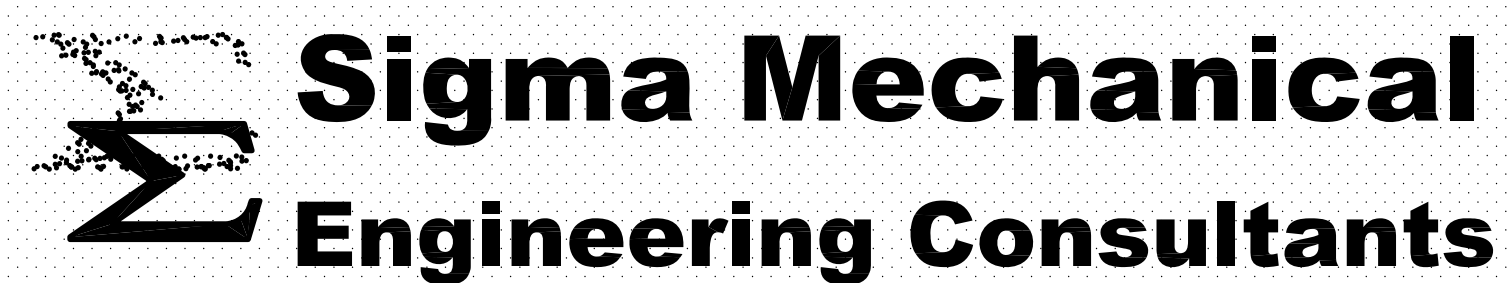


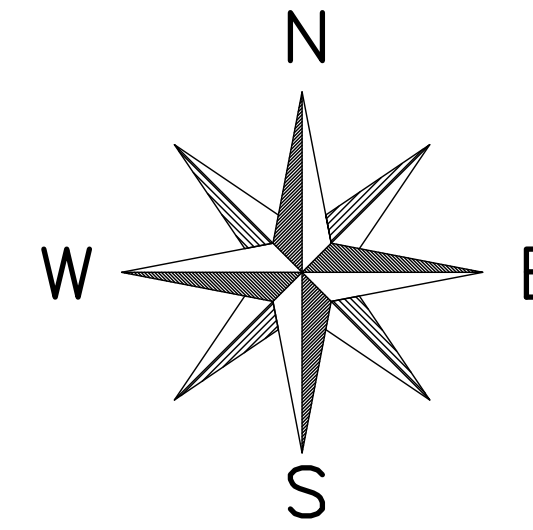
UNLV DIN COMMONS HVAC UPGRADE

UNIVERSITY OF NEVADA LAS VEGAS
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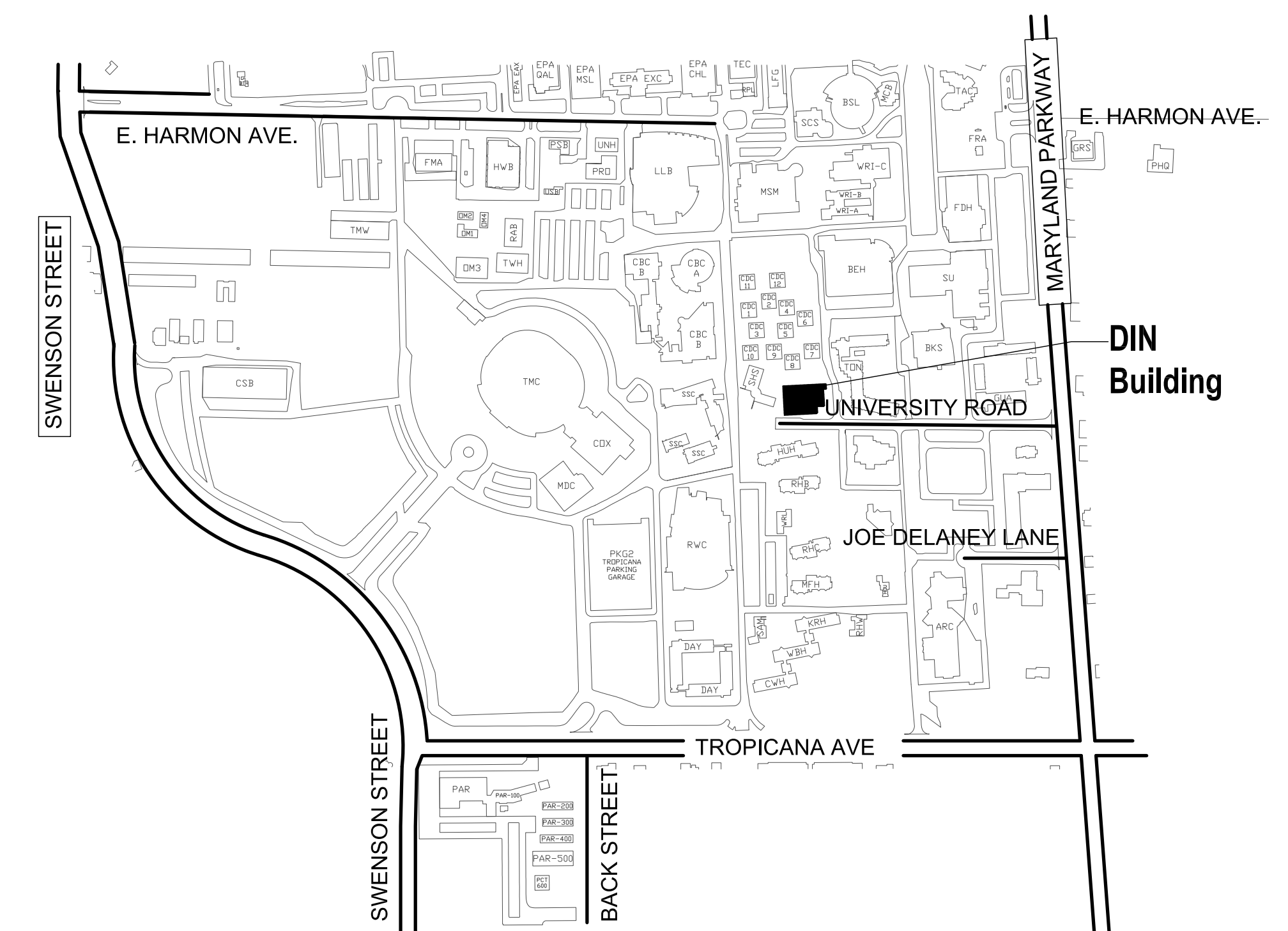
DESIGNER OF RECORD AND MECHANICAL ENGINEER



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VICINITY MAP



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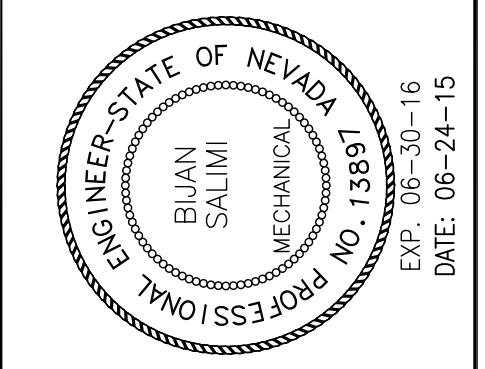
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PROJECT: UNLV DIN COMMONS HVAC UPGRADE

REVISIONS:

NO.	DATE	ISSUE

DRAWING TITLE :

PROJECT COVER SHEET

All dimensions, notes, details and field conditions shall be verified at the site by the contractor before proceeding with the work.

SIGMA'S Project No. 3926c1415

Consultant Project No. -

Date: 06-23-2015

Drawn By	Checked By	Approved By
J.M.	B.S.	B.S.

File Name:

G1.01

CONSTRUCTION

MECHANICAL LEGEND, NOTES AND SPECIFICATIONS

SYMBOLS ABBREVIATIONS GENERAL NOTES DEMOLITION NOTES AIR BALANCE NOTES MECHANICAL INDEX

(E) EXISTING DUCTWORK OR EQUIPMENT TO REMAIN.
 (E) EXISTING DUCTWORK, CEILING OUTLET OR EQUIPMENT TO BE REMOVED.
 NEW DUCTWORK OR EQUIPMENT. DUCT SIZE NOTATION W/SIZE OF NEAREST SIDE INDICATED FIRST.
 (SL) SOUND LINED DUCT OR PLENUM. SIZES INDICATED ON PLANS ARE NET INSIDE DIMENSIONS.
 SUPPLY AIR DUCT SECTION.
 RETURN AIR DUCT SECTION.
 EXHAUST AIR DUCT SECTION.
 AP OR AD ACCESS PANEL OR DOOR.
 SWR SIDEWALL REGISTER W/EXTRACTOR.
 SD CEILING SUPPLY DIFFUSER W/THROW.
 CG OR CR CEILING RETURN GRILLE OR REGISTER.
 EG OR ER CEILING EXHAUST GRILLE OR REGISTER.
 FC FLEXIBLE DUCT CONNECTION.
 TH THROAT SIZE.
 TV TURNING VANES.
 FD AUTOMATIC FIRE DAMPER.
 FSD COMBINATION FIRE/SMOKE DAMPER.
 VD MANUAL VOLUME DAMPER.
 FMOD DAMPER W/PNEUMATIC MODULATING MOTOR.
 EMOD DAMPER W/ELECTRIC MODULATING MOTOR.
 R OR D DUCT RISE OR DROP
 BRANCH TAKEOFF
 RECTANGULAR TO ROUND DUCT
 OSA OUTSIDE AIR DUCT.
 FLEX FLEXIBLE DUCT.
 S OR SA SUPPLY AIR FLOW.
 R OR RA RETURN AIR FLOW.
 X OR EXH EXHAUST AIR FLOW.
 OSA, OA OUTSIDE AIR FLOW.
 UC 3/4" UC UNDERCUT FLOOR W/SLOT HEIGHT.
 DL 2 DL DOOR LOUVER W/FREE AREA SQ FT.
 T*STAT/SENSOR THERMOSTAT/SENSOR
 VS VARIABLE SPEED CONTROLLER.
 CO2 CO2 SENSOR
 CD CONDENSATE DRAIN
 CAP CAP
 SOV SHUT-OFF VALVE (GENERIC).
 CIRCUIT SETTER
 MOTOR ACTUATED SHUT-OFF VALVE.
 CHWS CHILLED WATER SUPPLY
 CHWR CHILLED WATER RETURN
 HHWS HEATING HOT WATER SUPPLY
 HHWR HEATING HOT WATER RETURN
 (E)CHWS EXISTING CHILLED WATER SUPPLY
 (E)CHWR EXISTING CHILLED WATER RETURN
 (E)HHWS EXISTING HEATING HOT WATER SUPPLY
 (E)HHWR EXISTING HEATING HOT WATER RETURN

ABBREVIATIONS	GENERAL NOTES
ABV ABOVE	INT. INTEGRAL
AD ACCESS DOOR	IW INDUSTRIAL WATER
AF ABOVE FINISHED FLOOR	KW KILOWATT
AP ARCHITECTURAL	LAV LAVATORY
AS AUTOMATIC FIRE SPRINKLER PIPING ASSEMBLY	LBS POUND
ASST. ASSIST.	LFG LEAVING MAINFLO
BAS. BUILDING AUTOMATION SYSTEM	MAN MAXIMUM
BEL BELOW	MEH THOUSAND BTU PER HOUR
BHP BRAKE HORSEPOWER	MCC MOTOR CONTROL CENTER
BOT BOTTOM	MECH MECHANICAL
BTU BRITISH THERMAL UNIT	MFR MANUFACTURER
BTU/H BTU PER HOUR	MH MANHOLE
BV BALANCING VALVE	MN MINIMUM
C CONVERTOR	MTD. MOUNTED
CCSD CLARK COUNTY SCHOOL DISTRICT	(N) NEW
CF CAPPED FOR FUTURE	NC NORMALLY CLOSED
CF.FA. CUBIC FEET PER HOUR	N.I.C. NOT IN CONTRACT
C.G. CEILING	NO NORMALLY OPEN
CONN CONCRETE/CONNECT	NO. NUMBER
CUW CUBIC FEET PER MINUTE	NTS NOT TO SCALE
CONC CONCRETE	OFD OVERFLOW DRAINAGE PIPING
COND CONDENSATE	OPER.WT. OPERATING WEIGHT
CONN CONNECTION	OPNG OPENING
CONT CONTINUATION	OS&Y OS&Y
CONTR. CONTRACTOR	
COSQ CLEANOUT TO GRADE	
CU FT CUBIC FEET	
CU IN CUBIC INCHES	
DA DOMESTIC COLD WATER	
DN DRAIN	
DB DRY BULB TEMPERATURE	
DNL DOWN	
DP DIFFERENTIAL PRESSURE	
DR DRAIN	
TH THROAT SIZE	
TV TURNING VANES	
FD AUTOMATIC FIRE DAMPER	
FSD COMBINATION FIRE/SMOKE DAMPER	
VD MANUAL VOLUME DAMPER	
FMOD DAMPER W/PNEUMATIC MODULATING MOTOR	
EMOD DAMPER W/ELECTRIC MODULATING MOTOR	
R OR D DUCT RISE OR DROP	
BRANCH TAKEOFF	
RECTANGULAR TO ROUND DUCT	
OSA OUTSIDE AIR DUCT	
FLEX FLEXIBLE DUCT	
S OR SA SUPPLY AIR FLOW	
R OR RA RETURN AIR FLOW	
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(E)HHWS EXISTING HEATING HOT WATER SUPPLY	
(E)HHWR EXISTING HEATING HOT WATER RETURN	

MECHANICAL SPECIFICATIONS

PART 1 - GENERAL:
 1.1 THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, EQUIPMENT, APPURTENANCES, AND OTHER CONTRACTUAL EXPENSES REQUIRED FOR THE COMPLETE INSTALLATION OF THE MECHANICAL WORK TO THE SATISFACTION OF THE OWNER, ARCHITECT, AND ENGINEER.
 2. THE MECHANICAL WORK SHALL COMPLY WITH AND BE INSTALLED IN ACCORDANCE WITH ALL LEGALLY CONSTITUTED AUTHORITIES AND CODES HAVING JURISDICTION, NOT WORK INDICATED ON DRAWINGS OR SPECIFICATIONS SHALL BE PERFORMED WITHOUT PLAN CHECK APPROVAL AND VALID PERMITS.
 3. THE CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT, APPARATUS, ACCESSORIES (I.E., THE ENTIRE INSTALLATION) AS FURNISHED BY HIM FOR A PERIOD OF ONE YEAR. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY ITEM WHICH MAY PROVE DEFECTIVE WITHIN ONE (1) YEAR FROM THE DATE THE APPARATUS IS ACCEPTED AND PLACED IN OPERATION WITHOUT ANY ADDITIONAL COST TO THE OWNER.
 4. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, AND INSPECTIONS REQUIRED TO COMPLETE THE MECHANICAL WORK.
 5. THE DRAWING INDICATES IN DIAGRAMMATIC FORM ARRANGEMENTS DESIRED FOR PRINCIPAL APPARATUS, PIPING CONDUIT, ETC., AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. SCALED AND FIGURED DIMENSIONS ARE APPROXIMATE AND ARE GIVEN FOR ESTIMATE PURPOSES ONLY. BEFORE PROCEEDING WITH ANY WORK, CHECK AND VERIFY EXISTING CONDITIONS, DIMENSIONS, SIZES AND ASSUME FULL RESPONSIBILITY FOR FITTING-IN OF EQUIPMENT, MATERIALS, AND ADJUSTMENT OF ANY EXISTING DUCTWORK AND PIPING (INCLUDING PROVISION FOR OFFSETS, BENDS, ELBOWS, ETC.).
 6. THE CONTRACTOR SHALL MAKE A THOROUGH FIELD SURVEY TO DETERMINE ANY EXISTING CONDITION THAT MAY AFFECT THE INSTALLATION OF THE WORK. BY THE ACT OF SUBMITTING A BID, THE CONTRACTOR IS DEEMED TO HAVE MADE FIELD SURVEY AND HAS ACCEPTED THE EXISTING CONDITIONS THAT MAY AFFECT HIS WORK. APPROPRIATE FOR FIELD SURVEY SHALL BE MADE THROUGH THE OWNER REPRESENTATIVE.
 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, AND PATCHING TO COMPLETE THE INSTALLATION OF THE MECHANICAL WORK. ALL EXPOSED FINISHED AREAS THAT ARE DAMAGED AS A RESULT OF THIS WORK SHALL BE REPAIRED TO MATCH THE EXISTING CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
 8. ALL CONSTRUCTION SITES SHALL BE PROPERLY PROTECTED WITH BARRICADES, WARNING FLAGS, FENCING, AND LIGHTS AS REQUIRED BY CODE AND THE OWNER'S SECURITY DEPARTMENT. PROVIDE SIGNING, BRACING, AND ACCESS LADDERS AS REQUIRED BY CODE. TAKE EXTRA CARE TO INSTRUCT ALL PERSONNEL ON SAFETY PROCEDURES. TAKE CARE TO AVOID DAMAGE TO ADJACENT DUCTWORK, PIPING AND ELECTRIC SERVICES.
 9. ALL UTILITY SHUT-DOWNS SHALL BE SCHEDULED AT LEAST TWO (2) DAYS IN ADVANCE THROUGH THE OWNER. PROVIDE CONTINUOUS WATCH GUARD TO ALL AREAS AFFECTED BY SHUT-DOWN OF ANY FIRE PROTECTION WATER SERVICE. THE CONTRACTOR'S OPERATOR SHALL OBTAIN NO UNNECESSARY INCONVENIENCE TO THE BUILDING'S PREMISES. THE ACCESS RIGHTS TO THE PUBLIC SHALL BE MAINTAINED AT ALL TIMES.
 10. SHOP DRAWINGS AND MATERIAL LISTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AT LEAST THIRTY (30) DAYS PRIOR TO THE START OF ANY WORK. NO WORK INDICATED ON ANY OF THE PLANS OR SHOP DRAWINGS SHALL BE PERFORMED, UNTIL THE SHOP DRAWINGS HAVE BEEN REVIEWED BY THE ENGINEER.
 11. IF THE CONTRACTORS' USE OF SUBSTITUTE MATERIALS, EQUIPMENT OR METHODS OF INSTALLATION REQUIRES ANY CHANGES IN OTHER TRADES WORK FROM THAT SHOWN ON THE DRAWINGS, THE EXTRA COST OF THE OTHER TRADES WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR INITIATING THE SUBSTITUTION.
 12. APPROVAL OF THE SUBMITTALS DOES NOT RELEASE THE CONTRACTOR FROM OBLIGATIONS TO FULLY COMPLY WITH ALL REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS OR APPLICABLE CODES.
 13. THE CONTRACTOR SHALL SUBMIT TWO (2) COMPLETE SETS OF AS-BUILT DRAWINGS, OPERATIONAL AND MAINTENANCE MANUALS TO THE OWNER AS FURNISHMENT RECORDS AT SUCCESSFUL COMPLETION OF WORK, BEFORE FINAL PAYMENT CAN BE APPROVED BY THE OWNER REPRESENTATIVE.

