Location:
451 NW Murray Rd
Lees Summit, MO 64081

Authority Having Jurisdiction:
City of Lee's Summit, MO

Description of Work:
Tenant white box renovation of existing building.
Separate utilities for possible future multi-tenant division
Tenant Plans to be submitted under separate permit(s),

Applicable Building Codes (with amendments):

2018 International Building Code	2018 International Plumbing Code
2018 International Mechanical Code	2018 National Electric Code
2018 International Fire Code	2018 International Energy Conservation Code
2018 International Fuel Gas Code	

Building Data:

Occupancy Type:	B, Business	
Construction Type:	Type V-B	
Allowable Area:	B: (S1) = 36,000 sf	(per story, table 506.2)
Building Height:	B: 3 Stories	(table 504.4)
	B: 60 feet	(table 504.3)
	As constructed: 1 story / 19'-4" highest element	
Occupancy Separation:	B to B: No Separation required (table 508.4)	
Automatic Sprinkler System:	Yes	
Project Area:		9,996 gsf
Building Area (gross square feet):	Office Space :	9,996 gsf
	Total:	9,996 gsf

Fire Protection and Separation Requirements - Existing (Table 601)

Structural Frame	0 hour	Bearing Walls	0 hour
Interior Non-load bearing walls	0 hour	Floor Construction	0 hour
Roof Construction	0 hour	Exit Stair Enclosures	1 hour

(no existing structural elements are rated)

Occupant Load (Per Table 1004.5):
Business (150 gross):

Office Space	9,996gsf / 150 =	67 occupants
Total:		67 occupants

Exit Access
1005.3.2 Egress Width
Multiply 0.2" per occupant required; 32" min. required
clear width at swinging doors
1006.2.1 Common Path of Egress Travel

Exit Access
1005.3.2 Egress Width
Multiply 0.2" per occupant required; 32" min. required clear width at swinging doors
1006.2.1 Common Path of Egress Travel
The length of a common path of egress travel in Group B Occupancies shall not be more than 100 feet
1017.2 Travel Distance
B Occupancy, Sprinklered 300' max
1006.3.2 Exits required
1-500 Occupants: 2 exits required per story

Accessibility
All new construction has been designed to meet the minimum requirements of the 2010 ADA Standards for Accessible Design and ANSI 117.1 - 2009.

Fire Extinguishers
Portable Fire Extinguishers are required in all B occupancies and be located such that the travel distance to reach an extinguisher does not exceed 75'-0"

M1 Code Summary
12" = 1'-0"

Demolition Legend:
No Demolition
Selective Demolition
Demolished
Demolished

Drawing List:

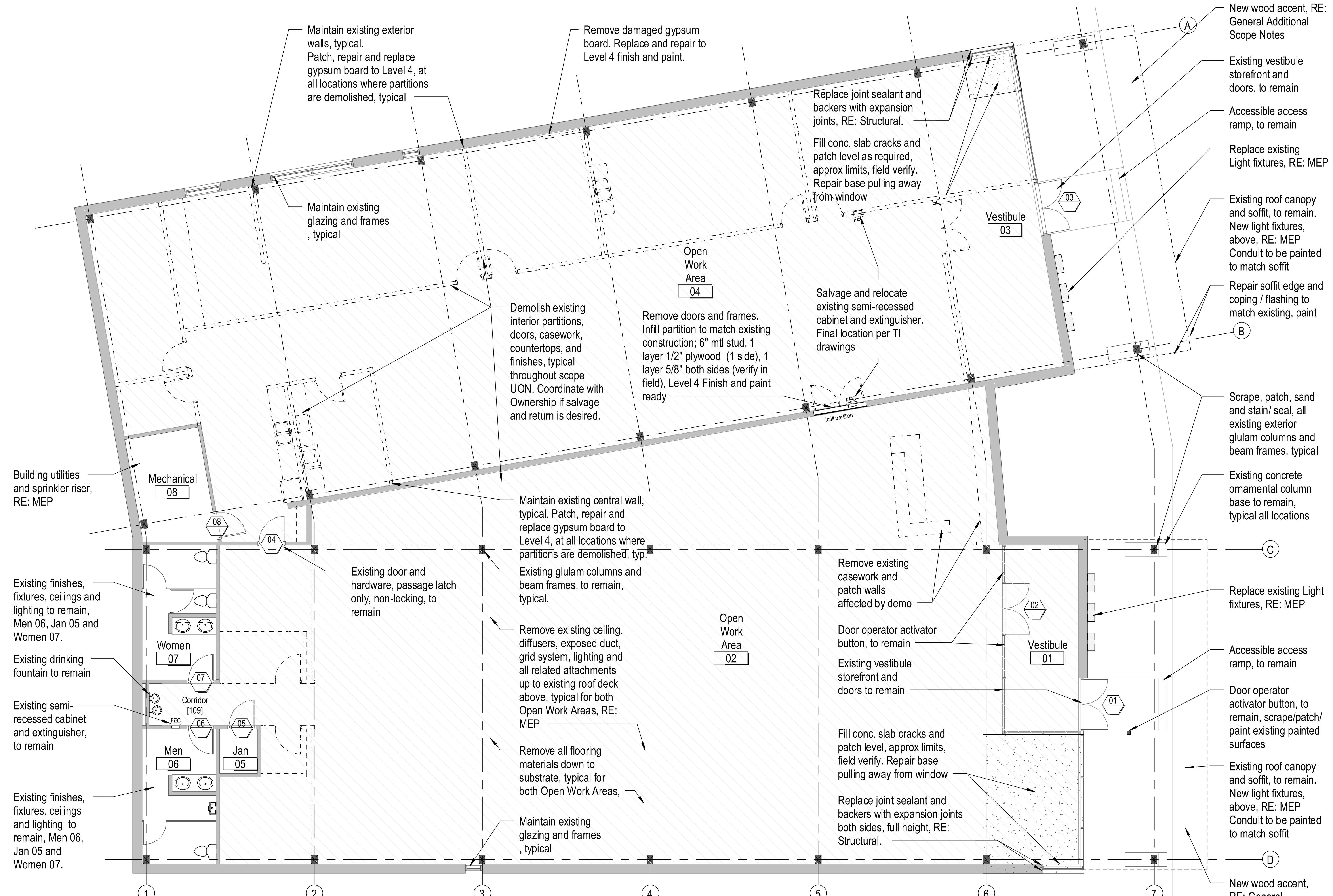
A0	Cover, Code Summary, Notes
A1	Elevations
A2	Elevation Renderings
S1	Foundation Plan
S2	Roof Framing Plan
MEP1	Specifications
MEP2	Specifications
M1	First Floor Plan - Mechanical Demolition
M2	First Floor Plan - Mechanical
M3	Mechanical Details
P1	First Floor Plan - Plumbing Demolition
P2	First Floor Plan - Plumbing
P3	Plumbing Details
FP1	First Floor Plan - Fire Protection
E1	First Floor Plan - Electrical Demolition
E2	First Floor Plan - Power Plan
E3	Electrical Details

Project Site
(existing building)

M14 Site Ariel
12" = 1'-0"

General Demolition Notes:

1. Demolish and remove all elements shown as dashed. Patch, sand, repair and paint; walls, ceilings and floors to remain as affected by demolition and prepare for new finishes. Patch and repair substrates to match existing as required. Coordinate the removal of associated Mechanical, Electrical and Plumbing fixtures and elements.
2. Remove existing flooring and wall finish throughout scope of work, unless noted otherwise, and prepare for new finishes. Patch and repair substrates to match existing as required.
3. Patch and repair all surfaces affected by demolition as required and recommended by manufacturer of new finishes. All floors affected by demolition to be flashed patched level.
4. Remove existing ceiling grid and tiles, light fixtures and associated elements through out the unless noted otherwise.
5. Contractor shall remove, haul off site and dispose of all existing construction not to be salvaged.
6. If materials suspected of containing hazardous materials are encountered during construction, do not disturb; immediately notify Owner and Architect.
7. All conditions noted are from visual observation only and must be field verified by the Contractor. Any discrepancies which will prevent the accomplishment of the intent shown on the drawings shall be brought to the immediate attention of the Architect. It is expressly understood that the Owner will not be responsible for interpretations and conclusions made by the Contractor. No alleged oral admission, condonation, or inadvertent neglect on the part of the Architect and/or Owner shall be accepted as an excuse for failure to comply with the Contract Documents.
8. Unless noted otherwise, partitions indicated for removal shall be removed entirely to the from floor structure to structure above. Patch and repair remaining elements as affected by demo to match adjacent.
9. Hazardous conditions, such as floor openings exposed by removal or cutting of walls or wall openings to shafts, shall be provided with temporary protectives. Contractor is responsible for all site safety.
10. During the demolition process, the project site shall be cleaned on a daily basis.
11. Contractor shall field survey the site of proposed work and determine the nature and extent of demolition prior to the onset of demolition.
12. Protection shall be provided for base building and all existing construction to remain including but not limited to flooring, partitions, window treatments, baseboard, convectors, doors, frames, soffits and finishes.
13. Contractor shall prepare an inventory of existing items to be removed and relocated. The Contractor shall coordinate with the Owner to determine items to be inventoried and format requirements of 'on site' storage areas, and sequence of demolition prior to the commencement of work. The Contractor is to carefully remove and neatly store on site and protect from damage any item in the Contract Documents to be removed and relocated.
14. Contractor shall review all existing conduit, wiring, electrical and life safety devices with the Owner prior to the commencement of any demolition work for this project. All existing items to remain shall be properly marked at the project site in accordance with Owner requirements.
15. Contractor shall be responsible for all sorting, hauling and disposal of debris in accordance with State and Local ordinances.
16. Contractor shall remove all construction shown on drawings to be removed, including but not limited to, floor and ceiling fasteners and runners, partition elements occurring above the finished ceiling, hangars, straps and miscellaneous appurtenances connected to items to be removed. Coordinate the removal of associated MEP elements.
17. Where partitions are being removed, all electrical devices shall be disconnected at their supply unless otherwise noted. Thermostats shall be removed, stored and relocated as indicated on the Contract documents.
18. Where carpet, ceramic or stone tile, resilient floor or other flooring is removed, the Contractor shall remove all adhesives/setting beds to leave the floor slab with a smooth level finish as required to accept new floor finishes.
19. Contractor shall provide all demolition as may be required for electrical and mechanical access for the removal of ductwork or conduit as required and the installation of new materials as indicated in the Contract Documents.
20. All sinks, dishwashers and plumbing devices that are to be removed shall have all associated plumbing removed back to the source as required by Code unless otherwise noted.
21. Refer to the MEP Engineering documents for MEP demolition scope of work and salvage of light fixtures, plumbing fixtures, life safety devices and HVAC elements.
22. All utilities including electrical, plumbing and mechanical items that are shown to be removed or within walls, above ceiling or contained in building elements that are to be removed, shall be removed back to their source and capped or prepared for reuse as noted.
23. Refer to Structural Engineering documents for Structural scope of work.

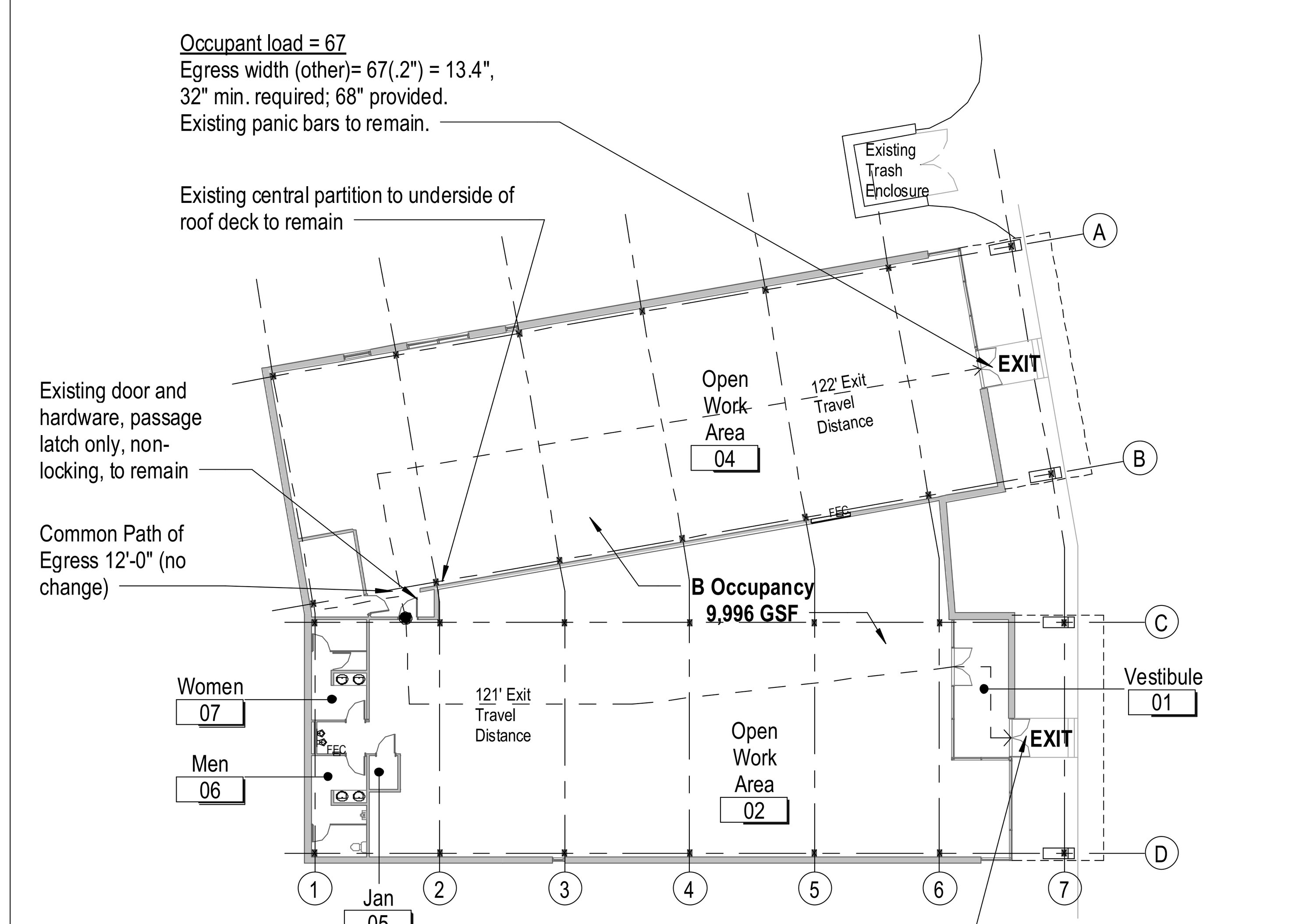


General Additional Scope Notes:
1. Contractor to protect all existing glazing system to remain for the duration of construction.
2. All gypsum board partitions to be finished to Level 4.
3. Remove and replace existing roof membrane with mechanically fastened 45 mill, white, TPO membrane with 15 year min. warranty. Installation shall be per manuf. recommendations and requirements. Final color selection per Ownership.
4. Floor substrate to be clean, adhesive/ mastic free and ready for TI finishes.
5. Exterior elevations:
   A. - Paint all masonry white. (Nebulous White SW 7063)(PT-1)
   B. - Replace as needed and paint all metal coping/ flashing black (Urbane Bronze SW 7048)(PT-3),
   C. - Paint EIFS/ stucco on top half of north side gray. (Mist SW 6232)(PT-2)
   D. - Storefront to be painted to match existing color.
6. Remove and replace all exterior joint sealants (including masonry) and storefront sealants in kind.
7. Refinish all exterior entrance glulam columns and beams, match existing finish.
8. Replace exterior wall accent lighting on south of building. RE: MEP
9. Install new surface mounted soffit lights under entry overhangs. RE: MEP
10. Install new wood accent planks under soffits at front entries. Coordinate selection and finish with owner.
11. Trash enclosure: paint all masonry white and doors/ hardware black. Final color selection to be coordinated with Ownership.
12. Site light poles: scrape / patch / paint to match existing color. Pole, light housing and base plates, typical. Repair/Replace base plates as needed for like-new condition.
13. Floor outlet plates to be removed and cover plates installed. Make-safe. Raceways to be abandoned in place.

Note: *All Final color selections to be coordinated with Ownership.

A1 Demo/Construction Plan
1/8" = 1'-0" 0 2' 4' 8'
NORTH

Annotations and Symbols
Detail Number, Sheet Number (A1/30.01)
Detail Number, Sheet Number (A1, 30.01)
Detail Number, Sheet Number (A1, 30.01) Section Reference
Interior Elevation
Detail Reference
Graphic Scale 0 2' 4' 8'
Name Elevation — Elevation Mark
101 — Door Number
ROOM NAME 101 — Room Name, Room Number
Revision Reference
View Title: Detail Number A1, View Name, 1/8" = 1'-0", Scale; Origin Sheet Number 30.01
9' - 0" Ceiling Height
A Wall Tag
North Arrow NORTH



A17 Code Study
Not to Scale
NORTH

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451 NW Murray Rd
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Drawn By MS
Checked By KR

Cover, Code Summary, Notes

A0

Project Number: 2021.375

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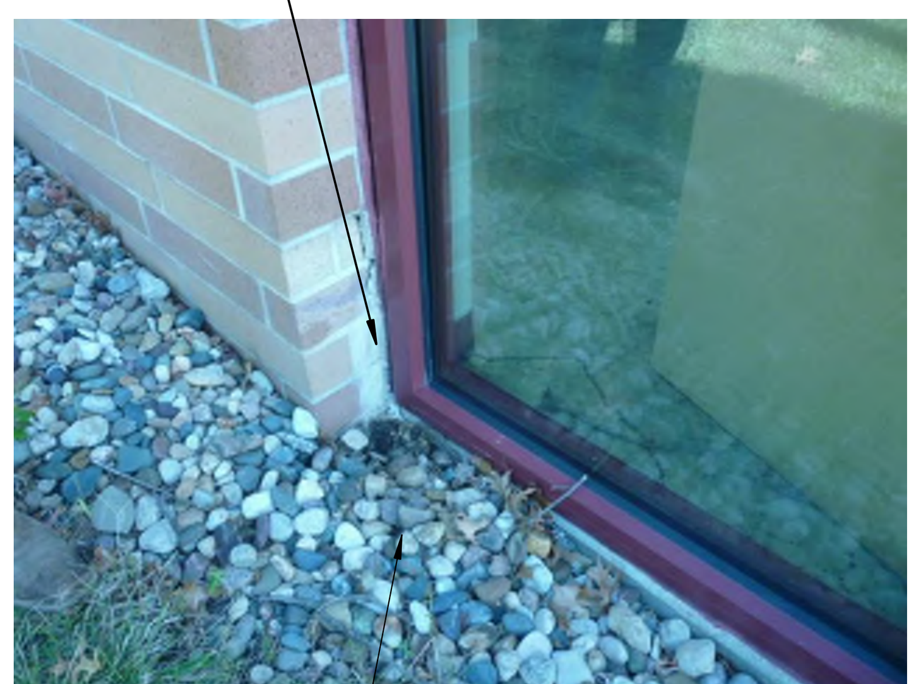
Remove existing sealant and backer rods. (Both sides)
Install full height of the brick an expansion joint per manuf. instructions. (Both sides)
Remove interior gypsum board as required, reinstall to level 4 and paint.
Expansion joint system EMSEAL, Colorseal-on-a-real or approved equal.
Patch and seal exterior materials to provide weather proof barrier.
Color match existing materials. RE: Structural



Provide positive drainage away from the building

Epoxy inject cracks and
Float patch concrete to level , RE: Structural
Make ready to receive TI finishes.

