

### LIGHT FIXTURE SCHEDULE

GW1	WALL MOUNTED EXTERIOR LED WALLPACK WITH POLYCARBONATE LENS, 2124 LUMENS, 5000K, DARK BRONZE, INTEGRAL PHOTOCELL, 120 VOLT, 18 WATTS. LITHONIA #TWS-LED-P1-50K-MVOLT-PE-DOB-M4 or equal
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### SITE GENERAL NOTES

A. LOCATE ALL BELOW GROUND UTILITIES PRIOR TO INSTALLATION OF CT CABINET, METER, AUTOMATIC TRANSFER SWITCHES AND CONDUITS FROM GENERATOR. CONTRACTOR MAY ADJUST LOCATIONS OF ABOVE TO AVOID CONFLICTS WITH UNDERGROUND UTILITIES.

### SITE CODED NOTES

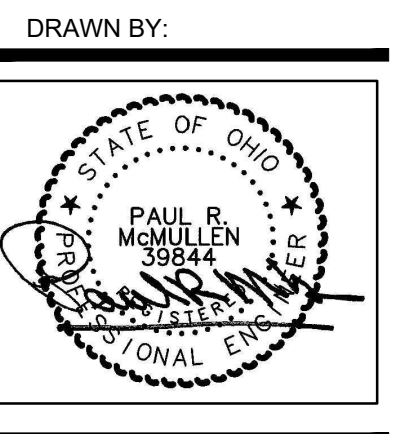
- EXISTING UNDERGROUND ELECTRIC SERVICE FROM TRANSFORMER TO BUILDING WIREWAY.
- IN-GRADE COMPOSITE PULLBOX, 24"x36"x18" deep, WITH 'ELECTRIC' EMBOSSED ON COVERPLATE, GASKETED LID. O.Z. GEDNEY OR EQUAL.
- INTERCEPT EXISTING ELECTRIC SERVICE CONDUITS/WIRING TO BUILDING AND INSTALL CT CABINET, METER AND AUTOMATIC TRANSFER SWITCH IN-LINE WITH SERVICE. SEE ELECTRIC RISER DIAGRAM.
- CONNECT TO GARAGE PANEL WITH #12 ROMEX WIRE. PROVIDE 15 AMP/1 POLE BREAKER IF NO SPARE IS AVAILABLE.

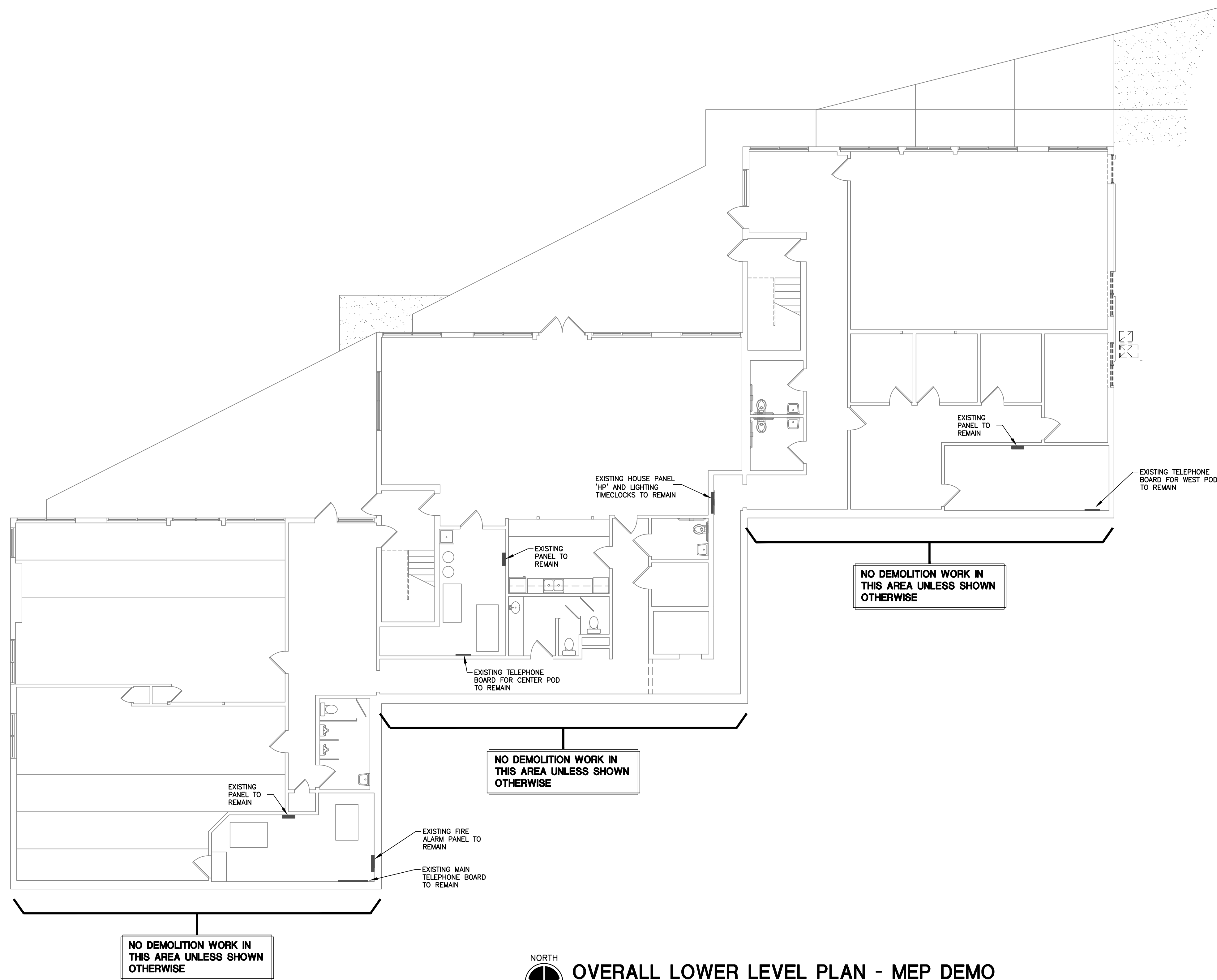
### SITE LEGEND

— SE —	SECONDARY ELECTRIC
---	WIRING BELOW GROUND
— —	HOMERUN TO PANELBOARD
□	JUNCTION BOX
—	CONDUIT STUB
—○—	CONDUIT UP
⊞	TRANSFORMER
⬡	CODED NOTE SYMBOL

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**OVERALL LOWER LEVEL PLAN - MEP DEMO**  
 SCALE: 1/8" = 1'-0"

THE REMODELING OF THE OU PICKERINGTON CENTER FOR THE  
 FAIRFIELD COUNTY COMMISSIONERS:

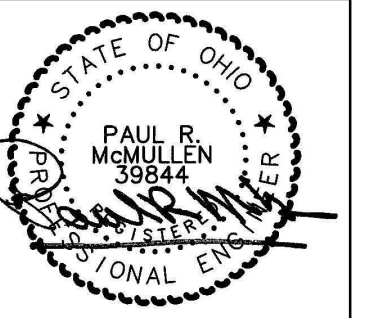
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12941, 12943 & 12945 STONECREEK DRIVE PICKERINGTON, OHIO 43147

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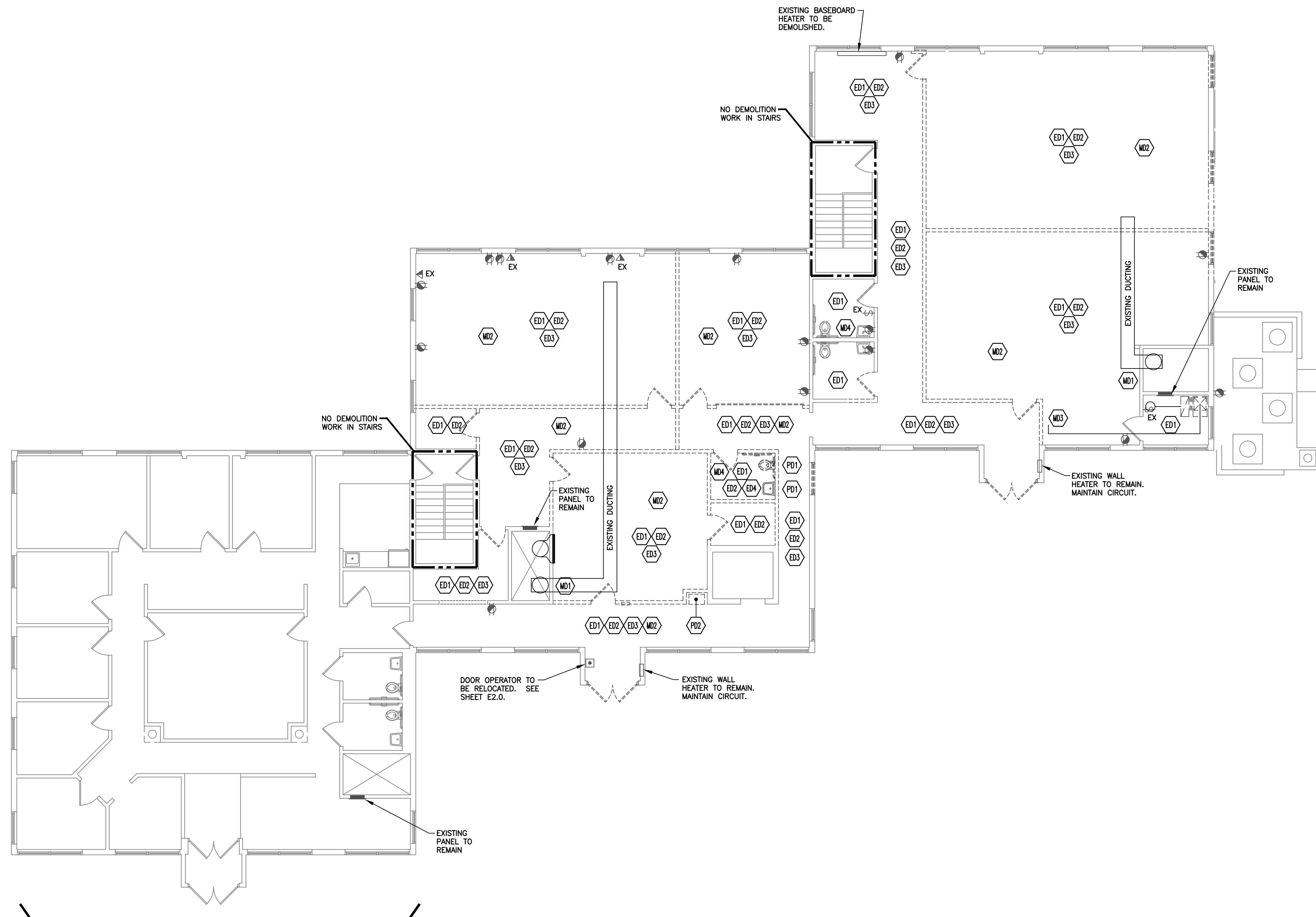
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OVERALL LOWER  
 LEVEL PLAN –  
 MEP DEMOLITION

DRAWING NUMBER  
**MED2.0**



NO DEMOLITION WORK IN THIS AREA UNLESS SHOWN OTHERWISE



**OVERALL UPPER LEVEL PLAN - MEP DEMOLITION**

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

SEE ARCHITECTURAL SHEETS FOR ADDITIONAL DEMOLITION INFORMATION

ELECT DEMO LEGEND	
EX	EXISTING LIGHT SWITCH LOCATION TO REMAIN. REMOVE DEVICE.
	EXISTING RECEPTACLE LOCATION TO REMAIN. REMOVE DEVICE.
EX	EXISTING
	CODED NOTE

ELECT DEMO GENERAL NOTES	
A.	REMOVE ALL UNUSED WIRING FROM DEMO'D DEVICES, LIGHTS AND EQUIPMENT BACK TO SOURCE.
B.	REMOVE ALL UNUSED AND EXPOSED CONDUITS IN AREA OF DEMOLITION.
C.	CODED NOTES WILL GENERALLY DESCRIBE DEMO WORK. PLAN MAY NOT SHOW ALL RECEPTACLES, PHONE/DATA OUTLETS OR EQUIPMENT CONNECTIONS THAT ARE TO BE REMOVED.
D.	SEE FIRE ALARM SHEET FA2.1 FOR DEMOLITION/RELOCATION OF FIRE ALARM DEVICES.
E.	MAINTAIN EXISTING CIRCUITS TO EXTERIOR LIGHTS AND RECEPTACLES.
F.	REMOVE EXISTING SECURITY SYSTEM KEYPAD AND DEVICES IN CENTER AND WEST PODS, BOTH UPPER LEVEL AND LOWER LEVEL. REMOVE WIRING. TURN OVER TO OWNER.
G.	TURN OVER TO OWNER ALL EQUIPMENT THEY WISH TO SALVAGE.

ELECT DEMO CODED NOTES	
ED1.	REMOVE ALL LIGHTS, EXIT AND EMERGENCY LIGHTS IN DEMO AREA.
ED2.	REMOVE ALL RECEPTACLES, TV, TELEPHONE AND DATA OUTLETS IN WALLS BEING DEMO'D.
ED3.	REMOVE ALL RECEPTACLES, TV, TELEPHONE AND DATA OUTLETS IN WALLS TO REMAIN UNLESS DEVICE IS SHOWN TO REMAIN.
ED4.	REMOVE CONNECTION TO EXHAUST FAN BEING DEMO'D.

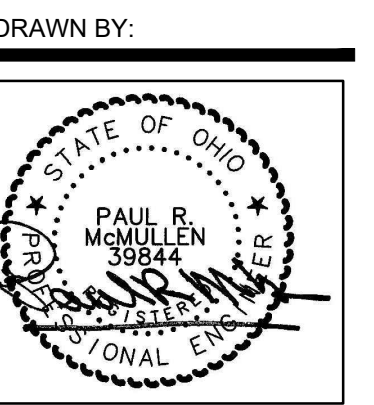
PLUMBING DEMO CODED NOTES	
PD1.	REMOVE EXISTING PLUMBING FIXTURES WITHIN BATHROOM DEMO AREA. REMOVE ALL PIPING AND CAP AT MAIN SOURCE.
PD2.	REMOVE EXISTING WATER COOLER WITHIN DEMO AREA. REMOVE ALL PIPING AND CAP AT MAIN SOURCE.

MECH DEMO CODED NOTES	
MD1.	EXISTING SUPPLY AIR PLENUM TO REMAIN. PATCH AND SEAL AS REQUIRED.
MD2.	DEMOLISH EXISTING DIFFUSERS AND BRANCH DUCTS CONNECTING DIFFUSERS BACK TO MAIN SUPPLY AIR PLENUM.
MD3.	EXISTING SUPPLY AIR PLENUM TO REMAIN UP TILL THIS POINT.
MD4.	BATHROOM EXHAUST FANS AND ASSOCIATED EXHAUST DUCT TO REMAIN.

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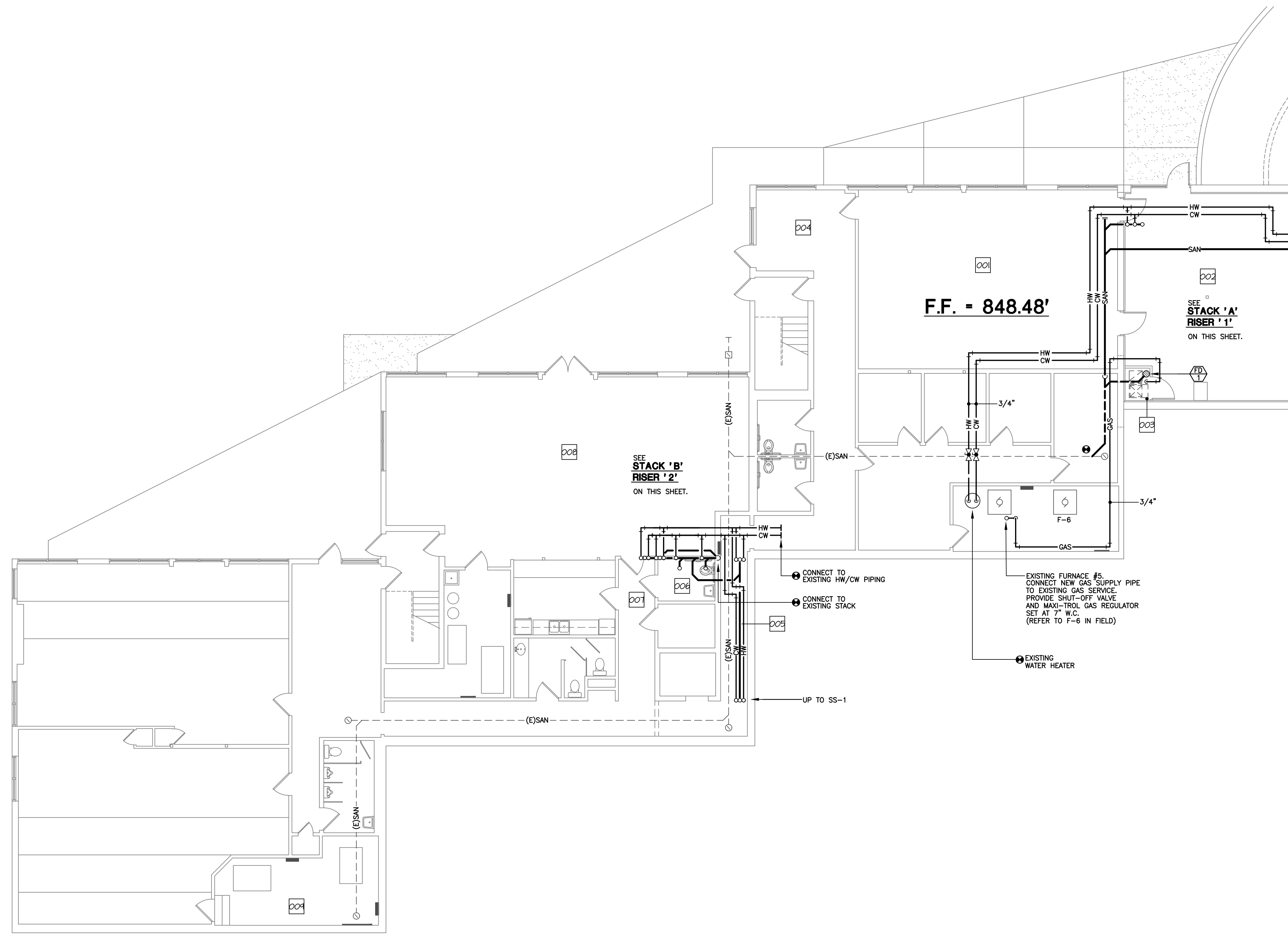
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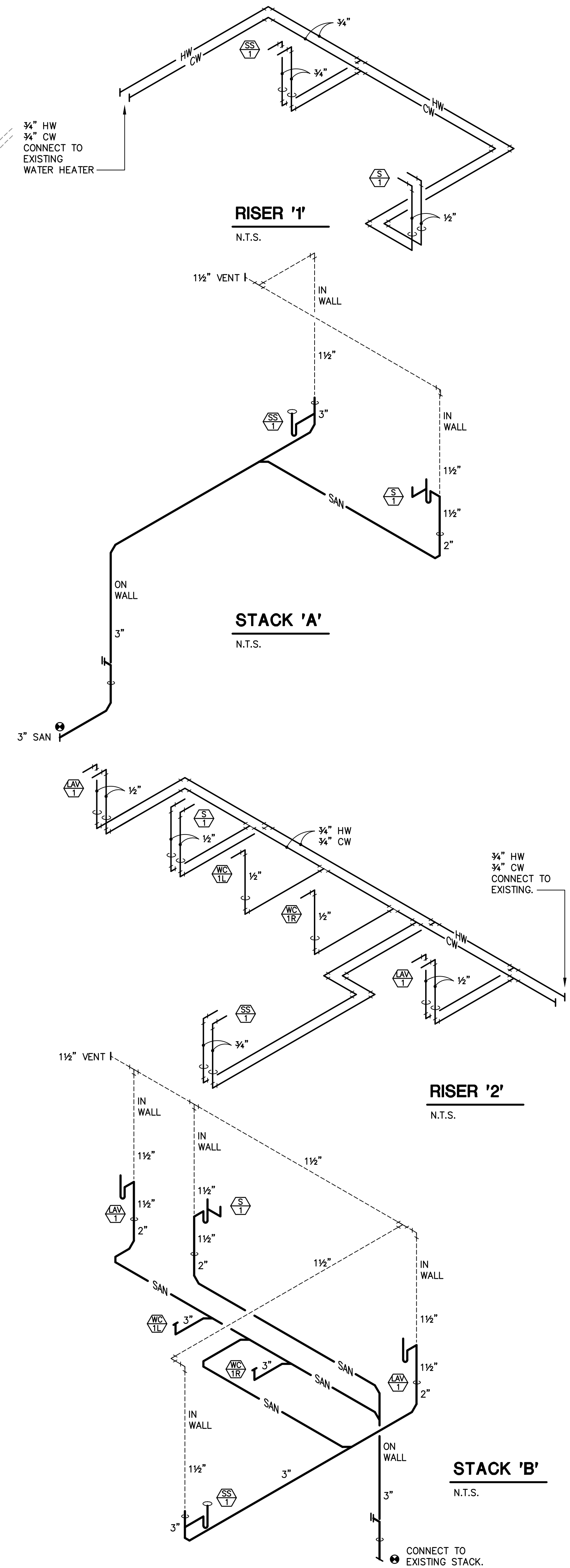


OVERALL UPPER LEVEL PLAN – MEP DEMOLITION

DRAWING NUMBER  
**MED2.1**




**OVERALL LOWER LEVEL PLAN - PLUMBING**  
 SCALE: 1/8" = 1'-0"

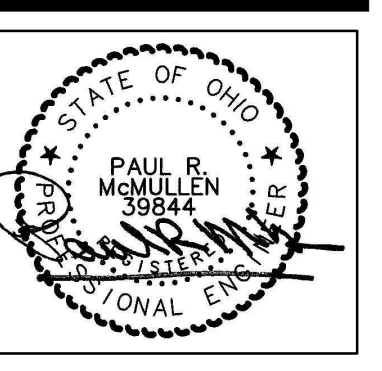


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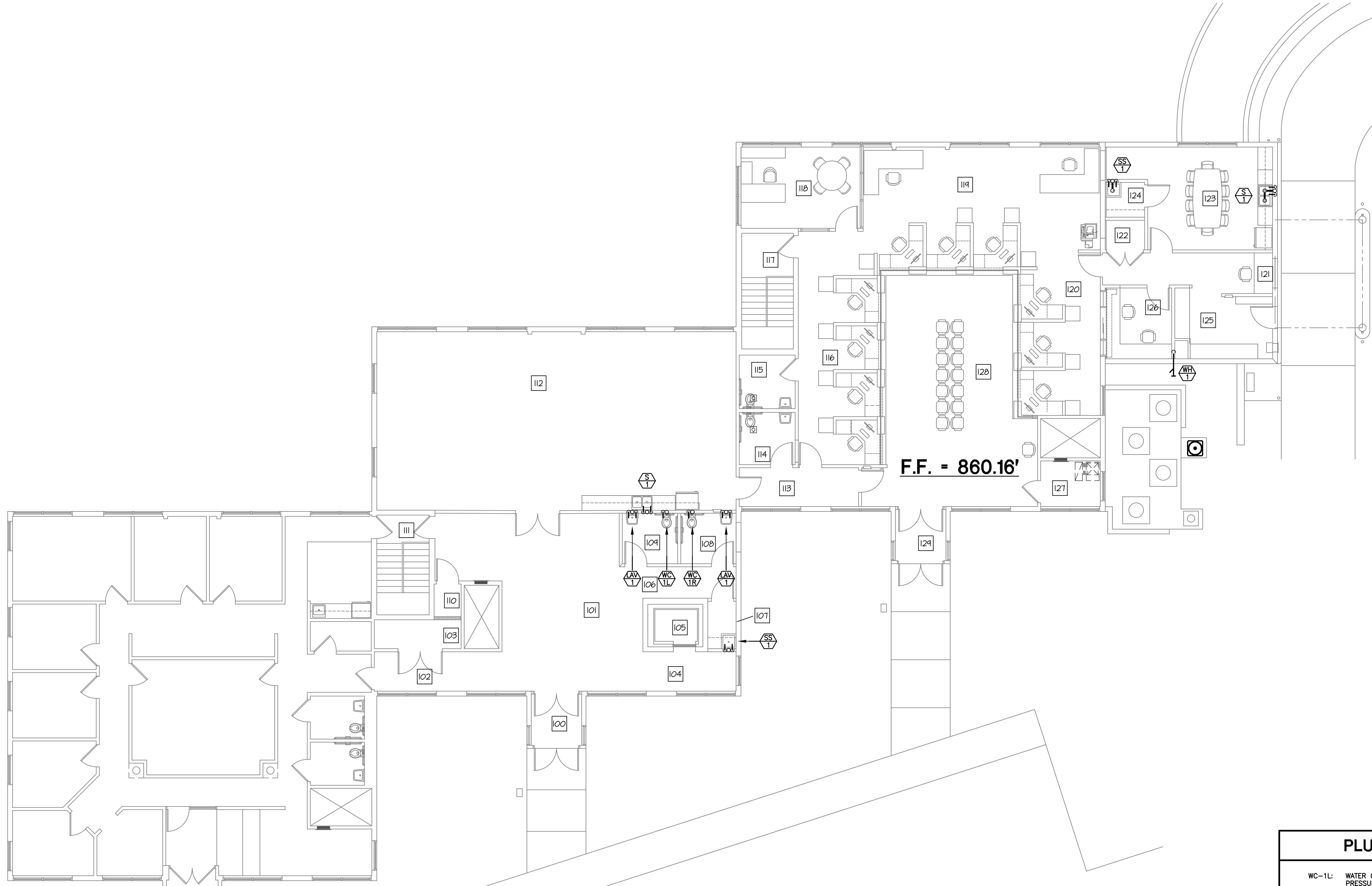
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OVERALL LOWER LEVEL PLAN - PLUMBING

