HVAC SYSTEM RENOVATION
BUILDING #160

5500 SNYDER AVE #160
CARSON CITY, NEVADA 89701
SPWD PROJECT No. 25-M03-03

STATE OF NEVADA PUBLIC WORKS DIVISION
680 W. NYE LANE, SUITE 103
CARSON CITY, NEVADA 89703
FCA SITE #9971
SPWD BLDG #0440

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CODE ANALYSIS:
OCCUPANCY GROUPS: A-3
TYPE OF CONSTRUCTION: II-B
SPRINKLERS: YES
STORIES: 1

AREA OF WORK (SQ FT):
32,635 S.F. GYMNASIUM AND LOCKER ROOMS

APPLICABLE CODES:
INTERNATIONAL BUILDING CODE 2024
INTERNATIONAL FIRE CODE 2024
NATIONAL ELECTRICAL CODE 2023
UNIFORM MECHANICAL CODE 2024
UNIFORM PLUMBING CODE 2024
INTERNATIONAL ENERGY CONSERVATION CODE 2024
INTERNATIONAL EXISTING BUILDING CODE 2024
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

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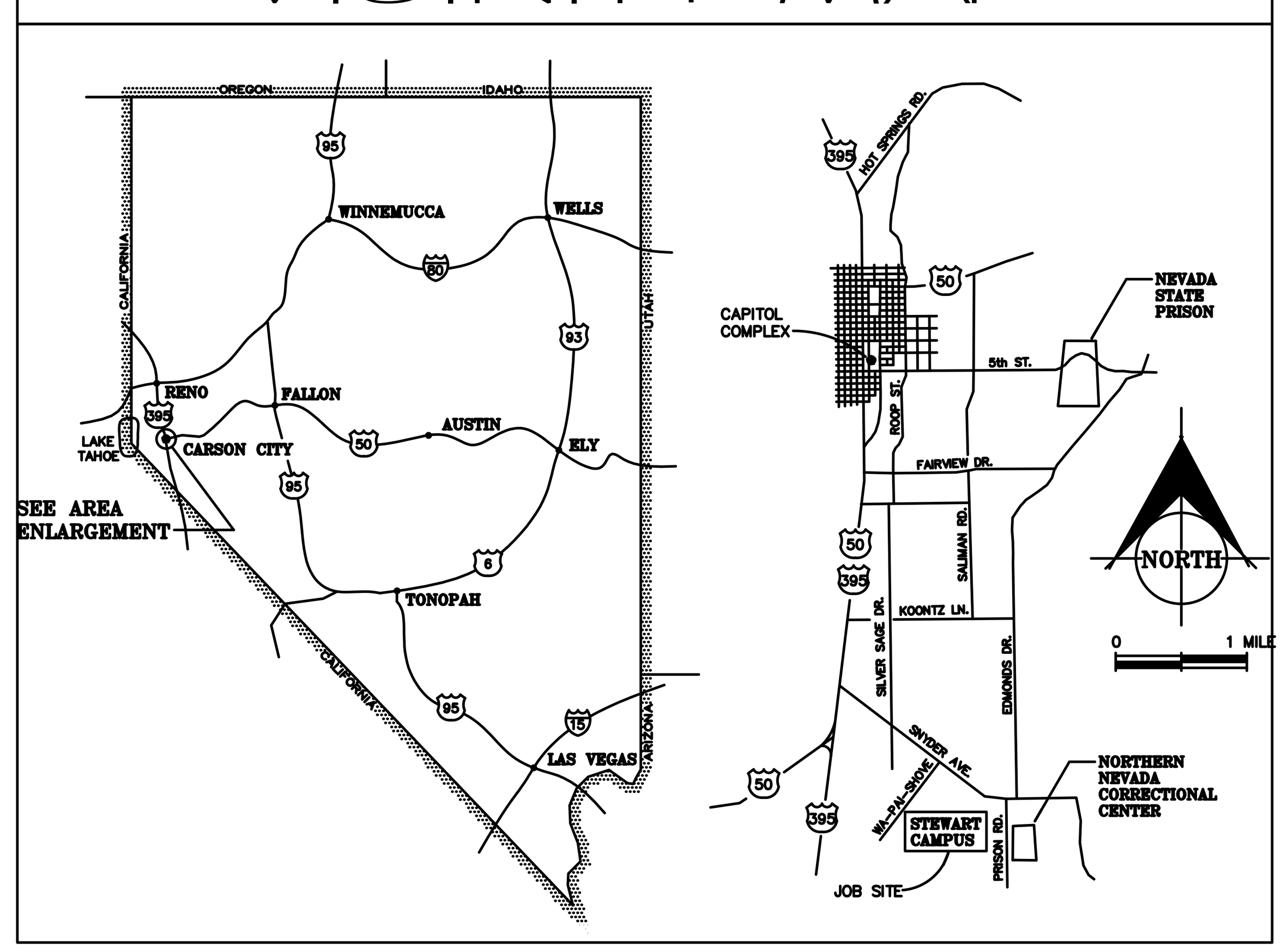
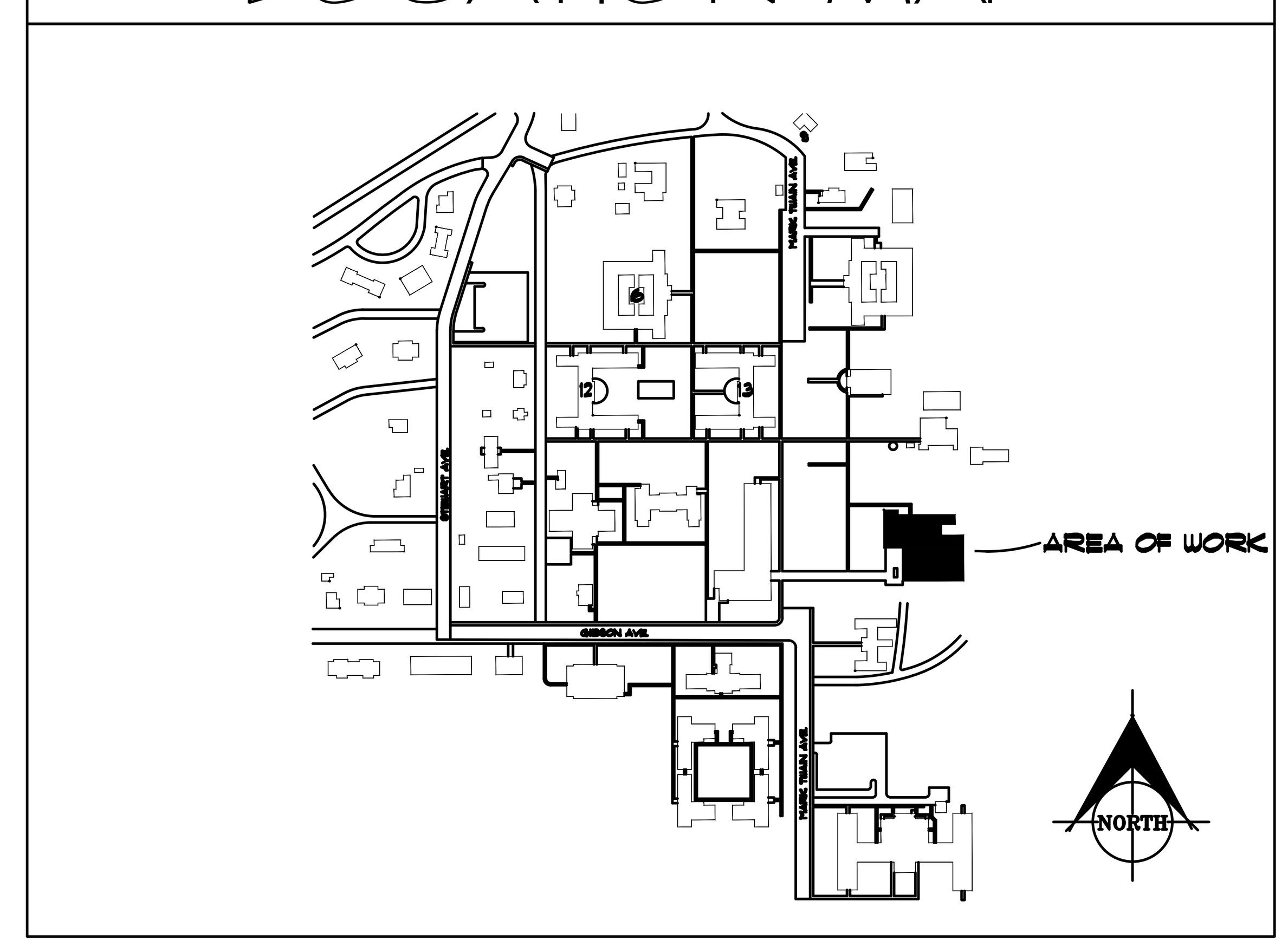
VICINITY MAP



LOCATION MAP



STEWART BUILDING 160
HVAC RENOVATIONS
SPWD 25-M03-03
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CARSON CITY, NEVADA 89701

REVISIONS

DRAWING TITLE
TITLE SHEET

date	02/25/26
job number	25087
drawn	BAT
checked	BAT

T1.0

QUALITY REQUIREMENTS - SECTION 014000

A. NOTES APPLY TO ALL WORK SHOWN ON THE STRUCTURAL DRAWINGS.

B. COMPLY WITH THE BUILDING CODE AND LOCAL JURISDICTION DETAILED IN THE DESIGN CRITERIA OF THE GENERAL NOTES.

C. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE CODE AND FOR THE LOADS PRESCRIBED IN THE DESIGN CRITERIA SECTION OF THE GENERAL NOTES.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE BUILDING, WORKERS AND PEDESTRIANS DURING CONSTRUCTION AS WELL AS FOR CONSTRUCTION METHODS. PROVIDE SHORING, TEMPORARY BRACING, ETC., AS NECESSARY TO PREVENT OVERSTRESSES DURING CONSTRUCTION. THESE ELEMENTS MAY REQUIRE THAT THE CONTRACTOR RETAIN HIS OWN ENGINEER FOR THEIR DESIGN.

E. SPECIAL INSPECTION: THIS STRUCTURE HAS BEEN DESIGNED WITH MATERIALS THAT REQUIRE SPECIAL INSPECTION AND/OR MATERIALS TESTING. THE LIST OF OWNER REQUIRED INSPECTION ITEMS OUTLINED IN THE VERIFICATION AND SPECIAL INSPECTION SECTION OF THE GENERAL NOTES SHALL BE PERFORMED IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE. FOR STANDARDS, FREQUENCY AND AN ITEMIZED BREAKDOWN OF MATERIAL SUBSETS SEE THE REFERENCED IBC TABLES. IF THE CONTRACTOR OR OWNER DOES NOT HAVE A COPY OF THE IBC CONTACT TECTONICS DESIGN GROUP.

F. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:

1. FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND THE ENGINEER OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE PROPER DESIGN AUTHORITY AND TO THE BUILDING OFFICIAL.

2. SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE BUILDING CODE.

CONCRETE FORMWORK - SECTION 031000

A. DESIGN FORMS AS RECOMMENDED IN ACI 347. CONSTRUCT FORMS OF ADEQUATE STRENGTH AND STIFFNESS TO OBTAIN REQUIRED FINISHED CONCRETE SURFACE AND LINE TOLERANCES. FORMS SHALL BE TIGHT ENOUGH TO PREVENT LEAKAGE OF MORTAR FINES.
B. USE NEW OR PROPERLY CLEANED USED FORM MATERIALS.
C. REMOVE ALL DIRT, SAWDUST, RUBBISH, WATER AND ICE FROM FORM PRIOR TO PLACEMENT OF CONCRETE.
D. COMPLY WITH THE CURING REQUIREMENTS OF SECTION 033000 PRIOR TO STRIPPING OF FORMS.
E. FORMWORK TOLERANCES.
1. SLAB ON GRADE THICKNESS: PLUS 1/2", MINUS 1/4"
2. ALL OTHER: 1/4" IN 10 FEET AND 1/2" OVERALL, EXCEPT VISIBLE LINES SHALL APPEAR STRAIGHT, TRUE AND FREE FROM SUDDEN TRANSITION, FORM FACING DEFLECTION LESS THAN L/240.

CONCRETE REINFORCEMENT - SECTION 032000

A. REINFORCING SHALL BE ASTM A 615, GRADE 60. ALL REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A 706.
B. SECURE REINFORCING IN PLACE WITH CHAIRS, TIES, OR DOBIES AS RECOMMENDED IN CRSI MANUAL OF STANDARD PRACTICES. LAP BARS AS DETAILED HEREIN.
C. LAP SPLICES ARE TO CONFORM TO LAP SPLICE SCHEDULE, SEE 2/S2.1.
D. STRUCTURAL WELDED WIRE REINFORCING (SWWR) SHALL BE GRADE 80, Fy = 80 ksi.

CAST IN PLACE CONCRETE - SECTION 033000

A. CONCRETE MIX DESIGNS SHALL BE AS OUTLINED ON THE DETAILS IN THESE DRAWINGS, SEE 4/S2.1.
B. CONCRETE SHALL BE PLACED AT THE MINIMUM PRACTICAL SLUMP NOT EXCEEDING THE SPECIFIED MAXIMUM. IF ADDITIONAL WORKABILITY AND SLUMP IS DESIRED, IT MAY BE OBTAINED WITH APPROVED ADMIXTURES WHICH DO NOT INCREASE WATER CONTENT OR SHRINKAGE OF SPECIFIED MIXES, SEE NOTE A.
C. THE FOLLOWING ITEMS SHALL BE INSPECTED PRIOR TO PLACING CONCRETE TO ENSURE CONFORMANCE WITH THE APPROVED CONCRETE MIX DESIGN:
1. SLUMP, AIR CONTENT AND COMPRESSIVE STRENGTH
2. ADMIXTURE(S) AND WATER QUANTITY PLACED BOTH AT PLANT AND JOBSITE
D. CLEAN AND ROUGHEN CONSTRUCTION JOINTS. WET FORMS AND SUB-GRADE PRIOR TO PLACING CONCRETE.
E. PLACE CONCRETE USING METHODS WHICH AVOID SEGREGATION. MECHANICALLY VIBRATE ALL CONCRETE TO CONSOLIDATE IT IN FORMS.
F. CONCRETE FINISHES:
1. INTERIOR FLOORS - SCREED TO AN EVEN, LEVEL PLANE, FLOAT AND STEEL TROWEL TO A SMOOTH DENSE, HARD FINISH.
2. EXPOSED FORMED SURFACES - IMMEDIATELY AFTER FORMS ARE REMOVED. REMOVE SURFACE PROJECTIONS AND SACK AND PATCH ALL SURFACE DEFECTS. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4" OR TOOLED TO A 1/2" RADIUS.
3. FORMED SURFACES NO EXPOSED - STRIP FORMS, PATCH LARGE HOLES OR DEFECTS.
G. SLAB SURFACES TOLERANCES SHALL MEET THE FOLLOWING REQUIREMENTS PER ASTM E1155-87:
1. INTERIOR SLABS ON GRADE: F_f GREATER THAN OR EQUAL TO 50, F_l GREATER THAN OR EQUAL TO 35.
H. CONCRETE CURING:
1. FRESHLY DEPOSITED CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING AND EXCESSIVE HOT OR COLD TEMPERATURES FOR A MINIMUM OF (5) DAYS.
2. INTERIOR SLABS: APPLY (1) COAT OF EUCLID SUPER REZ-SEAL COMPOUND, OR APPROVED EQUAL, AS SOON AS POSSIBLE AFTER FINISHING. WHEN WEATHER OR OTHER CONDITIONS FALL OUTSIDE MANUFACTURED RECOMMENDATIONS DO NOT PROCEED UNTIL APPROPRIATE MODIFICATIONS TO CURING PROCESS ARE AGREED UPON. JUST PRIOR TO PROJECT COMPLETION. APPLY (1) COAT EUCLID SUPER REZ-SEAL, OR APPROVED EQUAL, TO ALL INTERIOR SURFACES.
3. REAPPLY CURING COMPOUND TO SAWCUT JOINTS IMMEDIATELY AFTER CUTTING IF MEMBRANE WAS APPLIED PRIOR TO CUTTING.

