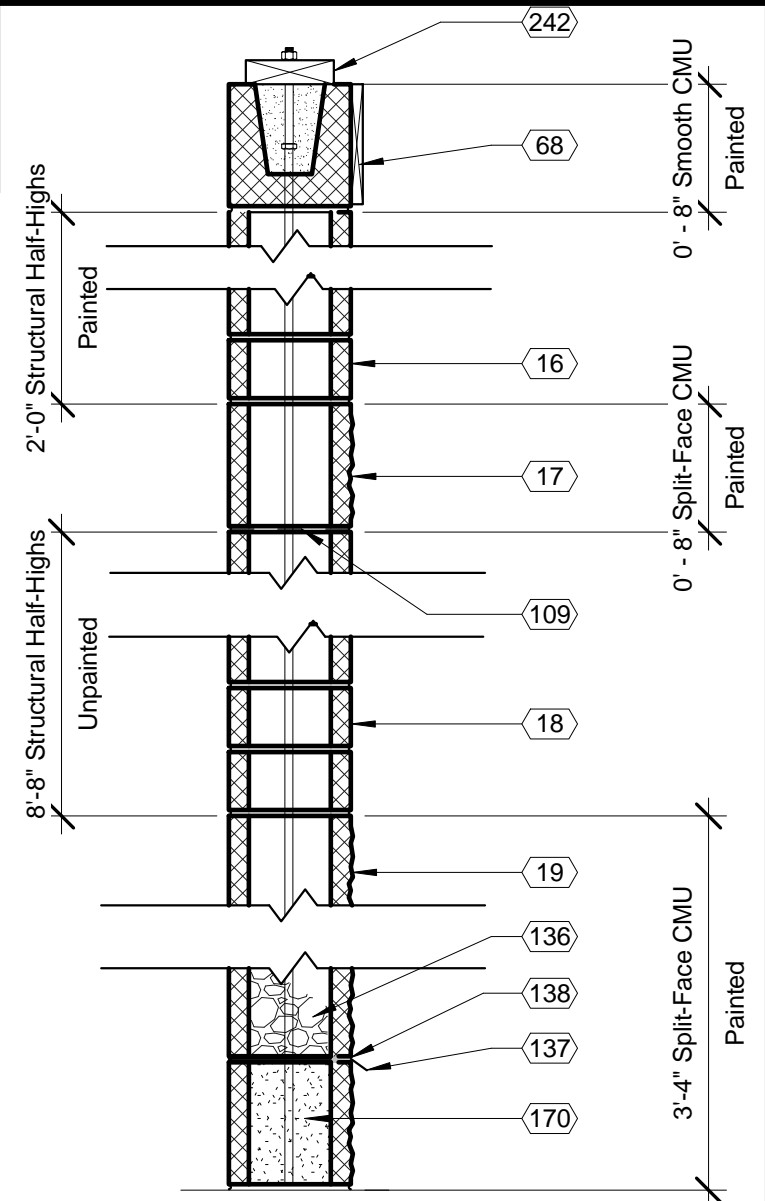


Wall Type No.	Description	Width	Ref Test
E1	As shown	10"	-

E2

Install siloxane on the exterior side of wall construction

Refer to structural drawings for reinforcing, grouting, and other information

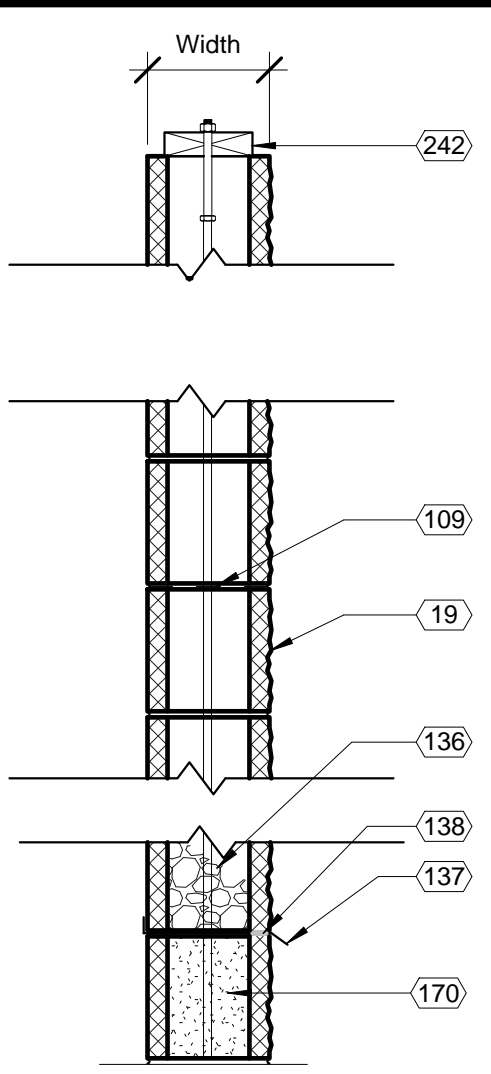


Wall Type No.	Description	Width	Ref Test
E2	As shown	7 5/8"	-

E3

Install siloxane on the exterior side of wall construction

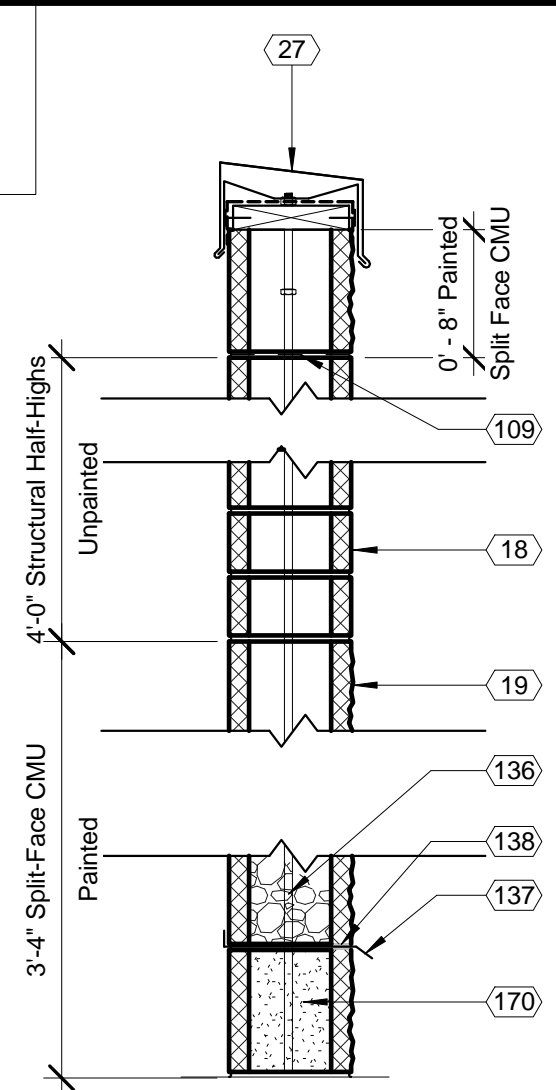
Refer to structural drawings for reinforcing and other information



Wall Type No.	Description	Width	Ref Test
E3	As shown	7 5/8"	-
E3a	As shown, except with 1x8 painted frieze board at top	7 5/8"	

E5

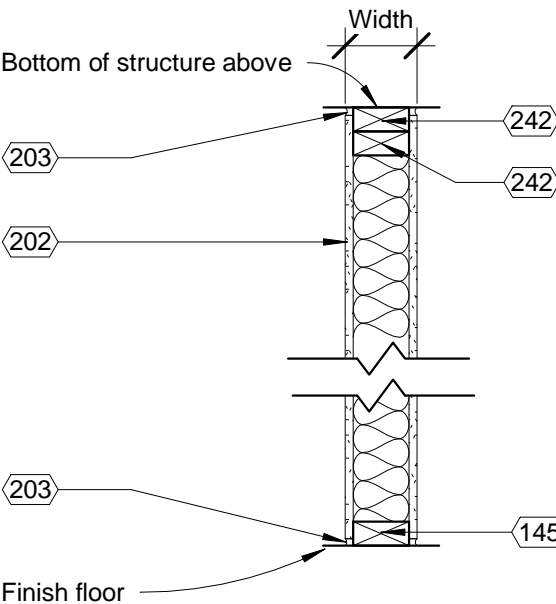
Refer to structural drawings for reinforcing, grouting, and other information



Wall Type No.	Description	Width
E5	As shown	7 5/8"
E5a	As shown, except without coping and painted structural half-highs to roof. See Elevations on A101.	7 5/8"

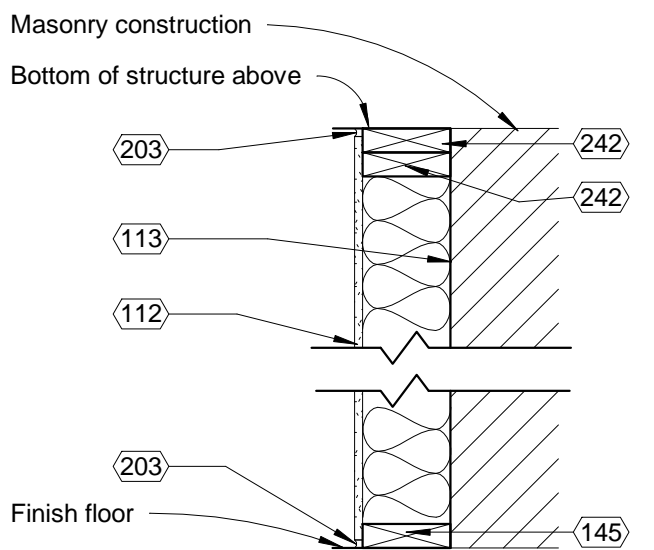
I1

Note: Stagger electrical outlet boxes, switches, etc. Seal around all penetrations in wall with acoustical sealant.



Wall Type No.	Description	Width	Ref Test
I1	As shown	4 1/2"	-

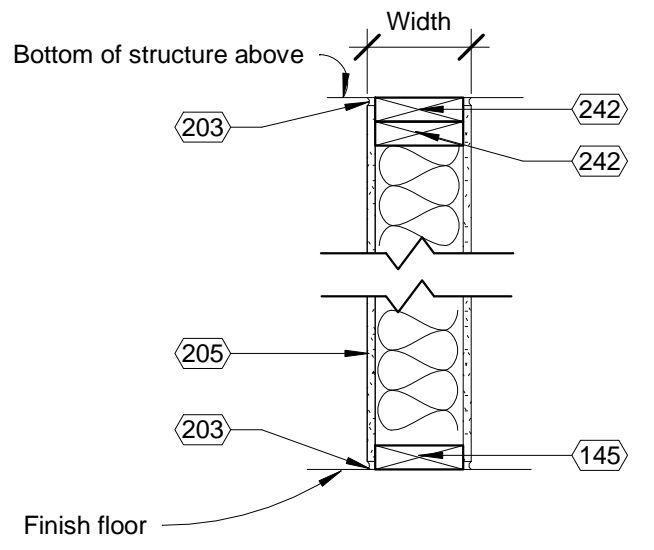
I2



Wall Type No.	Description	Width	Ref Test
I2	As shown	6"	-

I3

Note: Stagger electrical outlet boxes, switches, etc. Seal around all penetrations in wall with acoustical sealant.

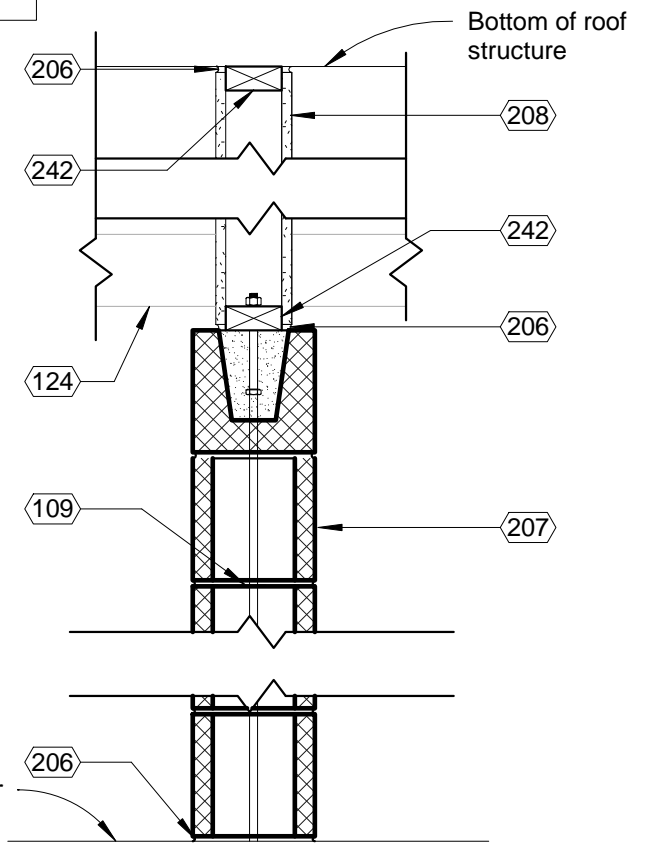


Wall Type No.	Description	Width	Ref Test
I3	As shown	6 1/2"	-

I4

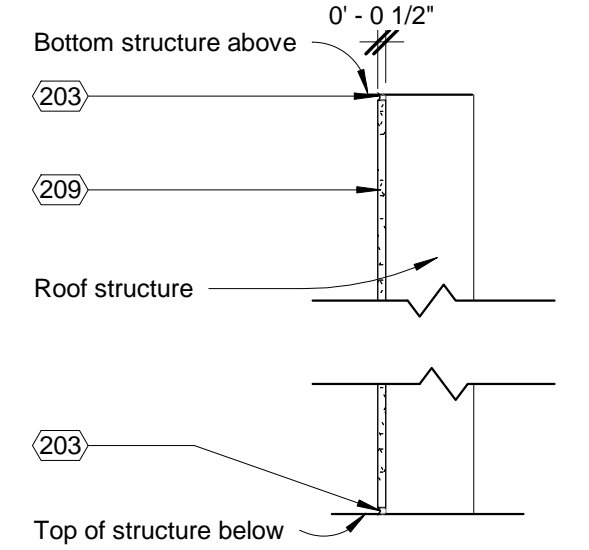
Refer to structural drawings for reinforcing and other information

Seal all penetrations with fire caulk



Wall Type No.	Description	Width	Ref Test
I4	As shown - Full Height	7 5/8"	U905/U305

Draftstopping

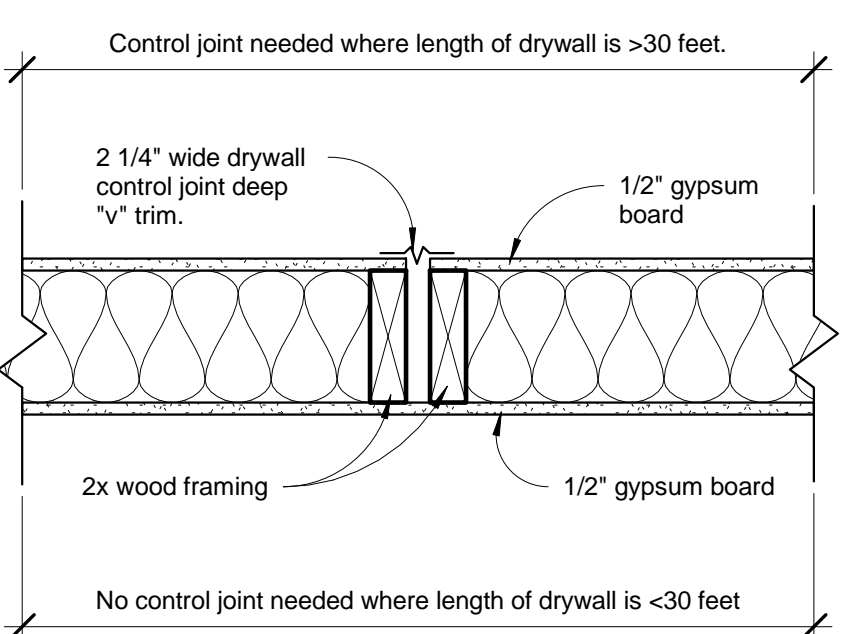


Notes:

- Wall shall read "Seal all penetrations" every 25'-0" o.c.
- The integrity of the draftstop shall be maintained.
- Provide one opening per partition, protected by a 20"x30" self-closing door with automatic latch.
- Coordinate draftstop with structural supports. Ensure Draftstopping/openings are coordinated with the truss design.

Wall Type No.	Description	Width	Ref Test
Draftstopping	As shown	1/2"	-

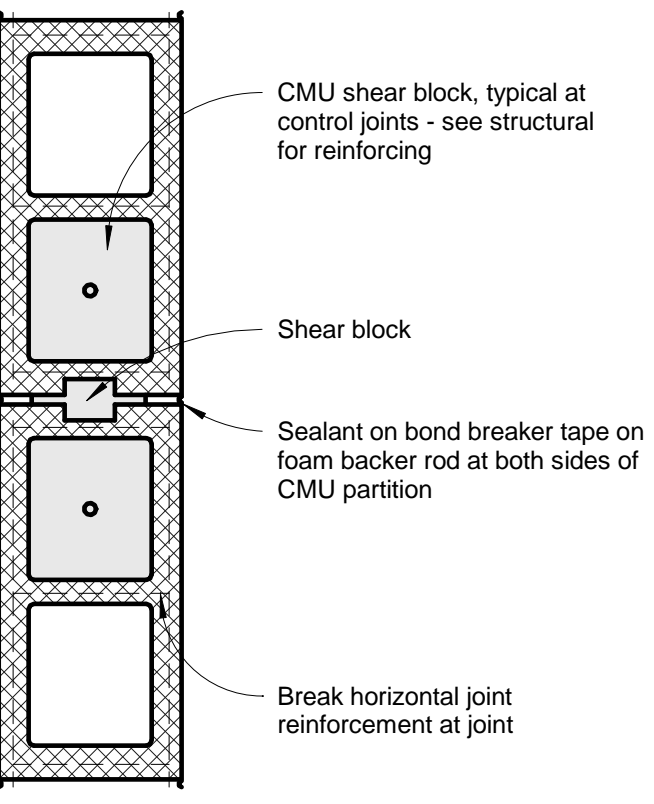
Control joint needed where length of drywall is >30 feet.



No control joint needed where length of drywall is <30 feet

① DT_Sheet A400_Gypsum Board Control Joint

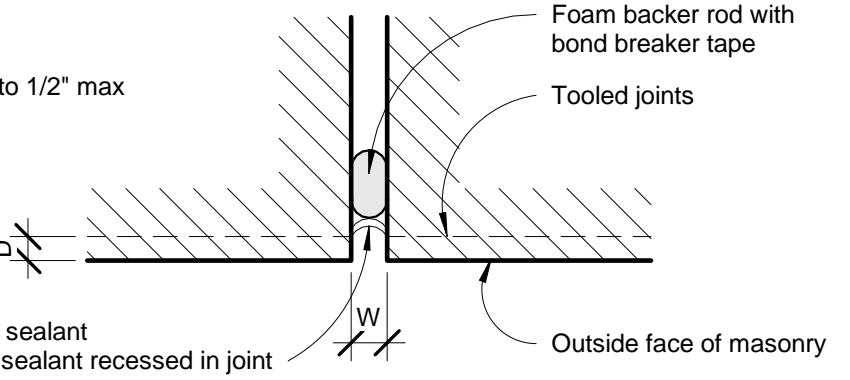
1 1/2" = 1'-0"



② DT_Sheet A400_Masonry Control Joint

1 1/2" = 1'-0"

*Detail also applies to inside corners of masonry where indicated on the exterior elevations



③ DT_Sheet A400_Sealant Detail

6" = 1'-0"

Keynote Schedule	
Tag	Text
16	Painted structural half-highs. See Specification 042200 Concrete Unit Masonry.
17	Painted 8" split-face CMU (bond beam where indicated, see Structural). As required, provide painted smooth-face, grout filled "U" block bond beam at lightbars only. As required, paint CMU lintel above OH doors as indicated on finish schedule. See Structural. See Specification 042200 Concrete Unit Masonry.
18	Unpainted structural half-highs. See Specification 042200 Concrete Unit Masonry.
19	Painted 8" split-face CMU (bond beam where indicated, see Structural). See Specification 042200 Concrete Unit Masonry.
21	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.
27	Pre-finished metal coping at exposed tops only over self-adhered membrane flashing and pressure treated wood blocking Slope to drain. Color to match roof.
68	1x pressure treated painted frieze board, continuous.
94	Fasteners at 12" max o.c. for securing subdrainage to pit wall. Follow manufacturer's installation instructions.
96	CCW MiraClay woven geotextile against wall/slab.
97	CCW MiraDrain 6200.
109	Horizontal joint reinforcement at 16" o.c. vertical.

Keynote Schedule	
Tag	Text
112	Painted 1/2" gypsum board on 2x6 wood studs at 16" o.c. with kraft-face R-20 batt insulation (kraft in contact with gypsum board). See Details on sheet A400.
113	Fluid applied vapor permeable air barrier. See Specification 072726 Fluid Applied Membrane Air Barrier.
124	Pre-engineered wood roof truss. See Structural.
136	Pea gravel above aluminum through wall flashing.
137	Aluminum through wall flashing.
138	Drainable weeps at every third mortar joint.
145	2x pressure treated wood sill plate.
170	Fill first course of CMU with grout.
202	1 layer of 1/2" painted gypsum board on both sides of 2"x4" wood studs at 16" o.c. Infill with kraft-face R-13 batt insulation. Kraft in contact with gypsum board.
203	Acoustical sealant and backer rod. See Specification 079219 Acoustical Joint Sealants.
205	1 layer of 1/2" painted gypsum board on both sides of 2"x6" wood studs at 16" o.c. Infill with kraft-faced R-20 batt insulation. Kraft in contact with gypsum board.
206	Fire caulk both sides. Typical. See Specification 078443 Joint Firestopping.
207	Painted 8" smooth face CMU.
208	5/8" Type X gypsum board each side of 2"x4" wood studs at 16" o.c. Typical.
209	1 layer of 1/2" gypsum board adequately attached to roof structure.
242	2x pressure treated wood top plate.



www.ahoarch.com



05/15/2024

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC. All Rights Reserved.

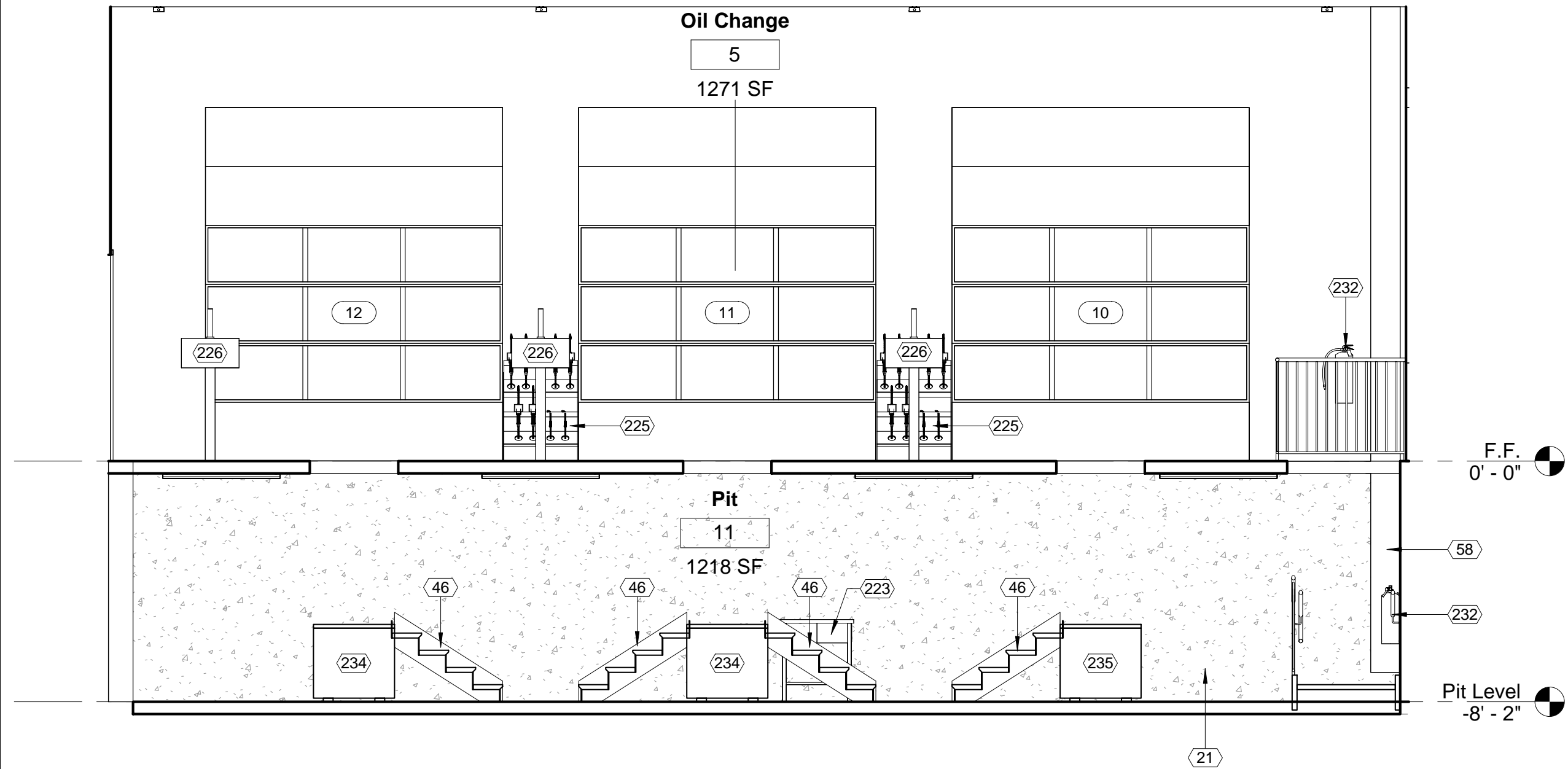
Wall Types

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

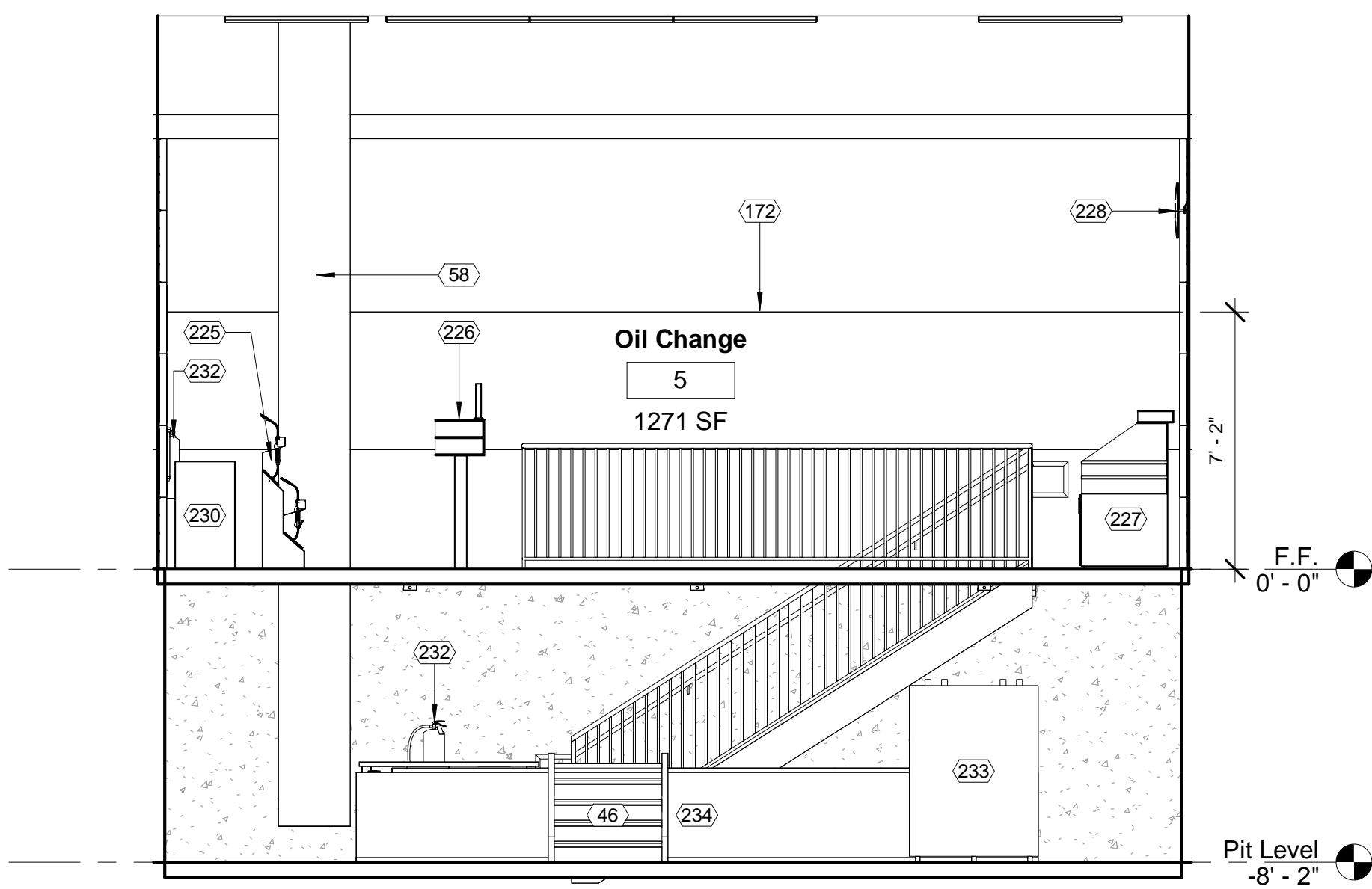
A400

Scale As indicated

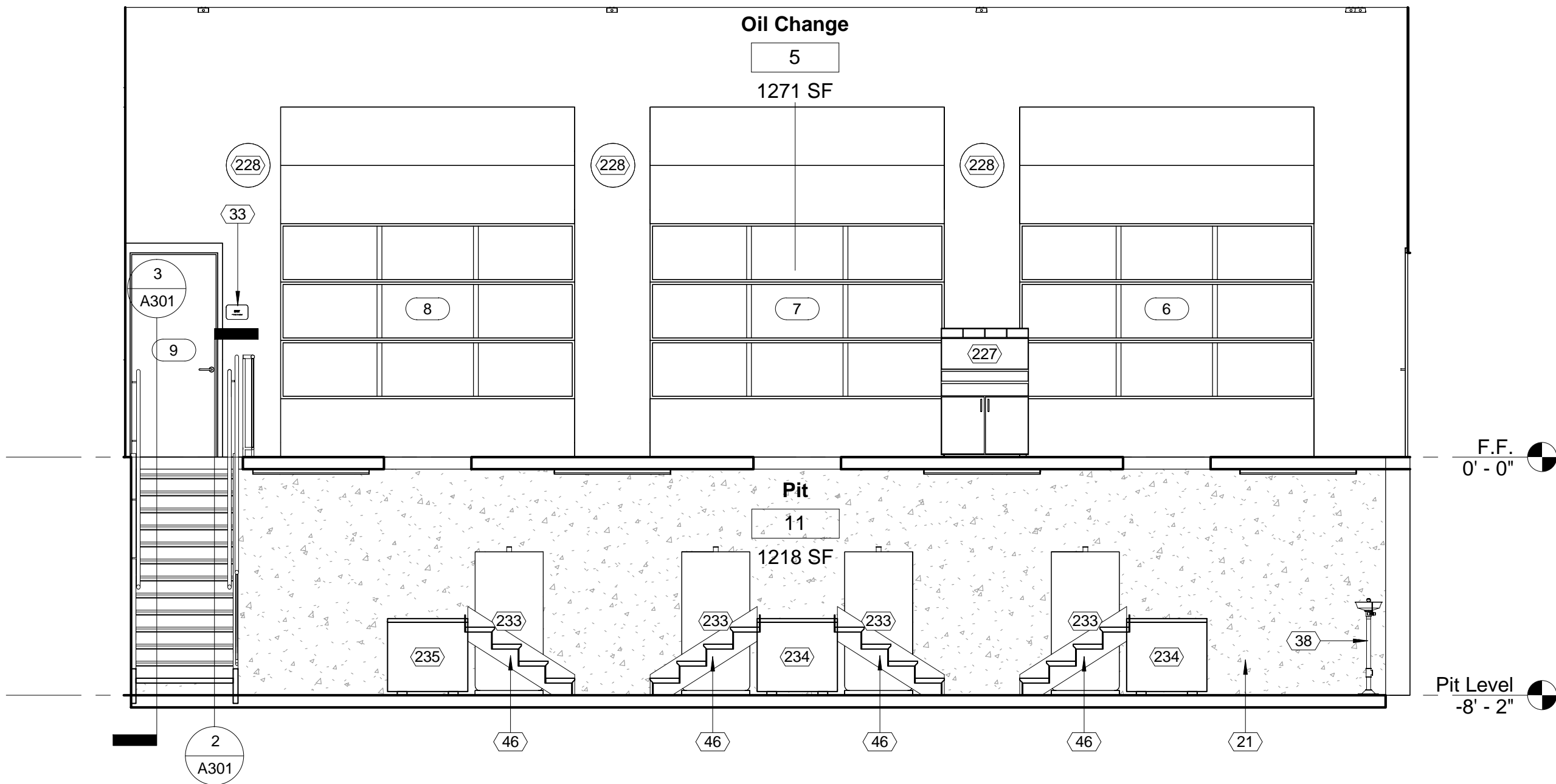
5/14/2024 11:59:07 AM



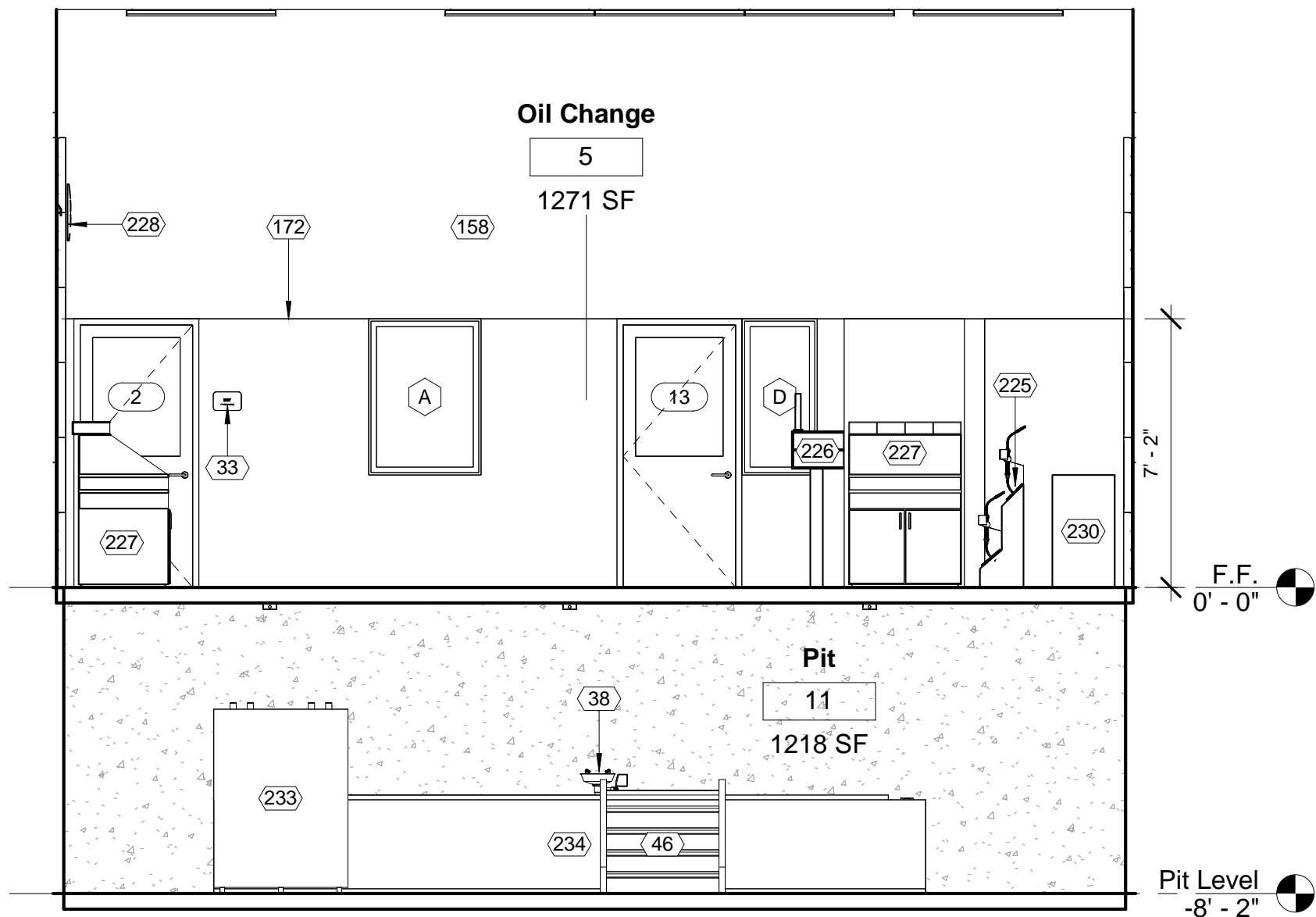
1 Oil Change_Interior Elevation A
1/4" = 1'-0"



2 Oil Change_Interior Elevation B
1/4" = 1'-0"

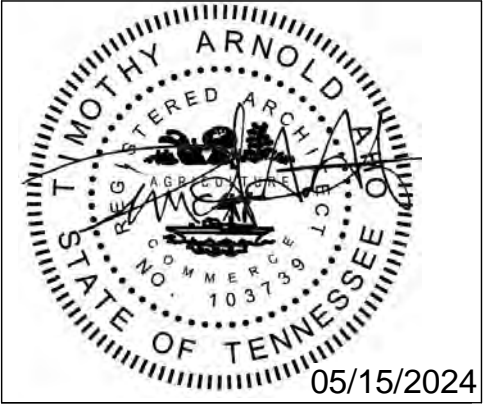


3 Oil Change_Interior Elevation C
1/4" = 1'-0"



4 Oil Change_Interior Elevation D
1/4" = 1'-0"

Keynote Schedule	
Tag	Text
21	10" Cast-in-place concrete wall. See Structural. Membrane waterproofing at perimeter of foundation wall as specified. See Specification 334600 Subdrainage.
33	ADA compliant room / exit sign. See Details on Sheet A602.
38	Eyewash station. See Plumbing.
46	Oil tank stairs (By Others).
58	Verify location and size of pit exhaust opening with Structural and Mechanical drawings.
158	Vinyl letters (By Others).
172	Ensure paint line occurs at top of door and window frames. Ensure all openings, alcoves and windows align with top of door frame. Typical in Oil and Service Bays.
223	Work bench (By Others).
225	Lube console (By Others).
226	Computer podium (By Others).
227	Cashier computer station (By Others).
228	Convex mirrors (By Others).
230	Tool cart (By Others).
232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.
233	275-gallon Class IIIB new oil tank (By Others).
234	928-gallon Class IIIB new oil tank (By Others). Provide a 2" concrete walkway cap with non-slip surface over (oil tank By Others). Coordinate with equipment supplier prior to installation.
235	928-gallon Class IIIB waste oil tank (By Others). Provide a 2" concrete walkway cap with non-slip surface over (oil tank By Others). Coordinate with equipment supplier prior to installation.



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

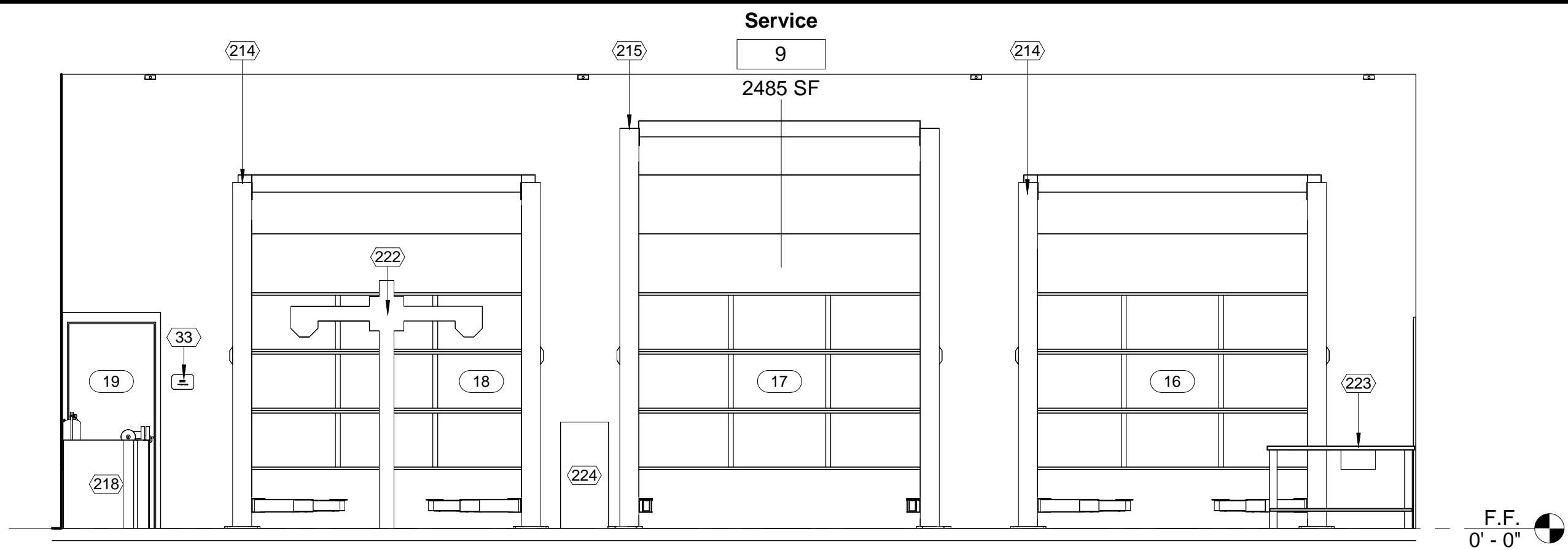
© 2024 Aho Architects, LLC.
All Rights Reserved.

Interior Elevations

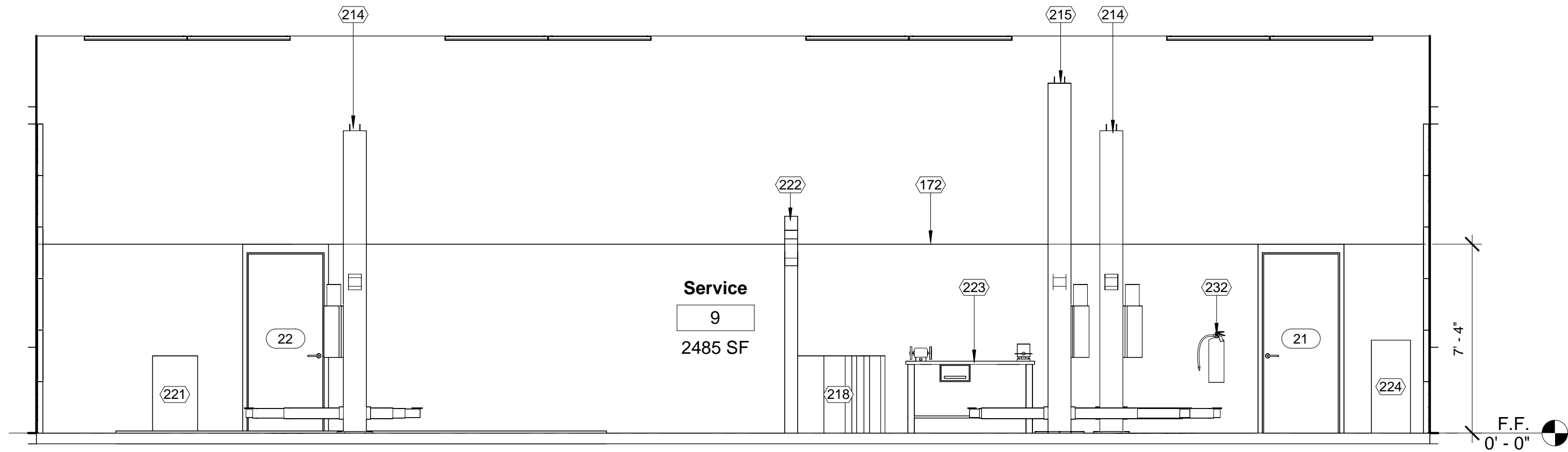
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A600

Scale 1/4" = 1'-0"

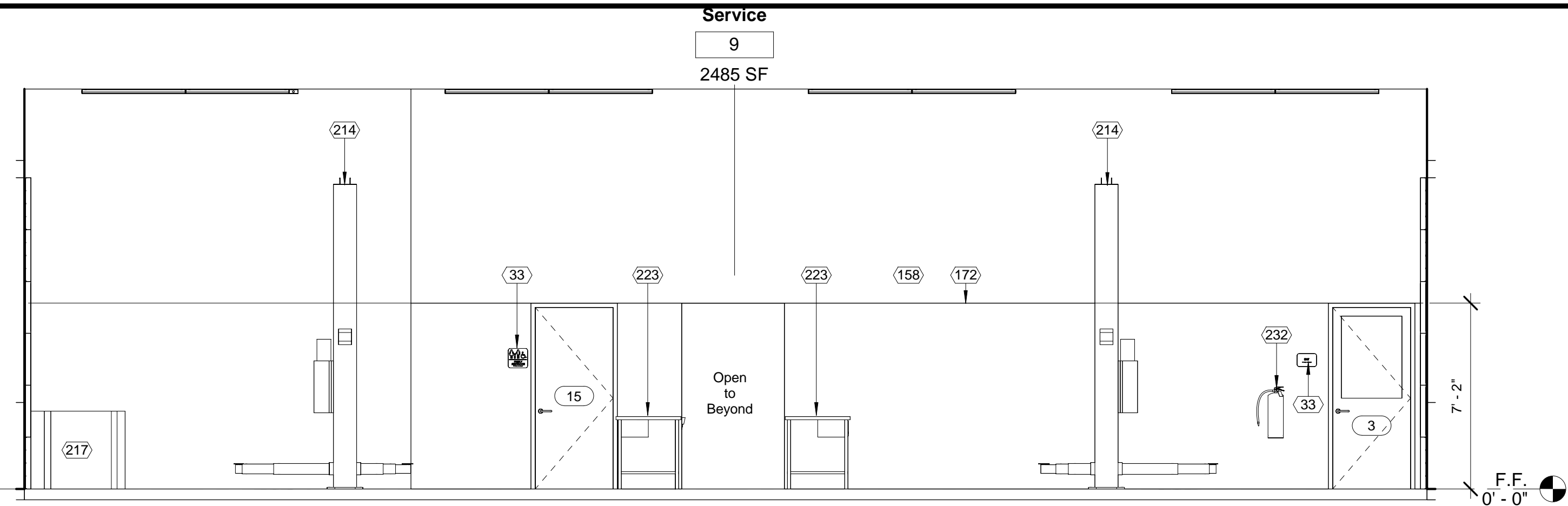


1 Service Bay Interior Elevation A
1/4" = 1'-0"

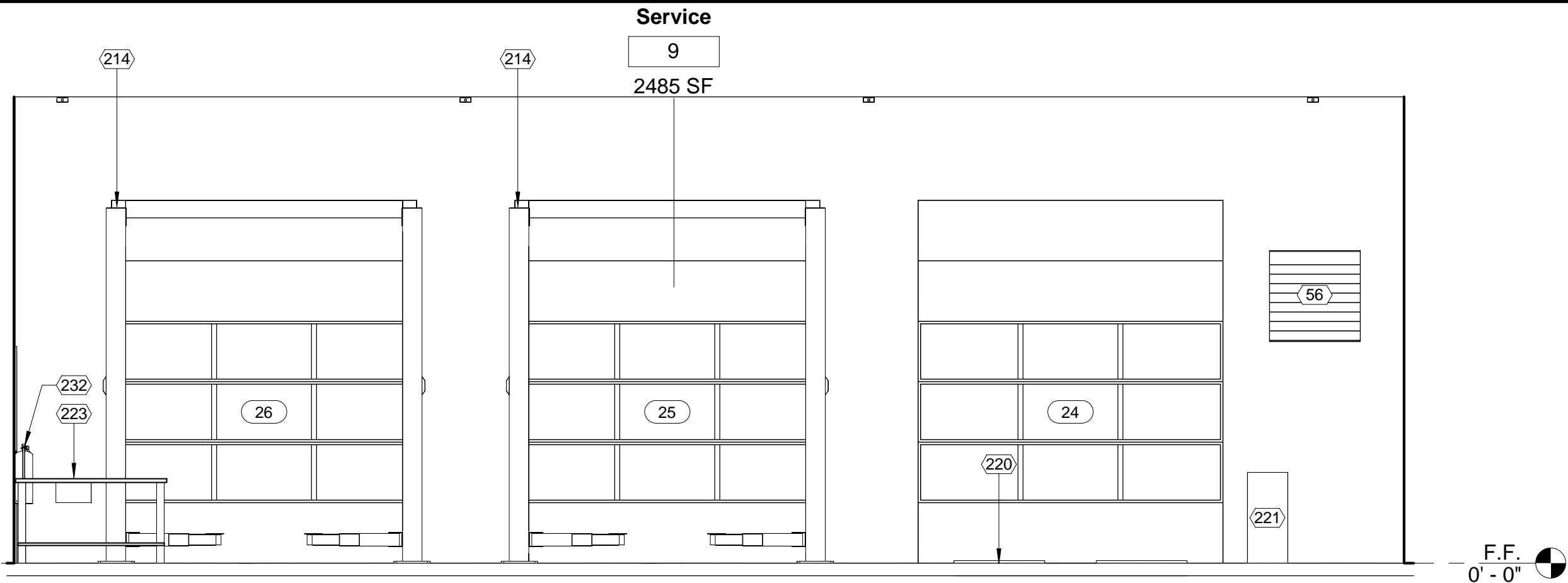


2 Service Bay Interior Elevation D
1/4" = 1'-0"

Keynote Schedule	
Tag	Text
33	ADA compliant room / exit sign. See Details on Sheet A602.
56	Metal louver or vent. Color to match adjacent surface. See Mechanical.
158	Vinyl letters (By Others).
172	Ensure paint line occurs at top of door and window frames. Ensure all openings, alcoves and windows align with top of door frame. Typical in Oil and Service Bays.
214	10K Lift (By Others).
215	12K Lift (By Others).
217	Wheel balancer (By Others).
218	Brake lathe (By Others).
220	Scissor lift alignment (By Others). Verify dimensions of alignment pit with Owner / Alignment Lift Manufacturer prior to rough-in.
221	Scissor lift alignment console (By Others). Provide conduit in slab as required. See alignment lift specifications (By Others).
222	Alignment scarecrow (By Others).
223	Work bench (By Others).
224	Strut compressor (By Others).
232	Bracket mounted fire extinguisher. Provide sign at all fire extinguisher locations which may be visually obstructed. See Details on Sheet A602.



3 Service Bay Interior Elevation B
1/4" = 1'-0"



4 Service Bay Interior Elevation C
1/4" = 1'-0"

No.	Description	Date

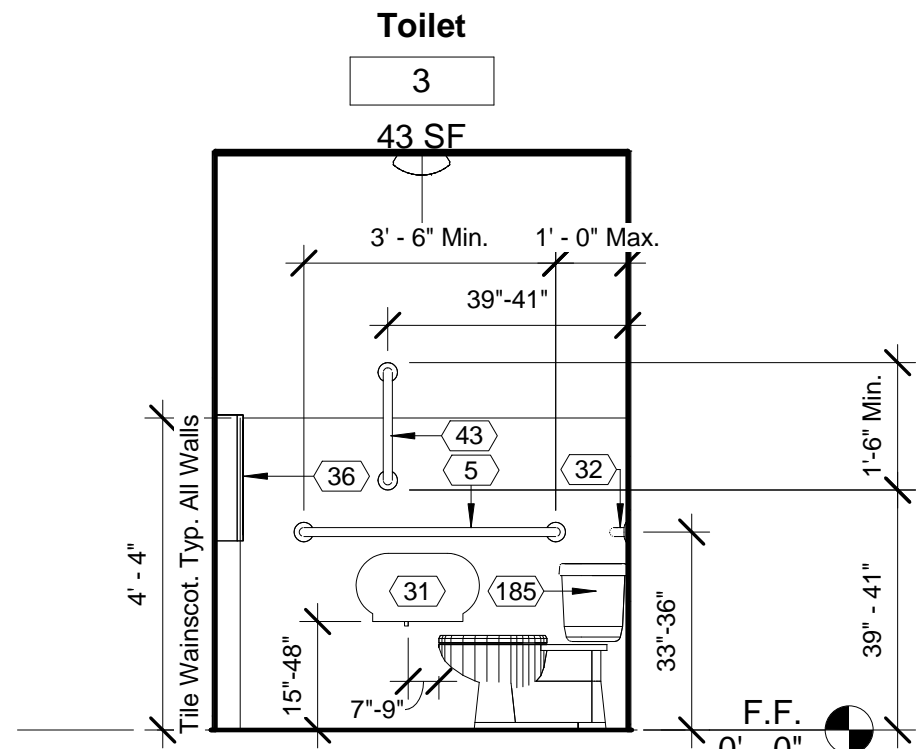
© 2024 Aho Architects, LLC.
All Rights Reserved.

Interior Elevations

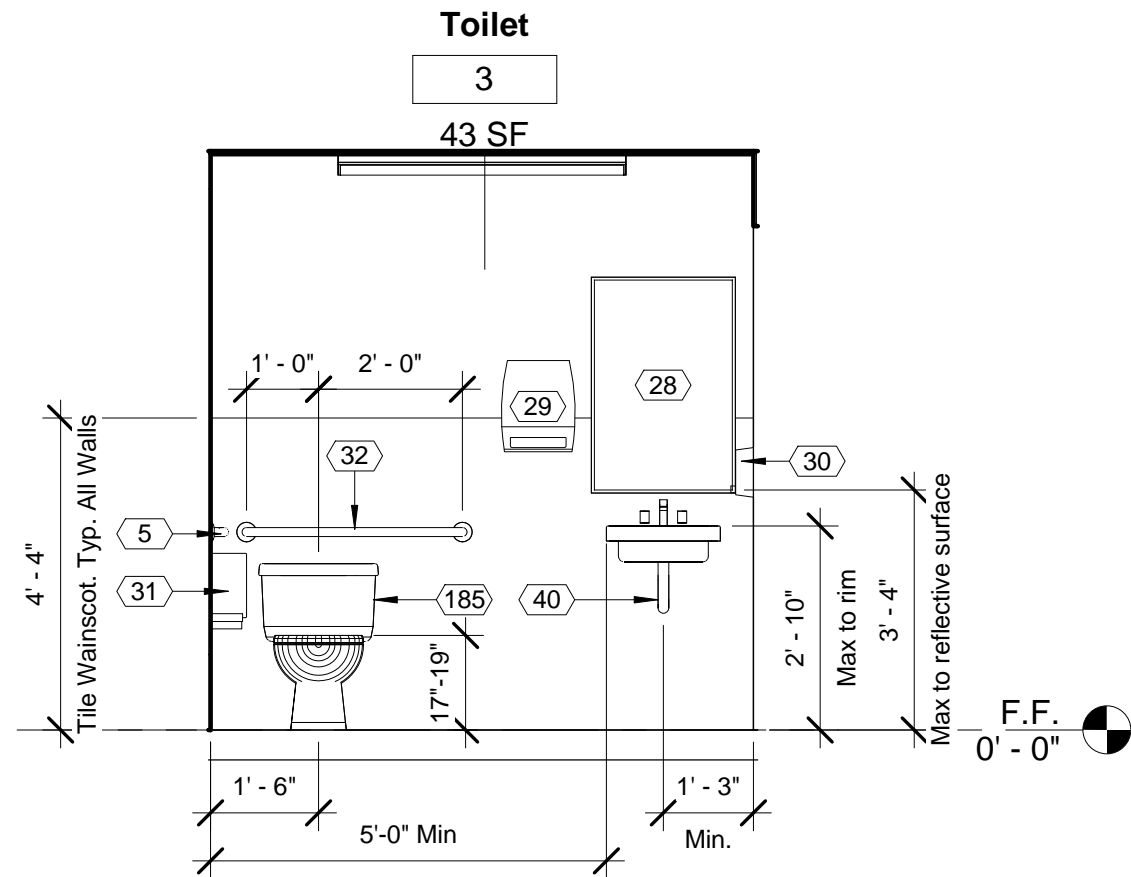
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A601

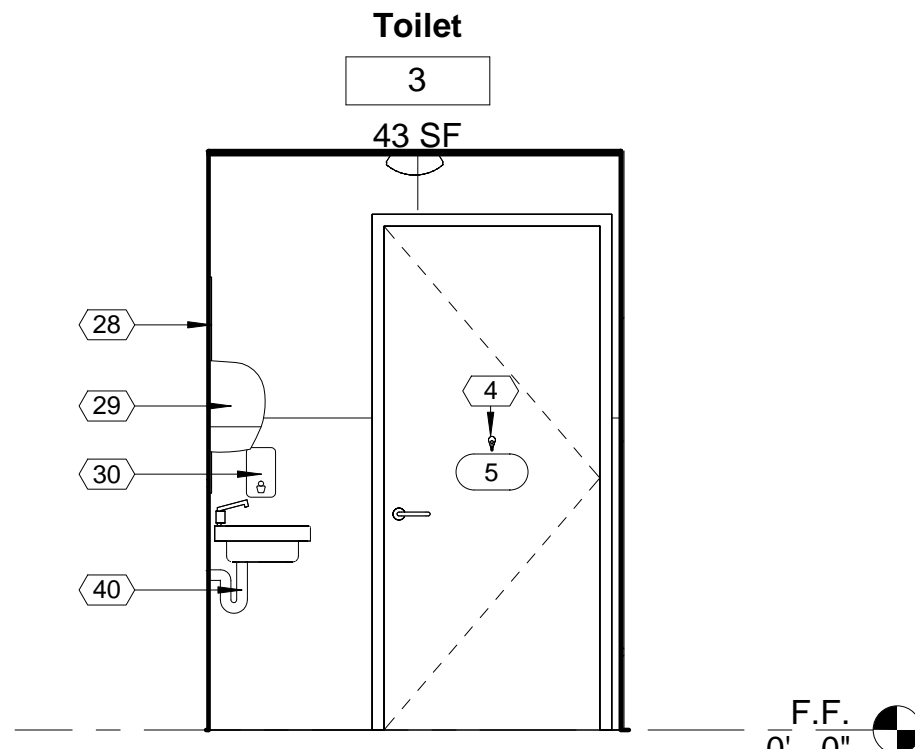
Scale 1/4" = 1'-0"



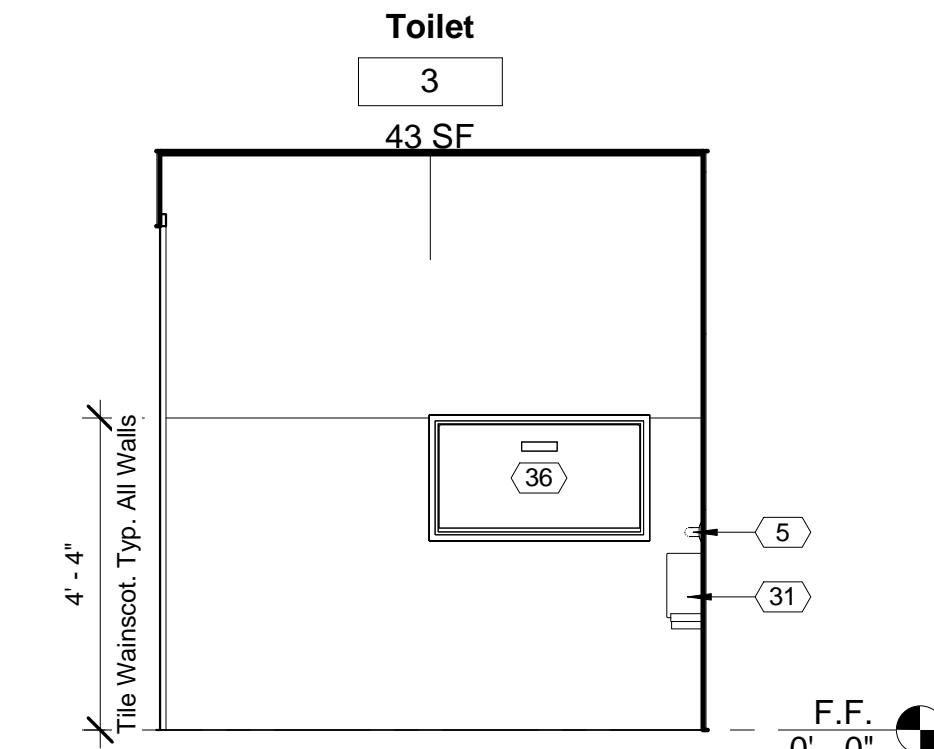
① Toilet #3_ Interior Elevation A
3/8" = 1'-0"



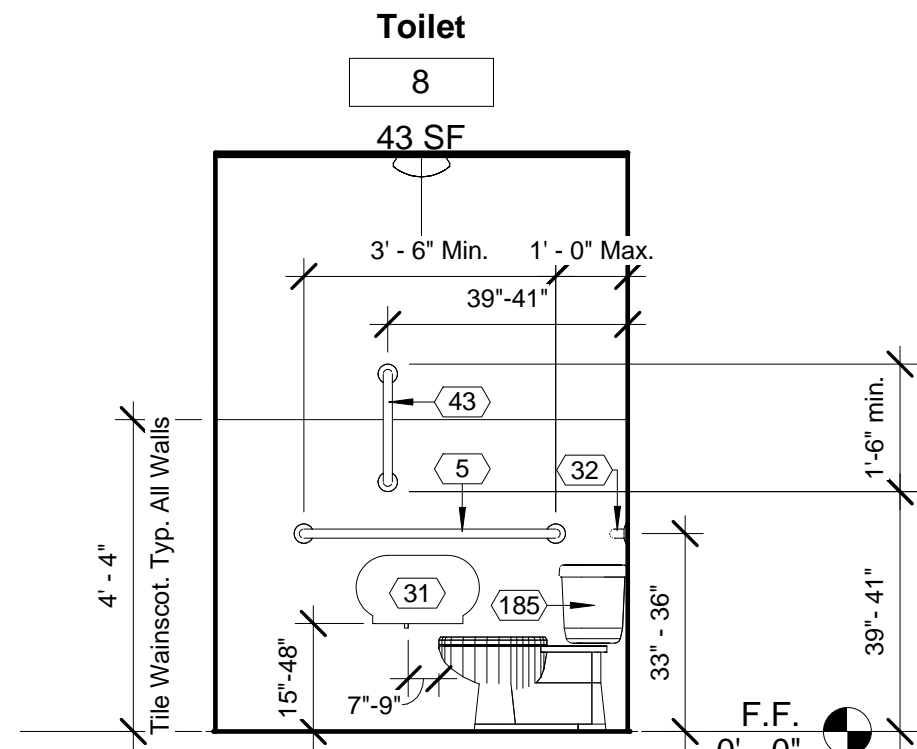
② Toilet #3_ Interior Elevation B
3/8" = 1'-0"



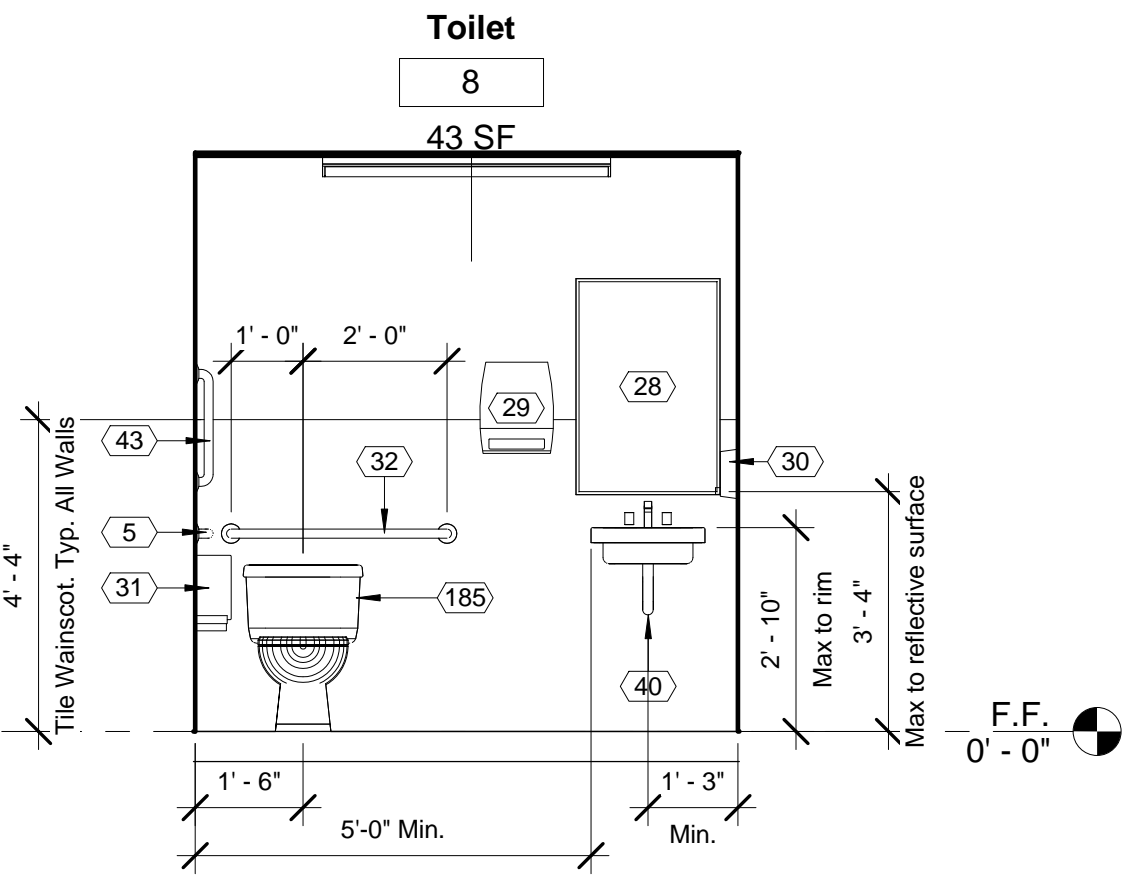
③ Toilet #3_ Interior Elevation C
3/8" = 1'-0"



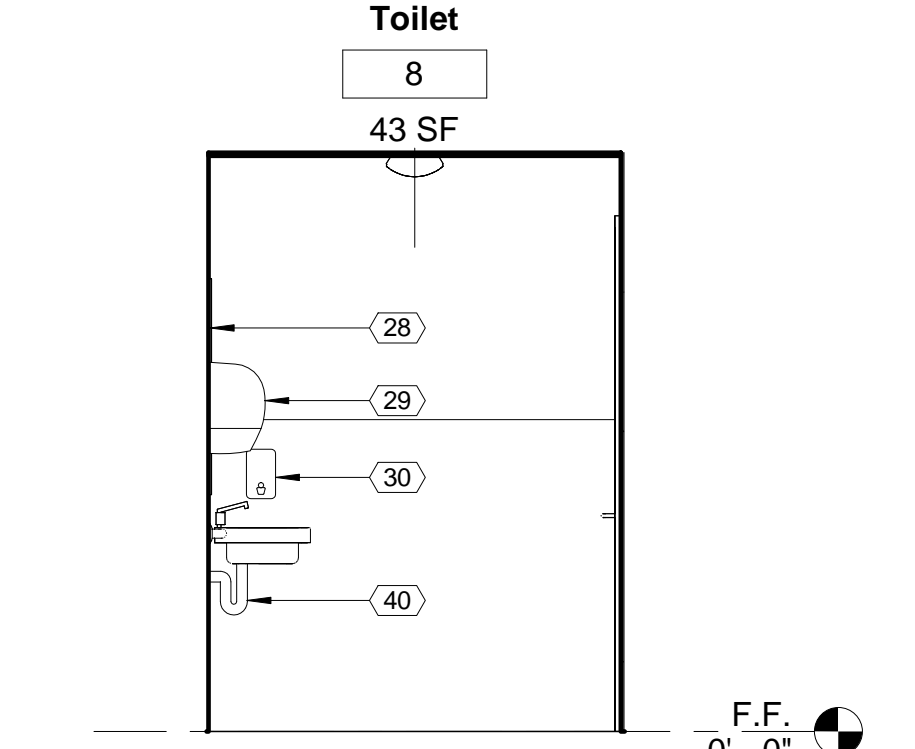
④ Toilet #3_ Interior Elevation D
3/8" = 1'-0"



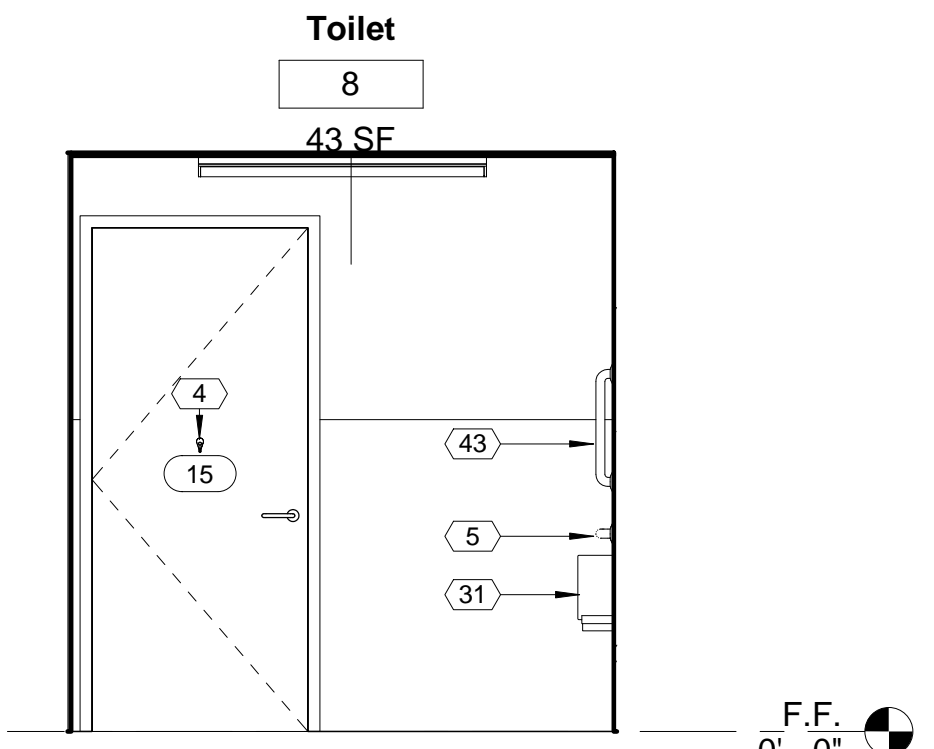
⑤ Toilet #8_ Interior Elevation A
3/8" = 1'-0"



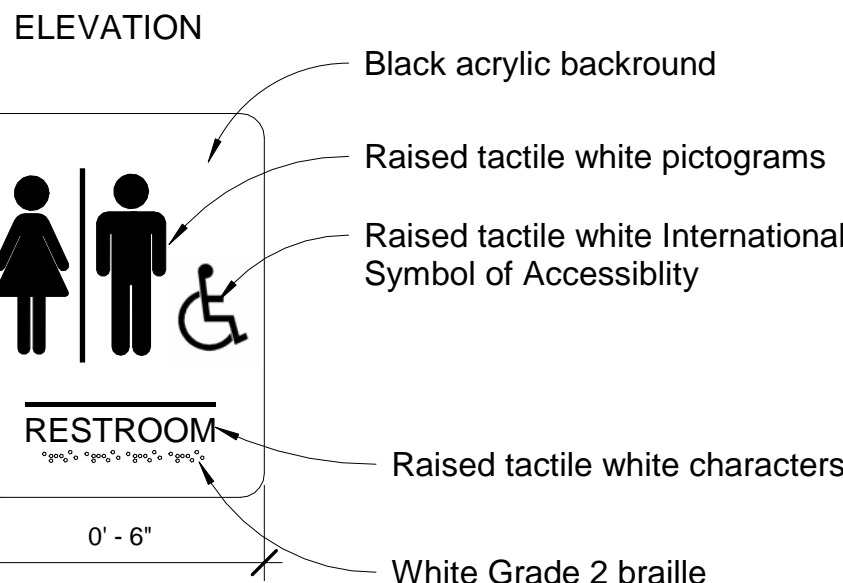
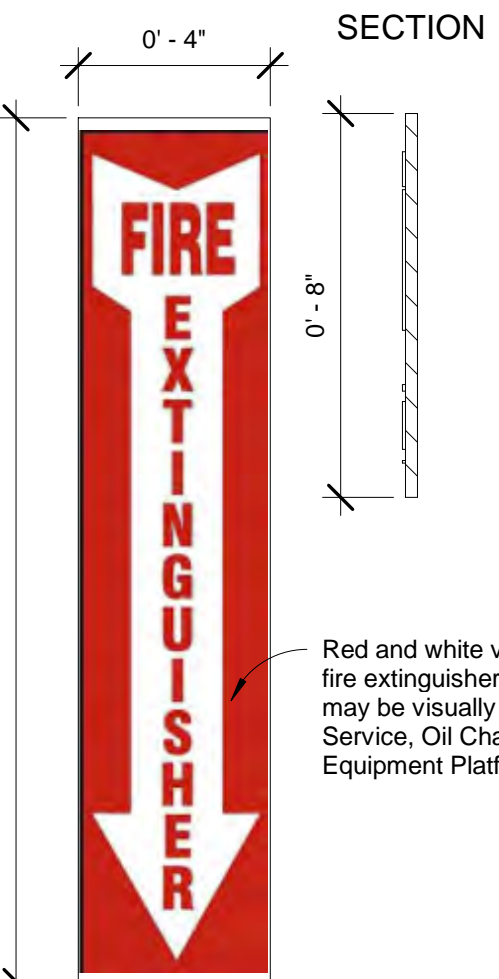
⑥ Toilet #8_ Interior Elevation B
3/8" = 1'-0"



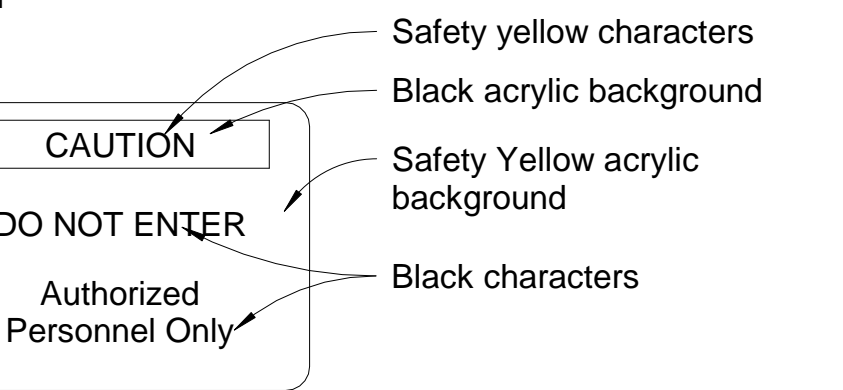
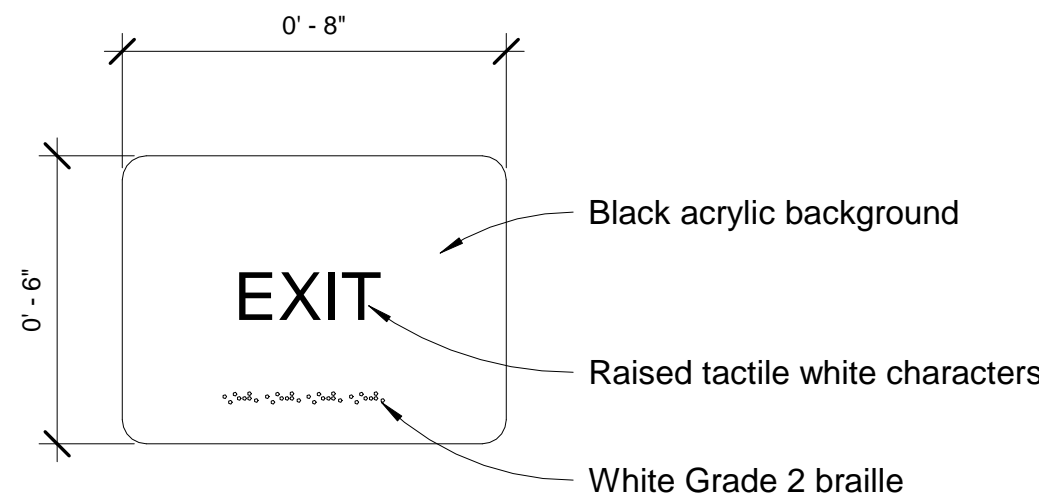
⑦ Toilet #8_ Interior Elevation C
3/8" = 1'-0"



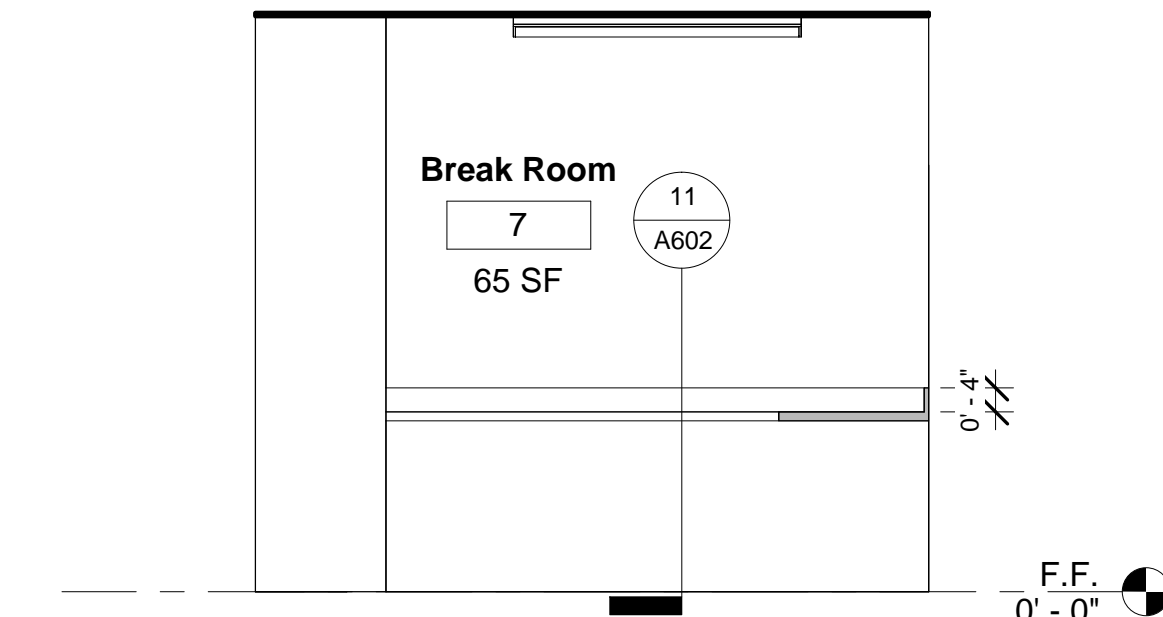
⑧ Toilet #8_ Interior Elevation D
3/8" = 1'-0"



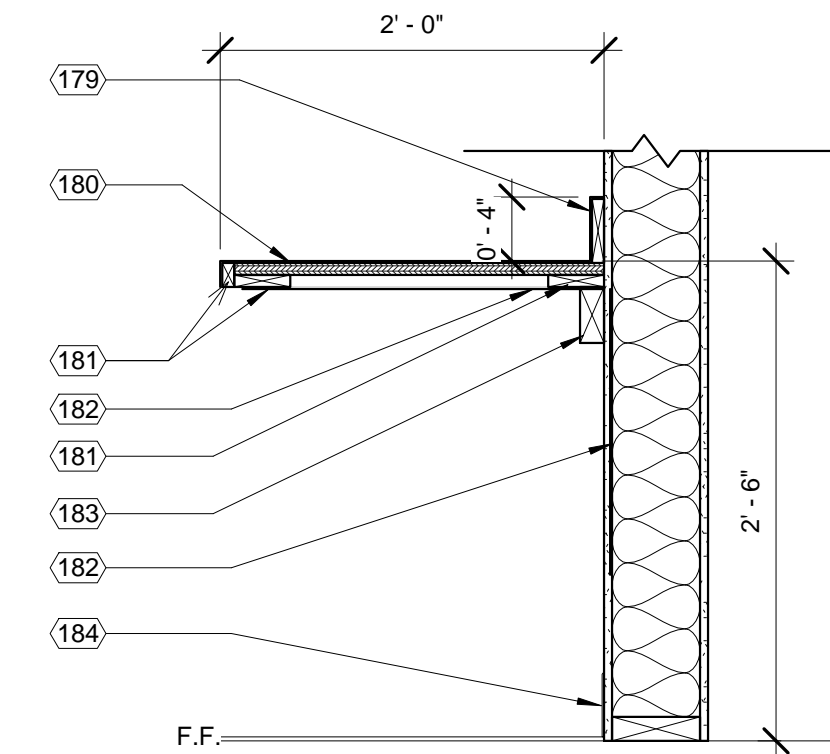
Signage shall comply with
Section 703 of the 2017
ICC/ANSI A117.1



⑨ DT_Sheet A602_Signage @ OC Building
3" = 1'-0"

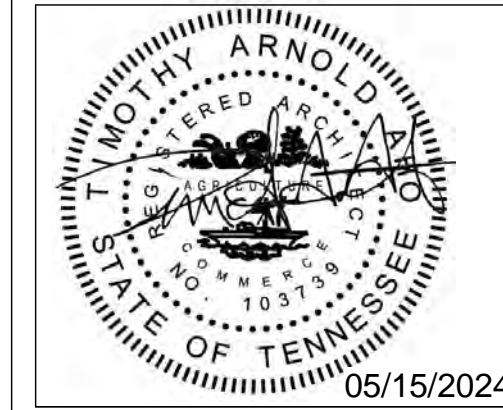


⑩ Break Room_ Interior Elevation
3/8" = 1'-0"



⑪ DT_Sheet A602_Countertop Section
1" = 1'-0"

Keynote Schedule	
Tag	Text
4	Robe hook mounted at 48" A.F.F. See Specification 102800 Toilet, Bath, and Laundry Accessories.
5	42" grab bar with blocking in walls as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
28	Framed mirror. See Specification 102800 Toilet, Bath, and Laundry Accessories.
29	Automatic Towel Dispenser (By others). Provide blocking in wall as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
30	Wall mounted soap dispenser (By Others). Provide blocking in wall as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
31	Jumbo Dual Roll Toilet Tissue dispenser (By Others). Provide blocking in wall as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
32	36" grab bar with blocking in walls as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
36	Surface mounted baby changing station with blocking in walls as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
40	Under lavatory guard. See Specification 102800 Toilet, Bath, and Laundry Accessories.
43	24" vertical grab bar with blocking in walls as required. See Specification 102800 Toilet, Bath, and Laundry Accessories.
179	Plastic laminate over 1x wood blocking. See Specification 123623.13 Plastic-Laminate-Clad Countertops. See Finish Schedule for color.
180	Plastic laminate over 3/4" plywood. See Specification 123623.13 Plastic-Laminate-Clad Countertops. See Finish Schedule for color.
181	1x wood blocking.
182	Concealed countertop bracket.
183	2x wood cleat.
184	Finish base. See Specification Section 096513 Resilient Base Accessories. See Finish Schedule for color.
185	Flush valve on transfer side of water closet.