DRAWING NUMBER  
**P2.0**



F.F. = 860.16'



**OVERALL UPPER LEVEL PLAN - PLUMBING**

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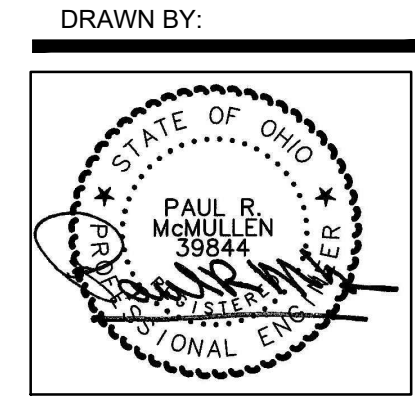
**PLUMBING FIXTURE NOTES**

- WC-1L: WATER CLOSET: AM. STD. NO. 2377.100 "CADET" (16-1/2"H)  
PRESSURE ASSISTED, VITREOUS CHINA, SIPHON JET, ELONGATED TOILET.  
BENKE NO. 521-SS LUSTRA OPEN FRONT TOILET SEAT WITH COVER.  
McGUIRE NO. 2166 3/8" ANGLE SUPPLY PIPE AND STOP OR EQUAL.  
MODIFY FOR A.D.A. REQUIREMENTS. LEFT TANK NO. 4098.100  
LOCATE LEVER ON WIDE SIDE OF STALL.  
(PIPE ROUGH-IN: 4" SAN, 2" VENT, 1/2" CW.)
- WC-1R: WATER CLOSET: AM. STD. NO. 2377.100 "CADET" (16-1/2"H)  
PRESSURE ASSISTED, VITREOUS CHINA, SIPHON JET, ELONGATED TOILET.  
BENKE NO. 521-SS LUSTRA OPEN FRONT TOILET SEAT WITH COVER.  
McGUIRE NO. 2166 3/8" ANGLE SUPPLY PIPE AND STOP OR EQUAL.  
MODIFY FOR A.D.A. REQUIREMENTS. RIGHT TANK NO. 4098.800  
LOCATE LEVER ON WIDE SIDE OF STALL.  
(PIPE ROUGH-IN: 4" SAN, 2" VENT, 1/2" CW.)
- LAV-1: LAVATORY: AM. STD. NO. 0355.012M 20" X 18"  
VITREOUS CHINA, WALL MOUNTED LAVATORY WITH 4" CENTERS.  
CHICAGO NO. 802A-317 FAUCET WITH LEVER HANDLES (0.5 GPM AERATOR)  
McGUIRE NO. 2165 3/8" ANGLE SUPPLIES AND STOPS.  
McGUIRE NO. 155-A GRID STRAINER  
McGUIRE NO. 8972 1-1/4" CAST BRASS "P" TRAP.  
McGUIRE NO. PW-2125 INSULATION WRAP KIT.  
MOUNT FOR HANDICAPPED ACCESSIBILITY. RIM AT 34" A.F.F.  
PROVIDE BLOCKING FOR WALL HANGER.  
(PIPE ROUGH-IN: 1-1/2" SAN, 1-1/2" VENT, 1/2" CW/HW.)
- S-1: SINK: ELKAY NO. LRAD-1722-65 "LUSTERSTONE" 17"x22"x6.5"  
STAINLESS STEEL, COUNTERTOP SINK WITH 8" CENTERS.  
CHICAGO NO. 201-AGNBAE3-317 FAUCET WITH LEVER HANDLE.  
McGUIRE NO. 2165 3/8" ANGLE SUPPLIES AND STOPS.  
McGUIRE NO. LK-35 GRID STRAINER  
McGUIRE NO. 8912 1-1/2" CAST BRASS "P" TRAP.  
(PIPE ROUGH-IN: 1-1/2" SAN, 1-1/2" VENT, 1/2" CW/HW.)
- SS-1: SERVICE SINK: FIAT NO. MSB-2424 MOLDED STONE SERVICE SINK.  
CHICAGO NO. 540-LD-8975-E SERVICE SINK FAUCET.  
(PIPE ROUGH-IN: 3" SAN, 1-1/2" VENT, 3/4" CW/HW.)
- WH-1: WALL HYDRANT: WOODFORD #67.
- FD-1: FLOOR DRAIN: ZURN #ZN-508-P

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OVERALL UPPER  
 LEVEL PLAN -  
 PLUMBING

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**P2.1**

**PLUMBING SPECIFICATIONS**

**SECTION 15000 GENERAL SPECIFICATIONS**

- A. Refer to Instructions to Bidders, General Conditions, Supplementary Conditions, and the Sections of Division 1: General Requirements for specific requirements, responsibilities and methods relating to the mechanical work.
- B. Furnish all materials, labor, tools, transportation, incidentals and apprentices to complete in every detail and leave in working order all items of work called for herein or shown on accompanying drawings. Include any minor items of work necessary to provide complete and fully operative systems whether specifically shown or not.
- C. Codes and Standards: Comply with all Local and State building codes, Life Safety Code, National Fire Protection Association (NFPA), applicable utility company requirements and applicable Federal requirements.
- D. Permits, fees, inspection and tests: Obtain and pay for all required permits, fees, inspections and tests. File drawings necessary to obtain permits, schedule necessary inspections and tests. Submit Certificates of inspection and approval upon completion of the work.
- E. Material and equipment installed under this Contract shall be new, undeteriorated, and of a quality not less than the minimum specified. All equipment shall be certified, listed and labeled by UL. Work must be performed by Licensed Contractors as required by Local and State Codes.
- F. Drawings are schematic and show approximate locations and extend of work. Exact locations and extents must be coordinated with other contractors and verified in the field. Coordination of the of the final fabrication drawings and final coordination of the installation in the field is the contractor's responsibility. It is not intended that drawings indicate all necessary offsets, and it shall be the work of this Contractors to make the installation in such a manner as to conform to structure, avoid obstructions, preserve headroom and keep openings and passageways clear. Significant deviations from Drawings must be approved by the Architect. The Architect reserves the right to make minor changes in location which do not require additional labor, material or contract time up to the time of roughing-in without additional cost.
- G. If a conflict occurs between the Drawings and Specifications, the Contractor shall immediately call it to the attention of the Architect, who will determine which interpretation shall take precedence.
- H. Guarantee all work executed under this Contract to be free from defective workmanship. Should any defects develop within a period of one (1) year after final acceptance has been made, correct them and repair any damage that resulted from same at no additional cost.
- I. Submit six (6) copies of shop drawings, product data and samples as required under Division 1, and as listed in these specifications and noted on drawings.
- J. Record Documents: Maintain a record set of prints showing exact location and depth of bury for all below grade piping. Location notation shall be from foundation wall, center line of column, etc. Depth notation shall be from finished floor elevation. Record addendum and change order items and deviations made from bid documents. Drawings shall be clean and undamaged, and shall not be used for any purpose other than recording deviations from working drawings and exact locations of concealed work. Maintain drawings at the job site and current for weekly inspection. Upon completion of work, deliver these drawings to Architect.
- K. Certificates: Submit certificates of inspection and sterilization.
- L. Operation and maintenance manuals: Submit two (2) bound copies of operation and maintenance manuals, 8 1/2" X 11" in three ring hard back binders. Submit: Title page with job information; Title page with contractor information; Equipment/fixture cuts; Warranties.
- M. Personnel Instruction: After placing systems in operation, thoroughly instruct designated Owner's personnel on operation and maintenance of all equipment and systems.
- N. Comply with applicable Section of Division 1 for product delivery, storage and handling procedures and requirements.
- O. Locate existing utilities prior to beginning work. Reroute or replace existing utilities where necessary to permit installation of work. Provide adequate means of protection during work operations. Repair existing utilities damaged during work operations to the satisfaction of Utility Owner and at Contractor's expense.
- P. The Drawings and Specifications are based on the requirements and layouts of the equipment of the Design Base Manufacturer. Design coordination of equipment with the building and with other Trades has been made for these specific models and manufacturers of equipment. Whenever the Contractor furnishes equipment or material other than the Design Base Manufacturer specified, he is responsible for the cost and coordination of all modifications required not only for his work, but also for the work of all other Trades affected.
- Q. Comply with applicable Section of Division 1 for specific requirements, responsibilities and methods for temporary facilities and controls.
- R. Do all excavating and backfilling required for execution of this work. Dig excavations to exact grade and depth. Provide adequate shoring or sheet piling to prevent caving or endangering workers, work of others, or existing structures.
- No pipe shall be laid in water. Furnish pumping equipment, power, temporary connections, etc., and pump to remove ground or casual water.
  - All piping shall be laid on firm undisturbed subgrade with minimum 6" pipe bedding. Should excavation be extended to below required elevation, backfill to proper elevation with compacted shot sand.
  - Fill immediately around pipes and to an elevation of 1'-0" above the top of pipes with shot sand, lightly vibrated, unless noted otherwise on the drawings. Encase piping in concrete if noted on the drawings.
  - Fill remaining trench with pit run gravel.
5. Patch all concrete and/or paved areas cut by excavating and refinish to match adjacent surfaces.
6. Protect all trenches with suitable barricades and bridges. Adequately protect trenches with signs or flags during the day and with lights at night.
7. Determine the locations of all existing underground utilities and protect same from damage. Damage to any utility shall be promptly replaced or repaired to the full satisfaction of Utility Company. All costs for repair of damage to such services shall be paid by Contractor causing the damage.
8. Remove surplus earth from premises or dispose of it on premises as directed by the Architect.
- S. Avoid cutting of concrete, masonry and other new work by use of sleeves and inserts. Inform the General Contractor of the locations of all sleeves and inserts required and deliver sleeves and inserts to the General Contractor for installation. Perform cutting and patching when required for installation of new work in existing construction. Cut holes through concrete, brick, tiles, etc., when necessary by rotary core drilling. Methods and procedures shall be acceptable to the Architect. Patching shall match adjacent materials and shall be accomplished only by tradesman skilled in the respective craft required.
- T. Upon completion of work, all material, fixtures and equipment furnished in this Contract shall be thoroughly cleaned of dirt, stickers, grease, rust, oil and other foreign matter. Prepare for finish painting, where pointing is specified.
- U. Protect equipment and materials during construction from damage from water, dirt, welding and cutting, spatters, paint droppings, etc. by use of shields and drop cloths. Repair or replace as directed any materials damaged during construction operations. Protect floors from soiling and damage caused by chips and cutting oil. Cover all site stored motors, bearings, fans, pumps, etc. Protect from soiling and water and weather damage. All materials or equipment stored outside shall be elevated and protectively covered.
- V. All new potable water lines shall be sterilized with chlorine. Sterilization shall provide complete coverage for the entire system.

Piping shall be tested according to the following schedule:

Line	Test Pressure Medium	Minimum	Test Time		Notes
			Minimum	Notes	
Sanitary, Storm Vent			Per Local Codes		
Hot & Cold Water	Water	125 lbs.	6 Hrs.		No Drop
Gas	Nitrogen	50 lbs.	24 Hrs.		No Drop

**SECTION 15105 DEMOLITION**

- A. Coordinate the extent of required demolition for the Mechanical work with the General Contractor. Contractors shall visit the site prior to their Bid to fully familiarize themselves with the extent of this demolition. Reference other sections of these specifications for additional requirements. Schedule shutdown and reworking of all systems with Architect and General Contractor. Report discrepancies between drawings and actual conditions to Architect immediately.
- B. Coordinate removal of existing equipment with General Contractor. All equipment and material removed and not chosen by Owner for salvage shall become the property of the Contractor and be disposed of by him.
- C. The removal of equipment shall be done with care so as not to affect the structure or cause excessive patching. The removal of equipment shall be complete and include all piping rough-ins, electrical connections, pipe hangers and supports.

**SECTION 15130 SLEEVES**

- A. This Contractor shall furnish sleeves for his work to the General Contractor, who installs where directed by this Contractor. Furnish schedule #40 black steel sleeves for all round pipe openings through new masonry construction and all fire-rated walls and floors. Furnish galvanized sheet metal and/or plastic sleeves for all piping passing through wood stud/gypsum board walls and floors/ceilings. Do not install sleeves through concrete joists, beam columns, or other structural members except where specifically indicated or approved by the Architect and Structural Engineer.

**SECTION 15135 FIRESTOPPING**

- A. Furnish and install firestopping for all mechanical penetrations through ceilings, and through fire rated assemblies. Assemblies include, but not limited to, fire rated walls, floors, floor/ceiling and roof assemblies. Provide firestopping materials that are currently classified with UL as Fill, Void, or cavity Materials? and Through Penetration Firestop System.? Provide firestopping materials that have been tested in accordance with ASTM E 814 and UL 1479. All firestopping materials shall be labeled with ASTM E 814 number.
- B. Furnish manufacturers literature detailing installation instructions for each type of fire barrier penetrated. Firestopping materials by Dow Corning, JM, Hilli or Metacouk are acceptable.

**SECTION 15140 PIPE HANGERS AND ATTACHMENTS**

- A. Furnish and install pipe hangers and attachments for all piping and piping system components. Furnish and install supplementary channels, plates, etc., where required between building structural members. Provide dielectric protection between dissimilar metals, such as copper to steel. Provide blocking and supports at pipe rough-ins to fixtures and equipment.
- B. All supports and parts shall conform to the latest requirements of the ASA Code for Pressure Piping B31.1 and MSS Standard Practice SP-69. Supports and parts shall have a stress safety factor of 5. Hanger and attachments which are used in fire protection systems shall be UL or FM listed for the usage.
- C. Products are based on Grinnell Figure numbers unless otherwise noted. Optional manufacturers: Modern Pipe Supports, PHD, M-CO or Uni-Strut.
- D. Supports for suspended, horizontal piping:
- | Pipe Size           | 2" and Smaller    | 2-1/2" and Larger |
|---------------------|-------------------|-------------------|
| Copper, uninsulated | Fig. CT-99        | Fig. CT-55        |
| Copper, insulated   | Fig. 260 w/shield | Fig. 260 w/shield |
| Steel, un-insulated | Fig. 97           | Fig. 260          |
| Steel, insulated    | Fig. 260 w/shield | Fig. 260 w/shield |
- E. Supports for roof piping:
- 3/4 inch to 2 inch diameter: Equal to Miro Model O2, PVC base.
  - 2-1/2 inch to 4 inch diameter pipe: Equal to Miro Model 24-R, PVC base, nylon roller on teflon base.
- F. Supports for vertical piping:
- | Pipe Size             | Attachment                |
|-----------------------|---------------------------|
| Copper, floor support | Fig. CT-121 - riser clamp |
| Steel, floor support  | Fig. 261 - riser clamp    |
- G. Supports for wet areas or exterior:
- Use nonferrous, galvanized steel, plated steel or plastic coated steel supports and hangers in kitchens, locker rooms, shower rooms, and in exterior applications.
- H. Supports for pipe rough-ins:
- Pipe brackets: Holdrite pipe brackets, copper plated, secured to wall and/or chase framing. If galvanized brackets are used or piping is installed in metal stud walls, plastic isolation inserts shall be installed.
- I. Insulation protection shields:
- Half-round galvanized metal shields with radius formed to fit the insulation and 12" long. Use 18" long shields for all pipes greater than 4.
- J. Do not hang pipe from other pipe. In chase spaces, provide additional pipe stands and framing for attachment of pipe brackets and piping. Use correct size hangers. Increase hanger size to allow for increased diameter of the line caused by pipe covering. Double nut, ping or spot weld all hanger support nuts in areas subject to vibration.
- K. Support horizontal piping according to the following schedule:

Pipe Size	Rod Diameter		
	Steel	Copper	Rod
3/4" and smaller	7"	5"	3/8"
1"	8"	6"	3/8"
1-1/2", 2"	10"	8"	3/8"
2-1/2", 3"	11"	9"	3/8"
4"	12"	10"	1/2"
6" and larger	12"	12"	3/4"

- Horizontal DWV Plastic Piping: At branch connections, at each change of direction and 4-foot maximum intervals.
  - Vertical DWV Piping: At branch connections, at each change of direction, at each floor, mid-story and provide additional supports as necessary to maintain piping alignment at the base.
  - Cast Iron Piping: Horizontal - at intervals not in excess of the standard lengths of pipe.
  - Cast Iron Piping: Vertical - 20 foot maximum intervals, base and at each floor.
  - Fire Protection Piping: Locate and space per NFPA requirements.
- L. Install wall brackets where required. Provide pipe gudies and anchors as required to properly control pipe movement. Method to suit job conditions. Support piping at pumps and equipment from floor, structure or walls, so that piping weight is not supported by pumps or equipment.
- Note: Provide additional hangers at couplings elbows, valves, equipment, etc., to prevent excessive stress or distortion to piping or connected equipment.
- M. Install half-round galvanized sheet metal insulation shields on all insulated piping at hangers.

**SECTION 15150 ACCESS DOORS**

- A. This Contractor shall furnish access doors for his work to the General Contractor, who installs where directed by this Contractor. Access panels shall be installed at plumbing valves and pipe specialties which are located above drywall ceilings or located in an inaccessible area or chase.
- B. All access panels specified herein shall be provided by a single manufacturer to assure single source responsibility for the proper performance of materials used. Access panels, when not specifically specified, shall be as specified in Korp Model No. DSC-214M, 16 gauge frame with 14 gauge door, or approved equal.

**SECTION 15190MECHANICAL IDENTIFICATION**

- A. Provide pipe markers for all exposed piping in equipment rooms, accessible chases, and piping mains above accessible ceilings for maintenance operations.
- B. Pipe markers, valve tags Brady, Seton, or Brimar Industries are acceptable. 3/4" thru 5-7/8" outside diameter: Setmark opti-code roll form markers. 6" and larger: Setmark ultra-mark roll form markers.
- C. Provide flow direction and pipe service markers on all piping, at each valve, wall, branch, riser and at 20 foot intervals. Markers shall be readable from floor. Letters shall be minimum 1" high.
- D. Gas piping located in Mechanical Room, exterior of building and gas connection to rooftop units shall be cleaned of rust and painted with Rustoleum primer paint. Finish painting of gas piping in Mechanical Room and at rooftop units shall be painted yellow. Finish painting of gas piping on exterior of building or piping exposed in finished areas shall be painted to match surface.

**SECTION 15250 MECHANICAL INSULATION**

- A. Furnish all labor, equipment, materials, and accessories necessary for the installation of all mechanical insulation. Insulate the following plumbing systems.
- Cold water piping.
  - Hot water piping.
  - Hot water return piping.
- B. Where new piping connects to existing piping, new insulation systems shall match existing, (unless noted otherwise). Report any discrepancies to Architect.
- C. All insulation shall have composite (insulation, jacket, and adhesive) fire and smoke hazard ratings as tested under procedure ASTM E-84, NFPA 255, or UL 723, and not exceed:
- Flame spread: 25.
  - Smoke developed: 50.
- D. Pipe insulation shall meet or exceed the requirements of OBC, Mechanical Code, Section 604.
- E. Water piping in building below floor slab shall be insulated with Armstrong AP or equal elastomeric thermal insulation. Insulation shall be 1/2" thick. All joints shall be permanently sealed with Armstrong 510 adhesive or equal. Fittings shall be covered with miter-cut pieces of pipe insulation sealed as noted above.
- F. Water piping, and/or storm piping in building above floor slab shall be insulated with one piece fiberglass sectional insulation (K=0.23 at 75 degrees F.) with factory applied white reinforced kraft/vapor barrier jacket. Insulation shall be minimum 1/2" thick. Longitudinal jacket laps and butt joints shall be self-sealing using 3" wide lap strips. Insulation jacket and adhesive shall have a minimum fire/smoke rating development of 25/50 in accordance with ASTM-E-84, NFPA 225 and UL 723. Insulation shall be one of the following:
- Johns Manville "Micro-Lok".
  - Owens/Corning "Fiberglas 25 ASJ/SSL-11".
  - Certainteed "Fiberglass 500 degree Snap-On".
- a. Fittings shall be insulated with pre-molded fiberglass inserts with molded PVC jacket stapled and taped.
- G. Handicapped accessible lavatory "p" trap and angle supply pipes and stops shall be insulated with trap wrap protective by McGuire's. This shall apply to all lavatories which have open space below lavatory and/or counter top wheelchair access. Abrasion resistant exterior cover shall be smooth and have 1/8" wall minimum wall thickness. Fasteners shall be concealed. Equal manufacturers by Brocar, Sikal x Gard or Trueloro.

**SECTION 15400 PLUMBING SHOP DRAWINGS**

- A. Submit six (6) copies of shop drawings for review of the following equipment. Submittals shall include, but not limited to the following:
- Piping
  - Insulation
  - Floor Drains
  - Roof Drains
  - Cleanouts
  - Wall Hydrants
  - Plumbing Fixtures
- B. Check, sign and approve all shop drawings. Drawings not signed and approved by the Contractor will be returned.

**SECTION 15410 DOMESTIC WATER DISTRIBUTION SYSTEM**

- A. Furnish and install a complete water piping system for the building as shown on the drawings and as required for a complete installation. Connect to building water service.
- B. Piping and Pipe Insulation - refer to Section 15420.
- C. Piping Specialties - refer to Section 15430.
- D. Domestic water meter shall be as required by the local utility company.
- E. Fixtures. Valves to be located where shown on drawings. If located above an inaccessible ceiling, provide steel access panel as specified.
- F. Provide shock arrestors on HW and CW supply pipes to each group of fixtures. Size and location to be per manufacturer's requirements. If located above inaccessible ceiling, provide steel access panel as specified.

**SECTION 15411 SOIL DRAINAGE AND VENT SYSTEM**

- A. Furnish and install a complete soil waste piping system for the buildings as shown on drawings and as required for a complete installation. Connect to building sanitary sewer.
- B. Furnish and install a complete system of vents for the sanitary system, including branch vents, vent stack, extension through roof and roof flashing.
- C. Soil Waste Pipe - refer to Section 15420.
- D. Vent Pipe - refer to Section 15420.
- E. Piping Specialties - Refer to Section 15430.
- F. Cleanouts shall be based on Zurn as scheduled on drawings. Provide cleanouts of 4" size for pipes 4" and larger, and full size for pipes smaller than 4". Equal cleanouts as manufactured by Wade, Watts, J.R. Smith, Jonespec or Josam.
- G. Floor drains and hub drains shall be based on Zurn as scheduled on drawings. Equal drains as manufactured by Wade, Watts, J. R. Smith, Jonespec or Josam.
- H. Collect waste from all plumbing fixtures, drains and equipment and extend as shown on drawings. Make connections to all fixtures, drains, equipment and Owner furnished equipment.
- J. Install a cleanout at base of each soil stack and install others as shown on drawings or required by Code. Install in floor or wall, and terminate with ferrule and cleanout plug. Provide access panels of size to give adequate space for cleanouts. Encase outside cleanouts in concrete. Tops of all floor cleanouts shall be flush with finished floor (this includes tiled areas). Provide carpet markers where installed in carpeted areas.
- K. Trap each fixture with an approved trap, as near fixture as possible or built integral therewith. Certain fixtures are indicated to have indirect connections.
- L. Vent fixtures as shown on drawings. Collect vents to extend through roof, terminating 24" above roof. Install 3" or 4" vent pipe where it passes through roof as shown. All vent extensions shall be installed to insure leakproof installation. Installation to be in strict compliance with requirements of roofing system manufacturer. Coordinate with General Contractor.
- M. Provide flashing clamp device and flash all drains not directly on grade with a 4 lb. sheet lead flashing, extending a minimum of 18" in all directions beyond clamping ring.
- N. Pitch sand and waste piping as follows:  
 3" and smaller: 1/4" per ft.  
 4" and larger: 1/8" per ft.  
 Grease waste: 1/4" per ft.
- P. Minimum soil waste pipe size is 2 inches for underground waste piping.

**SECTION 15415 NATURAL GAS SYSTEM**

- A. Furnish and install a complete gas piping system for the building as shown on drawings and as required for a complete installation.
- B. Perform all work as required by Code and the local Gas Utility.
- C. Gas piping - refer to Section 15420.
- D. Piping Specialties - refer to Section 15430.
- E. The complete installation shall be in strict accordance with the requirements of the Local Gas Utility to include piping, tests and installation procedures.
- F. Provide gas meter set as required by Local Gas Utility. Set gas regulator at gas meter to deliver no more than 7" W.C.
- G. Make final connections to all equipment requiring same.Provide valves, unions and 6" dirt legs in pipe lines at connection to all equipment.
- H. Provide gas pressure regulators on gas-fired fixtures and pieces of equipment where required. Coordinate with Equipment Supplier and field conditions. Install vents from interior pressure regulators on gas-fired equipment from roof sleeves, where required. Extend line through outside wall above grade, sleeve and caulk, turn pipe down, terminate with approved vent cap.
- J. Gas piping system shall be installed per N.F.P.A. #54 and Local Gas Company requirements.

**SECTION 15420 PIPE AND FITTINGS**

- A. Provide all piping and fittings for soil waste, vent, storm, hot and cold water, and natural gas as shown on drawings.
- B. Insulate the following piping.
- All cold water piping.
  - All hot water piping.
  - All hot water return piping.
- C. Refer to Section 15250 for insulation.
- D. Soil waste, vent and storm piping inside building and to a point 5'-0" outside building:
- Schedule #40 (PVC) poly vinyl chloride drain waste and vent pipe and fittings (ASTM D-2665) and (ASTM D-1785). Pipe to be joined by solvent cement per the manufacturer's requirements and installed per (ASTM D-2564) and (ASTM D-2665).
- E. Soil waste and storm piping 5'-0" beyond building:
- SDR-35 (PVC) poly vinyl chloride type PSM, gravity drain, gasketed sewer pipe and fittings (ASTM D-3034) and (ASTM D-1785).
- F. Pipe and fittings shall be by same manufacturer.
- G. Hot and Cold Water Pipe - in building above slab:
- Type "L" hard drawn copper tubing (ASTM-B42) with wrought copper solder fittings (ANSI-B16.22) and 95/5 tin/antimony solder.
- H. Hot and Cold Water Pipe - in building below slab:
- Type "K" soft drawn copper tubing (ASTM-B42) with wrought copper soldered fittings (ANSI-B16.22) and silver solder. (No fittings below slab.)
- J. Gas pipe - in building above slab.
- Schedule #40 black steel piping (ASTM-A120) with welded steel fittings (ANSI 831.1) or threaded malleable iron fittings (ANSI 816.3). All gas piping 2" and larger shall be welded.