I. DEFECTIVE WORK:
1. ANY CONCRETE NOT FORMED AS SHOWN OR NOT TRUE TO THE INTENDED LINES, GRADES OR TOLERANCES, OR THAT HAS ROCK POCKETS, VOIDS, OR DEBRIS EMBEDDED IN IT SHALL BE DEEMED DEFECTIVE. DEFECTIVE WORK SHALL BE REMOVED AND REPLACED WITH CONFORMING WORK OR, AT THE OPTION OF THE ENGINEER, REPAIR TO THE ENGINEER'S SATISFACTION.
2. SLAB SHRINKAGE CRACKS, EDGE CURLS OR SURFACE OUT OF TOLERANCE ARE DEFECTS WHICH MUST BE REPAIRED OR REPLACED AS FOLLOWS:
2.1. SLABS COVERED WITH CARPET OR VINYL TILE - FILL ALL CRACKS WITH CEMENT MORTAR, GRIND ALL EDGE CURL AND GRIND OR FILL WITH FLOOR STONE ANY SURFACE IRREGULARITIES.
2.2. SLABS EXPOSED TO VIEW AS FINISHED FLOOR:
2.2.a. HAIRLINE CRACKS LESS THAN 1/16" WIDE: NO REPAIR REQUIRED.
2.2.b. CRACKS LESS THAN 1/4" WIDE: REPAIR SLAB SECTION.
2.2.c. CRACKS MORE THAN 1/4" WIDE: REPLACE SLAB SECTION.
2.2.d. SLAB CURL OR HIGH SPOTS: DRILL HOLES AND FILL VOIDS BELOW SLAB WITH NON-SHRINK GROUT, THEN GRIND FLUSH AND RESTORE SURFACE COLOR AND TEXTURE WITH EPOXY MORTAR.
2.2.e. SLAB DEPRESSIONS: FILL WITH EPOXY MORTAR TO MATCH ADJACENT AREAS
K. EPOXY BONDING, PATCHING AND ANCHORS - USE THE FOLLOWING MATERIALS AND PROCEDURES WHERE EPOXY MATERIAL ARE CALLED FOR:
1. PREPARE SURFACES BY CLEANING, CHIPPING, BUSHHAMMER OR SANDBLAST AS NECESSARY TO ROUGHEN SURFACE: REMOVE LAITANCE AND EXPOSE AGGREGATE. CLEAN STEEL SURFACES.
2. PRIME SURFACES WITH "EUCO" #352 OR EQUAL. THIN AND APPLY PER MANUFACTURER'S RECOMMENDATIONS.
3. PATCH SURFACES BY PREPARING AS ABOVE AND THEN TROWEL APPLYING "EUCO" #456 EPOXY MORTAR OR APPROVED EQUAL. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION AND AGGREGATE FILLERS.
4. E.A. = EPOXY ALL THREAD ANCHORS. USE SIMPSON SET-3G EPOXY OR APPROVED EQUAL. EPOXY ANCHORS MUST BE INSTALLED BY QUALIFIED PERSONNEL, TRAINED TO INSTALL ADHESIVE ANCHORS PER ACI 318, D.9. PROVIDE SPECIAL INSPECTION PER ICC REPORT. ENGINEER MUST APPROVE SUBSTITUTIONS IN WRITING.
L. NO CONDUIT SHALL BE PLACED IN THE SLABS ON GRADE.
M. CLEAN UP: LEAVE CONCRETE SURFACES BROOM CLEAN. REMOVE ALL DEBRIS FROM CONCRETE WORK FROM THE SITE.

1:1 STEWART FACILITY 25149_S0.1

STRUCTURAL STEEL - SECTION 051000

A. STRUCTURAL STEEL PLATES, AND RODS, SHALL CONFORM TO ASTM A 36, Fy=36 ksi; WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992 GRADE 50, Fy=50 ksi; LEDGER/CHORD CHANNELS AND LEDGER/CHORD SPLICE PLATES SHALL CONFORM TO ASTM A572 GRADE 50, Fy=50 ksi; STEEL SQUARE TUBING TO ASTM A500 GRADE B, Fy=46 ksi; STEEL ROUND TUBING TO ASTM A500 GRADE B, Fy=42 ksi; AND PIPE TO ASTM A53 GRADE B, Fy=35 ksi.

B. ALL BOLTS SHALL CONFORM TO ASTM A 307 (DESIGNATED MB) AND ASTM A490 OR ASTM A325-N (DESIGNATED HSB): ANCHOR BOLTS SHALL BE F1554 GR. 36 U.N.O. HIGH STRENGTH BOLTS SHALL BE LOAD INDICATOR BOLTS SUCH AS LEJEUNE OR EQUAL.

C. CONTRACTOR SHALL CREATE A DETAILED STEEL SHOP DRAWING SUBMITTAL FOR THE ENGINEER'S APPROVAL. RE-USE OF TECTONICS DRAWINGS IS NOT ACCEPTABLE AND WILL BE REJECTED. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS.

D. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY'S SPECIFICATIONS FOR THE MATERIAL BEING WELDED. WELDING SHALL BE PERFORMED ONLY BY A CERTIFIED WELDER.

E. STUD ANCHORS SHALL BE HEADED ANCHOR STUDS WITH FLUXED ENDS, AUTOMATICALLY END WELDED.

F. ALL STRUCTURAL AND MISCELLANEOUS STEEL WORK, EXCEPT STEEL TO BE EMBEDDED IN CONCRETE, SPRAY FIRE PROOFED, OR FIELD WELDED, SHALL BE SHOP PAINTED GRAY AND TOUCHED UP IN THE FIELD AFTER ERECTION.

VERIFICATION AND SPECIAL INSPECTION

A. THIS SECTION APPLIES TO THE STRUCTURAL PORTIONS OF THE PROJECT REQUIRING SPECIAL INSPECTION. THE SPECIAL INSPECTOR'S DUTIES ARE OUTLINED IN IBC SECTION 1704.2 AND 1704.3. AND THE QUALITY REQUIREMENTS OF THE GENERAL NOTES.

B. ALL TESTS AND INSPECTIONS SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND INSPECTION AGENCY.

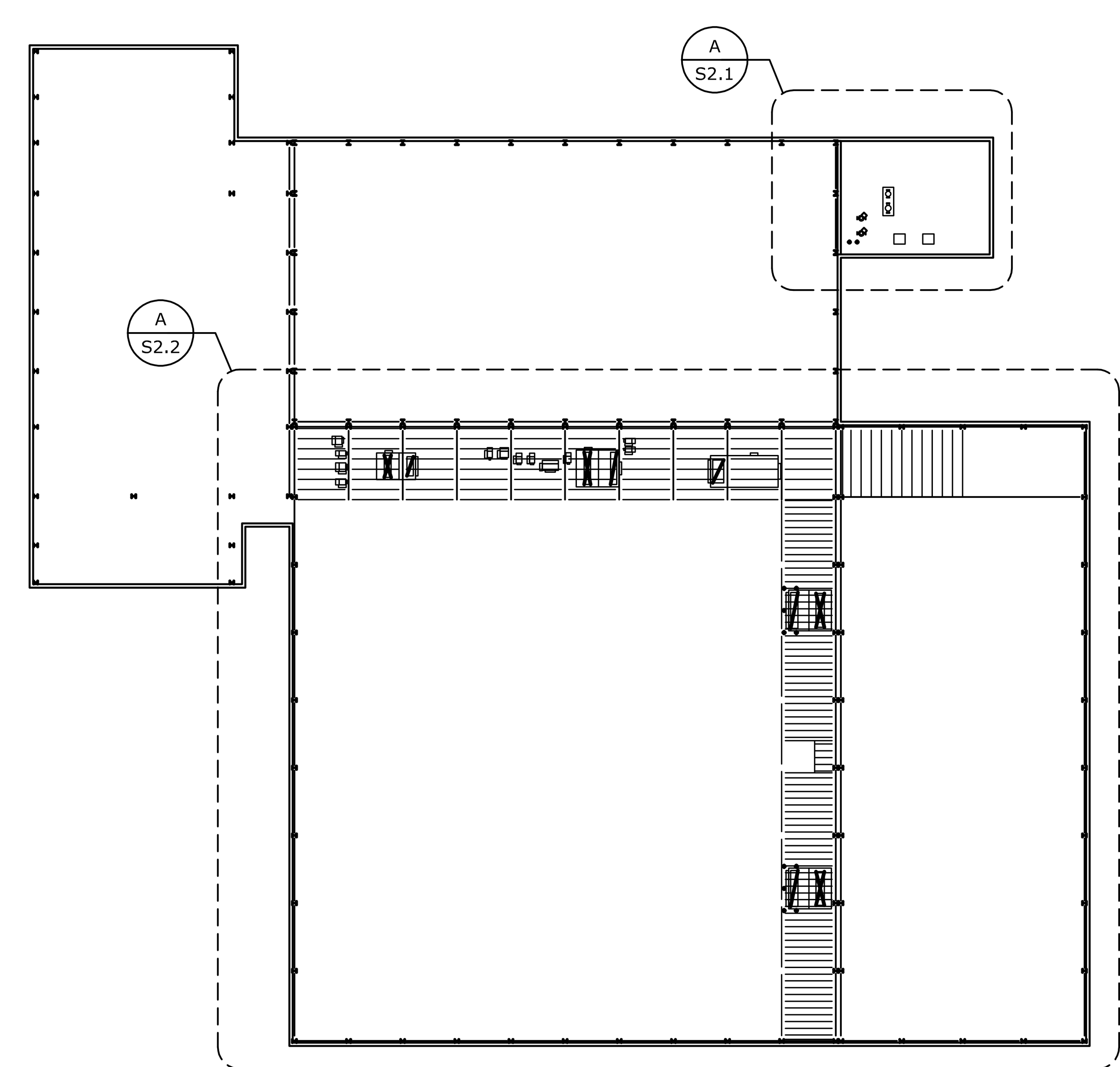
C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING INSPECTION FIRM WITH A SCHEDULE TO FACILITATE COORDINATION.

CONCRETE CONSTRUCTION IN ACCORDANCE WITH IBC TABLE 1705.3

A. STEEL PLACEMENT AND FORMWORK PLACEMENT	☐	■	☐	ACI 318
B. VERIFICATION OF MIX DESIGNS, CURING TEMP, AND METHOD	☐	■	☐	ACI 318 CH. 26
C. FRESH CONCRETE SAMPLING FOR SLUMP, TEMPERATURE, STRENGTH, AIR CONTENT, AND VERIFICATION OF PROPER PLACEMENT TECHNIQUES	■	☐	☐	ASTM C172 AND C31 ACI 318 CH. 26
1. SPECIAL INSPECTOR SHALL NOTE AMOUNT, IF ANY, OF WATER OR ADMIXTURES WITHHELD FROM MIX AT BATCH PLANT, AND THE ADDITION OF ANY WATER OR ADMIXTURES ON SITE.				
D. CERTIFIED MILL TEST REPORTS SHALL BE PROVIDED FOR EA. SHIPMENT OF REINFORCING STEEL	☐	■	☐	
E. REINF. CHAIR HEIGHTS AND CLEAR DISTANCES.	☐	■	☐	
F. INSTALLATION OF MECHANICAL AND EPOXY POST INSTALLED ANCHORS INTO HARDENED CONCRETE	■	☐	☐	ICC REPORT

DESIGN CRITERIA

APPLICABLE BUILDING CODE	2024 IBC W/ N. NV. AMENDMENTS
JURISDICTION	NV STATE PUBLIC WORKS
RISK CATEGORY	II
SEISMIC	
SEISMIC IMPORTANCE FACTOR, I_e	1.0
S_s = 2.26 S_{ds} = 1.58	
S_1 = 0.72	
SEISMIC DESIGN CATEGORY	D
MECHANICAL & ELECT. COMPONENT	AIR-SIDE - HVACR
COMPONENT RESONANCE DUCTILITY FACTOR	$C_{ar} = 1.4$
COMPONENT STRENGTH FACTOR	$R_{po} = 2.0$
DEFLECTION AMPLIFICATION FACTOR	$\Omega_{op} = 2.0$
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE



KEY PLAN

SCALE: N.T.S.

N
W E
S

STRUCTURAL		
	S0.1	GENERAL NOTES AND DESIGN CRITERIA
	S2.1	ENLARGED MECHANICAL ROOM PLAN
	S2.2	ENLARGED MEZZANINE FRAMING PLAN
	S6.1	FRAMING DETAILS

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PROFESSIONAL ENGINEER STATE OF NEVADA
EDGAR B. GABRIEL
Exp. 6/30/27
CIVIL/STRUCTURAL
No. 19170
02/25/26

STEWART BUILDING 160

HVAC RENOVATIONS

SPWD 25-M03-03
5500 SNYDER AVE #160
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REVISIONS

