

ELECTRICAL SYMBOLS table with columns for SYMBOL, DESCRIPTION, MOUNTING HEIGHT, and sub-sections for ELECTRICAL WIRING, LIGHTING CONTROL, AUDIO / VIDEO, ELECTRICAL POWER, LIGHTING, ELECTRICAL CONNECTIONS, ELECTRICAL DISTRIBUTION, TELECOMMUNICATIONS, SECURITY, ELECTRICAL DEVICES, and REFERENCE SYMBOLS.

ABBREVIATIONS table with columns for symbol, description, and symbol, listing various construction and electrical terms like AFF, APC, APF, etc.

GENERAL NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL REVIEW AND COORDINATE WITH ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, PLUMBING AND OTHER DRAWINGS PRIOR TO BID.
2. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS IN A NEAT AND ORDERLY MANNER WITH TYPE AND MODEL NUMBERS INDICATED.
3. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY.
4. CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY BUILDING PERMITS AND INSPECTION FEES.
5. ALL IMPACT FEES ASSOCIATED WITH CITY, UTILITY OR SERVICE COMPANIES FOR BUT NOT LIMITED TO POWER, TELEPHONE, FIBER OPTIC & INTERNET SHALL BE THE RESPONSIBILITY OF THE OWNER.
6. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE GENERAL CONTRACTOR TO PROVIDE AND INSTALL TEMPORARY POWER FOR PROJECT CONSTRUCTION AS REQUIRED.
7. DO NOT SCALE DRAWINGS VERIFY DIMENSIONS IN FIELD PRIOR TO MAKING ANY ROUGH-INS.
8. ELECTRICAL CONTRACTOR SHALL REVIEW ALL ARCHITECTS ELEVATIONS, SECTIONS AND FLOOR PLANS PRIOR TO ROUGH IN OF ELECTRICAL DEVICE JUNCTION BOXES.
9. CONSULT ARCHITECTS REFLECTED CLEANS PLANS FOR EXACT LOCATIONS OF LIGHTING FIXTURES, SPEAKERS, SMOKE DETECTORS ETC.
10. ELECTRICAL CONTRACTOR SHALL MEET WITH THE CEILING AND MECHANICAL CONTRACTORS TO COORDINATE LOCATIONS, CLEARANCES, CEILING TYPES AND ROUGH-IN REQUIREMENTS OF ALL LIGHTING FIXTURES PRIOR TO DUCT, PIPING AND CEILING INSTALLATIONS.
11. VERIFY EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
12. ELECTRICAL CONTRACTOR SHALL VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH-INS. CONSULT CONTRACT DOCUMENT DRAWINGS AND SHOP DRAWINGS TO VERIFY AND MAINTAIN REQUIRED CLEARANCES.
13. ELECTRICAL ROOM DRAWINGS ARE FOR REFERENCE ONLY OF EQUIPMENT QUANTITIES. ELECTRICAL CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ELECTRICAL ROOM SHOWING DIMENSIONS AND CLEARANCES OF ALL EQUIPMENT AND ELECTRICAL GEAR PROVIDED. COORDINATE LAYOUT WITH ONE-LINE DRAWINGS.
14. CONTRACTOR SHALL VERIFY ACTUAL ELECTRICAL LOADS FROM NAMEPLATE RATINGS OF EACH PIECE OF EQUIPMENT REQUIRING POWER. BRING ANY DISCREPANCIES TO THE ATTENTION OF THE PROJECT ENGINEER.
15. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER, PER INDUSTRY STANDARD AND TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER.
16. WORK MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES, STANDARDS AND ORDINANCES.
17. FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE AS PER MANUFACTURERS WRITTEN INSTRUCTIONS AND APPROVED WIRING DIAGRAMS AND DETAILS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE ALL MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
18. ALL EMPTY RACEWAY SYSTEMS SHALL HAVE A 200LB RATED PULL CORD INSTALLED AND SHALL BE IDENTIFIED AT EACH JUNCTION, PULL AND TERMINATION POINT. USING PERMANENT MARKER IN THE BOX, ID SHALL INDICATE INTENDED USE OF CONDUIT, ORIGIN AND TERMINATION POINTS OF EACH INDIVIDUAL CONDUIT.
19. ALL PENETRATIONS OF FIRE RATED FLOORS, CEILING AND WALLS SHALL BE SEALED WITH UL LISTED AND RATED FIRE STOP MATERIAL TO MAINTAIN FIRE RATING OF ASSEMBLY.
20. ELECTRICAL BOXES SHALL NOT BE LOCATED IN MASONRY OR CONCRETE COLUMNS, BOND BEAMS OR GROUDED CELLS OF MASONRY WALLS ADJACENT TO OPENINGS WITHOUT COORDINATION WITH THE MASONRY CONTRACTOR.
21. WIRE FOR GENERAL USE SHALL BE COPPER 75° C RATED. WIRING FOR HID FIXTURES WITHIN 3' OF FLUORESCENT BALLAST SHALL BE COPPER, MINIMUM 90° C RATED. CONDUCTOR SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30° C AMBIENT TEMPERATURE ENVIRONMENT. CONDUCTOR AMPACITY SHALL BE DERATED FOR HIGHER AMBIENT INSTALLATIONS.
22. CONDUCTORS HAVE BEEN SIZED FOR VOLTAGE DROP AS PER PLANS AND DIRECT ROUTING. ANY DEVIATION IN CONDUIT ROUTING MAY INCREASE THE WIRE AND CONDUIT SIZE. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO INSURE PROPER OPERATING VOLTAGE ON ALL CIRCUITS BOTH INTERIOR AND EXTERIOR. THE VOLTAGE DROP SHALL NOT EXCEED 3% FOR BRANCH CIRCUITS AND 2% FOR FEEDERS FOR A TOTAL OF 5% COMBINED TOGETHER FOR BRANCH AND FEEDER CIRCUITS TO THE FARTHEST OUTLET.
23. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL UTILITY METERING EQUIPMENT TO COMPLY WITH THE STANDARDS OF THE LOCAL OR PROJECT SPECIFIC POWER COMPANY.
24. VERIFY EXACT LOCATIONS OF ALL NEW AND EXISTING UNDERGROUND SITE UTILITIES, PIPING AND RACEWAY SYSTEMS PRIOR TO TRENCHING. A UTILITY LOCATING COMPANY SUCH AS "BLUE STAKE" OR EQUAL SHALL BE USED TO VERIFY AND MARK UTILITIES BEFORE TRENCHING. PROVIDE NECESSARY TRENCHING, BACKFILL, EXCAVATION, SUPPORTS, SERVICE FEEDERS, JOINT AND/OR WIRE, PULL BOXES, TRANSFORMER PADS, SAW CUTTING AND PATCHING, CONCRETE PAVING ETC. REQUIRED. BACKFILL TRENCHES TO 90% COMPACTION. PATCHING SHALL MATCH EXISTING SURROUNDINGS SURFACES. CONTRACTOR SHALL OBTAIN AND VERIFY UTILITY COMPANY DRAWINGS AND REQUIREMENTS FOR ALL SITE UTILITIES. ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE ELECTRICAL RELATED UTILITIES WITH THE CIVIL, MECHANICAL, AND SITE EXCAVATION CONTRACTORS.
25. PULL BOXES, CABINETS, ETC. MOUNTED ON THE EXTERIOR OF THE BUILDING SHALL BE WEATHERPROOF TYPE WITH HINGED GASKETED LOCKABLE COVERS SECURED WITH TAMPERPROOF SCREWS.
26. SPLICES IN EXTERIOR PULL BOXES AND MANHOLES SHALL BE MADE WATERPROOF USING "SCOTCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS ENTERING BOXES WITH "DUCTSEAL" OR EQUAL.
27. ELECTRICAL CONTRACTOR SHALL TEST AND VERIFY ALL SYSTEMS WITH PROJECT ENGINEER DURING FINAL INSPECTION TO INSURE PROPER OPERATION. IF TESTS RESULT IN DEFECT THE CONTRACTOR SHALL MAKE ANY CORRECTIONS NECESSARY AT NO ADDITIONAL COSTS TO THE OWNER.
28. PROVIDE RECORD DRAWINGS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
29. THE CONTRACTOR SHALL GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP, WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION. DEFECTS SHALL BE PROMPTLY CORRECTED.

DRAWING INDEX

Drawing Index table listing drawing numbers and descriptions: E001 ELECTRICAL NOTES & SYMBOLS, E201 MAIN LEVEL POWER PLAN, E202 MEZZANINE POWER PLAN, E301 MAIN LEVEL LIGHTING PLAN, E302 MEZZANINE LIGHTING PLAN, E401 ELECTRICAL SCHEDULES, E501 ELECTRICAL DETAILS.

ELECTRICAL SPECIFICATIONS

SECTION 16000 - GENERAL PROVISIONS
WORK CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED FOR THE COMPLETE INSTALLATION OF ELECTRICAL WORK SHOWN IN THE CONTRACT DOCUMENTS AND SPECIFIED IN DIVISION 16.
INSPECT ALL AREAS AFFECTED BY THE INTERRUPTIONS AND RETURN ALL AUTOMATICALLY CONTROLLED EQUIPMENT TO THE SAME OPERATING CONDITION PRIOR TO THE INTERRUPTION.
DO NOT DISTURB NORMAL USE OF THE FACILITY, EXCEPT WITHIN THE IMMEDIATE CONSTRUCTION AREA. KEEP WALKS, DRIVEWAYS, ENTRANCES, ETC. FREE AND CLEAR OF EQUIPMENT, MATERIAL, AND DEBRIS.
STORE ALL EQUIPMENT AND MATERIAL IN A PLACE AND MANNER THAT MINIMIZES CONGESTION AND IS APPROVED BY THE OWNER.
PROVIDE NEW MATERIAL AND EQUIPMENT, UNLESS NOT OTHERWISE SPECIFIED IN THE SPECIFICATIONS.
PROTECT EQUIPMENT AND MATERIAL FROM DAMAGE, DIRT AND THE WEATHER.
PROVIDE THE HIGHEST QUALITY WORKMANSHIP AND PERFORM ALL WORK ONLY BY SKILLED MECHANICS. INSTALL MATERIAL AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, INSTRUCTIONS AND CURRENT NECA STANDARDS.
THE OWNER RESERVES THE RIGHT TO REJECT MATERIAL OR WORKMANSHIP NOT IN ACCORDANCE WITH THE SPECIFICATIONS, BEFORE OR AFTER INSTALLATION.
PERFORM ALL CUTTING AND PATCHING NECESSARY TO WORK, UNLESS SPECIFICALLY OUTLETED TO THE GENERAL CONTRACTOR, OBTAIN SPECIAL PERMISSION FROM THE LANDLORD BEFORE CUTTING STRUCTURAL MEMBERS OR FINISHED MATERIAL. PERFORM ALL PATCHING IN SUCH A MANNER AS TO LEAVE NO VISIBLE TRACE AND RETURN THE AREA AFFECTED TO THE CONDITION OF UNDISTURBED WORK. PERFORM ALL CONSTRUCTION BY WORKERS EMPLOYED, SKILLED AND LICENSED FOR THE PARTICULAR TYPE OF WORK INVOLVED. INFERIOR WORK WILL NOT BE ACCEPTED.
PATCH ALL HOLES LEFT AS A RESULT OF DEMOLITION OF ELECTRICAL EQUIPMENT AND DEVICES.
PREVENT THE SPREAD OF DUST, DEBRIS, AND OTHER MATERIAL INTO ADJACENT AREAS.
REFINISH ALL ELECTRICAL EQUIPMENT DAMAGED DURING SHIPPING AND/OR INSTALLATION TO ITS ORIGINAL CONDITION. REMOVE ALL RUST, PRIME, AND PAINT PER MANUFACTURERS RECOMMENDATIONS FOR FINISH EQUAL TO ORIGINAL.
AFTER TESTS HAVE BEEN MADE AND ACCEPTED, CLEAN LIGHT FIXTURES, PANELS AND OTHER EQUIPMENT INSTALLED BY THE CONTRACTOR. LEAVING THE ENTIRE WORK AREA IN A CLEAN AND COMPLETE WORKING ORDER.
OPERATE EQUIPMENT AND SYSTEMS IN ALL THEIR OPERATING MODES, TO VERIFY PROPER OPERATION, PRIOR TO FINAL INSPECTION AND OWNER INSTRUCTIONS. NOTIFY THE ENGINEER IN WRITING THAT ALL SYSTEMS HAVE BEEN TESTED AND ARE FUNCTIONING AND ACCESSORIES RELATED TO SUCH CONDUIT.
CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO ELECTRICAL EQUIPMENT OR MATERIALS UNTIL FINAL ACCEPTANCE OF THE ENTIRE PROJECT BY THE OWNER.
PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN EXISTING SYSTEMS, INCLUDING TELEPHONE AND DATA SYSTEMS, IN SERVICE DURING CONSTRUCTION, WHEN WORK MUST BE PERFORMED ON EXISTING EQUIPMENT OR CIRCUITS. USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.
EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVICE WHERE FEASIBLE. SYSTEMS TO BE REMOVED UNDER THIS CONTRACT. NOTIFY AND OBTAIN PERMISSION FROM OWNER/ENGINEER AT LEAST 24 HOURS BEFORE PARTIALLY OR DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE TO ADJACENT TO WORK AREA.
EXISTING TELEPHONE, DATA, CCTV & SECURITY SYSTEM MAINTAIN EXISTING SYSTEMS IN SERVICE.
DEMOLISH AND EXTEND EXISTING ELECTRICAL WORK UNDER THIS SECTION, AND AS INDICATED ON THE DRAWINGS, REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
PROVIDE SUPPORTS FOR ALL EXISTING ELECTRICAL EQUIPMENT THAT WAS SUPPORTED PREVIOUSLY BY DEMOLISHED WALLS, FLOORS, CEILING OR OTHER STRUCTURES. PROVIDE NEW SUPPORTS FROM STRUCTURAL MEMBERS NOT SLATED FOR DEMOLITION, PRIOR TO ANY DEMOLITION.
OWNER RESERVES THE RIGHT OF FIRST REFUSAL, TO OBTAIN MATERIAL SHOWN TO BE REMOVED UNDER THIS CONTRACT, WHICH IS NOT RETAINED BY THE OWNER BECOME THE PROPERTY OF THE CONTRACTOR AND MUST BE REMOVED FROM THE PREMISES.
EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS, OR AS SPECIFIED, RELOCATE AND REROUTE CONDUIT AND WIRING AS REQUIRED FOR CONDUIT CONCEALED IN WALLS OR STRUCTURE BEING ALTERED AS PART OF THE REMODELING. MAINTAIN CONTINUITY TO ALL DEVICES IN AND DOWNSTREAM OF REMODELED WORK.
REROUTE EXISTING RACEWAY AND WIRING, WHICH IS EXPOSED DUE TO REMOVAL OF EXISTING CONSTRUCTION, CONCEAL, NEW RACEWAY AND WIRING AND MAINTAIN OPERATION.
SECTION 16050 - BASIC MATERIALS AND METHODS
ENCASE ALL CONDUCTORS IN A CONTINUOUS RACEWAY SYSTEM. PROVIDE PULL AND JUNCTION BOXES AS REQUIRED BY THE NEC. SIZE ALL RACEWAY PER THE NEC WITH OVERSIZED CONDUITS AS INDICATED.
PROVIDE JUNCTION BOXES OR GUTTER AT BRANCH PANEL AND ROUTE EMT CONDUIT INTO PANELBOARD.
PROVIDE EXPANSION FITTINGS WHERE RACEWAY CROSSING BUILDING EXPANSION JOINTS.
RUN ALL EXPOSED CONDUIT IN A NEAT, WORKMANLIKE MANNER PARALLEL TO THE BUILDING LINES, TIGHT TO THE WALL AND CEILING SURFACES, AND FIRMLY SUPPORT WITH CONDUIT CLAMPS OR HANGERS. PROVIDE TWO (2) HOLE MOUNTING STRAPS, MINIMUM THREE FEET ON CENTER, FOR ALL SURFACE CONDUIT MOUNTED ON WALLS LESS THAN SIX (6) FEET ABOVE FINISHED FLOOR. PLACE CONDUITS AT LEAST 18" AWAY FROM ALL HOT PIPING AND SURFACES INCLUDING DOMESTIC HOT WATER LINES.
PROVIDE GALVANIZED CODE GAUGE STEEL JUNCTION AND PULL BOXES WITH SCREW ON COVERS OF TYPE, SHAPE AND SIZE REQUIRED TO SUIT EACH INSTALLATION. PROVIDE GASKETING IN DAMP AND DUSTY LOCATIONS.
PROVIDE 4" BOXES THROUGHOUT. PROVIDE 3-1/2" DEEP BOXES WHERE INSTALLED IN MASONRY. 2-1/2" MINIMUM ELSEWHERE. VAPOR TIGHT GANG MUD OR TILE RING FOR SINGLE DEVICES.
COORDINATE THE LOCATION OF ALL OUTLETS WITH MECHANICAL DRAWINGS BEFORE INSTALLATION.
PROVIDE WIRE AND CABLE WITH INSULATION VOLTAGE RATING EQUAL TO OR GREATER THAN THE APPLIED SYSTEM VOLTAGE. PROVIDE SOLID OR STRANDED COPPER CONDUCTORS WITH TYPE THWN, THHN, OR XHHW INSULATION FOR NO. 12 AWG AND NO. 10 AWG CONDUCTORS. PROVIDE MINIMUM NO. 12 AWG CONDUCTOR SIZE, UNLESS NOTED OTHERWISE. USE THE MINIMUM CONDUCTOR SIZE WHEN NO SIZE IS INDICATED, ALL CONDUCTORS TO BE COLOR-CODED.
SECTION 16010 - BUILDING LIGHTING
FLUORESCENT LAMP BALLAST FOR 8 & 15 LAMPS SHALL BE ELECTRONIC CBM CERTIFIED W/ THD LESS THAN 20% RAPID START.
SUPPORT ALL RECESSED LIGHTING FIXTURES W/ 4" 12GA. WIRES INDEPENDENT FROM CEILING SUPPORT SYSTEM.
MATERIALS FURNISHED FOR THE TEMPORARY LIGHT AND POWER SYSTEM REMAIN CONTRACTORS PROPERTY. REMOVE WHEN THERE IS NO LONGER ANY NEED FOR TEMPORARY LIGHT AND POWER.
COORDINATE SCHEDULE ALL WORK WITH THE OWNER TO MINIMIZE ANY DISRUPTIONS. CONFINE ALL INTERRUPTIONS TO THE SMALLEST POSSIBLE AREA. PROVIDE TEMPORARY CONNECTIONS IF REQUIRED TO PROVIDE CONTINUITY OF SERVICE.



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850 WEST 350 NORTH
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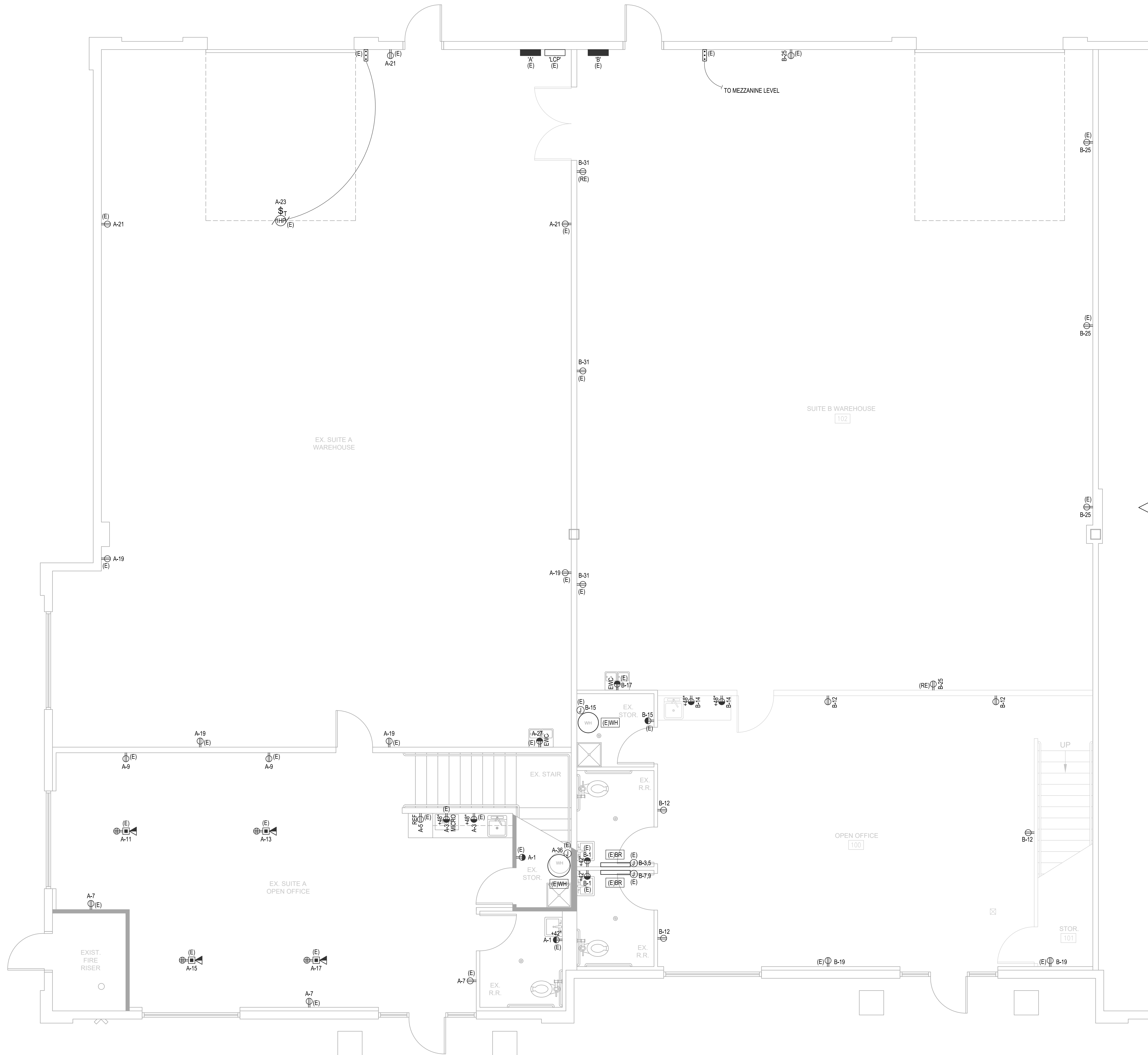
Revisions table with columns for NO., DATE, and DESCRIPTION.

Project information table with fields for DATE (11/30/20), SCALE (SEE DWG.), DRAWN (JS), CHECKED (TH), and JOB NO. (18029.11).

