1309 SW JEFFERSON ST

LEES SUMMIT, MO 64081

CODE NOTES

A. ALL CONSTRUCTION FOR THIS PROJECT SHALL BE PERFORMED UNDER THE PROVISIONS OF FOLLOWING LIST OF CODES, AS AMENDED BY THE CITY OF LEES SUMMIT, MISSOURI:
- A.1. 2018 INTERNATIONAL BUILDING CODE
- A.2. 2018 INTERNATIONAL PLUMBING CODE
- A.3. 2018 INTERNATIONAL MECHANICAL CODE
- A.4. 2018 INTERNATIONAL FUEL GAS CODE
- A.5. 2018 INTERNATIONAL RESIDENTIAL CODE
- A.6. 2018 INTERNATIONAL FIRE CODE
- A.7. 2017 NATIONAL ELECTRICAL CODE
- A.8. ICC/ANSI A117.1-2009, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES (1)

B. USE, OCCUPANCY CLASSIFICATION, AND TYPE OF CONSTRUCTION:
- B.1. TENANT USE: BUSINESS OFFICE
- B.2. TENANT OCCUPANCY CLASSIFICATION: B - BUSINESS
- B.3. BUILDING TYPE OF CONSTRUCTION: VB

C. TENANT SQUARE FOOT CALCULATIONS:
- C.1. GROSS TENANT AREA (OUTSIDE FACE) = 3,491 SF
- C.2. OCCUPIED AREA (INSIDE FACE) 3,243 SF

D. FIRE PROTECTION SYSTEMS:
- D.1. AUTOMATIC SPRINKLER SYSTEMS: NONE PROVIDED.
- D.2. FIRE ALARM AND DETECTION SYSTEMS: NONE PROVIDED.

E. TENANT OCCUPANT LOAD (TABLE 1003.2.2.2):
- E.1. 19.05 + 7.70 = 26.75 ≈ 27 OCCUPANTS

F. SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY (TABLE 1006.2.1): COMMON PATH OF EGRESS TRAVEL IN GROUP B OCCUPANCY WITHOUT SPRINKLER SYSTEM IN A SPACE WITH OCCUPANT LOAD OF ≤30, THE LENGTH OF COMMON EGRESS TRAVEL SHALL NOT BE MORE THAN 100 FEET.

GENERAL NOTES

1. MAINTAIN ACCESS TO EXISTING WALKWAYS, CORRIDORS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT WALKWAYS, CORRIDORS, OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM TENANT.

2. DEFINITIONS:
   - 2.1. REMOVE AND DISCARD: DETACH ITEMS FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF THEM OFF-SITE.
   - 2.2. REMOVE AND SALVAGE: DETACH ITEMS FROM EXISTING CONSTRUCTION AND TURN OVER TO TENANT UNDAMAGED.
   - 2.3. RELOCATE: DETACH ITEMS FROM EXISTING CONSTRUCTION, MOVE ITEMS INTACT AND UNDAMAGED, AND REINSTALL THEM WHERE INDICATED.
   - 2.4. EXISTING TO REMAIN: EXISTING ITEMS OF CONSTRUCTION THAT ARE NOT TO BE REMOVED, BUT ARE TO REMAIN IN PLACE AND BE UNDAMAGED.
   - 2.5. REMOVE AND RECLAIM: DETACH ITEMS FROM EXISTING CONSTRUCTION. AT CONTRACTORS OPTION ITEM MAY BE REUSED AS PART OF NEW WORK. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INVENTORY ITEMS TO DETERMINE IF ITEMS WILL FUNCTION AND APPEAR LIKE THE NEW ITEMS SPECIFIED AND CALLED OUT ON THESE DOCUMENTS. IF ITEMS ARE REUSED, CONTRACTOR IS TO CLEAN, REPAIR, OR OTHERWISE BRING ITEMS TO LIKE NEW CONDITION. MODIFY REUSED ITEMS AS REQUIRED AND SUPPLEMENT WITH MATERIALS, AND INCIDENTALS NECESSARY TO EXECUTE A COMPLETE WORKMANLIKE JOB. IF CONTRACTOR CHOOSES TO NOT REUSE ITEM, LEGALLY DISPOSE OF ITEM OFF-SITE AND REPLACE WITH NEW TO MATCH EXISTING.
   - 2.6. PROVIDE: THE MEANING OF THE WORD "PROVIDED" INCLUDES, BUT IS NOT LIMITED TO, FURNISHED, DELIVERED, INSTALLED, FINISHED, MADE FULLY OPERABLE AND COMPLETE. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL WORK DESCRIBED IN THESE DOCUMENTS IS TO BE PROVIDED BY THE CONTRACTOR.

3. CONTRACTOR IS TO INCLUDE AS PART OF HIS SCOPE ALL CUTTING AND PATCHING REQUIRED THROUGH CAREFUL EVALUATION OF THE EXISTING SITE AND THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL COORDINATE THE CUTTING AND PATCHING OF EXISTING CONSTRUCTION NECESSARY TO PERMIT INSTALLATION OR PERFORMANCE OF THE WORK INDICATED IN THESE CONSTRUCTION DOCUMENTS. SAW-CUT CONC. SLAB AS REQUIRED FOR UTILITIES, FOR EQUIPMENT AND SINKS. VERIFY ROUTE AND TRENCH DEPTH IN FIELD. PATCH BACK WITH MATCHING SLAB THICKNESS OVER SAME MATERIAL, COMPACT UNDERLYING MATERIALS TO MEET BEST PRACTICES. DOWEL NEW TO EXISTING WITH #4 REBAR AT 30" OC.

4. WHERE WALLS, CASEWORK, FINISHES, EQUIPMENT OR OTHER ITEMS AND CONSTRUCTIONS HAVE BEEN REMOVED EXPOSING UNDERLYING WALL AND/OR FLOOR SURFACES, SUCH SURFACES ARE TO BE PATCHED AND REPAIRED AS REQUIRED TO ACCEPT NEW FINISHES. ALL HOLES, DAMAGES, DEFECTS, ETC. IN EXISTING SURFACES ARE TO BE PATCHED TO MATCH EXISTING CONDITIONS.

5. EXISTING CONDITIONS SHOWN ON THESE DRAWINGS ARE BASED UPON BASE BUILDING OR OTHER CONSTRUCTION DOCUMENTS MADE AVAILABLE TO THE DESIGNER BY THE BUILDING MANAGEMENT. ALL AS-BUILT ARCHITECTURAL CONDITIONS HAVE NOT BEEN FIELD VERIFIED AND MAY VARY FROM THOSE SHOWN.

6. PRIOR TO BID: FIELD VERIFY ALL EXISTING CONSTRUCTION TO REMAIN AND INCLUDE COSTS FOR REPAIR AND RECONDITION OF ALL EXISTING CONSTRUCTION TO REMAIN SO THAT IT MEETS THE AESTHETIC AND FUNCTIONAL STANDARD OF QUALITY FOR NEW CONSTRUCTION. BLEND AND MATCH EXISTING CONSTRUCTION WITH NEW CONSTRUCTION PRIOR TO BID, ADVISE TENANT OF ANY CONDITIONS WHICH CANNOT BE REPAIRED OR RECONDITIONED, BLENDED AND MATCHED. NOTE CONTRACT DOCUMENT REQUIREMENTS FOR EXISTING CONSTRUCTION AND INCLUDE COSTS FOR THIS WORK IN BID PROPOSAL.

7. THE GENERAL CONTRACTOR SHALL, IN THE BIDDING PROCESS, REQUIRE THAT MECHANICAL AND ELECTRICAL SUBCONTRACTORS MAKE A THOROUGH FIELD INSPECTION OF AS-BUILT CONDITIONS OF EXISTING SYSTEMS. AFTER SUCH FIELD VERIFICATION HAS BEEN COMPLETED, THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL PROVIDE IN THEIR BIDS, ANY MODIFICATIONS TO THE EXISTING SYSTEMS WHICH MAY BE REQUIRED TO ACCOMMODATE THE PROPOSED REQUIREMENTS FOR THIS TENANT. IF A DETERMINATION OF SUCH MODIFICATIONS CANNOT BE MADE, THE GENERAL CONTRACTOR SHALL NOTIFY THE TENANT, AND AT THE DIRECTION OF THE TENANT, PROVIDE AN AGREED UPON ALLOWANCE TO COVER SUCH WORK.

8. COMMENCING WORK BY A CONTRACTOR OR SUBCONTRACTOR CONSTITUTES ACCEPTANCE OF THE UNDERLYING CONDITIONS AND SURFACES. PRIOR TO PROCEEDING WITH THE WORK, PREPARE EXISTING AND NEW UNDERLYING CONDITIONS AND SUBSTRATE TO COMPLY WITH THE CONTRACT DOCUMENTS, INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATION.

9. FIELD VERIFY ALL ROUGH OPENINGS AND WALL WIDTHS PRIOR TO ORDERING OR FABRICATION OF MATERIALS.

10. DIMENSIONS ARE NOMINAL AND TO THE FACE OF PARTITIONS

11. CLEAN-UP OF RUBBISH AND DEBRIS RESULTING FROM DEMOLITION AND NEW WORK SHALL BE COLLECTED REGULARLY FROM PROJECT SITE AND LEGALLY DISPOSED

12. ALL WEATHER EXPOSED SURFACES SHALL HAVE A WEATHER RESISTIVE BARRIER TO PROTECT THE INTERIOR WALL COVERING AND EXTERIOR OPENINGS SHALL BE FLASHED IN SUCH A MANNER AS TO MAKE THEM WEATHERPROOF

13. BUILDING ADDRESS NUMBERS SHALL BE PROVIDED AND PLACED IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. IN MULTI-TENANT COMMERCIAL BUILDING WHERE TENANTS HAVE MULTIPLE ENTRANCES LOCATED ON DIFFERENT SIDES OF THE BUILDING EACH DOOR SHALL BE ADDRESSED. ADDRESS NUMBERS SHALL BE ARABIC NUMERALS OR ALPHABET LETTERS. NUMBERS SHALL BE A MINIMUM OF 4 INCHES (102 MM) HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCH (12.7 MM).

14. CONTRACTORS ARE RESPONSIBLE FOR ALL MATERIALS AND QUANTITIES SHOWN IN THESE DRAWINGS GRAPHICALLY AS WELL AS THOSE CALLED FOR BY NOTE

15. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE THE PROPOSED WORK AND SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS

16. THE TENANT OR THE TENANT'S DESIGNATED REPRESENTATIVE WILL PROVIDE SERVICES IN CONNECTION WITH ADMINISTRATION OF THE CONTRACT

17. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS OF THE GOVERNING AGENCIES HAVING JURISDICTION

18. THE CONTRACTOR MUST TAKE ADEQUATE CARE TO PROTECT ALL AREAS OF THE BUILDING WHERE THE WORK OF THIS PROJECT IS LOCATED AS WELL AS THE AREAS ADJACENT TO THE AREA OF THE WORK OF THIS PROJECT SO AS TO PREVENT DAMAGE TO LIFE OR PROPERTY AS A RESULT OF THIS CONSTRUCTION PROJECT

19. ONLY MATERIALS THAT ARE NEW, UNUSED, FREE FROM DEFECTS, AND THE BEST OF THEIR RESPECTIVE KINDS SHALL BE USED. THE BASIS OF QUALITY SHALL BE THE LATEST STANDARDS OF ASTM, ASA OR ASHRA

20. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES INCLUDING THOSE OF THE TENANT WHO MAY BE ENGAGED UNDER A SEPARATE CONTRACT

21. INSTALL ALL WORK IN SUCH A MANNER AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND/OR REPAIRS

22. ALL WORK AND EQUIPMENT SHALL BE CLEANED TO THE SATISFACTION OF THE TENANT BEFORE BEING TURNED OVER FOR USE

23. A COPY OF THE LATEST SET OF CONSTRUCTION DOCUMENTS SHALL BE KEPT AT THE JOB SITE AT ALL TIMES

24. THE CONTRACTOR AND EACH SUBCONTRACTOR SHALL KEEP ACCURATE RECORDS OF ANY MODIFICATION OR DEVIATIONS FROM THE CONTRACT DRAWINGS

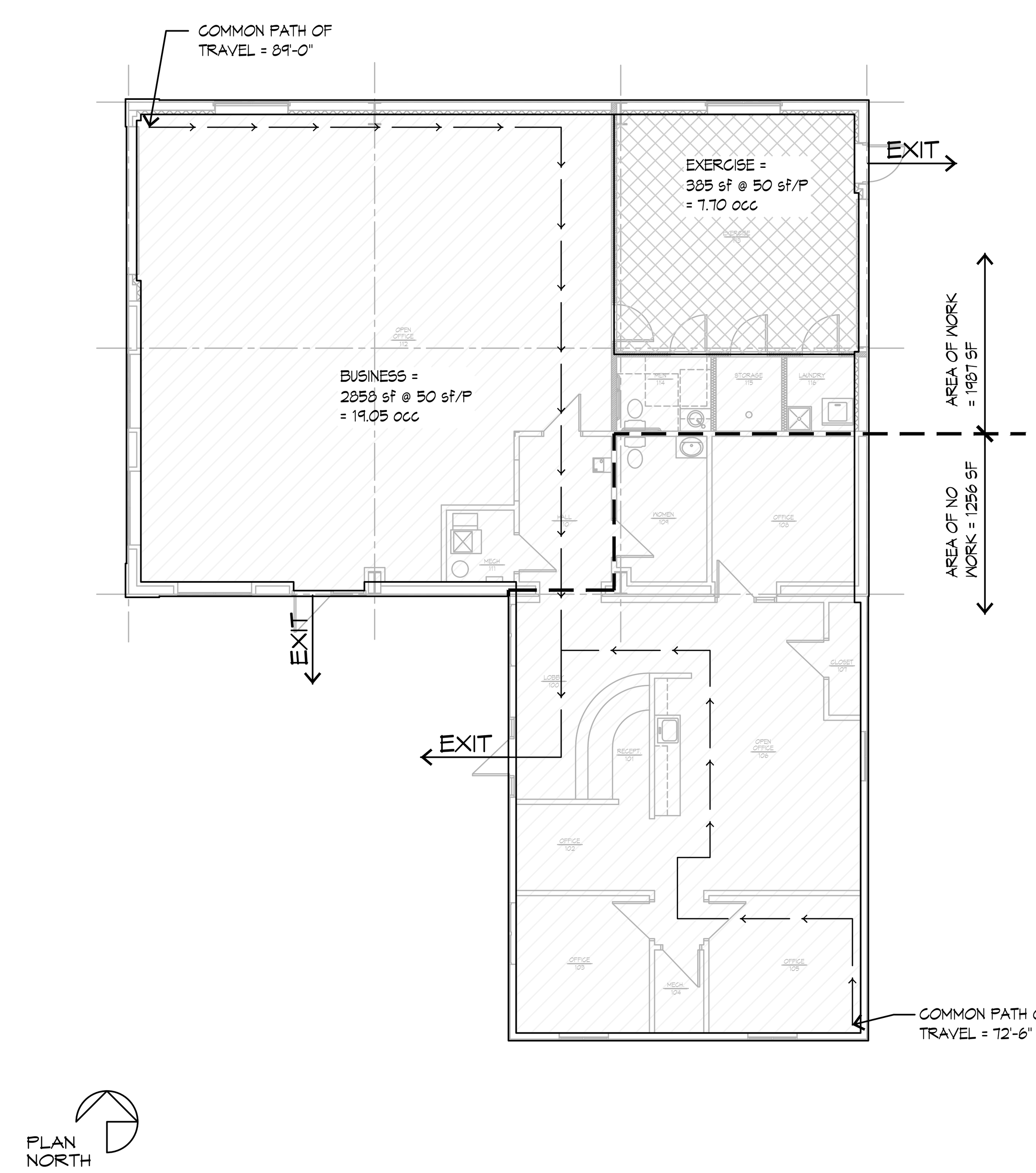
25. PROJECT CLOSE OUT DOCUMENTS SHALL BE PROVIDED TO THE TENANT. INCLUDE AS-BUILT DRAWINGS, WARRANTY/MAINTENANCE MANUALS AND TESTING AND SUPERVISION AS REQUIRED. PRESERVE ALL PRINTED INSTRUCTIONS AND WARRANTIES THAT ARE PROVIDED WITH EQUIPMENT OR MATERIALS USED, AND DELIVER SAID PRINTED MATTER TO THE TENANT AT THE TIME OF SUBSTANTIAL COMPLETION. IF REQUESTED BY THE TENANT, INSTRUCT THE MANAGEMENT IN THE PROPER USE AND MAINTENANCE OF ALL ITEMS OF WORK PROVIDED.

26. PROVIDE WORK IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATION, EXCEPT IN THE CASE WHERE THE CONTRACT DOCUMENTS ARE MORE STRINGENT. PROVIDE ANY MISCELLANEOUS ITEMS OR MATERIALS NOT SPECIFICALLY NOTED, BUT REQUIRED FOR PROPER INSTALLATION OF THE WORK.

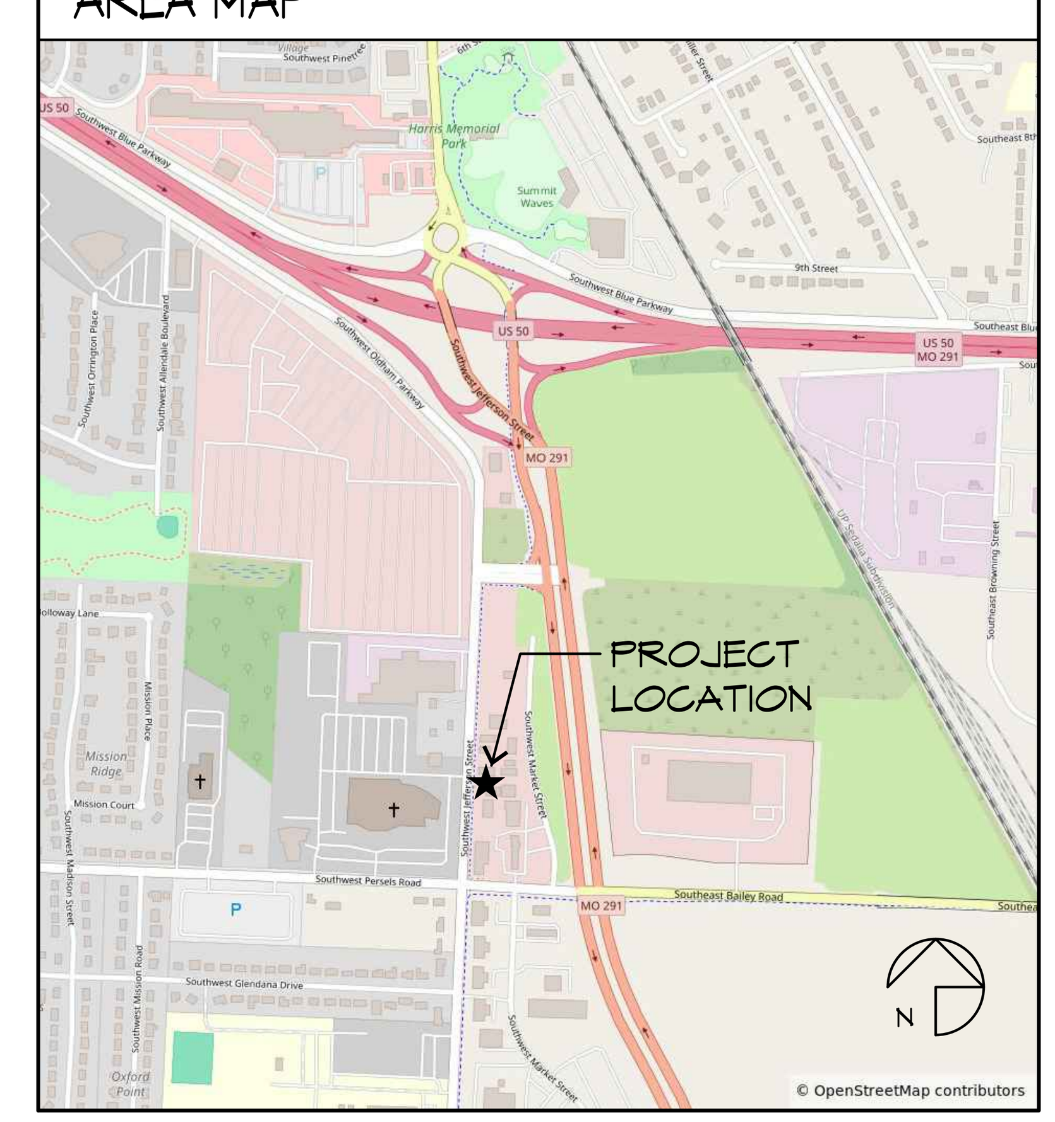
27. ALL WORK SHALL BE WARRANTED BY THE CONTRACTOR TO BE SATISFACTORY, IN MATERIALS AND WORKMANSHIP, FOR A MINIMUM PERIOD OF ON (1) YEAR, OR FOR THE PERIOD OF WARRANTY CUSTOMARY, SPECIFIED FOR, THE TRADE, CRAFT OR PRODUCT, WHICHEVER IS LONGER.