Remove existing sealant and backer rods. (Both sides)
Install full height of the brick an expansion joint per manuf. instructions. (Both sides)
Remove interior gypsum board as required, reinstall to level 4 and paint.
Expansion joint system EMSEAL, Colorseal-on-a-real or approved equal.
Patch and seal exterior materials to provide weather proof barrier.
Color match existing materials.
RE: Structural

Southwest and Southeast storefront-to-brick existing conditions.
Photos used as representation to provide intended scope of work

A1 Exspansion Joint
12" = 1'-0"

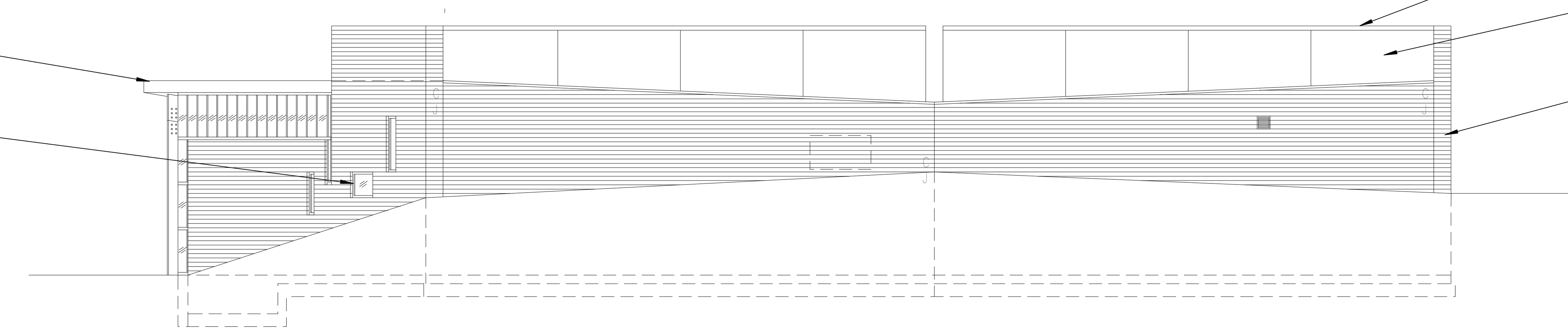
Replace as needed and paint all metal coping/ flashing black (Urbane Bronze SW 7048)(PT-3), typical

Storefront to be painted to match existing color, typical (PT-4)

Replace as needed and paint all metal coping/ flashing black (Urbane Bronze SW 7048) (PT-3), typical

Paint EIFS/ stucco on top half of north side gray. (Mist SW 6232)(PT-2)

Paint all masonry white. (Nebulous White SW 7063)(PT-1)



North Elevation

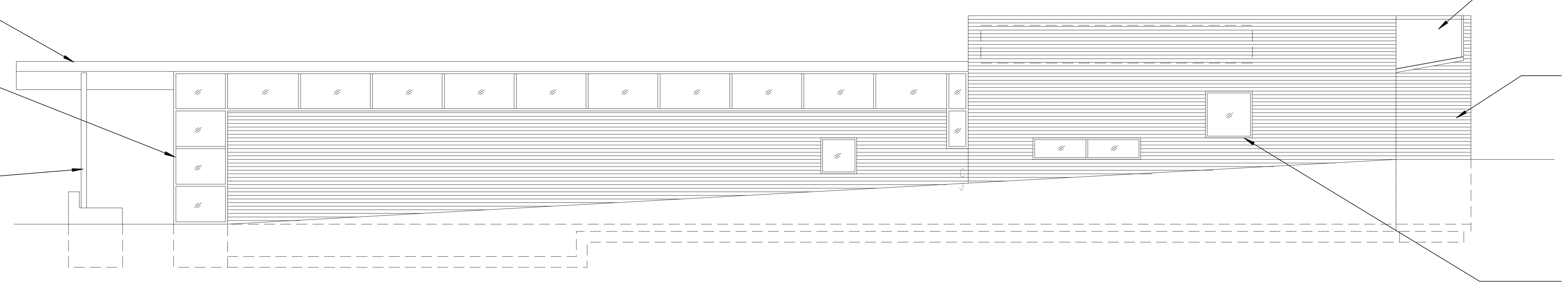
Replace as needed and paint all metal coping/ flashing black (Urbane Bronze SW 7048)(PT-3), typical

Storefront to be painted to match existing color, typical (PT-4)

Scrape, patch, sand and stain/ seal, all existing exterior glulam columns and beam frames, typical

Paint EIFS/ stucco on top half of north side gray. (Mist SW 6232)(PT-2)

Paint all masonry white. (Nebulous White SW 7063)(PT-1)



Remove and replace all exterior joint sealants (including masonry) and storefront sealants in kind.

East Elevation

Replace as needed and paint all metal coping/ flashing black (Urbane Bronze SW 7048) (PT-3), typical

Paint EIFS/ stucco on top half of north side gray. (Mist SW 6232) (PT-2)

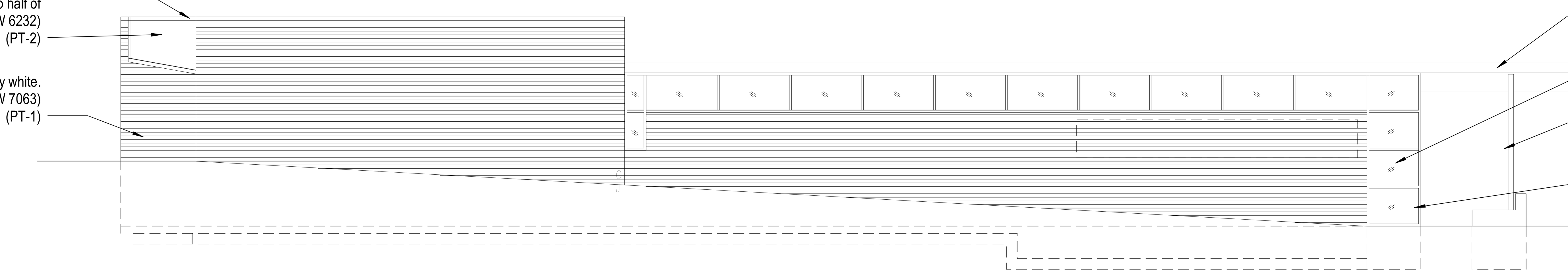
Paint all masonry white. (Nebulous White SW 7063) (PT-1)

Replace as needed and paint all metal coping/ flashing black (Urbane Bronze SW 7048) (PT-3), typical

Storefront to be painted to match existing color, typical (PT-4)

Scrape, patch, sand and stain/ seal, all existing exterior glulam columns and beam frames, typical

Remove and replace all exterior joint sealants (including masonry) and storefront sealants in kind.



West Elevation

Paint EIFS/ stucco on top half of north side gray. (Mist SW 6232)(PT-2)

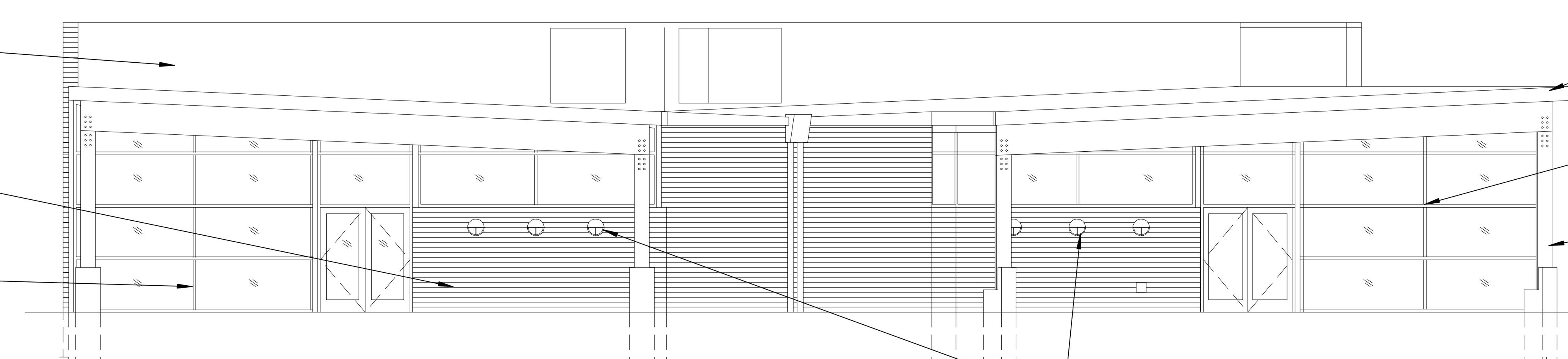
Paint all masonry white. (Nebulous White SW 7063) (PT-1)

Remove and replace all exterior joint sealants (including masonry) and storefront sealants in kind.

Replace as needed and paint all metal coping/ flashing black (Urbane Bronze SW 7048) (PT-3), typical

Storefront to be painted to match existing color, typical (PT-4)

Scrape, patch, sand and stain/ seal, all existing exterior glulam columns and beam frames, typical



Replace existing Light fixtures, RE: MEP

South Elevation

A6 Elevations
1/8" = 1'-0"

Note:
Refer to all notes on AO

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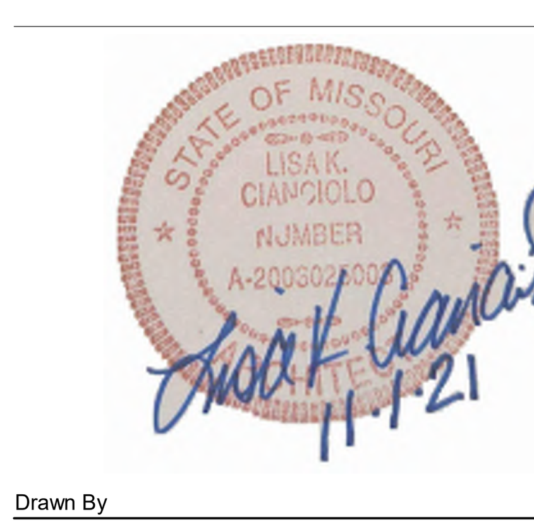

Drawn By MS
Checked By KR

Elevations

A1

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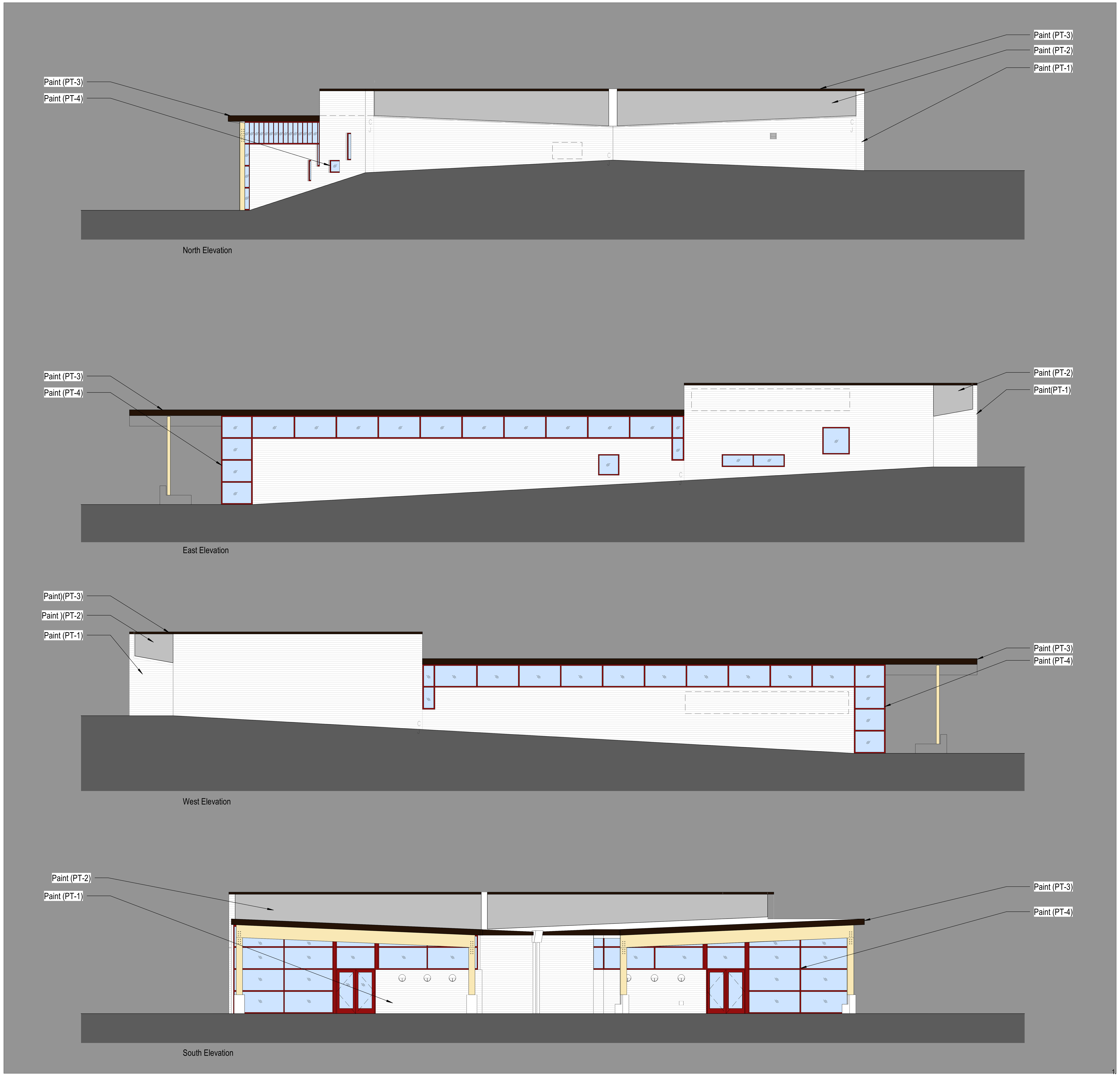

1. Exterior elevations:
   A. Nebulous White SW 7063 (PT-1)
   B. Urbane Bronze SW 7048(PT-3)
   C. Mist SW 6232 (PT-2)
   D. Storefront to be painted to match existing color (PT-4)

A1 Elevation Renderings
1/8" = 1'-0"

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Elevation Renderings

A2

Project Number: 2021.375

GENERAL NOTES - STRUCTURAL

1. The contractor shall verify dimensions and conditions before construction and notify the engineer of any discrepancies, inconsistencies, or difficulties affecting the work before proceeding.

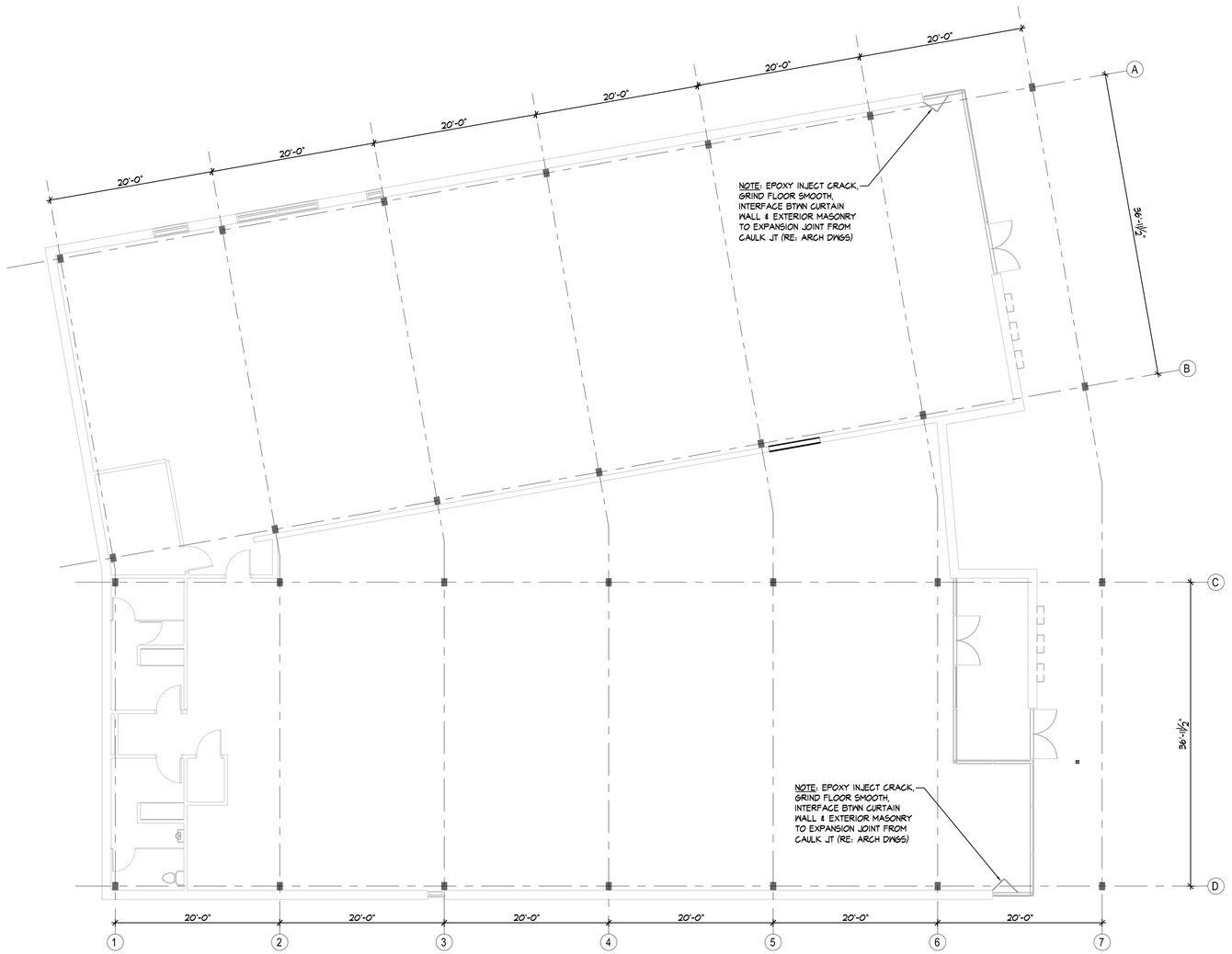
2. All design and construction work for this project shall conform to the requirements of the 2018 International Building Code, as amended by the City of Lee's Summit, Missouri.