SHEET TITLE: ELECTRICAL NOTES & SYMBOLS

SHEET NO.: E001

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**A MAIN LEVEL POWER PLAN**  
E201 SCALE: 1/4" = 1'-0"



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KAYSVILLE, UT 84037

NO.	DATE	REVISIONS:	DESCRIPTION

DATE: 11/30/20  
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JOB NO.: 18029.11

SHEET TITLE  
**MAIN LEVEL POWER PLAN**

SHEET NO.  
**E201**

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**A** MEZZANINE POWER PLAN  
E202 SCALE: 1/4" = 1'-0"



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KAYSVILLE, UT 84037

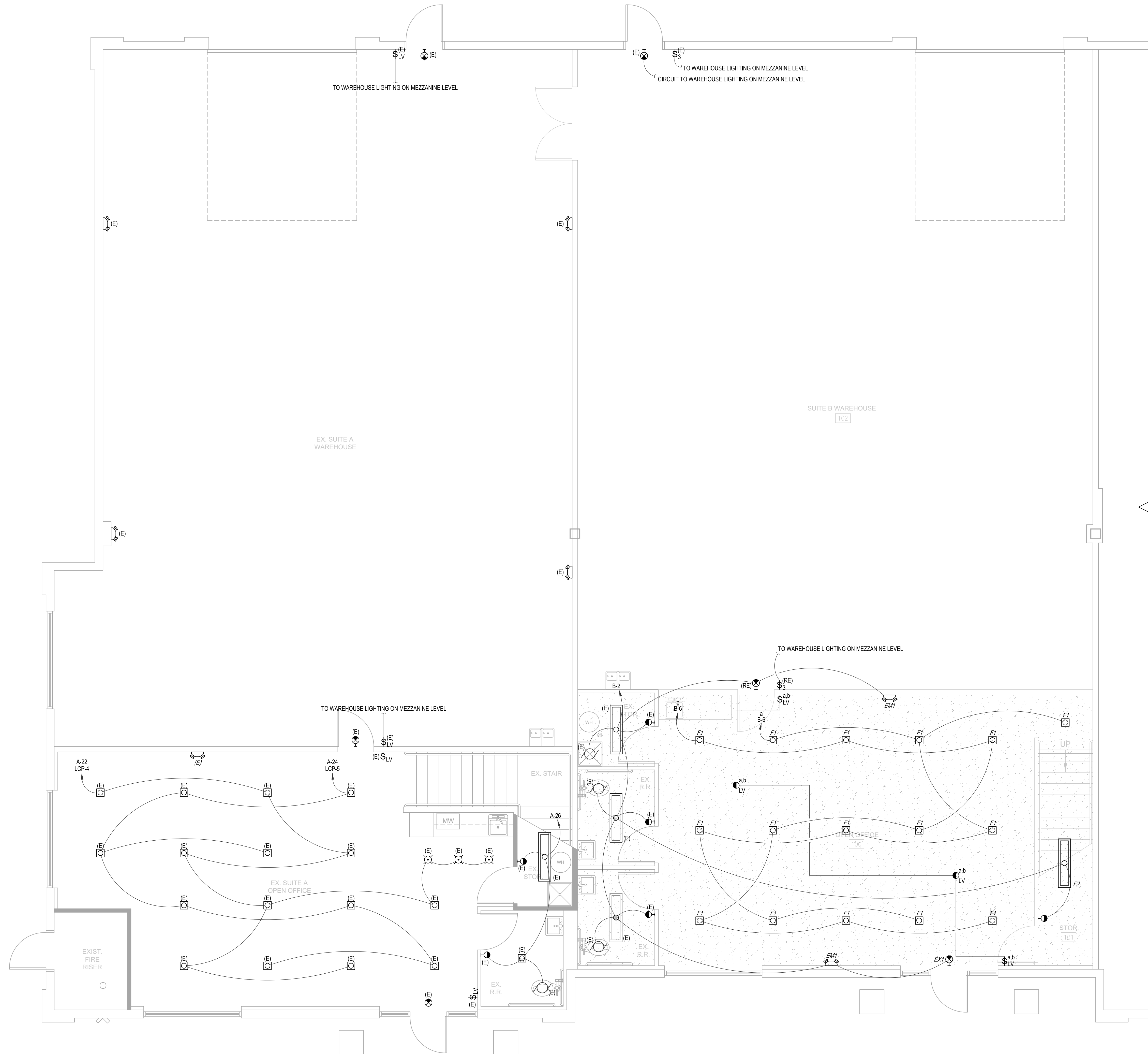
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JOB NO.: 18029.11

SHEET TITLE  
**MEZZANINE POWER PLAN**

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**A** MAIN LEVEL LIGHTING PLAN  
E301 SCALE: 1/4" = 1'-0"



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KAYSVILLE, UT 84037

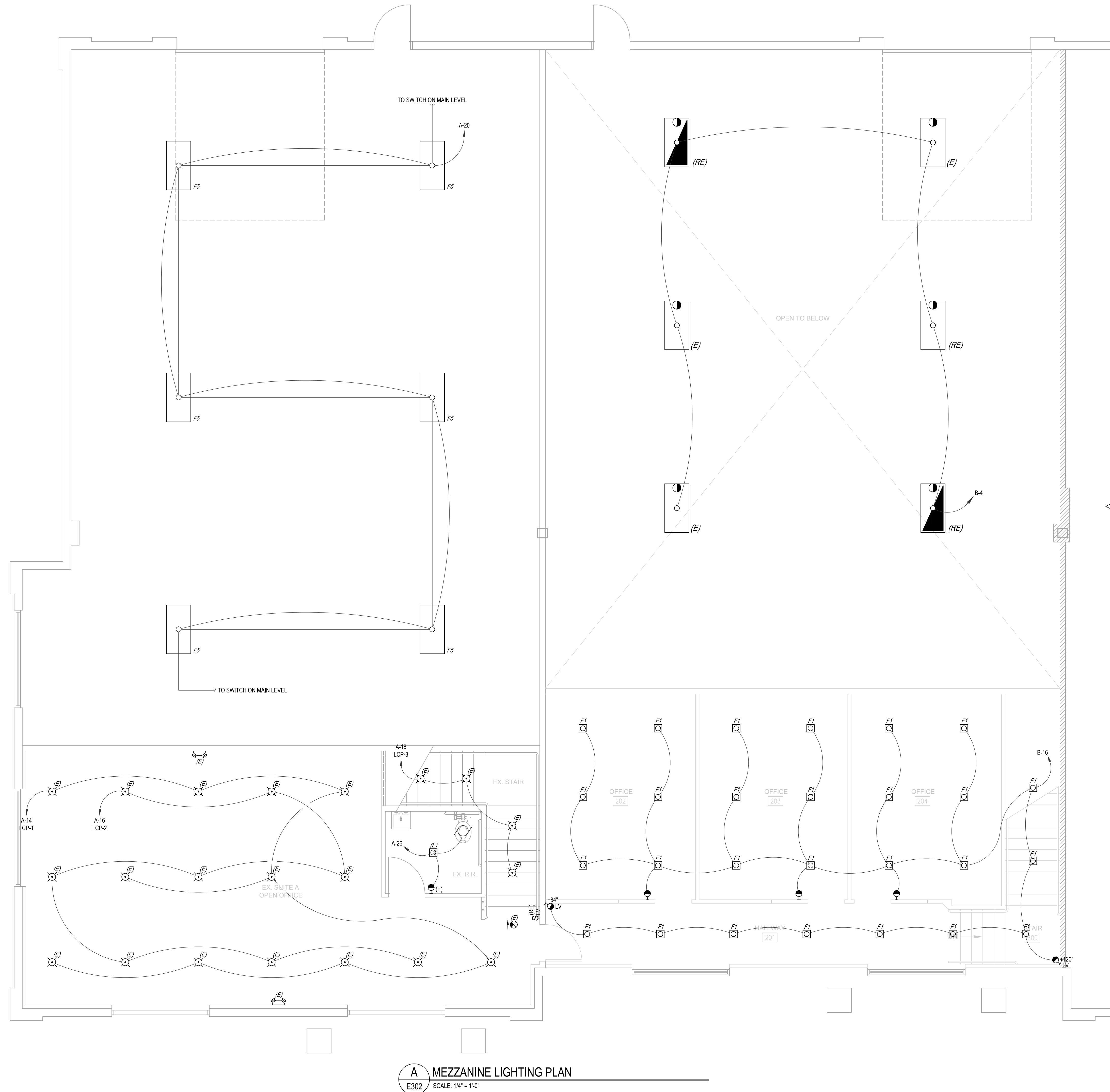
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DATE	11/30/20
SCALE	SEE DWG.
DRAWN	JS
CHECKED	TH
JOB NO.	18029.11

SHEET TITLE  
**MAIN LEVEL LIGHTING PLAN**

SHEET NO.  
**E301**

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**A** MEZZANINE LIGHTING PLAN  
E302 SCALE: 1/4" = 1'-0"



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850 WEST 350 NORTH  
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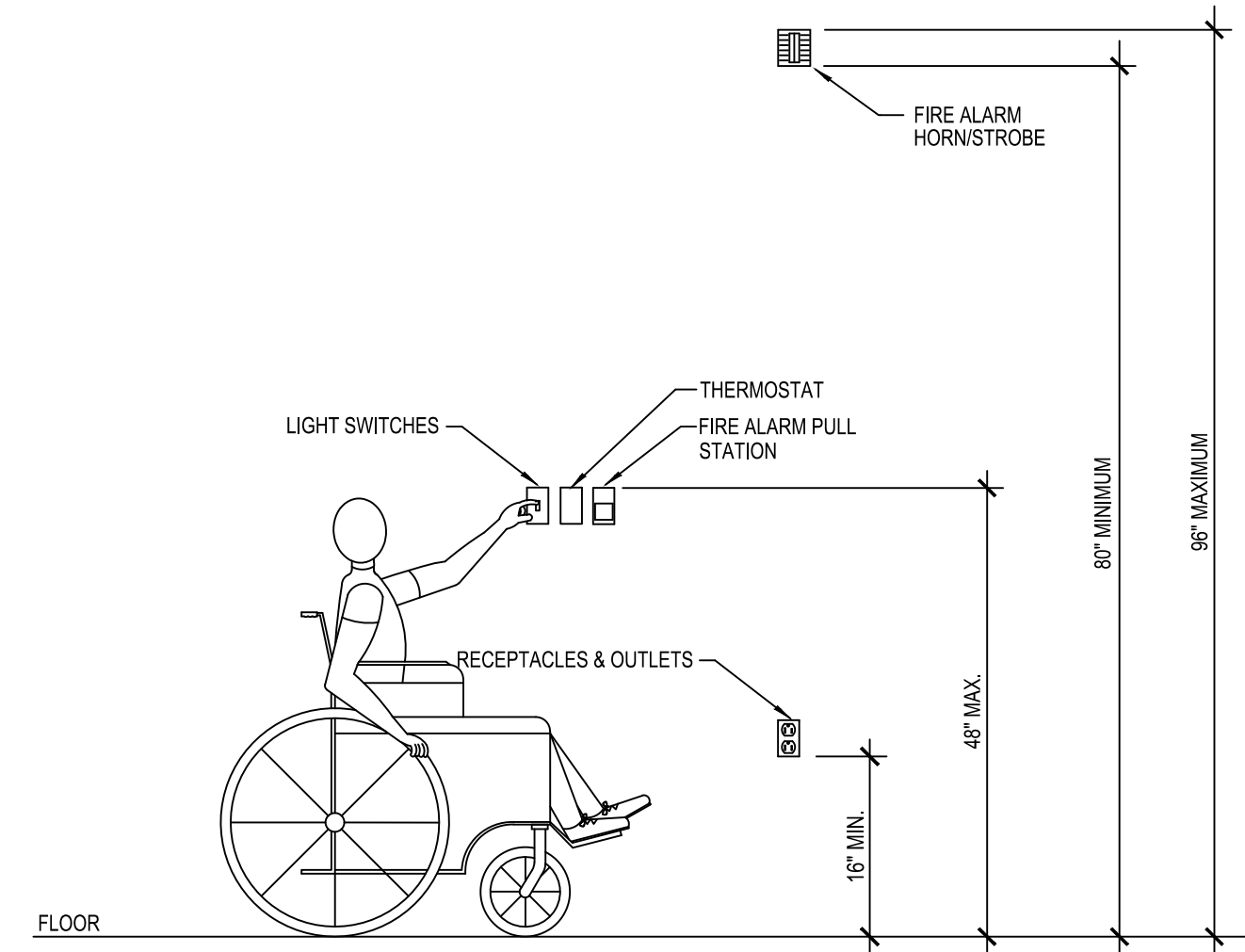
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JOB NO.: 18029.11

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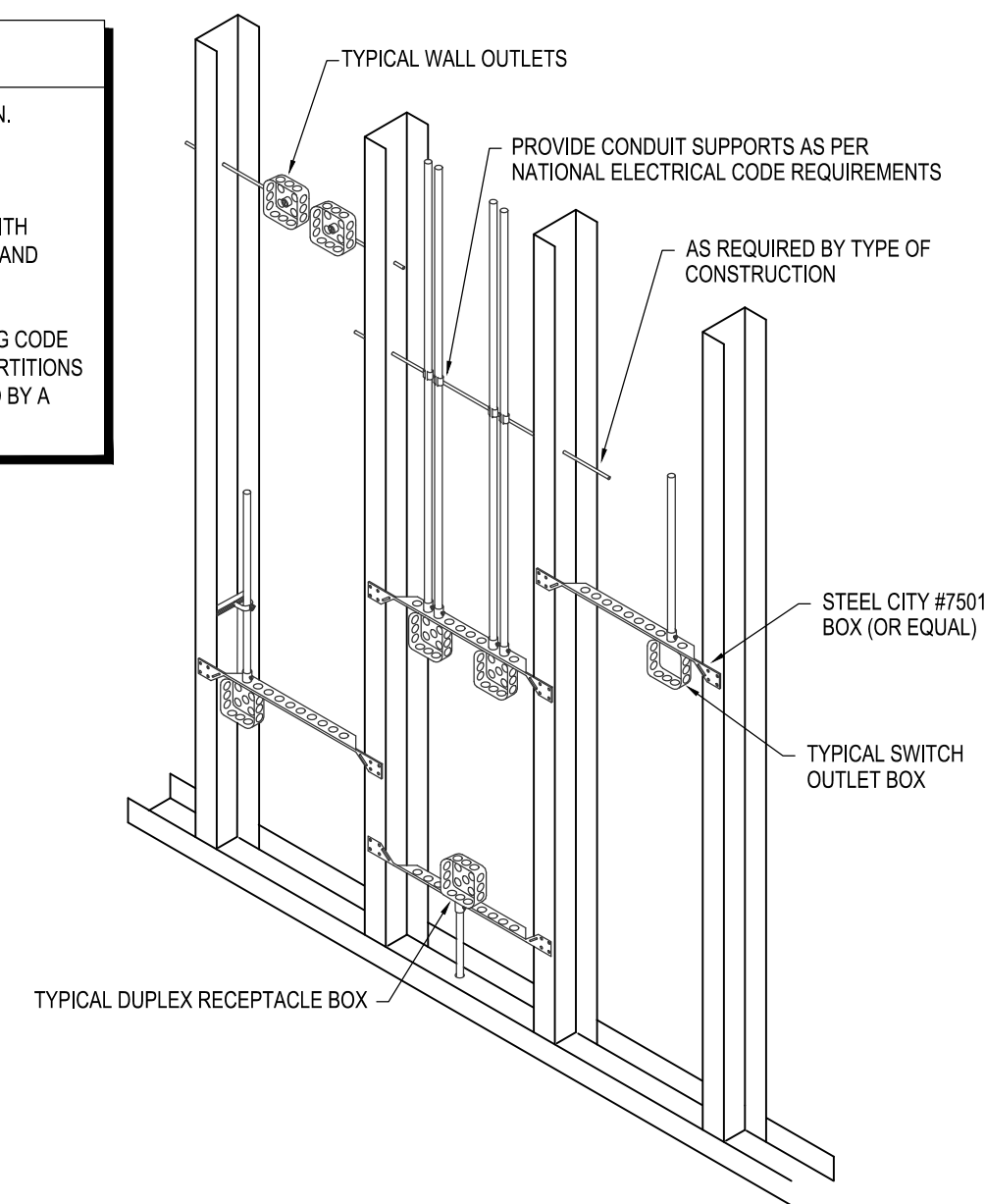
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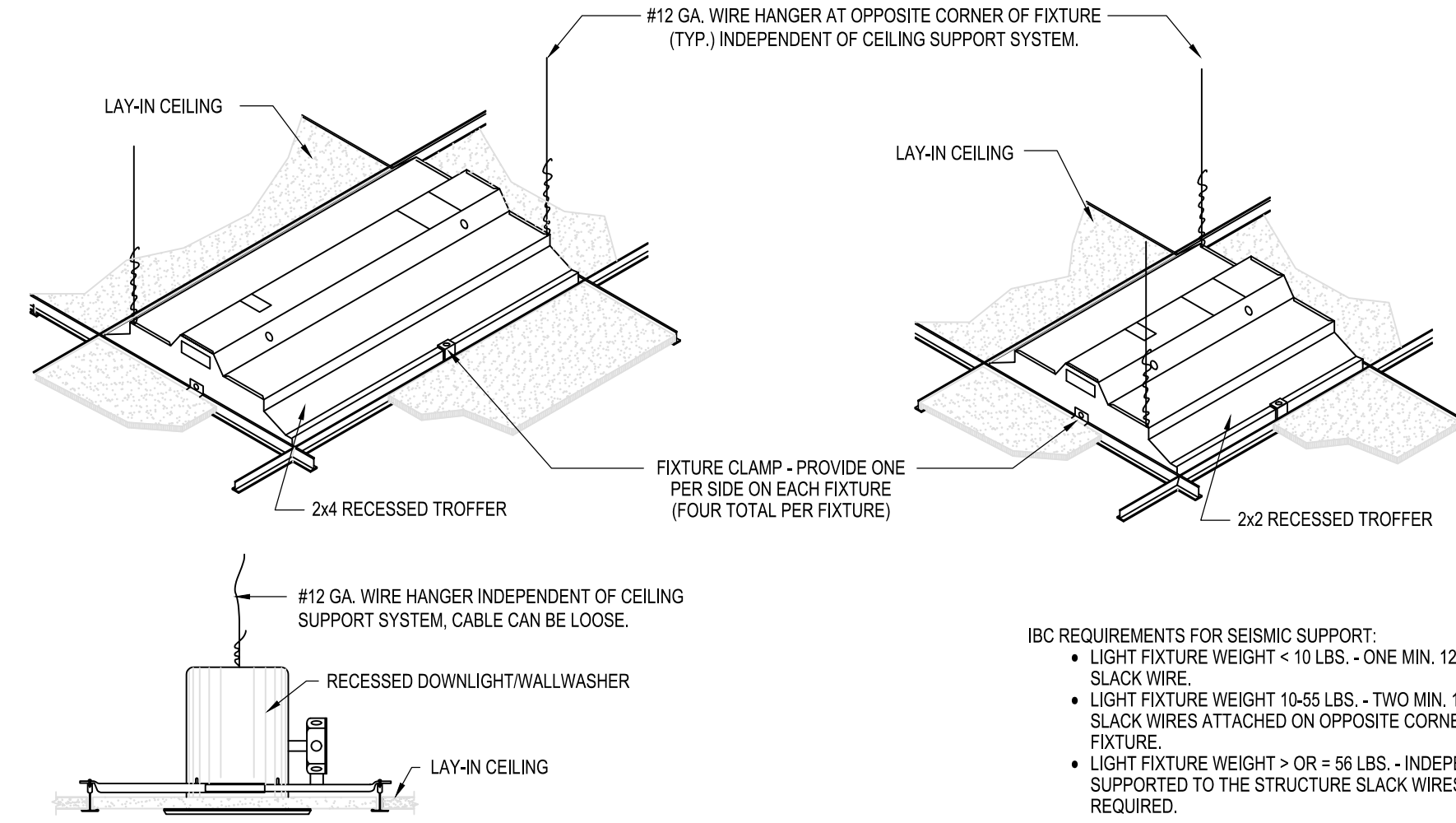


**A** MOUNTING HEIGHTS DETAIL  
E501

- NOTES:**
1. TYPICAL FOR WOOD AND METAL STUD ROUGH IN.
  2. PLASTER RINGS NOT SHOWN.
  3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
  4. IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MINIMUM OF 24" HORIZONTAL DISTANCE.



**B** TYPICAL ROUGH-IN REQUIREMENTS DETAIL  
E501



- IBC REQUIREMENTS FOR SEISMIC SUPPORT:**
- LIGHT FIXTURE WEIGHT < 10 LBS. - ONE MIN. 12 GAUGE SLACK WIRE.
  - LIGHT FIXTURE WEIGHT 10-55 LBS. - TWO MIN. 12 GAUGE SLACK WIRES ATTACHED ON OPPOSITE CORNERS OF FIXTURE.
  - LIGHT FIXTURE WEIGHT > OR = 56 LBS. - INDEPENDENTLY SUPPORTED TO THE STRUCTURE SLACK WIRES ARE NOT REQUIRED.