28. SUBMIT REQUESTS FOR SUBSTITUTIONS OF SPECIFIED ITEMS IN WRITING, ACCOMPANIED BY THE ALTERNATIVE PRODUCT INFORMATION, TO THE TENANT. SUBSTITUTIONS MAY BE CONSIDERED ONLY IF THEY DO NOT SACRIFICE QUALITY, APPEARANCE AND FUNCTION. ACCEPTANCE OF SUBSTITUTIONS IS AT THE SOLE DISCRETION OF THE TENANT.

BUILDING KEY



AREA MAP



04-14-2025

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1309 SW JEFFERSON ST
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REV#	DATE	DESCRIPTION
1	4-14-25	CITY COMMENTS

DATE: 03-31-2025

PROJECT# 25007

CS

DIVISION 1 - GENERAL REQUIREMENTS

1. GENERAL REQUIREMENTS 01000

2. The General Conditions of the Contract for Construction of A.I.A. Document A201, latest edition, forms part of this contract as if herein bound.

3. Satisfy all applicable local codes and ordinances. Reference the cover sheet for list of codes.

4. Contractor to pay for Construction Permit Fees, Excise Tax, Tap Fees, Ect. as applicable to the local Municipalities and Utility Companies.

5. Contractor is to meet all Building Owner Standards and Instructions for work.

PRODUCTS 01600

1. Where a specific manufacturer's product is named including make or model number or other designation, it has been selected to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics of the product. Unless otherwise indicated, provided the named product or a product that is equal to or exceeds the specified product.

2. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

3. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

4. All products, and materials used in conjuction with, are to be installed in strict conformance with manufacturers instruction.

SPECIAL CONDITIONS 01700

1. General Contractor shall provide all water, light, and power necessary during construction until the completion of the building. All extensions, controls, and equipment beyond the points of temporary service shall be provided under the work of the respective Division requiring the same.

2. The General Contractor shall do all final cleaning of the building construction areas and wash windows.

CUTTING AND PATCHING

1. Contractor is to include as part of his scope all cutting and patching required through careful evaluation of the existing site and the construction documents. All holes, damages, defects, ect. in existing surfaces are to be patched to match existing conditions. Contractor shall coordinate the cutting of existing construction necessary to permit installation or performance of other Work.

2. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations. Patch with durable seams that are as invisible as possible. Use materials identical to existing materials. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible. Before patching, verify compatibility with and suitability of substrates, including compatibility with existing and new finishes or primers.

3. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use. Provide temporary support of Work to be cut. Cut concrete using a cutting machine, such as an abrasive saw or a diamond-core drill.

DIVISION 2 - SITE WORK

NO WORK THIS SECTION

DIVISION 3 - CONCRETE

REFER TO CUTTING AND PATCHING

DIVISION 4 - MASONRY

NO WORK THIS SECTION

DIVISION 5 - METALS

METAL STUD FRAMING

1. Metal Studs and Runners: shall be as manufactured by Dietrich, Inryco/Milcor, USC, or approved equal. Studs shall be sized as indicated on the drawings and of gauge recommended by the manufacturers literature. Double studs at door jambs shall be 20 gauge minimum. Standard stud spacing at no more than 16" O.C. unless otherwise noted on drawings.

2. At all walls indicated to extend to underside of decking provide Dietrich SLP-TRK slotted deflection track. Install and finish per manufacturer's recommendations.

DIVISION 6 - WOODS AND PLASTIC

CARPENTRY

1. Each piece of framing lumber shall be identified by the trademark of an approved inspection agency or association. Wood framing and all rough carpentry items shall be installed in accordance with UBC and/or FHA requirements whichever is most restrictive.

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

INSULATION

1. Where insulating materials listed below will not be covered with gypsum board substitute specified insulation w/ product of same thickness and R-value and similar facing, but such shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less when tested in accordance with ASTM E84 unless more stringent requirements are listed for a specific product.

2. Insulation Schedule
   - 2.1. Exterior Walls: Unfaced batts of fiberglass vapor barrier in thickness to match stud cavity depth
   - 2.2. Gaps and voids around door and window areas and in built up wood lintels:Minimal expanding foam insulation shall be Dow Chemical Great Stuff. It is to be Tack free in 20 minutes and with full cure in 8 hours at room temperature and 50% relative humidity. It is to be paintable and stainable.
   - 2.3. Interior non-loadbearing walls: Unfaced Fiberglass Batts - Certainteed CertaPRO AcoustaTherm Batts in thickness to fill entire cavity.

SEALANTS

1. Mildew-Resistant Silicone Rubber Sealant: Silicone rubber-based, one part elastomeric sealant, complying with FS TT-S-0021543, Class A; compounded specifically for mildew resistance and recommended by manufacturer for interior joints in wet areas; passing ANSI A136.1 test for mold growth.

2. Silicone Sealant: One-part nonacid-curing silicone sealant complying with ASTM C920; Type S, Grade NS, Class 25, paintable, for uses at casings, window casings and hollow metal to drywall and masonry.

3. Joints and spaces to be caulked shall be clean, dry and free of dust, loose mortar or other foreign materials. After joints have been filled, they shall be neatly tooled to eliminate air pockets or voids and to provide a smooth, neat appearing surface.

4. Non-Elastomeric Sealants and Caulking Compounds: 1-component acrylic sealant: FS-TT-S-00230, Class B, Type 11, solvent based solids 95% acrylic for uses at exterior window and door frame perimeters and flashing

DIVISION 8 - DOORS AND WINDOWS

DOORS

1. Single swing interior doors shall be solid core premium grade flush slab doors prepped to receive paint finishes. Comply with requirements of ANSI/NWMA I.S. 1 and Section 1400 of AWI "Architectural Woodwork Quality Standards" except as otherwise indicated. Coordinate stain color with interior designer.

FINISH HARDWARE

1. Provide finish hardware for all doors in project. The Contractor shall verify all keying requirements with owner prior to installation. Finish to be 26d. Hardware mounting heights by the door and hardware institute "Recommended Locations for Builders Hardware". Comply with all ADA requirements for hardware.

DIVISION 9 - FINISHES

GYPSUM DRYWALL

1. Materials shall meet the following standards:
   - a. Gypsum Wallboard - ASTM C36
   - b. Nails - ASTM C380
   - c. Metal Accessories - ASA A97.1
   - d. Water Resistant Gypsum Backing Board - ASTM C1278 (paragraph 6.1)

2. Use gypsum board fasteners that are recommended by gypsum board manufacturer except as otherwise indicated.

3. Furnish and install all trim accessories, adhesives and joint treatments per manufacturer's recommendations.

4. All gypsum board to be finished to Level 4 unless noted otherwise.

5. Schedule: (basis of design)
   - 5.1. Interior side of exterior walls: 5/8" Gold Bond XP Gypsum Board. Gypsum Board is to be installed from floor to underside of deck above.
   - 5.2. Interior partitions, ceilings and soffits - general: 5/8" Gold Bond Gypsum Board.
   - 5.3. Interior partitions in wet areas/toilet rooms: 5/8" Gold Bond XP Gypsum Board.
   - 5.4. Interior partitions to receive wall tile: 5/8" Gold Bond eXP Tile Backer
   - 5.5. Where called out to receive sound board: 5/8" Gold Bond Sound Break gypsum board. When multiple layers are indicated all joints are to be staggered.

DIVISION 9 - FINISHES

FLOORING GENERAL

1. Patch, level and prepare all floors as recommended by flooring manufacturer for each type of flooring to be placed. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates. Trowelable Leveling and Patching Compounds shall be of Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by floor covering manufacturer for applications indicated.

2. Transitions between floor finishes: Floor finishes are to be tightly butted together (unless edge protection is specified or is required by the manufacturer.) At all transitions where finished floor height of a flooring is higher then adjacent floor finish, raise adjacent flooring with ROPPE SUBLEVELER TS-1 so finish heights are equal. Where flooring is to be tightly butted against ceramic or porcelain tile in addition to subleveler installation beneath the thinner floor material, edge protection is to be provided on tile as indicated in the finish legend.

PAINTING GENERAL

1. Paint shall be as manufactured by Sherwin Williams Paints or approved equal.

SURFACE PREPARATION FOR PAINT

1. General: Protect adjacent and underlying surfaces. Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces of finishing. Correct defects and clean surfaces capable of affecting work of this section. Seal marks that may bleed through surface finishes with compatible sealer.

2. Galvanized Steel: Remove surface contamination and oils and wash with solvent.

3. Uncoated Ferrous Metals: Remove grease, mill scale weld splatter, dirt and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting: wash with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts and nuts are similarly cleaned. Spot Prime paint after repairs.

4. Shop primed ferrous Metals: Sand and scrape to remove loose primer and rust. Feather edges to make patches inconspicuous. Clean with solvent. Prime bare steel surfaces.

5. Other existing Surfaces: Remove loose, flaking, powdery, and peeling paints. Light sand painted surfaces. Fill holes, cracks, depressions and other imperfections with compatible patching compound; sand flush with surface. Remove oil, grease, and wax by scraping; solvent wash and thoroughly rinse. Remove rust by wire brushing to expose base metal.

PAINTING SCHEDULE

1. Paint all new and existing interior gypsum board walls:
   - 1.1. 1 ct. PrepRite 200 Latex Primer and
   - 1.2. 2 cts. ProMar 200 Int. Latex Eg-Shel

2. Paint all new and existing interior gypsum board walls in wet areas (Toilet and Janitor Rooms):
   - 2.1. 1 ct. PrepRite 200 Latex Primer and
   - 2.2. 2 cts. Waterbased Catalyzed Epoxy

3. Interior gypsum board ceilings and soffits (unless noted otherwise):
   - 3.1. 1 ct. PrepRite 200 Latex Primer
   - 3.2. 2 cts. ProMar 200 Int. Latex Flat

4. Interior and Exterior Ferrous metal and wood doors (metal frames, wood doors, exposed steel structure, misc. metal):
   - 4.1. Touch up factory prime coat with compatible Metal Primer or
   - 4.2. 1 ct. Sprayed All Surface Enamel oil Primer
   - 4.3. 2 cts. Sprayed Promar 200 Int. Alkyd Eg-Shel Enamel

DIVISION 10 - SPECIALTIES

FIRE EXTINGUISHER

1. Provide fire extinguishers as indicated per plan. Fire extinguisher shall be Cosmic 5E (2A,10B,C) by J.L Industries or approved equal. Cabinets to be Ambassador by J.L Industries or approved equal, Not Fire-Rated, Tub - 10 1/2 x 24 x 5 1/2 inches. Trim Material - Steel, white epoxy primer finish, Trim Style Semi recessed 3" rolled edge. Door Style - Vertical Duo Panel with pull handle, Door Glazing - Clear Safety Glass, with Die Cut Letters - Vertical Red Reverse.

DIVISION 11 - EQUIPMENT

COORDINATE EQUIPMENT INSTALLATION WITH OWNER AND OWNER'S EQUIPMENT SUPPLIER.

DIVISION 12 - FURNISHINGS

NO WORK THIS SECTION

STATE OF MISSOURI
KENNETH J. KLEFFNER
NUMBER
REGISTERED ARCHITECT
03-25-2025

GUY GRONBERG ARCHITECTS, P.C.
113 SE 3rd St.
Lee's Summit, MO 64063
Phone 816.524.0878
Fax 816.524.8578

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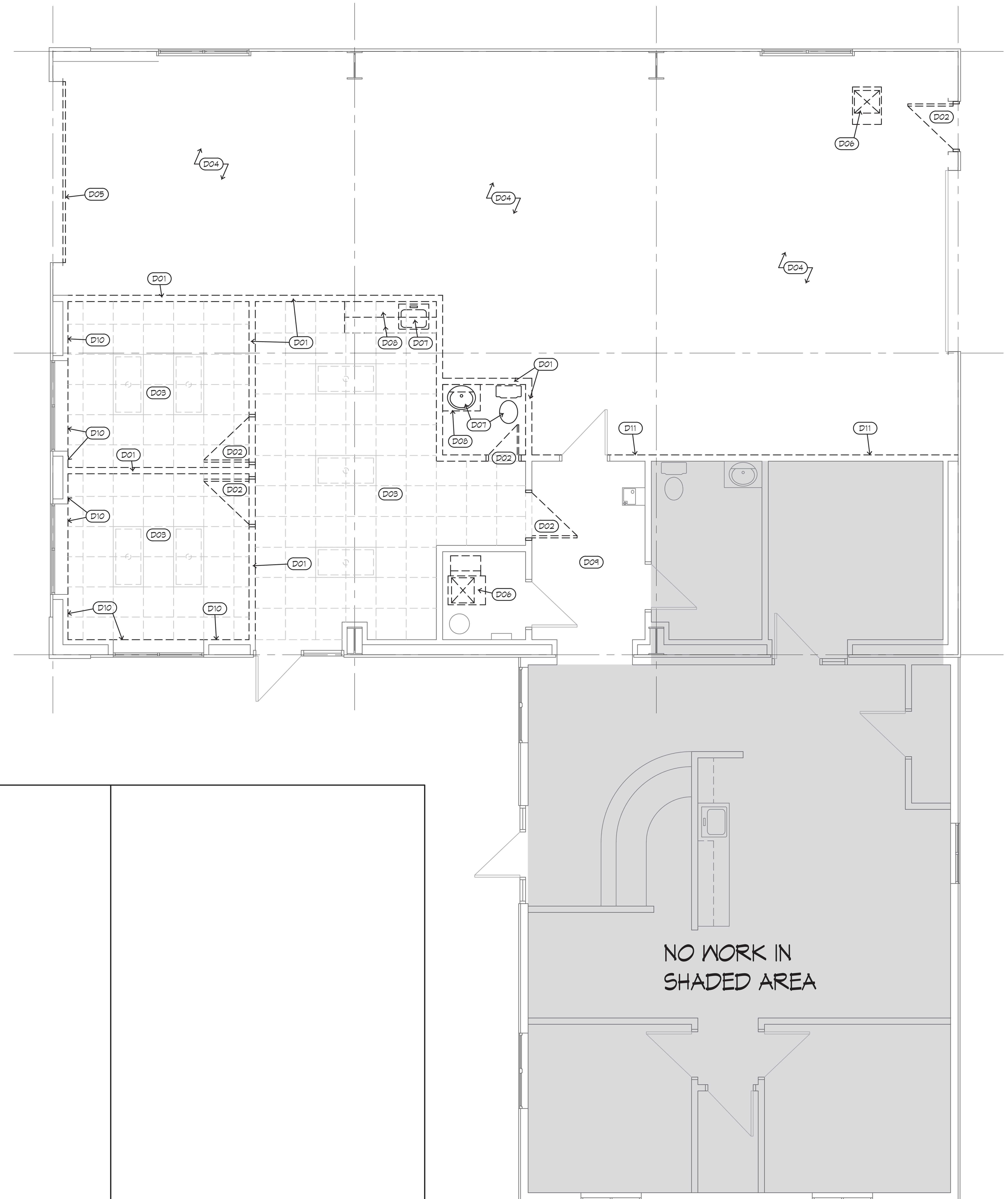
REV#	DATE	DESCRIPTION

DATE: 03-31-2025

PROJECT# 25007

A1



1 DEMOLITION PLAN
1/4"=1'-0"

PLAN NORTH

DEMO PLAN NOTES

- D01 REMOVE AND DISCARD INTERIOR WALL.
- D02 REMOVE AND DISCARD DOOR AND FRAME. REMOVE AND RECLAIM HARDWARE.
- D03 REMOVE AND DISCARD ACOUSTICAL EXPOSED 'T' GRID CEILINGS AND LIGHT FIXTURES FROM ROOM OR AREA.
- D04 THROUGHOUT ROOM OR AREA WITH EXISTING EXPOSED STRUCTURE, REMOVE AND DISCARD ALL CEILING MOUNTED LIGHT FIXTURES, CONDUITS, UNISTRUT, OVERHEAD PLUMBING LINES AND MECHANICAL EQUIPMENT THAT IS NOT SHOWN TO BE INCORPORATED INTO NEW WORK.
- D05 REMOVE AND SALVAGE OVERHEAD GARAGE DOOR. GARAGE DOOR TRACKS AND OPENER ARE EXISTING TO REMAIN.
- D06 REMOVE AND DISCARD HVAC EQUIPMENT. REFER TO MECHANICAL DRAWINGS.
- D07 REMOVE AND DISCARD PLUMBING FIXTURES. REMOVE AND DISCARD ALL PLUMBING LINES BACK TO MAIN LINES AND CAP. REMOVE AND DISCARD SANITARY LINES TO BELOW CONCRETE SLAB AND CAP.
- D08 REMOVE AND DISCARD CASEWORK AND COUNTERTOPS.
- D09 EXISTING TO REMAIN CEILING AND LIGHT FIXTURES THROUGHOUT ROOM OR AREA.
- D10 REMOVE AND DISCARD WALL PANELING. WALL FRAMING IS EXISTING TO REMAIN.
- D11 REMOVE AND DISCARD WALL SHEATHING. WALL FRAMING IS EXISTING TO REMAIN.

03-25-2025

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DATE: 03-31-2025
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A2

FINISH GENERAL NOTES

1. PATCH, LEVEL AND PREPARE ALL FLOORS AS RECOMMENDED BY FLOORING MANUFACTURER FOR EACH TYPE OF FLOORING TO BE PLACED. USE TROWELABLE LEVELING AND PATCHING COMPOUND TO FILL CRACKS, HOLES, AND DEPRESSIONS IN SUBSTRATES. TROWELABLE LEVELING AND PATCHING COMPOUNDS SHALL BE OF LATEX-MODIFIED, PORTLAND CEMENT BASED OR BLENDED HYDRAULIC CEMENT BASED FORMULATION PROVIDED OR APPROVED BY FLOOR COVERING MANUFACTURER FOR APPLICATIONS INDICATED.
2. INTERIOR FINISHES MUST CONFORM TO THE GOVERNING CODE FOR "CLASS III" MAX. 25 FOR SMOKE DENSITY CLASSIFICATION. MAX. FLAME SPREAD OF 200
3. COLOR OF ALL LIGHT SWITCHES, RECEPTACLES AND PLATE COVERS TO BE SELECTED BY OWNER.
4. PAINTING CONTRACTOR SHALL EXAMINE ALL SURFACES AFTER COMPLETION OF WORK OF ALL TRADES AND PROVIDE NECESSARY "TOUCH UP" PAINTING AND PATCHING. HE SHALL IMMEDIATELY REMOVE ANY PAINT SPILLAGE OR SPLATTER.
5. ALL PAINTING WORK SHALL BE DONE BY SKILLED WORKERS USING EITHER BRUSHES OR ROLLERS. POOR WORKMANSHIP WILL NOT BE ACCEPTED. ALL MATERIALS SHALL BE EVENLY SPREAD, SMOOTHLY FLOWED ON AND FREE FROM RUNS, SAGS, CRAWLINGS OR OTHER DEFECTS. FINISHED SURFACES SHALL BE UNIFORM IN COLOR, GLOSS, SHEEN AND MATTE FINISH AND FREE FROM BRUSH MARKS, BRISTLES, LINT OR DUST PIMPLES.