**SECTION 15430 PIPING SPECIALTIES**

- A. Furnish and install all unions, nipples, valves, supporting members, and all other specialties specified herein or noted on drawings and as required to provide complete and operating piping system.
- B. Nipples:
- Same weight and material as pipe with which they are used.
- C. UNIONS
- Copper Pipe - wrought copper union with copper to copper joint and solder end type equal to Grinnell Fig. #9102.
  - Black Steel Pipe - A.A.R. malleable iron union with bronze to iron ground joint equal to Grinnell Fig. #571.
  - Diabetic fittings shall be equal to clear flow waterway, Slaye 47, meeting the requirements of ASTM F-492-77 with an electro-zinc plated casing with chemically inert, NSF/IDA listed dielectric thermoplastic lining.
- D. VALVES

- As manufactured by Nibco-Scott. Equal manufacturers by Apollo, Crane, Grinnell, Homestead, Jenkins, Keystone, Milwaukee, Powell, Stockham or Watts. All valves to be by same manufacturer. 3" and larger valves shall be flanged.
  - Gate Valve (2" and smaller) - bronze gate valve with solid wedge, rising stem, screw-in bonnet, 200 lb. W.O.G., equal to Nibco type T-111 or S-111.
  - Check Valve (2" and smaller) - bronze horizontal swing check valve, regriding type, Y-pattern, renewable discs, 200 lbs. W.O.G., equal to Nibco type T-413 or S-413.
  - Ball valves - bronze two piece, 400 lb. W.O.G. equal to Nibco Type T-580 or S-580.
  - Drain Valves - equal to "7" above with full sized drain line extended to nearest floor drain and with 2" air gap.
  - Lubricated plug valves (gas) - cast semi-steel short pattern with stem seal of reinforced teflon equal to Homestead.
- Balancing valve - shall be Bell & Gossett "circuit setter", bronze body, brass ball construction with glass and carbon filled TFE seat rings. Equal valves by Armstrong "CBV" or Sarco Balance Master.
- Wall and Floor Plates - Install chrome plated plates at all pipe penetrations in finished areas. Install galvanized steel plates at all pipe penetrations in unfinished areas. Plates must completely cover pipe sleeve and be sized for pipe opening required.
- Shock Arrestors - Hydro-pneumatic type as manufactured by Wade, Zurn, J.R. Smith Co., Precision Plumbing Products or Sioux Chief.
- Thermometers - adjustable angle, red reading, mercury type thermometers with thermometer well, 3-1/2" stem, 1-1/2" extended neck, 9" scale and guaranteed 1% accuracy and a temperature range in accordance with related work. Thermometers based on Weiss. Equal manufacturers by Terice, Welsker or Ashcraft.
- Gauges - 4-1/2" dial pressure gauge with a gauge cock, and having 1% accuracy. Gauges shall be pressure or compound as required and shall be as manufactured by Weiss, Terice or Ashcraft.
- Aquastats adjustable surface mounted type as manufactured by Honeywell, Powers, Barber or Coleman.
- Install unions at piping connections to all pieces of equipment, valves, and as required for piping.
- Install valves where indicated on the drawings and where necessary for proper operation and maintenance of systems. Isolation valves shall be installed on supply piping to each group of fixtures.
- Install all plumbing specialties per manufacturer's instructions.
- All products of the same type shall be by the same manufacturer.
- Install arrestors in hot and cold water piping to each bank of fixtures and where shown on the drawings. Coordinate access panels as required with General contractor. Size and install per manufacturer's requirements based on fixture count.
- Install thermometers, pressure gauges, aquastats, wall hydrants, and hose bibbs where shown on the drawings.
- Install other specialties where noted on the drawings.

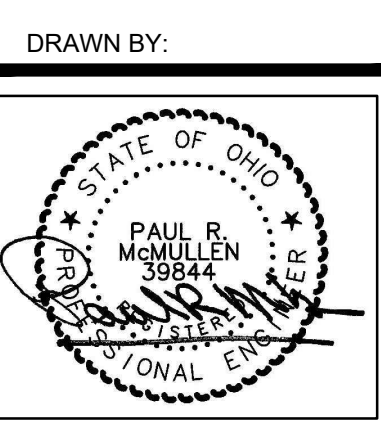
**SECTION 15445 PLUMBING FIXTURES AND TRIM**

- A. Furnish and install all plumbing fixtures scheduled on the drawings and specified herein. Furnish complete with all trim and accessories.
- B. Provide rough-in and final connection to Owner furnished equipment and Kitchen equipment as noted on the drawings and specified herein.
- C. Fixtures and trim are based on the following:
- Plumbing fixtures based on American Standard. Equal quality fixtures by Kohler, Crane and Eljer are acceptable.
  - Shower enclosures are based on Aquarius. Equal quality showers by Aquo-Bath or Clarion are acceptable.
  - Sinks are based on Elkay. Equal quality sinks by Just or Moen are acceptable.
  - Service sinks are based on Fiat. Equal quality basins by Cutler or Stern-Williams are acceptable.
  - Electric water coolers are based on Oasis. Equality coolers by Haws, Halsey Taylor or Sunroc-Western are acceptable.
  - Water closet seats are based on Berneke. Equal quality fixtures by Bemis, Church, Osonite or Sprzel are acceptable.
  - Flush valves are based on Sloan. Equal quality valves by Delany or Zurn are acceptable.
  - Plumbing fixture faucets are based on Zurn. Equal quality faucets by American Standard, Kohler, Crane, Eljer, Chicago, Groce American, Delta, Moen, Speakman, T & S Brass or Valley faucets are acceptable.
  - Plumbing shower faucets are based on Symmons. Equal quality faucets by Leonard, Lawler or Powers.
  - Plumbing fixture brass is based on McGuire. Equality brass by Kohler, Crane, E.B.C., Eljer, Eastman, and Frost are acceptable.
- D. Fixtures, faucets, drains, cleanouts, trim and equipment shall be by the same manufacturers unless otherwise noted.
- E. Trim shall be chromium plated. Fixtures shall be white unless otherwise specified.
- F. All exposed piping shall be chromium plated.
- G. All pipes penetrating walls shall have chromium plated escautcheons.
- H. Field verify installation requirements of all fixtures and Owner furnished equipment. Provide all required valves and piping. Coordinate installation of all equipment with Architect.
- I. Provide backing for all wall hung fixtures and faucets.
- J. Valve all hot and cold water supplies to each fixture and each group of fixtures. Adjust all valves and test all fixtures for proper operation.
- K. Valve all hot and cold water pipe rough-ins to plumbing fixtures as specified. Valves shall be chrome plated with chrome-splung tubes.
- L. Valve all hot and cold water pipe rough-ins to kitchen equipment with 1/4 turn ball valves and rigid copper supply tubes.
- M. All exposed piping to fixtures shall be chrome plated unless noted otherwise.
- N. Adjust shower valves to deliver a maximum of 110
- O. After water piping system is flushed, remove all strainers and aerators and clean thoroughly.
- P. Caulk all wall and floor mounted fixtures with silicone. Color to be selected by Architect.

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12941, 12943 & 12945 STONECREEK DRIVE  
PICKERINGTON, OHIO 43147**

**MCMULLEN ENGINEERING CO., INC.**  
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ISSUE	MARK	DATE
BID		5-5-22

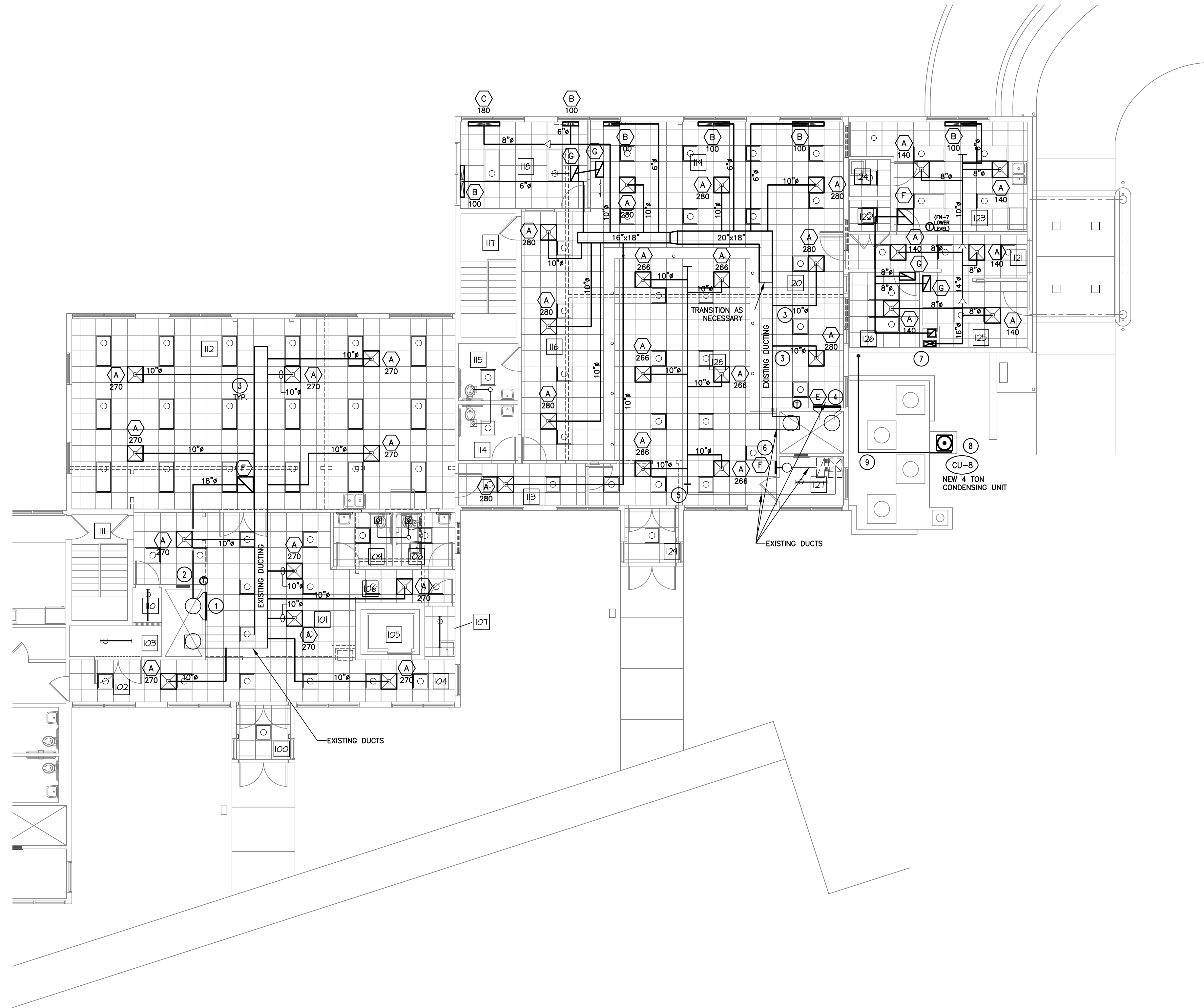


**PLUMBING SPECIFICATIONS**  
DRAWING NUMBER  
**P4.0**

HVAC LEGEND	
	ROUND OR RECTANGULAR DUCTWORK; INSIDE DIMENSION NOTED ON PLAN.
	TRANSITION
	MANUAL BALANCING DAMPER
	BRANCH DUCT TAP
	ELBOW, TURNED UP
	ELBOW, TURNED DOWN
	SUPPLY AIR
	RETURN AIR
	DIAMETER (ROUND)
	THERMOSTAT
	AIR DEVICE SYMBOL WITH CFM
	PLAN NOTE SYMBOL
	EQUIPMENT NOTE SYMBOL; SEE SCHEDULES AND/OR NOTES.
	A.F.F.
	ABOVE
	CEILING
	FLOOR
	G.C.
	P.C.
	H.C.
	E.C.
	S.A.
	R.A.
	O.A.
	EXH.
	EX.
	MT.
	MOUNT, (MTD.), MOUNTED, (MTG.), MOUNTING.

HVAC GENERAL NOTES	
A.	COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND GENERAL CONTRACTOR.
B.	ALL DUCT SIZES ARE INSIDE DIMENSIONS. COMPENSATE FOR DUCTBOARD THICKNESS WHERE APPLICABLE.
C.	ALL BUILDING PENETRATIONS OF PIPES, DUCTS, CONDUITS, LOUVERS, ETC., SHALL BE SLEEVED AND SEALED AIR AND WATER TIGHT.
D.	ALL THERMOSTAT LOCATIONS TO BE FIELD VERIFIED AND COORDINATED WITH ARCHITECT.
E.	ALL PENETRATIONS OF FIRE-RATED WALLS SHALL BE SEALED, AND SHALL BE FIRESTOPPED AND FIRE DAMPERED AS NOTED ON THE DRAWINGS.
F.	PERFORM ALL WORK IN ACCORDANCE WITH APPLICABLE CODES, RULES, AND REGULATIONS OF LOCAL, STATE AND FEDERAL AUTHORITIES OF JURISDICTION.
G.	COORDINATE ALL EQUIPMENT AND DUCT RUNS WITH STRUCTURE, LIGHTS, CEILING, CONDUIT, PIPING, AND OTHER EQUIPMENT.
H.	COORDINATE EXACT LOCATION OF ALL AIR DEVICES WITH LIGHTING PLAN AND REFLECTED CEILING PLAN.
J.	TYPICALLY, DUCTWORK SHALL RUN CONCEALED ABOVE THE DROPPED CEILING (BETWEEN TRUSSES AND THROUGH TRUSS GAPS). WHERE NOTED ON PLANS, DUCTWORK SHALL BE ROUTED BETWEEN FLOORS.
K.	BALANCE SYSTEMS TO CFM'S NOTED ON PLANS.
L.	RECTANGULAR DUCTWORK SHALL BE GALV. SHEET METAL. ALL FITTINGS (ELBOWS, TEES, ETC.) SHALL BE INSULATED SHEET METAL. ROUND BRANCH DUCTS SHALL BE GALV. SHEET METAL WITH SHORT RUNS OF INSULATED FLEXIBLE DUCTWORK NEAR THE DIFFUSER (MAX 5'). INSULATE WITH WRAP INSULATION WITH FOIL VAPOR BARRIER (R-VALUES PER CODE).
M.	EXHAUST DUCTWORK SHALL BE UN-LINED/UN-INSULATED SHEET METAL.
N.	DUCT AND PIPE LAYOUTS ARE SCHEMATIC. FIELD COORDINATE ALL DUCT RUNS (PRIOR TO DUCT FABRICATION). EXTRAS WILL NOT BE AWARDED FOR DUCT REVISIONS CAUSED BY LACK OF COORDINATION.
O.	HORIZONTAL RUNS OF CONDENSATE PIPING SHALL SLOPE 1/2" PER 6'-0" TOWARDS TERMINATION.
P.	ALL SHOP DRAWING SUBMITTALS SHALL BE FACTORY REPRESENTATIVE EQUIPMENT SUBMITTALS, THAT INCLUDE (BUT ARE NOT LIMITED TO) ALL DATA, AND LISTED ACCESSORIES, SHOWN IN SCHEDULES, NOTES, SPECIFICATIONS, ETC. SUBMITTALS SHALL INCLUDE ANY NON-LISTED APPURTENANCES REQUIRED FOR PROPER OPERATION. MARKED-UP CATALOG CUTS ARE NOT ACCEPTABLE, AND THE CONTRACTOR WILL BE NOTIFIED THAT SUBMITTALS HAVE BEEN DISCARDED WITHOUT ENGINEER REVIEW OR STAMPS.

HVAC CODED NOTES	
1.	EXISTING RETURN AIR GRILLE MOUNTED HIGH ON WALL. CLEAN AND SERVICE THE GRILLE.
2.	ROUTE RETURN AIR DUCT ABOVE CEILING. PENETRATE INTO CHASE AND CONNECT TO EXISTING RETURN AIR DUCT.
3.	EXISTING SUPPLY AIR PLENUM TO BE REUSED. PATCH AND SEAL ALL DEMOLISHED BRANCH DUCT CONNECTION POINTS AND CONNECT NEW DUCTS TO DIFFUSERS AS REQUIRED. REUSE EXISTING CONNECTIONS ONLY IF DUCT SIZES ARE AN EXACT MATCH.
4.	NEW RETURN AIR GRILLE MOUNTED HIGH ON WALL. PREVIOUS RETURN AIR DUCT PENETRATED CHASE ABOVE DROPPED CEILING LEVEL. CAP EXISTING RETURN AIR DUCT BELOW DROPPED CEILING LEVEL.
5.	TRANSITION FROM EXISTING DUCT TO NEW DUCT AT THIS LOCATION.
6.	NEW RETURN AIR GRILLE MOUNTED LOW ON WELL. CONNECT TO EXISTING RETURN AIR DUCT.
7.	NEW SUPPLY AND RETURN AIR DUCTS ROUTED THROUGH CHASE TO NEW FAN COIL UNIT ON LOWER LEVEL.
8.	NEW CONDENSING UNIT FOR FAN COIL UNIT (FC-7) LOCATED ON LOWER LEVEL. CONDENSING UNIT MOUNTED ON NEW CONCRETE PAD (BY GC).
9.	ROUTE REFRIGERANT LINES FROM NEW CONDENSING UNIT ALONG WALL TO NEW BUILDING ADDITION CORNER.



### OVERALL UPPER LEVEL PLAN - HVAC

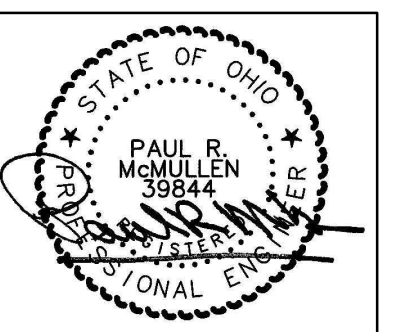
SCALE: 1/8" = 1'-0"

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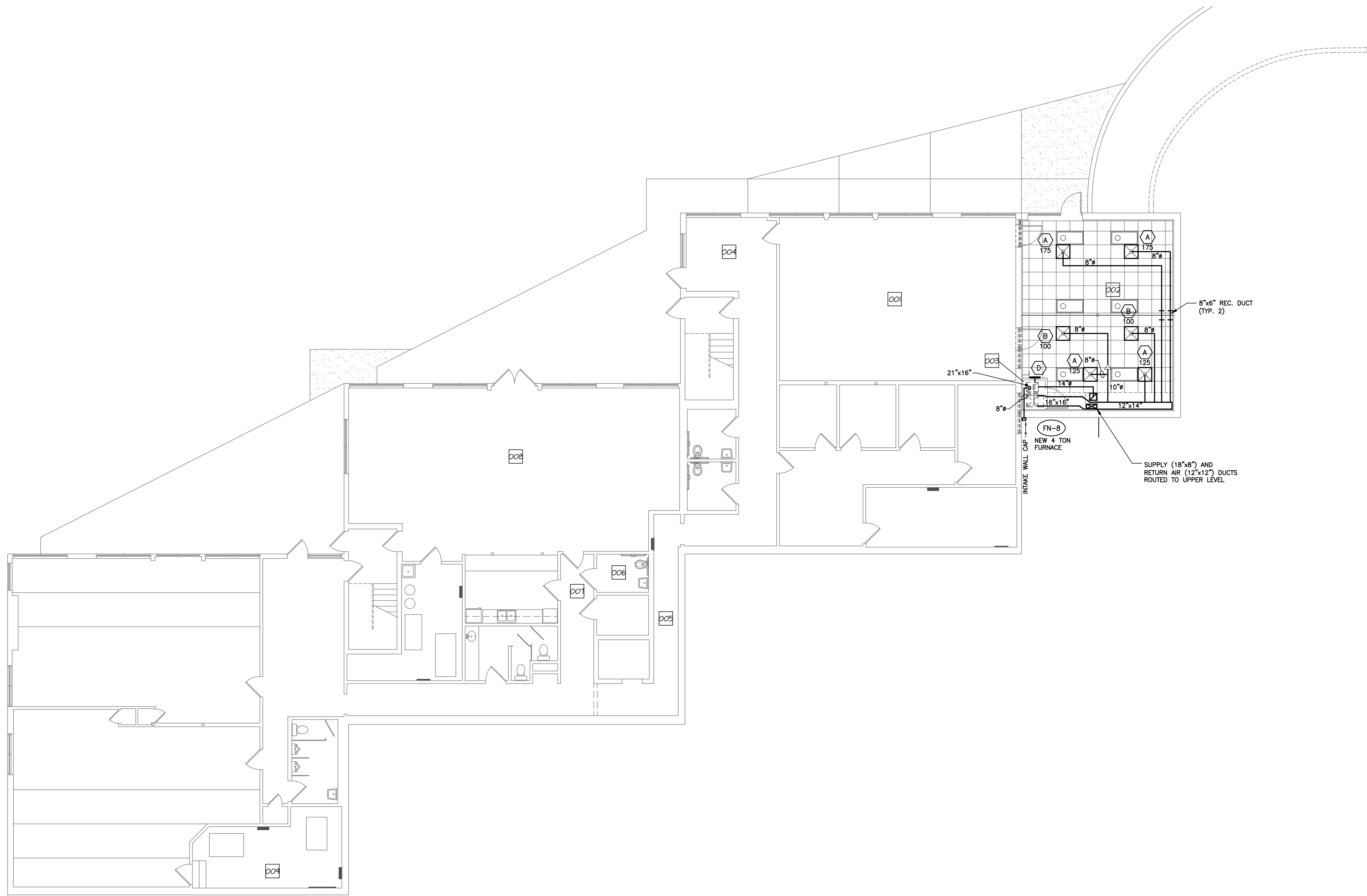
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OVERALL UPPER  
 LEVEL PLAN -  
 HVAC

DRAWING NUMBER  
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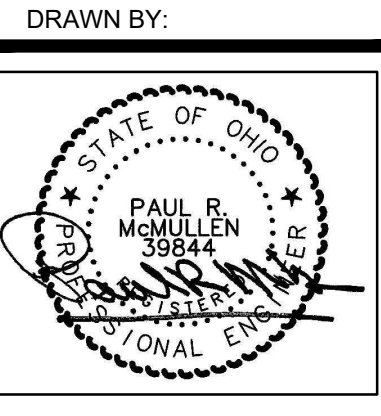


NORTH  
**OVERALL LOWER LEVEL PLAN - HVAC**  
 SCALE: 1/8" = 1'-0"

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ISSUE	MARK	DATE
BID		5-5-22



OVERALL LOWER  
 LEVEL PLAN -  
 HVAC  
 DRAWING NUMBER  
**H2.0**



MECHANICAL SPECIFICATIONS

15010 BASIC HVAC REQUIREMENTS
A. Refer to Instructions to Bidders, General Conditions, Supplementary Conditions, and the Sections of Division 1: General Requirements for specific requirements, responsibilities and methods relating to the mechanical work.
B. Furnish all materials, labor, tools, transportation, incidentals and apprentices to complete in every detail and leave in working order all items of work called for herein or shown on accompanying drawings.
C. Comply with all Local and State building codes, Life Safety Code, National Fire Protection Association (NFPA), applicable utility company requirements and applicable Federal regulations.

T. Protect surface, equipment, and materials during construction from damage from water, dirt, welding and cutting, spatters paint droppings, etc. Repair or replace as directed any materials damaged during construction operations.
U. Electrical Contractor to provide conduit and wiring for devices as indicated on Electrical Drawings and in Specifications.
15015 MECHANICAL DEMOLITION
A. Coordinate the extent of required demolition for the HVAC work with the General Contractor.
B. Coordinate removal of existing equipment with General Contractor.
15020 HVAC SHOP DRAWINGS
A. Submit six (6) copies of shop drawings for review of the following equipment.
1. Air Cooled Condensing Units
2. Furnace / Air Handler Units
3. Exhaust Fans
4. Insulation
5. Air Devices
6. Temperature Controls
7. Air Balance Report
B. Check, sign and approve all shop drawings.
C. Submit shop drawings for all items of equipment, piping, and insulation for review before construction.

B. All insulation shall have composite (insulation, jacket, and adhesive) fire and smoke hazard ratings as tested under procedure ASTM E-84, NFPA 255, or UL 723, and not exceed: Flame spread: 25, Smoke developed: 50, insulation shall meet or exceed the requirements of OBC, Mechanical Code, Section 804 and ASHRAE 90.1-1-1999.
C. Concealed ducts: Fiberglass duct wrap insulation, 1-1/2" thick, 3/4 pound density (K = 0.28) with aluminum foil facing. R-5 minimum.
D. Exterior Pipes And Ducts: Expanded closed cell, flexible elastomeric insulation (K = 0.27 at 75 degrees F) furnished in 3/4" thick sheet or tube form.
E. Joints shall be made in the following manner:
15530 REFRIGERANT PIPING
A. Furnish and install complete refrigerant piping systems from outdoor condensing units to indoor evaporator.
B. All refrigeration piping shall be installed by experienced workmen in accordance with established practices and the best practice of the trade.
C. Piping shall be Type L-ACR clean, deoxidized, hard copper tubing with solder joint wrought copper fittings.
D. Ream ends of all tubing and clean prior to installing.
E. Joints shall be made in the following manner:
15670 CONDENSING UNITS
A. Furnish and install air cooled condensing units where shown on drawings.
B. Air cooled condensing units are based on Carrier.
C. For units with dual compressors two separate and independent refrigerant circuits shall be provided.
D. As noted on drawings, furnish hot gas bypass with accessory components as required.
E. Rippled aluminum fins bonded to seamless copper tubing.
F. Vertical discharge, direct-drive fans, statically and dynamically balanced, with steel blades and zinc-plated steel hubs.