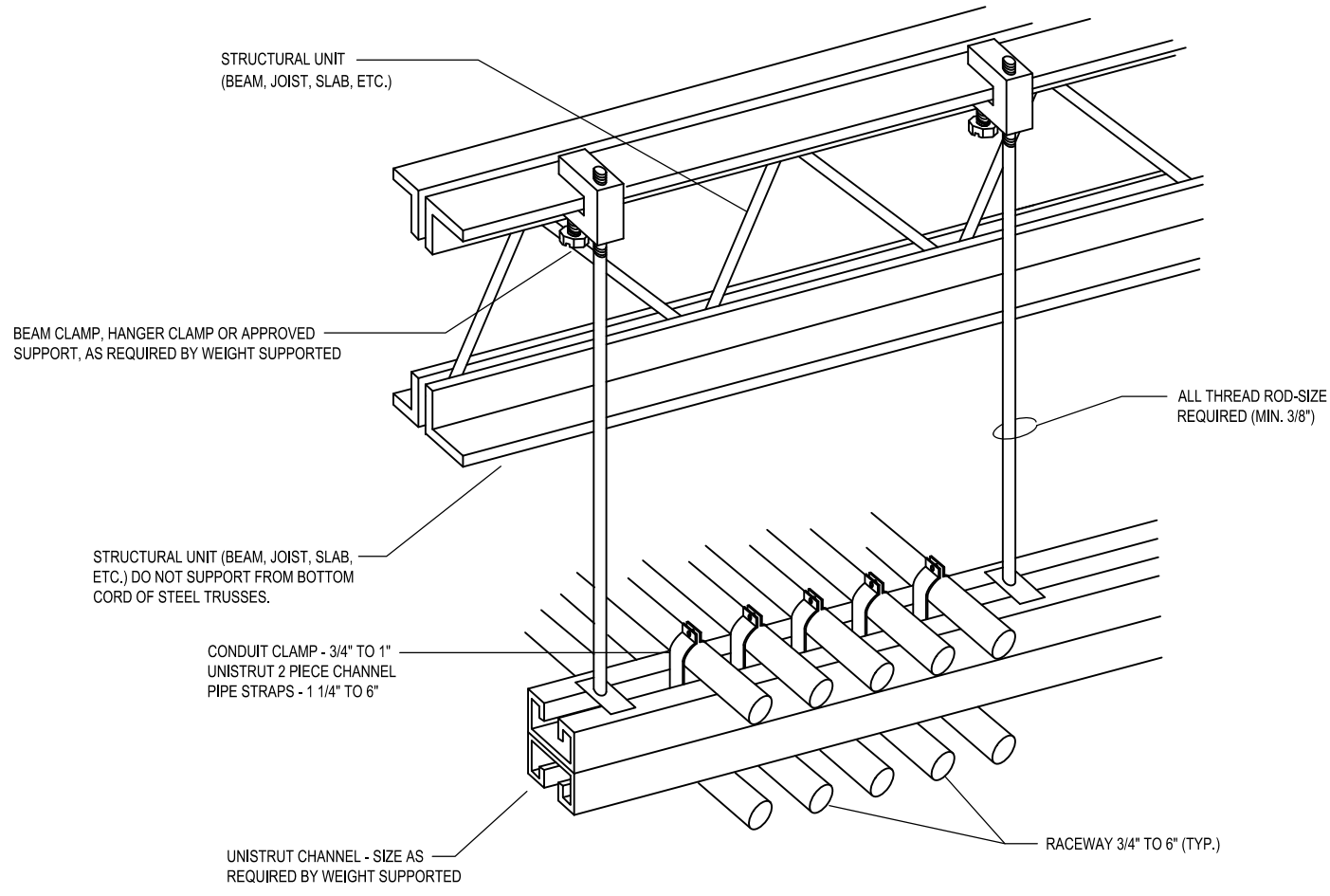
**C** LAY-IN GRID FIXTURE SEISMIC MOUNTING DETAILS  
E501

NOT USED

**D**  
E501

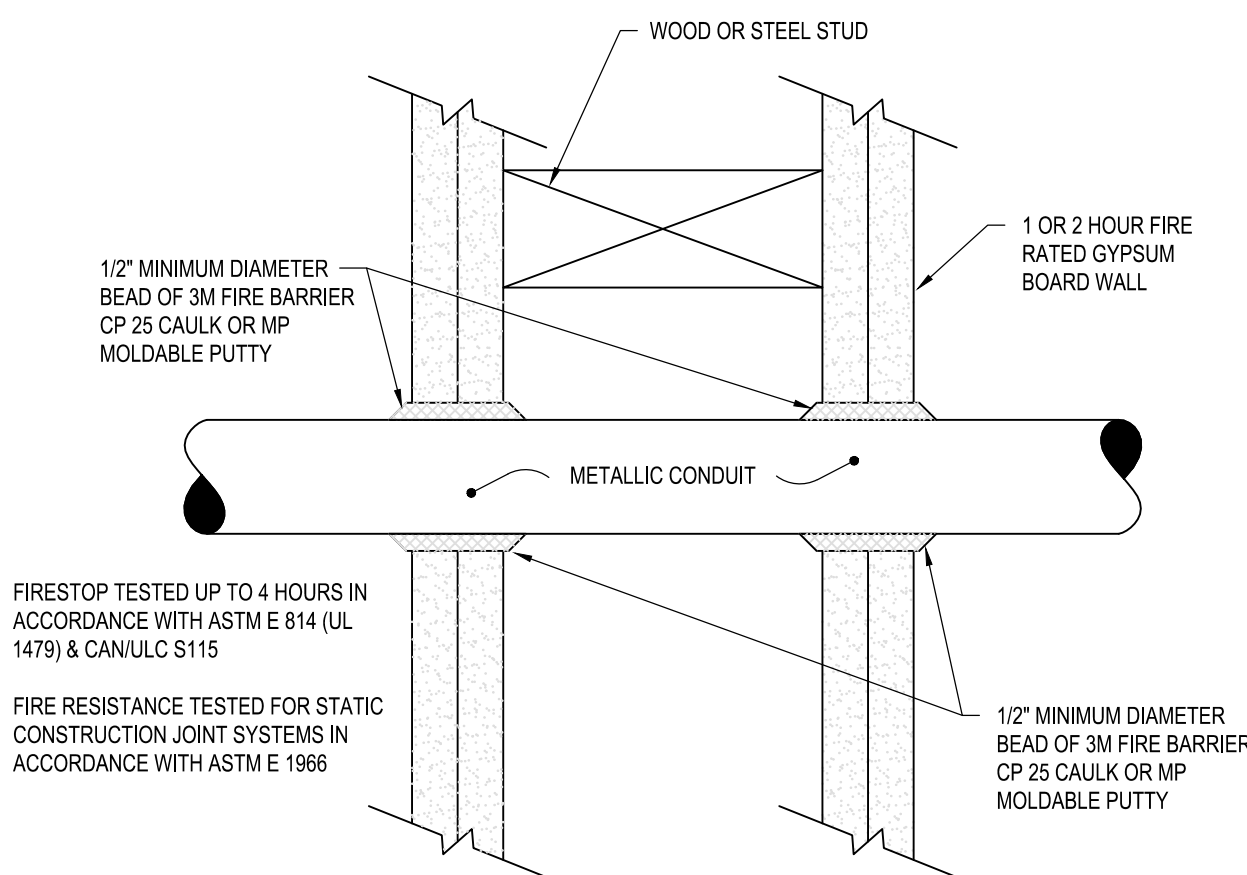
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**E**  
E501



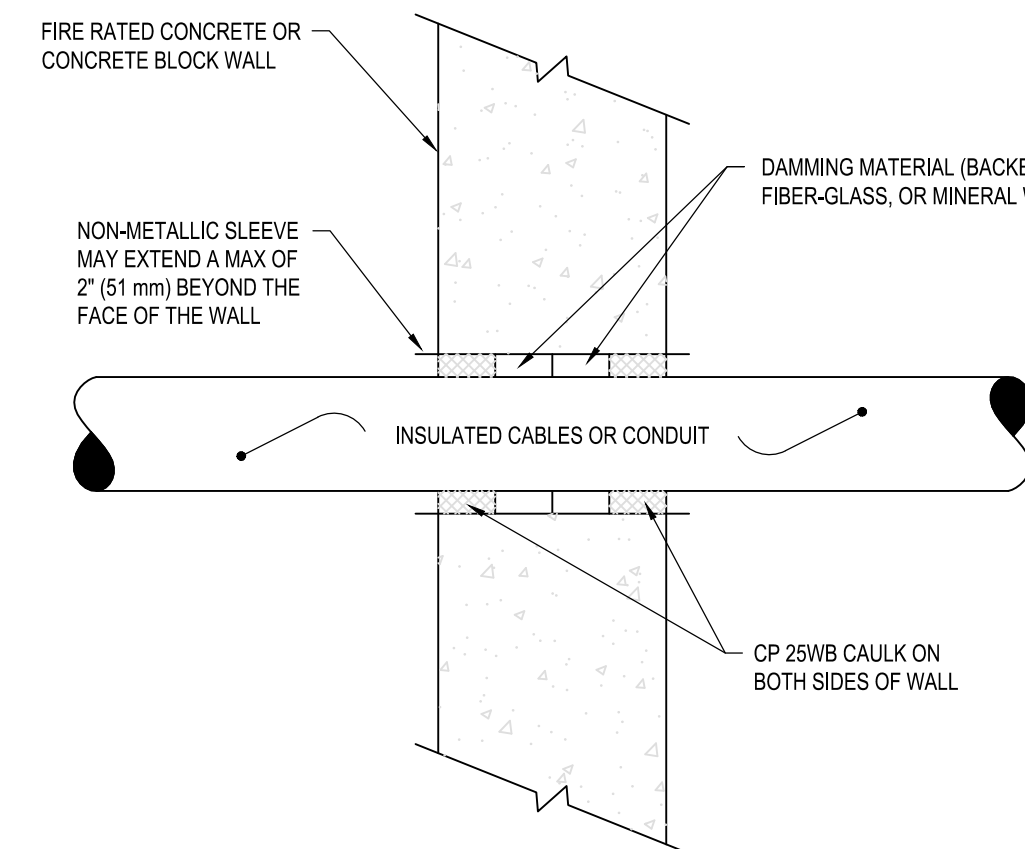
**F** TYPICAL TRAPEZE CONDUIT RACK  
E501

- NOTE:**
- TYPICAL DETAILS SHOWING GENERAL FIRE STOPPING PROCEDURE. ACTUAL PROCEDURE DEPENDS UPON ANNULAR SPACE BETWEEN PIPE AND/OR INSULATION AND OPENING. FOLLOW MANUFACTURER'S INSTRUCTIONS.



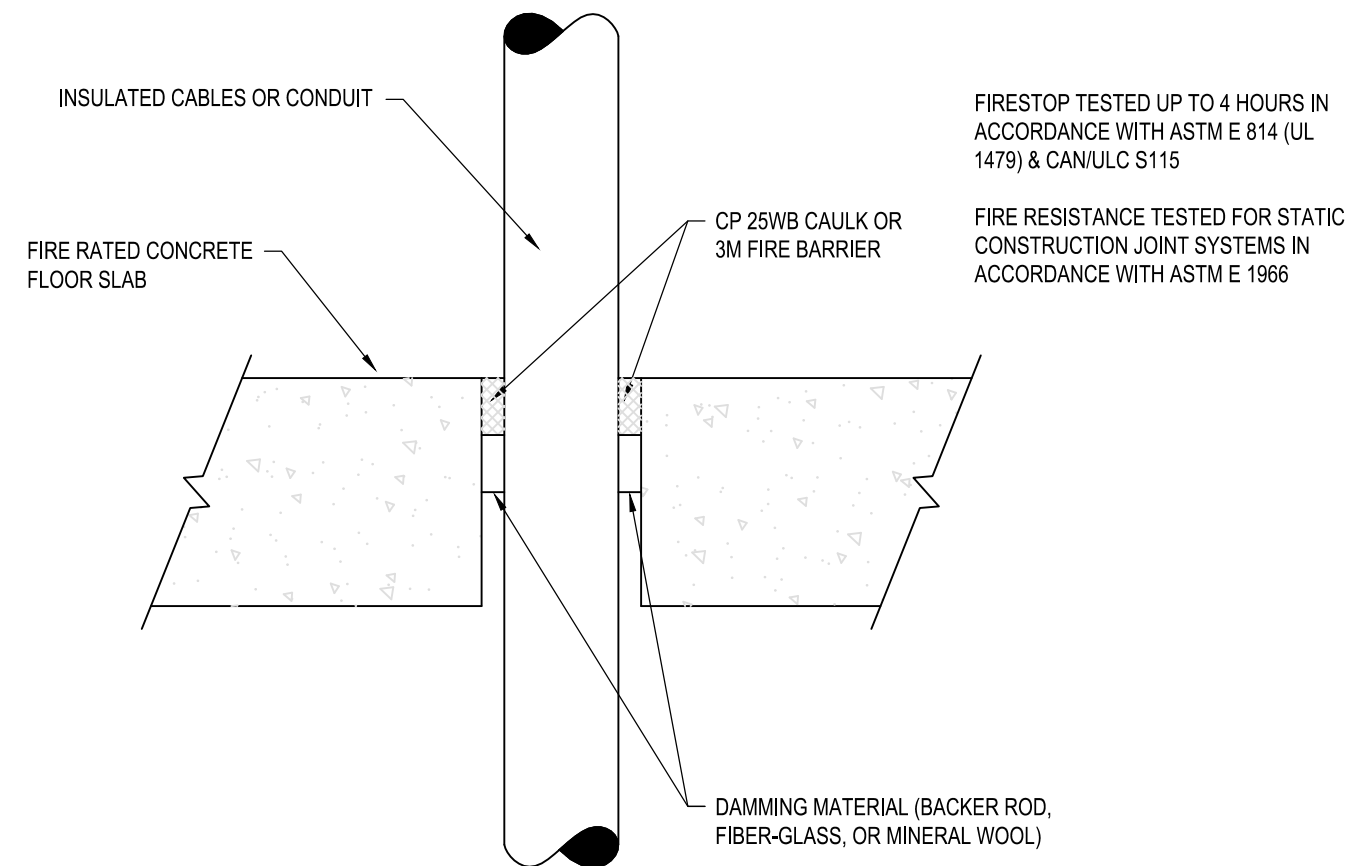
**G** FIRE STOP THRU GYPSUM BOARD WALL  
E501

- NOTE:**
- TYPICAL DETAILS SHOWING GENERAL FIRE STOPPING PROCEDURE. ACTUAL PROCEDURE DEPENDS UPON ANNULAR SPACE BETWEEN PIPE AND/OR INSULATION AND OPENING. FOLLOW MANUFACTURER'S INSTRUCTIONS.



**H** FIRESTOP THRU CONCRETE/MASONRY WALL  
E501

- NOTE:**
- TYPICAL DETAILS SHOWING GENERAL FIRE STOPPING PROCEDURE. ACTUAL PROCEDURE DEPENDS UPON ANNULAR SPACE BETWEEN PIPE AND/OR INSULATION AND OPENING. FOLLOW MANUFACTURER'S INSTRUCTIONS.



**I** FIRESTOP THRU CONCRETE FLOOR  
E501



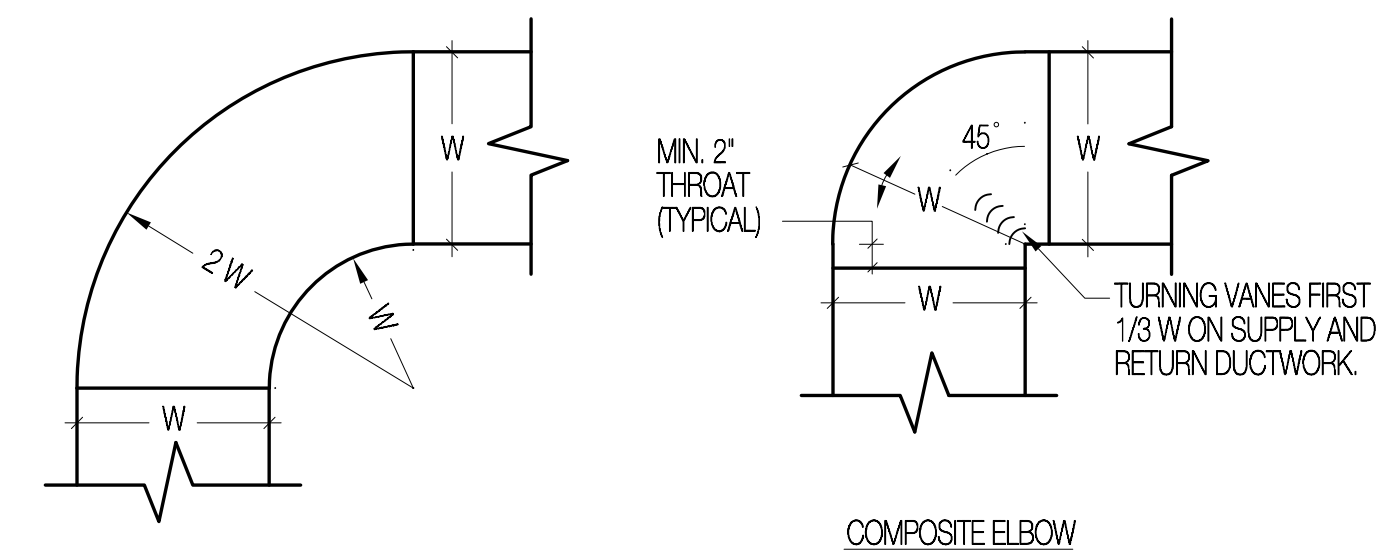
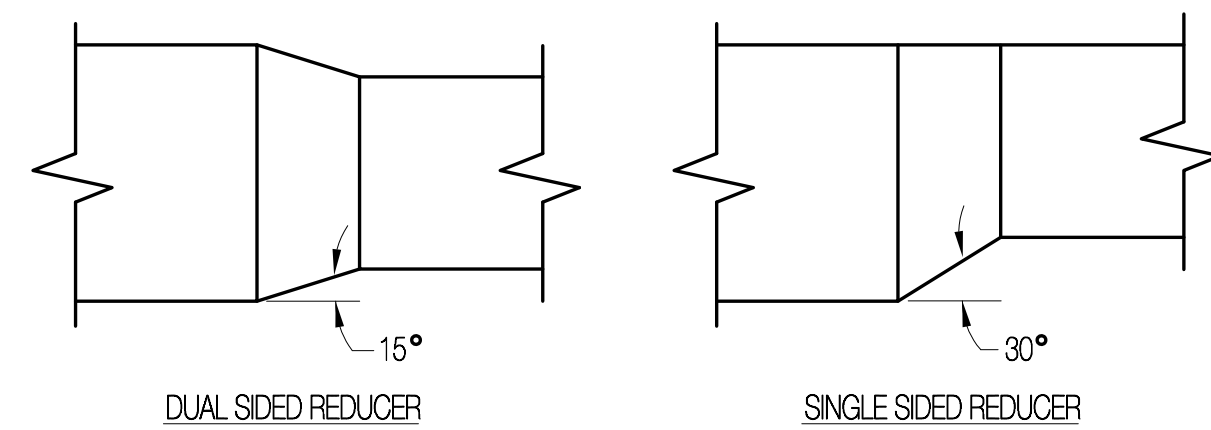
**HORIZON MASONRY - SUITE B**  
850 WEST 350 NORTH  
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NO.	DATE	DESCRIPTION

DATE: 11/30/20  
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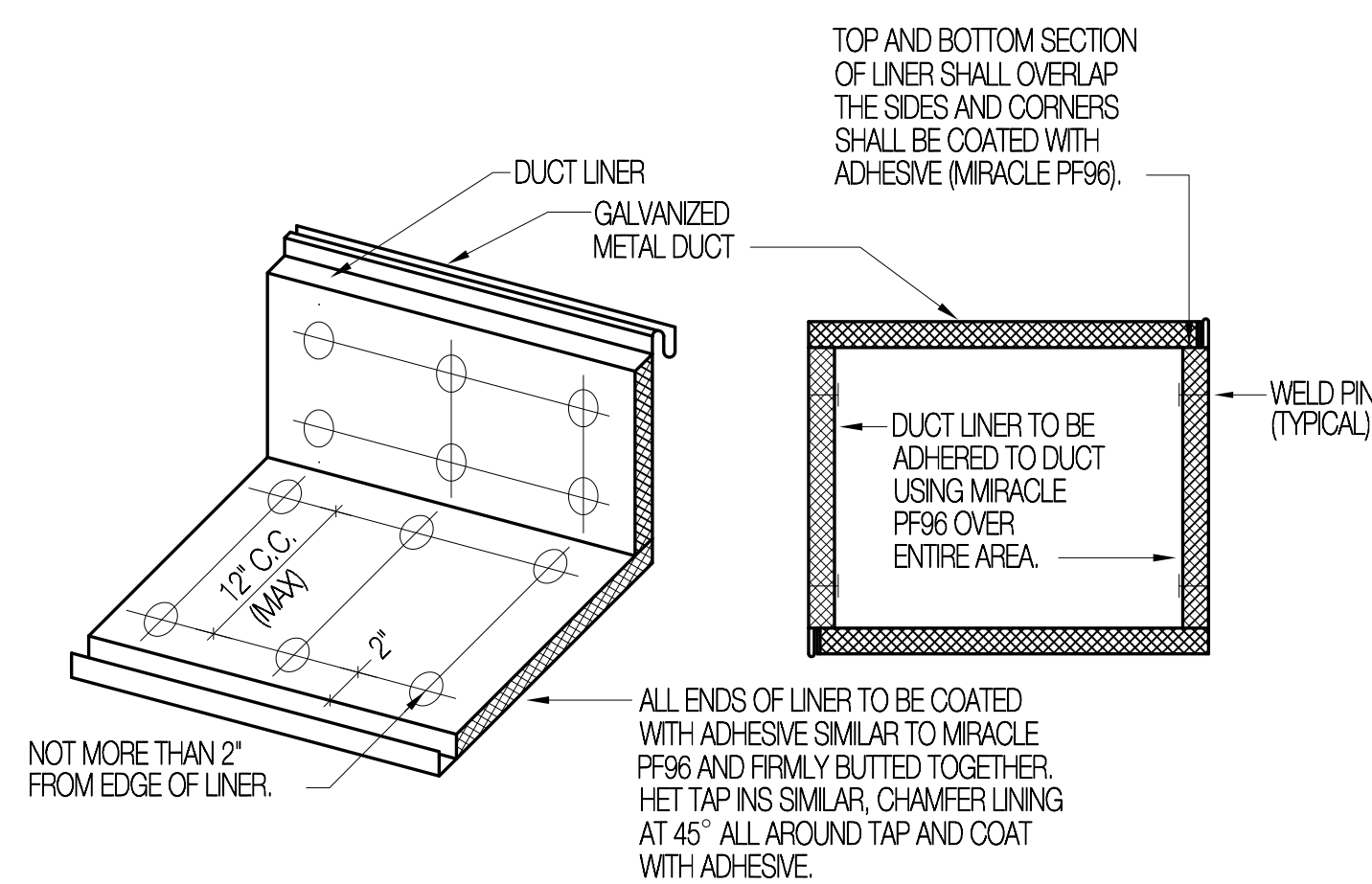
SHEET TITLE  
**ELECTRICAL  
DETAILS**

SHEET NO.  
**E401**



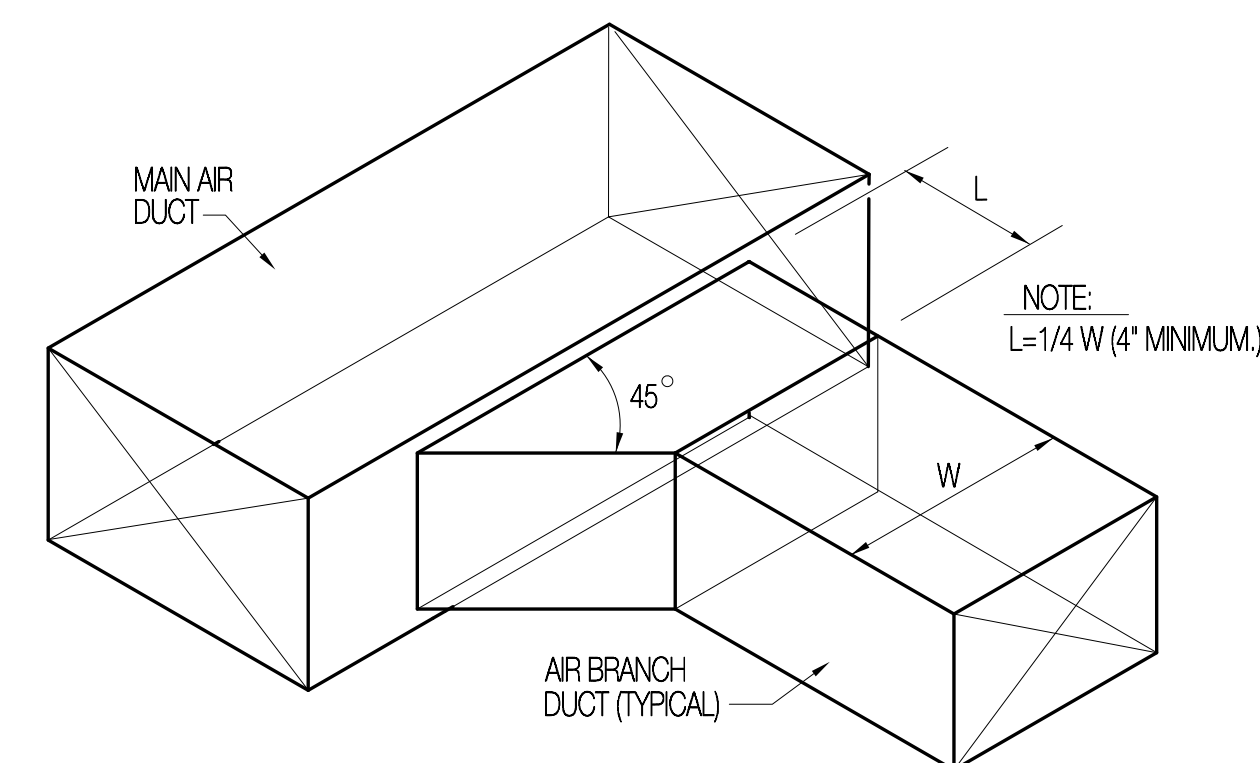
NOTES:  
MITERED RECTANGULAR ELBOWS WITH FULL TURNING VANES NOT ALLOWED.