FINISH SCHEDULE

RM. #	ROOM NAME	FLOOR	BASE	WALL				NOTES
				NORTH	EAST	SOUTH	WEST	
110	HALL	EX	EX, RB	PT1	PT1	PT1	PT1	
111	MECH	EX	EX	EX	EX	EX	EX	
112	OPEN OFFICE	CONC	RB	PT1	PT1	PT1	PT1	
113	EXERCISE	RUBR	RB	PT1	PT1	PT1	PT1	
114	MEN (1)	CONC	RB	PT2	PT2	PT2	PT2	
115	STORAGE	CONC	RB	PT1	PT1	PT1	PT1	
116	LAUNDRY	CONC	RB	FRP	FRP	FRP	FRP (1)	

FINISH MATERIAL LEGEND

EX EXISTING TO REMAIN FINISH

FLOORING

CONC STRIP AND POLISH NEW AND EXISTING CONCRETE

RUBR 9MM RUBBER FLOOR

BASE

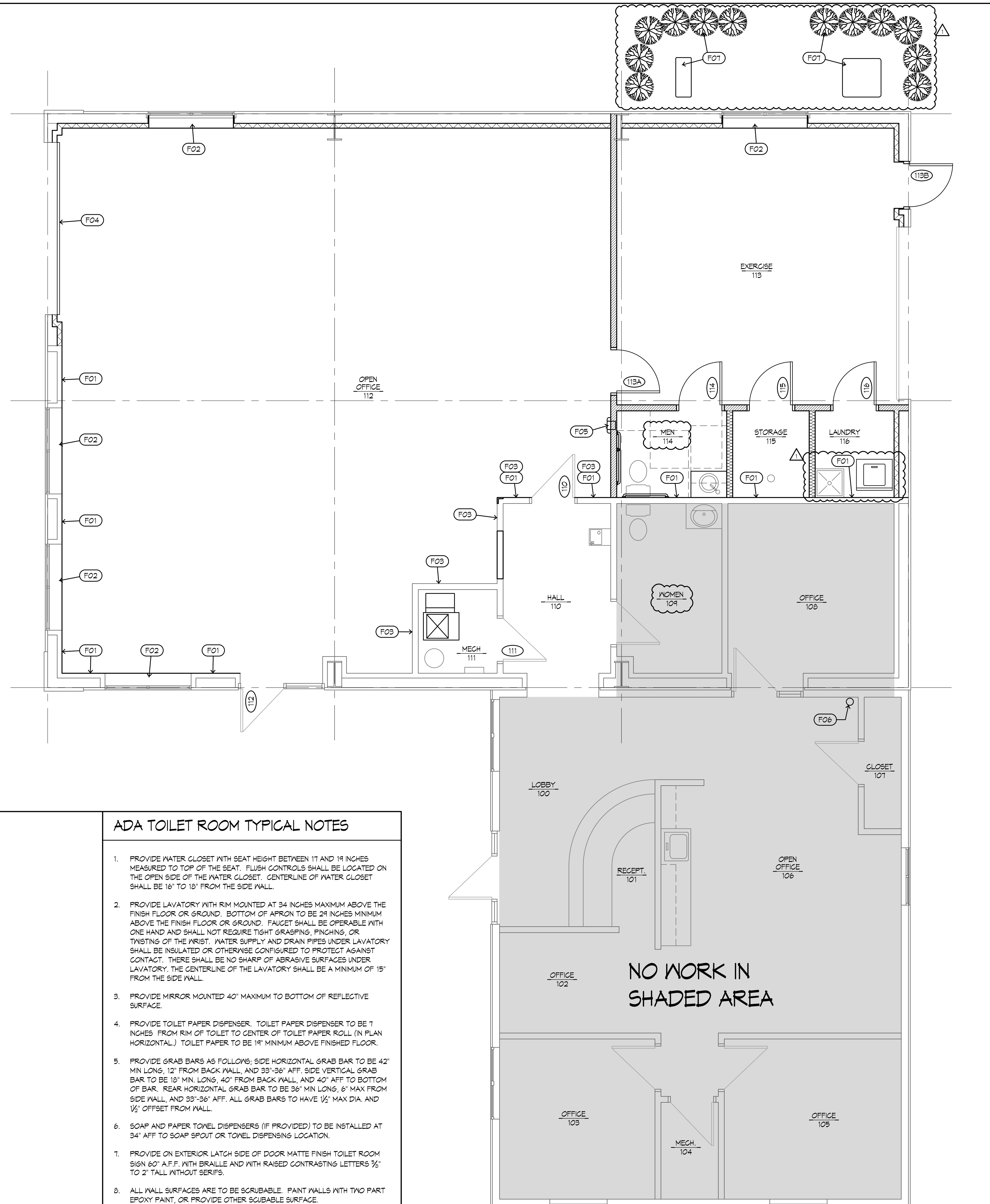
RB COVED RUBBER BASE ROLLED GOODS

WALLS

PT1 PAINT - SHERWIN WILLIAMS PROMAR 200 INT. LATEX

PT2 PAINT - SHERWIN WILLIAMS WATERBASED CATALYZED EPOXY

FRP FIBERGLASS REINFORCED PANEL .090" THICK WITH WHITE FINISH. INSTALL FROM TOP OF BASE TO 52" AFF. PROVIDE MATCHING PERIMETER TRIM. PAINT WALL ABOVE WITH PT1. (1)



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

ADA TOILET ROOM TYPICAL NOTES

1. PROVIDE WATER CLOSET WITH SEAT HEIGHT BETWEEN 17 AND 19 INCHES MEASURED TO TOP OF THE SEAT. FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET. CENTERLINE OF WATER CLOSET SHALL BE 16" TO 18" FROM THE SIDE WALL.
2. PROVIDE LAVATORY WITH RIM MOUNTED AT 34 INCHES MAXIMUM ABOVE THE FINISH FLOOR OR GROUND. BOTTOM OF APRON TO BE 29 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND. FAUCET SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. WATER SUPPLY AND DRAIN PIPES UNDER LAVATORY SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OF ABRASIVE SURFACES UNDER LAVATORY. THE CENTERLINE OF THE LAVATORY SHALL BE A MINIMUM OF 15" FROM THE SIDE WALL.
3. PROVIDE MIRROR MOUNTED 40" MAXIMUM TO BOTTOM OF REFLECTIVE SURFACE.
4. PROVIDE TOILET PAPER DISPENSER. TOILET PAPER DISPENSER TO BE 7 INCHES FROM RIM OF TOILET TO CENTER OF TOILET PAPER ROLL (IN PLAN HORIZONTAL.) TOILET PAPER TO BE 19" MINIMUM ABOVE FINISHED FLOOR.
5. PROVIDE GRAB BARS AS FOLLOWS; SIDE HORIZONTAL GRAB BAR TO BE 42" MIN LONG, 12" FROM BACK WALL, AND 33"-36" AFF. SIDE VERTICAL GRAB BAR TO BE 18" MIN. LONG, 40" FROM BACK WALL, AND 40" AFF TO BOTTOM OF BAR. REAR HORIZONTAL GRAB BAR TO BE 36" MIN LONG, 6" MAX FROM SIDE WALL, AND 33"-36" AFF. ALL GRAB BARS TO HAVE 1½" MAX DIA. AND 1½" OFFSET FROM WALL.
6. SOAP AND PAPER TOWEL DISPENSERS (IF PROVIDED) TO BE INSTALLED AT 34" AFF TO SOAP SPOUT OR TOWEL DISPENSING LOCATION.
7. PROVIDE ON EXTERIOR LATCH SIDE OF DOOR MATTE FINISH TOILET ROOM SIGN 60" A.F.F. WITH BRAILLE AND WITH RAISED CONTRASTING LETTERS ⅝" TO 2" TALL WITHOUT SERIFS.
8. ALL WALL SURFACES ARE TO BE SCRUBABLE. PAINT WALLS WITH TWO PART EPOXY PAINT, OR PROVIDE OTHER SCUBABLE SURFACE.

WALL TYPES

1. FURR-OUT AROUND THE STRUCTURAL COLUMNS AND MECHANICAL CHASES AS REQUIRED. MINIMIZE DEPTH OF FURRING.
2. PROVIDE SOLID BLOCKING FOR DOORS, WINDOWS, TOILET PARTITION, ACCESSORIES, HANDRAILS, LAVATORY BRACES, CASEWORK, SHELVING ETC. AS REQUIRED BY MANUFACTURER AND ALL WORK DONE BY CARPENTRY AND MILLWORK TRADES. ALL WOOD REQUIRED BY BUILDING CODES SHALL MEET ALL REQUIREMENTS TO THE CODE OF UNDERWRITERS LABORATORIES, INC. VERIFY THE DEPTH OF WALLS PRIOR TO INSTALLING RECESSED FIXTURES.
3. ALL EXPOSED EDGES AND / OR CORNER ON ALL GYPSUM WALL BOARD CONSTRUCTION SHALL HAVE A METAL CORNER TRIM, TAPED AND SPACKLED.
4. ALL EXISTING TO REMAIN AND NEW GYPSUM BOARD PARTITIONS IN AREA OF WORK TO BE PROPERLY PREPARED, PATCHED, SPACKLED AND SANDED, ETC., TO PROVIDE A SMOOTH FINISH AND AS REQUIRED TO RECEIVE NEW FINISHES.
5. ALL OPENINGS IN GYPSUM BOARD PARTITIONS SHALL BE DOUBLE STUDDED.
6. TOP OF ALL WALLS INDICTED IN WALL TYPES THIS SHEET ARE TO BE LATERALLY BRACED AS FOLLOWS;
   6.1. FOR WALLS INDICATED TO BE EXTEND TO UNDERSIDE OF STRUCTURAL ELEMENTS OR DECKING: PROVIDE DEEP LEG DEFLECTION TRACK AT TOP OF WALL INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
   6.2. FOR ALL OTHER WALLS;
      6.2.a. FOR WALLS UNDER 8'-0" IN LENGTH (WITHOUT A PERPENDICULAR WALL ON EITHER SIDE) THE TOP TRACK SHALL RESIST LATERAL LOADS.
      6.2.b. FOR WALLS ABOVE 8'-0" AND UNDER 16'-0" CONTRACTOR IS TO PROVIDE 1-1/2" 16GA U-CHANNEL LOCATED IN PUNCHED STUDS WITHIN 1'-0" OF TOP OF WALL AND SECURED WITH DIETRICH EASYCLIP U-SERIES AT EACH STUD. U-CHANNEL TO BE AND IS TO RUN CONTINUOUS FULL LENGTH OF WALL. (AT CONTRACTORS OPTION STUD KICKERS AS INDICATED BELOW MAY BE USED IN LIEU OF U-CHANNEL.)
      6.2.c. FOR WALLS ABOVE 16'-0" PROVIDE 45° STUD KICKERS UP TO STRUCTURE AT 4'-0" O.C. ALTERNATING DIRECTIONS.
7. IN THE FOLLOWING ROOMS PROVIDE MOISTURE RESISTANT GYPSUM BOARD IN LIEU OF THE STANDARD GYPSUM BOARD INDICATED IN WALL TYPES BELOW; TOILET 114, STORAGE 115, AND LAUNDRY 116.

3⅝" 20 GAUGE MTL. STUDS @ 16" O.C. WITH ⅝" GYPSUM BOARD ON INTERIOR SIDE AND 3½" UNFACED BATT INSULATION. EXTEND ALL TO 11'-0"AFF± TO ALIGN WITH TOP OF EXISTING HORIZONTAL STRUCTURAL Z-PURLIN

3⅝" 20 GAUGE MTL. STUDS @ 16" O.C. WITH ⅝" GYPSUM BOARD EACH SIDE AND 3½" UNFACED ACOUSTICAL BATTS. EXTEND ALL TO 9'-0" AFF.

3⅝" 20 GAUGE MTL. STUDS @ 24" O.C. WITH ⅝" GYPSUM BOARD EACH SIDE AND 3½" UNFACED ACOUSTICAL BATTS. EXTEND STUDS AND INSULATION TO STRUCTURE ABOVE. EXTEND GYPSUM BOARD TO STRUCTURE IN ROOMS WITHOUT CEILINGS, OR TO CEILING IN ROOMS WITH CEILINGS. PROVIDE ACOUSTICAL SEALANT AT ALL PERIMETERS AND THRU WALL PENETRATIONS.

FLOOR PLAN NOTES

F01 INSTALL AND FINISH ONE LAYER OF ⅝" GYPSUM BOARD ON EXISTING WALL FRAMING.

F02 AT WINDOW OPENINGS RETURN AND FINISH JAMBS AND HEAD WITH ⅝" GYPSUM BOARD. PROVIDE ADDITION FRAMING AS NEEDED. PROVIDE PLASTIC LAMINATE CLAD PLYWOOD SILL WITH 1" HIGH FRONT LIP.

F03 EXTEND WALL FROM TOP OF EXISTING WALL TO UNDERSIDE OF STRUCTURE ABOVE WITH 3⅝" 20 GAUGE MTL. STUDS @ 24" O.C. WITH ⅝" GYPSUM BOARD ONE SIDE AND 3½" UNFACED ACOUSTICAL BATTS. PROVIDE DEEP LEG DEFLECTION TRACK INSTALLED PER MANUFACTURES INSTRUCTIONS.

F04 PROVIDE NEW DARK BRONZE ALUMINUM AND TEMPERED GLASS OVERHEAD GARAGE DOOR. COORDINATE PRODUCT SELECTION WITH OWNER.

F05 FIRE EXTINGUISHER AND CABINET PER SPECIFICATIONS.

F06 EXISTING TO REMAIN WALL MOUNTED FIRE EXTINGUISHER.

F07 PROVIDE LANDSCAPE SCREENING AROUND GROUND MOUNTED MECHANICAL UNITS. PROVIDE WINTERGREEN BOXWOOD SHRUBS IN QUANTITIES AS SHOWN. (1)

STATE OF MISSOURI KENNETH J. KLEFFNER REGISTERED ARCHITECT
04-14-2025

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1309 SW JEFFERSON ST
LEES SUMMIT, MO 64081

REV#	DATE	DESCRIPTION
1	4-14-25	CITY COMMENTS

DATE: 03-31-2025
PROJECT# 25007

A3

DOOR AND FRAME SCHEDULE

DOOR #	DOOR OR OPN'G SIZE	FRAME	DOOR	HRDW #	NOTE
110	EXISTING TO REMAIN	EXIST	EXIST	EXIST	1. 2.
111	EXISTING TO REMAIN	EXIST	EXIST	EXIST	1.
112	EXISTING TO REMAIN	EXIST	EXIST	EXIST	
113A	3'-0" x 7'-0" x 1-3/4"	A	2	01	
113B	3'-0" x 7'-0" x 1-3/4"	B	3	02	
114	3'-0" x 7'-0" x 1-3/4"	A	1	03	
115	3'-0" x 7'-0" x 1-3/4"	A	1	03	
116	3'-0" x 7'-0" x 1-3/4"	A	1	04	

NOTES

1. PAINT EXISTING DOOR AND FRAME.
2. IN EXISTING TO REMAIN DOOR PROVIDE NEW VIEW GLASS LITE TO MATCH DOOR TYPE 2.

DOOR HARDWARE

NOTE: AT CONTRACTOR OPTION HARDWARE RECLAIMED PER DEMOLITION PLAN NOTE 'D03' MAY BE USED PROVIDED IT WILL FUNCTION LIKE THE NEW ITEMS SPECIFIED BELOW.

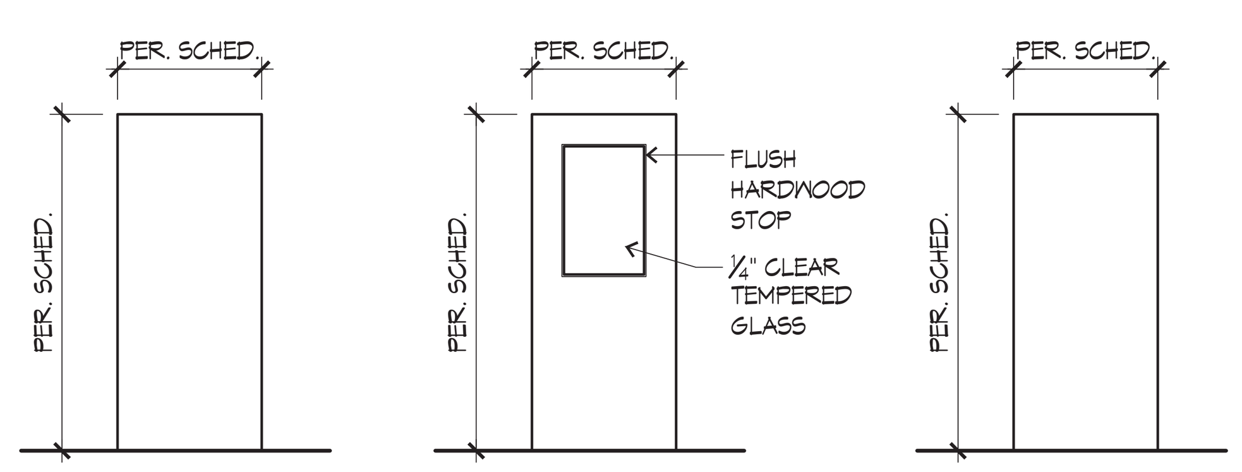
HW SET: 01
EACH TO HAVE:
3 EA HINGE
1 EA ADA LEVER ENTRY LOCKSET
1 EA CLOSER
1 EA SEALS

HW SET: 02
EACH TO HAVE:
3 EA HINGE
1 EA NDEB-P6-RHO-626 SCHLAGE
1 EA CLOSER
1 EA SEALS
1 EA ADA ALUMINUM SILL
1 EA SWEEP
1 EA ALUMINUM DRIP STRIIP

HW SET: 03
EACH TO HAVE:
3 EA HINGE
1 EA ADA LEVER PRIVACY LOCKSET
3 EA SILENCER
1 EA WALL STOP- CONCAVE

HW SET: 04
EACH TO HAVE:
3 EA HINGE
1 EA ADA LEVER PASSAGE LATCHSET
3 EA SILENCER
1 EA WALL STOP -CONCAVE

DOOR TYPES

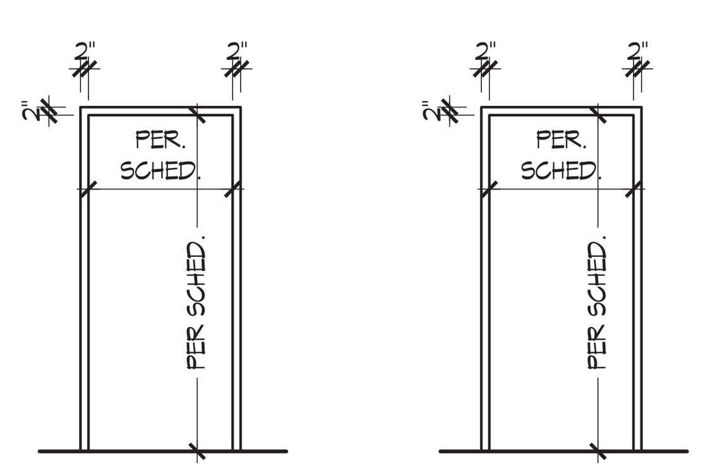


1 FLUSH SOLID CORE DOOR PREPPED TO RECEIVE PAINT

2 FLUSH SOLID CORE DOOR PREPPED TO RECEIVE PAINT

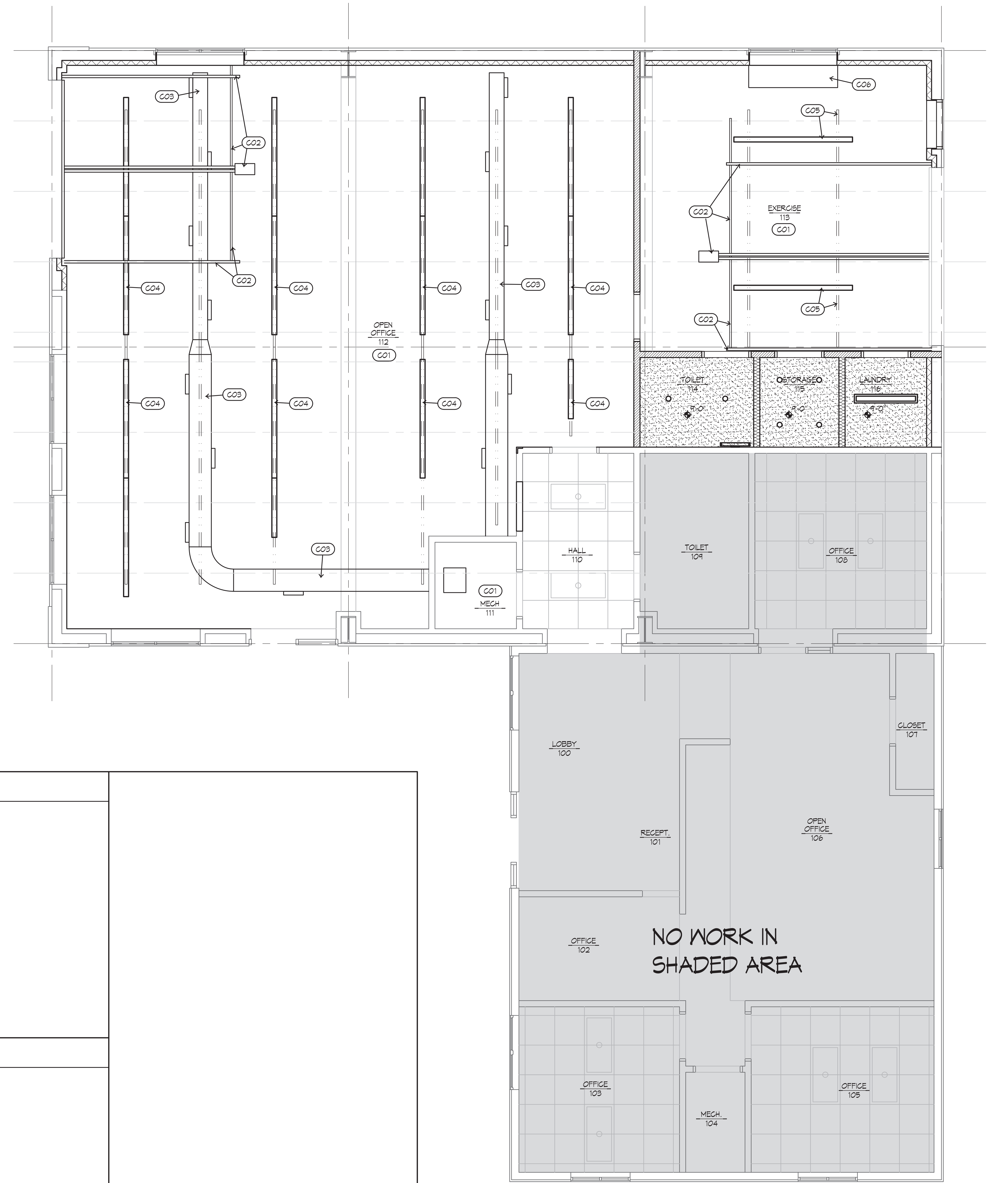
3 GALVANIZED METAL FLUSH DOOR WITH POLYURETHANE CORE - PAINT

INTERIOR FRAME TYPES



A KNOCK DOWN HOLLOW METAL FRAME TO MATCH EXISTING FRAMES

B EXTERIOR GALVANIZED FULLY WELDED METAL FRAME - PAINT



1 CEILING PLAN
1/4"=1'-0"

PLAN NORTH

CEILING LEGEND

9'-8" ELEVATION OF CEILING ABOVE FINISHED FLOOR.