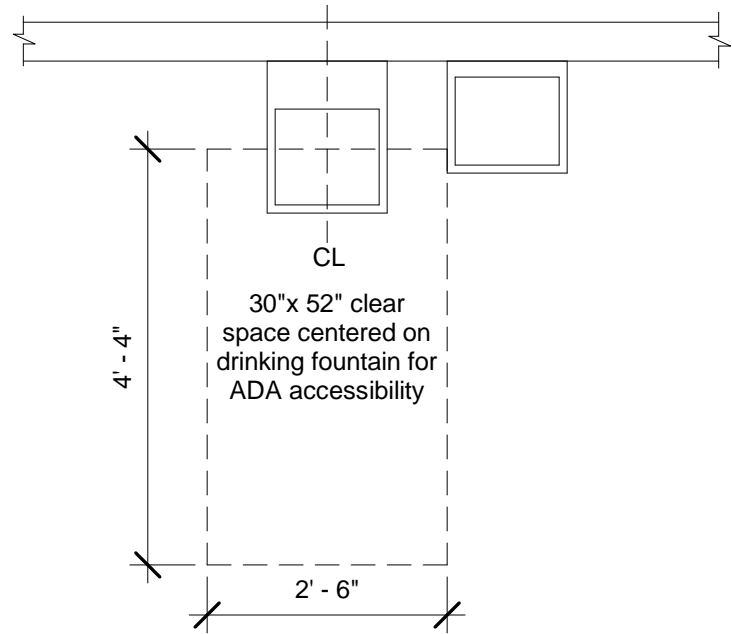
Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

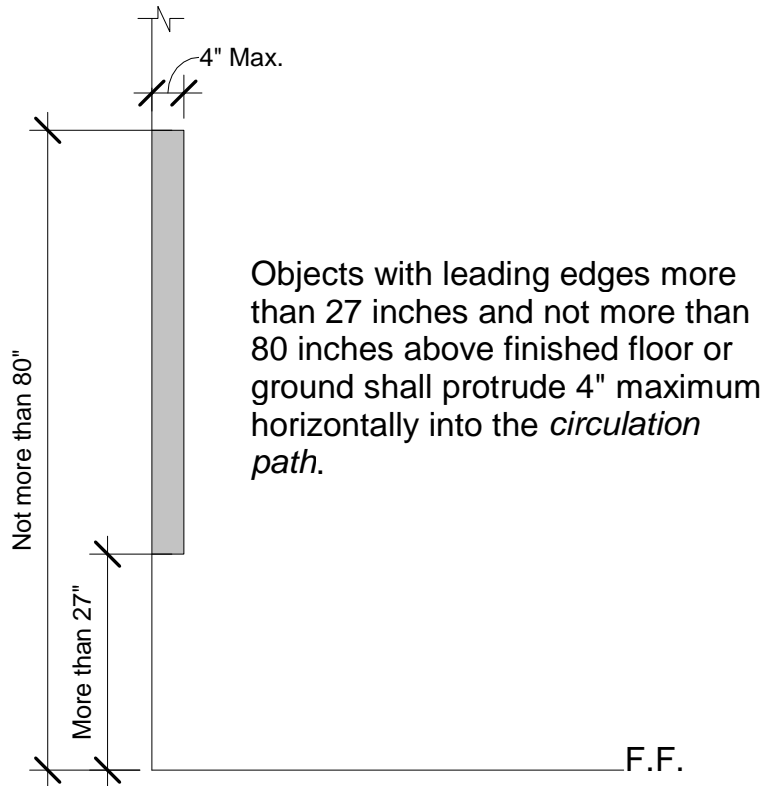
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

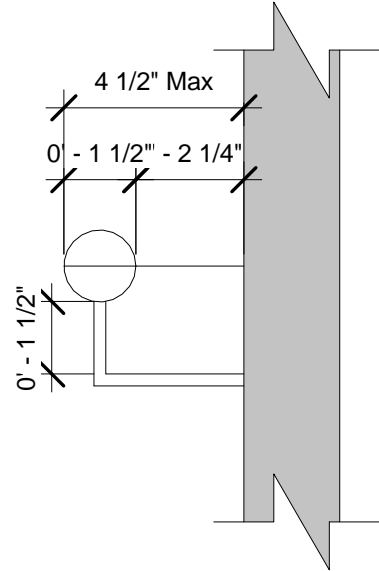
Interior Elevations	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
A602	
Scale	As indicated



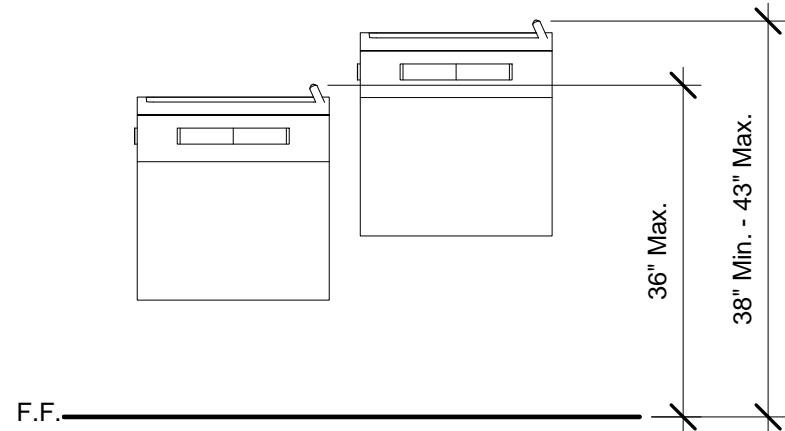
1 DT-Sheet A605_Drinking Fountain_Plan View
1/2" = 1'-0"



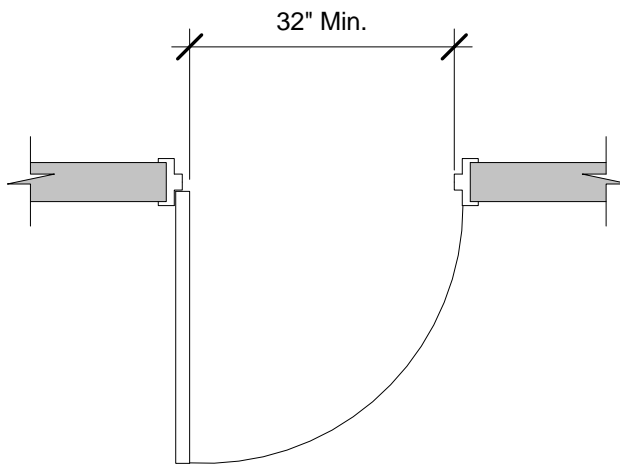
2 DT_Sheet A605_Limits of Protruding Objects
1/2" = 1'-0"



3 DT_Sheet A605_Handrail Detail
3" = 1'-0"

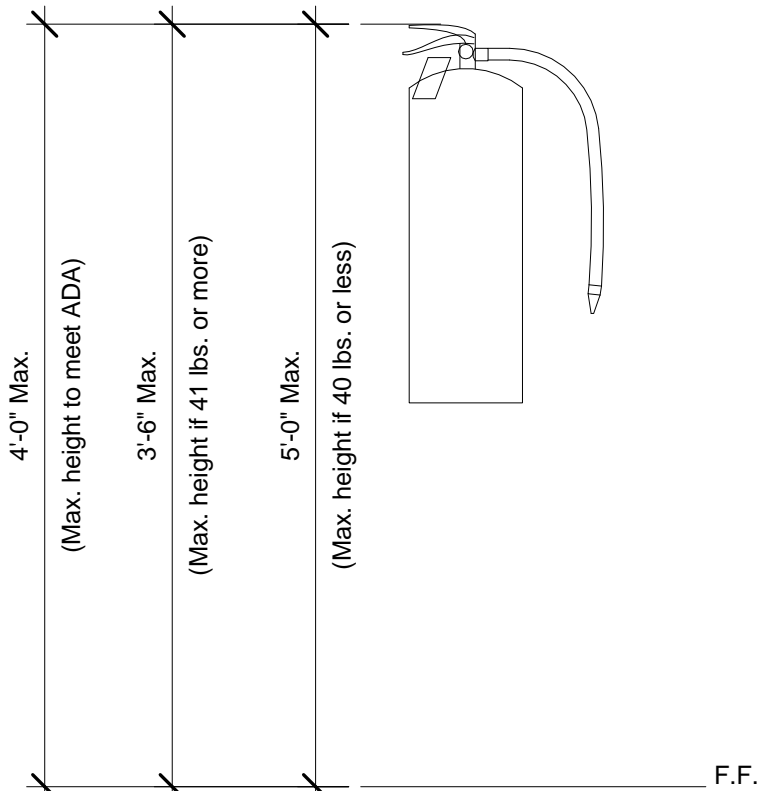


4 DT_Sheet A605_Drinking Fountain_Front View
1/2" = 1'-0"

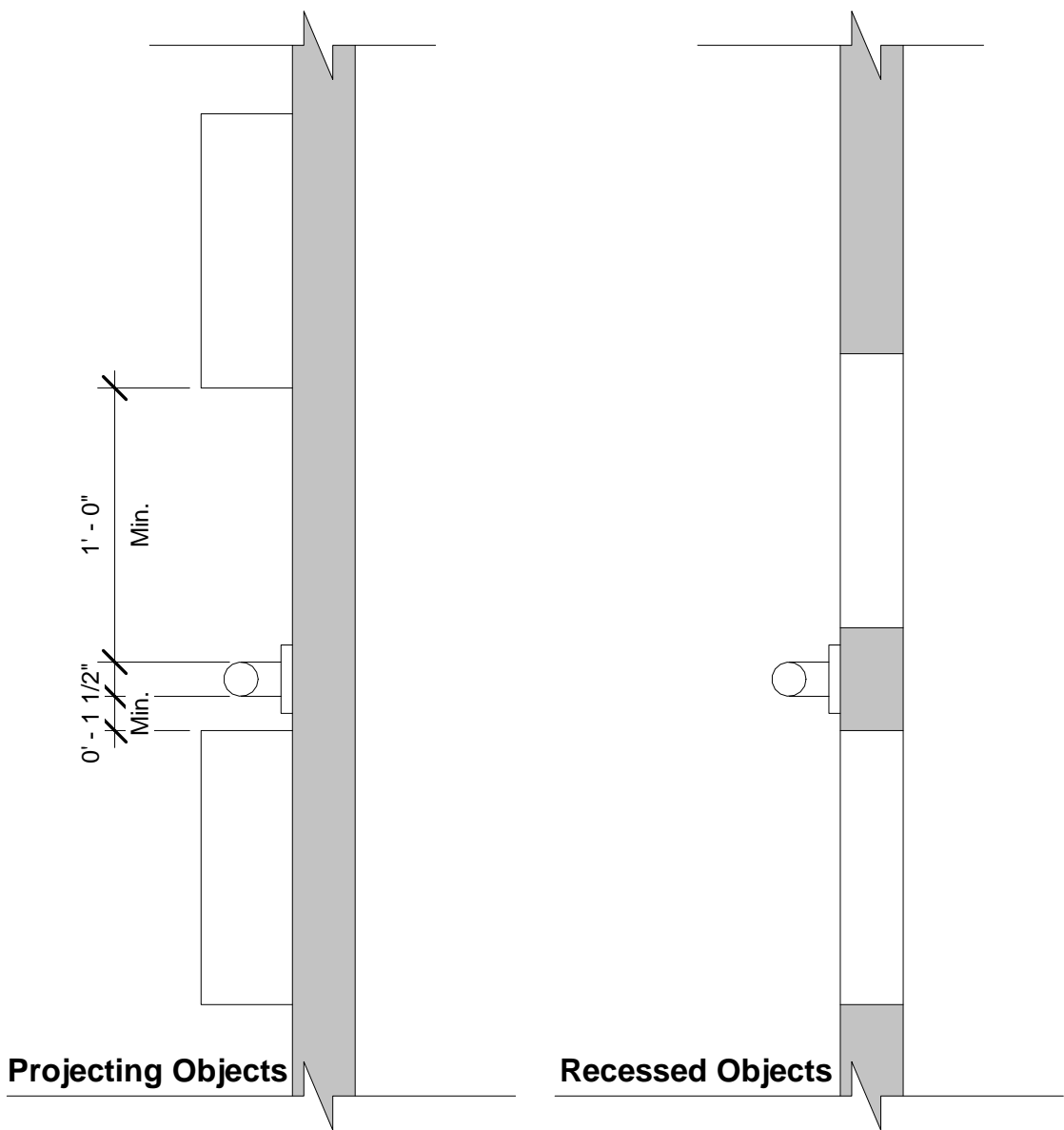


5 DT_Sheet A605_Clear Width @ Doorways
1/2" = 1'-0"

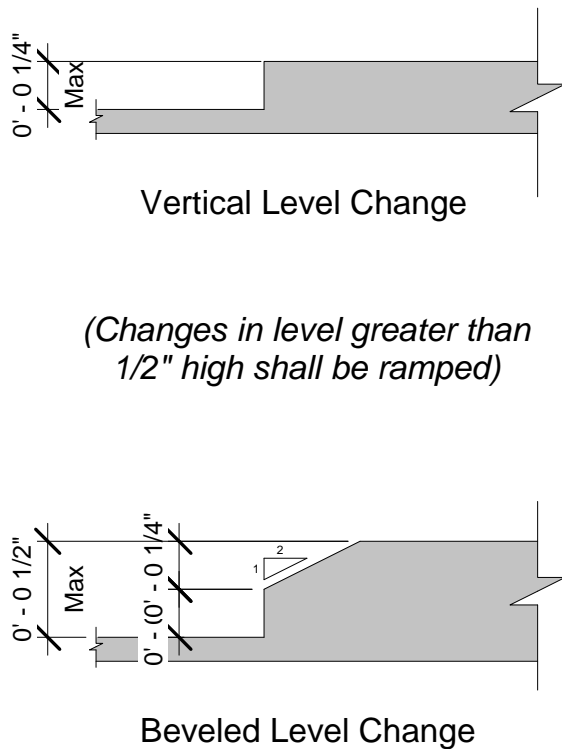
Mounting heights for portable fire extinguishers
(cabinet and bracket mounted) per
IBC Chapter 9)



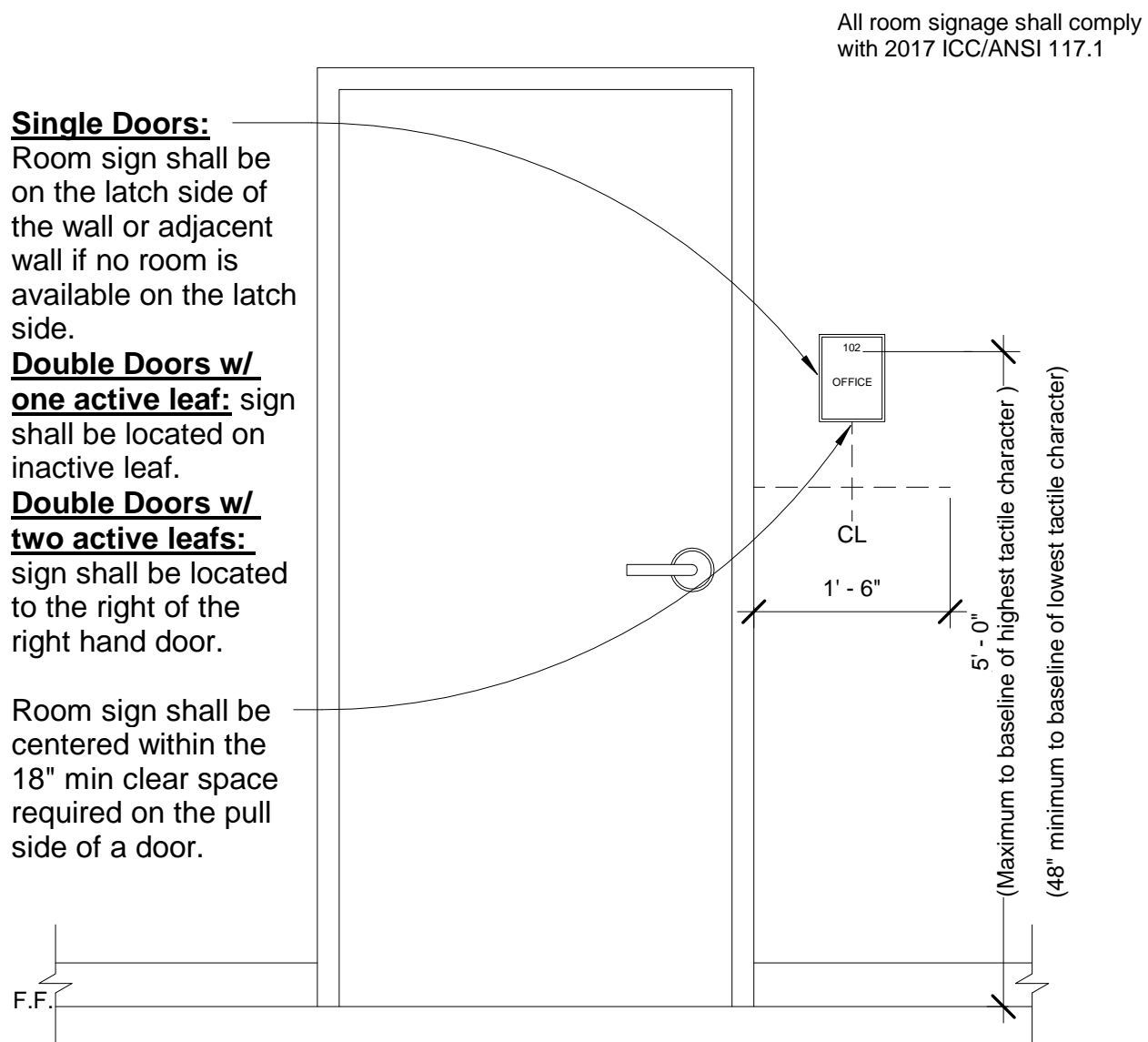
6 DT_Sheet A605_Fire Extinguisher Mounting Heights
1" = 1'-0"



7 DT_Sheet A605_Spacing of Grab Bars
1 1/2" = 1'-0"



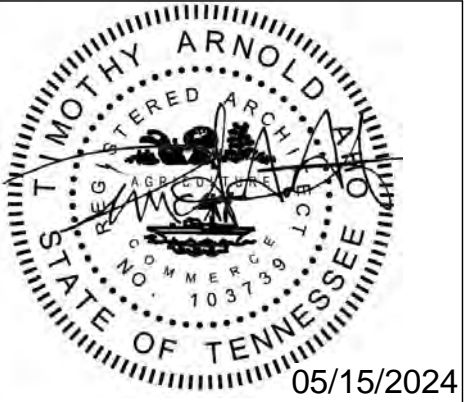
8 DT_Sheet A605_Level Change
12" = 1'-0"



9 DT_Sheet A605_Signage Mounting Heights
3/4" = 1'-0"



www.ahoarch.com



05/15/2024

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Interior
Dimensional Info.

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A605

Scale As indicated

5/14/2024 11:59:29 AM

FLOOR FINISH LEGEND

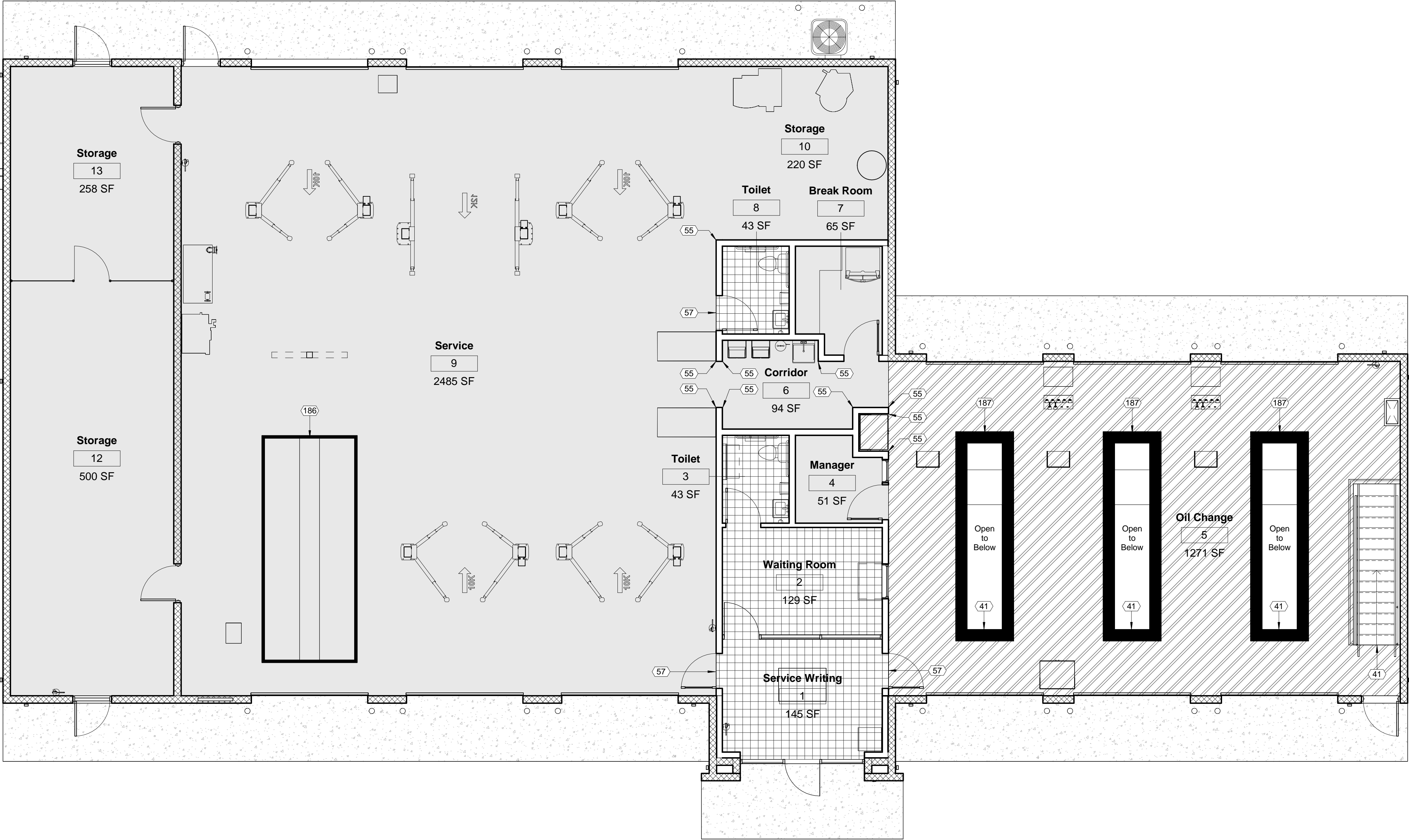
Tile

Sealed Concrete

Stonhard Flooring
(By Others)

Safety Yellow Paint.

Keynote Schedule	
Tag	Text
41	Paint structural steel at openings P-5 Safety Yellow. Typical for all pit and stairwell openings.
55	Stainless steel corner guard. See Specification 102600 Wall and Door Protection.
57	Transition strip. See Specification 093013 Ceramic Tiling.
186	Paint 3" P-5 Safety Yellow around alignment pit. Verify paint is compatible with floor finish.
187	Paint 12" P-5 Safety Yellow around pit openings. Verify paint is compatible with floor finish.



AHO ARCHITECTS, LLC

www.ahoarch.com

05/15/2024

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Floor Finishes - Main

Project number24005

Date5/15/2024

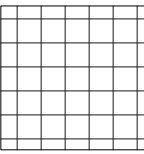
Drawn byARC

Checked byN/A

A610

ScaleAs indicated

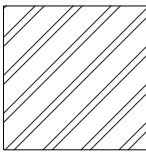
FLOOR FINISH LEGEND



Tile



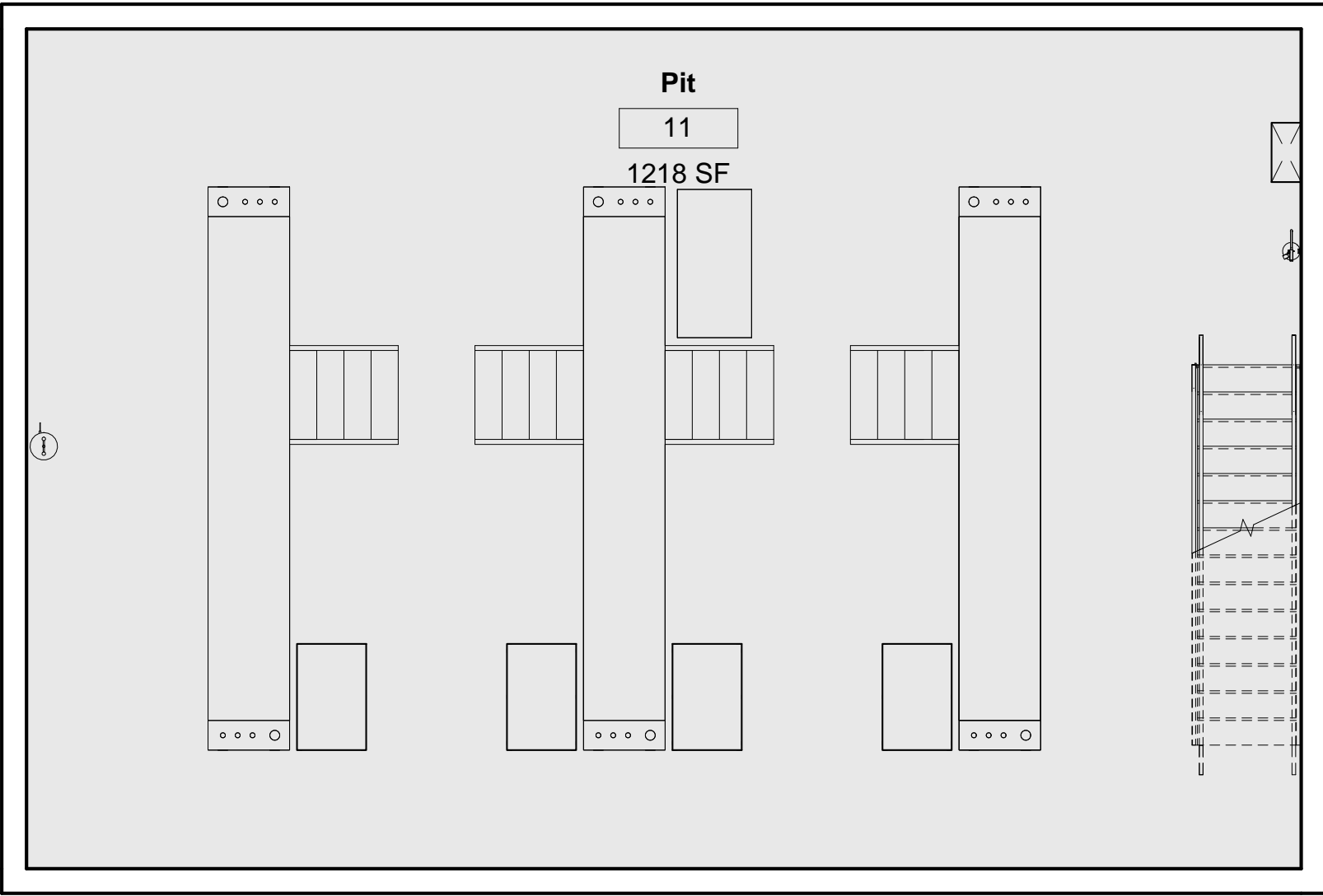
Sealed
Concrete



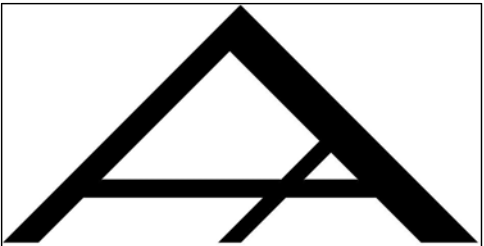
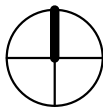
Stonhard
Flooring
(By Others)



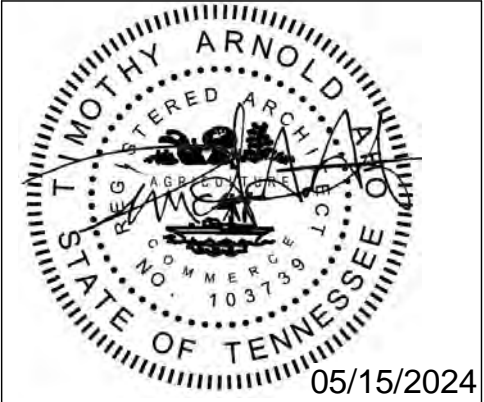
Safety Yellow
Paint.



1 20_Floor Finish Plan_Pit
3/16" = 1'-0"



www.ahoarch.com



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

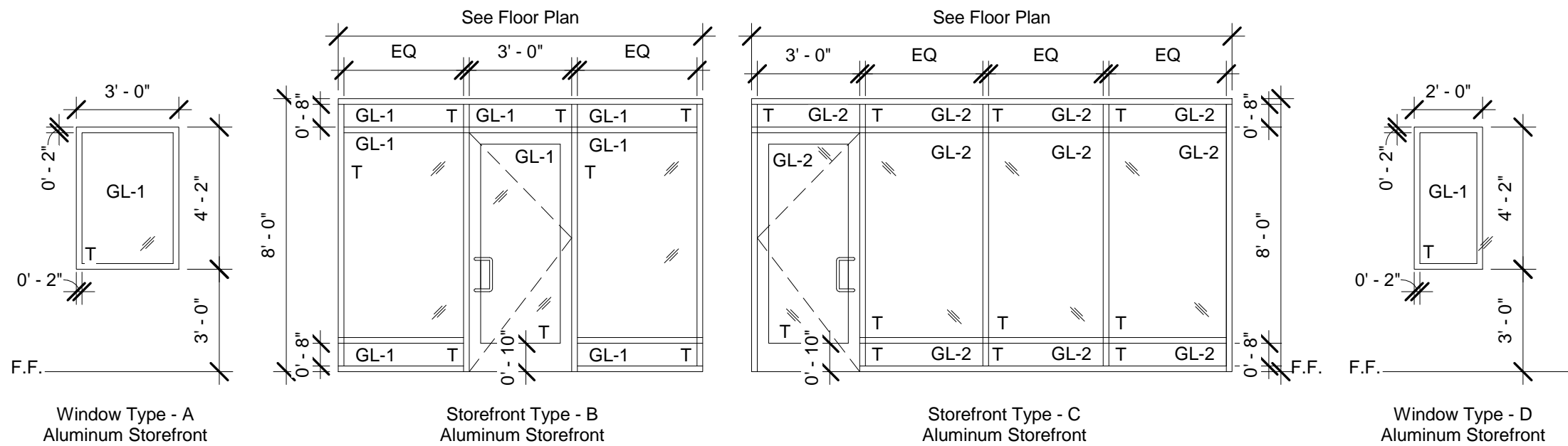
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

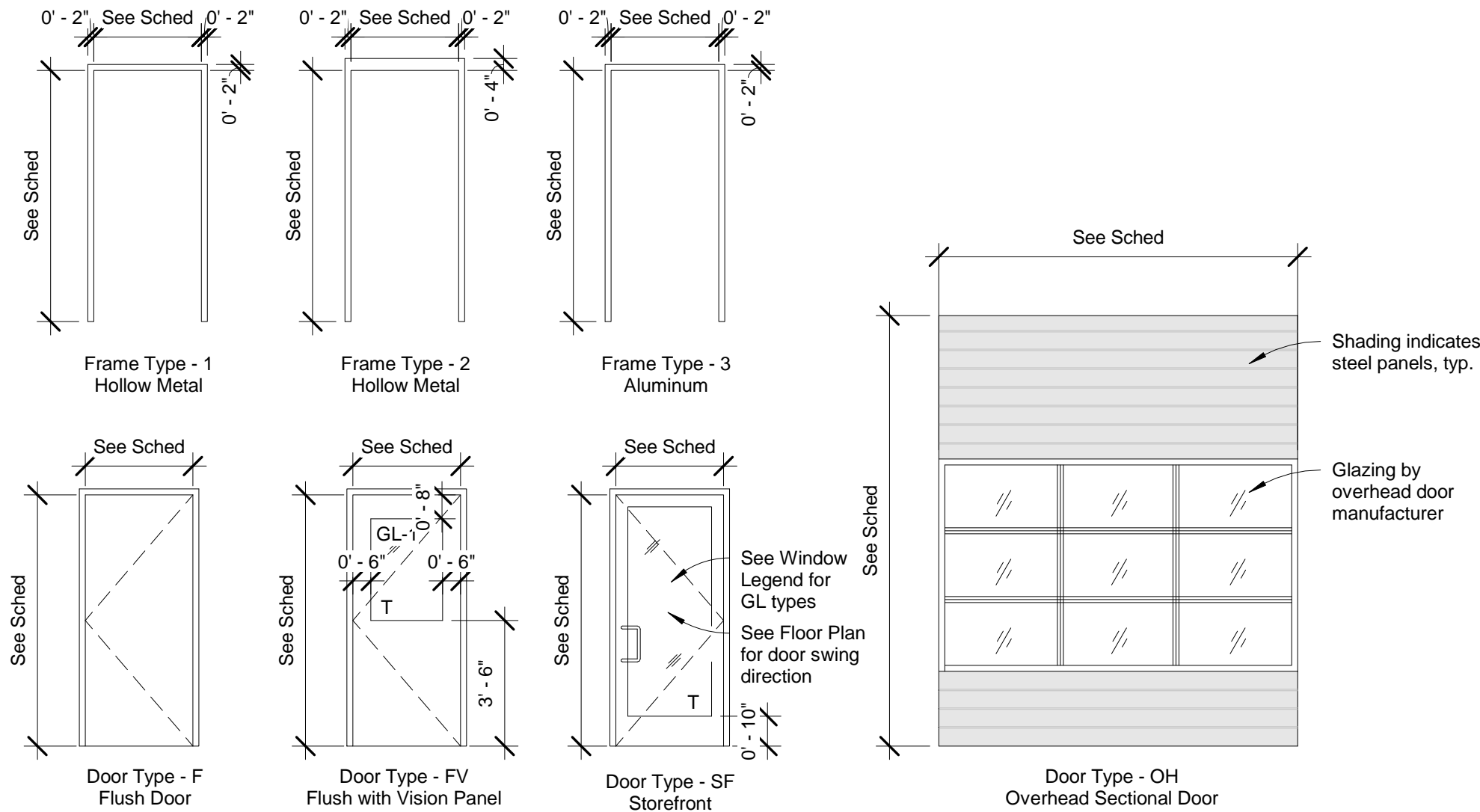
Floor Finishes - Pit	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
A611	
Scale	As indicated

Door and Frame Schedule												
Number	Door						Frame			Glass	UL Label	Notes
	Width	Height	Thickness	Door Type	Door Material	Door Finish	Frame Type	Frame Material	Frame Finish			
1	3' - 0"	7' - 0"	0' - 1 3/4"	SF	Aluminum / Glass	Factory Finish	3	Aluminum	Factory Finish	Tempered		If required by the Fire Marshal or AHJ, add lettering that reads "This door must remain unlocked when business is occupied."
2	3' - 0"	7' - 0"	0' - 1 3/4"	FV	Wood / Glass	Painted	1	Hollow Metal	Painted	Tempered		
3	3' - 0"	7' - 0"	0' - 1 3/4"	FV	Wood / Glass	Painted	1	Hollow Metal	Painted	Tempered		
4	3' - 0"	7' - 0"	0' - 1 3/4"	SF	Aluminum / Glass	Factory Finish	3	Aluminum	Factory Finish	Tempered		
5	3' - 0"	7' - 0"	0' - 1 3/4"	F	Wood	Painted	1	Hollow Metal	Painted	N/A		
6	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
7	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
8	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
9	3' - 0"	7' - 0"	0' - 1 3/4"	F	Hollow Metal	Painted	2	Hollow Metal	Painted	N/A		
10	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
11	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
12	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
13	3' - 0"	7' - 0"	0' - 1 3/4"	FV	Wood / Glass	Painted	1	Hollow Metal	Painted	Tempered		
14	3' - 0"	7' - 0"	0' - 1 3/4"	FV	Wood / Glass	Painted	1	Hollow Metal	Painted	Tempered		
15	3' - 0"	7' - 0"	0' - 1 3/4"	F	Wood	Painted	1	Hollow Metal	Painted	N/A		
16	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
17	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
18	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
19	3' - 0"	7' - 0"	0' - 1 3/4"	F	Hollow Metal	Painted	2	Hollow Metal	Painted	N/A		
20	3' - 0"	7' - 0"	0' - 1 3/4"	F	Hollow Metal	Painted	2	Hollow Metal	Painted	N/A		
21	3' - 0"	7' - 0"	0' - 1 3/4"	F	Hollow Metal	Painted	2	Hollow Metal	Painted	N/A	45 Min.	Provide Fire Rated label on Door and Frame
22	3' - 0"	7' - 0"	0' - 1 3/4"	F	Hollow Metal	Painted	2	Hollow Metal	Painted	N/A	45 Min.	Provide Fire Rated label on Door and Frame
23	3' - 0"	7' - 0"	0' - 1 3/4"	F	Hollow Metal	Painted	2	Hollow Metal	Painted	N/A		
24	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
25	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		
26	10' - 0"	12' - 0"	0' - 2 1/8"	OH	Metal / Glass	Factory Finish	N/A	N/A	Factory Finish	Tempered		

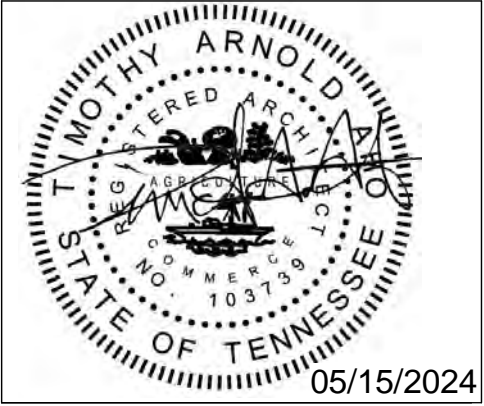
WINDOW LEGEND



DOOR AND FRAME LEGEND



Note: Refer to floor plan for direction of door swing.



Express Oil Change & Tire Engineers

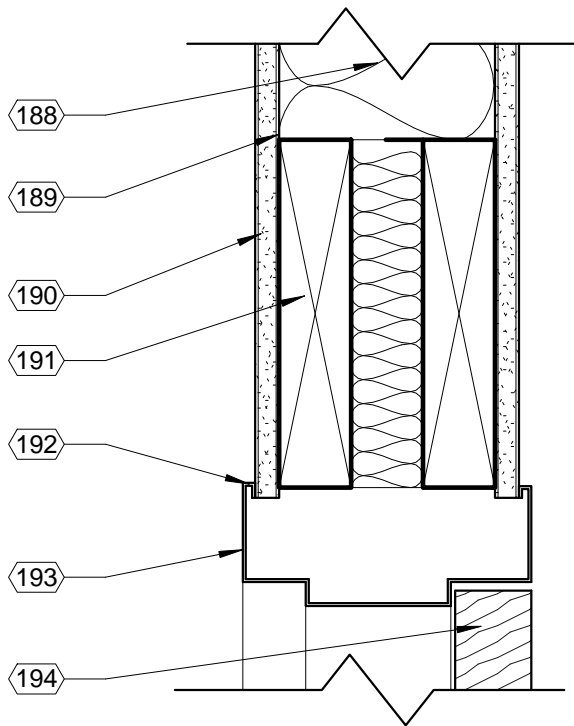
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

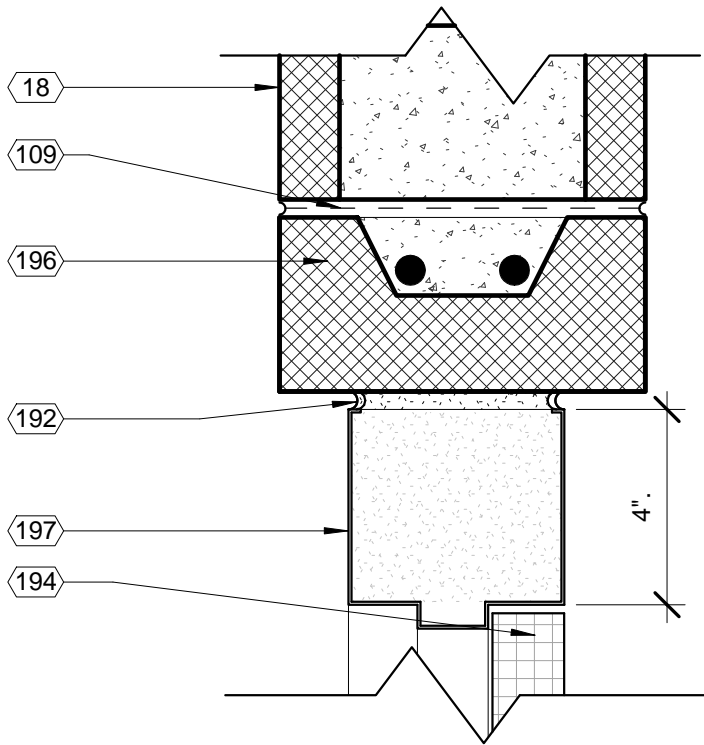
FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

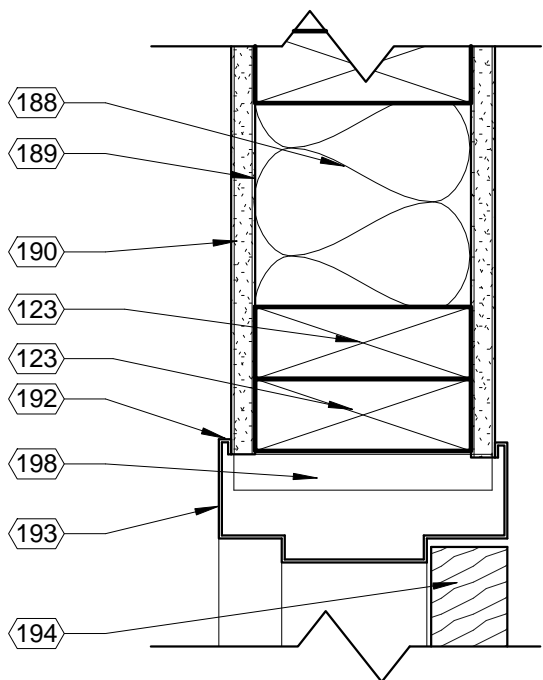
Schedules	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
A620	
Scale	1/4" = 1'-0"



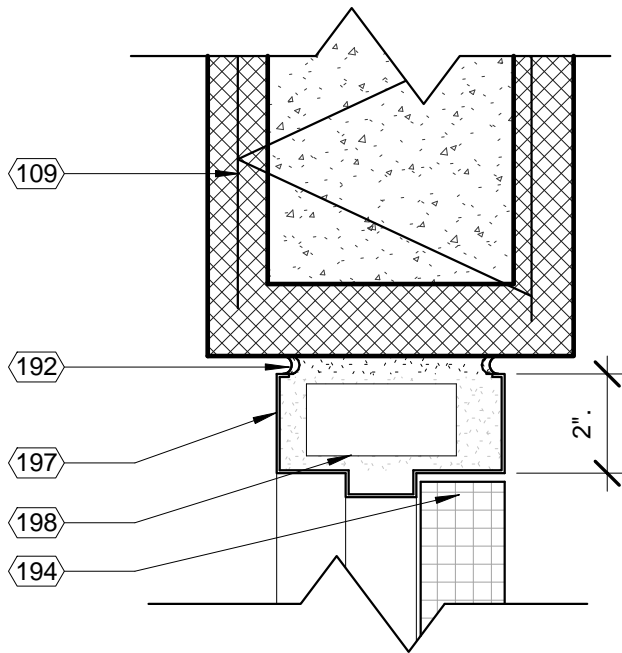
1 DT_Sheet A621_Door Head Detail_Wood
3" = 1'-0"



2 DT_Sheet A621_Door Head Detail_Masonry
3" = 1'-0"



3 DT_Sheet A621_Door Jamb Detail_Wood
3" = 1'-0"



4 DT_Sheet A621_Door Jamb Detail_Masonry
3" = 1'-0"

Keynote Schedule	
Tag	Text
18	Unpainted structural half-highs. See Specification 042200 Concrete Unit Masonry.
109	Horizontal joint reinforcement at 16" o.c. vertical.
123	Blocking. See Structural.
188	Kraft-faced batt insulation. Kraft in contact with gypsum board.
189	2x wood studs at 16" o.c.
190	1/2" painted gypsum board.
191	Double 2"x8" wood header.

Keynote Schedule	
Tag	Text
192	Caulk all around on both sides.
193	Painted hollow metal frame with returns. See Finish Schedule for color.
194	Scheduled door. See plans for details.
196	Closed bottom structural half-high bond beam. See Structural.
197	Painted hollow metal frame, grouted solid.
198	Jamb anchors. Provide 3 per jamb.

Material Schedule							
Abbreviation	Material Discription	Manufacturer	Style Name or Number	Color (Description)	Size	Finish	Material Notes
CT	Ceramic Tile	Dal-Tile	Volume 1.0	VL72 Intensity Pebble	12"x12"	N/A	Use MAPEI 47 Epoxy Grout
P-1	Paint - Color 1	Sherwin Williams	See Paint Schedule on G202	SW6966 Blueblood	N/A	See Paint Schedule on G202	
P-2	Paint - Color 2	Sherwin Williams	See Paint Schedule on G202	Custom Color (Dover Gray)	N/A	See Paint Schedule on G202	
P-3	Paint - Color 3	Sherwin Williams	See Paint Schedule on G202	SW7669 Summit Gray	N/A	See Paint Schedule on G202	
P-4	Paint - Color 4	Sherwin Williams	See Paint Schedule on G202	SW6959 Bluechip	N/A	See Paint Schedule on G202	
P-5	Paint - Color 5	Sherwin Williams	See Paint Schedule on G202	Safety Yellow	N/A	See Paint Schedule on G202	
P-6	Paint - Color 6	Sherwin Williams	See Paint Schedule on G202	Safety Red	N/A	See Paint Schedule on G202	
P-7	Paint - Color 7	Sherwin Williams	See Paint Schedule on G202	SW7006 Extra White	N/A	See Paint Schedule on G202	
PL-1	Plastic Laminate - Color 1	Wilsonart	4880-38	Carbon Mesh	N/A	N/A	
RB	Rubber Base	Ropee	Pinnacle	175 Slate	4"	N/A	
SC	Sealed Concrete	Sherwin Williams	See Paint Schedule on G202	Haze Gray	N/A	See Paint Schedule on G202	Add SharkGrip for added slip resistance
SH	StonHard Flooring	StonHard	N/A	N/A	N/A	N/A	Provided and installed by (Others)

Finish Schedule for Additional Items					
1.	Doors & Frames: Paint P-3	8.	Stairs & Railings & Swing Gates (if required): P-5	15.	Coping Cap: Match roof color
2.	Bollards & Dumpster Posts: P-6	9.	Keynote 16 & 17: P-1	16.	Door Hardware: Satin Chrome
3.	Exterior Pole Sign: By others.	10.	Keynote 19: P-3	17.	Window Gaskets: Light Gray
4.	Downspouts/Gutters: Match Roof Color	11.	Keynote 15: P-1	18.	Exterior Aluminum Storefront & Door: Clear Anodized
5.	Electrical covers to be brushed aluminum	12.	Knox Box: Aluminum	19.	Abrasive Nosing: Safety Yellow
6.	Paint all louvers to match adjacent finish	13.	Roof: Royal Blue (Berridge)	20.	Overhead Door: White
7.	Epoxy Floor Grout used with CT: MAPEI 47 Charcoal	14.	Soffit: P-1	21.	Interior Aluminum Storefront & Door: Clear Anodized
				22.	Chair Rail: Stainless Steel by others
				23.	Word Wall: P-3
				24.	Canopy: Pantone 425C
				25.	Dumpster Gate / Frame: P-3
				26.	Frieze Board: P-1
				27.	Lintel at OH Doors: P-1

Finish Schedule										
Number	Name	Area	Floor Finish	Base Finish	Walls				Ceiling Finish	Remarks
					Rear (North)	Right (East)	Front (South)	Left (West)		
1	Service Writing	145 SF	CT	CT	Storefront	P-1, P-2, P-3	Storefront & P-1, P-2, P-3	P-1, P-2, P-3	P-7	See G301 for paint patterns
2	Waiting Room	129 SF	CT	CT	P-3 & Vinyl Graphics (By Others)	P-1, P-2, P-3	Storefront	P-1, P-2, P-3	P-7	See G301 for paint patterns. Word Wall (with Vinyl Graphics (By Others) to be painted P-3
3	Toilet	43 SF	CT	CT	CT & P-3	CT & P-3	CT & P-3	CT & P-3	P-7	Ceramic tile wainscot 4'-4" high.
4	Manager	51 SF	SC	RB	P-3	P-3	P-3	P-3	P-7	
5	Oil Change	1271 SF	SH	None / RB	P-3	P-1, P-4	P-3	P-1, P-4 & Vinyl Graphics (By Others)	P-7	Rubber base on gypsum board walls only. See G301 for paint patterns.
6	Corridor	94 SF	SC	RB	P-1	P-1	P-1	P-1	P-7	
7	Break Room	65 SF	SC	RB	P-3	P-3	P-3	P-3	P-7	
8	Toilet	43 SF	CT	CT	CT & P-3	CT & P-3	CT & P-3	CT & P-3	P-7	Ceramic tile wainscot 4'-4" high.
9	Service	2485 SF	SC	None / RB	P-3	P-1, P-4 & Vinyl Graphics (By Others)	P-3	P-1, P-4	P-7	Rubber base on gypsum board walls only. See G301 for paint patterns.
10	Storage	220 SF	SC	None / RB	P-3	P-1, P-4	P-1, P-4	None	P-7	
11	Pit	1218 SF	SC	None	None	None	None	None	N/A	Paint all structural steel in Pit P-5 Safety Yellow.
12	Storage	500 SF	SC	None	Fence	P-3	P-3	P-3	P-7	
13	Storage	258 SF	SC	None	P-3	P-3	Fence	P-3	P-7	



www.ahoarch.com



05/15/2024

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Finish Schedules & Head, Jamb, and Sill Details

Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A

A621

Scale	As indicated
-------	--------------

5/14/2024 11:59:42 AM



1 02_3D View_Front (South)

*See Civil for actual site conditions, including dumpster enclosure location.



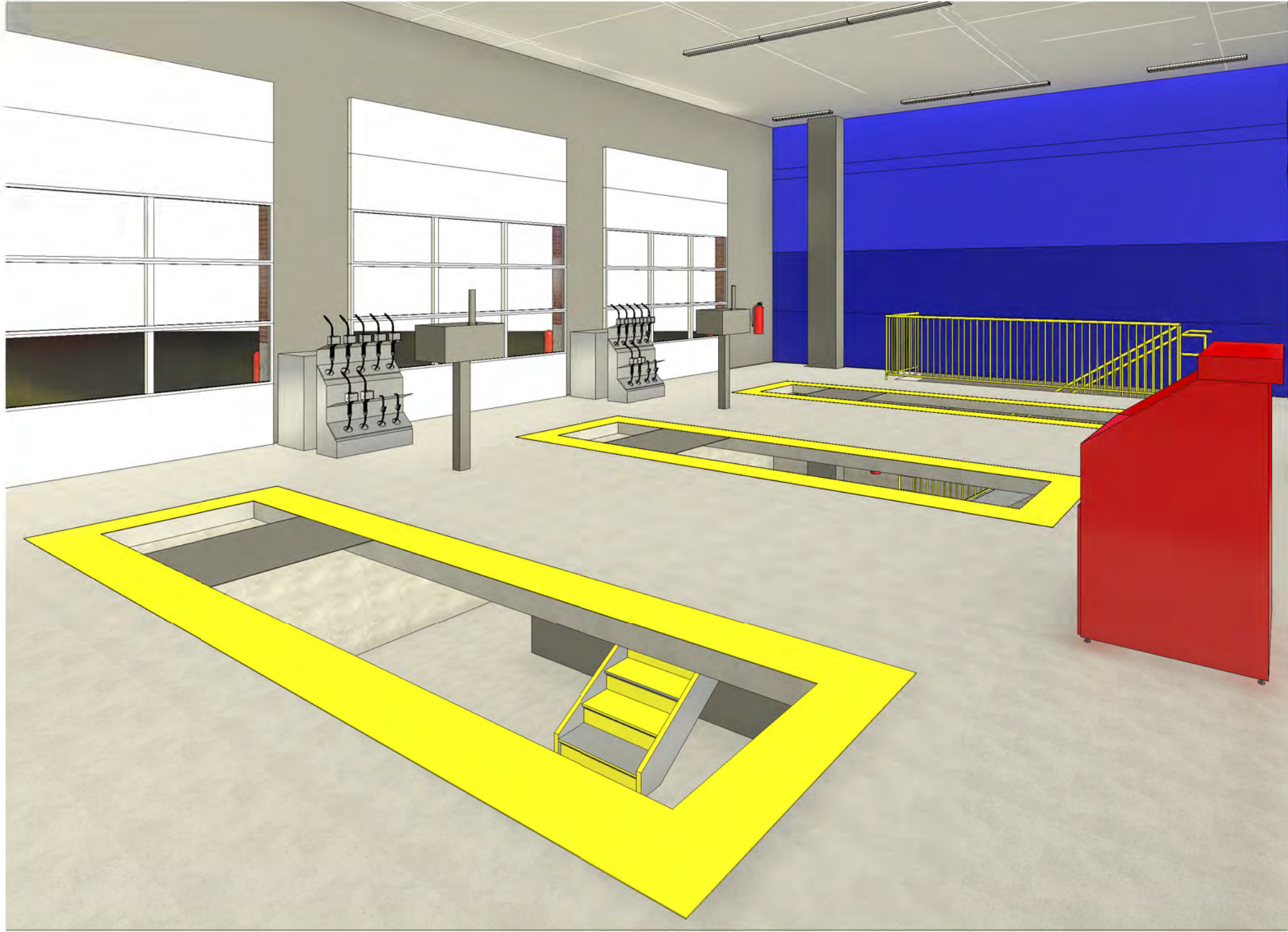
2 03_3D View_Rear (North)

*See Civil for actual site conditions, including dumpster enclosure location.

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

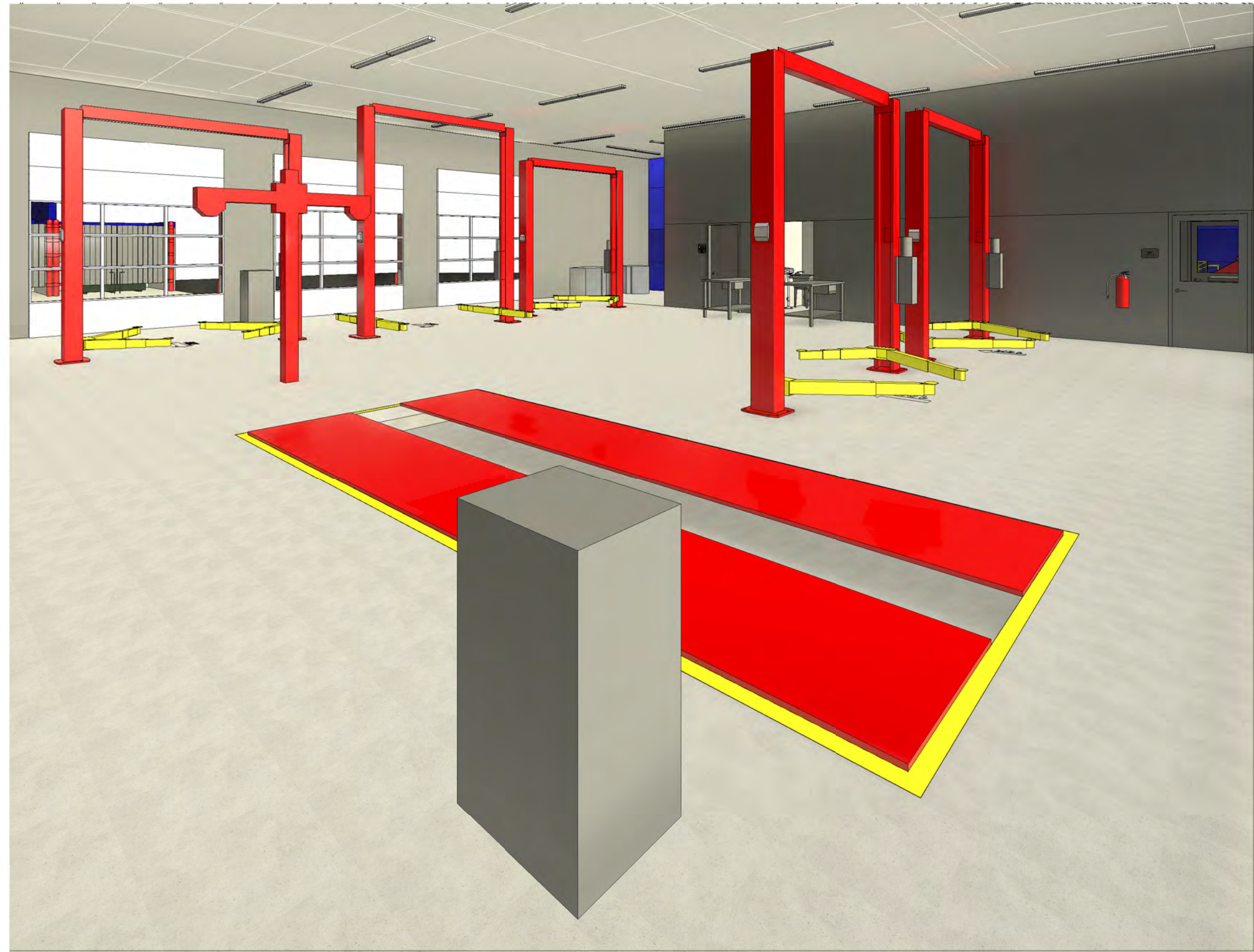
3D Views	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
R100	
Scale	



04_3D View_Oil Change A



05_3D View_Oil Change B



06_3D View_Service Bay A



07_3D View_Service Bay B

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

3D Views	
Project number	24005
Date	5/15/2024
Drawn by	ARC
Checked by	N/A
R101	
Scale	

SCHEDULE OF SPECIAL INSPECTIONS				
IBC Code Section	Item	Inspection/Test/Certification	C or P	Extent/Comments
	1000.00	General Conditions		
	1000.01	Review of Structural Documents and Shop Drawings to determine differences not approved by Architect or Engineer of Record	Continuous	Structural Documents should take precedence over any shop drawings. Special Inspector should use the Architectural and Structural Documents as the primary documents for review of construction. Shop drawing should be used as secondary document to review details not shown on the Architectural and Structural Documents. Any discrepancy between the two documents should be resolved by the Architect or Engineer of Record before proceeding with construction.
	1000.02	The Special Inspector duties for missing details, conflicting details or coordination issues.	Continuous	Reasonable attempts have been made on the part of the design team to properly coordinate drawings. However in the event that a question arises on the project the Special Inspector shall obtain clarification from the Architect on all items. No changes shall be made to the drawings or construction without written conformation.
	1400.00	Fabricators		
1704.02.01	1400.01	Review the quality control procedures of the following fabricators for completeness and adequacy relative to the fabricator's scope of work: steel fabricator, lightgage truss fabricator, wood truss fabricator.	Periodic	
1704.02.02	1400.02	The following fabricators, if registered and approved by the building official, may submit "Certificates of Compliance" at the completion of their scope of work that their fabricated items were constructed in accordance with the approved construction documents: steel fabricator, lightgage truss fabricator, wood truss fabricator. Fabricators having successfully completed no fewer than 5 similar projects may also submit for approval with documentation of similar projects.	Periodic	
	2300.00	Soils and Deep Foundations		
1704.07	2300.01	Verify bearing capacities of soils beneath footings.	Periodic	As recommended in approved soils report and specified in earthwork specifications.
1704.07	2300.02	Verify assumed bearing capacities and determine settlements of soils beneath footings and building pad.	Periodic	As noted on the drawings, recommended by the geotechnical engineer, and specified in earthwork specifications.
1704.07.01	2300.03	Verify site preparation prior to beginning fill placement. Verify fill material type, placement method, lift thickness, and compaction of fill material. Verify in-place density of compacted fill.	Periodic	As recommended in approved soils report and specified in earthwork specifications.
1704.08	2300.04	Inspect installation of pile foundations including installation of test piles.	Continuous	As recommended in approved soils report and specified in pile specifications.
1704.09	2300.05	Inspect installation of drilled pier foundations and installation of test piers. Inspect reinforcing in each pier and test concrete.	Continuous	As recommended in approved soils report and specified in pile specifications.
1705.9	2300.06	Inspect helical pile installation.	Continuous	Record installation equipment used, pile dimensions, tip elevations, final depth, final installation torque.
	3300.00	Concrete Construction		
None	3300.06	Inspect concrete formwork except as noted above for proper dimensions. Verify that construction joints are properly keyed. Verify that slab recesses, if any, have been installed.	Periodic	Prior to each pour.
1704.04	3300.07	Inspect reinforcing steel except as noted above for installation including size, spacing and bar clearances. Verify that lap splices and embedment lengths are per the construction documents. Verify that dowels for work above are properly aligned and spaced to match other work.	Periodic	Prior to each pour.
None	3300.13	Inspect bolts	Periodic	
1704.04	3300.15	Verify each proposed concrete mix for the project.	Periodic	For each proposed mix
1704.04	3300.16	Sample all concrete for strength tests and test concrete for slump, air content, temperature, and other tests.	Continuous	During placement operations. Reference concrete specifications for specific tests and frequencies.
1704.04	3300.17	Inspect concrete placement except as noted above.	Continuous	
1704.04	3300.18	Inspect all concrete curing operations as noted in the extents column.	Periodic	Monitor during hot, cold and windy conditions. Reference concrete specifications.
	3300.25	Verify sawed joints in slabs on grade are comleted within 4 hours of the final set of the concrete	Continuous	
	4810.00	Masonry Construction		
1704.05.01 and .02	4810.03	Inspect proportions of site prepared mortar and grout. Inspect construction of mortar joints. Inspect reinforcement for correct size and spacing. Inspect work for correct location and type of embeds and anchor bolts. Inspect work for size and location of structural elements.	Periodic	At beginning of masonry construction and every _____ square feet of masonry thereafter.
1704.05.01 and .02	4810.05	Inspect masonry cells and cleanouts prior to placement of grout. Inspect grout proportions. Inspect placement of reinforcement.	Periodic	Prior to grouting of masonry.
1704.05.01 and .02	4810.06	Inspect grouting operations to ensure compliance with code and construction documents.	Continuous	During grouting.
1704.05.01, .02 and .03	4810.12	Inspect protection of masonry during cold weather and hot weather.	Periodic	During periods with temperatures below 40 degrees or above 90 degrees.
1704.05.01 and .02	4810.13	Inspect preparation of grout specimens, mortar specimens and / or prisms.	Continuous	During preparation of all specimens.
1704.05.01, .02 and .03	4810.14	Verify compliance with all required inspection provisions of the construction documents and approved submittals.	Periodic	As required for duration of project.
	5120.00	Steel Construction		
1704.03	5120.01	Inspection of the steel pieces		
1704.03.02	5120.02	Inspection of frame		
1704.03.03	5120.03			
1704.03	5120.04	Inspect high-strength bolts, nuts and washers: a. Identify markings to conform to ASTM standards specified in the construction documents. b. Inspect manufacturer's certificate of compliance.	Periodic	Reference project specifications and ASTM material specifications; AISC 335, (Sect A3.4); AISC LRFD (Sect A3.3).
1704.03	5120.05	Inspect high-strength bolting: Bearing-type connections.	Periodic	
1704.03	5120.07	Inspect and verify structural steel material: a. Identification markings to conform to ASTM standards specified in the approved construction documents. b. Manufacturers' certified mill test reports.	Periodic	Confirm that materials meet applicable ASTM specifications noted in construction documents.
1704.03	5120.08	Inspect and verify weld filler materials: a. Identification markings to conform to AWS specification in the approved construction documents. b. Manufacturer's certificate of compliance required.	Periodic	Confirm that materials meet applicable ASTM specifications noted in construction documents.
1704.03	5120.09	"Inspect welding: Structural Steel: 1) Complete and partial penetration groove 2) Multipass fillet welds. 3) Single-pass fillet welds > 5/16" "	Continuous	Per specifications and AWS D1.1
1704.03	5120.10	"Inspect welding: Structural Steel: 1) Single-pass fillet welds ≤ 5/16" 2) Floor and deck welds. "	Periodic	Per specifications and AWS D1.1
1704.03	5120.11			
1704.03	5120.12	"6. Inspect steel frame joint details for compliance with approved construction documents: a. Details such as bracing and stiffening. b. Member locations. c. Application of joint details at each connection."	Periodic	Inspect complete frame.
	5301.03	Verify deck support angles are provided for all opening greater than 100 square inches.	Periodic	
	5310.00	Metal Deck		
	5310.01	Verify depth and gauge of all deck elements	Periodic	
	5310.02	Verify adequate bearing of ends of decking	Periodic	
	6000.00	Wood		
1704.06	6000.01	Inspect fabricated wood trusses and shop built components.	Periodic	Inspect truss production in shop unless fabricator is approved by building official and submits certification of compliance at end of scope of work. Inspect ____% of trusses. Inspect 100% of trusses if discrepancies are observed.
1704.06	6000.02	Inspect site-built assemblies including site built trusses. Inspect erected trusses including bridging and attachments.	Periodic	Inspect all site-built trusses. Inspect erected trusses and installation of bridging.
1706.01	8000.00	Special Inspections for Wind Resistance		
1706.01.02	8000.01	Roof Cladding and Roof Framing Connections	Periodic	
1706.01.02	8000.02	Wall Connections to Roof and Floor Diaphragms and Framing	Periodic	
1706.01.02	8000.03	Roof and Floor Diaphragm Systems, including Collectors, Drag Struts, and Boundary Elements.	Periodic	
1706.01.02	8000.04	Vertical Windforce-Resisting Systems, including Braced Frames, Moment Frames, and Shearwalls	Periodic	
1706.01.02	8000.05	Windforce-Resisting System Connections to the Foundation.	Periodic	
1706.01.02	8000.06	Fabrication and installation of components and assemblies required to meet the impact-resistance requirements of Section 1609.1.4.	Periodic	

GENERAL NOTES

- Contractor shall compare structural drawings and architectural drawings. Any omissions or discrepancies between plans, details, and specifications shall be brought to the attention of the Architect or Engineer before bidding. In all cases, more stringent requirement governs. Architectural dimensions and elevations will control.
- Structural drawings or parts of the structural drawings may not be used as shop drawings without prior written approval.
- All or parts of these drawings were produced with computer aided drafting. Drawings are available from the Engineer in DWG format on request.
- Contractor proposed changes to details must be clearly noted on the first sheet of all shop drawings.
- Construction shown is stable after the building is complete including interior and exterior finishes. The Contractor is responsible for temporary bracing of the structure during construction.
- Review of submittal information shall be for general compliance with the contract documents and shall not include checking of detailed dimensions or detailed quantities.

DESIGN LOADS

- Reference code for loading 2021 IBC.
 - Building Classification II
 - Wind Load
 - Basic Wind Speed (3 sec gust) 105 mph
 - Wind Exposure C
 - Internal Pressure Coefficient +/- 0.18
 - Velocity Pressure (qz) 24.0 psf
 - Roof Snow Load
 - Flat Roof Snow Load (P_f) 10 psf
 - Snow Exposure (C_e) 1.0
 - Importance Factor 1.0
 - Thermal Factor (C_t) 1.0
 - Seismic Load
 - Importance Factor 1.0
 - Mapped Spectral Response Accelerations
 - S_s 0.509
 - S₁ 0.122
 - Site Class D
 - Spectral Response Coefficients
 - S_{ds} 0.472
 - S_{d1} 0.191
 - Seismic Design Category C
 - Base Seismic-Force-Resisting System(s) and Response Modification Factor
 - Intermediate Reinforced Masonry Shear Walls 3.5
 - Design Base Shear 26 kips
 - Seismic Response Coefficient (C_s) 0.135
 - Analysis Procedure = Equivalent Lateral Force
 - Live Load
 - Roof Load 20 psf
 - Service Bay and slabs on grade 100 psf
 - Mezzanine 50 psf

FOUNDATIONS

- Foundation design for this project was based on soils information provided by ECS
- Bearing capacity— 2500 psf
- All footings are to bear on engineered fill.
- Install corner bars at all footing intersections and corners (Provide lap length e.w.)
- All footing elevations are given to the top of the footings.
- Footing steps shown on the plans are furnished as a guide for estimating quantities. Final elevations are to be set in the field. Bearing elevations must be approved by a Soils Engineer before any concrete is placed.
- Coordinate foundation elevations with plumbing requirements. Step footings as required to clear plumbing lines.
- Provide drainage for all retaining walls, see architectural for notes and details.

MASONRY

- All masonry work to be in accordance with "Building Code Requirements for Concrete Masonry Structures" TMS 402-2016 and "Specifications for Masonry Structures" TMS 602-2016.
- Fill all concrete masonry units with concrete or grout from the top of the footing to the finish floor or to 8" above finish grade whichever is higher.
- Use ladder type joint reinforcement (Dur-O-Wall SW DA3100 or better) at 16" on center in all cavity walls where brick is used for one or more of the wythes.
- Use truss type joint reinforcement (Dur-O-Wall SW DA3100 or better) at 16" o/c. in all other masonry walls.
- Provide joint reinforcement at 8" o/c. for all walls constructed with stack bond.
- Use Type "M" or Type "S" mortar in accordance with IBC Table 2103.7(1).
- Minimum compressive strength of concrete masonry f'm = 2500 psi. Submit for review test data on strength of units before starting any masonry work.
- Minimum compressive strength of grout f'm = 2500 psi. Use 3/8" max size aggregate. See Special Inspection Schedule for any testing requirements. Grout slump shall be 8" to 11".
- Use "Fine" grout for all reinforced piers and reinforced wall in accordance with ASTM C 476.
- Each grout lift shall not exceed 5'-0" unless cleanouts are provided in the bottom course.
- Fill cells under all lintels with grout.
- Provide lintels over all openings through wall. See lintel details for reinforcement.
- Unless otherwise noted provide control joints in all walls 4'-0" from wall intersections or corners and at 20'-0"
- Extend all horizontal steel and bond beams thru control joints.
- Vertical Reinforcement shall extend into the bond beam.
- Unless noted, all bars are to be located at the center of cell. Where bars are specified at each face, provide minimum ¾" clear space between reinforcement and CMU face shell.
- Anchor bolt into grouted cell locations only, unless noted otherwise.

REINFORCING STEEL AND CONCRETE

- All concrete work is to be in accordance with the "Building Code Requirements for Reinforced Concrete" (ACI 318-14).
- All detailing is to be in accordance with "ACI Detailing Manual" SP-66
- Use of Calcium Chloride, Chloride Ions, or other salts in concrete are prohibited.
- Concrete Properties: See Schedule
 - All concrete must obtain 7 day strength of 70% of design strength.
 - Concrete mixes may use up to 25% of cementious weight as fly ash.
 - Concrete mixes may use water reducers, accelerators or retarders with prior approval.
 - Do not provide air entrainment in concrete mixes for interior slabs.
- All steel reinforcement shall be of deformed bars of billet steel conforming to ASTM A615, Grade 60 in all concrete.
- Welded wire fabric shall be ASTM 185 and shall lap 2 cross wires or 6" whichever is greater on all sides. All laps shall be wired together.
- Provide (2) #4 bars x 4'-0" at re-entrant corner locations Typical. Locate 3" away from corner and space 1'-0" apart.
- All slabs on grade are 6", unless noted. Slabs are to be placed on 10 Mil, PVC vapor barrier over 4" of porous fill. Reinforce slabs with 6x6 W2.9 x W2.9 WWF placed 1" from top of slab. Unless otherwise noted slabs shall have joints placed a 12'-0" on centers. Joints may be control joints or construction joints. See Architectural Plans for floor slopes and recesses for hard tile.
- Minimum concrete cover for reinforcement:
 - Footings 3" bottom, 2" sides
 - Cast-In-Place Walls Surfaces exposed to weather or soil 2" - #6 and greater, 1-1/2" - #5 and smaller Other surfaces 3/4"
- Provide corner bars at all wall and footing intersections.
- No openings shall be allowed to penetrate any concrete work, unless it is shown on the structural framing plans without prior written approval. Contractor shall submit for review locations of proposed openings not shown 30 days prior to pouring any concrete.
- Provide a continuous water bar at all wall construction joints below ground level.
- Use 3/4" chamfer for all exposed corners unless noted.
- Testing samples for preparing strength test specimens of each concrete mixture placed each day shall be taken in accordance with (1) through (3).
 - At least once a day
 - At least once for each 150yd^3 of concrete
 - At least once for each 5000ft^2 of surface area for walls or slabs.

STRUCTURAL STEEL

- All detailing, fabricating, and erection of structural steel shall be in accordance with the AISC 360-10 "Specifications for Structural Steel Buildings". All reactions shown are ASD loads.
- All connections are to be detailed as Type 2 "simple frame connections".
- All structural steel W shapes shall be ASTM A992.
- All structural steel Tube sections shall be ASTM A500 Grade B.
- All structural steel Pipe sections shall be ASTM A501.
- All structural steel channels, angles and other sections shall be ASTM A36, unless noted.
- Headed Studs shall be Type B Shear Connectors.
- Shop and field connections shall be welded with E-70XX electrodes or bolted with 3/4" dia. A-325N or A-325F bolts, unless noted.
- Use 3/4" cap and bearing plates, unless noted.
- Use 3/4" dia x 1'-0" long ASTM 1554 Grade 36 anchor bolts, unless noted. In lieu of cast bolts, 3/4"x1'-0" long HAS rods epoxied with Hilti HVA epoxy, or equal, may be used with prior approval.
- Grout under baseplates with ASTM C 1107 cementitious 6000 psi Non-Shrink Grout.
- Structural steel shall be shop primed per SSPC paint system No. 7. Primer shall be SSPC paint with a minimum thickness of 2.0 MILS. Omit Paint at surfaces to be fireproofed.
- Provide L 3"x3"x1/4" frames around all roof opening through metal decking.

WOOD (STRUCTURAL)

- All floor framing and roof framing shall be #2KD SYP or approved equal.
- All floor framing shall be horizontally braced/blocked at midspan unless noted otherwise.
- All vertical framing shall be Spurce-Pine-Fir, #2.
- All wood exposed to weather or in contact with CMU or concrete shall be pressure treated in accordance with American Wood Preservers Association Manual of Recommended Practice
- All Fasteners and Nails in contact with pressure treated lumber shall be stainless steel Type 304. Submit all alternates for approval.
- Furnish design calculations sealed by a Professional Engineer licensed in the State of Project for all truss members.
- Truss connections to walls and framing shall be Designed and Specified by Truss Supplier.
- Field Modification or Fabrication of trusses is not allowed unless written approval is provided by Truss Supplier.
- Provide (4) studs at all beam and girder truss bearing locations.
- Roof decking shall be 5/8" APA rated sheathing, Exposure 1 with 32/16 span rating. Provide plyclips at all roof sheathing connections, unless noted otherwise.
- Floor and roof sheathing shall be nailed with 8d rinkshank nails at 6" o.c.
- All bolts connecting continuous horizontal sill plates to concrete, masonry, or steel shall have 3" flat washers.

CONCRETE SCHEDULE

Concrete Use	Design Strength	Max W/C Ratio	Slump Limits	Entrained Air Range	Weight	Notes
Basement Walls	4000 psi	n/a	6" to 8"	3% to 5%	150 pcf	Use HRWR
Slabs on Composite Metal Deck	4000 psi	n/a	6" to 8"	---	150 pcf	Use HRWR
Slabs on Grade/Grade Beams	4000 psi	n/a	6" to 8"	---	150 pcf	Use HRWR

BJW

STRUCTURAL
ENGINEERS

BARNETT JONES WILSON, LLC • PELL CITY • TUSCALOOSA • CHATTANOOGA • WWW.STRUCTENGS.COM

AHO ARCHITECTS, LLC

www.ahoarch.com

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

General Notes

Project number24005

Date5/15/2024

Drawn byjcj

Checked byjd

S0.1

Scale3/4" = 1'-0"

Shear Plate Connection Schedule

Length	# of bolts	End reaction	Min plate thickness
6"	2	8.2k	1/4"
9"	3	16.3k	1/4"
12"	4	26.1k	1/4"
15"	5	36.3k	1/4"
18"	6	46.3k	1/4"
21"	7	56.4k	1/4"

Reinforcing Steel Lap Splice & Development Length for Concrete Masonry

Bar Size	Bar in center of wall			Bar in each face of wall
	6" CMU	8" CMU	12" CMU	
#3	16"	16"	16"	16"
#4	21"	21"	21"	30"
#5	32"	26"	26"	46"
#6	61"	43"	40"	85"
#7	NA	60"	46"	115"
#8	NA	NA	61"	NA

- Notes:
- Lengths are for vertical splices in walls.
 - Bar length for center of wall are based on f'm of 1500 psi or greater.
 - Bar length for face of wall are based on f'm of 2000 psi or greater.
 - Refer to General Notes and details for masonry strength.

Components and Cladding Schedule a = 5.5'

Area(sf)	Zone 1,2,3 (+)(psf)	Zone 1 (-)(psf)	Zone 2,3 (-)(psf)	Zone 4,5 (+)(psf)	Zone 4 (-)(psf)	Zone 5 (-)(psf)
10	29.4	-32.1	-37.5	32.1	-34.8	-43.0
50	27.5	-28.3	-33.7	28.8	-31.5	-36.3
100	26.7	-26.7	-32.1	27.3	-30.0	-33.4

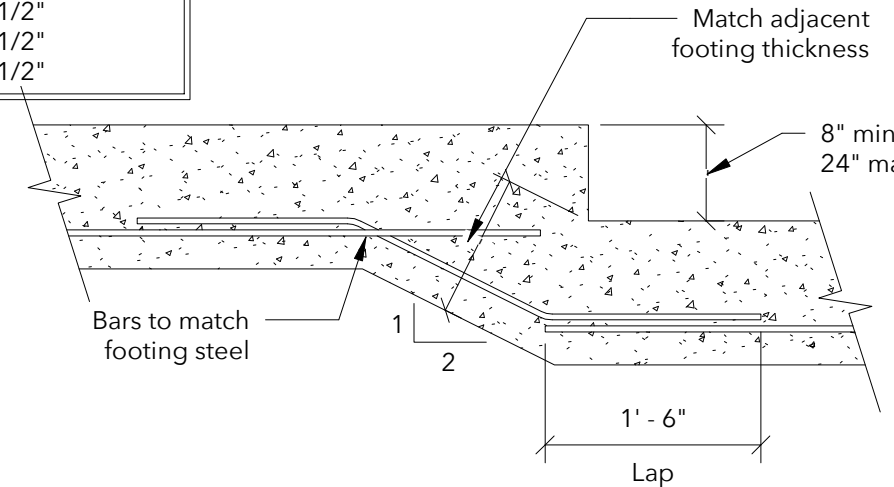
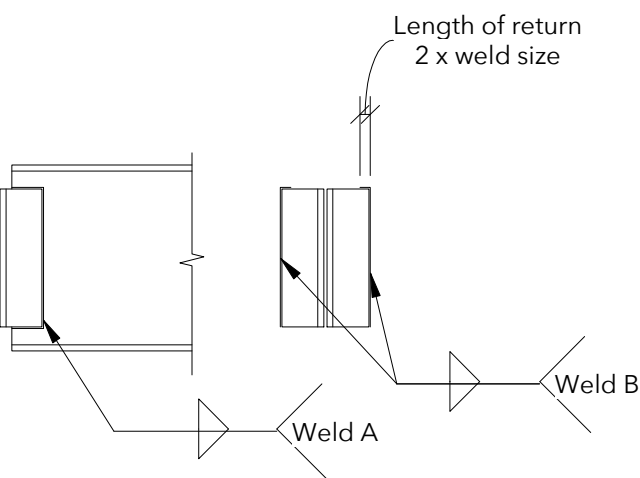
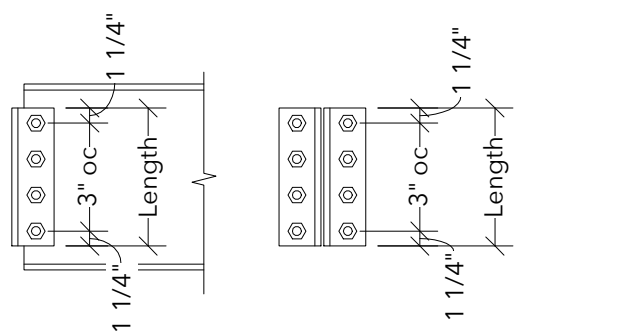
Reinforcing Steel Lap Splice Lengths

Bar Size	Column Splices	Bm, Ftg & Wall Splices	
		Top Bars	Other Bars
# 3	12"	19"	15"
# 4	15"	25"	19"
# 5	19"	31"	24"
# 6	23"	37"	29"
# 7	26"	54"	42"
# 8	30"	62"	48"
# 9	34"	70"	54"
# 10	38"	79"	61"
# 11	42"	87"	67"

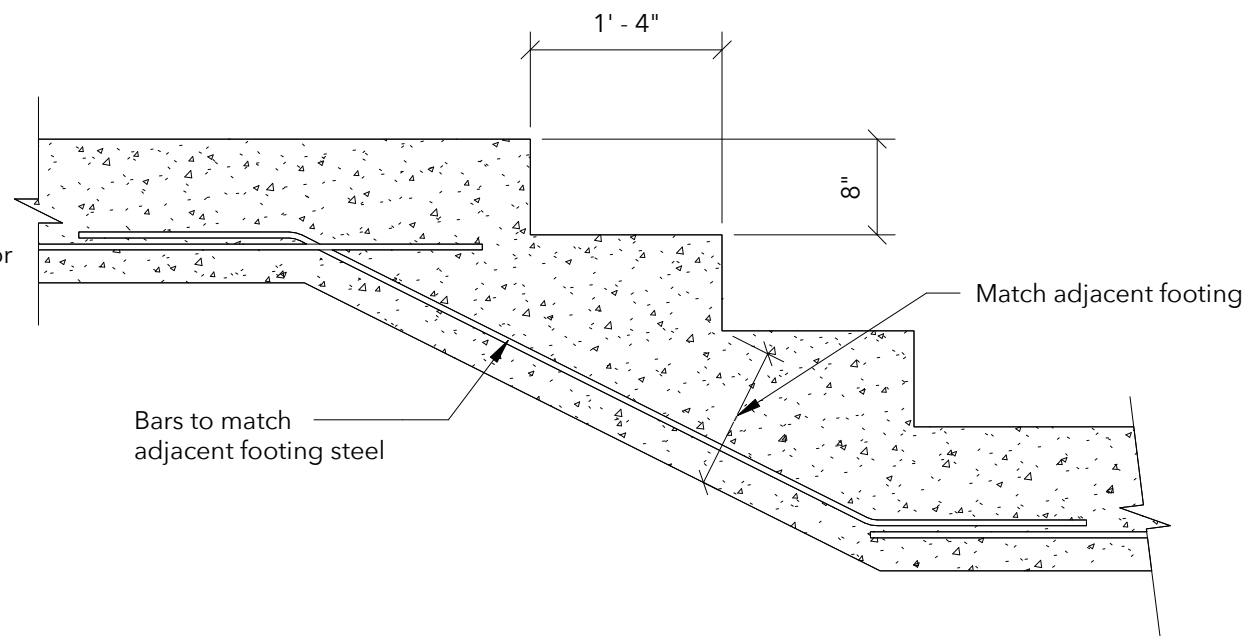
- Notes:
- Top bars are any horizontal reinforcing steel that has another layer of steel more than 2" below the bars or reinforcing steel that has more than 12" of concrete below the bars.
 - All horizontal reinforcing bars in walls may be detailed as "Other Bars".
 - All corner bars may be detailed as "Other Bars".

Frame Connection Schedule

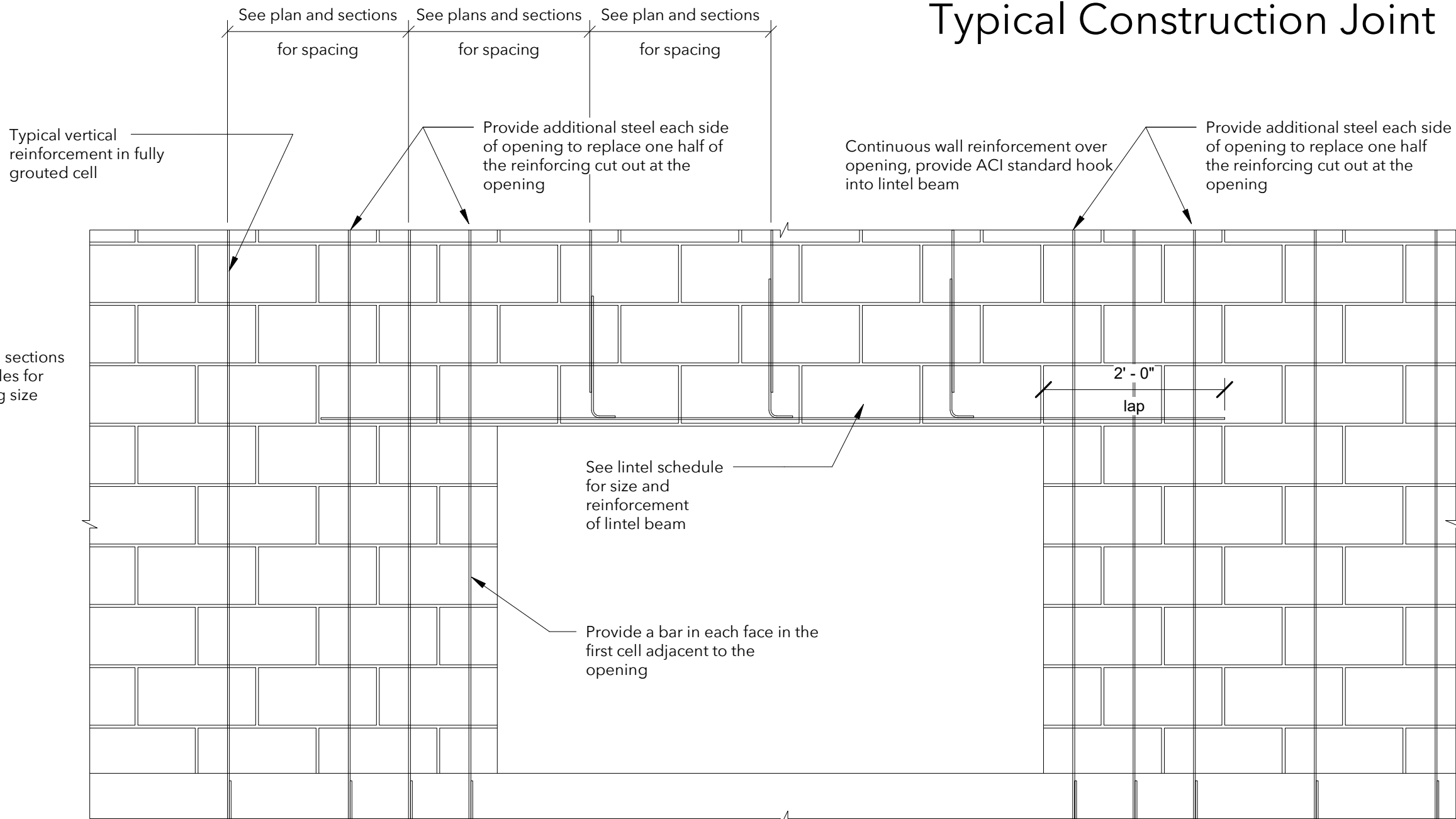
Length	# of bolts	End reaction	Min angle thickness
5-1/2"	2	37.1k	5/16"
8-1/2"	3	55.3k	5/16"
11-1/2"	4	72.7k	5/16"
14-1/2"	5	88.7k	5/16"
17-1/2"	6	104.0k	5/16"
Length	Size of Weld A	End reaction	Min angle thickness
5-1/2"	3/16"	37.1k	5/16"
8-1/2"	3/16"	55.3k	5/16"
11-1/2"	3/16"	72.7k	5/16"
14-1/2"	3/16"	88.7k	5/16"
17-1/2"	3/16"	104.0k	5/16"
Length	Size of Weld B	End reaction	Min angle thickness
5-1/2"	1/4"	14.6k	5/16"
8-1/2"	1/4"	32.2k	5/16"
11-1/2"	1/4"	53.4k	5/16"
14-1/2"	1/4"	76.6k	5/16"
17-1/2"	1/4"	101.0k	5/16"
Depth of beam	Min length of angle	Depth of beam	Min Length of angle
W12	5-1/2"	W24	11-1/2"
W14	5-1/2"	W27	11-1/2"
W16	5-1/2"	W30	14-1/2"
W18	8-1/2"	W33	14-1/2"
W21	8-1/2"	W36	17-1/2"



Single Footing Step

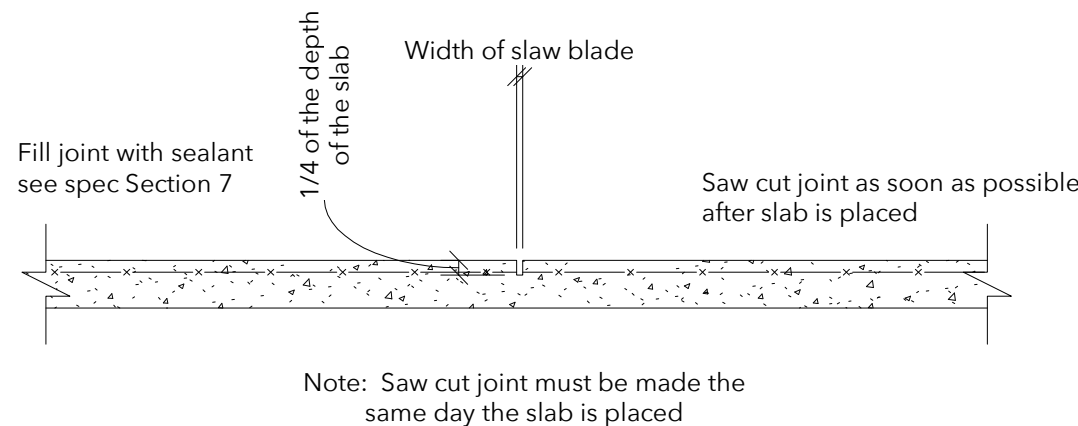


Multiple Footing Step

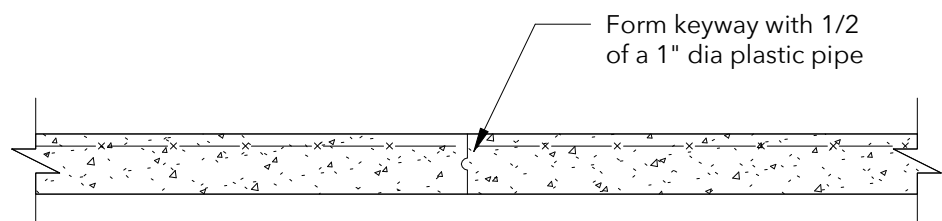


CMU Lintel Elevation

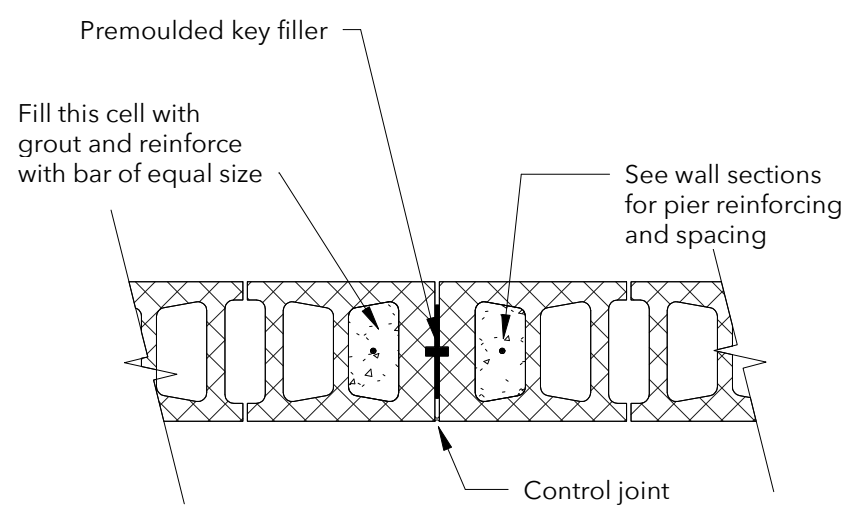
Typical Anchor Bolt Detail Typical Base Plate



Typical Control Joint

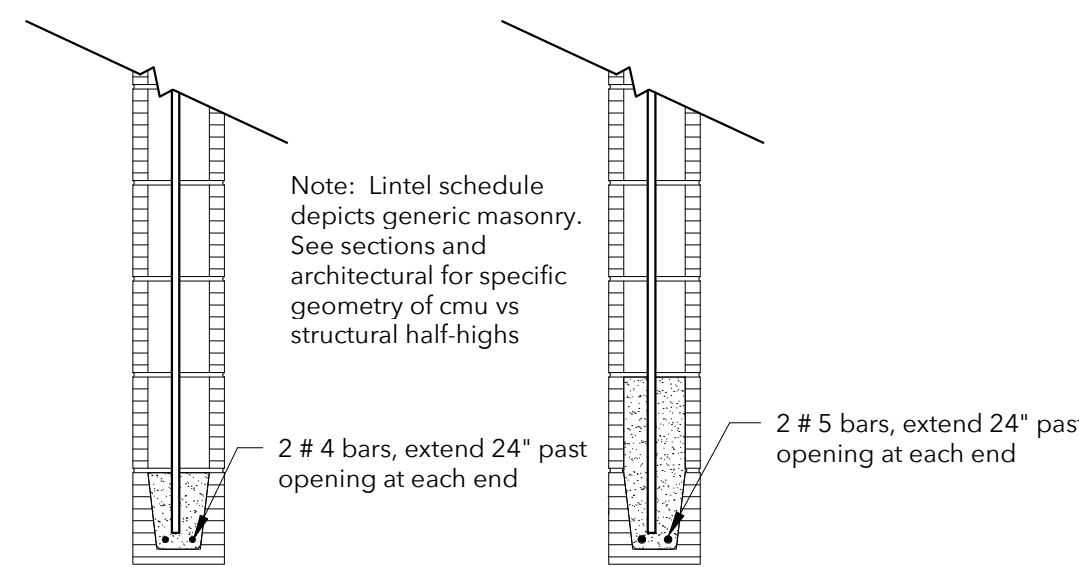


Typical Construction Joint



- Note:
- See architectural plan for spacing. If spacing is not shown place joints at 3 times the wall height but not greater than 20'-0" o.c., and at 4'-0" from corners
 - Extend all horizontal reinforcing including bond beam steel thru control joints.