**7 RECTANGULAR DUCT FITTINGS**  
SCALE: NONE

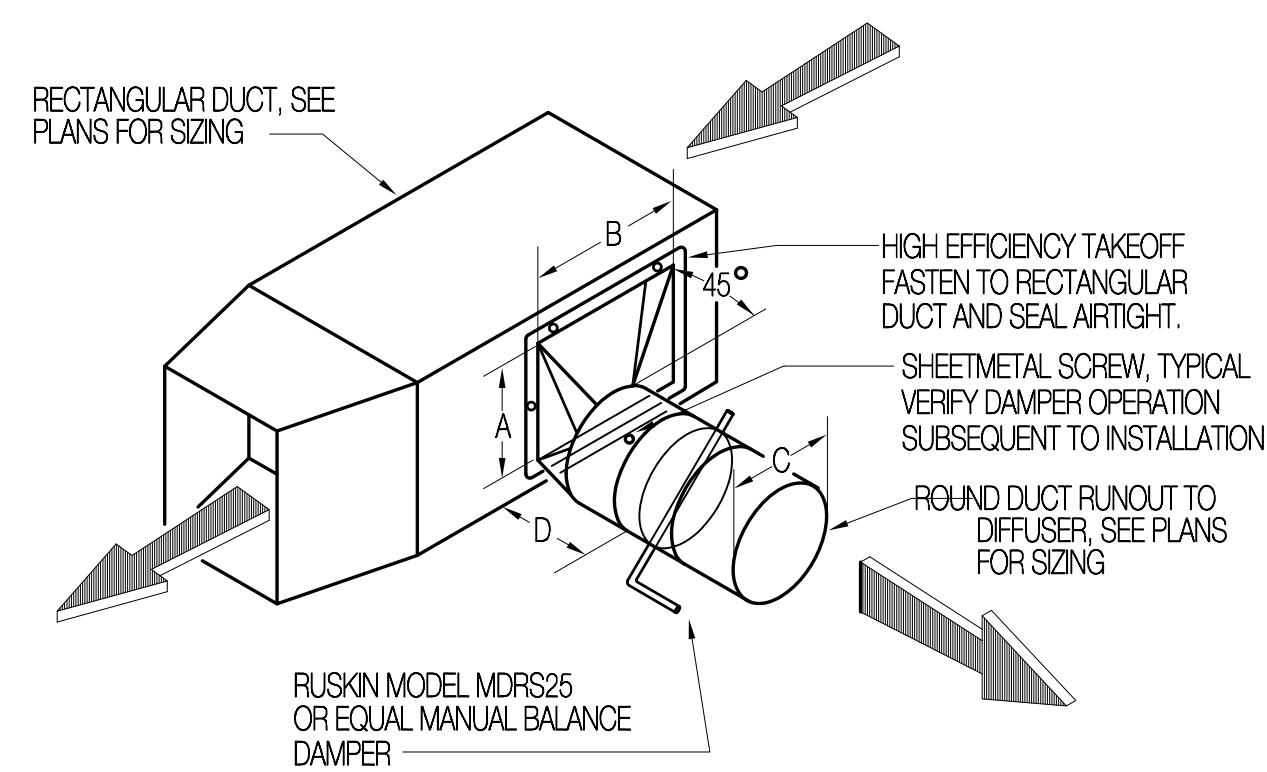


LINING FASTENERS:  
DURA DYNE MODEL OF WELD TYPE FASTENERS OR EQUIVALENT. ADHESIVE TYPE STICK CLIPS OR GRIP NAILS NOT ALLOWED.

**9 ACOUSTICAL LINER DETAIL**  
SCALE: NONE



**10 RECT. DUCT RUNOUT DETAIL**  
SCALE: NONE

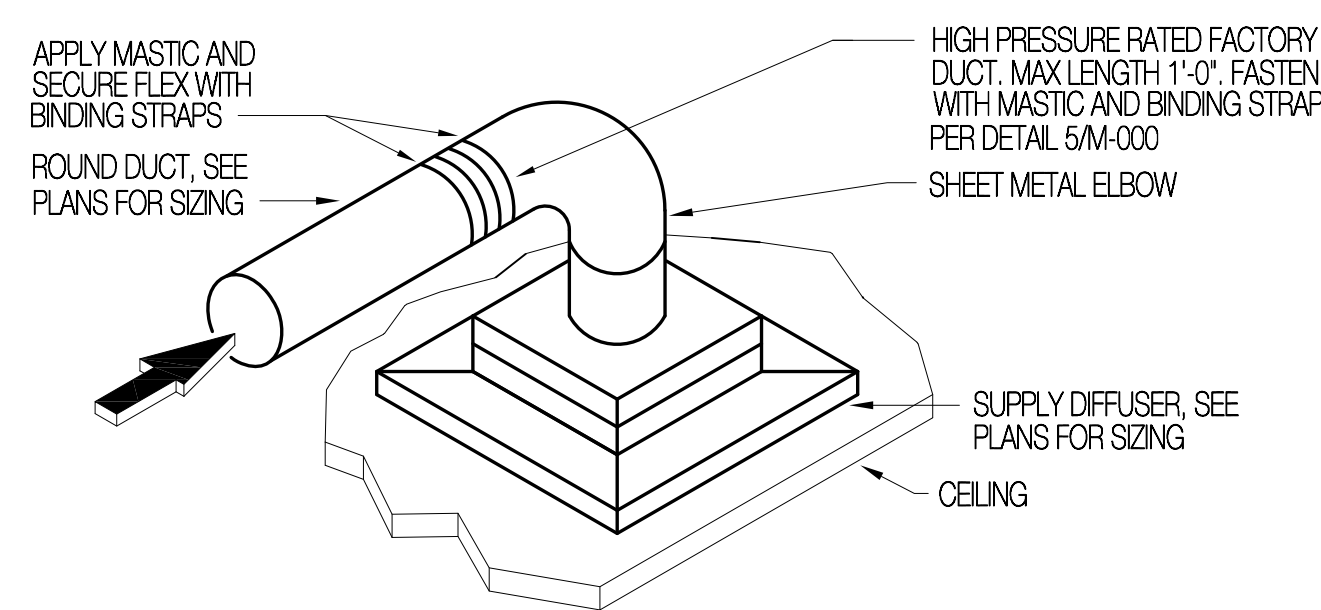


**HET DIMENSIONS**

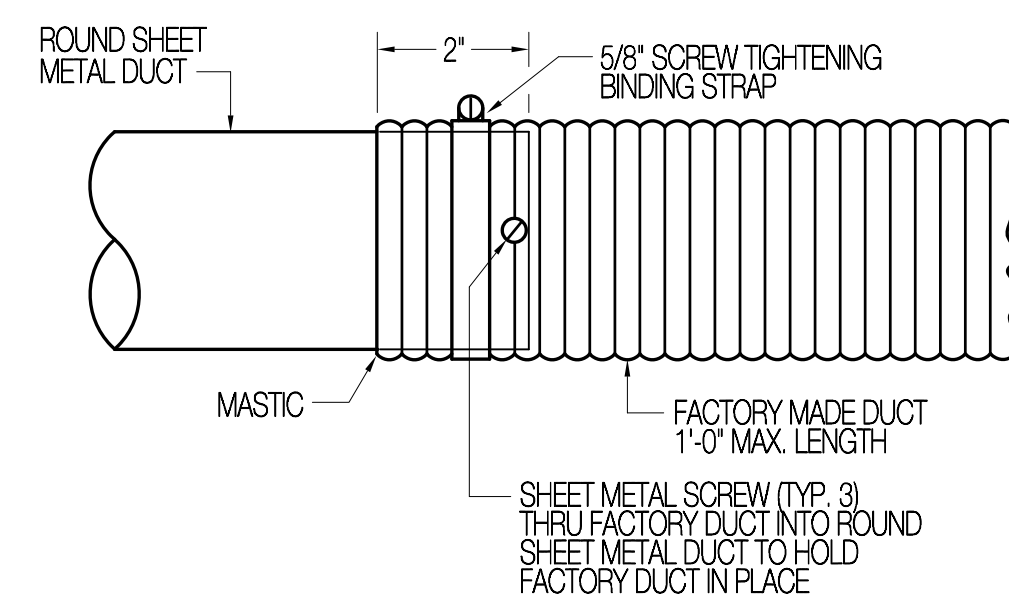
BRANCH SIZE (C)	THROAT DIM.		MIN. AREA AxB
	A	B	
6"	8-1/4"	12"	3.5 X AREA OF C
8"	10-1/4"	14"	2.8 X AREA OF C
10"	12"	15"	2.3 X AREA OF C
12"	14"	17"	2.1 X AREA OF C

LENGTH D SHALL BE A MINIMUM OF 11"

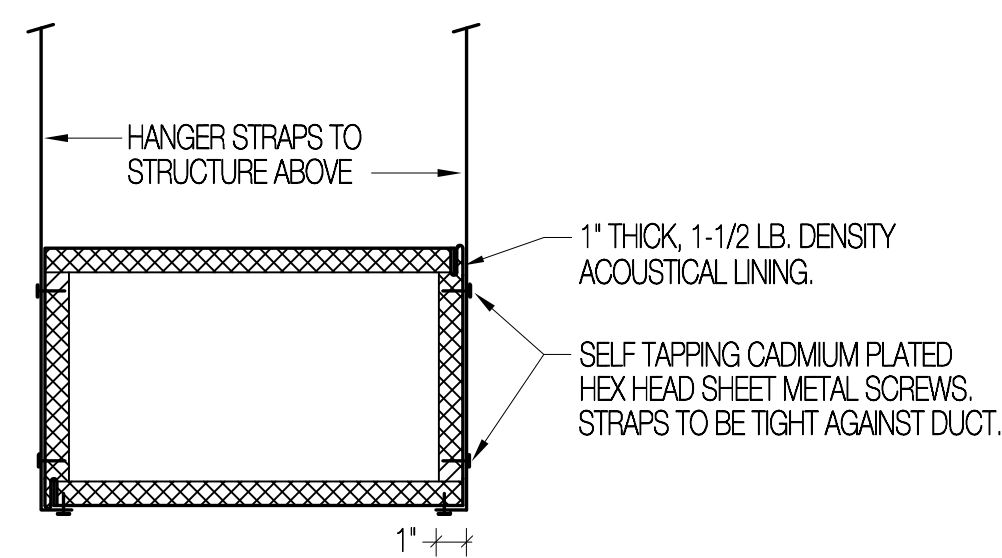
**3 ROUND DUCT RUNOUT DETAIL**  
SCALE: NONE



**4 DIFFUSER CONNECTION DETAIL**  
SCALE: NONE



**5 FACTORY DUCT DETAIL**  
SCALE: NONE



**6 RECT. DUCT HANGER DETAIL**  
SCALE: NONE

HANGER STRAP GAUGE, WIDTH AND SPACING FOR RECTANGULAR DUCTS PER SMACNA HVAC DUCT CONSTRUCTION STANDARDS.

**SYMBOL LEGEND**

	SIDEWALL GRILLE		HAND DAMPER, SEE DETAIL 3/M-000		ACOUSTICAL LINING
	SUPPLY AIR DIFFUSER		H.D. WITH REMOTE OPERATOR, SEE DETAIL 1/M-700		OUTSIDE AIR
	RETURN OR EXHAUST GRILLE		RISE OR DROP IN DUCT		SUPPLY AIR
	ACOUSTICALLY LINED DUCTWORK (INSIDE CLEAR DIMENSION)		THERMOSTAT		RETURN AIR
	SLOPE IN DUCT, SEE SECTIONS FOR SLOPE DIRECTION		SUPPLY AIR DIRECTION		NECK
	RECTANGULAR SUPPLY AIR DUCT CROSS SECTION		RETURN AIR DIRECTION		POINT OF NEW CONNECTION
	ROUND SUPPLY AIR DUCT CROSS SECTION		A.F.F. ABOVE FINISHED FLOOR		EXISTING

**HEATING/COOLING ROOFTOP UNIT (RTU)**

SYMBOL	HEATING SECTION		COOLING SECTION		FAN SECTION			COND. COIL AREA (SQ. FT.)	COND. COIL CFM	AMB. AIR TEMP.	MIN. EER	UNIT ELEC. REQUIREMENTS					YORK MODEL	REMARKS
	HEATING INPUT (BTU/H)	HEATING OUTPUT (BTU/H)	TOTAL CAP. (BTU/H)	SENS. CAP. (BTU/H)	CFM	E.S.P. (IN. WC.)	MOTOR HP					VOLTS	PH.	HZ.	MCA	MOCP		
RTU-1	125,000	100,000	54,900	54,900	1,850	1.0	2.0	16.3	4,200	95°F	10.8	208	3	60	35.1	45	ZF060	(1)(2)(3)(4)(5)(6)(7)(8)

① CAPACITY REQUIRED AT SITE ELEVATION AND CONDITIONS. ④ BELT DRIVE  
 ② PROVIDE UNIT WITH 120 V CONVENIENCE OUTLET. ⑤ PROVIDE UNIT WITH RETURN AIR SMOKE DETECTOR.  
 ③ FACTORY INSTALLED ECONOMIZER W/ BARO. RELIEF. ⑥ BALANCE OUTSIDE AIR TO 320 CFM.

⑦ H/ LOW LIMIT SWITCHES (ZONE CONTROL)  
 ⑧ HOT GAS BYPASS (ZONE CONTROL)

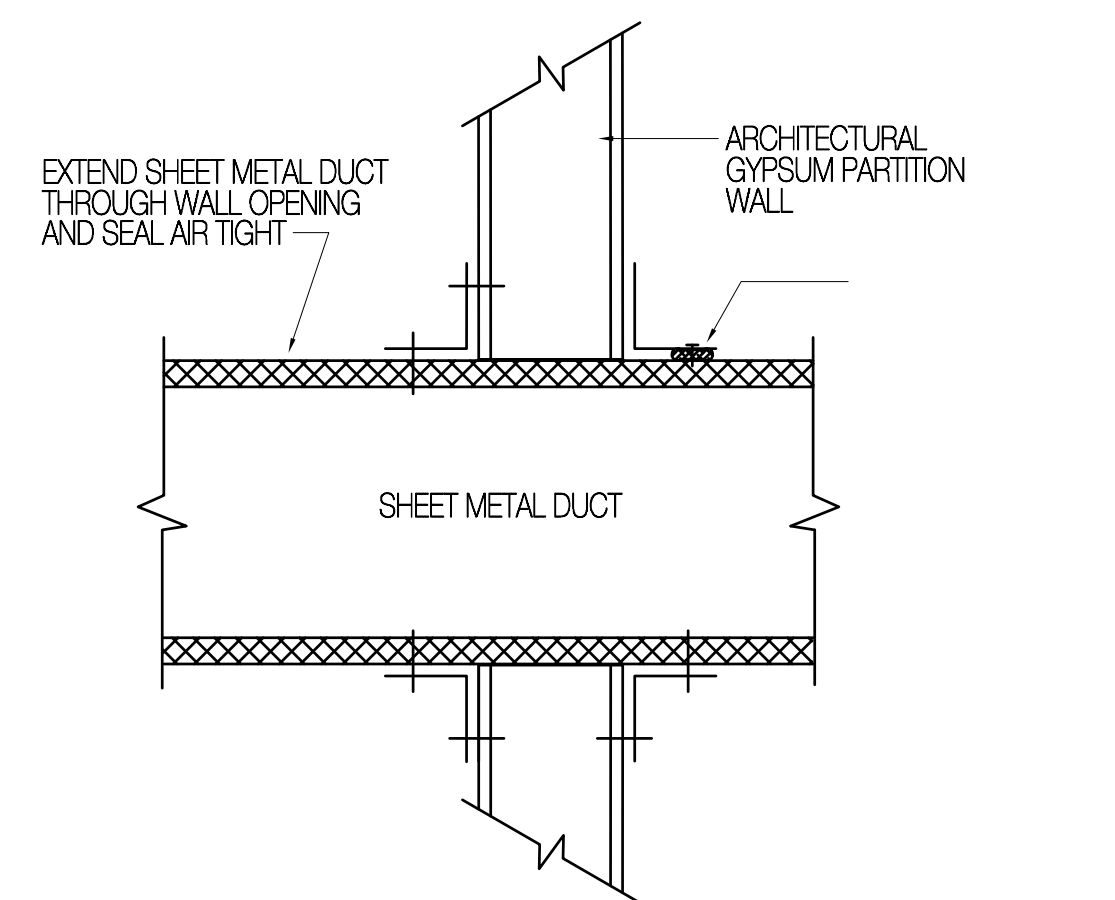
UNIT WEIGHTS:  
 RTU-1: 680 LBS.

**GRILLES AND DIFFUSERS**

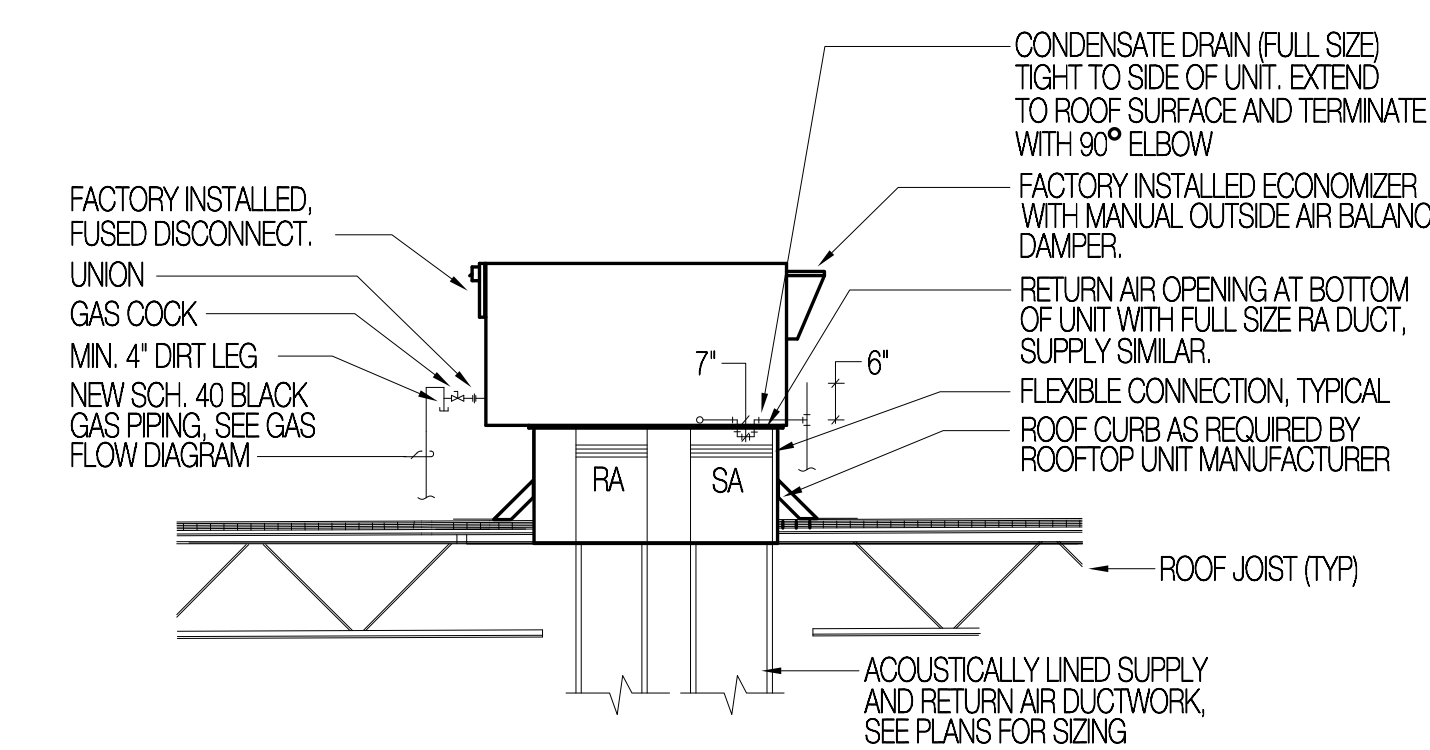
SYMBOL	CFM	NECK SIZE	FACE SIZE	KRUEGER MODEL	REMARKS
S-1	AS NOTED	AS NOTED	AS NOTED	PA2	-
S-2	AS NOTED	AS NOTED	AS NOTED	SH	-
R-1	AS NOTED	AS NOTED	AS NOTED	S85H	-

**GENERAL NOTES**

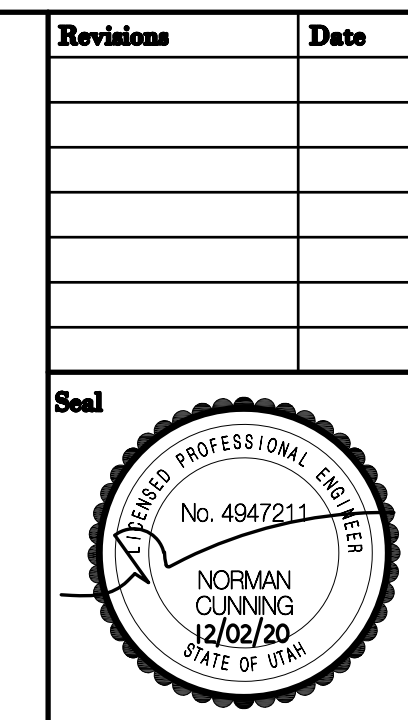
- ALL DRAWINGS SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL ASPECTS OF THE CONTRACT DOCUMENTS PRIOR TO SUBMITTING PRICING. ANY AND ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO ANY INSTALLATION SUCH THAT CLARIFICATIONS CAN BE ISSUED.
- ANY WORK PERFORMED OR MATERIAL USED WHICH IS SHOWN TO BE IN CONFLICT WITH THE CONTRACT DRAWINGS, SPECIFICATIONS OR ANY APPLICABLE CODE OR GOVERNING REGULATION SHALL BE REMOVED AND REPLACED OR CORRECTED AT THE CONTRACTOR'S EXPENSE.
- ALL SYMBOLS AND ABBREVIATIONS USED ON THE CONTRACT DRAWINGS ARE CONSIDERED CONSTRUCTION STANDARDS. IF CLARIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH ANY WORK.
- DO NOT SCALE THE DRAWINGS; ALL EXISTING CONDITIONS AND DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR TO FABRICATION OF MATERIALS OR ERECTION OF ASSEMBLIES. IF DISCREPANCIES ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED FOR CLARIFICATION.
- THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR AND EQUIPMENT, TRANSPORTATION AND SERVICES REQUIRED FOR COMPLETION OF THE WORK. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE DONE IN STRICT COMPLIANCE WITH ALL LOCAL CODES AND GOVERNING REGULATIONS.
- ALL PERMITS AND FEES WHICH ARE REQUIRED FOR THIS WORK SHALL BE SECURED AND PAID FOR BY THE MECHANICAL CONTRACTOR.
- ALL PLUMBING AND MECHANICAL INSTALLATIONS SHALL ADHERE TO THE 2018 IECC INCLUDING: MINIMUM R-6 INSULATION ON ALL NON-ACOUSTICALLY LINED DUCTWORK; ACOUSTICAL LINER SHALL PROVIDE A MINIMUM OF R-6 INSULATING VALUE. ALL DOMESTIC WATER PIPING SHALL BE INSULATED WITH A MINIMUM 1" FIBERGLASS INSULATION.