3. These drawings are for this specific project and no other use is authorized.

4. Copyright and Disclaimer:

   A. All drawings in the structural set (S-series drawings) are the copyrighted work of Bob D. Campbell and company, Inc. These drawings may not be photographed, traced, or copies in any manner without the written permission of Bob D. Campbell and Company, Inc. Exception: Original drawings may be printed for distribution to the owner, architect, and general contractor for coordination, bidding, and construction. Subcontractors may not reproduce these drawings for any purpose or in any manner.

   B. I, Michael J. Falbe, P.E., registered engineer and a representative of Bob D. Campbell and Company, Inc., do hereby accept professional responsibility as required by the professional registration laws of this state for the structural design drawings consisting of S-series drawings. I hereby disclaim responsibility for all other drawings in the construction document package, they being the responsibility of other design professionals whose seals and signed statements may appear elsewhere in the construction document package.



NORTH

FOUNDATION PLAN

1/8" = 1'-0"

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451 NW Murray Rd Renovation

451 NW Murray Rd
Lees Summit, MO 64081

ISSUED FOR:

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STATE OF MISSOURI
MICHAEL JOHN FALBE
NUMBER E-24014
REGISTERED PROFESSIONAL ENGINEER
10-28-21

Drawn By	JMF
Checked By	MJF

Foundation Plan

S1

Project Number: 2021.375

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Structural Engineers Since 1957
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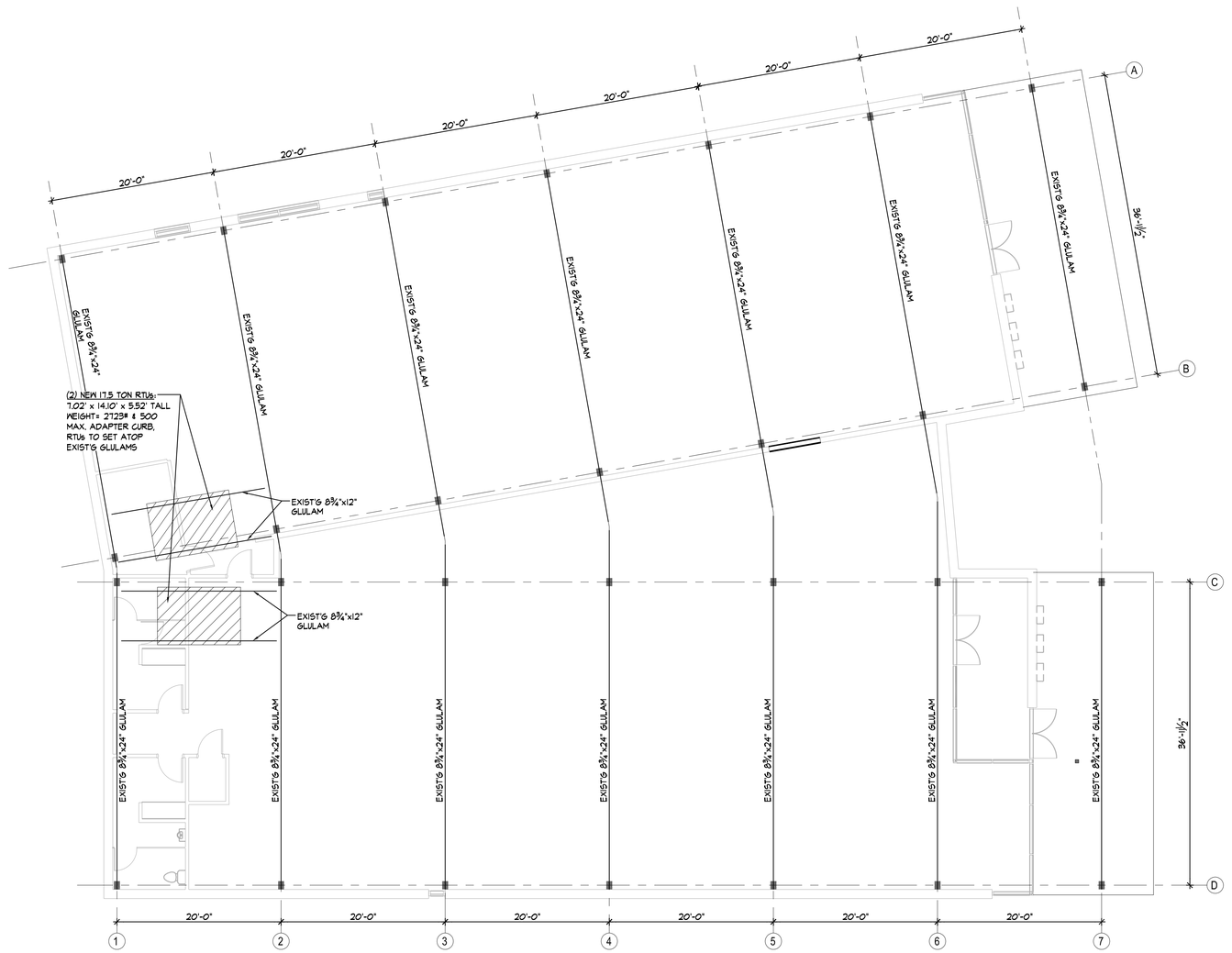

ROOF FRAMING PLAN

NORTH

⅛" = 1'-0"

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STATE OF MISSOURI
MICHAEL JOHN FALBE
NUMBER E-24014
REGISTERED PROFESSIONAL ENGINEER
10-28-21

Drawn By	JMF
Checked By	MJF

Roof Framing Plan

S2

Project Number: 2021.375

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DIVISION 21, 22, 23 AND 26

GENERAL PROVISIONS

1.0 DESCRIPTION:

A. Divisions 21, 22, 23 and 26 shall be governed by all applicable provisions of the Contract Document.

B. The Contractor shall furnish, install and connect all materials, equipment, apparatuses, and incidentals required for a complete and working installation. For all systems shown and required, the Contractor shall supply all necessary labor, equipment, tools, insurance, and tax services, and shall assume full responsibility for all obligations associated with completion of work as provided by the Contract Documents.

2.0 STANDARDS, REGULATIONS AND CODES:

A. Work shall comply with the edition of the applicable standards, regulations and codes currently in force of all Federal, State and local authorities having jurisdiction. Where quantities, sizes, or other requirements indicated on the drawings or herein specified are in excess of the standard or code requirements, the specifications and/or drawings shall govern. In the absence of other applicable local codes, acceptable to the Architect/Engineer, the International Set of Codes and Uniform Plumbing and the National Electrical Code shall apply to this work.

B. The Contractor shall comply with rules and regulations of public utilities and municipal departments affected by connections of services. The Contractor shall pay all fees associated there with.

C. The Contractor shall be licensed to perform associated work in the municipality in which the project is located.

D. All products and types of construction shall meet or exceed the latest edition of applicable standards of manufacturer, testing, performance and installation.

E. Where indicated or required, comply with all provisions of the ADA and/or the ABA Accessibility Guidelines.

F. Where indicated or required, comply with all applicable provisions of energy and ventilation codes in force at the local jurisdiction.

3.0 GRAPHIC REPRESENTATION AND JOB CONDITIONS:

A. The Contract Documents shall serve as working drawings for the general layout of the various items of equipment; are diagrammatic unless specifically dimensioned, and do not necessarily indicate every required item. The contractor shall include all necessary components and accessories as required for a complete working system whether so specifically indicated or not.

B. Architectural and Structural drawings take precedence over all other drawings in the representation of the general construction work; any conflicts shall be resolved prior to commencing work. Failure to do so shall not be considered a basis for the granting of additional compensation.

C. Arrange work in a neat, well organized manner. Coordinate work with other trades involved, prior to commencing work. Sub-contractors shall work together to resolve any conflicts of space or routing.

4.0 GUARANTEES/WARRANTY:

A. The Contractor shall guarantee/warranty all work performed, including labor, materials and equipment furnished under this contract, against defects in materials and workmanship for a minimum period of one year from the date of the Owner's Representative Final Acceptance of the work. Provide extended warranties as noted in each section or specified for specific products.

5.0 WORKMANSHIP:

A. All work performed under this Contract shall provide a neat and "workmanlike" appearance when completed, to the satisfaction of the Owner's Representative. The complete installation shall function as designed and intended with respect to efficiency, capacity, and noise level, etc.

6.0 LOCAL CONDITIONS:

A. The Contractor shall carefully examine and become thoroughly familiar with local conditions, existing installations and all other conditions which may affect associated work. The Contractor shall locate all existing utilities and protect them during the execution of the work.

B. The Contractor shall carefully examine all contract documents including project drawings and specifications to become familiar with the type of construction, materials, and equipment to be used for all work and how it will affect the installation of this contract.

C. By the act of submitting a bid, the Contractor will be deemed to have made such examination, to have accepted such conditions, to have made allowance therefore, and included all costs in his proposal. Failure to determine existing conditions will not be considered a basis for the granting of additional compensation.

7.0 OPERATION DURING CONSTRUCTION:

A. The Contractor is responsible for the installation and operation, service and maintenance of all new equipment during construction and prior to acceptance by the Owner of the completed project. Warranty periods shall not commence until final acceptance by the Owner or Owner Representative.

B. The Contractor shall provide, at his own expense, all temporary utilities required to provide for and protect the work and as necessary to maintain an adequate work force unless use of existing facilities is specifically permitted.

C. The General Contractor shall arrange for and provide, at his own expense, temporary heating and cooling as necessary for prosecution of the work. Permanent air handing, heating and cooling equipment shall not be used for temporary heating and cooling unless pre-approved by the owner or his representative.

8.0 SAFETY REGULATIONS:

A. All work shall be performed in compliance with all applicable governing safety regulations, including OSHA regulations. Provide safety lights, guards and signs required.

9.0 HOUSEKEEPING:

A. The Contractor shall be responsible for keeping stocks of material and equipment stored on the premises in a neat and orderly manner.

B. The Contactor shall clean and maintain their specific portions of the work on a daily basis or as specified in the General Conditions.

C. The Contractor shall remove from the premises all waste material present as a result of his work.

10.0 CONNECTION AND ALTERATION TO EXISTING SYSTEMS:

A. Connection to the existing building systems must be accomplished under this contract. System "downtime" due to connection shall be kept to an absolute minimum. The Owner's Representative shall judge if at what time, and for what length of time a shut-down can be tolerated.

B. Provide all temporary piping and wiring systems required during construction in order to keep all existing systems functioning.

C. Demolition, cutting and patching to restore surfaces to original condition as necessitated for access to work performed by the Contractor or his subcontractors shall be the responsibility of the Contractor.

11.0 SUBSTITUTIONS:

A. Materials, products and equipment described in the Bidding Documents established a standard of quality to be met by any proposed substitution.

B. Contractor's bids shall be based on the material identified or specified in the contract documents. Any proposals for substitution shall be made in writing to the Architect/Engineer with all supporting documentation, allowing adequate time for appropriate action. The products of other manufacturers may be accepted, if in the opinion of the Architect/Engineer, the substitute material is of quality as good or better than the material specified, and will serve with equal efficiency and dependability the purpose for which the items specified were intended. The burden of proof of equality is entirely upon the proposer.

C. Refer to Division 1 requirements for additional substitution procedures.

D. Wherever substitutions alter the design or space requirements, the Contractor shall be responsible for confirming all substituted equipment and materials fit within the allocated space while maintaining code required access and clearance. He shall include all associated cost items of the revised design and of construction work required by his or other trades affected by the proposed substitution.

12.0 SHOP DRAWINGS AND PRODUCT DATA:

A. The checking of shop drawings is a gratuitous assistance and in no way relieves the Contractor of responsibility for deviations from the Contract Documents. The Contractor shall submit project shop drawings electronically in PDF format, unless indicated otherwise.

B. Shop drawings and catalog data on all major items of equipment and apparatus, and such other illustrative materials as may be considered necessary by the Owner's Representative shall be submitted by the Contractor in adequate time to prevent delay and changes during construction.

C. Refer to Architectural Documents for additional shop drawing submission procedures.

13.0 PROJECT CLOSEOUT DOCUMENTATION

A. Operating and Maintenance Brochure:

1. On completion of the project, the Contractor shall provide project manuals electronically (PDF format unless otherwise instructed) containing complete product information for all installed or provided equipment and components including cut sheets, parts lists, wiring and installation diagrams, operating, service and lubrication instructions. Provide manufacturer guarantee and warranty certificates.

B. Record Drawings:

1. On completion of the project, the Contractor shall provide record drawings with all field changes clearly and neatly noted. The original routing and layout shall be clearly marked out. References to other documents, drawings, addenda, RFI's or otherwise for additional information shall not be accepted.

2. The Contractor shall submit record drawings electronically in PDF format (unless otherwise instructed).

3. Refer to Architectural Documents for additional record drawing submission procedures.

14.0 FOUNDATIONS AND SUPPORTS:

A. All hangers, brackets, clamps, etc., shall be of standard weight steel. Perforated strap hangers shall not be used in any work. When two (2) or more pipes or conduits are run parallel, or where ducts interfere with the proper location of hangers, they may be supported on trapeze hangers. Other hangers shall be hinged ring malleable iron, by Grinnell or Fee and Mason or approved equal with rods and hanger adjusters for adequate size to carry the loads imposed. All piping, ductwork and conduit systems shall each be independently supported from other systems and from equipment so that no weight is born by equipment.

B. The Contractor shall take all precautions against excessive noise or vibration by isolating the various items of equipment from the building structure. Provide flexible connectors where indicated and at all rotating equipment and for equipment mounted on vibration isolators.

15.0 CUTTING AND PATCHING:

A. All necessary cutting, drilling and patching shall be provided by this Contractor. Structural members shall not be disturbed without prior approval of the Structural Engineer and/or the Owner's Representative. All areas and surfaces disturbed by work performed under this Contract shall be neatly repaired and refinished to the condition of adjoining surfaces in a manner suitable to the Owner's Representative.

16.0 SLEEVES AND ESCUTCHEONS:

A. Penetrations thru walls and floors shall be as detailed.

B. Where not otherwise shown, penetrations shall conform to the following:

1. Where pipes or conduits pass through interior partitions, galvanized steel pipe sleeves or galvanized steel sheet sleeves shall be used.

2. Where pipes or conduits pass thru concrete floors and walls, walls below grade or exterior walls and slabs on grade, cast iron or steel pipe sleeves shall be used.

C. Sleeves through interior non-rated walls, including walls indicated as sound partitions, shall be packed with fiberglass or mineral wool and caulked.

D. Sleeves below grade, in exterior walls or thru slabs on grade shall have lead and oakum or mechanical link seals, Thunder line or acceptable equivalent.

E. Penetrations of fire rated construction shall be made with a UL listed fire penetration assembly suitable for the rating at each location. Where required, sleeves through fire rated structure shall be fire barrier caulked with putty strip or sheet by 3M, Hilti or acceptable equal.

F. Provide steel (dry locations) or brass (damp locations) escutcheons to completely cover pipe penetration holes in floors, walls, or ceilings. Provide pipe escutcheons with nickel or chrome finish for occupied areas, prime paint finish for unoccupied areas, brass for exterior.

17.0 MOTORS, CONTROLS AND FIRE ALARM INTERFACE:

A. All motors furnished under this specification shall be recognized manufacturer and of adequate capacity for the loads involved. All motors shall conform to the standards of manufacturer and performance of the National Electrical Manufacturers Association as shown in their latest publications.

B. Disconnects and motor starters for equipment shall be by the Electrical Contractor unless furnished integral with the equipment or as otherwise indicated. Installation shall be by the Electrical Contractor except for devices factory installed and shipped with equipment. Provide manual or magnetic starters with necessary auxiliary contacts to accomplish the specified or required sequence of operation.

C. All temperature controls unless noted otherwise shall be the responsibility of the Mechanical Contractor.

D. If no sequence of operation is included, submit a proposed sequence to the Engineer for approval.

E. All fire alarm devices including duct smoke detector and shut down/interlock wiring shall be the responsibility of the Electrical or Fire Alarm Contractor otherwise noted.

END OF SECTION

230 100

HEATING, VENTILATION AND AIR CONDITIONING

1.0 SCOPE:

A. The work included under this contract consists of providing all labor, materials, tools, transportation, services, etc., necessary to complete the installation of the heating, ventilating, and air conditioning systems and other items herein listed and as described in these specifications, as illustrated in the accompanying drawings or as directed by the Architect/Engineer.

2.0 SHEET METAL:

A. Ductwork shall be new prime grade galvanized steel sheets constructed per ASHRAE and SMACNA Standards. Duct system(s) installation shall be in accordance with SMACNA Duct Construction Standards Manual and industry standards. Provide round or rectangular duct as indicated.

1. Provide Duct System(s), including all necessary components such as dampers, turning vanes, offsets and takeoffs, etc. required by the project (whether shown or not), which shall be fabricated and installed for maximum efficiency and to minimize pressure drops and objectionable sound and to provide for complete system balancing.

2. All duct sizes shown are free area size and do not include liner.

B. Fabricate for the pressure and SMACNA seal class required by the application.

Leakage class minimum requirements are:

1. Up thru 2" WG pressure - rectangular - Class 24, round - Class 12.

Seal class minimum requirements are:

1. Up thru 2" WG pressure - class A for all duct joints.

C. Duct Sealants

1. Duct sealant shall have 25/50 flame and smoke rating with a static pressure class of 10" WG, mold and mildew resistant. Sealant shall be installed per manufacturer instructions.

2. Sealant for concealed ductwork shall be an externally applied solvent or water based joint and seam sealant with or without tape.

3. Ductwork exposed to view shall be sealed with clear silicone or have gasketed joints. Exposed rectangular flanged duct joints shall have gasketed joints. Exposed round ducts shall have joints with EPDM gaskets in groove, O-ring seals or flanged with neoprene gaskets. Where sealant beads are used, they shall be minimized or concealed, smooth and uniform with any excess sealant trimmed flush with duct and removed.

4. Spiral lock seams and gasketed duct joints are exempted from other sealant requirements.

3.0 HEATING AND AIR CONDITIONING UNITS:

A. Air conditioning units shall be as scheduled or by acceptable equal. Units shall be standard catalogued products with the appropriate approval or certification by AGA, ARI and UL. Efficiencies shall conform to ASHRAE 90 standards.

B. Should an alternate manufacturer's equipment be provided that differs in size, weight or configuration from the manufacturer listed as the basis of design, the contractor shall reimburse the architect and engineer for all costs associated with modifying the construction documents to accommodate the alternate manufacturer's equipment. The contractor also shall be responsible for all costs associated with modification to electrical, plumbing, mechanical and structural systems from the original construction documents to accommodate alternate equipment.