Typical MasonryWall Control Joint

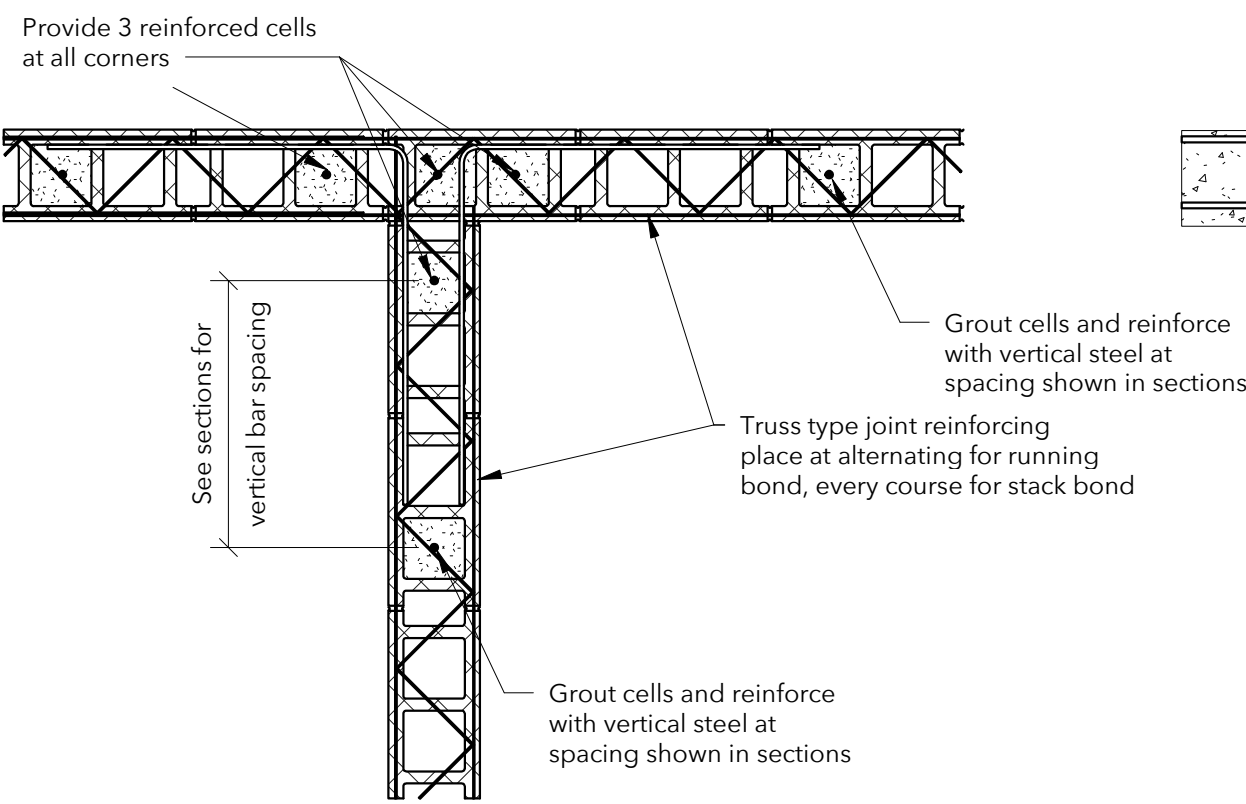


Less than 4'-0" Less than 8'-0

CMU Lintel Schedule

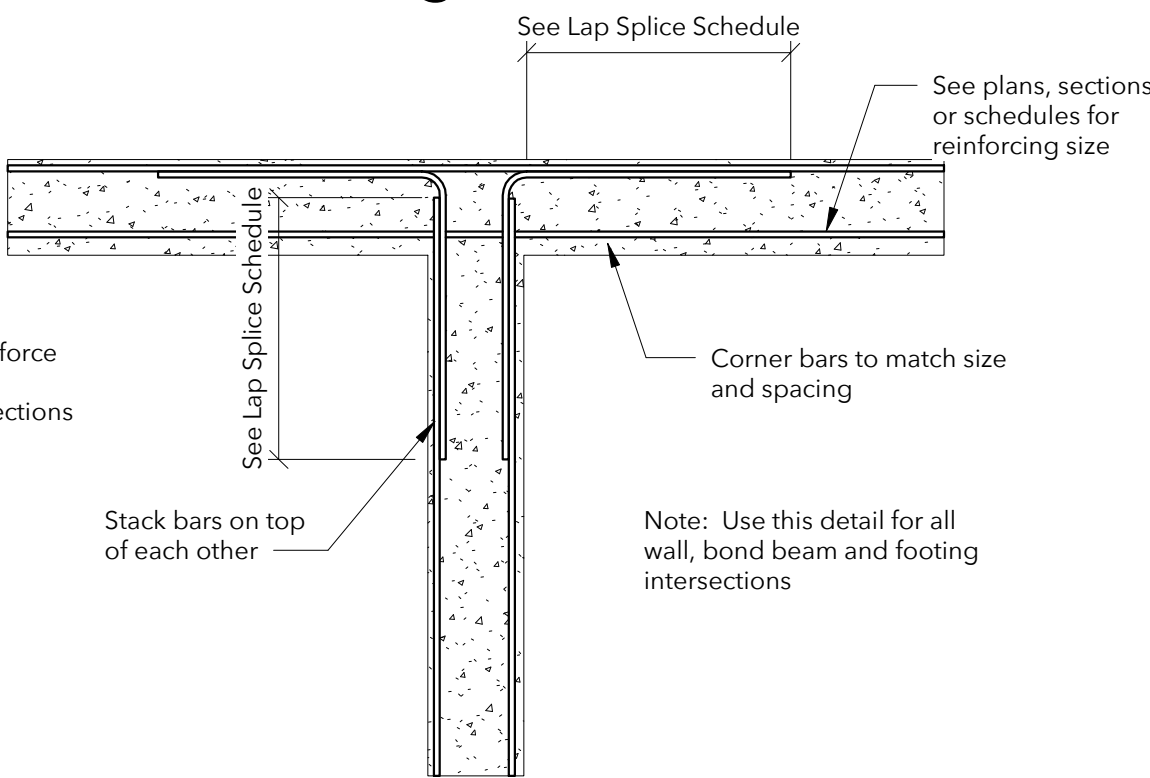
See sections on S5.1 for overhead door lintel

Typical Joint Reinforcing at Corner



Typical Joint Reinforcing at Intersection

Typical Beam, Wall or Footing Reinforcing at Corners



Typical Beam, Wall or Footing Reinforcing at Intersections

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Typical Details

Project number	24005
Date	5/15/2024
Drawn by	jcj
Checked by	jd

S0.2

Scale 3/4" = 1'-0"

Express Oil Change & Tire Engineers

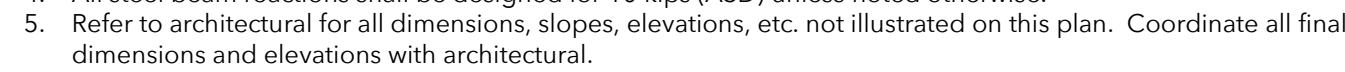
Sevierville, Tennessee

[illegible]

Foundation Plan

S1.1

Scale	As indicated
-------	--------------



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

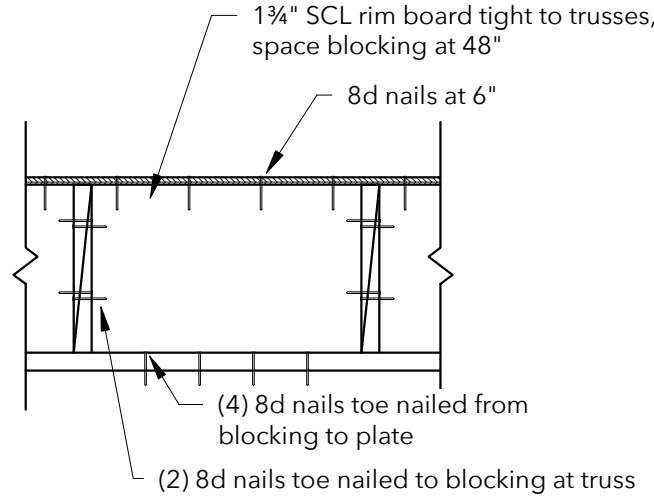
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

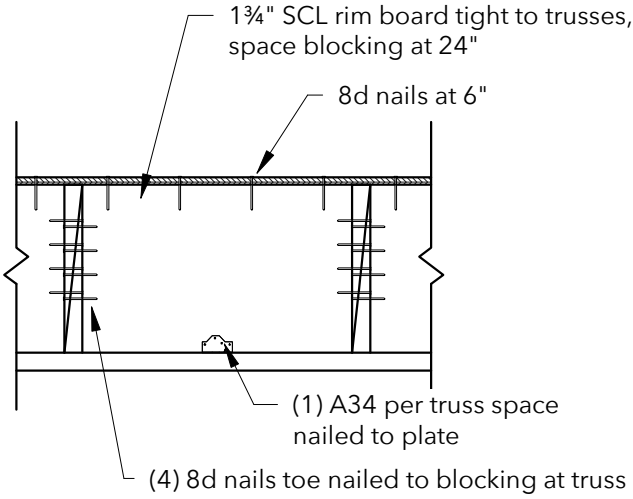
Roof Framing Plan

Project number	24005
Date	5/15/2024
Drawn by	jcj
Checked by	jd
S3.1	
Scale	As indicated

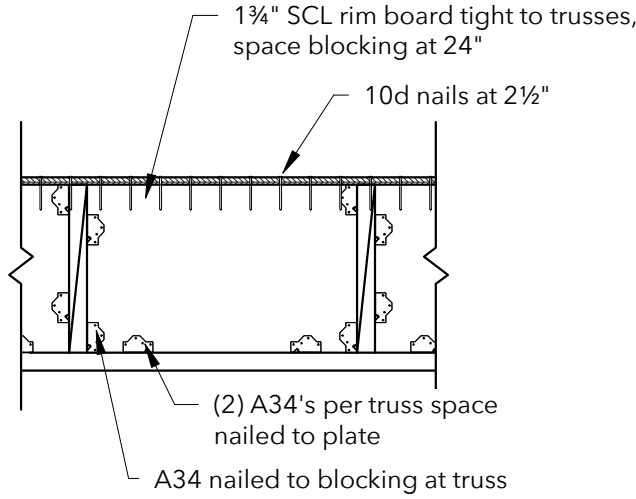
See roof plan for location/extends of blocking conditions



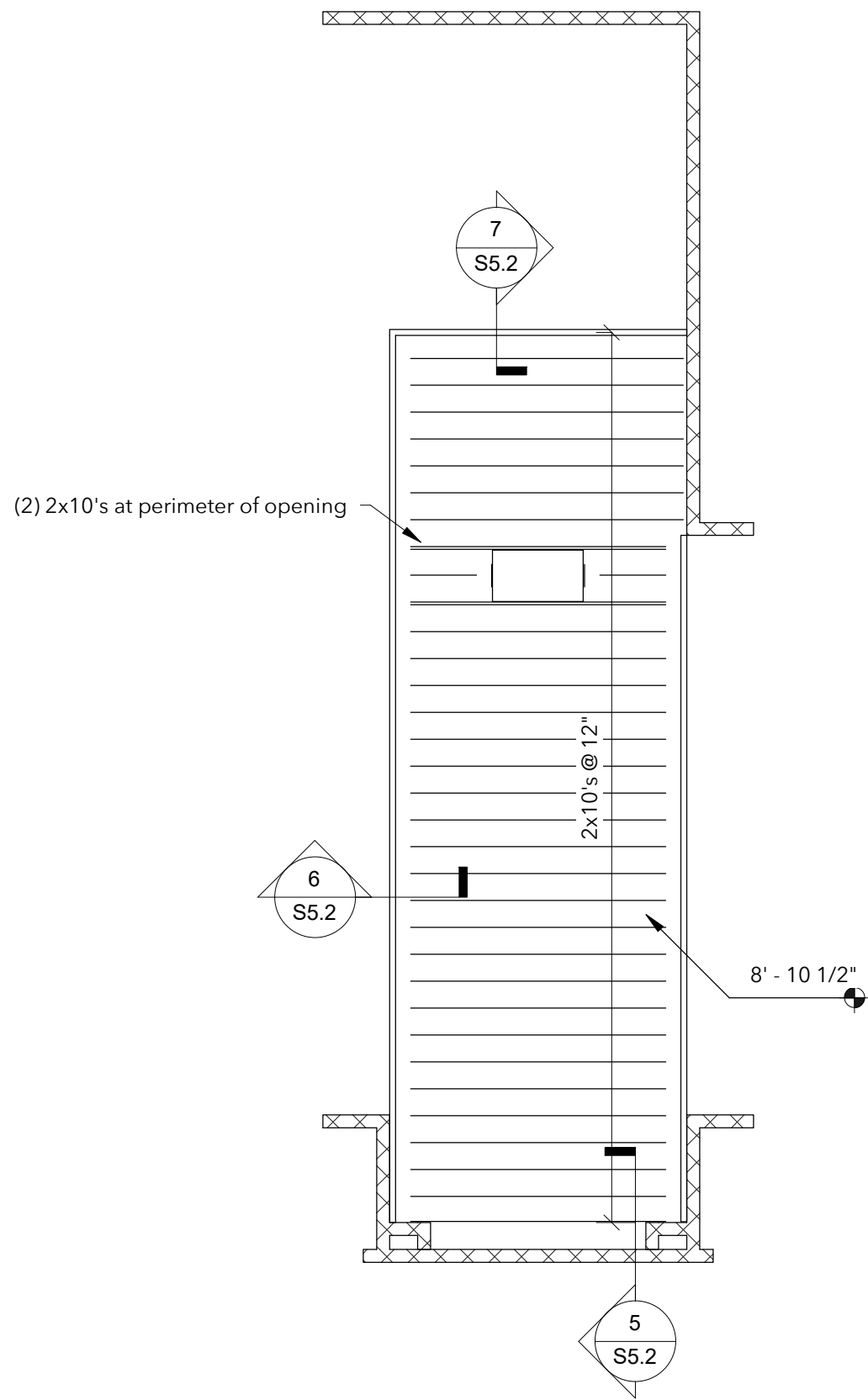
Condition 1
Typical applies
everywhere except where
condition 2 and 3 are
noted in plan



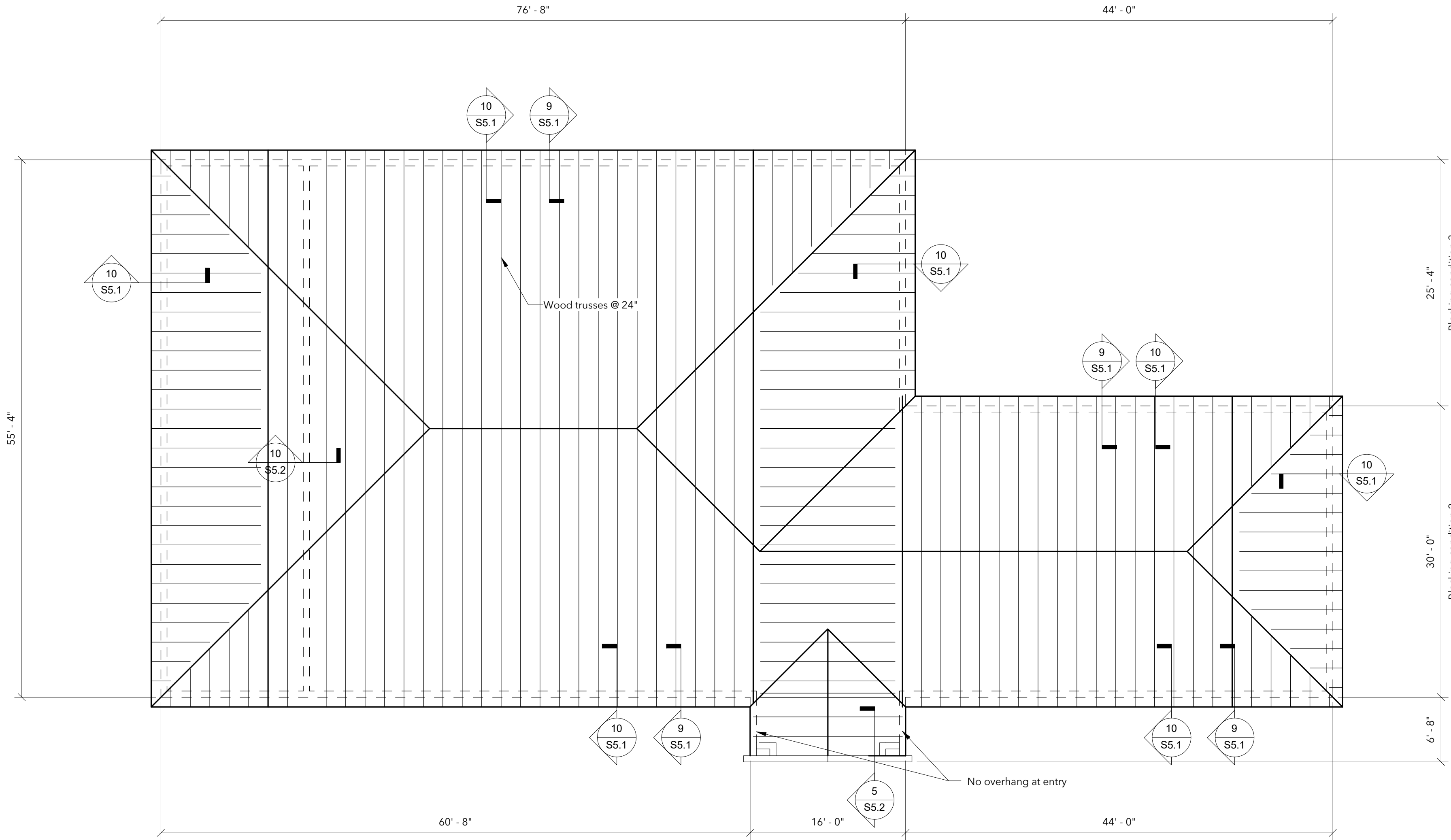
Condition 2



Condition 3



EQUIPMENT PLATFORM FRAMING PLAN
1/8" = 1'-0"



ROOF FRAMING PLAN

1/8" = 1'-0"

Sheet Notes:

- See Sheet No S0.x for typical details and general notes.
- Reference all elevations to finish floor elevation (+) 0'-0"
- Truss bearing elevation = (+) 15'-5 1/2"
- Roof slope = 8/12", unless noted
- Roof construction 5/8" plywood deck with H-clips. Attach with 8d nails @ 6" o.c..
- Refer to architectural drawings for all dimensions, slopes, elevations, etc... not illustrated on this plan. Coordinate all final dimensions and elevations with architectural.
- Truss loading: Top Chord Dead Load = 10 psf, Bottom Chord Dead Load = 10 psf, use Total dead load = 10psf for wind load calculations.
- Truss requirements: (note that all of these requirements must be included in the truss submittal prior to receiving approval)
 - Furnish design calculations sealed by a Professional Engineer licensed in the state of that the project is located for all truss members.
 - Truss manufacturer shall specify and provide all truss to truss and truss bearing connections, and not contain mention of "by others" in relation to design.
 - Truss manufacturer shall be responsible for providing and illustrating all temporary and permanent bracing required.

FINAL

No.	Description	Date

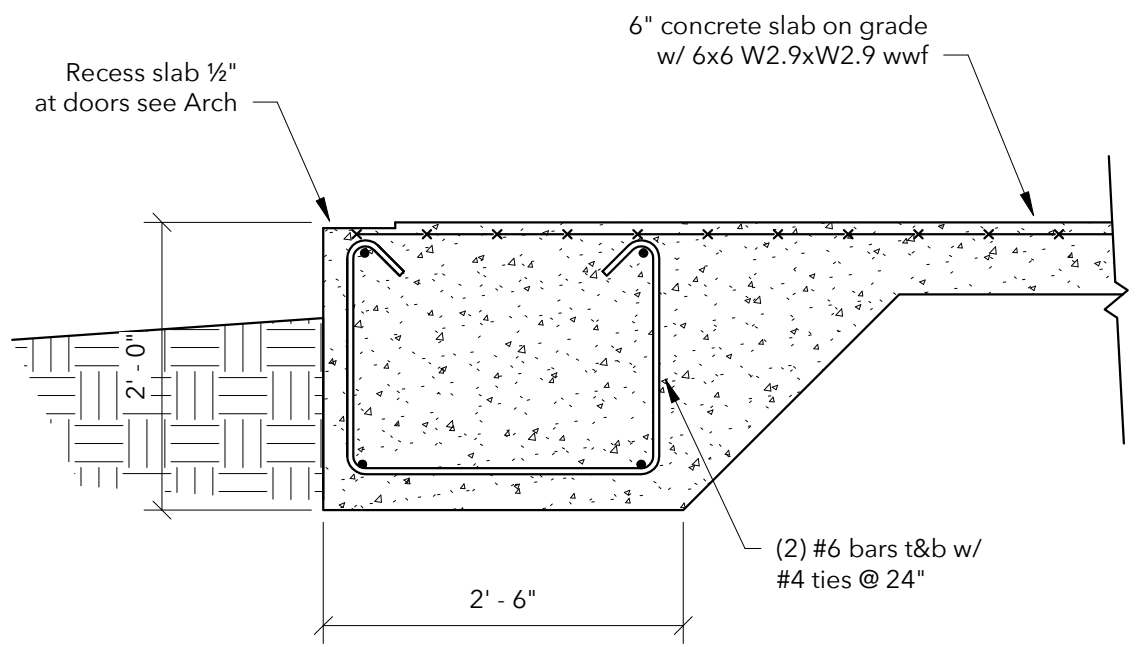
© 2024 Aho Architects, LLC.
All Rights Reserved.

Sections and
Details

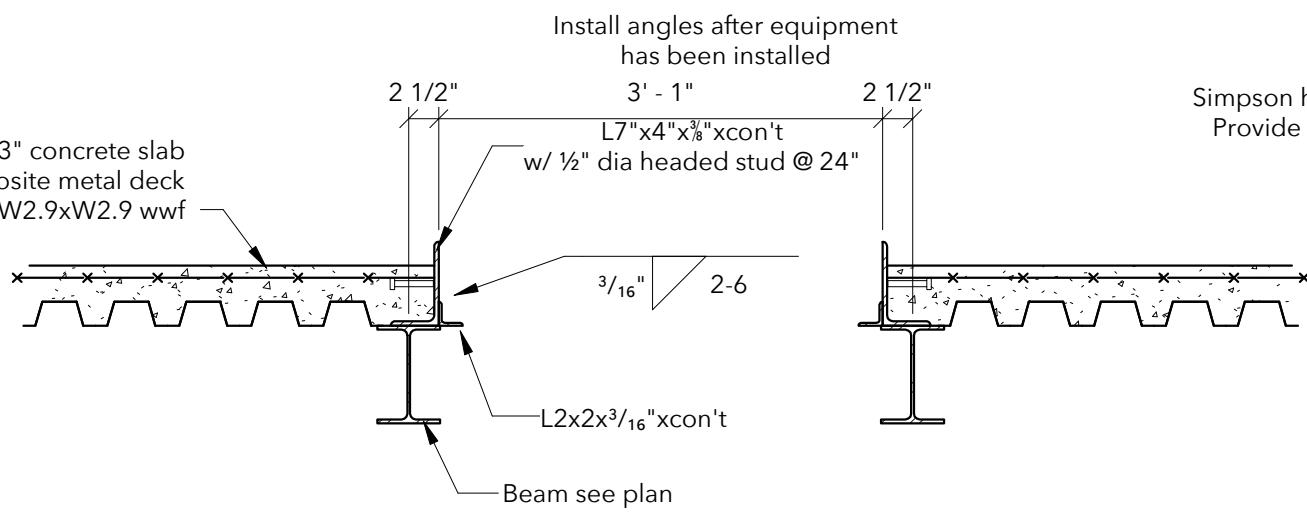
Project number	24005
Date	5/15/2024
Drawn by	jcj
Checked by	jd

S5.1

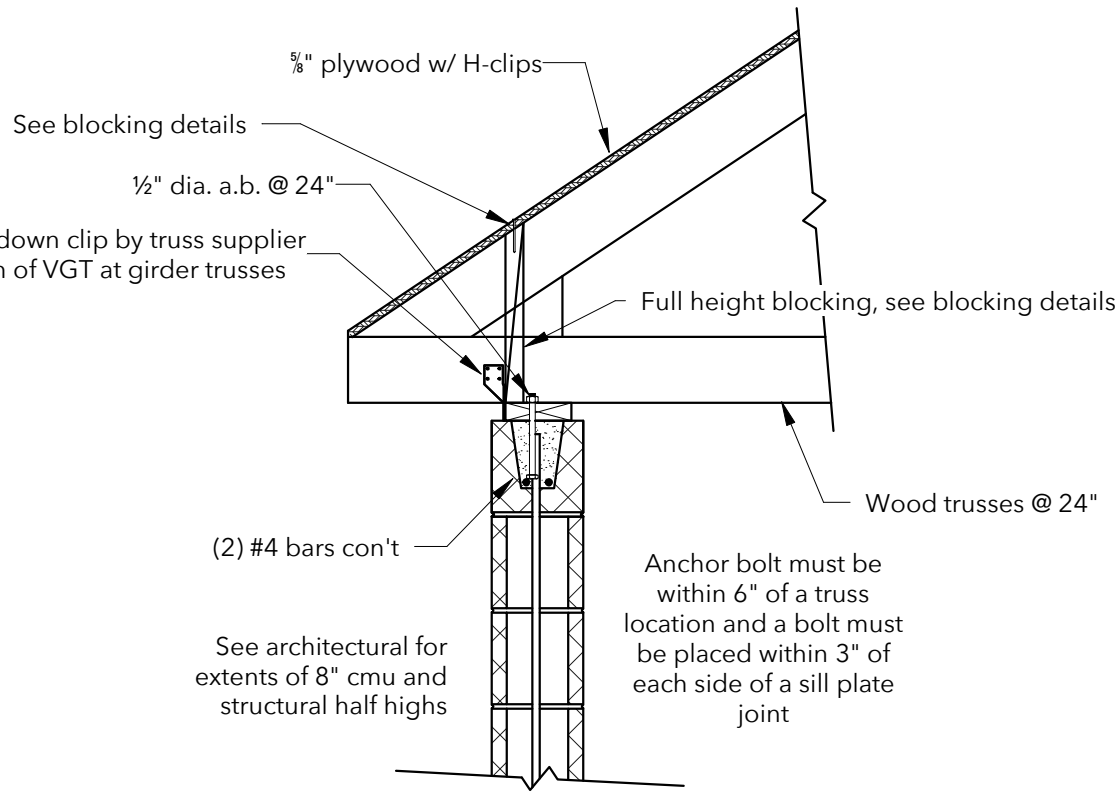
Scale 3/4" = 1'-0"



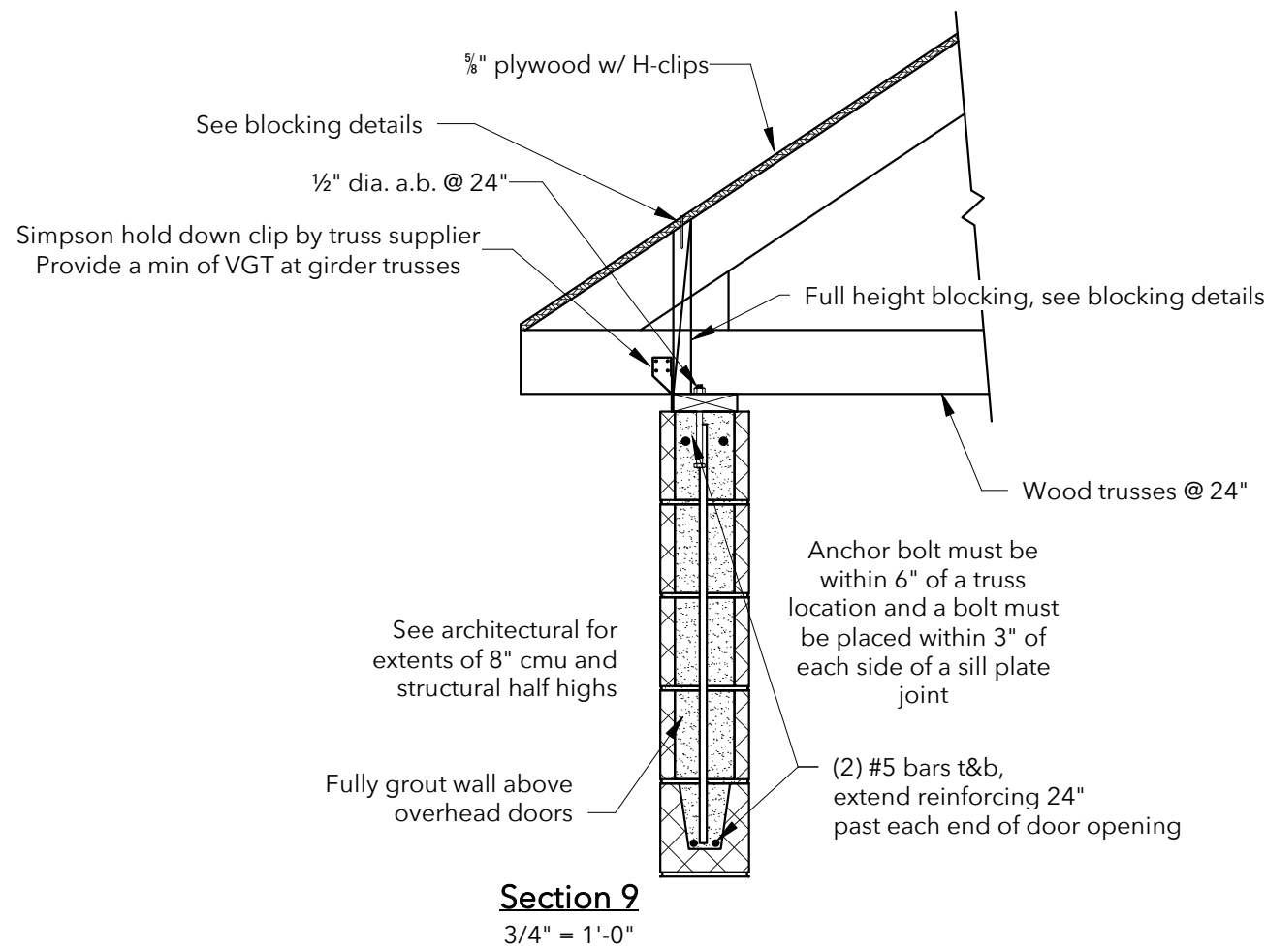
Section 12
3/4" = 1'-0"



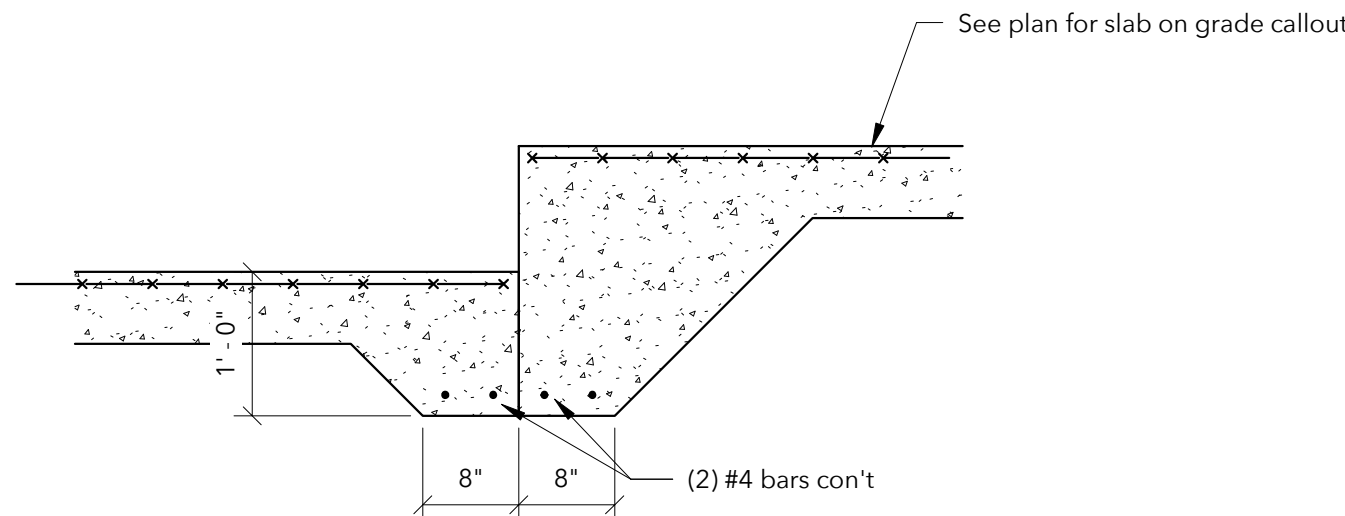
Section 11
3/4" = 1'-0"



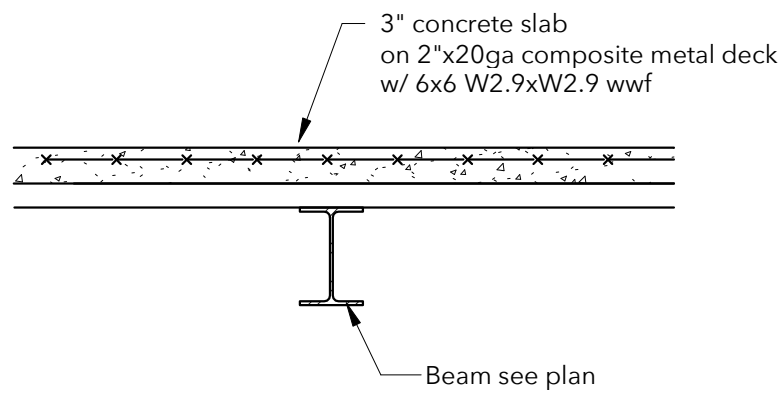
Section 10
3/4" = 1'-0"



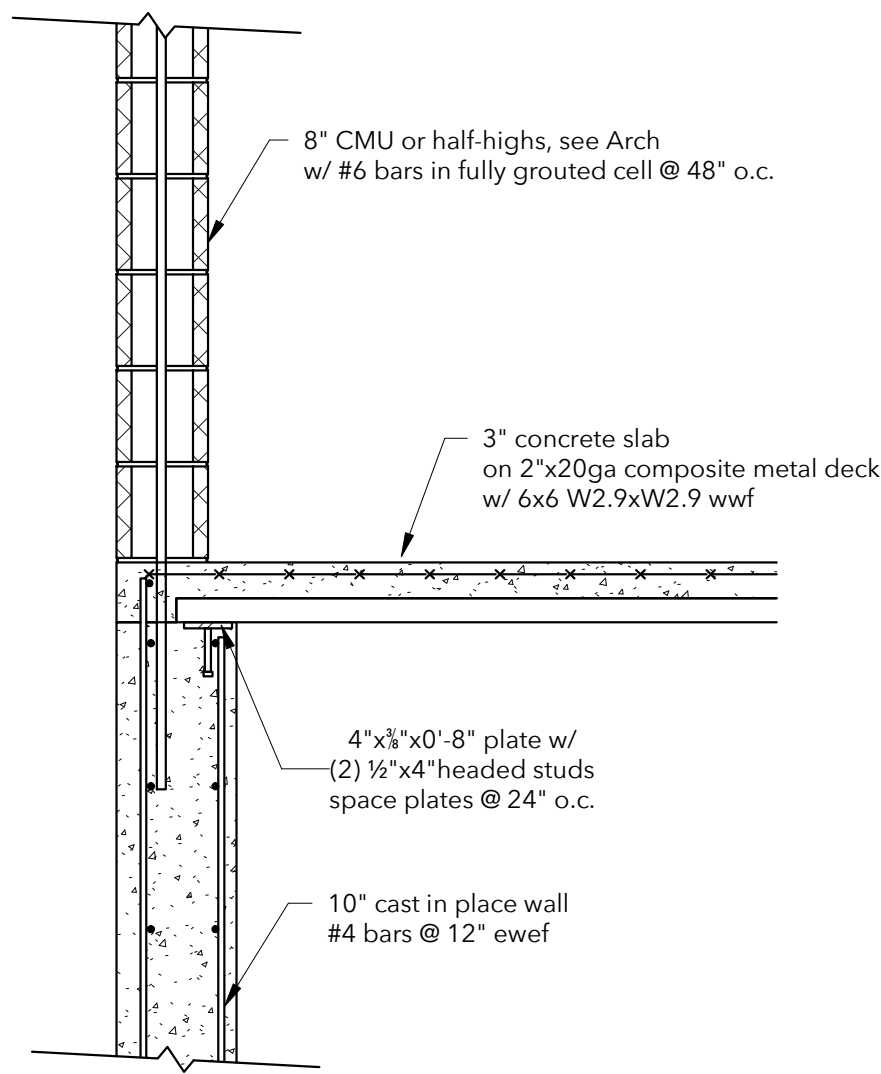
Section 9
3/4" = 1'-0"



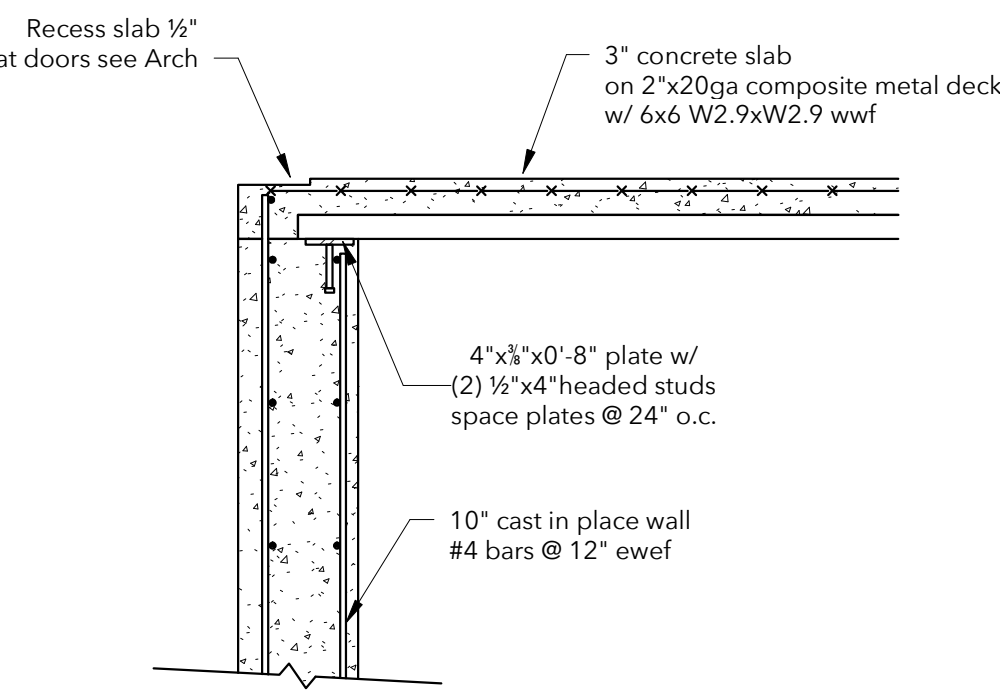
Section 8
3/4" = 1'-0"



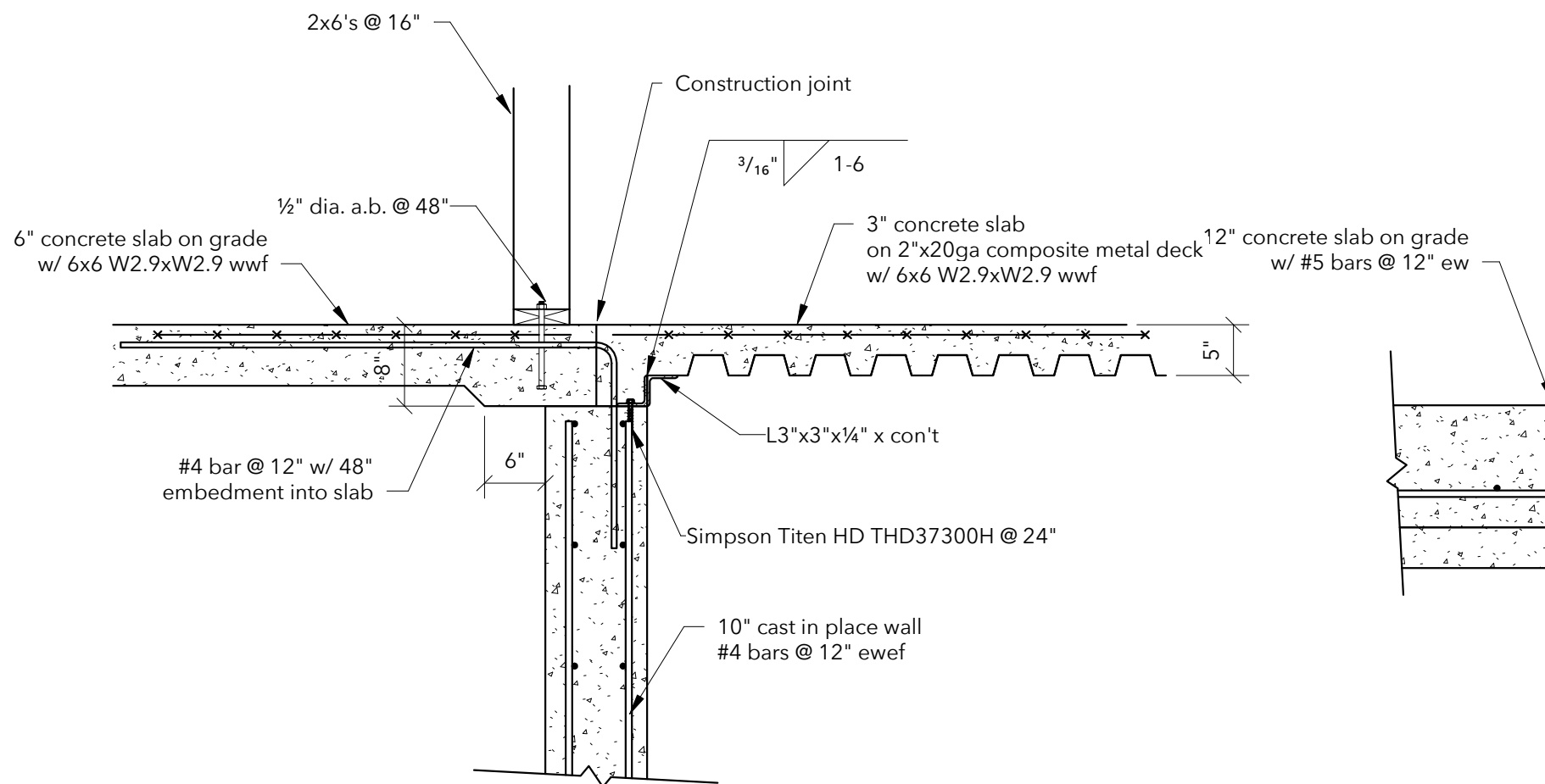
Section 7
3/4" = 1'-0"



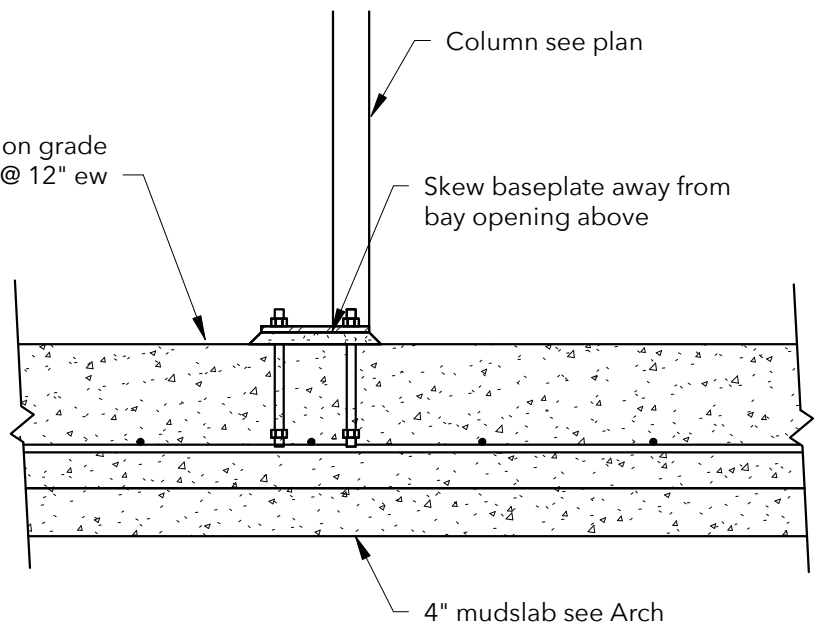
Section 6
3/4" = 1'-0"



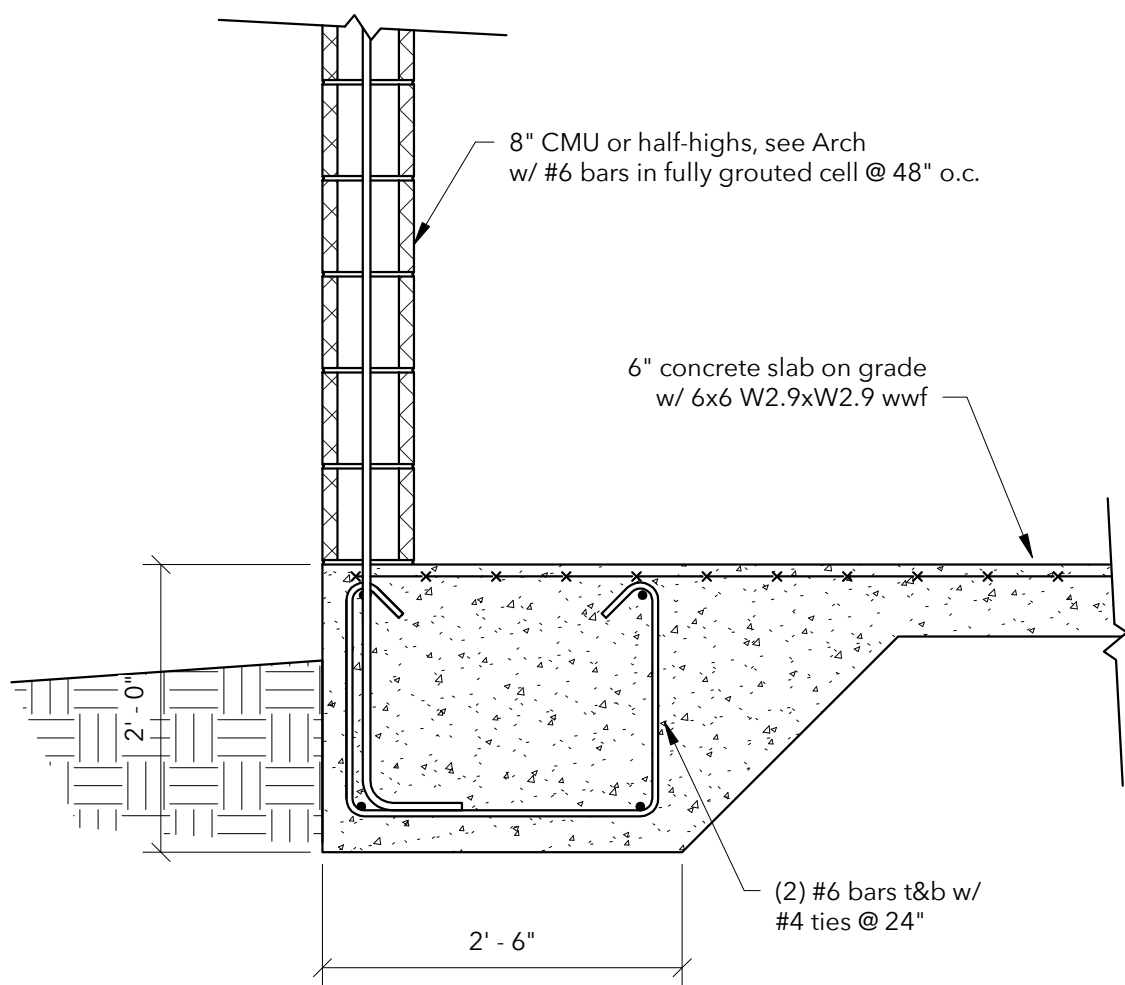
Section 5
3/4" = 1'-0"



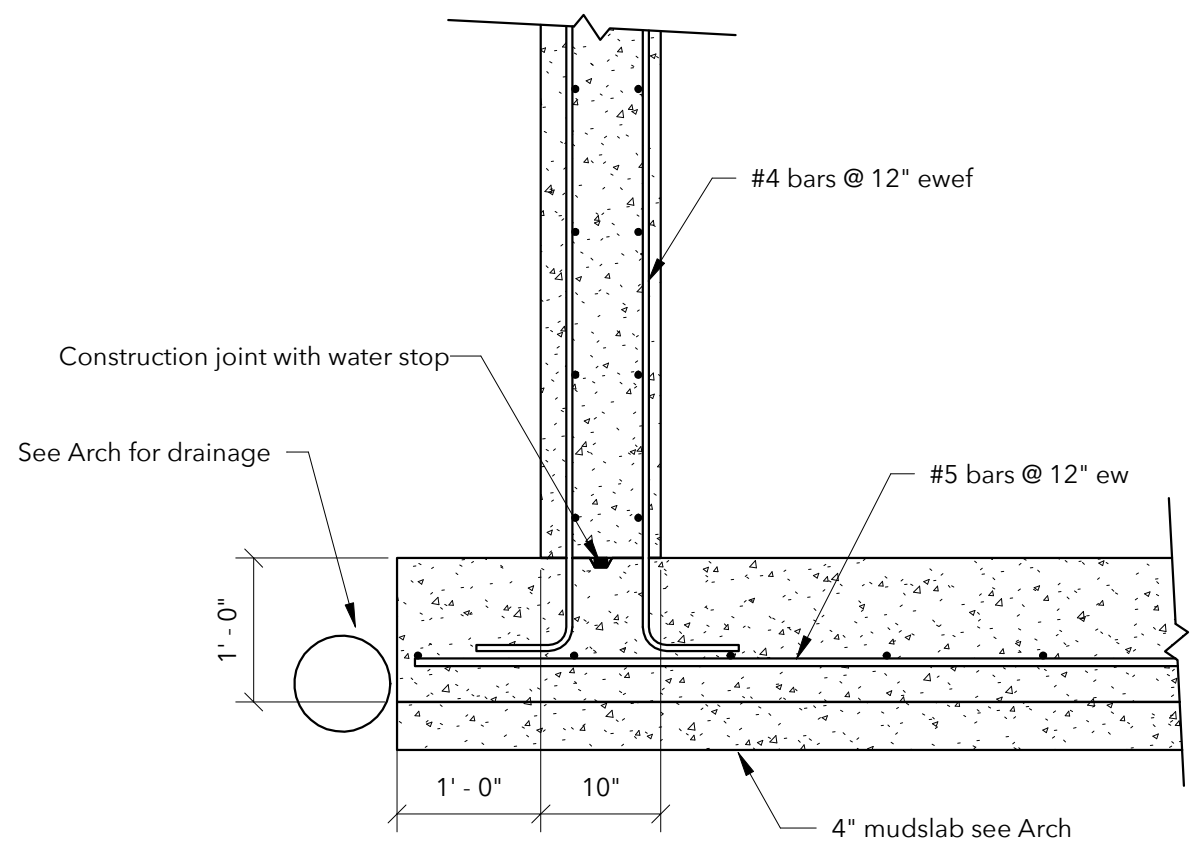
Section 4
3/4" = 1'-0"



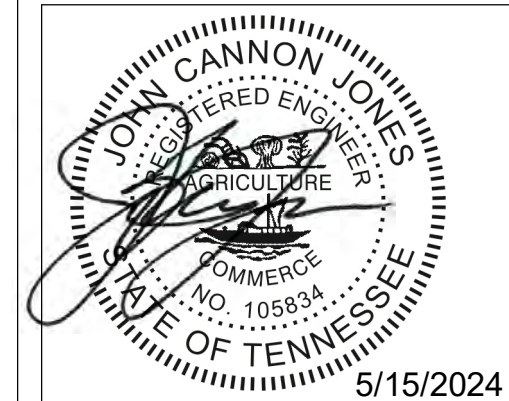
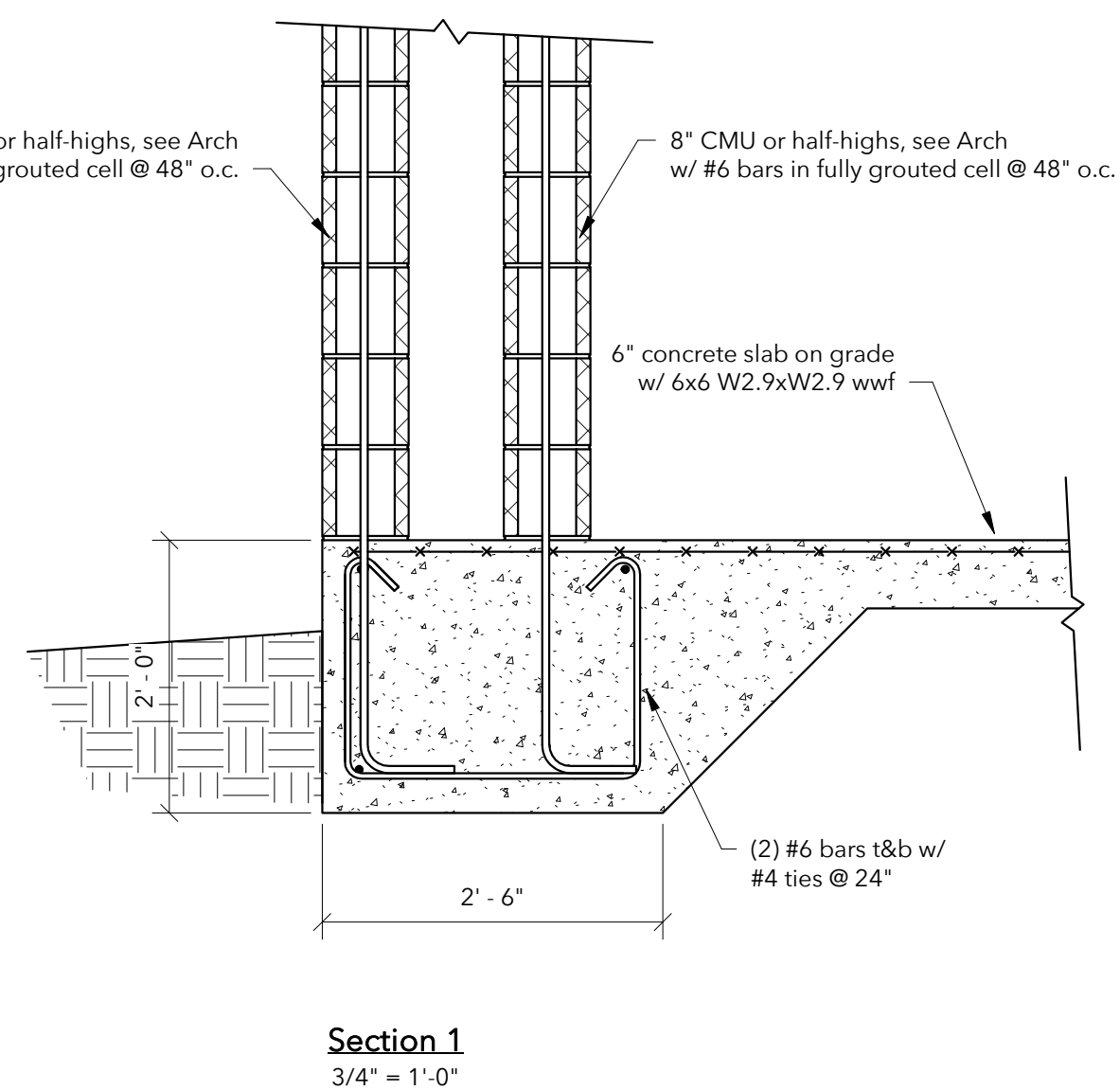
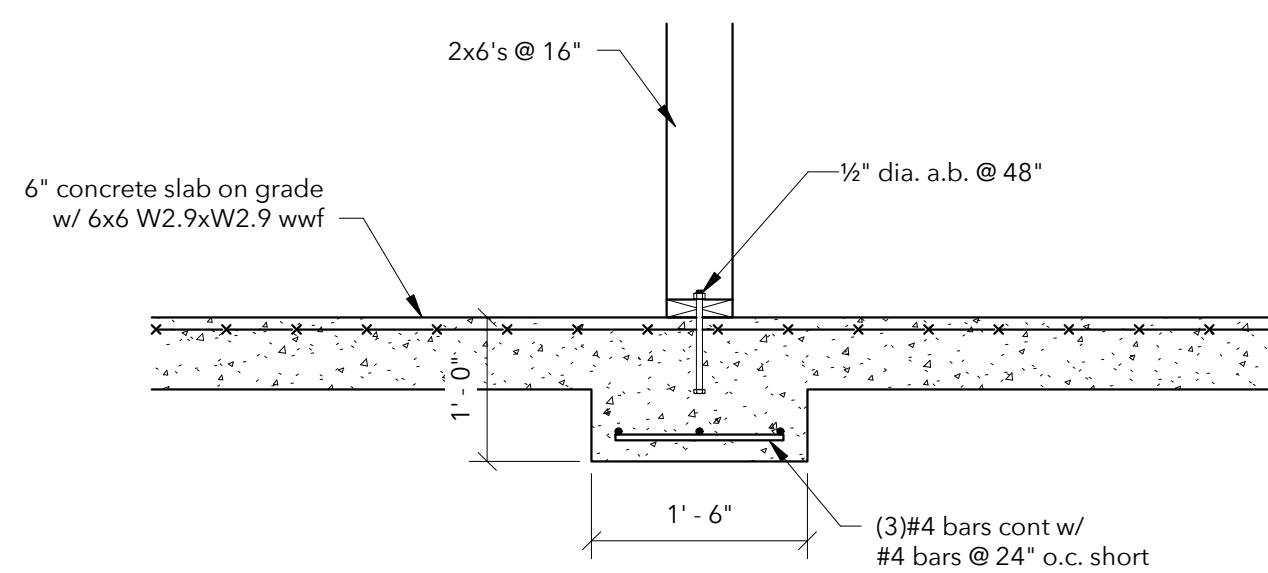
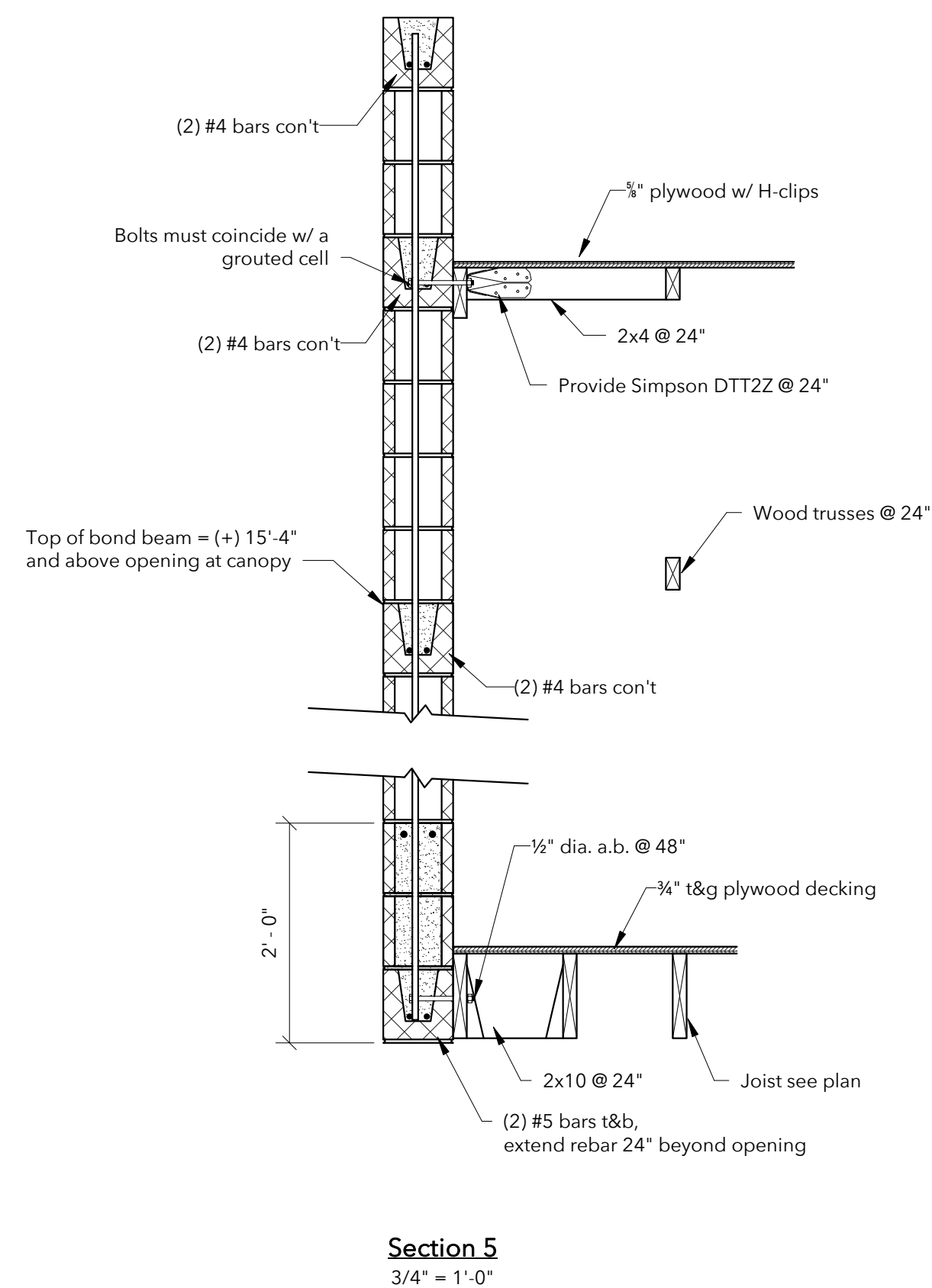
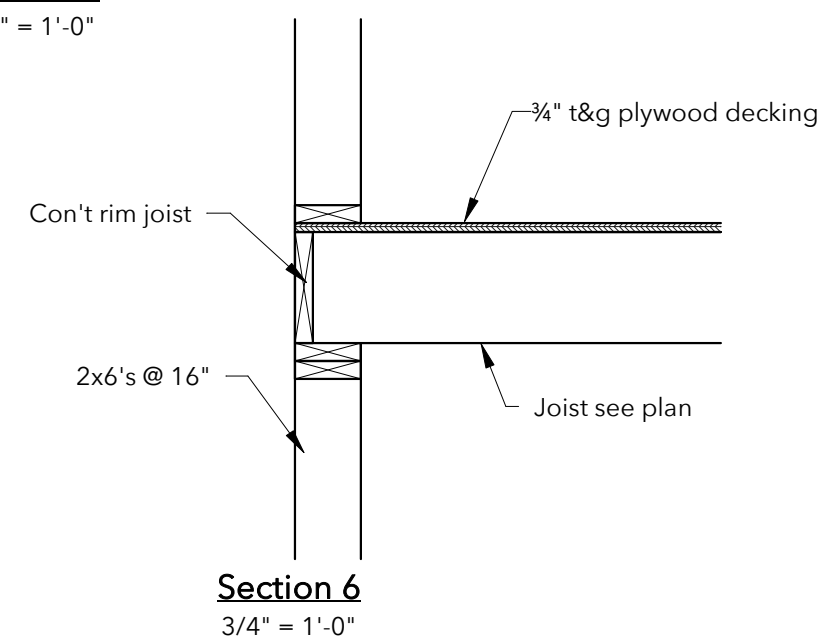
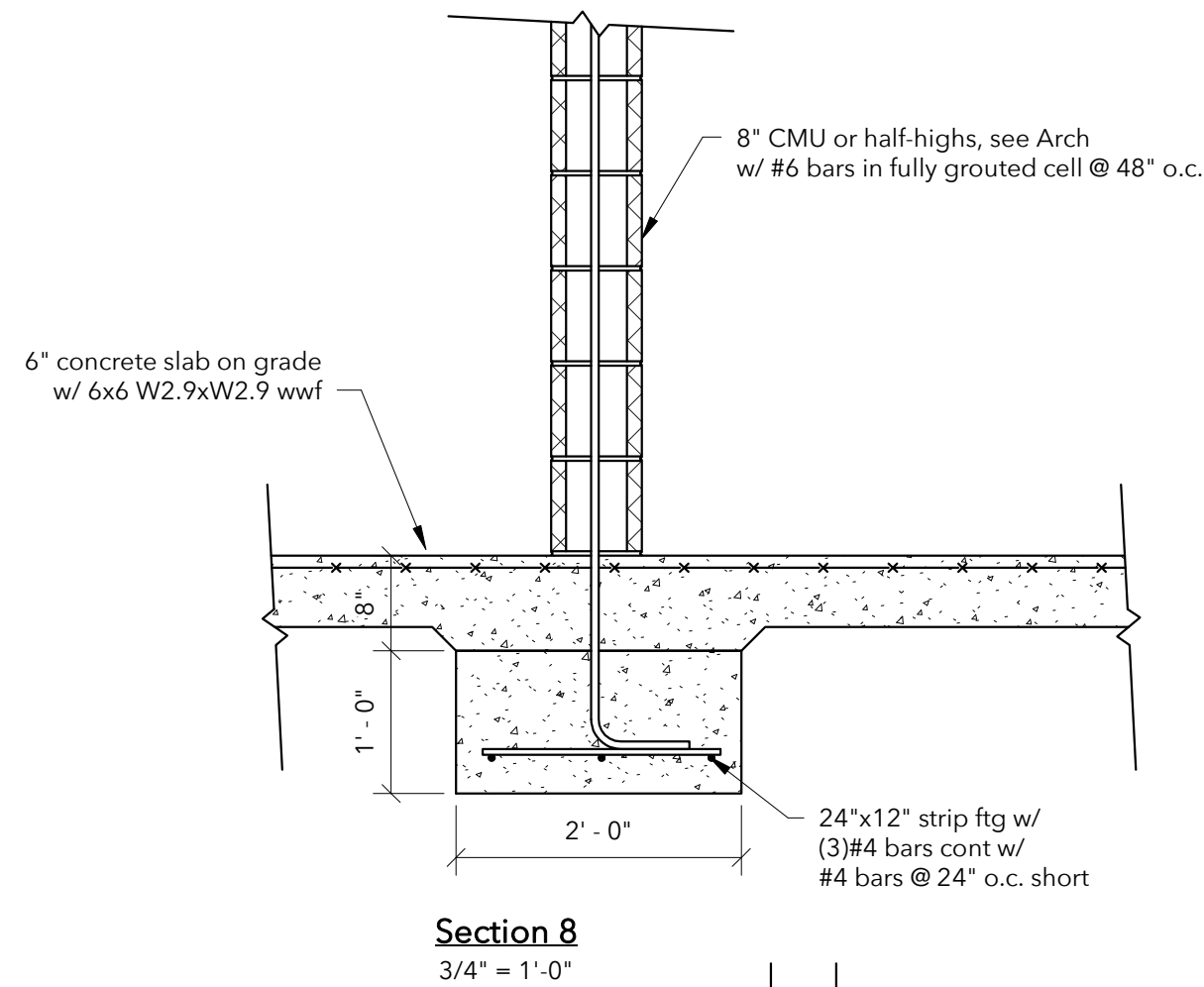
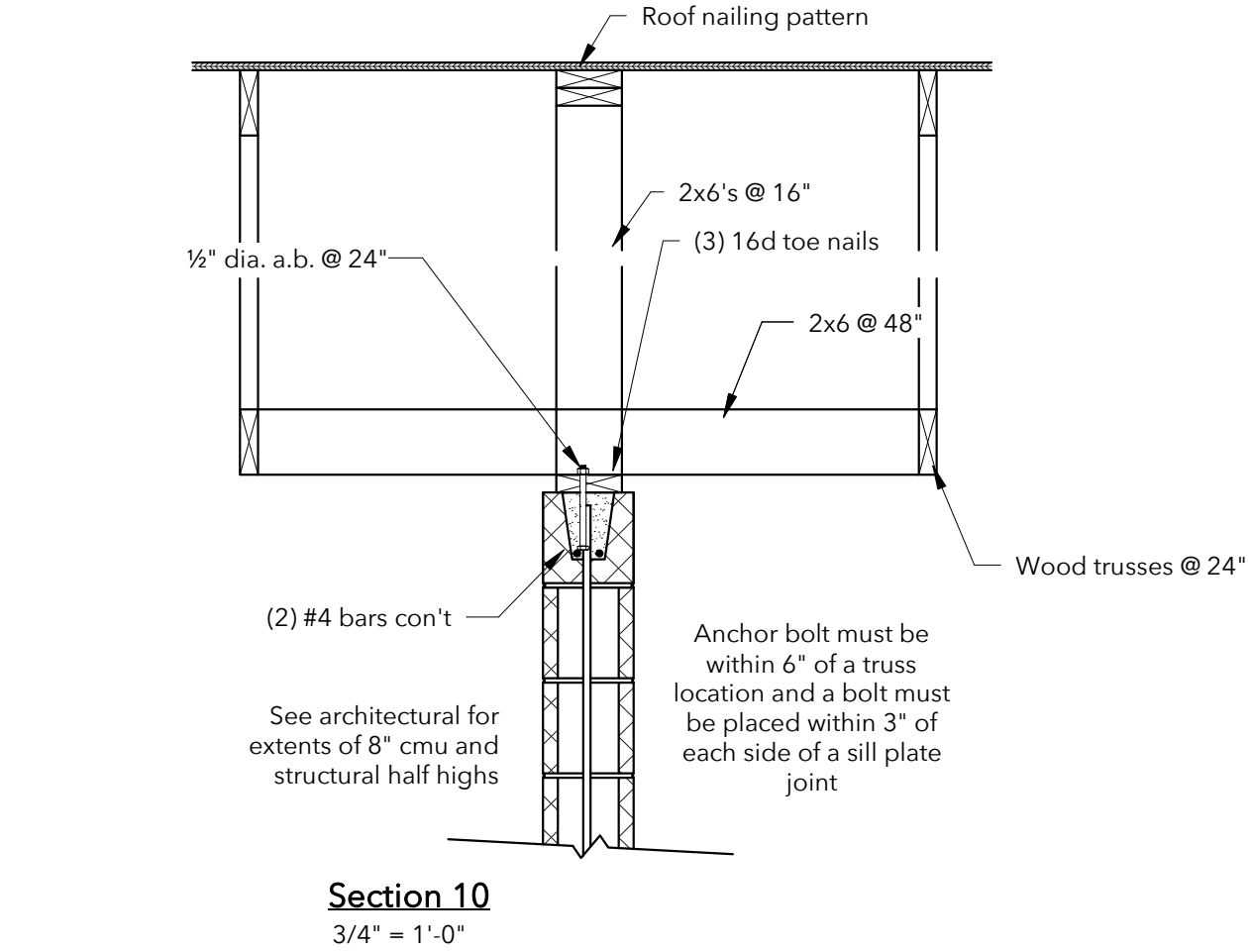
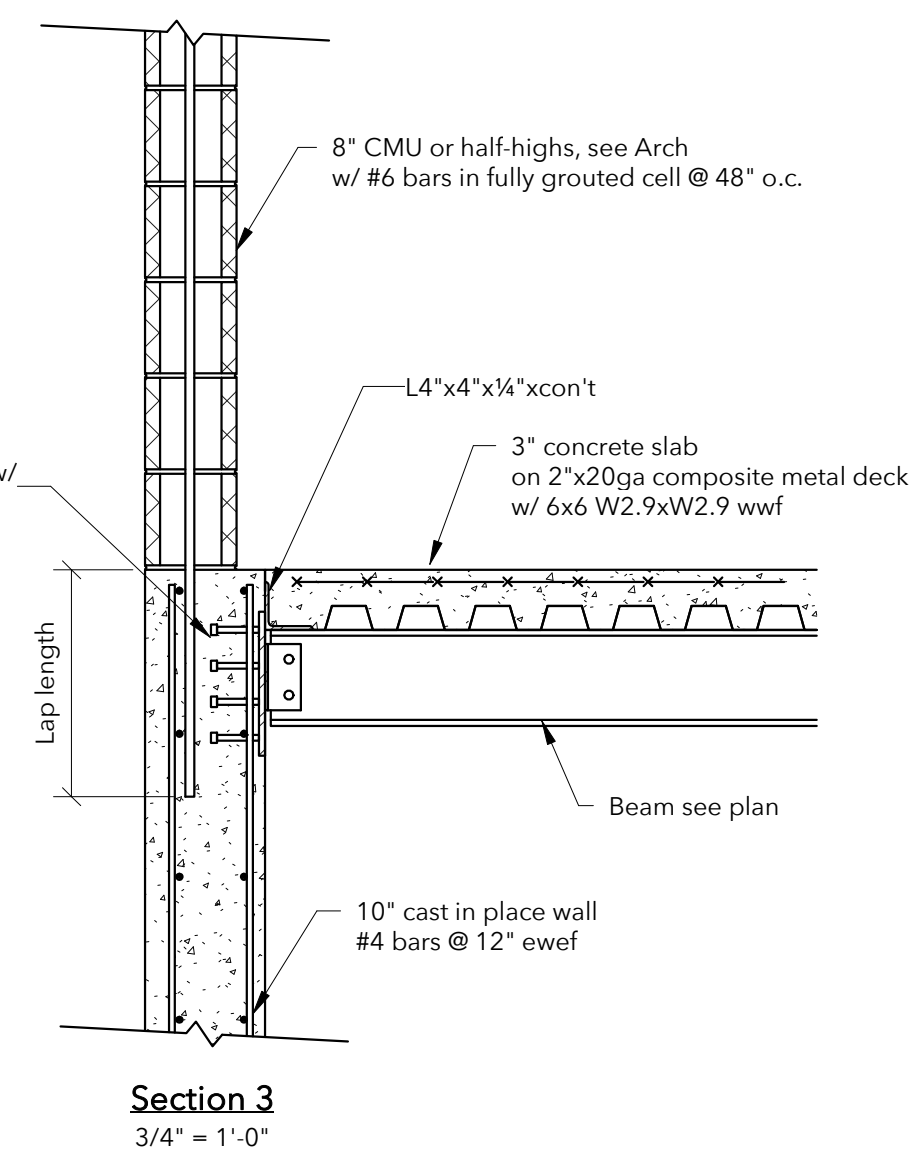
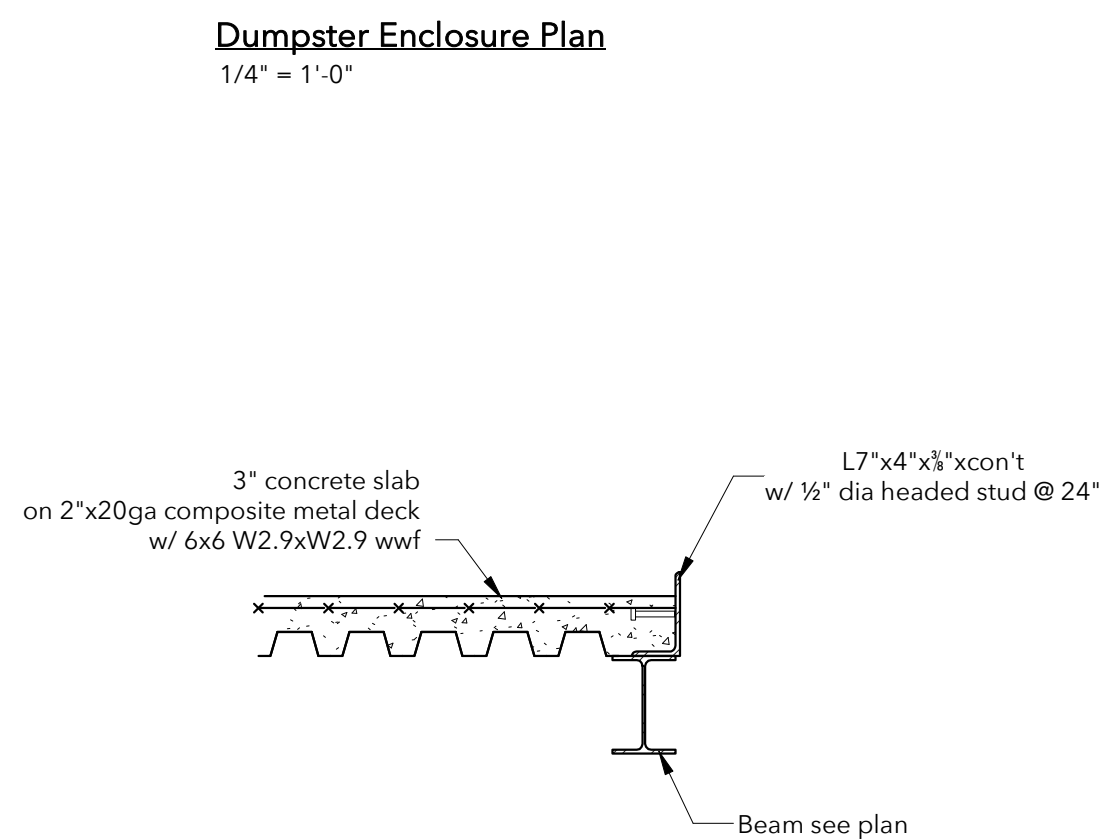
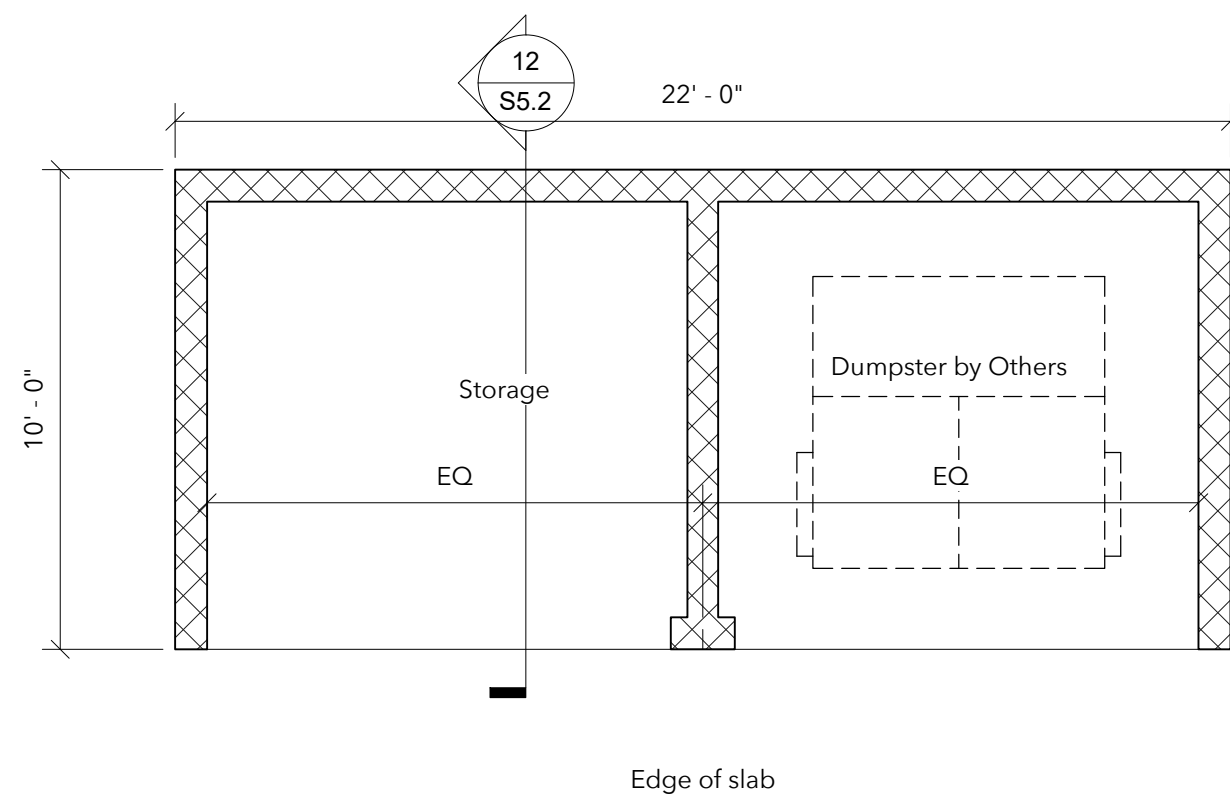
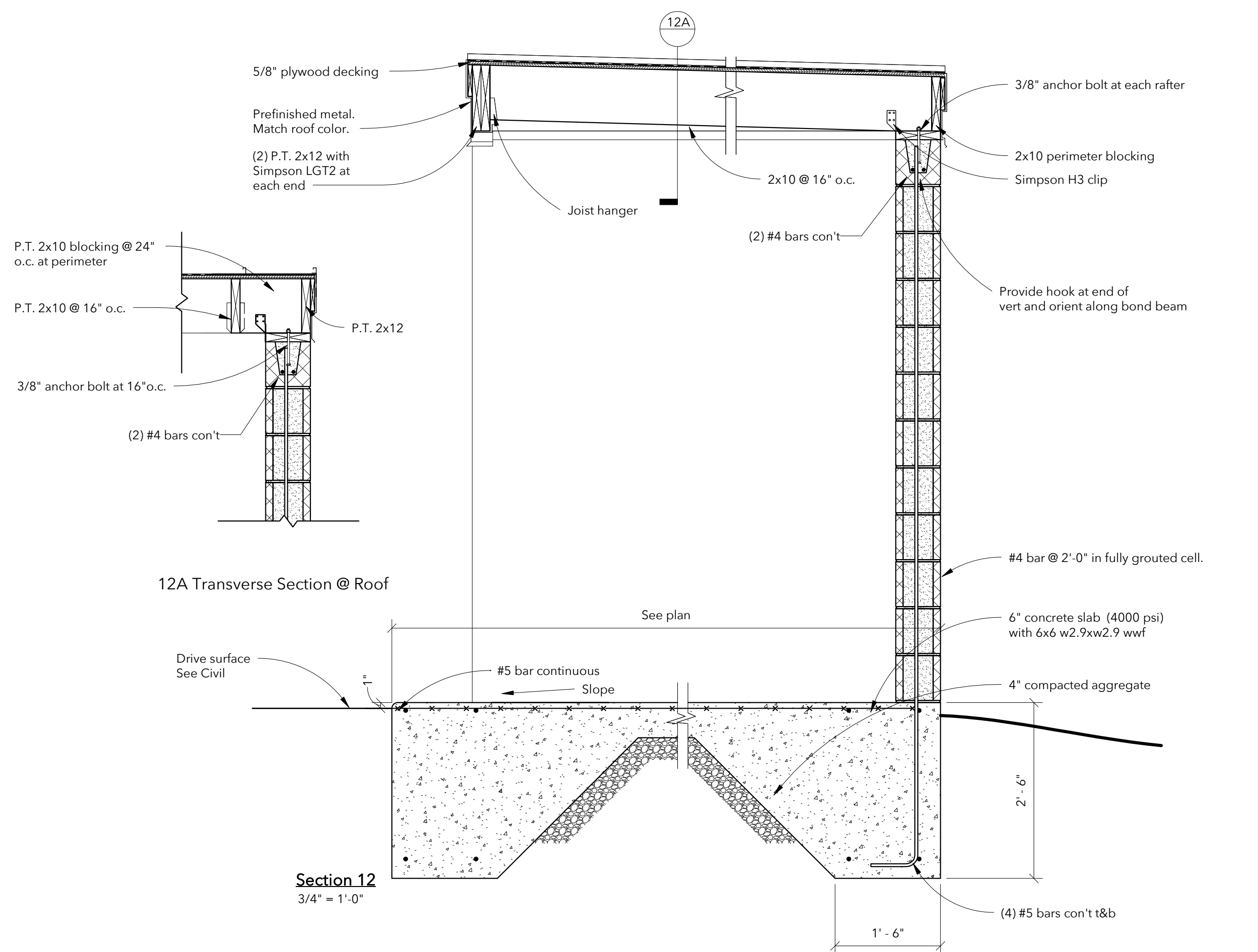
Section 3
3/4" = 1'-0"



Section 2
3/4" = 1'-0"



Section 1
3/4" = 1'-0"



Express Oil Change & Tire Engineers

Sevierville, Tennessee

FINAL

[illegible]

© 2024 Aho Architects, LLC.
All Rights Reserved.