**2 DUCT PENETRATION DETAIL**  
SCALE: NONE



**1 RTU INSTALLATION DETAIL**  
SCALE: NONE



Consultant:  
**Cunning & Associates**  
 Mechanical Consulting Engineers  
 4685 W. 11800 N. Tremonton, UT 84317  
 Email: ncfm@cunningeng.com  
 Ph: (801) 726-9647

Project Name  
**HORIZON MASONRY (SUITE A/B 2020 REMODEL)**  
**APPROX. 850 WEST 350 NORTH**  
**KAYSVILLE, UT**

Project Number  
**4120**

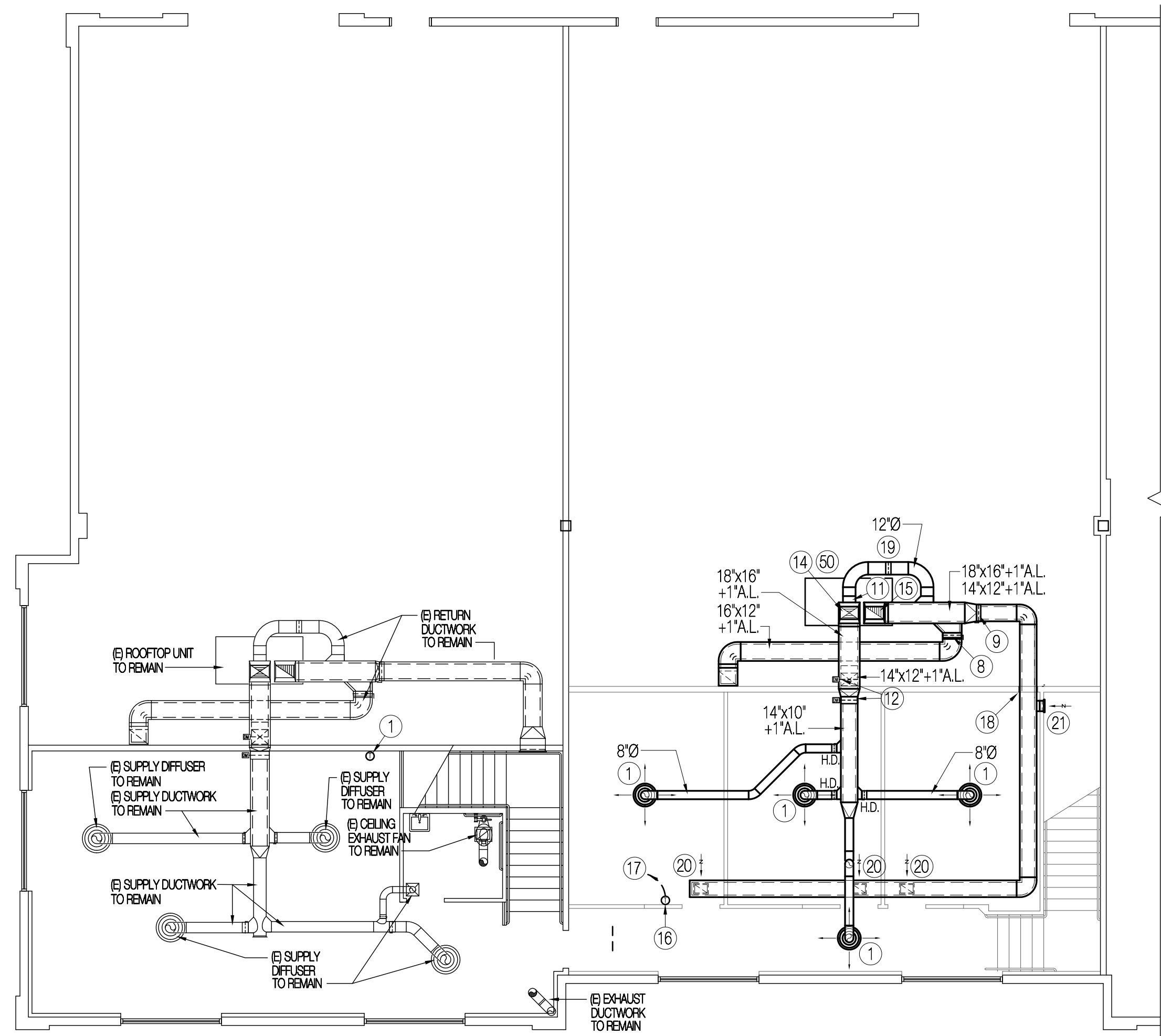
Issue Date  
**12/02/20**

Drawing Title  
**HVAC SCHED. SYMB. LEGENDS AND DETAILS**

Sheet Number

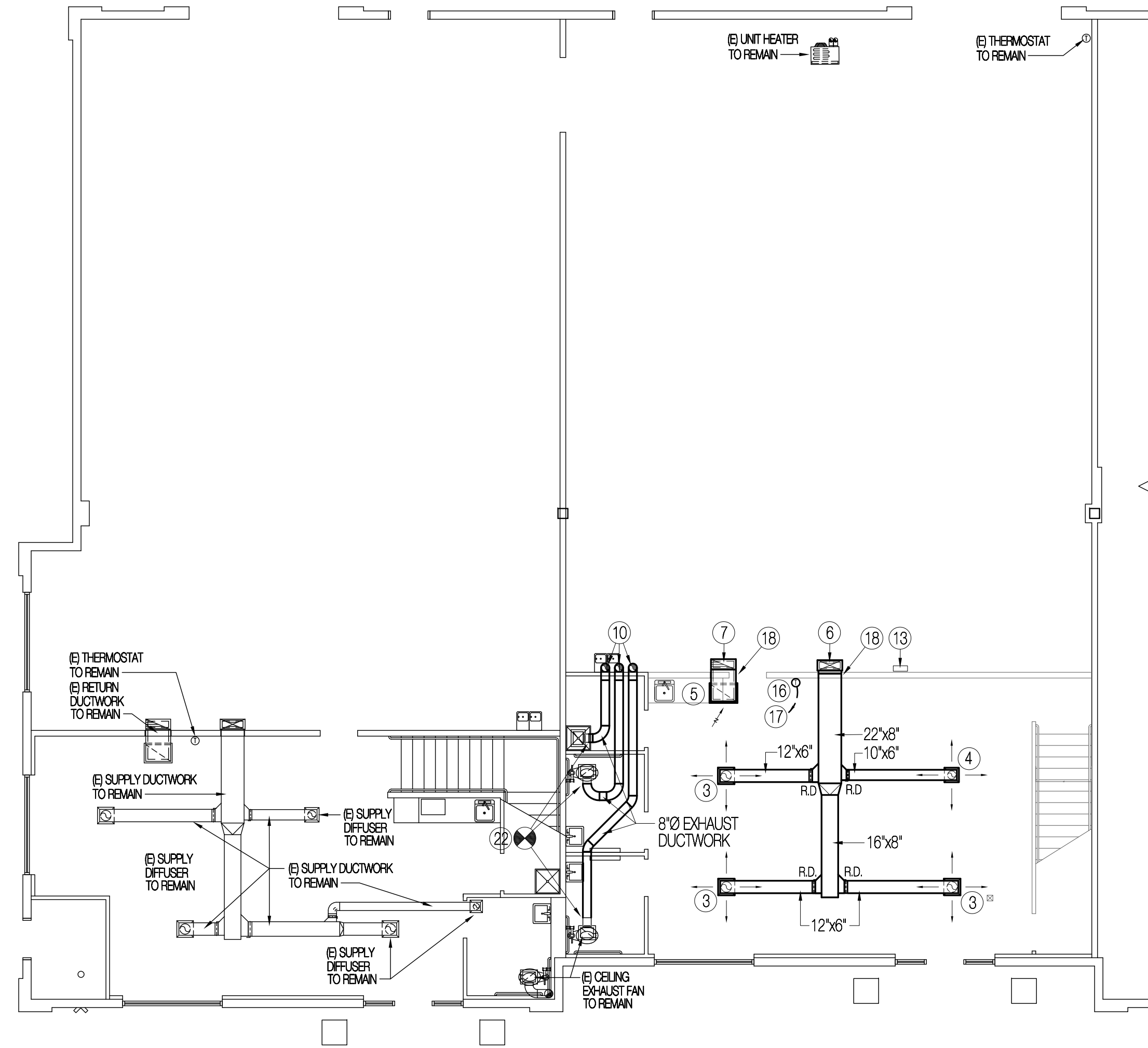
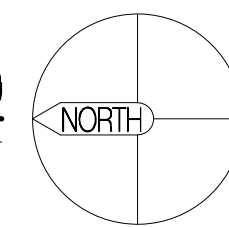
**M-000**





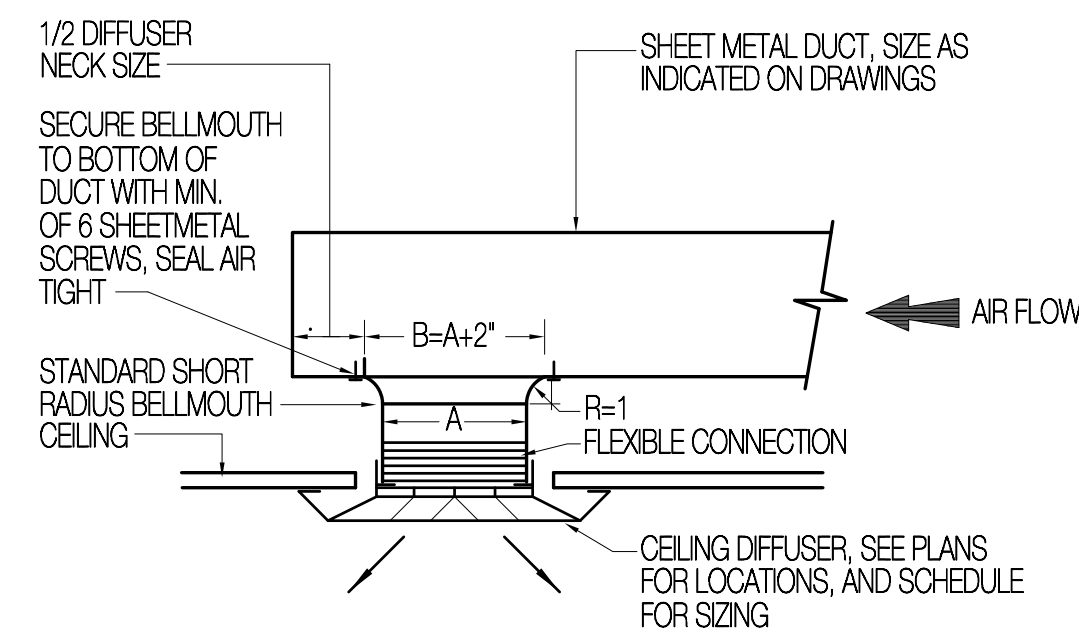
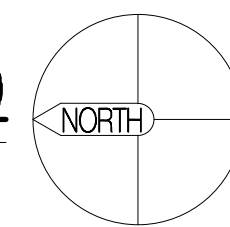
**SECOND FLOOR HVAC PLAN (UNIT A)**

SCALE 1/8" = 1'-0"



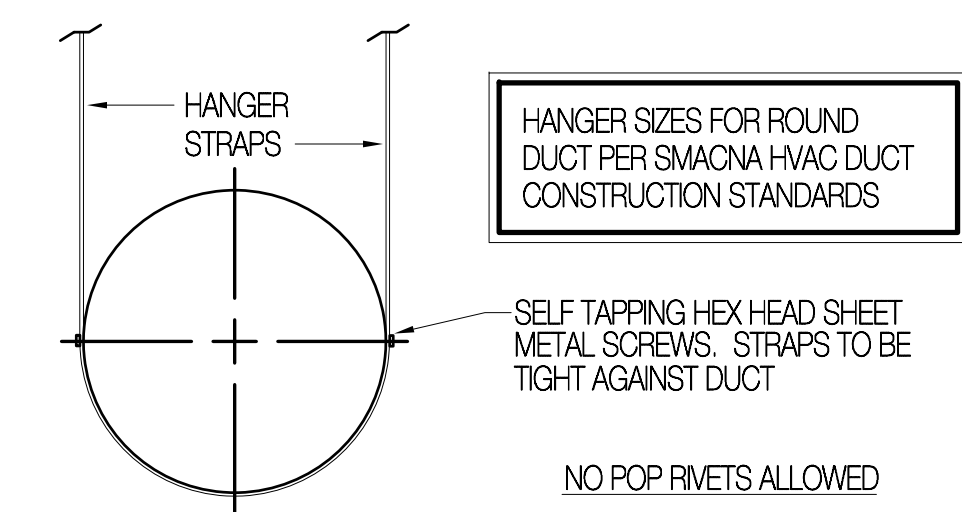
**MAIN FLOOR HVAC PLAN (UNIT A)**

SCALE 1/8" = 1'-0"



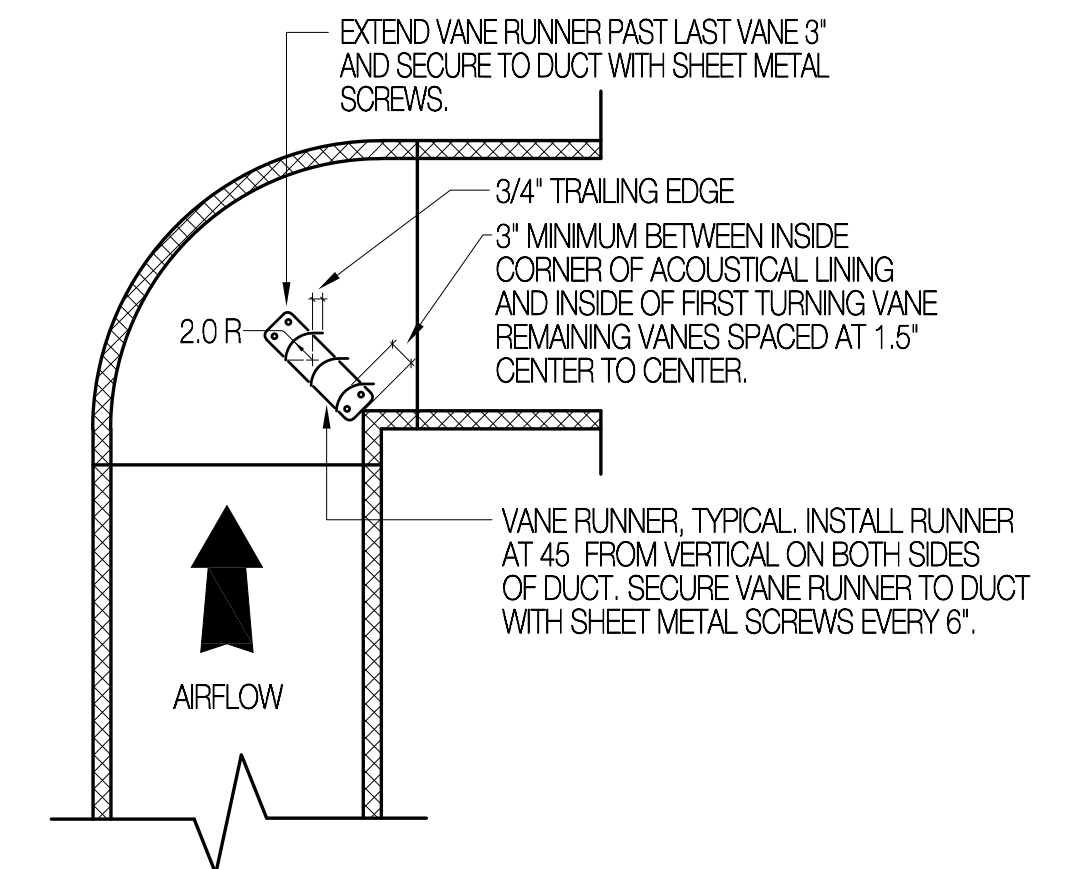
**RECT. RUNOUT / DIFFUSER DETAIL**

SCALE: NONE



**RND. DUCT HANGER DETAIL**

SCALE: NONE



**TURNING VANE DETAIL**

SCALE: NONE

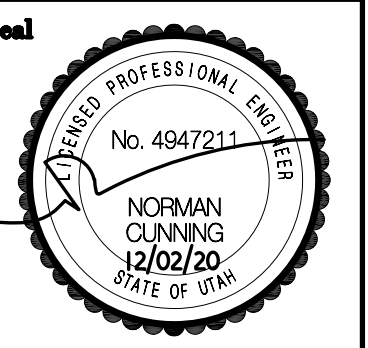
**DRAWING NOTES**

- 1 [S-1] 190 CFM, 8"Ø NK. S.A. DIFFUSER.
- 2 [S-1] 150 CFM, 8"Ø NK. S.A. DIFFUSER.
- 3 [S-2] 225 CFM, 10"Ø NK. S.A. DIFFUSER.
- 4 [S-2] 150 CFM, 8"Ø NK. S.A. DIFFUSER.
- 5 [R-1] 24"x16" NK. R.A. GRILLE.
- 6 22"x8"+1" A.L. SUPPLY DUCTWORK RISE TO SECOND FLOOR, TRANSITION DUCTWORK TO 14"x14"+1" A.L. IN VERTICAL RISE AND ATTACH TO MAIN. SEE SECOND FLOOR HVAC PLAN THIS SHEET FOR CONTINUATION. SUPPORT DUCT IN VERTICAL RISE WITH 16 GA. ANGLE BRACKETS ATTACHED TO WALL AND DUCT AT 5'-0" ON CENTER.
- 7 22"x8"+1" A.L. RETURN DUCTWORK RISE TO SECOND FLOOR, TRANSITION DUCTWORK TO 16"x12"+1" A.L. IN VERTICAL RISE AND ATTACH TO MAIN. SEE SECOND FLOOR HVAC PLAN THIS SHEET FOR CONTINUATION. SUPPORT DUCT IN VERTICAL RISE WITH 16 GA. ANGLE BRACKETS ATTACHED TO WALL AND DUCT AT 5'-0" ON CENTER.
- 8 BALANCE HAND DAMPER TO 880 CFM.
- 9 BALANCE HAND DAMPER TO 725 CFM.
- 10 8"Ø EXHAUST DUCT RISE TO SECOND FLOOR, RECONNECT NEW EXHAUST DUCTWORK TO EXISTING VENT CAPS ON ROOF AND SEAL AIR TIGHT.
- 11 HIGH EFFICIENCY TAKEOFF, TYPICAL.
- 12 ZONE CONTROL DAMPER, SEE CONTROL DRAWINGS SHEET M-700 FOR ADDITIONAL INFORMATION.
- 13 ROOFTOP UNIT ZONE CONTROLLER, SEE CONTROL DRAWINGS SHEET M-700 FOR ADDITIONAL INFORMATION.
- 14 18"x16"+1" A.L. SUPPLY AIR DUCTWORK ON BOTTOM OF ROOFTOP UNIT. TRANSITION PLENUM TO OUTLET COLLAR SIZE AND CONNECT WITH FLEXIBLE CONNECTION PER DETAIL 1/M-000.
- 15 18"x16"+1" A.L. RETURN AIR DUCTWORK ON BOTTOM OF ROOFTOP UNIT. TRANSITION DUCTWORK TO INLET COLLAR SIZE AND CONNECT WITH FLEXIBLE CONNECTION PER DETAIL 1/M-000.
- 16 PROVIDE AND INSTALL NEW THERMOSTAT, MOUNT THERMOSTAT AT 48" A.F.F. SEE CONTROL DIAGRAMS SHEET M-700 FOR ADDITIONAL INFORMATION.
- 17 CONTROL WIRING FROM THERMOSTATS TO ZONE CONTROLLER. SEE CONTROL DRAWINGS SHEET M-700 FOR ADDITIONAL INFORMATION.
- 18 EXTEND DUCTWORK THROUGH SHEETROCK PARTITION AND SEAL AIR TIGHT PER DETAIL 2/M-000.
- 19 BYPASS DUCTWORK WITH DAMPER.
- 20 [R-1] 12"x6" NK. R.A. GRILLE WITH O.B.D., BALANCE GRILLE TO MATCH SUPPLY CFM.
- 21 [R-1] 8"x8" NK. R.A. GRILLE WITH O.B.D., BALANCE GRILLE TO 200 CFM.
- 22 CONNECT NEW EXHAUST DUCTWORK TO EXISTING CEILING EXHAUST FANS AND EXTEND AS INDICATED.