02/25/2026	PERMIT SET

DRAWING TITLE

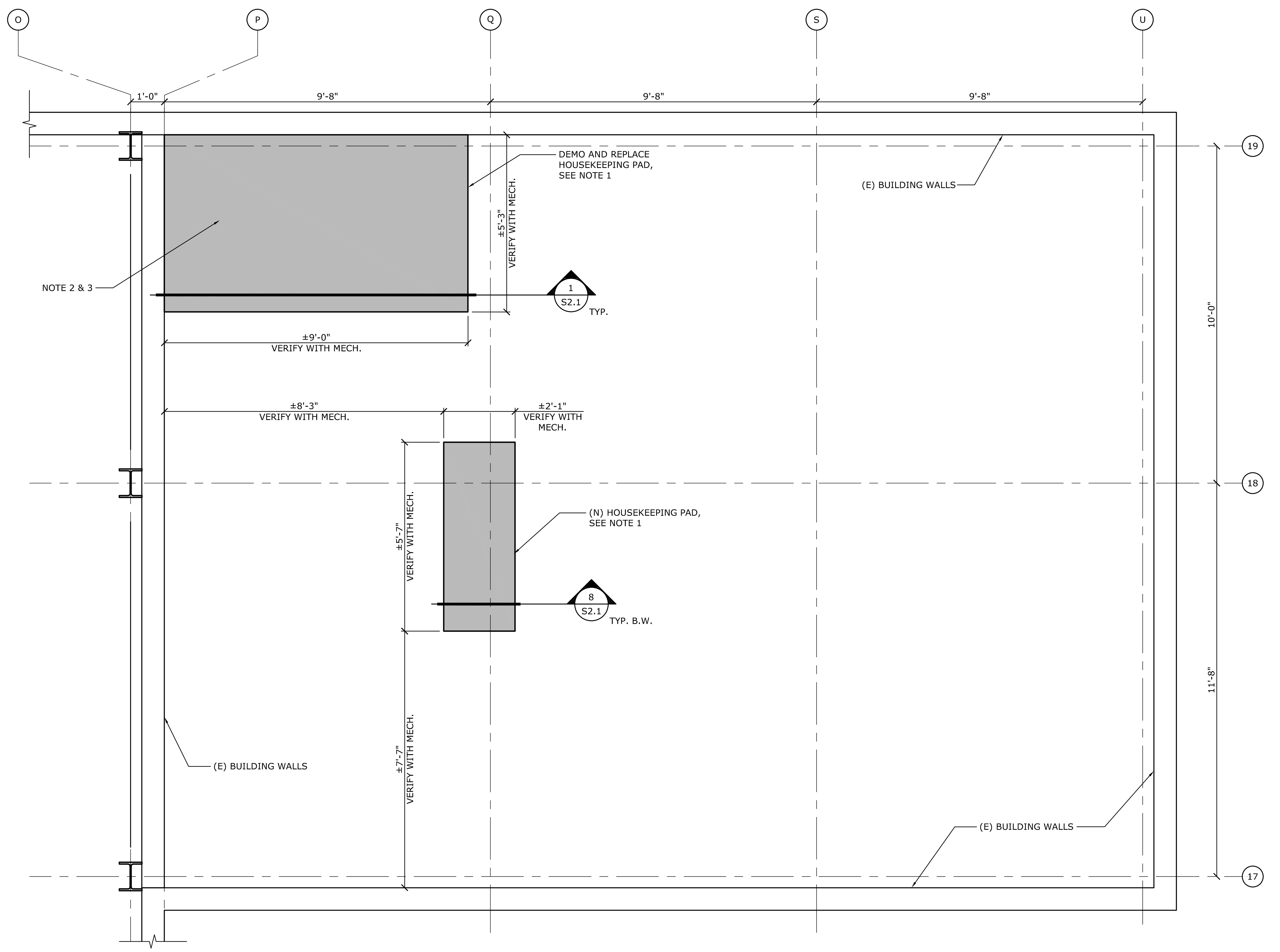
GENERAL NOTES AND DESIGN CRITERIA

date	02/ 25/ 26
job number	25149
drawn	EC
checked	EG

S0.1

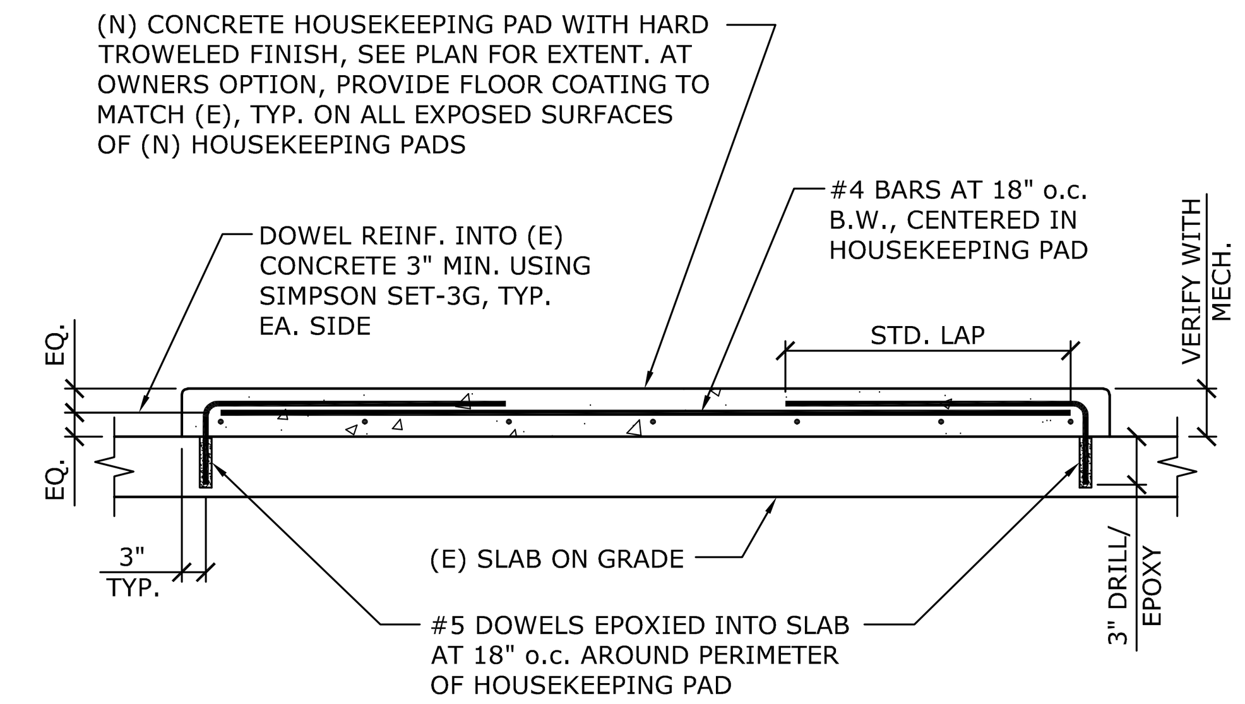
MECHANICAL ROOM NOTES

1. SHADED REGION INDICATES EXTENT OF (N) CONCRETE HOUSEKEEPING PAD WITH REINFORCING PER DETAIL 1/S2.1 AND 8/S2.1, PROVIDE (N) EPOXY DOWELS AROUND PERIMETER AS SHOWN 1/S2.1 AND 8/S2.1. CONCRETE MIX DESIGN REQUIREMENTS SHALL BE PER 4/S2.1
2. (N) WATER HEATERS AND (N) BOILERS NOT SHOWN FOR CLARITY. SEE MECHANICAL DRAWINGS FOR LOCATIONS, SEE MECHANICAL FOR EQUIPMENT ANCHORAGE REQUIREMENTS.
3. DEMO EXISTING HOUSEKEEPING PAD FOR INSTALL OF NEW HOUSEKEEPING PAD FIELD VERIFY REQUIRED EXTENT.



A ENLARGED MECHANICAL ROOM PLAN

SCALE: 1/2" = 1'-0"



8 HOUSEKEEPING PAD SECTION

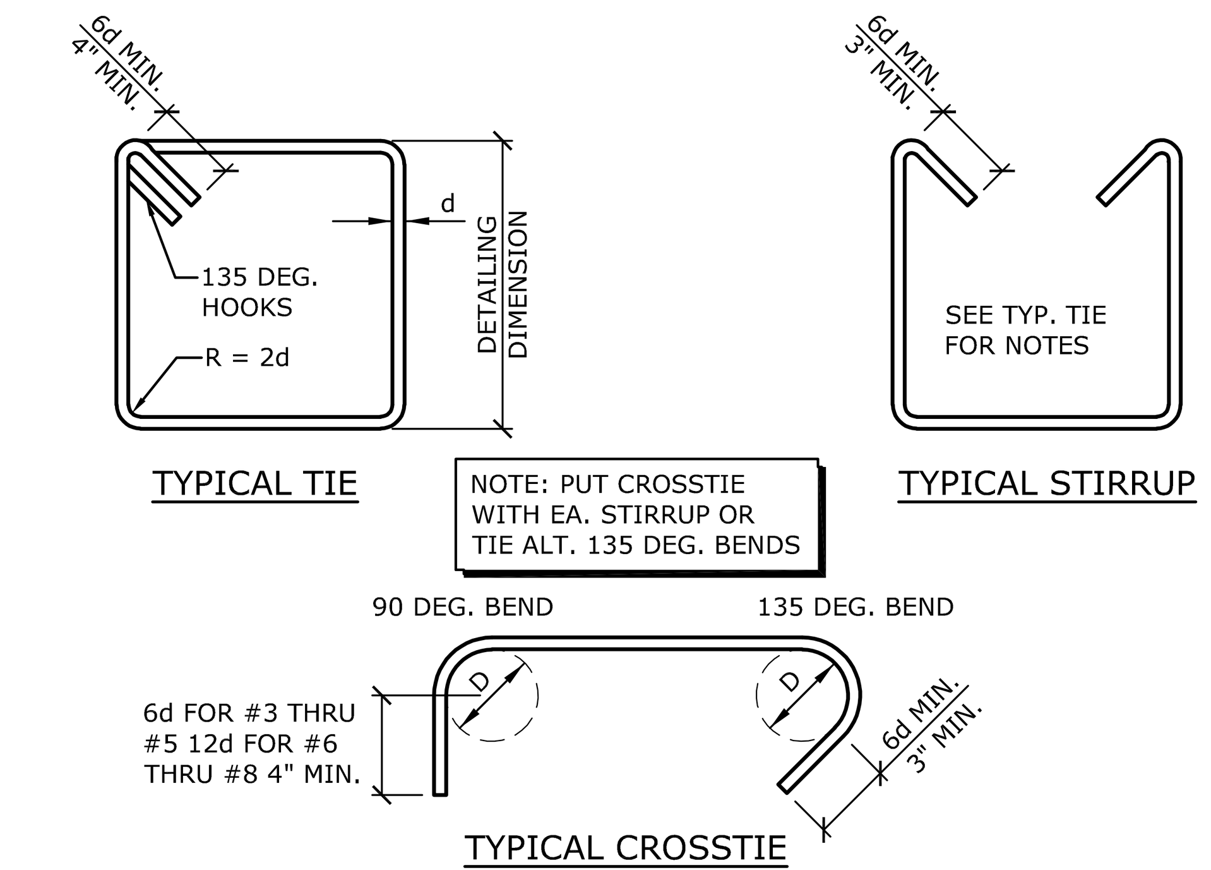
SCALE: 3/4" = 1'-0" S007

CLASS	28 - DAY COMPRESSIVE STRENGTH, PSI	MAXIMUM AGGREGATE SIZE AND TYPE	MAXIMUM SHRINKAGE PERCENT	MAX.[1] SLUMP INCHES	MAX. W/C RATIO	MIN. SACKS OF CEMENT/CY
A	4000	3/4" STONE	0.050	4"	NOTE 2	5.0

NOTES:
1. SLUMP INDICATED IS WITH WATER ONLY. ADDITIONAL SLUMP IS ACCEPTABLE IF ADDED BY MEANS OF ADDITIVES THAT DO NOT PROMOTE SHRINKAGE OF CONCRETE OR DEGRADE THE CONCRETE.
2. USE CLASS A CONC. FOR HOUSEKEEPING PADS INSIDE BUILDING. USE A "WELL GRADED" AGGREGATE DISTRIBUTION IN AN EFFORT TO MINIMIZE SHRINKAGE AND CURLING. THE CEMENT CONTENT SHALL BE AS LOW AS POSSIBLE IN THIS MIX WHILE STILL OBTAINING THE DESIRED STRENGTH.
3. STONE CONCRETE SHALL HAVE A UNIT WEIGHT OF 145 PCF ± 3 PCF.

4 CONCRETE MIX DESIGNS

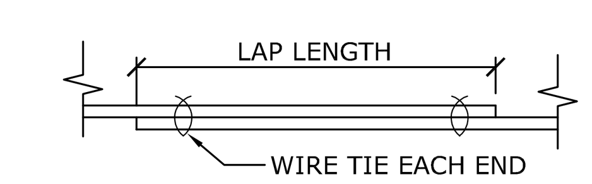
Scale: 1" = 1'-0" S006



3 TYPICAL STIRRUP, TIE HOOKS AND BENDS

Scale: 1" = 1-0" S005

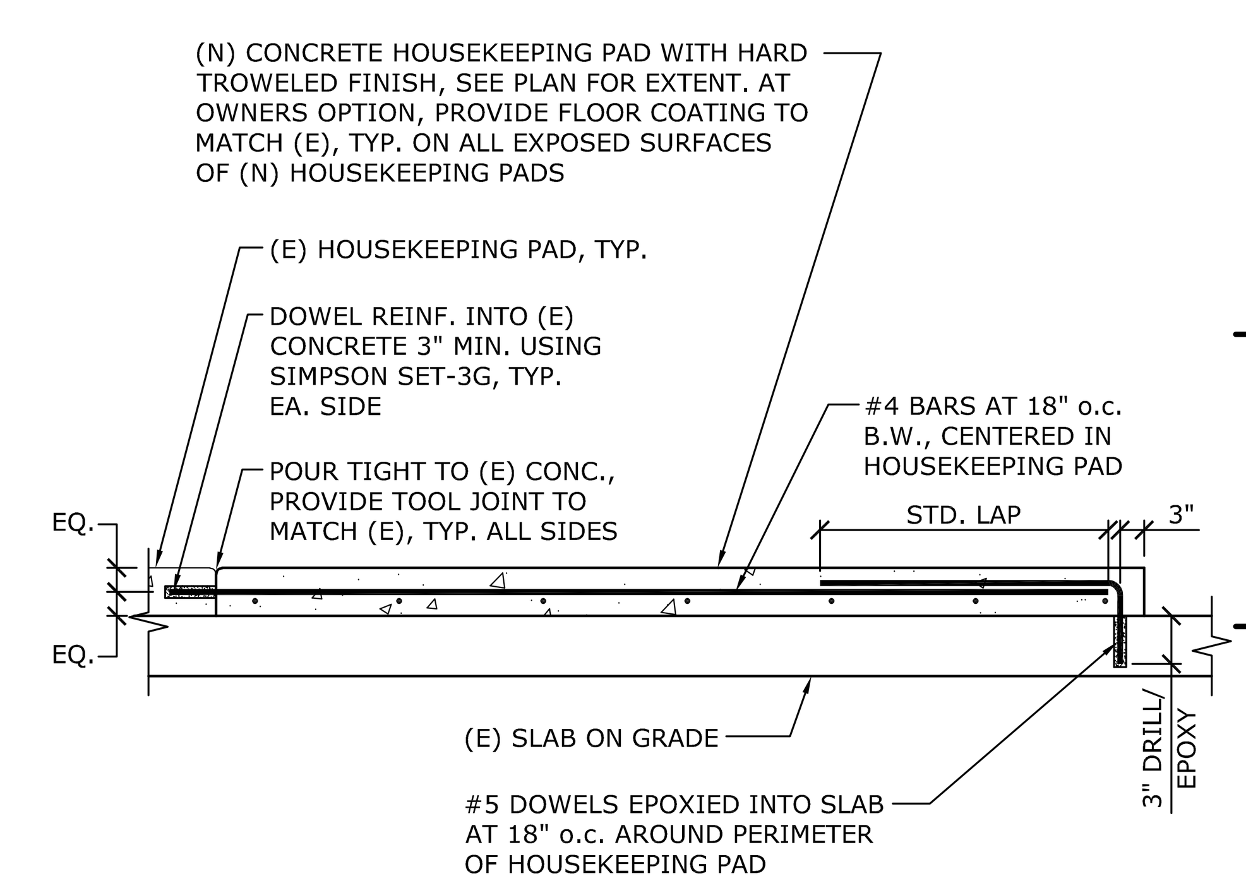
LAP SPLICE LENGTH (INCHES)									
	BAR SIZE								
f'c	3	4	5	6	7	8	9	10	11
2,500	31	41	51	61	89	102	115	127	140
3,000	28	38	47	56	81	93	105	116	128
3,500	26	35	43	52	75	86	97	108	118
4,000	25	33	41	49	71	81	91	101	111
4,500	23	31	38	46	67	76	86	95	104
5,000	22	29	36	44	63	72	81	90	99
MASONRY	18	24	30	40	46	61	68	-	-



1. LAP LENGTHS GIVEN MAY BE DECREASED 30% FOR NORMAL WEIGHT CONCRETE.
2. BARS LARGER THAN #11 SHALL NOT BE LAP SPLICED. PROVIDE APPROVED MECH. COUPLERS OR CP BUTT WELDS AT SPLICES OF BARS GREATER THAN #11.
3. LAP LENGTHS GIVEN SHALL BE INCREASED 20% FOR BUNDLED BARS.
4. INCREASE LAP LENGTHS AN ADDITIONAL 30% IF MORE THAN 12" OF CONCRETE IS POURED BELOW THE LAP AT ONE TIME.

2 TYP. REINF. LAP SPLICE LENGTHS

SCALE: 3/4" = 1'-0" S004



1 HOUSEKEEPING PAD SECTION

SCALE: 3/4" = 1'-0" S001

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ENLARGED MECHANICAL ROOM PLAN

date	02/25/26
job number	25149
drawn	EC
checked	EG

S2.1

1:1 STEWART FACILITY 25149_S2.1

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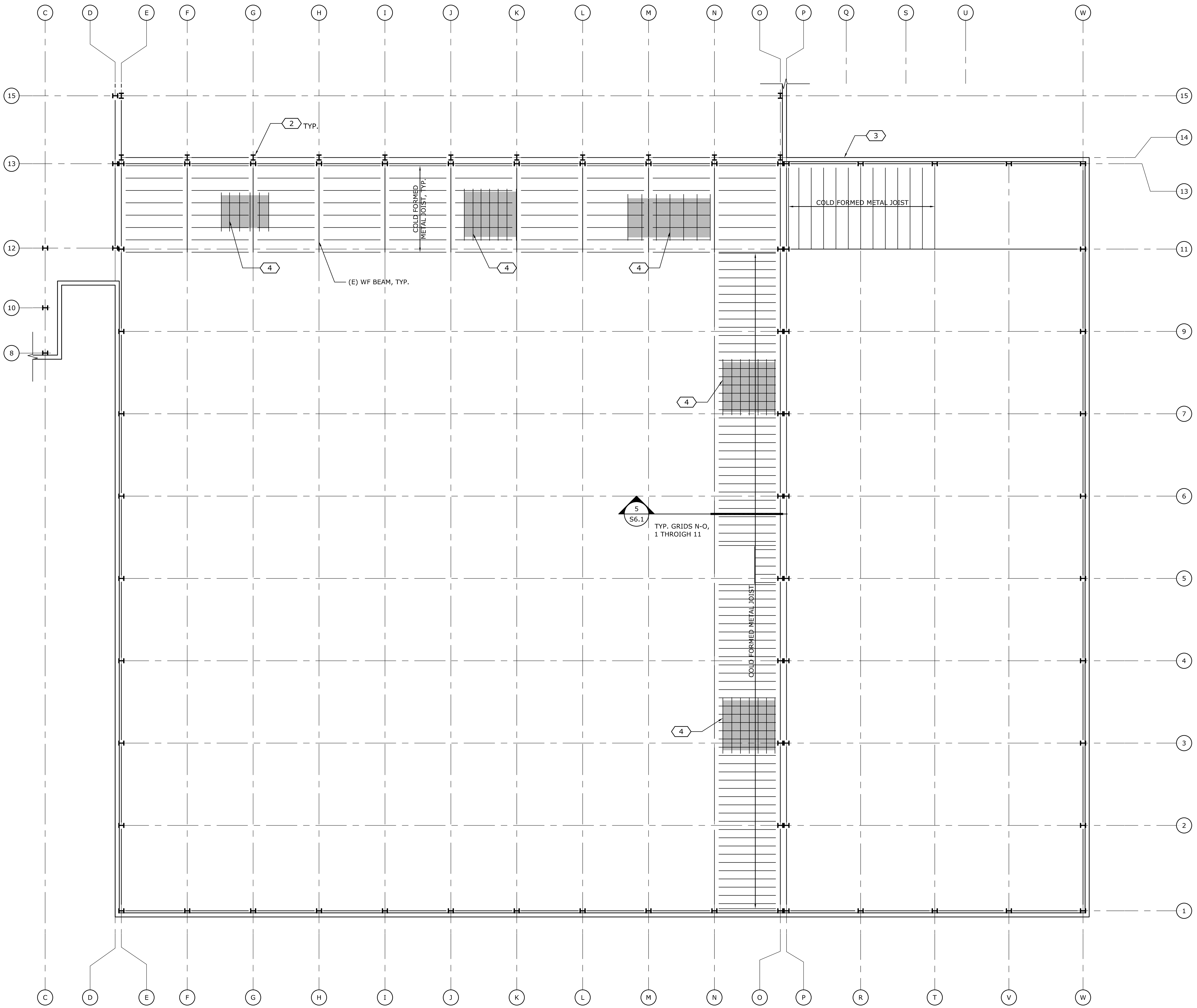


A ENLARGED MEZZANINE FRAMING PLAN
SCALE: 1/8" = 1'-0"

N W E S

X MEZZANINE FRAMING KEY NOTES

1. SHADED REGION INDICATES EXTENT OF (N) AIR HANDLERS, SEE MECHANICAL FOR SIZE, WEIGHT AND LOCATION. PROVIDE SUPPORT BELOW UNIT PER 8/S6.1.
2. (E) BUILDING COLUMN, TYP.
3. (E) CONCRETE WALL PANEL.
4. PROVIDE CHANNEL FRAMING BELOW UNITS PER 8/S6.1. CHANNELS SHALL BE PROVIDED AT ALL FACTORY MOUNTING HOLES (4) MIN. PER UNIT. CHANNELS SHALL RUN PERPENDICULAR TO MEZZANINE FRAMING.
5. PRIOR TO FABRICATION, G.C. SHALL VISIT PROJECT SITE TO VERIFY ALL DIMENSIONS SHOWN. CONTACT E.O.R. IF ANY DISCREPANCIES ARE FOUND.