Sections and Details

Project number	24005
Date	5/15/2024
Drawn by	jcj
Checked by	jd

S5.2

Scale	As indicated
-------	--------------

12x20

DUCT SIZE, FIRST FIGURE IS SIDE SHOWN
INSIDE CLEAR DIMENSION UNLESS NOTED OTHERWISE

24x12

LOW PRESSURE, RECTANGULAR (GALVANIZED STEEL)

20"ø

ROUND (GALVANIZED STEEL)

FLEXIBLE DUCT

R

DUCT RISE

D

DUCT DROP

EXISTING DUCTWORK TO REMAIN

DUCT TRANSITION

RECTANGULAR TO ROUND DUCT TRANSITION

TURNING VANES

FD

FIRE DAMPER AND SLEEVE, PROVIDE ACCESS DOOR

SD

SMOKE DAMPER AND SLEEVE, PROVIDE ACCESS DOOR

SDFD

COMBINATION FIRE/SMOKE DAMPER, PROVIDE ACCESS DOOR

MANUAL VOLUME DAMPER

STANDARD 45° BRANCH, SUPPLY OR RETURN, NO SPLITTER

STANDARD 45° BRANCH, SUPPLY OR RETURN, NO SPLITTER,
WITH MANUAL VOLUME DAMPER

CONICAL SPIN-IN FITTING WITH BUTTERFLY DAMPER

GRILLE OR REGISTER, CEILING

A

ACCESS DOOR

D

CONDENSATE DRAIN PIPING

AD

AUXILIARY CONDENSATE DRAIN PIPING

R

REFRIGERANT PIPING (2 LINES TOTAL)

ELBOW, 90° (LONG RADIUS)

TEE

TEE, TURNED UP

TEE TURNED DOWN

ELBOW, TURNED DOWN

ELBOW, TURNED UP

①

WALL MOUNTED THERMOSTAT

②

WALL MOUNTED HUMIDISTAT

③

WALL MOUNTED TEMPERATURE SENSOR

SMOKE DETECTOR

TIE NEW INTO EXISTING

UC

UNDERCUT DOOR 3/4 INCHES

SUPPLY AIR FLOW

RETURN OR EXHAUST AIR FLOW

ABV

CL'G

AC

A/C

AFF

AHU

AI

ALT.

AMP

AO

APPROX.

ARCH.

AVG

B

BTU

CFM

CH

CHWP

CLOS

CT

CU

CWP

DEFL

DET

DI

DIA

Ø

DO

EDB

ELEC.

ELEV.

EWB

EWT

EXH

EXIST.

°F

GFF

GPM

FPM

FPS

FT

HD.

HP

HR

HT

HTR

HVAC

HWP

HX

HZ

ID

IN.

KW

KWH

MAX

MBH.

MECH.

MFR.

MIN

NO.

N/A

NC

NOISE CRITERIA

O.D.

OA

⊖

ORIG.

PH

PIU

PRESS

RTN

RTU

SDC

SENS

SQ.

SPLY

TEMP

VAV

W

W/

W.P.D.

ABOVE CEILING

ABOVE

ALTERNATING CURRENT

AIR COMPRESSOR

ABOVE FINISHED FLOOR

AIR HANDLING UNIT

ANALOG INPUT

ALTERNATE

AMPERE

ANALOG OUTPUT

APPROXIMATELY

ARCHITECTURAL

AVERAGE

BOILER

BRITISH THERMAL UNIT

CUBIC FEET PER MINUTE

CHILLER

CHILLED WATER PUMP

CEILING

COOLING TOWER

CONDENSING UNIT

CONDENSER WATER PUMP

DEFLECTION

DETAIL

DIGITAL INPUT

DIAMETER

DIGITAL OUTPUT

ENTERING DRY BULB

ELECTRICAL

ELEVATION

ENTERING WET BULB

ENTERING WATER TEMPERATURE

EXHAUST

EXISTING

DEGREES FAHRENHEIT

GAS FIRED FURNACE

GALLONS PER MINUTE

FEET PER MINUTE

FEET PER SECOND

FOOT OR FEET

HEAD

HORSE POWER

HOUR(S)

HEIGHT

HEATER

HEATING, VENTILATION AND AIR CONDITIONING

HOT WATER PUMP

HEAT EXCHANGER

FREQUENCY (HERTZ)

INSIDE DIAMETER

INCHES

KILOWATT

KILOWATT HOUR

MAXIMUM

1000 BTU PER HOUR

MECHANICAL

MANUFACTURER

MINIMUM

NUMBER

NOT APPLICABLE

NOISE CRITERIA

OUTSIDE DIAMETER

OUTSIDE AIR

OVAL DUCTWORK

ORIGINAL

PHASE

POWERED INDUCTION UNIT

PRESSURE

RETURN AIR

ROOFTOP AIR HANDLING UNIT

STAND ALONE DIGITAL CONTROLLER

SENSIBLE

SQUARE

SUPPLY

TEMPERATURE

VARIABLE AIR VOLUME

WATT

WITH

WATER PRESSURE DROP

NOTE: THIS LEGEND IS FOR REFERENCE ONLY.
ALL SYMBOLS WHICH APPEAR WITHIN THE
LEGEND MAY NOT APPLY TO THIS PROJECT.

ABBREVIATIONS

ABV

CL'G

AC

A/C

AFF

AHU

AI

ALT.

AMP

AO

APPROX.

ARCH.

AVG

B

BTU

CFM

CH

CHWP

CLOS

CT

CU

CWP

DEFL

DET

DI

DIA

Ø

DO

EDB

ELEC.

ELEV.

EWB

EWT

EXH

EXIST.

°F

GFF

GPM

FPM

FPS

FT

HD.

HP

HR

HT

HTR

HVAC

HWP

HX

HZ

ID

IN.

KW

KWH

MAX

MBH.

MECH.

MFR.

MIN

NO.

N/A

NC

NOISE CRITERIA

O.D.

OA

⊖

ORIG.

PH

PIU

PRESS

RTN

RTU

SDC

SENS

SQ.

SPLY

TEMP

VAV

W

W/

W.P.D.

ABOVE CEILING

ABOVE

ALTERNATING CURRENT

AIR COMPRESSOR

ABOVE FINISHED FLOOR

AIR HANDLING UNIT

ANALOG INPUT

ALTERNATE

AMPERE

ANALOG OUTPUT

APPROXIMATELY

ARCHITECTURAL

AVERAGE

BOILER

BRITISH THERMAL UNIT

CUBIC FEET PER MINUTE

CHILLER

CHILLED WATER PUMP

CEILING

COOLING TOWER

CONDENSING UNIT

CONDENSER WATER PUMP

DEFLECTION

DETAIL

DIGITAL INPUT

DIAMETER

DIGITAL OUTPUT

ENTERING DRY BULB

ELECTRICAL

ELEVATION

ENTERING WET BULB

ENTERING WATER TEMPERATURE

EXHAUST

EXISTING

DEGREES FAHRENHEIT

GAS FIRED FURNACE

GALLONS PER MINUTE

FEET PER MINUTE

FEET PER SECOND

FOOT OR FEET

HEAD

HORSE POWER

HOUR(S)

HEIGHT

HEATER

HEATING, VENTILATION AND AIR CONDITIONING

HOT WATER PUMP

HEAT EXCHANGER

FREQUENCY (HERTZ)

INSIDE DIAMETER

INCHES

KILOWATT

KILOWATT HOUR

MAXIMUM

1000 BTU PER HOUR

MECHANICAL

MANUFACTURER

MINIMUM

NUMBER

NOT APPLICABLE

NOISE CRITERIA

OUTSIDE DIAMETER

OUTSIDE AIR

OVAL DUCTWORK

ORIGINAL

PHASE

POWERED INDUCTION UNIT

PRESSURE

RETURN AIR

ROOFTOP AIR HANDLING UNIT

STAND ALONE DIGITAL CONTROLLER

SENSIBLE

SQUARE

SUPPLY

TEMPERATURE

VARIABLE AIR VOLUME

WATT

WITH

WATER PRESSURE DROP

NUMBER OF DUPLICATE
AIR DEVICES DESIGNATED
BY THIS SYMBOL (3)

NECK SIZE IN INCHES
(12"x12")

AIR QUANTITY DELIVERED BY
DEVICE IN CFM (250 CFM)

FIRST THREE LETTERS
REFERENCE AIR DEVICE
TYPE IN SPECIFICATIONS
(CDA)

FOURTH CHARACTER INDICATES
BLOW PATTERN (4-WAY).

AIR DEVICE LEGEND
NO SCALE

OUTSIDE AIR CALCULATIONS																	
2021 MECHANICAL CODE OUTSIDE AIR REQUIREMENT																	
		Supply	Area	Occupancy	Max Number of	Number of	O.A. Area	O.A. People	O.A. Area	O.A. People	O.A.	Zone	Corrected	MAX OA REQUIRED			
		Air (cfm)	(sq. ft)	Classification	Occupants/SF	Occupants	Air Rate (cfm / sq. ft)	Air Rate (cfm/person)	Air Rate (cfm)	Air Rate (cfm)	(cfm)	Effectiveness	CFM		Primary	Ventilation	
Served By	Space Name	Vpz (Max)	Az		(per 1000 SF)	Rp	Ra	Pz		(cfm)	Vbz	Ez	Voz	Vot	Zp	Ev	Remarks
AHU-1	1 Service Writing	275	144	Lobbies	—	1	0.06	5	9	5	14	0.80	17	17	0.06	1	
	2 Waiting Room	250	129	Lobbies	—	15	0.06	5	8	75	83	0.80	103	103	0.41	0.736	
	4 Manager	100	51	Office	5	1	0.06	5	3	5	8	0.80	10	10	0.10	1	
	7 Break Room	235	65	Break Room	35	1	0.06	10	4	10	14	1.80	8	8	0.03	1	
															OA	Lowest Ev	
															138.27	1.00	

AIR HANDLING UNIT SCHEDULE

EQUIPMENT NO.	MANUFACTURER/ MODEL NO.	CFM	OA CFM	E.S.P. (IN. W.C.)	FAN		COOLING CAPACITY				ELECTRIC HEAT			DISCONNECT	ELECTRICAL				MOUNTING	WEIGHT (LBS.)	REMARKS
					H.P.	DRIVE	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	TOTAL (KW) (208v)	TOTAL (KW) (240v)	STAGES		VOLTS/PH./HZ. 208/1/60	UNIT MCA	UNIT MOCP	VOLTS/PH./HZ. 240/1/60	UNIT MCA	UNIT MOCP	
AHU-1	TRANE TEM4A0B30	975	150	0.50	0.5	--	80	67	58.6	57.7	10.8	14.4	1	BY DIV. 26	73	80	83	90	HORIZONTAL	150	1), 2), 3)

REMARKS:
1) SUSPEND UNIT FROM STRUCTURE PER DETAIL.
2) PROVIDE UNIT WITH SINGLE POINT POWER CONNECTION.
3) PROVIDE WITH 1" THROWAWAY FILTERS.

OUTDOOR HEAT PUMP SCHEDULE

EQUIPMENT NO.	MANUFACTURER/ MODEL NO.	SERVICE	COOLING CAPACITY NOMINAL (TONS)	AMBIENT TEMP. (F)	HEATING CAPACITY MBH	AMBIENT TEMP. (F)	DISCONNECT	ELECTRICAL				SEER	HSPF	WEIGHT (LBS.)	REMARKS
								VOLTS/PH./HZ. 208/1/60	UNIT MCA	UNIT MOCP	VOLTS/PH./HZ. 240/1/60	UNIT MCA	UNIT MOCP		
HP-1	TRANE 4TWR4030	AHU-1	2.5	95	28	47	BY DIV. 26	17	25	17	25	14.5	8.2	--	1), 2)

REMARKS:
1) PROVIDE WITH LOW AMBIENT CONTROLS.
2) LOCATE UNIT ON HOUSEKEEPING PAD. ANCHOR UNIT TO PAD WITH EXPANSION BOLTS.

POWER VENTILATOR SCHEDULE

EQUIPMENT NO.	MANUFACTURER/ MODEL NO.	CFM	E.S.P. (IN. W.C.)	RPM	MAX. SONES	ELECTRICAL			LOCATION	TYPE	DRIVE	WGT (LBS.)	REMARKS
						DISCONNECT	MOTOR STARTER	WATTS					
EF-1	COOK GC-146	70	0.35	849	1.5	BY DIV. 26	BY DIV. 23	32	115/1/60	CEILING	CENTRIFUGAL	DIRECT	15 1), 3), 5)
EF-2	COOK GC-146	70	0.35	849	1.5	BY DIV. 26	BY DIV. 23	32	115/1/60	CEILING	CENTRIFUGAL	DIRECT	15 1), 3), 5)
EF-3	COOK 180W10D	3000	0.25	1058	13.5	BY DIV. 26	BY DIV. 23	3/4 HP	115/1/60	WALL	CENTRIFUGAL	DIRECT	90 2), 3)
EF-4	COOK 24XP28D102	4200	0.25	971	15.8	BY DIV. 26	BY DIV. 23	3/4 HP	115/1/60	WALL	PROPELLER	DIRECT	150 2), 4)
VF-1	COOK REBE	150	0.25	864	3.3	BY DIV. 26	BY DIV. 23	1/8 HP	115/1/60	ROOF	PROPELLER	DIRECT	15 6)
VF-2	COOK REBE	150	0.25	864	3.3	BY DIV. 26	BY DIV. 23	1/8 HP	115/1/60	ROOF	PROPELLER	DIRECT	15 6)

REMARKS:
1) PROVIDE OCCUPANCY SENSOR FOR FAN OPERATION IN EACH RESTROOM.
2) FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS.
3) PROVIDE WITH FAN SPEED CONTROLLER.
4) PROVIDE WITH FAN INLET GUARDS.
5) PROVIDE WITH BACKDRAFT DAMPER.
6) PROVIDE FAN WITH FAN SPEED CONTROLLER AND LINE VOLTAGE HUMIDISTAT.
7) INTERLOCK WITH LOCAL TSTAT AND MANUAL SWITCH.
8) PROVIDE FAN RATED FOR SMOKE CONTROL. PROVIDE HEAT SHIELD, ENCLOSED BELT TUNNEL, ISOLATION RAIL AND COPPER LUBE LINES.

GAS RADIANT HEATER SCHEDULE

EQUIPMENT NO.	MANUFACTURER/ MODEL NO.	HEATING CAPACITY (MBH)	AMPS	ELECTRICAL		WEIGHT (LBS)	MOUNTING HEIGHT	REMARKS
				DISCONNECT	VOLTS/PH./HZ.			
RH-1	RE-VERBER-RAY DX3L-30-100	100	0.1	BY DIV. 26	115/1/60	160	13 6"	1), 2), 4), 5)
RH-2	RE-VERBER-RAY DR-50	50	0.1	BY DIV. 26	115/1/60	50	11' 9"	1), 2), 3), 4)
RH-3	RE-VERBER-RAY DR-50	50	0.1	BY DIV. 26	115/1/60	50	11' 9"	1), 2), 3), 4)

REMARKS:
1) MAINTAIN DISTANCES FROM COMBUSTIBLES PER MANUFACTURERS INSTALLATION DETAILS.
2) PROVIDE WITH 24V TRANSFORMER AND LOW VOLTAGE THERMOSTAT.
3) ANGLE UNITS AT 30 DEGREES FROM HORIZONTAL. SUSPEND UNITS FROM STRUCTURE WITH 3/8" THREADED RODS.
4) HEIGHT SHOWN MEASURED FROM BOTTOM OF HEATING RAY HEAD/TUBE.
5) PROVIDE HEATER WITH SIDE SHIELDS TO DIRECT HEAT DOWNWARD.

AHO ARCHITECTS, LLC

www.ahoarch.com

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Mechanical
Legend,
Abbreviations and
Schedules

Project number24005
Date5/15/2024
Drawn byCA
Checked byJB

M0.01

Scale12" = 1'-0"

5/13/2024 4:23:40 PM

SECTION 15010 - MECHANICAL GENERAL

- A. PROVIDE EQUIPMENT, LABOR, MATERIAL, ETC., REQUIRED TO MAKE A COMPLETE WORKING INSTALLATION. INSTALL THE WORK IN ACCORDANCE WITH DRAWINGS, SPECIFICATIONS AND THE STANDARDS AND CODES (LATEST EDITION) THAT APPLY TO THIS WORK. IN THE EVENT OF A CONFLICT, INSTALL WORK IN ACCORDANCE WITH THE MOST STRINGENT CODE REQUIREMENTS DEVELOPED BY THE ENGINEER.
- B. OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS INCLUDING: BUILDING PERMITS, HEALTH DEPARTMENT PERMITS AND SEWER TAP PERMITS. DELIVER TO ENGINEER CERTIFICATES OF INSPECTION AND APPROVAL ISSUED BY AUTHORITIES.
- C. ALL EQUIPMENT AND METHOD SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICES AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- D. DISCONNECT, REMOVE AND RE-INSTALL MECHANICAL SERVICES LOCATED ON OR CROSSING THROUGH CONTRACT LIMITS, ABOVE OR BELOW GRADE, OBSTRUCTING CONSTRUCTION OF PROJECT OR CONFLICTING WITH COMPLETE PROJECT OR ANY APPLICABLE CODES.
- E. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WORK CALLED FOR BY ONE IS BINDING AS IF CALLED FOR BY BOTH.
- F. DRAWINGS ARE DRAIN TO A SMALL SCALE AND ARE DIAGRAMMATIC ONLY. THE DRAWINGS INDICATE SIZE AND GENERAL ARRANGEMENT OF EQUIPMENT. DO NOT SCALE DRAWINGS FOR EXACT LOCATIONS. FIELD MEASUREMENTS TAKE PRECEDENCE.
- G. PROVIDE NECESSARY OFFSETS, ELBOWS AND FITTINGS AS REQUIRED TO AVOID CONFLICT WITH EQUIPMENT OF OTHER DIVISIONS AND TO OBTAIN PROPER HEADROOM AND CLEAR PASSAGEWAYS. THIS SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
- H. WORK UNDER THIS DIVISION SHALL BE FIRST CLASS WITH EMPHASIS ON NEATNESS AND WORKMANSHIP. INSTALL WORK USING COMPETENT MECHANICS, UNDER SUPERVISION OF FOREMAN, ALL DULY CERTIFIED BY LOCAL AUTHORITIES.
- I. INSTALLATION SUBJECT TO ENGINEER'SOBSERVATION, FINAL APPROVAL, AND ACCEPTANCE. ENGINEER MAY REJECT UNSUITABLE WORK.
- J. ALL MATERIALS SHALL BE NEW, ALL MATERIALS AND EQUIPMENT FOR WHICH A UL STANDARD, AN AGA APPROVAL, AN AWWA STANDARD, FM LISTING OR ASME REQUIREMENTS IS ESTABLISHED, SHALL BE SO APPROVED AND LABELED OR STAMPED.

L. THE DRAWINGS ARE BASED ON THE USE OF PRODUCTS SPECIFIED AND LISTED FIRST. IF ANY REVISION IN PIPING, CONDUIT WORK, FOUNDATIONS, ANCHOR BOLTS, CONNECTIONS, ETC., IS REQUIRED BY OTHER NAMED PRODUCTS OR APPROVED SUBSTITUTIONS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE SUCH REVISIONS AT NO ADDITIONAL EXPENSE TO THE OWNER.

M. SUBMIT SIX (6) ORIGINAL COPIES OF COMPLETE SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT FURNISHED UNDER DIVISION 15 OF SPECIFICATIONS TO ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL BEAR THE STAMP OF APPROVAL OF THE CONTRACTOR AS EVIDENCE THAT THE DRAWINGS HAVE BEEN CHECKED BY HIM. DRAWING SUBMITTED WITHOUT THIS STAMP OF APPROVAL WILL NOT BE CONSIDERED AND WILL BE RETURNED FOR PROPER RESUBMISSION.

N. REVIEW OF SHOP DRAWINGS DOES NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR ERRORS AND OMISSIONS IN SHOP DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS AND SIZES OF EQUIPMENT. INFORM ENGINEER IN WRITING OF EQUIPMENT DIFFERING FROM THAT SHOWN.

O. PROVIDE MAINTENANCE AND OPERATING MANUALS BOUND IN 8-1/2" X 11" HARDBACK, THREE-POST BINDERS. MANUALS SHALL CONTAIN WRITTEN INSTRUCTIONS FOR EACH SYSTEM, SHOP DRAWINGS, SCHEMATIC DRAWINGS, EQUIPMENT CATALOG CUTS, MANUFACTURER'S INSTRUCTIONS, MANUFACTURERS WARRANTIES, AND VALVE TAG LIST.

P. PROVIDE AS-BUILT PRINTS AT THE COMPLETION OF JOB. KEEP ONE SET OF PRINTS ON JOB AND RECORD DAY TO DAY CHANGES TO CONTRACT DRAWINGS WITH RED PENCIL. INDICATE ACTUAL LOCATION OF PIPING, DUCTWORK, VALVES, DAMPERS, AND EQUIPMENT. TURN OVER PRINTS TO ENGINEER AT FINAL OBSERVATION. FURNISH ONE SET OF PRINTS WITHIN 15 DAYS OF COMPLETION OF PROJECT. IF WORK IS DEFECTIVE, WORK CUT OUT UNDER THIS DIVISION IS PROVEN DEFECTIVE WITHIN ONE (1) YEAR AFTER FINAL ACCEPTANCE, SUCH DEFECTS AND OTHER WORK DAMAGED WILL BE REPAIRED AND/OR REPLACED.

SECTION 15050 - BASIC MATERIALS AND METHODS

- A. CONCRETE HOUSEKEEPING PADS:
1. PROVIDE CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED EQUIPMENT, PIPE SUPPORT AND DUCT SUPPORTS AND WHERE INDICATED. CONCRETE SHALL BE 3000 PSI AT 28 DAYS MINIMUM.
 2. PADS SHALL BE DOWELED TO FLOOR WITH NOT LESS THAN 4 NO. 4 BARS GROUTED IN PLACE. ANCHOR BOLTS SHALL BE POURED INTO PLACE INTEGRAL WITH THE PAD. PADS SHALL BE REINFORCED WITH AT LEAST ONE NO. 4 BAR (STIRRUPS). PADS SHALL HAVE CHAMFERED EDGES AND A BROOM FINISH.
 3. HOUSEKEEPING PADS SHALL BE NOT LESS THAN 3-1/2 IN. THICK, SIZED AT LEAST 8 IN. LARGER THAN THE EQUIPMENT.
- B. ACCESS PANELS:
1. ACCESS PANELS SHALL HAVE WELDED STEEL FRAME, ONE PIECE DOORS, AND SELF LATCHING DOOR LOCKS. LOCKS SHALL BE SCREW DRIVER OPERATED WITH CASE HARDENED STEEL CAM. PANELS SHALL BE MILCOR, CESCO, KARP OR EQUAL.
 2. PROVIDE ACCESS PANELS IN WALLS AND CEILINGS AS NEEDED TO ALLOW ACCESS TO VALVES, EQUIPMENT, SHOCK ABSORBERS, TRAP PRIMERS, ETC. AND WHERE NOTED.
- C. FIRESTOPPING AND SOUNDSTOPPING:
1. PENETRATIONS THROUGH FLOORS AND FIRE RESISTANT WALLS SHALL BE SEALED TO THE RATED FIRE RESISTANCE EQUAL TO THE WALL. INSTALLATION SHALL BE DONE BY A QUALIFIED INSTALLER, APPROVED BY THE MANUFACTURER.
 2. IN AN EXISTING BUILDING ALL PENETRATIONS THROUGH FLOORS AND FIRE RESISTANT WALLS SHALL BE SEALED AT THE END OF EACH WORKING DAY. THESE CLOSURES SHALL HAVE AN EQUAL FIRE RESISTANCE RATING TO THE FLOOR OR WALL.
 3. PROVIDE SOUND PROOFING THROUGH NON-RATED WALLS.
- D. PIPING SEALS:
1. PROVIDE MODULAR, RESILIENT SEALS AROUND PIPES PENETRATING ALL EXTERIOR WALLS, AND FLOORS BELOW GRADE. PIPING SEALS SHALL BE THUNDERLINE CORP. "LINK SEAL" LS SERIES.
- E. CUTTING AND PATCHING:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING. CUT WALLS, FLOORS, CEILINGS, PARTITIONS, ETC., REQUIRED FOR THE INSTALLATION OF THIS WORK IN A NEAT AND CAREFUL MANNER. CORE DRILL FOR PIPE SLEEVES AND OTHER OPENINGS THROUGH FLOORS AND WALLS, SAWING LARGER OPENINGS. CUTTING SHALL BE KEPT TO A MINIMUM.
 2. REPLACE OR REPAIR DUCTWORK, CONDUIT, PIPING, ETC., THAT IS CUT, PATCH AROUND OPENING CUT BY THIS CONTRACTOR OR PROVIDED BY OTHERS FOR HIM. PATCHING SHALL BE DONE BY AN APPROVED QUALIFIED CONTRACTOR, BUT SHALL BE PAID FOR BY THIS CONTRACTOR. FINISHED PATCHING SHALL MEET FIRE AND SMOKE RATINGS OF THE ASSEMBLY AND SHALL MATCH SURROUNDING FINISH.
- F. ANCHORS:
1. MOUNT ALL EQUIPMENT, BRACKETS, HANGERS, ANCHORS, ETC. TO SAFELY RESIST THE VIBRATION OR THRUST FORCES AND SUPPORT THE UNITS'S WEIGHT.
 2. FLOOR MOUNTED ROTATING OR VIBRATING EQUIPMENT SHALL BE ANCHORED TO THE FLOOR USING GROUTED-IN-PLACE OR CAST-IN-PLACE ANCHOR BOLTS WITH THREE INCH HOOK AND SLEEVE. ANCHOR BOLTS SHALL BE OF THE SIZE RECOMMENDED BY THE MANUFACTURER.
 3. FLOOR MOUNTED STATIC EQUIPMENT, WALL AND CEILING MOUNTED EQUIPMENT AND HANGERS SHALL BE INSTALLED USING DRILLED ANCHORS. ANCHORS SHALL BE PHILLIPS DRILL COMPANY "RED HEAD" OR MULTI-SET II. SIZE ANCHORS FOR FOUR TIMES THE APPLIED LOAD. BOLTS USED OUTDOORS OR IN A WET ENVIRONMENT SHALL BE HOT DIP GALVANIZED.
- G. PIPE IDENTIFICATION:
1. IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI-A13.1. PIPE MARKERS SHALL BE SETON'S WEATHER-CODE OR EQUAL.
 2. PROVIDE PIPE MARKERS AND DIRECTIONAL ARROWS ON PIPES AT BOTH SIDES OF PARTITIONS AND FLOORS SLABS, AT BRANCH LINE TAKE-OFFS, AT VALVES, AT INTERMEDIATE INTERVALS NOT IN EXCESS OF 20 FT. AND AT CONNECTIONS TO EQUIPMENT.
 3. TAPE COLOR BAND IDENTIFYING MARKERS AND ARROWS ON EACH PIPE, BOTH INSULATED AND BARE PIPES. PIPE MARKERS AND ARROWS SHALL BE LOCATED WHERE READILY VISIBLE AND ON LOWER QUADRANTS OF OVERHEAD PIPES.
- H. VALVE TAG AND CHART:
1. VALVE TAGS SHALL BE SETON M4506, BLACK FILLED LETTERS WITH BRASS JACK CHAIN. ONE VALVE NUMBER SHALL BE STAMPED ON EACH TAG. IDENTIFY EACH VALVE TAG FOR THE UTILITY IT SERVES, SUCH AS "CW" FOR COLD WATER, HW FOR HOT WATER, ETC. VALVE CHARTS SHALL BE SETON. ATTACH A NUMBERED VALVE TAG TO EACH VALVE.
 2. PROVIDE A TYPE WRITTEN CHART IN FRAME UNDER GLASS COVER, GIVING THE FULL LIST OF ALL VALVES INSTALLED UNDER THIS CONTRACT. CHART SHALL LIST VALVE NUMBER, TYPE OF UTILITY, AND LOCATION. MOUNT CHART WHERE DIRECTED BY OWNER. PROVIDE ONE ADDITIONAL COPY TO OWNER.
- I. EQUIPMENT IDENTIFICATION:
1. IDENTIFY EACH PIECE OF EQUIPMENT WITH A 1/8 INCH THICK ENGRAVED MELAMINE PLASTIC LAMINATE NAMEPLATE. LETTERS SHALL BE 1/2 INCH HIGH STANDARD STYLE. NAMEPLATE ABBREVIATIONS AND NUMBERING SHALL AGREE WITH THE CORRESPONDING EQUIPMENT DESIGNATIONS SHOWN ON THE DRAWINGS. USE BLACK LETTERS CUT IN A WHITE BACKGROUND FOR ALL EQUIPMENT ON STANDARD ELECTRICAL POWER.
 2. FASTEN NAMEPLATES TO EQUIPMENT IN A CONSPICUOUS LOCATION USING SELF-TAPPING STAINLESS STEEL SCREWS. EXCEPT USE CONTACT EPOXY ADHESIVE WHERE SCREWS CANNOT OR SHOULD NOT PENETRATE SUBSTRATE.
- J. PIPE SLEEVES:
1. PROVIDE PIPE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE OR BELOW CEILINGS. PROVIDE PIPE SLEEVES IN NEW WALLS AND FLOORS AS THE WORK PROGRESSES. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER.
 2. SIZE PIPE SLEEVES TO ALLOW CONTINUOUS INSULATION, BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN PIPE. SLEEVES IN WALLS SHALL BE FLUSH WITH WALL, SLEEVES IN FLOORS SHALL EXTEND 3/4 INCHES ABOVE FLOOR AND BE FLUSH WITH STRUCTURE BELOW.
 3. SLEEVES IN CONCRETE WALLS, FLOORS OR MASONRY SHALL BE SCH 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD OR PLASTER WALLS SHALL BE 14 GAUGE, ROLLED GALVANIZED SHEET METAL TACK WELDED ON THE LONGITUDINAL SEAM.
 4. PROVIDE PLATES AROUND PIPES EXTENDING INTO EXPOSED AREAS WHERE THEY PASS THROUGH WALLS, FLOORS AND CEILINGS. SIZE PLATES TO COMPLETELY COVER PIPE SLEEVES. PLATES SHALL BE BEATON AND CADWELL, KEENEY OR GRINNELL, NICKEL PLATED STEEL, SPLIT PLATES WITH SET SCREW. CONCRETE FLOOR PLATE SHALL BE GRINNELL FIGURE 400.
- K. FLASHING:
1. PROVIDE FLASHING AT PIPING AND DUCT PENETRATIONS THROUGH ROOF AND ROOF MOUNTED STRUCTURES FURNISHED UNDER THIS DIVISION. FLASH IN ACCORDANCE WITH ROOFING MANUFACTURERS DETAILS. FLASHING MATERIALS SHALL BE IN ACCORDANCE WITH THE ROOFING MANUFACTURERS SYSTEM.
 2. PROVIDE FLASHING AT PIPES PASSING THROUGH FLOORS WITH WATERPROOF MEMBRANE. FLASHING SHALL BE IN ACCORDANCE WITH WATERPROOFING MANUFACTURERS DETAILS.

SECTION 15260 - HVAC INSULATION

- A. GENERAL:
1. ALL INSULATION, JACKETING, AND ADHESIVE SHALL HAVE COMPOSITE SURFACE BURNING CHARACTERISTIC RATING AS TESTED BY ASTM E 84, UL 723, OR NFPA 255 NOT EXCEEDING A FLAME SPREAD OF 25 OR SMOKE DEVELOPED OF 50.
 2. SUBMITTALS SHALL USE PAGES FROM MIDWEST INSULATION CONTRACTORS ASSOCIATION - COMMERCIAL AND INDUSTRIAL INSULATION STANDARDS@ FOR DEFINING HOW INSULATION MATERIALS WILL BE APPLIED.
 3. ALL PIPE OR DUCT INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES; EXCEPT WHERE FIRESTOP OR FIRESAFING MATERIALS ARE REQUIRED.
 4. INSULATE ITEMS MOUNTED IN DUCTWORK WITH THE SAME THICKNESS OF INSULATION AS SPECIFIED FOR DUCTWORK. INCLUDING AIR MEASURING STATIONS, SMOKE DAMPERS, AND AUTOMATIC DAMPERS.
 5. REPAIR INSULATION DAMAGED BY WORK UNDER THIS CONTRACT TO MATCH EXISTING WORK OR REPLACE DAMAGED PORTION WITH INSULATION SPECIFIED FOR NEW WORK.
- B. ELASTOMERIC CLOSED CELL INSULATION:
1. INSULATION SHALL BE RUBATX OR ARMSTRONG. SECURE INSULATION WITH CONTACT ADHESIVE IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. EXPOSED OR EXTERIOR INSTALLATIONS SHALL BE PAINTED WITH TWO COATS OF WATER BASE LATEX ENAMEL.
 2. PROVIDE 1 IN. THICK INSULATION ON DX REFRIGERANT PIPING, COOLING COIL, CONDENSATE PIPING, CHILLED WATER RUN-OUTS TO TERMINAL DEVICES, COVERS AND CAPS FOR ALL VALVE STEMS AND OPERATORS, GAUGE COCKS, THERMOMETER WELLS AND OTHER APPURTENANCES SUBJECT TO SWEATING.
- C. CONCEALED DUCTWORK:
1. DUCT WRAP SHALL BE 2 IN. THICK, 1.0 PCF WITH ALUMINUM OR FRK FACING, HAVING A MAXIMUM VAPOR TRANSMISSION OF .02 PERMS. MINIMUM INSTALLED "R" VALUE SHALL BE 5.6 WITH 25% COMPRESSION. INSULATION SHALL BE 250 DEG. F RATED AS MANUFACTURED BY OWENS CORNING, MANVILLE, KNAUF, OR CERTAINTED.
 2. APPLY JACKETED DUCTWRAP TO ALL CONCEALED DUCTWORK PROVIDING CONDITIONED AIR, OR OUTSIDE AIR. ONLY INSULATE RETURN DUCTWORK IN NON-CONDITIONED SPACES AND IN CEILING SPACES BELOW A ROOF. PULL INSULATION SNUG, BUT DO NOT COMPRESS INSULATION MORE THAN 1/4 INCH.
 3. SECURE DUCTWRAP INSULATION TO DUCTWORK USING ADHESIVE. SECURE INSULATION ON BOTTOM ON SIDES OF HORIZONTAL DUCTWORK AND ALL SIDES OF VERTICAL DUCTWORK WITH INSULPINS WELDED TO DUCT ON 12 TO 18 INCH CENTERS AND WITH CLIPS SLIPPED OVER THE PINS. APPLY CLIPS WITHOUT COMPRESSING INSULATION. MAKE JOINTS BY LAPPING THE FACING A MINIMUM OF 2 INCH AND STAPLING WITH T-5 FLARED STAPLES. VAPOR - SEAL WITH CHILDERS CP-30 LOW ODOR AT ALL STAPLES, CLIP LOCATIONS AND OTHER PENETRATIONS. SEAL JOINTS WITH 3 INCH WIDE FSK TAPE.
 4. FOR DUCTWORK INSIDE THERMAL ENVELOPE, INSULATION SHALL BE 2 IN. THICK. FOR DUCTWORK OUTSIDE THE THERMAL ENVELOPE, ALL DUCTWORK EXCEPT EXHAUST SHALL BE 4 IN. THICK (2 LAYERS).
- D. EXPOSED DUCTWORK:
1. INSULATION BOARD SHALL BE 2 IN. THICK 3 PCF WITH FRK FACING. MINIMUM INSTALLED "R" VALUE 6. INSULATION SHALL BE 250 DEG. F RATED AS MANUFACTURED BY OWENS CORNING, MANVILLE, KNAUF, OR CERTAINTED.
 2. APPLY 2 IN. THICK INSULATION BOARD WITH FRK FACING TO ALL EXPOSED DUCTWORK PROVIDING CONDITIONED AIR, OR OUTSIDE AIR. INSULATE RETURN DUCTWORK IN NON-CONDITIONED SPACES. SECURE INSULATION WITH INSULPINS (ALL SURFACES) WELDED TO DUCT ON 12 TO 18 IN. CENTERS WITH CLIPS SLIPPED OVER PINS. SEAMS AND JOINTS SHALL BE VAPOR SEALED WITH 3 IN. WIDE FSK TAPE. CORNERS AND EDGES OF DUCTWORK SHALL BE REINFORCED WITH INSULON CORNER BEAD. SEAL ALL BREAK AND PUNCTURES WITH VAPOR BARRIER SEALANT AND FSK TAPE.
- E. PIPING FINISHES:
1. ALL PIPING JACKETING SHALL BE SMOOTH. 016 IN. THICK, TYPE T 3003 ALUMINUM WITH LAMINATED MOISTURE BARRIER. JACKETING SHALL BE CHILDERS, ALUMINUM ROLL JACKETING WITH POLYKRAFT MOISTURE BARRIER. COVER THE FOLLOWING INSULATED SYSTEMS WITH METAL JACKETING: PIPING INSTALLED OUTDOORS. METAL FITTING COVERS SHALL BE TWO PIECE ALUMINUM. COVERS SHALL BE ENHANCED COPPER TUBING.
 2. CONCEALED PIPING FINISH COVERING SHALL BE THE ALL SERVICE JACKET. FITTINGS SHALL BE COVERED BY WRAPPING THE FITTING WITH FIBER REINFORCED TAPE, WITH A 5 PERCENT OVERLAP. FITTING COVERS SHALL BE ONE PIECE 20 MIL PVC. COVERS SHALL BE CEEL-TITE 550 PVC-UVR BY CEEL-CO OR EQUALS.
- A. DUCTWORK FINISHES:
1. INSULATED DUCTWORK INSTALLED OUTDOORS, INSULATED DUCTWORK WITHIN 8 FT. OF THE FINISHED FLOOR IN A MECHANICAL ROOM SHALL BE COVERED WITH 30 GAUGE GALVANIZED STEEL. COVERING SHALL BE HEMMED, AND FLANGED. SECURE WITH SELF TAPPING SCREWS ON EIGHT INCH CENTERS. DO NOT PUNCTURE VAPOR BARRIER.

SECTION 15535 - REFRIGERANT PIPING SYSTEMS

- A. REFRIGERANT PIPING SHALL BE TYPE L, HARD DRAWN COPPER TUBING CONFORMING TO ASTM SPECIFICATION B-280, CLEANED AND CAPPED AND MARKED "ACR". FITTINGS FOR REFRIGERANT LINES SHALL BE AS WROUGHT COPPER OR FORGED BRASS CONFORMING TO ANSIAISME STANDARD B16.22. JOINTS IN REFRIGERANT LINES SHALL BE BRAZED IN ACCORDANCE WITH ANSI B9.1. KEEP REFRIGERATION PIPING SEALED UNTIL IT IS USED. CAP OPEN ENDS OF INSTALLED PIPING UNTIL READY FOR FINAL CONNECTION.
- B. THE REFRIGERATION SYSTEM PIPING AND ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE WITH THE SAFETY CODE FOR MECHANICAL REFRIGERATION ANSIAISHRAE 15-92 AND THE REFRIGERATION PIPING CODE ANSIAISME B31.5. THE REFRIGERANT TUBE SIZES, AND INSTALLATION OF TUBING SHALL BE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
- C. REFRIGERANT SUCTION LINE SIZE SHALL LIMIT THE TEMPERATURE RISE TO TWO DEGREES F AT FULL LOAD AND HOLD THE REFRIGERANT GAS VELOCITY TO NOT LESS THAN 500 FT. PER MIN. (FPM) IN THE HORIZONTAL NOR LESS THAN 1000 FPM IN THE VERTICAL AT MINIMUM LOAD. REFRIGERANT LIQUID LINE SIZE SHALL LIMIT THE PRESSURE DROP BETWEEN 4 AND 6 PSI AT FULL LOAD.
- D. PITCH HOT GAS LINES AND SUCTION LINES APPROXIMATELY 1/8 INCH PER 10 FT. HOT GAS LINES AND SUCTION LINES EXCEEDING 30 FT. VERTICAL LIFT SHALL BE TRAPPED EVERY 20 FT. VERTICAL REFRIGERANT LINES SHALL BE RUN PLUMBS. HORIZONTAL LINES SHALL RUN PARALLEL WITH BUILDING WALLS. REFRIGERANT LINES SHALL NOT CONTACT BUILDING STRUCTURE. ISOLATE PIPING WITH RESILIENT LINER IN PIPE SUPPORT OR ELASTOMERIC INSULATION.
- E. TEST FOR LEAKS WITH AN ELECTRONIC LEAK DETECTOR. REPAIR LEAKS, REFILL, REPRESSURIZE, AND RETEST. FOLLOW STANDARD CHARGING AND DEHYDRATION PROCEDURES. CHARGE THROUGH THE SYSTEM FILTER DRIER. CHANGE FILTER DRIERS AFTER 40 HOURS OF OPERATION.
- F. PROVIDE A LINE SIZE FILTER-DRIER IN EACH LIQUID REFRIGERANT LINE BETWEEN THE CONDENSER AND THE EXPANSION VALVE. FILTER-DRIER SHALL BE A HENRY VALVE CO., SPORLAN OR ALCO.
- G. SERVICE VALVES SHALL BE BACK SEATING TYPE, STEEL OR IRON BODY. PROVIDE SERVICE VALVES AT "CONDENSING UNIT". SERVICE VALVES SHALL BE LINE SIZE. VALVES SHALL BE HENRY VALVE CO., COMPRESSOR VALVES, SPORLAN OR ALCO.
- H. PROVIDE ISOLATION VALVES AROUND THE FILTER-DRIER TO PERMIT SERVICING THE DRIER WITHOUT LOSS OF REFRIGERANT. ISOLATION VALVES SHALL BE HENRY VALVE CO., 900 SERIES BALL VALVES. SPORLAN AND ALCO ARE APPROVED EQUAL.
- I. CHARGING VALVE SHALL BE INSTALLED IN EACH LIQUID REFRIGERANT LINE BETWEEN THE CONDENSER AND THE FILTER DRIER. CHARGING VALVE SHALL BE A HENRY VALVE CO. TYPE 927 OR APPROVED EQUAL. SPORLAN AND ALCO ARE APPROVED EQUAL.
- J. SIGHT GLASS SHALL BE INSTALLED IN EACH LIQUID REFRIGERANT LINE AT THE EVAPORATOR COIL. SIGHT GLASS SHALL BE HENRY VALVE CO. MI 31 SERIES DOUBLE PORT STYLE WITH EXTENDED ENDS FOR SOLDERING FOR LINES 5/8 INCH OR LARGER. USE MI 30 SERIES SINGLE PORT SOLDERING FOR LINES 5/8 INCH OR LARGER. USE MI 30 SERIES SINGLE PORT FOR LINES 1/2 INCH OD AND SMALLER. SPORLAN AND ALCO ARE APPROVED EQUAL.
- K. PROVIDE BALANCED EXTERNALLY EQUALIZED THERMOSTATIC EXPANSION VALVE. DISTRIBUTORS SHALL BE MATCHED WITH THERMOSTATIC EXPANSION VALVES AND DIRECT EXPANSION COIL FOR PROPER PERFORMANCE. THERMOSTATIC EXPANSION VALVE (TXV) SHALL BE BALANCED EXTERNALLY EQUALIZED TYPE. DISTRIBUTIONS SHALL BE MATCHED WITH THERMOSTATIC EXPANSION VALVES AND DIRECT EXPANSION COIL FOR PROPER PERFORMANCE. DISTRIBUTORS SHALL BE ALCO OR APPROVED EQUAL. LOCATE BULB IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. CONNECT THE EQUALIZING LINE TO THE TXV DOWN STREAM OF THE BULB. PROVIDE TRAPPED DOUBLE SUCTION RISERS ON SYSTEMS WITH UNLOADING CAPABILITY, WHEN REQUIRED FOR PROPER OIL RETURN.
- L. PROVIDE FLEXIBLE CONNECTORS ON LIQUID LINE, AND SUCTION LINE AT THE CONDENSING UNIT. FLEXIBLE CONNECTORS SHALL BE BRAIDED BRONZE COVERING ON A BRONZE HOSE. END CONNECTORS SHALL BE FEMALE COPPER TUBE TYPE. UNITS SHALL BE RATED NOT LESS THAN 270 PSI AT 250 DEGREES F. UNITS SHALL BE SOUTHEASTERN HOSE, INC., SUPERIOR OR ANACONDA.

SECTION 15671 - AIR COOLED CONDENSING UNITS

- A. UNITS SHALL BE ASSEMBLED ON MINIMUM 10 GAUGE STEEL MOUNTING/LIFTING RAILS AND SHALL BE WEATHER PROOFED. UNIT SHALL INCLUDE HERMETIC OR SEMI-HERMETIC RECIPROCATING COMPRESSOR(S), PLATE FIN CONDENSER COIL, FANS AND MOTORS, CONTROLS AND HOLDING CHARGE OF R-22. UNITS SHALL BE UL LISTED, AND RATED IN ACCORDANCE WITH ARI STANDARD 240 AND 270.
- B. UNIT CASING SHALL BE CONSTRUCTED OF MINIMUM 18 GAUGE G-20 HEAVY GALVANIZED STEEL. EXTERIOR SURFACES SHALL BE FINISHED WITH A WEATHER-RESISTANT BAKED ENAMEL FINISH. COATING SYSTEM SHALL HAVE BEEN TESTED 500 HOURS IN SALT SPRAY TEST (ASTM B117). UNITS SHALL HAVE REMOVABLE PANELS THAT ALLOW ACCESS TO ALL MAJOR COMPONENTS AND CONTROLS.
- C. SINGLE COMPRESSOR UNITS LESS THAN 7-1/2 TONS:
1. COMPRESSOR SHALL BE HERMETICALLY SEALED AND MOUNTED ON RUBBER VIBRATION ISOLATORS. COMPRESSOR SHALL INCLUDE INTERNAL OVER TEMPERATURE AND PRESSURE PROTECTION, THERMOSTATICALLY CONTROLLED SUMP HEATER, AND INTERNAL SPRING MOTORS. REFRIGERATION CIRCUIT SHALL INCLUDE LIQUID LINE DRIER, LOW PRESSURE SWITCH, LIQUID LINE AND SUCTION LINE SERVICE VALVE WITH GAUGE PORT.
- D. CONDENSER SHALL BE INTERNALLY FINNED OR SMOOTH BORE 3/8 INCH COPPER TUBES MECHANICALLY BONDED TO CONFIGURED ALUMINUM PLATE FIN AS STANDARD. COIL SHALL BE FACTORY PRESSURE AND LEAK TESTED TO 375 PSIG AIR PRESSURE. PROVIDE CONDENSER COIL GUARD CONSISTING OF METAL GRILLE WITH PVC COATING.
- E. CONDENSER FAN AND MOTOR(S) SHALL HAVE DIRECT-DRIVE, STATICALLY AND DYNAMICALLY BALANCED FAN(S) WITH ALUMINUM BLADES AND ELECTRO-COATED STEEL HUBS. FANS SHALL BE MOUNTED IN DRAW THROUGH VERTICAL DISCHARGE POSITION. PERMANENTLY LUBRICATED TOTALLY ENCLOSED TYPE MOTORS SHALL BE PROVIDED AND SHALL HAVE BUILT IN CURRENT AND THERMAL OVERLOAD PROTECTION. MOTOR(S) SHALL BE BALL BEARING TYPE.
- F. UNITS SHALL BE COMPLETELY FACTORY WIRED WITH NECESSARY CONTROLS AND CONTACTOR WITH PRESSURE LUGS OR LOW VOLTAGE TERMINAL STRIP. CONTROL WIRING SHALL BE 24-VOLT CONTROL CIRCUIT WHICH INCLUDES FUSING AND CONTROL TRANSFORMER.
- G. DEFROST CONTROLS SHALL INCLUDE ELECTRONIC TIME INITIATED, TEMPERATURE TERMINATED DEFROST SYSTEM. TIMED OVERRIDE LIMITS DEFROST CYCLE TO 10 MINUTES.
- H. LOW AMBIENT TEMPERATURES SHALL BE PROVIDED TO MODULATE THE RPM OF UNIT OUTDOOR FAN MOTOR IN RESPONSE TO OUTDOOR AMBIENT TEMPERATURES AND UNIT HEAD PRESSURE. PROVIDE UNIT COOLING OPERATION TO OUTDOOR TEMPERATURE 0 DEGREES F.
- I. PROVIDE ANTI-SHORT-CYCLE TIMER TO PREVENT RAPID ON-OFF COMPRESSOR CYCLING IN LIGHT LOAD CONDITIONS BY NOT ALLOWING COMPRESSOR TO OPERATE FOR 5-7 MINUTES UPON SHUTDOWN. TIMER SHALL CONSIST OF A SOLID STATE TIMING DEVICE, 24-VOLT, 60 CYCLE.
- J. WARRANTY:
1. PROVIDE A WRITTEN WARRANTY AGREEING TO REPLACE COMPONENTS THAT FAIL IN MATERIALS AND WORKMANSHIP WITHIN THE SPECIFIED WARRANTY PERIOD, PROVIDED MANUFACTURER'S WRITTEN INSTRUCTION, OPERATION, AND MAINTENANCE HAVE BEEN FOLLOWED.
 2. WARRANTY PERIOD: MANUFACTURERS STANDARD, BUT NOT LESS THAN FIVE (5) YEARS FROM DATE OF SUBSTANTIAL COMPLETION FOR COMPRESSOR(S) AND ONE (1) YEAR FOR ALL OTHER COMPONENTS.
- K. UNITS SHALL BE JOI, CARRIER OR APPROVED EQUAL. INSTALL UNIT IN ACCORDANCE WITH MANUFACTURER-S INSTRUCTIONS.

SECTION 15855 - SPLIT SYSTEM DX AIR HANDLING UNITS

- A. AIR HANDLING UNITS SHALL BE COMPLETELY FACTORY ASSEMBLED INCLUDING COIL, CONDENSATE DRAIN PAN, FAN MOTOR(S), FILTER, AND CONTROL. UNITS SHALL BE RATED AND TESTED IN ACCORDANCE WITH ARI STANDARD. UNITS SHALL BE UL LISTED AND LABELED IN ACCORDANCE WITH UL 465 AND UL 1995 FOR INDOOR BLOWER COIL UNITS.
- B. UNIT CASING SHALL BE CONSTRUCTED OF ZINC COATED, MINIMUM 20 GAUGE, G-90 GALVANIZED STEEL. CASING SHALL BE COMPLETELY INSULATED WITH FIRE-RETARDANT, PERMANENT, ODORLESS GLASS FIBER MATERIAL WITH R-VALUE NOT LESS THAN 4. KNOCKOUTS SHALL BE PROVIDED FOR UNIT ELECTRIC POWER AND REFRIGERANT PIPING CONNECTIONS. CAPTIVE SCREWS SHALL BE STANDARD ON ALL ACCESS PANELS.
- C. DIRECT EXPANSION COIL SHALL BE ALUMINUM FIN SURFACE MECHANICALLY BONDED TO 3/8 INCH INTERNALLY ENHANCED COPPER TUBING.
- D. CONDENSATE DRAIN PAN SHALL BE ONE-PIECE, CORROSION RESISTANT, AND FULLY DRAINABLE. COIL SHALL BE MOUNTED ABOVE, NOT IN, THE DRAIN PAN TO ALLOW FULL INSPECTION OR CLEANING OF DRAIN PAN. UNIT SHALL CONTAIN CONDENSATE DRAIN PANS FOR BOTH HORIZONTAL AND VERTICAL APPLICATIONS. DRAIN PANS SHALL HAVE CONNECTIONS ON BOTH SIDES OF THE DRAIN PAN. FULL SIZE CONDENSATE DRAIN PIPING FROM UNIT TO LOCATION INDICATED ON PLAN. DRAIN LINE SHALL BE INSTALLED WITH A SLOPE OF NOT LESS THAN 1/8 INCH PER FOOT DOWN IN THE DIRECTION OF FLOW.
- E. BLOWER FAN SHALL BE DOUBLE INLET, DOUBLE WIDTH, FORWARD CURVED, CENTRIFUGAL-TYPE FAN(S) WITH ADJUSTABLE BELT DRIVE UNIVERSAL MOTOR. THERMAL OVERLOAD PROTECTION SHALL BE STANDARD ON MOTOR. FAN AND MOTOR BEARINGS SHALL BE PERMANENTLY LUBRICATED.
- F. MAGNETIC MOTOR STARTER, LOW VOLTAGE TERMINAL STRIP, AND SINGLE POINT POWER ENTRY SHALL BE INCLUDED. ALL NECESSARY CONTROLS SHALL BE FACTORY-INSULATED AND WIRED. EVAPORATOR DEFROST CONTROL SHALL BE INCLUDED TO PREVENT COMPRESSOR SLUGGING BY TEMPORARILY INTERRUPTING COMPRESSOR OPERATION WHEN LOW EVAPORATOR COIL TEMPERATURES ARE ENCOUNTERED.
- G. FILTERS SHALL BE ONEINCH, THROW-AWAY TYPE FILTERS FILTERS SHALL BE ACCESSIBLE FROM EITHER SIDE THROUGH THE COIL ACCESS PANEL.
- H. PROVIDE UNIT MOUNTED ELECTRIC HEATERS AS SCHEDULED. ELECTRIC HEAT ASSEMBLY SHALL BE UL, ETL, AND CSA APPROVED FOR DIRECT INSTALLATION ON FAN DISCHARGE. HEATER ASSEMBLY SHALL HAVE SINGLE-POINT POWER WIRING AND INCLUDE CONTACTORS WITH 24 VOLT COILS. POWER WIRING, 24 VOLT CONTROL WIRING TERMINAL BLOCKS, AND A HINGED ACCESS PANEL. ELECTRIC HEATER ELEMENTS SHALL BE CONSTRUCTED OF HEAVY-DUTY NICKEL CHROMIUM ELEMENTS.
- I. UNITS SHALL BE YORK, CARRIER OR APPROVED EQUAL. INSTALL UNIT IN ACCORDANCE WITH MANUFACTURER-S INSTRUCTIONS.

SECTION 15930 - GAS FIRED RADIANT HEATERS

- A. HIGH-INTENSITY INFRARED HEATER (GAS-FIRED)
1. GAS-FIRED HIGH-INTENSITY INFRARED HEATERS SHALL COMPLY WITH ANSI Z83.19, SECTION 2.10 RADIANT COEFFICIENT. A SECONDARY RE-RADIATING SURFACE OF EITHER RODS OR SCREEN. THE CERAMIC RADIANT SURFACE SHALL BE HORIZONTAL WHEN HEATER IS INSTALLED AT 0 DEGREES. HEATERS SHALL BE CAPABLE OF ANGLE MOUNTING FROM 5 TO 30 DEGREES.
 2. WITHOUT THE USE OF AN ADDITIONAL REFLECTOR, HEATERS SHALL BE FULLY TESTED AND READY TO INSTALL. PIPE AND WIRE OPERATION ON NATURAL OR LIPIPROPANE GAS. HEATERS SHALL BE DESIGNED TO SATISFACTORILY OPERATE AT A MINIMUM SUPPLY.
 3. INLET GAS PRESSURE OF 7 INCHES WATER COLUMN (W.C.) WHEN SPECIFIED FOR NATURAL GAS OR 11 INCHES W.C. WHEN SPECIFIED FOR LIPIPROPANE GAS AND AT A MAXIMUM SUPPLY INLET GAS PRESSURE OF 14 INCHES W.C. F. THE HEATER SHALL BE ADJUSTABLE WITHOUT ADJUSTMENTS WILL BE BURNING NATURAL GAS HAVING A HEAT VALUE OF 1000 BTU PER CUBIC FOOT WITH A SPECIFIC GRAVITY OF .65.
 4. HEATERS SHALL BE EQUIPPED WITH ONE OF THE FOLLOWING CONTROLS: 1. SINGLE-STAGE, 120 VAC DIRECT SPARK IGNITION CONTROL HAVING: 100% SAFETY SHUT OFF WITH FLAME MONITORING AND 10.8 VA MAXIMUM POWER CONSUMPTION. CONTROL SHALL OPERATE WITH NO EXTERNAL ELECTRICAL POWER, BUT INSTEAD USE MILLI-VOLTAGE GENERATED BY THE PILOT FLAME. THE HEATER'S CONTROLS SHALL BE EASILY ACCESSIBLE THE DIRECT SPARK IGNITOR OR MANUAL PILOT SHALL BE DURABLE TO RESIST BREAKAGE. THE HEATER IS FITTED WITH A GAS ORIFICE FOR EACH BURNER FOR PROPER AIR TO GAS MIXTURE FOR SEA LEVEL. HEATERS CAN BE ORDERED OR CONVERTED FOR USE AT HIGH ALTITUDES, OR WITH EITHER LIPIPROPANE OR NATURAL GAS.
 5. THE HEATER SHALL BE OF MODULAR DESIGN EMPLOYING MULTIPLE BURNERS TO ACHIEVE THE SPECIFIED INPUT. THE BURNER(S) SHALL INCLUDE A CERAMIC COMBUSTION SURFACE, A PLENUM CHAMBER AND A VENTURI MIXER AND SHALL BE REMOVABLE WITH A SINGLE SCREWFOR CLEANING OR REPAIR WITHOUT DISCONNECTING ANY GAS, ELECTRICAL OR HANGING DEVICE. THE CERAMIC COMBUSTION SURFACE SHALL BE CAPABLE OF REACHING TEMPERATURES UP TO 1850 DEGREES F (AN INCANDESCENT APPEARANCE) AND WITHSTAND THERMAL SHOCK WHEN WATER QUENCHED. THE COMBUSTION SURFACE SHALL BE A CORDIERITE-BASED GROOVED CERAMIC OF AN EXCLUSIVE PERMEABLE DESIGN. TERMINATE ROWS OF 230 PERFORATIONS PER SQUARE INCH TERMINATE AT THE BOTTOM OF SLOTS MAKING ONE HALF OF THE FLAME BELOW THE TOP SURFACE OF THE CERAMIC AND CREATING A MORE INTIMATE CONTACT BETWEEN FLAME AND SURFACE. THE BURNER'S PLENUM CHAMBER SHALL BE OF 20 GA. (.035) CORROSION-FREE ALUMINIZED STEEL, ONE-PIECE FABRICATION WITHOUT CONSTRUCTION. THE PLENUM CHAMBER SHALL UTILIZE A ONE-PIECE STAINLESS STEEL RETAINER TO HOLD THE CERAMIC SURFACE IN PLACE AROUND ITS ENTIRE PERIMETER AND A 14 GA. (.083) ALUMINIZED STEEL BACK BRACKET FOR HOLDING THE BURNER ASSEMBLY IN PLACE TO ACHIEVE PROPER ALIGNMENT OF THE SURFACE, VENTURI AND ORIFICE. THE VENTURI SHALL BE MADE OF ALUMINIZED STEEL. THE HEATER'S MAIN FRAME SHALL BE 16 GA. (.065) CORROSION-FREE ALUMINIZED STEEL AND OF NO-WELD CONSTRUCTION. THE MAIN FRAME SHALL HAVE A DOUBLE TURNED UPPER EDGE AND TWO (2) CORNER REINFORCEMENT BRACKETS FOR RIGIDITY. THE SIDE FRAMES SHALL HAVE FOUR (4) 3/8" DIAMETER HOLES FOR EASY MOUNTING WITH S-HOOKS AND CHAIN. REFLECTORS SHALL BE OF 21 GA. (.032) HIGHLY POLISHED MIRROR BRIT ALUMINUM WITH A REFLECTIVITY OF NOT LESS THAN 98%. STANDARD REFLECTOR DESIGN (SHAPE) SHALL HAVE .352 SQUARE FEET OF REFLECTIVE AREA PER LINEAR FOOT, WITH A DOUBLE TURNED EDGE FOR RIGIDITY AND BE MOUNTED TO THE HEATER AT THE FACTORY.
 6. UNITS SHALL BE DETROIT RADIANT/REVERBERRAY.
- B. TUBULAR INFRARED HEATERS
1. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 2. DESCRIPTION: FACTORY ASSEMBLED, PIPED, AND WIRED, AND COMPLYING WITH ANSI Z83.20/CSA 2.34.
 3. FUEL TYPE: DESIGN BURNER FOR NATURAL GAS HAVING CHARACTERISTICS SAME AS THOSE OF GAS AVAILABLE AT PROJECT SITE.
 4. COMBUSTION TUBING: 4-INCH- DIAMETER ALUMINIZED STEEL WITH HIGH-EMISSIVITY, HIGH-TEMPERATURE, CORROSION-RESISTANT EXTERNAL FINISH.
 5. TUBING CONNECTIONS: STAINLESS-STEEL COUPLINGS OR FLARED JOINTS WITH STAINLESS-STEEL DRAW BOLTS.
 6. REFLECTOR: POLISHED ALUMINUM, 97 PERCENT MINIMUM REFLECTIVITY, WITH END CAPS. SHAPE TO CONTROL RADIATION FROM TUBING FOR UNIFORM INTENSITY AT FLOOR LEVEL WITH 100 PERCENT CUTOFF ABOVE CENTERLINE OF TUBING. PROVIDE REFLECTOR FOR ROTATING REFLECTOR OR HEATER AROUND A HORIZONTAL AXIS FOR MINIMUM 30-DEGREE TILT FROM VERTICAL.
 7. REFLECTOR EXTENSION SHIELDS: SAME MATERIAL AS REFLECTORS, ARRANGED FOR FIXED CONNECTION TO LOWER REFLECTOR LIP AND PROVIDE SUPPORT TO PROVIDE 100 PERCENT CUTOFF OF DIRECT RADIATION FROM TUBING AT ANGLES GREATER THAN 30 FROM VERTICAL.
 8. INCLUDE HANGER KIT AND BURNER SAFETY CONTROLS:
 9. GAS CONTROL VALVE: SINGLE-STAGE, REGULATED REDUNDANT 24-V AC GAS VALVE CONTAINING PILOT SOLENOID VALVE, ELECTRIC GAS VALVE, PILOT FIRER, PRESSURE REGULATOR, PILOT SHUT-OFF AND MANUAL SHUT-OFF ALL IN ONE BODY, BLOCKED VENT SAFETY. DIFFERENTIAL PRESSURE SWITCH IN BURNER SAFETY CIRCUIT TO STOP BURNER OPERATION WITH HIGH DISCHARGE OR SUCTION PRESSURE. CONTROL PANEL, INTERLOCK: STOPS BURNER IF PANEL IS OPEN. INDICATOR LIGHTS: BURNER-ON INDICATOR LIGHT.
 11. BURNER AND EMITTER TYPE: GRAVITY-VENTED POWER BURNER, WITH THE FOLLOWING FEATURES:
 12. EMITTER TUBE: 4-INCH- DIAMETER, ALUMINIZED STEEL TUBING WITH SIGHT GLASS FOR BURNER AND PILOT FLAME OBSERVATION.
 13. VENTING: CONNECTOR AT EXIT END OF EMITTER TUBING FOR VENT-PIPE CONNECTION. VENT TERMINAL: HORIZONTAL.
 14. BURNER/IGNITION: POWER GAS BURNER WITH ELECTRONIC SPARK AND ELECTRONIC FLAME SAFETY. COMBUSTION CHAMBER, FUEL CONNECTION FOR COMBUSTION AIR TO BE DRAWN DIRECTLY FROM OUTDOORS BY BURNER FAN.



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No. 24125



5/15/24

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Seyleville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Mechanical Specifications

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB
Scale	12" = 1'-0"

M0.02

SECTION 15870 - POWER VENTILATORS

- A. POWER VENTILATORS WHICH ARE SCHEDULED OR REFERRED TO BY MODEL NUMBER OR CATALOGUE NUMBER ARE INTENDED TO INCLUDE ALL MATERIALS COVERED BY SUCH NUMBER. ANY REQUIRED ACCESSORIES FOR THE INSTALLATION OF THE FAN ARE TO BE BY THE SAME MANUFACTURER UNLESS OTHERWISE NOTED.
- B. ALL WIRING AND ELECTRICAL COMPONENTS SHALL COMPLY WITH THE NATIONAL ELECTRIC CODES (NEC). ALL MATERIALS SHALL BE UL LISTED. FANS SHALL BE UL 705. FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEAL FOR SOUND AND AIR PERFORMANCE. FAN ASSEMBLY SHALL BEAR AN ENGRAVED ALUMINUM NAMEPLATE. FANS WHEELS SHALL BE BALANCED IN ACCORDANCE WITH AMCA STANDARD 204-96. EACH UNIT SHALL HAVE A BIRDSCREEN CONSTRUCTED OF GALVANIZED WIRE MESH WITH 2 IN. OPENINGS MOUNTED VERTICALLY IN THE UNIT DISCHARGE. THE BIRDSCREEN SHALL PRODUCE MINIMAL EFFECT ON AIR AND SOUND PERFORMANCE.
- D. INSTALL FAN IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALL FANS WITH CLEARANCES FOR SERVICE AND MAINTENANCE. MAKE FINAL DUCT CONNECTIONS TO FANS WITH FLEXIBLE CONNECTORS.
- E. BACK DRAFT DAMPER SHALL BE 6063T5 EXTRUDED ALUMINUM FRAME, .025 IN THICK FORMED ALUMINUM BLADES, EXTRUDED VINYL EDGE SEALS, SYNTHETIC BEARINGS, MILL FINISH.
- F. COOK IS BASIS OF DESIGN. APPROVED MANUFACTURERS ARE GREENHECK, PENN AND ACME.
- G. INLINE CABINET EXHAUST FAN - DIRECT DRIVE:
- GN 100 SERIES: THE FAN WHEEL HOUSING AND INTEGRAL OUTLET DUCT SHALL BE INJECTION MOLDED FROM A SPECIALLY ENGINEERED RESIN EXCEEDING UL REQUIREMENTS FOR SMOKE AND HEAT GENERATION. THE OUTLET DUCT SHALL HAVE PROVISION FOR AN ALUMINUM BACKDRAFT DAMPER WITH CONTINUOUS ALUMINUM HINGE ROD. THE INLET BOX SHALL BE MINIMUM 22 GAUGE GALVANIZED STEEL. MOTOR SHALL BE ISOLATION MOUNTED TO A ONE PIECE GALVANIZED STAMPED STEEL INTEGRAL MOTOR MOUNTING LIFT. A FIELD WIRING COMPARTMENT WITH RECEPTACLE SHALL BE STANDARD. WHEEL SHALL BE CENTRIFUGAL FORWARD CURVED TYPE, INJECTION MOLDED OF POLYPROPYLENE RESIN.
 - GN 200-900 SERIES: THE FAN HOUSING SHALL BE MINIMUM 20 GAUGE GALVANIZED STEEL, AND ACoustically INSULATED. SLOWER AND MOTOR ASSEMBLY SHALL BE MOUNTED TO A MINIMUM 14 GAUGE REINFORCING CHANNEL AND SHALL BE EASILY REMOVABLE FROM THE HOUSING. MOTOR SHALL BE MOUNTED ON RUBBER-IN-SHEAR VIBRATION ISOLATORS. UNIT SHALL BE SUPPLIED WITH INTEGRAL WIRING BOX AND RECEPTACLE. DISCHARGE POSITION SHALL BE CONVERTIBLE FROM RIGHT ANGLE TO STRAIGHT THROUGH BY MOVING INTERCHANGEABLE PANELS. THE OUTLET DUCT COLLAR SHALL INCLUDE A REINFORCED ALUMINUM DAMPER WITH CONTINUOUS ALUMINUM HINGE ROD AND BRASS BUSHINGS. WHEEL SHALL BE CENTRIFUGAL FORWARD CURVED TYPE, CONSTRUCTED OF GALVANIZED STEEL.
 - MOTOR SHALL BE OPEN DRIP PROOF TYPE WITH PERMANENTLY LUBRICATED SEALED BEARINGS AND INCLUDE IMPEDANCE OR THERMAL OVERLOAD PROTECTION AND DISCONNECT PLUG. MOTOR SHALL BE FURNISHED AT THE SPECIFIED VOLTAGE AND PHASE.
 - FAN SHALL BE NEMA DESIGN GN AS MANUFACTURED BY LOREN COOK COMPANY. GREENHECK, ACME AND PENN VENTILATOR ARE APPROVED EQUAL.
- H. WALL MOUNTED PROPELLER FAN
- THE FAN SHALL BE OF BOLTED AND WELDED CONSTRUCTION UTILIZING CORROSION RESISTANT FASTENERS. THE MOTOR, BEARINGS AND DRIVES SHALL BE MOUNTED ON A TUBULAR STEEL POWER ASSEMBLY. THE POWER ASSEMBLY SHALL BE BOLTED TO A MINIMUM 14 GAUGE WALL PANEL WITH CONTINUOUSLY WELDED CORNERS AND AN INTEGRAL VENTURI. FAN SHALL BE ENCLOSED IN MINIMUM 18 GAUGE GALVANIZED STEEL WALL HOUSING WITH FACTORY INSTALLED SHUTTER AND INLET GUARD. ALL NON-GALVANIZED STEEL FAN COMPONENTS SHALL BE LORENIZED WITH AN ELECTROSTATICALLY APPLIED, BAKED POLYESTER POWDER COATING. EACH COMPONENT SHALL BE SUBJECT TO A FIVE STAGE ENVIRONMENTALLY FRIENDLY WASH SYSTEM, FOLLOWED BY A MINIMUM 2 MIL THICK BAKED POWDER FINISH. PAINT MUST EXCEED 1,000 HOUR SALT SPRAY UNDER ASTM B117 TEST METHOD. PROPELLER: PROPELLER SHALL BE A HIGH-EFFICIENCY FABRICATED STEEL DESIGN WITH BLADES SECURELY FASTENED TO A MINIMUM 7 GAUGE HUB. THE HUB SHALL BE KEVED AND LOCKED TO THE FAN SHAFT UTILIZING TWO SETSCREWS.
 - MOTOR SHALL BE NEMA DESIGN B WITH CLASS B INSULATION RATED FOR CONTINUOUS DUTY AND FURNISHED AT THE SPECIFIED VOLTAGE, PHASE AND ENCLOSURE. BEARINGS SHALL BE DESIGNED AND TESTED SPECIFICALLY FOR USE IN AIR HANDLING APPLICATIONS. CONSTRUCTION SHALL BE HEAVY DUTY REGREASABLE BALL TYPE IN A CAST IRON PILLOW BLOCK HOUSING SELECTED FOR A MINIMUM L50 LIFE IN EXCESS OF 200,000 HOURS AT MAXIMUM CATALOGED OPERATING SPEED.
 - BELTS AND DRIVES: BELTS SHALL BE OIL AND HEAT RESISTANT, STATIC CONDUCTING. DRIVES SHALL BE PRECISION MACHINED CAST IRON TYPE, KEVED AND SECURELY ATTACHED TO THE WHEEL AND MOTOR SHAFTS. DRIVES SHALL BE SIZED FOR 150% OF THE INSTALLED MOTOR HORSEPOWER. THE VARIABLE PITCH MOTOR DRIVE MUST BE FACTORY SET TO THE SPECIFIED FAN RPM.
 - FAN SHALL BE THE XLPH AS MANUFACTURED BY LOREN COOK COMPANY OR APPROVED EQUAL.
- I. WALL MOUNTED CETRIFUGAL EXHAUSTER - DIRECT DRIVE:
- FAN SHALL BE OF BOLTED AND WELDED CONSTRUCTION UTILIZING CORROSION RESISTANT FASTENERS. THE SPUN ALUMINUM STRUCTURAL COMPONENTS SHALL BE CONSTRUCTED OF MINIMUM 16 GAUGE MARINE ALLOY ALUMINUM, BOLTED TO A RIGID ALUMINUM SUPPORT STRUCTURE. THE SPUN ALUMINUM WALL FLANGE SHALL HAVE PRE-PUNCHED KEY SLOT HOLES AND A MOUNTING TEMPLATE WITH WALL OPENING LOCATION FOR EASE OF INSTALLATION. THE WINDBAND SHALL HAVE A ROLLED BEAD FOR ADDED STRENGTH. AN INTEGRAL CONDUIT CHASE SHALL BE PROVIDED INTO THE MOTOR COMPARTMENT TO FACILITATE WIRING CONNECTIONS.
 - THE MOTOR SHALL BE ENCLOSED IN A WEATHER-TIGHT COMPARTMENT, SEPARATED FROM THE EXHAUST AIRSTREAM.
 - WHEEL: WHEEL SHALL BE CENTRIFUGAL BACKWARD INCLINED, CONSTRUCTED OF 100% ALUMINUM, INCLUDING A PRECISION MACHINED CAST ALUMINUM HUB. AN AERODYNAMIC ALUMINUM INLET CONE SHALL BE PROVIDED FOR MAXIMUM PERFORMANCE AND EFFICIENCY. MOTOR (ACWD): MOTOR SHALL BE NEMA DESIGN B WITH A MINIMUM OF CLASS B INSULATION RATED FOR CONTINUOUS DUTY AND FURNISHED AT THE SPECIFIED VOLTAGE, PHASE AND ENCLOSURE.
 - MOTOR (ACWD-EC):MOTOR SHALL BE AN ELECTRONICALLY COMMUTATED MOTOR RATED FOR CONTINUOUS DUTY AND FURNISHED EITHER WITH INTERNALLY MOUNTED POTENTIOMETER SPEED CONTROLLER OR WITH LEADS FOR CONNECTION TO 0-10 VDC EXTERNAL CONTROLLER.
 - FAN SHALL BE MODEL ACW-D AS MANUFACTURED BY LOREN COOK COMPANY OR APPROVED EQUAL.

SECTION 15892 - LOW PRESSURE DUCTWORK

- A. GENERAL:
- DUCT SYSTEM SHALL BE FABRICATED WITH SHEET METAL THICKNESSES AND REINFORCED IN ACCORDANCE WITH SECTION 15 AS SHOWN ON THE DRAWINGS AND AS DESCRIBED HEREIN. DUCTS 18 INCHES AND LARGER ON ANY SIDE SHALL BE STIFFENED BY BEADING ON NOT TO EXCEED 12 INCH CENTERS, UNLESS NOTED OTHERWISE THE MINIMUM PRESSURE/VELOCITY CLASSIFICATION SHALL BE 2 INCH W.G. PLUS OR MINUS, AT 2500 FT. PER MINUTE, DUCT SEAL CLASS "A". DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS.
 - DUCTWORK HANGERS SHALL BE SUPPORTED BY FASTENERS ATTACHED TO STRUCTURAL STEEL. REPAIR FIRE PROOFING WHICH WAS REMOVED FOR DUCTWORK INSTALLATION. INSTALLATION TO BE DONE BY AN APPROVED QUALIFIED TRADESMAN.
 - INSTALL IN THE DUCTWORK DEVICES FURNISHED BY THE TEMPERATURE CONTROLS SUB-CONTRACTOR. INSTALL SMOKE DETECTORS IN DUCTWORK FURNISHED BY THE DIVISION 16 CONTRACTOR.
 - WATER AND OTHER PIPES SHALL NOT BE ALLOWED TO PASS THROUGH AIR RISERS OR DUCTS, UNLESS APPROVED BY THE ENGINEERS, AND WHEN THIS OCCURS, THE SIZE OF SAID DUCT OR RISER SHALL BE PROPORTIONATELY INCREASED. SANITARY WASTE AND VENT PIPING SHALL NOT PENETRATE ANY DUCTWORK.
- B. GALVANIZED STEEL DUCTWORK:
- GALVANIZED STEEL DUCTWORK SHALL CONFORM TO ASTM A653 (G60). ALL LONGITUDINAL SEAMS SHALL BE GROOVED, DOUBLE OR PITTSBURGH TYPE.
- C. DUCTWORK FITTINGS:
- FOR RECTANGULAR DUCTWORK, VANES SHALL BE PROVIDED IN ELBOWS WITH 90 DEGREE THROATS AND THROAT RADII LESS THAN 1-1/2 TIMES DUCT WIDTH. VANES SHALL BE LOCATED IN ACCORDANCE WITH ASHRAE STANDARDS. DOUBLE-VANE AIRFOIL-TYPE TURNING VANES SHALL BE PROVIDED FOR ALL SQUARE TURNS.
- D. HANGERS AND SUPPORTS:
- PROVIDE CONCRETE INSERTS OR STRUCTURAL STEEL FASTENERS APPROPRIATE FOR BUILDING MATERIALS. PROVIDE TRAPEZE AND RISER SUPPORTS AS REQUIRED. SUPPORT MATERIALS SHALL BE THE SAME AS DUCTWORK SUPPORTING.
 - HANGER, STRAPS AND RODS SHALL WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE" STANDARDS.
 - DUCT ATTACHMENTS: SHEET METAL SCREWS, BLIND RIVETS OR SELF-TAPPING METAL SCREWS, COMPATIBLE WITH DUCT MATERIALS.
- E. SEALANT MATERIAL:
- SEALANTS SHALL BE SOLVENT OR WATER BASED TYPE U.L. CLASSIFIED MEETING NFPA 90A CLASS 1 WITH ZERO FIRE AND SMOKE DEVELOPMENT RATING. SEALER SHALL BE UNITED SHEET METAL UNITED DUCT SEALER, OR HARDCAST IRON GRIP NO. 601.
- F. FLEXIBLE CONNECTORS:
- INSTALL FLEXIBLE CONNECTORS AT ALL SUPPLY AND EXHAUST FANS AND OTHER AIR HANDLING UNITS WITH INLET AND OUTLET DUCT OR CASING CONNECTIONS. CONNECTORS SHALL NOT BE PAINTED. CONNECTORS SHALL NOT BE USED AS TRANSITION PIECES BETWEEN FAN AND DUCTWORK.
 - CONNECTORS SHALL NOT BE LESS THAN 4 INCHES LONG (IN CLEAR) AND PROPERLY ATTACHED TO DUCT AND FAN CONNECTION COLLAR BY 1 X 1/8 INCH DRAW BOLT (FABRICATED OF THE SAME MATERIAL AS ADJACENT DUCTWORK) FIRMLY CLAMPED AROUND COLLARS IN SUCH A MANNER AS TO BE AIRTIGHT AND SECURED TO COLLARS WITH SHEET METAL SCREWS.
 - FLEXIBLE CONNECTORS SHALL BE U.L. LISTED, NEOPRENE COATED HEAVY GLASS FABRIC. FABRIC SHALL BE VENTGLAS, MANUFACTURED BY VENTFABRICS, INC.
- G. FLEXIBLE DUCTWORK:
- FLEXIBLE DUCTS SHALL BE USED FOR STRAIGHT RUNS OF DUCT OR OFFSETS UP TO 45 DEGREES, BUT NOT EXCEEDING 48 INCHES IN LENGTH. THE USE OF FLEXIBLE DUCTS AS ELBOWS WITH MORE THAN A 45 DEGREE BEND WILL NOT BE PERMITTED.
 - FLEXIBLE DUCT SHALL BE UL LISTED AND LABELED AS CLASS 1, AIR DUCT CONNECTOR, IN ACCORDANCE WITH U.L. STANDARD 181 AND SHALL MEET THE REQUIREMENTS OF THE LATEST NFPA BULLETTIN, NO. 90A AND NO. 90B FOR FLAME SPREAD AND SMOKE DEVELOPMENT RATING.
 - FLEXIBLE DUCT SHALL BE RATED FOR A MAXIMUM PRESSURE OF 6 INCH POSITIVE AND 3/4 INCH NEGATIVE AND 4000 FPM MAXIMUM VELOCITY. AIR DUCT SHALL CONSIST OF: OPE LINER, COATED SPRING STEEL WIRE HELIX; FIBERGLASS INSULATING BLANKET, FIBERGLASS SCRIM AND REINFORCED ALUMINUM VAPOR BARRIER. THERMAL CONDUCTANCE SHALL BE .23 OR LESS.
 - DUCT SHALL BE FLEXMASTER TYPE 8M OR PRIOR APPROVED EQUAL.
- A. VOLUME DAMPERS:
- SINGLE BLADE DAMPERS SHALL BE CONSTRUCTED OF 22 GAUGE GALVANIZED STEEL (BLADE AND FRAME). SINGLE BLADE DAMPERS SHALL BE LIMITED TO A 12 INCH HIGH BLADE. BLADE EDGES SHALL BE CRIMPED OR REINFORCED. DAMPER LEVERS SHALL INDICATE POSITIVELY THE OPEN AND CLOSED POSITION. END BEARINGS SHALL BE MOLDED SYNTHETIC. DAMPERS SHALL BE RUSKIN MD25 OR APPROVED EQUAL (RUSKIN MDRS25 FOR ROUND DUCTS).
 - MULTIBLADE DAMPERS SHALL BE CONSTRUCTED OF SHEET METAL THE SAME MATERIAL AS THE ADJACENT DUCTWORK. DAMPER FRAME SHALL BE NOT LESS THAN 16 GA. DAMPER BLADES NOT WIDER THAN 6 INCHES CRIMPED OR REINFORCED. DAMPER LEVERS SHALL INDICATE POSITIVELY THE OPEN AND CLOSED POSITION. END BEARINGS SHALL BE MOLDED SYNTHETIC. DAMPER SHALL BE RUSKIN MD35 OR APPROVED EQUAL.
- B. FIRE DAMPERS:
- FIRE DAMPERS SHALL BE UNDERWRITERS APPROVED AND LABELED (UL555). DAMPERS SHALL BE FABRICATED OF GALVANIZED STEEL AND SHALL BE OF SUCH A DESIGN AND LENGTH AS TO FUNCTION AS A WALL MOUNTING SLEEVE, WHICH SHALL BE A PART OF THE FIRE DAMPER. SLEEVES SHALL BE OF WELDED OR BOLTED CONSTRUCTION, CRIMPING OR TABS WILL NOT BE ACCEPTABLE SUBSTITUTES FOR WELDING OR BOLTING.
 - FIRE DAMPERS SHALL BE RUSKIN DDB2 SERIES FOR 12 HOUR RATING. FIRE DAMPERS SHALL BE RUSKIN DDB23 SERIES FOR 3 HOUR RATING. INSTALL STYLE A FIRE DAMPERS BEHIND DUCTED GRILLES AND REGISTERS IN RATED WALLS. INSTALL STYLE B OR C FIRE DAMPERS IN DUCTED OPENINGS IN RATED WALLS. AIR BALANCE AND PREFCO ARE APPROVED EQUAL.
- C. DAMPER HARDWARE:
- ALL HARDWARE SHALL BE SMACNA ACCEPTED. INSULATED DUCTWORK (CONCEALED) - VENTLOK 638 ELEVATED DIAL REGULATOR. INSULATED DUCTWORK (EXPOSED) - VENTLOK 644 - SELF LOCKING REGULATOR. UNINSULATED DUCTWORK - VENTLOK 555 OR 560 QUADRANTS.
- D. DUCT ACCESS DOORS:
- ACCESS DOORS SHALL BE HINGED, CONSTRUCTED OF THE SAME MATERIAL AS THE DUCTWORK. DOOR EDGES SHALL BE SEALED WITH 3/4 INCH WIDE X 1/8 INCH THICK NEOPRENE SPONGE GASKETING. DOOR HARDWARE SHALL BE VENTLOK #100 LATCHES. ACCESS DOORS ON INSULATED DUCTWORK SHALL BE DOUBLE WALL CONSTRUCTION WITH 1 INCH OF RIGID 3 PCF FIBERGLASS INSULATION.
 - PROVIDE DUCT ACCESS DOORS AT ALL DUCT MOUNTED DEVICES REQUIRING ADJUSTMENT OR RESETTING. ACCESS DOORS SHALL BE APPROXIMATELY 18 INCHES HIGH BY 24 INCHES WIDE. IN SMALLER DUCTWORK, THE HEIGHT SHALL BE REDUCED TO BE 2 INCHES LESS THAN THAT OF THE DUCTWORK.

SECTION 15906 - TEMPERATURE CONTROLS

- A. GENERAL:
- FURNISH AND INSTALL AN ELECTRIC SYSTEM OF AUTOMATIC TEMPERATURE CONTROL AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS AND AS MANUFACTURED BY HONEYWELL, JOHNSON CONTROLS, INVENSYS, OR APPROVED EQUAL.
 - EXTRA COSTS INCURRED BY USE OF OTHER THAN BASE BID CONTROL SYSTEM, SUCH AS WIRING, CONTRACT DRAWINGS CHANGES, CHANGES IN DESIGN, ADDED SUPERVISION, ETC., SHALL BE THE RESPONSIBILITY OF THE TEMPERATURE CONTROL SUBCONTRACTOR (TSCC).
 - SYSTEM DOCUMENTATION SHALL INCLUDE THE FOLLOWING: MANUFACTURER'S DATA SHEETS OF ALL PRODUCTS (ORIGINAL COPIES), COMPLETE DESCRIPTION OF OPERATION OF ALL CONTROL LOOPS, INCLUDING RECOMMENDED SETPOINTS AND RANGES OF ADJUSTMENT; FULLY LABELED ELEMENTARY DIAGRAM (ELECTRICAL LADDER DIAGRAM), AND LISTS OF ALL PROPOSED DEVICES AND EQUIPMENT.
- B. MOTOR OPERATORS: MOTOR OPERATOR SHALL BE SPRING RETURN TYPE, WHICH RETURNS MOTOR ACTUATOR SHAFT TO ITS FULL NORMAL MECHANICAL TRAVEL UPON POWER FAILURE. DAMPER MOTOR DRIVE MECHANISM WILL INCLUDE HOLDING BRAKE TO KEEP THE RETURN SPRING FROM DRAWING THE ACTUATOR FROM DRIVING TOWARD ITS NORMAL POSITION UNLESS POWER IS INTERRUPTED. SUPPLY AND INSTALL ELECTRIC MOTOR OPERATORS FOR ALL DAMPERS. UNIT SHALL BE HONEYWELL MS8105A SERIES OR APPROVED EQUAL.