MECHANICAL SPECIFICATIONS (continued)

PART 2 - MATERIALS:
 1.1R CONDITIONING UNITS (RTU'S), SHALL BE AS SCHEDULED ON PLANS OR APPROVED EQUALS.
 2. DUCTWORK SHALL BE PROVIDED AS FOLLOWS:
 A. ALL SHEET METAL DUCTWORK, EXCEPT WHERE EXISTING DUCTWORK IS INDICATED TO BE REUSED, SHALL BE NEW GALVANIZED SHEET METAL, DUCT GAUGES, CONSTRUCTION, SUPPORT, SEISMIC RESTRAINT, AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE MECHANICAL CODE, BIC, AND SMACNA DUCTWORK CONSTRUCTION HANDBOOKS.
 B. FLEXIBLE DUCTWORK SHALL BE CASO "CAL-FLEX" FULLY LINED, UL, UL, AND NFPA RATED, INSULATED FIBERGLASS DUCT. LENGTH OF FLEX DUCT SHALL NOT EXCEED 7 FEET.
 C. FLEXIBLE DUCT CONNECTIONS SHALL BE PROVIDED FOR ALL DUCTWORK ATTACHED TO AIR MOVING EQUIPMENT. FLEXIBLE CONNECTIONS SHALL BE VENTURATORS "VENGLASS" TYPE 30 DUNGE CLOSELY WOVEN GLASS FIBER DOUBLE COATED WITH NEOPRENE. PROVIDE SHEET METAL WEATHERSTRIPE OVER FLEXIBLE CONNECTIONS.
 D. ALL TRANSVERSE JOINTS ON NEW AND EXISTING DUCTWORK SHALL BE SEALED AIRTIGHT WITH HARDCAST DUCT FIBERGLASS TAPE SATURATED WITH HARDCAST RESIN. THE TAPE SHALL EXTEND 1-INCH ON BOTH SIDES OF THE SEAM OR JOINT.
 E. PROVIDE ALL FIRE AND SMOKE DAMPERS AS REQUIRED BY FIRE MARSHAL AND BUILDING DEPARTMENT.
 3. DIFFUSERS, REGISTERS, AND GRILLES HAVE BEEN SIZED ON THE BASIS OF MANUFACTURER AND TYPE INDICATED ON THE PLANS. ALL DIFFUSERS, REGISTERS, AND GRILLES SHALL BE LOCATED TO OPERATE WITHOUT OBJECTIONABLE NOISE OR DRIFT.
 A. CEILING DIFFUSERS SHALL BE AS SCHEDULED ON PLANS.
 B. RETURN GRILLES SHALL BE AS SCHEDULED ON PLANS.
 C. SEE CEILING DIFFUSER SCHEDULE FOR OTHER AIR DISTRIBUTION DEVICE.
 4. PIPING SHALL BE PROVIDED AS FOLLOWS:
 A. ALL PIPING, EXCEPT WHERE EXISTING PIPING IS INDICATED TO BE REUSED, SHALL BE NEW PIPING MATERIALS. PIPING SCHEDULE, MATERIALS, CONSTRUCTION, SUPPORT, SEISMIC RESTRAINT, AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE MECHANICAL CODE, BIC, AND SMACNA "GUIDELINES FOR THE RESTRAINT OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS". PIPING AND FITTINGS MATERIALS AND METHODS SHALL MATCH EXISTING PIPING MATERIALS.
 B. ALL PIPING, EXCEPT WHERE EXISTING PIPING IS INDICATED TO BE REUSED, SHALL BE NEW PIPING MATERIALS. PIPE SIZE, MATERIALS, SUPPORT, SEISMIC RESTRAINT, AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE PLUMBING CODE, BIC, AND SMACNA "GUIDELINES".
 C. COLD WATER PIPING ABOVE GROUND SHALL BE TYPE "1" COPPER WITH BRIGHT COPPER FITTINGS FOR 95-5 SOLDER, OR APPROVED COPPER VITACULIC ROLL-OVER COMPRESSION FITTINGS.
 D. GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL A-53, GRADE B, WITH ANSI/ASTM B16.3, MALLEABLE IRON OR ASTM A234, FORGED STEEL WELDING TEE FITTINGS, AND WITH SCREWED, OR WELDED JOINTS.
 E. CONDENSATE DRAIN PIPING SHALL BE TYPE "M" COPPER WITH BRIGHT COPPER FITTINGS FOR 95-5 SOLDER. PLASTIC PIPING IS NOT ACCEPTABLE FOR CONDENSATE DRAIN PIPING.
 5. VALVES AND PIPING SPECIALTIES SHALL BE PROVIDED AS FOLLOWS:
 A. BALL VALVES SHALL BE 2-INCH BRASS OR BRONZE BODY WITH STAINLESS STEEL BALL, THE SEAT, AND LEVER OPERATOR FOR SCREWED OR SOLDERED CONNECTION BY NIBCO. PROVIDE LEVER ARM EXTENSION TO CLEAR INSULATION ON ALL HOT WATER SERVICE VALVES.
 B. CHECK VALVES 2-INCHES AND SMALLER FOR NON-PUMP SERVICE SHALL BE "Y" PATTERN BRONZE BODY, SWING LIFT, METAL TO METAL SEAT, FOR SCREWED CONNECTION BY WAITS.
 C. ELECTRIC UNIONS SHALL BE PROVIDED TO JOIN DISSIMILAR MATERIALS. ELECTRIC UNIONS SHALL BE WAITS SERIES 3000 SCREWED OR SOLDERED CONNECTION.
 D. ESCUTCHEONS SHALL BE CHROME PLATED BRASS OR STAINLESS STEEL.
 E. WATER ANGLE STOPS SHALL BE CHROME PLATED BRASS BODY WITH NON-REMOVABLE KEY BY BRASS DRAFT.
 F. FIRE RATED PENETRATION SEALS FOR FLOORS, CEILING AND WALLS SHALL BE PROSET SYSTEM "X" FOR COPPER AND STEEL PIPING.
 F. PROVIDE PIPE SLEEVES AND ESCUTCHEON PLATES FOR PIPES RUNNING THROUGH WALLS, PARTITIONS, CEILING AND FLOORS EXPOSED TO VIEW. ESCUTCHEON PLATES SHALL BE CHROME PLATED BRASS OR STAINLESS STEEL.
 6. COLD WATER PIPING ON ROOF SHALL BE PROVIDED WITH OWENS-CORNING 25 AS/JSSL SECTIONAL FIBERGLASS WITH KRAFT PAPER JACKET. 1-1/2 INCH THICK. ELBOWS AND OTHER FITTINGS SHALL BE INSULATED WITH SECTIONAL FIBERGLASS WITH FITTED PVC FITTING COVERS BY THE SAME MANUFACTURER. PROVIDE CELLULAR GLASS OR COOK INSERTS BETWEEN PIPING HANGERS AND PIPE.
 7. CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH OWENS-CORNING 25 AS/JSSL SECTIONAL FIBERGLASS WITH KRAFT PAPER JACKET, 1/2 INCH THICK. ELBOWS AND OTHER FITTINGS SHALL BE INSULATED WITH SECTIONAL FIBERGLASS WITH FITTED PVC FITTING COVERS BY THE SAME MANUFACTURER. PROVIDE CELLULAR GLASS OR COOK INSERTS BETWEEN PIPING HANGERS AND PIPE.
 8. EXTERIOR PIPE INSULATION JACKETS: PROVIDE ALUMINUM JACKET, MINIMUM LAP-2" 0.016 INCHES THICK, THE ALUMINUM ASSOCIATION TYPE 3003 OR 5005 ALLOYS, WITH 1/4-INCH LONGITUDINAL OR CIRCUMFERENTIAL CORRUGATIONS. PROVIDE JACKET WITH FACTORY-APPLIED VAPOR BARRIER ON THE INSIDE AND APPLY USING ALUMINUM STRIPS SHEET METAL SCREWS 8" ON 4" OC. 0.016 INCHES THICK OVER TRANSVERSE JOINTS. MATCH CORRUGATIONS FROM ONE SECTION OF COVER TO THE OTHER ON VERTICAL RUNS. THE UPPER COVER TO LAP OVER THE LOWER COVER AND THE SEAMS SHALL BE TOWARD WALLS. HORIZONTAL SEAMS SHALL BE ON THE BOTTOM OF THE RAINFACTORY FABRICATED FITTING AND VALVE JACKETS OF THE SAME MATERIAL AS THE PIPE JACKET. SEAL ALL JACKET JOINTS AND SEAMS WATER-TIGHT.
 9. PROVIDE PIPE SUPPORTS FOR PIPING CONSTRUCTION MATERIALS, ATTACHMENT TO THE STRUCTURE, AND OVERALL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PLUMBING CODE, BIC, AND SMACNA "GUIDELINES FOR THE RESTRAINT OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS". PROVIDE DIELECTRIC SPACERS FOR USE WITH COPPER PIPING.

MECHANICAL SPECIFICATIONS (continued)

PART 3 - EXECUTION:
 1. THE DRAWING INDICATES IN DIAGRAMMATIC FORM ARRANGEMENTS DESIRED FOR PRINCIPAL APPARATUS, PIPING CONDUIT, ETC., AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. SCALED AND FIGURED DIMENSIONS ARE APPROXIMATE AND ARE GIVEN FOR ESTIMATE PURPOSES ONLY. OFFSET AND TRANSITION TO AVOID OBSTRUCTIONS IN PATH OF DUCTWORK AND PIPING INDICATED ON PLANS. BEFORE PROCEEDING WITH ANY WORK, CHECK AND VERIFY EXISTING CONDITIONS, DIMENSIONS, SIZES AND ASSUME FULL RESPONSIBILITY FOR FITTING-IN OF EQUIPMENT AND MATERIALS, (INCLUDING PROVISION FOR OFFSETS, BENDS, ELBOWS, ETC.).
 2. DUCTWORK, FITTING, AND PIPING SHALL BE INSTALLED TO RUN PARALLEL OR PERPENDICULAR TO THE BUILDING STRUCTURE AND SHALL BE ARRANGED TO FORM NEAT SYMMETRICAL PATTERNS TO ASSURE THE BEST POSSIBLE APPEARANCE. HANGERS ON PARALLEL ALIGNMENT SHALL BE IN LINE WITH EACH OTHER AND PARALLEL TO THE LINES OF THE BUILDING STRUCTURE. ALL PIPING SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE ONLY. NO PIPING SHALL BE SUPPORTED FROM OTHER PIPING OR AIR CONDITIONING DUCTWORK.
 3. HOLD DUCTWORK TIGHT TO UNDERSIDE OF STRUCTURE ABOVE TO MAXIMIZE FREE SPACE IN CEILING OR CEILING PLENUM. COORDINATE LOCATION OF DUCTWORK AND PIPING TO AVOID CREATING INTERFERENCE WITH OTHER TRADES SUCH AS PLUMBING, ELECTRICAL, LIGHTING, ETC.
 4. PROVIDE HANGERS TO SUPPORT DUCTWORK AND EQUIPMENT. DUCT AND PIPE HANGER CONNECTION, MATERIALS, ATTACHMENT TO THE STRUCTURE, AND OVERALL INSTALLATION SHALL BE IN ACCORDANCE WITH THE MECHANICAL CODE, PLUMBING CODE AND SMACNA "GUIDELINES FOR THE RESTRAINT OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS".
 5. PIPING AND COMPONENTS SHALL BE SPACED SO THAT A THREADED PIPE FITTING MAY BE REMOVED BETWEEN ADJACENT PIPES, NOT LESS THAN 1/2-INCH OF CLEAR SPACE SHALL EXIST BETWEEN THE FINISHED SURFACE AND OTHER WORK, AND BETWEEN FINISHED SURFACE AND ADJACENT PIPING.
 6. ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT AND PULL WIRING FOR CONTROLS. FINAL CONNECTION TO CONTROLS SHALL BE BY MECHANICAL CONTRACTOR.
 7. SHEET METAL PLenums TO BE FIELD FABRICATED. SUBMIT SHOP DRAWINGS OF CONSTRUCTION TO ENGINEER FOR REVIEW.
 8. FIRE RATED SEALS SHALL BE PROVIDED AT ALL PENETRATIONS THROUGH FIRE RATED AREAS.
 9. BALANCE AND ADJUST ALL FANS, DIFFUSERS, REGISTERS AND GRILLES FOR OPTIMUM AIR DISTRIBUTION AND MINIMUM NOISE. SUBMIT A QUALIFIED AIR BALANCE REPORT BY INDEPENDENT AIBC REGISTERED AIR BALANCE CONTRACTOR TO THE ENGINEER FOR REVIEW.
 10. TEST ALL NEW COLD WATER PIPING HYDROSTATICALLY AT 125 PSI FOR 8-HOURS WITH NO LOSS OF PRESSURE. RESEAL AND RETEST ALL PIPING SYSTEM UNTIL THEY PASS.
 11. ESCUTCHEONS SHALL BE PROVIDED AT ALL PENETRATIONS INTO FINISHED AREAS, WHERE FINISHED AREAS ARE SEPARATED BY PARTITIONS. ESCUTCHEONS SHALL BE PROVIDED ON BOTH SIDES OF THE PARTITION FOR INSULATED PIPES, THE ESCUTCHEONS SHALL BE LARGE ENOUGH TO FIT AROUND THE INSULATION. ALL ESCUTCHEONS SHALL BE FIRMLY ANCHORED WITH SETSCREWS.
 12. AT THE COMPLETION OF THE WORK, ALL PARTS OF THE INSTALLATION SHALL BE THOROUGHLY CLEANED. ALL FITURES, VALVES, PIPES, AND FITTINGS SHALL BE CLEANED OF GREASE, METAL CHIPS, SLODGE, AND OTHER DEBRIS THAT MAY HAVE ACCUMULATED DURING INSTALLATION. ALL WATER PIPING SHALL BE STERILIZED WITH A SOLUTION OF CHLORINE AND WATER. THE SOLUTION SHALL NOT CONTAIN LESS THAN 50 PARTS PER MILLION OF AVAILABLE CHLORINE. THE SOLUTION SHALL BE HELD FOR NOT LESS THAN 8-HOURS AFTER SUCCESSFUL STERILIZATION, THE PIPING SHALL BE REPEATEDLY FLUSHED WITH WATER UNTIL ALL TRACES OF CHLORINE NASTE AND ODOR HAVE BEEN REMOVED.
 13. AFTER TESTS HAVE BEEN COMPLETED AND SURFACES CLEANED, INSULATION SHALL BE APPLIED ON WATER PIPING.
 14. ASBESTOS CONTAINING THERMAL SYSTEM INSULATION (TSI) MAY BE PRESENT ON PIPING, VESSELS, ETC., ON THE INTERIOR AND EXTERIOR OF THE BUILDINGS. TSI AND OTHER SUSPECT ASBESTOS CONTAINING MATERIAL MAY BE ENCOUNTERED DURING RENOVATION ABOVE CEILING, INSIDE WALLS, BENEATH FLOOR COVERINGS, ETC. IF MATERIALS ARE DISCOVERED THAT ARE NOT LISTED IN THE ASBESTOS REPORT PROVIDED BY UNLV RISK MANAGEMENT AND SAFETY, STOP WORK IN THAT AREA AND CONTACT UNLV PROJECT MANAGER.

MECHANICAL INDEX

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INSTRUCTIONS TO BIDDERS

A. THE CONTRACTOR'S FORCES SHALL NOT HAVE ACCESS TO THE SITE'S EXISTING RESTROOM FACILITIES AND ELEVATORS FOR THEIR USE. FRONT AND MAINTENANCE REQUIRED FACILITIES AND ENCLOSURES: MINIMUM OF ONE (1) PORTABLE RESTROOM FOR EACH TO WORKMEN. THE USE OF THE UNLV FACILITIES IS PROHIBITED.
 B. ANY REQUEST FOR PRODUCT SUBSTITUTION SHALL BE SUBMITTED BY CONTRACTOR IN WRITING AND BE APPROVED BY OWNER AND ENGINEER PRIOR TO FINAL ADDENDUM DATE. CONTRACTOR SHALL BE RESPONSIBLE TO PERFORM ANY AND ALL CHANGES IN OTHER TRADES WORK FROM THAT SHOWN ON THE DRAWINGS, AS A RESULT OF HIS SUBSTITUTION. THE EXTRA COST OF THE OTHER TRADES WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR INITIATING THE SUBSTITUTION.
 C. CONTRACTOR SHALL CLEAN AND MAINTAIN THE SITE DEBRIS FREE ON A DAILY BASIS.
 D. ALL CONTRACTOR USED VEHICLES MUST HAVE PARKING PERMIT ISSUED BY UNLV AT CONTRACTOR'S COST.

SCOPE OF WORK

- DISCONNECT AND REMOVE EXISTING PACKAGED ROOFTOP UNITS, MAKE-UP AIR UNITS, AND MECHANICAL EQUIPMENT AS INDICATED IN THESE DRAWINGS ALONG WITH THERMOSTATS AND CONTROLS WIRING.
- REMOVE DUCTWORK (SUPPLY AND RETURN AIR AND CEILING) PIPING, VALVES AND ACCESSORIES AS SHOWN, NOTED, AND INDICATED IN DEMOLITION DRAWINGS. EXTEND DEMOLITION AS NECESSARY FOR INSTALLATION OF THE NEW.
- DISCONNECT AND REMOVE EXISTING ROOM THERMOSTATS, AS SHOWN IN THESE DRAWINGS.
- FIELD VERIFY PROPER LOCATION, ORIENTATION, ELECTRICAL CHARACTERISTICS AND OTHER SENSITIVE INFORMATION PRIOR TO ORDERING OF THE EQUIPMENT.
- INSTALL NEW PACKAGED ROOFTOP UNITS AND MAKE-UP AIR UNITS WITH ALL COMPONENTS AND ACCESSORIES (SUPPLY, RETURN, DUCTWORK TO EXISTING DUCTWORK, GAS PIPING, DRAIN AND CONDENSATE DRAIN PIPING, AND ELECTRICAL, ETC.) AS SHOWN IN THESE DRAWINGS. PROVIDE NEW UNITS WITH ALL INTERNAL FEATURES AS SPECIFIED IN THE SCHEDULES.
- INSTALL NEW SMOKE DETECTORS COMPATIBLE WITH BUILDING FIRE ALARM SYSTEM.
- COOPERATE WITH TEST AND BALANCE AGENCY. TABA SHALL BE HIRED DIRECTLY BY OWNER AS NOTED IN THIS SHEET.
- PROVIDE SUPPORTS FOR NEW EQUIPMENT, PIPING, DUCTWORK AND ACCESSORIES AS REQUIRED.
- CONTRACTOR SHALL LABEL ALL EXISTING AND NEW EQUIPMENT ON ROOF AS SHOWN IN THESE DRAWINGS. LABEL SHALL BE ENGRAVED AND ATTACHED PERMANENTLY TO UNIT BY MEANS OF SCREW. AS UNITS AND EXHAUST FANS SHALL HAVE AN ADDITIONAL LABEL ON THEIR DISCONNECT.

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SEAL:

BIAN SALIMI
 MECHANICAL ENGINEER
 LICENSE NO. 55320
 EXP. 08-30-16
 DATE: 08-24-15

CONSULTANT:

UNLV
 UNIVERSITY OF NEVADA LAS VEGAS
 4805 S. MARYLAND PKWY.
 LAS VEGAS, NEVADA 89154

PROJECT: UNLV DIN COMMONS HVAC UPGRADE

REVISIONS:

NO.	DATE	ISSUE

DRAWING TITLE:

MECHANICAL LEGEND, NOTES AND SPECIFICATIONS

All dimensions, notes, details and field conditions shall be verified by the site by the contractor before proceeding with the work.

SIGMA'S Project No. 392c1415
 Consultant Project No. -

Date: 06-23-2015

Drawn By: J.M. Checked By: B.S. Approved By: B.S.

File Name:

M0.01

CONSTRUCTION

MECHANICAL SCHEDULES

PACKAGED ROOFTOP UNIT SCHEDULE (EXISTING)

SYMBOL	MANUFACTURER & MODEL NO.	LOCATION/SERVICE	NOMINAL TONS	SUPPLY FAN CFM	HEATING CAPACITY			REMARKS
					SENSIBLE COOLING CAPACITY (MBH)	MAX INPUT CAPACITY (MBH)	OUTPUT CAPACITY (MBH)	
(E)RTU-3	CARRIER 48A2	ROOF/COMMONS	10	1,000	115	180	148	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY.
(E)RTU-4	CARRIER 48A2	ROOF/COMMONS	10	1,000	--	180	144	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY.

EXHAUST FAN SCHEDULE (EXISTING)

SYMBOL	MANUFACTURER & MODEL NO.	LOCATION	CFM	HP	REMARKS
(E)EF-1	GREENHECK	ROOF	700	--	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY.
(E)EF-2	CAPTIVEAIRE	ROOF	5,772	5	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY.
(E)EF-3	GREENHECK	ROOF	3,000	--	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY.
(E)EF-4	CAPTIVEAIRE	ROOF	900	0.75	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY.
(E)EF-5	CAPTIVEAIRE	ROOF	2,982	3	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY.
(E)EF-6	GREENHECK	ROOF	1,500*	10	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY. *BASED ON MULTIPLE CALCULATIONS AND INTERPOLATIONS OF FAN SIZE, DUCT SIZE, AND HOOD SIZE.
(E)EF-7	GREENHECK	ROOF	3,300	2	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY.
(E)EF-8	GREENHECK	ROOF	100	--	EXISTING UNITS. INFORMATION GIVEN FOR REFERENCE ONLY.