C. Packaged Units:

1. Packaged outdoor units shall be roof or ground mounted, vertical or horizontal discharge, with cooling and/or heating components of characteristics and capacities scheduled. Unit shall have direct or belt drive, forward curve or airfoil supply fan, cooling coil with copper tubes and aluminum fins, insulated coil drain pan. Compressors shall be manufacturer's standard with crankcase heaters and vibration isolators and five (5) year warranty, electric coil or gas fired burner and heat exchanger with 10 year warranty as indicated. Accessories shall include suction line accumulators, service valves, sight glass and strainer-dyer, as required for a complete operating system. Provide with filters, enthalpy economizers, relief or power exhaust, controls, hinged access doors, condenser coil hail guards, condenser coil cottonwood filters, mounting curb and duct flex connectors and other accessories as indicated or required. Furnish 10 year heat exchanger for gas fired units.

2. Packaged units shall be Trane or acceptable equal by Carrier, York, Lennox, Daikin.

D. Provide units with manufacturer's standard control package. Controls to include factory wired terminals with overload devices and transformers as required. Unit safety control to include high-low pressure switches, fan relays, short cycle safety and internal pressure relief, gas controls with hi limit and anti- cycle protection.

E. Provide unit accessories as noted on drawings and as required for a complete operating system.

F. Mount units to provide the required service, access and airflow space.

4.0 FILTERS:

A. Provide filters in air intake to each units A/C system with size and number of filters standard with air unit manufacturer. Provide 1" and/or 2" thick to suit equipment requirements, hi-velocity, throw-a-way MERV 8 filters, Farr 30/30 or acceptable equal by American Air Filter, Airguard, Air Filters, Inc., Purolator. Filters shall be new and clean at time of Owner's acceptance. Supply extra set of filters for each unit.

5.0 CONTROLS AND LOW VOLTAGE SYSTEMS:

B. All temperature controls unless otherwise noted shall be the responsibility of the Mechanical Contractor.

C. Controls system shall be electric/electronic with stand-alone programmable digital thermostats.

D. Provide control installation to accomplish the indicated or required sequence of operation including thermostats/ sensors, controllers, actuators, wiring, piping and tubing, software, graphics and other components as required for a complete operating system. Where no sequence is indicated, contractor shall submit a proposed sequence for approval.

E. Devices exposed to view and mounted in finished spaces shall be white in color unless otherwise noted or directed.

F. All occupant adjustable devices shall be mounted in accordance with ADA and ADAAG requirements.

G. Replace existing electronic thermostats, sensors and humidistats with new devices. Check other control components including actuators, switches, transducers, relays and other devices for proper operation. defective or obsolete control devices.

6.0 PIPE, FITTINGS AND VALVES:

A. Condensate drain piping:

1. PVC Pipe - Schedule 40 with solvent cement joints. PVC not permitted in plenums used for supply or return air.

2. Provide with plugged tee cleanouts unless otherwise accessible for cleaning. Trap all air unit condensate drains with deep traps.

3. Where indicated or where required for positive drainage, provide mechanical units with condensate pump. Provide pumps for small split system coils similar to Aspen Mini-Aqua 3.2 GPH at 33' head or as otherwise specified.

4. Condensate drain piping:
   a. Outdoor units shall discharge indirectly to grade or to primary roof drains or gutters or as otherwise indicated on drawings and shall be in accordance with local codes. Condensate shall not drain to overflow roof drains.

5. Condensate pipe sizing:
   a. Minimum condensate pipe size shall be 3/4".
   b. Piping for individual units shall be as specified by manufacturer or a minimum of the unit connection size.
   c. Install manufacturer supplied condensate lift pumps and pipe discharge adaptors where indicated or required.
   d. Common or manifold condensate system shall be minimum size as follows:

Equipment Capacity, Tons	Min. Pipe Size, In.
Up to 3	3/4"
3-1/2 to 20	1"

END OF SECTION

220 100

PLUMBING

1.0 SCOPE:

A. The work included under this contract consists of providing all labor, materials, tools, transportation, services, etc., necessary to complete the installation and to provide complete working systems of the Plumbing Systems, including hot and cold water, waste and vent, storm drainage, fixtures, equipment and other items described in these specifications, as illustrated in the accompanying drawings or as directed by the Architect/Engineer.

B. Extend piping systems as indicated on contract documents or to point of connection as follows:

1. Points of connection within the existing building.

2.0 PIPING, FITTINGS AND VALVES:

A. Provide service valves at each main riser and as required by code.

B. Provide service valves for each item of equipment, at branch piping, fixture groups, individual fixtures and elsewhere as indicated or required. Provide balance valves, strainers, check valves and other valves as indicated or required by the application.

C. Provide a union or flanged connection between each item of equipment and its service valve. Copper to ferrous pipe connections shall have isolation coupling, flange or union.

D. Domestic water, interior, above ground -

1. Pipe, copper tube -

a. 2-1/2" and Smaller - Type "L" hard temper copper, wrought or cast copper fittings, Lead free 95/5 or Eagle Hard Silvabrite or "CB" solder joints,.

2. Valves -

a. 1/4 turn Service -

1) 1/2" thru 2" - Nibco 585-66-LF bronze lead free, 600 PSIG, full port, stainless steel ball and stem.

2) Provide isolation valves where indicated on drawing, including at branches, terminations, each piece of equipment and elsewhere as required by code.

E. Natural Gas --

1. Pipe above ground:

a. 2" and smaller - Schedule 40 black steel piping with threaded fittings.

2. Valves & Connectors:

b. Shutoff Service -

1) 1/2" thru 2" - Nordstrom 142, iron lubricated tapered plug valve, 200 PSIG, threaded ends.

c. Connections to each piece of equipment or appliances shall be made with gas cock, dirt leg and union. Appliance connections may be made with UL listed appliance connectors with union ends.

d. Appliance shutoff valves shall be within 6' of the appliance and accessible, located in adjacent cabinet sections where required.

3. Paint exterior natural gas piping with corrosion inhibiting paint, color to be selected.

3.0 SLEEVES AND SEALS, FLASHINGS, ROOF PIPE SUPPORTS AND UV PROTECTION:

A. Flash all pipes and vents extending through roof. Flashing details shall be in accordance with roof manufacturer's requirements.

B. Continuous roof piping penetrations shall be made weather tight, conform to roof manufacturer warranty. Penetrations shall be as detailed on drawings.

C. Roof pipe supports shall be prefabricated with UV resistant rubber base, unistrut channel and pipe clamp, length and height for consistent pipe elevation to suit application. Mi-Fab C6 series or acceptable equal.

D. Provide sleeves where piping penetrations are required thru partitions, concrete floors, concrete slabs on or below grade or foundation walls. Where penetrations are through fire rated assemblies, sleeves shall be fire stopped in accordance with UL listing requirements. Sleeves shall be galvanized steel pipe, sheet steel or cast iron. Sleeves are not required for core drilled penetrations of existing concrete slabs above grade. Penetrations of below grade structures and slabs on grade shall be water proofed with mechanical link seal system, Thunder Line or acceptable equivalent.

E. Plastic piping without UV inhibiters which is exposed to UV radiation from sunlight shall be protected by coating with a UV resistant paint.

4.0 PIPE SUPPORTS AND ROUTING:

A. Hangers and Supports.

1. Piping shall be supported in accordance with industry standards including support methods, sizes and spacing. All supports and installation shall conform to MSS SP58 and 69 and Fed Spec WW-H-171E and A-A-1192A.

2. Deflection: Maximum pipe deflections and stresses as allowed by ANSI B31 are not exceeded.

3. Each piping system shall be independently supported with no piping bearing on another and installed such that no weight of piping is borne by the equipment.

4. Space hangers and supports within maximum piping span length indicated in MSS SP-58. Install building attachments at required locations for proper piping support.

5. Provide adjustable hangers, inserts, brackets, rolls, clamps, channels, rods, guides, anchors, flexible connectors, supplementary steel, etc., as required for proper support of all pipe lines. Trapeze may be used for support of multiple pipes. Provide accompanying attachments including bolts and nuts, sheetmetal screws or rivets suitable for application.

6. Provide copper plated, plastic coated or felt lined hangers where required to prevent electrolysis or abrasion on copper or plastic piping systems.

7. All hanger and support parts shall be galvanized steel for non-corrosive environments or stainless steel for corrosive or damp environments.

B. Routing.

1. Piping shall be routed as shown on drawings, parallel to building lines unless otherwise shown, coordinated with building structure and other trades. Adjust pipe routing and drop locations with necessary pipe offsets or changes in elevation to accommodate beams and other obstructions.

5.0 PROTECTION OF WORK

A. Protection

1. Protect and cover piping and fixture waste and water openings to prevent entry of dirt and debris.

2. Cover and protect fixtures and plumbing equipment to prevent damage.

6.0 TEST, ADJUSTMENTS AND CLEANING:

A. Gas line testing:

1. Natural gas lines shall be inspected and blown out with dry compressed air or nitrogen to purge of debris and tested at 1-1/2 times the operating pressure or a minimum of 25 PSIG pressure with no measurable pressure drop. All test procedures including duration of test shall be in accordance with NFPA 54 and the International Fuel Gas Code.

2. For renovation projects, isolate and protect fixtures, valves and equipment from over pressurization during testing.

B. After successful testing, sterilize water system with an approved solution in accordance with local health officials.

C. Contractor to submit all test data and other documentation for record.

END OF SECTION

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 Project No. 21.6884.00
COA No. 2006001168

451 NW Murray Rd Renovation

451 NW Murray Rd
Lees Summit, MO 64081

ISSUED FOR:

Permit / Bid 29 OCT 2021

10/29/2021

Drawn By Author
Checked By Checker

SPECIFICATIONS

MEP1

Project Number: 2021.375

210 100
FIRE PROTECTION

1.0 SCOPE:

A. Fire protection shall be governed by all applicable provisions of the Contract Document.

B. Provide a complete and operational fire protection system as required by NFPA, systems shall include:

1. Wet sprinkler system -- NFPA 13.
2. Systems shall be compliant with NFPA 70, 72, FM and UL as applicable.

C. All fire protection components shall be UL and FM approved devices where applicable as required by NFPA.

D. Upon completion of the work, system acceptance testing shall be performed by the sprinkler contractor in accordance with requirements of NFPA with a completed copy of 'Contractor's Material and Test Certificate' provided.

E. All cable ties for controls and other cable systems located in plenums utilized for air movement that are not installed in conduit shall be 25/50 flame and smoke rated, Hellermann Tyton T50R2C2UL or equivalent.

F. Provide permanent identification of all valves, piping, electrical components and equipment in accordance with NFPA 13 and 14.

2.0 WET SPRINKLER AND STANDPIPE SYSTEMS

A. Systems shall be in accordance with NFPA 13 and complete in every respect to provide complete coverage of all areas in the building, or throughout the area of work as indicated. Sprinkler system shall be hydraulically designed per appropriate hazard class.

B. Sprinkler system shall be a delegated design, contractor shall be responsible for layout and design of the fire sprinkler system. Submit all necessary documentation (plans, calculations, cut sheet literature and flow tests) and obtain necessary permits for approval and installation of the system. Provide PE or NICET stamp on submittal drawings.

C. As required by application, system shall include but not be limited to pipe and hangers, sprinklers, valves, inspector tests, fire department connection, audible and visible alarms, flow and tamper switches, gages, control panels, wiring, hose valves, etc. Conform to the requirements of Division 16, FM and UL or IRI where required by owner.

1. System shall be an extension of and/or modifications to the existing building system.
2. As close as possible, match function, coverage, style and appearance of existing devices.

D. Reconfigure existing building sprinkler piping and/or sprinklers within the scope of work area in order to provide proper coverage per NFPA and Local Authorities.

E. Where required to prevent freezing of the system, provide dry sidewall or pendant sprinklers, including all necessary components including: isolation and control valves, and related items for a complete working system.

F. Upon final acceptance, the owner shall be responsible for proper maintenance as established by the latest edition of NFPA 25 'Standard for the inspection, Testing and Maintenance of Water Based Fire Protection Systems'.

3.0 PIPING, FITTING AND VALVES:

A. Fire protection piping and components above ground -
   1. Pipe -
      a. All sizes - Schedule 40, black steel, malleable iron threaded, flanged or welded fittings; roll or cut groove mechanical joints with wrought or forged steel fittings or roll grooved end couplings.
      b. Contractor to match existing building piping material standards.
   2. Sprinkler piping shall be independently supported from all other systems, no other system or component may bear on any sprinkler pipe or support. In accordance with NFPA 25 or where required by local authority, sprinkler piping shall not be subjected to external loads by materials either hung from or resting on sprinkler piping.

4.0 SPRINKLERS

A. Provide quick response sprinklers, standard response, extended coverage or dry sprinklers as required by application. Replace existing non-compliant sprinklers as required by application.

B. Sprinklers shall be of the following styles, subject to application.

1. Where not otherwise indicated, sprinkler type, style, appearance and coverage to match existing.

C. Locate sprinklers at center of 2 x 2 lay-in tiles or 2 x 2 portion of 2 x 4 lay-in tiles. Align sprinklers in a row when in gypsum board ceilings. All location tolerances shall be +/- 1/2”.

D. Refer to reflected ceiling plans for coordination with lights, diffusers, exit signs, etc.

END OF SECTION

260 100
ELECTRICAL

1.0 SCOPE:

A. The work included under this contract consists of the furnishing of all labor, materials, tools, transportation, services, etc., necessary to complete the installation of the electrical systems and other items herein listed, all as directed by the Architect or Engineer, which work is comprised of, but not limited to the following principal items:

1. Electrical system for light and power:

   a. Electrical service and distribution system revisions.
   b. Switches and panel boards.
   c. Systems of conduit, conductors, and boxes.
   d. Receptacles and wiring devices.
   e. Lighting fixtures and lamps.
   f. All systems, wiring and conduit as required.

B. Raceway wiring systems shall be concealed in all finished parts of the building, where possible. Where the raceways are exposed, they shall be run parallel with the building walls in a neat and workmanlike manner. Should it appear necessary to expose any conduit or wiring in finished spaces, it shall be brought to the Architect's attention immediately and this Contractor shall rearrange associated work as directed to facilitate an approved installation. Contractor to coordinate with mechanical trades to avoid ductwork and piping.

2.0 RACEWAYS:

A. All electrical conductors are to be installed in metal raceways, unless specifically specified or noted otherwise. Galvanized steel or intermediate steel conduit as permitted by code. No conduit smaller than 3/4" to be used. Use set screw type fittings. Provide flexible conduit connection for final connection to each motor not to exceed 3' in length and recessed lighting fixtures not to exceed 6' in length. All exposed raceways shall be installed with runs parallel and/or perpendicular with building walls. Fasten all rigid/non-flexible conduit every 8' and 2' from each box. Conduit shall be EMT where not subject to mechanical damage as permitted by National Electric Code (N.E.C.). EMT connectors and couplings 4" and smaller shall be compression type. Type MC Cable with ground wire is allowed in concealed spaces only, behind walls and above ceiling. Fasten all MC and or FMC every 4.5' feet and within 12” inches of conduit termination, excluding final connections to motors and lighting fixtures.

B. Conduit bushings shall be provided and installed inside all disconnects, pull boxes, panelboards, switchboard or similar type equipment and where permitted by National Electric Code (N.E.C.).

3.0 WIRES AND CABLES:

A. Electrical conductors, soft annealed copper with conductivity 98% of that of pure, stranded copper, 90 degree - 600V insulation and equal to General Cable Company. Wire and cable for all feeders, subfeeders, motor circuits and high ambient location type shall be THHN. All other branch circuit wiring shall be type XHHN or THHN. Minimum wire size shall be #12 gauge AWG. Control wiring may be #14 gauge.

B. For conductors #4 or small use the following color-code:

- 208Y/120V, 3-phase: black, red, blue, white.
- Green shall be used for ground wire conductor.

C. For conductors larger than #4, Field-Applied, Color-Coding Conductor Tape can be applied in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

D. Conductor Material Applications:
   a. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
   b. Feeders: Copper for feeders smaller than No. 4 AWG; copper or aluminum for feeders No. 4 AWG and larger. Conductors shall be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
   c. Branch Circuits: Copper. Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.

E. Conductor insulation and multi-conductor cable application and wiring methods:
   a. Service Entrance: Type THWN-2, single conductors in raceway.
   a. Exposed Feeders: Type THHN, single conductors in raceway.
   b. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN, single conductors in raceway.
   c. Exposed Branch Circuits, Including in Crawlspaces: Type THHN, single conductors in raceway.
   d. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN, single conductors in raceway.

4.0 GROUNDING:

A. Ground all electrical apparatus in accordance with N.E.C. and as specified herein. Provide a separate grounding conductor for all lighting, receptacle and equipment circuits. All cabinets, switchboards, equipment cases, motor frames, interior metal cold water piping systems, and system neutral conductors shall be effectively grounded. Use solderless pressure type connectors, no perforated strap connectors will be allowed. Ensure continuous bond where flexible conduit is used. Provide bonding jumper inside all flexible conduit. Grounding per N.E.C. 250, and any local requirements.

5.0 SPLICE AND TAPS:

A. Make splices at junction boxes, pull boxes, or outlet boxes only.

6.0 CABINETS, JUNCTION AND PULL BOXES:

A. Flush or surface mounted as indicated on drawings. Provide where shown on drawings and where required by code. Construct of cold gauge steel for flush surface mounting.

7.0 OUTLET BOXES:

A. General Electric, Appleton, Steel City or Raco hot dipped galvanized steel boxes, or equal. Install at terminal of each conduit run, each outlet, or device. Provide size, type and design to suit structural conditions. Adequate to accommodate size and number of raceways, conductors, device or fixture served. Provide plaster rings or covers on boxes where required on exposed work, use approved cast ferrous alloy outlet, junction boxes and fittings. Fixture or device cover shall completely conceal the size outlet box used. Install 3/8" fixture stud for lighting fixtures where required. Locate ceiling outlets to work with architectural features as directed. Switches installed 48" above floor on strike side of door as finally hung. Receptacles and telephone outlets, 18" above finished floor unless otherwise noted. Verify all outlet locations on job with Architect.

8.0 PANELBOARDS:

A. Panel boards are as indicated on the drawings. Main lugs only unless noted or specified otherwise. Provide typewritten schedule of circuits in index cardholder. Provide with hinged door and hinged cover. All circuit breakers shall be bolt-on molded case and have positive "trip" indication. Breakers used on existing panels shall match existing units and shall be labeled to have positive "trip" indication. Breakers shall be labeled to indicate suite number and use. Panelboards shall be Square D, Siemens or Eaton/Cutler Hammer. All single pole circuit breakers shall be 'switch duty rated'. Panelboards shall be fully rated. Series rated panels are not permitted.

9.0 DISCONNECT SWITCHES:

A. Heavy duty NEMA type 'HD' - same manufacturer as panelboards. Plastic nameplate properly engraved with name of equipment served, secured to switch cover. Fuses shall be Bussmann of sizes and types scheduled.

10.0 LABELING:

A. Contractor shall label each and every j-box above ceiling with a permanent marker with panel and circuit number.

B. Outlets, adhesive film label, machine printed clear background with black letters, by thermal transfer or equivalent process. Minimum letter height shall be 1/4 inch. Face plate shall be labeled with panel and circuit number.