**EQUIPMENT NOTES**

- 50 [RTU] ROOFTOP UNIT

Revisions	Date



**Consultant:**  
**Mechanical Consulting Engineers**  
**Cunning & Associates**  
 6465 W. 11600 N. Tremonton, UT 84317  
 Email: norman@cunningandeng.com  
 Ph: (801) 726-9647

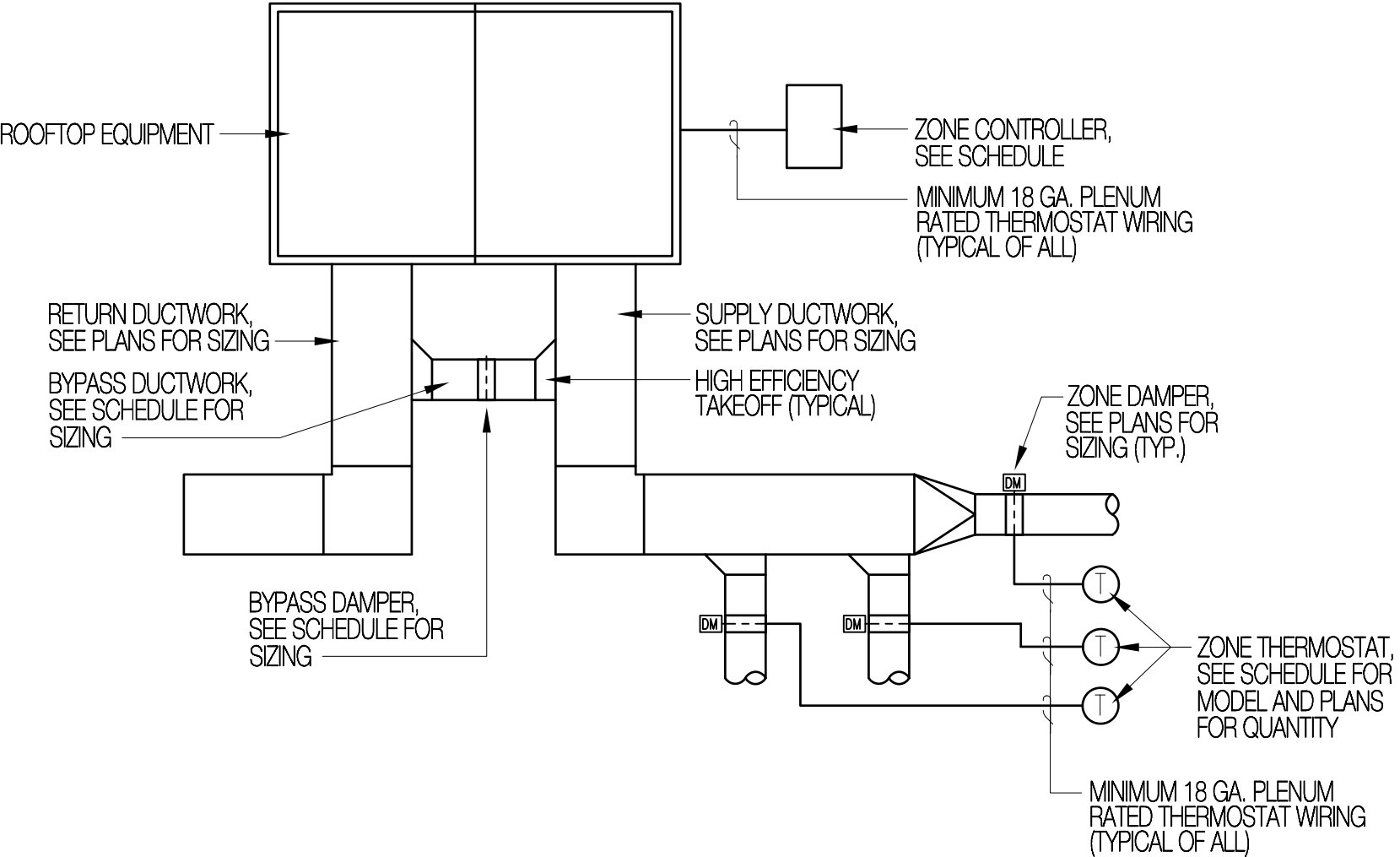
**HORIZON MASONRY (SUITE A/B 2020 REMODEL)**  
**APPROX. 850 WEST 350 NORTH**  
**KAYSVILLE, UT**

Project Number	Issue Date
4120	12/02/20

**Drawing Title**  
**MAIN / SECOND FLOOR HVAC PLANS / DETAILS**

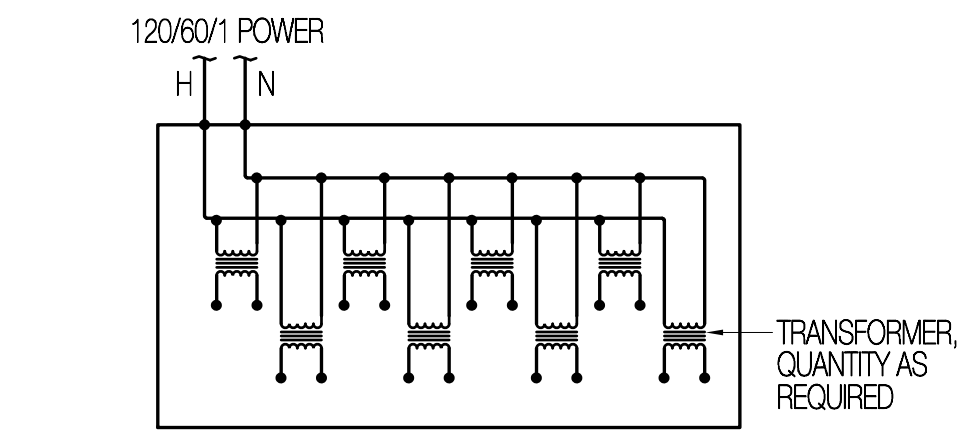
**Sheet Number**  
**M-100**

ZONE CONTROLLER SCHEDULE										
ZONE	EQUIP. SERVED	NO. OF ZONES	BYPASS DAMPER SIZE	BYPASS DAMPER MFG. / MOD.	BYPASS DAMPER PRESS. SETTING	BYPASS CFM	ZONE DAMPER MANUF. / MODEL	ZONE THERMOSTAT MANUF. / MODEL	ZONEFIRST CONTROLLER MODEL	REMARKS
Z-1	RTU-1	2	12"Ø	ZONEFIRST / RDM	0.20" - 0.30"	1,000	ZONEFIRST ZDS	VENSTAR / T2900	MZP4	WITH SPC CONTROLLER



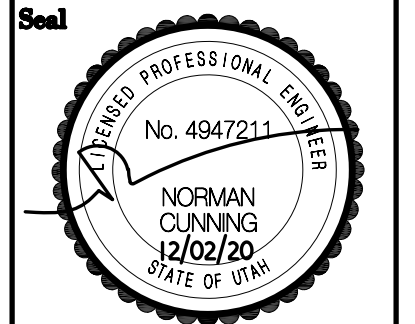
**ZONE CONTROLLER SCHEMATIC**  
TYPICAL OF RTU-1

- GENERAL NOTES**
- 120 VAC ELECTRICAL POWER TO ZONE CONTROLLERS AND LOW VOLTAGE TRANSFORMER PANELS BY DIVISION 16000, DIVISION 15000 TO COORDINATE LOCATION AND QUANTITY.
  - THE CONTROLS CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR CONTROL SYSTEM CIRCUITS.
  - ANY QUESTION OF RESPONSIBILITY SHALL BE CLARIFIED BY THE GENERAL CONTRACTOR
  - ALL WIRING SHALL BE 18 GA. MULTI CONDUCTOR WITH PLENUM RATED JACKET AND SHALL TERMINATE AT LABELED TERMINAL STRIPS.



**LOW VOLTAGE TRANSFORMER PANEL LVTP**  
QUANTITY AS REQUIRED, LOCATION AS DIRECTED

Revisions	Date



**Consultant:**  
**Mechanical Consulting Engineers**  
**Cunning & Associates**  
 405 W. 1160 N. Tremonton, UT 84317  
 Email: norm@cmeng.com  
 Fax: (801) 726-0447

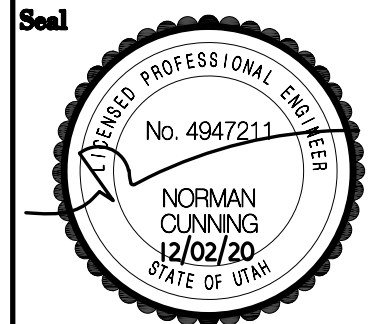
Project Name  
**HORIZON MASONRY (SUITE A/B 2020 REMODEL)**  
**APPROX. 850 WEST 350 NORTH**  
**KAYSVILLE, UT**

Project Number	Issue Date
4120	12/02/20

Drawing Title  
**HVAC CONTROLS, DETAILS, AND SECTIONS**

Sheet Number  
**M-700**

Revisions	Date



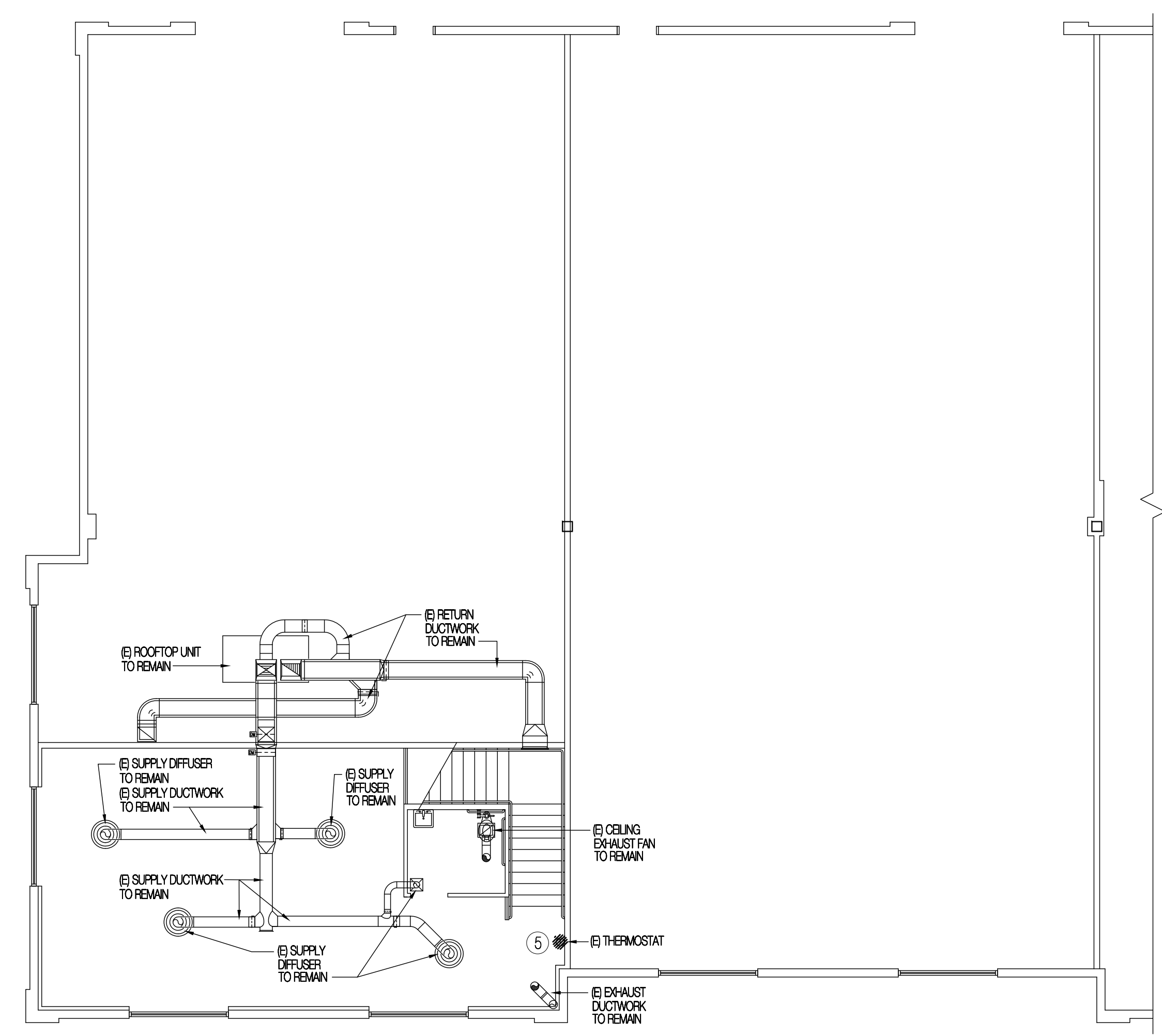
**Consultant:**  
**Mechanical Consulting Engineers**  
**Cunning & Associates**  
 468 W. 11600 N. Tremonton, UT 84317  
 Email: norm@mceng.com  
 Ph: (801) 724-9047

### GENERAL DEMO. NOTES

1. REMOVE ALL PORTIONS OF EXISTING HVAC INSTALLATION NOT REQUIRED TO REMAIN IN SERVICE. FIELD COORDINATE REMOVAL WITH REMODEL PLAN, SHEET M-100 AND REMOVE EXISTING DUCTWORK SYSTEMS COMPLETE INCLUDING; DUCTWORK, DIFFUSERS, ETC PREPARATORY TO NEW WORK.
2. REMOVE ALL PORTIONS OF EXISTING HVAC CONTROL SYSTEMS NOT REQUIRED TO REMAIN IN SERVICE. FIELD COORDINATE REMOVAL WITH REMODEL PLAN, SHEET M-100 AND REMOVE EXISTING CONTROL SYSTEMS COMPLETE INCLUDING; CONTROLS, AND CONTROL WIRING PREPARATORY TO NEW WORK.

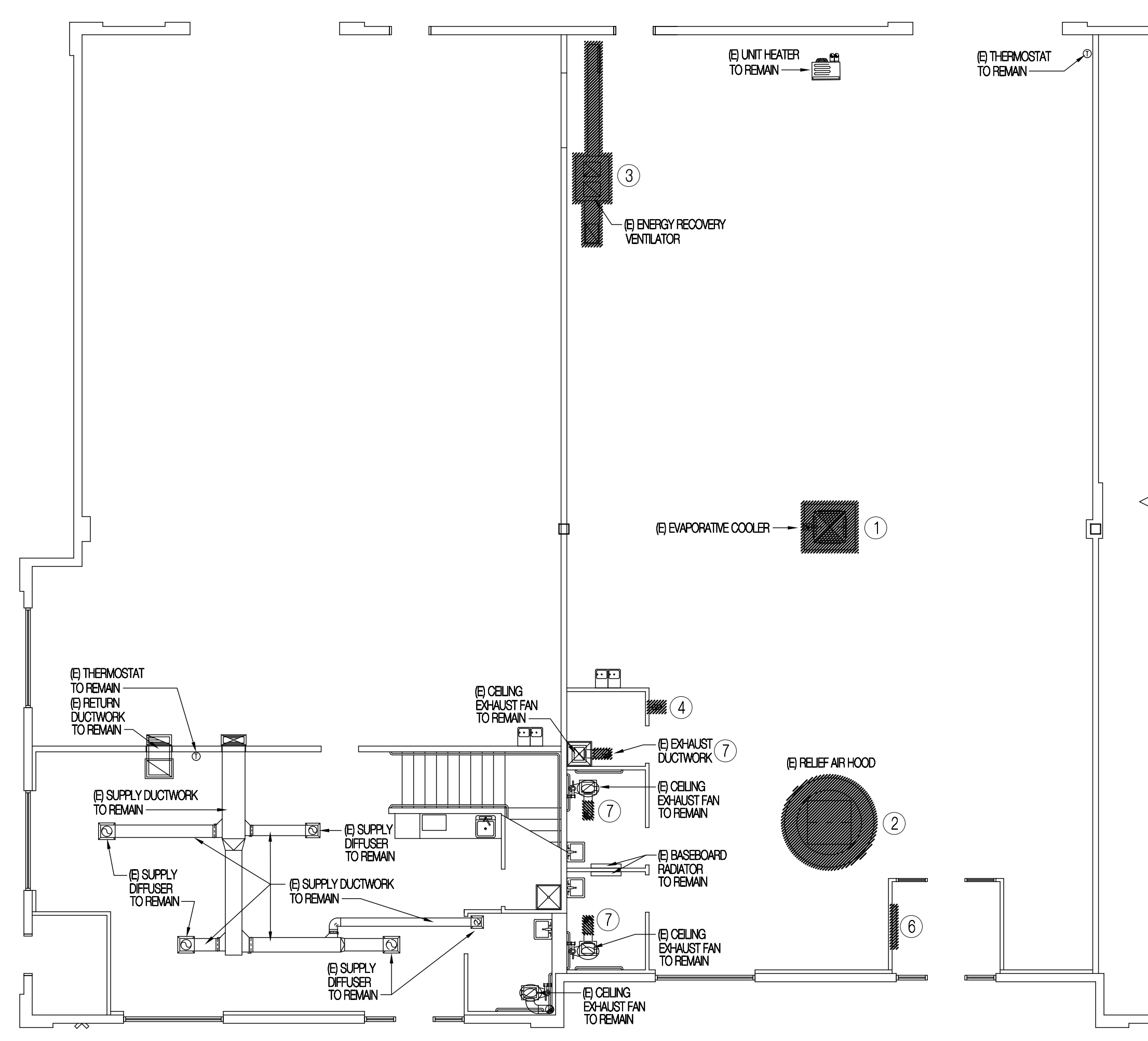
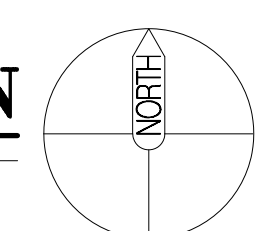
### DRAWING NOTES

1. REMOVE EXISTING EVAPORATIVE COOLER COMPLETE. REMOVAL SHALL INCLUDE UNIT, ALL ASSOCIATED HANGERS, CONTROLS, AND VENT PIPING PREPARATORY TO NEW WORK.
2. REMOVE EXISTING RELIEF AIR HOOD COMPLETE. REMOVAL SHALL INCLUDE UNIT, ALL ASSOCIATED HANGERS, CONTROLS, AND DUCTWORK PREPARATORY TO NEW WORK.
3. REMOVE EXISTING ENERGY RECOVERY VENTILATOR COMPLETE. REMOVAL SHALL INCLUDE UNIT, ALL ASSOCIATED HANGERS, CONTROLS, AND DUCTWORK PREPARATORY TO NEW WORK.
4. REMOVE EXISTING EVAPORATIVE COOLER SWITCH COMPLETE.
5. REMOVE EXISTING THERMOSTAT PREPARATORY TO NEW WORK. RETAIN EXISTING THERMOSTAT FOR REINSTALLATION. SEE HVAC REMODEL PLAN SHEET M-100 FOR REINSTALLATION LOCATION.
6. REMOVE EXISTING BASEBOARD RADIATOR COMPLETE PREPARATORY TO NEW WORK.
7. REMOVE EXISTING EX-HAUST DUCTWORK BETWEEN CEILING EX-HAUST FAN AND ROOF PENETRATION.



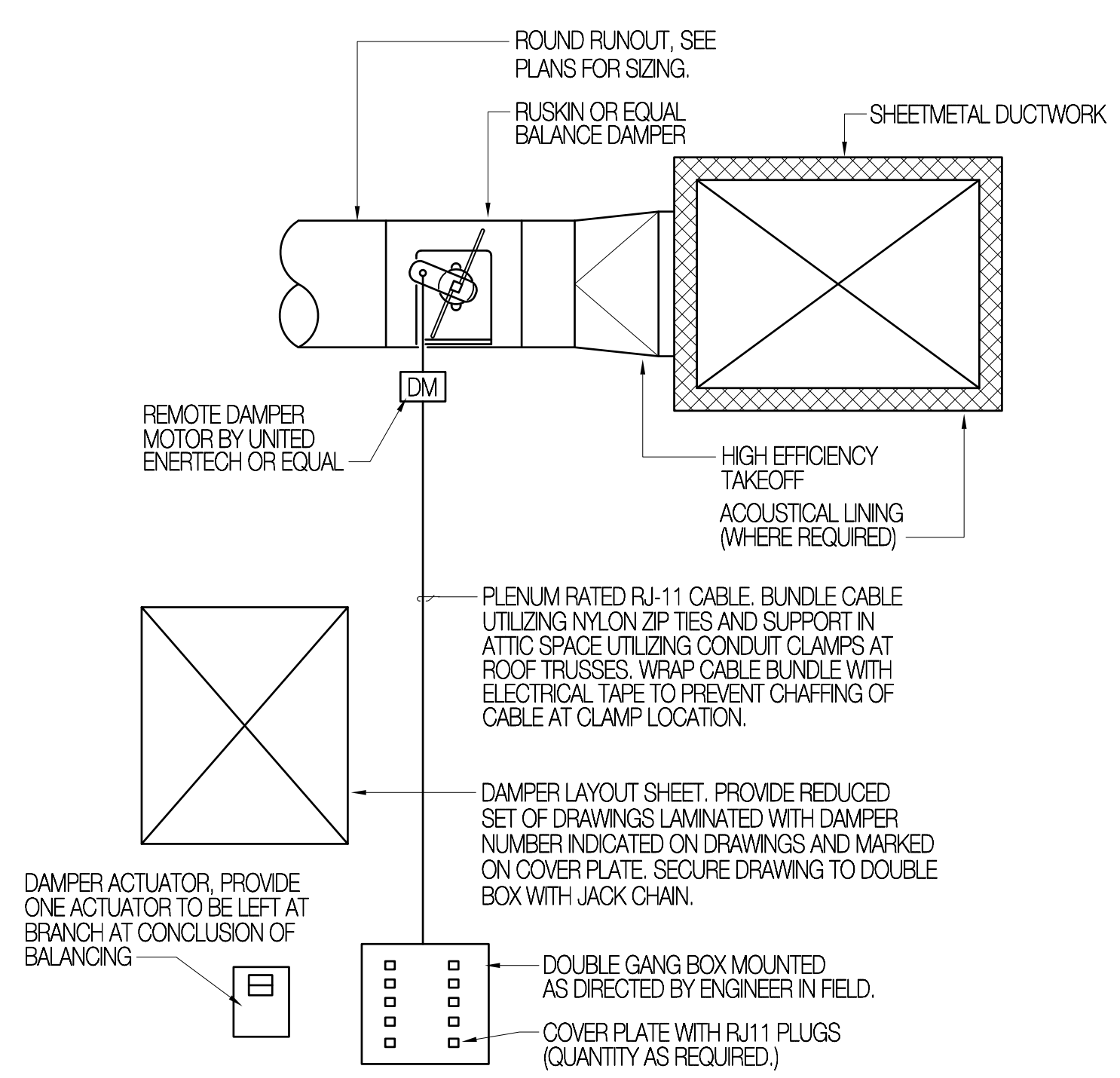
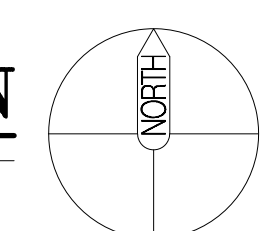
### SECOND FLOOR HVAC DEMOLITION PLAN