PACKAGED ROOFTOP UNIT SCHEDULE (2,100 FEET ELEVATION - 115°F AMBIENT)

SYMBOL	MANUFACTURER & MODEL NO.	LOCATION/SERVICE	NOMINAL TONS	SUPPLY FAN			COOLING CAPACITY				HEATING CAPACITY			ELECTRICAL DATA					REMARKS							
				CFM	EXTERNAL SP. (IN. W.C.)	MOTOR BHP	SENSIBLE	TOTAL	DB	WB	DB	WB	MAX INPUT CAPACITY (MBH)	OUTPUT CAPACITY (MBH)	ENT. AIR TEMP (°F)	LVG. AIR TEMP (°F)	GAS CONNECTION (IN.)	MCA		MOCP	VOLT	Φ	HZ	IEER	MIN OSA (CFM)	OPER. WEIGHT (LBS)
(RTU) 1	CARRIER 48A2	ROOF/COMMONS	30	11,550	0.5	7.36	353.2	353.2	89.7	63.4	58.4	52.3	350	250	55.1	76.8	1 1/2	69	80	460	3	60	11.7	4,000	6,000	SEE NOTES
(RTU) 2	CARRIER 48A2	ROOF/COMMONS	30	11,550	0.5	7.36	353.2	353.2	89.7	63.4	58.4	52.3	350	250	55.1	76.8	1 1/2	69	80	460	3	60	11.7	4,000	6,000	SEE NOTES
(RTU) 5	CARRIER 48TCF	ROOF/KITCHEN	25	10,000	0.3	5.60	275.7	275.7	88.9	63.1	56.0	51.8	352	285	58.8	87.4	3/4	60.9	70	460	3	60	10.4	3,200	3,200	SEE NOTES
(RTU) 6	CARRIER 48TCD	ROOF/KITCHEN	10	4,000	0.3	2.18	123.6	123.6	88.9	63.1	55.4	51.5	158	130	58	91	1/2	24	30	460	3	60	11.8	1,300	1,600	SEE NOTES.

- PROVIDE WITH HIGH PRESSURE SWITCH.
- PROVIDE WITH LOSS OF CHARGE/LOW PRESSURE SWITCH.
- PROVIDE WITH CRANKCASE HEATER AND LOW AMBIENT KIT.
- PROVIDE WITH INTELLIGENT SMOKE DETECTOR ON SUPPLY AND RETURN AIR DUCTS COMPATIBLE WITH BUILDING FIRE ALARM SYSTEM. FOR MORE DETAILS SEE SMOKE DETECTOR NOTES IN THIS SHEET.
- PROVIDE WITH FACTORY MOUNTED ECONOMIZER (DB CONTROLS) WITH BAROMETRIC RELIEF.
- BOTTOM DISCHARGE UNIT.
- PROVIDE WITH BACKDRAFT DAMPERS ON OSA INTAKE AND EXHAUST AIR OPENING.
- PROVIDE WITH VANDAL PROOF METAL COIL GUARDS.
- PROVIDE WITH FACTORY SUPPLIED FILTERS.
- PROVIDE WITH FACTORY SUPPLIED DISCONNECT.
- PROVIDE 120V, 20 AMP GFI CONVENIENCE OUTLET, POWERED INDEPENDENTLY.
- PROVIDE WITH 7" W.C. GAS INPUT.
- UNIT SHALL BE ANCHORED TO CURB. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.

SMOKE DETECTOR NOTES

- ELEC. CONTRACTOR IS RESPONSIBLE FOR WIRING OF SMOKE DETECTORS IN ACCORDANCE TO NEC REQUIREMENTS. ELEC. CONTRACTOR SHALL COORDINATE WITH AIR HANDLING MANUFACTURER FOR TYPE OF SMOKE DETECTOR SUITABLE FOR THE PROJECT'S FIRE ALARM SYSTEM.
- EACH AIR MOVING DEVICE SHALL COMPLETELY AND AUTOMATICALLY SHUT DOWN ONCE SMOKE IS DETECTED BY SMOKE DETECTOR INSTALLED ON THAT AIR MOVING DEVICE.
- ACTIVATION OF SMOKE DETECTOR ON ANY OF THE UNITS SHALL SHUT DOWN OTHER UNIT(S) THAT FULLY OR PARTIALLY SERVE THE SAME SPACE(S).
- SMOKE DETECTOR SHALL BE WIRED IN A MANNER THAT SHUTS DOWN THE POWER TO AIR MOVING DEVICES (SUPPLY FANS) ONLY. THE POWER SHALL NOT SHUT DOWN AND DISABLE THE ENTIRE AC UNIT AND ITS CONTROL MODULE. BAS SHALL RECEIVE AN ALARM SIGNAL UPON ACTIVATION OF ANY SMOKE DETECTOR IN THIS BUILDING.

MAKE UP AIR UNIT SCHEDULE (2,100 FEET ELEVATION)

SYMBOL	MANUFACTURER & MODEL NO.	LOCATION	SERVICE	SUPPLY FAN		EVAP. COOLING CAPACITY			HEATING INPUT CAPACITY		HEATING OUTPUT CAPACITY		ELECTRICAL DATA					REMARKS	
				CFM	EXTERNAL SP. (IN. W.C.)	CLG. MEDIA	REQUIRED FLOW (GPM)	LVG. AIR TEMP. (°F)	DB	WB	MBH	MBH	LVG. AIR TEMP. (°F)	MCA	VOLT	Φ	MOTOR BHP		MOTOR HP
(MAU) 1	GREENHECK IGX	ROOF	KITCHEN	5,000	0.5	CELDEK	0.71	70	66	368.8	295.0	86.2	11.5	460	3	3.45	5	1,700	SEE NOTES
(MAU) 2	GREENHECK IGX	ROOF	KITCHEN	5,000	0.5	CELDEK	0.71	70	66	368.8	295.0	86.2	11.5	460	3	3.45	5	1,700	SEE NOTES

- INTERLOCK THE UNIT WITH OPERATION OF HOOD EXHAUST EF-6. UNIT SHALL OPERATE CONTINUOUSLY DURING THE PERIOD THAT EF-6 IS IN OPERATION.
- PROVIDE WITH SPRING VIBRATION ISOLATION.
- PROVIDE WITH OUTLET DAMPER.
- PROVIDE VFD ON SUPPLY FAN.
- PROVIDE WITH 4 TO 1 ELECTRONIC MODULATION ON FURNACE CONTROLS.
- PROVIDE WITH 120 VOLT, 20 AMP GFI CONVENIENCE OUTLET, POWERED INDEPENDENTLY.
- PROVIDE WITH FACTORY SUPPLIED DISCONNECT SWITCH.
- PROVIDE WITH INTELLIGENT SMOKE DETECTOR ON SUPPLY AIR DUCTS COMPATIBLE WITH BUILDING FIRE ALARM SYSTEM. FOR MORE DETAILS SEE SMOKE DETECTOR NOTES IN THIS SHEET.
- PROVIDE WITH 7" W.C. GAS INPUT.
- BASED ON OSA TEMPERATURE OF 108°F DB/66°F WB.
- UNIT SHALL BE ANCHORED TO CURB. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.

AIR DEVICE SCHEDULE

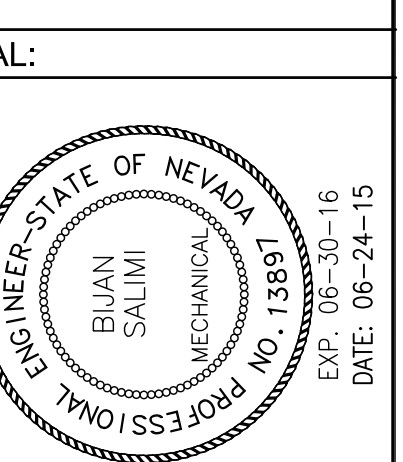
TAG	MANUFACTURER & MODEL NO.	SERVICE/LOCATION	TYPE - FACE SIZE	TYPE OF INSTALLATION	DAMPERS	SIZE		MAX N.C.	MAX. PRESS. LOSS (IN. W.C.)	REMARKS
						NECK (IN)	MAX. CFM			
(S1)	TITUS PMC	SUPPLY AIR DIFFUSER GENERAL, SEE PLAN	24"x24" LAY-IN	T-BAR	NO	12"x12" 18"x18"	725 1,250	35	0.1	WITH MATCHING SQUARE TO ROUND ADAPTER, ALUMINUM.

NOTE: INSIDE PORTION OF THE DUCTWORK, DIFFUSERS, AND REGISTERS/GRILLES THAT ARE VISIBLE SHALL BE PAINTED FLAT BLACK.

MECHANICAL DETAILS

<p>F GAS REGULATOR MO.02 DETAIL N.T.S.</p>	<p>E CONDENSATE DRAIN PIPNG MO.02 DETAIL N.T.S.</p>	<p>D RETURN DUCT MO.02 DETAIL N.T.S.</p>	<p>C ROUND VOLUME DAMPER MO.02 DETAIL N.T.S.</p>	<p>B CEILING DIFFUSER INSTALLATION MO.02 DETAIL N.T.S.</p>	<p>A DUCT OBSTRUCTION MO.02 DETAIL N.T.S.</p>
<p>L NOT USED MO.02 DETAIL N.T.S.</p>	<p>K NOT USED MO.02 DETAIL N.T.S.</p>	<p>J NOT USED MO.02 DETAIL N.T.S.</p>	<p>I NOT USED MO.02 DETAIL N.T.S.</p>	<p>H NOT USED MO.02 DETAIL N.T.S.</p>	<p>G PIPE SUPPORT ON ROOF MO.02 DETAIL N.T.S.</p>

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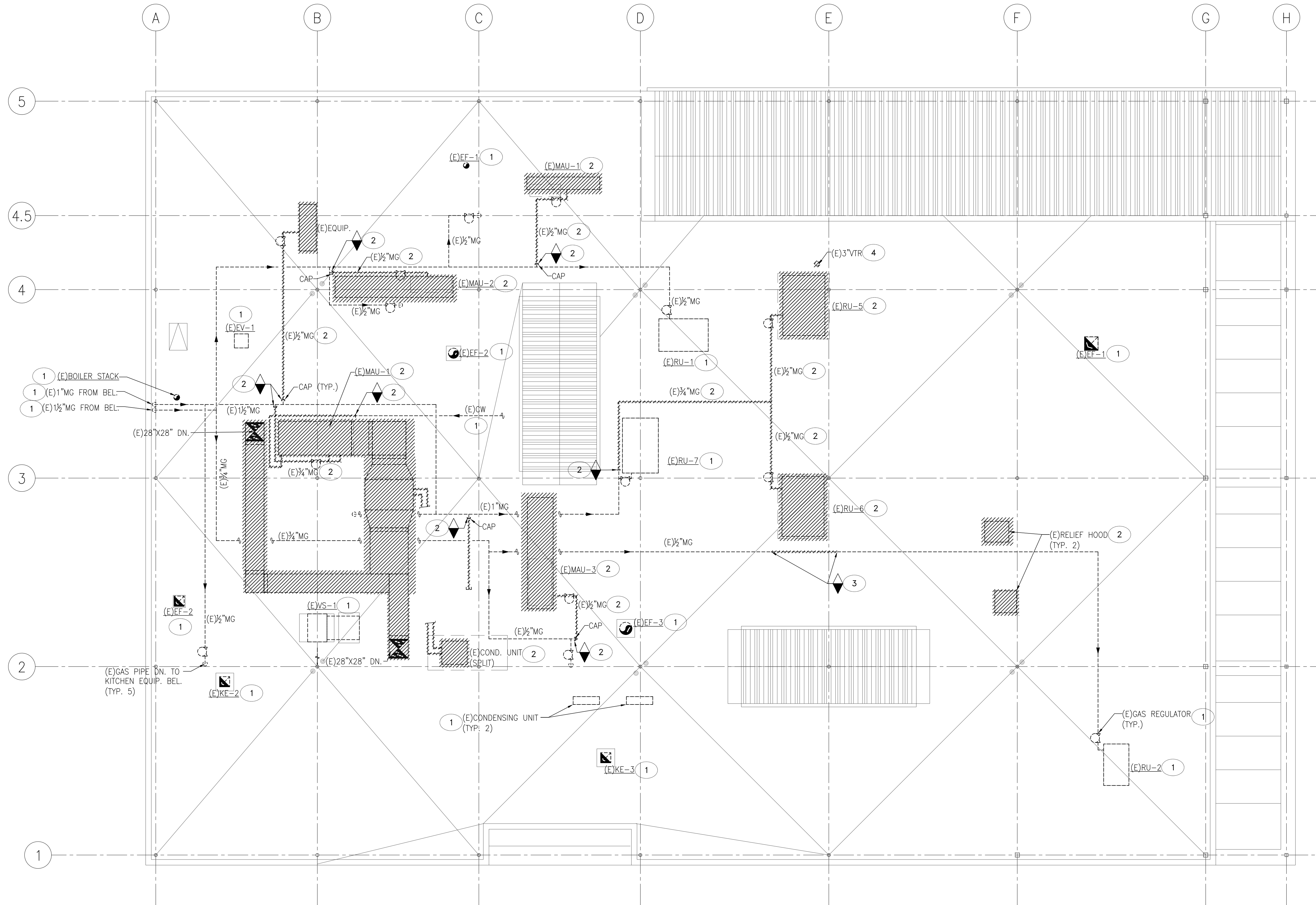
CONSULTANT:

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LAS VEGAS, NEVADA 89154
PROJECT: UNLV DIN COMMONS HVAC UPGRADE

REVISIONS:
NO. DATE ISSUE

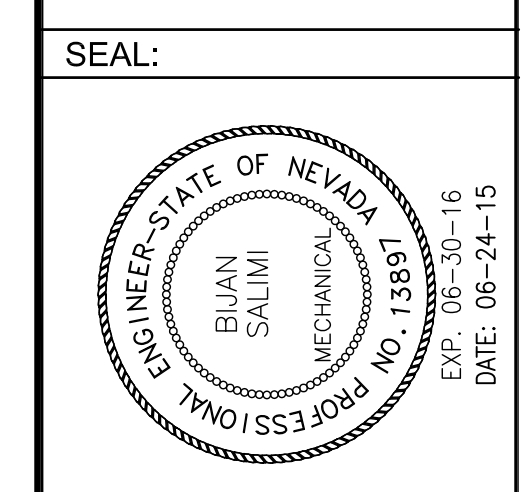
DRAWING TITLE:
MECHANICAL SCHEDULES AND DETAILS

SIGMA'S Project No. 3926c1415
Consultant Project No. -
Date: 06-23-2015
Drawn By J.M. Checked By B.S. Approved By B.S.
File Name:
M0.02
CONSTRUCTION



GENERAL DEMOLITION NOTES:
 A. ALL EXISTING SAD, RAD, AND OSA DUCTWORK AND MEDIUM GAS PIPING SHALL REMAIN UNLESS NOTED OTHERWISE.
 B. FOR PATCHING SEE ARCHITECTURAL DRAWINGS.

MECHANICAL DEMOLITION NOTES: #
 1. EXISTING MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. TO REMAIN.
 2. DISCONNECT AND COMPLETELY REMOVE EXISTING EQUIPMENT, AS SHOWN. DISCONNECT AND REMOVE EXISTING PIPING (REFRIGERANT, CW, DRAIN, ETC.), DUCTWORK AND ACCESSORIES WITH ALL ASSOCIATED SUPPORTS; CAP AT MAIN, AS SHOWN. DISCONNECT AND REMOVE EXISTING MEDIUM GAS PIPING AND GAS REGULATOR WITH ALL ASSOCIATED SUPPORTS, CAP OR MAKE READY FOR CONNECTION TO NEW AS SHOWN. SEE ARCH. DWGS FOR PATCHING.
 3. P.O.D., DISCONNECT AND REMOVE PORTION OF (E)MG PIPING FOR INSTALLATION OF NEW UNIT. SEE **1/M2.01** FOR REROUTING OF MG PIPE.
 4. DISCONNECT AND REMOVE (E)VTR MAKE READY FOR RELOCATION. SEE **1/M2.01** FOR EXTENT OF NEW WORK. SEE ARCH. DWGS FOR ROOF PATCHING.



CONSULTANT:

REVISIONS:

NO.	DATE	ISSUE

DRAWING TITLE:

**MECHANICAL DEMO PLAN
 - ROOF**

At Direction, Mark, bands and full conditions shall be noted at the site by the contractor before proceeding with the work.

SIGMA'S Project No. 3928c1415
 Consultant Project No. -

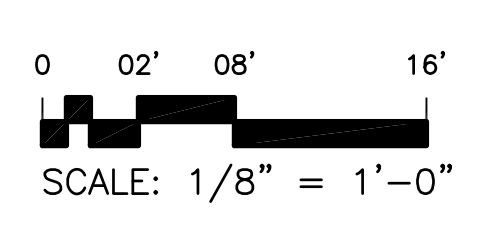
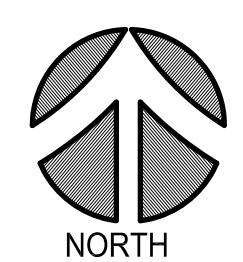
Date: 06-23-2015
 Drawn By: J.M. Checked By: B.S. Approved By: B.S.

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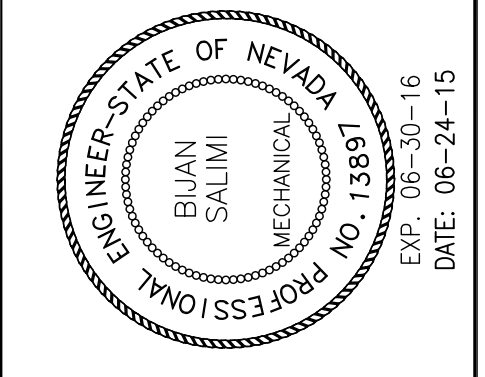
M1.01

CONSTRUCTION

1 MECHANICAL DEMO PLAN
 M1.01 ROOF
 SCALE: 1/8" = 1'-0"



SEAL:



CONSULTANT:

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UNIVERSITY OF NEVADA LAS VEGAS
4805 S. MARYLAND PKWY.
LAS VEGAS, NEVADA 89154
PROJECT: UNLV DIN COMMONS HVAC UPGRADE

REVISIONS:

NO.	DATE	ISSUE

DRAWING TITLE:

**MECHANICAL DEMO PLAN
- CEILING**

At dimensions, levels, bench and field conditions shall be verified at the site by the contractor before proceeding with the work.

SIGMA'S Project No. 3926c1415

Consultant Project No. -

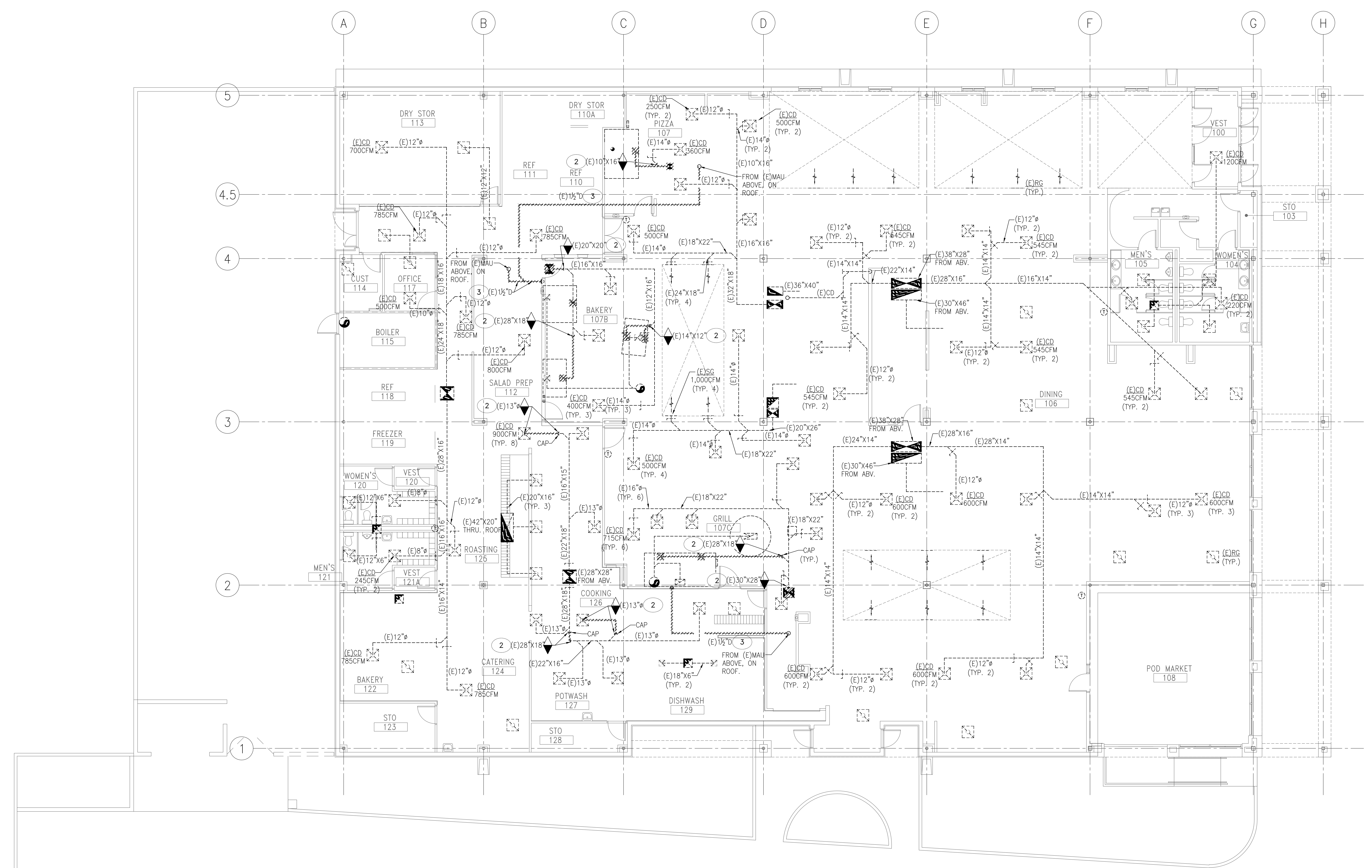
Date: 06-23-2015

Drawn By: J.M. Checked By: B.S. Approved By: B.S.