EXISTING TO REMAIN ACOUSTICAL CEILING TILES AND EXPOSED 'T' GIRD

⅝" GYPSUM BOARD ON 3⅝" METAL STUD FRAMING AT 16" O.C.

12GA UNISTRUT P3300 SURFACE MOUNTED TO UNDERSIDE OF PURLINS. PRIOR TO INSTALLATION SPRAY FINISH WITH WHITE PAINT.

CEILING NOTES

C01 NO CEILING THIS ROOM. EXPOSED TO STRUCTURE ABOVE.

C02 EXISTING TO REMAIN OVERHEAD DOOR TRACKS, TRACK SUPPORTS, OPENER AND OPENER TROLLEY TRACK.

C03 EXPOSED GALVANIZED SPIRAL DUCTWORK PER MECHANICAL DRAWINGS. SUSPEND DUCTWORK TO BE HUNG FROM UNISTRUT MOUNTED TO UNDERSIDE OF ROOF PURLINS. BOTTOM OF DUCTWORK TO BE INSTALLED ABOVE OVERHEAD DOOR TRACK AT NE CORNER OF SPACE

C04 SUSPENDED LIGHT FIXTURES TO BE HUNG FROM UNISTRUT MOUNTED TO UNDERSIDE OF ROOF PURLINS.

C05 SURFACE MOUNTED LIGHT FIXTURES TO BE ATTACHED TO UNISTRUT MOUNTED TO UNDERSIDE OF ROOF PURLINS.

C06 WALL MOUNTED MINI-SPLIT SYSTEM ABOVE WINDOW PER MECHANICAL DRAWINGS.

03-25-2025

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REV#	DATE	DESCRIPTION

DATE: 03-31-2025
PROJECT# 25007

A4

MECHANICAL & PLUMBING SPECIFICATIONS

1. GENERAL PROVISIONS:

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL SYSTEMS OUTLINED.

B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.

C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.

D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.

E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.

F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.

G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.

2. OPERATION AND MAINTENANCE MANUALS:

A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.

B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.

C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC.

3. MANUFACTURERS:

A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.

4. MOTORS:

A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.

5. TESTING, BALANCING, AND CLEANING:

A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.

B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.

C. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 60 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.

D. NATURAL GAS PIPING SHALL BE PNEUMATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 50 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.

E. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED INDEPENDENT BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE CERTIFIED BY THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
1) BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION OF PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
2) WITH IN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS; ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELED OR MAY BE AN ELECTRONIC PDF SUBMITTAL.

6. PLUMBING:

A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.

B. ALL EXPOSED WASTE PIPE SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.

C. PROVIDE CLEANOUTS AT EACH CHANGE OF DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS.

D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.

E. CLEANOUTS:
1) VINYL TILE FLOOR: JR SMITH #4140, OR EQUAL.
2) QUARRY TILE FLOOR: JR SMITH #4200, OR EQUAL.
3) CARPETED FLOOR: JR SMITH #4020-Y, OR EQUAL.
4) UNFINISHED FLOOR: JR SMITH #4020, OR EQUAL.
5) WALL: JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.

F. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTIONS TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION TANKS.

G. WATER HEATERS:
1) EVERY WATER HEATER SHALL HAVE AN APPROVED MEANS INSTALLED ON THE COLD WATER SUPPLY LINE ABOVE THE EQUIPMENT TO PREVENT SIPHONING OF A STORAGE WATER HEATER OR TANK.
2) BOTTOM FED WATER HEATERS AND TANKS CONNECT TO WATER HEATERS SHALL HAVE A VACCUM RELIEF VALVE INSTALLED. ANSI Z21.22.
3) STORAGE HEATERS OPERATING ABOVE ATMOSPHERIC PRESSURE SHALL HAVE AN APPROVED PRESSURE RELIEF VALVE AND/OR TEMPERATURE RELIEF VALVE.

H. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES.
1) INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.
2) INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL.
3) INSTALL ALL GREASE WASTE PIPING AT 1/4" PER FOOT FALL.

I. ALL SEWER PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES.
1) INSTALL 4" AND SMALLER PIPE AT A MINIMUM OF 2% SLOPE.
2) INSTALL 6" AND LARGER PIPE AT A MINIMUM OF 1% SLOPE.

7. PIPING:

A. DOMESTIC COLD, HOT, AND HOT WATER RECIRCULATING (ABOVEGROUND).
1) TYPE L HARD DRAWN COPPER TUBING, ASTM B-88.
a) WROUGHT COPPER SOLDERED FITTINGS, ASTM B75 ALLOY C12200. ANSI B16.22. MSS SP-104.
b) MECHANICAL PRESS COPPER FITTINGS FOR USE IN PLUMBING OR MECHANICAL APPLICATIONS. ASME B16.22, ASME B16.51, or ASME B16.18. MECHANICAL PRESS COPPER FITTINGS SHALL CONFORM TO IAPMO PS-117 OR ASME B16.51.
2) PEX, HIGH-DENSITY CROSS-LINKED POLYETHYLENE TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F876 AND MEET THE STANDARD GRADE HYDROSTATIC PRESSURE RATINGS FROM PLASTIC PIPE INSTITUTE IN ACCORDANCE WITH TR-4/03.
a) PEX-A AND PEX-B MEETING ANSI/NSF61 AND ANSI/NSF372 STANDARDS FOR POTABLE WATER SAFETY AND LEAD-FREE STANDARDS AND MUST BE MARKED WITH “PW-G”, “NSF-61-G” OR OTHER NSF-APPROVED MARKING. ASTM F2023 FOR USE WITH CHLORINATED WATER.
b) PEX MECHANICAL, CRIMP/INSERT OR EXPANSION FITTINGS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE, INCREASE PEX PIPING SIZE TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER FOR SUPPLY MAINS.
3) VALVES
a) TO BE INSTALLED ON THE FIXTURE SUPPLY TO EACH PLUMBING FIXTURE.
b) TO BE INSTALLED ON THE WATER SUPPLY SIDE TO EACH APPLIANCE OR MECHANICAL EQUIPMENT.
c) TYPES:
1. GATE VALVE: JOMAR T/S-301G OR EQUAL. LEAD-FREE NSF 61, ANSI B1.20.1.
2. GLOBE VALVE: JOMAR TGG OR EQUAL.
3. BALL VALVE: JOMAR JP100PxP OR EQUAL COMPACT LEAD FREE BRASS BALL VALVE. UL842, CSA 3371-12 & 3371-92, FM, CALIFORNIA CODE AB1953, NSF61 ANNEX G APPROVED.
4. BALL VALVE: JOMAR T-100NE OR EQUAL. UL842, FM, CSA, NSF 61-8, MSS SP-110
4) THRUST BLOCKS IN ACCORDANCE WITH NFPA 24.

B. LEAD CONTENT OF WATER SUPPLY PIPE AND FITTINGS:
1) PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, UTILIZED IN THE WATER SUPPLY SYSTEM SHALL NOT HAVE MORE THAN 8% LEAD CONTENT.
2) PIPE, PIPE FITTINGS, JOINTS, VALVES, FAUCETS, AND FIXTURE FITINGS UTILIZED TO SUPPLY WATER FOR DRINKING OR COOKING PURPOSES SHALL COMPLY WITH NSF 372 AND SHALL HAVE A WEIGHTED AVERAGE LEAD CONTENT OF 0.25% OR LESS.

C. SANITARY SEWER AND VENTS.
(UNDERGROUND, INTERIOR TO THE BUILDING).
1) ABS PIPE AND FITTINGS: ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL ABS PIPE: ASTM D 2661, SCHEDULE 40. ABS SOCKET FITTINGS: ASTM D 2661, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS. SOLVENT CEMENT: ASTM D 2235.
2) PVC PIPE AND FITTINGS: PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE: ASTM D 2665, DRAIN, WASTE, AND VENT. PVC SOCKET FITTINGS: ASTM D 2665, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER: ASTM F 656. SOLVENT CEMENT: ASTM D 2564.
3) HUBLESS CAST IRON SOIL PIPE AND FITTINGS: HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310 AND BE CERTIFIED BY NSF® INTERNATIONAL.
4) HUB AND SPIGOT CAST IRON SOIL PIPE AND FITTINGS: HUB AND SPIGOT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 74.

D. SANITARY SEWER AND VENTS.
(ABOVE GROUND, INTERIOR TO THE BUILDING).
1) ABS PIPE AND FITTINGS: ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL ABS PIPE: ASTM D 2661, SCHEDULE 40. CELLULAR-CORE ABS PIPE: ASTM F 628, SCHEDULE 40.ABS SOCKET FITTINGS: ASTM D 2661, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS. SOLVENT CEMENT: ASTM D 2235. (NOT FOR USE IN A RETURN AIR PLENUM)
2) PVC PIPE AND FITTINGS: PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS," FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE: ASTM D 2665, DRAIN, CELLULAR-CORE PVC PIPE: ASTM F 891, SCHEDULE 40. WASTE, AND VENT. PVC SOCKET FITTINGS: ASTM D 2665, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER: ASTM F 656. SOLVENT CEMENT: ASTM D 2564. (NOT FOR USE IN A RETURN AIR PLENUM)
3) HUBLESS CAST IRON SOIL PIPE AND FITTINGS: HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310 AND BE CERTIFIED BY NSF® INTERNATIONAL.
4) HUB AND SPIGOT CAST IRON SOIL PIPE AND FITTINGS: HUB AND SPIGOT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 74.

MECHANICAL & PLUMBING SPECIFICATIONS (CONTINUED)

E. CONDENSATE DRAINS & INDIRECT WASTE (ABOVEGROUND).
1) POLYVINYLCHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT (INDIRECT WASTE).

F. REFRIGERANT.
1) ASTM B 280, TYPE ACR, HARD-DRAWN STRAIGHT LENGTHS, AND SOFT-ANNEALED COILS, SEAMLESS COPPER TUBING.
2) WROUGHT COPPER, ANSI B16.22, STREAMLINED PATTERN, FITTINGS. BRAZED JOINTS, AWS A 5.8, CLASSIFICATION BAG-1 (SILVER).
3) TUBING SHALL BE FACTORY CLEANED, READY FOR INSTALLATION, AND HAVE ENDS CAPPED TO PROTECT CLEANLINESS OF PIPE INTERIORS PRIOR TO SHIPPING.
4) SIZE AND INSTALLATION OF PIPE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

G. NATURAL GAS.
1) BLACK STEEL PIPE, SCHEDULE 40, ASTM A53.
a) PIPE 3" AND SMALLER; 150 LB. MALLEABLE IRON, THREADED FITTINGS.
b) PIPE 4" AND SMALLER; VIEGA MEGAPRESS G FOR WATER AND GAS. CSA LC4, TSSA/ASME B31 FOR USE WITH ASTM A53 SCHEDULE 40 BLACK IRON PIPE.
c) PIPE 2-1/2" AND LARGER, WELDED.
d) PLUG VALVE: ROCKWELL NORDSTROM FIGURE NO. 142 OR 143.
e) BALL VALVE: JOMAR T-100NE. APPROVALS- UL842, FM, CSA, NSF 61-8, MSS SP-110
4) GAS PIPING LABELING:
a) ALL ELEVATED PRESSURE GAS PIPING SHALL BE LABELED EVERY 40 FEET WITH SIGNS INDICATING "ELEVATED PRESSURE".
5) GAS PIPING PAINTING:
a) ALL BLACK STEEL GAS PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE PRIMED AND PAINTED TO EITHER MATCH ADJACENT EXTERIOR WHERE LOCATED ON OR NEAR EXTERIOR WALL AND PAINTED SAFETY YELLOW WHERE LOCATED ON THE ROOF.

H. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR ELCEN. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.

I. SLEEVES
1) PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.
2) INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
3) ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
4) PROTECTION AGAINST CONTACT: METALLIC PIPING, EXCEPT FOR CAST IRON, DUCTILE IRON AND GALVANIZED STEEL SHALL NOT BE PLACED IN DIRECT CONTACT WITH STEEL FRAMING MEMBERS, CONCRETE, OR CINDER WALLS AND FLOORS OR OTHER MASONRY. METALLIC PIPING SHALL NOT BE PLACED IN DIRECT CONTACT WITH CORROSIVE SOIL. SHEATHING USED TO PREVENT DIRECT CONTACT SHALL HAVE A THICKNESS OF GREATER THAN .008: AND THE SHEATHING SHALL BE MADE OF PLASTIC. ANY PIPE THAT PASSES THROUGH A FOUNDATION WALL OR FOOTING SHALL BE PROVIDED WITH A RELIEVING ARCH, OR A PIPE SLEEVE SHALL BE BUILT INTO THE FOUNDATION WALL. THE SLEEVE SHALL BE TWO SIZES GREATER THAN THE PIPE PASSING THOUGH THE WALL OR FOOTING.
5) PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.

J. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.

10. INSULATION AND DUCT LINING:

A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPED RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.

B. PIPE INSULATION - ABOVE GRADE:
1) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 Btu PER in/hr*sqft*F° OR LESS.
2) FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOLDED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3) FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP ARMAFLEX OR ARMAFLEX 2000.
4) FOR NON CIRCULATING SYSTEMS, THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND THE HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.
5) FOR CIRCULATING SYSTEMS, ALL HOT WATER PIPING IN THE CIRCULATION LOOP MUST BE INSULATED AS SPECIFIED BELOW.
6) INSULATION SCHEDULE:

a) DOMESTIC COLD WATER	1/2"
b) DOMESTIC HOT WATER	1" FOR PIPING UP TO 1-1/4"Ø, & 1-1/2" FOR PIPING 1-1/2"Ø AND LARGER
c) CONDENSATE DRAINS INSIDE BUILDING	1/2"
d) REFRIGERANT SUCTION	3/4" FOR PIPING UP TO 1-1/4"Ø, & 1" FOR PIPING 1-1/2"Ø AND LARGER

C. EQUIPMENT INSULATION:
1) FLEXIBLE FIBERGLASS: GLASS FIBER INSULATION, ASTM C 553, TYPE 1, CLASS B-4, SEMI-RIGID BOARD, WITH FACTORY LAMINATED KRAFT ALUMINUM FOIL (ALL SERVICE JACKET), VAPOR BARRIER, OWENS/CORNING PIPE AND TANK INSULATION.

D. DUCTWORK: THERMAL INSULATION.
1) DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING, THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
a) DUCT COVERING SCHEDULE: MINIMUM R-6
(1) ROUND SUPPLY DUCT 2"
(2) OUTDOOR AIR 2"
2) EXPOSED SPIRAL DUCT.
a) DOUBLE WALL SPIRAL - DOUBLE WALL INSULATED SPIRAL DUCT AND FITTINGS WITH PERFORATED 1"LINER WITH A K VALUE OF 0.27.
b) SPIRAL DUCT LINING: JOHNS MANVILLE SPIRACOUSTIC PLUS ROUND DUCT LINER SYSTEM, VSD, SD, AND LD SIZES, 8"Ø AND UP. MEETS ASTM E 84 25/50 FLAME AND SMOKE, ASHRAE 62, MEA#237-86-M, SMACNA APPLICATION STANDARDS FOR DUCT LINERS, NAIMA FIBERBLASS DUCT LINER STANDARD. 1" THICKNESS, AIR STREAM SIDE COATED, INSTALL PER SMACNA STANDARDS.

11. DUCTWORK:

A. ALL DUCTWORK, UNLESS OTHERWISE INDICATED, SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 653, LOCKFORMING QUALITY, WITH G 90 ZINC COATING IN ACCORDANCE WITH ASTM A 924; AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.

B. WHERE DUCTWORK IS INDICATED TO BE EXPOSED TO VIEW IN OCCUPIED SPACES, PROVIDE MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS INCLUDING PITTING, SEAM MARKS, ROLLER MARKS, STAINS AND DISCOLORATIONS, AND OTHER IMPERFECTIONS, INCLUDING THOSE WHICH WOULD IMPAIR PAINTING.

C. DUCTWORK, METAL GAUGES, REINFORCING, ETC. SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2 INCH WATER GAUGE STATIC PRESSURE.
1) RECTANGULAR DUCT:
a) ELBOWS, UNLESS INDICATED OTHERWISE SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOW WITH DOUBLE WALL STREAMLINE VANES.
b) RETURN AIR ACOUSTICAL ELBOWS AND SOUND BOOTS SHALL BE A SQUARE ELBOW WITH NO TURNING VANES.
c) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
2) ROUND AND OVAL SPIRAL SEAM DUCT:
a) PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEGREE CHANGE OF DIRECTION PER SECTION. UNLESS SPECIFICALLY DETAILED OTHERWISE, USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEGREE BRANCHES ARE INDICATED PROVIDE CONICAL TYPE TEES.
b) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
c) AS AN OPTION, PROVIDE FACTORY-FABRICATED DUCT AND FITTINGS, IN LIEU OF SHOP-FABRICATED DUCT AND FITTINGS.
(1) ELBOWS: ONE PIECE CONSTRUCTION FOR 90 DEGREES AND 45 DEGREE ELBOW 14" AND SMALLER. PROVIDE MULTIPLE GORE CONSTRUCTION FOR LARGER DIAMETERS WITH STANDING SEAM CIRCUMFERENTIAL JOINT.
(2) DIVIDED FLOW FITTINGS: 90 DEGREE TEES, CONSTRUCTED WITH SADDLE TAP SPOT WELDED AND BONDED TO DUCT FITTING BODY.
d) ROUND LONGITUDINAL SEAM DUCT. USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS, UNLESS OTHERWISE INDICATED.

D. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEETMETAL SIZES, ALLOWANCE FOR DUCT LINER HAS BEEN MADE WHERE APPLICABLE.