C. AUTOMATIC DAMPERS: ALL CONTROL DAMPERS SHALL BE STANDARD PRODUCTS OF DAMPER OR TEMPERATURE CONTROL MANUFACTURERS UNLESS NOTED OTHERWISE. LOCAL FABRICATION OF DAMPERS IS NOT ALLOWED. DAMPERS SHALL BE OPPOSED BLADE TYPE. FURNISH FOR INSTALLATION BY THE MECHANICAL CONTRACTOR ALL MOTOR OPERATED DAMPERS. DAMPERS SHALL BE RUSKIN MODEL CD50. GREENHECK IN AN APPROVED EQUAL.

D. THERMOSTATS:

 - PROVIDE HVAC THERMOSTAT WITH THE FOLLOWING FEATURES: SEVEN DAY PROGRAMMING, TWO OCCUPIED/TWO UNOCCUPIED PERIODS PER DAY, AUTOMATIC HEAT/COOL CHANGEOVER WITH 2°F MINIMUM DEAD BAND, TWO STAGE HEATING, TWO STAGE COOLING, TOUCHSCREEN DISPLAY, AUXILIARY CONTACT, AND TEMPERATURE OVERRIDE. THERMOSTAT SHALL BE HONEYWELL VISIONPRO 8000 OR EQUAL.
 - PROVIDE HEATER AND VENTILATION THERMOSTAT WITH THE FOLLOWING FEATURES: SINGLE STAGE CONTROL, ON/OFF/AUTO SWITCHING, AND ADJUSTABLE SETPOINT CONTROL.

E. TEMPERATURE CONTROL WIRING:

 - ALL CONTROL WIRING AND CONDUIT REQUIRED TO COMPLETE THE TEMPERATURE CONTROL SYSTEM SHALL BE PROVIDED BY THE TEMPERATURE CONTROL SUB-CONTRACTOR. ALL WIRING SHALL CONFORM TO STANDARDS AND SPECIFICATIONS OUTLINED IN DIVISION 16. WIRE SIZE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND NATIONAL ELECTRIC CODE. MINIMUM CONDUIT SHALL BE 1/2 INCH DIAMETER. TSCC SHALL COORDINATE ALL CONTROL POWER REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO BID.
 - ELECTRIC CONNECTIONS BETWEEN THE VARIOUS UNIT CONTROL CABINETS SHALL BE MADE BY THE TSCC. ALL WIRING MUST BE TAGGED ON BOTH ENDS WITH PANEL NUMBER AND TERMINAL NUMBER.
 - THE TSCC IS RESPONSIBLE FOR ALL REQUIRED PROCESS AND ELECTRICAL CONNECTIONS TO ALL EQUIPMENT, CONTROL DEVICES, AND FIELD INSTRUMENTS. TSCC SHALL FURNISH AND INSTALL ALL CONDUITS, RACEWAYS, ETC., REQUIRED. TSCC SHALL FURNISH AND INSTALL ALL CONTROL AND INTERLOCK WIRING. TSCC SHALL FURNISH AND INSTALL ALL REQUIRED AUXILIARY STARTER CONTACTS OR RELAYS, ETC., FOR A COMPLETE ELECTRICAL INTERLOCK AND CONTROL WIRING SYSTEM.

F. INSTALLATION:

 - THE ENTIRE CONTROL SYSTEM, INCLUDING LOW VOLTAGE WIRING, WITH THE EXCEPTION OF DUCT MOUNTED AUTOMATIC DAMPERS AND SMOKE DETECTORS, SHALL BE INSTALLED BY THE TEMPERATURE CONTROL CONTRACTOR, WHO SHALL MAKE ALL TESTS AND ADJUSTMENTS. ALL CONTROLS SHALL BE FIELD-TESTED AND FIELD-CALIBRATED.
 - SET POINTS OF ALL CONTROLLING INSTRUMENTS ARE INDICATED AT A SPECIFIC POINT; HOWEVER, ALL SET POINTS SHALL BE ADJUSTABLE UP AND DOWN FROM THE POINT INDICATED.
 - CONTRACTOR SHALL SUBMIT TENTATIVE LOCATIONS OF ALL CONTROL DEVICES AND COMPONENTS (INCLUDING TEMPERATURE SENSORS) TO THE ARCHITECT FOR WRITTEN APPROVAL PRIOR TO INSTALLATION. CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO LOCATION OF CONTROL DEVICES AND COMPONENTS TO LOCATION OF CONTROL DEVICES AND COMPONENTS. EFFECTS OF DRAFTS, RADIANT HEAT, VIBRATION, ETC ARE TO BE CONSIDERED WHEN INSTALLING CONTROL DEVICES AND COMPONENTS.
 - PRIOR TO ORDERING FACTORY ASSEMBLED EQUIPMENT WHICH CONTAINS INTEGRAL CONTROL DEVICES AND COMPONENTS, THE CONTRACTOR SHALL OBTAIN A WRITTEN STATEMENT FROM BOTH THE MANUFACTURER AND THE INSTALLING CONTRACTOR THAT THEY HAVE REVIEWED THE APPROPRIATE SUBMITTAL DATA AND ARE AWARE OF THE MAKE, MODEL, TYPE, SIZE, CHARACTERISTICS, ETC. OF THE FACTORY ASSEMBLED CONTROL DEVICES AND COMPONENTS WHICH THEY SHALL BE REQUIRED TO INTERFACE TO AND/OR CONTROL.
 - ALL CONTROL DEVICES (BOTH FIELD AND PANEL MOUNTED) SHALL BE LABELED TO INDICATE BOTH THEIR CONTROL SYSTEMS DESIGNATION, E.G., RTU-1, THERMOSTAT, UNLESS INDICATED OTHERWISE. ABBREVIATIONS AND ACRONYMS FOR ALL ID TAGS AND PANEL FACEPLATES SHALL BE APPROVED BY THE ENGINEER.
 - ALL CONTROL DEVICES ARE TO BE MOUNTED IN ACCESSIBLE LOCATIONS. ALL DEVICES EXPOSED TO THE WEATHER SHALL BE HOUSED IN WEATHERPROOF ENCLOSURES AT THE COMPLETION OF THE JOB. TSCC SHALL CORRECT HIS DRAWINGS TO INCLUDE ANY CHANGES MADE DURING CONSTRUCTION. TSCC SHALL PROVIDE COLOR-CODED DRAWINGS INDICATED ALL TEMPERATURE ZONES AND EQUIPMENT (3 COPIES).

G. OPERATION TEST AND OWNERS INSTRUCTION:

 - AT COMPLETION, TSCC SHALL OPERATE THE SYSTEM FOR A PERIOD OF AT LEAST THREE DAYS OF EIGHT HOURS EACH ON THE NEW SYSTEMS TO DEMONSTRATE FULFILLMENT OF THE REQUIREMENTS OF THE CONTRACT. DURING THIS TIME, ALL ADJUSTMENTS SHALL BE MADE TO THE EQUIPMENT SO THAT IT IS IN FIRST-CLASS OPERATING CONDITION. THE ENTIRE SYSTEM IS TO BE LEFT IN OPERATING CONDITION ACCEPTABLE TO THE ENGINEER.
 - UPON COMPLETION OF THE WORK AND ACCEPTANCE BY THE OWNER, TSCC SHALL PROVIDE ONE SCHEDULED FOUR-HOUR PERIOD OF FORMAL INSTRUCTION TO THE OWNER'S OPERATING PERSONNEL WHO HAVE RESPONSIBILITY FOR THE MECHANICAL SYSTEM.

H. SEQUENCE OF OPERATIONS:

 - HVAC UNITS:
 - NORMAL OPERATION:
 - UNITS SHALL BE CONTROLLED BY SPACE THERMOSTAT. FAN SHALL OPERATE CONTINUOUSLY DURING OCCUPIED MODE AND INTERMITTENTLY DURING UNOCCUPIED MODE.
 - HEATING AND COOLING SHALL BE ENABLED BY THERMOSTAT.
 - COOLING SETPOINT SHALL BE 73°F (ADJUSTABLE).
 - HEATING SETPOINT SHALL BE 68°F (ADJUSTABLE).
 - OUTSIDE AIR DAMPER SHALL OPEN DURING OCCUPIED MODE AND CLOSE DURING UNOCCUPIED MODE. OUTSIDE AIR DAMPER SHALL BE NORMALLY CLOSED AND RETURN TO NORMAL POSITION UPON LOSS OF POWER. - EXHAUST FANS:
 - INTERLOCK EXHAUST FANS AS NOTED ON SCHEDULE.



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



5/15/24

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

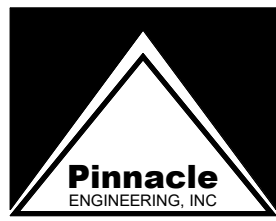
© 2024 Aho Architects, LLC.
All Rights Reserved.

Mechanical Specifications

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

M0.03

Scale 12" = 1'-0"



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



www.ahoarch.com



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

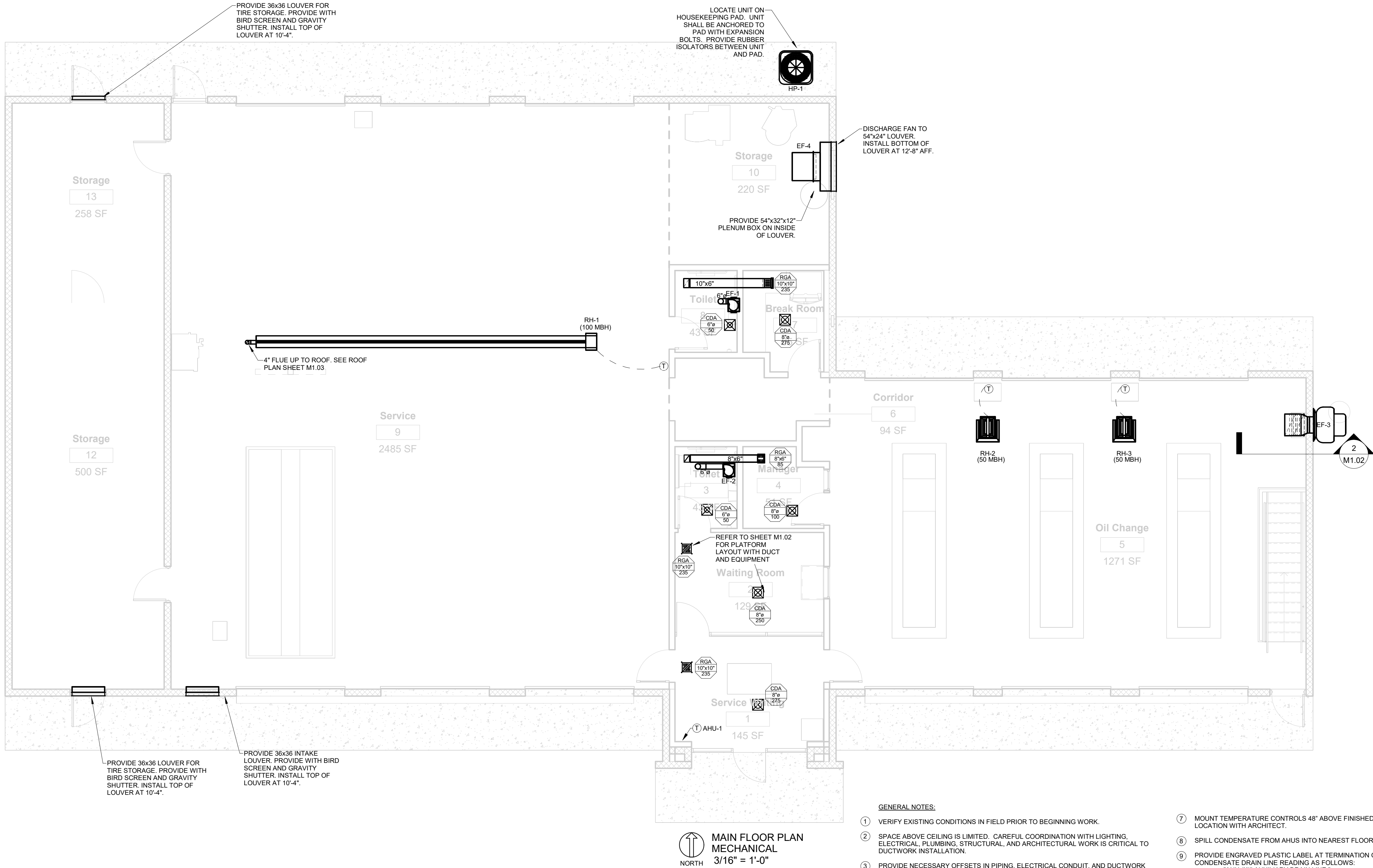
© 2024 Aho Architects, LLC.
All Rights Reserved.

Mechanical Floor
Plan

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

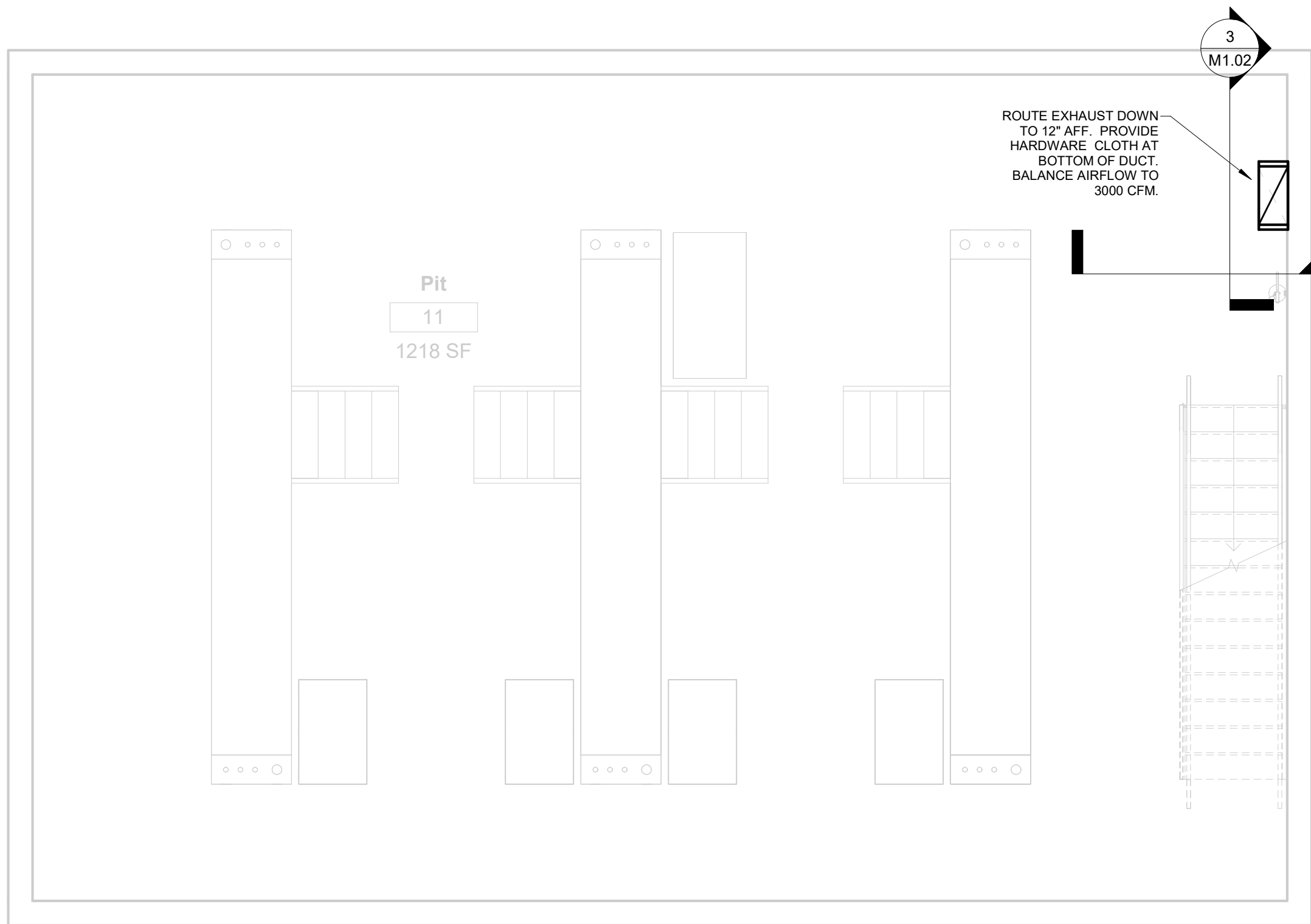
M1.01

Scale As indicated

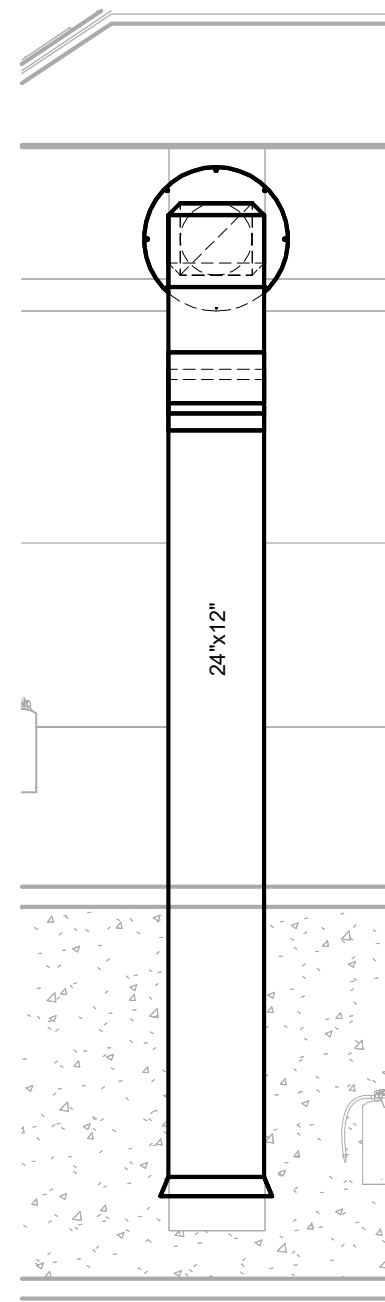


GENERAL NOTES:

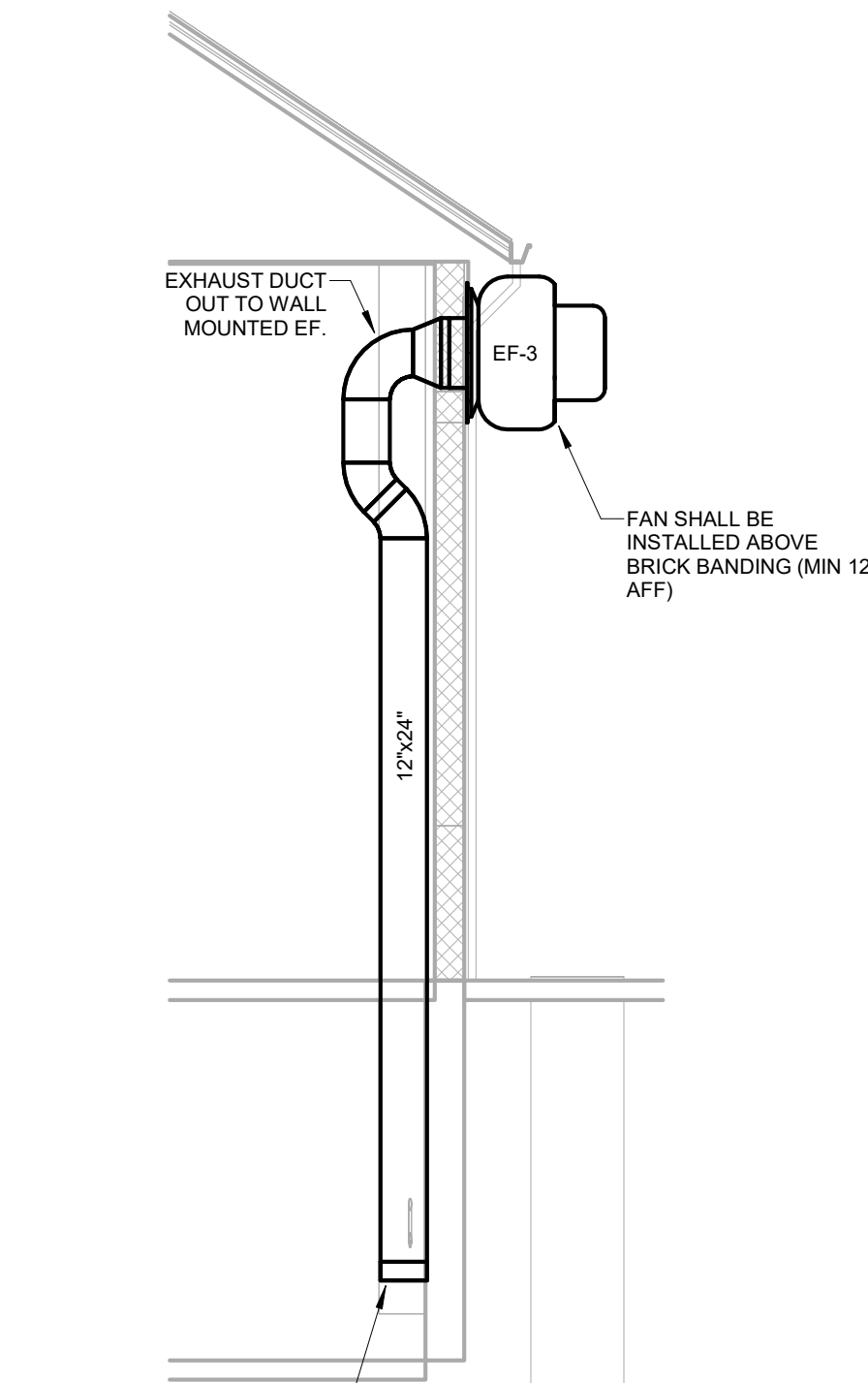
- VERIFY EXISTING CONDITIONS IN FIELD PRIOR TO BEGINNING WORK.
- SPACE ABOVE CEILING IS LIMITED. CAREFUL COORDINATION WITH LIGHTING, ELECTRICAL, PLUMBING, STRUCTURAL, AND ARCHITECTURAL WORK IS CRITICAL TO DUCTWORK INSTALLATION.
- PROVIDE NECESSARY OFFSETS IN PIPING, ELECTRICAL CONDUIT, AND DUCTWORK AS REQUIRED TO ACCOMMODATE NEW WORK. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL DETAILS NOR CHANGES IN DUCTWORK ELEVATIONS NECESSARY FOR COMPLETE INSTALLATION.
- COORDINATE CEILING AIR DEVICE LOCATIONS WITH LIGHTING PLAN AND ARCHITECT'S REFLECTED CEILING PLAN.
- DUCTWORK SHALL BE RUN TIGHT TO STRUCTURE. AVOID CROSSING OVER LIGHTS AND OTHER DUCTS DUE TO TIGHT CLEARANCES.
- LOUVERS SHALL BE RUSKIN ELFR375D OR APPROVED EQUAL. PROVIDE UNIT WITH BIRDSCREEN AND MILL ALUMINUM FINISH. COORDINATE EXACT HEIGHT AND COLOR OF LOUVER WITH ARCHITECT PRIOR TO ORDERING.
- MOUNT TEMPERATURE CONTROLS 48" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH ARCHITECT.
- SPILL CONDENSATE FROM AHUS INTO NEAREST FLOOR DRAIN.
- PROVIDE ENGRAVED PLASTIC LABEL AT TERMINATION OF EACH AUXILIARY CONDENSATE DRAIN LINE READING AS FOLLOWS:
"AHU-### AUXILIARY DRAIN LINE."
"NOTIFY MAINTENANCE PERSONNEL WHEN WATER IS FLOWING"
- CONNECT CONDENSATE DRAIN PIPING TO AIR HANDLING UNITS IN ACCORDANCE WITH DETAILS.
- OUTSIDE AIR VENTILATION INTAKES FOR OIL CHANGE AND SERVICE AREAS WILL BE PROVIDED BY OPEN ROLL-UP DOORS. DOORS SHALL BE OPEN WHILE VENTILATION SYSTEM IS ENABLED.



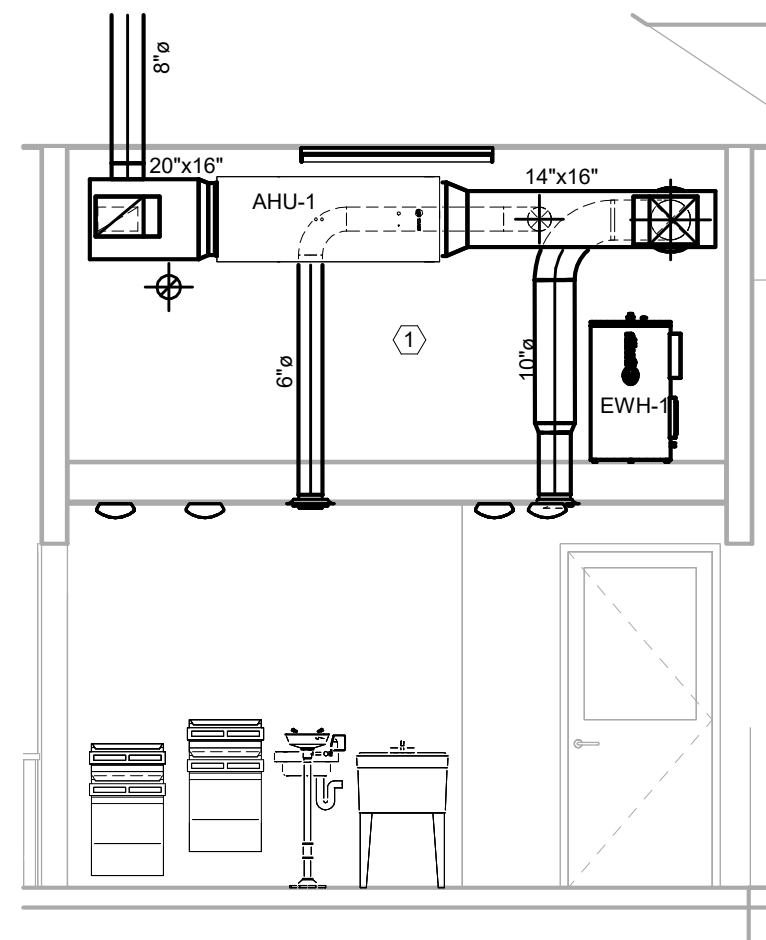
PIT FLOOR PLAN
MECHANICAL
NORTH 1/4" = 1'-0"



3 Section 2
M1.02 1/4" = 1'-0"

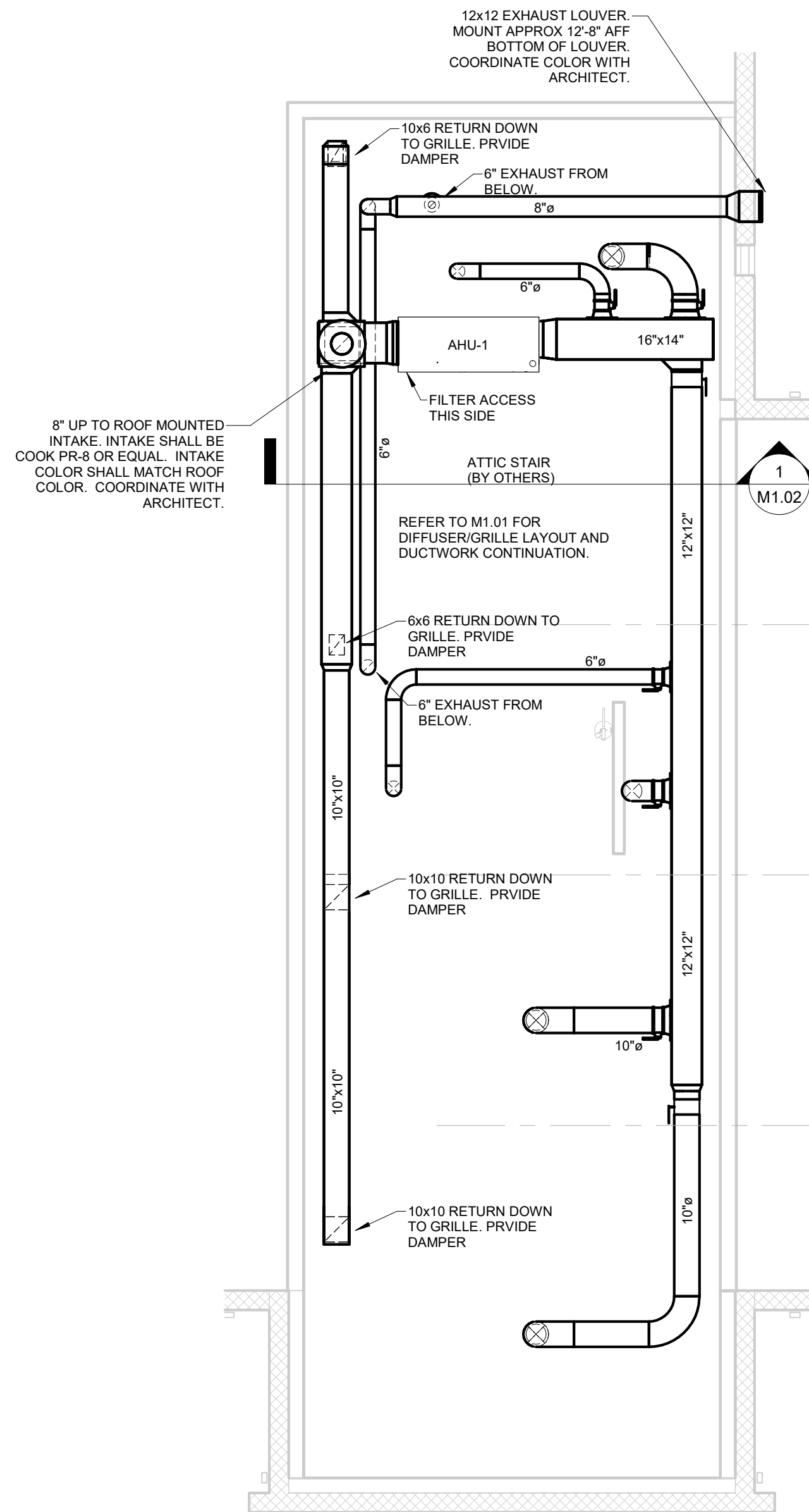


2 Section Through Pit Exhaust1
M1.02 1/4" = 1'-0"



DRAWING NOTES:
① INSTALL DUCTWORK AND EQUIPMENT IN EQUIPMENT PLATFORM SPACE TO ALLOW FOR MAXIMUM USE OF FLOOR AREA. EQUIPMENT SHALL BE HUNG FROM STRUCTURE ABOVE AND DUCTS ROUTED DOWN VERTICALLY THROUGH FLOOR.

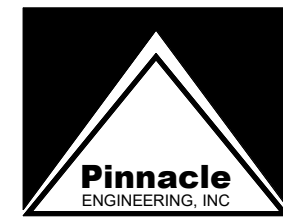
1 Section 6
M1.02 1/4" = 1'-0"



EQUIPMENT PLATFORM
MECHANICAL
NORTH 1/4" = 1'-0"

GENERAL NOTES:

- VERIFY EXISTING CONDITIONS IN FIELD PRIOR TO BEGINNING WORK.
- SPACE ABOVE CEILING IS LIMITED. CAREFUL COORDINATION WITH LIGHTING, ELECTRICAL, PLUMBING, STRUCTURAL, AND ARCHITECTURAL WORK IS CRITICAL TO DUCTWORK INSTALLATION.
- PROVIDE NECESSARY OFFSETS IN PIPING, ELECTRICAL CONDUIT, AND DUCTWORK AS REQUIRED TO ACCOMMODATE NEW WORK. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL DETAILS NOR CHANGES IN DUCTWORK ELEVATIONS NECESSARY FOR COMPLETE INSTALLATION.
- COORDINATE CEILING AIR DEVICE LOCATIONS WITH LIGHTING PLAN AND ARCHITECT'S REFLECTED CEILING PLAN.
- DUCTWORK SHALL BE RUN TIGHT TO STRUCTURE. AVOID CROSSING OVER LIGHTS AND OTHER DUCTS DUE TO TIGHT CLEARANCES.
- LOUVERS SHALL BE RUSKIN ELF6375D OR APPROVED EQUAL. PROVIDE UNIT WITH BIRDSCREEN AND MILL ALUMINUM FINISH. COORDINATE EXACT HEIGHT AND COLOR OF LOUVER WITH ARCHITECT PRIOR TO ORDERING.
- MOUNT TEMPERATURE CONTROLS 48" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH ARCHITECT.
- SPILL CONDENSATE FROM AHUS INTO NEAREST FLOOR DRAIN.
- PROVIDE ENGRAVED PLASTIC LABEL AT TERMINATION OF EACH AUXILIARY CONDENSATE DRAIN LINE READING AS FOLLOWS:
"AHU-### AUXILIARY DRAIN LINE."
"NOTIFY MAINTENANCE PERSONNEL WHEN WATER IS FLOWING"
- CONNECT CONDENSATE DRAIN PIPING TO AHU IN ACCORDANCE WITH DETAILS.



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



www.ahoarch.com



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Partial Mechanical
Floor Plans - Pit
and Platform

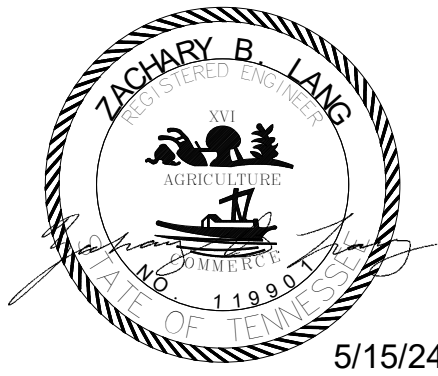
Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

M1.02

Scale As indicated



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



5/15/24

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

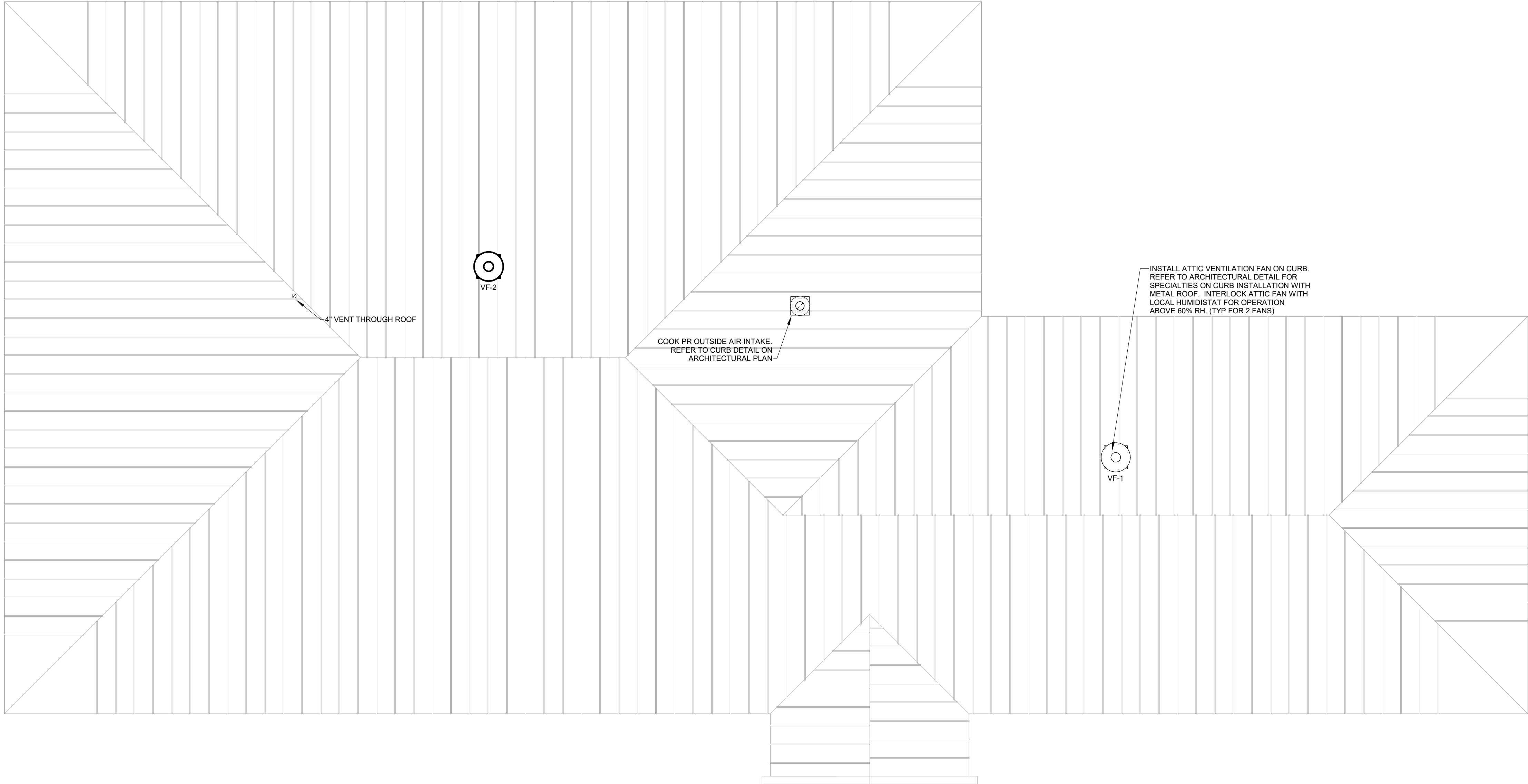
© 2024 Aho Architects, LLC.
All Rights Reserved.

Mechanical Roof
Plan

Project number	24005
Date	5/15/2024
Drawn by	CRA
Checked by	JAB

M1.03

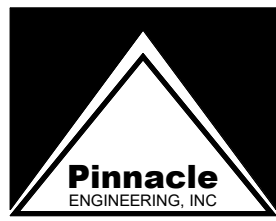
Scale As indicated



MECHANICAL ROOF PLAN
3/16" = 1'-0"
NORTH

GENERAL NOTES:

- 1. VERIFY EXISTING CONDITIONS IN FIELD PRIOR TO BEGINNING WORK.
- 2. INTAKE FOR ATTIC VENTILATION TO BE PROVIDED AT SOFFIT. SEE ARCHITECTURAL PLANS.



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



www.ahoarch.com



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

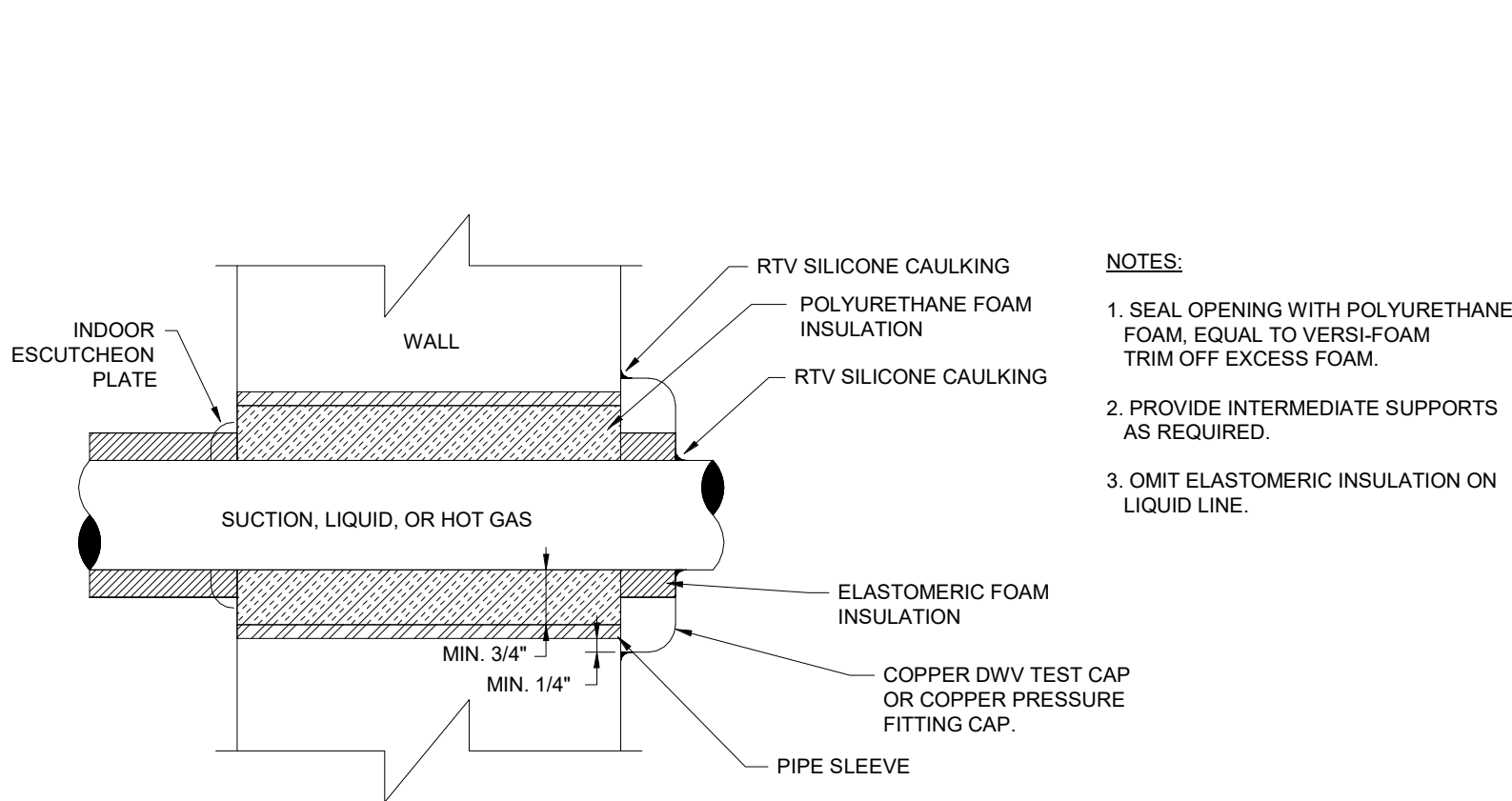
Mechanical Details

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

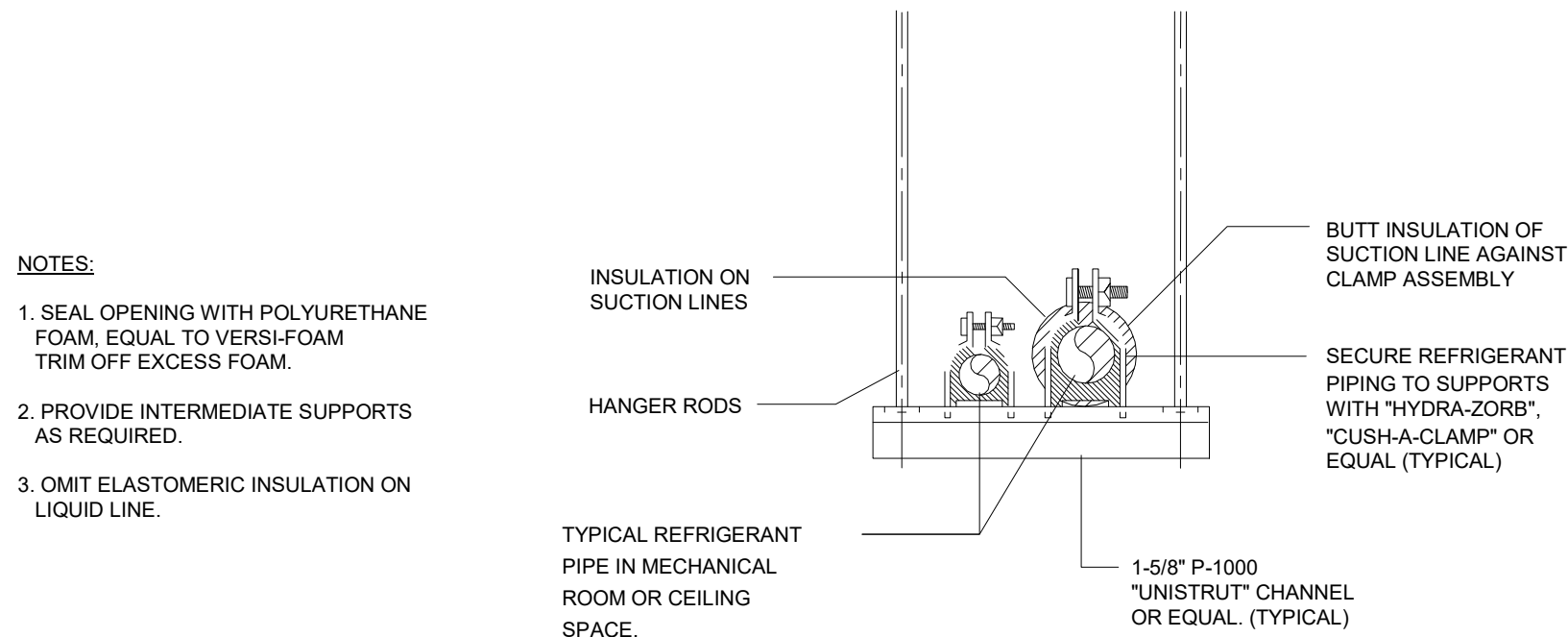
M2.01

Scale 12" = 1'-0"

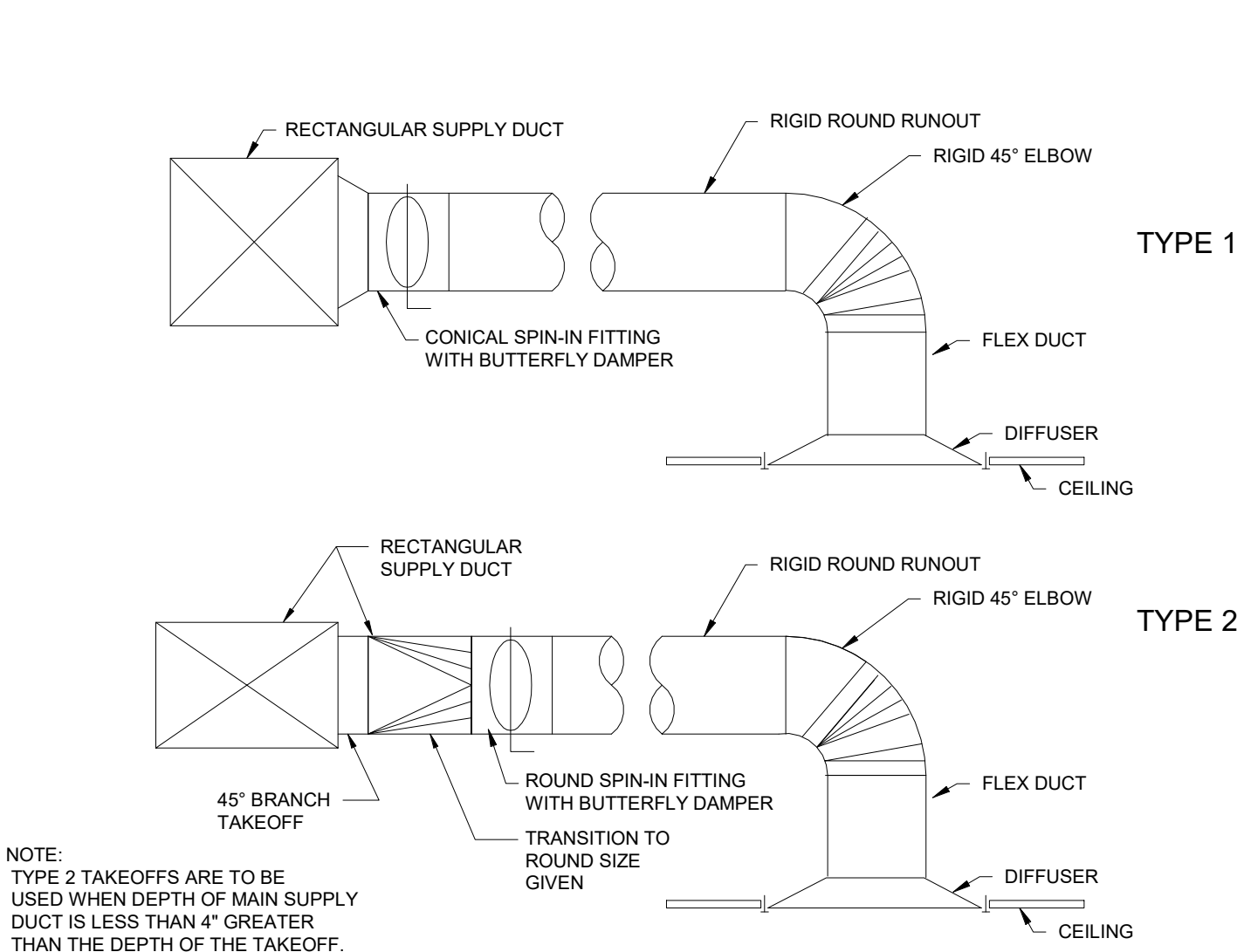
5/13/2024 4:23:43 PM



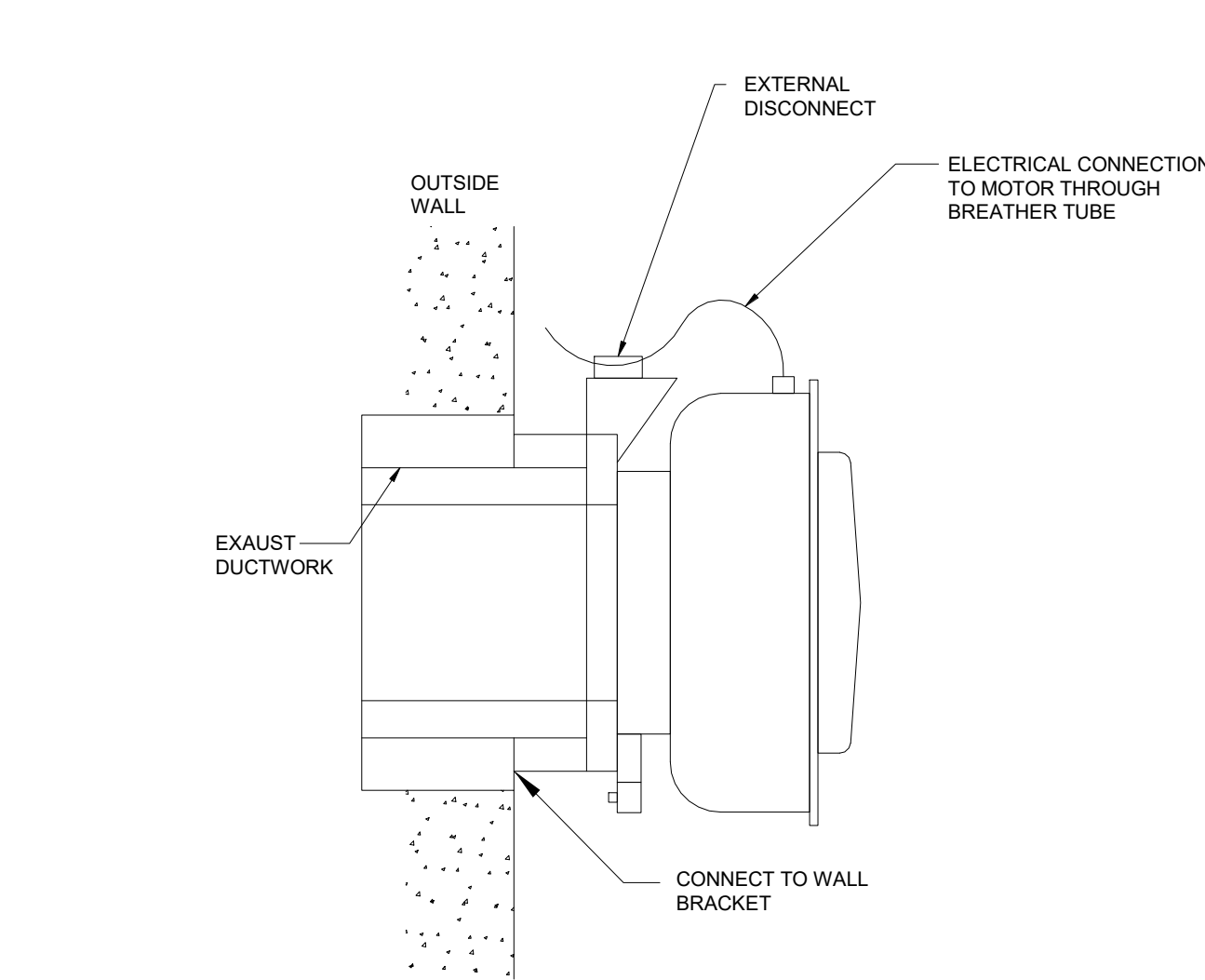
10
M2.01
REFRIGERANT LINE - WALL PENETRATION DETAIL
NO SCALE



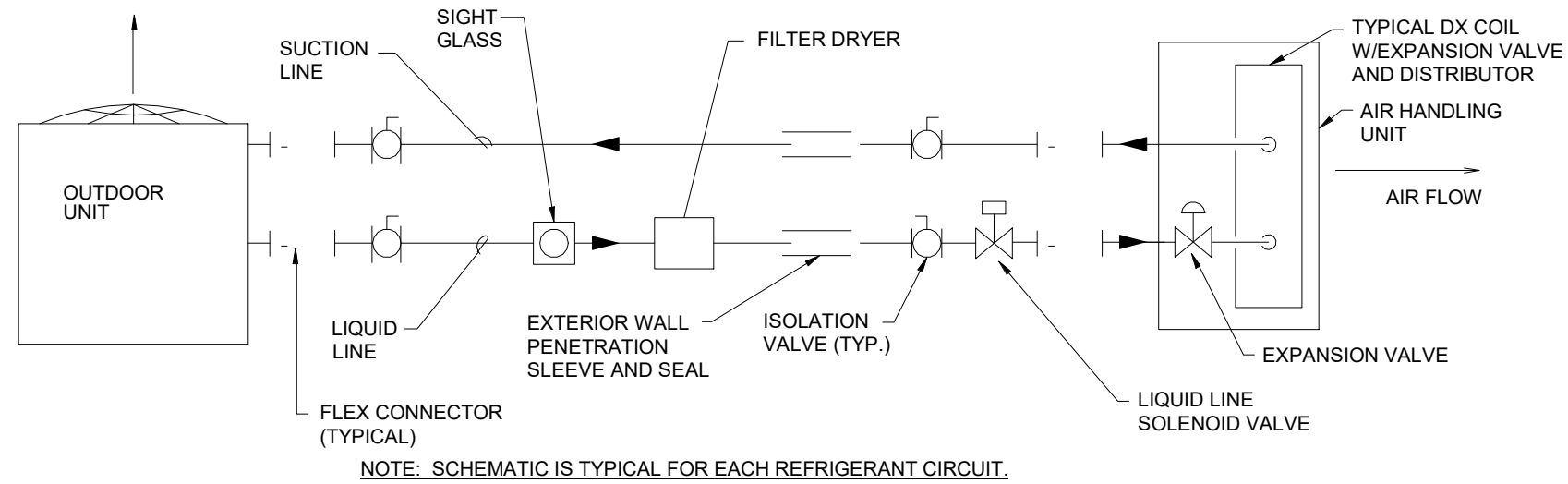
7
M2.01
REFRIGERANT PIPING SUPPORT DETAIL
TYPICAL FOR PIPING SUSPENDED FROM STRUCTURE
NO SCALE



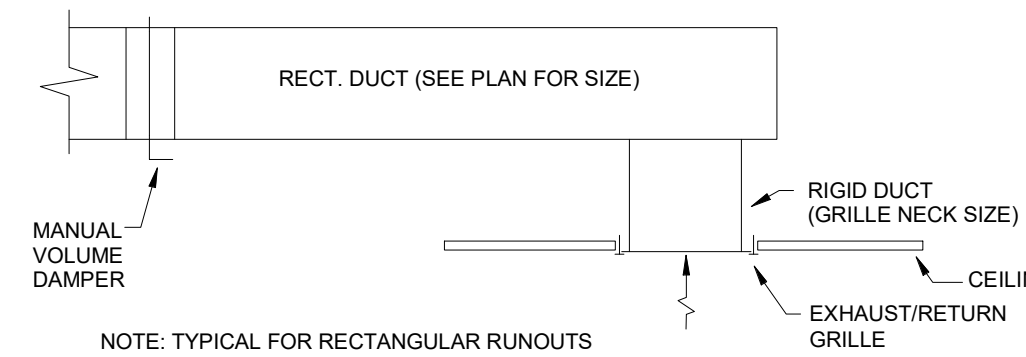
4
M2.01
TYPICAL DIFFUSER RUN-OUT DETAIL
NO SCALE



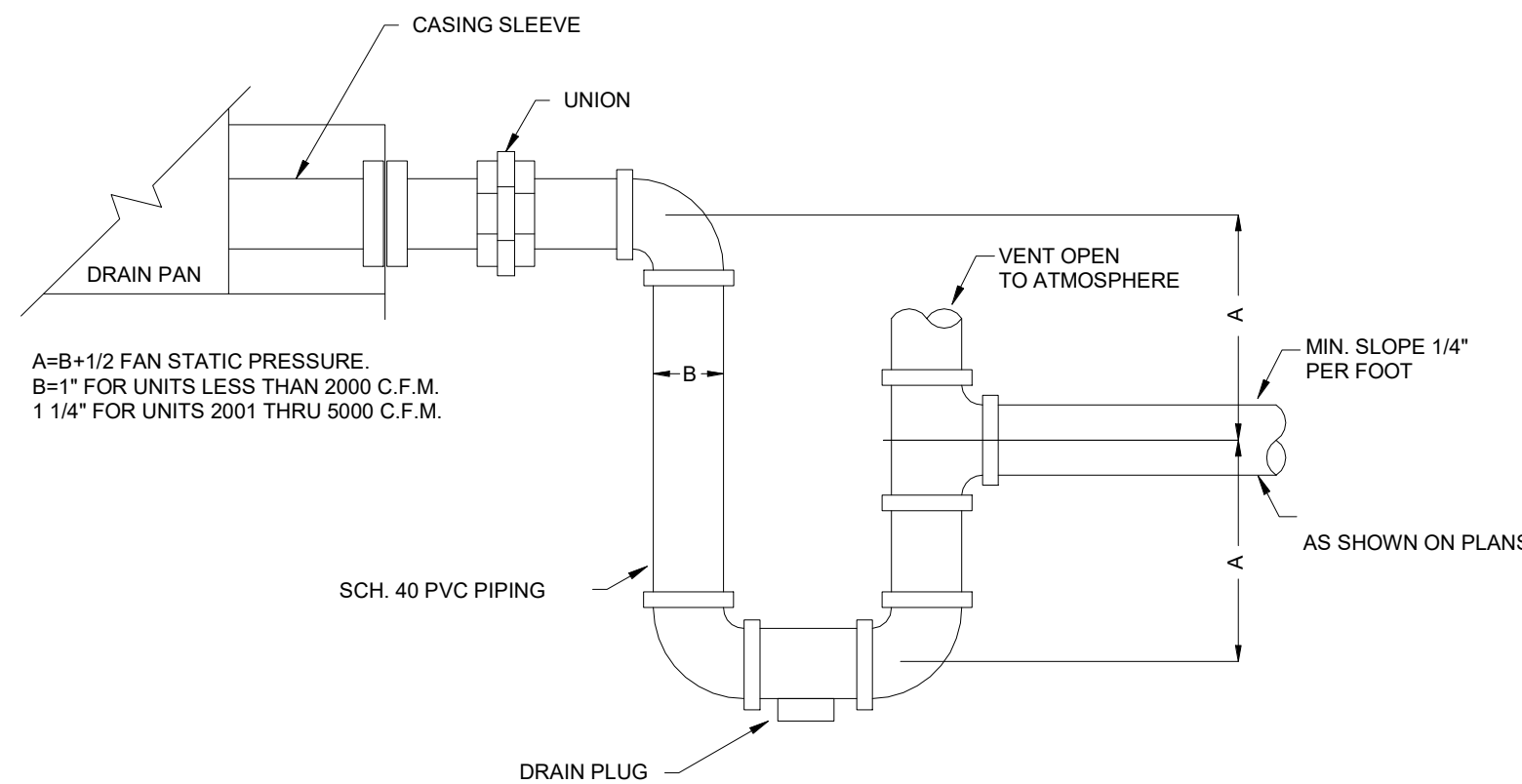
1
M2.01
SIDEWALL EXHAUST FAN DETAIL
NO SCALE



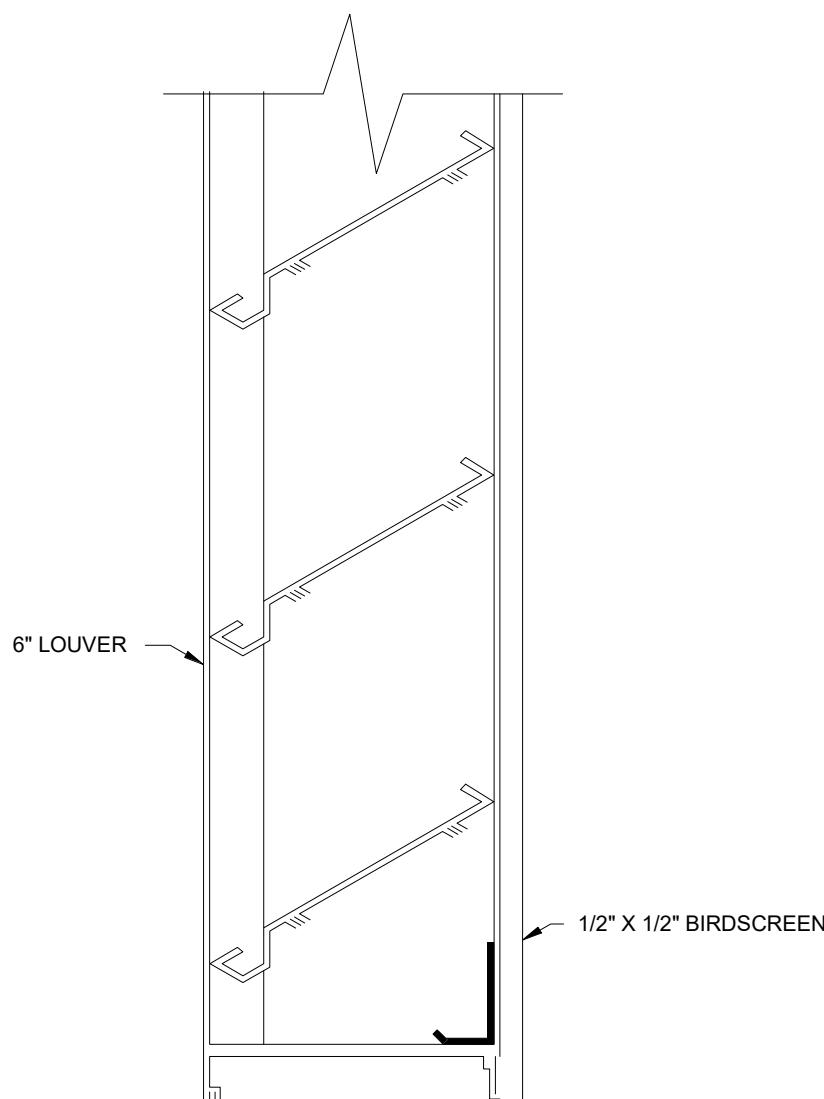
8
M2.01
REFRIGERANT PIPING DETAIL
NO SCALE



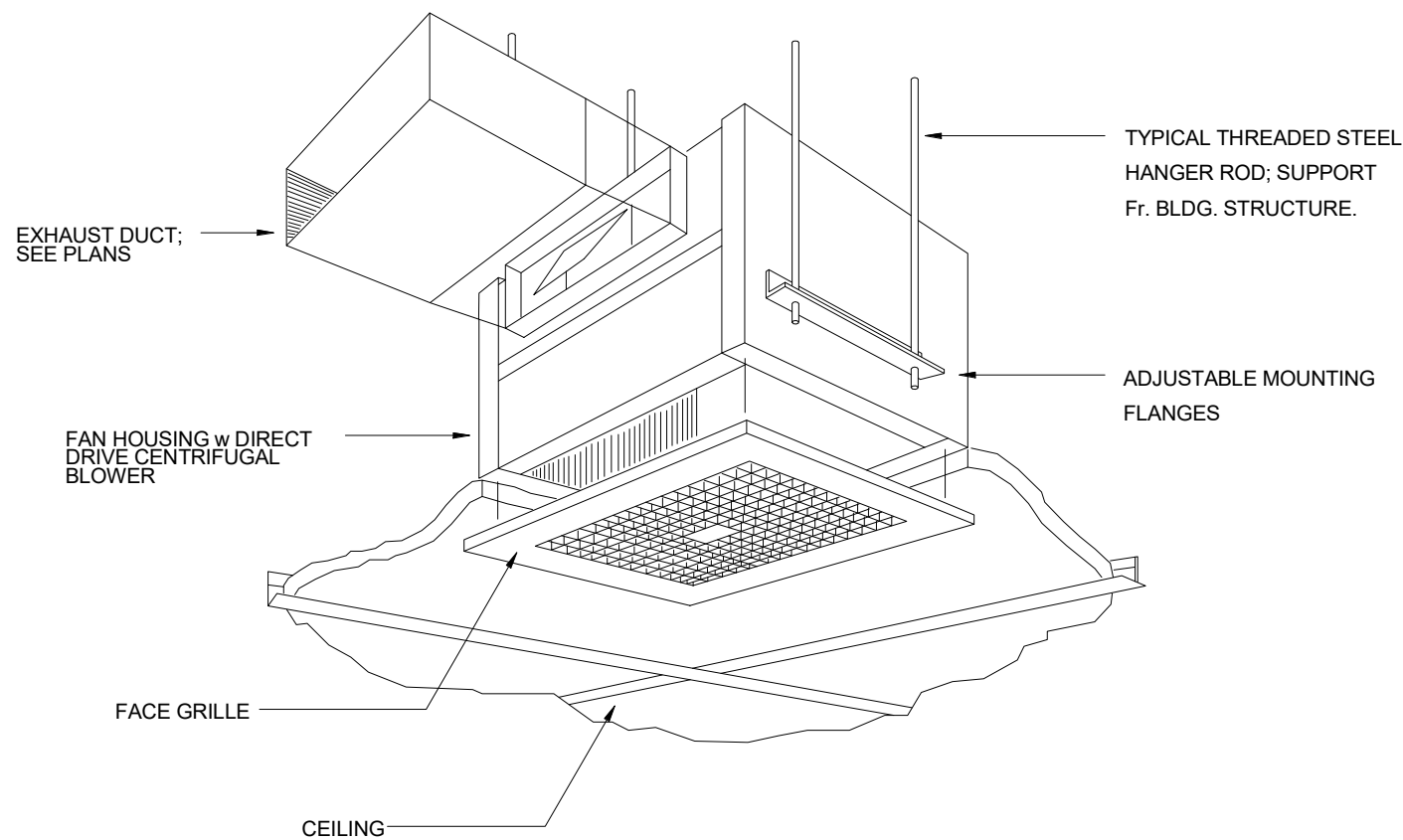
5
M2.01
TYPICAL RETURN AND EXHAUST RUN-OUT DETAIL
NO SCALE



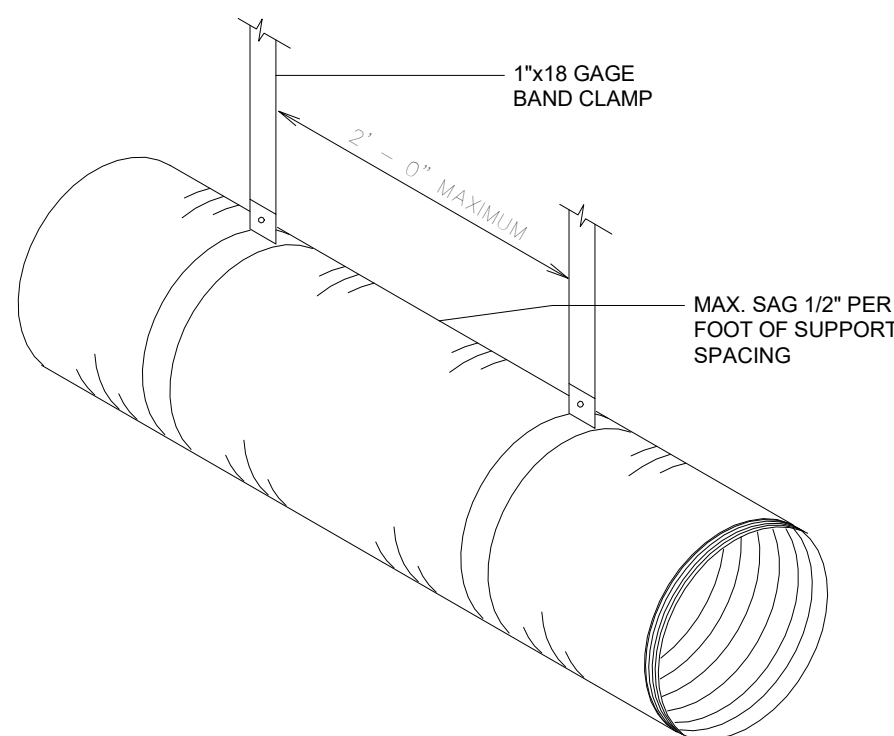
2
M2.01
CONDENSATE DRAIN TRAP DETAIL
NO SCALE



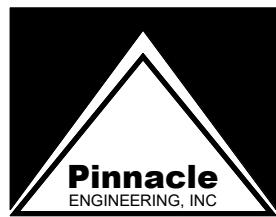
9
M2.01
LOUVER DETAIL
NO SCALE



6
M2.01
EXHAUST FAN INSTALLATION DETAIL(CEILING)
NO SCALE



3
M2.01
FLEXIBLE DUCT SUPPORT DETAIL
NO SCALE



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



www.ahoarch.com



5/15/24

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

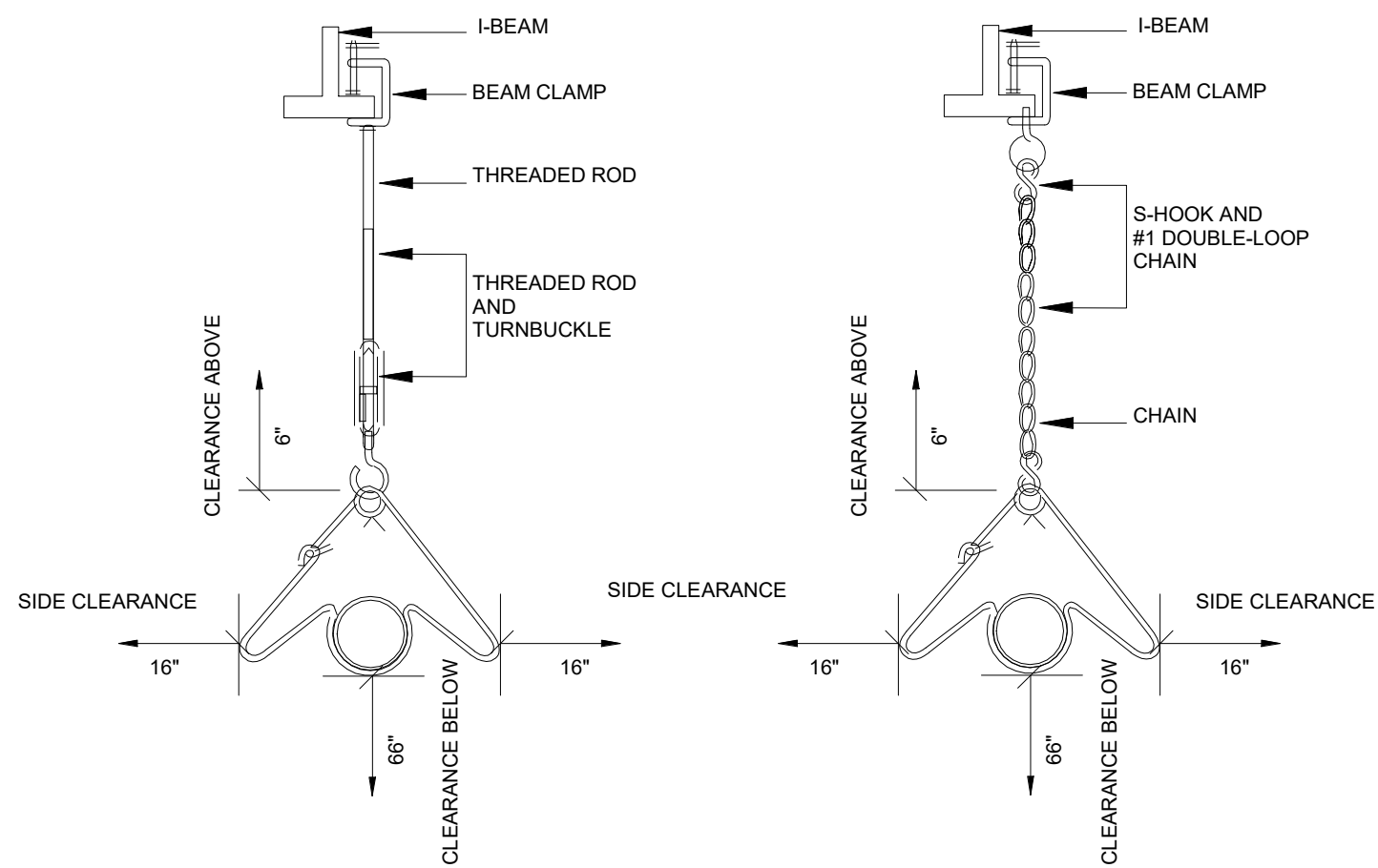
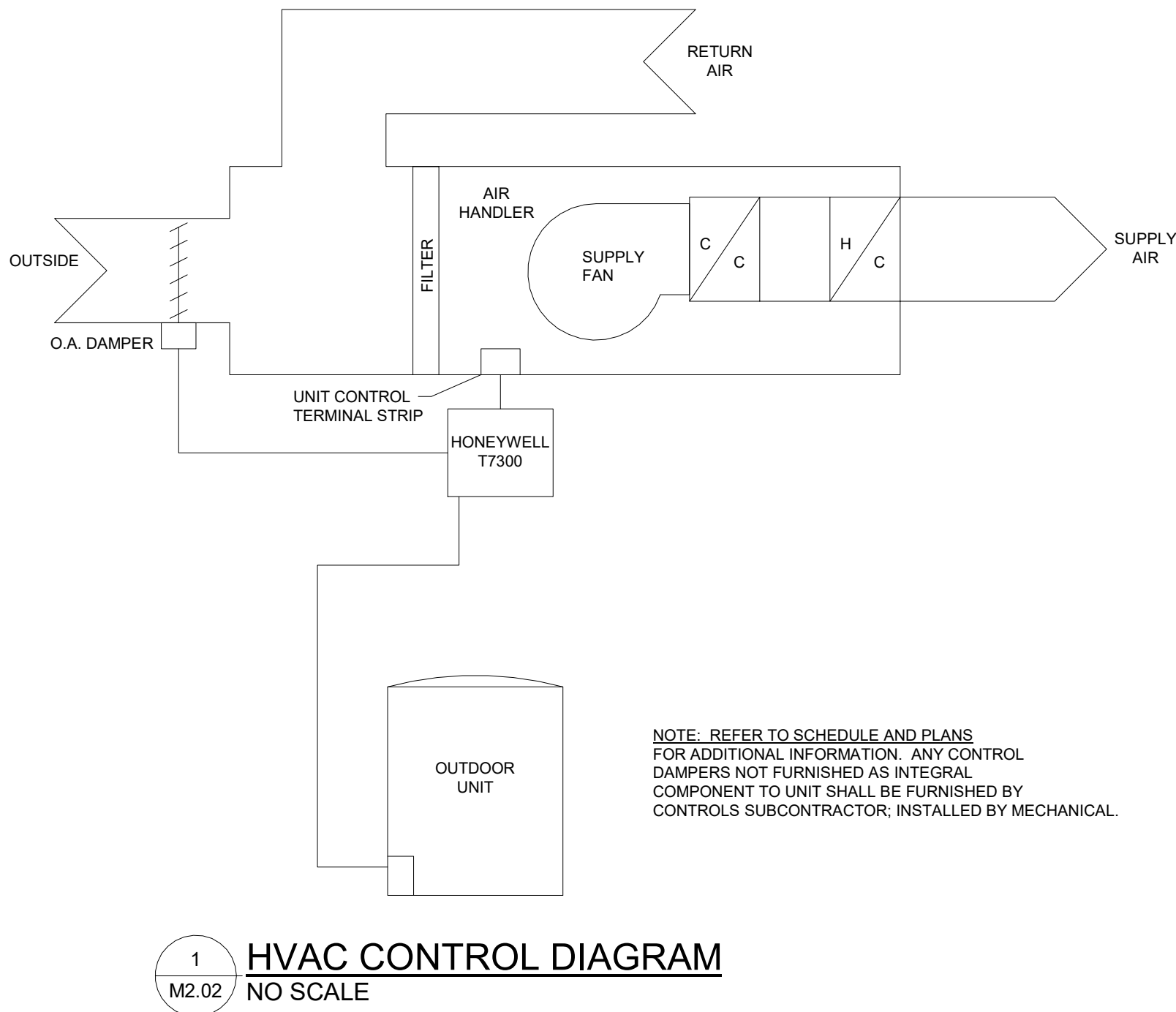
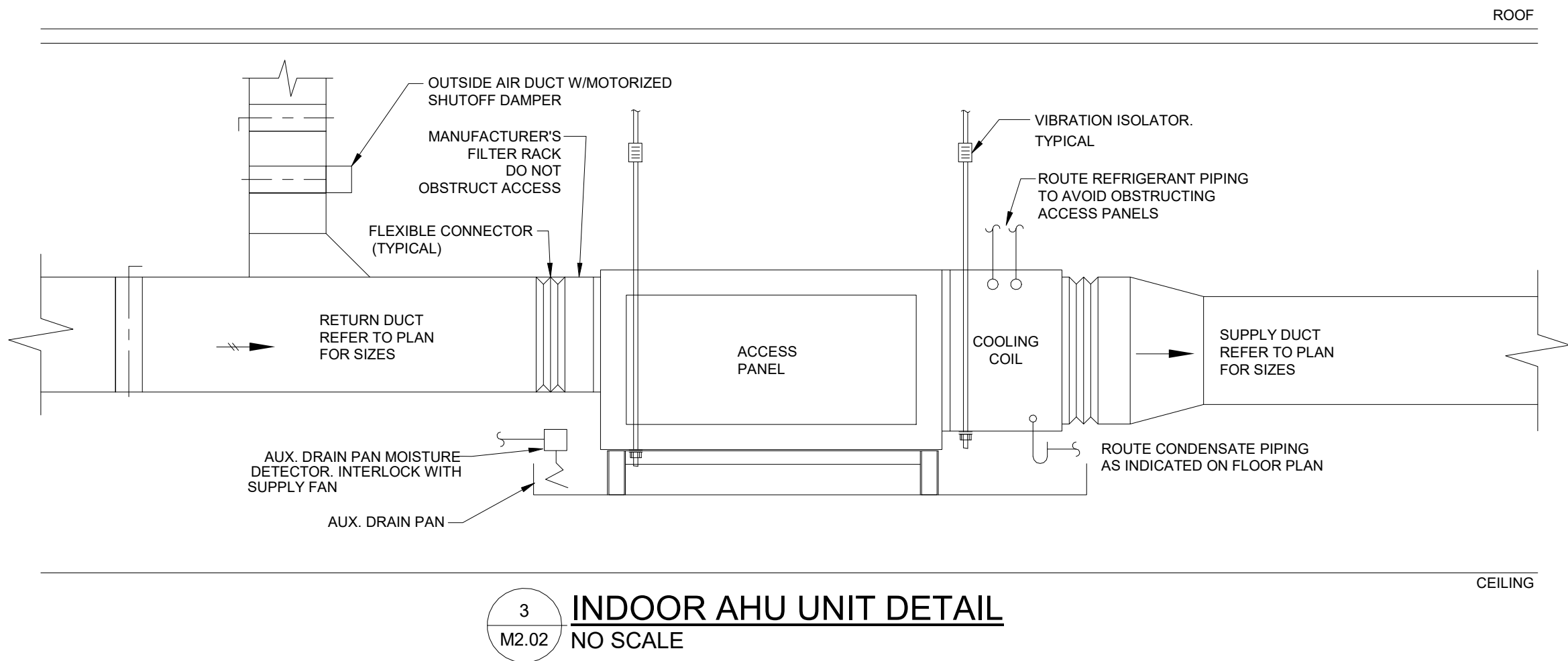
© 2024 Aho Architects, LLC.
All Rights Reserved.

Mechanical Details

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

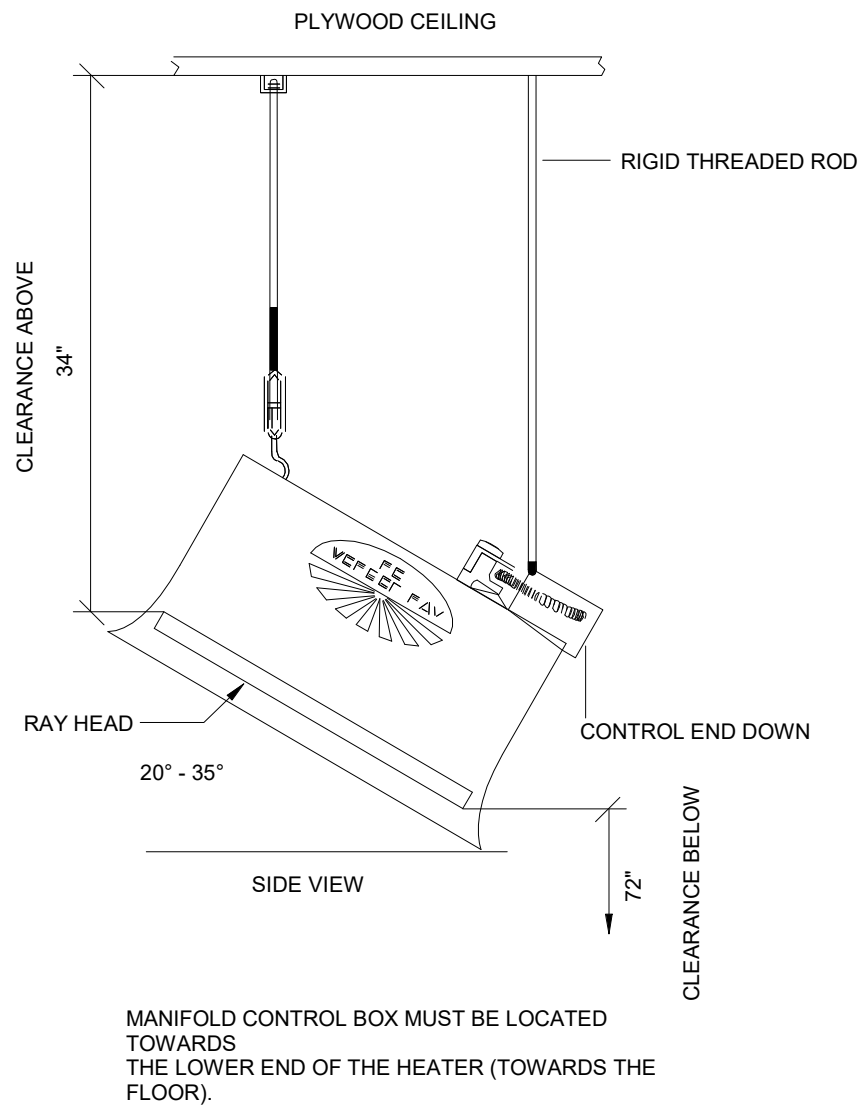
M2.02

Scale 12" = 1'-0"



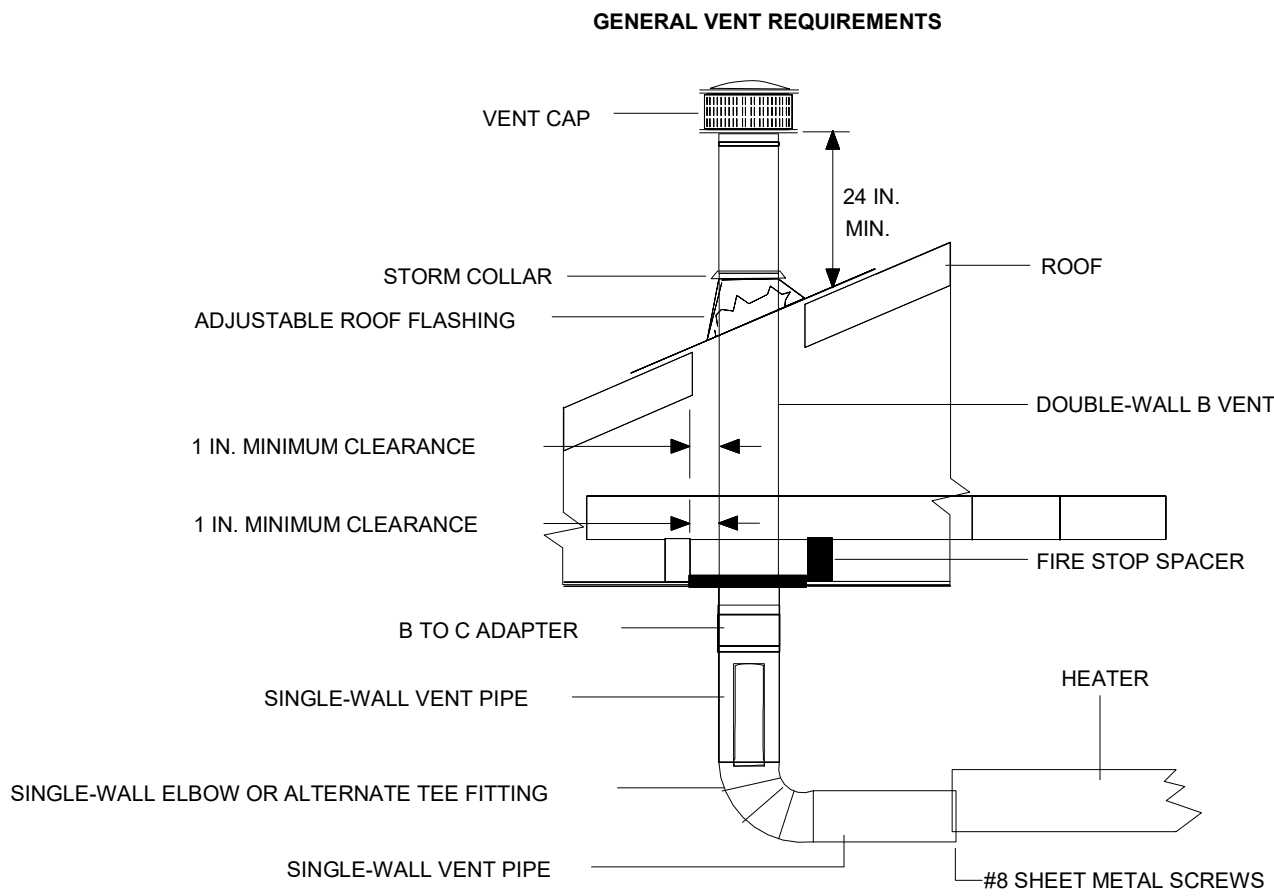
DISTANCE TO COMBUSTIBLES					
MODEL NO.	# OF SIDE SHIELDS	MOUNTING ANGLE	SIDES	TOP	BELOW
DX3L-30	2	0°	16"	6"	66"

*MAINTAIN PER MANUFACTURER'S INSTALLATION REQUIREMENTS. DISTANCES MEASURED ABOVE/BELOW RAY HEAD SURFACE.