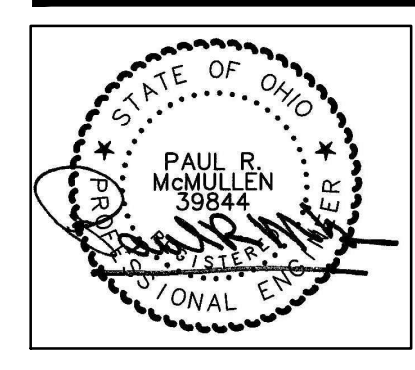
E. Install all units as recommended by manufacturer and per their installation manual and listing.
F. Furnish and install fan coil units as shown on drawings.
G. Horizontal and vertical blower coil units shall be Carrier or equal, complete with cooling coils, forward curved and factory balanced blower wheels, direct or belt drive, motors with overload protection, adjustable motor pulleys, 3/4" thick 1-1/2 pound density insulation for complete unit, 2" thick throw-away filters, unit mounted controls, and unit access panels.
H. Install all units in accordance with manufacturer's installation instructions.
15860 EXHAUST AND SUPPLY FANS
A. Furnish and install roof and ceiling mounted fans as noted on the drawings and specified herein.
B. Ceiling / wall mounted fans shall be Broan as scheduled on the drawings or equal by Greenheck, Penn, Jenco-Fan or ACME.
C. Coordinate location of all equipment with Architect in field.
15890 AIR DISTRIBUTION
A. Furnish and install a complete air distribution system for the heating, ventilating and air conditioning systems and exhaust systems for the building as shown on the drawings and as herein specified.
B. Ductwork shall meet the requirements of:
C. Rectangular ducts shall be constructed and reinforced per SMACNA Duct Construction Standards, Section 1.
D. Furnish and install duct wrap for all concealed rectangular supply and return ducts.
E. Flexible ducts shall comply with NFPA requirements, Pamphlet 90A and shall be Class 1, UL listed with flame spread rating of 25 or less and smoke developed rating of 50 or less.
F. Flexible duct connections shall be Duro-Dyne "Thermafab" or equal (UL listed).
G. Single blade and multi-blade dampers: Galvanized steel dampers with locking quadrant operators and linkage per SMACNA Figs. 2-14 and 2-15.
H. All ductwork shall be constructed, joined, braced and supported in accordance with the latest Standards of SMACNA.
I. When making connections to existing ductwork, report to Architect any dissimilar duct or insulation types.
15910 AIR DEVICES AND LOUVERS
A. Furnish and install air devices and louvers as noted on the drawings or specified herein.
B. Verify final locations of air devices as shown on the drawings with Architect or architectural reflected ceiling plan.

15935 BAS CONTROLS AND INSTALLATION
A. The existing county-wide BAS employs the use of Niagara AX Supervisor software running on a network server in the county's IT data center rack located at the Fairfield County Courthouse.
B. The BAAS architectural design for this building is an extension of the existing Niagara AX Framework with new BACnet MS/TP protocol communications networks as specified herein and shown on the associated project drawings.
C. The BAS extension consists of new stand-alone direct digital controller (DDC) and associated sensors and controlled devices, communicating to the existing central server.
D. All field mounted devices, including but not limited to, all sensors, actuators, remote relays, etc. shall be provided and installed under this contract as shown on the associated project drawings, unless noted otherwise.
E. Provide all labor and incidental material for a complete installation of thermostats, flow switches, static pressure sensors, etc.
F. Install the system as recommended by the Manufacturer, using only equipment recommended or acceptable to the Manufacturer.
G. Provide IP drops as required to the main building control panel.
H. Furnish the following as required for installation by the HVAC Contractor.
1. Control valves, flow switches, temperature sensor valves.
2. Gauge taps, flow meters.
3. Electric motor control dampers.
4. Exceptions: Dampers supplied as part of air handling units.
I. The following will be provided by the Owner.
1. Main Building Controller
2. Air Handling Unit Control Panels (1 total, FN-8)
J. Submit the six (6) copies of the following data/information for approval before work shall begin.
1. Complete sequence of operation.
2. Complete 24 and 120 volt point-to-point wiring diagrams showing all temperature controls, start-stop arrangement for each piece of equipment, equipment interlocks, wiring terminal numbers and any special connection information required for properly controlling the mechanical equipment.
3. Control system CAD generated drawings including all pertinent data to provide a functional operating system.
4. Valve and damper schedules showing size, configuration, capacity and location of all equipment.
5. Data sheets for all hardware and software control components.
6. A description of the installation materials including conduit, wire, flex, etc.
7. Thermostat/sensor locations.
8. Computer panel locations.
K. The system controller shall have ample memory to support its operating system, database, and programming requirements.
L. The system controllers shall have the capability of being remotely monitored over the BACnet system.
M. All programming required for operation shall be memory resident and shall be retained in permanent memory.
N. The controller shall continually check the status of all processor and memory circuits.
O. Coordinate the work in this section with all other trades.
P. Assist balancing sub-contractor and hvac contractor as needed for air balancing. Assist electrical Contractor during fire/smoke control system checkout.

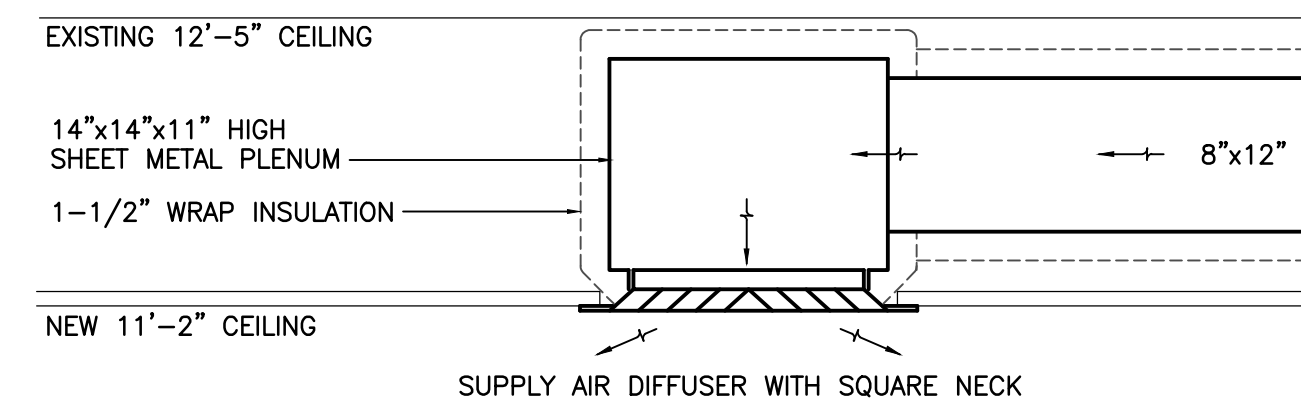
15950 TEMPERATURE CONTROL
A. Furnish and install all temperature controls and safety devices as noted on the drawings or specified herein.
B. The Control Contractor shall guarantee the control system installed under this section of the specification to be free from defects in workmanship and material under normal use and provide service for a period of one year after acceptance of the building.
C. After completion of the installation, the control contractor shall completely adjust all control equipment provided under this contract and place the system in operation.
D. All controls shall be programmable and adjustable unless noted otherwise and by Honeywell, Johnson Control, Barber Colman, Robert Shaw or unit manufacturer.
E. Toilet exhaust fans shall be furnished and installed by Heating Contractor for wiring by Electrical Contractor (to room lights).
F. Other controls, sensors and safety devices shall be as required for intended function, required by code, and compatible with other controls.
G. Damper motors shall be line or low voltage as required and by Honeywell or equal.
H. The temperature controls shall be capable of performing the following functions:
1. During occupied hours the supply air blower shall run continuously, with the heating or cooling cycling on and off per the signals of the thermostat.
2. During un-occupied hours the supply air blower shall cycle on and off with the heating or cooling per the signals of the thermostat.
15980 AIR BALANCING
A. Balance shall include all air systems. Balance shall be performed by an independent contractor certified by the Associated Air Balance Council or National Environmental Balancing Bureau.
B. All air systems shall be put in operation and mechanical adjustments to equipment shall be made to insure proper functioning.
C. Adjust system controls so each component performs and delivers its capacity.
D. After all equipment and systems have been tested, adjusted and balanced, demonstrate to the Owner and Architect that heating and ventilating systems are operating and performing to meet requirements of this Contract.
15990 HVAC ALTERNATES
A. Include in the space provided in the Bid Documents, the amount to be added or deducted for providing the HVAC work shown on the drawings.
END OF SECTION

THE REMODELING OF THE OUPICKERINGTON CENTER FOR THE FAIRFIELD COUNTY COMMISSIONERS. THE FAIRFIELD CENTER 12941, 12943 & 12945 STONECREEK DRIVE PICKERINGTON, OHIO 43147

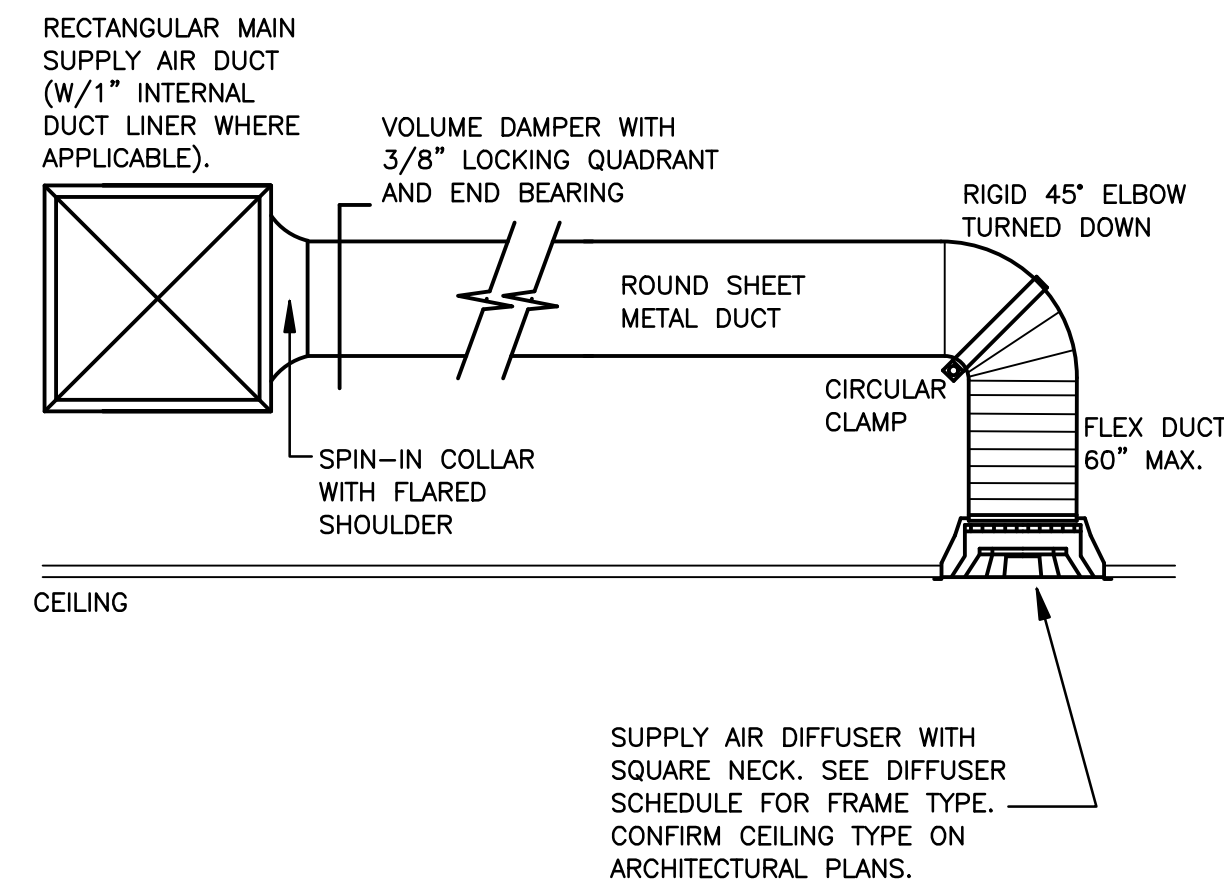
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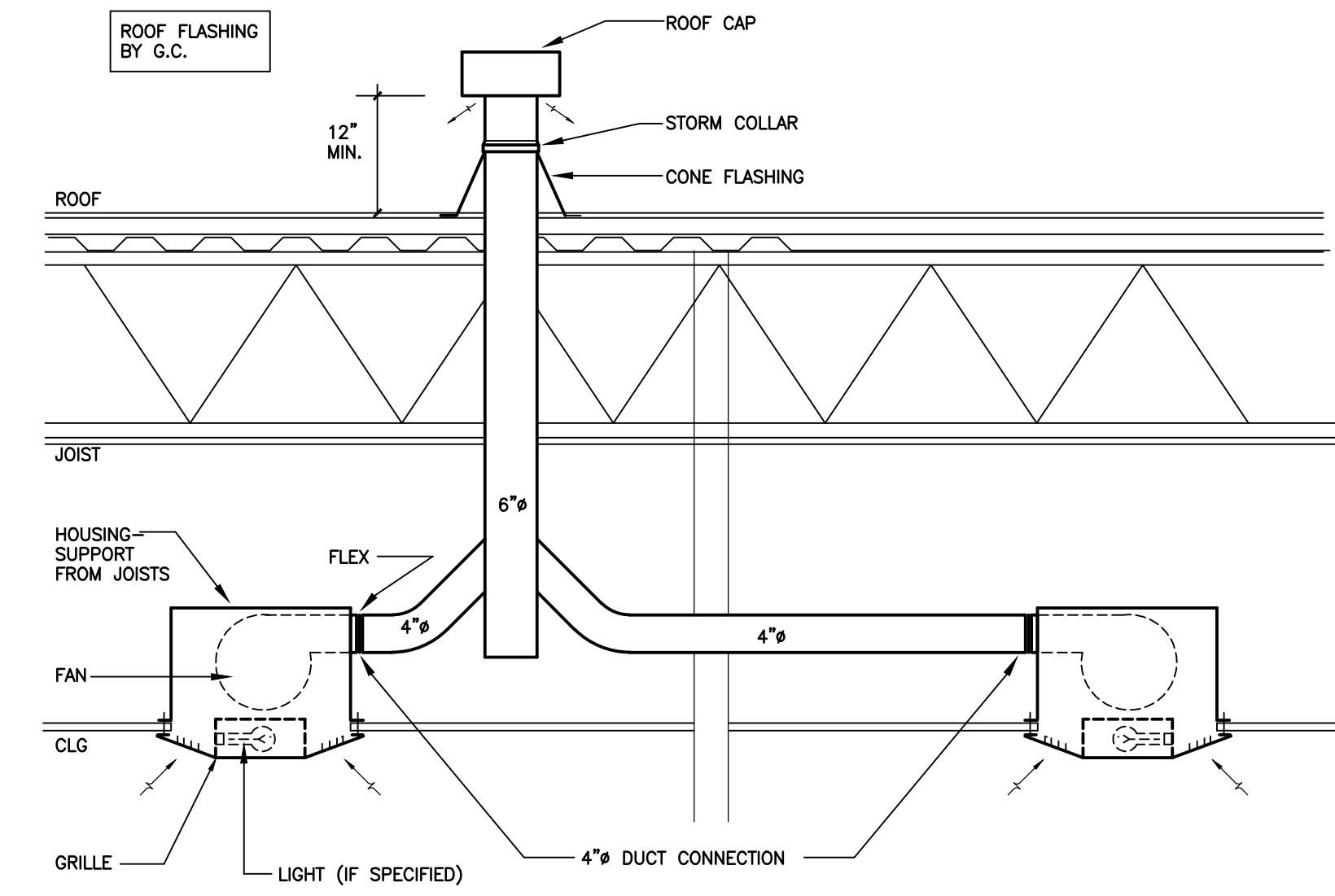
MECHANICAL SPECIFICATIONS DRAWING NUMBER H4.0



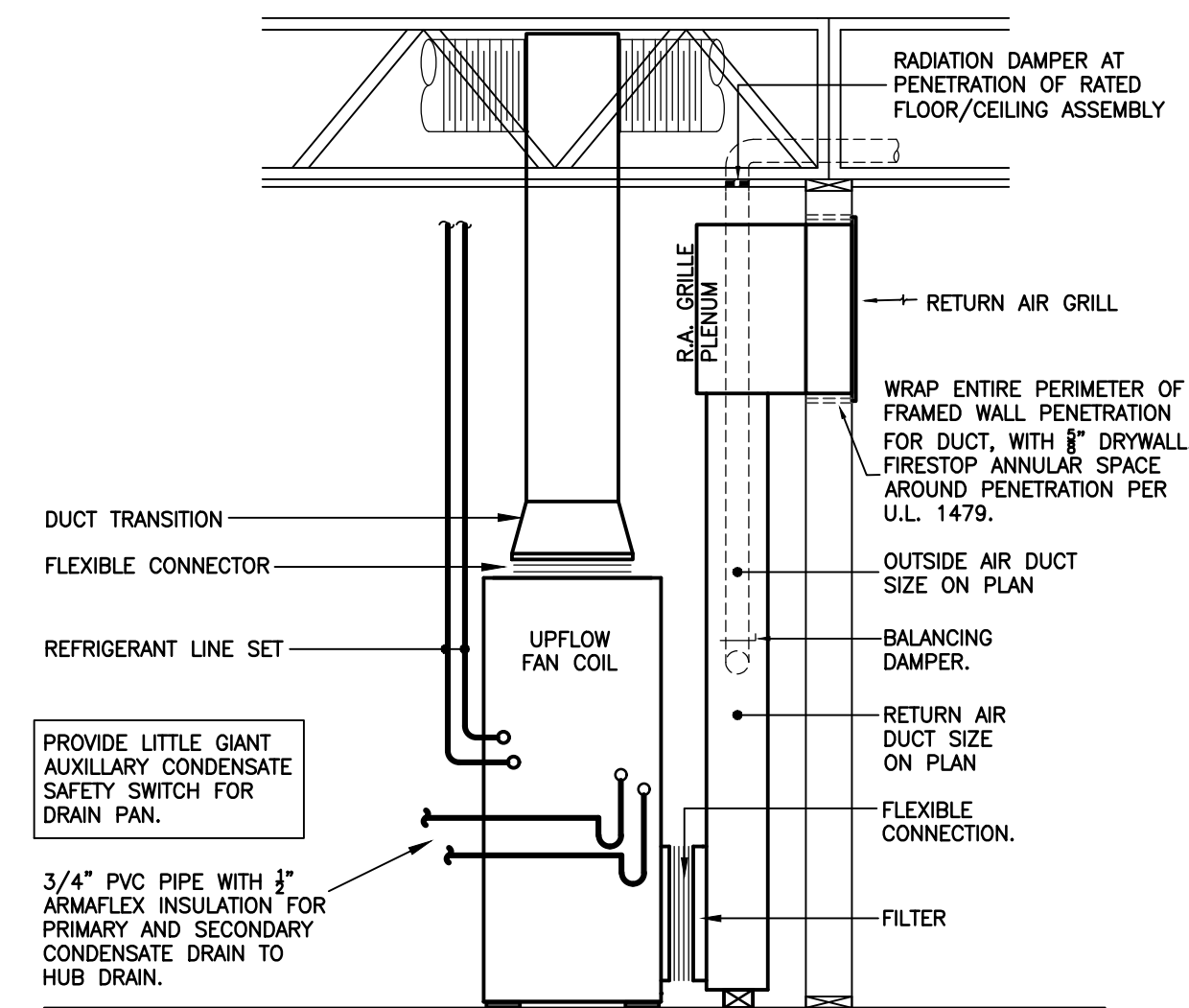
**1 DIFFUSER PLENUM/DUCT CONNECTION DETAIL**  
 H3.1 1/2" = 1'-0"



**2 BRANCH DUCT DETAIL**  
 H3.1 NTS



**3 MULTIPLE CEILING FAN DETAIL**  
 H3.1 NTS

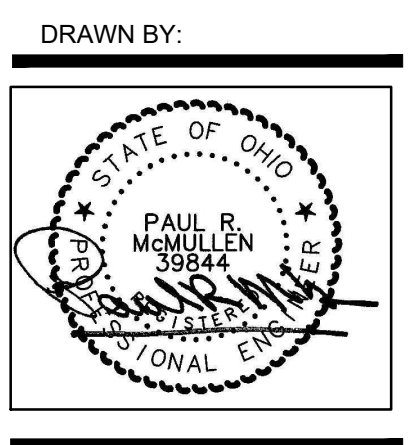


**4 TYPICAL UPFLOW FAN COIL DETAIL**  
 H3.1 N.T.S.

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 DETAILS -  
 HVAC  
 DRAWING NUMBER  
**H3.1**

### HVAC DUCTWORK NOTES

- A. SHEET METAL DUCTS THAT PENETRATE FIRE RATED HORIZONTAL ASSEMBLIES SHALL BE AS FOLLOWS:  
 ROUND DUCTS AND ENCLOSED RECTANGULAR DUCTS:  
 14" OR LESS = 0.0157" MIN. THICKNESS GALVANIZED (28 GAGE EQUIVALENT) 0.0175 ALUMINUM  
 16" AND 18" = 0.0187" MIN. THICKNESS GALVANIZED (26 GAGE EQUIVALENT) 0.018 ALUMINUM  
 20" OR OVER = 0.0236" MIN. THICKNESS GALVANIZED (24 GAGE EQUIVALENT) 0.023 ALUMINUM  
 EXPOSED RECTANGULAR DUCTS:  
 14" OR LESS = 0.0157" MIN. THICKNESS GALVANIZED (28 GAGE EQUIVALENT) 0.0175 ALUMINUM  
 OVER 14" = 0.0187" MIN. THICKNESS GALVANIZED (26 GAGE EQUIVALENT) 0.018 ALUMINUM  
 CLOTHES DRYER VENT DUCTS:  
 14" OR LESS = 26 GAUGE GALVANIZED STEEL  
 B. ALL PENETRATION OF RATED HORIZONTAL ASSEMBLIES SHALL BE FIRE-STOPPED.

### EQUIVALENT DUCT SIZES

AS REQUIRED BY FIELD CONDITIONS (APPLIES TO ROUND-TO-RECTANGULAR AND RECT. TO RECT.), THE HVAC CONTRACTOR SHALL HAVE THE OPTION OF USING EQUIVALENT DUCT SIZES IN LIEU OF SIZES SHOWN ON PLAN.

- 6" ROUND  
 12x3, 8x4, 6x5  
 8" ROUND  
 16x4, 12x5, 10x6  
 10" ROUND  
 20x5, 16x6, 12x7, 10x8, 9x9  
 12" ROUND  
 24x6, 18x7, 16x8, 14x9, 12x10  
 14" ROUND  
 28x7, 22x8, 18x10, 14x12  
 16" ROUND  
 30x8, 24x10, 18x12, 16x14  
 18" ROUND  
 30x10, 24x12, 20x14, 18x16  
 20" ROUND  
 38x10, 30x12, 26x14, 22x16, 20x18  
 22" ROUND  
 36x12, 30x14, 26x16, 24x18, 20x20  
 24" ROUND  
 46x12, 36x14, 32x16, 28x18, 24x20, 22x22  
 26" ROUND  
 46x14, 38x16, 34x18, 30x20, 26x22, 24x24

### SPLIT SYSTEM GAS/ELECTRIC AIR-CONDITIONING UNIT SCHEDULE

SYMBOL	CARRIER MODEL #	FURNACE							COOLING COIL			CONDENSING UNIT					NOTES					
		CFM	E.S.P. (W/COIL)	BLOWER HP	HEAT. CAP. MBH INPUT	HEAT. CAP. MBH OUTPUT	AFUE	ELECTRICAL V./Ø	MCA	MCCP	CARRIER MODEL #	S.P.	TYPE	SYMBOL	CARRIER MODEL #	COOL. CAP. MBH TOTAL		SENS.	V/Ø	MCA	REC.BRKR.	SEER
FN-8	59TN3A100517 UPFLOW	1600	0.75"	1/2	100	93	93	120/1	119.2	20	CAPVP4824	0.29"	UP FLOW	CU-8	24ACB34BA	44.5	33.5	208/1	26.2	40	13.3	1 THRU 9

- 1) FURNISH & INSTALL FACTORY RECOMMENDED EXPANSION VALVE.  
 2) FURNISH WITH AIR FILTER AND RACK KIT, AND TWO SETS OF 2" FILTERS.  
 3) FURNISH & INSTALL PVC COMBUSTION PIPING, AND CONCENTRIC ROOF TERMINATION KIT.  
 4) MOUNT INDOOR UNIT ON VIBRATION PAD.  
 5) FURNISH UNIT WITH TIMED-OFF CONTROL.  
 6) PROGRAMMABLE 7-DAY NIGHT-SETBACK THERMOSTAT.  
 7) FURNISH & INSTALL PRE-MANUFACTURED AND INSULATED REFRIGERANT LINE SET. (SIZE PER MANUFACTURER REQUIREMENTS).  
 8) BACnet MS/TP INTERFACE FOR BAS CONTROL SYSTEM

### AIR DEVICE SCHEDULE

SYMBOL	FACE SIZE	NECK SIZE	TITUS MODEL NO.	TOTAL CFM	MOUNTING SURFACE	AIR PATTERN	NOTES
A	24"x24"	10"ø	TMSA	AS NOTED	T-BAR	4-WAY	1-3
B	24"x24"	6"ø	TMSA	AS NOTED	T-BAR	4-WAY	1-3
C	4', 1 SLOT, 1.5"	8"ø	FL-15	50/FT	DRYWALL	SLOT	1-3
D	16"x16"	14"x14"	350-R	800 MAX	DRYWALL	RETURN	1,4
E	38"x26"	36"x24"	350-R	2900	DRYWALL	RETURN	1,4
F	24"x24"	22"x22"	350-R	1600	T-BAR	RETURN	1,3
G	24"x12"	22"x10"	350-R	850	T-BAR	RETURN	1,3

- 1) FINISH TO BE SELECTED BY ARCHITECT.  
 2) FURNISH NECK MOUNTED OPP. BLADE DAMPER.  
 3) FRAME TO BE COMPATIBLE WITH STD. T-BAR CEILING.  
 4) FRAME TO BE COMPATIBLE WITH PLASTER, DRYWALL, OR OTHER SURFACE MOUNTINGS.