E. INSTALLATION OF METAL DUCTWORK:
1) GENERAL: ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES WHICH WILL ACHIEVE AIR-TIGHT SYSTEMS (MAXIMUM 5% LEAKAGE), WITH NO OBJECTIONABLE NOISE, AND CAPABLE OF PERFORMING INDICATED SERVICE. INSTALL EACH RUN WITH MINIMUM NUMBER OF JOINTS. ALIGN DUCTWORK ACCURATELY WITH INTERNAL SURFACES SMOOTH. SUPPORT DUCTS RIGIDLY WITH SUITABLE STRAPS, BRACES, HANGERS AND ANCHORS IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" LATEST EDITION. DUCT HANGERS SHALL BE OF THE TYPE WHICH WILL HOLD DUCTS TRUE-TO-SHAPE AND TO PREVENT BUCKLING. SUPPORT VERTICAL DUCTS AT EVERY FLOOR.
2) AUXILIARY STEEL: PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK.
3) ROUTING: LOCATE DUCTWORK RUNS, EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY AND AVOID DIAGONAL RUNS WHEREVER POSSIBLE. LOCATE RUNS AS INDICATED BY DIAGRAMS, DETAILS AND NOTATIONS OR, IF NOT OTHERWISE INDICATED, RUN DUCTWORK IN SHORTEST ROUTE WHICH DOES NOT OBSTRUCT USABLE SPACE OR BLOCK ACCESS FOR SERVICING BUILDING AND ITS EQUIPMENT. HOLD DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION, COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING. WHEREVER POSSIBLE IN FINISHED AND OCCUPIED SPACES, CONCEAL DUCTWORK FROM VIEW, BY LOCATING IN MECHANICAL SHAFTS, HOLLOW WALL CONSTRUCTION OR ABOVE SUSPENDED CEILINGS. DO NOT ENCASE HORIZONTAL RUNS IN SOLID PARTITIONS, EXCEPT AS SPECIFICALLY SHOWN. COORDINATE LAYOUT WITH SUSPENDED CEILING AND LIGHTING LAYOUTS AND SIMILAR FINISHED WORK.
4) DO NOT ROUTE DUCTWORK THROUGH ELECTRICAL EQUIPMENT SPACES AND ENCLOSURES, UNLESS INDICATED OTHERWISE.
5) PENETRATIONS:
a) WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS OR EXTERIOR WALLS, AND ARE EXPOSED TO VIEW, CONCEAL SPACE BETWEEN OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME GAGE AS DUCT. OVERLAP OPENING ON 4 SIDES BY AT LEAST 1-1/2". FASTEN TO DUCT AND WALL.
b) WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE FIRESTOPPING BETWEEN DUCT AND WALL.
6) COORDINATION: COORDINATE DUCT INSTALLATIONS WITH INSTALLATION OF ACCESSORIES, DAMPERS, COIL FRAMES, EQUIPMENT, CONTROLS, AND OTHER ASSOCIATED WORK OF THE DUCTWORK SYSTEM.
7) INSTALLATION: INSTALL METAL DUCTWORK IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION.

F. EQUIPMENT CONNECTIONS:
1) CONNECT METAL DUCTWORK TO EQUIPMENT AS INDICATED, PROVIDE FLEXIBLE CONNECTION FOR EACH DUCTWORK CONNECTION TO EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, AND/OR EQUIPMENT CONTAINING ROTATING MACHINERY. PROVIDE ACCESS DOORS AS REQUIRED.

G. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASE CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BELOW.

1) UNCONDITIONED SPACES	CLASS B	CLASS A	CLASS C	CLASS B
2) CONDITIONED SPACES (PLENUM)	CLASS C	CLASS B	CLASS B	CLASS C
	SUPPLY ≤ 2" W.C.	SUPPLY > 2" W.C.	EXHAUST/DRYER	RETURN

MECHANICAL & PLUMBING SPECIFICATIONS (CONTINUED)

12. FLEXIBLE DUCT:
A. ATCO #086 (R-6), OR EQUAL.
B. FACTORY APPLIED INSULATION AND VAPOR BARRIER.
C. MAXIMUM LENGTH OF 5'-0".

13. FLUES AND ACCESSORIES:
A. FLUE FOR GAS FIRED CONDENSING WATER HEATER OR FURNACE SHALL BE AS RECOMMENDED BY THE GAS APPLIANCE MANUFACTURER. FLUES SHALL BE SCHEDULE 40, PVC OR CPVC PIPE PER THE MANUFACTURERS INSTALLATION REQUIREMENTS.
B. PROVIDE MANUFACTURER'S STANDARD ACCESSORY ITEMS INCLUDING BIRD PROOF TOP, STORM COLLAR, ROOF THIMBLE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. ROOF THIMBLES THROUGH THE BUILDING ROOF SHALL BE SUITABLE FOR USE WITH THE ROOF PROVIDED.

14. EXHAUST FANS:
A. CENTRIFUGAL CEILING EXHAUSTERS SHALL BE ELECTRICALLY POWERED CENTRIFUGAL TYPE FAN SUITABLE FOR MOUNTING IN THE CEILING WITH A PERFORATED OFF-WHITE METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EASY ACCESS TO FAN HOUSING. UNIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACOUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED, WITH THERMAL OVERLOAD PROTECTION. PROVIDE DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.

15. FURNACE AND CONDENSING UNIT:
A. CONDENSING FURNACES:
1) GAS FIRED FURNACE SHALL BE FACTORY ASSEMBLED, PRE-WIRED UNIT CONSISTING OF SHEETMETAL CASING, SUPPLY FAN, GAS FIRED HEAT EXCHANGER, AND CONTROLS. CAPACITY SHALL BE AS SCHEDULED.
2) THE PRIMARY HEAT EXCHANGER SHALL BE ALUMINIZED STEEL CONSTRUCTION WITH A STAINLESS STEEL SECONDARY HEAT EXCHANGER.
3) THE FURNACE SHALL BE OF THE CONDENSING TYPE, UTILIZING A SEALED COMBUSTION CHAMBER. UNIT SHALL INCLUDE FINNED CAST IRON HEAT EXCHANGER, ALUMINIZED STEEL EXHAUST DECOUPLER SECTION, AND FINNED STAINLESS STEEL TUBE CONDENSER SECTION.
4) THE UNIT SHALL BE EQUIPPED WITH THE MANUFACTURER'S STANDARD CONTROLS INCLUDING 24 VOLT CONTROL TRANSFORMER, AUTOMATIC SPARK IGNITION, AUTOMATIC GAS VALVE TRAIN, HIGH TEMPERATURE LIMIT SWITCH, AND FAN TIMED DELAY RELAY.
5) RETURN AIR INLET ON UNIT SHALL BE PROVIDED WITH A 1" THROWAWAY TYPE FILTER AND SLIDE IN FRAME, MOUNTED ON THE UNIT.
6) FAN SHALL BE A DIRECT DRIVE MULTI-SPEED BLOWER, RESILIENTLY MOUNTED IN THE CASING. MOTOR SHALL BE PROVIDED WITH AUTOMATIC THERMAL OVERLOAD PROTECTION.
7) FURNACE SHALL BE AGA APPROVED.
B. CONDENSING UNIT SHALL BE FACTORY-ASSEMBLED AND TESTED AIR-COOLED CONDENSING UNIT, CONSISTING OF COMPRESSOR, CONDENSER COIL, FAN, MOTOR, REFRIGERANT RESERVOIR, OPERATING CONTROLS, ETC. CAPACITY AND ELECTRICAL CHARACTERISTICS SHALL BE AS SCHEDULED.
1) COMPRESSOR: HERMETICALLY SEALED WITH BUILT-IN OVERLOADS AND VIBRATION ISOLATION. COMPRESSOR MOTOR, SHALL HAVE THERMAL AND CURRENT SENSITIVE OVERLOAD DEVICES, INTERNAL HIGH-PRESSURE PROTECTION, HIGH AND LOW PRESSURE CUTOUT SWITCHES, START CAPACITOR AND RELAY, 2-POLE CONTACTOR, CRANKCASE HEATER, AND TEMPERATURE ACTUATED SWITCH AND TIMER TO PREVENT COMPRESSOR RAPID CYCLE.
2) COIL SHALL BE COPPER TUBING WITH ALUMINUM FINS; COMPLETE WITH LIQUID ACCUMULATOR AND LIQUID SUBCOOLER. UNIT SHALL INCLUDE FILTER DRYER, SIGHT GLASS, COMPRESSOR SERVICE VALVE, LIQUID LINE SERVICE VALVE, AND REFRIGERANT PIPING EXTENDED TO EXTERIOR OF CASING.

16. SINGLE-ZONE MINI SPLIT SYSTEM WITH HEAT PUMP CONDENSING UNIT:
A. AIR HANDLING UNIT SHALL BE FACTORY ASSEMBLED, PRE-WIRED UNIT CONSISTING OF WIRING, PIPING, ELECTRONIC EXPANSION VALVE, AND CONTROLS. CAPACITY SHALL BE AS SCHEDULED.
1) THE UNIT SHALL BE EQUIPPED WITH THE MANUFACTURER'S STANDARD CONTROLS INCLUDING 24 VOLT CONTROL TRANSFORMER AND A WIRELESS OR WIRED REMOTE CONTROLLER.
2) UNIT SHALL BE EQUIPPED WITH A FILTER THAT IS EASILY REMOVABLE AND WASHABLE.
3) FAN SHALL BE A DC MOTOR, CAPABLE OF OPERATING AT 3 FAN GRADES: LOW, MEDIUM AND HIGH. MOTOR SHALL BE PROVIDED WITH THERMAL OVERLOAD PROTECTION.
4) CONNECTIONS: UNIT SHALL BE EQUIPPED WITH LIQUID AND GAS FLARE FITTINGS. SHALL HAVE CONNECTIONS FOR BOTH REFRIGERANT PIPING AND DRAINAGE ON BOTH SIDES OF UNIT. UNIT SHALL OFFER MULTIPLE ACCESS POINTS FOR REFRIGERANT OUTLET PIPES.
B. HEAT PUMP CONDENSING UNIT SHALL BE FACTORY-ASSEMBLED, PRE-WIRED AND TESTED AIR-COOLED CONDENSING UNIT, CONSISTING OF COMPRESSOR, CONDENSER COIL, FAN, MOTOR, REVERSING VALVE, SOLID-STATE DEFROST CONTROL UTILIZING THERMISTERS, REFRIGERANT RESERVOIR, OPERATING CONTROLS, ETC. CAPACITY AND ELECTRICAL CHARACTERISTICS SHALL BE AS SCHEDULED.
1) HERMETICALLY SEALED COMPRESSOR WITH BUILT-IN OVERLOADS AND VIBRATION ISOLATION. COMPRESSOR MOTOR, SHALL HAVE THERMAL AND CURRENT SENSITIVE OVERLOAD DEVICES, INTERNAL HIGH-PRESSURE PROTECTION, HIGH AND LOW PRESSURE CUTOUT SWITCHES, START CAPACITOR AND RELAY, 2-POLE CONTACTOR, CRANKCASE HEATER, AND TEMPERATURE ACTUATED SWITCH AND TIMER TO PREVENT COMPRESSOR RAPID CYCLE.
2) COIL SHALL BE COPPER TUBING WITH ALUMINUM FINS; A GRILLE GUARD SHALL BE INCLUDED COIL SHALL BE FACTORY COATED FOR INCREASED CORROSION RESISTANCE.
3) ALUMINUM PROPELLER FAN SHALL BE DIRECT DRIVEN, WITH PERMANENTLY LUBRICATED FAN MOTOR HAVING THERMAL OVERLOAD PROTECTION.
4) UNIT SHALL HAVE AN OPERATING COOLING RANGE OF AT LEAST 5°F TO 122°F AND AN OPERATING HEATING RANGE OF AT LEAST -13°F TO 86°F.

17. CONTROL WIRING:
A. ELECTRICAL WIRING AND WIRING CONNECTIONS REQUIRED FOR THE INSTALLATION OF THE TEMPERATURE CONTROL SYSTEM, SHALL BE PROVIDED BY THIS CONTRACTOR, UNLESS SPECIFICALLY SHOWN ON THE ELECTRICAL DRAWINGS OR SPECIFICATIONS.
B. INSTALL CONTROL WIRING, WITHOUT SPLICES BETWEEN TERMINAL POINTS, COLOR CODED. INSTALL IN NEAT WORKMANLIKE MANNER, SECURELY FASTENED. INSTALL IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND THE ELECTRICAL SPECIFICATIONS.
1) INSTALL CIRCUITS OVER 25 VOLT WITH COLOR CODED NUMBER 12 WIRE.
2) INSTALL CIRCUITS UNDER 25 VOLT WITH COLOR CODED NUMBER 18 WIRE WITH 0.031 INCH HIGH TEMPERATURE 105 DEGREES F PLASTIC INSULATION ON EACH CONDUCTOR AND PLASTIC SHEATH OVER ALL.
3) INSTALL ELECTRONIC CIRCUITS WITH COLOR CODED NUMBER 22 WIRE WITH 0.023 INCH POLYETHYLENE INSULATION ON EACH CONDUCTOR WITH PLASTIC JACKETED COPPER SHIELD OVER ALL.
4) INSTALL LOW VOLTAGE CIRCUITS, LOCATED IN CONCRETE SLABS AND MASONRY WALLS, OR EXPOSED IN OCCUPIED AREAS, IN ELECTRIC CONDUIT.
5) ALL WIRING IN AREAS USED AS AIR PLENUMS SHALL BE IN ELECTRIC CONDUIT EXCEPT THAT LOW VOLTAGE WIRING MAY BE TEFLON COATED, ALUMINUM SHEATHED CABLE OR OTHER WIRE SPECIFICALLY APPROVED FOR INSTALLATION IN AIR PLENUMS, WHERE ACCEPTABLE BY LOCAL CODES.
6) ALL WIRING IN AREAS NOT USED FOR AIR MOVEMENT SHALL BE IN ELECTRIC METALLIC TUBING EXCEPT LOW VOLTAGE WIRING MAY BE IN APPROVED SIGNAL CABLE WHERE ACCEPTED BY LOCAL CODES.
C. THERMOSTATIC CONTROLS TO HAVE A 5°F DEADBAND AND SETPOINT OVERLAP RESTRICTIONS.
1) TEMPERATURE CONTROLS SETBACK TO BE 55°F (HEAT) AND 85° (COOL), 2-HOUR OCCUPANT OVERRIDE, 10-HOUR BACKUP.

18. WATER HEATERS
A. STANDARD: ANSI Z21.10.3/CSA 4.3 FOR GAS-FIRED, INSTANTANEOUS, DOMESTIC-WATER HEATERS FOR INDOOR APPLICATION.
B. CONSTRUCTION: COPPER PIPING OR TUBING COMPLYING WITH NSF 61 AND NSF 372 BARRIER MATERIAL FOR POTABLE WATER, WITHOUT STORAGE CAPACITY.
1. PRESSURE RATING: 150 PSIG.
2. HEAT EXCHANGER: STAINLESS STEEL.
3. INSULATION: COMPLY WITH ASHRAE/IES
4. JACKET: METAL, WITH ENAMELED FINISH, OR PLASTIC.
5. BURNER: FOR USE WITH TANKLESS, DOMESTIC-WATER HEATERS AND NATURAL-GAS FUEL.
6. AUTOMATIC IGNITION: MANUFACTURER'S PROPRIETARY SYSTEM FOR AUTOMATIC, GAS IGNITION.
7. TEMPERATURE CONTROL: ADJUSTABLE THERMOSTAT.
C. SUPPORT: BRACKET FOR WALL MOUNTING.
D. DOMESTIC-WATER EXPANSION TANKS:
1. DESCRIPTION: STEEL, PRESSURE-RATED TANK CONSTRUCTED WITH WELDED JOINTS AND FACTORY-INSTALLED, BUTYL-RUBBER DIAPHRAGM. INCLUDE AIR PRECHARGE TO MINIMUM SYSTEM-OPERATING PRESSURE AT TANK.
2. CONSTRUCTION:
a. TAPPINGS: FACTORY-FABRICATED STEEL, WELDED TO TANK BEFORE TESTING AND LABELING. INCLUDE ASME B1.20.1 PIPE THREAD.
b. INTERIOR FINISH: COMPLY WITH NSF 61 AND NSF 372 BARRIER MATERIALS FOR POTABLE-WATER TANK LININGS, INCLUDING EXTENDING FINISH INTO AND THROUGH TANK FITTINGS AND OUTLETS.
c. AIR-CHARGING VALVE: FACTORY INSTALLED.
3. CAPACITY AND CHARACTERISTICS:
a. WORKING-PRESSURE RATING: 150 PSIG .

19. REMODELING WORK:
A. DEMOLITION: DISCONNECT, DEMOLISH, AND REMOVE ABANDONED MECHANICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.
B. EQUIPMENT TO BE SALVAGED:
1) DISCONNECT AND REMOVE, EXISTING MECHANICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.
2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.
C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.
D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.
E. LOCATE, IDENTIFY, AND PROTECT MECHANICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHERE MECHANICAL SERVICES ARE LOCATED IN A WALL, ETC. TO BE DEMOLISHED, REROUTE PIPING TO NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF THE SYSTEM. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.
F. REMOVE ALL PIPING TO BE DEMOLISHED BACK TO PIPE MAIN OR EDGE OF PROJECT AREA, AND CAP PIPE.
G. PIPING AND DUCTS EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. PIPING AND DUCTS TO REMAIN SHALL BE APPROVED BY THE ARCHITECT. REMOVE MATERIALS ABOVE ACCESSIBLE CEILINGS. DRAIN AND CAP PIPING AND DUCTS ALLOWED TO REMAIN ABOVE CEILING OR BELOW FLOOR, CONCEALED FROM VIEW, EXCEPT AS OTHERWISE NOTED. PATCH FLOOR TO MATCH EXISTING.
H. PIPE AND DUCT SHALL BE CONCEALED WITH NEW OR EXISTING CONSTRUCTION WHENEVER POSSIBLE, UNLESS INDICATED OTHERWISE.

BC PROJECT #: 25202 VV/AW
MISSOURI PE COA #2009003629

3/28/25
STATE OF MISSOURI
ERIK B. KNUDSEN
NUMBER
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REV#	DATE	DESCRIPTION

DATE: 03-31-2025
PROJECT# 25007

MECHANICAL & PLUMBING SPECS

MP0.0

PLUMBING GENERAL NOTES:

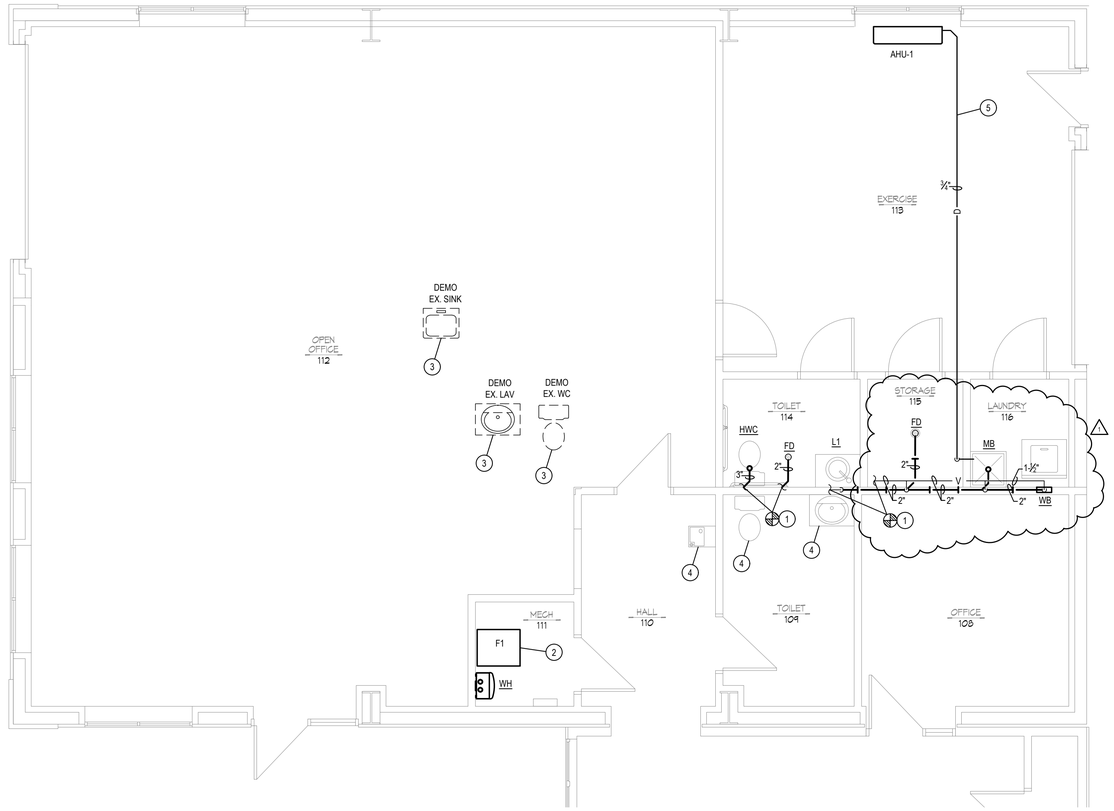
1. INSTALL ALL PIPE, ETC. AS HIGH AS POSSIBLE.
2. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF FIXTURES.
4. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING PIPING, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
5. SAWCUT EXISTING FLOOR AS REQUIRED FOR INSTALLATION OF UNDERFLOOR PIPING. PATCH FLOOR TO MATCH EXISTING.
6. NO PIPING SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.