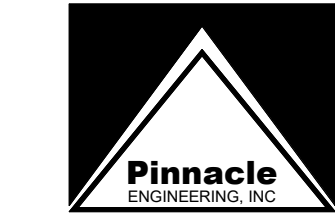


DISTANCE TO COMBUSTIBLES				
MODEL NO.	SIDES	BACK	TOP	BELOW/ FRONT
DR 50	30	18	34	72

*MAINTAIN PER MANUFACTURER'S INSTALLATION REQUIREMENTS. DISTANCES MEASURED ABOVE/BELOW RAY HEAD SURFACE.



PLUMBING LEGEND, SYMBOLS AND ABBREVIATIONS					
	DOMESTIC COLD WATER		BALL VALVE	ABV	ABOVE
	DOMESTIC HOT WATER		VALVE IN VERTICAL	AFF	ABOVE FINISHED FLOOR
	DOMESTIC HOT WATER RETURN		CAP ON END OF PIPE	INV	INVERT
	SANITARY VENT		CLEANOUT - FLOOR TYPE	BFF	BELOW FINISHED FLOOR
	SANITARY WASTE		CLEANOUT - WALL TYPE	CW	COLD WATER
			P-TRAP	DN	DOWN
			PIPE TURNING DOWN	EX	EXISTING
			PIPE TURNING UP	HW	HOT WATER
			TEE DOWN	WS	WASTE STACK
			TEE UP	VS	VENT STACK
			TIE NEW INTO EXISTING	AC	ABOVE CEILING
			PLUMBING FIXTURE NUMBER	WHA	WATER HAMMER ARRESTOR
			RISER NUMBER	BFG	BELOW FINISHED GRADE
			WATER HAMMER ARRESTOR	TMV	THERMOSTATIC MIXING VALVE
			PLUG TYPE CLEANOUT	TP	TRAP PRIMER
			BALANCING VALVE	DS	DOWNSPOUT
			CHECK VALVE	UG	UNDER GROUND
			GATE VALVE		
			REDUCED PRESSURE ZONE BFP		
			THERMOSTATIC MIXING VALVE		
			FLOOR SINK		
			FLOOR DRAIN		
			ROOF DRAIN/OVERFLOW DRAIN		
			FOOD SERVICE EQUIPMENT		



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



PLUMBING FIXTURE CONNECTION SCHEDULE						
Equipment No.	Description	Hot Water	Cold Water	Waste	Vent	Remarks
WC-1	WATER CLOSET - ADA COMPLIANT		1/2"	4"	2"	PRESSURE ASSIST TANK TYPE
EW-1	EYEWASH	1/2"	1/2"	2"	1 1/2"	PROVIDE WITH MIXING VALVE
EW-C-1	ELECTRIC WATER COOLER		1/2"	2"	1 1/2"	WALL MOUNT ADA WITH BOTTLE FILLER
HD-1	CONDENSATE FUNNEL HUB DRAIN			2"	1 1/2"	PROVIDE WITH TRAP GUARD
LAV-1	LAVATORY - ADA COMPLIANT	1/2"	1/2"	2"	1 1/2"	PROVIDE WITH TRAP WRAP AND MIXING VALVE
SK-1	SERVICE SINK	1/2"	1/2"	2"	1 1/2"	ROUTE TO INTERCEPTOR
WH-1	WALL HYDRANT - FREEZE PROOF		3/4"			

ELECTRIC WATER HEATER SCHEDULE												
EQUIPMENT NO.	MANUFACTURER	MODEL	SERVICE	ENTERING WATER TEMP (F)	LEAVING WATER TEMP (F)	RECOVERY RATE (GPH)	STORAGE CAPACITY	TANK DIMENSIONS		ELECTRICAL		COMMENTS
								DIAMETER	HEIGHT	WATER HEATER WATTAGE	NUMBER OF ELEMENTS	
EWH-1	A. O. Smith	ECS-30X	BATHROOMS/EYEWASH	60 °F	120 °F	21	30.0 gal	1' - 8"	3' - 3"	4500 W	1	240/1/60

INTERCEPTOR SCHEDULE									
EQUIPMENT NO.	MANUFACTURER	MODEL	FLOW RATE - INT	LIQUID HOLD CAPCACITY	INLET/OUTLET	VENT	LENGTH	WIDTH	DEPTH
OS-1	STRIEM	OS-25	25 GPM	21.0 gal	3	3"	2' - 3"	1' - 11"	1' - 3"

NOTES:
1. PROVIDE EXTRUSION TO MATCH GRADE.

PUMP SCHEDULE												
MARK	MANUFACTURER	MODEL	SERVICE	PUMP TYPE	FLOW RATE	PUMP HEAD (FT)	RATED SPEED (RPM)	DISCONNECT	MOTOR STARTER	HP	VOLTAGE	COMMENTS
REC-1	TACO	2400-10S-3P	HW RETURN	In-Line	2 GPM	10	3450	BY ELEC	INTEGRAL	.01	120 V	1, 2

NOTES:
1. PROVIDE WITH AQUASTAT FOR OPERATION WITH ASHRAE 90.1.
2. PUMP SHALL BE STAINLESS STEEL BODY FOR DOMESTIC USE.

WATER METER SIZING	
TOTAL LOAD (FIXTURE UNITS)	GPM
16	18

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Plumbing Legend,
Abbreviations, and
Schedules

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB
P0.01	
Scale	12" = 1'-0"

SECTION 15011 - PLUMBING GENERAL

- A. PROVIDE EQUIPMENT, LABOR, MATERIAL, ETC., REQUIRED TO MAKE A COMPLETE WORKING INSTALLATION.
- B. INSTALL THE WORK IN ACCORDANCE WITH DRAWINGS, SPECIFICATIONS AND THE STANDARDS AND CODES (LATEST EDITION) THAT APPLY TO THIS WORK. IN THE EVENT OF A CONFLICT, INSTALL WORK IN ACCORDANCE WITH THE MOST STRINGENT CODE REQUIREMENTS DETERMINED BY THE ENGINEER.
- C. OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS INCLUDING: BUILDING PERMITS, HEALTH DEPARTMENT PERMITS AND SEWER TAP PERMITS. DELIVER TO ENGINEER CERTIFICATES OF INSPECTION AND APPROVAL ISSUED BY AUTHORITIES.
- D. ALL EQUIPMENT AND METHOD SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICES AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- E. DISCONNECT, REMOVE AND RE-INSTALL PLUMBING SERVICES LOCATED ON OR CROSSING THROUGH CONTRACT LIMITS, ABOVE OR BELOW GRADE, OBSTRUCTING CONSTRUCTION OF PROJECT OR CONFLICTING WITH COMPLETED PROJECT OR ANY APPLICABLE CODES.
- F. PROVIDE CUTTING OF PAVEMENT, SIDEWALKS, DRIVEWAYS, ETC., EXCAVATING, TRENCHING, SHORING AND DE-WATERING, PREPARE FILL MATERIAL AND PERFORM BACKFILLING.
- G. RESTORE SITE TO ORIGINAL CONDITION OR NEW FINAL GRADES. PROVIDE PAVING, CONCRETE, SEED, OR SOD.
- H. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WORK CALLED FOR BY ONE IS BINDING AS IF CALLED FOR BY BOTH.
- I. DRAWINGS ARE DRAWN TO A SMALL SCALE AND ARE DIAGRAMMATIC ONLY. THE DRAWINGS INDICATE SIZE AND GENERAL ARRANGEMENT OF EQUIPMENT. DO NOT SCALE DRAWINGS FOR EXACT LOCATIONS. FIELD MEASUREMENTS TAKE PRECEDENCE.
- J. PROVIDE NECESSARY OFFSETS, ELBOWS AND FITTINGS AS REQUIRED TO AVOID CONFLICT WITH EQUIPMENT OF OTHER DIVISIONS AND TO OBTAIN PROPER HEADROOM AND CLEAR PASSAGEWAYS. THIS SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
- K. WORK UNDER THIS DIVISION SHALL BE FIRST CLASS WITH EMPHASIS ON NEATNESS AND WORKMANSHIP. INSTALL WORK USING COMPETENT MECHANICS, UNDER SUPERVISION OF FOREMAN, ALL DULY CERTIFIED BY LOCAL AUTHORITIES.
- L. INSTALLATION SUBJECT TO ENGINEER'S OBSERVATION, FINAL APPROVAL, AND ACCEPTANCE. ENGINEER MAY REJECT UNSUITABLE WORK.
- M. ALL MATERIALS SHALL BE NEW. ALL MATERIALS AND EQUIPMENT FOR WHICH A UL STANDARD, AN AGA APPROVAL, AN AWWA STANDARD, FM LISTING OR ASME REQUIREMENTS IS ESTABLISHED, SHALL BE SO APPROVED AND LABELED OR STAMPED.
- N. THE DRAWINGS ARE BASED ON THE USE OF PRODUCTS SPECIFIED AND LISTED FIRST. IF ANY REVISION IN PIPING, CONDUIT WORK, FOUNDATIONS, ANCHOR BOLTS, CONNECTIONS, ETC., IS REQUIRED BY OTHER NAMED PRODUCTS OR APPROVED SUBSTITUTIONS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE SUCH REVISIONS AT NO ADDITIONAL CHARGE TO THE OWNER.
- O. SUBMIT SIX (6) ORIGINAL COPIES OF COMPLETE SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT FURNISHED UNDER DIVISION 15 OF SPECIFICATIONS TO ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL BEAR THE STAMP OF APPROVAL OF THE CONTRACTOR AS EVIDENCE THAT THE DRAWINGS HAVE BEEN CHECKED BY HIM. DRAWING SUBMITTED WITHOUT THIS STAMP OF APPROVAL WILL NOT BE CONSIDERED AND WILL BE RETURNED FOR PROPER RESUBMISSION.
- P. REVIEW OF SHOP DRAWINGS DOES NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR ERRORS AND OMISSIONS IN SHOP DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS AND SIZES OF EQUIPMENT. INFORM ENGINEER IN WRITING OF EQUIPMENT DIFFERING FROM THAT SHOWN.
- Q. PROVIDE MAINTENANCE AND OPERATING MANUALS BOUND IN 8-1/2" X 11" HARDBACK, THREE-POST BINDERS. MANUALS SHALL CONTAIN WRITTEN INSTRUCTIONS FOR EACH SYSTEM, SHOP DRAWINGS, SCHEMATIC DRAWINGS, EQUIPMENT CATALOG CUTS, MANUFACTURER'S INSTRUCTIONS, MANUFACTURER'S WARRANTIES, AND VALVE TAG LIST.
- R. PROVIDE AS-BUILT PRINTS AT THE COMPLETION OF JOB. KEEP ONE SET OF PRINTS ON JOB AND RECORD DAY TO DAY CHANGES TO CONTRACT DRAWINGS WITH RED PENCIL. INDICATE ACTUAL LOCATION OF PIPING, VALVES, AND EQUIPMENT. TURN OVER PRINTS TO ENGINEER AT FINAL OBSERVATION.
- S. FURNISH ENGINEER WRITTEN WARRANTY, STATING THAT IF WORKMANSHIP AND/OR MATERIALS EXECUTED UNDER THIS DIVISION IS PROVEN DEFECTIVE WITHIN ONE (1) YEAR AFTER FINAL ACCEPTANCE, SUCH DEFECTS AND OTHER WORK DAMAGED WILL BE REPAIRED AND/OR REPLACED.

SECTION 15051 - BASIC MATERIALS AND METHODS

- A. ACCESS PANELS:
- ACCESS PANELS SHALL HAVE WELDED STEEL FRAME, ONE PIECE DOORS, AND SELF LATCHING DOOR LOCKS. LOCKS SHALL BE SCREW DRIVER OPERATED WITH CASE HARDENED STEEL CAM. PANELS SHALL BE MILCOR, CESCO, KARP OR EQUAL.
 - PROVIDE ACCESS PANELS IN WALLS AND CEILINGS AS NEEDED TO ALLOW ACCESS TO VALVES, EQUIPMENT, SHOCK ABSORBERS, TRAP PRIMERS, ETC. AND WHERE NOTED.
- B. FIRESTOPPING AND SOUNDSTOPPING:
- PENETRATIONS THROUGH FLOORS AND FIRE RESISTANT WALLS SHALL BE SEALED TO THE RATED FIRE RESISTANCE EQUAL TO THE WALL. INSTALLATION SHALL BE DONE BY A QUALIFIED INSTALLER, APPROVED BY THE MANUFACTURER OF THE MANUFACTURED PRODUCT.
 - PROVIDE SOUND PROOFING THROUGH NON-RATED WALLS.
- C. PIPING SEALS:
- PROVIDE MODULAR, RESILIENT SEALS AROUND PIPES PENETRATING ALL EXTERIOR WALLS, AND FLOORS BELOW GRADE. PIPING SEALS SHALL BE THUNDERLINE CORP. LINK SEAL 'LS' SERIES.
- D. CUTTING AND PATCHING:
- CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING. CUT WALLS, FLOORS, CEILINGS, PARTITIONS, ETC., REQUIRED FOR THE INSTALLATION OF THIS WORK IN A NEAT AND CAREFUL MANNER. CORE SLEEVES AND OTHER OPENINGS THROUGH OTHER OPENINGS THROUGH FLOORS AND WALLS. SAWCUT LARGER OPENINGS. CUTTING SHALL BE KEPT TO A MINIMUM.
 - REPLACE OR REPAIR DUCTWORK, CONDUIT, PIPING, ETC., THAT IS CUT. PATCH AROUND OPENING CUT BY THIS CONTRACTOR OR PROVIDED BY OTHERS FOR HIM. PATCHING SHALL BE DONE BY AN APPROVED QUALIFIED CONTRACTOR, BUT SHALL BE PAID FOR BY THIS CONTRACTOR. FINISHED PATCHING SHALL RETAIN FIRE AND SMOKE RATINGS OF THE ASSEMBLY AND SHALL MATCH SURROUNDING FINISH.
- E. ANCHORS:
- MOUNT ALL EQUIPMENT, BRACKETS, HANGERS, ANCHORS, ETC. TO SAFELY RESIST THE VIBRATION OR THRUST FORCES AND SUPPORT THE UNIT'S WEIGHT.
 - FLOOR MOUNTED ROTATING OR VIBRATING EQUIPMENT SHALL BE ANCHORED TO THE FLOOR USING GROUTED-IN PLACE OR CAST-IN PLACE ANCHOR BOLTS WITH THREE INCH HOOK AND SLEEVE. ANCHOR BOLTS SHALL BE OF THE SIZE RECOMMENDED BY THE MANUFACTURER.
 - FLOOR MOUNTED STATIC ITEMS, WALL AND CEILING MOUNTED EQUIPMENT BRACKET AND HANGERS SHALL BE INSTALLED USING DRILLED ANCHORS (OR CAST IN PLACE INSERTS). ANCHORS SHALL BE PHILLIPS DRILL COMPANY "RED HEAD" OR MULTI-SET II. SIZE ANCHORS (AND INSERTS) FOR FOUR TIMES THE APPLIED LOAD. BOLTS USED OUTDOORS OR IN A WET ENVIRONMENT SHALL BE HOT DIP GALVANIZED.
- A. PIPE IDENTIFICATION:
- IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI-A13.1. PIPE MARKERS SHALL BE SETON'S WEATHER-CODE OR EQUAL.
 - PROVIDE PIPE MARKERS AND DIRECTIONAL ARROWS ON PIPES AT BOTH SIDES OF PARTITIONS AND FLOORS SLABS, AT BRANCH LINE TAKE-OFFS, AT VALVES, AT INTERMEDIATE INTERVALS NOT IN EXCESS OF 20 FT. AND AT CONNECTIONS TO EQUIPMENT.
 - TAPE COLOR BAND IDENTIFYING MARKERS AND ARROWS ON EACH PIPE, BOTH INSULATED AND BARE PIPES. PIPE MARKERS AND ARROWS SHALL BE LOCATED WHERE READILY VISIBLE AND ON LOWER QUADRANTS OF OVERHEAD PIPES.
- B. VALVE TAG AND CHART:
- VALVE TAGS SHALL BE SETON M4506. BLACK FILLED LETTERS WITH BRASS JACK CHAIN. ONE VALVE NUMBER SHALL BE STAMPED ON EACH TAG. IDENTIFY EACH VALVE TAG FOR THE UTILITY IT SERVES, SUCH AS "CW" FOR COLD WATER, "HW" FOR HOT WATER, ETC. VALVE CHARTS SHALL BE SETON. ATTACH A NUMBERED VALVE TAG TO EACH VALVE.
 - PROVIDE A TYPE WRITTEN CHART IN FRAME UNDER GLASS COVER, GIVING THE FULL LIST OF ALL VALVES INSTALLED UNDER THIS CONTRACT. CHART SHALL LIST VALVE NUMBER, TYPE OF UTILITY, AND LOCATION. MOUNT CHART WHERE DIRECTED BY OWNER. PROVIDE ONE ADDITIONAL COPY TO OWNER.
- A. EQUIPMENT IDENTIFICATION:
- IDENTIFY EACH PIECE OF EQUIPMENT WITH A 1/8 INCH THICK ENGRAVED MELAMINE PLASTIC LAMINATE NAMEPLATE. LETTERS SHALL BE 1/2 INCH HIGH STANDARD STYLE. NAMES, ABBREVIATIONS, AND NUMBERING SHALL AGREE WITH THE CORRESPONDING EQUIPMENT DESIGNATIONS SHOWN ON THE DRAWINGS. USE BLACK LETTERS CUT IN A WHITE BACKGROUND FOR ALL EQUIPMENT ON STANDARD ELECTRICAL POWER.
 - FASTEN NAMEPLATES TO EQUIPMENT IN A CONSPICUOUS LOCATION USING SELF-TAPPING STAINLESS STEEL SCREWS. EXCEPT USE CONTACT EPOXY ADHESIVE WHERE SCREWS CANNOT OR SHOULD NOT PENETRATE SUBSTRATE.
- B. PIPE SLEEVES:
- PROVIDE PIPE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE OR BELOW CEILINGS. PROVIDE PIPE SLEEVES IN NEW WALLS AND FLOORS AS THE WORK PROGRESSES. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER.
 - SIZE PIPE SLEEVES TO ALLOW CONTINUOUS INSULATION, BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN PIPE. SLEEVES IN WALLS SHALL BE FLUSH WITH WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCHES ABOVE FLOOR AND BE FLUSH WITH STRUCTURE BELOW.
 - SLEEVES IN CONCRETE WALLS, FLOORS OR MASONRY SHALL BE SCH 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD OR PLASTER WALLS SHALL BE 14 GAUGE, ROLLED GALVANIZED SHEET METAL TACK WELDED ON THE LONGITUDINAL SEAM.
 - PROVIDE PLATES AROUND PIPES EXTENDING INTO EXPOSED AREAS WHERE THEY PASS THROUGH WALLS, FLOORS AND CEILINGS. SIZE PLATES TO COMPLETELY COVER PIPE SLEEVES. PLATES SHALL BE BEATON AND CADWELL, KEENEY OR GRINNELL. NICKEL PLATED STEEL, SPLIT PLATES WITH SET SCREW. CONCRETE FLOOR PLATE SHALL BE GRINNELL FIGURE 400.
- C. FLASHING:
- PROVIDE FLASHING AT PIPING AND DUCT PENETRATIONS THROUGH ROOF AND ROOF MOUNTED STRUCTURES FURNISHED UNDER THIS DIVISION. FLASH IN ACCORDANCE WITH ROOFING MANUFACTURERS DETAILS. FLASHING MATERIALS SHALL BE IN ACCORDANCE WITH THE ROOFING MANUFACTURERS SYSTEM.
 - PROVIDE FLASHING AT PIPES PASSING THROUGH FLOORS WITH WATERPROOF MEMBRANE. FLASHING SHALL BE IN ACCORDANCE WITH WATERPROOFING MANUFACTURERS DETAILS.

SECTION 15261 - PLUMBING INSULATION

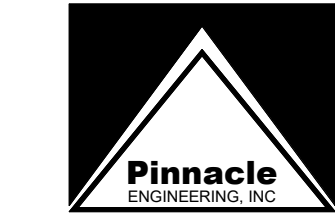
- A. GENERAL:
- ALL INSULATION, JACKETING, AND ADHESIVE SHALL HAVE COMPOSITE SURFACE BURNING CHARACTERISTIC RATINGS AS TESTED BY ASTM E 84, UL 723, OR NFPA 255 NOT EXCEEDING A FLAME SPREAD OF 25 OR SMOKE DEVELOPED OF 50.
 - SUBMITTALS SHALL USE PAGES FROM MIDWEST INSULATION CONTRACTORS ASSOCIATION -- "COMMERCIAL AND INDUSTRIAL INSULATION STANDARD" FOR DEFINING HOW INSULATION MATERIALS WILL BE APPLIED.
 - ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES, EXCEPT WHERE FIRESTOP OR FIRESAFING MATERIALS ARE REQUIRED.
 - INSULATE ITEMS MOUNTED IN PIPING WITH THE SAME THICKNESS OF INSULATION AS SPECIFIED FOR PIPING.
 - REPAIR INSULATION DAMAGED BY WORK UNDER THIS CONTRACT TO MATCH EXISTING WORK OR REPLACE DAMAGED PORTION WITH INSULATION SPECIFIED FOR NEW WORK.
 - DOMESTIC WATER PIPING:
 - INSULATION SHALL BE 850 DEG. F RATED AS MANUFACTURED BY OWENS CORNING, MANVILLE OR KNAUF. ROUTED OR MOLDED FITTING INSULATION SHALL BE HAMFAB.
 - INSULATION SHALL HAVE FACTORY-APPLIED, REINFORCED, FLAME RETARDANT, VAPOR BARRIER JACKET EQUAL TO OWENS-CORNING ASJ WITH SELF-SEALING LAP. BUTT JOINTS SHALL BE TAPED WITH FIELD-APPLIED ASJ TAPE 3 IN. WIDE.
 - INSULATION THICKNESSES SHALL BE IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE FOR PIPE SIZES NOTED ON PLAN.
 - ALL FITTINGS AND VALVES SHALL BE INSULATED WITH PREFORMED FIBER GLASS FITTINGS OR MITERED SECTIONS OF PIPE INSULATION. INSULATION SHALL BE OF EQUAL THICKNESS TO THE ADJACENT PIPE. INSULATION, METAL SHIELDS SHALL BE INSTALLED BETWEEN HANGERS OR SUPPORTS AND THE PIPING INSULATION. RIGID INSULATION INSERTS SHALL BE INSTALLED AS REQUIRED BETWEEN THE PIPE AND THE INSULATION SHIELDS. INSERTS SHALL BE OF EQUAL THICKNESS TO THE ADJACENT INSULATION AND SHALL BE VAPOR SEALED AS REQUIRED.
 - ELASTOMERIC CLOSED CELL INSULATION:
 - INSULATION SHALL BE RUBATEX OR ARMSTRONG. SECURE INSULATION WITH CONTACT ADHESIVE IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. EXPOSED OR EXTERIOR INSTALLATIONS SHALL BE PAINTED WITH TWO COATS OF WATER BASE LATEX ENAMEL.
 - PROVIDE 1 IN. THICK INSULATION ON DX REFRIGERANT PIPING, COOLING COIL CONDENSATE PIPING, AND CAPS FOR ALL VALVE STEMS AND OPERATORS, GAUGE COCKS, THERMOMETER WELLS AND OTHER APPURTENANCES SUBJECT TO SWEATING.
 - PIPING FINISHES:
 - METAL JACKETING SHALL BE, SMOOTH .016 IN. THICK, TYPE T 3003 ALUMINUM WITH LAMINATED MOISTURE BARRIER. JACKETING SHALL BE CHILDERS, ALUMINUM ROLL JACKETING WITH POLYKRAFT MOISTURE BARRIER. COVER THE FOLLOWING INSULATED SYSTEMS WITH METAL JACKETING: PIPING INSTALLED OUTDOORS AND EXPOSED PIPING INDOORS WITHIN 8 FT. OF FINISHED FLOOR. METAL FITTING COVERS SHALL BE TWO PIECE ALUMINUM. COVERS SHALL BE ELL-JAC.
 - CONCEALED PIPING FINISH COVERING SHALL BE THE ALL SERVICE JACKET. FITTINGS SHALL BE COVERED BY WRAPPING THE FITTING WITH FIBER REINFORCED TAPE, WITH A 5 PERCENT OVERLAP. FITTINGS COVERS SHALL BE ONE PIECE 20 MIL PVC. COVERS SHALL BE CEEL-TITE 550 PVC-UVR BY CEEL-CO OR EQUALS.

SECTION 15410 - PLUMBING PIPING

- A. THE WORK REQUIRED UNDER THIS SECTION INCLUDES ALL WORK NECESSARY FOR A COMPLETE INSTALLATION OF SANITARY WASTE PIPING, STORM PIPING AND DOMESTIC WATER PIPING INSIDE THE BUILDING TO 5 FEET OUTSIDE THE BUILDING. SUBMIT SCHEDULE OF PIPE AND FITTINGS FOR EACH SERVICE.
- B. DOMESTIC WATER PIPING: WATER PIPING WITHIN THE BUILDING SHALL BE COPPER TUBE, TYPE "L" HARD TEMPER, ASTM B-88. PIPING BELOW GROUND SHALL BE COPPER TUBE, TYPE "K" SOFT TEMPER, ASTM B-88. FITTINGS SHALL BE WROUGHT COPPER, SOLDER TYPE, ASTM B-75, ANSI B16.22. SOLDER UNIONS SHALL BE WROT COPPER, WITH COPPER GROUND JOINT. ASTM B75, ANSI B16.22. DI-ELECTRIC, EPSO, 250 LB. WOG. SOLDER METAL SHALL CONFORM TO ASTM B32. LEAD-FREE.
- C. STORM, SANITARY WASTE, ABOVE GROUND: SCHEDULE 40 PVC-DWV ASTM D-2685 USING SOLVENT CEMENT ASTM D02565. HORIZONTAL PIPING FOR FIXTURE ROUGH-INS MAY BE DWV COPPER, ASTM B-306. BELOW GROUND: SCHEDULE 40 PVC-DWV ASTM D-2685 USING SOLVENT CEMENT ASTM D-2564.
- D. STORM, SANITARY WASTE AND VENT FITTINGS: ABOVE GROUND: 1NO HUB CAST IRON SOIL PIPE FITTINGS WITH COUPLING ASSEMBLY CISPI STANDARD 310.1 SCHEDULE 40 PVC-DWV, ASTM D-2855 USING SOLVENT CEMENT ASTM D-2564. BELOW GROUND: SCHEDULE 40 PVC-DWV, ASTM D-2855 USING SOLVENT CEMENT ASTM D-2564.
- E. BALL VALVES: VALVES SHALL BE NIBCO T-585-70, FULL PORT BALL TYPE WITH BRONZE BODY, CHROME PLATED BALL AND BRONZE THREADED ENDS, 600 PSI WOG OR NIBCO S-585-70 IN COPPER LINES.
- F. HAMMOND, CRANE, APOLLO, MILWAUKEE, OR APPROVED EQUAL.
- G. ALL PIPING SHALL BE ROUTED TO TO CONSERVE BUILDING SPACE, BE COORDINATED WITH ITEMS INSTALLED BY OTHER TRADES AND NOT INTERFERE WITH ACCESS TO OR OPERATION OF THE FACILITY.
- G. PROVIDE ROOF FLASHINGS FOR PIPE PENETRATIONS THROUGH ROOF, TO BE INSTALLED BY ROOFING CONTRACTOR.
- H. WATER PIPING WITHIN BUILDING SHALL BE SIZE INDICATED ON PLANS AND RISERS. IN THE EVENT NO SIZE IS SHOWN, PIPE SIZE OR SIZE REQUIRED BY THE PLUMBING CODE. PIPING SHALL BE SLOPED TOWARD A SYSTEM DRAIN AND TOWARD OUTLETS, TO PROVIDE FOR SYSTEM DRAIN-DOWN. IF INSTALLED NEAR EXTERIOR WALLS, PIPING SHALL BE LOCATED ON THE INTERIOR SIDE OF INSULATION. INSTALL PIPING TO PREVENT DIRECT CONTACT BETWEEN FERROUS AND NON-FERROUS MATERIALS. ALLOW FLEXIBILITY FOR EXPANSION IN PIPING.
- I. DOMESTIC WATER PIPING SYSTEM SHALL BE TESTED WITH POTABLE WATER AT A PRESSURE OF 125 PSIG OR 25 PSIG ABOVE DESIGN WORKING PRESSURE, WHICHEVER IS GREATER FOR 12 HOURS. TEST SHALL BE CONDUCTED WITH PLUMBING INSPECTOR UNLESS APPROVED OTHERWISE IN WRITING.
- J. WATER DISTRIBUTION PIPING SHALL BE DISINFECTED PRIOR TO OCCUPANCY OR SYSTEM START-UP WITH A CHLORINE SOLUTION 50 PPM. ALLOW SYSTEM TO STAND FOR SIX HOURS MINIMUM, THEN EXERCISE ALL VALVES TO ENSURE TREATMENT OF ALL BRANCHES AND COMPONENTS. SYSTEM SHALL BE FLUSHED WITH POTABLE WATER AFTER DISINFECTION AND PRIOR TO PLACEMENT INTO SERVICE.
- K. STORM, SANITARY WASTE AND VENT PIPING SHALL BE TESTED IN ACCORDANCE WITH WATER TEST AS SPECIFIED IN THE INTERNATIONAL PLUMBING CODE, IN ADDITION TO ANY TESTS REQUIRED BY THE LOCAL PLUMBING OFFICIAL. (10 FEET OF HEAD WITH NO APPARENT LEAKS. HOLD FOR 30 MINUTES MINIMUM). FLUSH ALL GRAVITY PIPING INCLUDING FLOOR DRAINS AND ROOF DRAINS PRIOR TO TURNING OVER TO THE OWNER.
- L. ALL PIPE SHALL BE CUT SQUARE. REAM PIPE AND TUBE ENDS AND REMOVE BURRS. CLEAN THE ENDS OF PIPES TO REMOVE OIL, GREASE AND OXIDES. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES OR UNIONS.
- M. ALL SOLDERED PIPING AND EQUIPMENT CONNECTIONS SHALL BE PROPERLY PREPARED IN ACCORDANCE WITH GOOD PIPING PRACTICE. APPLY A THIN LAYER OF FLUX TO ONLY THE MALE TUBING. ROTATE INTO THE FITTING WITH ONE OR TWO REVOLUTIONS.
- N. DOMESTIC WATER PIPING: ROUTE PIPING IN ORDERLY MANNER. PLUMB AND PARALLEL TO BUILDING STRUCTURE, AND MAINTAIN GRADIENT. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS. PROVIDE ACCESS WHERE VALVES AND FITTINGS ARE NOT EXPOSED. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL. PROVIDE DRAIN VALVES AT LOW POINTS IN SYSTEMS. TEST WATER PIPING BEFORE BEING INSULATED OR CONCEALED IN WALLS OR CEILING.
- O. STORM, SANITARY WASTE, AND VENT PIPING: HORIZONTAL SOIL, WASTE AND DRAINAGE LINES WITHIN BUILDING SHALL HAVE A MINIMUM UNIFORM SLOPE OF 1/8 INCH PER FOOT ON 3 INCH AND LARGER, AND 1/4 INCH PER FOOT ON LINES 2 INCH AND SMALLER. TURNS IN SANITARY, SOIL, AND DRAIN PIPING SHALL BE MADE USING 45 DEGREE ELBOWS, WYES, QUARTER, EIGHTH, SIXTEENTH BENDS, OR OTHER BENDS APPROVED BY THE PLUMBING CODE. DO NOT USE SANITARY TEES OR CROSSES EXCEPT WHERE DISCHARGING FROM HORIZONTAL TO VERTICAL. MAKE CHANGES IN PIPE SIZES WITH REDUCING FITTINGS AND RECESSED REDUCERS. DO NOT REDUCE LINE SIZE IN DIRECTION OF FLOW. PROVIDE CLEANOUTS ON ALL HORIZONTAL TURNS IN WASTE PIPING GREATER THAN 45 DEGREES. PROVIDE DEEP SEAL TRAPS ON ALL FLOOR DRAINS, AND TRAP PRIMERS/SEAL WHERE REQUIRED BY CODE OR AS INDICATED ON DRAWINGS. INDIRECT WASTE LINES DUMPING INTO FLOOR OR HUB DRAINS SHALL MAINTAIN A 2-INCH AIR GAP BETWEEN THE END OF THE WASTE LINE AND THE RIM OF THE FLOOR OR HUB DRAIN.

SECTION 15416 - GAS PIPING SYSTEMS

- A. PROVIDE COMPLETE INSTALLATION OF GAS PIPING FROM THE "POINT OF DELIVERY" UP TO AND INCLUDING CONNECTION TO ALL GAS-FIRED EQUIPMENT. CONNECT EQUIPMENT ITEMS FURNISHED UNDER OTHER SECTIONS OF SPECIFICATIONS. TEST IN ACCORDANCE WITH A.G.A., STANDARD GAS CODE, N.F.P.A. 54, AND APPLICABLE STATE AND LOCAL CODES.
- B. ROUTE GAS SERVICE ENTRANCE PIPING INTO BUILDING TO AVOID INTERFERENCE AND DAMAGE. PROVIDE MANUAL SHUTOFF VALVE, GAS COCK AND GAUGE. VALVES SHALL BE LABELED.
- C. PROVIDE ACCESS PANELS FOR VALVES AND OTHER ITEMS REQUIRING MAINTENANCE IN ENCLOSED SPACES. AVOID INSTALLING GAS APPURTENANCES IN ENCLOSED SPACES WHERE POSSIBLE. INSTALL IN ENCLOSED SPACES ONLY AS ALLOWED BY APPLICABLE CODES.
- D. SUBMIT MANUFACTURER'S LITERATURE ON ALL MATERIALS AND EQUIPMENT INCLUDING: PIPE, PIPE COATING, ANODES, VALVES, FLEXIBLE CONNECTORS, FITTINGS, REGULATORS, RELIEF VALVES, GAUGES, GAS SERVICE:
- COORDINATE INSTALLATION OF GAS SERVICE LINE WITH LOCAL GAS COMPANY. PAY ALL FEES.
 - PROVIDE 12 INCH ELEVATED METER MOUNTING PADS ON TOP OF A 4 INCH THICK CONCRETE PAD FOR SUPPORT OF GAS METER AND PIPING.
 - PROVIDE (TWO) 8 INCH DIAMETER PIPE BOLLARDS FOR GAS METER PROTECTION. BOLLARDS SHALL BE SIX FEET LONG (3 FEET BELOW GRADE), MOUNTED IN A 24 INCH DIAMETER HOLE, FILLED WITH 3,000 PSI CONCRETE.
- F. INTERIOR PIPING: CONNECT TO ENTERING LINE AND DISTRIBUTE GAS TO EQUIPMENT ITEMS REQUIRING GAS AND AS INDICATED. PERFORM WORK IN ACCORD WITH APPLICABLE A.G.A., N.F.P.A. 54, STATE AND LOCAL CODES. INSTALL GAS STOP VALVES AND DRIP LEGS AT EACH EQUIPMENT ITEM. PIPING SHALL BE ADEQUATELY DRAINED WITH A MINIMUM SLOPE OF 1/4 INCH PER 15 FEET AND DRIP LEGS (FULL SIZE OF PIPE) INSTALLED AT ADDITIONAL POINTS WHERE CONDENSATE MAY COLLECT. INSTALL PRESSURE REDUCING VALVES AS REQUIRED TO PROVIDE PRESSURE WITHIN EQUIPMENT MANUFACTURER'S REQUIREMENTS.
- G. EXTERIOR PIPING: EXTERIOR PIPING SHALL BE SCHEDULE 40 CARBON STEEL. PIPING 2 INCH AND SMALLER MAY USE THREADED FITTINGS. PIPING 2 1/2 INCH AND LARGER SHALL USE WELDED FITTINGS AND FLANGED VALVES. EXTERIOR PIPING SHALL BE COATED WITH AN ALKYD ENAMEL PRIMER (MINIMUM DRY THICKNESS 3 MILS). EXPOSED PIPING SHALL BE SUPPORTED ON GALVANIZED 8-LINE CHANNELS AND PIPE CLAMPS.
- H. UNDERGROUND PIPING:
- UNDERGROUND PIPING SHALL BE CARBON STEEL - A53A106-WELDED OR POLYETHYLENE. UNDERGROUND STEEL PIPING SHALL HAVE AT LEAST 18 INCH OF PROPER BACKFILL COVER. PROTECTED FROM CORROSION. PROVIDE COATED PIPING AND FITTINGS. REPAIR DAMAGED COATING AT WELDS. INSTALL SACRIFICIAL ANODES ON STEEL PIPING INTERVALS NOT EXCEEDING 100 FT.
 - WHERE PIPES PENETRATE BASEMENT WALLS AND FOUNDATIONS INSTALL THUNDERLINE LINK SEAL.
 - GAS LINES ROUTED UNDER A BUILDING SHALL BE STEEL AND SHALL BE ENCASED IN A SCH 40 OUTER CONDUIT (AT LEAST 3 PIPE SIZES LARGER THAN THE GAS LINE). CONDUIT SHALL BE SEAL WELDED TO THE GAS PIPE INSIDE THE BUILDING. CONDUIT SHALL BE VENTED TO OUTDOORS. CONDUIT SHALL BE PROTECTED FROM CORROSION SIMILARLY TO UNDERGROUND PIPING.
- I. PIPE/TUBING:
- STEEL PIPE: ASTM A53 GRADE A OR B, TYPE F, ERW OR SEAMLESS. SCHEDULE 40.
 - ASTM A106 SEAMLESS, SCHEDULE 40.
 - TUBING (STEEL) ASTM A539.
 - PLASTIC PIPE ASTM D2513 POLYETHYLENE. DRISCO PIPE 6500 OR PRIOR APPROVED EQUAL.
- J. FITTINGS:
- WELDED (STEEL): WELDING FITTINGS SHALL BE CARBON STEEL BUTT WELDING TYPE CONFORMING TO ASTM-234. ELBOWS SHALL BE LONG RADIUS TYPE. WELDING TEES SHALL BE USED ON BRANCH CONNECTIONS EQUAL TO OR GREATER THAN 2 THE DIAMETER OF THE MAIN RUN. FITTINGS SHALL BE LADISH, TUBE-TURN OR WELDBAND. CARBON STEEL REINFORCED BRANCH, WELDING FITTINGS UP TO 3 INCHES, BUT NOT GREATER THAN 2 THE DIAMETER OF THE MAIN RUN MAY BE USED. FITTINGS SHALL BE BONNEY FORGE OR PHOENIX FORGING.
 - THREADED (MALLEABLE, IRON): SCREWED FITTINGS SHALL BE MALLEABLE IRON ASTM A-197 CLASS 150 CONFORMING TO ANSI B16.3. DIMENSIONS CONFORMING TO FEDERAL SPEC WW-P-521. FITTINGS SHALL BE GRINNELL, FLAGG OR STOCKHAM.
 - HEAT FUSION/COMPRESSION (POLYETHYLENE): SOCKET TYPE FUSION SHALL MEET THE REQUIREMENTS OF ASTM D2633. FITTINGS SHALL BE LISTED AND MARKED ASTM D2513. BUTT TYPE FUSION FITTING SHALL MEET THE REQUIREMENTS OF ASTM D3261.
- K. UNIONS (DIELECTRIC): CLASS 250 MALLEABLE, SCREWED ASTM A-197.
- L. VALVES:
- 1 INCH AND SMALLER: BALL VALVE - CLASS 125 BRASS FULL PART, 2 PIECE BODY, CHROME PLATED BALL, BLOWOUT PROOF STEAM, TFE SEATS.
 - 2 INCHES AND SMALLER: PLUG COCK - CLASS 125 CAST IRON, SCREWED, FULL PORT AGA LISTED, ANSI B16.33 HOMESTEAD FIGURE 601.
 - 2 1/2 INCHES AND LARGER: PLUG VALVE - CLASS 125 FLANGED CAST IRON ASTM A126 CONFORMING TO ANSI B16.1.
- M. PIPE COATING: X-TRU COAT OR PRIOR APPROVED EQUAL INCLUDING JOINTS AND FITTINGS.
- N. PRESSURE REGULATORS: CAST IRON OR ALUMINUM BODY AND SPRING CASE WITH STAINLESS STEEL VALVE STEAM, SEAT RING AND VALVE PLUG, PLATED STEEL SPRINGS, NEOPRENE DIAPHRAGM AND GASKETS AND TFE DISC. REGULATING VALVES SHALL BE SIZED FOR THE FLOW INDICATED AND FOR INLET AND OUTLET PRESSURES INDICATED. OUTLET PRESSURE SHALL BE MAINTAINED UNDER THE DESIGN FLOW CONDITION AND AT NO FLOW. REGULATING VALVES TWO PSI AND BELOW SHALL HAVE LEAK LIMITING DEVICES. REGULATING VALVES OVER TWO PSI SHALL BE VENTED FULL SIZE TO OUTSIDE OF THE BUILDING. OTHER REGULATING VALVES REQUIRING ACCESS TO THE ATMOSPHERE SHALL BE EQUIPPED WITH VENT PIPING LEADING TO OUTSIDE. PROVIDE A PRESSURE RELIEF VALVE IF THE REGULATOR CONNECTION SIZE EXCEEDS TWO INCHES. REGULATING VALVES SHALL BE FISHER, MAXITROL OR PRIOR APPROVED EQUAL MEETING ANSI Z21.18.
- O. PRESSURE GAGE: FOR MEDIUM PRESSURE GAS; 0-5 PSI RANGE. FOR LOW PRESSURE GAS: 0-30 INCH W.C. RANGE. USE LOW PRESSURE TYPE 2-1/2 INCH DIAL. PRESSURE GAGE WITH APPROPRIATE RANGE, OCI MODEL CO 34, TRENCIE, WENSKER OR APPROVED EQUAL.



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



5/15/24

Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Plumbing
Specifications

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

P0.02

Scale	12" = 1'-0"
-------	-------------

SECTION 15430 - PLUMBING SPECIALTIES

- A. THIS SPECIFICATION DESCRIBES THE REQUIREMENTS FOR LABOR AND MATERIALS REQUIRED FOR THE INSTALLATION OF PLUMBING SPECIALTIES INCLUDED AS PART OF THE BUILDING PLUMBING SYSTEM. MANUFACTURER'S LITERATURE INDICATING MODEL NUMBERS AND OPTIONS SHALL BE SUBMITTED FOR ALL FIXTURES AND EQUIPMENT. FORMAT SHALL INCLUDE A SCHEDULE OF THE SPECIALTIES SUBMITTED AND INCLUDE IDENTIFICATION NUMBER OF EACH ITEM, SUCH AS "FD-1 FLOOR DRAIN," A LIST OF EACH COMPONENT, ACCESSORY, AND OPTION OF THE ITEM BEING SUBMITTED. THIS SCHEDULE MUST BE INCLUDED IN THE FRONT OF THE SUBMITTAL PAGE.
- C. CLEANOUTS SHALL CONSIST OF A COATED CAST IRON BODY WITH THREADED TOP WITH SPIGOT OR NO-HUB CONNECTION AND GASKETED BRONZE CLOSURE PLUG WITH COUNTERSUNK SLOT. HEAD SHALL BE ADJUSTABLE IN HEIGHT; PROVIDE NON-SKID COVERS FOR FLOOR CLEANOUTS. PROVIDE THREAD SHIELD TO PROTECT ADJUSTMENT THREADS FROM CONCRETE AS REQUIRED. CLEANOUTS SHALL BE INSTALLED IN HORIZONTAL RUNS AT SPACING OF NO MORE THAN 75 FEET. INSTALL CLEANOUTS AT THE BASE OF EVERY SOIL AND WASTE STACK, AND AT EACH 90 DEGREE CHANGE IN DIRECTION. INSTALL CLEANOUTS WHICH ARE NOT EASILY ACCESSIBLE UP THROUGH FLOOR OR WALL AND PROVIDE APPLICABLE COVERS. INSTALL CLEANOUTS TO ALLOW AT LEAST 18" FOR RODDING.
- D. WATER HAMMER ARRESTORS SHALL BE CONSTRUCTED OF A STAINLESS STEEL OR COPPER SHELL, STAINLESS STEEL OR ELASTOMER BELLOWS, WITH PRECHARGE OF AIR, NITROGEN, OR ARGON. ARRESTERS SHALL CONFORM TO ASSE STD. 1010, AND SHALL BE ZURN "SHOCKTROL", JOSAM "ABSORBOTRON", WADE "SHOCKSTOP", OR PRECISION PLUMBING PRODUCTS "SHOCK ARRESTOR". UNIT SHALL BE SIZED IN ACCORDANCE WITH TPO STANDARDS. WATER HAMMER ARRESTORS SHALL BE SIZED TO ACTUAL PIPE SIZE AND INSTALLED AS NEAR THE SHOCK SOURCE AS PRACTICAL. INSTALL TO ALLOW UNOBSTRUCTED PATH FROM SHOCK SOURCE TO ARRESTOR.
- E. BALANCING VALVES (DOMESTIC HOT WATER RETURN): VALVES SHALL BE BELL AND GOSSETT CB SERIES CIRCUIT SETTER, PRESETTABLE BALANCE VALVE, VARIABLE ORIFICE FLOW METER AND POSITIVE SHUT-OFF SERVICE VALVE. EQUIPMENT WITH CAPPED READOUT VALVES FITTED WITH INTERNAL CHECK VALVES, 1/4 INCH NPT TAPPED AND PLUGGED DRAIN PORT. BRONZE BODY/BRASS BALL CONSTRUCTION WITH GLASS AND CARBON FILLED FLOW SEAT RINGS, SOLDER CONNECTIONS. VALVES TO HAVE DIFFERENTIAL PRESSURE READ-OUT PORTS ACROSS VALVE SEAT AREA. FURNISH WITH PREFORMED INSULATION TO PERMIT ACCESS FOR BALANCE AND READ-OUT. TACO IS AN APPROVED EQUAL.
- F. PRESSURE REDUCING VALVES: VALVES SHALL BE EQUAL TO WATTS SERIES U6B-GG BRONZE BODY SINGLE SEATED WITH COMPOSITION DIAPHRAGM AND STAINLESS STEEL SPRING, DIRECT ACTING WITH STRAINER ON INLET SIDE, INTEGRAL BY-PASS CHECK VALVE, GAUGE, AND THREADED ENDS. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- G. TRAP GUARD SEALS: PROVIDE AN ELASTOMERIC, NORMALLY CLOSED TRAP GUARD DEVICE TO PREVENT EVAPORATION OF THE TRAP SEAL AND TO PROTECT AGAINST SEWER GASES FROM BACKING UP INTO HABITABLE AREAS. DEVICE SHALL OPEN WITH FLUID AND ALLOWS LIQUID DRAINAGE TO FLOW THROUGH INTO THE BUILDING DRAIN. TRAP SEAL SHALL BE TRAP GUARD BY PRO-VENT SYSTEMS OR APPROVED EQUAL.
- H. FLOOR DRAINS (FD-1): DRAIN SHALL INCLUDE COATED CAST IRON BODY WITH BOTTOM OUTLET, 1/2" TRAP PRIMER CONNECTION, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH TYPE "B" ROUND POLISHED NICKEL-BRONZE LIGHT DUTY STRAINER TOP WITH SQUARE HEELPROOF OPENINGS AND SECURED GRATE. DRAIN SHALL BE ZURN ZN415-P-NH OR EQUAL BY JAY R. SMITH, WADE, OR JOSAM. PROVIDE 3 FT. SQ. 6 MIL BUTYL MEMBRANE, AT EACH FLOOR DRAIN. CLAMP MEMBRANE. MEMBRANE SHALL BE RECESSED IN THE FLOOR SLAB WITH TOPPING POURED OVER IT. DRAINS INSTALLED IN ELEVATED BUILDING FLOORS SHALL BE SEALED IN SUCH A MANNER AS TO PREVENT LEAKAGE OF WATER AROUND TRAP AND BODY TO CEILING BELOW.
- I. FLOOR DRAIN (FD-2): DRAIN SHALL INCLUDE SUR-SET BUCKET, 9" DIAMETER MEDIUM DUTY CAST IRON GRATE, COATED CAST IRON BODY, 1/2" TRAP PRIMER CONNECTION, BOTTOM OUTLET, SEEPAGE PAN, AND COMBINATION MEMBRANE CLAMP. DRAIN SHALL BE ZURN Z-554-P-NH OR EQUAL BY JAY R. SMITH, WADE, OR JOSAM. PROVIDE 3 FT. SQ. 6 MIL BUTYL MEMBRANE, AT EACH FLOOR DRAIN. CLAMP MEMBRANE. MEMBRANE SHALL BE RECESSED IN THE FLOOR SLAB WITH TOPPING POURED OVER IT. DRAINS INSTALLED IN ELEVATED BUILDING FLOORS SHALL BE SEALED IN SUCH A MANNER AS TO PREVENT LEAKAGE OF WATER AROUND TRAP AND BODY TO CEILING BELOW.
- J. HUB DRAIN (HD): DRAIN SHALL INCLUDE CAST IRON DEEP SEAL, 1" TRAP WITH INDIRECT WASTE FUNNEL INLET AND SIDE OUTLET THREADED AND WITH 1/2 INCH THREADED FLUSH CONNECTION. DRAIN SHALL BE JOSAM 8821-051 OR EQUAL BY ZURN, JAY R. SMITH, OR WADE.
- K. REDUCED PRESSURE ZONE BACKFLOW PREVENTER (ASSE 1015): BACKFLOW PREVENTER SHALL INCLUDE NPT BODY CONNECTIONS, QUARTER TURN, FULL PORT, RESILIENT SEATED BRONZE BALL VALVE, AND STRAINER. UNIT SHALL BE WATTS SERIES 909 QT OR EQUAL BY WILKINS, OR CONBRACO. BACKFLOW PREVENTERS SHALL BE INSTALLED IN ACCORDANCE WITH PER MANUFACTURER'S INSTRUCTIONS. AFTER INSTALLATION, BUT BEFORE SYSTEM IS PUT INTO SERVICE, TEST BACKFLOW PREVENTER FOR FUNCTIONALITY WITH TEST KIT AS RECOMMENDED BY MANUFACTURER. PIPE DISCHARGE FROM BACKFLOW PREVENTER VENT WITH CONNECTION-SIZE COPPER TUBING TO NEAREST FLOOR DRAIN. ENSURE AIR GAP IS PROVIDED IN RELIEF LINE EITHER BY AIR GAP FITTING OR ELEVATED DISCHARGE ABOVE DRAINS. BACKFLOW PREVENTER PIPING SHALL BE INSTALLED WITH UNIONS FOR REMOVAL.
- L. WALL HYDRANTS (WH-1): WALL HYDRANTS SHALL BE NICKEL BRONZE PLATED, INTEGRAL VACUUM BREAKER, 3/4 INCH HOSE THREAD, KEY OPERATOR, NON-FREEZE TYPE, HOUSED IN A RECESSED STAINLESS STEEL BOX WITH HINGED LOCKING COVER. HYDRANT SHALL BE JAY R. SMITH 5503 QT OR EQUAL BY WADE, JOSAM OR ZURN. INSTALL WALL HYDRANTS AS INDICATED ON DRAWINGS, MINIMUM HEIGHT 18" A.F.F. UNLESS OTHERWISE INDICATED.
- M. HOSE BIBB (HB-1): CHROME PLATED, 1/2 INCH HOSE THREAD OUTLET, LOCK SHIELD CAP WITH INTEGRAL VACUUM BREAKER. CHICAGO FAUCET NO. 932 OR T&S BRASS.
- N. OIL SEPARATOR: STRIEM HIGH EFFICIENCY OIL/WATER SEPARATOR MODEL OS-25 SHALL BE LIFETIME GUARANTEED AND MADE IN THE USA. SEPARATOR SHALL BE CERTIFIED TO IAPMO IGC 325 AND CARRY A UPC LISTING. SEPARATOR SHALL BE CONSTRUCTED OF POLYETHYLENE. SEPARATOR SHALL BE MANUFACTURED FOR ABOVE- OR BELOW-GRADE INSTALLATION; FIELD ADJUSTABLE RISER SYSTEM IS AVAILABLE AS AN OPTION TO BRING MANHOLE COVER TO GRADE. SEPARATOR FLOW RATE SHALL BE 25 GPM. SEPARATOR LIQUID HOLDING CAPACITY SHALL BE 21 GALLONS AND OIL CAPACITY SHALL BE 5.25 GALLONS. SOLIDS CAPACITY SHALL BE 6 GALLONS. COVER SHALL PROVIDE WATER/GAS-TIGHT SEAL AND HAVE A MAXIMUM 450 LBS. LOAD CAPACITY WHEN UNIT IS INSTALLED ABOVE-GRADE, AND 2,500 LBS. WHEN BURIED WITH SR16 RISER.

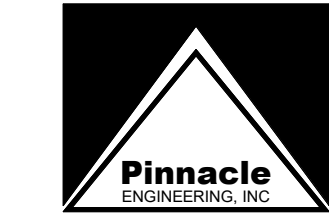
SECTION 15440 - PLUMBING FIXTURES

- A. THIS SPECIFICATION DESCRIBES THE REQUIREMENTS FOR PLUMBING FIXTURES AND THEIR INSTALLATION. SUBMITTALS SHALL INCLUDE MANUFACTURER'S DATA SHEETS AND DIMENSIONAL INFORMATION ON ALL FIXTURES AND ACCESSORIES. FORMAT SHALL INCLUDE A SCHEDULE OF THE FIXTURES SUBMITTED AND INCLUDE IDENTIFICATION NUMBER OF EACH ITEM, SUCH AS "P-1 WATER CLOSET", AND LIST OF EACH COMPONENT AND ACCESSORY OF THE FIXTURE, INCLUDING MANUFACTURER'S MODEL NUMBER. THIS SCHEDULE MUST BE INCLUDED IN THE FRONT OF THE SUBMITTAL BOOKLET.
- C. VITREOUS WARE SHALL BE WHITE, REGULAR SECTION, OF WEIGHT REQUIRED, FREE FROM CRACKS, FLAWS, BUSTERS, CRAZES OR OTHER DEFECTS. PROVIDE WITH MOUNTING BRACKETS FOR WALL MOUNTED FIXTURES UNLESS FLOOR CARRIERS ARE INDICATED.
- D. STAINLESS STEEL SHALL HAVE MACHINE GROUND FINISH. DECKS AND SINK COMPARTMENT SIDES SHALL BE BUFFED. EXPOSED SURFACES SHALL HAVE NO. 4 SATIN FINISH. INTERIOR SURFACES SHALL BE DEADENED. EXPOSED METAL PARTS SHALL BE CHROMIUM PLATED AND PROTECTED DURING CONSTRUCTION BY A COAT OF GREASE.
- E. WATER CLOSET AND URINAL CARRIERS SHALL HAVE TAPERED THREAD FACE PLATE, PLASTIC COUPLING WITH TEST CAP, AND NEOPRENE RUBBER GASKET. LAVATORY, SINK AND URINAL CARRIERS SHALL HAVE RECTANGULAR STRUCTURAL STEEL UPRIGHTS. CARRIERS SHALL HAVE NECESSARY ACCESSORIES FOR PROPER INSTALLATION. CARRIERS SHALL BE ACCORDING TO ANSI A112.6.1M.
- F. WATER CLOSETS AND URINALS SHALL HAVE BOLT CAPS.
- G. SEATS SHALL BE WHITE, SOLID PLASTIC, WITH INTERNAL CHECK AND MOLDED STAINLESS STEEL HINGE WITHOUT VISIBLE METAL PARTS, EXCEPT AS HEREINAFTER SPECIFIED.
- H. CHROMIUM PLATED TRAPS SHALL BE BRASS WITH CHROMIUM PLATED NIPPLE TO WALL AND ESCUTCHEON.
- I. FITTINGS AND ACCESSORIES SPECIFIED DESIGNATE TYPE ONLY; PROVIDE MODIFICATIONS TO MAKE FITTINGS WORK PROPERLY WITH FIXTURE AND PIPING. PROVIDE NECESSARY TAILPIECE AND SHANKS.
- J. INSTALL EYEWASH STATION WITHIN 10 FEET OF HAZARD AREA, COMPLETELY UNOBSTRUCTED FROM VIEW OR ACCESS, ANCHOR TO FLOOR IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. PROVIDE AND INSTALL STRAINER AT DOMESTIC WATER INLET TO STATION. PROVIDE AND INSTALL ON WALL ABOVE STATION, A PLASTIC ENGRAVED SIGN READING "EMERGENCY USE ONLY", WHITE LETTERS ON RED BACKGROUND. PROVIDE MINIMUM 5 GALLON CONTAINER AND PROVIDE TIMED FLOW TEST FOR ALL EYEWASHES AND EMERGENCY SHOWERS. SUBMIT REPORT TO ARCHITECT OR ENGINEER PRIOR TO FINAL INSPECTION.
- K. FIXTURES
- WC-1 WATER CLOSET (17-1/2" HIGH, FLOOR MOUNT, TANK TYPE):
1. KOHLER K-3493 VITREOUS CHINA, 1.4 GALLON FLUSH; PRESSURE ASSISTED CLOSE COUPLED TANK WITH ELONGATED BOWL.
2. KOHLER K-7637 3/8" POLISHED CHROME ANGLE SUPPLY WITH STOP.
3. BENEKE 82/SS ELONGATED SELF-SUSTAINING WITH CHECK HINGES, OPEN FRONT, HEAVY DUTY SOLID PLASTIC SEAT.
- LAV-1 LAVATORY (ADA COMPLIANT, WALL HUNG):
1. KOHLER K-2005 WALL MOUNTED LAVATORY, VITREOUS CHINA, WITH OVER FLOW AND 4" FAUCET CENTERS, DRILLED FOR CONCEALED ARM CARRIER.
2. ZURN Z-7443-VP SINGLE CONTROL FAUCET, LEVER HANDLE, 4" CENTER MOUNT, 1-1/4" GRID STRAINER.
3. MCGUIRE 170 1/2" X 3/8" SWEAT LAVATORY SUPPLIES WITH WHEEL HANDLE STOPS.
4. MCGUIRE 8902, 1-1/4 INCH X 1-1/2 INCH P-TRAP WITH ESCUTCHEON; ZURN GH, 1-1/4" OFFSET HANDICAP GRID DRAIN.
5. TRAP AND SUPPLIES COVERED WITH TRAP WRAP EQUAL TO BROCHAR INDUSTRIES.
6. ZURN Z-1231 LAVATORY CONCEALED ARM CARRIER.
- EW-1 EYE/FACE WASH (PEDESTAL MOUNT):
1. STAINLESS STEEL BOWL WITH TWIN EYEWASH HEADS WITH FLIP TOP COVERS, CHROME PLATED WATER EYEWASH ASSEMBLY.
2. INCLUDE UNIVERSAL EMERGENCY SIGN CONFORMING TO ANSI Z358.1.
3. INCLUDE MIXING VALVE/TEMPERED WATER BLENDING SYSTEM.
4. EQUAL TO GUARDIAN G1825. CONFORM TO ANSI Z358.1.
- EW-1 WATER COOLER (WALL MOUNT, BOTTLE FILLING STATION, ADA):
1. ELKAY LZSTL8WSVRSK. HANDS FREE, ADA COMPLIANT DUAL STATION WITH BOTTLE FILLING STATION.
2. MCGUIRE 8902 P-TRAP WITH ESCUTCHEON.
3. MCGUIRE 170 STOP AND SUPPLY.
- SK-1 LAUNDRY TUB (SINGLE COMPARTMENT):
1. FIAT MODEL NO. FL-1 SINGLE MOLDED STONE LAUNDRY TUB WITH FREE DRAINING SOAP TRAY ON BACK LEDGE. INCLUDE FOUR WHITE BAKELITE ENAMEL ANGLE LEGS THAT SLIP INTO MOLDED SOCKETS. SELF-LEVELING LEGS WITH FLOOR ANCHORS.
2. FIAT MODEL A-1 BRASS FAUCET WITH SWING SPOUT.
3. MCGUIRE 170 1/2" X 3/8" SWEAT LAVATORY SUPPLIES WITH WHEEL HANDLE STOPS.
4. MCGUIRE #9150 TRAY PLUG WITH RUBBER STOPPER (1-1/2").
5. MCGUIRE #8912 1-1/2" X 1-1/2", 17 GAUGE BRASS P-TRAP.
- L. ACCEPTABLE MANUFACTURERS: FIXTURES: VITREOUS CHINA - AMERICAN STANDARD, CRANE, ELJER, KOHLER. FIXTURES, STAINLESS STEEL - JUST, ELKAY. FLUSH VALVES - SLOAN, DELANEY. ZURN. TOILET SEATS - OLSONITE, SPERZEL, CHURCH, BENEKE, BEMIS. FAUCETS - T&S BRASS, SPEAKMAN, CHICAGO, SYMMONS, ELJER. TERRAZZO - FIAT, CUTLER, FLORESTONE, STERN-WILLIAMS. TRIM, CHROMED BRASS - MCGUIRE, SANITARY DASH, BRIDGEPORT. SHOWER MIXING VALVES - POWERS, LEONARD, LAWLER, SYMMONS. SPEAKMAN, ZURN. SHOWER HEADS - SYMMONS, SPEAKMAN, ZURN. ELECTRIC WATER COOLERS - ELKAY, HALSEY TAYLOR, SUNROC, OASIS, HAWS. USE ONLY WATER COOLERS WHICH DO NOT USE CFC'S FOR REFRIGERATION. SCRUB SINKS - ELJER, AMERICAN STANDARD, KOHLER, CRANE CARRIERS - J. R. SMITH, JOSAM, ZURN, WADE. EMERGENCY EQUIPMENT - GUARDIAN, HAWS, WESTERN, SPEAKMAN.

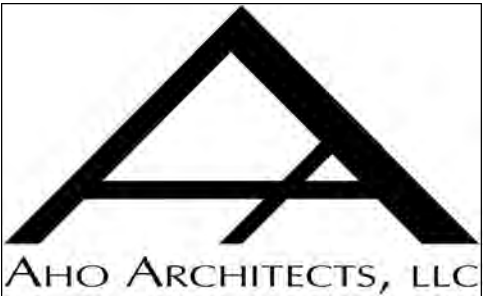
- M. INSTALL PLUMBING FIXTURE LEVEL AND PLUMB, IN ACCORDANCE WITH FIXTURE MANUFACTURER'S PUBLISHED LITERATURE, ROUGH-IN DRAWINGS, CODES REGULATIONS, AND REFERENCE STANDARDS. FASTEN PLUMBING FIXTURES SECURELY TO SUPPORTS OR BUILDING STRUCTURE. RIGIDLY SUPPORT WATER SUPPLIES BEHIND OR WITHIN WALL CONSTRUCTION. PROVIDE STOP VALVE IN THE WATER SUPPLY TO EACH FIXTURE IN AN ACCESSIBLE LOCATION. CONNECT WALL HUNG URINALS TO WASTE PIPING WITH RED BRASS NIPPLES. CONNECT FIXTURES TO WATER SUPPLY WITH COPPER OR BRASS (NO STEEL). EACH FIXTURE, FLOOR DRAIN AND PIECE OF EQUIPMENT REQUIRING CONNECTION TO DRAINAGE SYSTEM TO HAVE SEPARATE TRAPS INSTALLED AS CLOSE TO FIXTURE AS POSSIBLE. PROVIDE IRON OR STEEL BACKING FOR ALL WALL MOUNTED FIXTURES (OR WOOD BACKING ONLY IF BUILDING STRUCTURE IS WOOD). PROVIDE ESCUTCHEONS AT EACH WALL, FLOOR AND CEILING PENETRATION IN EXPOSED FINISHED LOCATIONS AND WITHIN CABINETS AND MILLWORK. APPLY SCP3154 PRIMER AND GENERAL ELECTRIC CO.'S NO. 1702 SILICONE SANITARY SEALANT AROUND PLUMBING FIXTURES TO CONCEAL VOIDS AT WALL AND CONTACT POINTS OF FIXTURE AFTER WALLS HAVE BEEN PAINTED. APPLY SCP3154 PRIMER AND GENERAL ELECTRIC CO.'S SILPRUF SEALANT ON PLAIN CONCRETE WALLS.

SECTION 15450 - PLUMBING EQUIPMENT

- A. ELECTRIC WATER HEATERS:
1. WATER HEATER SHALL COMPLY WITH UL 1453.
2. STORAGE TANK CONSTRUCTION: ASME-CODE STEEL WITH 150 PSIG WORKING-PRESSURE RATING. STEEL JACKET WITH ENAMELED FINISH.
3. TAPPINGS: FACTORY FABRICATED OF MATERIALS COMPATIBLE WITH TANK FOR PIPING CONNECTIONS, RELIEF VALVE, PRESSURE GAGE, THERMOMETER, DRAIN, ANODE RODS, AND CONTROLS AS REQUIRED. ATTACH TAPPINGS TO TANK SHELL BEFORE TESTING AND LABELING. TAPPINGS SHALL HAVE THREADED ENDS ACCORDING TO ASME B1.20.1, PIPE THREADS.
4. INTERIOR FINISH: MATERIALS AND THICKNESSES COMPLYING WITH NSF 61, BARRIER MATERIALS FOR POTABLE-WATER TANK LININGS. EXTEND FINISH INTO AND THROUGH TANK FITTINGS AND OUTLETS.
5. INSULATION: COMPLY WITH ASHRAE 90.1. SURROUND ENTIRE STORAGE TANK EXCEPT CONNECTIONS AND CONTROLS.
6. HEATING ELEMENTS: ELECTRIC, SCREW-IN OR BOLT-ON, IMMERSION TYPE. STAGING AS NOTED IN SCHEDULE.
7. TEMPERATURE CONTROL: ADJUSTABLE IMMERSION THERMOSTAT.
8. SAFETY CONTROLS: AUTOMATIC, HIGH-TEMPERATURE-LIMIT AND LOW-WATER CUTOFF DEVICES OR SYSTEMS.
9. DRAIN VALVE: ASSE 1005, CORROSION-RESISTANT METAL, FACTORY INSTALLED.
10. ANODE RODS: FACTORY INSTALLED, MAGNESIUM.
11. DIP TUBE: FACTORY INSTALLED. NOT REQUIRED IF COLD-WATER INLET IS NEAR BOTTOM OF STORAGE TANK.
12. SPECIAL REQUIREMENT: NSF 5 CONSTRUCTION.
13. ACCEPTABLE MANUFACTURERS ARE LOCHINVAR, A. O. SMITH, OR PRIOR APPROVAL EQUAL.
- B. THERMAL EXPANSION TANK (DOMESTIC WATER):
1. PRE-CHARGED HYDRO-PNEUMATIC STEEL EXPANSION TANK, CONSTRUCTED IN ACCORDANCE WITH SECTION VIII OF ASME BOILER AND PRESSURE CODE, WITH ALL WELDS CONFORMING TO ASME SECTION IX. TANK MUST BE STAMPED WITH A MAXIMUM WORKING PRESSURE OF 125 PSI, AND A MAXIMUM WORKING TEMPERATURE OF 200 DEGREES F. ALL INTERNAL WETTED PARTS MUST COMPLY WITH FDA REGULATIONS AND APPROVALS. AN INTERNAL BUTYL DIAPHRAGM WILL BE USED TO ISOLATE AIR FROM WATER. AITROL OR APPROVED EQUAL AS1 SERIES.



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



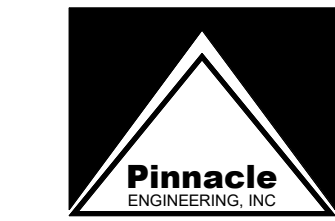
Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Plumbing Specifications	
Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB
P0.03	
Scale	12" = 1'-0"



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



www.ahoarch.com



5/15/24

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Plumbing Floor
Plan Gravity

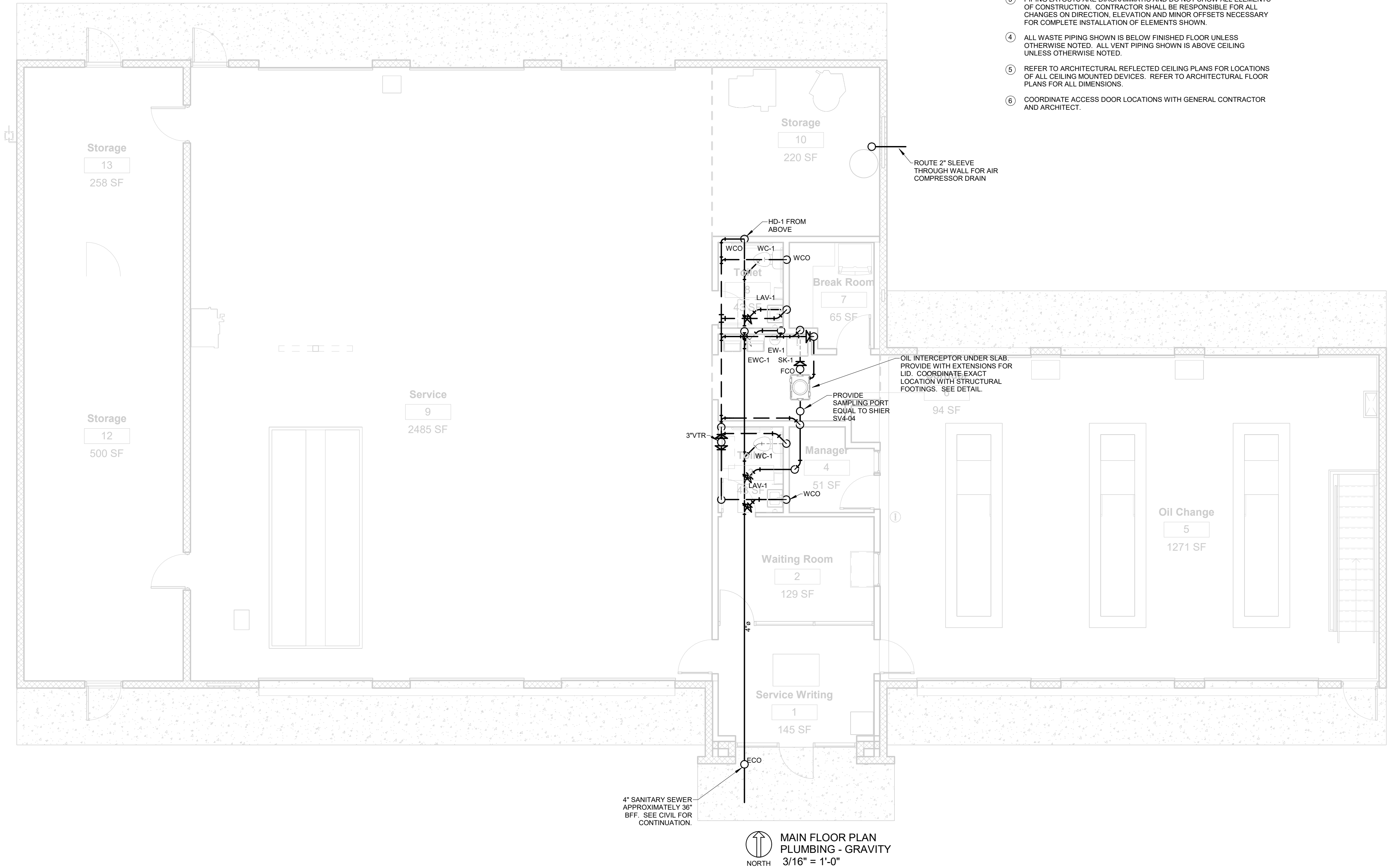
Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

P1.01

Scale As indicated

5/13/2024 4:23:44 PM

- GENERAL NOTES:
- CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD PRIOR TO BEGINNING WORK.
 - SPACE ABOVE CEILING IS LIMITED. CAREFUL COORDINATION WITH LIGHTING, ELECTRICAL, MECHANICAL, FIRE PROTECTION, STRUCTURAL AND ARCHITECTURAL WORK IS CRITICAL FOR COMPLETE PIPING INSTALLATION. CONTRACTOR SHALL PROVIDE NECESSARY OFFSETS IN NEW AND EXISTING PIPING AND ELECTRICAL CONDUIT AS REQUIRED TO ACCOMMODATE NEW WORK, CONTRACTOR SHALL ALLOW FOR ANY CONFLICTS ENCOUNTERED.
 - PIPING LAYOUTS ARE DIAGRAMMATIC AND DO NOT SHOW ALL ELEMENTS OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CHANGES ON DIRECTION, ELEVATION AND MINOR OFFSETS NECESSARY FOR COMPLETE INSTALLATION OF ELEMENTS SHOWN.
 - ALL WASTE PIPING SHOWN IS BELOW FINISHED FLOOR UNLESS OTHERWISE NOTED. ALL VENT PIPING SHOWN IS ABOVE CEILING UNLESS OTHERWISE NOTED.
 - REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS OF ALL CEILING MOUNTED DEVICES. REFER TO ARCHITECTURAL FLOOR PLANS FOR ALL DIMENSIONS.
 - COORDINATE ACCESS DOOR LOCATIONS WITH GENERAL CONTRACTOR AND ARCHITECT.





Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No. 24125



www.ahoarch.com



5/15/24

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

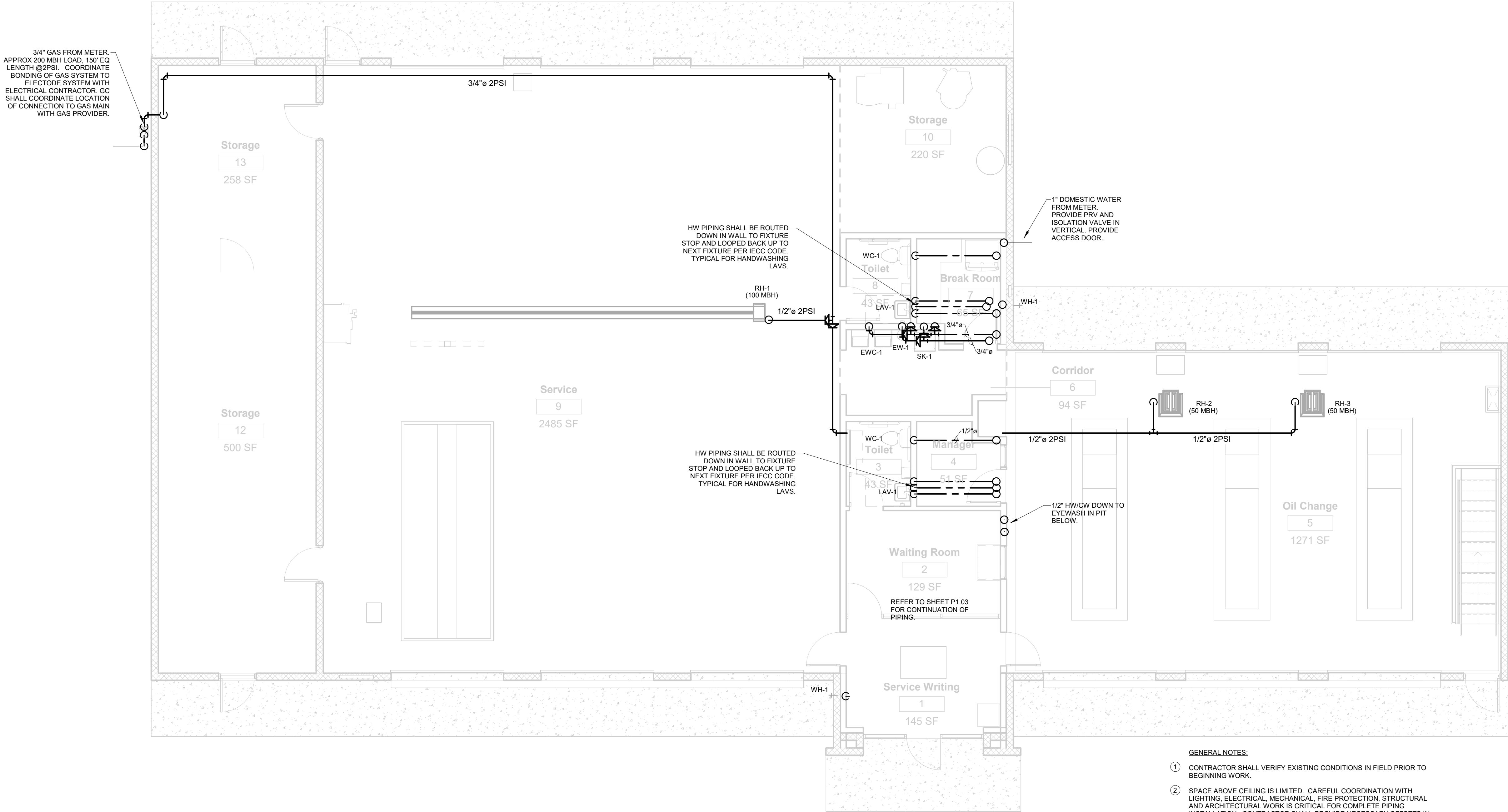
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Plumbing Floor
Plan Pressure

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB
P1.02	
Scale	As indicated

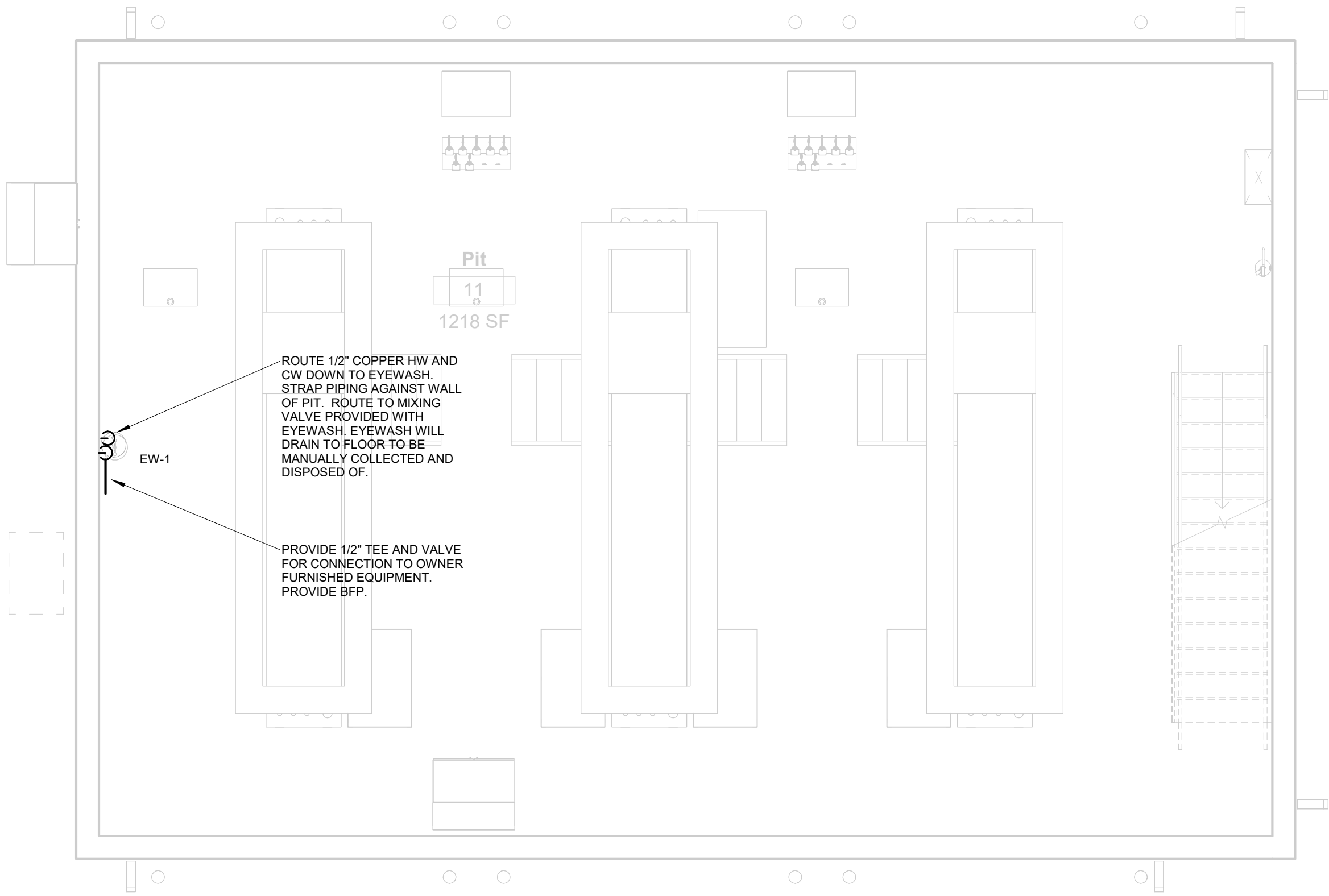
5/13/2024 4:23:44 PM




MAIN FLOOR PLAN
PLUMBING - PRESSURE
3/16" = 1'-0"

GENERAL NOTES:

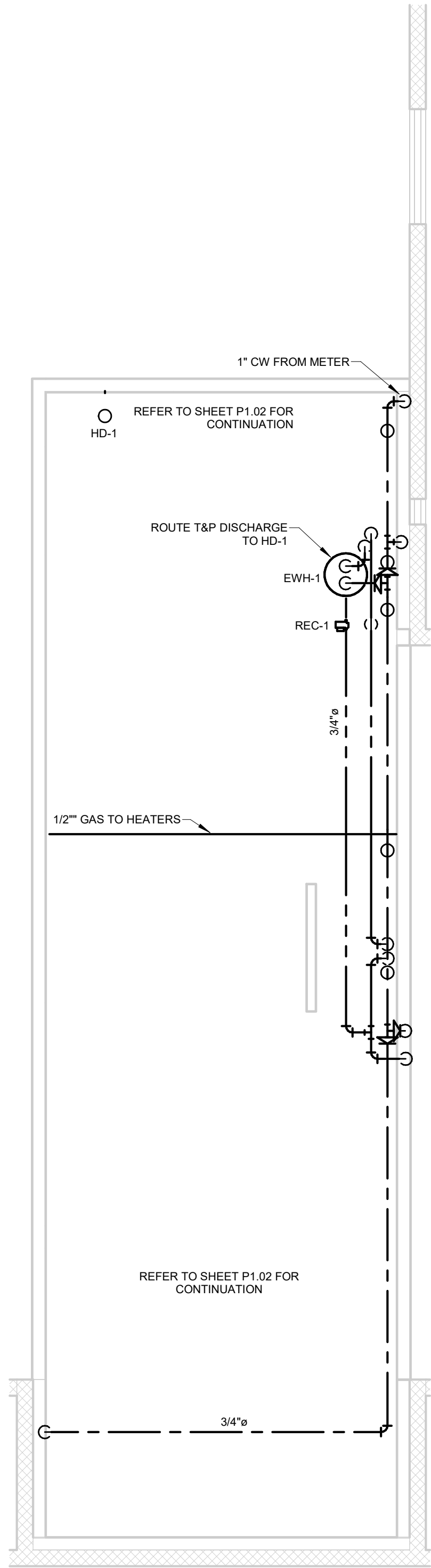
- CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD PRIOR TO BEGINNING WORK.
- SPACE ABOVE CEILING IS LIMITED. CAREFUL COORDINATION WITH LIGHTING, ELECTRICAL, MECHANICAL, FIRE PROTECTION, STRUCTURAL AND ARCHITECTURAL WORK IS CRITICAL FOR COMPLETE PIPING INSTALLATION. CONTRACTOR SHALL PROVIDE NECESSARY OFFSETS IN NEW AND EXISTING PIPING AND ELECTRICAL CONDUIT AS REQUIRED TO ACCOMMODATE NEW WORK. CONTRACTOR SHALL ALLOW FOR ANY CONFLICTS ENCOUNTERED.
- PIPING LAYOUTS ARE DIAGRAMMATIC AND DO NOT SHOW ALL ELEMENTS OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CHANGES ON DIRECTION, ELEVATION AND MINOR OFFSETS NECESSARY FOR COMPLETE INSTALLATION OF ELEMENTS SHOWN.
- ALL PRESSURE PIPING SHOWN IS ABOVE THE CEILING UNLESS OTHERWISE NOTED. CONCEALED PIPING SHALL BE PEX OR COPPER. EXPOSED PIPING IN PUBLIC SPACES SHALL BE COPPER.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS OF ALL CEILING MOUNTED DEVICES. REFER TO ARCHITECTURAL FLOOR PLANS FOR ALL DIMENSIONS.
- COORDINATE ACCESS DOOR LOCATIONS WITH GENERAL CONTRACTOR AND ARCHITECT.




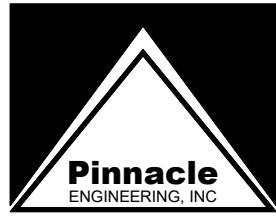
 PIT FLOOR PLAN PLUMBING
1/4" = 1'-0"

GENERAL NOTES:

- CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD PRIOR TO BEGINNING WORK.
- SPACE ABOVE CEILING IS LIMITED. CAREFUL COORDINATION WITH LIGHTING, ELECTRICAL, MECHANICAL, FIRE PROTECTION, STRUCTURAL AND ARCHITECTURAL WORK IS CRITICAL FOR COMPLETE PIPING INSTALLATION. CONTRACTOR SHALL PROVIDE NECESSARY OFFSETS IN NEW AND EXISTING PIPING AND ELECTRICAL CONDUIT AS REQUIRED TO ACCOMMODATE NEW WORK. CONTRACTOR SHALL ALLOW FOR ANY CONFLICTS ENCOUNTERED.
- PIPING LAYOUTS ARE DIAGRAMMATIC AND DO NOT SHOW ALL ELEMENTS OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CHANGES ON DIRECTION, ELEVATION AND MINOR OFFSETS NECESSARY FOR COMPLETE INSTALLATION OF ELEMENTS SHOWN.
- ALL PRESSURE PIPING SHOWN IS ABOVE THE CEILING UNLESS OTHERWISE NOTED. ALL TRAP PRIMER LINES AND HOT WATER RETURN LINES SHALL BE 1/2" UNLESS OTHERWISE NOTED.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS OF ALL CEILING MOUNTED DEVICES. REFER TO ARCHITECTURAL FLOOR PLANS FOR ALL DIMENSIONS.
- COORDINATE ACCESS DOOR LOCATIONS WITH GENERAL CONTRACTOR AND ARCHITECT.