SCALE 1/8" = 1'-0"



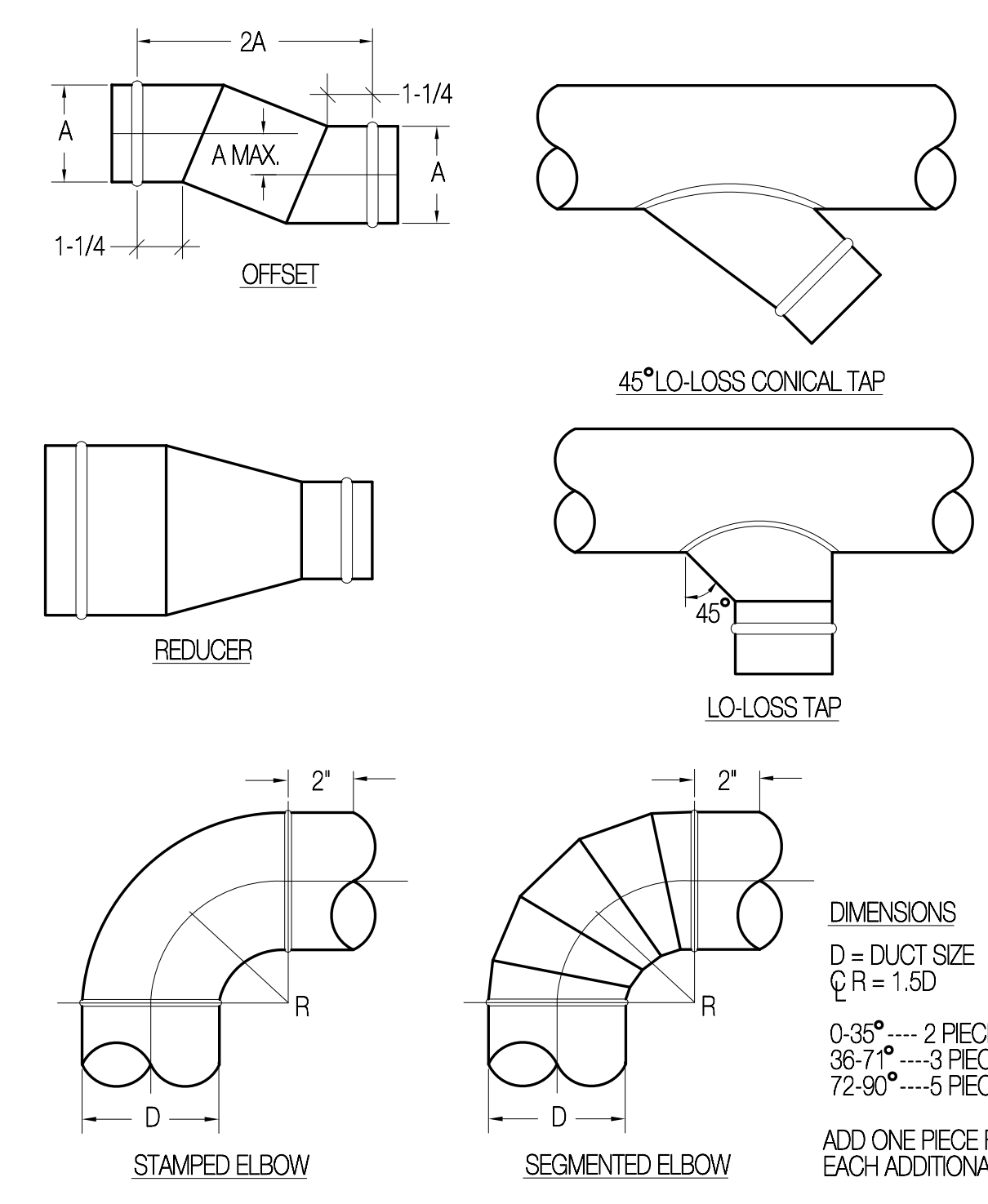
### FIRST FLOOR HVAC DEMOLITION PLAN

SCALE 1/8" = 1'-0"



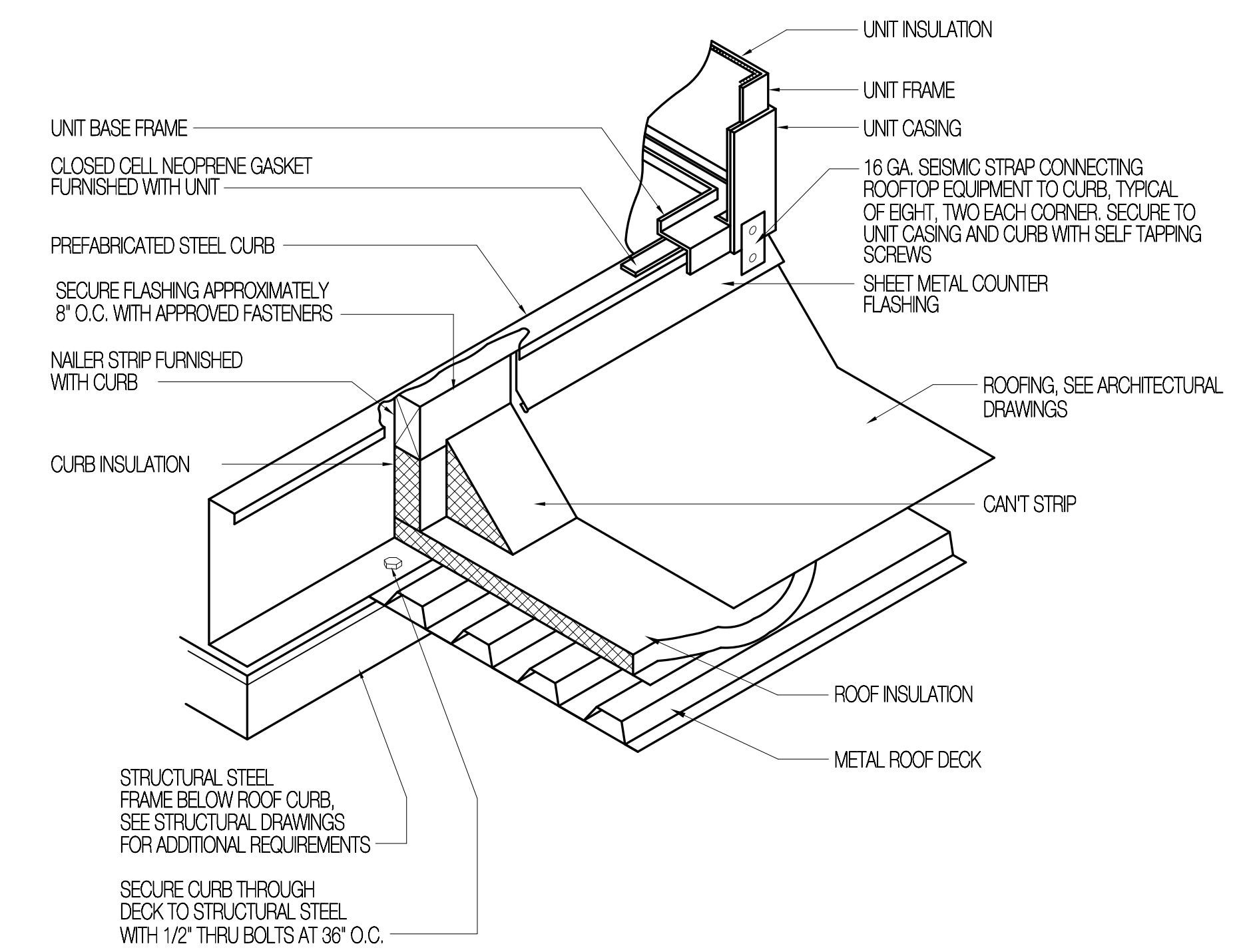
### 6 REMOTE DAMPER CONTROLLER DETAIL

SCALE: NONE



### 2 ROUND DUCT FITTINGS

SCALE: NONE



### 1 ROOFTOP EQUIPMENT FLASHING DETAIL

SCALE: NONE

Project Name  
**HORIZON MASONRY (SUITE A/B 2020 REMODEL)**  
**APPROX. 850 WEST 350 NORTH**  
**KAYSVILLE, UT**

Project Number	Issue Date
4120	12/02/20

Drawing Title  
**HVAC DEMO PLANS AND DETAILS**

Sheet Number  
**MD 100**

**MECHANICAL SPECIFICATIONS**

**GENERAL CONDITIONS**

**DESCRIPTION OF PROJECT:** The mechanical work described in these mechanical specifications is for a project located in Kaysville, Utah. Design weather conditions are: 95° db, 62° wb, and winter 8°F. Altitude readings, unless otherwise noted, are for an elevation of 4,300 feet above sea level. Make adjustment to manufacturer's performance data as needed.

**CODES AND PERMITS, AUTHORITIES HAVING JURISDICTION:**

- 2018 International Mechanical Code - (with Utah amendments)
2018 International Building Code - (with Utah amendments)
2018 International Plumbing Code - (with Utah amendments)
2018 International Energy Code - (with Utah amendments)
SMACNA Duct Design Standards
Locally enforced NFPA Codes
Local Fuel Utility Regulations
Local Power Utility Regulations
American Gas Association
ASTM B31.1 Piping

**DEFINITION OF PLANS AND SPECIFICATIONS:** The mechanical drawings at reduced scale show the general arrangement of piping, ductwork, equipment, etc., and shall be followed as closely as the actual building construction and the work of other trades will permit. The architectural and structural drawings shall be considered as part of the work insofar as these drawings furnish the Contractor with information relating to design and construction of the building. Architectural drawings shall take precedence over mechanical drawings. Request clarification and participate in resolution in the event of conflict.

- A. Because of the small scale of the mechanical drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. Investigate the structural and finish conditions affecting the work and arrange the work accordingly, providing such extensions, fittings, valves and accessories to meet the conditions as may be required.
B. Examine the actual construction site prior to bidding and obtain an understanding of the conditions under which the work will be performed.
C. During construction, verify the dimensions governing the mechanical work at the building.

**ALTERNATIVE CONSTRUCTION/SUBSTITUTION:** The contract documents outline a way in which the Owner may be delivered a functional and reliable facility. Drawings and specifications describe reasonable engineering practice for the Contractor to follow.

- A. Coordination between trades may result in periodic needs to adjust the installation from that indicated, but in no case shall the intended function be compromised.
B. The Contractor may perceive some work methods which differ from those specified which could save time and effort.
C. Materials substitutions will generally be covered in a review process prior to bidding.

**QUALITY OF MATERIALS AND EQUIPMENT:**

- A. All equipment and materials shall be new, and shall be the standard products of manufacturers regularly engaged in the production of plumbing, heating, ventilating and air conditioning equipment.
B. Furnish and install all major items of equipment specified in the equipment schedules on the drawings

- C. Duct Sealing Compound: Duct sealing compound shall be 3M brand number EC-750 or Duro-Dyne S-2.
D. Acoustical Lining: Acoustical lining in ducts shall be 1" thick, 1-1/2 pound density, coated, flexible glass fiber type.
E. Duct Liner Adhesive: Comply with ASTM C 916 "Specifications for Adhesives and Duct Thermal Insulation".
F. Duct Liner Fasteners: Comply with SMACNA HVAC Duct Construction Standards, Article S2.11.
G. Ductwork Support Materials: Except as otherwise indicated, provide hot-dipped galvanized steel fasteners, anchors, rods, straps, trim and angles for support of ductwork.

**GRILLES AND DIFFUSERS:**

- A. Ceiling Supply Diffuser (S-1): Krueger series RA2, 4 cone round diffuser, steel construction, fully adjustable, black baked enamel finish.
B. Ceiling Supply Diffuser (S-2): Krueger series SH, square face, one, two three or four way blow as required.
C. Return and Transfer Grille (R-1): Krueger series S85H. Heavy duty steel construction.

**MECHANICAL CONTROLS:**

**CONDUCTORS:**

- A. Color coded and No. 16 and No. 12 AWG Type TWN, TFN, or THHN, stranded.
B. Thermostat Cable - 12 conductor or 8 conductor, 18AWG solid copper wire, insulated with high density polyethylene.

**THERMOSTAT:** (Typical RTU-1)

- A. Programmable low voltage type provided with automatic change over feature for both heating and cooling stages.
B. Battery - Mallory AA 1.5 volt alkaline type or equal as approved by Engineer.
C. Approved Manufacturer & Model - Venstar T2900

**ZONE CONTROLLER**

- A. Microprocessor controller with LED indicator display, 4 stage heat / 3 stage cooling capacity.
B. Approved Manufacturer - Zonefirst MDP3 with expansion cards as required.

**SENSORS:**

- A. Outside Air Sensor, PT3000 averaging type, compatible with T7350 thermostat.
B. Discharge Air Sensor, 20kOhm averaging type, compatible with T7350 thermostat.

**TRANSFORMER:**

- A. 120/24 volt, 38VA Honeywell AT72D1188, cover mount
B. 120/24 volt, 50VA Honeywell AT87A1106, foot mount

complete with all accessories normally supplied with catalog items listed, and all other accessories necessary for a complete and satisfactory installation.

**MANUFACTURER'S DIRECTIONS:** Install all equipment in strict accordance with directions and recommendations furnished by the manufacturer.

**VALVES:**

- A. BALL VALVES: Copper piping, 2-1/2" and Smaller: 475 psig WOG @ 250°F.
1. Manufacturers & Models: Provide ball valves from one of the manufacturers and model numbers listed below.

**INSULATION:**

- A. WATER PIPING (domestic cold & hot water, 1-1/2" thickness required.)
B. FLEXIBLE FIBERGLASS DUCTWORK INSULATION: ASTM C 553, Type I - resilient, flexible.

**NATURAL GAS PIPING:**

- A. BUILDING DISTRIBUTION PIPING: Pipe Size 2" and Smaller: Black steel pipe.
B. GAS COCKS: Gas Cocks 2" and Smaller: 150 psi non-shock WOG.

**DOMESTIC WATER:**

- A. DOMESTIC WATER PIPE: Pipe Sizes 2" and Smaller: Copper tubing. Conform to ASTM B88, Type L, hard temper.

**WASTE, DRAIN AND VENT PIPING:**

- A. SANITARY SOIL DRAIN, WASTE AND VENT PIPING: Piping and Fittings: Schedule 40 PVC pipe and fittings.

**AUXILIARY RELAYS:**

- A. Light Duty - as required.
B. Heavy Duty - Square D, Class 8501, Type X.

**AIR SYSTEMS BALANCE:**

- A. Before any adjustments are made, check the systems for such items as dirty filters.
B. Adjust supply, and recirculation air systems towards air quantities shown on drawings.
C. Distribution system shall be further adjusted to obtain uniform space temperatures.

**EQUIPMENT SELECTION**

The contractors shall select equipment based on the drawing schedules and requirements of these specifications. Any and all substitutions shall be presented during submittals for approval.

**FIXTURES AND TRIM:** The model numbers listed below have been carefully selected to help bidders in the submittal process of selecting fixtures and trim. The completeness and accuracy of these numbers must be verified during the bidding process.

- A. Sinks: (P-1) Break Room Single Bowl
a. Single compartment, counter mounted.
b. Approved Manufacturers: Just No. DL-1933-A-GR, Elkay No. LRAD-252155
c. Underdeck mounted, 8" high rigid gooseneck spout.
d. Approved Manufacturers: Chicago Faucet No. 786-HZFCPP, T & S Brass
e. Supplies and Stops: Chrome plated quarter turn cast brass angle stop.
f. Approved Manufacturers: Brass Craft, Eastman, McGuire
g. Outlet Fitting and Tailpiece: Chrome plated 17 gauge cast brass.
h. Approved Manufacturers: Elkay No. LK-53, Just
i. Strainer: Basket strainer, stainless steel, stainless steel basket, neoprene stopper.
j. Approved Manufacturers: Jameco, Sanitary Dash No. SS3000W, McGuire, Elkay, Just
k. Cleanouts: Finished Walls.
l. Approved Manufacturers: Zurn No. Z-1445-1, J.R. Smith No. 4530, Wade No. W-8460-R, Josam No. 58790

**DUCTWORK - GENERAL:**

- A. Standards: All duct fabrications shall comply with standards and techniques detailed by SMACNA "Duct Construction Manuals".
B. Sheet Metal: Except as otherwise indicated, fabricate ductwork from galvanized sheet steel.

**FITTINGS AND FABRICATION:**

- A. Fittings: Fabricate duct fittings to match adjoining ducts.
B. Fabricate ductwork with accessories installed during fabrication.
C. Fabricate ductwork with duct liner in each section of duct.
D. Offset, transition, adapt ductwork to structural obstacles.

**LOW PRESSURE ROUND DUCTWORK:**

- A. Round type ductwork for use on low velocity supply systems.
B. All end joints shall have at least three screw fasteners.

**MEDIUM PRESSURE DUCTWORK:** (3" SMACNA Pressure Class)

- A. General: At installer's option, provide factory-fabricated duct.
B. Round Ductwork: Construct of galvanized sheet steel complying with ASTM A 527.
Diameter Minimum Gauge Method of Manufacture
3" to 14" 26 Spiral Lockseam
15" to 26" 24 Spiral Lockseam

- C. Round Duct Fittings and Couplings: Construct of minimum gauges listed.

**LOW PRESSURE RECTANGULAR DUCTWORK:**

- A. Rectangular ductwork for use on supply systems up to 2" maximum duct static pressure.
B. Use radiused elbows, or square inside radiused outside elbows.
C. Duct dimensions are inside clear.

**MISCELLANEOUS DUCTWORK MATERIALS:**

- A. General: Provide miscellaneous materials and products of types and sizes indicated.
B. Runout Fittings: Runout fittings shall be used to make round to rectangular duct connections.

Revisions, Date table and Professional Engineer Seal for No. 4347211, NCFMAN CUNNING, 12/02/20, STATE OF UTAH.

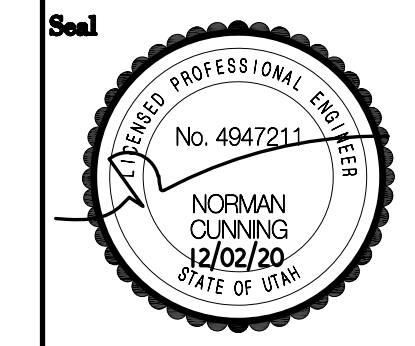
Consultant: Mechanical Consulting Engineers, Cunning & Associates, 666 W. 1180 N. Tremonton, UT 84307, Phone: (801) 726-9647.

Table with 3 columns: Diameter, Minimum Gauge, Method of Manufacture. Includes data for spiral lockseam fittings.

Table with 3 columns: Diameter, Minimum Gauge. Includes data for rectangular ductwork.

Project Name: HORIZON MASONRY (SUITE A/B 2020 REMODEL), APPROX. 850 WEST 350 NORTH KAYSVILLE, UT. Project Number: 4120, Issue Date: 12/02/20, Drawing Title: MECHANICAL SPECIFICATIONS, Sheet Number: MS 100.

Revisions	Date



**Consultant:**  
**Mechanical Consulting Engineers**  
**Cuning & Associates**  
 4665 W. 11600 N. Tremonton, UT 84317  
 Email: norm@cuning-eng.com  
 P: (435) 726-5947

**Project Name**  
**HORIZON MASONRY (SUITE A/B 2020 REMODEL)**  
**APPROX. 850 WEST 350 NORTH**  
**KAYSVILLE, UT**

**Project Number**  
4120

**Draw Date**  
12/02/20

**Drawing Title**  
**PLUMB. SCHED.**  
**7 / DETAILS AND PLANS**

**Sheet Number**  
**P-000**

## PLUMBING SYMBOL LEGEND \ ABBREVIATIONS

WCO	WALL CLEAN OUT	Drop in Pipe	GAS PRESSURE REGULATOR	
DCW	DOMESTIC COLD WATER (DCW)	Rise in Pipe	Ball Valve	
DHW	DOMESTIC HOT WATER (DHW)	Elbow in Pipe	Valve in Drop	
W	WASTE (W)	Tee in Pipe	Union	
V	VENT (V)	Gas Shutoff Valve	MV	MIXING VALVE

## PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	COLD	HOT	TRAP	WASTE	VENT	REMARKS
P-1	BREAKROOM SINK, SINGLE BOWL, STAINLESS STEEL	1/2"	1/2"	1-1/2"	2"	1-1/2"	-
WCO	WALL CLEAN OUT	-	-	-	-	-	-

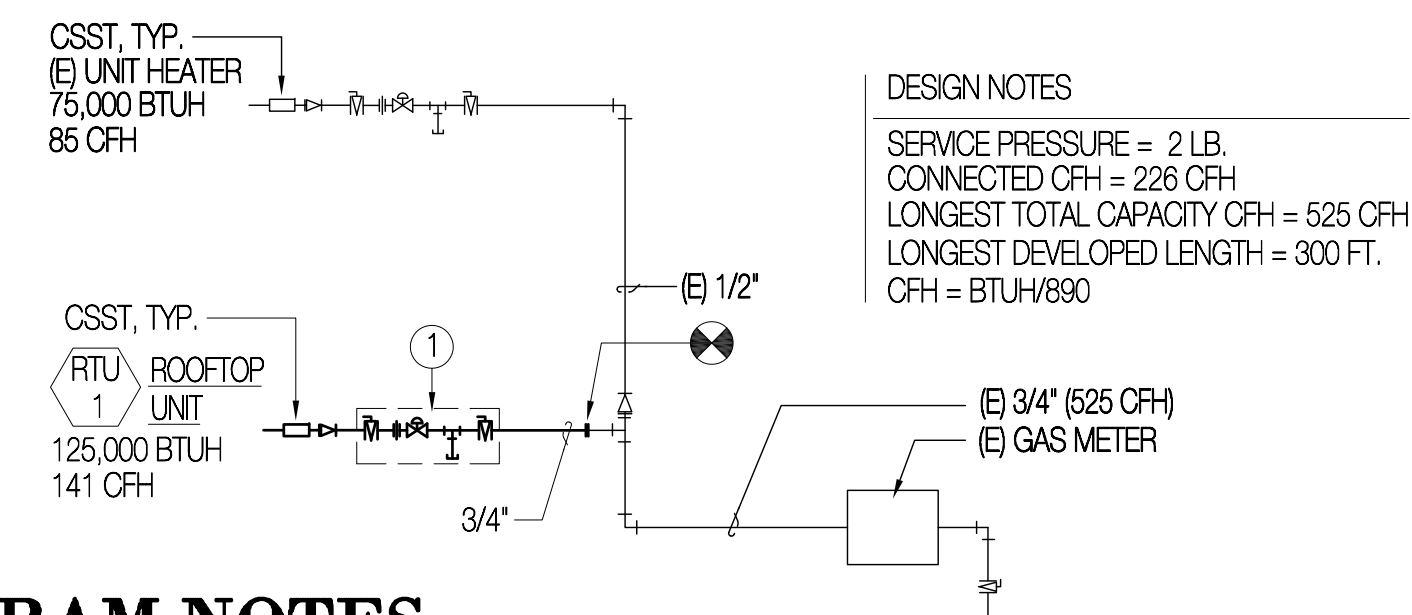
### GENERAL FIXTURE NOTES:

- THE PLUMBING CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF ALL PLUMBING EQUIPMENT AND THE RELATED ROUGH IN LOCATIONS WITH THE MECHANICAL AND ARCHITECTURAL PLANS AND SPECIFICATIONS. PROVIDE ALL ACCESSORIES AND OPTIONS REQUIRED TO PROVIDE THE OWNER A COMPLETELY FUNCTIONAL PLUMBING SYSTEM.
- EACH INDIVIDUAL FIXTURE SUPPLY SHALL BE PROVIDED WITH A CHROME-PLATED QUARTER TURN STOP VALVE BRASSCRAFT MODEL KTORL OR ENGINEER APPROVED EQUAL.
- FIXTURES AND ACCESSORIES SHALL BE AS SCHEDULED. EACH ITEM SHALL BE COMPLETE WITH CHROME-PLATED BRASS TRIM.
- ALL PLUMBING SHALL BE INSTALLED TO CONFORM TO THE LATEST ADOPTED EDITION OF THE INTERNATIONAL PLUMBING CODE INCLUDING LOCAL AMENDMENTS. CONSULT AUTHORITIES HAVING JURISDICTION.
- ALL SINKS AND LAVATORIES WHERE HAND WASHING IS ANTICIPATED (FIXTURES P-2) SHALL BE PROTECTED WITH ASSE 1070 APPROVED TEMPERING VALVES PER DETAIL 7/P-000.