PLUMBING SYMBOLS

- SOIL AND WASTE PIPING BELOW FLOOR/GRADE
- SOIL AND WASTE PIPING ABOVE FLOOR/GRADE
- V — SANITARY VENT PIPING ABOVE GRADE
- V — SANITARY VENT PIPING BELOW GRADE
- — DOMESTIC COLD WATER PIPING
- — DOMESTIC HOT WATER PIPING
- — DOMESTIC HOT WATER RECIRCULATION PIPING
- G — GAS PIPING
- D — EQUIPMENT DRAIN LINE
- PIPING TURNING DOWN
- PIPING TURNING UP
- TEE TOP CONNECTION
- UNION
- BACKFLOW PREVENTER
- FD — FLOOR DRAIN
- FCO — FLOOR CLEAN OUT
- WCO — WALL CLEAN OUT
- GCO — GRADE CLEAN OUT
- VALVE
- BALANCING VALVE
- SOLENOID VALVE
- PRESSURE REGULATOR
- CHECK VALVE
- CONNECT TO EXISTING
- I.E. — INVERT ELEVATION OF PIPE
- (A) — MATCH MARKS ON PLUMBING RISER DIAGRAM

PIPE HANGER SCHEDULE

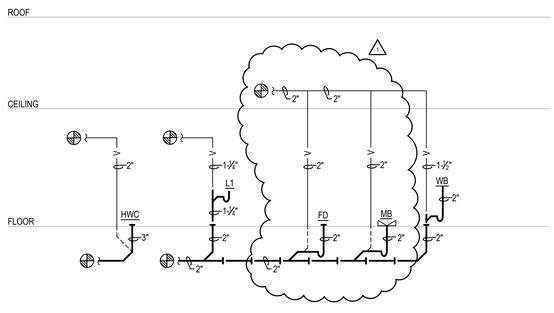
PIPE MATERIAL	MAXIMUM HANGER SPACING	HANGER ROD DIAMETER
ABS (All sizes)	4'	3/8"
PVC (All Sizes)	4'	3/8"
CPVC, 1 inch and smaller	3'	1/2"
CPVC, 1-1/4 inches and larger	4'	1/2"
Cast Iron (All Sizes)	5'	5/8"
Cast Iron (All Sizes) with 10 foot length of pipe	10'	5/8"
Copper Tube, 1-1/4 inches and smaller	6'	1/2"
Copper Tube, 1-1/2 inches and larger	10'	1/2"
Steel, 3 inches and smaller	12'	1/2"
Steel, 4 inches and larger	12'	5/8"
Pex, 1" and below without support channel	32"	3/8"
Pex, 1-1/4" and above without support channel	48"	3/8"
Pex ¾" and below with support channel	6'	3/8"
Pex 1" and above with support channel	8'	3/8"



NORTH

PLUMBING WASTE & VENT PLAN

SCALE: 1/4" = 1'-0"



WASTE & VENT

PLUMBING RISER DIAGRAMS

SCALE: NONE

PLUMBING FIXTURE BRANCH PIPING SCHEDULE

FIXTURE	WASTE	VENT	CW	HW
WATER CLOSET (TANK TYPE)	3"	2"	1/2"	- -
LAVATORY	1-1/4"	1-1/4"	1/2"	1/2"
WASHER BOX	2"	1-1/2"	1/2"	1/2"
FLOOR DRAIN	2"	2"	- -	- -

NOTE: INDIVIDUAL VENTS FOR FIXTURES ON PLANS AND RISER DIAGRAMS HAVE BEEN INCREASED WHERE HORIZONTAL VENT LENGTH IS IN EXCESS OF THE MAXIMUM DISTANCE INDICATED BY THE CODE.

PEX PIPING REQUIREMENTS

PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE. IF PEX PIPING IS USED, INCREASE PEX PIPING ONE SIZE ABOVE LISTED SIZES AS REQUIRED TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER.

PLUMBING PLAN NOTES:

1. CONNECT WASTE AND VENT PIPING TO EXISTING WASTE AND VENT LINE AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY PIPING.
2. CONNECT CONDENSATE TO FURNACE FLUE AND COIL AS REQUIRED AND AS DETAILED. ROUTE TO EXISTING FLOOR DRAIN WITH AIR GAP.
3. DEMO EXISTING WASTE AND VENT PIPING TO BELOW FLOOR/BEHIND WALL, VENT TO BE REMOVED TO ABOVE CEILING AND CAP.
4. EXISTING TO REMAIN.
5. ROUTE ¾" CONDENSATE DRAIN TO FLOOR DRAIN WITH AIR GAP.
6. SEE RISER DIAGRAM FOR WATER HEATER PIPING DIAGRAM. REFER TO MANUFACTURERS INSTRUCTIONS FOR EXACT REQUIREMENTS. PROVIDE THERMAL EXPANSION TANK.

BC PROJECT #: 25202 VV/AW
MISSOURI PE COA #2009003629

4/14/25
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REV#	DATE	DESCRIPTION
1	04-14-25	CITY COMMENTS

DATE: 03-13-2025
PROJECT# 25007

PLUMBING WASTE & VENT PLAN

P1.0

PLUMBING PLAN NOTES:

1. CONNECT ½" CW AND HW TO EXISTING CW AND HW LINES. VERIFY EXACT LOCATION SIZE OF EXISTING WATER LINE PRIOR TO INSTALLATION OF NEW PIPING.
2. CONNECT ½" CW TO EXISTING CW LINE. VERIFY EXACT LOCATION SIZE OF EXISTING WATER LINE PRIOR TO INSTALLATION OF NEW PIPING.
3. EXISTING TO REMAIN. VERIFY PROPER WORKING ORDER.
4. DEMO EXISTING HOT AND COLD WATER TO MAIN BRANCH AND CAP.
5. PROVIDE WITH MIXING VALVE IF NONE IS FOUND TO BE EXISTING.
6. CONNECT ¾" GAS PIPING TO EXISTING GAS LINE. VERIFY EXACT LOCATION AND ELEVATION OF EXISTING PIPING IN FIELD PRIOR TO INSTALLATION OF ANY NEW PIPING.
7. CONNECT GAS TO EQUIPMENT AS REQUIRED AND AS DETAILED.
8. CONNECT 1" GAS TO EXISTING GAS LINE. VERIFY EXACT LOCATION SIZE OF EXISTING GAS LINE PRIOR TO INSTALLATION OF NEW PIPING.
9. CONNECT ½" CW TO EXISTING CW LINE. VERIFY EXACT LOCATION SIZE OF EXISTING WATER LINE PRIOR TO INSTALLATION OF NEW PIPING.
10. CONNECT ½" HW TO EXISTING HW LINE. VERIFY EXACT LOCATION SIZE OF EXISTING WATER LINE PRIOR TO INSTALLATION OF NEW PIPING.

PLUMBING FIXTURE SCHEDULE (OR EQUAL):

HWC HANDICAP WATER CLOSET: TOTO, #CST776CEFG (#01), "DRAKE CLOSE COUPLED TOILET", 1.28 GALLON FLUSH, 16-1/8" HIGH ELONGATED BOWL, FLOOR MOUNTED, FLOOR OUTLET, TANK TYPE, VITREOUS CHINA, SIPHON-JET ACTION, #SC534 OPEN FRONT SEAT WITH CHECK HINGE AND LESS COVER, CHROME PLATED ANGLE STOP AND RISER. HANDLE ON WIDE SIDE OF FIXTURE.

L1 LAVATORY, COUNTERTOP: KOHLER #K-2714-1, VITREOUS CHINA, 18-7/8" CIRCULAR BASIN, DELTA #501 FAUCET WITH SINGLE METAL LEVER HANDLE, GRID DRAIN WITH 1-1/4" TAILPIECE, CHROME PLATED P-TRAP, CHROME PLATED ANGLE STOPS AND RISERS. INSULATE EXPOSED DRAIN, WATER SUPPLIES, AND VALVES WITH PROWRAP SEAMLESS MOLDED CLOSED CELL VINYL INSULATION.

MV MIXING VALVE: WATTS, #LFUSG-B, THERMOSTATIC CONTROLLED MIXING VALVE, LEAD FREE BRONZE BODY, LOCKED TEMPERATURE ADJUSTMENT CAP (VANDAL RESISTANT), COPPER ENCAPSULATED THERMOSTAT ASSEMBLY WITH BRASS SHUTTLE, STAINLESS STEEL SPRINGS, INTEGRAL CHECK VALVES ON HOT AND COLD INLETS. (SET TO 110°F). ASSE 1070 LISTED.

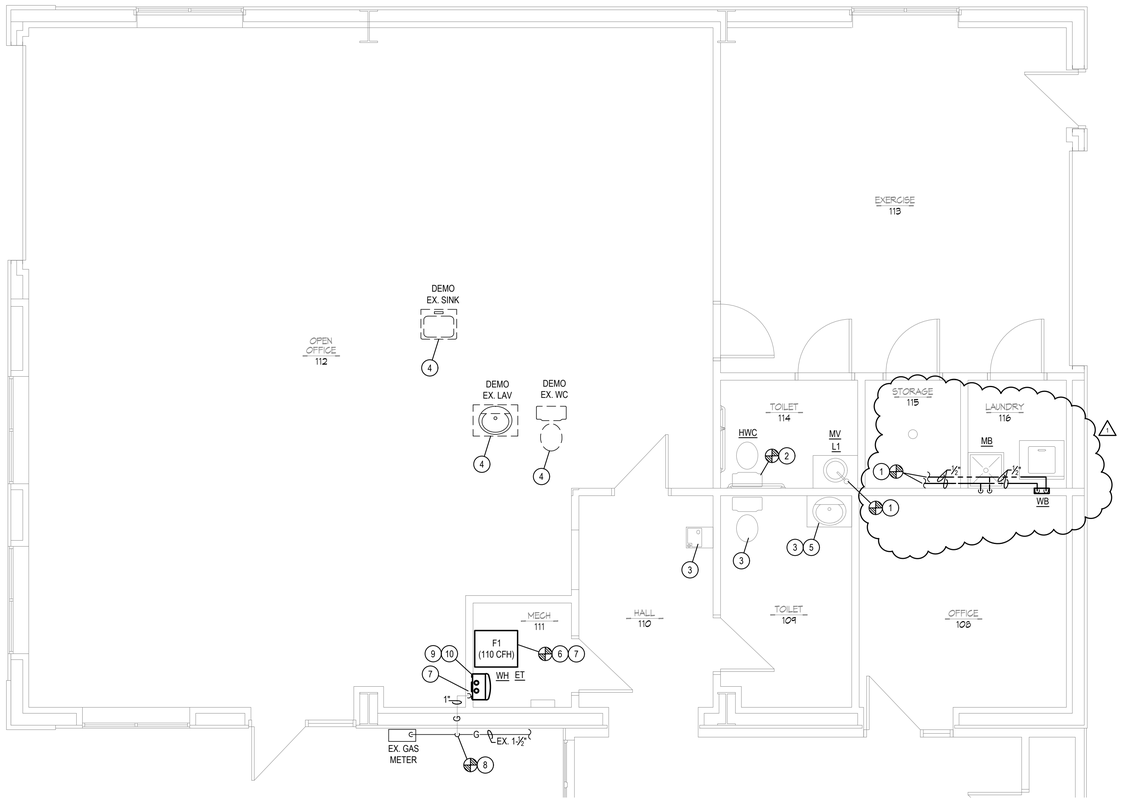
WB WASHER BOX: GUY GRAY #B-150, WASHER BOX WITH 1-1/2" DRAIN OUTLET, WATER HAMMER ARRESTERS, TAILPIECE, AND 1/2" HOSE BIBBS. DO NOT INSTALL IN DEMISING WALL.

WH HOT WATER HEATER: NAVIEN, #NPE-240-S2, GAS FIRED, 98% THERMAL EFFICIENCY, INSTANTANEOUS HEATER, 199 MBTUH INPUT, 3.8 GPM AT 100 DEGREES F RISE. PROVIDE WITH NAVIEN READY LINK COMMUNICATION CABLE, REMOTE CONTROLLER, NAVIEN PLUMB EASY VALVE SET, PRESSURE RELIEF VALVE, CONDENSATE DRAIN HOSE, CONDENSATE NEUTRALIZER, VENT TERMINATORS. SET TO 120°F.

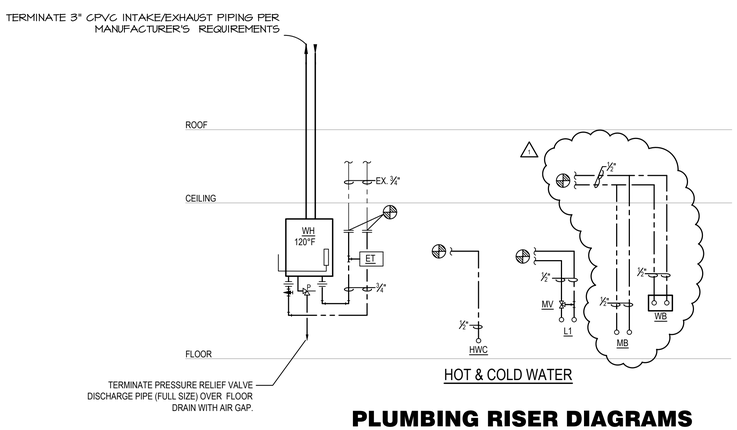
ET HOT WATER EXPANSION TANK: AMTROL, #ST-5, 2 GALLON EXPANSION TANK WITH DIAPHRAGM.

FD FLOOR DRAIN: SIOUX CHIEF, #842, PVC FLOOR DRAIN WITH ADJUSTABLE TOP AND CAST BRASS STRAINER. PROVIDE WITH #2692 QUAD CLOSE TRAP SEAL DEVICE.

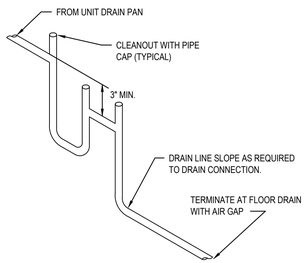
MB MOP BASIN: FIAT, #MSB-2424, MOLDED STONE MOP BASIN, 2" DRAIN, 24"x 24" BASIN, VINYL BUMPER GUARD, STERN WILLIAMS #T-10-VB FAUCET, SPRING CHECKS, VACUUM BREAKER, INTEGRAL STOPS, WALL BRACE & PAIL HOOK, WALL BRACKET WITH 30" HOSE.



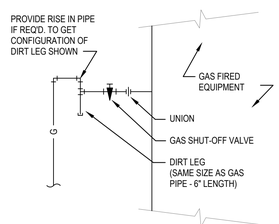
PLUMBING WATER & GAS PLAN
SCALE: 1/4" = 1'-0"



PLUMBING RISER DIAGRAMS
SCALE: NONE



CONDENSATE DRAIN DETAIL
SCALE: NONE



GAS CONNECTION DETAIL
SCALE: NONE

4/14/25
STATE OF MISSOURI
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REV#	DATE	DESCRIPTION
–	04-14-25	CITY COMMENTS

DATE: 03-13-2025

PROJECT# 25007

PLUMBING WATER & GAS PLAN

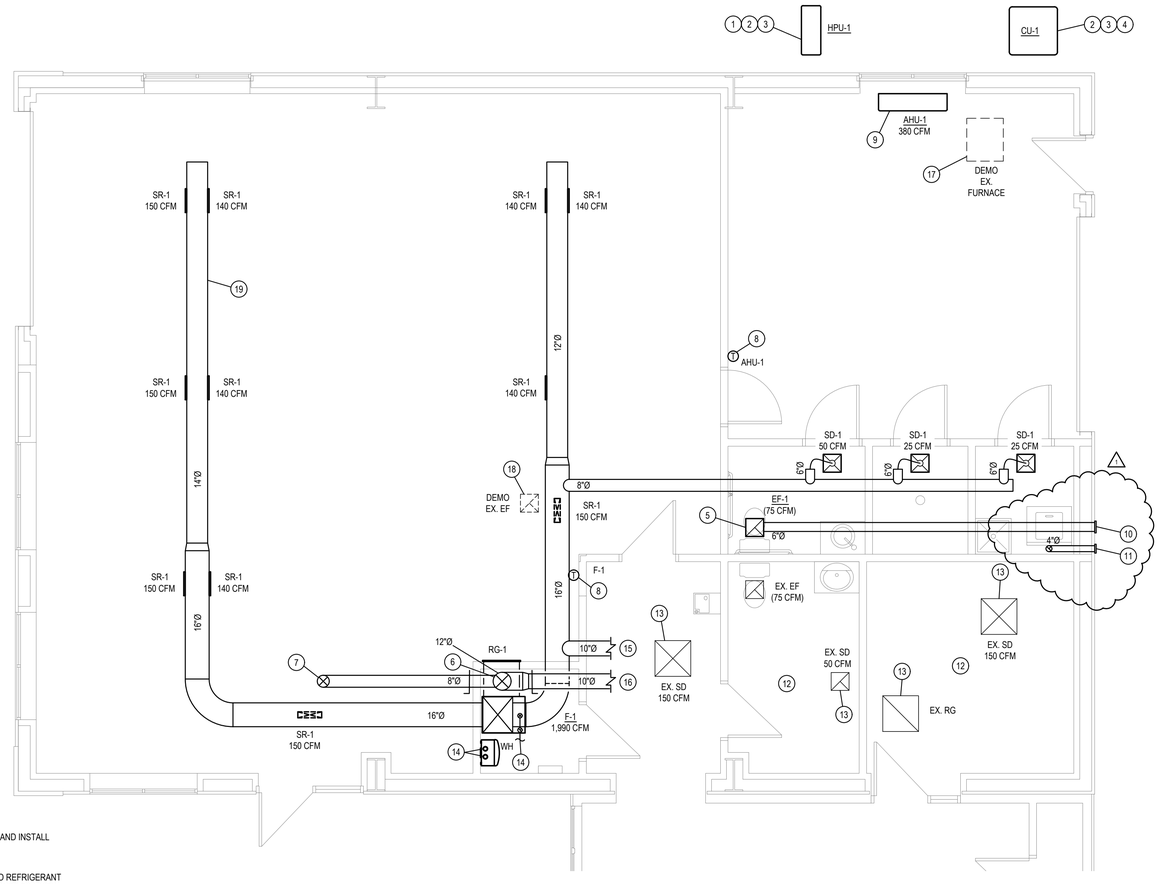
P2.0

MECHANICAL GENERAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.
3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS.
4. INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.
5. DUCT SIZES SHOWN ARE ACTUAL SHEET METAL SIZES AND INCLUDE AN ALLOWANCE FOR DUCT LINER WHERE APPLICABLE.
6. NO DUCT SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
7. ALL MECHANICAL SYSTEMS SHALL BE BALANCED BY A CERTIFIED BALANCING CONTRACTOR. REFER TO SPECIFICATIONS FOR DETAILS.