### OUTSIDE AIR REQUIREMENTS (Per ASHRAE 2010)

SPACE DESCRIPTION	SPACE VENTILATION CLASSIFICATION	FLOOR AREA (SQ.FT.)	OCCUPANCY (PEOPLE/SQ.FT.)	OCCUPANCY (NO. OF PEOPLE)	OUTSIDE AIR VENTILATION RATE		OUTSIDE AIR VENTILATION (CFM)	AIR SYSTEMS		
					BY AREA (CFM/SQ.FT.)	BY OCCUPANCY (CFM/PERSON)		SYSTEM PLAN DESIGNATION	SUPPLY AIR (CFM)	OUTSIDE AIR INTAKE (CFM)
UPPER LVL-SEATING 128	MAIN ENTRY LOBBY	618	30/1000	19	0.06	5	132	FN-3 (EXISTING)	3000	325
UPPER LVL-HALLWAY 113	HALLWAY	63	-	-	0.06	-	4			
UPPER LVL-TELLERS 116/119/120	OFFICE	1110	5/1000	6	0.06	5	97			
UPPER LVL-UNISEX RR 114	RESTROOM	54	-	-	-	50 (1)	-			
UPPER LVL-UNISEX RR 115	RESTROOM	55	-	-	-	50 (1)	-			
UPPER LVL-OFFICE 118	OFFICE	177	5/1000	1	0.06	5	16			
						TOTAL	249/0.8 = 312			
UPPER LVL-CONFERENCE 123	OFFICE-CONF.	261	50/1000	13	.06	5	81	FN-8	1600	225
UPPER LVL-CLOSET 124	STORAGE	25	-	-	0.06	-	2			
UPPER LVL-CLOSET 122	STORAGE	21	-	-	0.06	-	2			
UPPER LVL-ENTRY 121/125	HALLWAY	226	-	-	0.06	-	14			
UPPER LVL-OFFICE 126	OFFICE	89	5/1000	1	0.06	5	11			
LOWER LVL-OFFICE 002	OFFICE	625	5/1000	4	0.06	5	58			
						TOTAL	166/0.8=210			

ALL OUTDOOR AIR INTAKE DUCTS SHALL BE EQUIPPED WITH DAMPERS THAT CLOSE WHEN THE SYSTEM IS NOT OPERATING.  
 -SYSTEMS WITH OUTDOOR AIR INTAKE OF 300 CFM OR LESS SHALL BE EQUIPPED WITH GRAVITY DAMPERS.  
 -SYSTEMS WITH OUTDOOR AIR INTAKE OF MORE THAN 300 CFM SHALL BE EQUIPPED WITH 24 VOLT MOTORIZED DAMPERS INTERCONNECTED WITH THE BLOWER MOTOR SO THAT THE DAMPER OPENS WHEN THE BLOWER IS RUNNING, AND CLOSES WHEN THE BLOWERS IF OFF.  
 (1) BATHROOM EXHAUST REQUIREMENTS: 50CFM PER TOILET / URINAL

### FAN SCHEDULE

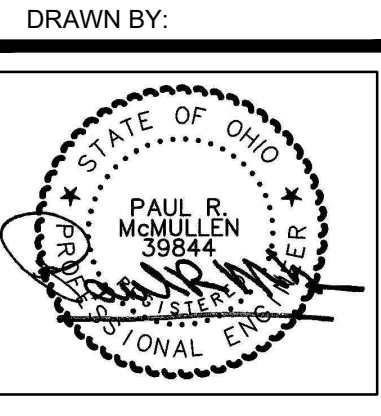
SYMBOL	MANUF. & MODEL #	CFM	ESP	POWER	RPM	DRIVE	ELECTRICAL	WALL OR ROOF OPENING	DUTY	DAMPER	NOTES
EF-1	BROAN # 670	50	0.25"	26 WATTS	NA	DIRECT	120/1	6"ø ROOF CAP (EXISTING)	TOILET RM.	INTEGRAL	1,2,4

- 1) INTEGRAL DISCONNECT, BACKDRAFT DAMPER, AND PLASTIC GRILLE.  
 2) FACTORY UNIT MOUNTED VARIABLE SPEED CONTROLLER TO SET CFM.  
 3) WIRED BY E.C. TO RUN CONTINUALLY.  
 4) WIRED BY E.C. TO LIGHTS.  
 5) WIRED BY E.C. TO PILOT SWITCH  
 6) WIRED BY H.C. TO CARBON MONOXIDE SENSORS  
 7) INTEGRAL WALL SLEEVE, GRAVITY DAMPER, & OSHA CHGE.  
 8) FACTORY HANGER KIT WITH VIBR. ISOLATORS  
 9) FACTORY 10"x5" WALL CAP

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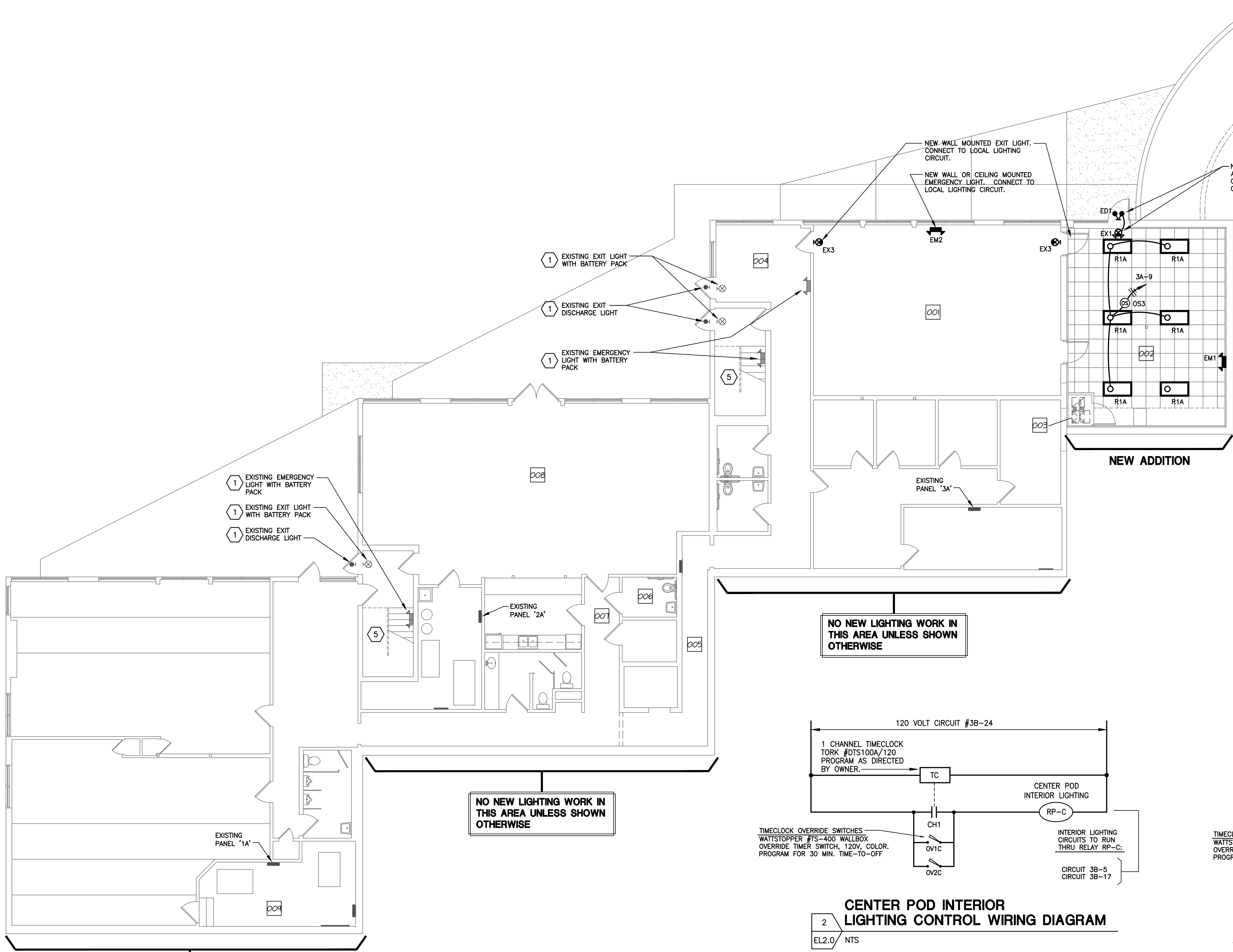
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SCHEDULES  
 GEN. NOTES -  
 HVAC  
 DRAWING NUMBER  
**H3.0**

SEE SHEET EL2.1 FOR ELECTRICAL GENERAL AND CODED NOTES FOR THIS SHEET.

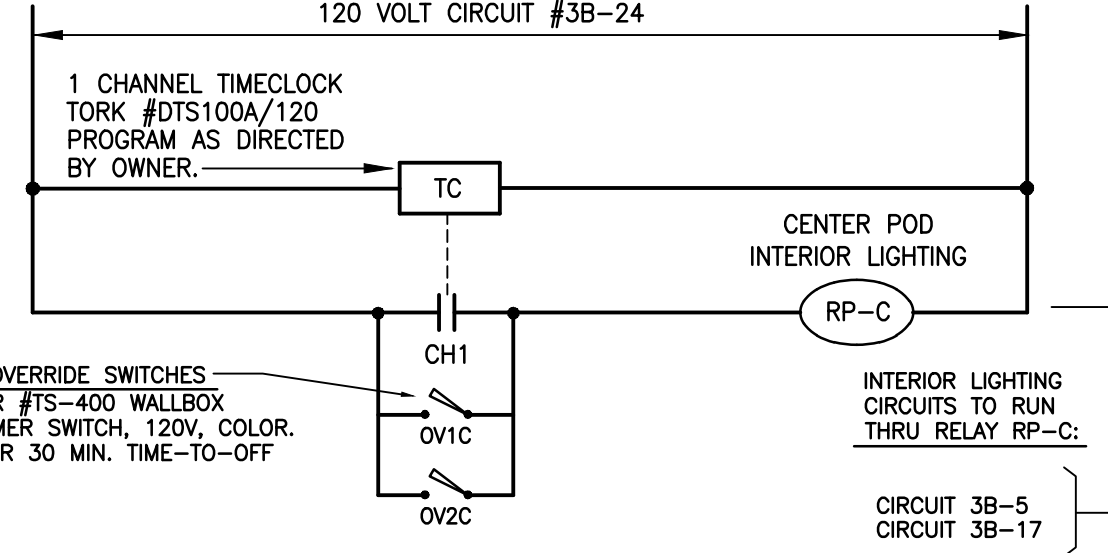


NO NEW LIGHTING WORK IN THIS AREA UNLESS SHOWN OTHERWISE

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**OVERALL LOWER LEVEL PLAN - LIGHTING**  
SCALE: 1/8" = 1'-0"



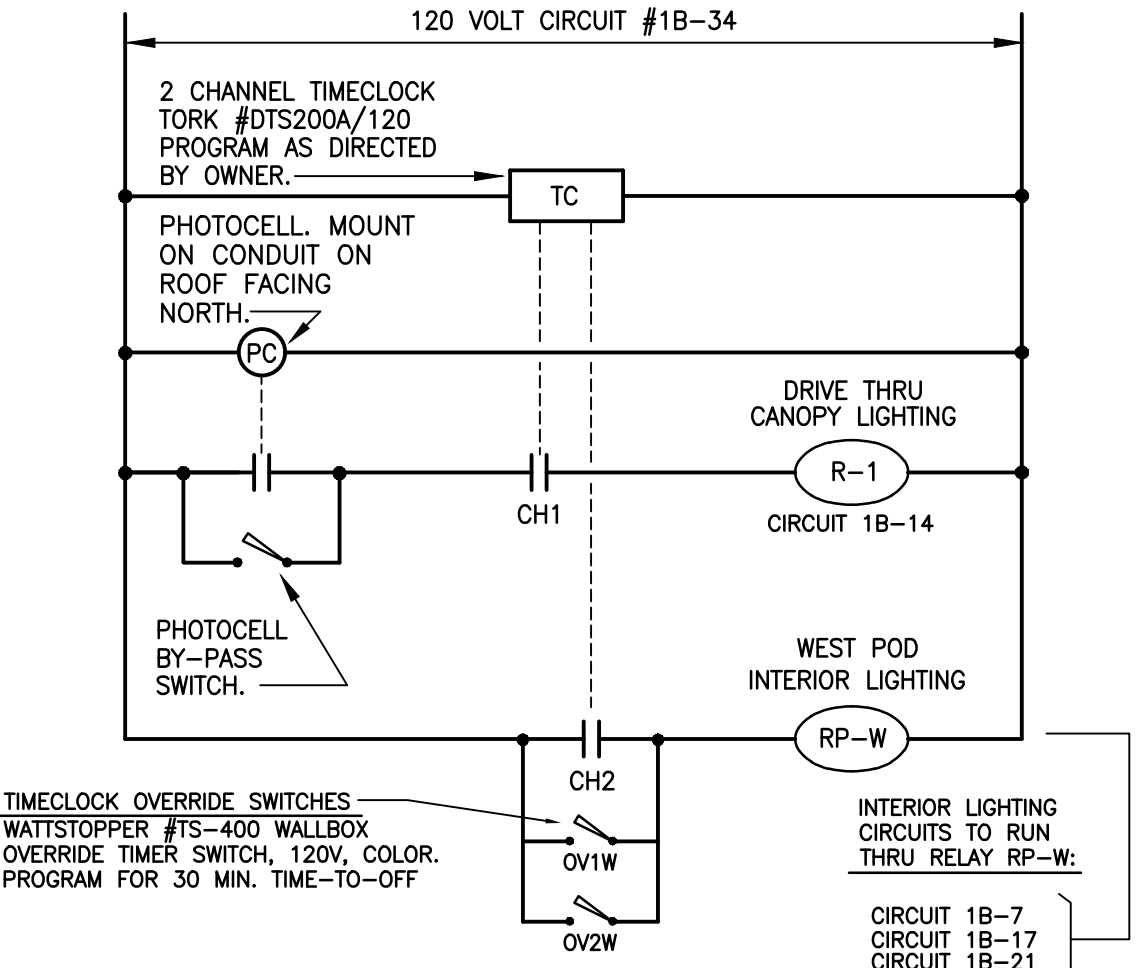
**CENTER POD INTERIOR LIGHTING CONTROL WIRING DIAGRAM**  
2  
EL2.0 NTS

RELAY SCHEDULE

RELAY NO.	NO. POLES	AMPS	LOAD VOLTAGE	COIL VOLTAGE	LOAD DESCRIPTION	RELAY LOCATION	NOTES
RP-C	2	20	120	120	CENTER POD INTERIOR LIGHTING	PANEL '3B'	1

NOTES: 1. ELECTRICALLY HELD RELAY EQUAL TO SQUARE 'D' CLASS 8903 TYPE 'LG'

INTERIOR LIGHTING CONTROL SEQUENCE OF OPERATIONS -  
TIMECLOCK TO BE PROGRAMMED TO OPEN RELAY RP-C,  
TURNING OFF LIGHTING CIRCUITS NOTED DURING OFFICE CLOSED HOURS, AND TO CLOSE RELAYS, TURNING ON LIGHTING CIRCUITS DURING OFFICE OPEN HOURS. LOCAL SWITCHING WILL DETERMINE WHETHER LIGHTS ARE ON OR OFF DURING OPEN HOURS. IF LIGHTING IN AREAS CONTROLLED BY RELAYS ARE NEEDED ON DURING OFFICE CLOSED HOURS THE OVERRIDE SWITCH WILL ALLOW FOR TIMED LIGHTING ON.  
CONTRACTOR TO COORDINATE PROGRAMMING OPEN AND CLOSED HOURS WITH OWNER.



**WEST POD INTERIOR/EXTERIOR CANOPY LIGHTING CONTROL WIRING DIAGRAM**  
1  
EL2.0 NTS

RELAY SCHEDULE

RELAY NO.	NO. POLES	AMPS	LOAD VOLTAGE	COIL VOLTAGE	LOAD DESCRIPTION	RELAY LOCATION	NOTES
RP-W	4	20	120	120	WEST POD INTERIOR LIGHTING	PANEL '1B'	1
R-1	2	20	120	120	EXTERIOR CANOPY LTG	PANEL '1B'	1

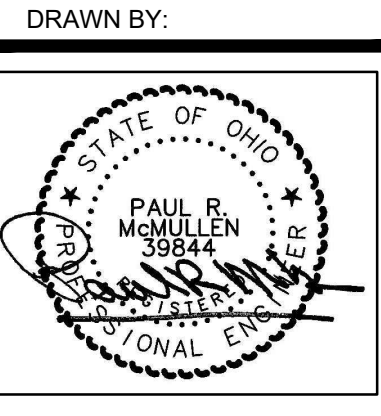
NOTES: 1. ELECTRICALLY HELD RELAY EQUAL TO SQUARE 'D' CLASS 8903 TYPE 'LG'

INTERIOR LIGHTING CONTROL SEQUENCE OF OPERATIONS -  
TIMECLOCK TO BE PROGRAMMED TO OPEN RELAY RP-W,  
TURNING OFF LIGHTING CIRCUITS NOTED DURING OFFICE CLOSED HOURS, AND TO CLOSE RELAYS, TURNING ON LIGHTING CIRCUITS DURING OFFICE OPEN HOURS. LOCAL SWITCHING WILL DETERMINE WHETHER LIGHTS ARE ON OR OFF DURING OPEN HOURS. IF LIGHTING IN AREAS CONTROLLED BY RELAYS ARE NEEDED ON DURING OFFICE CLOSED HOURS THE OVERRIDE SWITCH WILL ALLOW FOR TIMED LIGHTING ON.  
CONTRACTOR TO COORDINATE PROGRAMMING OPEN AND CLOSED HOURS WITH OWNER.

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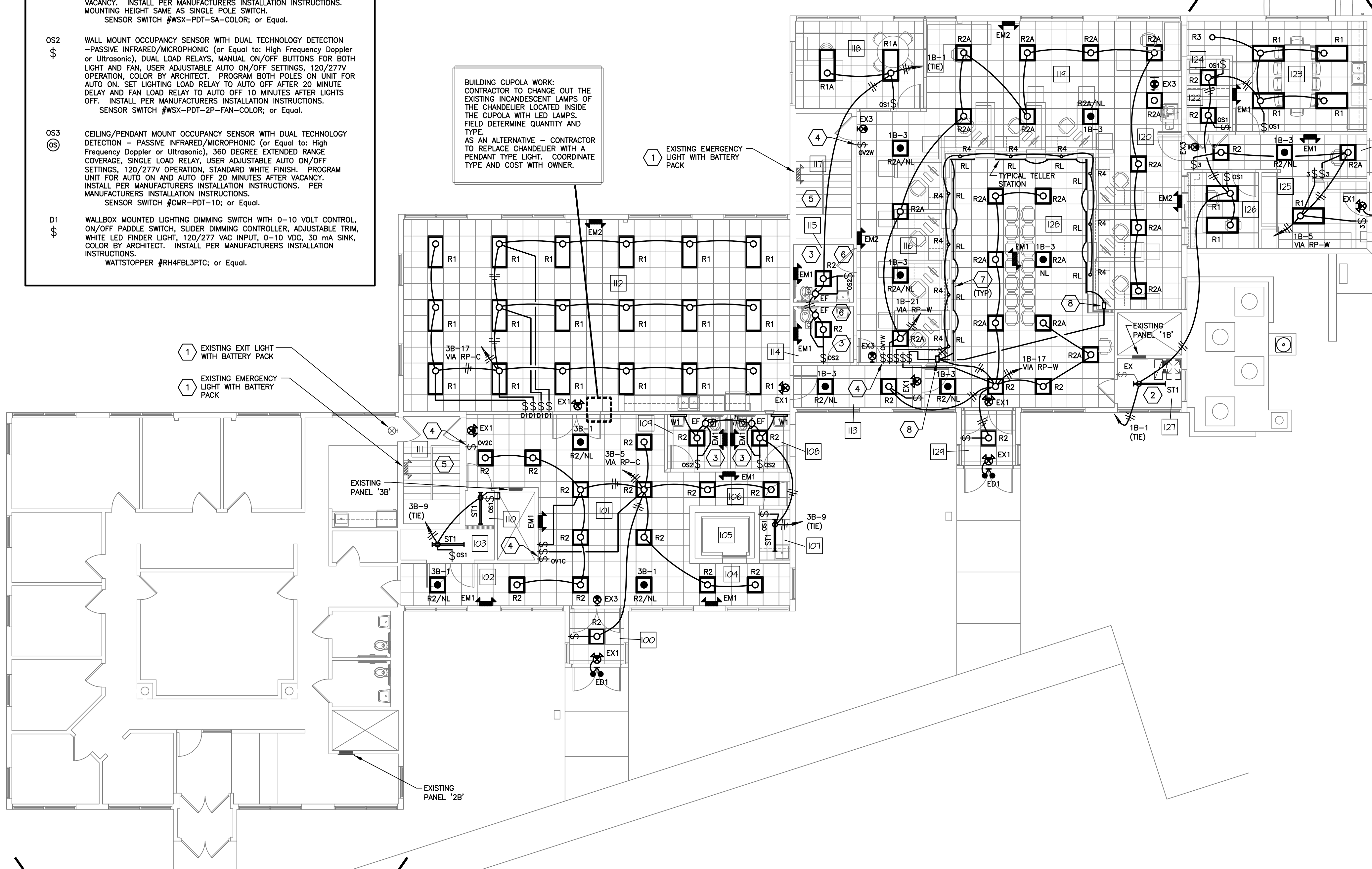


OVERALL LOWER LEVEL PLAN - LIGHTING  
DRAWING NUMBER  
EL2.0

### LIGHTING CONTROL SCHEDULE

- OS1  
\$ WALL SWITCH OCCUPANCY SENSOR WITH DUAL TECHNOLOGY DETECTION - PASSIVE INFRARED/MICROPHONIC (or Equal to: High Frequency Doppler or Ultrasonic), SINGLE LOAD RELAY, MANUAL ON/OFF CONTROL BUTTON, 120/277 VOLT OPERATION, COLOR BY ARCHITECT, DECORATOR STYLE. PROGRAM SWITCH FOR MANUAL ON AND AUTO OFF 20 MINUTES AFTER VACANCY. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS. MOUNTING HEIGHT SAME AS SINGLE POLE SWITCH.  
SENSOR SWITCH #WSX-PDT-SA-COLOR; or Equal.
- OS2  
\$ WALL MOUNT OCCUPANCY SENSOR WITH DUAL TECHNOLOGY DETECTION - PASSIVE INFRARED/MICROPHONIC (or Equal to: High Frequency Doppler or Ultrasonic), DUAL LOAD RELAYS, MANUAL ON/OFF BUTTONS FOR BOTH LIGHT AND FAN, USER ADJUSTABLE AUTO ON/OFF SETTINGS, 120/277V OPERATION, COLOR BY ARCHITECT. PROGRAM BOTH POLES ON UNIT FOR AUTO ON. SET LIGHTING LOAD RELAY TO AUTO OFF AFTER 20 MINUTE DELAY AND FAN LOAD RELAY TO AUTO OFF 10 MINUTES AFTER LIGHTS OFF. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS.  
SENSOR SWITCH #WSX-PDT-2P-FAN-COLOR; or Equal.
- OS3  
Ⓢ CEILING/PENDANT MOUNT OCCUPANCY SENSOR WITH DUAL TECHNOLOGY DETECTION - PASSIVE INFRARED/MICROPHONIC (or Equal to: High Frequency Doppler or Ultrasonic), 360 DEGREE EXTENDED RANGE COVERAGE, SINGLE LOAD RELAY, USER ADJUSTABLE AUTO ON/OFF SETTINGS, 120/277V OPERATION, STANDARD WHITE FINISH. PROGRAM UNIT FOR AUTO ON AND AUTO OFF 20 MINUTES AFTER VACANCY. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS. PER MANUFACTURERS INSTALLATION INSTRUCTIONS.  
SENSOR SWITCH #CMR-PDT-10; or Equal.
- D1  
\$ WALLBOX MOUNTED LIGHTING DIMMING SWITCH WITH 0-10 VOLT CONTROL, ON/OFF PADDLE SWITCH, SLIDER DIMMING CONTROLLER, ADJUSTABLE TRIM, WHITE LED FINDER LIGHT, 120/277 VAC INPUT, 0-10 VDC, 30 mA SINK, COLOR BY ARCHITECT. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS.  
WATTSTOPPER #RH4FBL3PTC; or Equal.

**BUILDING CUPOLA WORK:**  
CONTRACTOR TO CHANGE OUT THE EXISTING INCANDESCENT LAMPS OF THE CHANDELIER LOCATED INSIDE THE CUPOLA WITH LED LAMPS. FIELD DETERMINE QUANTITY AND TYPE.  
AS AN ALTERNATIVE - CONTRACTOR TO REPLACE CHANDELIER WITH A PENDANT TYPE LIGHT. COORDINATE TYPE AND COST WITH OWNER.