 EQUIPMENT PLATFORM -
PLUMBING
1/4" = 1'-0"



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



www.ahoarch.com



5/15/24

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

**Partial Plumbing
Floor Plans - Pit
and Platform**

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

P1.03

Scale As indicated



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



5/15/24

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

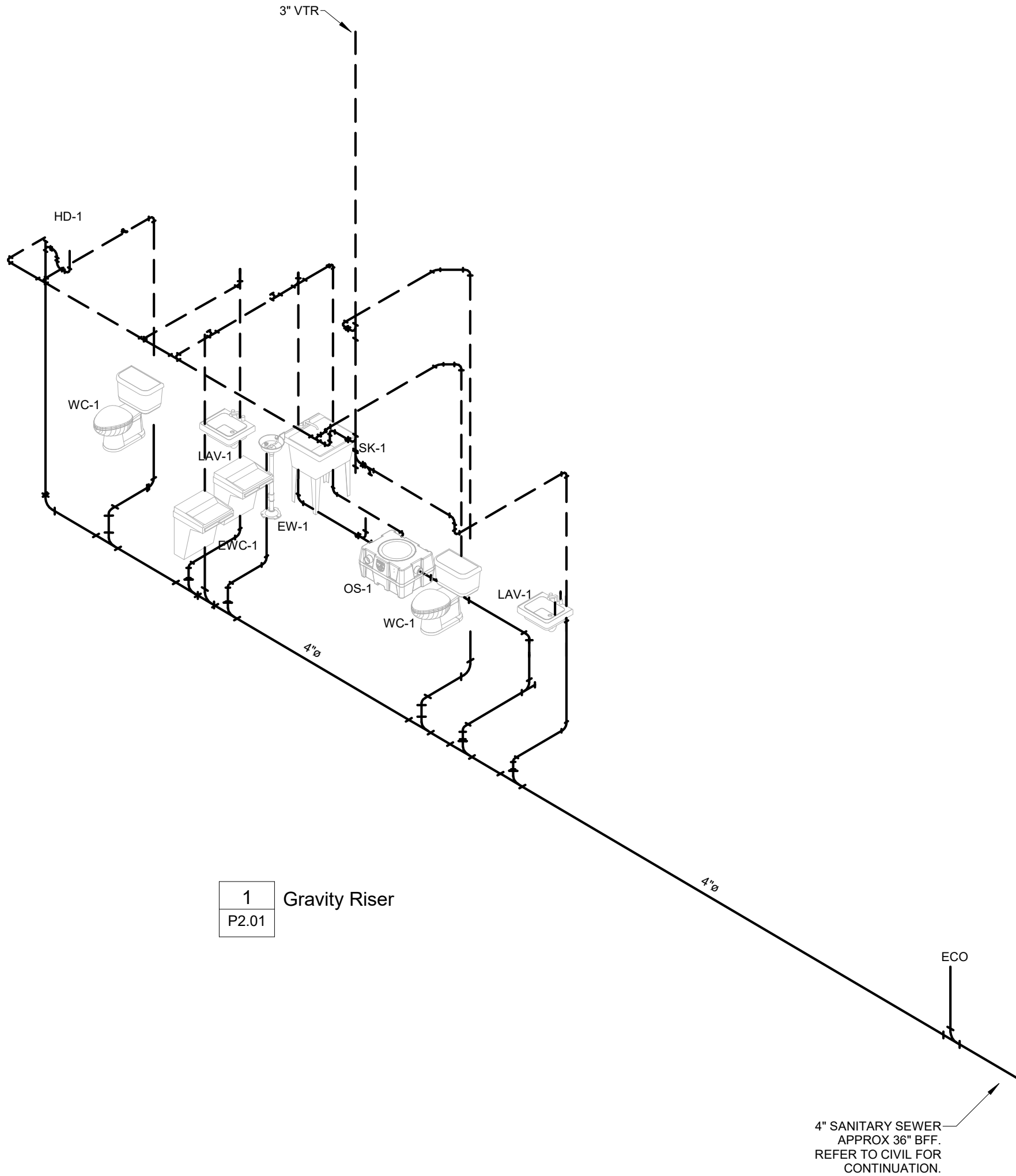
© 2024 Aho Architects, LLC.
All Rights Reserved.

Plumbing Riser - Gravity

Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

P2.01

Scale



1 Gravity Riser
P2.01



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



www.ahoarch.com



5/15/24

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

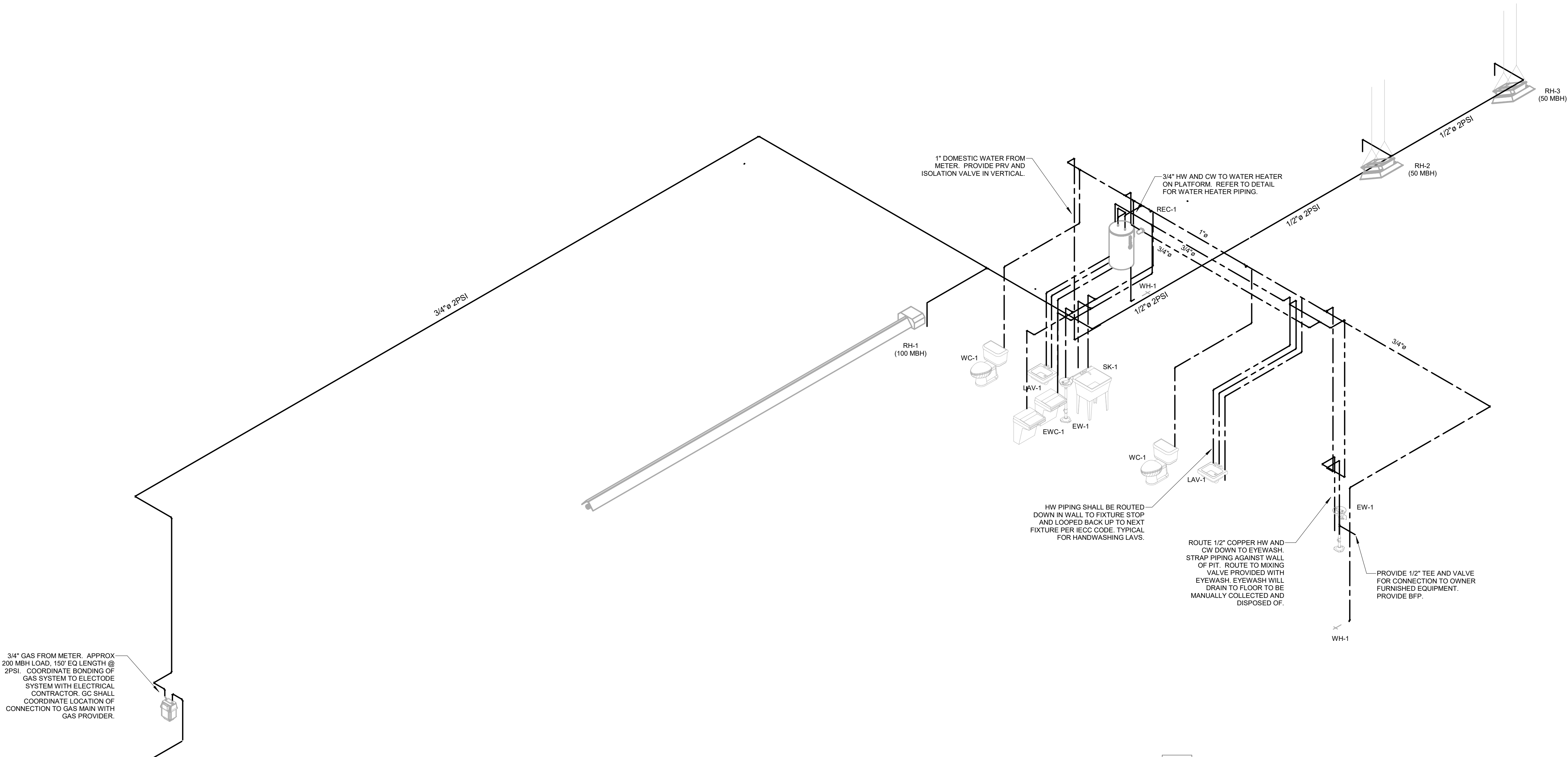
© 2024 Aho Architects, LLC.
All Rights Reserved.

Plumbing Riser -
Pressure

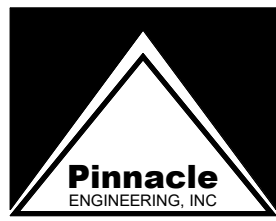
Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

P2.02

Scale



2 Pressure Riser
P2.02



Engineering & Design Consultants
2111 Parkway Office Circle, Suite 125
Birmingham, AL 35244
(205) 733-6912 FAX: (205) 733-6913
Job No.24125



www.ahoarch.com



5/15/24

Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

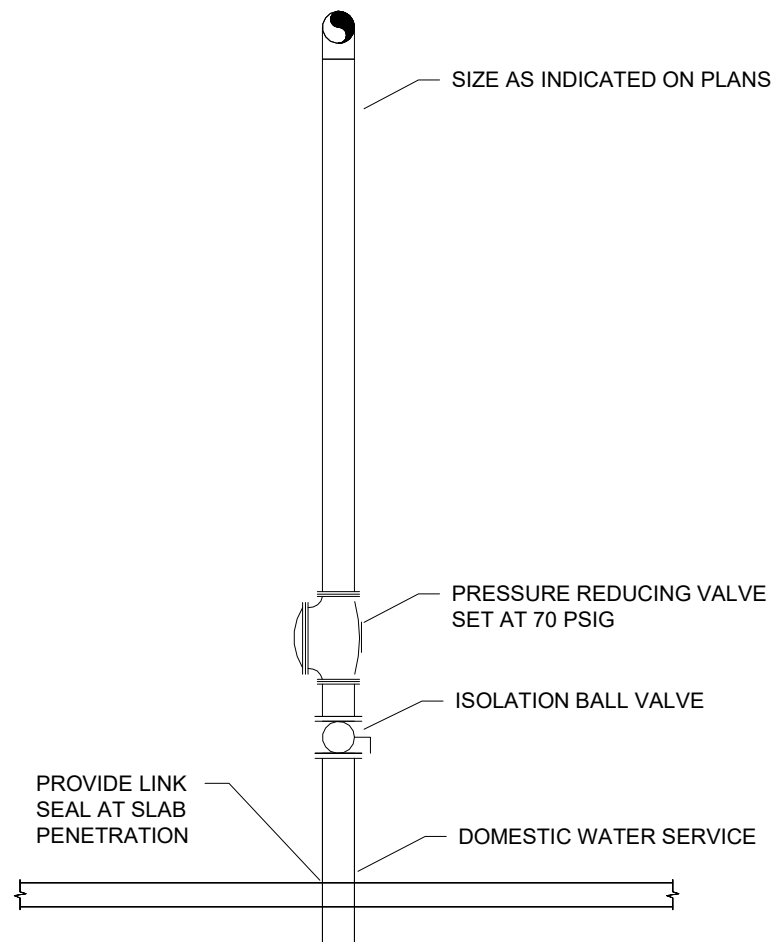
© 2024 Aho Architects, LLC.
All Rights Reserved.

Plumbing Details

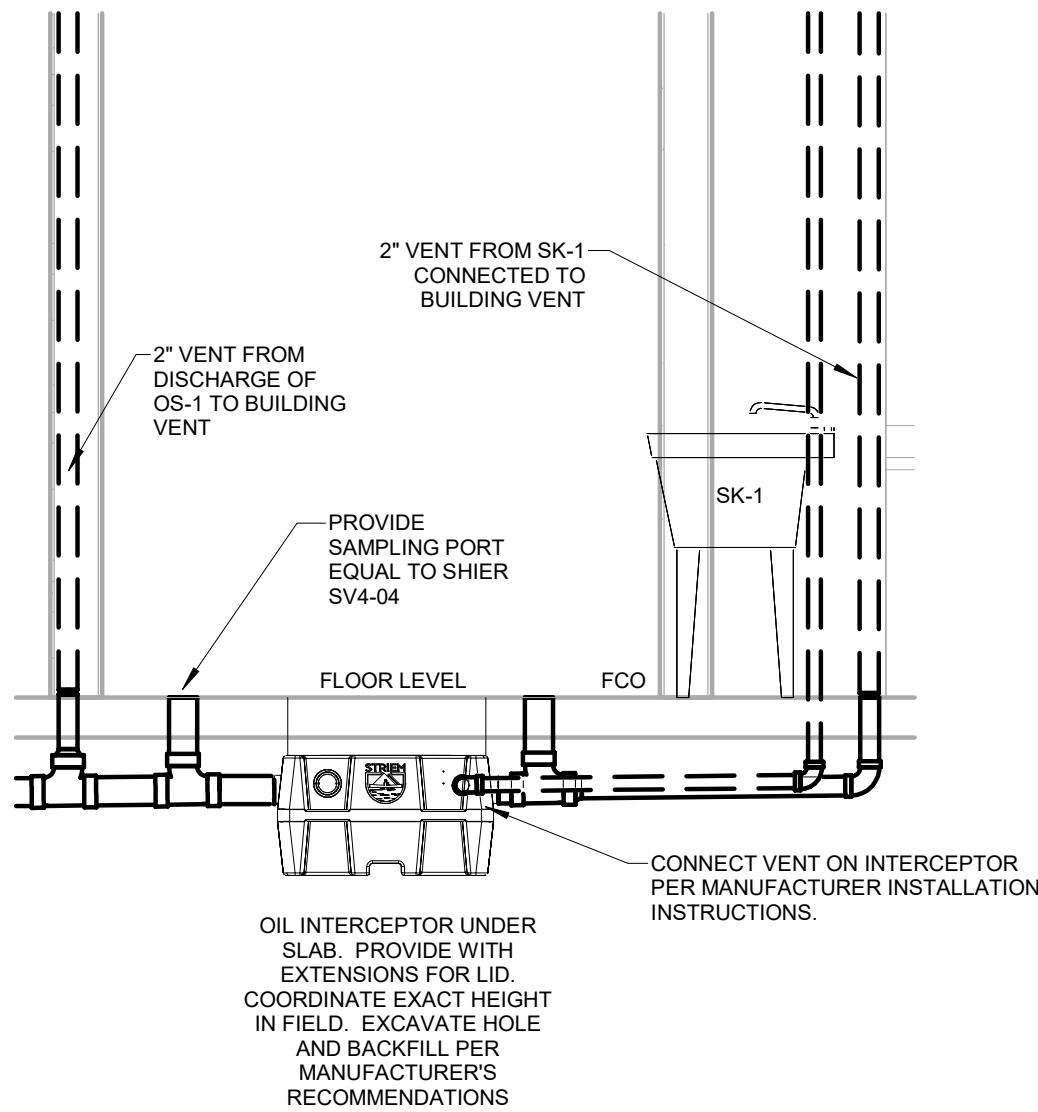
Project number	24005
Date	5/15/2024
Drawn by	CA
Checked by	JB

P2.03

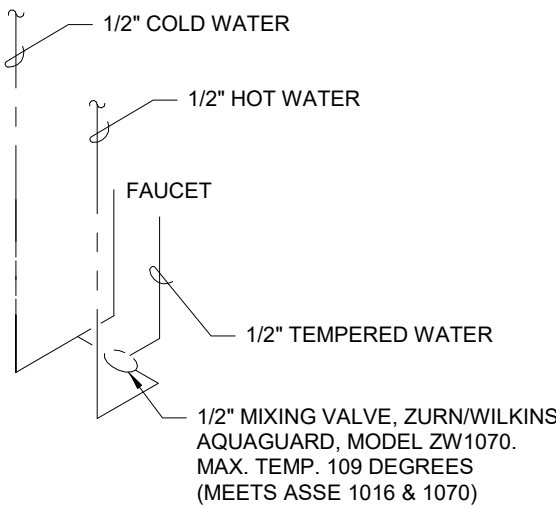
Scale As indicated



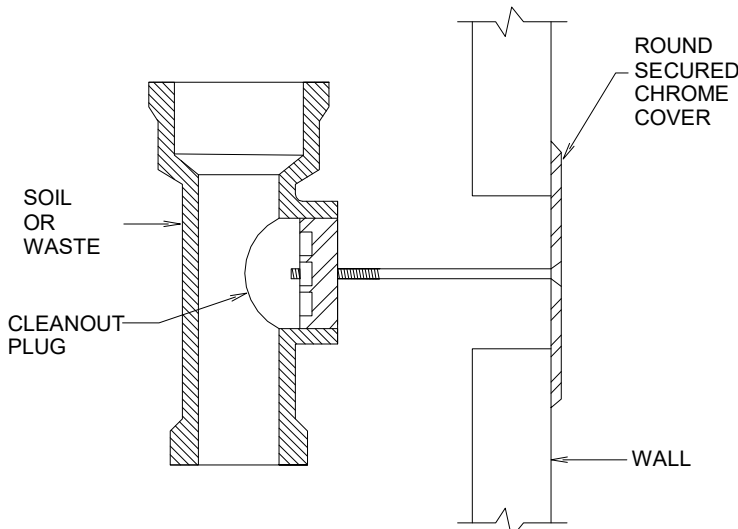
6 DOMESTIC WATER ENTRANCE DETAIL
P2.02 NO SCALE



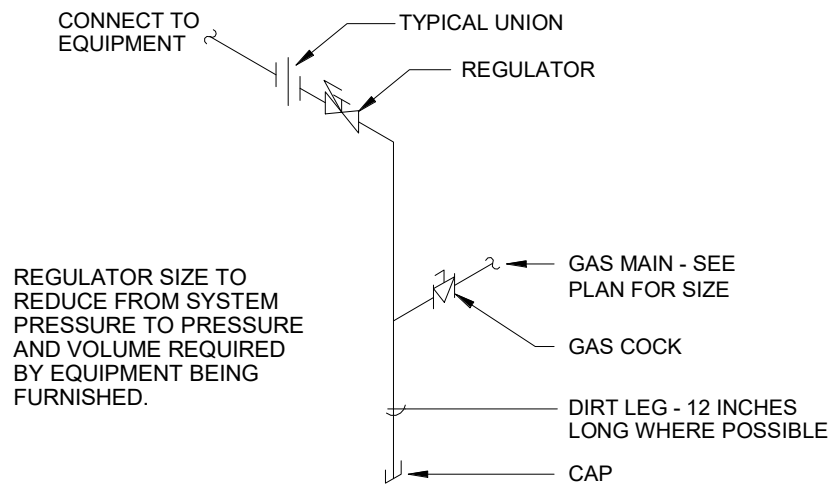
7 OIL INTERCEPTOR DETAIL
P2.03 1/2" = 1'-0"



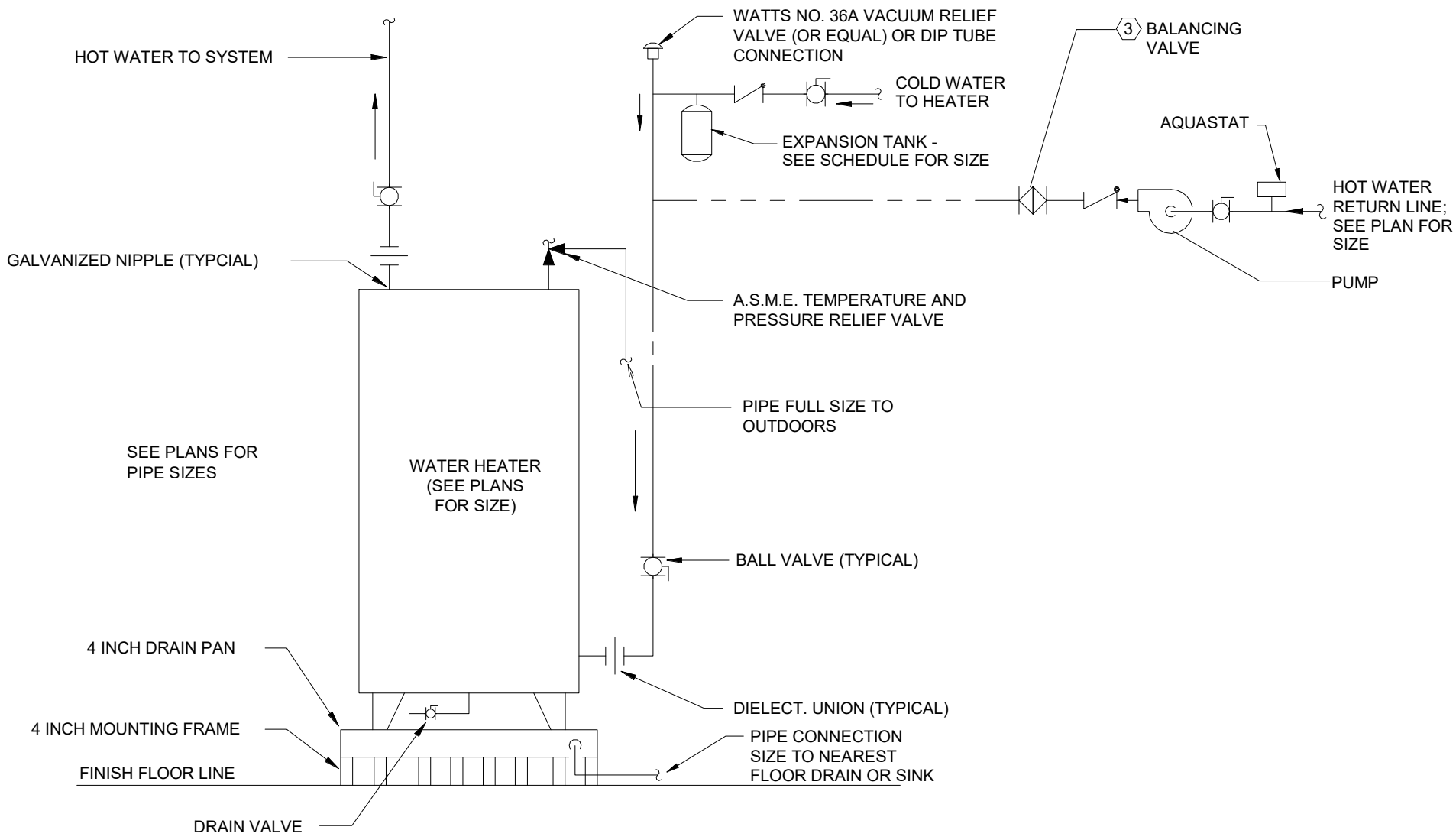
4 TYPICAL LAVATORY MIXING VALVE
P2.02 SCALE: NONE



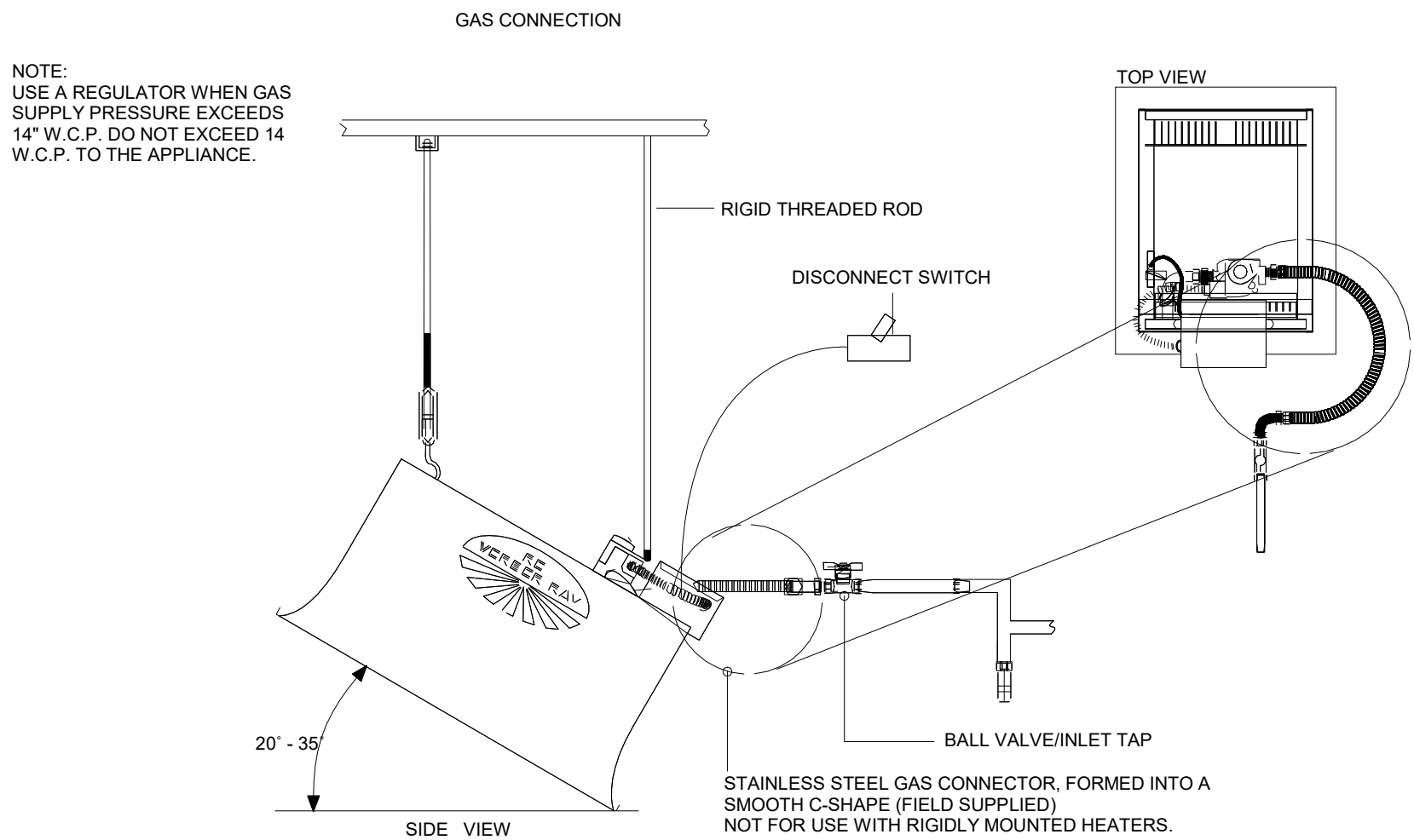
5 WALL CLEANOUT
P2.02 NO SCALE



1 TYPICAL GAS CONNECTION
P2.02 NO SCALE



2 ELECTRIC WATER HEATER (FLOOR MOUNTED)
P2.02 NO SCALE



3 RADIANT HEATER GAS CONNECTION DETAIL
P2.02 NO SCALE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	LAMPS			MTG. TYPE	MTG. HT.	REC. DEPTH	DESCRIPTION
			QUANTITY	WATTS	TYPE				
L1	MAXLITE	(2)VT-4850U-40, VT-CONKIT, VT-ENDBRKT	28	100	LED	S	C	-	CONTINUOUS RUN OF (2) 4' LONG LINEAR LED FIXTURES WITH ALUMINUM VAPOR TIGHT HOUSING, 7600 LUMEN OUTPUT, 4000K COLOR TEMPERATURE. NOTE 1.
	APPROVED EQUAL								
L2	MAXLITE	VT-4850U-40, VT-CONKIT VT-ENDBRKT	20	50	LED	S	C	-	4' LONG LINEAR LED FIXTURE WITH ALUMINUM VAPOR TIGHT HOUSING, 5700 LUMEN OUTPUT, 4000K COLOR TEMPERATURE. NOTE 1.
	APPROVED EQUAL								
L3	MAXLITE	LSU4U3540	8	35	LED	S	C	-	4' SURFACE MOUNTED LED WRAPAROUND FIXTURE WITH CURVED PRISMATIC LENS, STEEL HOUSING, 4000K COLOR TEMPERATURE, 4253 LUMEN OUTPUT.
	APPROVED EQUAL								
L3E	MAXLITE	LSU4U3540EM	9	35	LED	S	C	-	4' SURFACE MOUNTED LED WRAPAROUND FIXTURE WITH CURVED PRISMATIC LENS, STEEL HOUSING, 4000K COLOR TEMPERATURE, 4253 LUMEN OUTPUT, AND EMERGENCY BATTERY PACK.
	APPROVED EQUAL								
L4	MAXLITE	M40U4W-CSBWCR MYCL40-55W	6	38	LED	W	12'AFF	-	FIXED WALL MOUNTED LED FIXTURE WITH BLACK FINISH, DIE-CAST ALUMINUM HOUSING, SELECTABLE COLOR TEMPERATURE, 3512 LUMEN OUTPUT, WIDE DISTRIBUTION. UL LISTED FOR WET LOCATION. NOTE 4.
	APPROVED EQUAL								
L4E	MAXLITE	M40U4W-CSBWCREO MYCL40-55W	3	38	LED	W	12'AFF	-	FIXED WALL MOUNTED LED FIXTURE WITH BLACK FINISH, DIE-CAST ALUMINUM HOUSING, SELECTABLE COLOR TEMPERATURE, 3512 LUMEN OUTPUT, WIDE DISTRIBUTION, ELECTRONIC DRIVER, AND EMERGENCY BATTERY PACK. UL LISTED FOR WET LOCATION. NOTE 4.
	APPROVED EQUAL								
L5	PROVIDED BY GENERAL CONTRACTOR		FURNISHED WITH UNIT			R	C	-	RECESSED LED DOWNLIGHT WITH 4000K COLOR TEMPERATURE, 3000 LUMEN OUTPUT, AND EMERGENCY BATTERY PACK. UL LISTED FOR WET LOCATION. FIXTURES ARE PROVIDED BY GENERAL CONTRACTOR AS PART OF THE METAL AWNING SYSTEM.
	PROVIDED BY GENERAL CONTRACTOR								
	PROVIDED BY GENERAL CONTRACTOR								
S1	PROVIDED BY SIGN MANUFACTURER		FURNISHED WITH UNIT			W	NOTE 3	-	WALL MOUNTED LED SIGN LIGHTING FIXTURE. NOTE 2.
	PROVIDED BY SIGN MANUFACTURER								
	PROVIDED BY SIGN MANUFACTURER								
S2	PROVIDED BY SIGN MANUFACTURER		FURNISHED WITH UNIT			W	NOTE 3	-	WALL MOUNTED LED LIGHT FIXTURE. NOTE 2.
	PROVIDED BY SIGN MANUFACTURER								
	PROVIDED BY SIGN MANUFACTURER								
S3	PROVIDED BY SIGN MANUFACTURER		FURNISHED WITH UNIT			W	NOTE 3	-	LED LIGHT BAR. NOTE 2.
	PROVIDED BY SIGN MANUFACTURER								
	PROVIDED BY SIGN MANUFACTURER								
BL	LITHONIA	ELM6L	FURNISHED WITH UNIT			W	9'AFF	-	WALL MOUNTED TWO HEAD LED EMERGENCY FIXTURE WITH WHITE THERMOPLASTIC HOUSING, 1100 LUMEN OUTPUT, SELF DIAGNOSTICS, AND EMERGENCY BATTERY PACK.
	APPROVED EQUAL								
XL	MAXLITE	EX-GW	FURNISHED WITH UNIT			W	AD	-	WHITE THERMOPLASTIC LED EXIT SIGN WITH SINGLE FACE, GREEN LETTERS, UNIVERSAL MOUNTING, SELF DIAGNOSTICS, AND EMERGENCY BATTERY PACK.
	APPROVED EQUAL								

ABBREVIATIONS: LI-LAY-IN C-CEILING LG-LENS GASKETING GMF-INTERNAL SLOW BLOW FUSE FL-FLUORESCENT MH-METAL HALIDE HO-HIGH OUTPUT
AFF-ABOVE FINISH FLOOR P-PENDANT FC-FROM CEILING R-RECESSED AM-ABOVE MIRROR W-WALL AD-ABOVE DOOR
S-SURFACE DTT-DOUBLE TWIN TUBE FLUORESCENT CA-CANOPY TC-TOP OF METAL CANOPY AW-ABOVE WINDOW VA-VERIFY WITH ARCHITECT

LIGHTING FIXTURE SCHEDULE GENERAL NOTES:

- FIXTURE OUTLET BOX LOCATIONS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND APPROXIMATE IN LOCATION. EXACT POSITION OF THE OUTLET BOX SHALL DEPEND ON THE FIXTURE AND THE MOUNTING DETAIL.
- MOUNTING AND SUPPORT DETAILS FOR LIGHTING FIXTURES SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER BEFORE THE FIXTURES ARE INSTALLED. NO COMBUSTIBLE MATERIALS SHALL BE USED.
- WET LOCATION FIXTURES SHALL BE MOUNTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION SO AS TO ENSURE THE PREVENTION OF MOISTURE FROM ENTERING THE FIXTURE. IN ADDITION, EACH CONDUIT ENTRY WILL BE SEALED BY USE OF AN APPROVED SWEDGE FITTING WITH A NEOPRENE SEAL, AS MANUFACTURED BY JOHN REMKE COMPANY OR APPROVED EQUAL.
- OUTLET BOXES SERVING WET LOCATION FIXTURE SHALL BE CODE SIZE, WITH A WATERTIGHT SOLID CAST TOP. CONDUIT ENTRIES SHALL BE THREADED.
- FIXTURE MOUNTING HEIGHTS IN SCHEDULE ARE TYPICAL UNLESS NOTED OTHERWISE ON DRAWINGS.
- FOR LIGHTING PACKAGE PRICING, CONTACT THE FOLLOWING:

MIKE MCMAKEN
REXEL ENERGY SOLUTIONS
(M) 906-235-2979
MIKE.MCMAKEN@REXELENERGY.COM

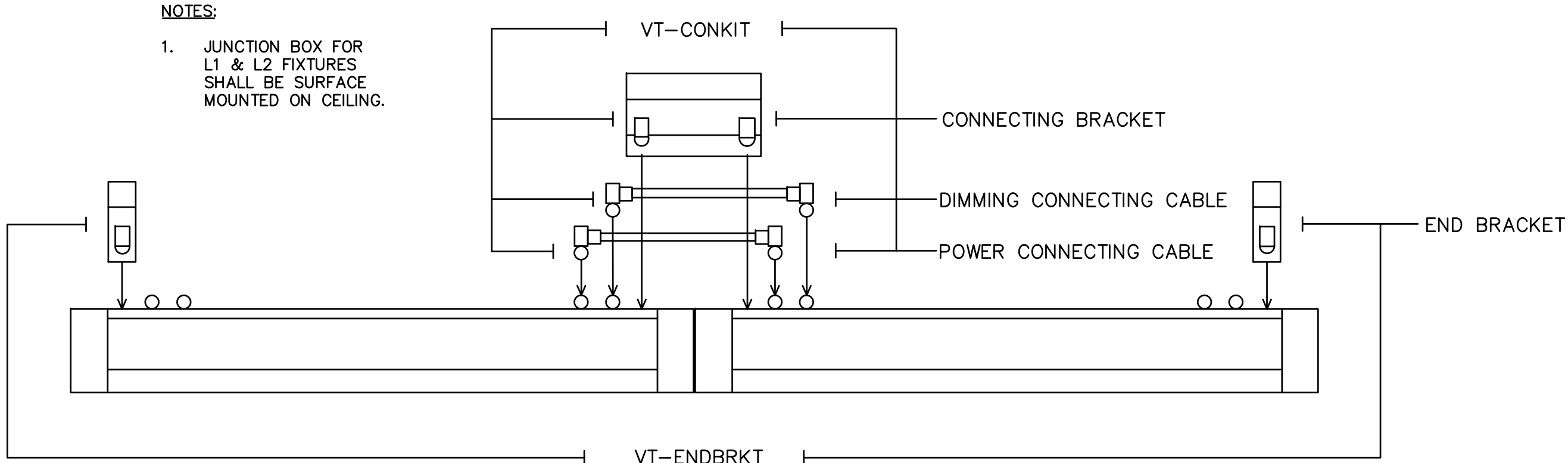
STEPHEN MITCHELL
MAXLITE
(M) 908-256-3115
SMITCHELL@MAXLITE.COM

LIGHTING FIXTURE SCHEDULE NOTES:

- SEE MOUNTING DETAIL ON THIS SHEET FOR MORE INFORMATION.
- INSTALLED BY SIGN COMPANY.
- VERIFY MOUNTING HEIGHT WITH SIGN COMPANY BEFORE ROUGHING IN.
- FIXTURE SHALL BE MOUNTED SO THAT THE TOP OF THE FIXTURE IS AT 12' AFF TO ALIGN WITH BANDING ON EXTERIOR OF BUILDING.

GENERAL NOTES:

- VERIFY ALL DOOR SWINGS WITH ARCHITECTURAL BEFORE ROUGHING IN. LIGHT SWITCHES TO ENSURE PROPER SWITCH LOCATION. VERIFY ALL CASEWORK DETAILS TO ENSURE THAT ALL OUTLETS ABOVE CASEWORK ARE AT THE PROPER HEIGHT.
- SERVICE TO THE BUILDING SHALL BE 120/240 VOLTS, 1PHASE, 3WIRE.
- ALL CONDUIT SHALL BE RUN CONCEALED UNLESS SPECIFICALLY SHOWN EXPOSED, OR INSTALLED IN EXPOSED CEILING.
- THE CONTRACTOR SHALL CHECK ALL LIGHTING FIXTURES FOR EXACT TYPE MOUNTING AND SPACE REQUIRED BEFORE ROUGHING IN.
- THE CONTRACTOR SHALL WORK CLOSELY WITH THE GENERAL CONTRACTOR AND VERIFY EXACT TYPE OF EQUIPMENT TO BE INSTALLED AND THE DIMENSIONS WHICH MAY AFFECT THE EXACT PLACEMENT OF ELECTRICAL WORK.
- VERIFY THE EXACT LOCATION OF ALL MOTORS AND EQUIPMENT BEFORE ROUGHING IN. LIKEWISE APPRAISE ALL TRADES OF THE LOCATIONS OF ELECTRICAL WORK THAT AFFECTS WALL THICKNESS, PLUMBING, MECHANICAL, ETC.
- ALL CONDUIT STUBBED OUT FOR FUTURE SHALL BE CAPPED AND HAVE LOCATION MARKED WITH A 2" SQUARE, PAINTED RED, WITH CONDUIT NAME AND SIZE SHOWN IN WHITE.
- ALL BRANCH CIRCUITS AND FEEDERS SHALL HAVE AN INSULATED GROUND WIRE PULLED IN THE CONDUIT WITH CURRENT CONDUCTOR UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE GROUNDING CONDUCTOR SHALL BE SIZED ACCORDING TO TABLE 250-122 OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE UNLESS INDICATED TO BE LARGER IN THE SPECIFICATIONS OR PLANS.
- DO ALL WORK IN COMPLIANCE WITH ALL APPLICABLE CODES, LAWS AND ORDINANCES, THE NATIONAL ELECTRICAL CODE (HEREINAFTER REFERRED TO AS "CODE" OR "NEC"), THE AMERICANS WITH DISABILITIES ACT, AND THE REGULATIONS OF THE LOCAL AUTHORITIES HAVING JURISDICTION AND, WHERE APPLICABLE, UTILITY COMPANIES. OBTAIN AND PAY FOR ANY AND ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES OF INSPECTIONS AND APPROVAL, AND THE LIKE, AND DELIVER SUCH CERTIFICATES TO THE OWNER.
- THE MAIN SERVICE SHALL HAVE THE GROUNDING CONDUCTOR (NEUTRAL) GROUNDED TO THE GROUNDING ELECTRODE SYSTEM AT THE SUPPLY SIDE OF THE SERVICE DISCONNECTING MEANS BY A GROUNDING ELECTRODE CONDUCTOR NOT SMALLER THAN THAT SHOWN IN TABLE 250-66 OF THE NEC. THE GROUNDING CONDUCTOR (NEUTRAL), THE GROUNDING ELECTRODE CONDUCTOR, AND THE EQUIPMENT GROUNDING CONDUCTOR CONNECTIONS SHALL BE MADE INSIDE THE SERVICE ENTRANCE EQUIPMENT.
- ALL CONDUCTORS SHALL BE COPPER, EXCEPT AS SHOWN ON DRAWINGS.
- MINIMUM CONDUCTOR SIZE SHALL BE #12.
- ALL CONDUIT INSTALLED INDOORS SHALL BE EMT, OTHERWISE SHALL BE IMC.
- SWITCH AND RECEPTACLE COVER PLATES SHALL BE STAINLESS STEEL.
- ALL DEVICES SHALL BE GRAY.
- ALL FUSES SHALL BE DUAL ELEMENT, TIME DELAY, RATED 100,000 AIC.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE.
- ALL CONDUCTORS SHALL BE DUAL RATED THHN/THWN TYPE INSULATION.
- GUTTERS (WIREWAYS) SHALL BE SIZED AS SHOWN OR AS REQUIRED BY CODE. ALL GUTTERS SHALL HAVE HINGED COVERS WITH APPROVED FASTENING DEVICES & SHALL BE A STANDARD MANUFACTURED ITEM WITH U.L. LABEL. GUTTERS FROM AC DUCT MATERIAL ARE NOT ACCEPTABLE. GUTTERS SHALL BE AS MANUFACTURED BY HOFFMAN, SQUARE "D", B & C OR APPROVED EQUAL. GUTTER TAPS SHALL BE ILSCO TYPE GTA OF PTA WITH GTC OR PTC INSULATING COVERS.
- IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR, PRIOR TO BID, TO REAFFIRM WITH THE UTILITY COMPANIES INVOLVED, THAT THE LOCATION, ARRANGEMENT (AND THE POWER COMPANY: VOLTAGE, PHASE & METERING REQUIRED) AND CONNECTIONS AT THE UTILITY SERVICE ARE IN ACCORDANCE WITH THEIR REGULATIONS & REQUIREMENTS. IF THEIR REQUIREMENTS ARE AT A VARIANCE WITH THESE DRAWINGS & SPECIFICATIONS, THE CONTRACT PRICE SHALL INCLUDE ANY ADDITIONAL COST NECESSARY TO MEET THOSE REQUIREMENTS WITHOUT EXTRA COST TO THE OWNER AFTER A CONTRACT HAS BEEN ENTERED INTO.
- ON MANY PROJECTS, THE UTILITY COMPANY MAY LEVY CHARGES DUE TO LOCATION, SIZE OR TYPE OF SERVICE INVOLVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THESE CHARGES, UNLESS SUCH CHARGES ARE NOT AVAILABLE PRIOR TO BID & CONTRACTOR SO DOCUMENTS AT BID OPENING. SHOULD THE THE COST NOT BE AVAILABLE, PRIOR TO BID, THE CONTRACTOR SHALL SUBMIT A LETTER SO STATING WITH HIS BID.
- ARRANGE WITH UTILITY COMPANIES FOR SUCH SERVICE AS SHOWN OR HEREIN SPECIFIED & INSTALLATION OF METER WHERE SHOWN. FURNISH WITH SHOP DRAWINGS, A SIGNED DOCUMENT FROM UTILITY COMPANIES DESCRIBING THE LOCATION & TYPE OF SERVICES TO BE FURNISHED AND ANY REQUIREMENTS THEY MAY HAVE. THIS DOCUMENT SHALL BE SIGNED FOR EACH UTILITY COMPANY BY A PERSON RESPONSIBLE FOR GRANTING SUCH SERVICES.
- PAY ALL CHARGES (IF ANY) IN CONNECTION THEREWITH, INCLUDING PERMANENT METER DEPOSIT. METER DEPOSIT WILL BE REFUNDED TO THE CONTRACTOR AT TIME OF OWNER'S ACCEPTANCE.
- FINAL EQUIPMENT CONNECTIONS - CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS REQUIRED TO MAKE FINAL ELECTRICAL CONNECTIONS TO ALL EQUIPMENT FURNISHED BY THIS CONTRACTOR AND/OR FURNISHED BY OTHERS. VERIFY ALL ELECTRICAL REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH IN.



DETAIL
FIXTURE "L1" & "L2" MOUNTING
NOT TO SCALE

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205-413-4112



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

General Notes & Fixture Schedules

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW
E100	
Scale	NO SCALE

GRAPHICAL ELECTRICAL SYMBOLS

BRANCH CIRCUIT SYMBOLS		
	BRANCH CIRCUIT	HOMERUN TO 20A, 1POLE CIRCUIT BREAKER IN PANELBOARD OR DEVICE NOTED. WIRE SIZE IS 2#12&1#12GRD-3/4"C.
	BRANCH CIRCUIT	CONCEALED IN CEILING OR WALL.
	BRANCH CIRCUIT	CONCEALED IN FLOOR.
	BRANCH CIRCUIT	EXISTING CONDUIT BARS DENOTE NEW CONDUCTORS.
	BRANCH CIRCUIT	EXPOSED.
	BRANCH CIRCUIT	RISER UP.
	BRANCH CIRCUIT	RISER DOWN.
BRANCH CIRCUIT NOTES		
	BRANCH CIRCUIT	3#12&1#12GRD-3/4"C
	BRANCH CIRCUIT	4#12&1#12GRD-3/4"C
	BRANCH CIRCUIT	2#10&1#10GRD-3/4"C
	BRANCH CIRCUIT	3#10&1#10GRD-3/4"C
SIZE CONDUIT PER NEC FOR GREATER NUMBER OF CONDUCTORS OR AS NOTED. THE NUMBER IN THE CIRCUIT INDICATES AWG WIRE SIZE AND THE HASHMARKS INDICATE THE NUMBER OF WIRES REQUIRED. EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH NEC TABLE 250-122. THE NUMBER OF HASH MARKS DO NOT INCLUDE EQUIPMENT GROUNDING CONDUCTOR.		

GENERAL SYMBOLS	
	JUNCTION BOX.
	WALL MOUNTED JUNCTION BOX.
	WALL MOUNTED JUNCTION BOX WITH FLEXIBLE CONNECTION TO EQUIPMENT.
	ONE GANG BOX WITH 3/4"C. STUB UP ABOVE ACCESSIBLE CEILING WITH COAXIAL CABLE AND TV JACKS.
	MANUAL MOTOR STARTER WITH THERMAL PROTECTION.
	SAFETY SWITCH, NON-FUSED.
	SAFETY SWITCH, FUSED.
	CIRCUIT BREAKER MOUNTED IN NEMA 1 ENCLOSURE UNLESS NOTED OTHERWISE
	LIGHTING PANEL AND/OR RECEPTACLE PANEL.
	POWER PANEL.
	TRANSFORMER.
	GROUND.

GENERAL ABBREVIATIONS	
H	MOUNTING HEIGHT ABOVE FINISHED FLOOR.
AF	ABOVE FINISHED FLOOR.
WP	WEATHER PROOF - NEMA 3R
RT	RAIN TIGHT - NEMA 4.
EP	EXPLOSION PROOF.
TP	TAMPER PROOF.
A	MOUNT ABOVE COUNTER.
BC	MOUNT BELOW COUNTER.
F	FLUSH MOUNTED.
SLD	SEE SINGLE LINE DIAGRAM.
GFI	GROUND FAULT INTERRUPTING.
C	CONDUIT.
EC	EMPTY CONDUIT.
CC	FLEXIBLE CONDUIT.
SFC	SEALITE FLEXIBLE CONDUIT.
EMT	ELECTRICAL METALLIC TUBING.
IMC	INTERMEDIATE METALLIC CONDUIT.
RG	RIGID CONDUIT.
PVC	NONMETALLIC RIGID CONDUIT.
EX	EXISTING.
XR	EXISTING TO BE REMOVED
RL	EXISTING TO BE REMOVED AND RELOCATED.
RQ	EXISTING TO BE REMOVED. EXTEND CIRCUIT CONDUCTORS AS REQUIRED AND INSTALL FINISHED BLANK COVER.
RR	EXISTING TO BE REMOVED AND REPLACED WITH NEW.
RL'D	RELOCATED POSITION.
EM	EMERGENCY BATTERY PACK

LIGHTING FIXTURE & CONTROL SYMBOLS		
	CEILING OUTLET	FIXTURE TYPE "A" CIRCUIT #1.
	CEILING OUTLET	EXISTING.
	CEILING OUTLET	FLUORESCENT FIXTURE, SINGLE OR CONTINUOUS, LENGTHS AS SHOWN.
	CEILING OUTLET	FLUORESCENT STRIP.
	WALL OUTLET	BRACKET TYPE FIXTURE.
	WALL OUTLET	FLUORESCENT BRACKET TYPE FIXTURE.
	SWITCH OUTLET	A.C. TYPE, SINGLE POLE, 20A, 125/277V.
	SWITCH OUTLET	A.C. TYPE, THREE WAY, 20A, 125/277V.
	SWITCH OUTLET	A.C. TYPE, FOUR WAY, 20A, 125/277V.
	SWITCH OUTLET	180° DUAL TECH SENSOR LIGHTING MOTION DETECTOR, WALL MOUNTED. WATT STOPPER #DW-100.
	SWITCH OUTLET	LIGHTING MOTION DETECTOR POWER PACK. INSTALL ABOVE ACCESSIBLE CEILING.
	SWITCH OUTLET	LIGHTING MOTION DETECTOR, CEILING MOUNTED.
SWITCH OUTLET NOTES		
"a" "b" ETC.	FIXTURE CORRESPONDS TO A SWITCH DENOTED WITH THE SAME LOWER CASE LETTER.	

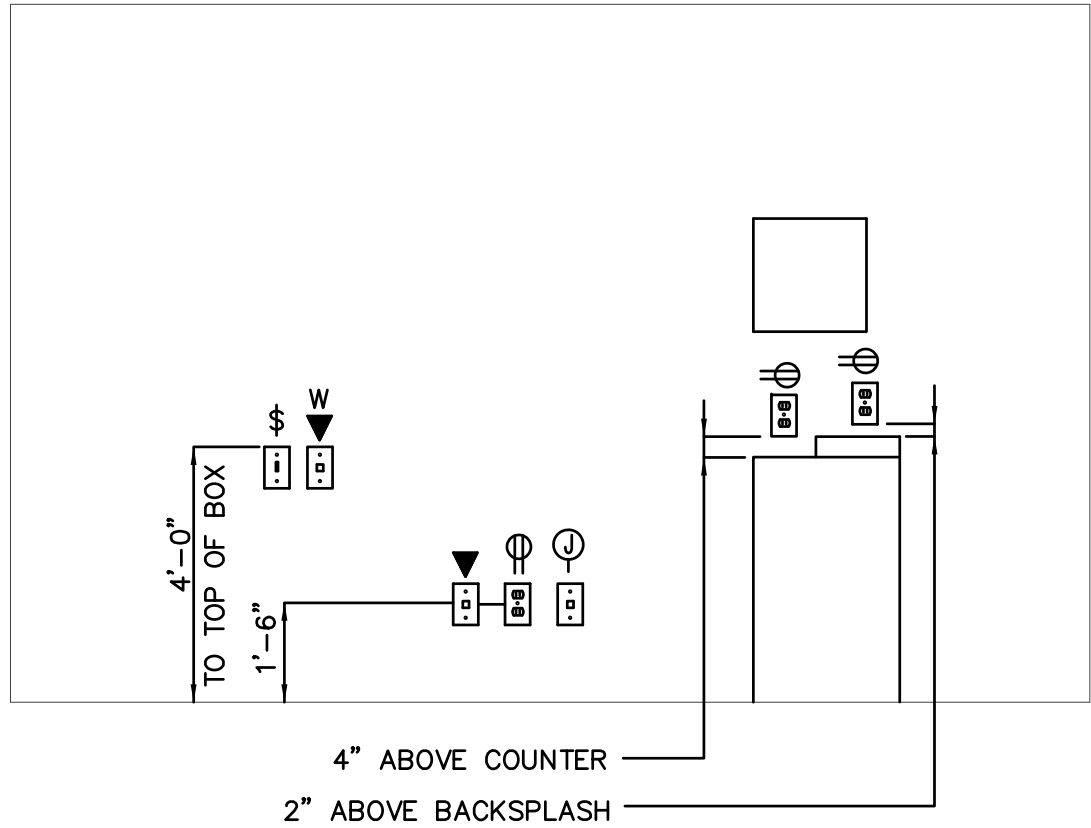
EXIT LIGHT SYMBOLS	
	WALL OR CEILING MOUNTED, SINGLE FACE, NO ARROW.
	CEILING MOUNTED, DOUBLE FACE, LEFT OR RIGHT ARROWS.
	WALL OR CEILING MOUNTED, SINGLE FACE, LEFT OR RIGHT ARROW.
	WALL OR CEILING MOUNTED, SINGLE FACE, LEFT AND RIGHT ARROWS.
	CEILING MOUNTED, DOUBLE FACE, LEFT AND RIGHT ARROWS.

RECEPTACLE OUTLET SYMBOLS		
	WALL OUTLET	DUPLEX RECEPTACLE, 20A, 125V, 3WIRE, NEMA 5-20R.
	WALL OUTLET	DOUBLE DUPLEX RECEPTACLE, 20A, 125V, 3WIRE, NEMA 5-20R, SINGLE PLATE.
	WALL OUTLET	DUPLEX RECEPTACLE, 20A, 125V, NEMA 5-20R, GFCI, WEATHER-RESISTANT, WITH EXTRA DUTY IN-USE WEATHERPROOF COVER. HUBBELL CATALOG #GFR5362SGGY/MP8M
	WALL OUTLET	SINGLE RECEPTACLE, 20A, 250V, 3WIRE, NEMA 6-20R.
	WALL OUTLET	SINGLE RECEPTACLE, 20A, 250V, 3WIRE, NEMA L6-20R.
	FLOOR OUTLET	FLUSH MOUNTED IN-GRADE WITH DOUBLE DUPLEX RECEPTACLE, 20A, 125V, 3WIRE, NEMA 5-20R, FOUR SPACES FOR KEYSTONE CONNECTORS, AND BRUSHED BRASS COVER LEGRAND RFB4E OR EQUAL.
	CEILING OUTLET	DUPLEX RECEPTACLE, 20A, 125V, 3WIRE, NEMA 5-20R.
RECEPTACLE OUTLET NOTES		
"G"	GROUND FAULT INTERRUPTER.	
"GA"	GROUND FAULT INTERRUPTER, MOUNTED ABOVE COUNTER.	
"A"	MOUNTED ABOVE COUNTER.	
"BC"	MOUNTED BELOW COUNTER.	
"DF"	FOR DRINKING FOUNTAIN.	

VOICE/DATA OUTLET & CONDUIT SYMBOLS		
	VOICE/DATA OUTLET	WALL MOUNTED, WITH 3/4" CONDUIT HOMERUN TO NEAREST TELEPHONE CABINET OR BACKBOARD UNLESS NOTED OTHERWISE.
	VOICE/DATA OUTLET	TELEPHONE BACKBOARD - 3/4" PLYWOOD PAINTED WITH TWO COATS OF FIRE RETARDANT PAINT, 48"x96" HIGH, UNLESS SHOWN OTHERWISE.
VOICE/DATA OUTLET NOTES		
"A"	MOUNTED ABOVE COUNTER.	
"BC"	MOUNTED BELOW COUNTER.	

NOTES:

- INDICATED MOUNTING HEIGHTS ARE FROM FINISHED FLOOR TO CENTERLINE OF OUTLET BOX, UNLESS OTHERWISE NOTED.
- REFER TO ARCHITECTURAL DETAILS FOR ADDITIONAL REQUIREMENTS.
- INSTALL OUTLETS THAT ARE IN CLOSE PROXIMITY ON THE SAME CENTERLINE.
- MOUNTING HEIGHTS SHOWN HERE ARE TYPICAL UNLESS NOTED OTHERWISE ON DRAWINGS.



DETAIL
TYPICAL MOUNTING
HEIGHTS
NOT TO SCALE



www.ahoarch.com



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Symbol Legends
and Details

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW
E101	
Scale	NO SCALE

GIDEON WAMAE, P.E.

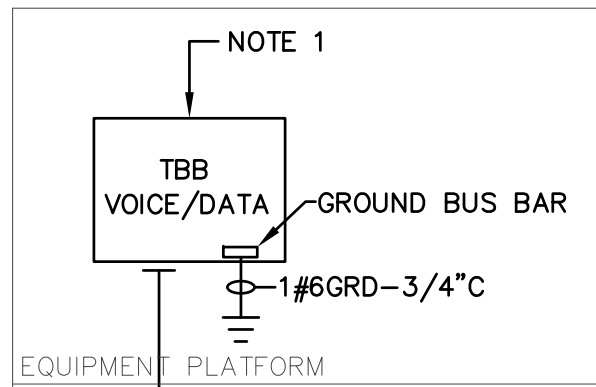
4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205-413-4112



DETAIL
ARC FLASH HAZARD WARNING LABEL
NOT TO SCALE

NOTES:

- 48"x48" FREE STANDING TELEPHONE BACKBOARD. PROVIDE ACCESS AND WORK SPACE CLEARANCE AS REQUIRED BY LOCAL TELECOM UTILITY COMPANY.
- CONDUIT ELBOWS SHALL BE SWEEPING WITH NO HARD ANGLES.



SEE SITE PLAN FOR
STUB UP LOCATION

2-4"EPVC FOR DATA, NOTE 2

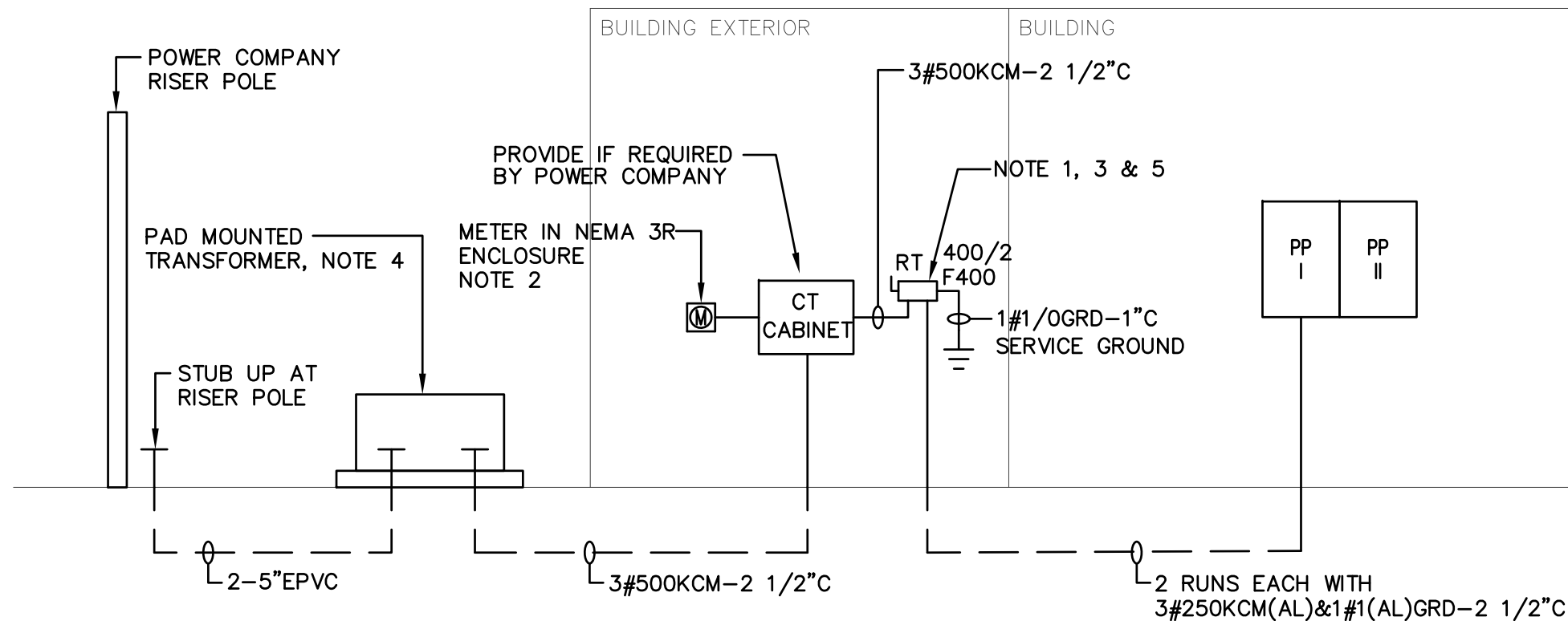
SINGLE LINE DIAGRAM
AUXILIARY
NOT TO SCALE

GENERAL NOTES:

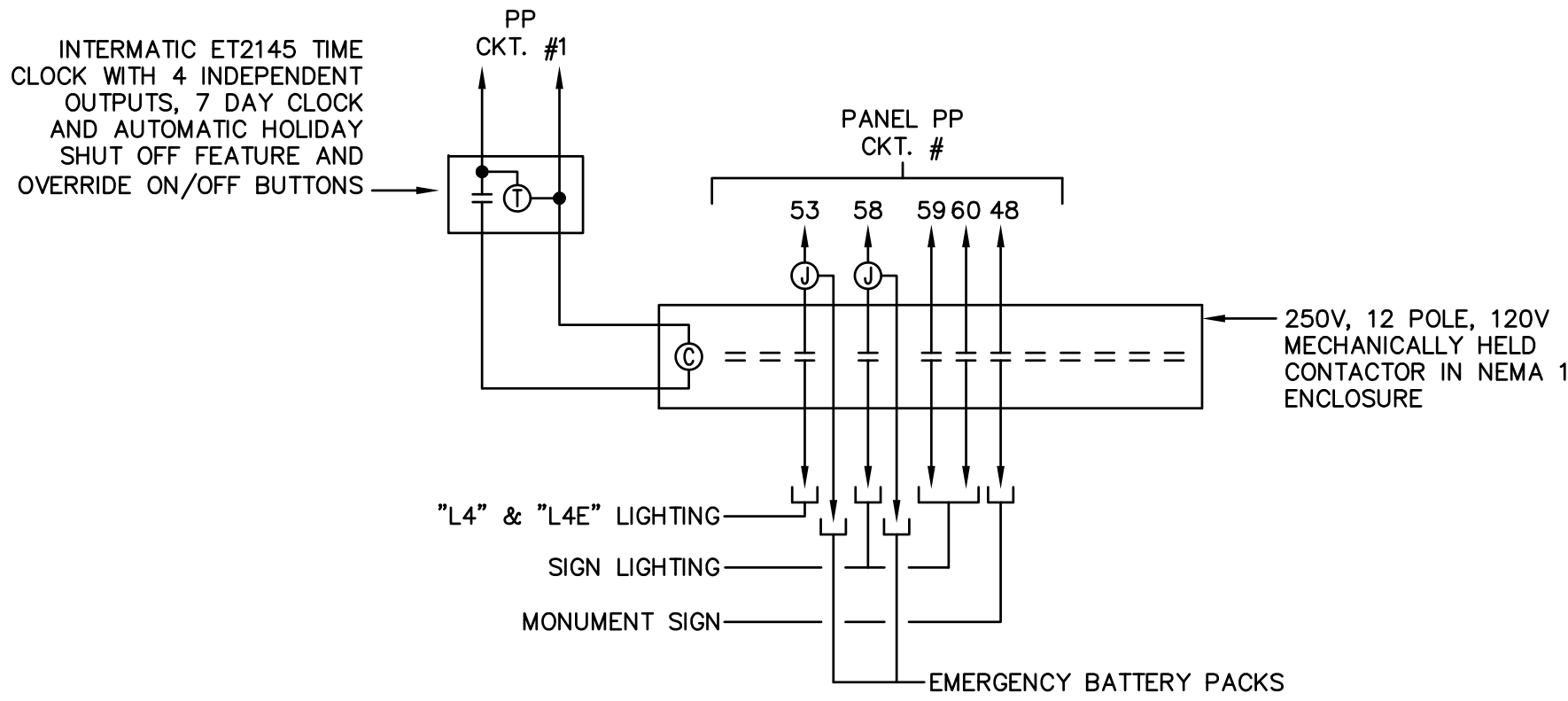
- COORDINATE SERVICE SECONDARY FROM UTILITY TRANSFORMER TO METER WITH POWER COMPANY BEFORE BID AND PRICING. PROVIDE PER POWER COMPANY REQUIREMENTS.
- EQUIPMENT WITH ALUMINUM FEEDERS SHALL BE PROVIDED WITH DUAL RATED TERMINALS.

NOTES:

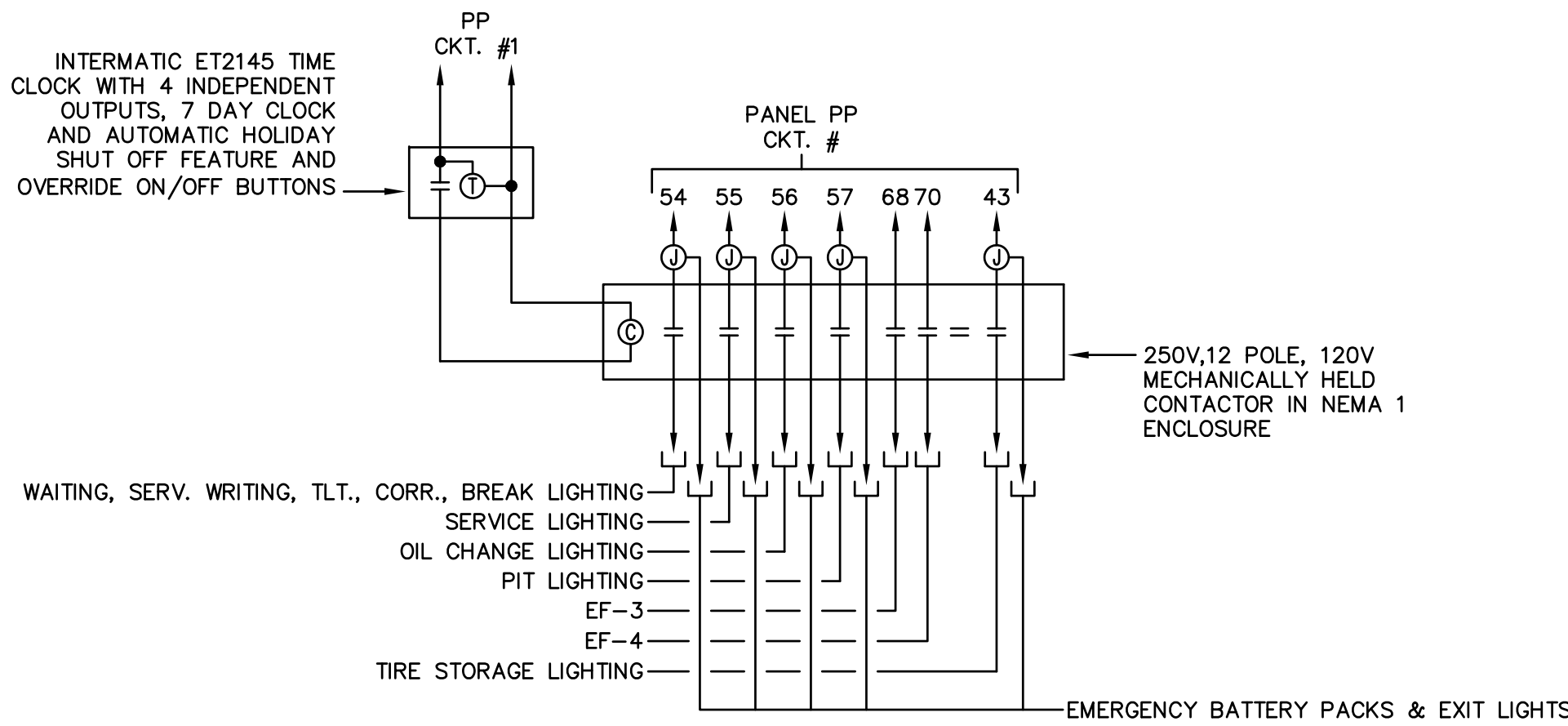
- SERVICE ENTRANCE RATED DISCONNECT SWITCH, NEMA 3R ENCLOSURE
- COORDINATE METERING WITH POWER COMPANY BEFORE ROUGHING IN.



SINGLE LINE DIAGRAM
POWER
NOT TO SCALE



WIRING DIAGRAM
CONTACTOR C-2
NOT TO SCALE

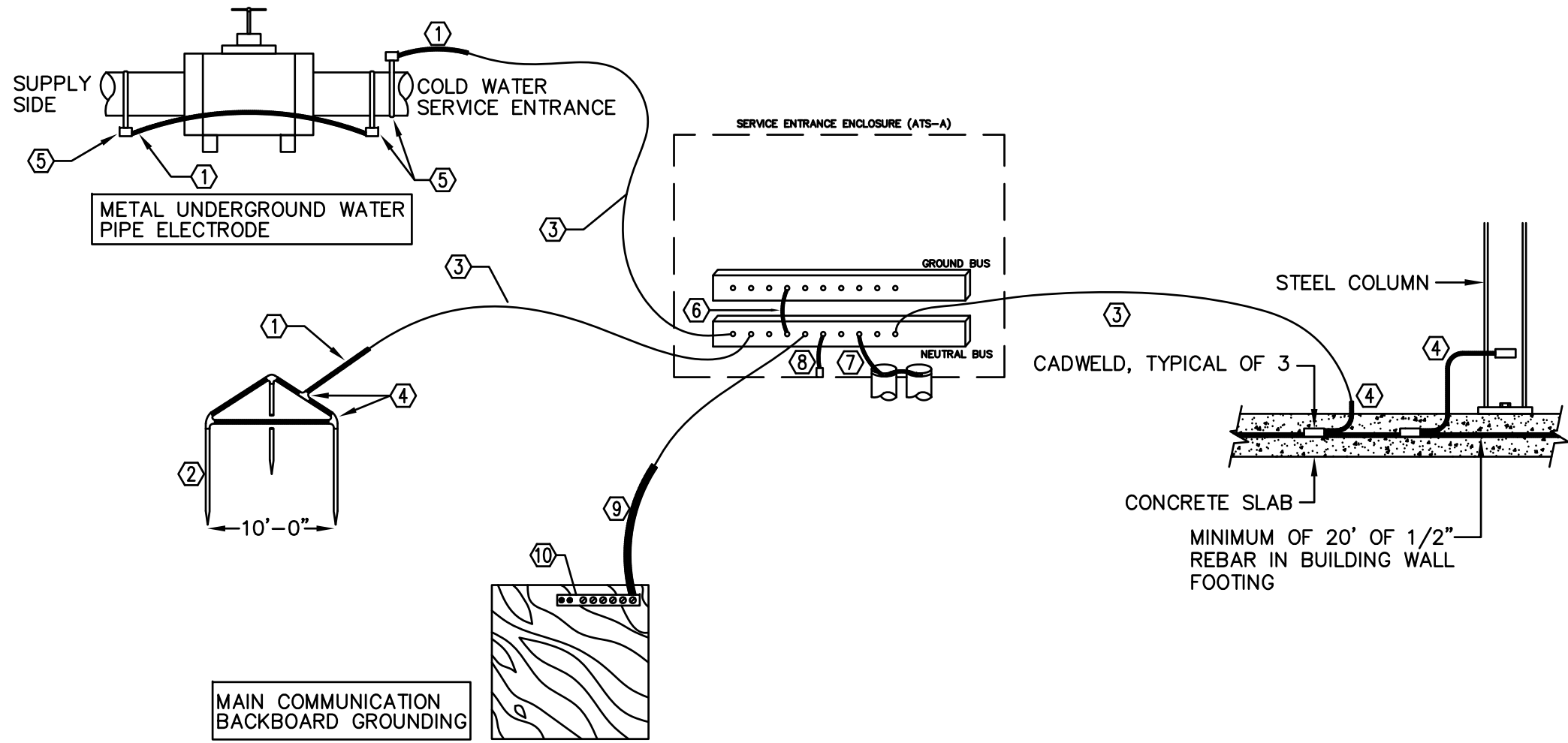


WIRING DIAGRAM
CONTACTOR C-1
NOT TO SCALE

PANEL LOAD SUMMARY													
Panel: PP (SECTION I)													
Equipment	LIGHTS/CONT	RCPT	O/M	CB SIZE	CIRCUIT #	PHASE A	PHASE B	CIRCUIT #	CB SIZE	LIGHTS/CONT	RCPT	O/M	Equipment
CONTACTOR C-1 & C-2			100	20/1	1	100		2	20/1				SPARE
OUTDOOR RECEPTACLE		200		20/1	3		800	4	20/1		600		SERVICE WRITING RECP.
WAITING ROOM RECP.	800			20/1	5	1600		6	20/1	800			MANAGER RECEPTACLE
TLT/CORR/BREAK RECP.	800			20/1	7		1000	8	20/1		200		BREAK RECEPTACLE
SERVICE RECEPTACLE	400			20/1	9	600		10	20/1		200		BREAK RECEPTACLE
SERVICE RECEPTACLE	400			20/1	11		600	12	20/1		200		BREAK FRIDGE RECEPTACLE
SPARE				20/1	13	400		14	20/1		400		SERVICE RECEPTACLE
SERVICE RECEPTACLE	400			20/1	15		400	16	20/1				SPARE
TIRE CHANGER		900	20/2	17	3900			18	30/2			3000	ALIGNMENT LIFT
		900		19			3900	20				3000	
10K LIFT		1440	20/2	21	2880			22	20/2			1440	10K LIFT
		1440		23			2880	24				1440	
10K LIFT		1440	20/2	25	2880			26	20/2			1440	10K LIFT
		1440		27			2880	28				1440	
12K LIFT		1440	20/2	29	2640			30	20/2			1200	WHEEL BALANCER
		1440		31			2640	32				1200	
AIR COMPRESSOR		3360	60/2	33	3360			34	20/1		200		EQUIPMENT PLATFORM RECP.
		3360		35			3760	36	20/1	400			SERVICE DESK RECEPT.
IRRIGATION CONTROLLER	200			20/1	37	400		38	20/1	200			BRAKE LATHE RECEPTACLE
OIL CHANGE RECEPTACLE	600			20/1	39		1200	40	20/1	600			OIL CHANGE RECEPTACLE
PIT SUMP PUMP	200			20/1	41	400		42	20/1	200			OIL CHANGE DESK RECP.
Sub-Total	0	4000	17260				19360	20060		0	4000	14160	Sub-Total
TOTAL CONNECTED LOAD PER PHASE													
LOAD TYPE			Phase A	Phase B		ENCLOSURE NEMA 1							
LIGHTING & CONTINUOUS LOADS			0.00	0.00		MOUNTING SURFACE							
RECEPTACLES			3600.00	4400.00		MAIN TYPE ML							
MOTORS/OTHER			15760.00	15660.00		SIZE 400A							
TOTAL			19360.00	20060.00		FEED THRU YES							
TOTAL CONNECTED LIGHTING LOAD			0.00	KVA		FEED BOTTOM							
TOTAL CONNECTED RECEPTACLE LOAD			8.00	KVA		BUS RATING 400A							
TOTAL CONNECTED MOTOR/OTHER LOAD			31.42	KVA		SERVICE RATED NO							
TOTAL CONNECTED LOAD			39.42	KVA		MIN FULL EQUIP KVA C RATING 22							
						TYPE LOAD CENTER							
						MANUFACTURER							
						OTHER							
* Diversified per NEC Table 220.44.							VOLTS		120/ 240		V 1 Phase, 3 Wire & Grd Bus Bar		

PANEL LOAD SUMMARY													
Panel: PP (SECTION II)													
Equipment	LIGHT	RCPT	O/M	CB SIZE	CIRCUIT #	PHASE A	PHASE B	CIRCUIT #	CB SIZE	LIGHT	RCPT	O/M	Equipment
TIRE STORAGE LIGHTING	300			20/1	43	500		44	20/1		200		OIL CHANGE DESK RECP.
OIL CHANGE DESK RECP.		200		20/1	45		400	46	20/1		200		OIL CHANGE DESK RECP.
SPARE				20/1	47	100		48	20/1	100			MONUMENT SIGN
PIT RECEPTACLE		600		20/1	49		800	50	20/1		200		PIT RECEPTACLE
SPARE				20/1	51	400		52	20/1		400		TBB RECEPTACLE
EXTERIOR LIGHTING	150			20/1	53		470	54	20/1	320			EXTERIOR LIGHTING
SERVICE LIGHTING	1638			20/1	55	2366		56	20/1	728			OIL CHANGE LIGHTING
PIT LIGHTING	540			20/1	57		1890	58	20/1	1350			SIGN LIGHTING
SIGN LIGHTING	400			20/1	59	800		60	20/1	400			SIGN LIGHTING
FUTURE EV CHARGER				50/2	61		50	62	20/1			50	REC-1
SPARE					63	1680		64				1680	
				20/1	65		1680	66		25/2		1680	HP-1
EMH-1		2250	25/2	67	3900			68	20/1	1650			EF-3
		2250		69		3900		70	20/1	1650			EF-4
RH-1		747	20/1	71	947			72	20/1		200		EXTERIOR RECEPTACLE
RH-2 & RH-3		784	20/1	73			8784	74				8000	AHL-1
DRINKING FOUNTAIN	200			20/1	75	8200		76				8000	
VF-1		528	20/1	77			728	78	20/1		200		LOT BELL
VF-2		528	20/1	79	528			80	20/1				SPARE
LIFT RECEPTACLE	600			20/1	81		600	82	20/1				SPARE
LIFT RECEPTACLE	600			20/1	83			84	20/1				SPARE
Sub-Total	3028	2200	7087				19421	19302		6198	1400	19410	Sub-Total
TOTAL CONNECTED LOAD PER PHASE													
				DEMAND LOAD (VA)		WIRE SIZE CALCULATIONS				ENCLOSURE		NEMA 1	
LOAD TYPE				Phase A		Phase B		LARGEST PHASE DEMAND NO. OF PHASES		40.59 KVA		MOUNTING SURFACE	
LIGHTING & CONTINUOUS LOADS				5216.00		4010.00		2.00		KVA		MAIN TYPE	
RECEPTACLES				1.25		6520.00		5012.50		81.17 KVA		SIZE	
MOTORS/OTHER				* 6100.00		6700.00		TOTAL DEMAND LOAD		81.17 KVA		FEED THRU	
TOTAL				39381.00		39362.00		28965.00		28962.00		NO	
TOTAL CONNECTED LIGHTING LOAD				9.23		KVA		SUPPLY VOLTAGE		240.00 V		TOP	
TOTAL CONNECTED RECEPTACLE LOAD				3.60		KVA		DEMAND AMPS		338.21		AMPS	
TOTAL CONNECTED MOTOR/OTHER LOAD				26.50		KVA		MINIMUM CCT AMPS		338.21		AMPS	
TOTAL CONNECTED LOAD				39.32		KVA						NO	
* Diversified per NEC Table 220.44.													
										VOLTS		120/ 240	
												V 1 Phase, 3 Wire & Grd Bus Bar	

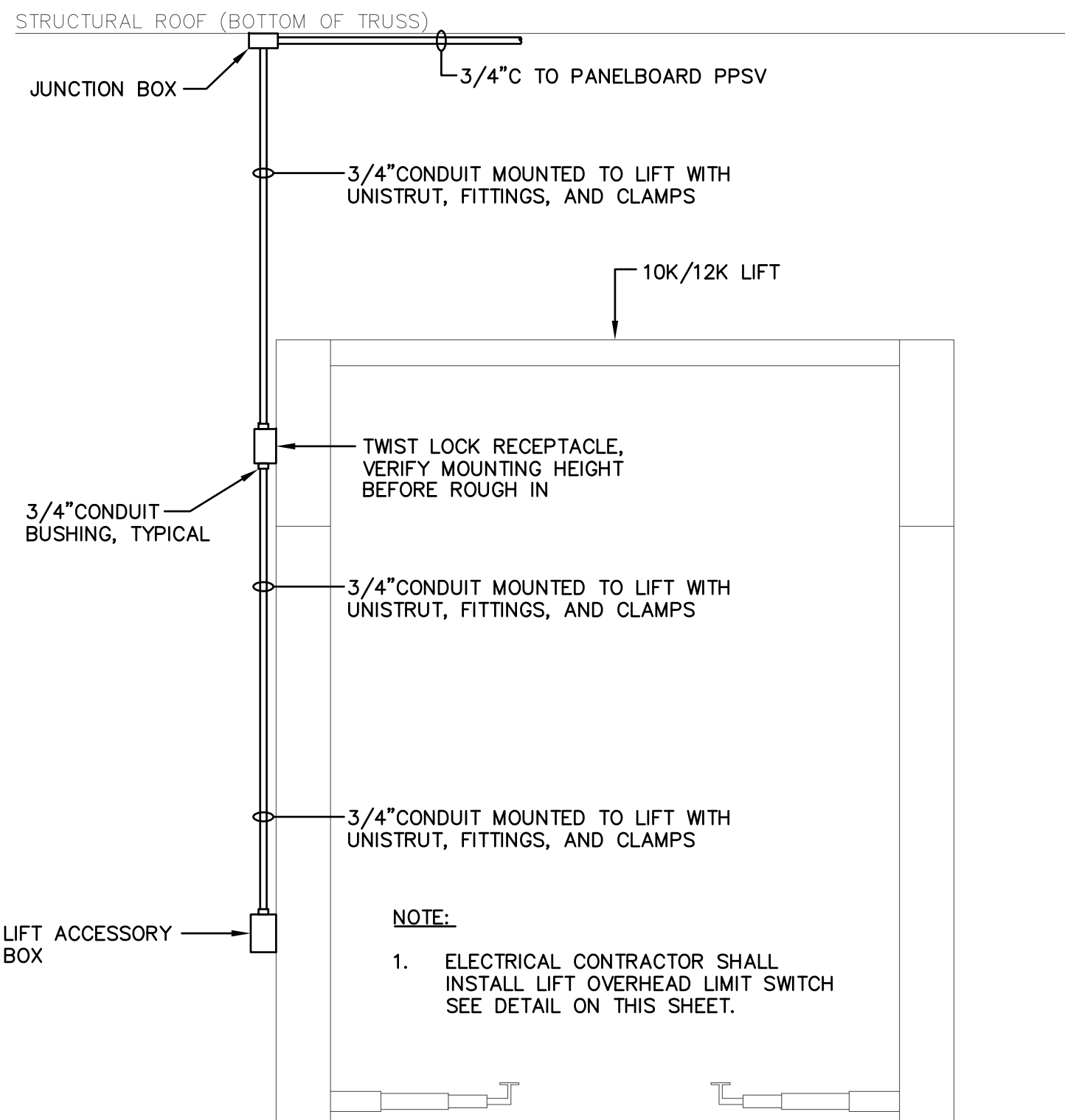
EQUIPMENT ELECTRICAL REQUIREMENTS SCHEDULE									
EQUIPMENT	LOCATION	KW	HP	AMP	CIRCUIT BREAKER	DISCONNECT SWITCH/FUSE	CONDUCTORS & CONDUIT	VOLTAGE	CONNECTION
(4) 10K LIFT	SERVICE 9	—	2	12.0	20/2	—	2#12&1#12GRD-3/4"C	240V,1Ø	HARDWIRED
12K LIFT	SERVICE 9	—	2	12.0	20/2	—	2#12&1#12GRD-3/4"C	240V,1Ø	HARDWIRED
AIR COMPRESSOR	STORAGE 10	—	5	28.0	60/2	60/2, F40	2#8&1#10GRD-3/4"C	240V,1Ø	HARDWIRED
TIRE CHANGER	STORAGE 10	—	—	6.0	20/2	30/2	2#12&1#12GRD-3/4"C	240V,1Ø	HARDWIRED
WHEEL BALANCER	STORAGE 10	—	—	20.0	20/2	30/2	2#12&1#12GRD-3/4"C	240V,1Ø	HARDWIRED
BRAKE LATHE	SERVICE 9	—	1	15.0	20/1	—	2#12&1#12GRD-3/4"C	120V	NEMA



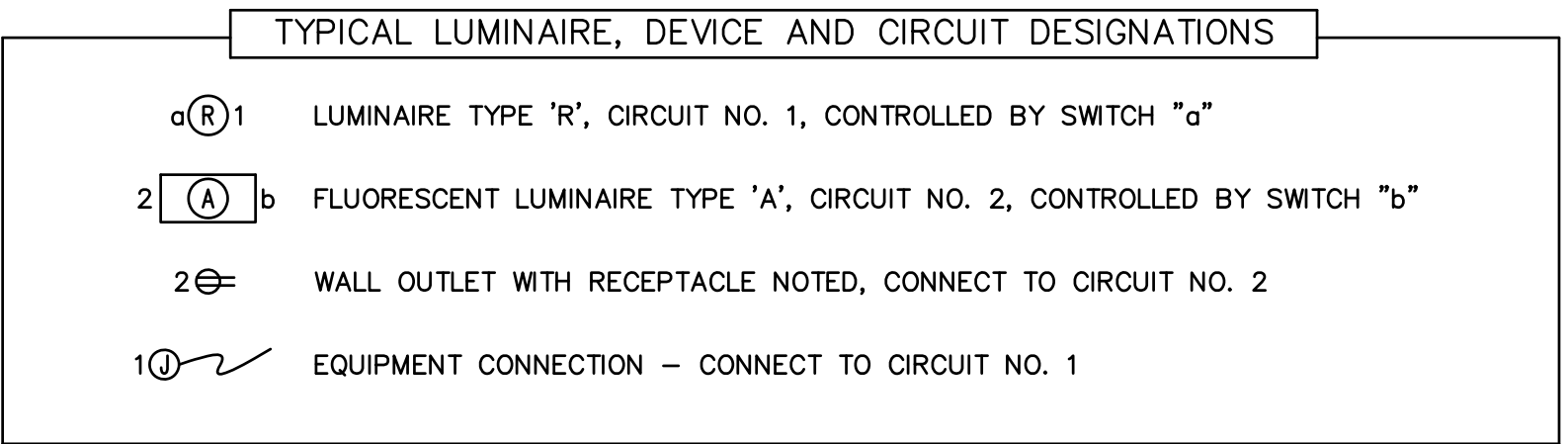
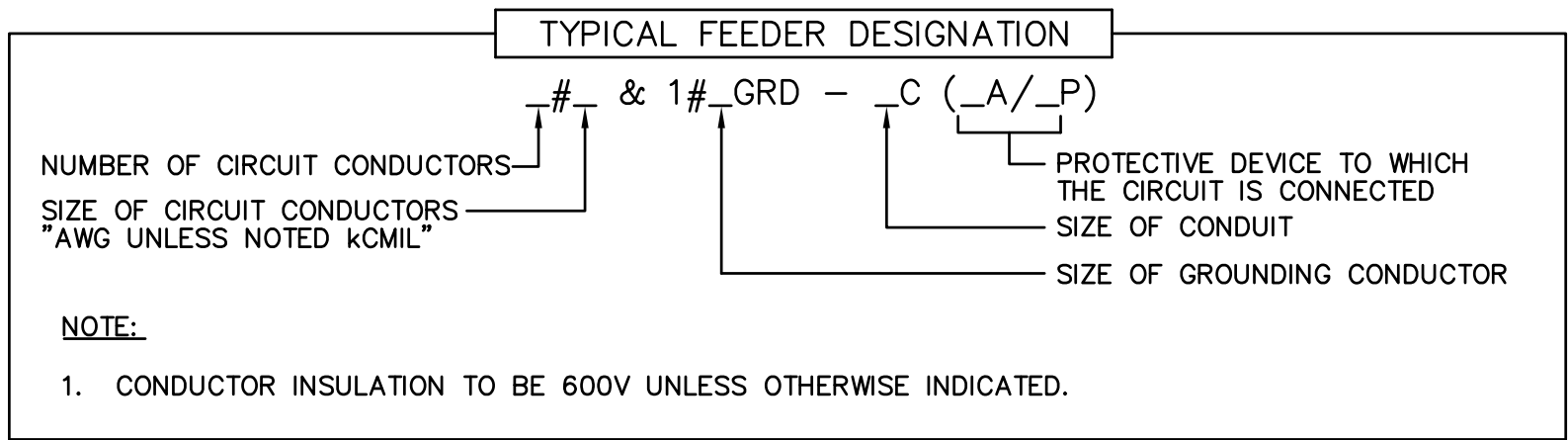
GROUNDING SYSTEM DETAIL
NOT TO SCALE

GROUNDING SYSTEM DETAIL – KEY NOTES

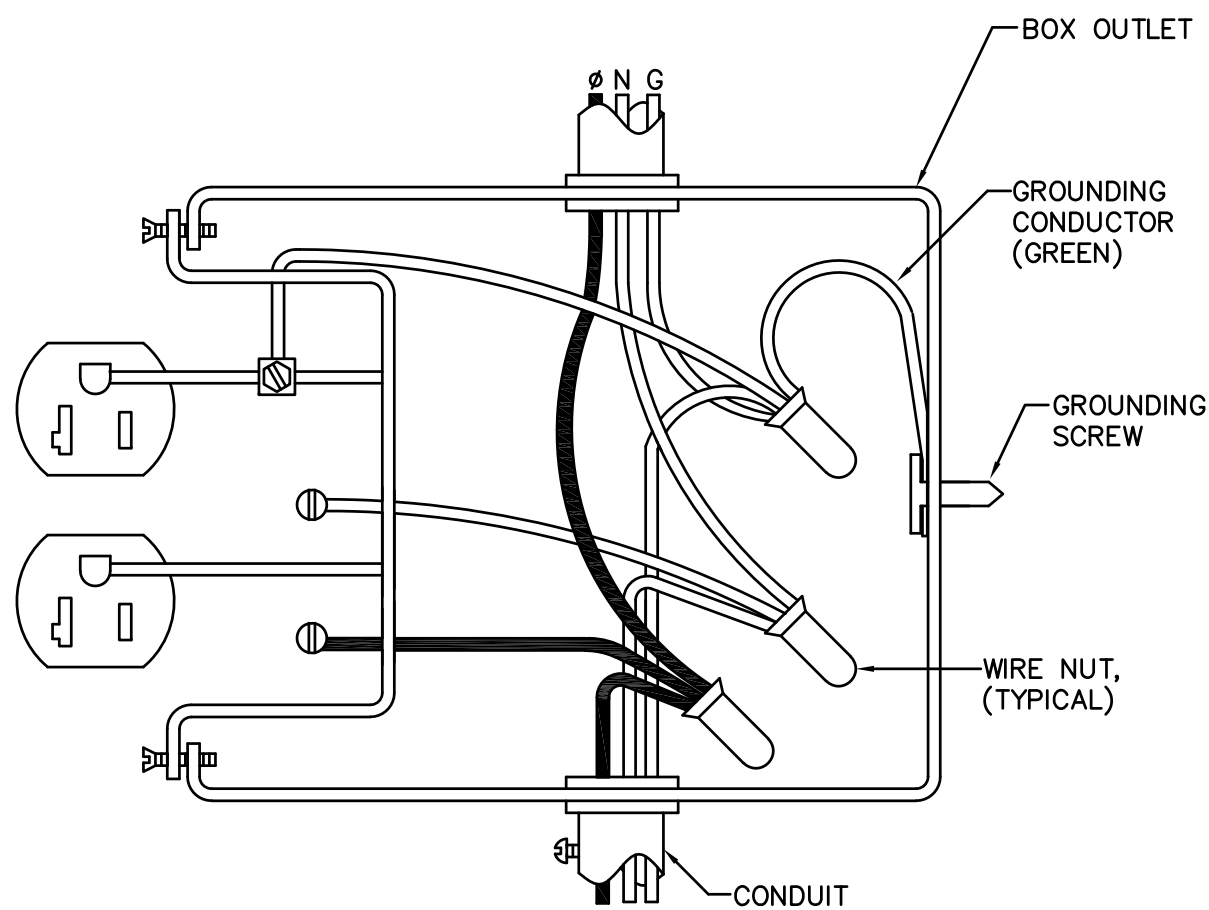
- 1/0 BARE GROUNDING ELCTRODE CONDUCTOR.
- 3/4"x10'-0" CLAD STEEL GROUND ROD, DRIVEN 24" BELOW GRADE, MINIMUM.
- 1/0 BARE GROUNDING ELECTRODE CONDUCTOR IN 2"PVC-40.
- EXOTHERMIC WELD CONNECTOR:
TWO CABLES TO GROUND ROD, CADWELD #GT OR #GY
CABLE TO CABLE TEE, CADWELD #TA
ONE CABLE TO GROUND ROD, CADWELD #GR
- CAST BRONZE, UL LISTED GROUND CLAMP, O-Z/GEDNEY TYPE-G.
- BONDING JUMPER, SIZED BY EQUIPMENT MANUFACTURER PER NEC 250-66.
- BONDING JUMPER TO GROUNDING BUSHING. AND BONDING JUMPERS FROM CONDUIT TO CONDUIT. ALL CONDUIT CONNECTED TO THE SERVICE ENTRANCE ENCLOSURE SHALL BE BONDED, SIZED PER NEC 250.
- MAIN BONDING JUMPER, SIZED BY MANUFACTURER PER 250-66.
- 1/0 BARE BONDING JUMPER.
- 6 CONDUCTOR GROUND BUS, COPPER OR ALUMINUM RATED, ILSCO #PDE.