MECHANICAL SYMBOLS

- NEW SUPPLY DIFFUSER
- NEW RETURN AIR GRILLE
- EXHAUST GRILLE/FAN
- (S) REMOTE TEMPERATURE SENSOR
- (T) THERMOSTAT, MOUNTED AT 48" AFF
- MOTORIZED DAMPER/LOUVER
- NEW DUCTWORK
- 32"x14" SIZE OF RECTANGULAR DUCT
- 6"Ø SIZE OF ROUND DUCT
- FLEXIBLE DUCTWORK
- FLEXIBLE CONNECTION TO FAN
- (3) FLOOR PLAN NOTE DESIGNATION
- S.A. SUPPLY AIR
- R.A. RETURN AIR
- EXH. EXHAUST AIR
- TRANSITION IN DUCT SIZE
- ELBOW WITH TURNING VANES
- MANUAL VOLUME DAMPER
- MANUAL VOLUME DAMPER (M)
- MOTORIZED CONTROL DAMPER
- SUPPLY AIR DUCT UP/DOWN
- RETURN AIR DUCT UP/DOWN
- EXHAUST AIR DUCT UP/DOWN
- UP CHANGE IN ELEVATION UP (UP) DOWN (DN) IN DIRECTION OF FLOW
- RTU-1 SCHEDULED MECHANICAL EQUIPMENT



MECHANICAL PLAN NOTES:

1. PROVIDE PREFABRICATED PAD FOR CONDENSING UNITS.
2. CONNECT REFRIGERANT PIPING TO CONDENSING UNIT & COIL AS REQUIRED BY THE MANUFACTURER. PROVIDE AND INSTALL REFRIGERANT PIPING FOR CONDENSING UNIT AS REQUIRED BY MANUFACTURER.
3. REFRIGERANT PIPING THROUGH EXTERIOR WALL AT 0'-6" ABOVE GRADE, ROUTE IN EXTERIOR WALL. NO EXPOSED REFRIGERANT PIPING. SEAL WALL PENETRATION WEATHERTIGHT. ROUTE PIPE UP INSIDE CEILING AS HIGH AS POSSIBLE AND ROUTE TO UNITS.
4. REUSE EXISTING PAD FOR NEW CONDENSER.
5. SUPPORT EXHAUST FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
6. CONNECT OUTDOOR AIR DUCT WITH BALANCING DAMPER TO RETURN AIR DUCT. REFER TO OUTDOOR AIR CALCULATIONS FOR MINIMUM OUTDOOR AIR VOLUME.
7. PROVIDE ROOF VENT FOR OUTDOOR AIR INTAKE WITH BIRD SCREEN. SEAL PENETRATIONS WEATHER TIGHT.
8. PROVIDE 7-DAY PROGRAMMABLE AUTO/HEAT/COOL THERMOSTAT AT 48" AFF.
9. SUPPORT UNIT FROM WALL PER MANUFACTURE'S REQUIREMENTS AND INSTALLATION INSTRUCTIONS. MOUNT UNIT 6" ABOVE WINDOW.
10. PROVIDE WALL VENT CAP WITH BACKDRAFT DAMPER FOR EXHAUST FAN. SEAL PENETRATIONS WEATHERTIGHT.
11. ROUTE 4"Ø DRYER EXHAUST DUCT FROM DRYER AND ROUTE THROUGH WALL TO AN APPROVED DRYER TERMINATION WITH BACKDRAFT DAMPER. SEAL PENETRATION WEATHER TIGHT.
12. EXISTING TO REMAIN.
13. REBALANCE DIFFUSER TO LISTED CFM. CLEAN DIFFUSER/GRILLE TO 'LIKE NEW' CONDITION AS REQUIRED.
14. 3"Ø CPVC FLUE & COMBUSTION AIR INTAKE UP THROUGH EXISTING FLUE CUTOUT IN ROOF TO MANUFACTURER'S VENT TERMINATION AS REQUIRED. ROOFER TO MODIFY ROOF OPENING AND TERMINATION AS NECESSARY. OFFSET AS REQUIRED TO MAINTAIN 10' CLEARANCE FROM ALL OUTDOOR AIR INTAKES. ALL ROOFING WORK SHALL BE PERFORMED BY BUILDING OWNER'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY APPROVED ROOFING CONTRACTOR WITH BUILDING OWNER PRIOR TO PERFORMING WORK.
15. CONNECT DUCT TO EXISTING SUPPLY DUCTWORK AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY DUCTWOORK.
16. CONNECT DUCT TO EXISTING RETURN DUCTWORK AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY DUCTWORK.
17. REMOVE EXISTING FURNACE. FILL AND PACK WITH INSULATION AND CAP ABOVE AND BELOW ROOF FOR EXISTING FLUE CUTOUT AS REQUIRED.
18. REMOVE EXISTING EXHAUST FAN. FILL AND PACK WITH INSULATION AND CAP ABOVE AND BELOW ROOF FOR EXISTING EXHAUST CUTOUT AS REQUIRED.
19. ROUTE DUCT ABOVE GARAGE DOOR.

MECHANICAL FLOOR PLAN

SCALE: 1/4" = 1'-0"

BC PROJECT #: 25202 VV/AW
MISSOURI PE COA #2009003629

4/14/25
STATE OF MISSOURI
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REV#	DATE	DESCRIPTION
1	04-14-25	CITY COMMENTS

DATE: 03-13-2025
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MECHANICAL FLOOR PLAN

M1.0

OUTDOOR AIR CALCULATIONS

UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectiveness (Ez)	Zone outdoor airflow (cfm)
F-1	68	Storage rooms	0	0	0.12		8	0.8	10
	89	Corridors	0	0	0.06		5	0.8	7
	1450	Office spaces	5	5	0.06		123	0.8	154
	140	Toilet rooms public	0	0	0	5/70	0	0.8	0
								Total	171

EXHAUST FAN SCHEDULE

MARK	MFGR	MODEL	CFM	EXTERNAL STATIC P. IN. WG.	RPM	ELECTRICAL		FAN TYPE	CONTROLS	NOTES
						VOLT/Ø/HZ	PWR			
EF-1	COOK	GC-128	75	0.1	750	120/1/60	29 W	CEILING EXH.	SWITCH	1

NOTES: 1. PROVIDE CEILING GRILLE, INTEGRAL BACK DRAFT DAMPER, VARI-SPEED CONTROLLER (NEAR FAN AND ABOVE CEILING), FACTORY MEANS OF DISCONNECT AND WALL CAP.

DIFFUSER SCHEDULE

MARK	MFGR	MODEL	NECK SIZE	FACE SIZE	FINISH	NOTES
SD-1	TITUS	TMS/3	6"Ø	12"x12"	WHITE	1,2
SR-1	↓	S300FL	14"x16"	-	ANODIZED	3
RG-1		350F	20"x14"	-	WHITE	3

NOTES: 1. PROVIDE WITH TRIM KIT IN AREA WITH GYP CEILING.
2. PROVIDE WITH OPPOSED BLADE DAMPER IN AREA WITH GYP CEILING.
3. PROVIDE WITH OPPOSED BLADE DAMPER.

FURNACE SCHEDULE

MARK	MFGR	MODEL NO.	CFM	EXT. STATIC P. IN. WG.	HEATING (GAS)		ELECTRICAL		OUTSIDE AIR (CFM)	NOTES
					BTUH INPUT	BTUH OUTPUT	VOLT/Ø/HZ	HP		
F-1	LENNOX	EL196UH110X60C	1,990	0.8	110,000	107,000	120/1/60	1	275	1,2,3,4,5

NOTES: 1. PROVIDE 1" THICK THROWAWAY TYPE FILTER WITH HOLDING FRAME FOR EACH UNIT.
2. PROVIDE EACH UNIT WITH 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER THERMOSTAT WITH OPTIMUM START CONTROLS.
3. CONDENSING UNITS, COOLING COILS, AND FURNACES SHALL ALL BE OF THE SAME MANUFACTURER.
4. EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO FILTERS AND COILS.
5. PROVIDE UNIT WITH 8"Ø ROUND BALANCING DAMPER CONTROL OF OUTDOOR AIR SUPPLY.

CONDENSING UNIT SCHEDULE

MARK	MFGR	MODEL NO.	COOLING			ELECTRICAL			EVAP. COIL MODEL NO.	SEER2	NOTES
			TOTAL BTUH	AMB.	EVAP. EAT DB/WB	VOLT/Ø/HZ	MCA	MOCP			
CU-1	LENNOX	ML17XC1-060	58,000	95	80/67	208/1/60	31.3	50	CX35-51/61C	13.8	1,2,3

NOTES: 1. PROVIDE TIME DELAY ON COMPRESSOR RE-START, CRANKCASE HEATER, AND COMPRESSOR LOCK-OUT WITH AMBIENT BELOW 35 °F. PROVIDE INDOOR COIL WITH THERMAL EXPANSION VALVE (TXV).
2. MECHANICAL CONTRACTOR SHALL COORDINATE ALL UNIT MOCP'S OF ACTUAL INSTALLED EQUIPMENT WITH ELECTRICAL CONTRACTOR.
3. PROVIDE HAIL GUARDS FOR EACH UNIT.

MINI SPLIT SYSTEM AC/HEAT PUMP CONDENSING UNIT SCHEDULE

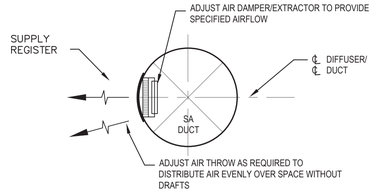
MARK	MFGR	MODEL NO.	NOMINAL TONS	COOLING BTU/H	HEATING BTU/H	ELECTRICAL				SEER2	TOTAL WEIGHT	NOTES
						VOLT/Ø/HZ	MCA (AMPS)	MOCP (AMPS)	BRKR (AMPS)			
HPU-1	MITSUBISHI	MUZ-GS36NA2	3	33,200	35,200	208/1/60	22	25	25	18.4	122 lbs	1,2

NOTES: 1. MECHANICAL CONTRACTOR SHALL COORDINATE ALL UNIT MOCP'S OF ACTUAL INSTALLED EQUIPMENT WITH ELECTRICAL CONTRACTOR.
2. PROVIDE HAIL GUARDS FOR EACH UNIT.

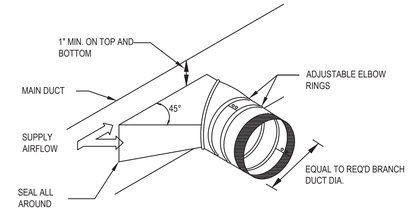
MINI SPLIT SYSTEM AC INDOOR UNIT SCHEDULE

MARK	MFGR	INDOOR UNIT MODEL NO.	EVAP. CFM	NOMINAL TONS	ELECTRICAL		AHU WEIGHT (LBS)	OUTDOOR UNIT	NOTES
					MCA (A)	VOLT/Ø/HZ			
AHU-1	MITSUBISHI	MSZ-GS36NA2	380	3	1	208/1/60	45	HPU-1	1,2

NOTES: 1. PROVIDE WIRED THERMOSTAT CONTROL, REFRIGERANT LINE SETS, CONDENSATE PUMP, & ELECTRICAL WHIPS. COORDINATE UNIT MOCP WITH ELECTRICAL CONTRACTOR.
2. PROVIDE BLUE DIAMOND MicroBlue MINI CONDENSATE PUMP.



SUPPLY REGISTER DETAIL
SCALE: NONE



BRANCH DUCT TAKEOFF DETAIL
SCALE: NONE

BC PROJECT #: 25202 VV/AW
MISSOURI PE COA #2009003629

3/28/25
STATE OF MISSOURI
ERIK B. KNUDSEN
NUMBER PE-2004026504
REGISTERED ENGINEER
PROFESSIONAL

GUY GRONBERG ARCHITECTS, P.C.
113 SE 3rd St.
Lee's Summit, MO 64063
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BC ENGINEERS INCORPORATED
5720 Reeder Shawnee, KS 66203 (913)262-1772

1309 SW JEFFERSON ST
LEES SUMMIT, MO 64081

REV#	DATE	DESCRIPTION

DATE: 03-31-2025
PROJECT# 25007

MECH SCHEDULE & DETAILS

M2.0

ELECTRICAL SPECIFICATIONS

1. GENERAL PROVISIONS:

   A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS OUTLINED.

   B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.

   C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC), AND ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.

   D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.

   E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.

   F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.

   G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.

   H. CONTRACTOR SHALL PROVIDE ACCESS PANELS WHERE NECESSARY FOR CONCEALED ELECTRICAL COMPONENTS.

   I. CONTRACTOR SHALL PROMPTLY CALL ENGINEERS ATTENTION TO ANY APPARENT CONTRADICTIONS, AMBIGUITIES, ERRORS, DISCREPANCIES, OR OMISSIONS IN THE PLANS OR SPECIFICATIONS.

2. OPERATION AND MAINTENANCE MANUALS:

   A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.

   B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.

   C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE COLLATED AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC. DOCUMENTS SHALL BE COMPILED AND BOUND IN DIGITAL FILE OR 3 RING BINDER.

3. MANUFACTURERS:

   A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.

4. TESTING, AND BALANCING:

   A. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNECTING TO THE PROPER PHASE AS DESIGNED TO BALANCE THE LOADING BETWEEN PHASES.

   B. POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD AND SHALL BE CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED.

   C. ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATION AND OPERATION.

5. RACEWAYS:

   A. CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL, WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.

   B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS.

   C. UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 264 PSI, OF 78 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLUSH SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL). CONDUIT AND FITTINGS SHALL BE PRODUCED BY THE SAME MANUFACTURER.

   D. FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".

6. CONDUCTORS:

   A. WIRES SHALL BE CONTINUOUS WITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRE SHALL BE INSTALLED IN CONDUIT, WIREWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.

   B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 A.W.G., 600 VOLT.

   C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.

   D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.

   E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED.

7. MC CABLE:

   A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THHN SOLID (#8 AWG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90°C FOR DRY LOCATIONS, WITH NYLON OR EQUIVALENT UL LISTED JACKET, PER UL STANDARD 83 THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OF ALUMINUM OR GALVANIZED STEEL.

   B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1569 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.

8. WIRING DEVICES:

   A. WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES.

      1) SINGLE POLE: HUBBELL #CS1221-X, OR EQUAL.
      2) THREE WAY: HUBBELL #CS1223-X, OR EQUAL.
      3) AS SPECIFIED ON PLANS

   B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL #CR5352-X, OR EQUAL.

   C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL #GF20-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.

   D. ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL #CR5352IG, ORANGE COLOR. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.

   E. RECEPTACLES OUTSIDE BUILDING AND WHERE NOTED AS WEATHERPROOF, SHALL BE LISTED 'WEATHER-RESISTANT' HUBBEL #GFTR20-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC #WP1010MXD OR #WP1010HMXD DIECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.

   F. VERIFY DEVICES AND DEVICE COVERPLATES COLOR AND STYLE WITH ARCHITECT.

9. BOXES:

   A. HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION.

   B. ALL BOXES SHALL BE FLUSH MOUNTED, UNLESS INDICATED OTHERWISE.

10. PANELBOARDS:

   A. PANELBOARDS ARE EXISTING AND SHALL BE REUSED. PROVIDE ADDITIONAL BREAKERS AS REQUIRED TO CONNECT CIRCUITS AS SHOWN ON THE DRAWINGS. ADDITIONAL BREAKERS SHALL BE THERMAL MAGNETIC, QUICK-BREAK BOLT ON CIRCUIT BREAKERS WITH ONE HANDLE FOR SINGLE OR MULTI-POLE RATINGS AND SHALL BE COMPATIBLE WITH EXISTING PANELS.

   B. COMPLETE EXISTING DIRECTORY AS REQUIRED TO IDENTIFY NEW CIRCUIT, LISTING LOAD SERVED AND OTHER PERTINENT DATA.

11. DISCONNECTS:

   A. DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED.

   B. INDOOR SWITCHES SHALL BE NEMA I AND OUTDOOR SWITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.

12. FUSES:

   A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING U.L. CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 60 AMPERES.

   B. ALL OTHER FUSES SHALL BE U.L. CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINKS AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.

ELECTRICAL SPECIFICATIONS (CONTINUED)

13. LIGHT FIXTURES:

   A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED.

   B. FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.

   C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS.

14. SLEEVES:

   A. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.

   B. INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.

   C. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL, COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.

15. GROUNDING:

   A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250, AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.

   B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).

16. REMODELING WORK:

   A. DEMOLITION: DISCONNECT, DEMOLISH AND REMOVE ABANDONED ELECTRICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND NOT INDICATED TO BE SALVAGED OR REMAIN.

   B. EQUIPMENT TO BE SALVAGED:

      1) DISCONNECT AND REMOVE EXISTING ELECTRICAL EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED. DELIVER EQUIPMENT TO THE LOCATION DESIGNATED BY THE OWNER FOR STORAGE.

      2) ALL MATERIALS AND EQUIPMENT DESIGNATED TO BE REUSED OR RELOCATED SHALL BE CAREFULLY REMOVED, AND STORED UNTIL NEEDED FOR REMODELING WORK. ALL ITEMS SHALL BE RESTORED TO "LIKE NEW" CONDITION WITH RUST OR CORROSION REMOVED, SURFACE PAINT TOUCHED UP OR REPAINTED AS REQUIRED TO MATCH NEW CONSTRUCTION, AND THOROUGHLY CLEANED AND INSPECTED. ANY ITEMS WHICH BECOME DAMAGED BEYOND REPAIR AS A RESULT OF CONSTRUCTION OR DEMOLITION ACTIVITY SHALL BE REPLACED WITH NEW MATERIAL EQUIVALENT IN EVERY RESPECT.

   C. DISPOSAL AND CLEANUP: REMOVE FROM THE SITE AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS AND EQUIPMENT NOT INDICATED TO BE SALVAGED.

   D. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER REMODELING OPERATIONS ARE COMPLETE.

   E. PROVIDE ALL ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF ALL EXISTING ELECTRICAL SYSTEMS, INTEGRATING THE NEW AND EXISTING AREAS. LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES PASSING THROUGH REMODELING AREA AND SERVING OTHER AREAS OUTSIDE THE REMODELING LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE REMODELING LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.

      1) ABANDONED CONDUIT SHALL HAVE WIRE REMOVED AND SHALL BE CAPPED. ABANDONED OUTLETS IN WALLS OR PARTITIONS SHALL HAVE DEVICES AND WIRE REMOVED, AND SHALL BE COVERED.

      2) WHERE EXISTING CONDUITS TERMINATE AT AN EXISTING OUTLET IN A WALL, CEILING, OR FLOOR TO BE REMOVED, DISCONNECT AND REMOVE DEVICE AND WIRE FROM CONDUIT. CONDUIT SHALL BE CUT BACK AND CAPPED (BELOW THE FLOOR OR ABOVE THE CEILING) SO NOT TO CREATE AN OBSTRUCTION. PATCH FLOOR TO MATCH EXISTING.

      3) WHERE EXISTING CIRCUITS EXTEND BEYOND THE OUTLET IN THE EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, FURNISH AND INSTALL NEW CONDUIT AND WIRE TO EITHER REROUTE THE CIRCUIT OR FEED THE REMAINING OUTLET(S) FROM ANOTHER ELECTRICAL SOURCE, BUT IN SUCH A MANNER AS NOT TO REVISE THE CIRCUIT. ALL REROUTED CONDUIT SHALL BE APPROVED BY THE ARCHITECT.

      4) WHERE EXISTING OUTLETS IN A WALL, CEILING, OR FLOOR TO BE REMOVED ARE ESSENTIAL TO MAINTAIN OPERATION OF OTHER REMAINING OUTLETS, RELOCATE THE OUTLET TO A NEW CONVENIENT LOCATION. EXISTING WIRING DEVICES SHALL NOT BE REUSED, UNLESS OTHERWISE INDICATED.

      5) WHERE LIGHTING FIXTURES ARE INDICATED TO BE DEMOLISHED, REMOVE ALL WIRE AND MODIFY THE EXISTING CONDUIT (IF APPLICABLE) FOR THE NEW LIGHTING. ALL UNUSED CONDUIT SHALL BE REMOVED.

      6) WHERE A TELEPHONE CIRCUIT EXTENDS BEYOND AN OUTLET IN AN EXISTING WALL, CEILING, OR FLOOR TO BE REMOVED, PROVIDE NECESSARY EMPTY CONDUIT AND NOTIFY THE OWNER WHO WILL REQUEST THE OWNER TO ARRANGE WITH THE TELEPHONE COMPANY FOR NEW WIRING TO OUTLETS THAT REMAIN.

      7) WHERE EXISTING CONDUIT AND WIRE RUNS ARE LOCATED IN OR ATTACHED TO AN EXISTING WALL, CEILING OR FLOOR TO BE REMOVED, THEY SHALL BE REROUTED IN EITHER NEW OR EXISTING CONSTRUCTION TO MAINTAIN CONTINUITY OF CIRCUITS UNLESS OTHERWISE INDICATED.

      8) CONDUIT SHALL BE CONCEALED WITHIN THE EXISTING BUILDING CONSTRUCTION WHEREVER POSSIBLE, EXCEPT WHERE OTHERWISE INDICATED.

      9) EXISTING WIRE SHALL BE DISCONNECTED AND REMOVED WHEREVER EXISTING CIRCUITS ARE ABANDONED.