C. Interior equipment self-adhesive, engraved, laminated acrylic or melamine label: adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

D. Exterior equipment: Stenciled or engraved, laminated acrylic or melamine label: punched or drilled for screw mounting. White letters on a black background. Minimum letter height shall be 1 inch (25 mm).

11.0 WIRING DEVICES:

A. Duplex receptacles shall be Hubbell #5352-X grounding type, 20A., 125V.; G.F.C.I. shall be Hubbell GF-5352-X, 20A., 125V.; duplex, G.F.C.I. TYPE. Isolated ground receptacles shall be orange in color, Hubbell IG-5352, 20A, 125V, duplex. Isolated ground receptacles shall be equipped with a Hubbell IGP-8 plate, orange in color inscribed "Isolated Ground". Wall toggle switches shall be Hubbell Number 1221-X and Number 1223-X for single pole and three way types respectively. Other switch, receptacle, and outlet device variations shall be by Hubbell of "Spec. Grade" quality. Equivalent devices of P & S or Leviton will be acceptable in lieu of the above listed devices.

B. All wiring devices shall be white in color.

C. Motion sensor: contactor shall verify with owner for proper time delay settings.

12.0 LIGHTING FIXTURES:

A. This Contractor shall furnish and install complete, unless otherwise specified, a lighting fixture on each and every lighting outlet shown on the drawings of each type scheduled by letter and description. All fixtures shall be equipped with lamps as scheduled or specified herein. All fixtures installed in suspended ceilings must be securely fastened to framing members per NEC 410-36b and local seismic code requirements.

13.0 FIRE ALARM SYSTEM:

A. Fire alarm system shall be a delegated design, contractor shall be responsible for layout and design of the fire alarm system. Submit all necessary documentation including stamped and signed drawings to the authority having jurisdiction and obtain necessary permits for approval and installation of the system prior to submitting shop drawings.

B. Engineer's drawings showing fire alarm devices are schematic, and only provide code intent, coordination, and all devices may not be indicated. Final layout shall be provided by the Fire Alarm contractor. Fire alarm contractor shall become the Designer of Record as such, the contractor shall be responsible to verify device layouts comply with all applicable codes and shall include in bid all cost associated with additional devices should they be required. Final layout shall be coordinated with the architect and plans.

C. Contractor shall include in bid all cost associated with Fire alarm modifications.

D. Fire alarm system shall be relocated or added for code compliance.

E. All new equipment shall be ADA compliant, be by one manufacturer, and warranted for a minimum of one year.

END OF SECTION

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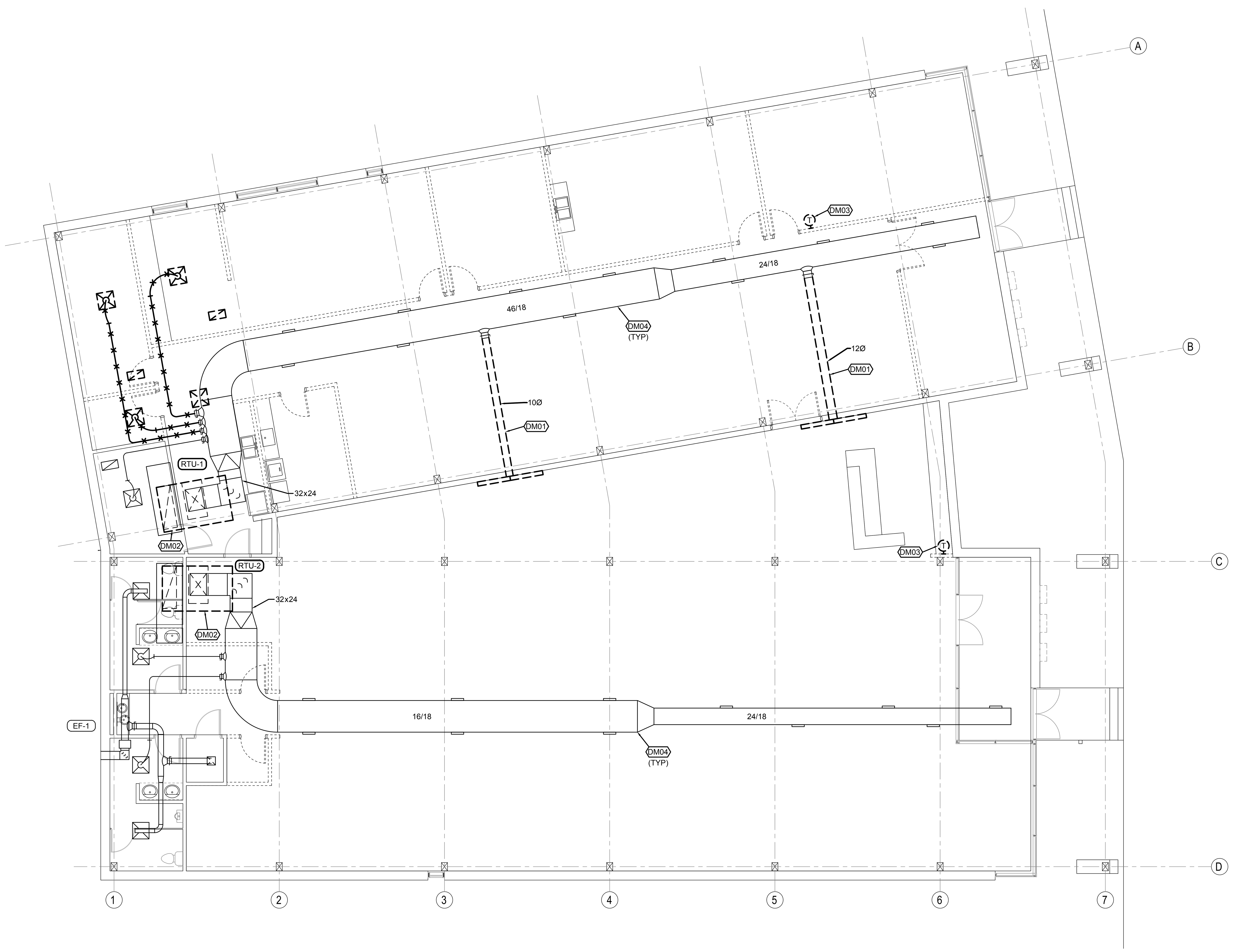
SPECIFICATIONS

MEP2

Project Number: 2021.375

FLOOR PLAN NOTES

1. DISCONNECT AND REMOVE DUCTWORK, DIFFUSERS, HANGERS, ETC. WHERE INDICATED.
2. DISCONNECT AND REMOVE ROOFTOP UNIT.
3. DISCONNECT EXISTING THERMOSTAT AND WIRING.
4. REMAINING DUCTWORK, EXHAUST FANS, DIFFUSERS, ETC. TO REMAIN.



FIRST FLOOR PLAN-MECHANICAL DEMOLITION

SCALE: 1/8" = 1'-10"

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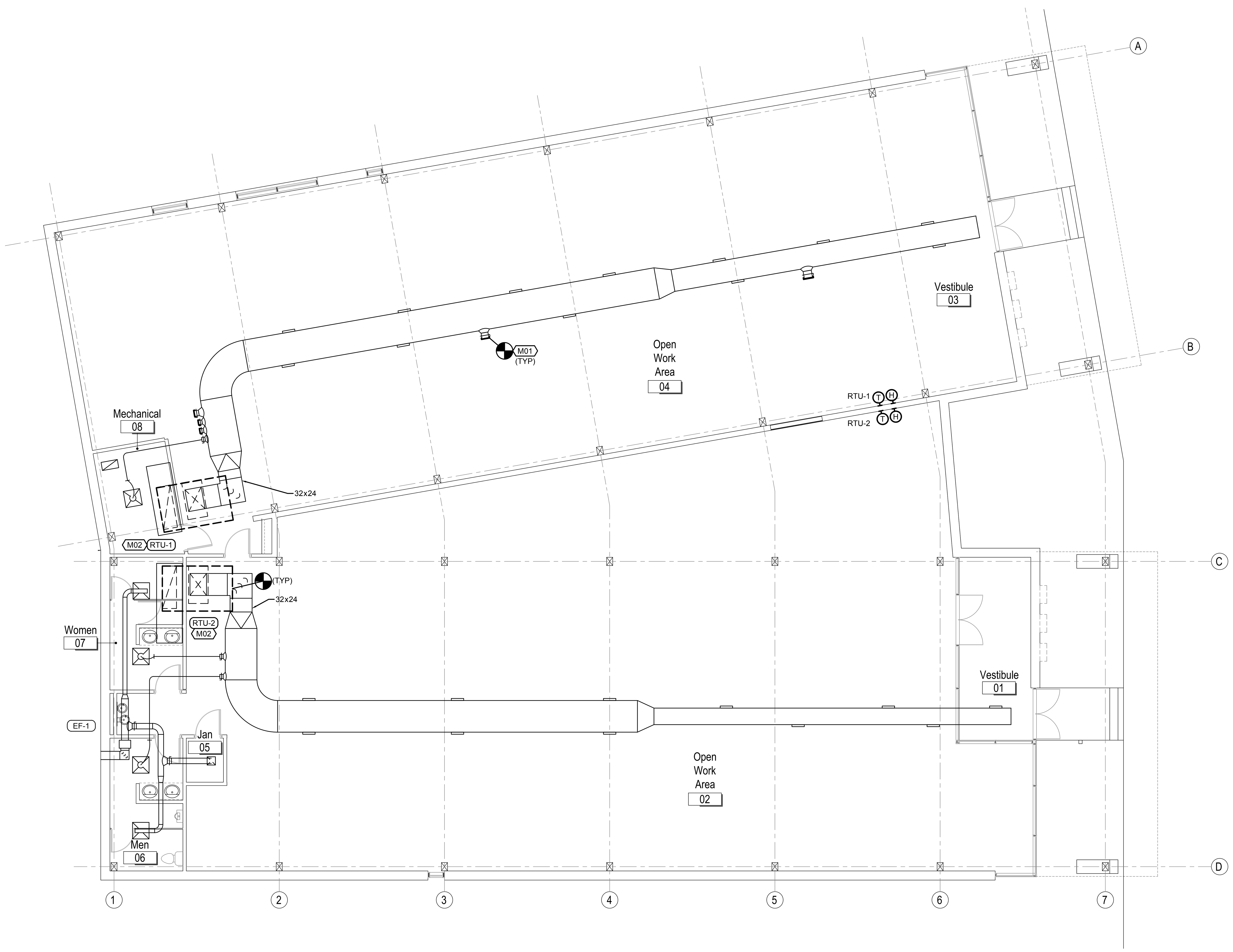
FIRST FLOOR PLAN-
MECHANICAL DEMOLITION

M1

Project Number: 2021.375

FLOOR PLAN NOTES

1. CAP REMAINING TAPS AIRTIGHT.
2. INSTALL CURB ADAPTER AND ROOFTOP UNIT PER MANUFACTURERS RECOMMENDATIONS.



FIRST FLOOR PLAN-MECHANICAL

SCALE: 1/8" = 1'-10"

N

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FIRST FLOOR PLAN-MECHANICAL

M2

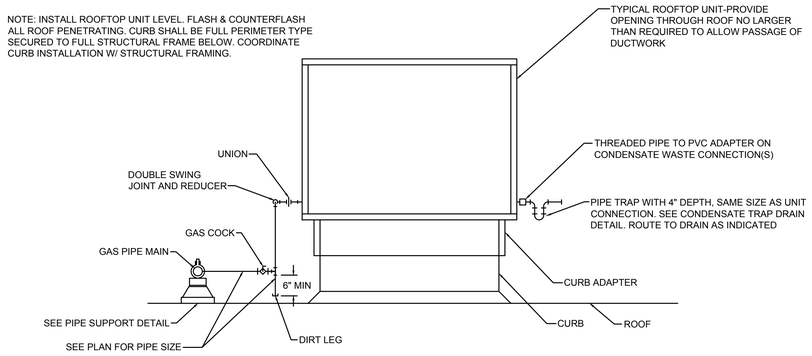
Project Number: 2021.375

ROOFTOP UNIT SCHEDULE

MARK NO.	MANUFACTURER	MODEL	AIRFLOW CFM	MIN O.A. CFM	EXT. S.P. (IN.W.G.)	FAN HP	FAN DRIVE TYPE	FAN TYPE	RPM	COOLING									HEATING-GAS			ELECTRICAL			NOTES
										AMB. (°F)	E.D.B. (°F)	E.W.B. (°F)	L.D.B. (°F)	L.W.B. (°F)	TOTAL MBH	SENS. MBH	STAGES	EER	INPUT MBH	OUTPUT MBH	STAGES	VOLT	ø	HZ	
RTU-1	TRANE	YHD210	6500	NOTE 8	1	5	BELT	FC	745	105	80	67	57.41	57.09	199.36	158.59	2	11.8	350	280	2	208	3	60	ALL
RTU-2	TRANE	YHD210	6500	NOTE 8	1	5	BELT	FC	745	105	80	67	57.41	57.09	199.36	158.59	2	11.8	350	280	2	208	3	60	ALL

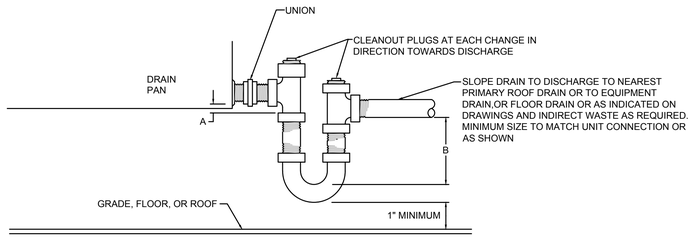
NOTES:
1. PROVIDE WITH WALL MOUNTED 24/7 PROGRAMMABLE THERMOSTAT, HINGED ACCESS PANELS, DISCONNECT SWITCH,
2. PROVIDE WITH 2" MERV 8 FILTERS.
3. PROVIDE WITH HOT GAS REHEAT AND WALL MOUNTED HUMIDISTAT.
4. PROVIDE WITH ECONOMIZER WITH DIFFERNTIAL ENTHALPY CONTROL. INCLUDE WITH BAROMETRIC RELIEF DAMPER UNLESS NOT REQUIRED FOR UNITS EQUIPPED WITH POWERED EXHAUST.
5. PROVIDE WITH MULTI-SPEED SUPPLY FAN TO VARY FAN SPEED WITH COMPRESSOR STAGING ON UNITS WITH 2 STAGES OF COOLING. ADJUST OUTSIDE AIR DAMPER MINIMUM POSITION FOR HIGH AND LOW FAN SPEEDS.
6. PROVIDE WITH UNIT MOUNTED GFCI OUTLET WITH WEATHERPROOF COVER. OUTLET TO BE FIELD POWERED/WIRED FROM BUILDING POWER
7. PROVIDE WITH CURB ADAPTER. FIELD VERIFY EXISTING CURB PRIOR TO ORDER.
8. UNOCCUPIED SPACE. NO VENTILATION AIR TO BE PROVIDED.
9. UNIT TO BE CONFIGURED FOR DOWNFLOW DISCHARGE.
10. PROVIDE NEW THERMOSTAT WITH NIGHT SETBACK AND 7-DAY SCHEDULING CAPABILITIES.

*HEATING KW IS NET CAPACITY AT VOLTAGE AND PHASE INDICATED.



ROOFTOP UNIT CONNECTIONS DETAIL

NO SCALE



DIM. 'A'	DIM. 'A'	DIM. 'B'
BLOW THRU COIL	1"	FAN DISCHARGE STATIC PRESSURE + 1"
DRAW THRU COIL	FAN SUCTION STATIC PRESSURE + 1"	2-1/2"

NOTE: MINIMUM 'A' OR 'B' DIMENSION SHALL BE NOT LESS THAN 1".

HVAC CONDENSATE TRAP DETAIL

NO SCALE

GENERAL NOTES (TYPICAL ALL SHEETS)

A. MECHANICAL CONTRACTOR IS RESPONSIBLE TO SEE THAT WORK MEETS AND IS IN ACCORDANCE WITH ALL REQUIREMENTS OF FEDERAL, STATE, AND LOCAL LAWS AND CODES AND/OR REQUIREMENTS, INCLUDING HEALTH CODES AND BUILDING OWNER.

B. ALL EXISTING DUCTWORK SHOWN ON DRAWINGS IS SCHEMATIC AND IS BASED ON EXISTING RECORD DRAWINGS PROVIDED BY THE OWNER AND DO NOT REFLECT EXACT EXISTING CONDITIONS. CONTRACTOR TO FIELD VERIFY EXACT DEPTH AND/OR LOCATIONS ON JOB SITE. CONTRACTOR SHALL REROUTE NEW WORK TO ACCOMMODATE EXACT LOCATIONS OF EXISTING UTILITIES, STUBOUTS AND/OR CONNECTIONS.

C. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION TO AVOID ROUTING CONFLICTS.

D. ANY MATERIAL REMOVED THAT OWNER DOES NOT WISH TO RETAIN SHALL BE REMOVED FROM PROJECT SITE AND DISPOSED OF BY CONTRACTOR.

E. MECHANICAL CONTRACTOR SHALL REMOVE, PATCH AIR TIGHT AND REINSULATE ALL DUCTWORK TAPS NOT REUSED WITH SAME MATERIAL AS EXISTING DUCTWORK.