File Name:

M1.02

CONSTRUCTION



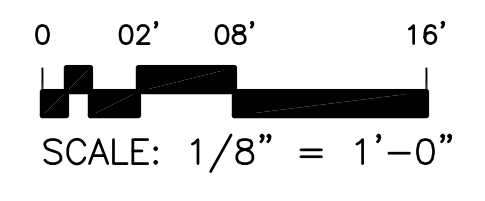
GENERAL DEMOLITION NOTES:

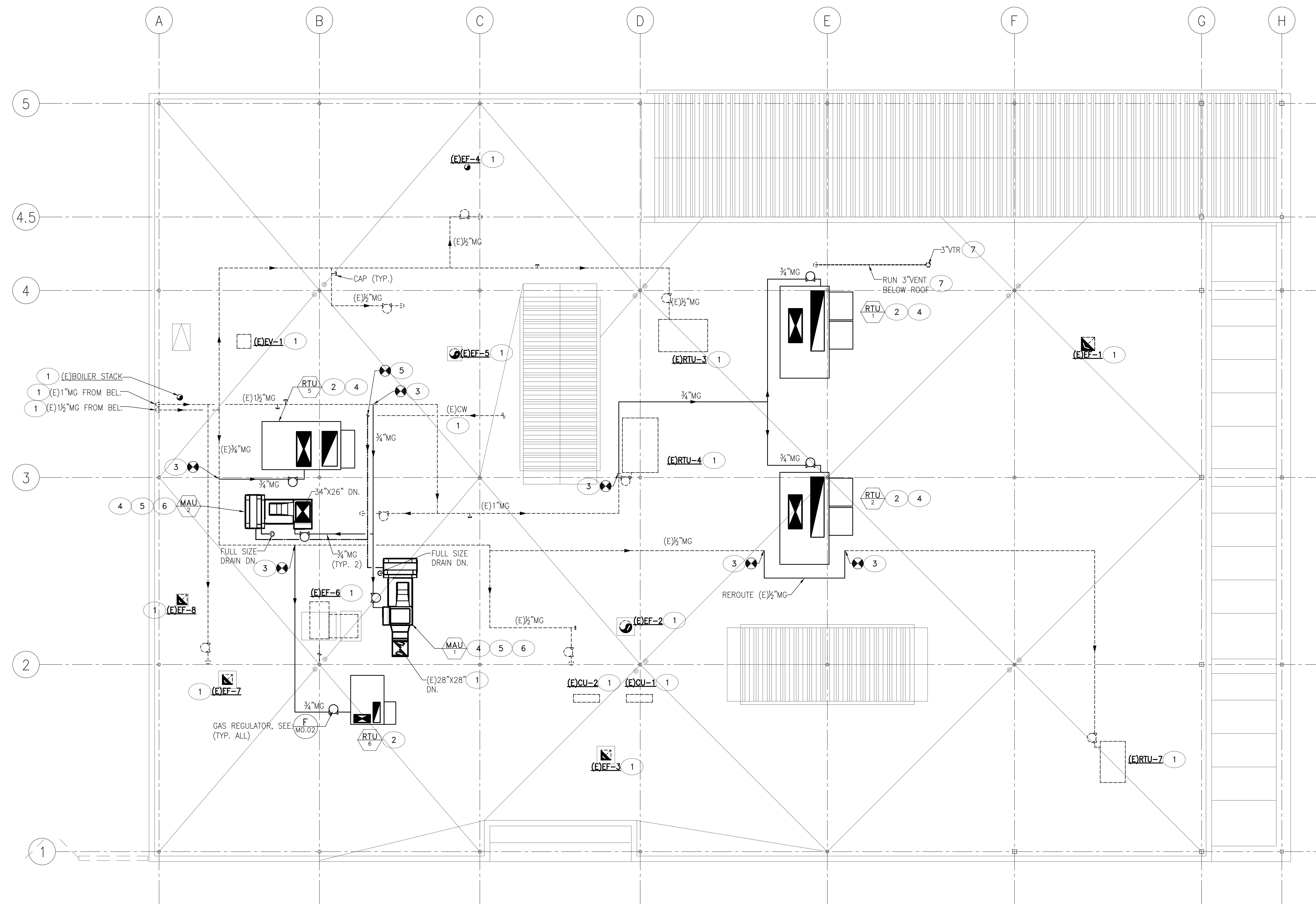
- A. ALL EXISTING SAD, RAD, AND OSA DUCTWORK, AND PIPING SHALL REMAIN UNLESS NOTED OTHERWISE.
- B. FOR PATCHING WALL, CEILING, ETC. SEE ARCHITECTURAL DWGS.
- C. PATCH MAKE UP AIR OPENING ON EXISTING HOODS WHERE DUCTWORK IS REMOVED. TYPICAL FOR ALL.
- D. SEE ARCHITECTURAL CEILING PLAN.

MECHANICAL DEMOLITION NOTES: #

1. EXISTING MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. TO REMAIN.
2. P.O.D., DISCONNECT AND COMPLETELY REMOVE PORTION OF EXISTING DUCTWORK, DIFFUSER, ETC. AS SHOWN CAP OR MAKE READY FOR CONNECTION TO NEW.
3. DISCONNECT AND COMPLETELY REMOVE EXISTING MAU DRAIN PIPING ABOVE CEILING. CAP AT WALL ABOVE CEILING AS SHOWN.

1 MECHANICAL DEMO PLAN
M1.02 CEILING
SCALE: 1/8" = 1'-0"
NORTH



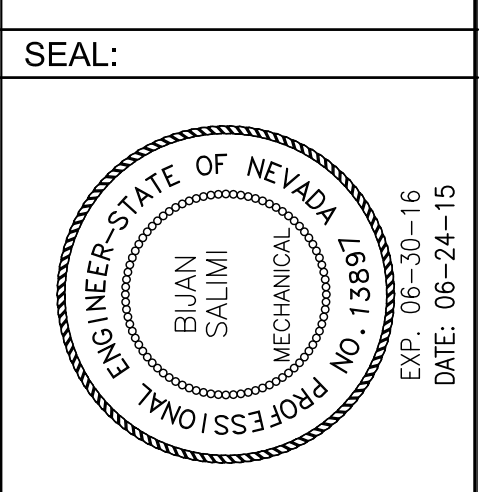


GENERAL NOTES:

- A. EQUIPMENT LABELS HAVE CHANGED. CONTRACTOR SHALL LABEL ALL EXISTING AND NEW EQUIPMENT AS SHOWN IN THESE DRAWINGS. LABEL SHALL BE ENGRAVED AND ATTACHED PERMANENTLY TO UNIT BY MEANS OF SCREEN. A/C UNITS AND EXHAUST FANS SHALL HAVE AN ADDITIONAL LABEL ON THEIR DISCONNECT.
- B. SEE ARCH. AND STRC. DRAWINGS FOR ROOF CURB AND PATCH AROUND NEW UNITS.
- C. SEE ARCH. DWGS. AND ELEC. DWGS FOR SUPPORT WORK.

MECHANICAL NOTES: #

- 1. EXISTING MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC.
- 2. INSTALL NEW RTU EQUIPMENT WITH ALL ACCESSORIES AS SHOWN. SEE ARCH. DWGS. FOR ROOF CURB, SUPPORTS, ROOF PENETRATIONS, AND PATCH WORK. SEE ELEC. DWGS. RUN CD DN TO BELOW. SEE 1/M2.02 FOR CONTINUATION. SEE **D & E/MO.02** FOR MORE PIPING AND DUCTWORK DETAILS.
- 3. P.O.C., CONNECT NEW MEDIUM PRESSURE GAS PIPING TO EXISTING. RUN GAS PIPING AS SHOWN. FOR SUPPORT DETAILS SEE **G/MO.02**.
- 4. INSTALL GAS REGULATOR AT UNIT FOR RATED CAPACITY (SEE SCHEDULE FOR CFH). REDUCE PRESSURE FROM 5 PSIG TO 7\"/>



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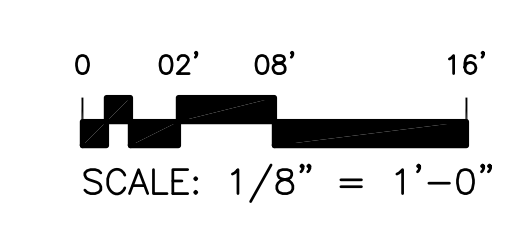
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DRAWING TITLE:
MECHANICAL ROOF PLAN

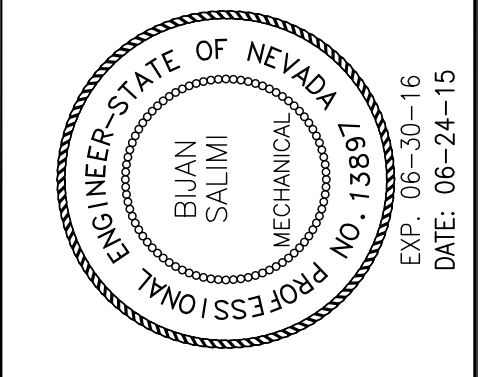
SIGMA'S Project No. 3926c1415	
Consultant Project No. -	
Date: 06-23-2015	
Drawn By: J.M.	Checked By: B.S.
	Approved By: B.S.

File Name:
M2.01
CONSTRUCTION

1 MECHANICAL ROOF PLAN
M2.01 - SCALE: 1/8" = 1'-0" NORTH



SEAL:



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 PROJECT: UNLV DIN COMMONS HVAC UPGRADE

REVISIONS:

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DRAWING TITLE:

**MECHANICAL
 CEILING PLAN**

SIGMA'S Project No. 3926c1415

Consultant Project No. -

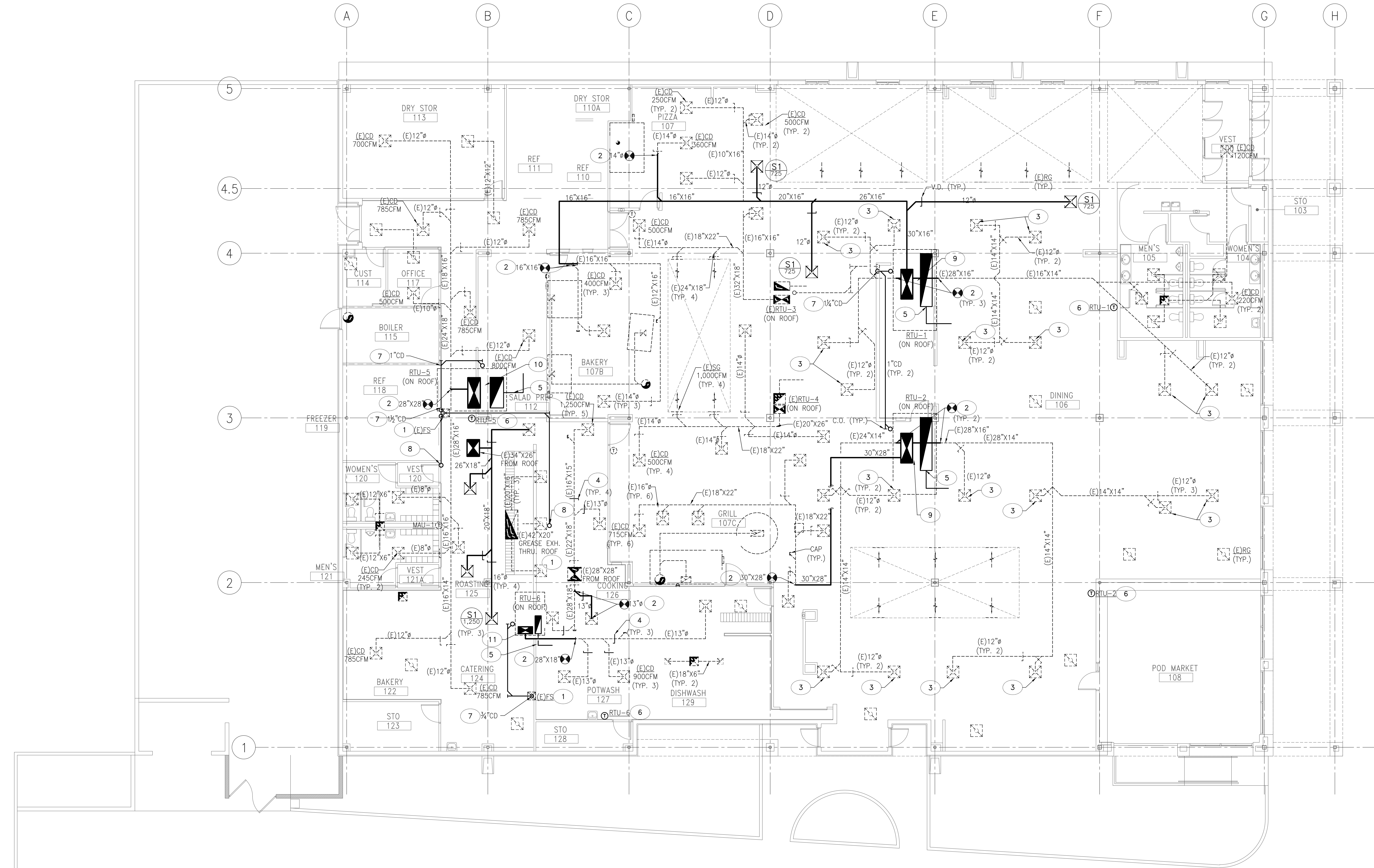
Date: 06-23-2015

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File Name:

M2.02

CONSTRUCTION



GENERAL DEMOLITION NOTES:

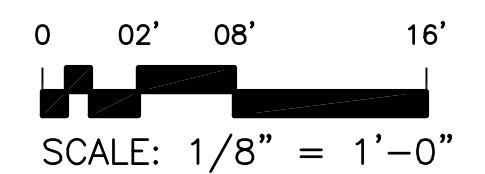
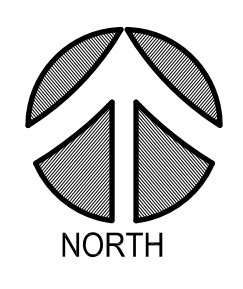
- A. ALL SAD, RAD, AND OSA DUCTWORK, AND PIPING IS EXISTING UNLESS NOTED OTHERWISE.
- B. FOR PATCHING WALL, CEILING, ETC. SEE ARCHITECTURAL DWGS.
- C. PAINT ALL NEW EXPOSED PIPING TO MATCH WALL. SEE ARCHITECTURAL DWGS. FOR PAINT.
- D. SEE ARCHITECTURAL CEILING PLAN.

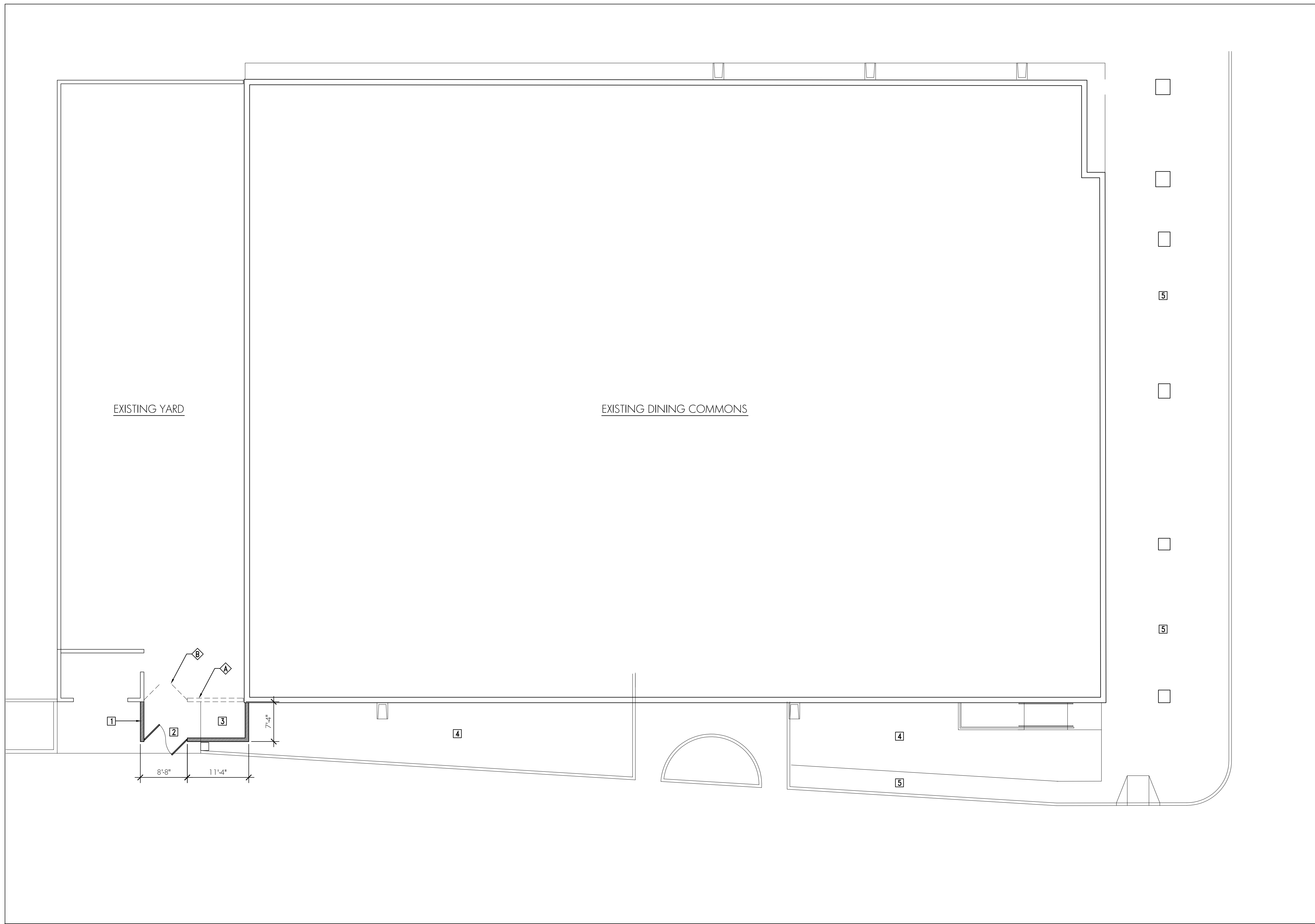
MECHANICAL DEMOLITION NOTES: #

- 1. EXISTING MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC.
- 2. P.O.C. CONNECT NEW DUCTWORK TO EXISTING DUCTWORK.
- 3. BALANCE EXISTING DIFFUSER TO 725CFM.
- 4. INSTALL NEW VOLUME DAMPER ON EXISTING DUCT. SEE C/MO.02.
- 5. RUN MIN. OF 10FT FULL SIZE LINED RETURN DUCT AND CONNECT TO NEW UNIT. SEE D/MO.02.
- 6. INSTALL NEW THERMOSTAT WHERE SHOWN.
- 7. RUN CD DOWN WALL EXPOSED TO EXISTING FLOOR SINK. TERMINATE WITH 2" AIR GAP. PAINT EXPOSED INSULATION TO MATCH WALL. SEE ARCH. DRAWINGS FOR PAINT.
- 8. FULL SIZE DRAIN PIPE FROM ABOVE. RUN ABOVE CEILING. RUN DOWN WALL EXPOSED TO EXISTING FLOOR SINK. TERMINATE WITH 2" AIR GAP. PAINT EXPOSED INSULATION TO MATCH WALL. SEE ARCH. DRAWINGS FOR PAINT.
- 9. 60"x24" SUPPLY AND 108"x24" RETURN DUCT DN. FROM ROOF.
- 10. 60"x24" SUPPLY AND 62"x26" RETURN DUCT DN. FROM ROOF.
- 11. 14"x28" SUPPLY AND 36"x12" RETURN DUCT DN. FROM ROOF.