17. BOXES IN FIRE RATED ASSEMBLIES:

   A. OUTLET BOXES THAT DO NOT EXCEED 16 SQUARE INCHES AND INSTALLED IN FIRE RATED WALLS SHALL NOT BE INSTALLED CLOSER THAN 24" HORIZONTAL INCHES TO OTHER OUTLET BOXES.

   B. IF BOXES MUST BE INSTALLED WITHIN 24" OF EACH OTHER THAN BOTH OUTLET BOXES SHALL BE PROTECTED WITH LISTED PUTTY PADS, 3M FIRE BARRIER MOLDABLE PUTTY • OR EQUAL.

ELECTRICAL SYMBOLS LIST

CIRCUITING & NOTES

+46"	SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE OF DEVICE)
GFI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
EM	EMERGENCY BATTERY BACKUP
(TIE)	PARTIAL HOMERUN. REFER TO PLANS FOR ADDITIONAL DEVICES CONNECTED TO THIS CIRCUIT.
X	ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION
2 LP	CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED
	#12 WIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
	GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
	CONDUIT ROUTED UNDER FLOOR/GRADE

LIGHTING

	EMERGENCY TWIN HEAD LIGHT FIXTURE
	EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED
A	STRIP FIXTURE WITH TYPE DESIGNATION
A	RECESSED OR SURFACE MOUNTED FIXTURE WITH TYPE DESIGNATION
NL A	NIGHT LIGHT, CONNECT TO UNSWITCHED CIRCUIT
A	CEILING OR RECESSED FIXTURE WITH TYPE DESIGNATION
A	WALL MOUNTED FIXTURE WITH TYPE DESIGNATION

POWER DEVICES

	DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
	FOURPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
	DEVICE MOUNTED ABOVE COUNTER AND/OR SPLASH GUARD
	HEAVY DUTY OUTLET - NEMA CONFIGURATION SIZE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION
	PANEL BOARD, TOP OF BOX 6'-0" AFF
J	JUNCTION BOX
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MAGNETIC STARTER
M	MOTOR WITH DESIGNATION
	FLOOR BOX

CONTROLS

S	SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF
S 3	THREE-WAY WALL SWITCH, TOP OF BOX AT 48" AFF

COMMUNICATIONS

	DATA/TELEPHONE OUTLET WITH MINIMUM ¾" CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING, BOTTOM OF BOX AT 16", UNLESS NOTED OTHERWISE. PROVIDE WITH PULL STRING
TV	FLAT SCREEN TELEVISION - PROVIDE AND INSTALL ONE (1) HUBBELL #RR1510X RECESSED TAMPER-RESISTANT DUPLEX RECEPTACLE WITH COVERPLATE AND ONE(1) HUBBELL #HBL260 TWO GANG LARGE CAPACITY WALL BOX (UP TO 2" KNOCKOUT) W/ MUD RING AND COVERPLATE FOR DATA. PROVIDE 2"C WITH PULL STRING TO ABOVE ACCESSIBLE CEILING FOR DATA CABLES. MOUNT BOX AT 5'-6" AFF UNLESS NOTED OTHERWISE (VERIFY)

LIGHT FIXTURE SCHEDULE

MARK N0.	MANUFACTURER & CATALOG NUMBER	VOLTS WATTS	LIGHT SOURCE	DESCRIPTION	EQUIVALENT MANUFACTURERS
A	LSI ABP24-FS1-UNV	120 48	LED 4750 LUM 4000K	2FT X 4FT LED PANEL LIGHT WITH FIELD SELECTABLE LUMEN OUTPUT AND COLOR TEMPERATURE.	WILLIAMS LITHONIA OR EQUAL
B	LSI ADL-FS1-UNV-4R-XXX	120 19	LED 1800 LUM 3500K	4Ø ROUND RECESSED DOWNLIGHT WITH FIELD SELECTABLE LUMEN OUTPUT AND COLOR TEMPERATURE. COORDINATE FINISH WITH ARCHITECT/OWNER.	WILLIAMS LITHONIA OR EQUAL
C	LSI LAW2-W-2-07L-0L-835-FA-S-I-UNV-XXX	120 12	LED 1400 LUM 3500K	2FT WALL MOUNTED LED WITH FIELD SELECTABLE LUMEN OUTPUT AND COLOR TEMPERATURE. COORDINATE FINISH WITH ARCHITECT/OWNER.	WILLIAMS LITHONIA OR EQUAL
D4	LSI AST-4-FS-SPD-UNC-QCR35-SMK	120 40	LED 4200 LUM 4000K	4FT STRIP LIGHT WITH SQUARE POLYCARBONATE DIFFUSE LENS AND FIELD SELECTABLE LUMEN OUTPUT AND COLOR TEMPERATURE. SURFACE MOUNT FIXTURES TO UNISTRUT.	CLIENT SPECIFIED NO SUBSTITUTIONS
D8	LSI AST-8-FS-SPD-UNC-QCR35-SMK	120 81	LED 11000 LUM 4000K	8FT STRIP LIGHT WITH SQUARE POLYCARBONATE DIFFUSE LENS AND FIELD SELECTABLE LUMEN OUTPUT AND COLOR TEMPERATURE. SURFACE MOUNT FIXTURES TO UNISTRUT.	CLIENT SPECIFIED NO SUBSTITUTIONS
	LSI CEC-R-WH-SD2-RC WITH CRL-S-XX	120 5	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN 1W EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, HIGH CAPACITY BATTERY BACKUP AND REMOTE TWIN HEAD OUTDOOR RATED FIXTURE.	DUAL-LITE LITHONIA OR EQUAL

NOTES:
UNLESS NOTED "NO SUBSTITUTION", OTHER MANUFACTURERS AND PRODUCTS OF EQUAL QUALITY AND PERFORMANCE SHALL BE ACCEPTABLE, EVEN IF NOT SPECIFICALLY LISTED

ELECTRICAL GENERAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
3. ALL EXPOSED RACEWAYS SHALL BE IN EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
4. ELECTRICAL CONTRACTOR SHALL REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, FIXTURES, SYSTEMS, CONDUIT AND WIRE, ETC. NOT BEING REUSED. DO NOT JUST ABANDON.
5. ELECTRICAL CONTRACTOR TO COORDINATE MANUFACTURER ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT BEING FURNISHED WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. EQUIPMENT DISCONNECTS TO BE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE IN MECHANICAL SCHEDULES.
6. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES AND DEVICES.
7. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING TRANSFORMERS, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
8. ALL ELECTRICAL DEVICES ARE EXISTING AND TO REMAIN UNLESS NOTED OTHERWISE OR CONFLICT WITH NEW CONSTRUCTION. MAINTAIN PROPER OPERATION OF ALL EXISTING ELECTRICAL.
9. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
10. EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.
11. FIRE ALARM SYSTEM IS SHOWN FOR SCHEMATIC PURPOSES. THE FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR PROVIDING DESIGN AND SHOP DRAWINGS SUBMITTAL TO FIRE MARSHAL FOR APPROVAL AS REQUIRED BY THE FIRE MARSHAL. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE ADDITIONAL DEVICES, POWER SUPPLIES, ETC FOR COMPLIANCE WITH CODE.
12. PLANS INDICATE MINIMUM WIRE SIZES PER NEC. ALL BRANCH CIRCUITS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 3% VOLTAGE DROP. ALL FEEDERS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 2% VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL VERIFY WIRING INDICATED IS SUFFICIENT AND INCREASE CONDUCTOR SIZE AS REQUIRED BASED OFF ACTUAL INSTALLED LENGTH OF CONDUCTORS.
13. WHEREVER POSSIBLE, CONDUIT SHALL BE RUN CONCEALED WITHIN WALLS, CEILINGS, SOFFITS, ETC. SURFACE MOUNTED CONDUIT IN FINISHED SPACES MUST BE APPROVED BY THE ENGINEER OR ARCHITECT PRIOR TO INSTALLATION. EXTERIOR CONDUIT SHALL NOT BE RUN EXPOSED IN PUBLICLY VISIBLE AREAS WITHOUT APPROVAL OF THE ARCHITECT OR ENGINEER.

BC PROJECT #: 25202 VV/AW
MISSOURI PE COA #2009003629

4/14/2025

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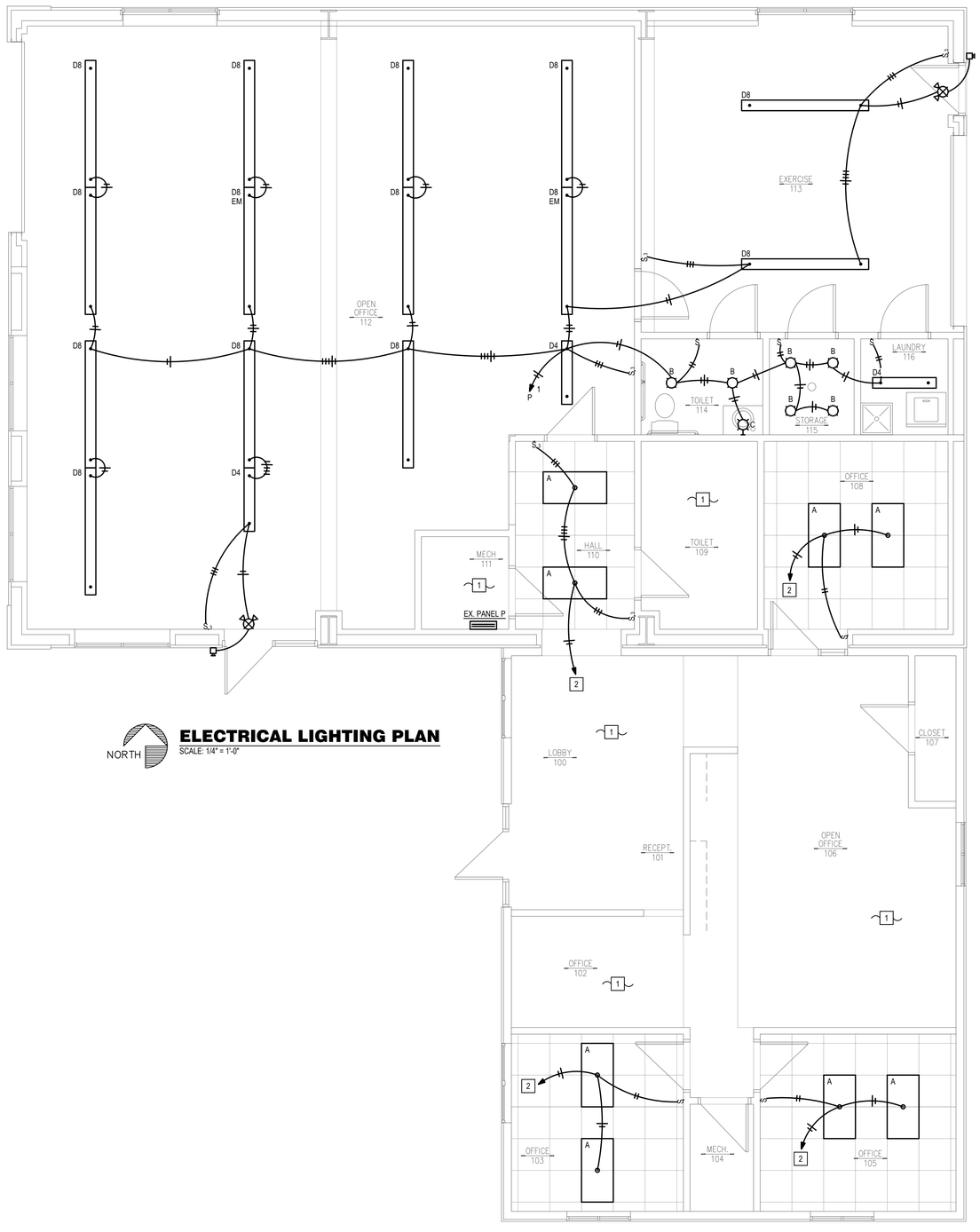
REV#	DATE	DESCRIPTION
1	04-14-25	CITY COMMENTS

DATE: 03-13-2025
PROJECT# 25007

ELECTRICAL SPECIFICATIONS

E1.0



NORTH

ELECTRICAL LIGHTING PLAN

SCALE: 1/4" = 1'-0"

LIGHTING PLAN NOTES:

1. EXISTING LIGHTING TO REMAIN.
2. CONNECT TO EXISTING LIGHTING CIRCUIT IN SPACE.

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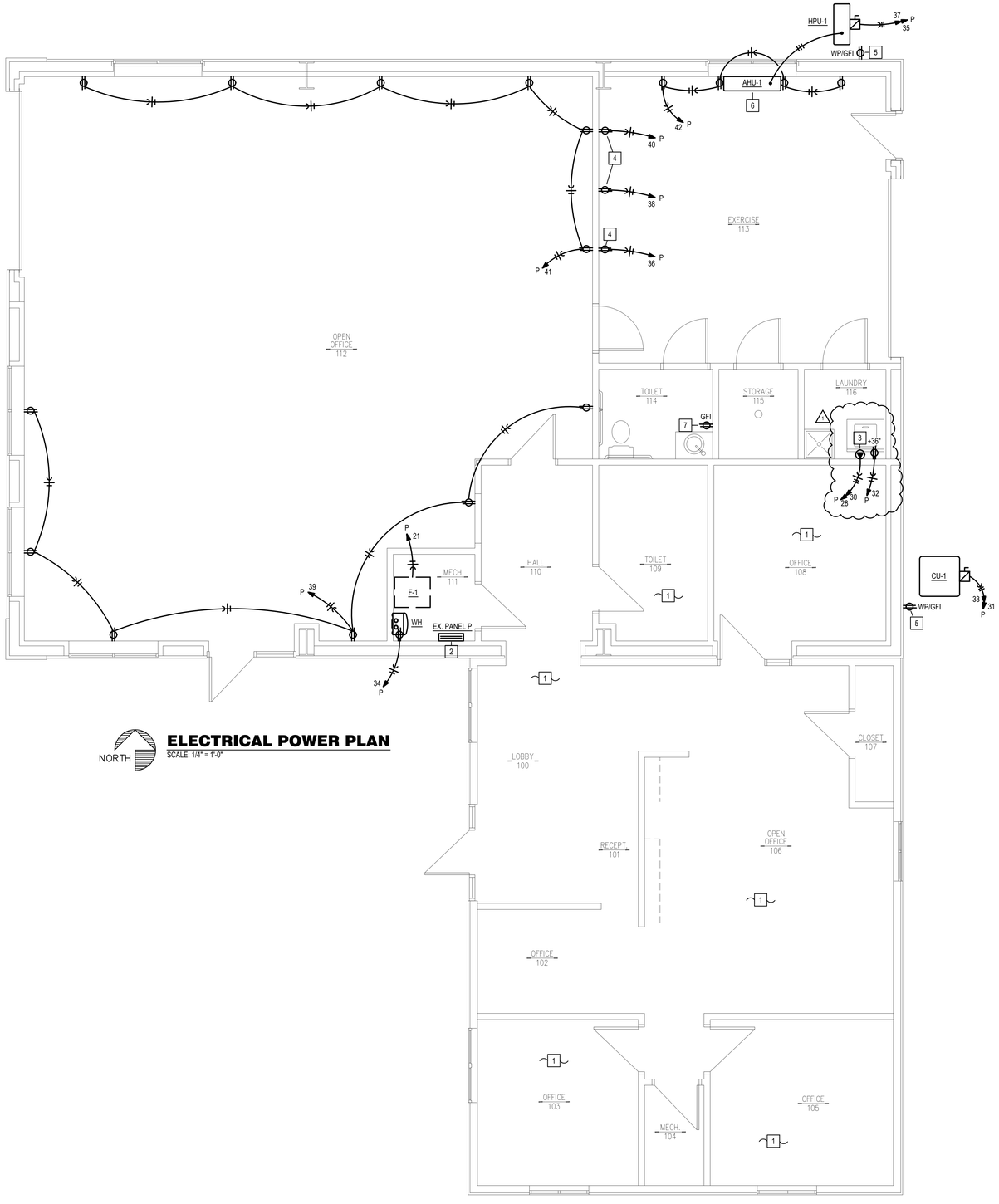
ELECTRICAL LIGHTING PLAN

E2.0



NORTH

ELECTRICAL POWER PLAN

SCALE: 1/4" = 1'-0"

POWER PLAN NOTES:

1. NO WORK IN THIS SPACE.
2. EXISTING 200A PANEL WITH NO VISIBLE LABEL TO REMAIN, REFERRED TO AS PANEL "P" IN THIS DRAWING.
3. PROVIDE HEAVY DUTY OUTLET FOR DRYER, FIELD VERIFY LOCATION AND ELECTRICAL REQUIREMENTS.
4. PROVIDE DEDICATED RECEPTACLES FOR TREADMILLS, COORDINATE QUANTITY AND LOCATION WITH ARCHITECT/OWNER.
5. VERIFY LOCATIONS OF EXISTING EXTERIOR RECEPTACLES, PROVIDE NEW AS INDICATED IF NONE ARE EXISTING WITHIN 25' OF NEW MECHANICAL EQUIPMENT. TIE NEW EXTERIOR RECEPTACLES TO EXISTING CIRCUIT FOR EXTERIOR RECEPTACLES.
6. CONNECT AHU-1 TO HPU-1 PER MANUFACTURER'S INSTRUCTIONS.
7. TIE NEW RESTROOM RECEPTACLE TO THE CIRCUIT FOR THE EXISTING RECEPTACLE IN THE EXISTING NEIGHBORING RESTROOM.

EXIST PANEL: P		**VOLTS:** 120/240V			**PH:** 1Ø		3W	**LOCATION:** EX. MECH RM			**MOUNTING:** SURFACE		
BUS: 225A		**MAIN:** 200A MCB									**FEEDER:** SEE RISER DIAGRAM		
CKT	DESCRIPTION	AMPS	POLE	WIRE	ØA	ØB	ØA	ØB	WIRE	POLE	AMPS	DESCRIPTION	CKT NO
1	OPEN OFFICE / EXERCISE LIGHTS [EX]	20	1	12	1,378				12	1	20	EX. CIRCUIT [EX]	2
3	EX. CIRCUIT [EX]	20	1	12					12	1	20	EX. CIRCUIT [EX]	4
5	EX. CIRCUIT [EX]	20	1	12					12	1	20	EX. CIRCUIT [EX]	6
7	EX. CIRCUIT [EX]	20	1	12					12	1	20	EX. CIRCUIT [EX]	8
9	EX. CIRCUIT [EX]	30	1	10					12	2	20	EX. CIRCUIT [EX]	10
11	EX. CIRCUIT [EX]	20	1	12									12
13	EX. OFFICE FURN [EX]	15	1	12					10	2	30	EX. CIRCUIT [EX]	14
15	EX. A/C [EX]	30	2	10									16
17									12	1	20	EX. CIRCUIT [EX]	18
19	EX. CIRCUIT [EX]	20	1	12					12	1	20	EX. CIRCUIT [EX]	20
21	F-1	15	1	12	1,320				12	1	20	EX. CIRCUIT [EX]	22
23	EX. CIRCUIT [EX]	20	1	12					10	2	30	EX. AC [EX]	24
25	EX. CIRCUIT [EX]	20	1	12									26
27	EX. CIRCUIT [EX]	20	1	12				2,500	10	2	30	CLOTHES DRYER	28
29	EX. CIRCUIT [EX]	20	1	12			2,500						30
31	CU-1	50	2	6		3,255		1,800	12	1	20	CLOTHES WASHER [GF]	32
33					3,255		500		12	1	20	WATER HEATER [HL]	34
35	HPU-1	25	2	10		2,392		1,800	12	1	20	TREADMILL	36
37					2,392		1,800		12	1	20	TREADMILL	38
39	OPEN OFFICE RECS	20	1	12		900		1,800	12	1	20	TREADMILL	40
41	OPEN OFFICE RECS	20	1	12	1,080		720		12	1	20	EXERCISE CONV RECS	42
NOTES:					9,425	6,547	5,520	7,900					
[EX]-EXISTING BRKR, [GF]-GFCI BRKR 5mA					**14,945**		**14,447**					TOTAL CONNECTED LOAD:	**29,392 VA**
PROVIDE ADDITIONAL COMPATIBLE BREAKERS AS REQUIRED., [HL]-HANDLE LOCK												NEC DEMAND LOAD:	**28,417 VA**
VERIFY USAGE OF EXISTING BREAKERS AFTER DEMO, REUSE BREAKERS AS AVAILABLE.											DEMAND AMPS @ 240 VOLT / 1Ø:		**118.40 A**

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ELECTRICAL POWER PLAN

E3.0