ETCHEMENDY ENGINEERING INC

PROFESSIONAL ENGINEER EDGAR B. GABRIEL Exp. 6/30/27 CIVIL/STRUCTURAL No. 19170 NEVADA
02/25/26

STEWART BUILDING 160
HVAC RENOVATIONS
SPWD 25-M03-03
5500 SNYDER AVE #160
CARSON CITY, NEVADA 89701

REVISIONS

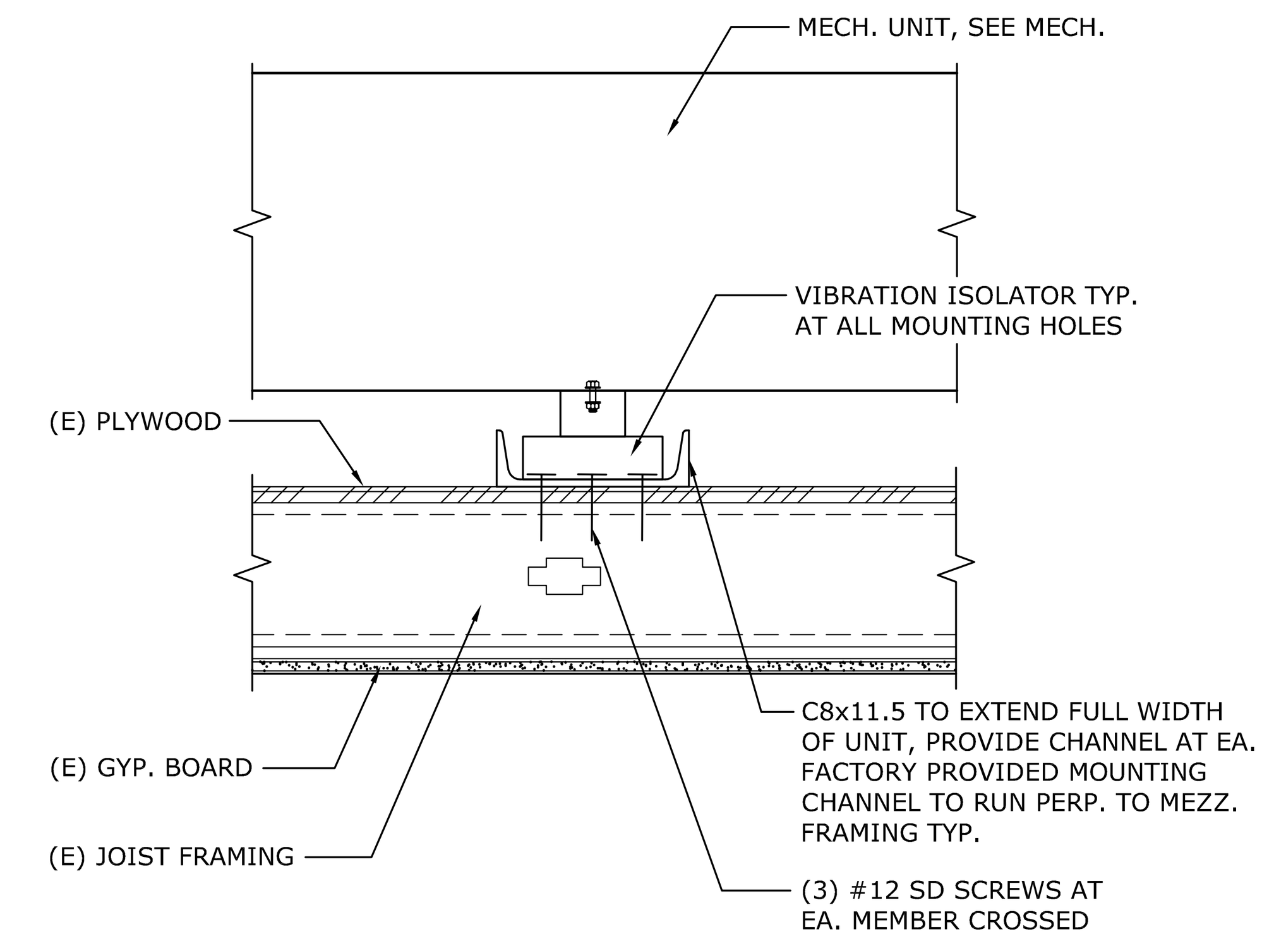
02/25/2026	PERMIT SET

DRAWING TITLE
ENLARGED MEZZANINE FRAMING PLAN

date	02/25/26
job number	25149
drawn	EC
checked	EG

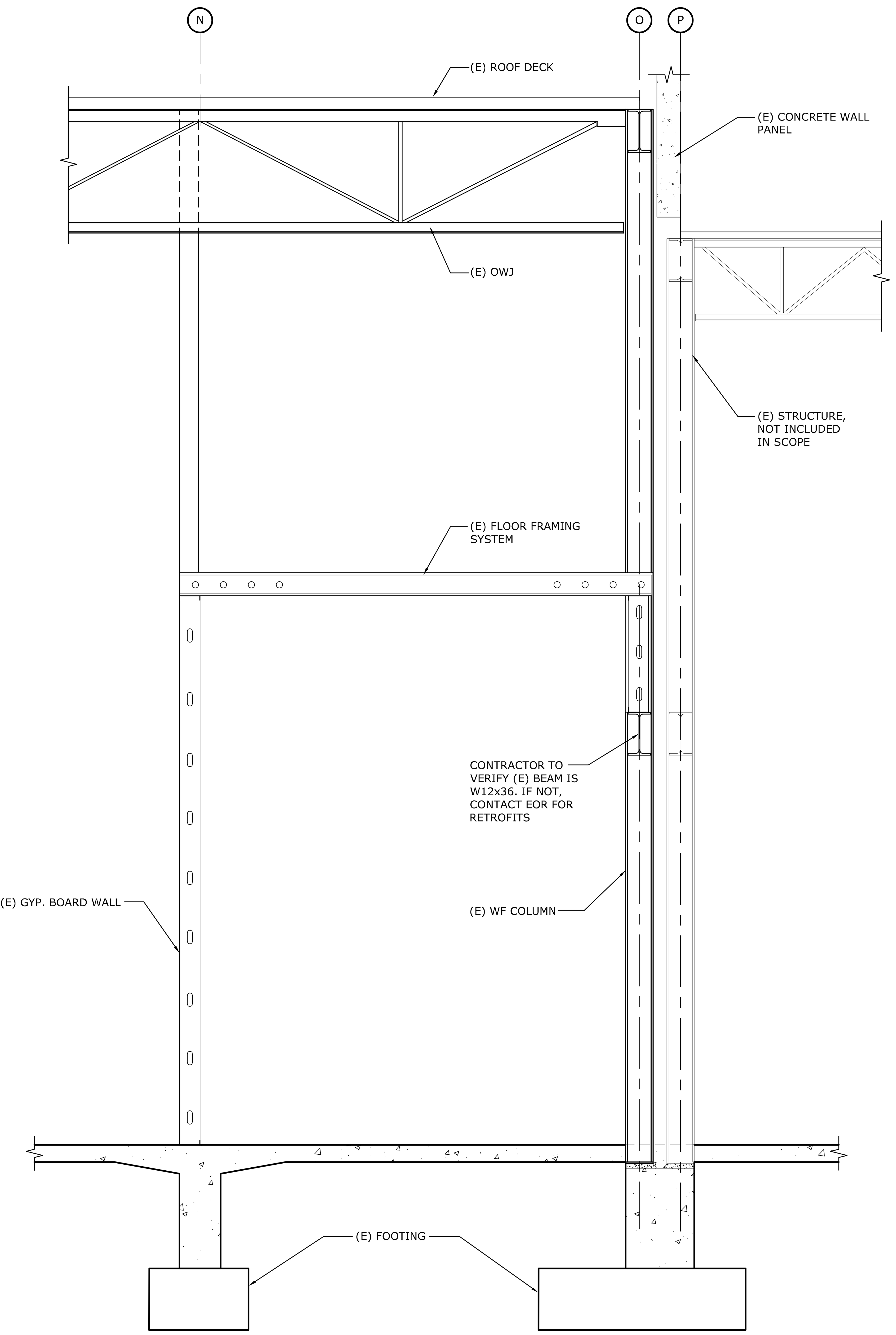
S2.2

1:1 STEWART FACILITY 25149_S2.2



8 SUPPORT AT MECHANICAL UNITS

SCALE: 1 1/2" = 1'-0" S008



5 UPPER MEZZANINE SECTION

SCALE: 1/2" = 1'-0" S012

TECTONICS DESIGN GROUP

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PROFESSIONAL ENGINEER STATE OF NEVADA
EDGAR B. GABRIEL
Exp. 6/30/27
CIVIL/STRUCTURAL
No. 19170

02/25/26

STEWART BUILDING 160

HVAC RENOVATIONS

SPWD 25-M03-03
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REVISIONS

02/25/2026	PERMIT SET

DRAWING TITLE

FRAMING DETAILS

date	02/25/26
job number	25149
drawn	EC
checked	EG

S6.1

MULTI-ZONE AIR HANDLER SCHEDULE

TAG	MANUF	MODEL	HOT WATER COIL PERFORMANCE									FAN SECTION				OSA CFM (MIN)	ELECTRICAL				WEIGHT	REMARKS
			ROWS	FPI	MBH	EAT	LAT	EWT	LWT	GPM	ΔP	CFM	ESP	TSP	HP		VOLTAGE	PHASE	FLA	MOCP		
MZ 1	PACE	PAI-51x63	1	8	102	43	58	140	110	7.0	0.2	5,745	2.25"	3.5"	(2) 6.0 (EA)	2,775	460	3	8.6	15	3,300	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
																	120	1	-	15		
MZ 2	PACE	PAI-57x72	1	9	182	44	67	140	110	12.4	1.7	8,090	2.25"	3.5"	(2) 6.0 (EA)	3,370	460	3	12.4	20	3,300	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
																	120	1	-	15		

REMARKS:
1. 2" DOUBLE WALL R-15 WALL PANELS
2. 6" STEEL BASE RAIL MOUNTED ON HOUSE 2" DEFLECTION SPRING ISOLATORS
3. 2" MERV 8 FILTERS
4. PARALLEL MIXING BOX DAMPERS (MAX 1,200 FPM)
5. MINI-HELIC PRESSURE GAUGE ON DOOR
6. ACCESS DOORS ARE TO BE SINGLE HANDLE, CONNECTED LINKAGE, VIEWPORT & TEST PORTS
7. SERVICE LIGHTS IN FILTER SECTION, FAN SECTION & CONTROLS
8. INDEPENDENT 120V FEED FOR SERVICE & CONTROLS
9. 0.020" THICK COIL TUBES
10. EC FANS WITH INLET FAN RINGS & BACKDRAFT DAMPERS
11. NEMA 3R FUSED CONTROL PANEL
12. STAINLESS STEEL DRAIN PAN
13. ADDITIONAL 12" SECTION FOR FUTURE DX COIL

NOTES:
1. SMOKE DETECTOR ARE TO BE WIRED BACK TO THE FIRE ALARM SYSTEM AS REQUIRED BY THE UNIFORM MECHANICAL CODE, NATIONAL FIRE CODE, AND INTERNATIONAL BUILDING CODE.
2. SMOKE DETECTORS ARE TO BE SUPPLIED AND INSTALLED BY THE ROOFTOP MANUFACTURER, SMOKE DETECTORS ARE TO BE INDEPENDENTLY POWERED FROM, AND MONITORED BY, THE BUILDING FIRE ALARM SYSTEM. INSTALLATION SHALL BE PER THE FIRE AUTHORITY HAVING JURISDICTION'S REQUIREMENTS
3. AIR HANDLER SECTIONS ARE TO BE NO LARGER THAN ACCESS DOOR INTO MEZZANINE

HEATING & VENTILATING AIR HANDLER SCHEDULE

TAG	MANUF	MODEL	HOT WATER COIL PERFORMANCE									FAN SECTION				OSA CFM	ELECTRICAL				WEIGHT	REMARKS
			ROWS	FPI	MBH	EAT	LAT	EWT	LWT	GPM	ΔP	CFM	ESP	TSP	HP		VOLTAGE	PHASE	FLA	MOCP		
HV 1-2	PACE	PAI-54x96	2	8	357	60	92	140	110	24.2	3.4	12,000	1.00"	2.19"	(3) 6.0 (EA)	2,245	460	3	15.9	15	4,600	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
																	120	1	-	15		
HV 3	PACE	PAI-63x75	2	8	329	54	90	140	110	22.3	4.5	9,600	1.25"	2.34"	(2) 6.0 (EA)	1,915	460	3	12.9	15	4,000	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
																	120	1	-	15		

REMARKS:
1. 2" DOUBLE WALL R-15 WALL PANELS
2. 6" STEEL BASE RAIL MOUNTED ON HOUSE 2" DEFLECTION SPRING ISOLATORS
3. 2" MERV 8 FILTERS
4. PARALLEL MIXING BOX DAMPERS (MAX 1,200 FPM)
5. MINI-HELIC PRESSURE GAUGE ON DOOR
6. ACCESS DOORS ARE TO BE SINGLE HANDLE, CONNECTED LINKAGE, VIEWPORT & TEST PORTS
7. SERVICE LIGHTS IN FILTER SECTION, FAN SECTION & CONTROLS
8. INDEPENDENT 120V FEED FOR SERVICE AND CONTROLS
9. 0.020" THICK COIL TUBES
10. EC FANS WITH INLET FAN RINGS & BACKDRAFT DAMPERS
11. NEMA 3R FUSED CONTROL PANEL PER FAN
12. STAINLESS STEEL DRAIN PAN
13. ADDITIONAL 12" SECTION FOR FUTURE DX COIL
14. CENTER SUPPLY FAN ACCESS DOOR

NOTES:
1. SMOKE DETECTOR ARE TO BE WIRED BACK TO THE FIRE ALARM SYSTEM AS REQUIRED BY THE UNIFORM MECHANICAL CODE, NATIONAL FIRE CODE, AND INTERNATIONAL BUILDING CODE.
2. SMOKE DETECTORS ARE TO BE SUPPLIED AND INSTALLED BY THE ROOFTOP MANUFACTURER, SMOKE DETECTORS ARE TO BE INDEPENDENTLY POWERED FROM, AND MONITORED BY, THE BUILDING FIRE ALARM SYSTEM. INSTALLATION SHALL BE PER THE FIRE AUTHORITY HAVING JURISDICTION'S REQUIREMENTS
3. AIR HANDLER SECTIONS ARE TO BE NO LARGER THAN ACCESS DOOR INTO MEZZANINE