- 1 EXISTING EXIT LIGHT WITH BATTERY PACK
- 1 EXISTING EMERGENCY LIGHT WITH BATTERY PACK

**NO NEW LIGHTING WORK IN THIS AREA UNLESS SHOWN OTHERWISE**

**OVERALL UPPER LEVEL PLAN - LIGHTING**  
SCALE: 1/8" = 1'-0"

### LIGHTING GENERAL NOTES

- A. CONNECT EXIT AND EMERGENCY LIGHTS TO LOCAL LIGHTING CIRCUIT AHEAD OF SWITCHING.
- B. CONNECT EXIT DISCHARGE LIGHT 'ED1' TO EXIT LIGHT BATTERY PACK. EXIT DISCHARGE LIGHT TO OPERATE DURING POWER OUTAGE.

### LIGHTING CODED NOTES

1. FIELD VERIFY OPERATION OF EXIT AND EMERGENCY LIGHTS IN NORMAL AND EMERGENCY MODE. REPLACE IF NEEDED.
2. REPLACE EXISTING LIGHT WITH NEW. SWITCH LOCATION TO REMAIN. REPLACE SWITCH AND COVERPLATE WITH NEW.
3. OCCUPANCY SENSOR SWITCH TO SEPARATELY CONTROL LIGHTS AND EXHAUST FAN THRU RELAYS IN SWITCH. SEE LIGHTING CONTROL SCHEDULE.
4. INTERIOR LIGHTING TIMECLOCK/RELAY OVERRIDE SWITCH. SEE LIGHTING CONTROL WIRING DIAGRAMS. PROVIDE LABEL TO INDICATE USE.
5. EXISTING LIGHTS IN STAIRS TO REMAIN. CLEAN AND RELAMP. MAINTAIN EXISTING CIRCUITRY.
6. EXISTING CEILING IN ROOMS TO REMAIN.
7. CONCEALED LED TAPE LIGHT UNDER COUNTER FRONT LIP TO DIRECT LIGHT DOWN WALL TOWARDS FLOOR. SEE ARCHITECTURAL DETAILS FOR LOCATION. RUN WIRING HORIZONTALLY FROM TELLER STATION TO TELLER STATION CONCEALED BELOW FRONT COUNTER.
8. LED DRIVER FOR 'RL' LIGHTS. MOUNT ABOVE CEILING. BOTH 'RL' LIGHT DRIVERS TO BE CONTROLLED BY SAME SWITCH.

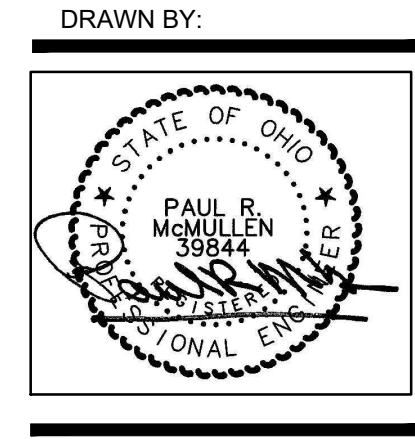
### LIGHT FIXTURE SCHEDULE

- R1 2'x4' RECESSED MOUNT LAY-IN GRID EDGE-LIT FLAT PANEL LED LIGHT FIXTURE WITH 4000 LUMEN, 3500K, 80 CRI LIGHT ENGINE, SATIN WHITE ACRYLIC DIFFUSER LENS, MULTI-VOLT (120/277 VOLT) ELECTRONIC DRIVER WITH 0-10V DIMMING (MIN. 10%), WHITE FINISH, (38 WATTS). LITHONIA #EPANL-2X4-4000LM-80CRI-35K-MIN10-ZT-MVOLT; or Equal.
- R1A 2'x4' RECESSED MOUNT LAY-IN GRID EDGE-LIT FLAT PANEL LED LIGHT FIXTURE WITH 6000 LUMEN, 3500K, 80 CRI LIGHT ENGINE, SATIN WHITE ACRYLIC DIFFUSER LENS, MULTI-VOLT (120/277 VOLT) ELECTRONIC DRIVER WITH 0-10V DIMMING (MIN. 10%), WHITE FINISH, (50 WATTS). LITHONIA #EPANL-2X4-6000LM-80CRI-35K-MIN10-ZT-MVOLT; or Equal.
- R2 2'x2' RECESSED MOUNT LAY-IN GRID EDGE-LIT FLAT PANEL LED LIGHT FIXTURE WITH 2000 LUMEN, 3500K, 80 CRI LIGHT ENGINE, SATIN WHITE ACRYLIC DIFFUSER LENS, MULTI-VOLT (120/277 VOLT) ELECTRONIC DRIVER WITH 0-10V DIMMING (MIN. 10%), WHITE FINISH, (19 WATTS). LITHONIA #EPANL-2X2-2000LM-80CRI-35K-MIN10-ZT-MVOLT; or Equal.
- R2A 2'x2' RECESSED MOUNT LAY-IN GRID EDGE-LIT FLAT PANEL LED LIGHT FIXTURE WITH 3400 LUMEN, 3500K, 80 CRI LIGHT ENGINE, SATIN WHITE ACRYLIC DIFFUSER LENS, MULTI-VOLT (120/277 VOLT) ELECTRONIC DRIVER WITH 0-10V DIMMING (MIN. 10%), WHITE FINISH, (30 WATTS). LITHONIA #EPANL-2X2-3400LM-80CRI-35K-MIN10-ZT-MVOLT; or Equal.
- R3 7" DIAMETER SEMI-RECESSED ULTRA-LOW PROFILE MOUNT LED LIGHT FIXTURE WITH 1000 LUMEN, 3500K, 90 CRI LIGHT ENGINE, ACRYLIC DIFFUSER, MULTI-VOLT (120/277 VOLT) ELECTRONIC DRIVER WITH 0-10V DIMMING CAPABILITY (MIN. 10%), STANDARD WHITE FINISH, WET LOCATION RATED, (13 WATTS). JUNO #JSF-7IN-10LM-35K-90CRI-MVOLT-ZT-WH; or Equal.
- R4 2" DIAMETER RECESSED OPEN DOWNLIGHT, 500 LUMEN, 3500K, CLEAR OPEN SEMI-SPECULAR REFLECTOR, 50 DEGREE BEAM ANGLE, 120 VOLT, 0-10 VOLT DIMMING BALLAST, 5.6 WATTS.  
INSTALLATION TO BE THE 1000 LUMEN AND BELOW INSTALL-FROM-BELOW TYPE.  
LITHONIA GOTHAM #IC02-35/05-AR-LSS-500-MVOLT-U02
- W1 24" WALL MOUNT SQUARE VANITY LED LIGHT FIXTURE WITH 1302 LUMEN, 3000K, 90+ CRI LIGHT ENGINE, WHITE ACRYLIC DIFFUSER, MULTI-VOLT (120/277 VOLT) ELECTRONIC DRIVER, BRUSHED NICKEL FINISH, (10 WATTS). SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT. LITHONIA #FMVTSL-24IN-MVOLT-30K-90CRI-BN; or Equal.
- ST1 4" SURFACE MOUNT LED STRIPLIGHT WITH 3000 LUMEN, 3500K, 80 CRI LIGHT ENGINE, DROPPED DIFFUSE ACRYLIC LENS, MULTI-VOLT (120/277 VOLT) ELECTRONIC DRIVER WITH 0-10V DIMMING, WHITE FINISH, (30 WATTS). LITHONIA #ZL1D-148-3000LM-FST-MVOLT-35K-80CRI; or Equal.
- S1 SURFACE MOUNTED EXTERIOR LED CANOPY LIGHT WITH 4000 LUMENS, DARK BRONZE HOUSING, ACRYLIC LENS, 4000K, 120 VOLT, 27 WATTS. LITHONIA #CNY-LED-PO-40K-MVOLT-DOB or equal
- RL SURFACE MOUNTED 24 VOLT LED TAPE LIGHT WITH SLM (SL) MOUNTING CHANNEL, FROSTED COVER LENS, 233 LUMENS PER FOOT, CUT POINTS EVERY 2", 36 LED CHIPS/FOOT, 2700K, 2.93 WATTS PER FOOT, 24 VOLT, TWO 90 WATT LED DRIVERS, TERMINAL BLOCK CONNECTORS, 120 VOLT INPUT, MOUNTING TAPE AND CLIPS.  
DIODE LED #DI-24V-BLBS02-27-480 INCH (LED TAPE) #DI-DM-MW-24V90W-0-10V-LPL (DRIVER) WITH ALL ACCESSORIES FOR A COMPLETE INSTALLATION.
- ED1 UNIVERSAL MOUNT DOUBLE-HEADED EXIT DISCHARGE LIGHT FIXTURE WITH (2) 1.0 WATT 3.6/6/9/6/12 VOLT (AUTO-SENSING) LED LAMPS, SEALED AND GASKETED THERMOPLASTIC SQUARE HEADS, ADJUSTABLE KNUCKLE, GREY FINISH, WET LOCATION RATING.  
LITHONIA #ERE-01-T-92-WP; or Equal.
- EX1 UNIVERSAL MOUNT COMBINATION EXIT AND EMERGENCY LIGHT FIXTURE WITH (2) ADJUSTABLE HEADS WITH 1.5 WATT 9.6 VOLT LED LAMPS, LED BACKLIT RED LETTERING, WHITE THERMOPLASTIC HOUSING, (2) FACE, (1) BACK PLATE, CANOPY, HIGH-OUTPUT SEALED NICKEL-CADMIUM BATTERY PACK (FOR 3 WATTS OF REMOTE CAPACITY AT 9.6 VOLTS), 120/277 VOLT INPUT (4.3 WATTS). NOTE DIRECTIONAL ARROWS ON PLAN, IF SHOWN.  
LITHONIA #LHM-LED-R-HO; or Equal.
- EX1 UNIVERSAL MOUNT EMERGENCY EXIT SIGN LIGHT FIXTURE WITH WHITE THERMOPLASTIC HOUSING, (2) FACE, (1) BACK PLATE, CANOPY, RED STENCILED LETTERS BACKLIT WITH LED LAMPS, SEALED NICKEL-CADMIUM BATTERY PACK, 120/277 VOLT INPUT (0.75 WATTS). NOTE DIRECTIONAL ARROWS ON PLAN, IF SHOWN.  
LITHONIA #LOM-S-W-3-R-120/277-EL-N; or Equal.
- EM1 UNIVERSAL MOUNT EMERGENCY LIGHT FIXTURE WITH (2) ADJUSTABLE HEADS WITH 1.2 WATT LED LAMPS (220 TOTAL DELIVERED LUMENS), WHITE THERMOPLASTIC HOUSING, SEALED NICKEL-CADMIUM BATTERY PACK, 120/277 VOLT INPUT (1.1 WATTS). WALL MOUNT AT 7'-6" AFF, UNLESS OTHERWISE NOTED.  
LITHONIA #ELM2L; or Equal.
- EM2 UNIVERSAL MOUNT EMERGENCY LIGHT FIXTURE WITH (2) ADJUSTABLE HEADS WITH 3.3 WATT LED LAMPS (640 TOTAL DELIVERED LUMENS), WHITE THERMOPLASTIC HOUSING, SEALED NICKEL-CADMIUM BATTERY PACK, 120/277 VOLT INPUT (3.2 WATTS). WALL MOUNT AT 7'-6" AFF, UNLESS OTHERWISE NOTED.  
LITHONIA #ELM4L; or Equal.

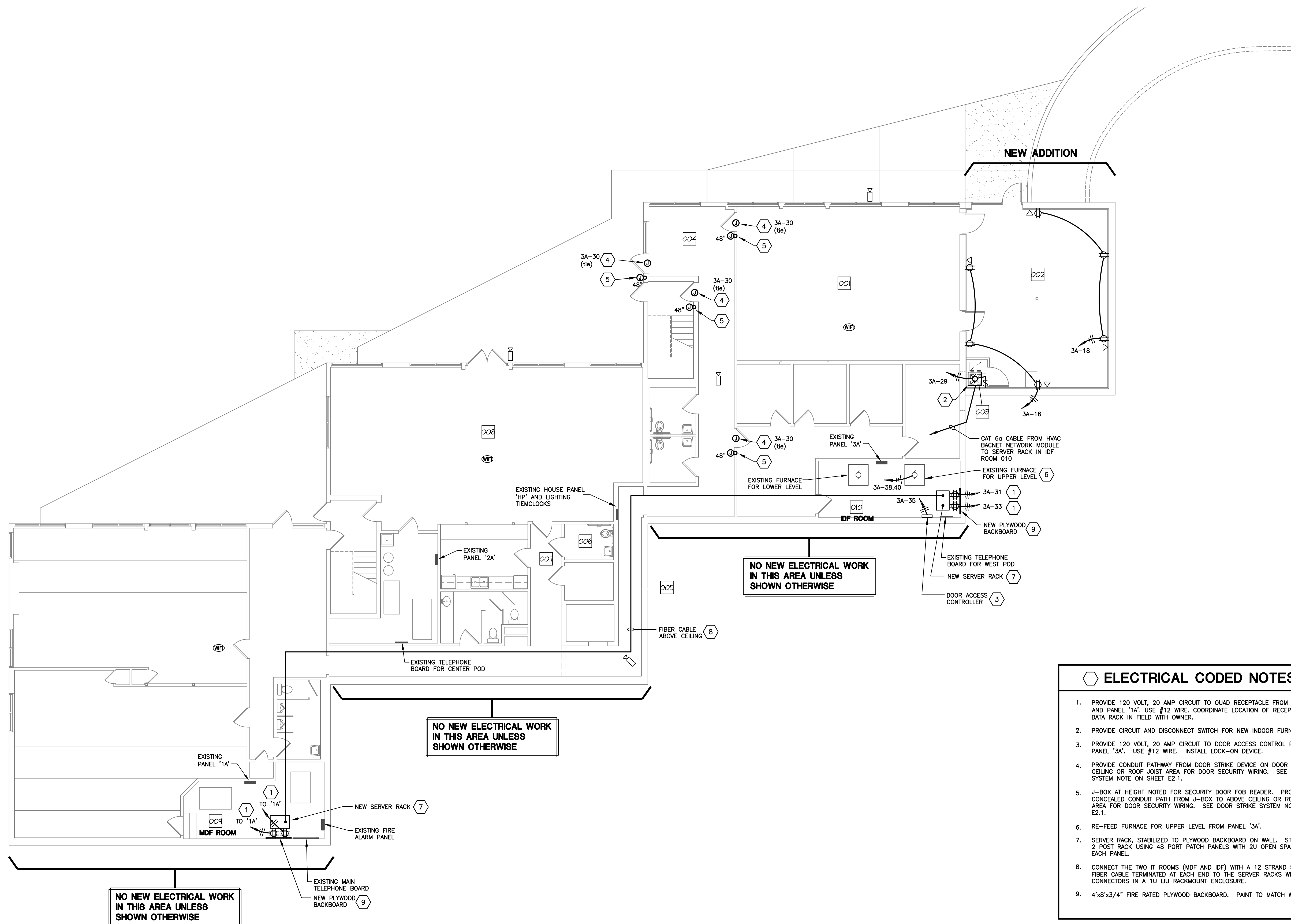
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DRAWN BY:  
**OVERALL UPPER LEVEL PLAN - LIGHTING**  
 DRAWING NUMBER  
**EL2.1**



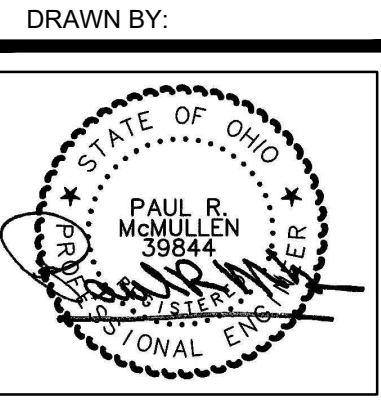
NORTH  
**OVERALL LOWER LEVEL PLAN - ELECTRICAL**  
 SCALE: 1/8" = 1'-0"

- ELECTRICAL CODED NOTES**
1. PROVIDE 120 VOLT, 20 AMP CIRCUIT TO QUAD RECEPTACLE FROM PANEL '3A' AND PANEL '1A'. USE #12 WIRE. COORDINATE LOCATION OF RECEPTACLES AT DATA RACK IN FIELD WITH OWNER.
  2. PROVIDE CIRCUIT AND DISCONNECT SWITCH FOR NEW INDOOR FURNACE.
  3. PROVIDE 120 VOLT, 20 AMP CIRCUIT TO DOOR ACCESS CONTROL PANEL FROM PANEL '3A'. USE #12 WIRE. INSTALL LOCK-ON DEVICE.
  4. PROVIDE CONDUIT PATHWAY FROM DOOR STRIKE DEVICE ON DOOR TO ABOVE CEILING OR ROOF JOIST AREA FOR DOOR SECURITY WIRING. SEE DOOR STRIKE SYSTEM NOTE ON SHEET E2.1.
  5. J-BOX AT HEIGHT NOTED FOR SECURITY DOOR FOB READER. PROVIDE 3/4" CONCEALED CONDUIT PATH FROM J-BOX TO ABOVE CEILING OR ROOF JOIST AREA FOR DOOR SECURITY WIRING. SEE DOOR STRIKE SYSTEM NOTE ON SHEET E2.1.
  6. RE-FEED FURNACE FOR UPPER LEVEL FROM PANEL '3A'.
  7. SERVER RACK, STABILIZED TO PLYWOOD BACKBOARD ON WALL. STANDARD 45U 2 POST RACK USING 48 PORT PATCH PANELS WITH 2U OPEN SPACE BETWEEN EACH PANEL.
  8. CONNECT THE TWO IT ROOMS (MDF AND IDF) WITH A 12 STRAND SINGLE-MODE FIBER CABLE TERMINATED AT EACH END TO THE SERVER RACKS WITH SC CONNECTORS IN A 1U 1U RACKMOUNT ENCLOSURE.
  9. 4'x8'x3/4" FIRE RATED PLYWOOD BACKBOARD. PAINT TO MATCH WALL COLOR.

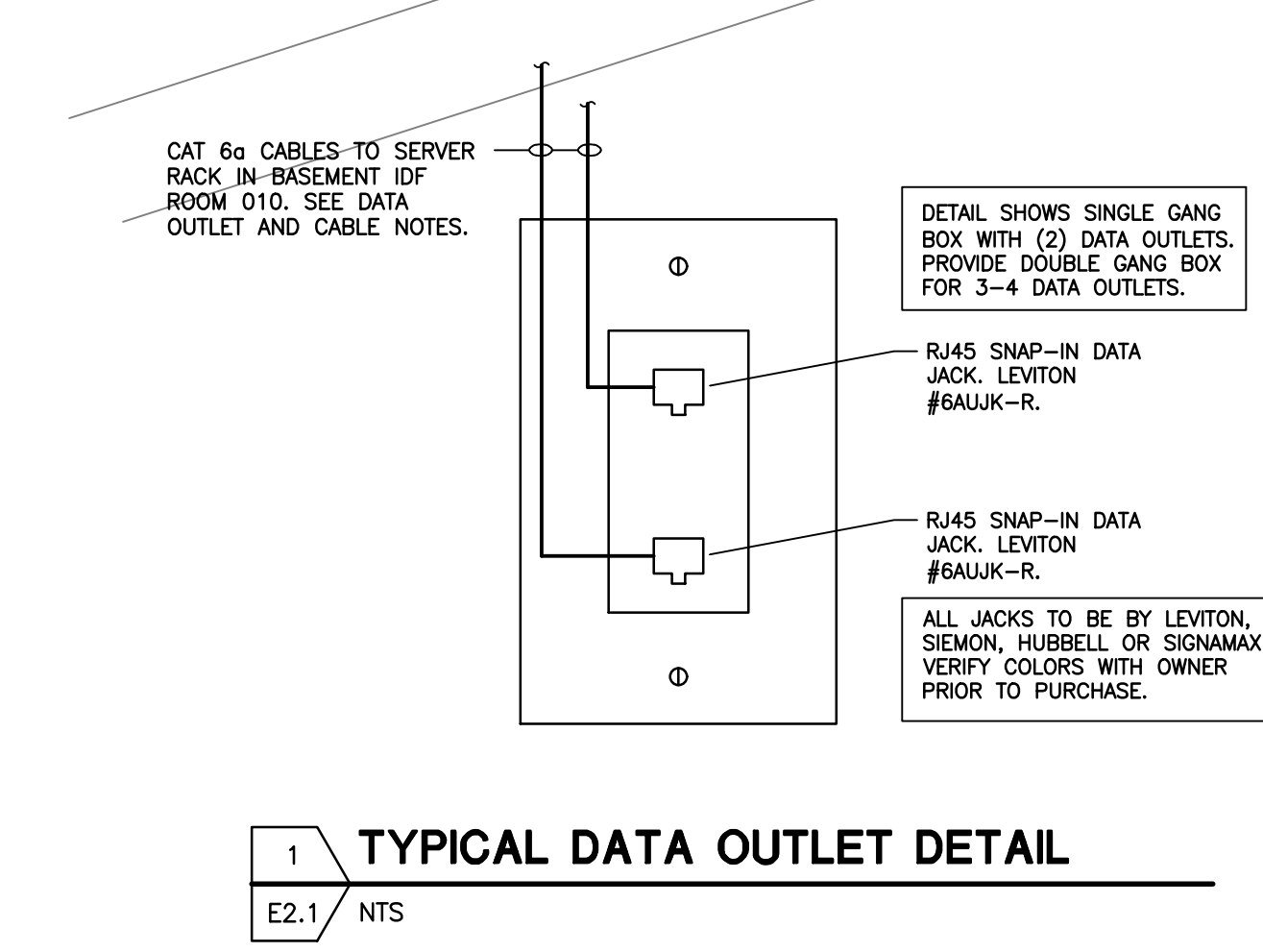
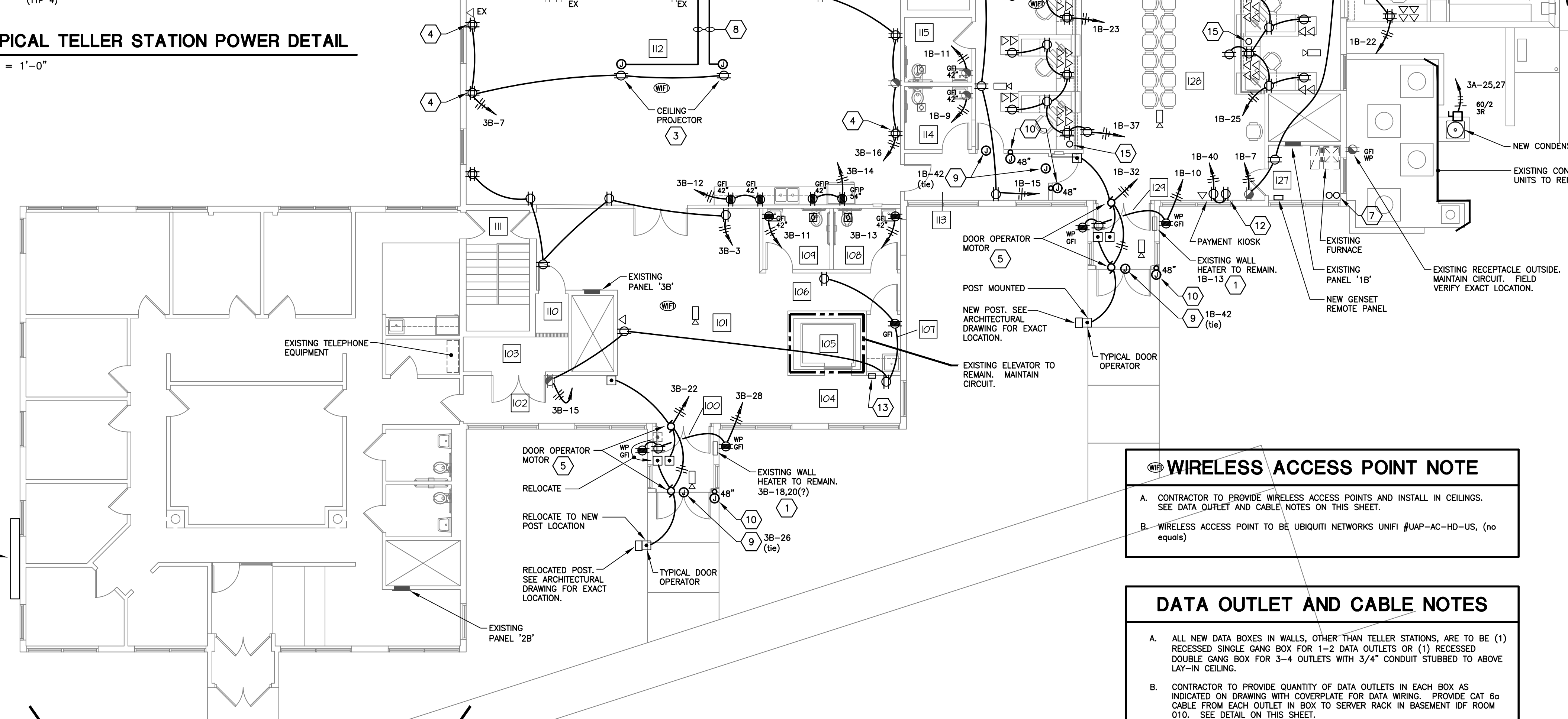
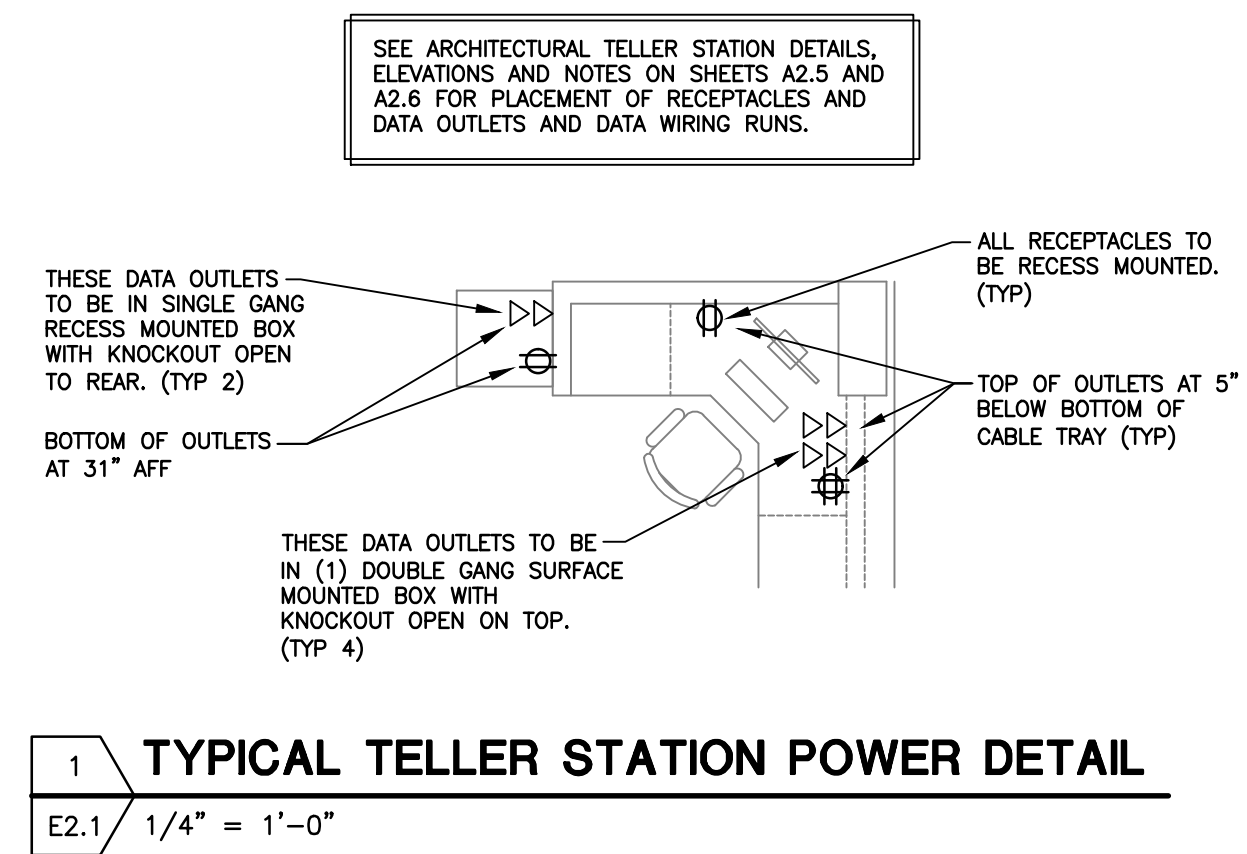
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OVERALL LOWER  
 LEVEL PLAN -  
 ELECTRICAL  
 DRAWING NUMBER  
**E2.0**



**WIRELESS ACCESS POINT NOTE**

A. CONTRACTOR TO PROVIDE WIRELESS ACCESS POINTS AND INSTALL IN CEILING. SEE DATA OUTLET AND CABLE NOTES ON THIS SHEET.

B. WIRELESS ACCESS POINT TO BE UBQUITI NETWORKS UNIFI #UAP-AC-HD-US, (no equals)

**DATA OUTLET AND CABLE NOTES**

A. ALL NEW DATA BOXES IN WALLS, OTHER THAN TELLER STATIONS, ARE TO BE (1) RECESSED SINGLE GANG BOX FOR 1-2 DATA OUTLETS OR (1) RECESSED DOUBLE GANG BOX FOR 3-4 OUTLETS WITH 3/4" CONDUIT STUBBED TO ABOVE LAY-IN CEILING.