F. ALL DUCTWORK, DIFFUSERS, TERMINAL UNITS, ETC. ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE.

MECHANICAL SYMBOLS

- OR — EXISTING DUCTWORK TO BE REMOVED
- OR — EXISTING DUCTWORK TO REMAIN
- OR — NEW DUCTWORK
- SUPPLY DUCT
- RETURN DUCT
- EXHAUST DUCT
- SUPPLY DIFFUSER
- RETURN GRILLE
- EXHAUST GRILLE
- R R/D — RISE OR DROP IN DUCT
- T — THERMOSTAT, MOUNT TOP AT 48" AFF.
- MANUAL VOLUME DAMPER
- SUPPLY DUCT DOWN
- SUPPLY DUCT UP
- RETURN DUCT DOWN
- RETURN DUCT UP
- EXHAUST DUCT DOWN
- EXHAUST DUCT UP
- WALL MOUNTED DIFFUSER/GRILLE
- FLEXIBLE DUCT CONNECTION
- AHU-1 — EQUIPMENT TYPE AND DESIGNATION
- SA / 200 — MARK NO. SUPPLY (S_), RETURN (R_), EXHAUST (E_) / CFM
- CONNECT TO EXISTING

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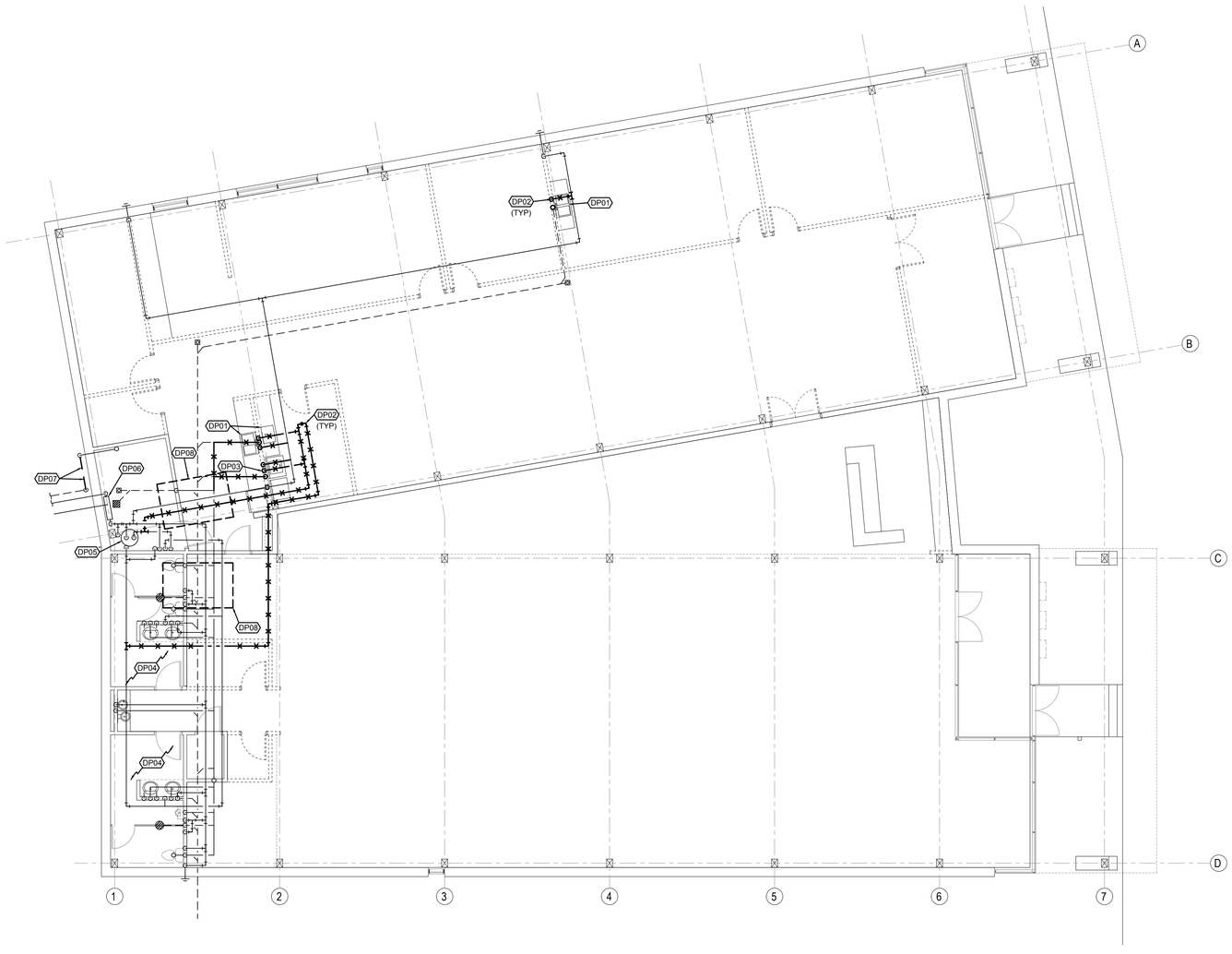
MECHANICAL DETAILS

M3

Project Number: 2021.375



FLOOR PLAN NOTES

1. DISCONNECT AND REMOVE SINK, FAUCET AND ACCESSORIES IN ITS ENTIRETY. REMOVE WASTE PIPING TO BELOW FLOOR AND CAP.
2. REMOVE PIPING, HANGERS, ETC. WHERE INDICATED. CAP REMAINING PIPING WATERTIGHT. INSULATE TO MATCH ADJACENT AND MAINTAIN VAPOR BARRIER.
3. REMOVE WASHER BOX AND ACCESSORIES IN ITS ENTIRETY.
4. EXISTING RESTROOM FIXTURES AND PIPING TO REMAIN.
5. EXISTING WATER HEATER TO REMAIN.
6. EXISTING RPZ TO REMAIN.
7. EXISTING GAS PIPING. METER NOT CURRENTLY INSTALLED. PREPARE PIPING FOR CONNECTION OF NEW. REMOVE PIPING AS REQUIRED. RE: NEW WORK PLAN FOR ADDITIONAL INFORMATION.
8. DISCONNECT GAS PIPING FROM ROOFTOP UNITS.

FIRST FLOOR PLAN-PLUMBING DEMOLITION

SCALE: 1/8" = 1'-10"

N

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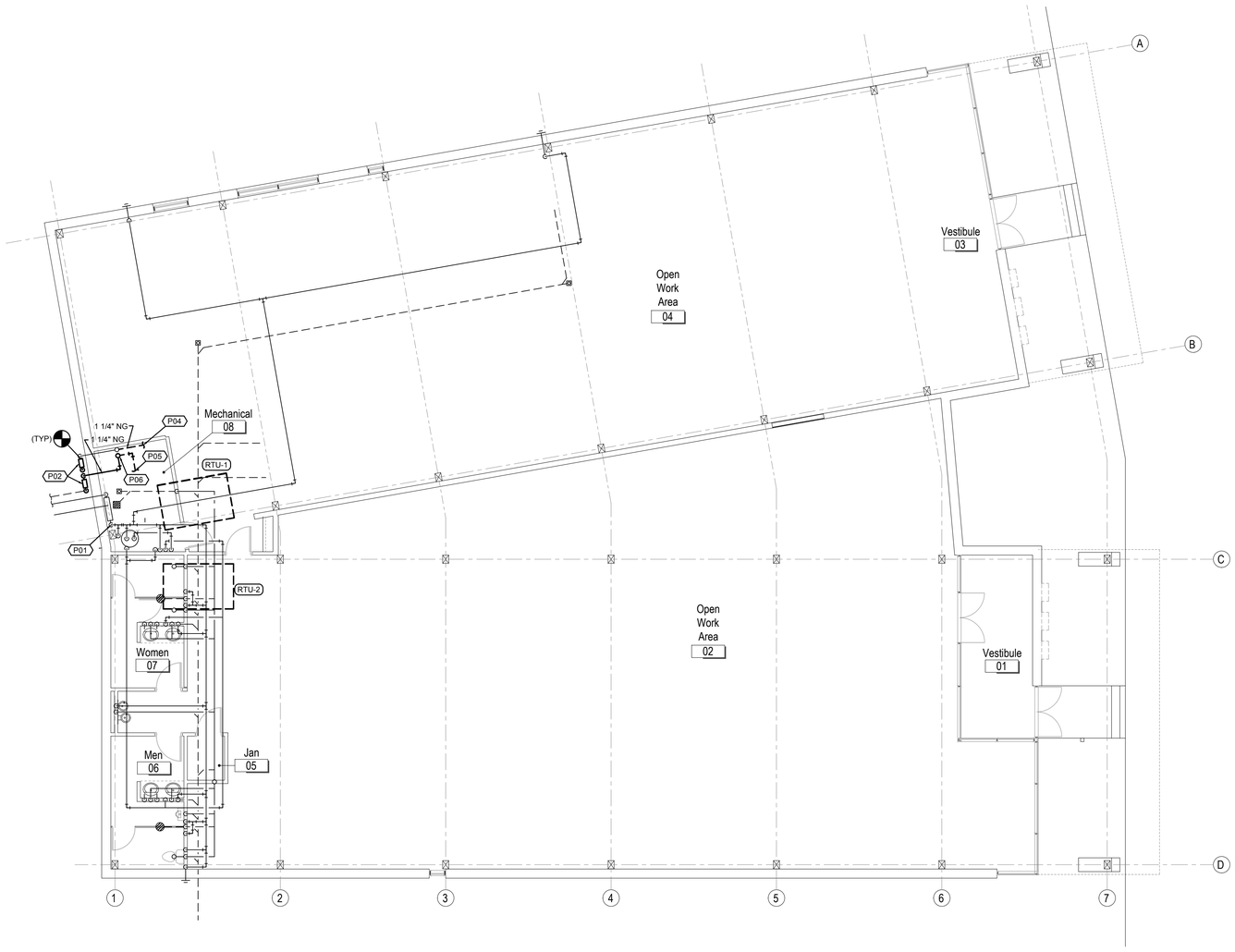
FIRST FLOOR PLAN-
PLUMBING DEMOLITION

P1

Project Number: 2021.375



FLOOR PLAN NOTES

1. AFTER THE RPZ, PROVIDE TWO (2) DOMESTIC WATER SUB-METERS ONE FOR EACH OPEN WORK AREA, BADGER M120 OR APPROVED EQUAL. PROVIDE 1" CW STUBOUT FOR EAST OPEN WORK AREA WITH SHUTOFF VALVE. EXISTING WATER HEATER AND RESTROOM GROUP TO REMAIN ON WEST OPEN WORK AREA SUB-METER. RECONFIGURE PIPING AS REQUIRED.
2. PROVIDE OPEN WORK AREA SEPARATED GAS METERS. 350 MBH @ 11" WC EACH.
4. ROUTE NEW GAS LINE TO RTU-1 AND CONNECT. RECONFIGURE EXISTING PIPING AND ROOF SUPPORTS AS REQUIRED. PROVIDE NEW GAS SHUTOFF AT UNIT.
5. ROUTE NEW GAS LINE TO RTU-2 AND CONNECT. RECONFIGURE EXISTING PIPING AND ROOF SUPPORTS AS REQUIRED. PROVIDE NEW GAS SHUTOFF AT UNIT.
6. NEW GAS LINE UP TO ROOF.

FIRST FLOOR PLAN-PLUMBING

SCALE: 1/8" = 1'-10"

N

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FIRST FLOOR PLAN-PLUMBING

P2

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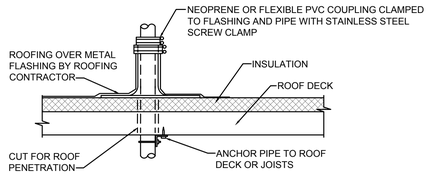

NOTES:

1. REFER TO PLANS FOR PIPE SIZE(S) AND LOCATION(S). LOCATE PENETRATION MINIMUM 18" FROM ADJACENT WALLS OR ANY EQUIPMENT CURBS, PARAPETS, EXPANSION JOINTS, ETC
2. VERIFY FLASHING AND COUNTERFLASHING WITH ROOF MFG. COMPLY WITH ROOF WARRANTY REQUIREMENTS.
3. FLASHING AND COUNTER FLASHING IS BY ROOFING CONTRACTOR. PLUMBING CONTRACTOR SHALL COORDINATE INSTALLATION.

SINGLE PIPE ROOF PENETRATION DETAIL

NO SCALE

GENERAL NOTES (TYPICAL ALL SHEETS)

A. PLUMBING CONTRACTOR IS RESPONSIBLE TO SEE THAT WORK MEETS AND IS IN ACCORDANCE WITH ALL REQUIREMENTS OF FEDERAL, STATE, AND LOCAL LAWS AND CODES AND/OR REQUIREMENTS, INCLUDING HEALTH CODES AND BUILDING OWNER.

B. ALL EXISTING PIPING SHOWN ON DRAWINGS IS SCHEMATIC AND IS BASED ON EXISTING RECORD DRAWINGS PROVIDED BY THE OWNER AND DO NOT REFLECT EXACT EXISTING CONDITIONS. CONTRACTOR TO FIELD VERIFY EXACT DEPTH AND/OR LOCATIONS ON JOB SITE. CONTRACTOR SHALL REROUTE NEW WORK TO ACCOMMODATE EXACT LOCATIONS OF EXISTING UTILITIES, STUBOUTS AND/OR CONNECTIONS.

C. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION TO AVOID ROUTING CONFLICTS.

D. ANY MATERIAL REMOVED THAT OWNER DOES NOT WISH TO RETAIN SHALL BE REMOVED FROM PROJECT SITE AND DISPOSED OF BY CONTRACTOR.

E. INSTALL ELASTOMERIC JOINT SEALER AROUND ALL PIPES PASSING THRU INTERIOR NON-RATED CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS. FOR FIRE RATED INTERIOR CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS SEAL ALL PIPES. INSTALL FIRESTOP MATERIALS IN ALL GAPS PRIOR TO SEALANT APPLICATION. INSTALL SEALER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

F. UPON REQUEST FOR ELECTRONIC FILES, CONTRACTOR SHALL FILL OUT, SIGN AND RETURN ELECTRONIC MEDIA RELEASE FORM FROM ENGINEER AND PROVIDE PAYMENT FOR FEES STIPULATED ON ELECTRONIC MEDIA RELEASE FORM. UPON RECEIPT OF COMPLETED RELEASE FORM AND PAYMENT, ELECTRONIC FILES WILL BE RELEASED.

G. ALL CABLE TIES FOR LOW VOLTAGE SYSTEMS LOCATED IN PLENUMS UTILIZED FOR AIR MOVEMENT THAT ARE NOT INSTALLED IN CONDUIT SHALL BE 25/50 FLAME AND SMOKE RATED, HELLERMANN TYTON T50 R2C2UL OR EQUIVALENT.

PLUMBING SYMBOLS

	EXISTING TO REMAIN
	EXISTING TO BE REMOVED
	NEW PIPING
	FLOW ARROW
CW	COLD WATER
FP	FIRE PROTECTION
HW	HOT WATER
HWR	HOT WATER RETURN
NG	NATURAL GAS
CA	COMPRESSED AIR
V	SANITARY VENT ABOVE GROUND/FLOOR
V	SANITARY VENT BELOW GROUND/FLOOR
W	SANITARY WASTE ABOVE GROUND/FLOOR
W	SANITARY WASTE BELOW GROUND/FLOOR
	GAS SHUT-OFF COCK
	CHECK VALVE
	SHUT OFF VALVE
	IN-LINE PUMP
	UNION
	FLANGE CONNECTION
OR	FLOOR DRAIN OR EQMT FLOOR DRAIN
	PIPE DROP/PIPE RISE
	BOTTOM OUTLET TEE
	TOP OUTLET TEE
HB	HOSE BIBB
WH	WALL HYDRANT
CO	CLEAN OUT
WCO	WALL CLEAN OUT
FFCO	FINISHED FLOOR CLEANOUT
VTR	SANITARY VENT THROUGH ROOF
DWH-1	EQUIPMENT TYPE AND DESIGNATION
ETR	EXISTING TO REMAIN
	CONNECT TO EXISTING

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PLUMBING DETAILS

P3

Project Number: 2021.375

FIRE PROTECTION DESIGN CRITERIA

A. ENTIRE BUILDING AS SHOWN ON DRAWINGS IS CURRENTLY PROVIDED WITH A WET TYPE SPRINKLER SYSTEM. MODIFY SYSTEM AS NECESSARY FOR NEW WALL LAYOUTS, CEILING LAYOUTS, AND IN COMPLIANCE WITH THE RULES AND REGULATIONS OF APPLICABLE FEDERAL, STATE AND LOCAL LAWS, CODES AND ORDINANCES, THE OWNER'S INSURANCE COMPANY AND NFPA 13.

B. FURNISH ALL MATERIALS, LABOR, TOOLS, TRANSPORTATION, INCIDENTALS AND APPURTENANCES TO COMPLETE IN EVERY DETAIL AND LEAVE IN WORKING ORDER ALL ITEMS OF WORK REQUIRED FOR STRICT COMPLIANCE.

C. NEW FIRE PROTECTION PIPING AND FITTINGS SHALL MATCH EXISTING, OR PROVIDE SCHEDULE 40 FOR 2" AND SMALLER WITH THREADED ENDS AND SCHEDULE 10 FOR 1-1/2" AND LARGER WITH ROLL-GROOVED ENDS AND GROOVED JOINTS. ALL PIPING IN AREAS WITH CEILINGS SHALL BE RUN CONCEALED WITH NO EXCEPTIONS UNLESS COORDINATED WITH ARCHITECT AND ENGINEER. PIPE SIZES SHOWN ON PLANS FOR INFORMATION ONLY. VERIFY BY HYDRAULIC CALCULATIONS.

D. NEW FIRE SPRINKLERS SHALL MATCH EXISTING IN TYPE, STYLE AND APPEARANCE. ANY REMOVED/RELOCATED FIRE SPRINKLERS MUST BE REPLACED WITH NEW PER NFPA 13. CONTRACTOR RESPONSIBLE FOR FIELD VERIFICATION OF ALL INFORMATION.

E. ALL SPRINKLERS IN LAY-IN CEILINGS ARE TO BE CENTERED ±1/2" IN 2'x2' PORTION OF TILE. ALL SPRINKLERS IN GYP-BOARD CEILINGS ARE TO BE CENTERED ±1/2" WITH LIGHT FIXTURES AND ALIGNED WITH ALL OTHER DEVICES IN CEILING IN BOTH DIRECTIONS. COORDINATE WITH ARCHITECT.

F. FIRE PROTECTION CONTRACTOR SHALL PREPARE DETAILED AND COORDINATED SHOP DRAWINGS SO AS TO AVOID CONFLICTS IN THE FIELD. CONTRACTOR SHALL COORDINATE WITH REFLECTED CEILING PLAN, DUCTWORK LAYOUT AND LIGHTING LAYOUT. ALL COORDINATION SHALL TAKE PLACE PRIOR TO INSTALLATION.

G. CONTRACTOR SHALL FILE ALL DRAWINGS, PAY ALL FEES AND OBTAIN PERMITS AND CERTIFICATES OF INSPECTIONS RELATIVE TO THIS WORK.

H. PREPARE AND SUBMIT SHOP DRAWINGS, PRODUCT DATA AND HYDRAULIC CALCULATIONS AS REQUIRED. ALL INFORMATION SHOWN ON FIRE PROTECTION DRAWINGS SHALL BE INCLUDED ON THE SHOP DRAWINGS.

I. CONTRACTOR TO BE RESPONSIBLE FOR MAKING FINAL COORDINATION WITH STRUCTURE AND ALL OTHER TRADES PRIOR TO SUBMITTING SHOP DRAWINGS. ALL ELEVATIONS OF PIPE MUST BE SHOWN ON SHOP DRAWINGS.

J. ALL SPRINKLERS AND PIPING SHALL BE PROTECTED FROM FREEZING. USE DRY SIDEWALL SPRINKLERS OR DRY PIPE SYSTEM FOR VESTIBULES, ALCOVES, TRASH ENCLOSURES, CANOPIES, AND PORCHES.

K. FIRE SPRINKLER CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH FIRE ALARM PANEL AND SUPERVISION OF NEW SPRINKLER TAMPER AND FLOW SWITCHES.

L. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

M. SPRINKLER HEAD PLACEMENT SHALL BE OUT OF THE SWING AREA OF DOORS TO AVOID CONFLICT WITH TALL DOORS.

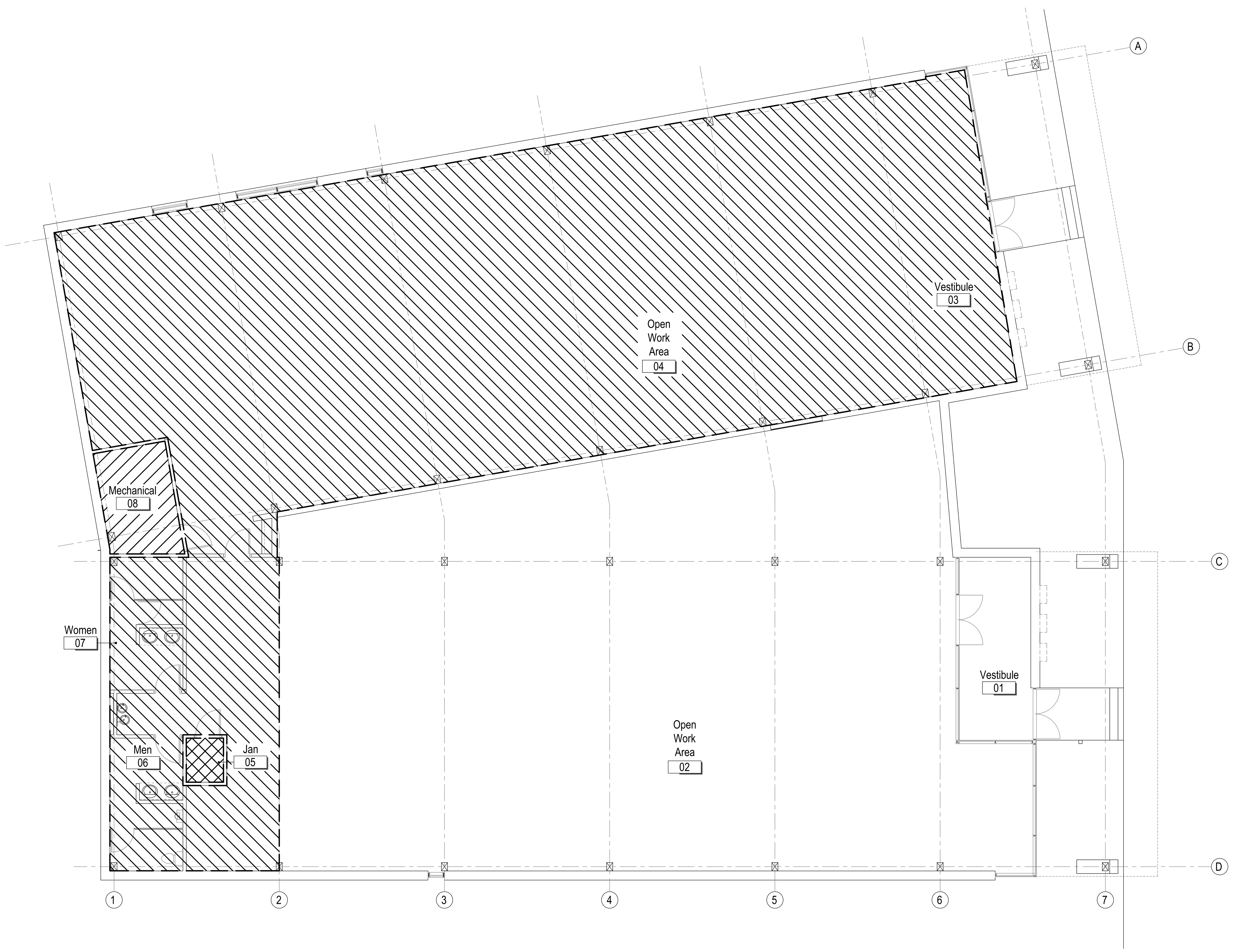
FIRE PROTECTION LEGEND

RECONFIGURE EXISTING BASE BUILDING FIRE SPRINKLER LAYOUT WITHIN THIS AREA IN ORDER TO PROVIDE PROPER COVERAGE PER NFPA 13 AND LOCAL AUTHORITIES. ALL REMOVED / RELOCATED FIRE SPRINKLERS MUST BE REPLACED WITH NEW PER NFPA 13. NEW SPRINKLERS TO MATCH EXISTING. REFER TO REFLECTED CEILING PLANS FOR COORDINATION WITH LIGHTS, DIFFUSERS, EXIT SIGNS, ETC.

LIGHT HAZARD - PROVIDE PROPER COVERAGE PER NFPA 13 (0.1 GPM PER SQUARE FOOT OVER THE MOST REMOTE 1500 SQUARE FEET) PLUS 100 GPM HOSE STREAM ALLOWANCE.

ORDINARY HAZARD GROUP 1 - PROVIDE PROPER COVERAGE PER NFPA 13 (0.15 GPM PER SQUARE FOOT OVER THE MOST REMOTE 1500 SQUARE FEET) PLUS 250 GPM HOSE STREAM ALLOWANCE.

ORDINARY HAZARD GROUP 2 - PROVIDE PROPER COVERAGE PER NFPA 13 (0.2 GPM PER SQUARE FOOT OVER THE MOST REMOTE 1500 SQUARE FEET) PLUS 250 GPM HOSE STREAM ALLOWANCE.



FIRST FLOOR PLAN-FIRE PROTECTION

SCALE: 1/8" = 1'-10"

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FIRST FLOOR PLAN- FIRE PROTECTION

FP1

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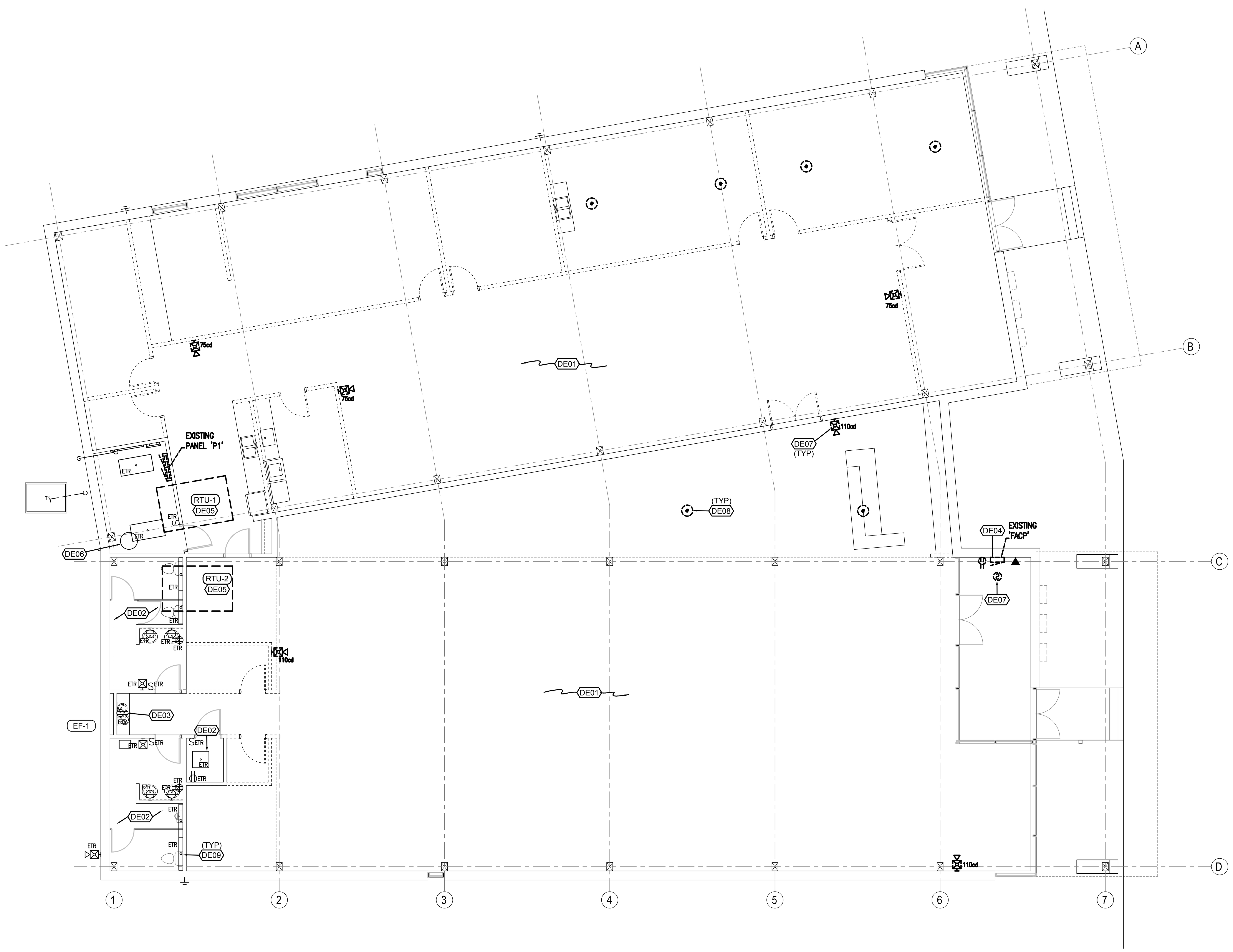

FIRST FLOOR PLAN-ELECTRICAL DEMOLITION

SCALE: 1/8" = 1'-10"

N

GENERAL DEMOLITION NOTES

- DEMOLITION WORK SHALL BE PERFORMED BY DEMOLITION CONTRACTOR, INCLUDING LOW VOLTAGE WORK.
- ABANDONED COMMUNICATIONS CABLING SHALL BE REMOVED IN IT'S ENTIRETY.
- CIRCUITS NOT BEING REUSED SHALL BE LABELED AS "SPARE" IN THE PANEL DIRECTORY.

DE## FLOOR PLAN NOTES

1. UNLESS NOTED OTHERWISE, EXISTING ELECTRICAL EQUIPMENT TO BE REMOVED WITHIN SPACE, INCLUDING BUT NOT LIMITED TO, RECEPTACLES, TELECOMMUNICATIONS OUTLETS, FLOOR BOXES, LIGHT FIXTURES, LIGHTING CONTROL DEVICES, FIRE ALARM, POWER CONNECTIONS TO MECHANICAL EQUIPMENT TO BE REMOVED, POWER CONNECTIONS TO PLUMBING EQUIPMENT TO BE REMOVED AND JUNCTION BOXES. REMOVE ALL ASSOCIATED CONDUIT AND WIRING BACK TO SOURCE.
2. EXISTING ELECTRICAL EQUIPMENT IN THIS ROOM TO REMAIN, CIRCUIT TO BE DISCONNECTED FROM EXISTING PANEL 'P1' THEN RECONNECTED TO NEW HOUSE PANEL 'HP'.
3. WATER FOUNTAIN AND ELECTRICAL CONNECTION TO WATER FOUNTAIN TO REMAIN, CIRCUIT WILL BE DISCONNECTED FROM EXISTING PANEL 'P1' TO NEW HOUSE PANEL 'HP'.
4. FIRE ALARM PANEL TO BE REMOVED AND RELOCATED TO MECHANICAL ROOM.
5. EXISTING RTU TO BE REMOVED, ALL ASSOCIATED CONDUIT AND WIRING BACK TO SOURCE.
6. EXISTING WATER HEATER TO REMAIN, DISCONNECT WIRING FROM EXISTING PANEL P1 THEN RECONNECT TO NEW HOUSE PANEL "HP".
7. EXISTING FIRE ALARM DEVICES TO BE REMOVED AND RELOCATED.
8. FLOOR BOX TO BE REMOVED, REMOVE WIRING BACK TO SOURCE, UNDERGROUND CONDUIT TO REMAIN. TO BE CONFIRMED WITH TI DRAWINGS.
9. EXISTING LIGHT FIXTURES INTENDED TO REMAIN.

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451 NW Murray Rd Renovation

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ISSUED FOR:

Permit / Bid 29 OCT 2021

Drawn By Author
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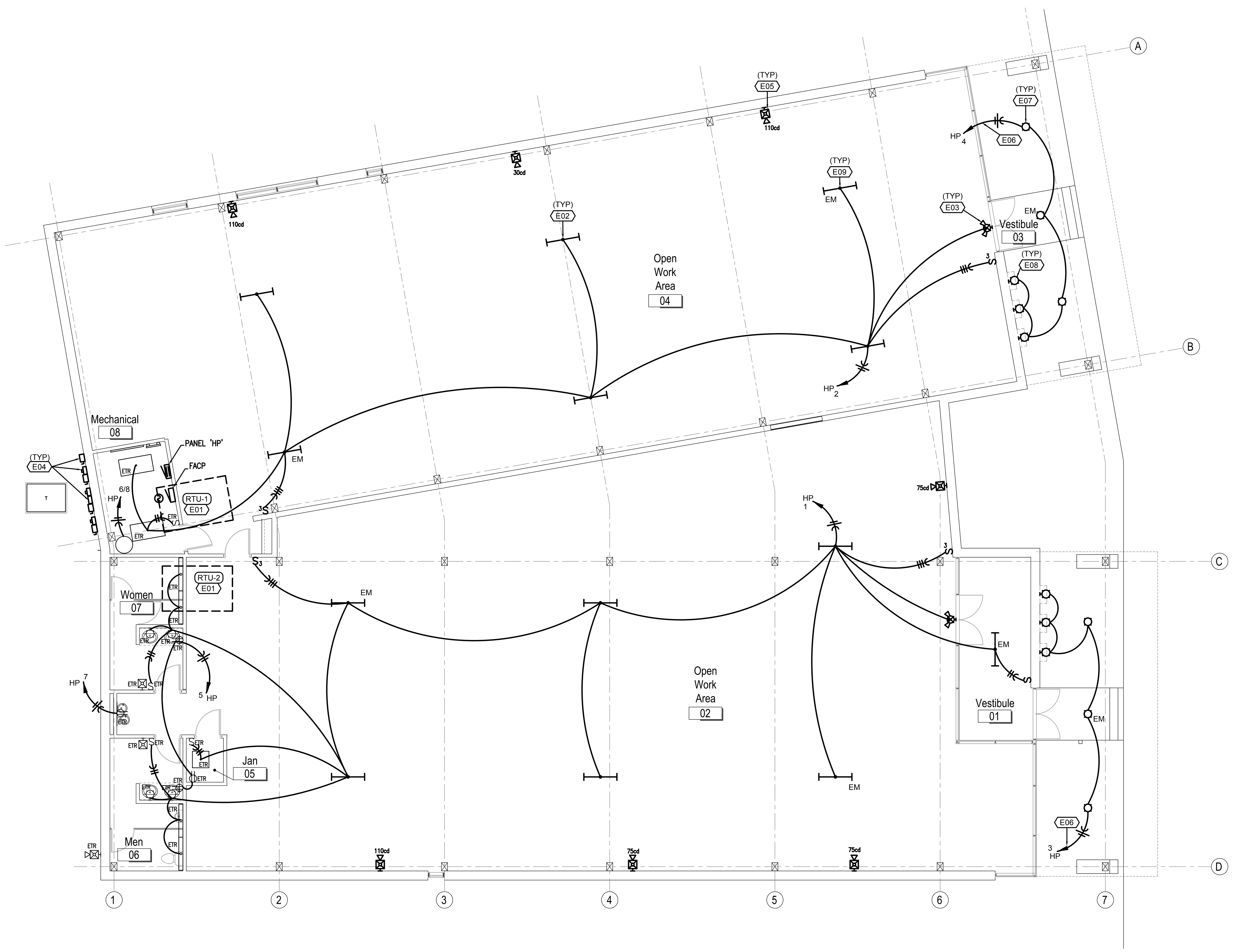
FIRST FLOOR PLAN-ELECTRICAL DEMOLITION

E1

Project Number: 2021.375

FLOOR PLAN NOTES

1. RTU TO BE CONNECTED TO FUTURE WORKSPACE PANEL.
2. PROVIDE LED 4' STRIP INDUSTRIAL FIXTURE. HE WILLIAMS 75S SERIES OR EQUAL.
3. PROVIDE COMBINATION EXIT SIGN AND EMERGENCY LIGHT, WHITE POLYCARBONATE, EMERGENCY BATTERY. HE WILLIAMS EXIT/EMER SERIES OR EQUAL.
4. REFERENCE TO RISER DIAGRAM FOR SERVICE EQUIPMENT.
5. REUSE EXISTING FIRE ALARM DEVICE TO AND CONNECT TO RELOCATED FIRE ALARM PANEL.
6. ROUTE CIRCUIT THROUGH LINE VOLTAGE PHOTOCELL. MOUNT PHOTOCELL ON EXTERIOR WALL, FACING NORTH.
7. PROVIDE SURFACE MOUNTED WET LISTED FIXTURE. LIGMAN UJE-80052 OR EQUAL.
8. PROVIDE WALL MOUNTED WET LISTED FIXTURE. LIGMAN UJE-30371 OR EQUAL.
9. PROVIDE EMERGENCY LIGHT FIXTURES WITH EMERGENCY BATTERY BACK-UP.