VAV HOT WATER RE-HEAT SCHEDULE

TAG	MANUF	MODEL	AIRFLOW PERFORMANCE							NOISE		HEATING PERFORMANCE										ELECTRICAL	WEIGHT (LBS)	REMARKS
			INLET	OUTLET	MIN ΔP	INLET ΔP	OUTLET ΔP	MIN CFM	MAX CFM	RAD NC	DIS NC	CFM	ROWS	FPI	MBH	EAT	LAT	EWT	LWT	GPM	ΔP			
VAV 1-1	KRUEGER	LMHS-HC	9	16"x15"	0.09	0.75	0.5	225	750	13	14	375	2	10	15.8	55	100	140	124	2.0	0.4	120V, 1Φ 2 MCA 15 MOCP	50	1, 2, 3, 4, 5
VAV 1-2	KRUEGER	LMHS-HC	14	24"x18"	0.35	1.0	0.5	760	2,520	19	22	1,260	3	10	58.9	55	100	140	118	5.3	0.4	120V, 1Φ 2 MCA 15 MOCP	75	1, 2, 3, 4, 5
VAV 1-3	KRUEGER	LMHS-HC	9	12"x10"	0.20	0.75	0.5	200	645	10	14	195	2	10	9.4	55	100	140	130	2.0	0.3	120V, 1Φ 2 MCA 15 MOCP	50	1, 2, 3, 4, 5
VAV 1-4	KRUEGER	LMHS-HC	16	20"x18"	0.15	0.75	0.5	550	1,830	15	15	550	2	10	25.0	55	100	140	127	4.0	0.3	120V, 1Φ 2 MCA 15 MOCP	70	1, 2, 3, 4, 5
VAV 2-1	KRUEGER	LMHS-HC	6	12"x8"	0.23	0.75	0.5	115	380	16	19	115	2	10	5.4	55	100	140	132	1.3	0.24	120V, 1Φ 2 MCA 15 MOCP	35	1, 2, 3, 4, 5
VAV 2-2	KRUEGER	LMHS-HC	14	20"x18"	0.29	1.0	0.5	600	2,000	15	17	600	2	10	25.2	55	100	140	125	3.5	0.57	120V, 1Φ 2 MCA 15 MOCP	75	1, 2, 3, 4, 5
VAV 2-3	KRUEGER	LMHS-HC	12	14"x12"	0.19	0.75	0.5	300	970	15	11	300	2	10	13.5	55	100	140	126	2.0	0.37	120V, 1Φ 2 MCA 15 MOCP	50	1, 2, 3, 4, 5
VAV 2-4	KRUEGER	LMHS-HC	8	12"x10"	0.14	0.75	0.5	200	600	17	20	180	2	10	7.9	55	100	140	128	1.3	0.32	120V, 1Φ 2 MCA 15 MOCP	40	1, 2, 3, 4, 5
VAV 2-5	KRUEGER	LMHS-HC	22	38"x18"	0.12	1.0	0.5	1000	3,170	27	22	950	2	10	40.2	55	100	140	120	4.0	0.4	120V, 1Φ 2 MCA 15 MOCP	115	1, 2, 3, 4, 5
VAV 2-6	KRUEGER	LMHS-HC	6	12"x8"	0.13	0.75	0.5	115	380	16	19	115	2	10	5.4	55	100	140	132	1.3	0.25	120V, 1Φ 2 MCA 15 MOCP	35	1, 2, 3, 4, 5
VAV 2-7	KRUEGER	LMHS-HC	6	12"x8"	0.11	0.75	0.5	115	340	15	18	105	2	10	5.4	55	100	140	133	1.3	0.24	120V, 1Φ 2 MCA 15 MOCP	35	1, 2, 3, 4, 5
VAV 2-8	KRUEGER	LMHS-HC	5	12"x8"	0.11	0.75	0.5	75	250	11	22	75	2	10	4.0	55	100	140	134	1.3	0.23	120V, 1Φ 2 MCA 15 MOCP	35	1, 2, 3, 4, 5
														MBH TOTAL	216.1				GPM TOTAL	29.3				

REMARKS:
1. 20GA STEEL CASING CONSTRUCTION
2. 24V CONTROLS TRANSFORMER & FUSE
3. TOGGLE SWITCH & POWER FUSE
4. 1" CELLULAR INSULATION
5. HANGER BRACKETS

NOTES:
1. ---

EXHAUST FAN SCHEDULE

SYMBOL	DESCRIPTION	MODEL	AIRFLOW	ELECTRICAL	WT (LBS)	REMARKS
EF 3	NEW ROOF MOUNTED EXHAUST FAN	PENNBARRY MODEL PRD 060-100	160 CFM 0.3 ESP	120V, 1Φ 1/8 HP	30	1, 2, 3, 4, 5
EF 4	NEW ROOF MOUNTED EXHAUST FAN	PENNBARRY MODEL PRD 070-100	260 CFM 0.3 ESP	120V, 1Φ 1/8 HP	30	1, 2, 3, 4, 5
EF 5	NEW ROOF MOUNTED EXHAUST FAN	PENNBARRY MODEL PRD 200-100	4,300 CFM 0.3 ESP	460V, 3Φ 2 HP	115	1, 2, 3, 4, 5

REMARKS:
1. ADAPTER ROOF CURB TO (E) CURB CONTRACTOR TO FIELD VERIFY DIMENSION
2. BACKDRAFT DAMPER
3. BIRD SCREEN
4. FAN MOUNTED SPEED CONTROLLER
5. FACTORY WIRED DISCONNECT

NOTES:
1. EF 3-5 FANS ARE TO BE ACTIVATED BY BMS

MECHANICAL LEGEND

SYMBOL	ABBREVIATION	INTENT
		RIGID DUCT
		INTERNALLY LINED DUCTWORK
		RIGID EXHAUST DUCT
		DUCT DOWN
		DUCT UP
		TURNING VANES
	D	SUPPLY AIR
	G	RETURN AIR
	EXH	EXHAUST AIR
	D	SUPPLY AIR
	G	RETURN AIR
	MVD	MANUAL VOLUME DAMPER
	AD	AUTOMATIC DAMPER (MOTORIZED)
	FLEX	FLEXIBLE DUCTWORK
		VERTICAL BRANCH WITH DAMPER
	DOWN	PIPE DOWN
	UP	PIPE UP
	Ø	DIAMETER ROUND
	(N)	NEW
	(E)	EXISTING
	⊕	POINT OF CONNECTION
	⊕	POINT OF DISCONNECT
	AFF	ABOVE FINISHED FLOOR
	BFF	BELOW FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	TYP	TYPICAL
	MIN	MINIMUM
	CFM	CUBIC FEET PER MINUTE
	OSA	OUTSIDE AIR
	ESP	EXTERNAL STATIC PRESSURE
	BTU, BTUH	BRITISH THERMAL UNIT PER HOUR
	MBH	THOUSAND BTU
	CLG	COOLING
	HTG	HEATING
	CAP	CAPACITY
	SENS	SENSIBLE
	LTNT	LATENT
CHS	CHS	CHILLED WATER SUPPLY
CHR	CHR	CHILLED WATER RETURN
CWS	CWS	CONDENSER WATER SUPPLY
CWR	CWR	CONDENSER WATER RETURN
HWS	HWS	HEATING HOT WATER SUPPLY
HWR	HWR	HEATING HOT WATER RETURN
C	C	CONDENSATE DRAIN
DW	DW	DOMESTIC WATER
		BALL VALVE
		BALANCING VALVE
		BUTTERFLY VALVE
		AUTOMATIC CONTROL VALVE (2-WAY)
		AUTOMATIC CONTROL VALVE (3-WAY)
		MOTORIZED VALVE 2-WAY VALVE
		MOTORIZED VALVE 3-WAY VALVE
		PRESSURE REDUCING VALVE
		STRAINER
		TRIPLE DUTY VALVE
		CHECK VALVE
		PRESSURE REDUCING VALVE
		SOLENOID VALVE
		DRAIN VALVE
		PRESSURE & TEMPERATURE COMBINATION GAUGE
		SENSOR WELL
		PETE'S PLUG
		UNION

GENERAL NOTES:

STANDARDS AND CODES: LATEST EDITION OF THE UNIFORM MECHANICAL CODE (UMC), AS WELL AS ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. THIS DOES NOT RELIEVE THE CONTRACTOR FROM FURNISHING AND INSTALLING WORK SHOWN OR SPECIFIED WHICH MAY EXCEED THE REQUIREMENTS OF SUCH ORDINANCES, LAWS, REGULATIONS AND CODES.

COMPLETE INSTALLATION: PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, ACCESSORIES, ETC., NECESSARY TO ACCOMPLISH A COMPLETE MECHANICAL SYSTEM IN ACCORDANCE WITH THE PLANS TOGETHER WITH THE SPECIFICATIONS.

PERMITS: OBTAIN AND PAY FOR ALL BUILDING AND WORKING PERMITS AND INSPECTION FEES REQUIRED FOR THIS PROJECT.

DRAWINGS: DATA PRESENTED ON THESE DRAWINGS SHALL BE FIELD VERIFIED SINCE ALL DIMENSIONS, LOCATIONS, AND LEVELS ARE GOVERNED BY ACTUAL FIELD CONDITIONS. REVIEW ELECTRICAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS ON CONDITIONS SHOWN THEREON. DO NOT SCALE MECHANICAL PLANS FOR EQUIPMENT, DUCTING, PIPING, APPLIANCE ETC. LOCATIONS. USE CONFIGURED DIMENSIONS IF GIVEN OR CHECK ARCHITECTURAL DRAWINGS.

LOCATIONS: INDICATED LOCATIONS OF ALL EQUIPMENT, DUCTING, PIPING ETC. ARE SUBJECT TO CHANGE. SHIFT/RELOCATE/RECONFIGURE ANY OR CONNECTION POINT UP TO 10' AS DIRECTED BY ENGINEER, AT NO ADDED COST.

RECORD DRAWINGS: CONTRACTOR SHALL PROVIDE, PRIOR TO FINAL ACCEPTANCE AND OBSERVATION, ONE SET OF REVISED RECORD MECHANICAL CONSTRUCTION DOCUMENTS ON REPRODUCIBLE MEDIUM. INDICATING THE FOLLOWING ADDITIONAL INFORMATION:

RECORD NOTATIONS SHALL BE CLEARLY DRAWN AT A DRAFTING APPEARANCE EQUAL TO THE ORIGINAL DRAWINGS. CONTRACTOR SHALL ALSO PROVIDE ALL OPERATING AND MAINTENANCE MANUALS PRIOR TO FINAL PAYMENT.

EXAMINATION OF SITE AND EXISTING CONDITIONS: BEFORE SUBMITTING A PROPOSAL, CONTRACTOR SHALL EXAMINE THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND LIMITATIONS. NO EXTRAS WILL BE ALLOWED BECAUSE OF THE CONTRACTOR'S MISUNDERSTANDING OF THE AMOUNT OF WORK INVOLVED OR HIS LACK OF KNOWLEDGE OF ANY SITE CONDITIONS WHICH MAY AFFECT HIS WORK. ANY APPARENT VARIANCE OF THE DRAWINGS OR SPECIFICATIONS FROM THE EXISTING CONDITIONS AT THE SITE SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER BEFORE SUBMITTING A PROPOSAL.

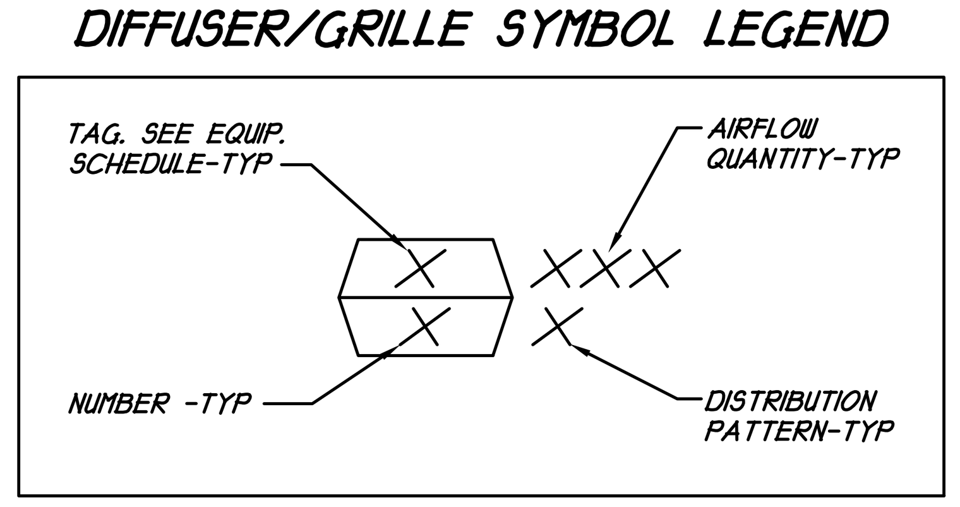
EQUIPMENT: ALL HVAC AND REFRIGERATION EQUIPMENT SHALL NOT CONTAIN CFC OR HALONS.

SEISMIC RESTRAINT: ALL BUILDING HVAC SYSTEMS, INCLUDING DUCTWORK, IS TO BE SEISMICALLY RESTRAINED PER THE UNIFORM MECHANICAL CODES, INTERNATIONAL BUILDING CODE, AMERICAN SOCIETY OF CIVIL ENGINEERS AND STRUCTURAL ENGINEERING INSTITUTE. RESTRAINT SYSTEMS ARE TO BE COMPLETED IN A "DESIGN BUILD" FASHION BY THE AWARDED CONTRACTOR AND ARE TO BE INCLUDED IN THE PROJECT BID. THE CONTRACTOR IS TO ENLIST A QUALIFIED LICENSED PROFESSIONAL TO PROVIDE COMPREHENSIVE DESIGN CALCULATIONS AND SHOP DRAWINGS FOR SAID SYSTEMS. ALL DESIGN DATA AND DETAILED DRAWINGS ARE TO BE PROVIDED AS A DEFERRED SUBMITTAL TO THE ENGINEER AND SPWD FOR REVIEW AND APPROVAL DURING THE SUBMITTAL PROCESS.

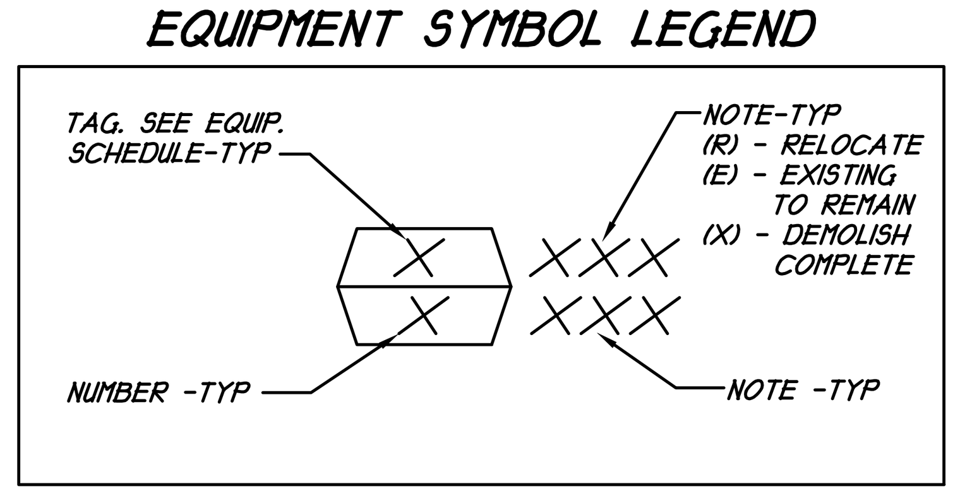
CONSTRUCTION PHASING: CONTRACTOR IS TO COORDINATE WITH SPWD AND END USER OF THE FACILITY ANY ANTICIPATED SHUTDOWNS. CONTRACTOR IS TO PROVIDE A PROJECT SCHEDULE SHOWING NEEDED SHUTDOWNS NO LESS THAN 3 WEEKS PRIOR TO THE PROPOSED SHUTDOWN. FACILITY OPERATIONS ARE TO NOT TO BE IMPACTED UNLESS AGREED UPON. DOMESTIC HOT WATER SYSTEM IS TO REMAIN OPERATIONAL AT ALL TIMES.

HYDRONIC PRE-READ PRIOR TO CONSTRUCTION: CONTRACTOR IS TO HAVE TAB CONTRACTOR CONDUCT A PRE-READ OF THE EXISTING SECONDARY PUMPING SYSTEM. AS THESE PUMPS ARE DIRECT REPLACEMENTS THE SYSTEM IS TO OPERATE UNDER THE SAME PRESSURE AND FLOW RATE CONDITIONS OF EXISTING CONDITIONS. VALUES ARE TO BE RECORDED AND PROVIDED TO SPWD AND EEI WHEN COMPLETED.