1 MECHANICAL CEILING PLAN
 M2.02 -

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

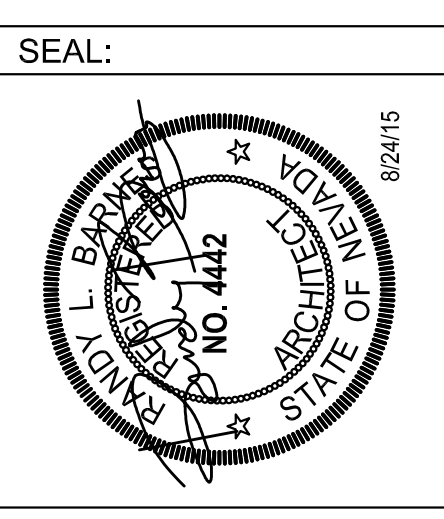




KEYNOTES	
8-A	REMOVE PORTION OF CMU SITE WALL
8-B	REMOVE STEEL GATE
1	INSTALL CMU SITE WALL - REFER TO DETAIL 3 THIS SHEET
2	INSTALL STEEL GATES - REFER TO DETAIL 3 THIS SHEET
3	INSTALL CONCRETE WALK INFILL - REFER TO DETAIL 3 THIS SHEET
4	EXISTING LANDSCAPING
5	EXISTING CONCRETE WALK

NOTES	
1.	VERIFY DIMENSIONS OF CMU WALL WITH ELECTRICAL EQUIPMENT.

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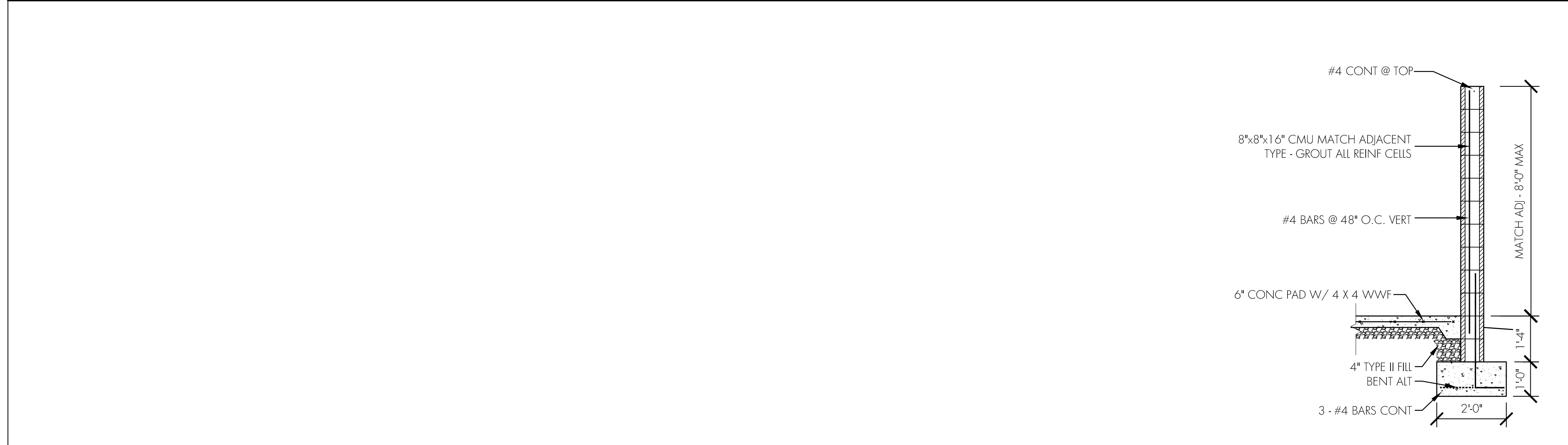


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 FACSIMILE: 702.407.5148

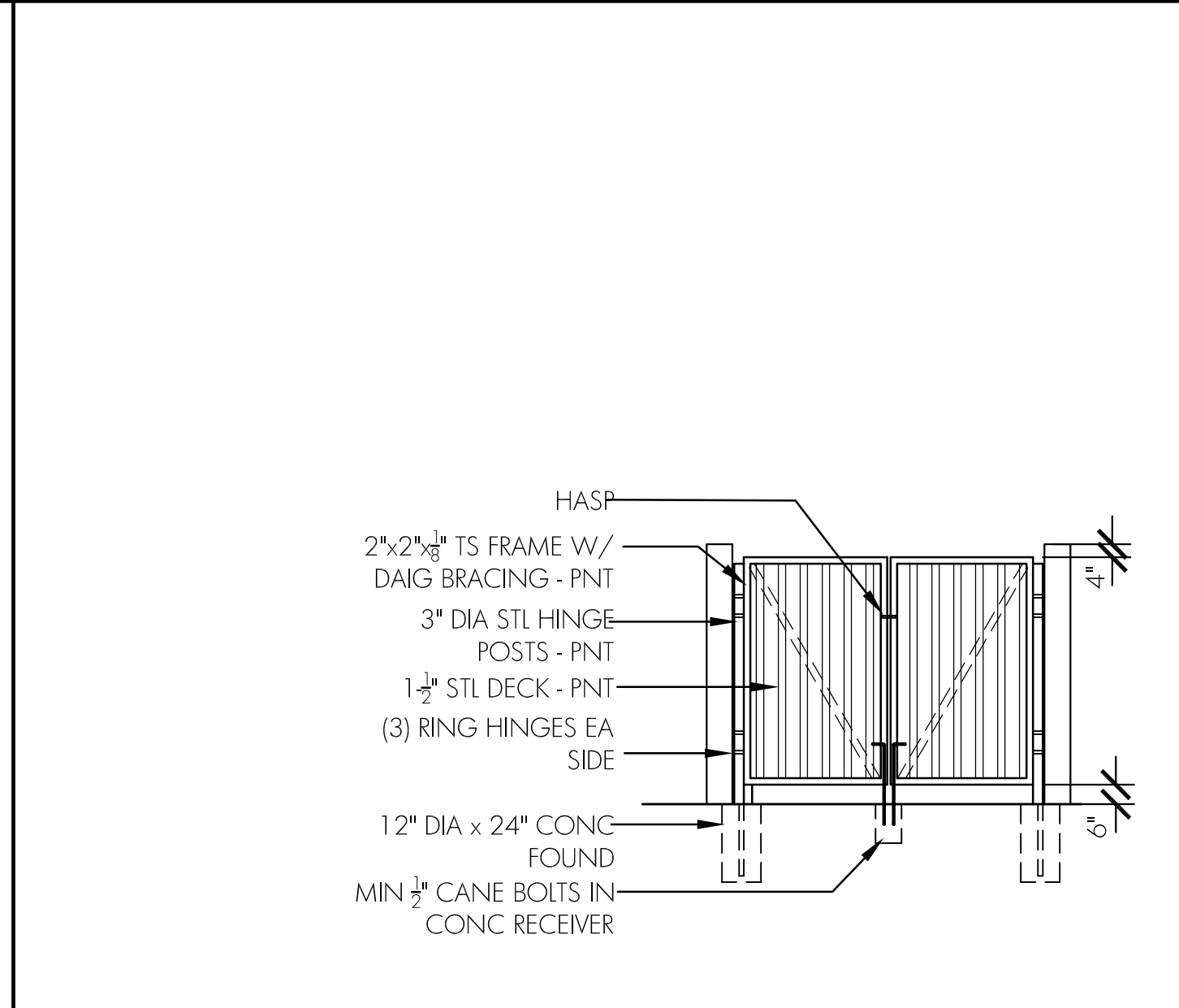
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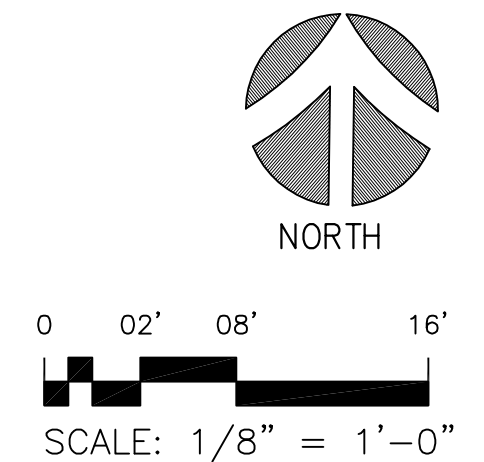
FLOOR PLAN 1/8" = 1'-0" 1



CMU WALL SECTION 1/8" = 1'-0" 3



GATE ELEVATION 1/8" = 1'-0" 2



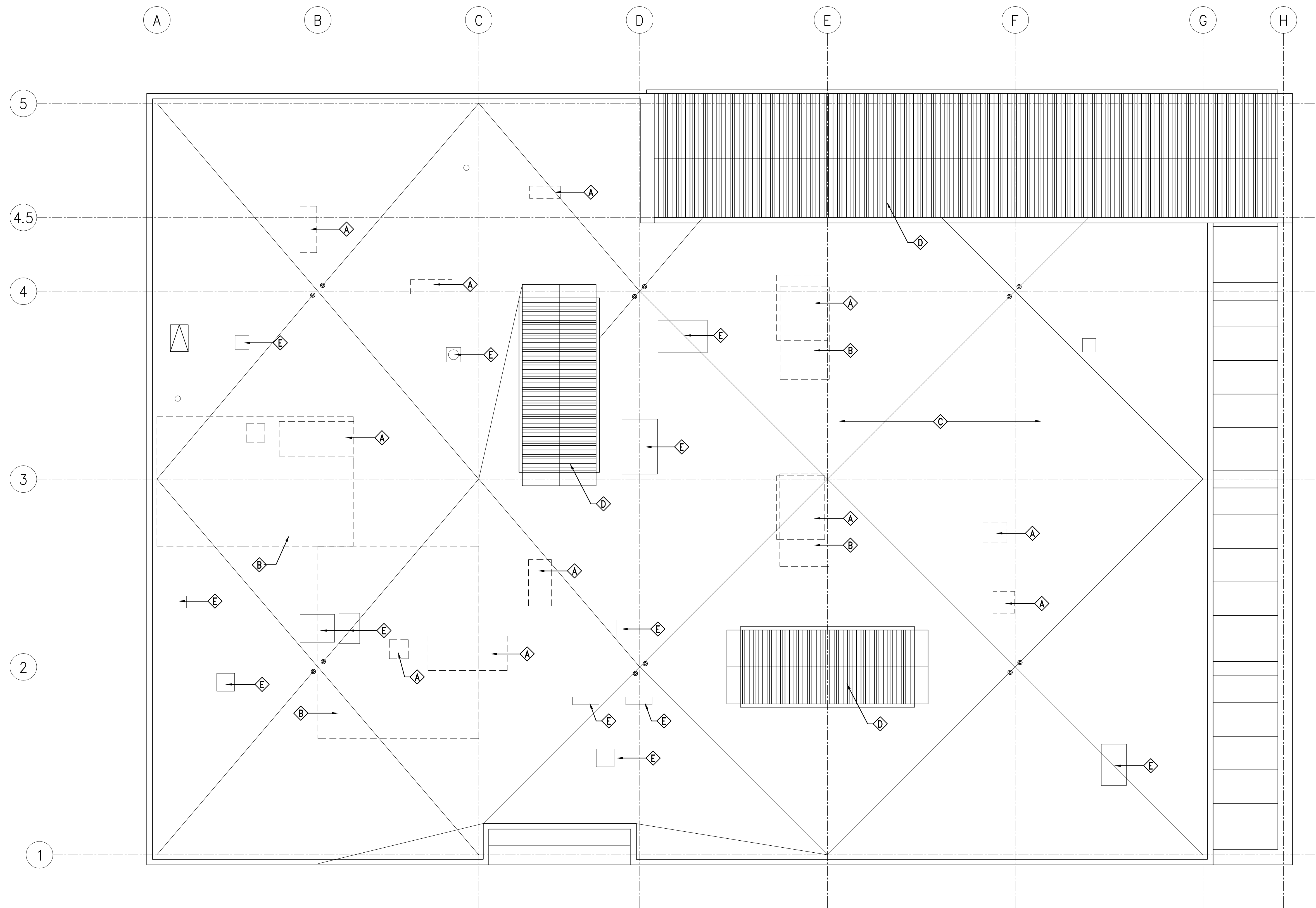
DRAWING TITLE :
SITE PLAN

All dimensions, levels, heights and field conditions shall be verified at the site by the contractor before proceeding with the work.

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CONSTRUCTION



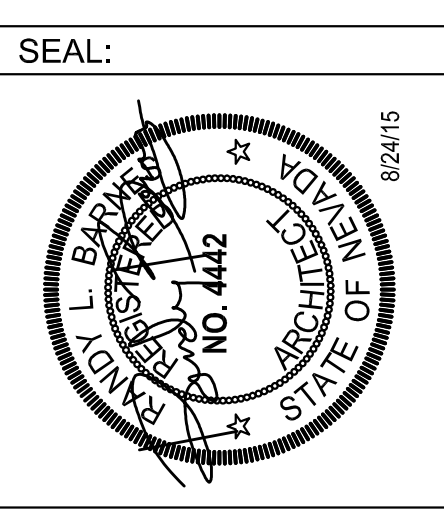
KEYNOTES

- (A) MECHANICAL UNIT AND CURB TO BE REMOVED - REFER TO MECHANICAL DRAWINGS
- (B) REMOVE PORTION OF ROOFING SYSTEM FOR ROOF PENETRATION/CURB AND ACCESS TO STRUCTURAL MEMBERS - REFER TO MECHANICAL AND STRUCTURAL DRAWINGS
- (C) EXISTING SINGLEPLY ROOFING SYSTEM
- (D) EXISTING STANDING SEAM METAL ROOFING SYSTEM ON PENTHOUSE
- (E) EXISTING HVAC UNIT - REFER TO MECHANICAL DRAWINGS

NOTES

1. REFER TO STRUCTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
2. REMOVE PORTIONS OF ROOFING SYSTEM REQUIRED FOR INSTALLATION OF MECHANICAL UNIT CURB AND PENETRATIONS AND ACCESS TO STRUCTURAL MEMBERS - REFER TO MECHANICAL AND STRUCTURAL DRAWINGS.

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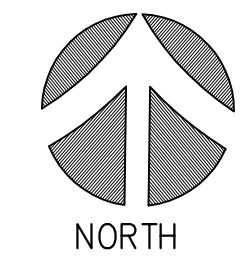
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DRAWING TITLE :

DEMOLITION ROOF PLAN

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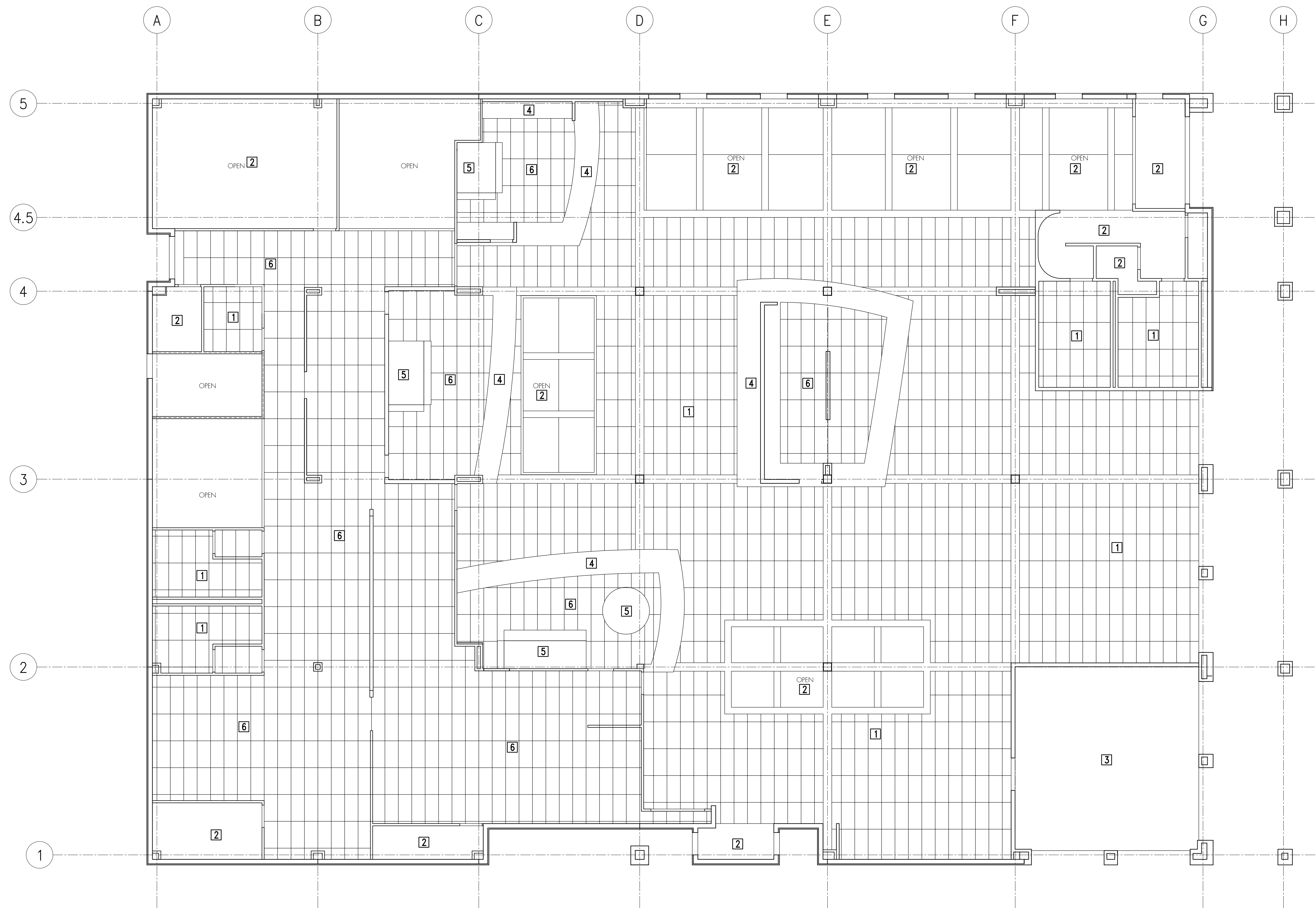
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 Consultant Project No. 15017
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0 02' 08' 16'
 SCALE: 1/8" = 1'-0"

DEMOLITION ROOF PLAN 1

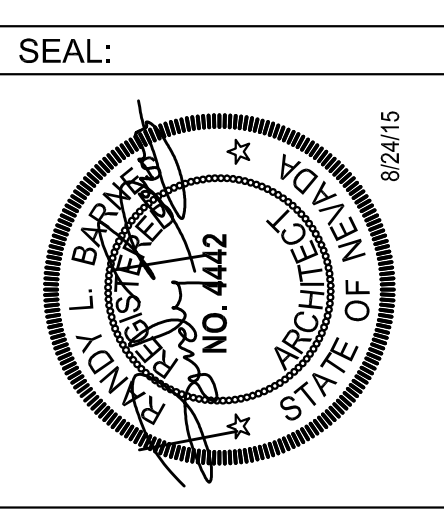
A1.01
 CONSTRUCTION



KEYNOTES	
1	EXISTING SUSPENDED CEILING SYSTEM
2	EXISTING GYPSUM BOARD CEILING SYSTEM
3	EXISTING METAL CEILING SYSTEM
4	EXISTING GYPSUM BOARD SOFFIT
5	EXISTING EXHAUST HOOD
6	EXISTING SUSPENDED CEILING SYSTEM WITH FRP PANELS

NOTES	
1.	REFER TO MECHANICAL AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
2.	REMOVE AND REFACE PORTIONS OF CEILING AS REQUIRED FOR STRUCTURAL, MECHANICAL AND ELECTRICAL ACCESS.