B. CONTRACTOR TO PROVIDE QUANTITY OF DATA OUTLETS IN EACH BOX AS INDICATED ON DRAWING WITH COVERPLATE FOR DATA WIRING. PROVIDE CAT 6a CABLE FROM EACH OUTLET IN BOX TO SERVER RACK IN BASEMENT IDF ROOM 010. SEE DETAIL ON THIS SHEET.

C. PROVIDE CAT 6a CABLES FROM ALL CAMERAS, WI-FI ACCESS POINTS, DOOR ACCESS CONTROL PANEL AND NEW ADDITION HVAC BAGNET NETWORK MODULE TO SERVER RACK IN BASEMENT IDF ROOM 010. COIL 10' EXTRA CABLE ABOVE CEILING AT ALL CAMERA LOCATIONS. CAMERAS BY OWNER.

D. RUN ALL DATA CABLES, OTHER THAN TELLER STATION CABLES, ABOVE UPPER LEVEL CEILING AND PROVIDE CABLE SUPPORTS FROM ROOF STRUCTURE. DO NOT RUN ON LAY-IN CEILING. DROP TO ABOVE LOWER LEVEL CEILING THRU CORE DRILLED HOLES WHERE NOTED ON DRAWING IN ROOM 127.

E. RUN TELLER STATION CABLES IN CABLE TRAY PROVIDED BY G.C. TO TELLER STATIONS #1, #6 AND #10 WHERE THE CABLES WILL DROP TO ABOVE THE LOWER LEVEL CEILING THRU CORE DRILLED HOLES.

F. CAT 6a CABLE RUNS, TESTED AND TERMINATED BOTH AT THE WALL JACK AND THE PATCH PANEL. PROVIDE IDENTIFICATION LABELS AT EACH END OF CABLES. IN IDF ROOM 010 TERMINATE IN SERVER RACK AS FIELD DIRECTED BY OWNER. COORDINATE WITH OWNER'S IT REPRESENTATIVE PRIOR TO INSTALLATION OF OUTLETS, CABLES, RACKS OR TERMINATIONS.

G. PROVIDE PLASTIC BUSHINGS ON BOTH ENDS OF EACH CONDUIT SLEEVE THRU FLOOR.

H. SEE NOTES ON SHEET E2.0 FOR CONTRACTOR PROVIDED SERVER RACK INFORMATION.

**DOOR STRIKE ACCESS SYSTEM NOTE**

A. A NEW COMPLETE SECURITY DOOR STRIKE ACCESS SYSTEM WILL BE PURCHASED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. CONTRACTOR TO PROVIDE ALL WIRING AS NEEDED FOR A COMPLETE INSTALLATION. CONTRACTOR TO PROVIDE CONDUITS ON/IN WALLS AS NOTED AND NEEDED FOR DOOR STRIKE DEVICES AND FOB READERS. WIRING TO RUN ABOVE CEILING FROM DOORS TO DOOR ACCESS CONTROLLER IN LOWER LEVEL IDF ROOM 010. SYSTEM IS TO INCLUDE ELECTRIFIED DOOR HARDWARE AND HINGES AS NEEDED FOR SYSTEM.

B. DOOR STRIKE/ACCESS SYSTEM SHALL BE BY LENE. THE SYSTEM VENDOR MUST BE A LEVEL CERTIFIED CONTRACTOR. CONTRACTOR TO PROVIDE SHOP DRAWINGS TO THE ARCHITECT AND COUNTY PRIOR TO PURCHASING. SEE DOOR ACCESS/STRIKE SYSTEM DETAIL ON SHEET E3.3.

**ELECTRICAL GENERAL NOTES**

A. REPLACE RECEPTACLES THAT ARE SHOWN AS EXISTING TO REMAIN WITH NEW DEVICE AND COVERPLATES. STANDARD RECEPTACLE OR GFI TYPE IF NOTED.

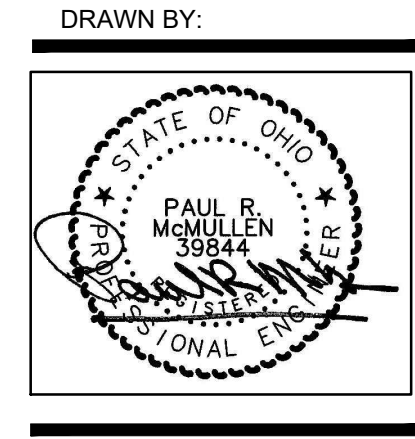
B. ALL NEW RECEPTACLES, BACKBOXES FOR DOOR OPERATOR PUSHBUTTONS, FOB READERS, ETC ON EXTERIOR WALLS OF BUILDING SHALL HAVE THE CONDUIT RUN FROM INSIDE THE BUILDING TO THE OUTLET. NO EXTERIOR EXPOSED CONDUITS ARE ACCEPTABLE.

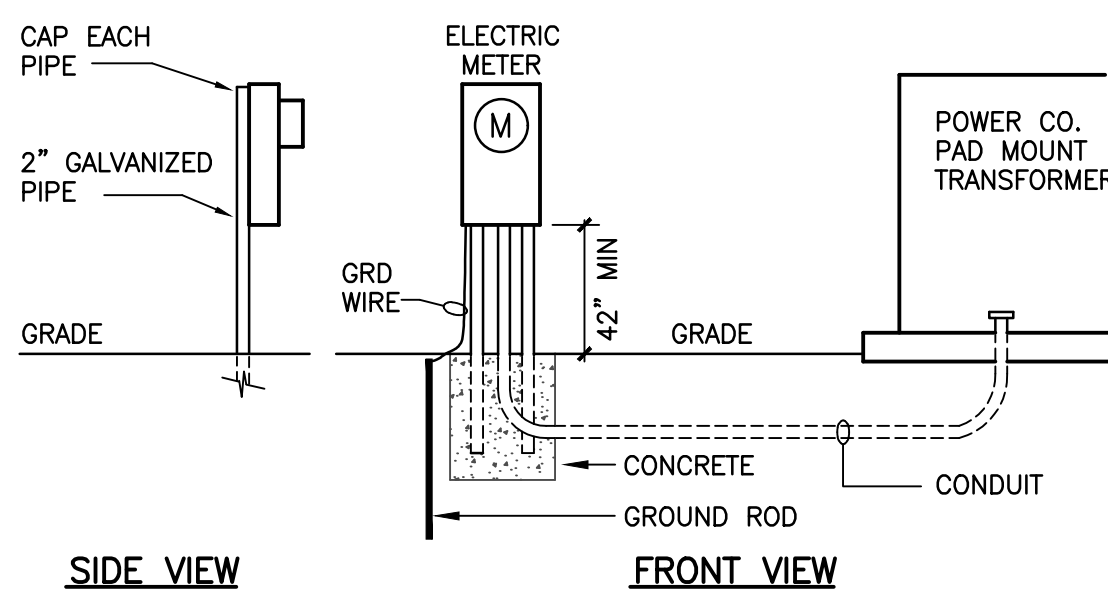
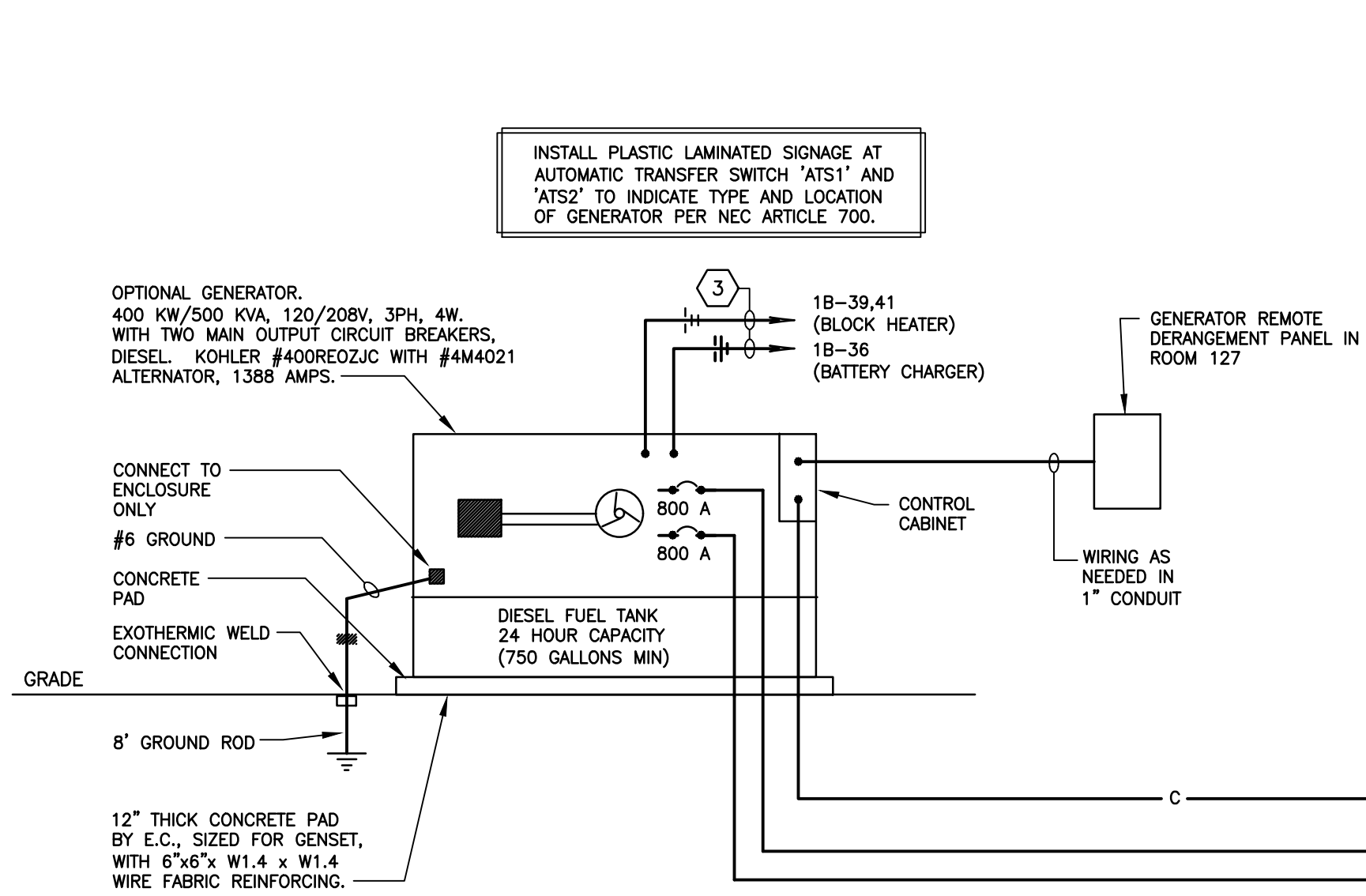
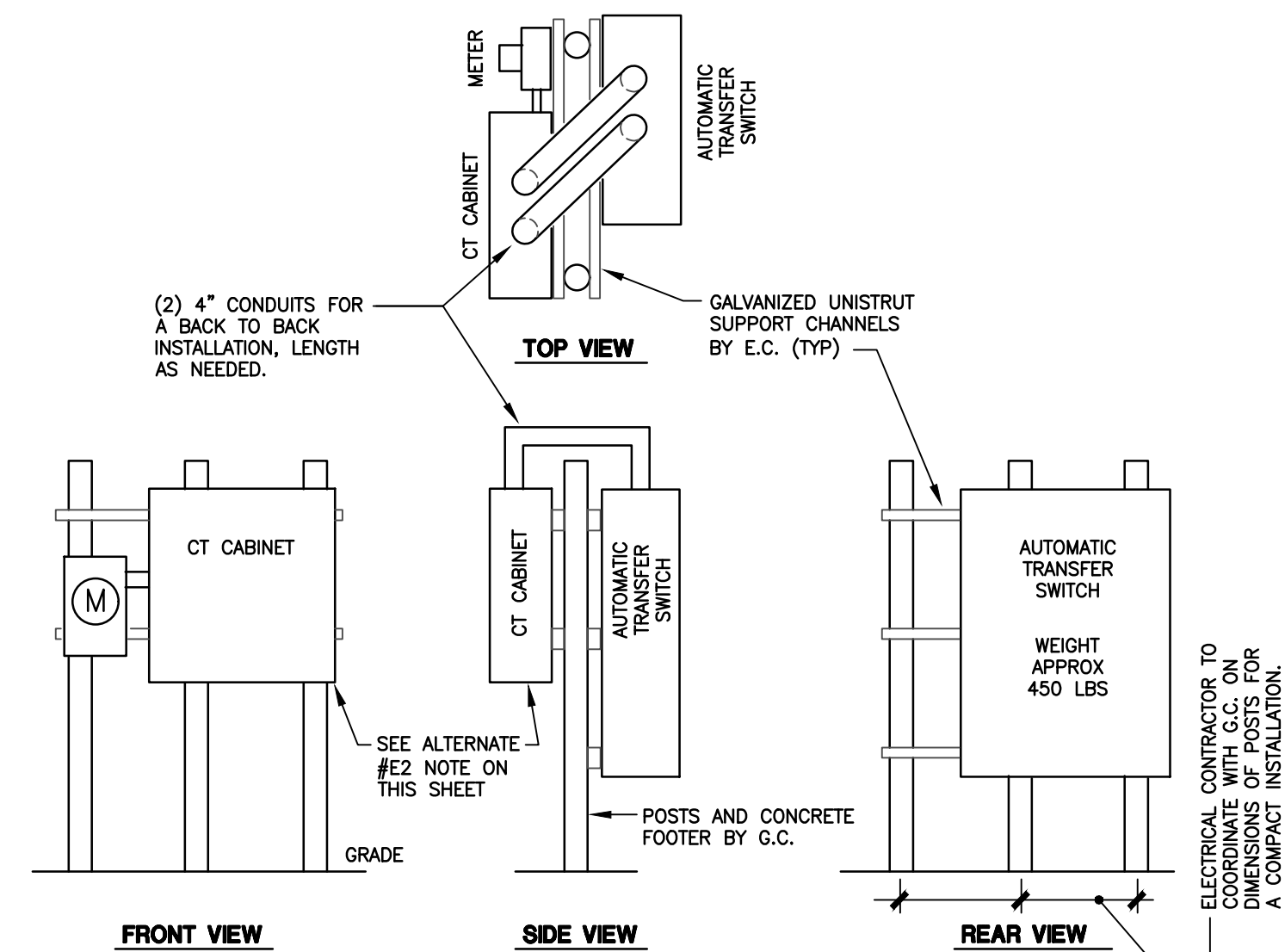
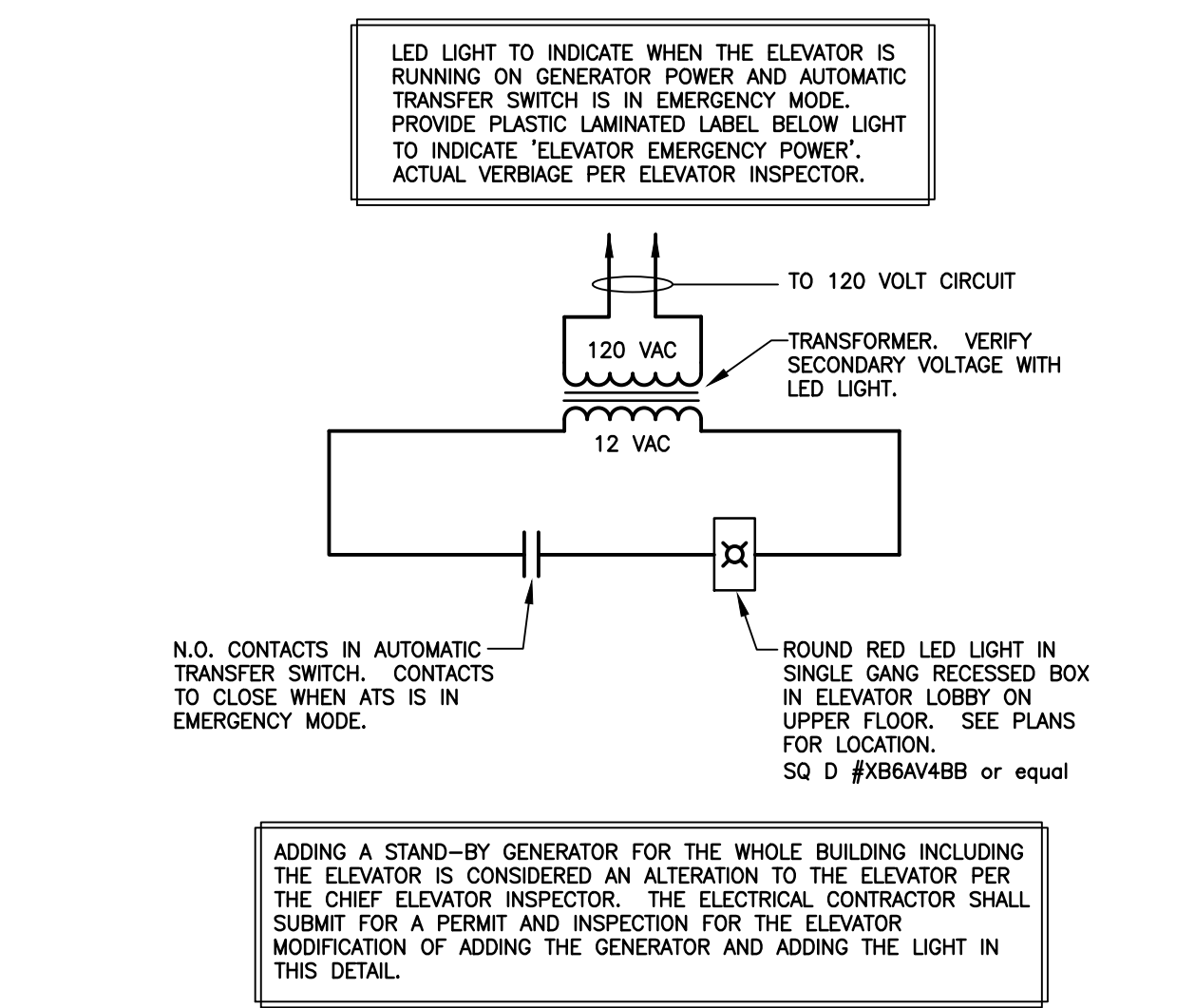
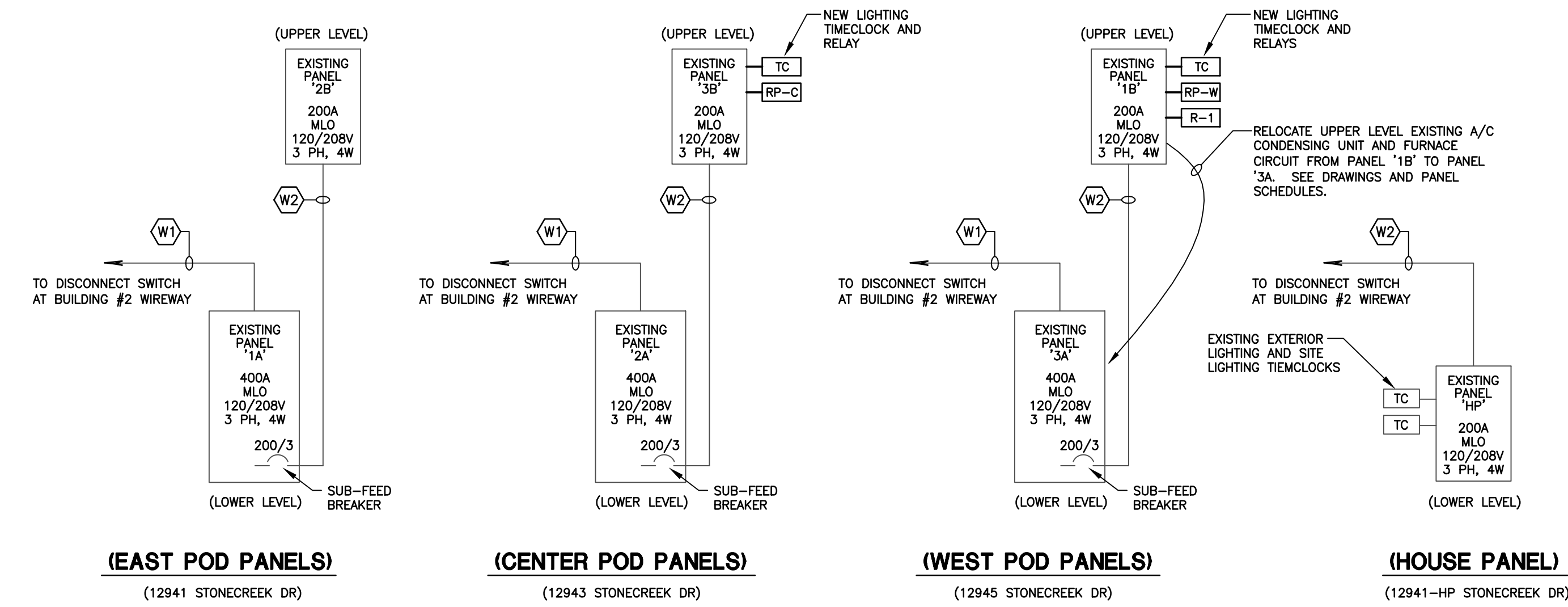
**ELECTRICAL CODED NOTES**

- MAINTAIN CIRCUIT TO ELECTRIC HEATER. CLEAN INSIDE AND OUTSIDE.
- PROVIDE CIRCUIT AND DISCONNECT SWITCH FOR HVAC UNIT.
- INSTALL RECEPTACLE IN CEILING WITH FACE DOWN FOR PROJECTOR. FIELD COORDINATE EXACT PLACEMENT WITH OWNER/PROJECTOR INSTALLER.
- REPLACE EXISTING DUPLEX RECEPTACLE WITH QUAD RECEPTACLE.
- PROVIDE CIRCUIT TO DOOR OPERATOR MOTOR. WIRE DOOR CONTROLS PROVIDED WITH DOOR.
- COORDINATE EXACT LOCATION OF RECEPTACLE WITH CABINTRY TO PLACE BEHIND DISHWASHER. CIRCUIT FED FROM GFI BREAKER.
- (2) 4" EMT CONDUITS THRU FLOOR FOR DATA WIRING ACCESS TO LOWER LEVEL. CORE DRILL OPENINGS THRU CONCRETE FLOOR BY G.C. CONDUITS TO BE 6" ABOVE UPPER LEVEL FLOOR AND STUBBED DOWN 12" BELOW FLOOR INTO CEILING SPACE OF LOWER LEVEL. AFTER DATA CABLES ARE FULLY INSTALLED PROVIDE FIRE STOP MATERIAL IN CONDUITS BETWEEN FLOORS.
- 1-1/4" CONDUIT ABOVE CEILING FROM PROJECTOR LOCATION TO WALL J-BOX FOR DATA CABLES. FACE J-BOX AT PROJECTOR FACE DOWN IN CEILING. PROVIDE BLANK COVERPLATE AT J-BOXES AT EACH END.
- PROVIDE CONDUIT PATHWAY FROM DOOR STRIKE DEVICE ON DOOR TO ABOVE CEILING OR ROOF JOIST AREA FOR DOOR SECURITY WIRING. SEE DOOR STRIKE SYSTEM NOTE.
- J-BOX AT HEIGHT NOTED FOR SECURITY DOOR FOB READER. PROVIDE 3/4" CONCEALED CONDUIT PATH FROM J-BOX TO ABOVE CEILING OR ROOF JOIST AREA FOR DOOR SECURITY WIRING. SEE DOOR STRIKE SYSTEM NOTE.
- COORDINATE EXACT LOCATION OF MICROWAVE RECEPTACLE WITH CABINTRY AND ARCHITECTURAL ELEVATIONS TO CONCEAL BEHIND MICROWAVE. CIRCUIT FED FROM GFI BREAKER.
- RECEPTACLE ABOVE THE WINDOW OR IN CEILING FACING DOWN FOR THE 'TAKE A NUMBER' MACHINE.
- INDICATOR LIGHT THAT ELEVATOR IS ON GENERATOR POWER. MOUNT IN RECESSED BOX. SEE ELECTRIC RISER DIAGRAM AND WIRING DIAGRAM ON SHEET E3.0. MOUNT LIGHT AT 60" AFF.
- FIELD VERIFY CONDENSING UNIT FOR WEST POD UPPER LEVEL AND RE-FEED FROM PANEL '3A'. CIRCUIT NUMBER AS SHOWN.
- DATA CABLES FOR TELLER STATIONS TO DROP TO LOWER LEVEL AT THIS LOCATION THRU G.C. PROVIDED CORE DRILL HOLES. PROVIDE (1) 3" EMT CONDUIT SLEEVE. CONDUITS TO BE 8" ABOVE UPPER LEVEL FLOOR AND STUBBED DOWN 12" BELOW FLOOR INTO CEILING SPACE OF LOWER LEVEL. AFTER DATA CABLES ARE FULLY INSTALLED PROVIDE FIRE STOP MATERIAL IN CONDUITS BETWEEN FLOORS. SEE ARCHITECTURAL DRAWING A2.5 FOR EXACT LOCATION OF OPENINGS IN FLOOR.