DIFFUSER/GRILLE SYMBOL LEGEND



EQUIPMENT SYMBOL LEGEND



PIPE MATERIAL SCHEDULE

PIPE INSIDE OF BUILDING ABOVE GRADE

PIPING TYPE	MATERIAL
INDIRECT DRAIN PIPING	TYPE L COPPER
DOMESTIC COLD	TYPE L COPPER
DOMESTIC HOT WATER	TYPE L COPPER
DOMESTIC HOT WATER RECIRCULATION	TYPE L COPPER
BUILDING HEATING (HWS&HWR) UP TO 2"	TYPE L COPPER
BUILDING HEATING (HWS&HWR) 2-1/2" & UP"	SCHEDULE 40 STEEL
CONDENSATE	TYPE L COPPER
GAS PIPING	SCHEDULE 40 STEEL

** ALL PIPE, FITTINGS, FIXTURES, ETC THAT CONTACT POTABLE WATER FOR HUMAN CONSUMPTION SHALL SHOW NSF 61 APPROVAL AND SHALL CONFORM TO UNIFORM PLUMBING CODE SECTION 604.11 AND HEALTH AND SAFETY CODE SECTION 116875.

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PROFESSIONAL ENGINEER STATE OF NEVADA BRYAN A. TILTON MECHANICAL No. 22251 02/25/26

STEWART BUILDING 160

HVAC RENOVATIONS

SPWD 25-M03-03
5500 SNYDER AVE #160
CARSON CITY, NEVADA 89701

REVISIONS

DRAWING TITLE
MECHANICAL NOTES & SCHEDULES

date 02/25/26
job number 25087
drawn BAT
checked BAT

M0.1

PUMP SCHEDULE

SYMBOL	DESCRIPTION	MODEL	HP	FRAME	IMP	FLOW RATE	RPM	HEAD (FT H,O)	NPSH	EFFICIENCY	WEIGHT	ELECTRICAL	ACCESSORIES
HWP 1-2	IN-LINE CIRCULATION PUMP	TACO MODEL SKV300WD 3x3 - CONNECTION	3	184JM	4.25	130	1740	45	12.3	80%	325	460V, 3Ø	PREMIUM EFFICIENT MOTOR, VARIABLE FREQUENCY DRIVE SHIPPED UNPROGRAMMED LOOSE MECHANICAL CONTRACTOR TO INSTALL ON WALL (WIRED BY ELECTRICAL), NON-OVERLOADING IMPELLER, MECHANICAL SEAL AND WEAR RING, FUSED DISCONNECT
BP 1-2	IN-LINE CIRCULATION PUMP	GRUNDFOS MAGNA 3 MODEL 50-150	¾	-	-	98	-	15	-	-	50	120V, 1Ø 5.6 AMPS	PREMIUM EFFICIENT MOTOR, SPEED CONTROLLED BY BOILER

WATER HEATER SCHEDULE

SYMBOL	DESCRIPTION	MODEL	GAS INPUT	STORAGE	TEMP RISE	1ST HR DELIVERY	CONNECTIONS				WEIGHT	ELECTRICAL	ACCESSORIES
							GAS	WATER	AIR	VENT			
WH 1-2	NATURAL GAS-FIRED TANK WATER HEATER	LOCHINVAR SHIELD MODEL SWA285N	285 MBH	110 GALLONS	328 GPH @ 100°F RISE	416 GALLONS	½"	1-½	4"	4"	1,120	120V, 1Ø 15 MOCP	CONDENSATE NEUTRALIZER, CONCENTRIC VENT KIT, FLOW SWITCH, LOW WATER CUTOFF, BACNET INTERFACE

BOILER SCHEDULE

TAG	MANUF	MODEL	HEATING CAPACITY			CONNECTIONS				ELECTRICAL			WEIGHT (LBS)	REMARKS
			INPUT-MAX	INPUT-MIN	AFUE	GAS	WATER	AIR	VENT	VOLTAGE	PHASE	FLA		
B 1-2	LOCHINVAR	MODEL FTXL-1000	999 MBH	99.9 MBH	96%	1-¼"	2-½"	6"	6"	120	1	7	750	1, 2, 3, 4, 5, & 7

REMARKS:
1. BACNET MSTP COMMUNICATIONS
2. CONDENSATE NEUTRALIZER KIT
3. HIGH & LOW GAS PRESSURE SWITCHES
4. LOW WATER CUTOFF W/MANUAL RESET
5. VARIABLE SPEED BOILER PUMP
6. 125 PSI ASME STAMP ¾" RELIEF VALVE (PROVIDED WITH BOILER)
7. 208V POWER TO 120V TRANSFORMER
8. FULLY MODULATING FIRING CONTROL WITH ULTRA LOW NOX

NOTES:
1. ACCEPTABLE MANUFACTURER'S
   1.1. LOCHINVAR
   1.2. CLEVER BROOKS
2. MAXIMUM OPERATING PRESSURE 160 PSI
3. MAXIMUM DELTA P ON BOILER 45 PSI
4. BOILERS HAVE BEEN DESIGNED BASED ON A 30°F DELTA

CIRCULATING PUMP SCHEDULE

SYMBOL	DESCRIPTION	MODEL	FLOWRATE	PRESSURE DROP	WEIGHT	ELECTRICAL	ACCESSORIES
CP 1	DOMESTIC HOT WATER CIRCULATION PUMP	GRUNDFOS MODEL UPS 15-55 SUC	3 GPM	15'	4	120V, 1Ø 87 WATTS	INTEGRAL TIME CLOCK SET TO RUN DURING OPERATING HOURS

CONTROL VALVE SCHEDULE

TAG	DESCRIPTION	MODEL	VALVE SIZE	FLOW RATE	CV	ELECTRICAL	ACCESSORIES
CV 1-1	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B209	½"	2.0 GPM	0.8	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 1-2	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B10	¾"	5.3 GPM	1.84	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 1-3	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B209	½"	2.0 GPM	0.8	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 1-4	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B10	½"	4.0 GPM	1.2	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 2-1	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B208	½"	1.3 GPM	0.44	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 2-2	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B10	½"	3.5 GPM	1.2	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 2-3	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B209	½"	2.0 GPM	0.8	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 2-4	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B208	½"	1.3 GPM	0.44	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 2-5	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B10	½"	4.0 GPM	1.2	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 2-6	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B208	½"	1.3 GPM	0.44	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 2-7	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B208	½"	1.3 GPM	0.44	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV 2-8	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B208	½"	1.3 GPM	0.44	24V 2.5 WATTS	BELIMO TFRB-3 ACTUATOR
CV HZ1	3-WAY MIX/DIVERTING CONTROL VALVE	BELIMO MODEL B312	½"	1.0 GPM	1.0	24V 5.5 WATTS	BELIMO TFRB24-SR ACTUATOR
CV HZ2	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B211	¾"	12.4 GPM	4.7	24V 1.5 WATTS	BELIMO TFBR24-SR ACTUATOR
CV HV1	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B229	1-¼"	24.2 GPM	10	24V 1.5 WATTS	BELIMO TFRB24-SR ACTUATOR
CV HV2	3-WAY MIX/DIVERTING CONTROL VALVE	BELIMO MODEL B329	1-¼"	24.2 GPM	10	24V 5.5 WATTS	BELIMO AFRB24-SR ACTUATOR
CV HV3	2-WAY MODULATING CONTROL VALVE	BELIMO MODEL B229	1-¼"	22.3 GPM	10	24V 1.5 WATTS	BELIMO TFRB24-SR ACTUATOR

GAS VALVE SCHEDULE

TAG	DESCRIPTION	MODEL	SIZE	FLOW RATE	CV	WEIGHT	ACCESSORIES
GV 1	GAS SHUNT VALVE	AMERICAN GAS SAFETY MODEL AGSGSV3	3" PIPE	5,442 CFH MAX	894	250 LBS	FLANGED CONNECTION, 5 PSI OPERATIONAL DIFFERENTIAL MAXIMUM, 120V 1Ø WATTS

AIR/DIRT SEPARATOR SCHEDULE

TAG	DESCRIPTION	MODEL	PIPE SIZE	FLOW RATE	WEIGHT	ACCESSORIES
AS 1	AIR/DIRT SEPARATOR	TACO MODEL 4905ADM-125	5"	245 GPM 304 - MAX	430 LBS	FLANGED CONNECTION, BLOW DOWN VALVE, AIR VENT, ON/OFF MAGNETIC

EXPANSION TANK SCHEDULE

TAG	MANUF	MODEL	VOLUME		DIMENSIONS		WEIGHT (LBS)	REMARKS
			TOTAL	ACCEPT.	DIAMETER	HEIGHT		
ET 1	TACO	CA215-125	57	57	14"	59"	765	1, 2
ET 2	AMTROL	ST-42VC-DD	18	11	14"	24"	175	1, 2

REMARKS:
1. DIAPHRAGM TYPE EXPANSION TANK
2. ASME RATED

NOTES:
ASME PRESSURE RATINGS
1. ET-1 = 150 PSI

MIXING VALVE SCHEDULE

SYMBOL	DESCRIPTION	MODEL	FLOWRATE	PRESSURE DROP	PIPE SIZE	ACCESSORIES
MV 1	HI-LOW MIXING VALVE	LEONARD MODEL TM-920-LF-DT	10 GPM MIN 54 GPM MAX	15 PSI @ MAX FLOW	1-¼"-INLET 1-¼"-OUTLET	INLET THERMOMETERS, TEST CONNECTION

CHEMICAL POT FEEDER SCHEDULE

SYMBOL	DESCRIPTION	MODEL	VOLUME	PIPE SIZE	DIMENSION	WEIGHT	ACCESSORIES
CF 1	BYPASS CHEMICAL POT FEEDER	TAO MODEL CBF-5	5 GALLONS	¾"	8" DIA 50" TALL	200	DRAINAGE VALVE, INTEGRAL FUNNEL

BOILER MAGNETIC SEPARATION FILTER SCHEDULE

TAG	DESCRIPTION	MODEL	PIPE SIZE	FLOW RATE	WEIGHT	ACCESSORIES
BM 1	MAGNETIC SEPARATION FILTER	BOILERMAG BMXT200/3	3"	130 GPM	100 LBS	-

DEMINERALIZER SCHEDULE

TAG	DESCRIPTION	MODEL	PIPE SIZE	FLOW RATE	WEIGHT	ACCESSORIES
DM 1	INLINE DEMINERALIZER	AXIOM PUROPAL DEMINERALIZER	¾"	5 GPM	55 LBS	-

FILTER SCHEDULE

TAG	DESCRIPTION	MODEL	PIPE SIZE	FLOW RATE	WEIGHT	ACCESSORIES
F 1	INLINE FILTRATION	AXIOM MODEL SFP-10	¾"	10 GPM	15 LBS	-

GAS DETECTOR SCHEDULE

TAG	DESCRIPTION	MODEL	ELECTRCIAL	WEIGHT	ACCESSORIES
GD 1	COMBINATION CARBON MONOXIDE & METHANE DETECTOR	MINI MERLIN MODEL CMCO	120V, 1Ø 3 WATTS	1 LBS	ALARM STROBE RELAY, EMERGENCY SHUT-OFF BUTTON WITH TWIST RESET, 24V ALARM STROBE

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MECHANICAL
No. 22251
02/25/26

HVAC RENOVATIONS

STEWART BUILDING 160
SPWD 25-M003-03
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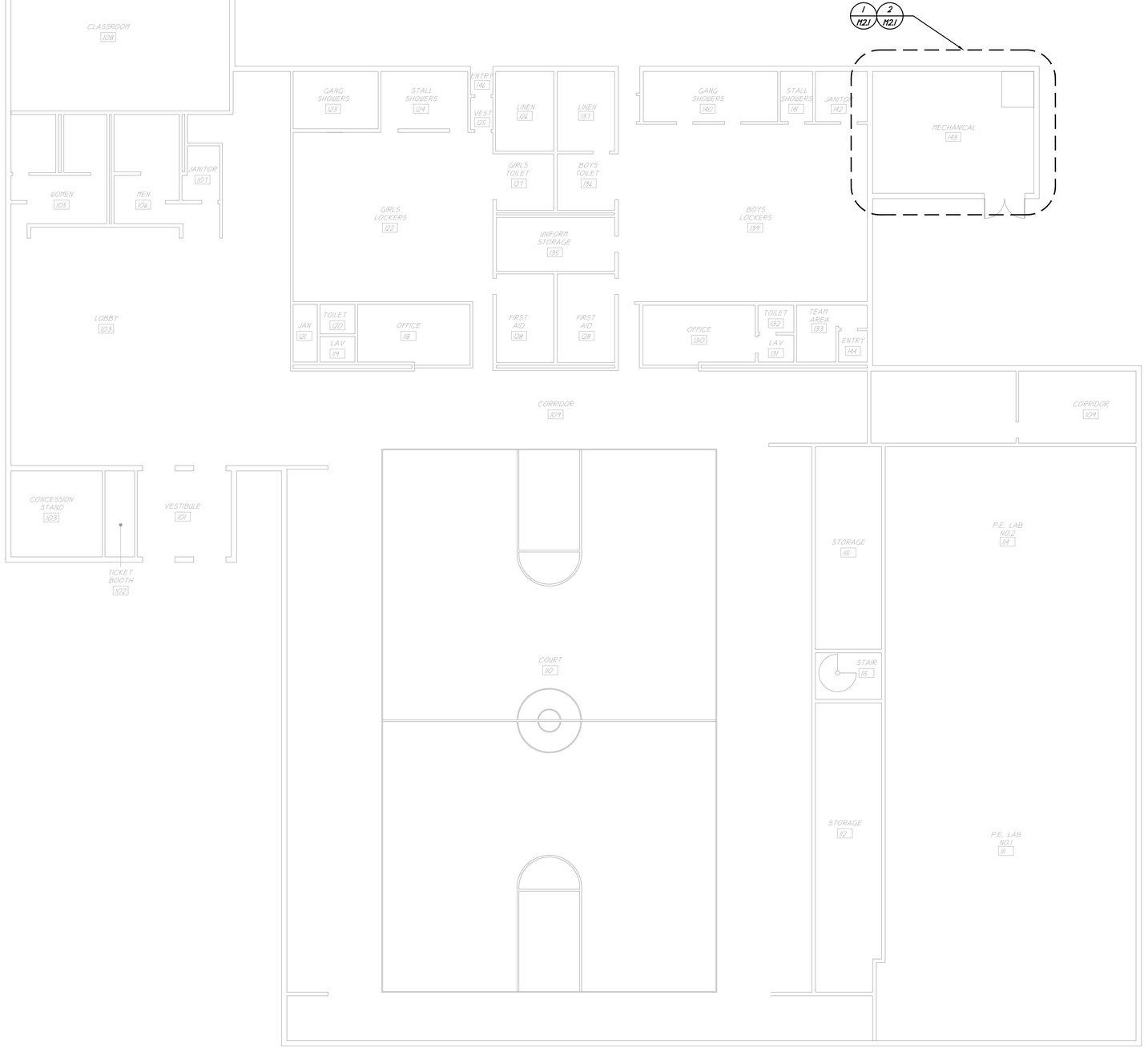
DRAWING TITLE
BOILER PLANT SCHEDULES

date 02/25/26
job number 25087
drawn BAT
checked BAT

M0.2



FIRST FLOOR OVERALL MECHANICAL PLAN

SCALE: 3/32" = 1'-0"