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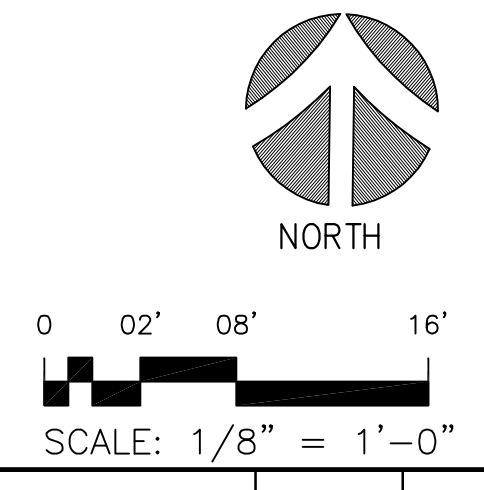
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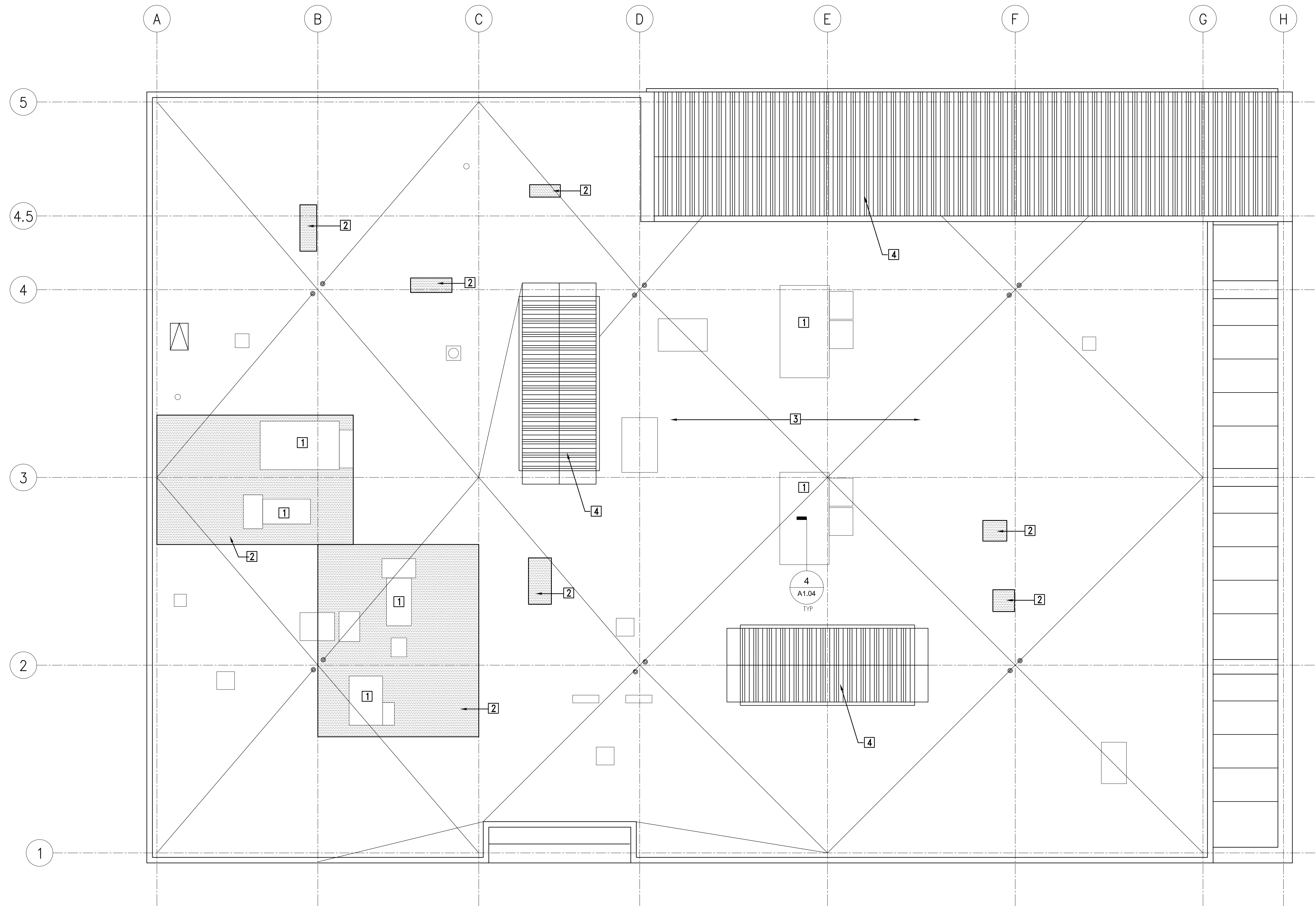
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DRAWING TITLE :
EXISTING REFLECTED CEILING PLAN

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Consultant Project No.	15017	
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RBA	RBA	RBA

File Name:
A1.02
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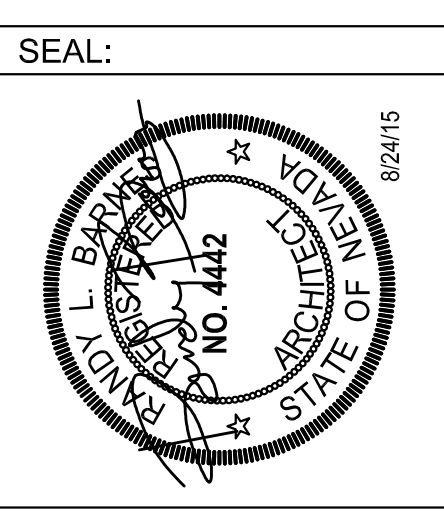




KEYNOTES	
1	MECHANICAL UNIT ON CURB - REFER TO MECHANICAL AND STRUCTURAL DRAWING
2	INFILL PORTION OF ROOF DECK AT OPENINGS - REFER TO STRUCTURAL AND MECHANICAL DRAWINGS - VERIFY EXACT SIZE WITH FIELD CONDITIONS - REFER TO DETAIL 1/A1.04
3	EXISTING SINGLE PLY ROOFING SYSTEM
4	EXISTING STANDING SEAM METAL ROOFING SYSTEM ON PENTHOUSE

NOTES	
1.	REFER TO STRUCTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
2.	INFILL ANY OPENINGS FROM MECHANICAL, STRUCTURAL OR ELECTRICAL DEMOITION.
3.	REFER TO SHEET A1.04 FOR ROOF DETAILS.

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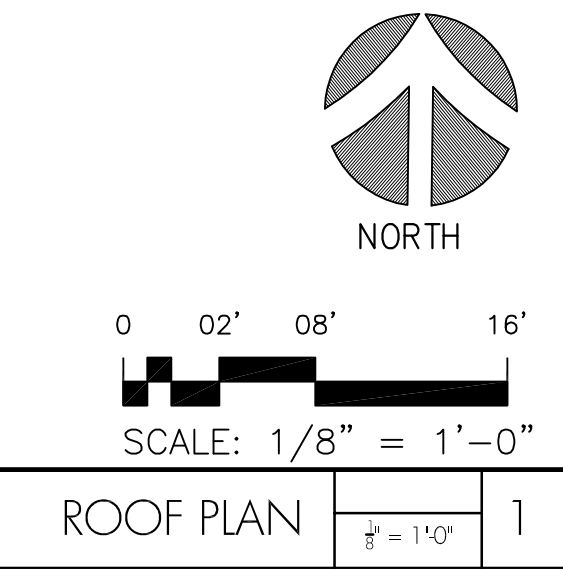
DRAWING TITLE :
ROOF PLAN

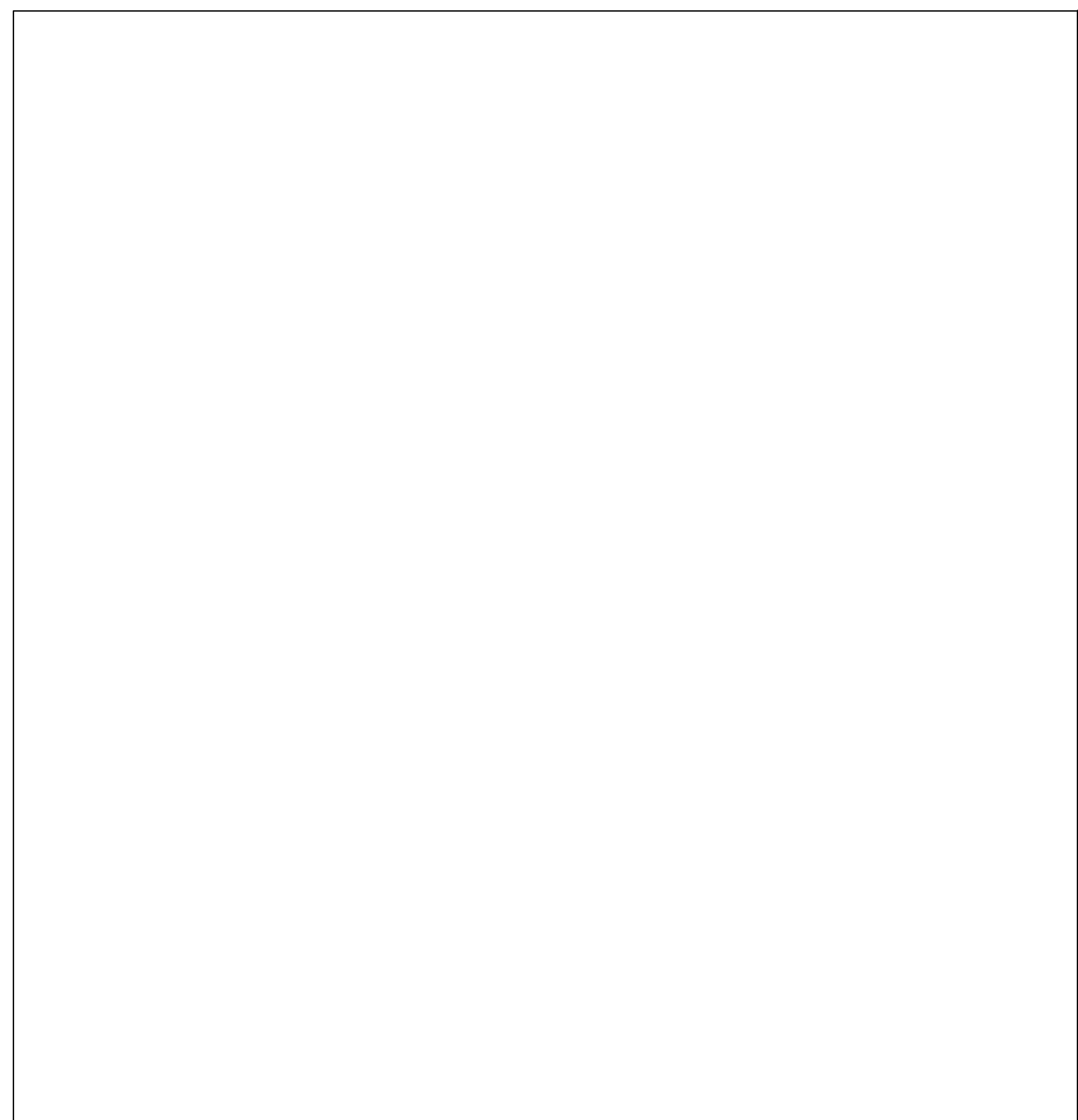
At dimension, length, height and field conditions shall be verified at the site by the contractor before proceeding with the work.

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Consultant Project No.	15017	
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A1.03
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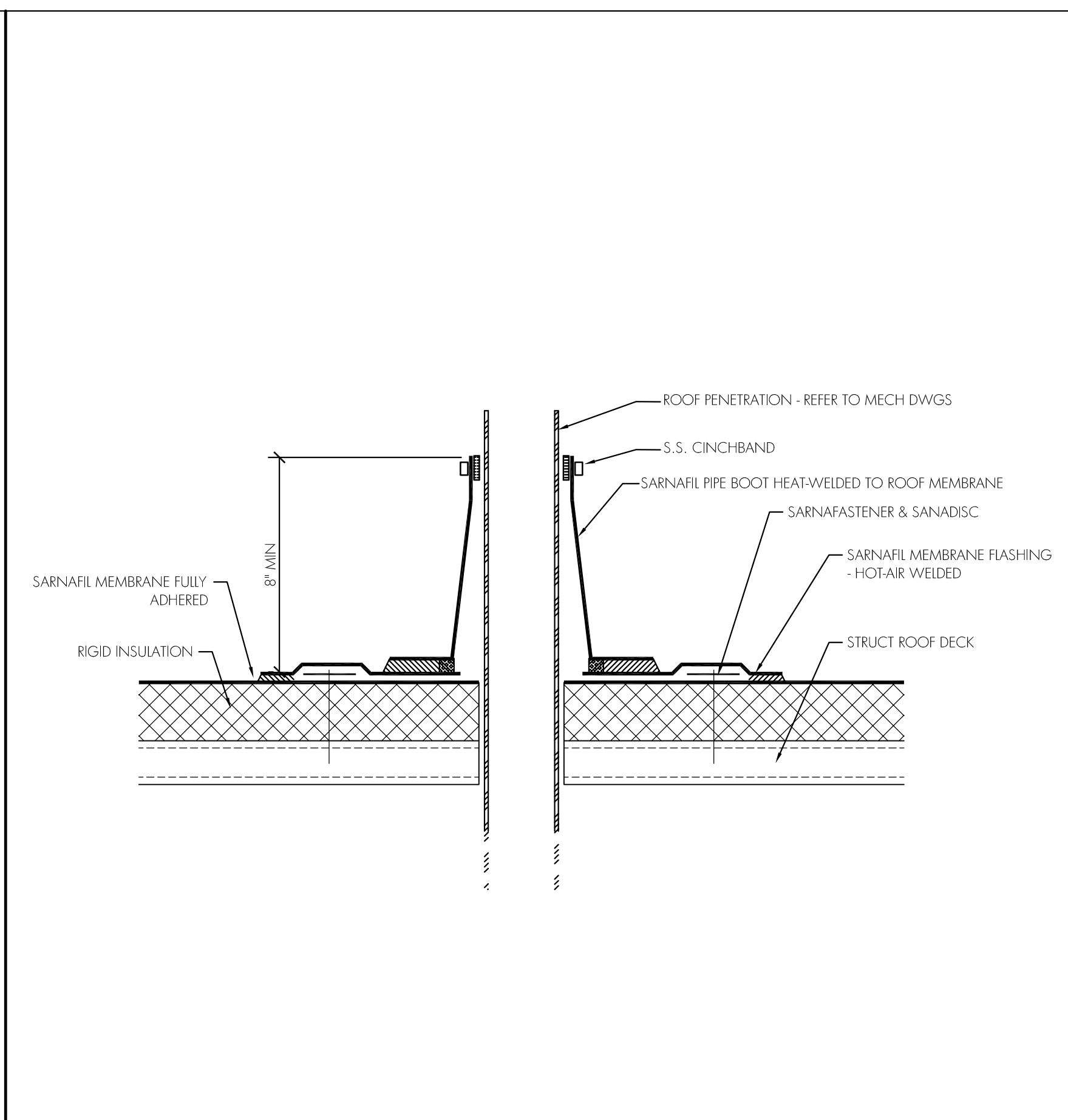
NOT USED $\frac{1}{2}'' = 1'-0''$ 12



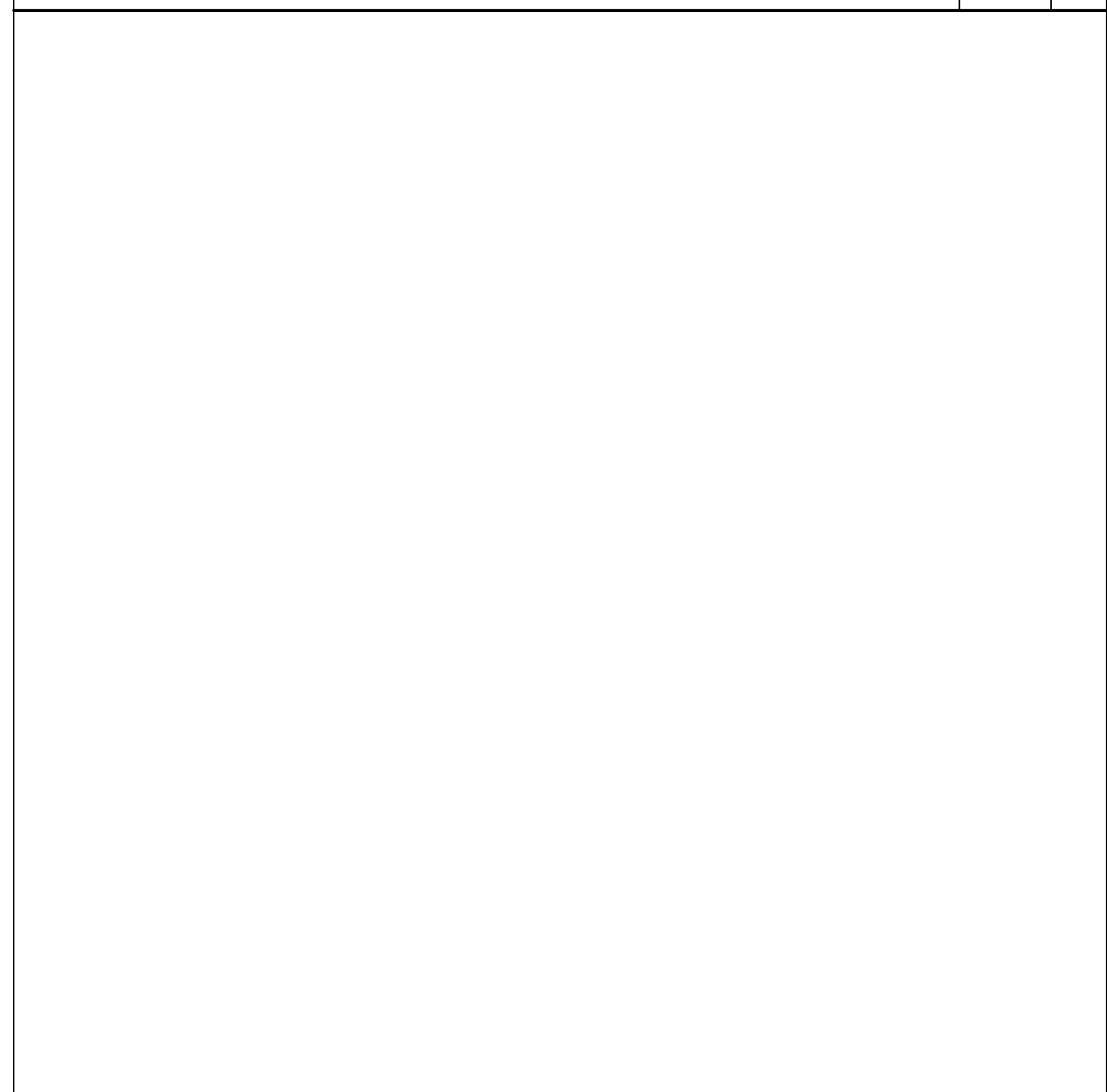
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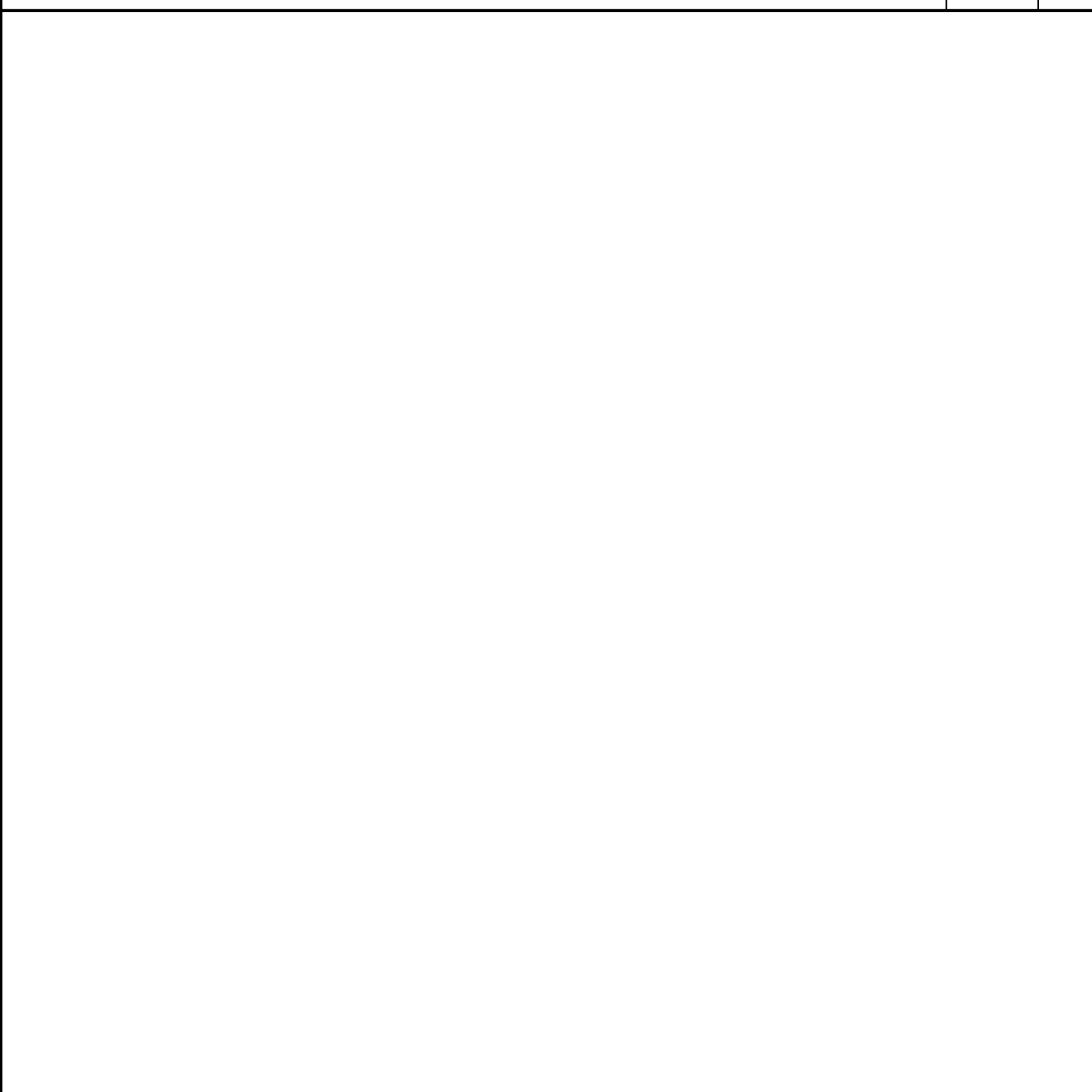
NOT USED $\frac{1}{2}'' = 1'-0''$ 6