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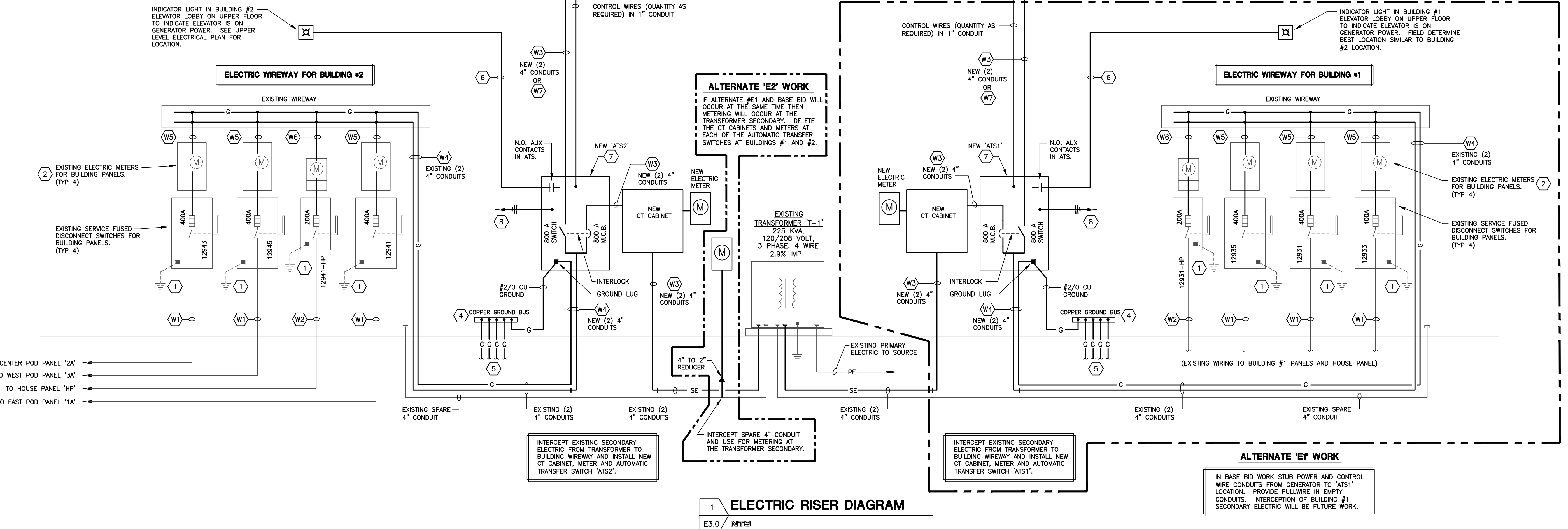
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- RISER WIRING NOTES**
- EXISTING 400 AMP WIRING WITH GROUND TO REMAIN.
  - EXISTING 200 AMP WIRING WITH GROUND TO REMAIN.
  - NEW 800 AMP WIRING: (2) SETS (4) #500 COPPER IN NEW AND/OR EXISTING CONDUITS. (2 PARALLEL RUNS)
  - NEW 800 AMP WIRING: (2) SETS (4) #500 COPPER WITH #1/0 COPPER GROUND IN NEW AND EXISTING CONDUITS. (2 PARALLEL RUNS)
  - NEW 400 AMP WIRING: (4) #500 COPPER WITH #3 COPPER GROUND IN EXISTING 4" CONDUIT.
  - NEW 200 AMP WIRING: (4) #3/0 COPPER WITH #6 COPPER GROUND IN EXISTING 2" CONDUIT.
  - NEW 800 AMP WIRING: (3) SETS OF (4) #400 ALUMINUM IN 4" CONDUIT. (3 PARALLEL RUNS)

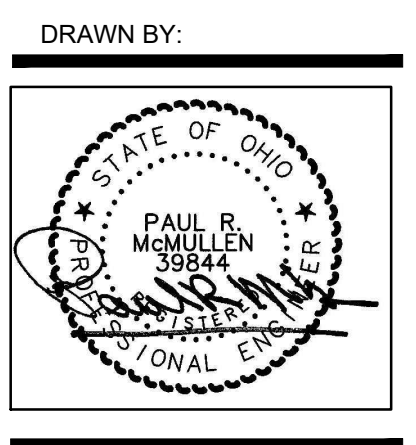
- RISER CODED NOTES**
- REMOVE EXISTING SERVICE GROUND AT EXISTING ELECTRIC SERVICE DISCONNECT. NEW SERVICE GROUND WILL BE AT AUTOMATIC TRANSFER SWITCH.
  - REMOVE METER AND USE METER ENCLOSURE AS A PULLBOX. INSTALL METAL GASKETED COVER OVER OPENING.
  - RUN CIRCUITS IN A SEPARATE 1" CONDUIT TO ELECTRIC PANEL. SEE SITE PLAN SU-1 FOR ROUTING.
  - INSTALL GROUND BAR INSIDE ASSOCIATED BUILDING IN CLOSEST MECHANICAL ROOM AND PROVIDE LABEL.
  - ELECTRIC SERVICE GROUND (COPPER WIRE). #2/0 WIRE TO BUILDING STEEL, #2/0 WIRE TO WATER SERVICE PIPE, #6 WIRE TO (2) NEW GROUND RODS AT WIREWAY, #6 WIRE TO MAIN TELEPHONE BACKBOARD LOCATION.
  - RUN WIRING FROM N.O. CONTACT IN AUTOMATIC TRANSFER SWITCH TO INDICATOR LIGHT IN ELEVATOR LOBBY. RUN WIRES IN 1" CONDUIT. RUN BELOW GRADE INTO BUILDING AND THEN CONCEALED ABOVE CEILING. FIELD DETERMINE BEST ROUTING. SEE WIRING DIAGRAM ON THIS SHEET.
  - SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH. 800 AMP, 120/208 VOLT, 4 POLE WITH SWITCHED NEUTRAL, WITH 80% RATED BREAKER ON UTILITY SIDE AND DISCONNECT SWITCH ON GENERATOR SIDE. 65,000 AIC. NEMA 3R. PROVIDE (2) N.O. AND (2) N.C. CONTACTS, MPAC 1500 CONTROLLER. STRIP HEATER. KOHLER #KEP-D-C-V-C-0800-S-N-K
  - PROVIDE 120 VOLT, 15 AMP CIRCUIT TO AUTOMATIC TRANSFER SWITCH FOR CONDENSATE STRIP HEATER INSIDE ATS.



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RISER AND  
DETAILS  
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**E3.0**





ELECTRICAL SPECIFICATIONS

DIVISION 16 ELECTRICAL SPECIFICATIONS
16000 GENERAL ELECTRICAL PROVISIONS
A. Provide electrical work as shown and specified. Furnish all material and labor to complete and leave in working order all items of work indicated including any minor items of work necessary to provide a complete and fully operative lighting and electrical system.

H. Any existing conduits and raceway stubbed out of floors or walls that are not reused shall be cut off flush and sealed in such a manner so as to prevent moisture penetration.
I. The removal of equipment shall be done with care so as not to affect the structure or cause excessive patching.
16100 ELECTRICAL SERVICE SYSTEM
A. Electric service is existing 120/208 volt, 3 phase, 4 wire and is to remain.

G. Provide all starters unless indicated as furnished by others. Starters shall be combination fused disconnect type with on/off switch (HOA if required), control transformer, overloads, indicating lights, 2 aux reversible contacts. Manual starters shall have on/off (HOA if required) switch, overload indicating light.
16230 METAL CLAD CABLE
A. The Contractor, at his option, may use metal clad cable type 'MC' (no BX or Type AC acceptable) for branch circuits when following conditions are met:
1. Approved by local code jurisdiction.
2. Maximum 20 AMP branch circuits.
3. #12 or #10 stranded copper conductors with THHN insulation including an insulated ground.

C. Provide all lamps as indicated on drawings.
D. Locate and aim adjustable fixtures as directed by the Owner's representative.
16600 TEMPERATURE CONTROL
A. Unless otherwise indicated on the plans, all conduit, wiring, boxes, etc., for temperature controls shall be furnished and installed by the HVAC Contractor.
16704 FIRE ALARM SYSTEM (ADDRESSABLE)
A. The fire alarm system is existing and is to remain. Relocate fire alarm devices and provide new as shown on drawings. Connect to existing fire alarm system. All new fire alarm devices are to match existing and be by same manufacturer. All equipment shall be as listed by Underwriters' Laboratories.
16800 DATA SYSTEM WIRING
A. Provide data outlets and CAT6a cables as described on drawings.

H. Generator set shall start all motor loads shown, with a maximum voltage dip of 20% as measured on a light beam galvanometer at the generator terminals. Generator voltage shall then recover to 100% in less than 5 seconds.
I. Generator shall be salient-pole, 10 lead re-connectable, self-ventilated, of drip proof construction, with built-in exciter. Radio interference suppression meeting commercial standards shall be supplied. Voltage regulator shall match the characteristics of the generator and engine. Temperature rise shall be within NEMA, IEEE and ANSI standards for continuous duty temperature rise limits at all output ratings. Generator, having a single, maintenance free bearing, shall be direct connected to engine.
J. Plant mounted controller shall have a Level 1 rating and be vibration isolated on the generator frame. It shall include the following: factory installed, wired and tested by the manufacturer:
1. Run-off/Reset-Auto switch
2. Remote start/stop, 12 volt
3. Overcranking protection designed to open the cranking circuit if engine does not start after 30-90 seconds, with cranking reset button.

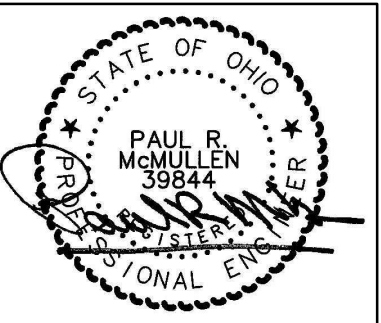
6. Adjustable time delay for transferring from emergency to normal power, 1-60 minutes.
7. Adjustable time delay for engine cool down after ATS transfers from emergency to normal power, 1-60 minutes.
8. Solid state plant exciter with load/no load selector switch for auto exercise of generator and transfer switch 15 minutes every 14 days.
9. Pilot lights indicating position of automatic transfer switch and test switch. U.L. listed.
11. Transfer switch to have a programmed transition operation with a time delay in the middle (neutral) position between normal power and emergency power connections to allow for decay of motor currents before connecting to normal or emergency power sources.
Transfer switches to be rated for withstand and closing rating (WCR) for available fault current as noted on drawings. Transfer switches to be 3 cycle (0.05 sec), 'any breaker', rated for fault current. 'Series' or 'specific breaker' rated switches are not acceptable.
The service entrance rated automatic transfer switch shall automatically transfer the load to the generator supply in the event of a utility supply failure and return the load to the utility supply upon restoration. The transfer switch shall incorporate an isolating mechanism and over current protection on the utility supply to allow operation as the main services disconnect in accordance with NEC requirements. The transfer switch power switching devices shall be mechanically and electrically interlocked to prevent the utility and generator supplies from being interconnected.
Transfer switch shall be Kohler, Onan, ASCO or Russel Electric with some accessories.
V. Furnish and install a unit mounted fuel tank, sizes as shown on drawings. Unit to be complete with fuel level gauge, low fuel alarm and leak detection.
W. Fuel tank shall have an audible alarm when tank reaches 90% of capacity and a solenoid shut-off valve at filler tube to stop the flow of fuel to the tank when the tank reaches 98% of capacity. Provide overspill container at filler tube that is capable of draining into fuel tank if fuel spill occurs when solenoid valve closes. Generator shall be independently supported to avoid no use tank as support base. Design of tank shall incorporate a double wall design. Meet all requirements of NFPA 30 and 30A.
X. Install emergency generator, transfer switch(es), batteries, charger and all power and control wiring associated with generator unit to provide a complete operational system.
Y. Factory-trained representative shall consult with Contractor during installation and start-up and shall fully instruct Owner's personnel in correct operating, test procedures and recommended maintenance.
Z. The generator shall be run under load a minimum of two hours in the presence of the Architect, the Engineer and the Owner.
AA. The fuel tank shall be completely filled after testing and prior to acceptance by the owner.
AB. Provide standard 2 year warranty on generator set.

THE REMODELING OF THE OU PICKERINGTON CENTER FOR THE FAIRFIELD COUNTY COMMISSIONERS. THE FAIRFIELD CENTER 12941, 12943 & 12945 STONECREEK DRIVE PICKERINGTON, OHIO 43147

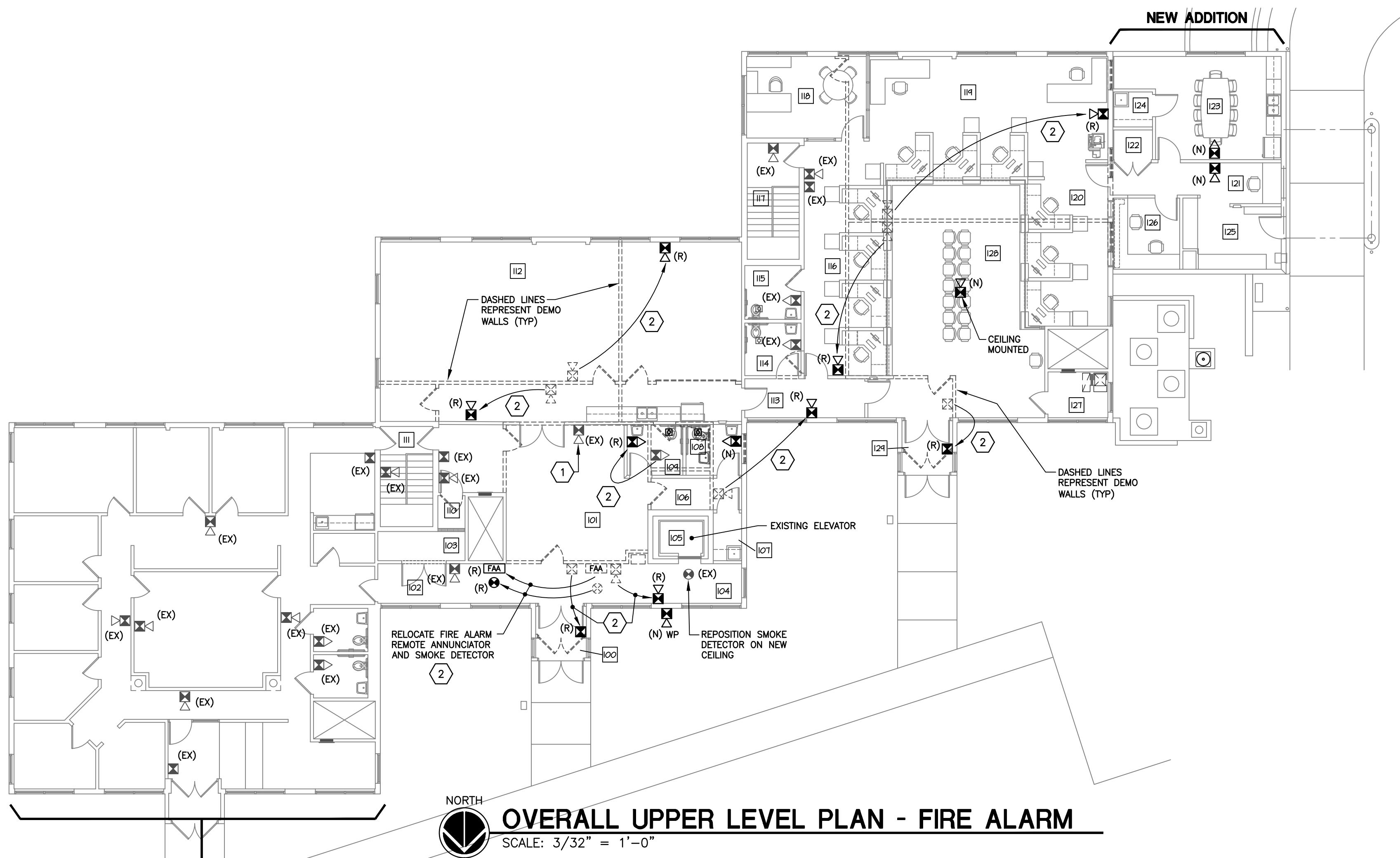
McMULLEN ENGINEERING CO., INC. MECHANICAL AND ELECTRICAL ENGINEERS 100 South State Street, Westerville, Ohio 43081 614-895-9408 FAX: 614-895-9450 E-Mail: mce@mcmulleneng.com Web: http://www.mcmulleneng.com

Table with 3 columns: ISSUE, MARK, DATE. Row 1: BID, 5-5-22

Table with 3 columns: ISSUE, MARK, DATE. Rows 1-15 with various issue numbers and dates.



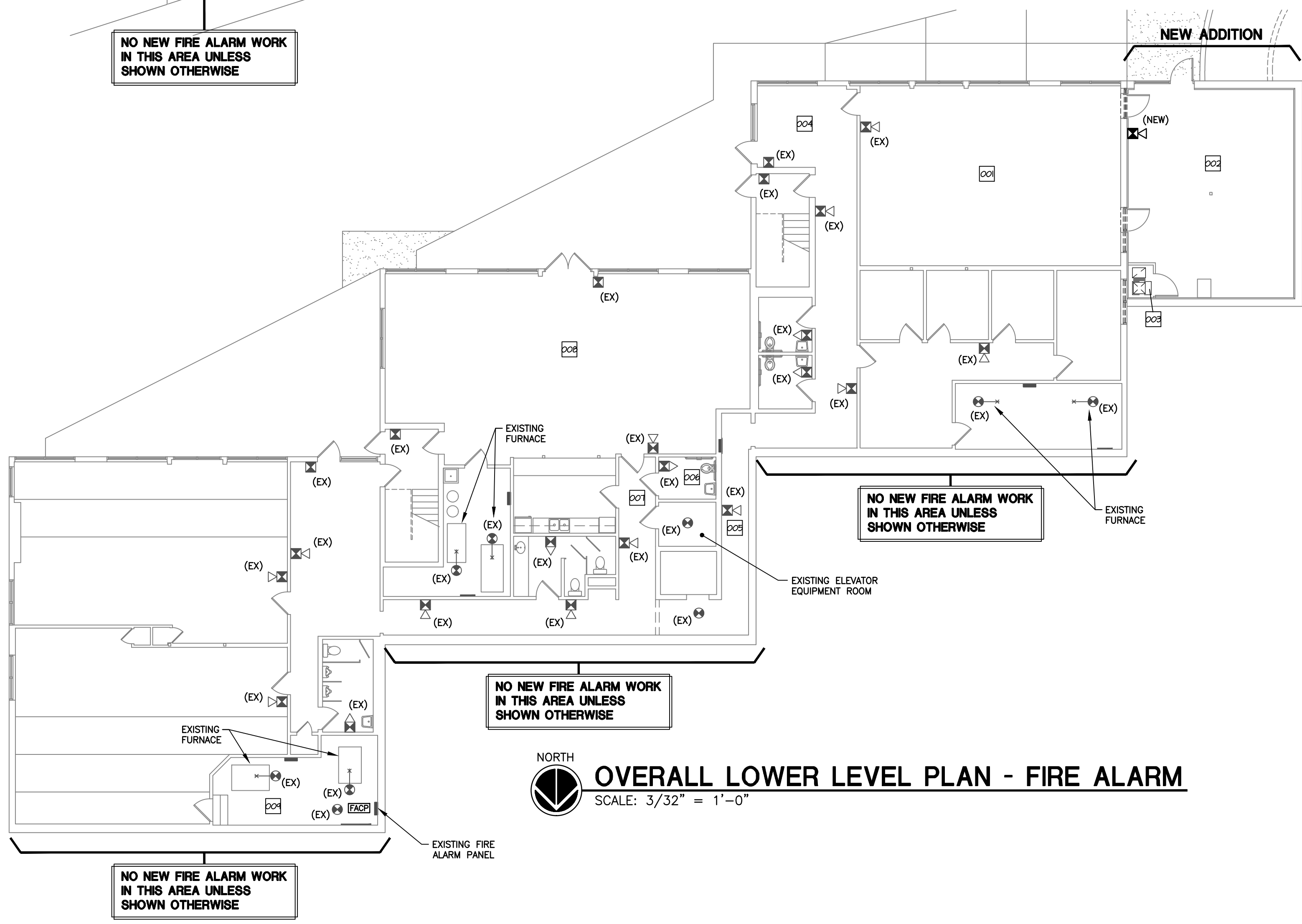
ELECTRICAL SPECIFICATIONS DRAWING NUMBER E4.0



FIRE ALARM LEGEND	
	FIRE ALARM CONTROL PANEL
	FIRE ALARM PULL STATION, M.H. 48" AFF
	FIRE ALARM HORN/STROBE
	FIRE ALARM STROBE (ONLY)
	SMOKE DETECTOR
	SMOKE DETECTOR, DUCT MOUNTED
	HEAT DETECTOR, NUMBER INDICATES TEMPERATURE IN DEGREES FAHRENHEIT
	FIRE ALARM ANNUNCIATOR PANEL
(EX)	EXISTING FIRE ALARM DEVICE TO REMAIN
(R)	RELOCATED FIRE ALARM DEVICE
(N)	NEW FIRE ALARM DEVICE
DASHED DEVICES ARE TO BE DEMO'D OR RELOCATED	

FIRE ALARM GENERAL NOTES	
A.	BUILDING FIRE ALARM SYSTEM IS AN EXISTING SIMPLEX 4010 ADDRESSABLE SYSTEM LOCATED IN THE EAST POD BASEMENT MECHANICAL ROOM.
B.	EXISTING LOWER LEVEL AND STAIR DEVICES ARE SHOWN FOR COMPLETENESS.
C.	RELOCATE UPPER LEVEL FIRE ALARM DEVICES AS SHOWN. SEE CODED NOTES.
D.	ADD NEW FIRE ALARM DEVICES WHERE SHOWN. WIRE TO FIRE ALARM SYSTEM. DEVICES ARE TO MATCH EXISTING AND ARE TO BE BY THE SAME MANUFACTURER.
E.	EXISTING FURNACE DUCT DETECTORS AND REMOTE TEST SWITCHES TO REMAIN. REMOTE TEST SWITCHES ARE NOT SHOWN.

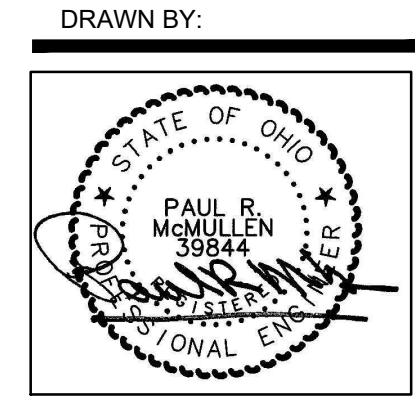
FIRE ALARM CODED NOTES	
1.	REPOSITION DEVICE ON NEW WALL AS SHOWN. EXTEND WIRING.
2.	RELOCATE FIRE ALARM DEVICE AS SHOWN. EXTEND WIRING.



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ISSUE	MARK	DATE
BID		5-5-22



OVERALL FLOOR PLANS - FIRE ALARM  
DRAWING NUMBER  
**FA2.1**