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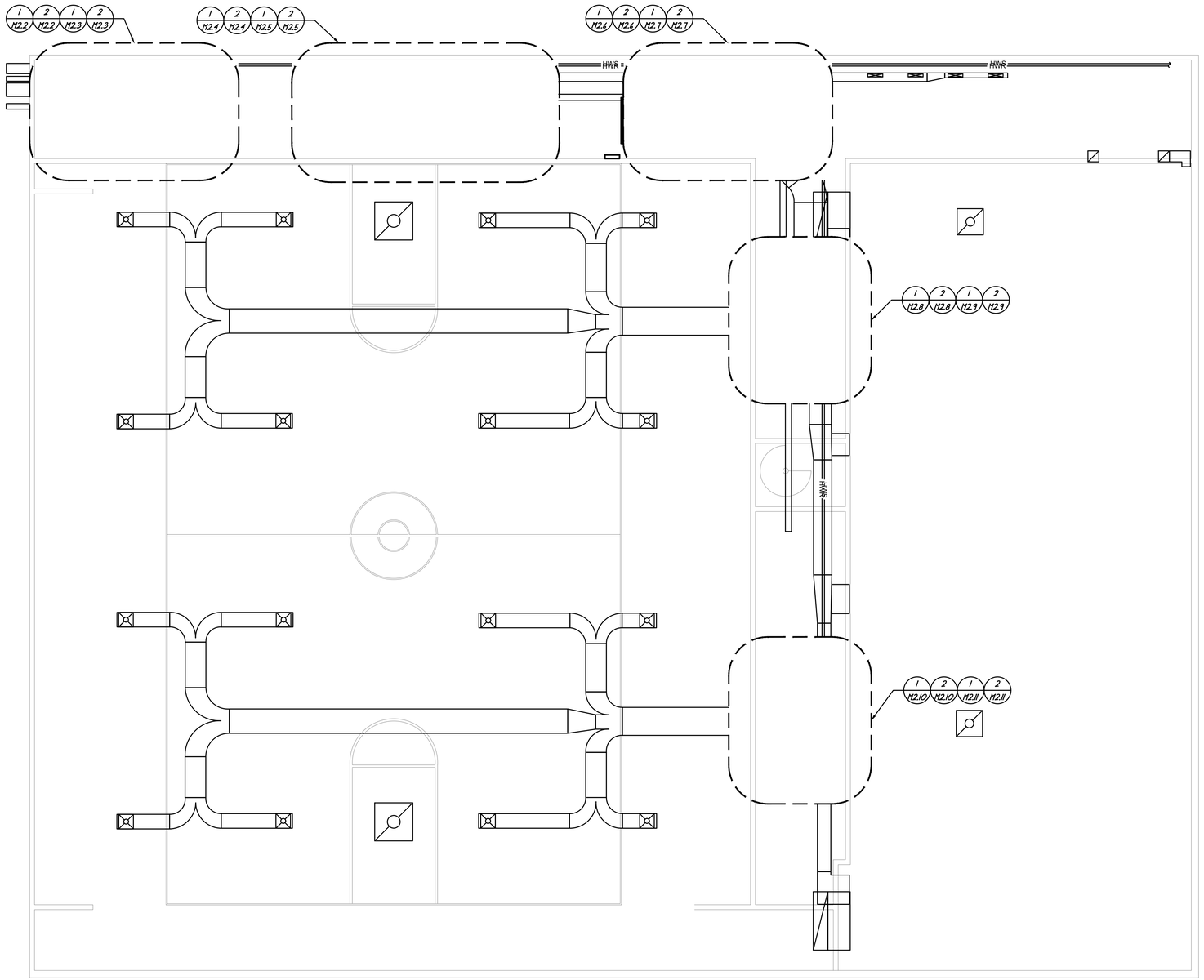
DRAWING TITLE

FIRST FLOOR OVERALL MECHANICAL PLAN

date	02/25/26
job number	25087
drawn	BAT
checked	BAT

M1.1



SECOND FLOOR OVERALL MECHANICAL PLAN

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

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SECOND FLOOR OVERALL MECHANICAL PLAN

date	02/25/26
job number	25087
drawn	BAT
checked	BAT

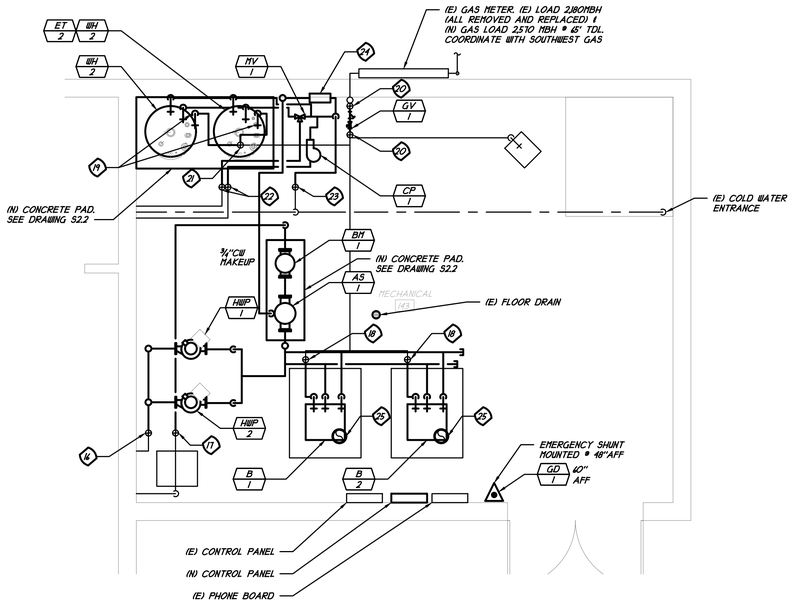
M1.2

GENERAL NOTES:

1. SIZES ARE TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORK AND ORDERING OF MATERIALS. SIZES INDICATED IN PLAN ARE TAKEN FROM AS-BUILT DRAWINGS. IN SOME CASES ACCURATE DIMENSIONS ARE NOT POSSIBLE WITH EXISTING CONDITIONS OR EXISTING INSULATION.

KEYED NOTES:

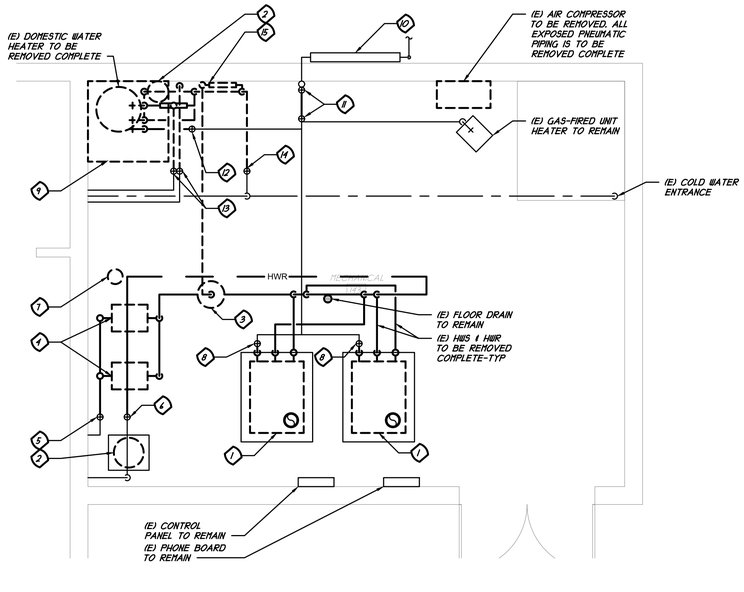
1. (E) BOILER TO BE REMOVED COMPLETE
2. (E) CIRCULATION PUMP TO BE REMOVED COMPLETE
3. (E) EXPANSION TANK TO BE REMOVED COMPLETE
4. (E) AIR SEPARATOR TO BE REMOVED COMPLETE
5. POD (E) 5"HWR TO REMAIN FOR RECONNECTION
6. POD (E) 5"HWS TO REMAIN FOR RECONNECTION
7. (E) CHEMICAL FEEDER TO BE REMOVED COMPLETE
8. POD (E) 2"G TO REMAIN FOR RECONNECTION
9. (E) HOUSEKEEPING PAD TO BE REMOVED COMPLETE
10. (E) GAS METER TO REMAIN
11. POD (E) 3"G FOR NEW GAS SHUNT VALVE INSTALLATION. COORDINATE DEMOLITION WITH LOCATION OF NEW VALVE.
12. POD (E) 1½"G TO REMAIN FOR RECONNECTION
13. POD (E) 2"HW & ¾"HWR TO REMAIN FOR RECONNECTION
14. POD (E) 2"CW TO REMAIN FOR RECONNECTION
15. (E) BACKFLOW TO BE REMOVED COMPLETE
16. POC (N) 4"HWR TO (E) 5"HWR PIPING
17. POC (N) 4"HWS TO (E) 5"HWS PIPING
18. POC (N) 2"G TO (E) 2"G
19. (N) 1-¼"G 285MBH @ 40' TDL TO WATER HEATER
20. POC (N) 3"G TO (E) 3"G. PROVIDE STRAINER AND GAS SHUNT VALVE AS CLOSE TO PIPING ENTRANCE TO ROOM AS POSSIBLE. PIPING TO BE MOUNTED ON WALL IN A VERTICAL POSITION.
21. POC (N) 1½"G TO (E) 1½"G
22. POC (N) 2"HW & ¾"HWR TO (E) 2"HW & ¾"HWR
23. POC (N) 2"CW TO (E) 2"CW
24. (N) ¾" WILKINS MODEL 975XL3 BACKFLOW PREVENTER. DRAIN TO (E) SUMP BASIN.
25. (N) 4" AL29C-4C COMBUSTION AIR & FLUE VENTING THRU EXISTING THRU ROOF. EXISTING FLUE PENETRATION TO BE UTILIZE WITH (2) NEW OPENINGS REQUIRED. PENETRATIONS TO BE SEALED PER DETAIL 1/M4.1



PARTIAL BOILER ROOM MECHANICAL PLAN

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

2 / M2.1



PARTIAL DEMOLITION BOILER ROOM MECHANICAL PLAN

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

1 / M2.1

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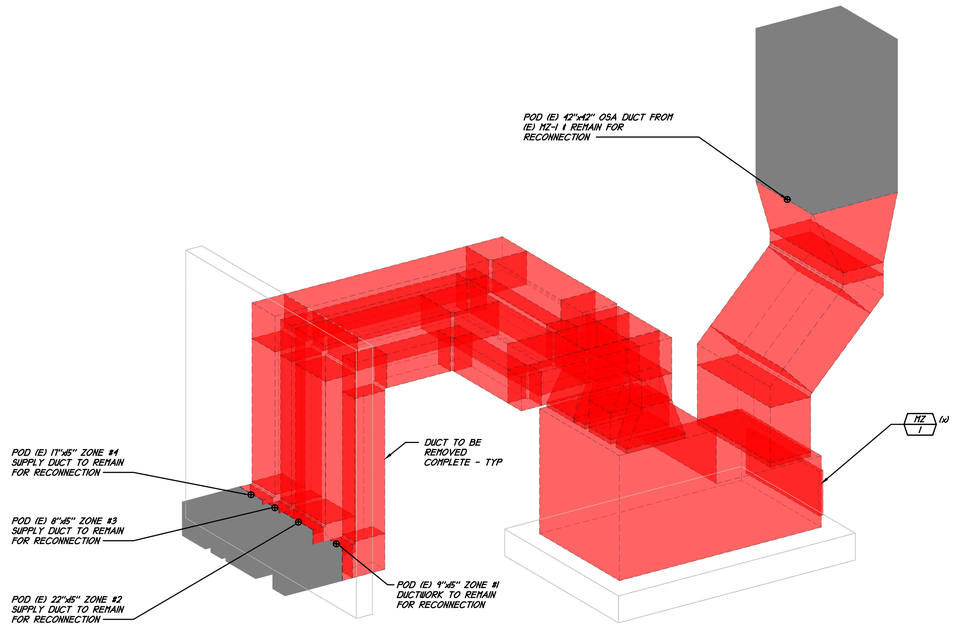
DRAWING TITLE

PARTIAL BOILER ROOM MECHANICAL PLANS

date	02/25/26
job number	25087
drawn	BAT
checked	BAT

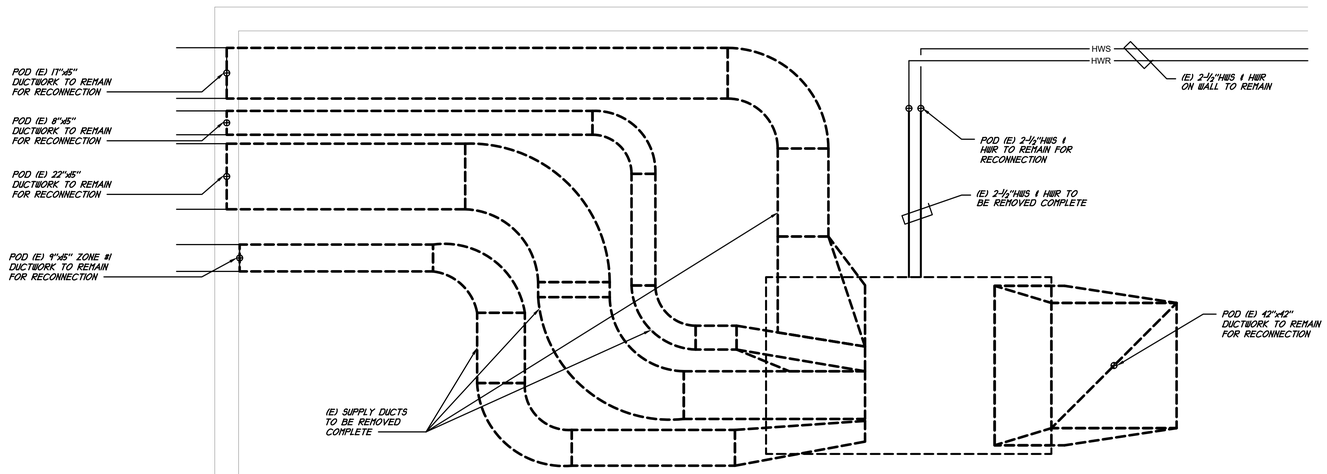
M2.1



MZ-1 DEMOLITION MECHANICAL ISOMETRIC PLAN

SCALE: NOT TO SCALE

2 / M2.2



MZ-1 DEMOLITION MECHANICAL PLAN

SCALE: 1/2" = 1'-0"

1 / M2.2

GENERAL NOTE:

1. ALL EXPOSED PNEUMATIC PIPING & COMPONENTS ARE TO BE REMOVED COMPLETE

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MZ-1 MECHANICAL DEMOLITION PLANS