## PIPING MATERIALS SCHEDULE

SERVICE	MATERIAL	REMARKS
DOW / DHW	TYPE "L" COPPER TUBING W/ WROUGHT COPPER FITTINGS	-
NAT. GAS	SCHEDULE 40 BLACK IRON	-
WASTE / VENT	SOLID CORE ABS OR PVC WITH DWV FITTINGS ABOVE AND BELOW GRADE	①

- ① ALL ABS OR PVC PIPING INSTALLED IN RETURN AIR PLENUMS SHALL BE EITHER ENCLOSED IN SHEETROCK CHASES OR WRAPPED WITH 3M SA BARRIER WRAP OR EQUIVALENT.



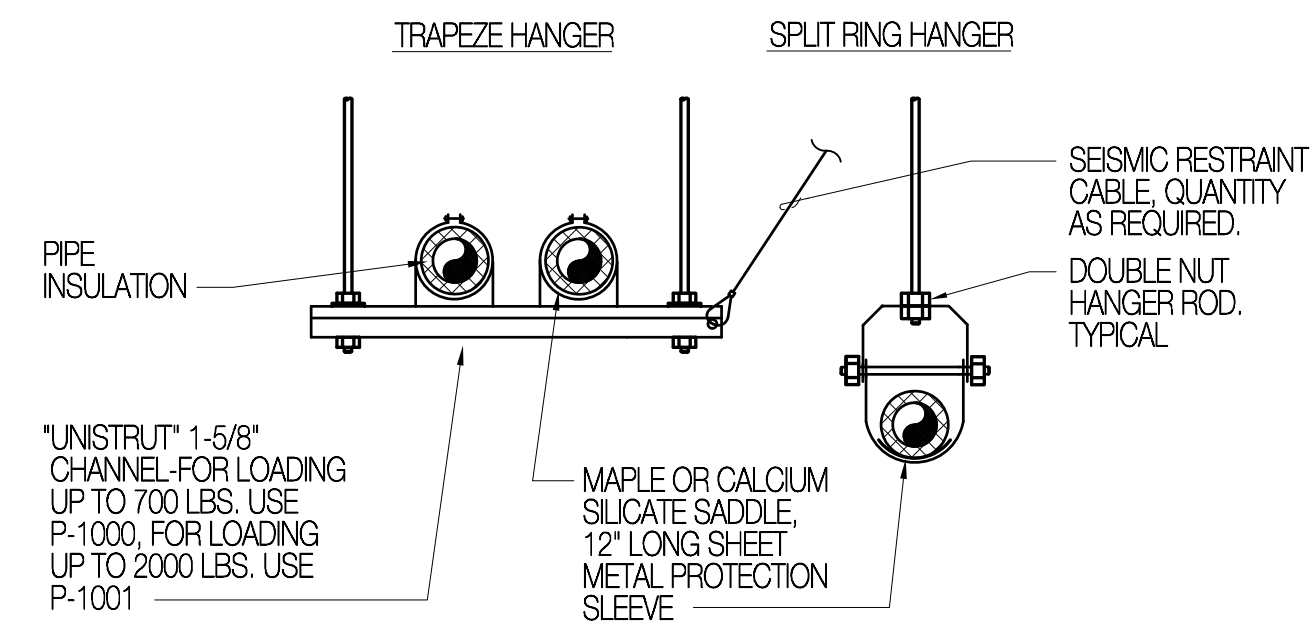
## DIAGRAM NOTES

- ① PRESSURE REGULATING STATION WITH TEST PORTS AND DIRT LEG, SEE DETAIL 2/P-000.

CONNECT EACH APPLIANCE WITH 6" DIRT LEG, PRESSURE REGULATOR, AND CORRUGATED STAINLESS STEEL TUBE (CSST) FLEXIBLE CONNECTION.

## GAS FLOW DIAGRAM

SCALE: NONE

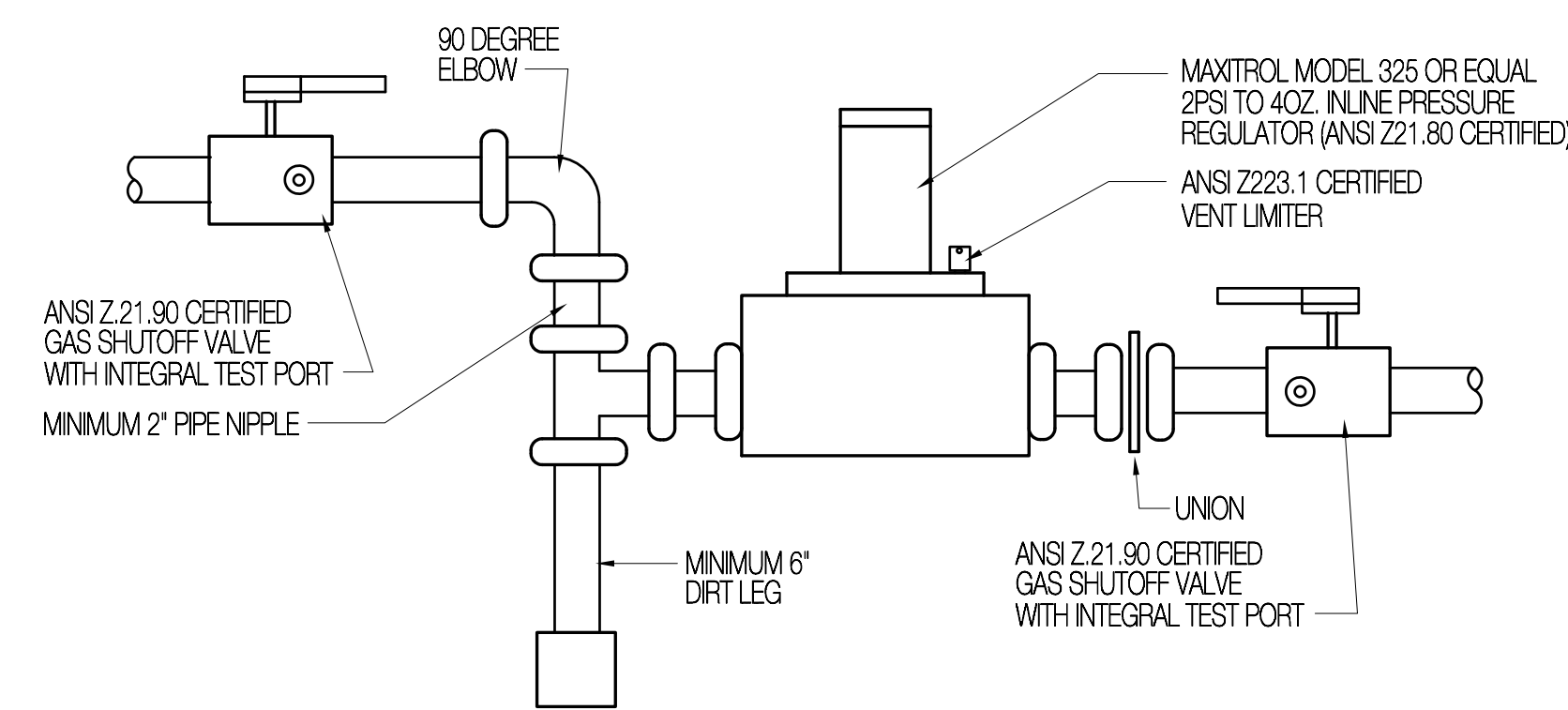


PIPE SIZE	MAX. SPACING	PIPE LOAD WEIGHT/FT. TOTAL	ROD SIZE
1" AND SMALLER	8	2.5/20	3/8"
1-1/4" - 2"	10	6/60	3/8"

HANGERS SIZES AND SPACING ARE FOR SINGLE PIPES. HANGER ROD LOADING FOR TRAPEZE HANGERS SHALL NOT EXCEED THE TOTAL LOADING INDICATED. IF SMALLER ROD SIZE IS USED, DECREASE MAXIMUM SPACING SO THAT TOTAL LOADING IS NOT EXCEEDED.

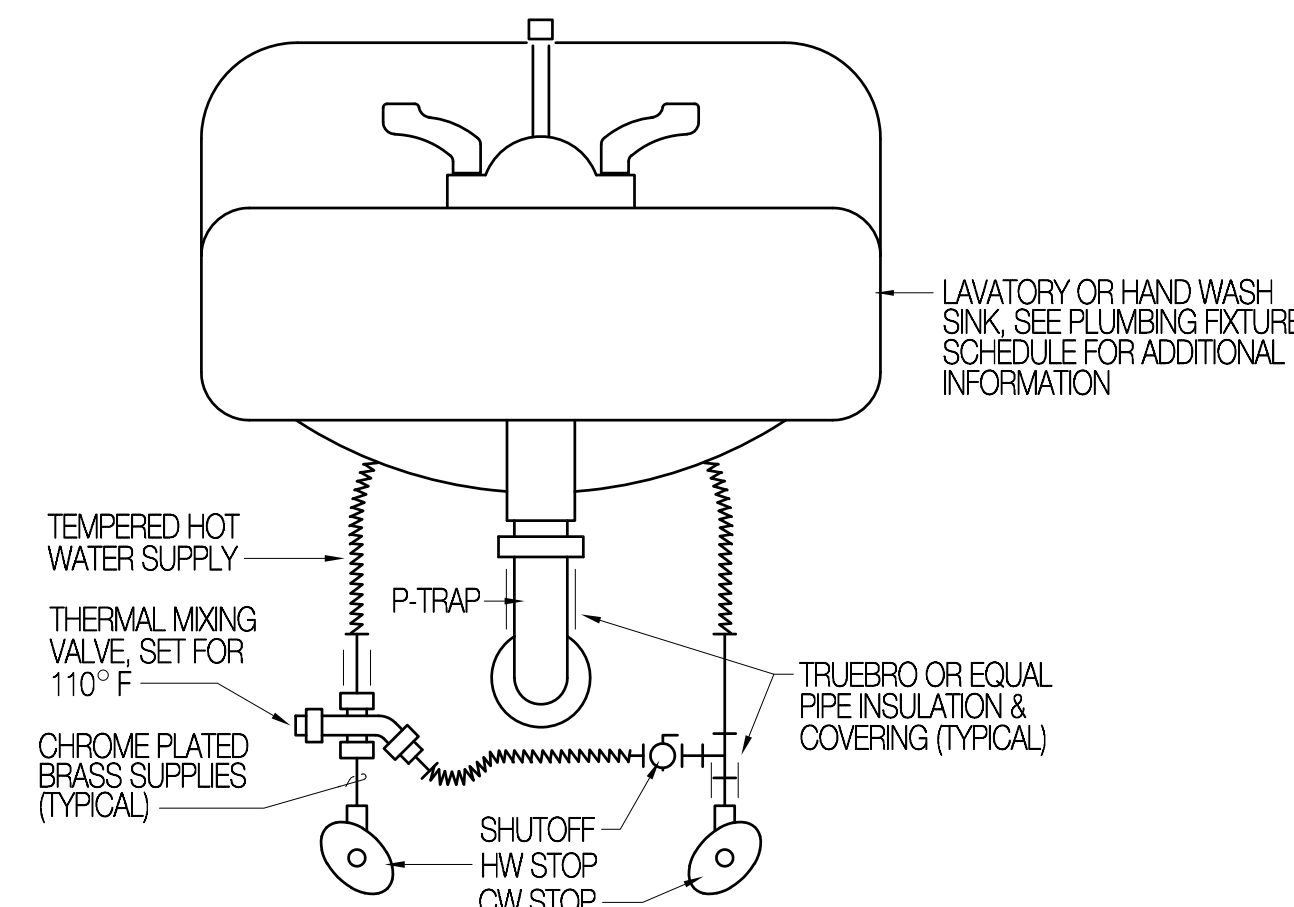
## PIPE HANGER DETAIL

SCALE: NONE



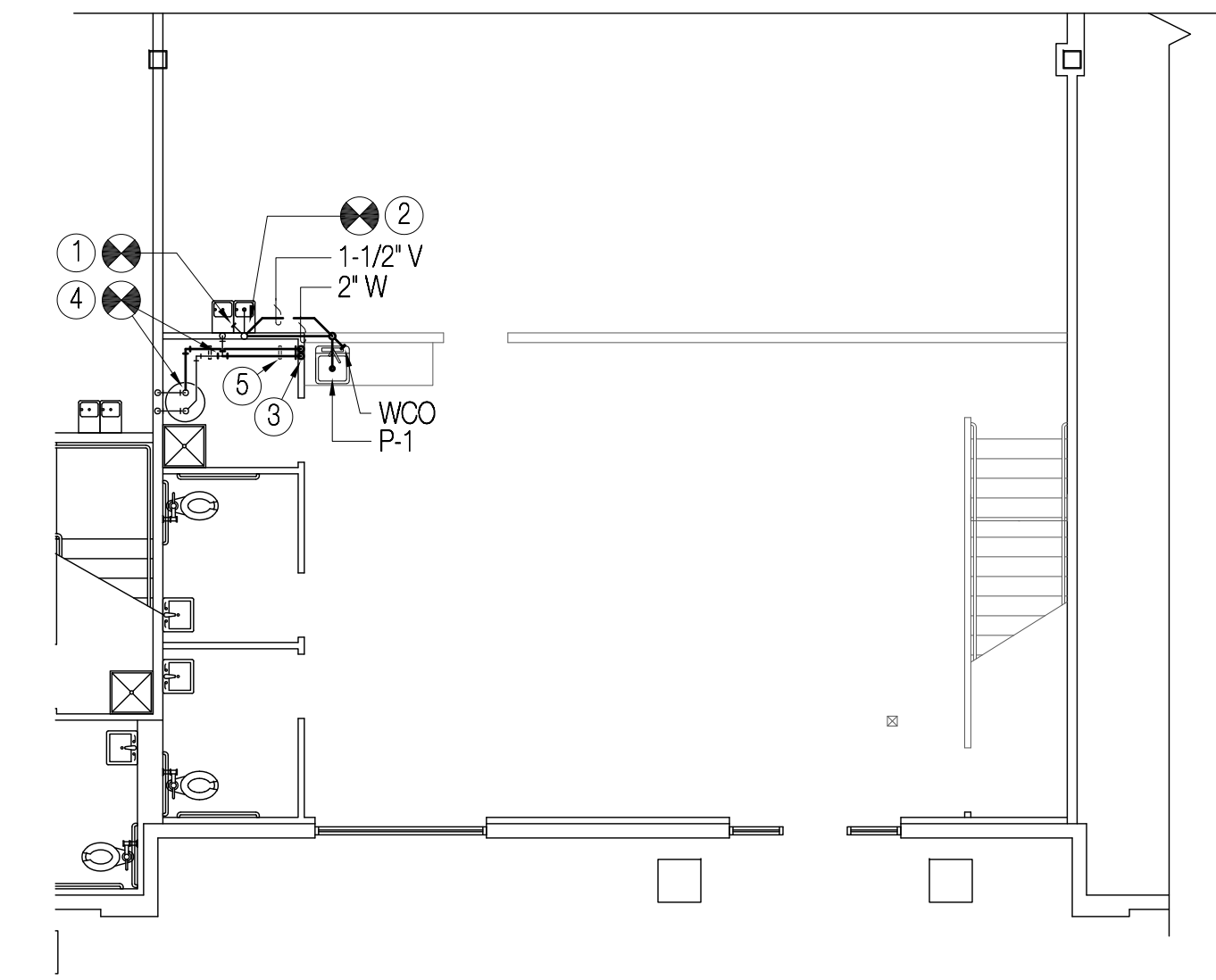
## GAS PRESSURE REGULATOR DETAIL

SCALE: NONE



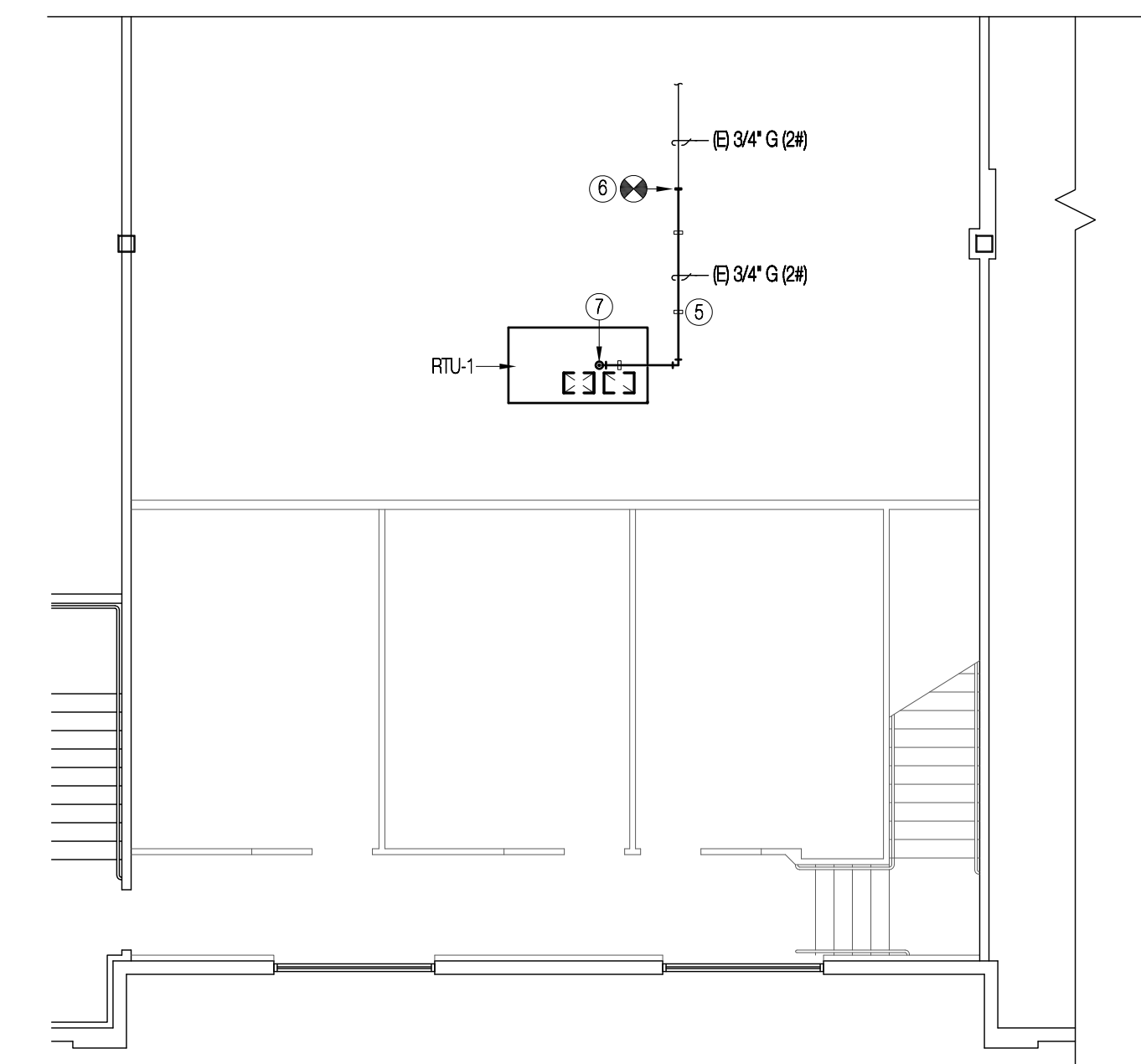
## TEMPERING VALVE DETAIL

SCALE: NONE



## MAIN FLOOR PLUMBING PLAN

SCALE 1/8" = 1'-0"



## SECOND FLOOR PLUMBING PLAN

SCALE 1/8" = 1'-0"

## DRAWING NOTES

- FIELD VERIFY EXACT LOCATION, SIZE AND FLOW DIRECTION OF EXISTING UNDERGROUND WASTE PIPING AND CONNECT NEW TO EXISTING UTILIZING LIKE MATERIALS. EXTEND NEW WASTE PIPING AS INDICATED.
- FIELD VERIFY EXACT LOCATION AND SIZE OF EXISTING VENT UTILITIES AND CONNECT NEW TO EXISTING UTILIZING LIKE MATERIALS. EXTEND NEW VENT PIPING AS INDICATED.
- 1/2" DOMESTIC HOT WATER AND 1/2" DOMESTIC COLD WATER PIPING DROPS TO FIXTURE. TERMINATE PIPING AT REQUIRED FIXTURE ROUGH-IN HEIGHT WITH QUARTER TURN STOP AND ESCUTCHEON AS REQUIRED BY SPECIFICATION.
- FIELD VERIFY EXACT LOCATION AND SIZE OF EXISTING DOMESTIC WATER UTILITIES AND CONNECT NEW TO EXISTING UTILIZING LIKE MATERIALS. EXTEND DOMESTIC WATER PIPING AS INDICATED.
- PIPE SUPPORT, SEE DETAIL 1/P-000.
- FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING GAS PIPING AND CONNECT NEW TO EXISTING.
- 3/4" (2#) GAS PIPING RISE TO ROOFTOP MECHANICAL EQUIPMENT. TERMINATE GAS PIPING WITH PRESSURE REGULATOR, DIRT LEG AND FLEXIBLE CONNECTION PER GAS FLOW DIAGRAM THIS SHEET.