FIRST FLOOR PLAN-ELECTRICAL
SCALE: 1/8" = 1'-10"

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10/29/2021

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FIRST FLOOR PLAN-POWER

E2

Project Number: 2021.375

NEW PANELBOARD HP SCHEDULE

SERVICE: 208/120 VOLT , 3 - PHASE , 4 - WIRE
AMP FRAME: 100 AMP
MAINS: MCB / 100 AMP MAIN BREAKER
MOUNTING: SURFACE
RATING: 22000 A.I.C.
LOCATION: _

REV NO.	NOTE NO.	LOAD CRT#	LOAD DESCRIPTION	BRKR P	BRKR AMP	LOAD KVA A	LOAD KVA B	LOAD KVA C	LOAD KVA 3PH	LOAD CRT#	LOAD DESCRIPTION	BRKR P	BRKR AMP	LOAD KVA A	LOAD KVA B	LOAD KVA C	LOAD KVA 3PH	NOTE NO.	REV NO.
		1	LIGHTING SPACE ONE	1	20	0.4				2	LIGHTING SPACE TWO	1	20	0.4					
		3	EXTERIOR LIGHTING SPACE ONE	1	20		0.4			4	EXTERIOR LIGHTING SPACE TWO	1	20		0.4				
		5	RESTROOM/JANITOR RCPT	1	20			0.54		6	WATER HEATER	2	30			1.7			
		7	WATER FOUNTAIN RCPT	1	20	0.18				8				1.7					
		9	SPARE	1	20					10	SPARE	1	20						
		11	SPARE	1	20					12	SPARE	1	20						
		13	SPARE	1	20					14	SPARE	1	20						
		15	SPARE	1	20					16	SPARE	1	20						
		17	SPARE	1	20					18	SPARE	1	20						
		19	SPARE	1	20					20	SPARE	1	20						
		21	SPARE	1	20					22	SPARE	1	20						
		23	SPARE	1	20					24	SPARE	1	20						
		25		1	20					26		1	20						
		27		1	20					28		1	20						
		29		1	20					30		1	20						
			TOTAL:			0.58	0.4	0.54	0		TOTAL:			2.1	0.4	1.7	0.0		
														0.58	0.4	0.54	0.0		
											KVA / PHASE TOTAL:			2.68	0.8	2.24	0.0		
											AMP / PHASE TOTAL:			22.3	6.7	18.7			

NOTES:
1

TOTAL CONNECTED LOAD:	5.72	KVA
TOTAL CONNECTED CURRENT:	15.88	AMPS
LIGHTS @ 125%:	2.00	KVA
RECEPTACLES @ 100%:	0.72	KVA
RECEPTACLES @ 50%	0.00	KVA
LARGEST MOTOR LOAD @ 125%:	0.00	KVA
CONTINUOUS LOAD @ 125%:	0.00	KVA
OTHER AND NON-CONTINUOUS LOADS @ 100%:	0.00	KVA
TOTAL DEMAND LOAD:	4.42	KVA
POWER FACTOR:	0.95	% PF
TOTAL DEMAND CURRENT:	12.91	AMPS

E = EXISTING BREAKER/INDEX/LOAD (ESTIMATED)
REV:

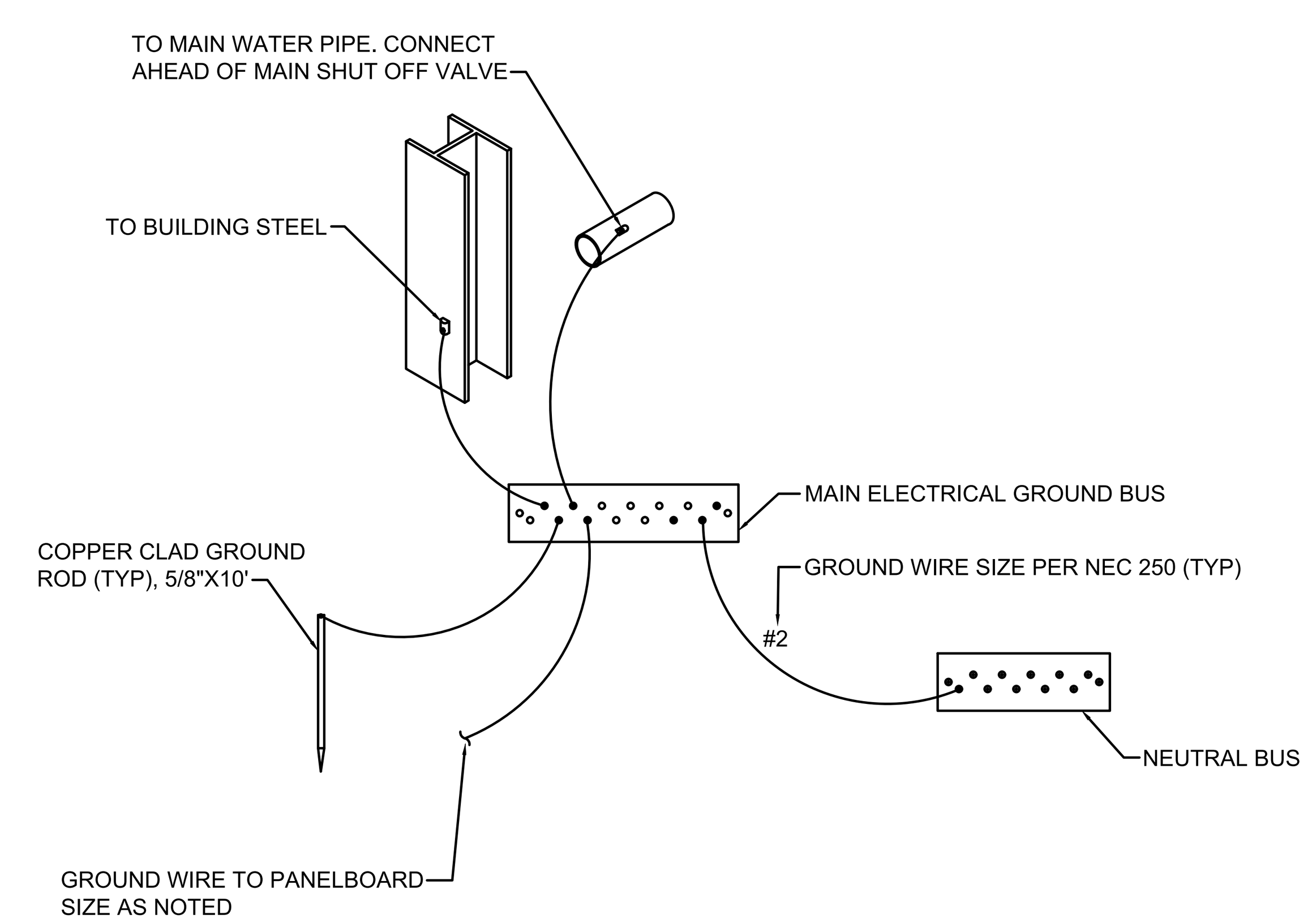
GENERAL NOTE:
CONDUCTOR & CONDUIT SIZING CHART FOR SIZING OF BRANCH CIRCUITS AND OR FEEDERS AT OR BELOW 100 AMPS

BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZING CHART*

OVERCURRENT PROTECTION DEVICE RATING (AMPS)	REQUIRED CONDUCTOR SIZE	EQUIPMENT GROUNDING CONDUCTOR SIZE	SINGLE PHASE 2 WIRE + GND. CONDUIT SIZE	SINGLE PHASE 3 WIRE + GND. CONDUIT SIZE	THREE PHASE 3 WIRE + GND. CONDUIT SIZE	THREE PHASE 4 WIRE + GND. CONDUIT SIZE
15	12 AWG	12 AWG	3/4"	3/4"	3/4"	3/4"
20	12 AWG	12 AWG	3/4"	3/4"	3/4"	3/4"
25	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
30	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
35	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
40	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
45	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
50	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
60	4 AWG	10 AWG	1"	1"	1"	1-1/4"
70	4 AWG	8 AWG	1"	1"	1"	1-1/4"
80	3 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
90	2 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
100	1 AWG	8 AWG	1-1/4"	1-1/2"	1-1/2"	1-1/2"

* = UNLESS OTHERWISE NOTED ON THE DRAWINGS.
* = UNLESS OTHERWISE NOTED ON THE DRAWINGS, ALL BRANCH CIRCUITS AND FEEDERS TO BE PROVIDED WITH A NEUTRAL WIRE.
* = ALL CONDUCTORS SIZED ON THE POWER RISER DIAGRAM OR IN BRANCH CIRCUIT CONDUCTOR TABLE ARE BASED ON 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY OR CABLE. CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE NEC IF 4 OR MORE CONDUCTORS ARE PLACED IN A RACEWAY OR CABLE.

NOTES:
1. ALL WIRING SHALL BE TYPE THHN/THWN
2. MAIN GROUND RODS ARE TO BE LOCATED AT SERVICE ENTRANCE WITH SIZE AND QUANTITY PER SPECIFICATIONS.
3. EQUIPMENT GROUNDING CONDUCTORS SMALLER THAN 6 AWG SHALL BE PROTECTED PER NEC 250.120(C)



MAIN SERVICE ENTRANCE GROUNDING DETAIL
NO SCALE

GENERAL NOTES (TYPICAL ALL SHEETS)

A. ANY MATERIAL REMOVED THAT OWNER DOES NOT WISH TO RETAIN SHALL BE REMOVED FROM PROJECT SITE AND DISPOSED OF BY THE CONTRACTOR.

B. NEW CIRCUITRY SHOWN FOR NEW/EXISTING POWER AND LIGHTING IS DIAGRAMMATIC AND IS INTENDED TO SHOW WHICH DEVICES ARE TO BE GROUPED ON INDIVIDUAL CIRCUITS. EXISTING WIRING THAT CONFORMS TO THE INTENT OF THE DRAWINGS MAY BE USED.

C. PROVIDE UPDATED, TYPEWRITTEN PANELBOARD DIRECTORY FOR EACH PANELBOARD WHICH CIRCUITS HAVE BEEN ADDED TO OR MODIFIED.

D. CONTRACTOR TO REFERENCE BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZING CHART FOR SIZING OF BRANCH CIRCUITS AND OR FEEDERS AT OR BELOW 100AMPS.

E. EXISTING RECEPTACLES AND SWITCHES TO REMAIN EXCEPT THOSE THAT ARE CHIPPED, BROKEN OR DAMAGED IN ANY OTHER WAY SHALL BE REPLACED TO MATCH EXISTING.

F. SUPPORT ALL LIGHT FIXTURES WITH A MINIMUM OF (4) 12 GA. HANGER WIRES TO STRUCTURE ABOVE.

G. CONNECT EXIT AND EMERGENCY LIGHTS TO HOT LEG, NOT SWITCH LEG.

H. CLEAN AND CHECK ALL EXISTING LIGHT FIXTURES FOR PROPER OPERATION AND REPLACE ANY BROKEN SOCKETS, LENS, LOUVERS, OR DEFECTIVE BALLAST. RELAMP ALL EXISTING FIXTURES WITH NEW LAMPS.

I. THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN BID ALL COSTS ASSOCIATED WITH FIRE ALARM MODIFICATIONS. THIS WORK SHALL INCLUDE POWER EXTENDER PANEL, SMOKE DETECTORS, HORN/STROBES, PULL STATIONS, REMOTE INDICATING LIGHTS AND ANY OTHER FIRE ALARM WORK SHOWN ON PLANS. ALL WIRING, PLENUM RATED CABLING, BETWEEN DEVICES SHALL BE INCLUDED IN WORK TO PROVIDE AN OPERATIONAL EXTENSION OF THE EXISTING FIRE ALARM SYSTEM.

J. CONDUIT SHALL BE USED FOR CONDUCTORS WHERE REQUIRED BY N.E.C.

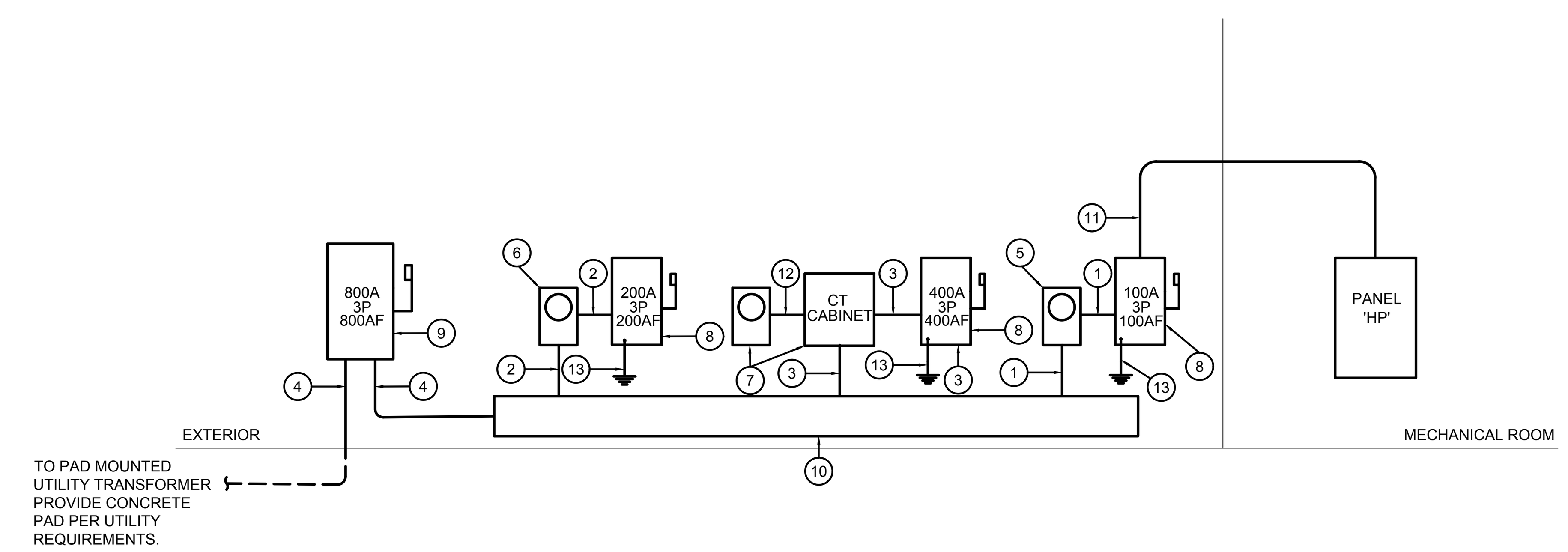
K. CONTRACTOR SHALL CALCULATE VOLTAGE DROP AND SIZE WIRE ACCORDINGLY. PER N.E.C.

L. INSTALL FIRE ALARM DEVICES THAT COMPLY WITH APPLICABLE CODES. INCLUDING BUT NOT LIMITED TO THE FAIR HOUSING ACT, NFPA, UL, ADA, IBC OR ANY OTHER AUTHORITIES HAVING JURISDICTION.

M. FIRE ALARM CONTRACTOR IS RESPONSIBLE OF TESTING AND VERIFYING THAT THE AUDIBILITY OF THE FIRE ALARM SYSTEM MEETS A MINIMUM OF 15 DBA ABOVE AMBIENT NOISE LEVELS. AFTER INSTALLATION AND BEFORE CERTIFICATE OF OCCUPANCY. ADD HORNS WHERE REQUIRED TO MAINTAIN MINIMUM LEVELS.

ELECTRICAL SYMBOLS

- BRANCH CIRCUIT CONCEALED IN CEILING OR WALL. ARROWS INDICATE HOMERUNS TO PANEL. ALL CONDUCTORS ARE MINIMUM NO.12 UNLESS NOTED OTHERWISE.
  - PHASE CONDUCTORS
  - NEUTRAL CONDUCTOR
  - SWITCH-LEG AND OR TRAVELER
  - GROUND CONDUCTOR
- LP1-10 — PANEL - BREAKER NUMBER (IDENTIFICATION)
- 1/3, 1/3/5 — INDICATES X/X= 2-POLE C.B., X/X/X = 3-POLE C.B.
- CONDUIT CONCEALED IN CEILING OR WALL WITH THREE CONDUCTORS: 1-PHASE; 1-NEUTRAL; 1-GROUND WIRE, MINIMUM NO.12 WIRE UNLESS OTHERWISE SPECIFIED ON DRAWINGS.
- (OR) COMBINATION EXIT SIGN/EMERGENCY LIGHTING UNIT - CEILING OR WALL MOUNTED. SHADED SIDE(S) INDICATES FACE SIDE(S) OF EXIT.
- A A — 2x4 / 2x2 LIGHT FIXTURE, LETTER DENOTES FIXTURE TYPE, REFER TO SCHEDULE
- STRIP FIXTURE, LETTER DENOTES FIXTURE TYPE, REFER TO SCHEDULE
- (OR) WALL WASH OR RECESSED CEILING LIGHT FIXTURE
- WALL MOUNTED LIGHT FIXTURE, SIZE AND TYPE AS NOTED
- INDIRECT/DIRECT LIGHT FIXTURE, SIZE AND TYPE AS NOTED
- 208Y/120V OR 120/240V PANELBOARD (SURFACE) TOP MOUNTED 6'-0" AFF
- 208Y/120V OR 120/240V PANELBOARD (FLUSH) TOP MOUNTED 6'-0" AFF
- SURFACE MOUNTED EQUIPMENT, TYPE AS INDICATED ON DRAWINGS
- FLUSH MOUNTED EQUIPMENT, TYPE AS INDICATED ON DRAWINGS
- DISCONNECT SWITCH, SIZE AND TYPE AS NOTED TOP MOUNTED 5'-0" AFF
- S — SINGLE POLE SWITCH. TOP OF DEVICE BOX AT +4'-0" AFF
- S3 — THREE-WAY SWITCH. TOP OF DEVICE BOX AT +4'-0" AFF
- DUPLEX RECEPTACLE. +1'-6" AFF OR AS NOTED
- DUPLEX RECEPTACLE INSTALLED ABOVE COUNTERTOP
- WP — GFI DUPLEX RECEPTACLE WITH WEATHERPROOF PLATE. HEIGHT AS NOTED.
- GFI — DUPLEX RECEPTACLE W/GROUND FAULT PROTECTION. +1'-6" AFF OR AS NOTED
- W — VOICE OUTLET WITH 3/4" CONDUIT STUBBED UP OUT OF BOX TO ABOVE ACCESSIBLE CEILING. INSTALLED ABOVE COUNTERTOP. (W DENOTES WALL MOUNTED +48" AFF)
- FA VISUAL FIRE ALARM STROBE LIGHT +6'-8" A.F.F.
- FA COMBINATION AUDIBLE/VISUAL WALL MOUNTED, +6'-8" AFF.
- AFF — ABOVE FINISH FLOOR
- ETR — EXISTING TO REMAIN
- FA — FIRE ALARM



RISER DIAGRAM
NO SCALE

ⓧ RISER NOTES

1. PROVIDE 100 AMP FEEDER: 1-1/2"C, 4-#1.
2. PROVIDE 200 AMP FEEDER: 2" C, (4)#3/0.
3. PROVIDE 400 AMP FEEDER: (2) SETS OF 2-1/2"C, 4-#3/0.
4. PROVIDE 800 AMP SERVICE: (3) SETS OF 3"C, 4-#300.
5. PROVIDE 100 AMP, 120/208 VOLT, 3 PHASE, UTILITY METER SOCKET PER UTILITY COMPANY STANDARDS. GROUND PER UTILITY COMPANY STANDARDS.
6. PROVIDE 200 AMP, 120/208 VOLT, 3 PHASE, UTILITY METER SOCKET PER UTILITY COMPANY STANDARDS. GROUND PER UTILITY COMPANY STANDARDS.
7. PROVIDE 400 AMP, 120/208 VOLT, 3 PHASE, UTILITY METER SOCKET AND CT CABINET PER UTILITY COMPANY STANDARDS. GROUND PER UTILITY COMPANY STANDARDS.
8. PROVIDE FUSED DISCONNECT SWITCH WITH NEMA 3R ENCLOSURE. PROVIDE WITH CLASS J FUSES.
9. PROVIDE FUSED DISCONNECT SWITCH WITH NEMA 3R ENCLOSURE. PROVIDE WITH CLASS L FUSES. GROUND PER UTILITY COMPANY STANDARDS.
10. PROVIDE NEMA 3R GUTTER WIREWAY. SPLICE INCOMING SERVICE CONDUCTORS TO HOUSE AND FUTURE SERVICE CONDUCTORS WITHIN WIREWAY. GROUND PER UTILITY COMPANY STANDARDS.
11. PROVIDE 100 AMP SERVICE: 1-1/2"C, 4-#1, 1-#8 GROUND.
12. PROVIDE 1-1/4"C FOR UTILITY METERING CABLES PER UTILITY COMPANY STANDARDS.
13. REFER TO SERVICE GROUNDING DETAIL.

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ELECTRICAL DETAILS

E3

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