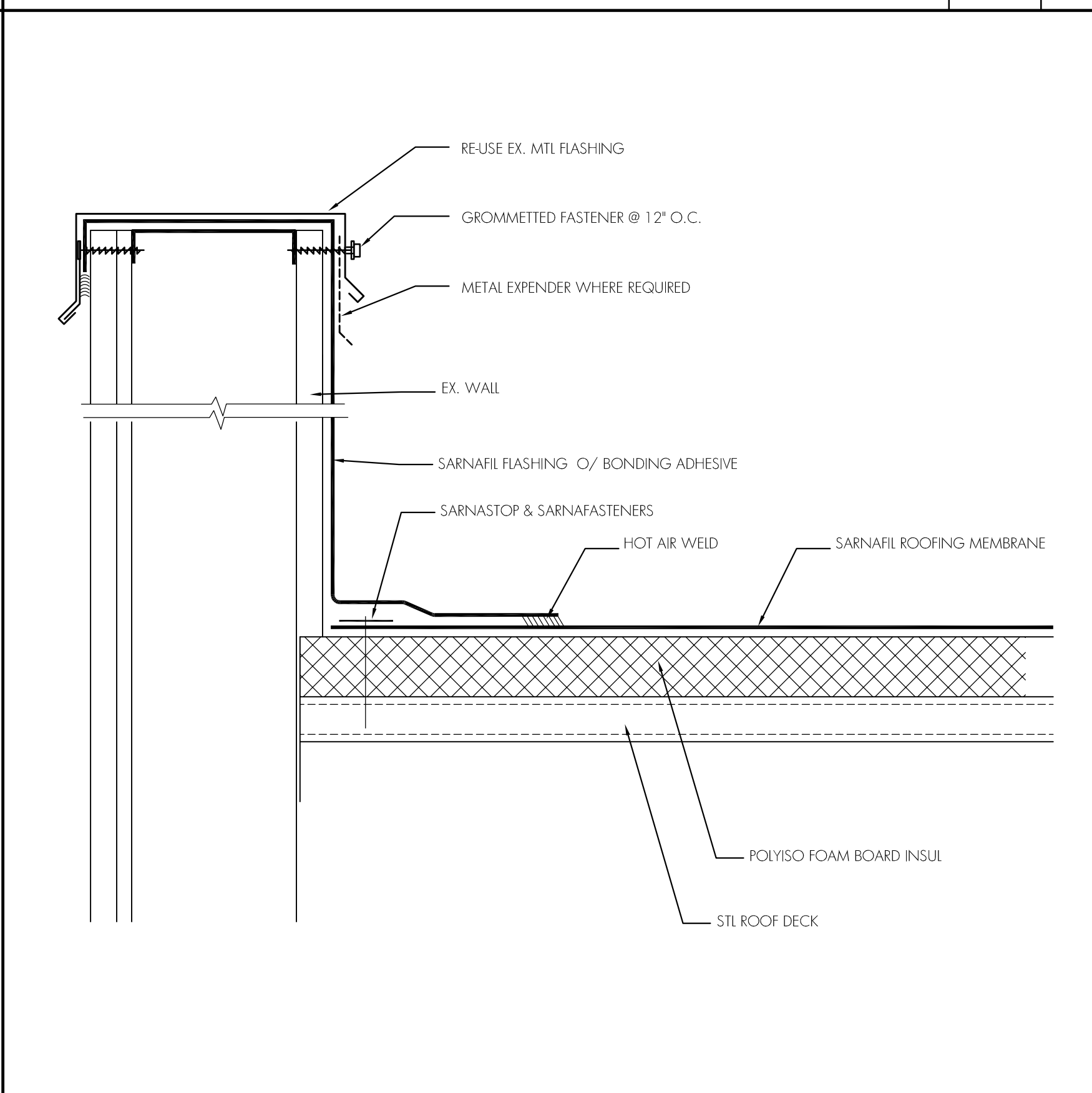
PIPE FLASHING $\frac{1}{2}'' = 1'-0''$ 3



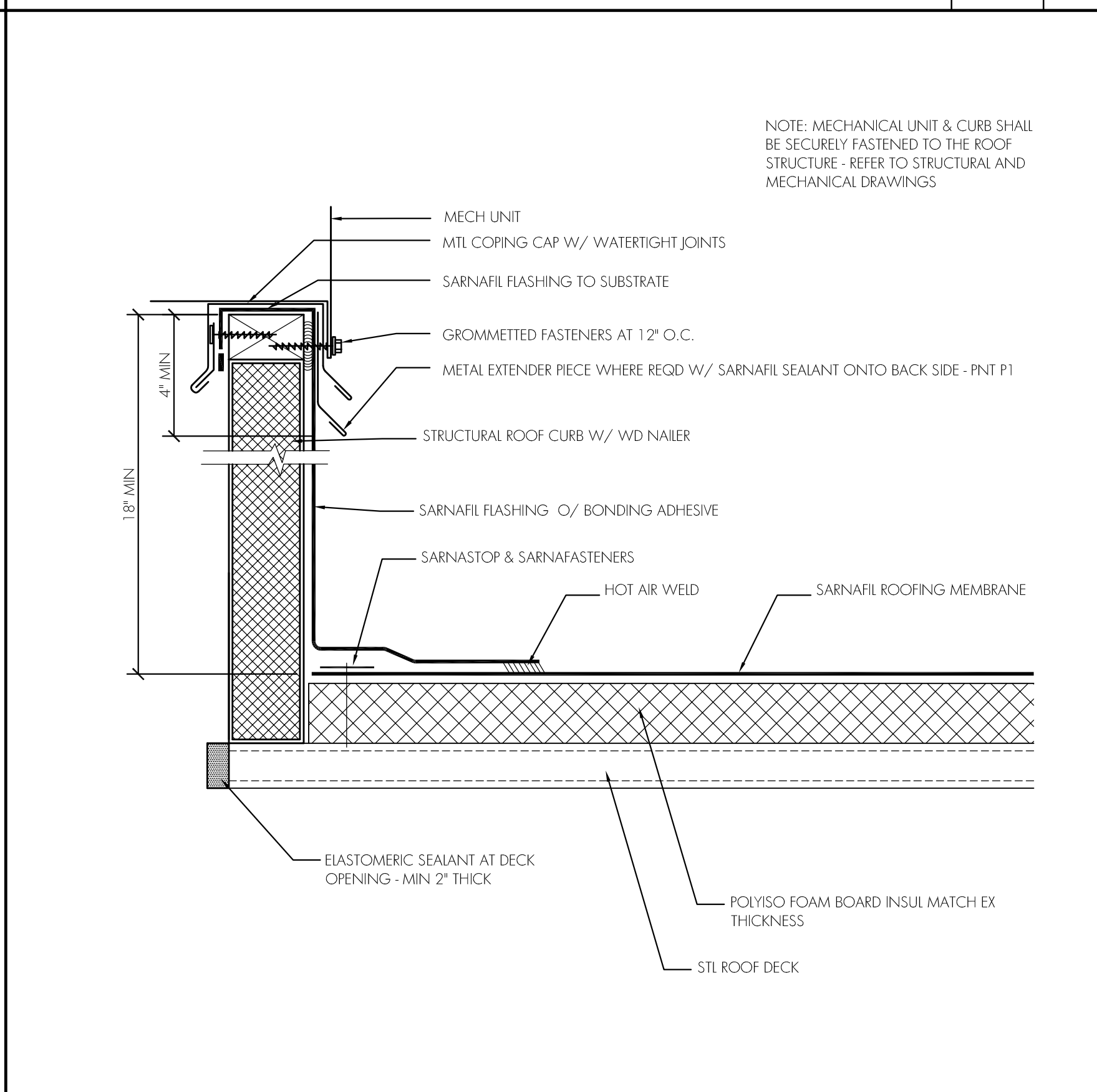
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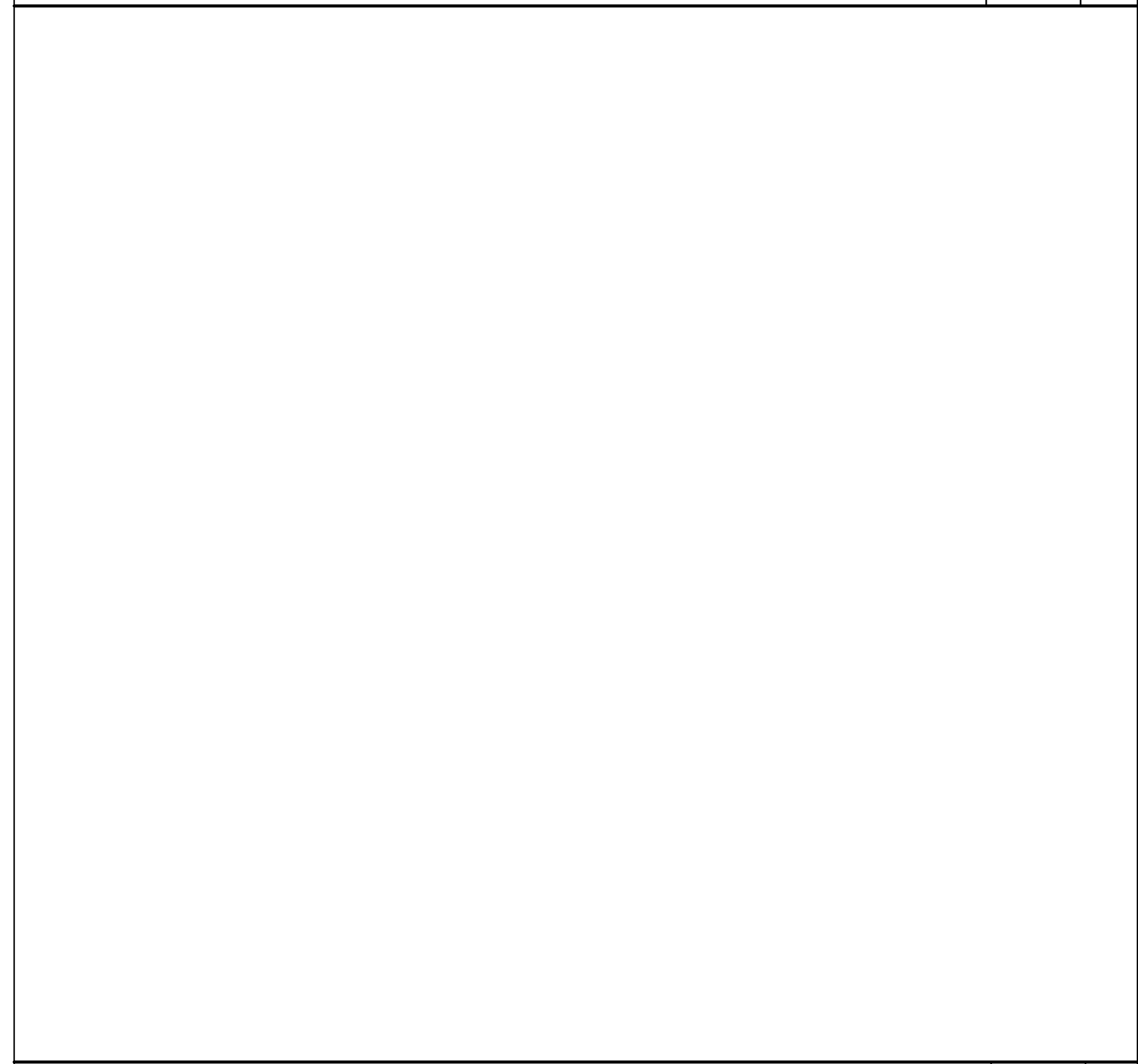
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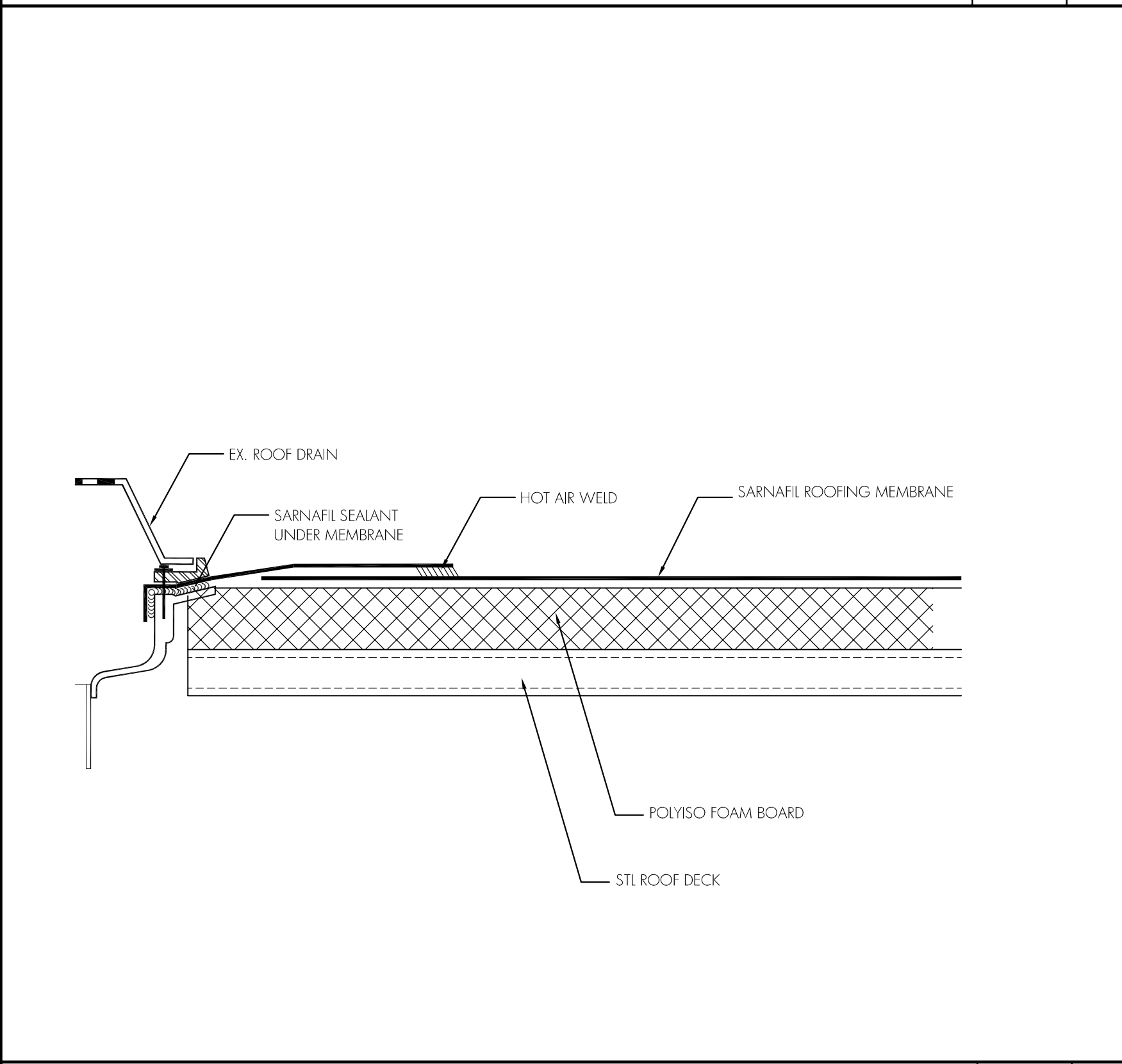
PARAPET FLASHING $\frac{1}{2}'' = 1'-0''$ 5



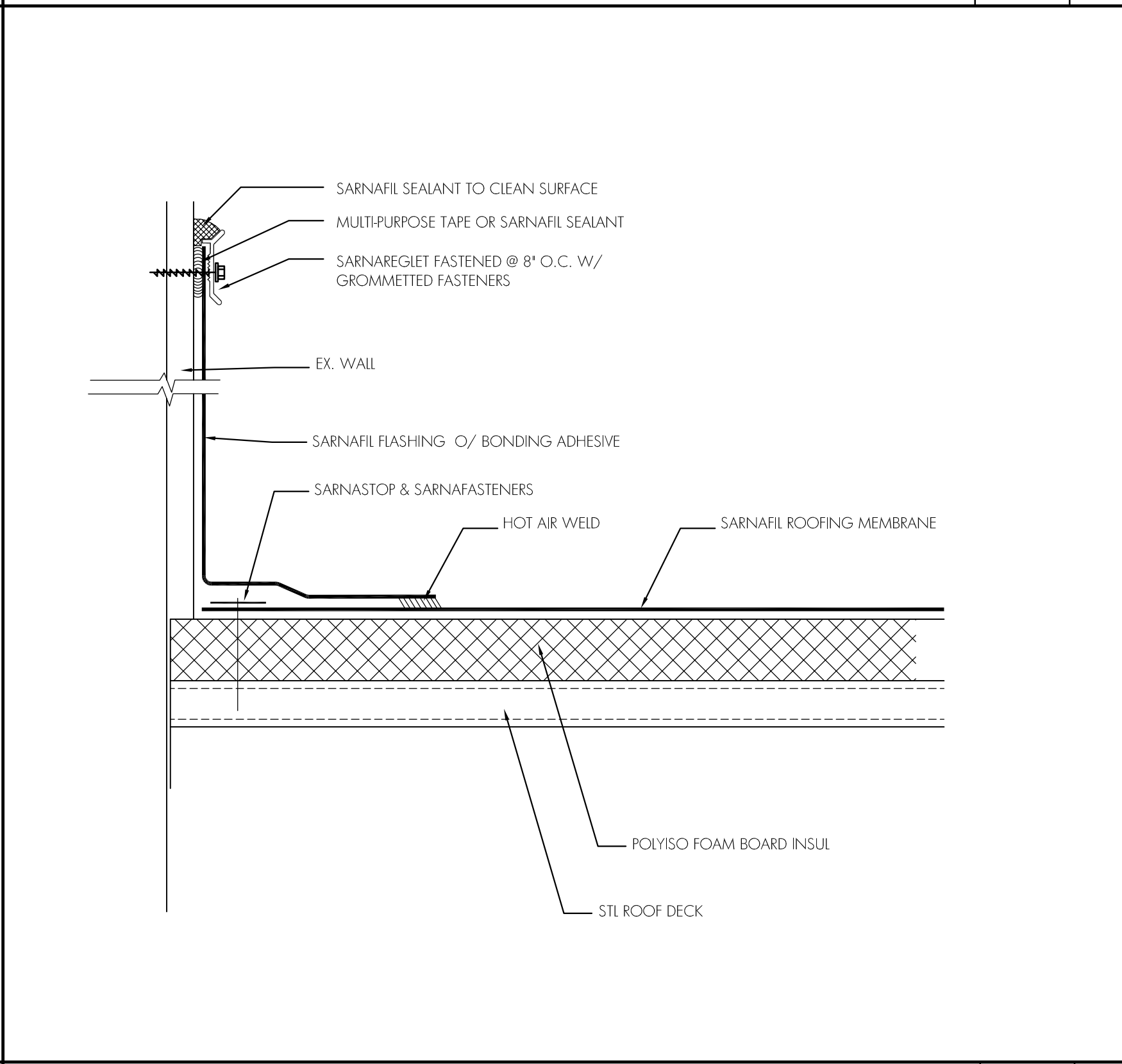
MECHANICAL UNIT CURB $\frac{1}{2}'' = 1'-0''$ 2