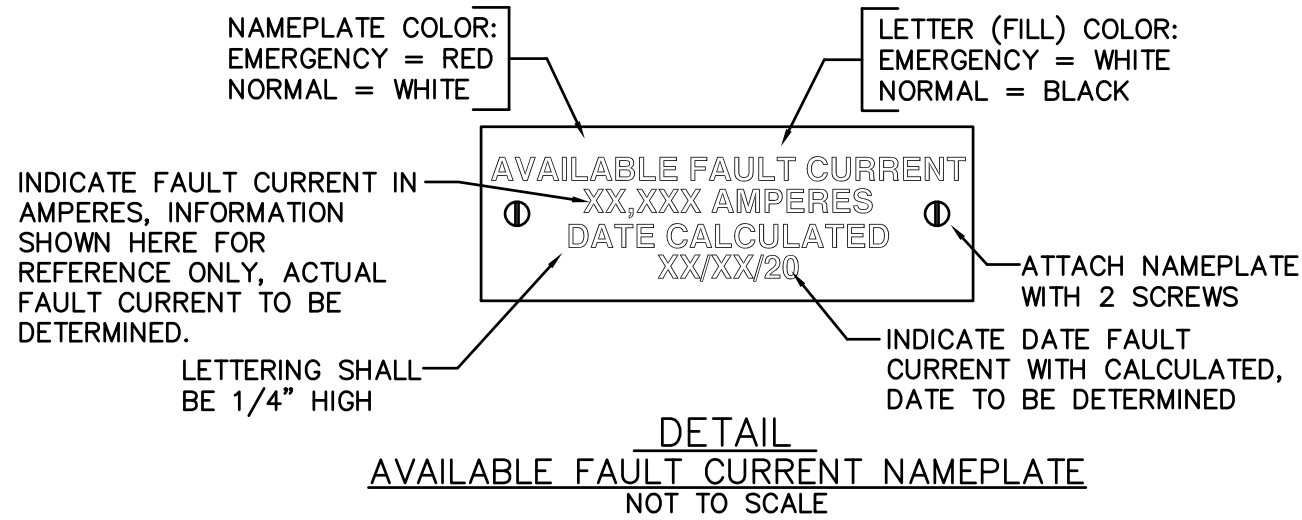
ELEVATION
LIFT POWER DETAIL
NOT TO SCALE



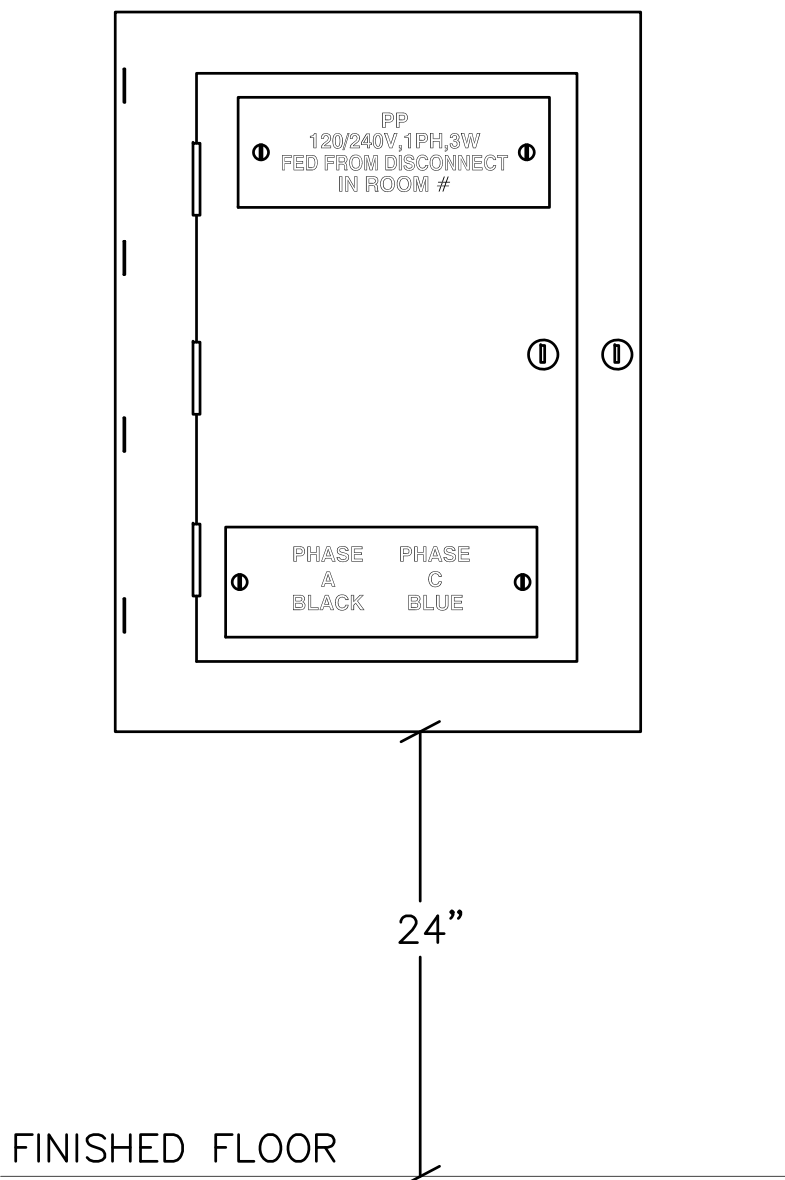
DETAIL
WIRING DESIGNATION
NOT TO SCALE



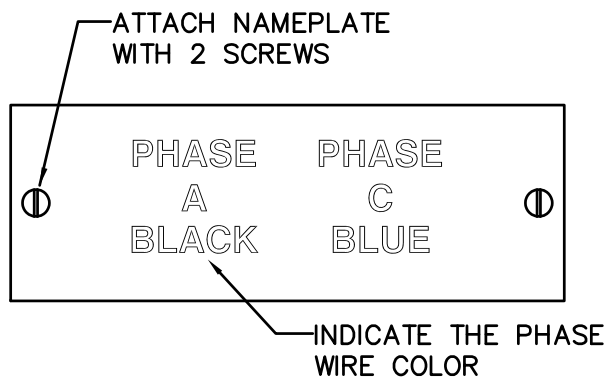
DETAIL
RECEPTACLE INSTALLATION
NOT TO SCALE



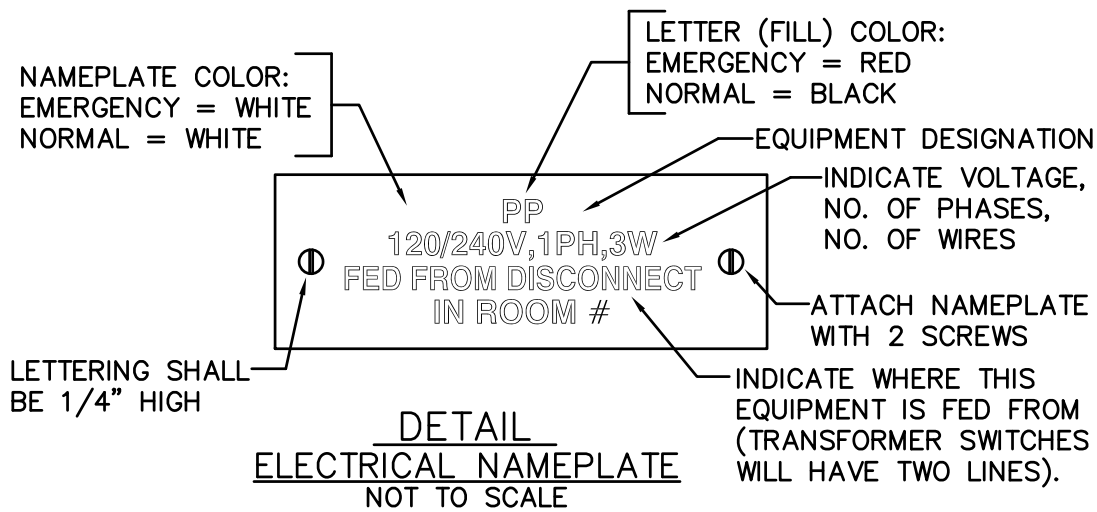
DETAIL
AVAILABLE FAULT CURRENT NAMEPLATE
NOT TO SCALE



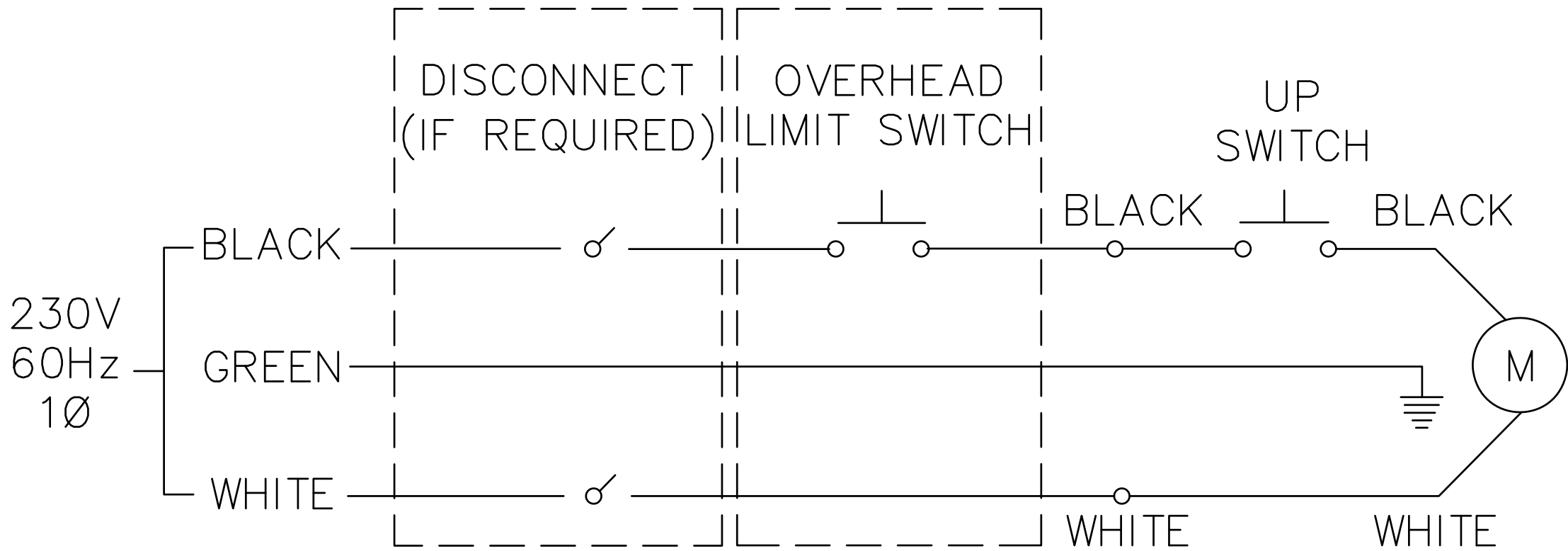
DETAIL
120/240V PANELBOARD INSTALLATION
& NAMEPLATE DETAIL
NOT TO SCALE



DETAIL
120/240V PANELBOARD
ELECTRICAL NAMEPLATE
NOT TO SCALE



DETAIL
ELECTRICAL NAMEPLATE
NOT TO SCALE



LIFT LIMIT SWITCH
WIRING DETAIL
NOT TO SCALE



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Details

Project number 24005
Date 5/15/2024

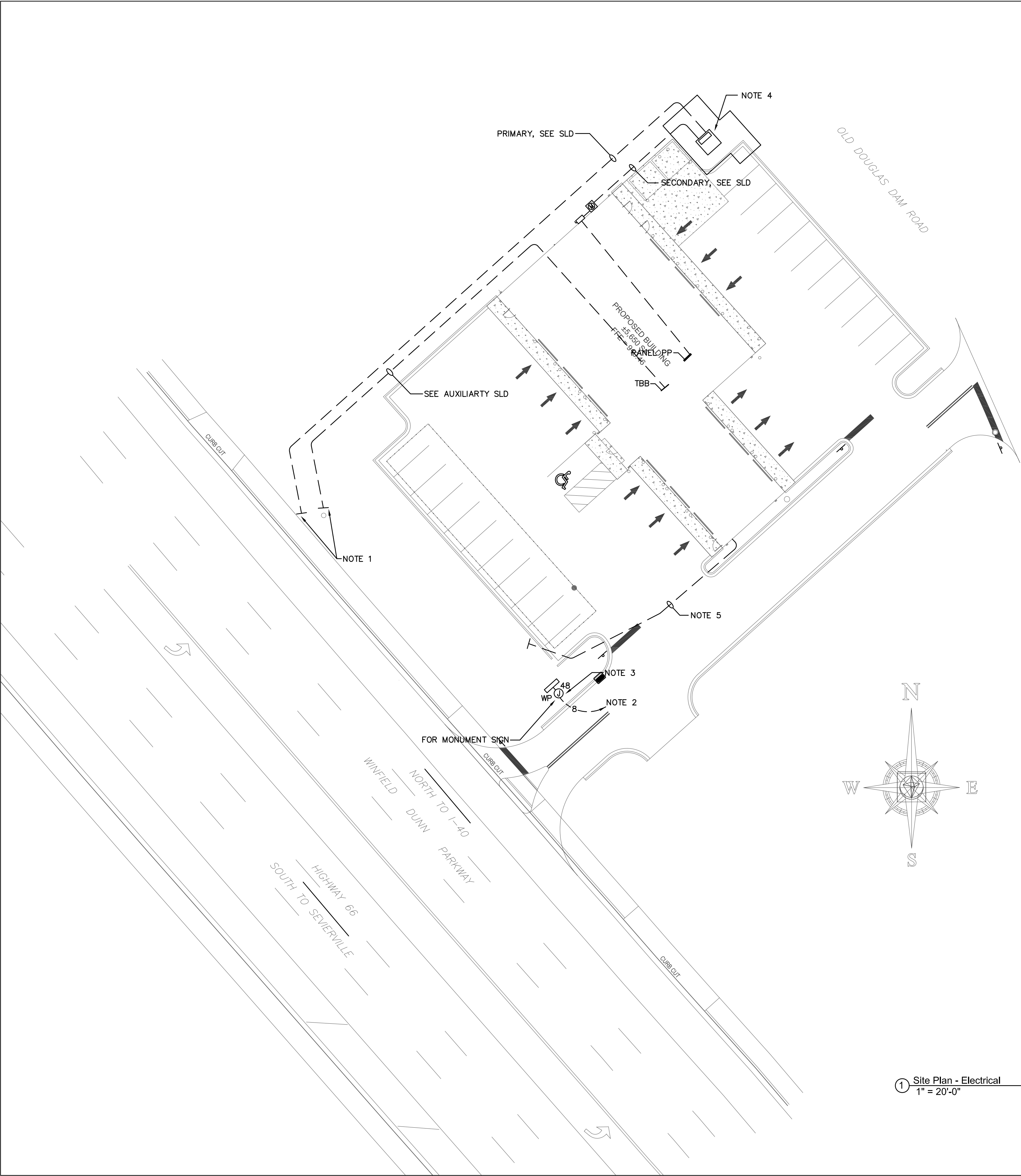
Drawn by TH
Checked by GW

E103

Scale NO SCALE

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205-413-4112



1 Site Plan - Electrical
1" = 20'-0"

- NOTES:
1. VERIFY EXACT LOCATION OF STUB UP BEFORE ROUGH IN.
 2. HOMERUN TO PANELBOARD PP THROUGH LIGHTING CONTACTOR C-2.
 3. LOCATION OF MONUMENT SIGN SHOWN HERE IS FOR REFERENCE ONLY. VERIFY EXACT LOCATION OF MONUMENT SIGN WITH CIVIL PRIOR TO ROUGH IN.
 4. UTILITY PAD MOUNTED TRANSFORMER. FURNISH AND INSTALL CONCRETE PAD PER POWER COMPANY REQUIREMENTS. CONTACT UTILITY COMPANY FOR PAD SPECIFICATIONS AND REQUIRED TERMINATIONS AT TRANSFORMER BEFORE BID AND PRICING. INCLUDE COST IN BID.
 5. PROVIDE 1-1" EMPTY CONDUIT. HOMERUN TO PANEL PP FOR FUTURE EV CHARGING STATION. VERIFY EXACT LOCATION OF STUB UP WITH ARCHITECT AND CIVIL PRIOR TO INSTALLATION.



Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Site Plan - Electrical

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW
E104	
Scale	1" = 20'-0"

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205-413-4112



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Main Level Plan -
Lighting

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW

E200

Scale 3/16" = 1'-0"

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112

GENERAL NOTES:

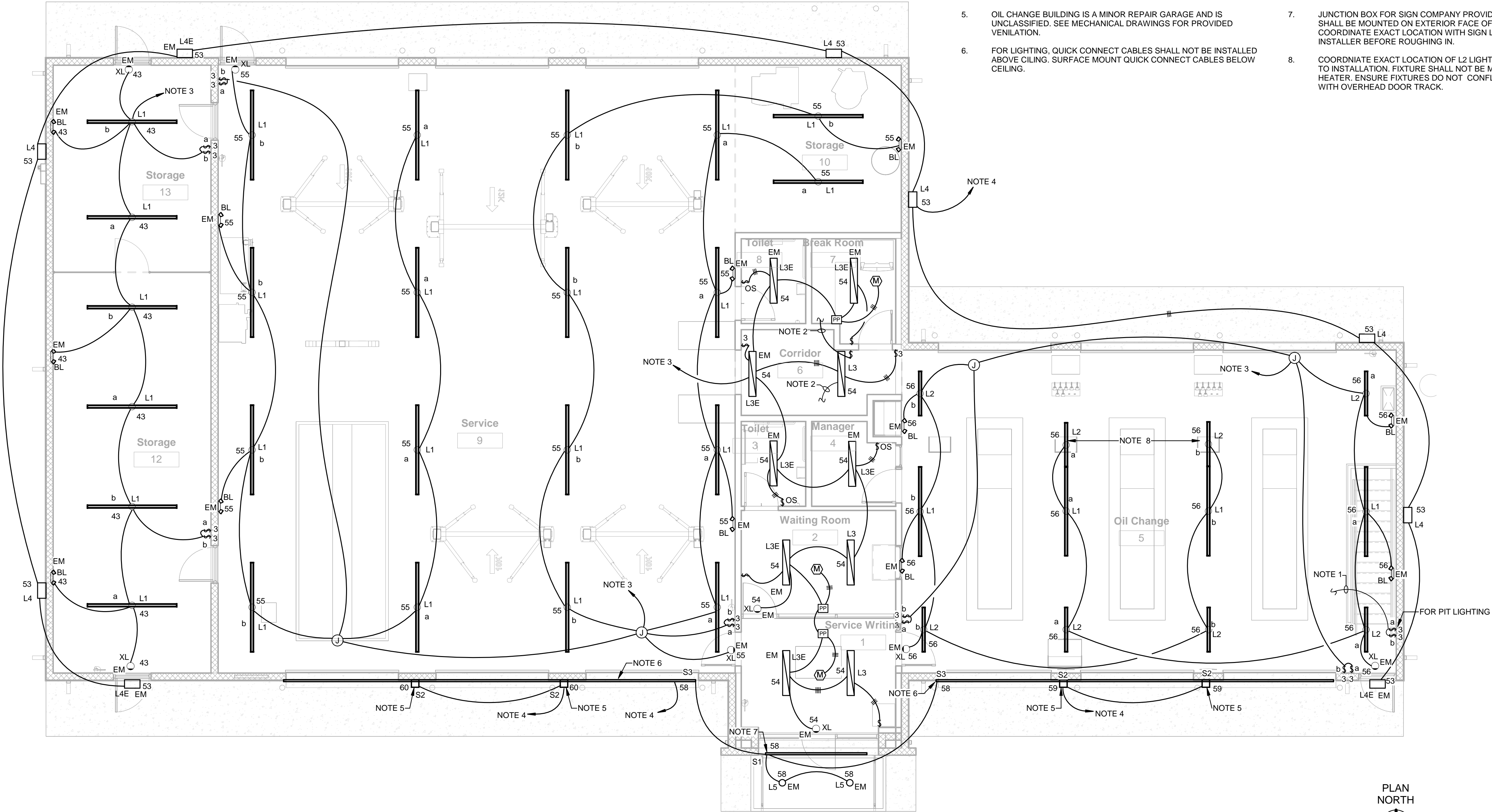
- CONNECT ALL "BL", "XL" AND EMERGENCY BATTERY PACKS IN FIXTURES MARKED "EM" TO UNSWITCHED HOT LEG OF CIRCUIT.
- ENSURE LIGHTING FIXTURES L1 AND L2 DO NOT CONFLICT WITH OVERHEAD DOORS.
- FOR THE LIGHTING PACKAGE PRICING CONTACT THE FOLLOWING:

MIKE MCMAKEN
REXEL ENERGY SOLUTIONS
(M) 906 - 235 - 2979
MIKE.MCMAKEN@REXELENERGY.COM

STEPHEN MITCHELL
MAXLITE
(M) 908-256-3115
SMITCHELL@MAXLITE.COM
- ALL CONDUIT CROSSING OVERHEAD DOORS SHALL BE MOUNTED AS TIGHT TO THE STRUCTURE AS POSSIBLE TO AVOID CONFLICT WITH THE OVERHEAD DOOR TRACK.
- OIL CHANGE BUILDING IS A MINOR REPAIR GARAGE AND IS UNCLASSIFIED. SEE MECHANICAL DRAWINGS FOR PROVIDED VENTILATION.
- FOR LIGHTING, QUICK CONNECT CABLES SHALL NOT BE INSTALLED ABOVE CEILING. SURFACE MOUNT QUICK CONNECT CABLES BELOW CEILING.

NOTES:

- CONNECT TO PIT LIGHTING. SEE SHEET E201 FOR CONTINUATION.
- CONNECT TO EQUIPMENT PLATFORM LIGHTING. SEE SHEET E202 FOR CONTINUATION.
- HOMERUN TO 20A, 1POLE CIRCUIT BREAKER IN PANELBOARD PP THROUGH LIGHTING CONTACTOR C-1. SEE DETAIL ON SHEET E102.
- HOMERUN TO 20A, 1POLE CIRCUIT BREAKER IN PANELBOARD PP THROUGH LIGHTING CONTACTOR C-2. SEE DETAIL ON SHEET E102.
- JUNCTION BOX FOR SIGN COMPANY PROVIDED FIXTURE SHALL BE MOUNTED FLUSH WITH EXTERIOR FACE OF WALL AT 60" ABOVE GRADE ON CENTER.
- JUNCTION BOX FOR DIMENSIONAL LETTERS/LIGHT BAR. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH SIGN LIGHTING INSTALLER.
- JUNCTION BOX FOR SIGN COMPANY PROVIDED FIXTURE SHALL BE MOUNTED ON EXTERIOR FACE OF WALL AT 17' AFF. COORDINATE EXACT LOCATION WITH SIGN LIGHTING INSTALLER BEFORE ROUGHING IN.
- COORDINATE EXACT LOCATION OF L2 LIGHT FIXTURES PRIOR TO INSTALLATION. FIXTURE SHALL NOT BE MOUNTED ABOVE HEATER. ENSURE FIXTURES DO NOT CONFLICT WITH OVERHEAD DOOR TRACK.



1 Main Level Plan - Lighting
3/16" = 1'-0"

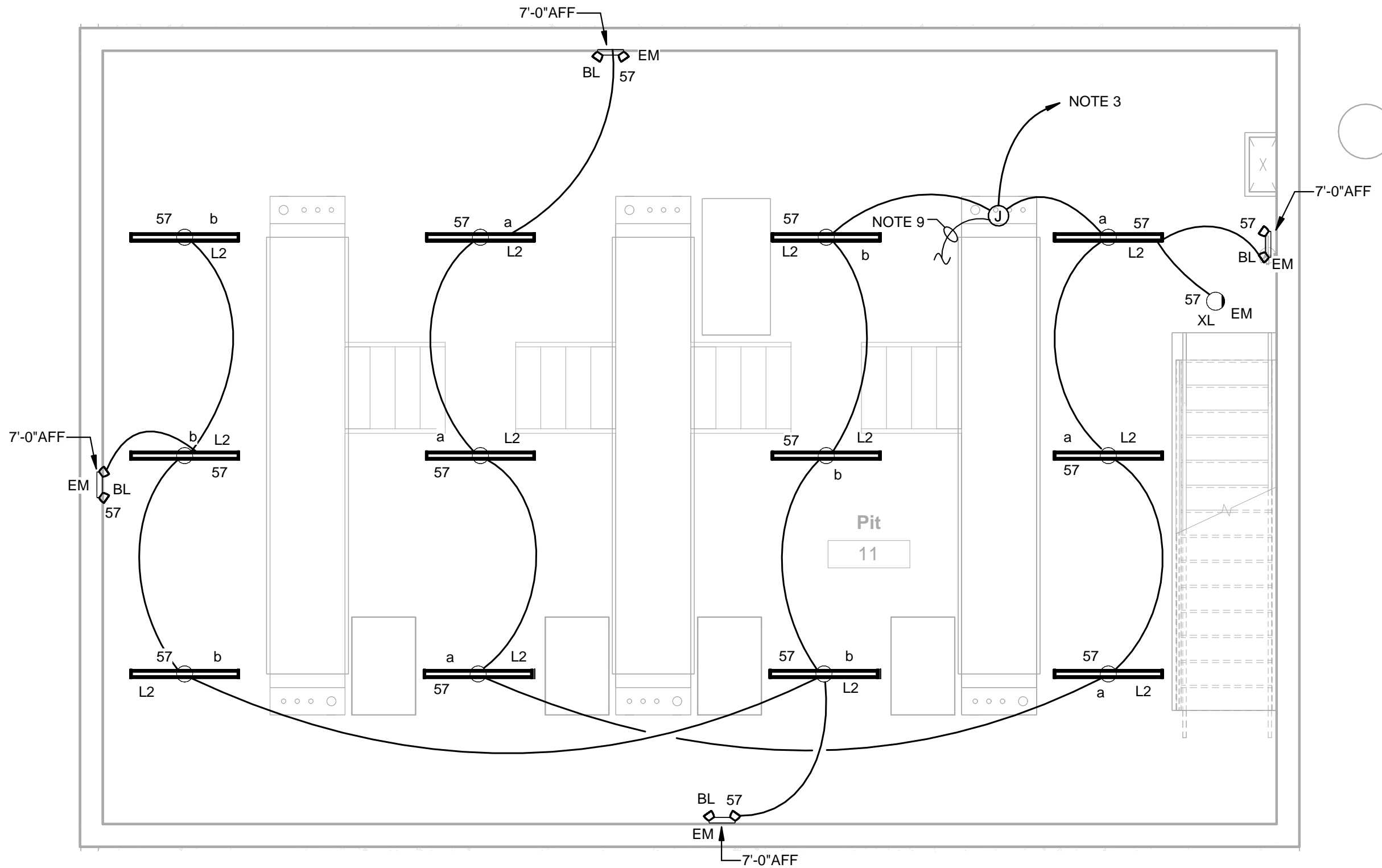


- GENERAL NOTES:
- CONNECT ALL "BL", "XL" AND EMERGENCY BATTERY PACKS IN FIXTURES MARKED "EM" TO UNSWITCHED HOT LEG OF CIRCUIT.
 - FOR THE LIGHTING PACKAGE PRICING CONTACT THE FOLLOWING:

MIKE MCMAKEN
REXEL ENERGY SOLUTIONS
(M) 906 - 235 - 2979
MIKE.MCMAKEN@REXELENERGY.COM

STEPHEN MITCHELL
MAXLITE
(M) 908-256-3115
SMITCHELL@MAXLITE.COM
 - OIL CHANGE BUILDING IS A MINOR REPAIR GARAGE AND IS UNCLASSIFIED. SEE MECHANICAL DRAWINGS FOR PROVIDED VENILATION.
 - ADJUST LIGHT FIXTURES AS NEEDED TO AVOID CONFLICT WITH STRUCTURAL STEEL.

- NOTES:
- CONNECT TO LIGHT SWITCH ON FIRST FLOOR. SEE SHEET E200 FOR CONTINUATION.
 - HOMERUN TO 20A, 1POLE CIRCUIT BREAKER IN PANELBOARD PP THROUGH LIGHTING CONTACTOR C-1.



1 Pit Level Plan - Lighting
1/4" = 1'-0"



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Pit Level Plan -
Lighting

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW

E201

Scale 1/4" = 1'-0"

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

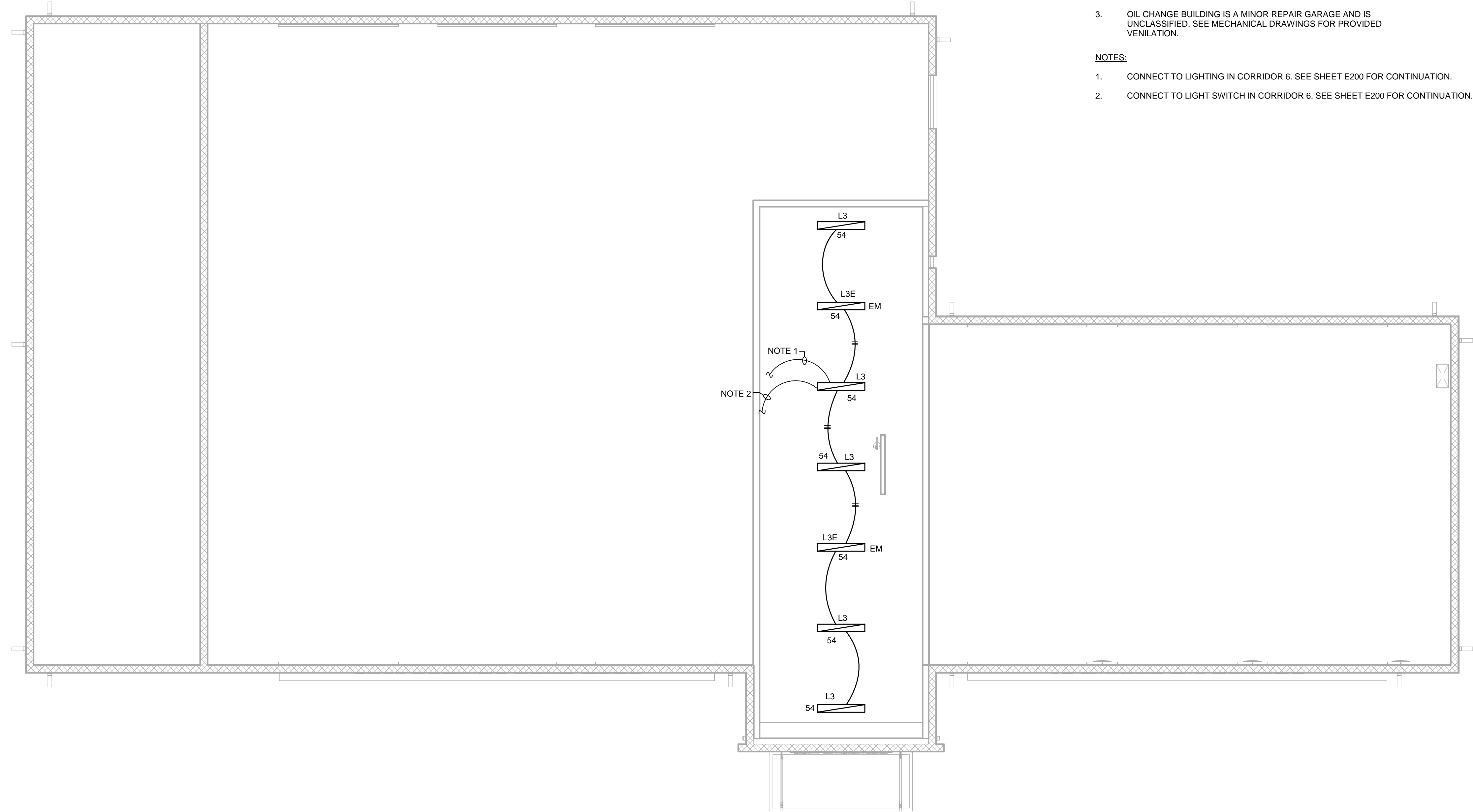
FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Equipment Platform Plan - Lighting	
Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW
E202	
Scale	3/16" = 1'-0"

GIDEON WAMAE, P.E.
4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112

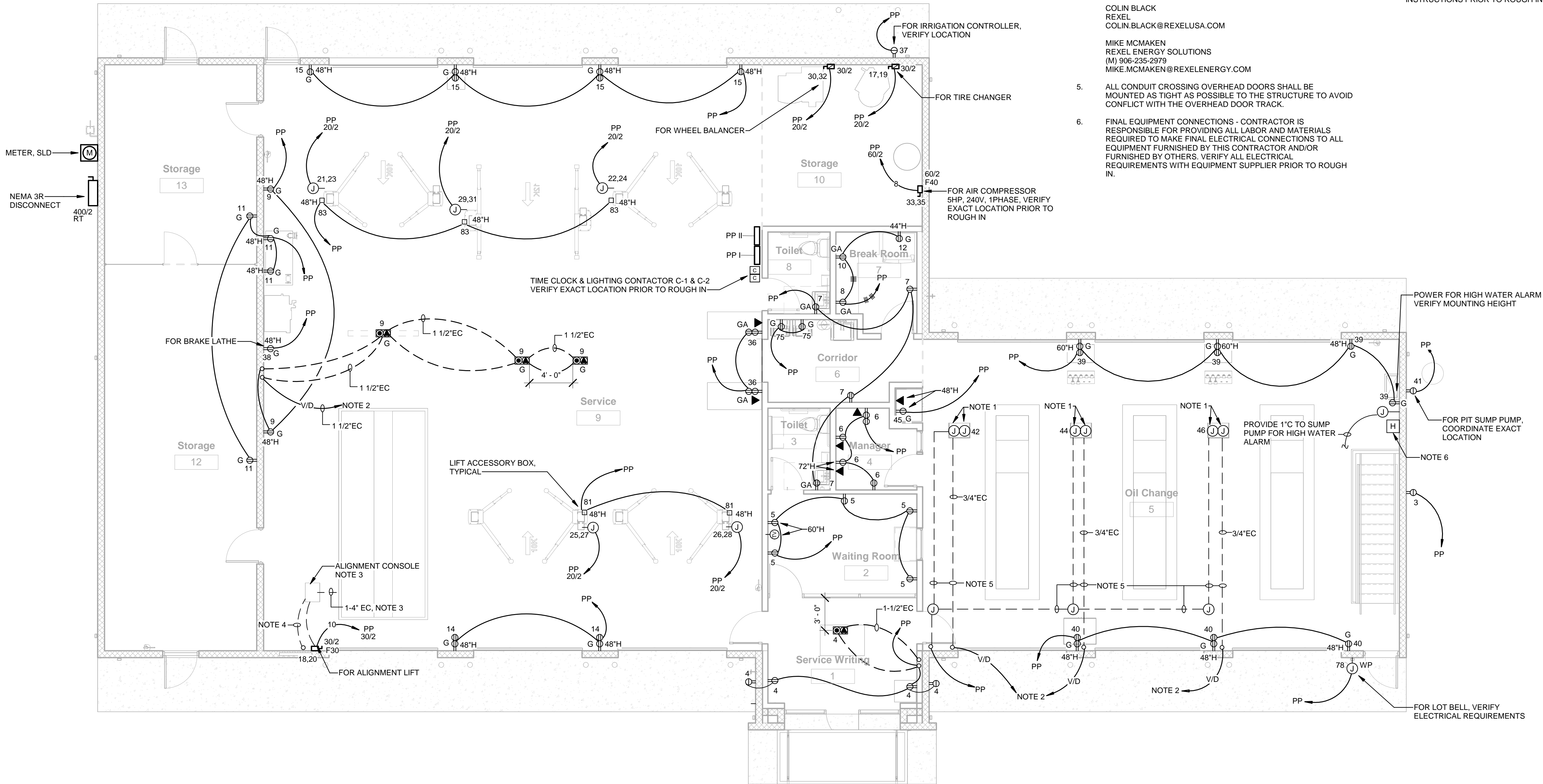


1 Equipment Platform Plan - Lighting
3/16" = 1'-0"

- GENERAL NOTES:**
- CONNECT ALL "BL", "XL" AND EMERGENCY BATTERY PACKS IN FIXTURES MARKED "EM" TO UNSWITCHED HOT LEG OF CIRCUIT.
 - FOR THE LIGHTING PACKAGE PRICING CONTACT THE FOLLOWING:

MIKE MCMAKEN
REXEL ENERGY SOLUTIONS
(M) 906 - 235 - 2979
MIKE.MCMAKEN@REXELENERGY.COM

STEPHEN MITCHELL
MAXLITE
(M) 908-256-3115
SMITCHELL@MAXLITE.COM
 - OIL CHANGE BUILDING IS A MINOR REPAIR GARAGE AND IS UNCLASSIFIED. SEE MECHANICAL DRAWINGS FOR PROVIDED VENTILATION.
- NOTES:**
- CONNECT TO LIGHTING IN CORRIDOR 6. SEE SHEET E200 FOR CONTINUATION.
 - CONNECT TO LIGHT SWITCH IN CORRIDOR 6. SEE SHEET E200 FOR CONTINUATION.



GENERAL NOTES:

- CONTRACTOR SHALL VERIFY/COORDINATE LOCATION OF ALL POWER & DATA OUTLETS FOR EQUIPMENT. OBTAIN OWNER'S APPROVAL BEFORE ROUGH IN. NO EXCEPTIONS. NO ADDITIONAL COMPENSATION SHALL BE AWARDED FOR ANY ADDITIONAL WORK REQUIRED TO RELOCATE OUTLETS DUE TO CONTRACTOR'S FAILURE TO COORDINATE WITH OWNER.
- ALL HORIZONTAL CONDUIT RUNS SHALL BE A MINIMUM OF 8' ABOVE FINISHED FLOOR EXCEPT FOR DROPS. ENSURE CONDUIT DOES NOT CONFLICT WITH OVERHEAD DOOR.
- OIL CHANGE BUILDING IS A MINOR REPAIR GARAGE AND IS UNCLASSIFIED. SEE MECHANICAL DRAWINGS FOR PROVIDED VENTILATION.
- EXPRESS OIL CHANGE HAS OBTAINED EQUIPMENT AVAILABILITY AND SPECIAL VOLUME PRICING ON POWER EQUIPMENT AND LIGHTING CONTROL PACKAGES FROM REXEL. SEE CONTACTS BELOW FOR PRICING AND INFORMATION.

JEFFREY PARKER
REXEL
(M) 508-916-7758
JEFFREY.PARKER@REXELUSA.COM

COLIN BLACK
REXEL
COLIN.BLACK@REXELUSA.COM

MIKE MCMAKEN
REXEL ENERGY SOLUTIONS
(M) 906-235-2979
MIKE.MCMAKEN@REXELENERGY.COM
- ALL CONDUIT CROSSING OVERHEAD DOORS SHALL BE MOUNTED AS TIGHT AS POSSIBLE TO THE STRUCTURE TO AVOID CONFLICT WITH THE OVERHEAD DOOR TRACK.
- FINAL EQUIPMENT CONNECTIONS - CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS REQUIRED TO MAKE FINAL ELECTRICAL CONNECTIONS TO ALL EQUIPMENT FURNISHED BY THIS CONTRACTOR AND/OR FURNISHED BY OTHERS. VERIFY ALL ELECTRICAL REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH IN.

NOTES:

- 3/4" CONDUIT STUBBED UP 18" INTO WORK PEDESTAL BASE POST. PROVIDE FLEXIBLE CONDUIT INTO WORK PEDESTAL CABINET. COORDINATE OUTLET REQUIREMENTS PRIOR TO ROUGH IN.
- HOMERUN 3/4" EC TO TELEPHONE BACKBOARD ON EQUIPMENT PLATFORM.
- LOCATIONS SHOWN HERE ARE APPROXIMATE. FIELD COORDINATE EXACT LOCATION OF CONSOLE & CONDUIT WITH OWNER & ALIGNMENT LIFT SHOP DRAWINGS BEFORE ROUGH-IN. CONDUIT FROM ALIGNMENT PIT TO CONSOLE SHALL BE 32' FROM EDGE OF PIT TO CENTERLINE OF CONDUIT.
- PROVIDE 1 1/2" EMPTY CONDUIT FROM CONSOLE, STUBBED 8" UP ON INSIDE FACE OF EXTERIOR WALL.
- CONDUIT FOR WORK PEDESTALS IN OIL CHANGE AREA SHALL BE MOUNTED/ROUTED ON THE CEILING OF THE PIT IN LIEU OF IN THE SLAB.
- ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ZOELLER - Z CONTROL APAK INDOOR ALARM WITH MECHANICAL FLOAT, MODEL # 10-4014. SEE MANUFACTURER INSTALLATION INSTRUCTIONS PRIOR TO ROUGH IN. PROVIDE BATTERIES.

1 Main Level Plan - Power & Voice/Data
3/16" = 1'-0"



GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Main Level Plan -
Power &
Voice/Data

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW

E300

Scale 3/16" = 1'-0"

5/13/2024 4:01:43 PM

GENERAL NOTES:

- OIL CHANGE BUILDING IS A MINOR REPAIR GARAGE AND IS UNCLASSIFIED. SEE MECHANICAL DRAWINGS FOR PROVIDED VENILATION.
- EXPRESS OIL CHANGE HAS OBTAINED EQUIPMENT AVAILABILITY AND SPECIAL VOLUME PRICING ON POWER EQUIPMENT AND LIGHTING CONTROL PACKAGES FROM REXEL. SEE CONTACTS BELOW FOR PRICING AND INFORMATION:

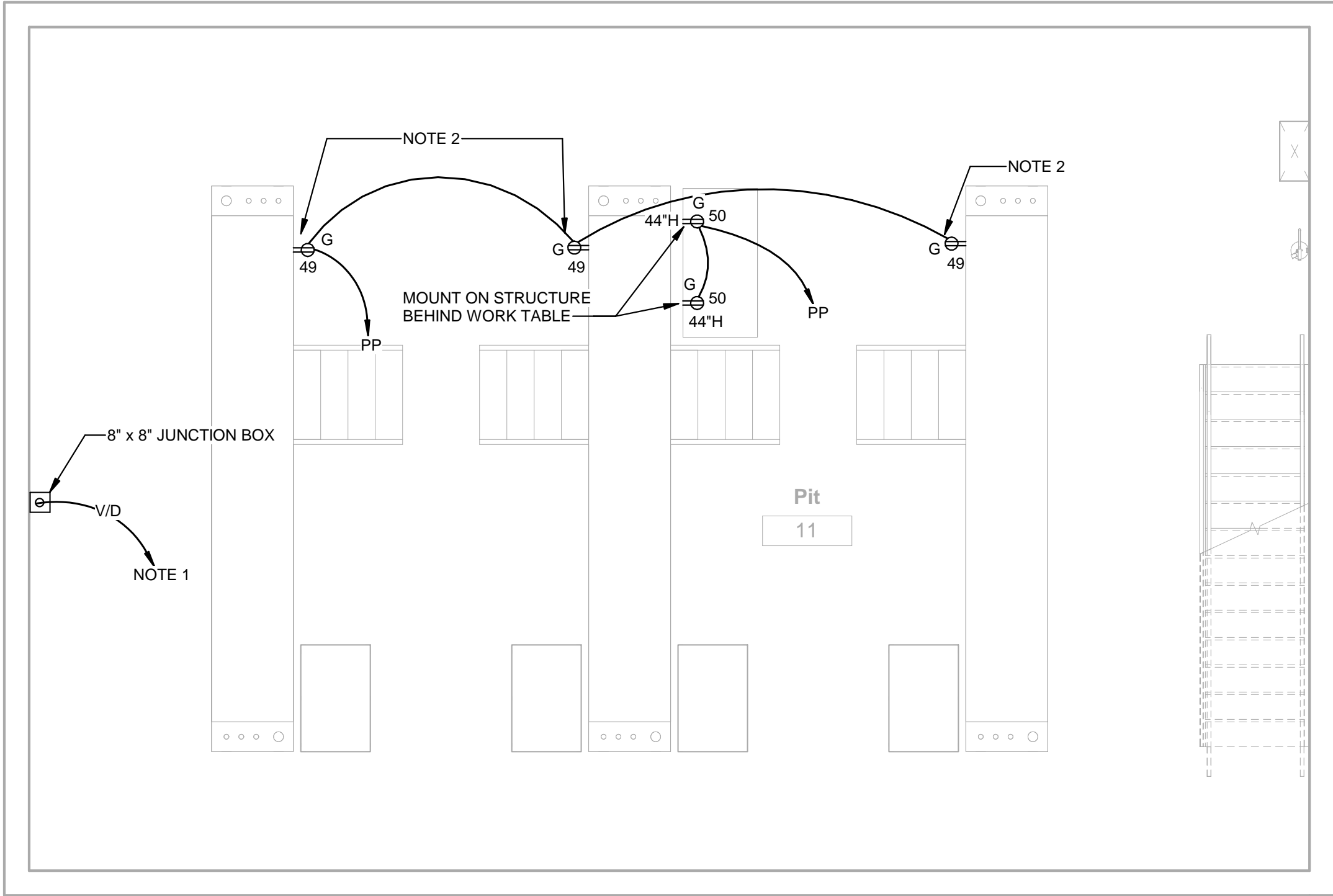
JEFFREY PARKER
REXEL
(M) 508-916-7758
JEFFREY.PARKER@REXELUSA.COM

COLIN BLACK
REXEL
COLIN.BLACK@REXELUSA.COM

MIKE MCMAKEN
REXEL ENERGY SOLUTIONS
(M) 906-235-2979
MIKE.MCMAKEN@REXELENERGY.COM

NOTES:

- 2"EC HOMERUN TO TELEPHONE BACKBOARD ON EQUIPMENT PLATFORM.
- MOUNT RECEPTACLES ONTO STRUCTURAL COLUMN.



1 Pit Level Plan - Power & Voice/Data
1/4" = 1'-0"



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Pit Level Plan -
Power &
Voice/Data

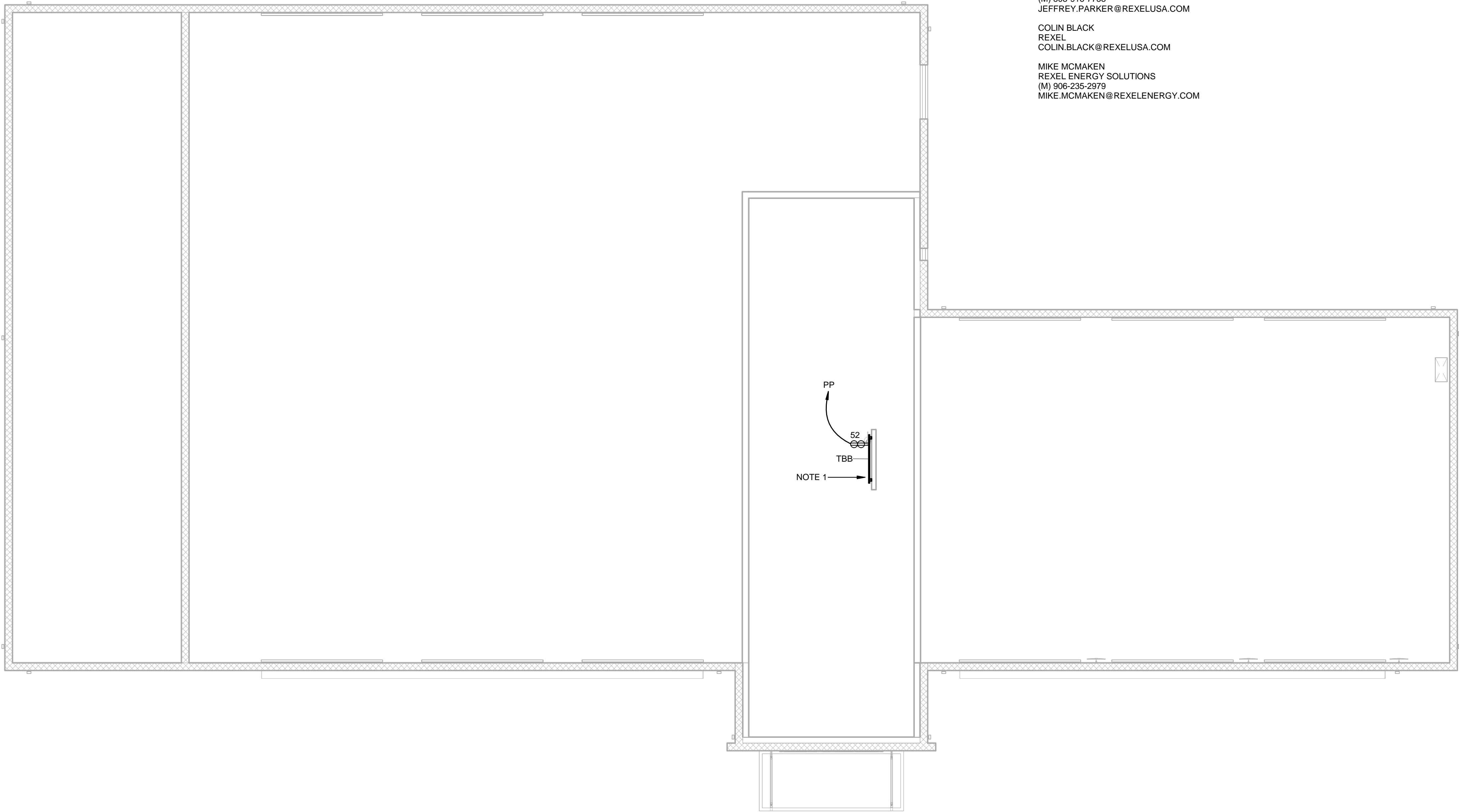
Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW

E301

Scale 1/4" = 1'-0"

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112



GENERAL NOTES:

- OIL CHANGE BUILDING IS A MINOR REPAIR GARAGE AND IS UNCLASSIFIED. SEE MECHANICAL DRAWINGS FOR PROVIDED VENTILATION.
- EXPRESS OIL CHANGE HAS OBTAINED EQUIPMENT AVAILABILITY AND SPECIAL VOLUME PRICING ON POWER EQUIPMENT AND LIGHTING CONTROL PACKAGES FROM REXEL. SEE CONTACTS BELOW FOR PRICING AND INFORMATION:

JEFFREY PARKER
REXEL
(M) 508-916-7758
JEFFREY.PARKER@REXELUSA.COM

COLIN BLACK
REXEL
COLIN.BLACK@REXELUSA.COM

MIKE MCMAKEN
REXEL ENERGY SOLUTIONS
(M) 906-235-2979
MIKE.MCMAKEN@REXELENERGY.COM

NOTES:

- SEE AUXILIARY SINGLE LINE DIAGRAM ON SHEET E102 FOR MORE INFORMATION ON TELEPHONE BACKBOARD. COORDINATE LOCATION WITH DUCTWORK.

Equipment Platform Plan - Power & Voice/Data
3/16" = 1'-0"



GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112



Express Oil Change & Tire Engineers

Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage

Sevierville, Tennessee

FINAL		
No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Equipment Platform Plan - Power & Voice/Data

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW

E302

Scale	3/16" = 1'-0"
-------	---------------



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

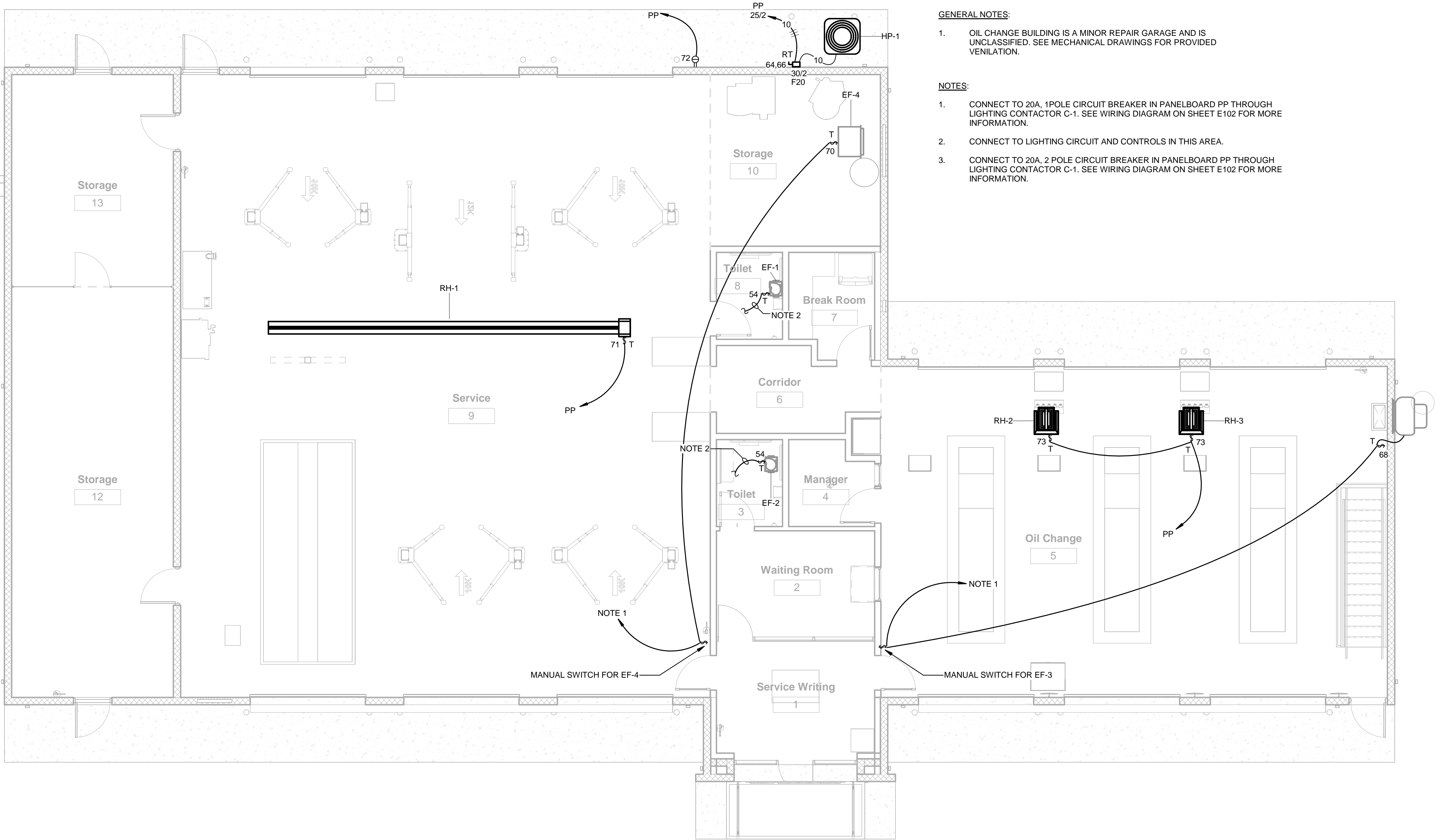
© 2024 Aho Architects, LLC.
All Rights Reserved.

Main Level Plan -
Elec. Conn. to
Mech.

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW
E400	
Scale	3/16" = 1'-0"

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112



GENERAL NOTES:

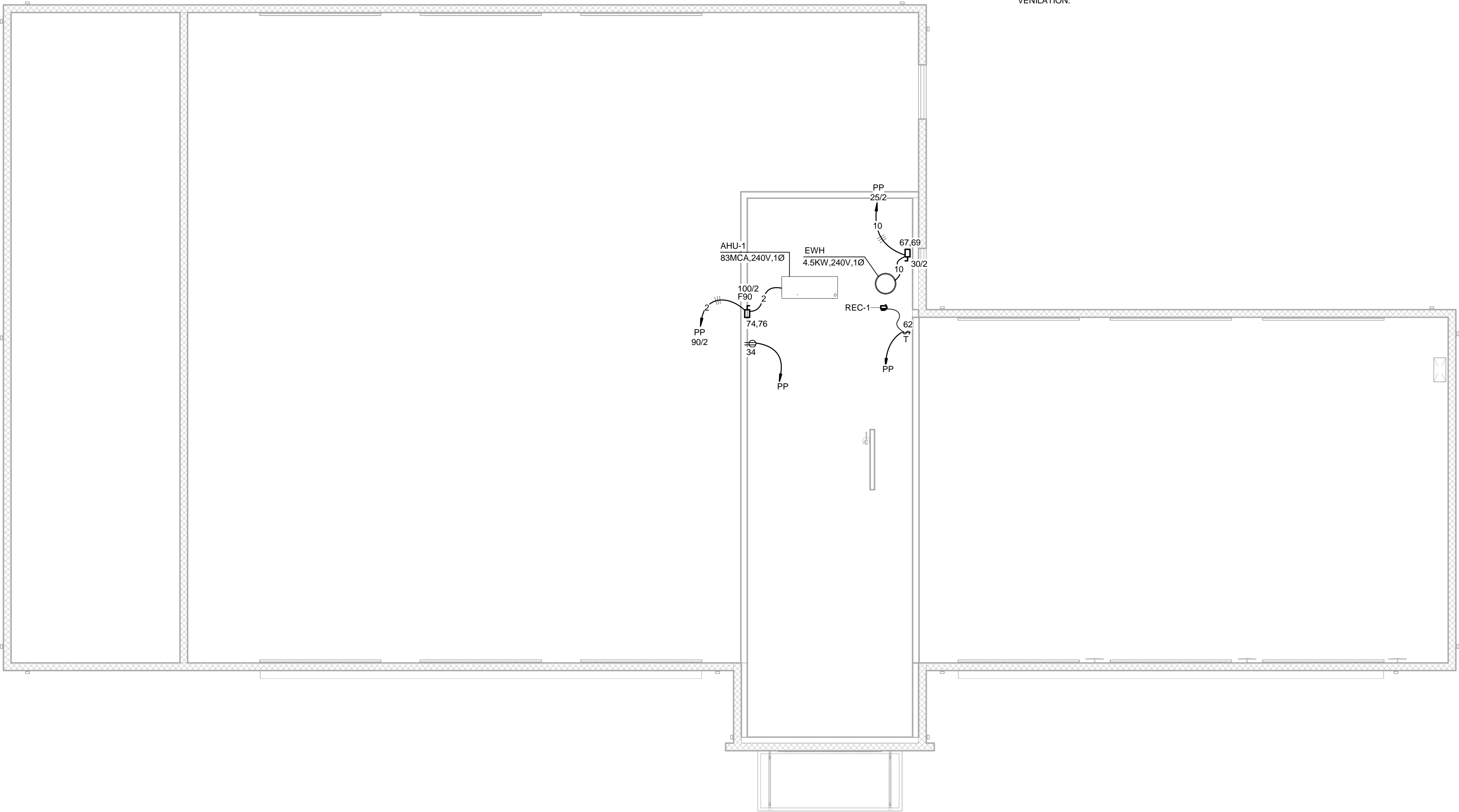
- OIL CHANGE BUILDING IS A MINOR REPAIR GARAGE AND IS UNCLASSIFIED. SEE MECHANICAL DRAWINGS FOR PROVIDED VENTILATION.

NOTES:

- CONNECT TO 20A, 1-POLE CIRCUIT BREAKER IN PANELBOARD PP THROUGH LIGHTING CONTACTOR C-1. SEE WIRING DIAGRAM ON SHEET E102 FOR MORE INFORMATION.
- CONNECT TO LIGHTING CIRCUIT AND CONTROLS IN THIS AREA.
- CONNECT TO 20A, 2-POLE CIRCUIT BREAKER IN PANELBOARD PP THROUGH LIGHTING CONTACTOR C-1. SEE WIRING DIAGRAM ON SHEET E102 FOR MORE INFORMATION.

1 Main Level Plan - Electrical Connection to
Mechanical
3/16" = 1'-0"





- GENERAL NOTES:
- OIL CHANGE BUILDING IS A MINOR REPAIR GARAGE AND IS UNCLASSIFIED. SEE MECHANICAL DRAWINGS FOR PROVIDED VENTILATION.

① Equipment Platform Plan - Electrical
Connection to Mechanical
3/16" = 1'-0"



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Equipment
Platform Plan -
Elec. Conn. to
Mech.

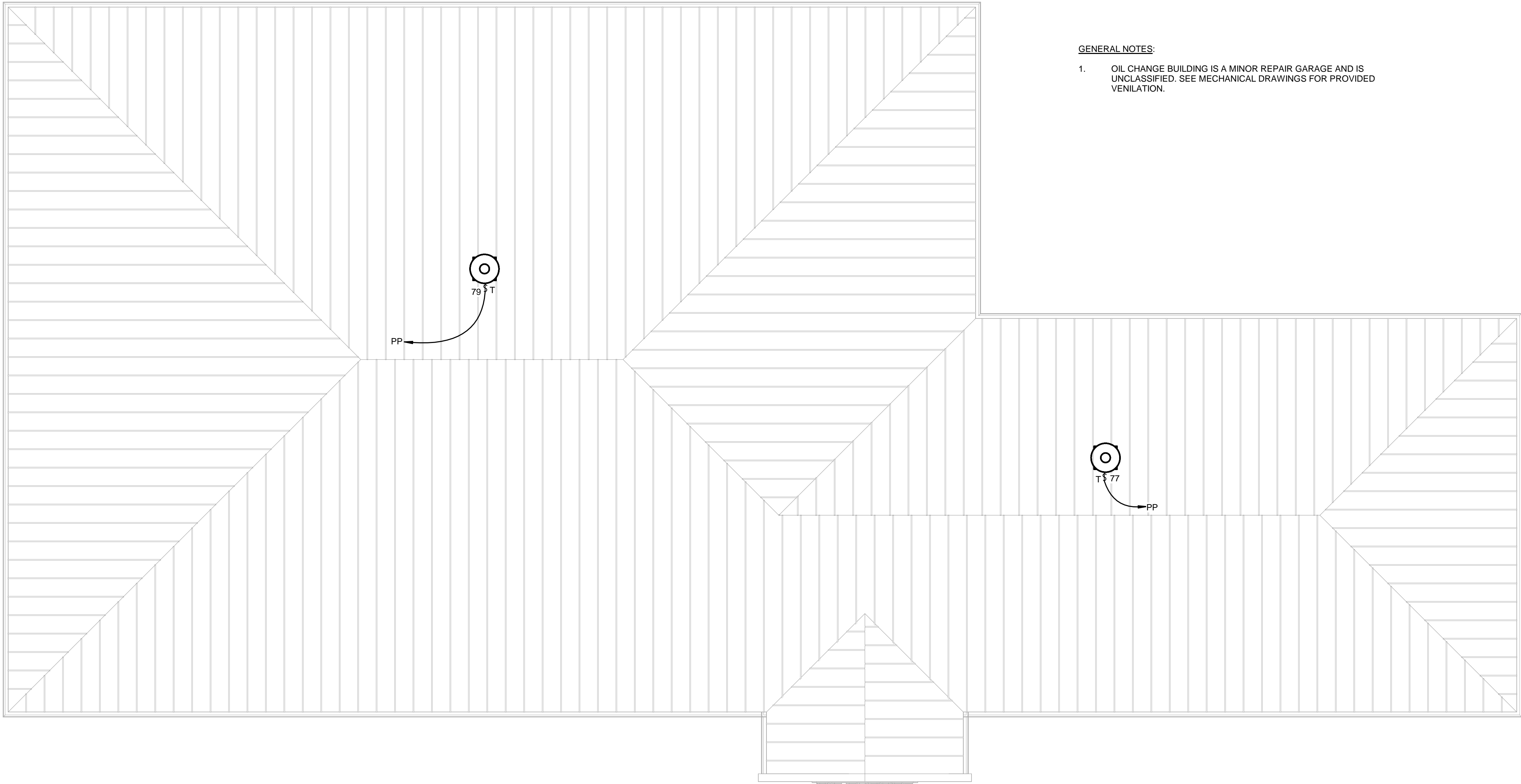
Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW

E401

Scale 3/16" = 1'-0"

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112



- GENERAL NOTES:**
- OIL CHANGE BUILDING IS A MINOR REPAIR GARAGE AND IS UNCLASSIFIED. SEE MECHANICAL DRAWINGS FOR PROVIDED VENTILATION.

① Roof Plan - Electrical Connection to Mechanical
3/16" = 1'-0"



GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Roof Plan -
Electrical
Connection to
Mechanical

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW

E402

Scale 3/16" = 1'-0"

GENERAL REQUIREMENTS

- A. Carefully examine General Conditions, other specification Sections, and other drawings (in addition to electrical), in order to be fully acquainted with their effect on electrical work.
- B. Do all work in compliance with laws and ordinances and local authorities having jurisdiction and, where applicable, utility companies. Obtain and pay for any and all required permits, inspections, certificates of inspections and approval, and the like, and deliver such certificates to the Architect.
- C. Cooperate with other trades and contractors at job. Perform work in such manner and at such times as not to delay work of other trades. Complete all work as soon as the condition of the structure and installation of equipment will permit. Patch, in a satisfactory manner and by the proper craft, any work damaged by electrical work.
- D. All equipment (wiring devices, light fixtures, panelboards, disconnect switches, conductors, raceways, boxes, cabinets, circuit breakers, low voltage equipment, auxiliary systems, motors, machines, etc.) used for this project shall be tested by Underwriter's Laboratories, Inc and have "UL" nameplate.
- E. Coordinate placement of equipment above ceiling to facilitate proper clearance for serving of equipments.
- F. Take finish dimensions at the job site in preference to scale dimensions.
- G. Obtain from manufacturer's data on all equipment, the dimensions of which may affect electrical work. Use this data to coordinate proper service characteristics, entry locations, etc., and to ensure minimum clearances are maintained.
- H. The electrical contractor shall have had experience of at least the same size and scope as this project, on at least two other projects, within the last 5 years in order to be qualified to bid this project. This qualification shall also apply to his subcontractors.
- I. Workmen shall be experienced in their respective trade. Workmanship of installed work shall be first class and will be so judged by the Architect/Engineer. Substandard work shall be removed and replaced.
- J. The Bidders shall visit the site to thoroughly familiarize themselves with existing conditions prior to submitting their bid. No allowances will be made for lack of knowledge of existing conditions.
- K. Provide one Year warranty of conformance with drawings and specifications. In addition to the foregoing warranty, Contractor shall and does hereby warrant all materials and equipment furnished under this Division of the Specifications to be free from defects and to function or operate satisfactorily for one year after final acceptance of the work, and that any items not meeting this requirement will be made good by him without cost to owner, provided such defects or failures are not due to abuse, neglect, or lack of reasonable and ordinary maintenance.
- L. Unless otherwise specified, provide only new, standard first grade materials throughout, conforming to standards established by Underwriter's Laboratories, Inc., and so marked and labeled, together with manufacturer's brand or trademark. All equipment subject to approval of Architect/Engineer before installation. All like items shall be of one manufacturer.
- M. Any equipment or materials shown on the drawings to be removed and reinstalled shall be cleaned and, if necessary repaired to like new condition prior to reinstallation.
- N. Where shown on the drawings or specified herein, furnish and install electrical equipment, Furnish all materials, hardware, equipment, labor and services required for the installation of complete and properly working installations as shown on the drawings and described herein.
- O. All work shall be executed in a workmanlike manner and shall present a neat and mechanical appearance upon completion. Care shall be exercised that all items are plumb, straight, level.
- P. Equipment grounding conductors shall be bonded at each enclosure and pole base. All equipment grounding conductors shall be connected to a common bus, bonded to the equipment enclosure.
- Q. An equipment grounding jumper shall be installed from the receptacle ground terminal to the outlet box.

CONDUITS

- A. Conduit: Rigid and IMC shall be galvanized outside and inside by hot dipping. EMT shall be Electro_Galvanized. Conduit shall be as manufactured by Republic, Wheatland, Triangle, Pittsburgh Standard, Youngstown, or Allied.
- B. Sealtight flexible metal conduit shall consist of flexible galvanized steel tubing with a liquidtight jacket of PVC. All flexible conduit shall have a copper bonding conductor wound into conduit body.
- C. Couplings and connectors on rigid and IMC shall be standard threaded type, galvanized outside and inside by hot dipping. Clamp type and threadless are not acceptable. Couplings and connectors, for rigid and IMC shall be as manufactured by Racco or Appleton.
- D. EMT connectors shall be steel, set screw unless required by code to be compression type, equipped with insulating throats. Connectors couplings shall be O-Z/Gedney 7000ST or 7000RST series, T & B 5123 - 5623 series, Midwest Electric series 1650, or equal series of Racco. Cast metal couplings will not be approved for any location.
- E. EMT couplings shall be steel, set screw unless required by code to be compression type. Couplings shall be O-Z/Gedney 6000S or 6000RS series, T & B 5120 - 5620 series, Midwest Electric series 660, or equal series of Racco. Cast metal connectors will not be approved for any location.
- F. Connectors raintight: Meyers or approved equal.
- G. Bushings on rigid and IMC shall be threaded malleable iron with integral noncombustible insulator. Rigid and IMC bushings shall be O-Z/Gedney "IBC" series, T & B BIM series, Midwest Electric series 1031 - 1043 or equal by Penn Union. Grounding bushings shall be O-Z/Gedney "IBC-L" series, T & B 3870 - 3999 series, Midwest Electric GLL series or equal by Penn Union.
- H. Watertight Flex Connectors: O-Z/Gedney, Racco, or Midwest Electric with insulating throat.
- I. EMT conduit with set screw shall be used for all branch circuits, power feeders, auxiliary, signaling and controls circuits in none hazardous dry locations for 2" and smaller. EMT may be used exposed where not subject to physical damage. EMT with compression fitting may be used in damp locations up to the 2" limit. Otherwise use rigid or intermediate hot dipped galvanized inside and out steel, threaded for screwed fitting only conduits unless specified on the drawings otherwise.
- J. Conduits shall be sized in accordance with the latest National Electrical Code except that conduits containing more than two conductors shall be sized based on 35% fill and 3/4" conduit shall contain no wire larger than #10 and no more than 6#12 or #10 wires. Conduit shall be sized larger than required above when so shown on the drawings or when required by local Code. Minimum size conduit shall be 3/4".
- K. Where conduit enters boxes, they shall be secured in place with approved insulating fittings.
- L. The use of running threads is absolutely prohibited. All conduit shall be jointed with approved conduit couplings. All couplings on IMC and rigid conduit shall be threaded.
- M. All conduits shall be supported within 3 feet of each coupling, fitting, outlet box, junction box, cabinet or equipment enclosure Conduit supports shall be independent of ducts, plumbing piping, ceiling supports, etc. Conduits shall not be supported by junction boxes, pull boxes, fixtures, etc.
- N. All exposed conduit threads, metal supports, etc., exposed to the elements or exterior of building shall be painted with rust preventive paint.

CONDUCTORS

- A. Conductors for general use, sized #10 and smaller, shall be solid copper. Conductors #8 and larger, and any size to motors or vibrating equipment shall be stranded copper.
- B. All conductor insulation shall be 600 volt THHN/THWN.
- C. Wire connections, #10 and smaller connections shall be made with insulated wire connectors with steel spring connector threads. Wire connectors shall be "Twister" Wire-Nut series as manufactured by Ideal Industries, Inc. or approved equal.
- D. On wire larger than #10, shall be made with approved solderless connectors and covered with Scotch #33 electrical tape so that the insulation is equal to conductor insulation.
- E. Connection of stranded conductors, #8 and larger, to bus bars in switchboards, panelboards, equipment enclosures, junction boxes, etc. shall be made with individual lugs, size as required by conductor, bolted to bus bar with full size bolts and nuts with lock washers.
- F. Conductors and conduits shall be continuous between outlets.
- G. No conductor shall be pulled until conduit is cleaned of all foreign matter.
- H. Where installed in panelboards, cabinets, wireways, switches and equipment wire and cable shall be neatly formed and tied.
- I. Conductors sized #10 AWG and below shall have permanently colored insulation. Conductors sized #8 AWG and above shall be color coded by either permanently colored insulation or by means of colored tape applied to the conductor within 12" of each termination and in each enclosure, junction box, etc.

JUNCTION BOXES

- A. Shall be standard type, with knockouts, made of hot dipped galvanized steel, Steel City, Racco, Appleton, or Bowers.
- B. Ceiling outlet boxes shall be 4" octagon 1-1/2" deep or larger as required due to number of wires.
- C. Boxes shall be provided with approved 3/8" fixture studs when required to support stem mounted light fixtures.
- D. Except when located in exposed concrete block, switch and receptacle boxes shall be 4" square with trim ring for single gang installation. Appropriate gang boxes shall be used for mounting ganged switches.
- E. When installed in exposed concrete block, switch and receptacle boxes shall be square type designed for exposed block installation.
- F. Outlet boxes shall be securely fastened to structural members and shall not be supported by dry wall, gypsum board, plaster, etc. The device or plate installed in conjunction with the outlet box shall not be used for support. There shall be no more knockouts opened in any outlet box than are required. Boxes shall be sealed during construction.
- G. Under no circumstances shall through-the-wall boxes be used. Back to back boxes shall be staggered at least 3 inches, except in fire rated partitions, in which case, back to back boxes shall be staggered at least 24 inches.
- H. Outlet boxes two gangs and wider shall not be supported by attachment clips or any means which supports the boxes from less than two opposite sides of the box. Such outlet boxes in stud walls shall be supported securely by support members spanning between studs.
- I. Outlet boxes installed in fire rated partitions shall be boxed in with wall board or other suitable fire rated material as required to maintain or restore the fire rating of the assembly.

WIRING DEVICES

- A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
- Cooper Wiring Devices: a division of Cooper Industries, Inc. (Cooper).
 - Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
 - Leviton Mfg. Company Inc. (Leviton).
 - Pass & Seymour/Legrand; Wiring Devices & Accessories (Pass & Seymour).
- B. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.
- Products: Subject to compliance with requirements, provide one of the following:
 - Cooper; 5351 (single), 5352 (duplex).
 - Hubbell; HBL5351 (single), CR5352 (duplex).
 - Leviton; 5891 (single), 5352 (duplex).
 - Pass & Seymour; 5381 (single), 5352 (duplex).

C. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

- Products: Subject to compliance with requirements, provide one of the following:
 - Cooper; GF20.
 - Pass & Seymour; 2084.
- A. Switches, 120/277 V, 20 A:
- Products: Subject to compliance with requirements, provide one of the following:
 - Cooper; 2221 (single pole), 2222 (two pole), 2223 (three way), 2224 (four way).
 - Hubbell; CS1221 (single pole), CS1222 (two pole), CS1223 (three way), CS1224 (four way).
 - Leviton; 1221-2 (single pole), 1222-2 (two pole), 1223-2 (three way), 1224-2 (four way).
 - Pass & Seymour; 20AC1 (single pole), 20AC2 (two pole), 20AC3 (three way), 20AC4 (four way).

B. Single and combination plate types to match corresponding wiring devices.

- Plate-Securing Screws: Metal with head color to match plate finish.
- Material for Finished Spaces: stainless steel 302 **0.04-inch- (1-mm)** thick.
- Material for Unfinished Spaces: Galvanized steel.
- Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations."

F. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with type 3R weather-resistant, extra duty, die-cast aluminum with lockable in-use cover.

G. Color: Wiring device catalog numbers in Section Text do not designate device color.

- Wiring Devices Connected to Normal Power System: Gray unless otherwise indicated or required by NFPA 70 or device listing.
- Wiring Devices Connected to Emergency Power System: Red.

H. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.

I. Coordination with Other Trades:

- Take steps to insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
 - Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
 - Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
 - Install wiring devices after all wall preparation, including painting, is complete.
- J. Conductors:
- Do not strip insulation from conductors until just before they are spliced or terminated on devices.
 - Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
 - The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
 - Existing Conductors:
 - Cut back and pigtail, or replace all damaged conductors.
 - Straighten conductors that remain and remove corrosion and foreign matter.
 - Pigtailing existing conductors is permitted provided the outlet box is large enough.

K. Device Installation:

- Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
- Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
- Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
- Connect devices to branch circuits using pigtails that are not less than 6 inches (152 mm) in length.
- When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.
- Use a torque screwdriver when a torque is recommended or required by the manufacturer.
- When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
- Tighten unused terminal screws on the device.
- When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

L. Receptacle Orientation:

- Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.
- Install hospital-grade receptacles in patient-care areas with the ground pin or neutral blade at the top.

M. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

N. Dimmers:

- Install dimmers within terms of their listing.
- Verify that dimmers used for fan speed control are listed for that application.
- Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

O. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

P. Adjust locations of floor service outlets and service poles to suit arrangement of partitions and furnishings.

PANELBOARDS

A. Product Data: For each type of panelboard, switching and overcurrent protective device, transient voltage suppression device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

- Comply with NEMA PB 1 including handling requirements.

D. Comply with NFPA 70.

E. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

F. Enclosures: Flush-and surface-mounted cabinets as shown on drawings.

- Rated for environmental conditions at installed location.
 - Outdoor Locations: NEMA 250, Type 4X (stainless steel).
 - Indoor location NEMA 1 with hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
- Finishes:
 - Back Boxes: Stainless Steel.
- Directory Card: Inside panelboard door, mounted in transparent card holder.

G. Phase, Neutral, and Ground Buses:

- Material: Hard-drawn copper, 98 percent conductivity.
- Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.

H. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

I. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. See drawings for rating.

J. Manufacturers: Subject to compliance with requirements, provide products by either: Eaton, General Electric Company; Siemens, and Square D.

K. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal. Branch circuit breakers shall be HACR type. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

L. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.

M. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.

N. Proceed with installation only after unsatisfactory conditions have been corrected.

O. Install panelboards and accessories according to NEMA PB 1.1.

P. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

Q. Install filler plates in unused spaces.

R. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.

TEMPORARY POWER

A. The electrical contractor shall provide temporary electrical wiring for construction. The temporary service shall be single phase, three wire, 120/240 volts fused at main disconnect. All receptacles on this temporary service shall be protected by ground fault interruptible circuit breakers.



www.ahoarch.com



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

Specifications

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW
E500	
Scale	NO SCALE

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205.413.4112



Express Oil Change & Tire Engineers
Single Building / Right Hand Oil Change / Front Enter / Side Tire Storage
Sevierville, Tennessee

FINAL

No.	Description	Date

© 2024 Aho Architects, LLC.
All Rights Reserved.

COMcheck

Project number	24005
Date	5/15/2024
Drawn by	TH
Checked by	GW
E600	
Scale	NO SCALE

GIDEON WAMAE, P.E.

4120 OVERLOOK CIRCLE, TRUSSVILLE, AL 35173
GWAMAE@GW-ENG.COM | 205-413-4112

COMcheck Software Version 4.1.5.5
Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC

Project Title: Express Oil Change & Tire Engineers

Project Type: New Construction

Construction Site: Sevierville, TN

Owner/Agent: Express Oil Change & Tire Engineers
Hoover, AL

Designer/Contractor: Gideon Wamae
GW Engineering
4120 Overlook Circle
Trussville, AL 35173
205-413-4112
gwamae@gw-eng.com

Additional Efficiency Package(s)

Credits: 1.0 Required, 1.0 Proposed
Reduced Lighting Power: 1.0 credit

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft²)	C Allowed Watts / ft²	D Allowed Watts (B X C)
1-Automotive Facility	7229	0.64	4619
Total Allowed Watts =			4619

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Automotive Facility				
LED 4: Other:	1	28	100	2800
LED 1: Other:	1	20	60	1200
LED 8: Other:	1	17	35	595
Total Proposed Watts =			4395	

Interior Lighting PASSES: Design 5% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Taylor Higginbotham
Name - Title
Signature
Date: 05/13/2024

Project Title: Express Oil Change & Tire Engineers
Data filename: C:\Users\taylorhigginbotham\Documents\GW Engineering\2024 - AHO - EDC Spanish Fort, AL\Project Files\08 - Lighting Calculations & Cutsheets\Comcheck - EDC Spanish Fort, AL.cck
Report date: 05/13/24
Page: 1 of 7

COMcheck Software Version 4.1.5.5
Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC

Project Title: Express Oil Change & Tire Engineers

Project Type: New Construction

Exterior Lighting Zone: 2 (Residential mixed use area (LZZ))

Construction Site: Sevierville, TN

Owner/Agent: Express Oil Change & Tire Engineers
Hoover, AL

Designer/Contractor: Gideon Wamae
GW Engineering
4120 Overlook Circle
Trussville, AL 35173
205-413-4112
gwamae@gw-eng.com

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Entry canopy	9 ft²	0.25	Yes	2
Illuminated area of facade wall or surface	1700 ft²	0.07	No	128
Total Tradable Watts (a) =			2	
Total Allowed Watts =			130	
Total Allowed Supplemental Watts (b) =			400	

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Entry canopy (9 ft²): Tradable Wattage				
LED 1: L&L&E: Other	1	5	28	140
Illuminated area of facade wall or surface (1700 ft²): Non-tradable Wattage				
LED 2: L&L: Other	1	6	28	168
Total Tradable Proposed Watts =			140	

Exterior Lighting PASSES: Design 61% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Taylor Higginbotham
Name - Title
Signature
Date: 05/13/2024

Project Title: Express Oil Change & Tire Engineers
Data filename: C:\Users\taylorhigginbotham\Documents\GW Engineering\2024 - AHO - EDC Spanish Fort, AL\Project Files\08 - Lighting Calculations & Cutsheets\Comcheck - EDC Spanish Fort, AL.cck
Report date: 05/13/24
Page: 2 of 7