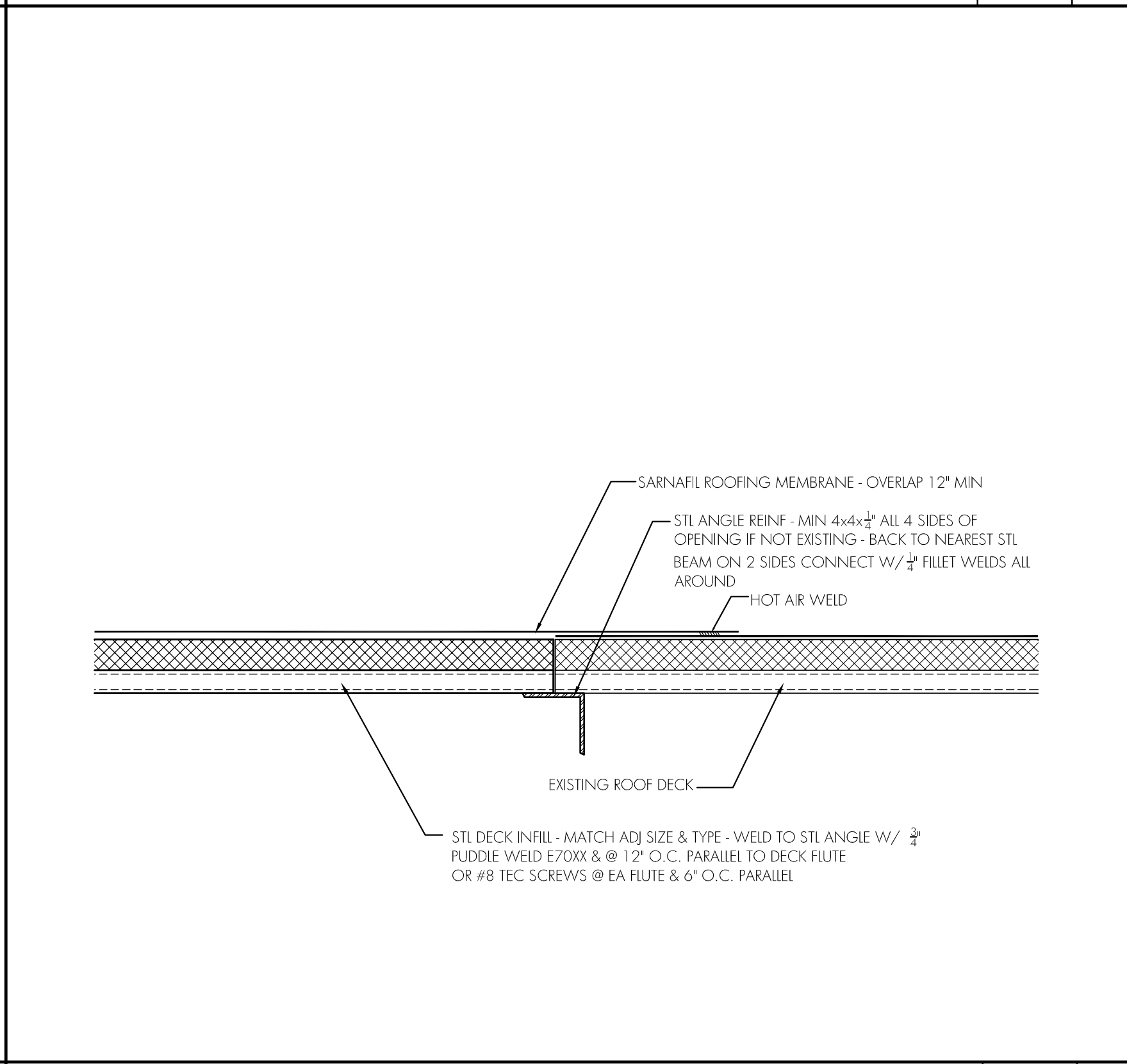
NOT USED $\frac{1}{2}'' = 1'-0''$ 10



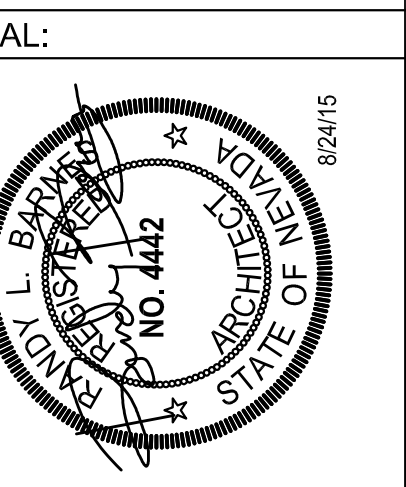
ROOF DRAIN CLAMP RING $\frac{1}{2}'' = 1'-0''$ 7



PARAPET FLASHING $\frac{1}{2}'' = 1'-0''$ 4



ROOF INFILL $\frac{1}{2}'' = 1'-0''$ 1



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DRAWING TITLE:
ROOF DETAILS

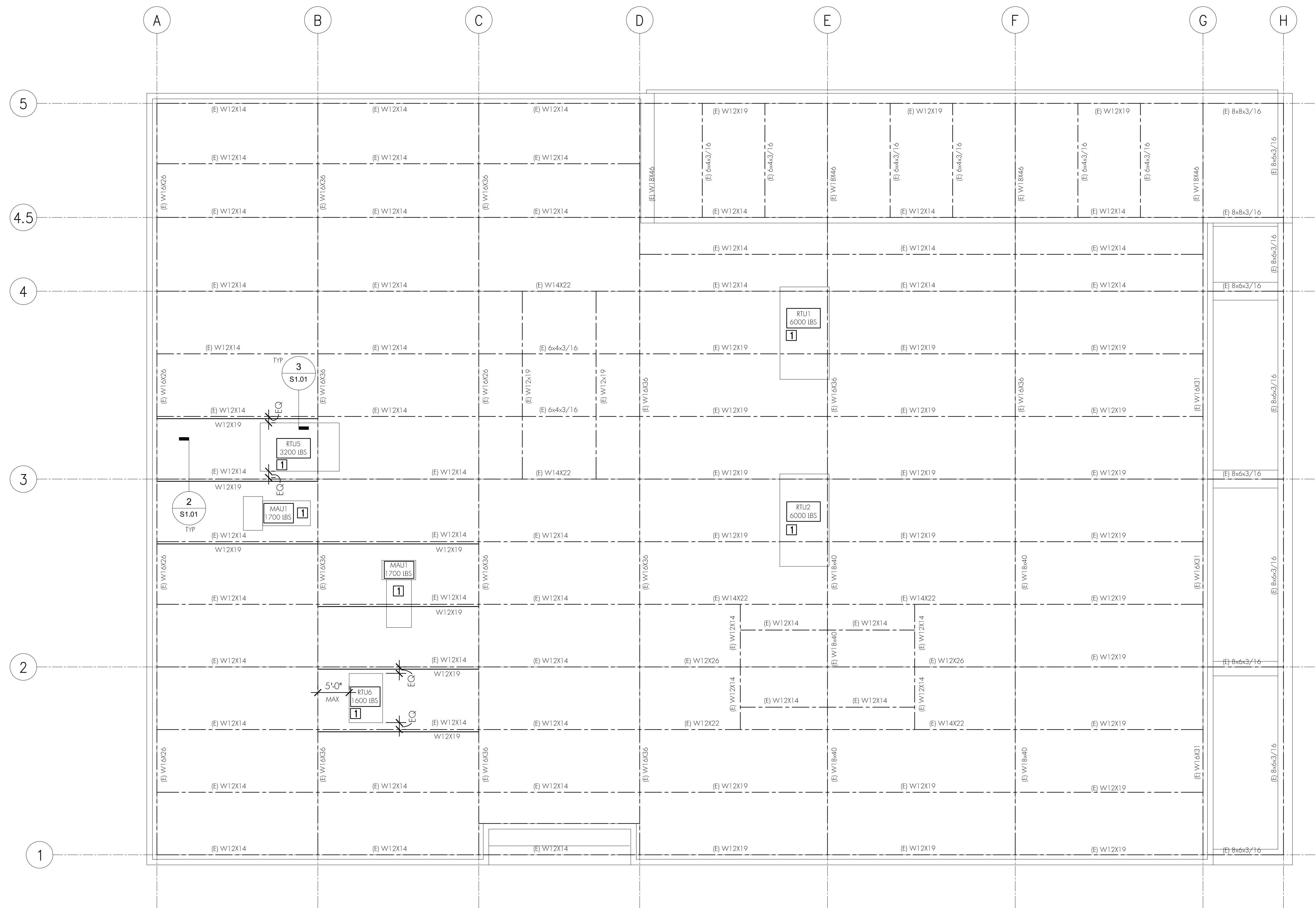
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A1.04

CONSTRUCTION



KEYNOTES

1. MECHANICAL UNIT ON STRUCTURAL ROOF CURB SPANNING BETWEEN BEAMS - CURB SHALL HAVE A MINIMUM MOMENT OF INERTIA OF $I_x = 1.10 \text{ in}^4$

NOTES

GENERAL

1. REFER TO MECHANICAL AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

2. MECHANICAL UNIT AND CURB SHALL BE SECURELY FASTENED TO THE ROOF STRUCTURE. ATTACHMENT SHALL BE PER THE UNIT AND CURB MANUFACTURER'S REQUIREMENTS - AT A MINIMUM EQUIPMENT SHALL BE BOLTED OR WELDED WITH CONNECTIONS CAPABLE OF WITHSTANDING THE MAXIMUM REGIONAL LATERAL SEISMIC OR WIND LOAD, WHICHEVER IS GREATER - IF SUFFICIENT INSTRUCTION IS NOT PROVIDED BY THE UNIT MANUFACTURER THE CONTRACTOR SHALL EMPLOY A PROPERLY LICENSED ENGINEER TO DESIGN THE CONNECTIONS.

BASIS FOR DESIGN

Governing Code: 2012 BC

Roof loads:

Dead load = 20 psf

Live load = 20 psf

Wind design:

Basic wind speed = 120 mph

Wind exposure = B

Importance factor = 1.0

Seismic design:

Design category = C

Risk category = II

$S_s, S_1 = 0.567, 0.174$

$SD_1, SD_1 = 0.443, 0.188$

Site class = C

Lateral force resisting system = Mechanical components

Importance factor = 1.0

$q_p, R_p = 2.5, 0.0$

Redundancy factor = 1.0

Analysis procedure = Equivalent lateral force procedure

Maximum unit weight on roof = 6,000 lbs

STRUCTURAL STEEL

1. Materials:

Channel, angle ASTM A36, 36 KSI

Rolled wide flange ASTM A992 or S72, 50 KSI

Bars and plates ASTM A36, 36 KSI

Pipes ASTM A53, 35 KSI

Tubes ASTM A500 Grade B, 46 KSI

Bolts ASTM A307

2. Fabricate and erect in accordance with AWS specifications.

3. Welders shall be AWS certified. All welding shall use E70 series low hydrogen electrodes.

4. Install bolts as bearing-type connections with threads excluded from shear plane. All bolts in slotted or oversized holes and all high-strength bolts shall be installed with washers.

5. Expansion or epoxy bolts shall have current ICC-ESR rating for material into which installation occurs. Bolts, anchor bolts, expansion bolts, etc. shall be installed with steel washers on face of wood.

6. Grout beneath column bases or bearing plates shall be 5000 psi minimum, non-drink flowable grout or dry pack.

SPECIAL INSPECTION

Types of work requiring special inspection: Field Welding, periodic

NOTE:

REFER TO THE CURRENT BC, CHAPTER 17 AND THE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION AND ADDITIONAL INSPECTION REQUIREMENTS FOR NONSTRUCTURAL ITEMS.

STEEL: CONTINUOUS (PERIODIC)

(CURRENT BC, TABLE 1704.3)

1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:

A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS _____ P

B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED. _____ P

2. INSPECTION OF HIGH-STRENGTH BOLTING:

A. SNUGTIGHT JOINTS. _____ P

B. SUPERCRITICAL CONNECTIONS. _____ C & P

3. MATERIAL VERIFICATION OF STRUCTURAL STEEL:

A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS _____ P

B. MANUFACTURER'S CERTIFIED MILL TESTS REPORTS. _____ P

4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:

A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS. _____ P

B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED. _____ P

5. INSPECTION OF WELDING:

A. STRUCTURAL STEEL:

1. COMPLETE AND PARTIAL PENETRATION GROOVE WELDS. _____ C

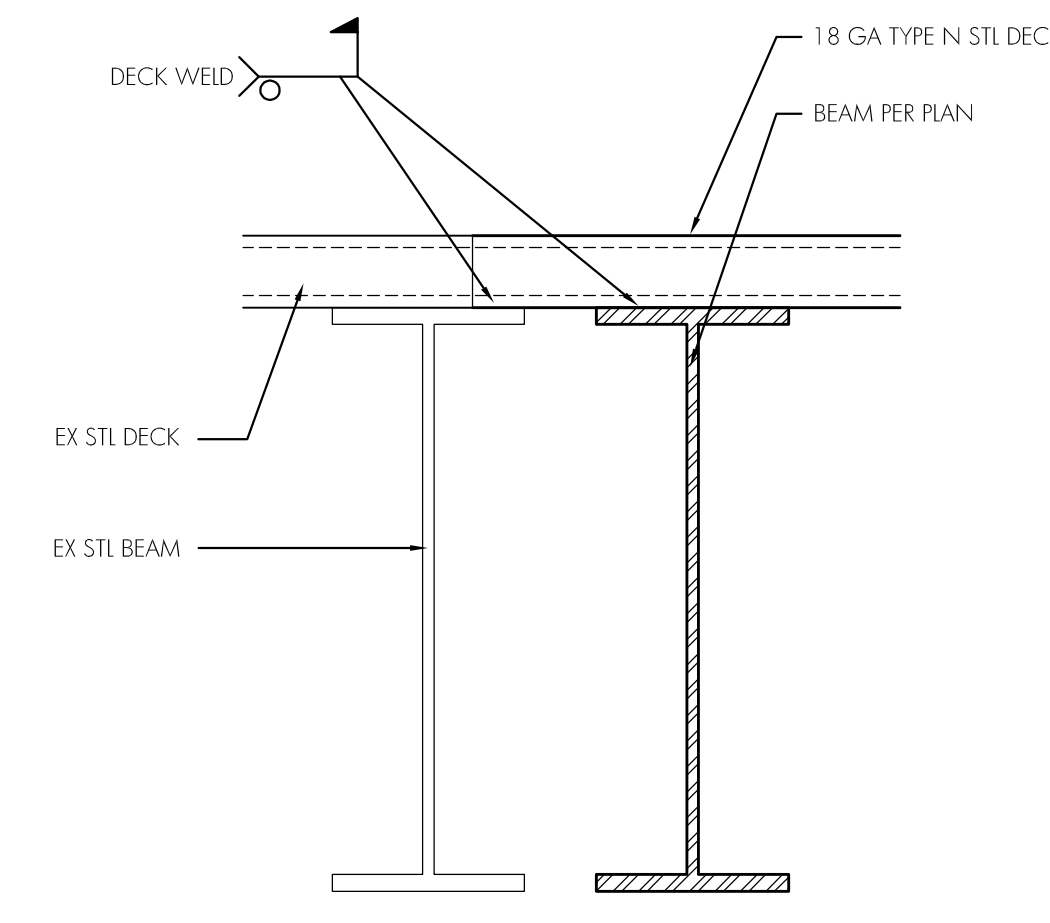
2. MULTIPASS FILET WELDS. _____ C

3. SINGLEPASS FILET WELDS $> 5/16"$. _____ C

4. FLUG AND SLOT WELDS. _____ C

5. SINGLEPASS FILET WELDS $\leq 5/16"$. _____ P

ROOF FRAMING PLAN 1/8" = 1'-0" 1

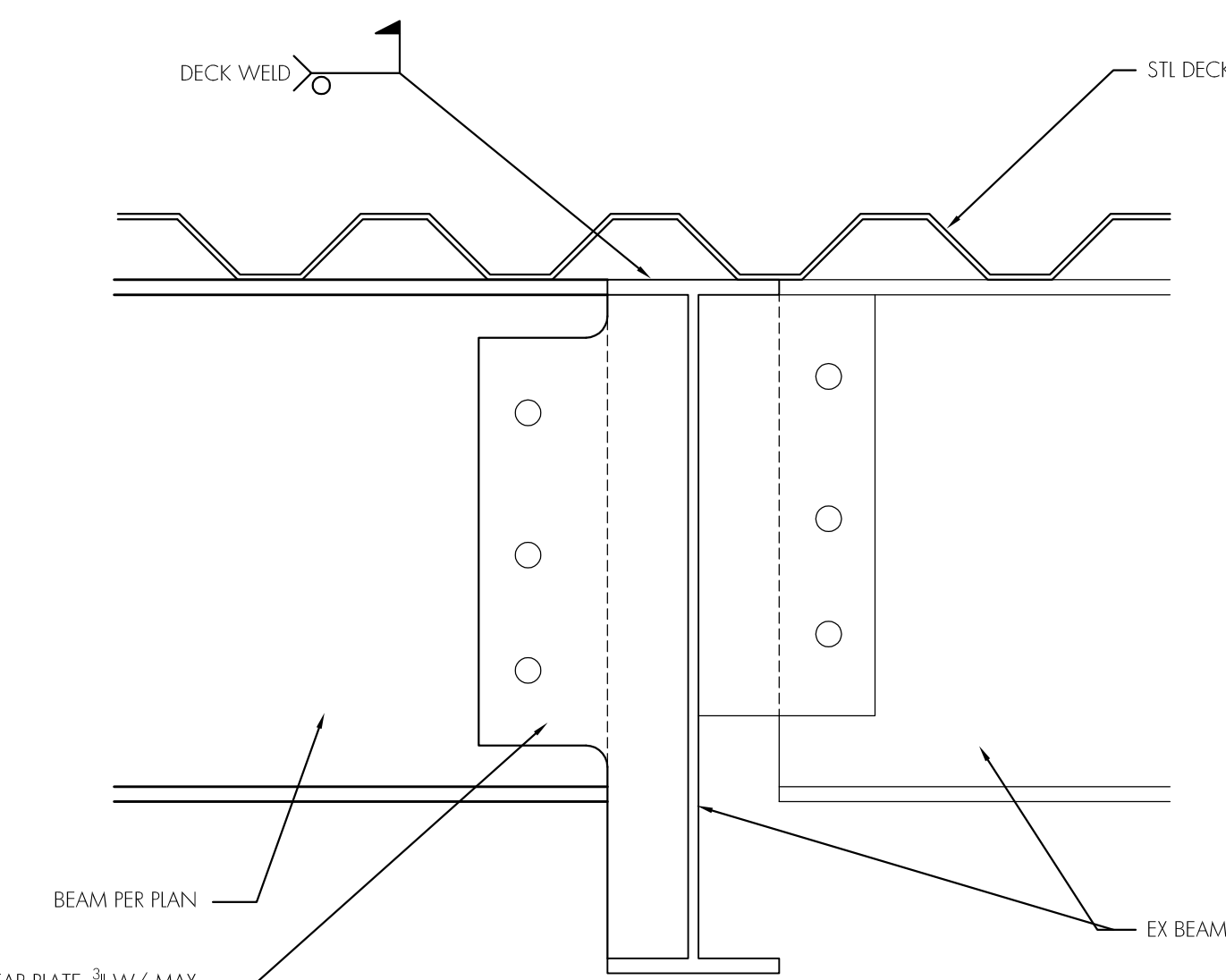


NOTES

1. CUT & REMOVE EXISTING METAL DECK TO INSTALL STEEL BEAMS.

2. OVERLAY EXISTING STEEL DECK WITH STEEL DECK.

3. WELD STEEL DECK WITH 3/8" DIA PLUDDIE WELDS, E70XX, 7 WELDS PER 36 INCH SHEET TO ALL SUPPORTS PERPENDICULAR TO DECK CORRUGATIONS, WELD @ 12" O.C. TO ALL SUPPORTS PARALLEL TO DECK CORRUGATIONS AND 1-1/2" SEAM WELD @ 24" O.C. TO ALL INTERLOCKING SEAMS



SHEAR PLATE 3/8" W/ MAX NO. 2 DIA A325 BOLTS

BEAM TO DECK 3/8" = 1'-0" 2

BEAM TO BEAM 3/8" = 1'-0" 3

NOT USED 1/8" = 1'-0" 4

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1	8.24.15	SNPW REVIEW COMMENTS

DRAWING TITLE:
 ROOF FRAMING PLAN

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Drawn By: RBA **Checked By:** RBA **Approved By:** RBA
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