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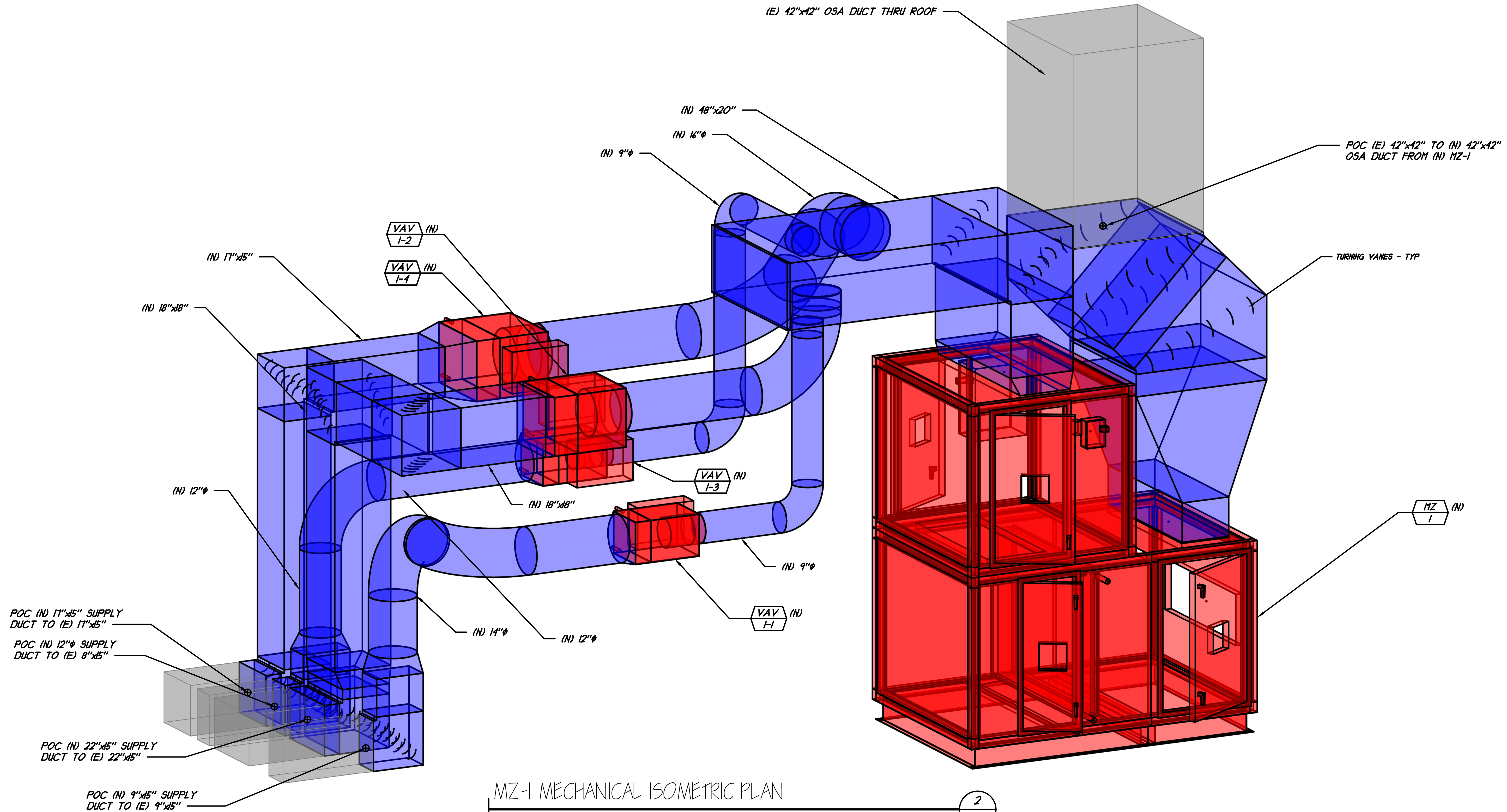
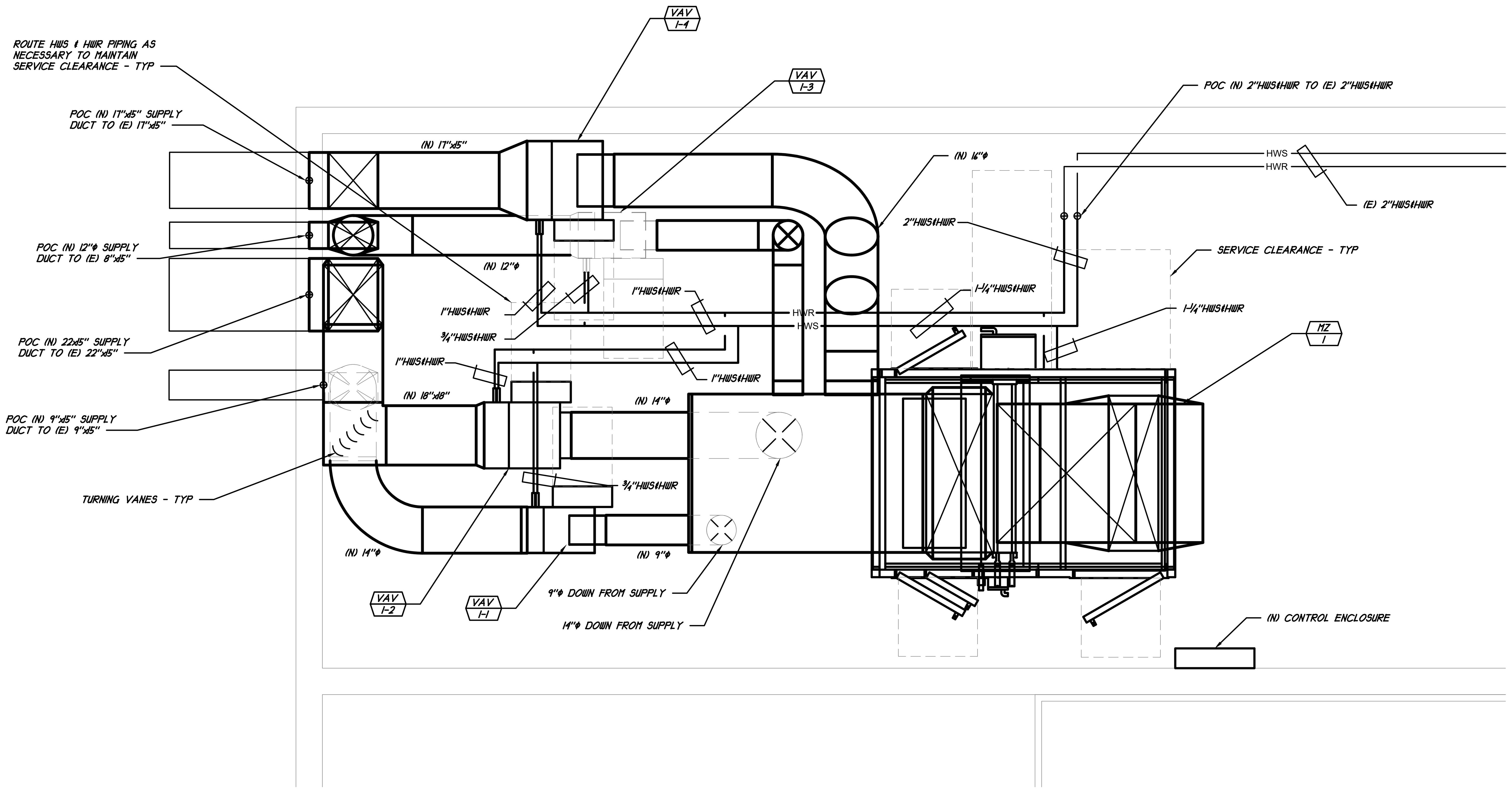
checked	BAT

M2.2



MZ-1 MECHANICAL ISOMETRIC PLAN 2 / M2.3

SCALE: 3/8" = 1'-0"



MZ-1 MECHANICAL PLAN 1 / M2.3

SCALE: 1/2" = 1'-0"

VAV PIPING

TAG	SIZE	GPM
1-1	3/4"	2.0
1-2	1"	5.3
1-3	3/4"	2.0
1-4	1"	4.0

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MZ-1 MECHANICAL PLANS

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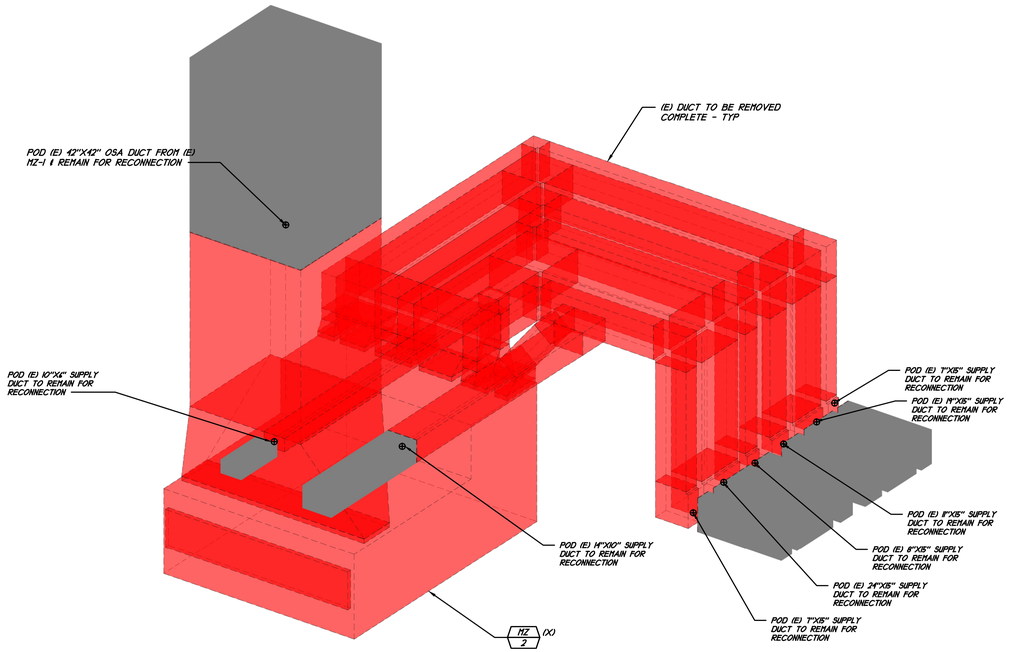
checked BAT

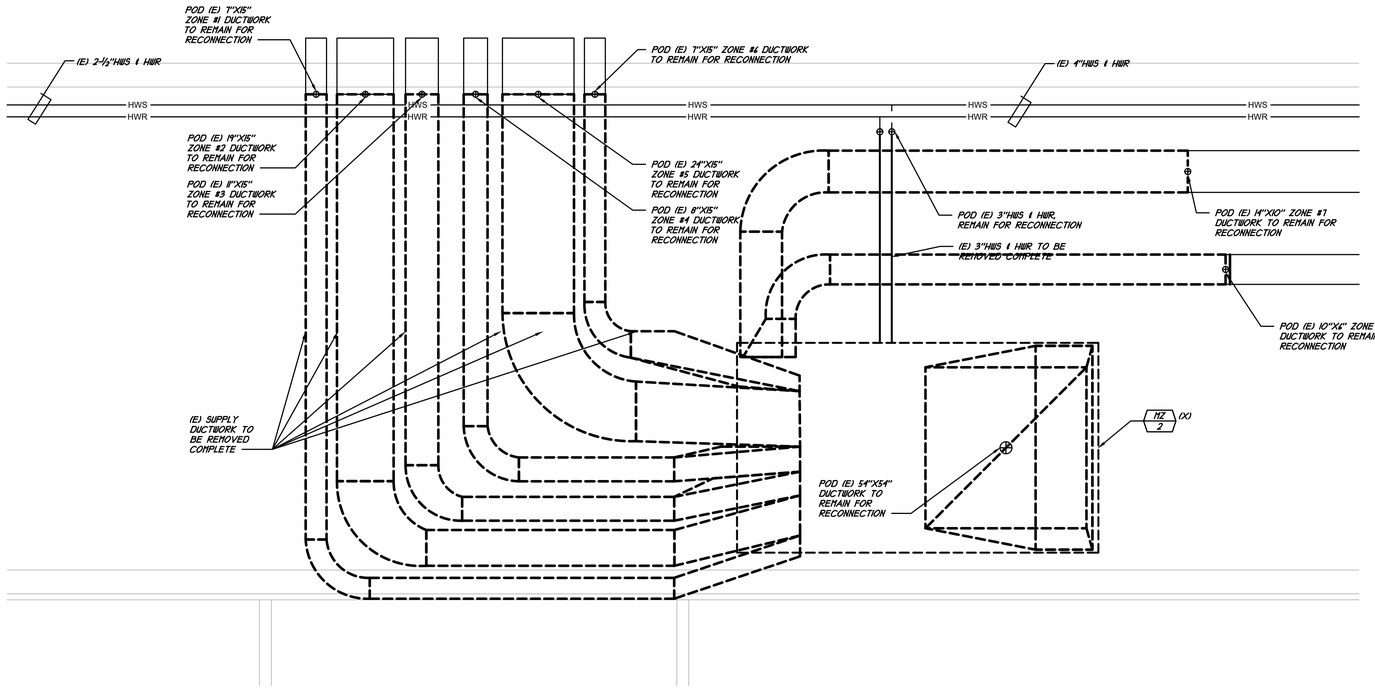
M2.3



MZ-2 DEMOLITION MECHANICAL ISOMETRIC PLAN

SCALE: 3/8" = 1'-0"

1 M2.4



MZ-2 DEMOLITION MECHANICAL PLANS

SCALE: 1/2" = 1'-0"

2 M2.4

GENERAL NOTE:

1. ALL EXPOSED PNEUMATIC PIPING ∉ COMPONENTS ARE TO BE REMOVED COMPLETE

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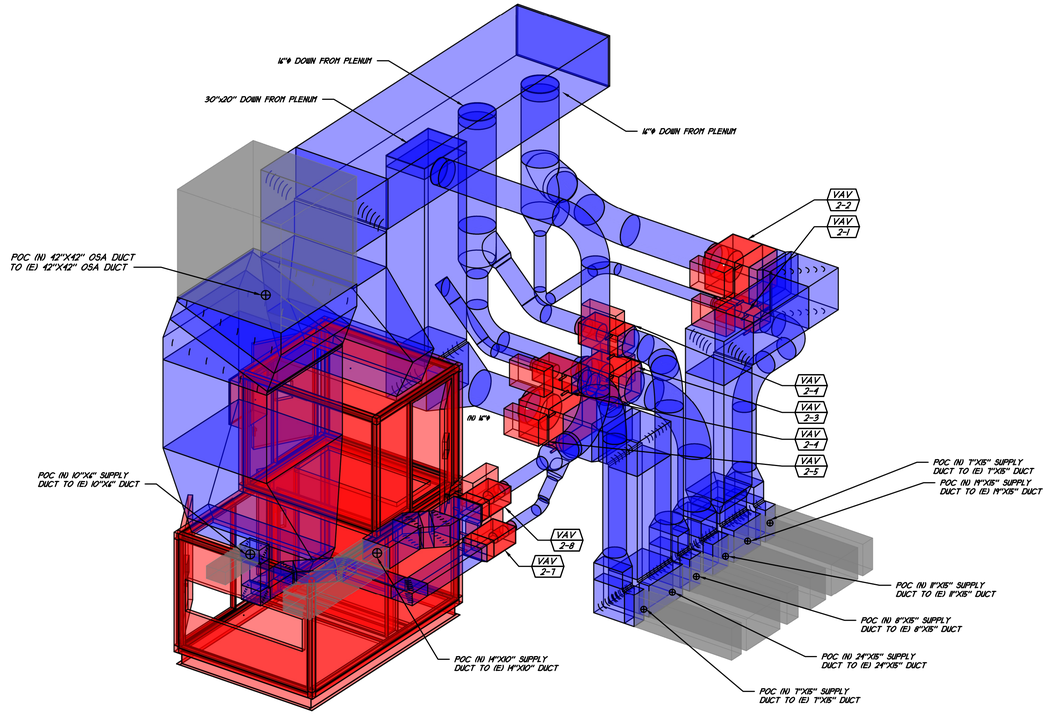
MZ-2 MECHANICAL DEMOLITION PLANS

date:	02/25/26
job number:	25087
drawn:	BAT
checked:	BAT

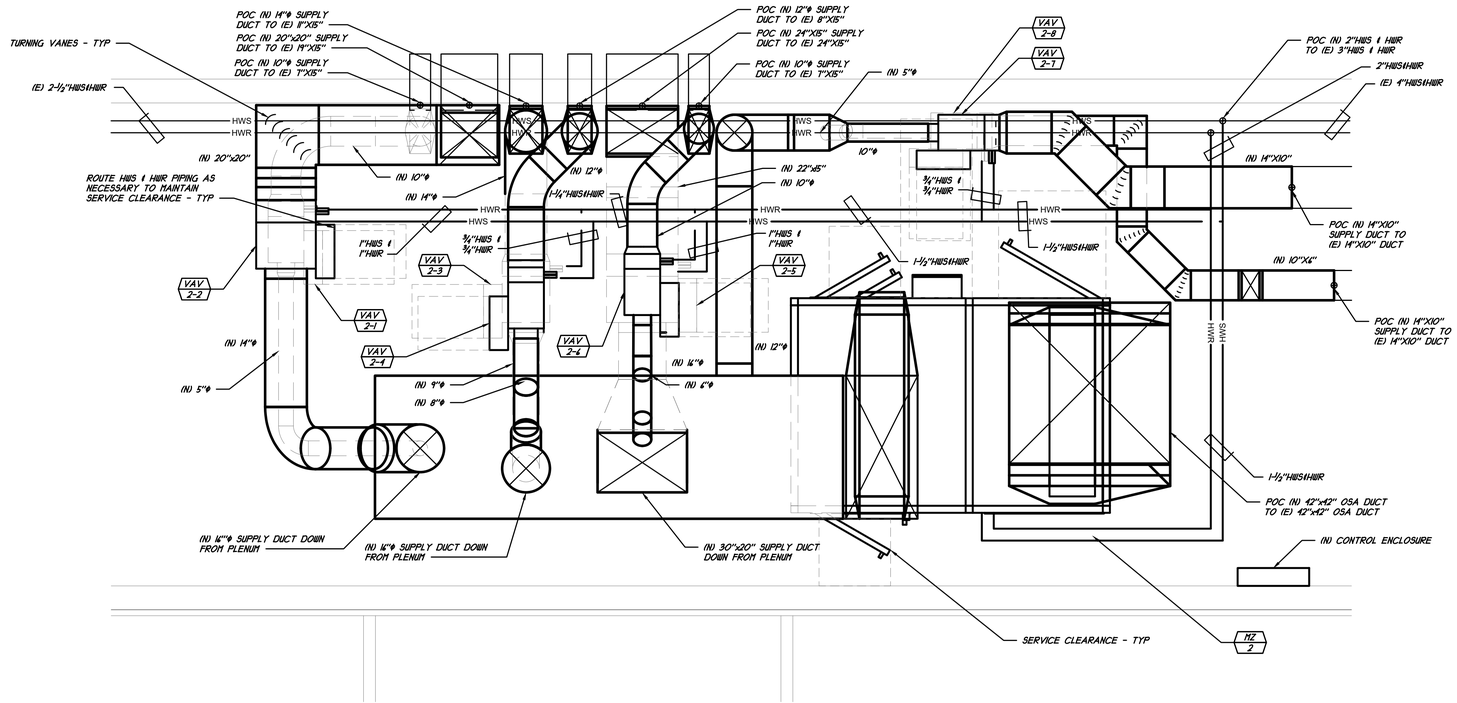
M2.4



MZ-2 MECHANICAL ISOMETRIC PLAN

SCALE: 3/8" = 1'-0"

2 / M2.5



MZ-2 MECHANICAL PLANS

SCALE: 1/2" = 1'-0"

1 / M2.5

VAV PIPING

TAG	SIZE	GPM
2-1	¾"	1.3
2-2	¾"	3.5
2-3	¾"	2.0
2-4	¾"	1.3
2-5	1"	4.0
2-6	¾"	1.3
2-7	¾"	1.3
2-8	¾"	1.3

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MZ-2 MECHANICAL PLANS

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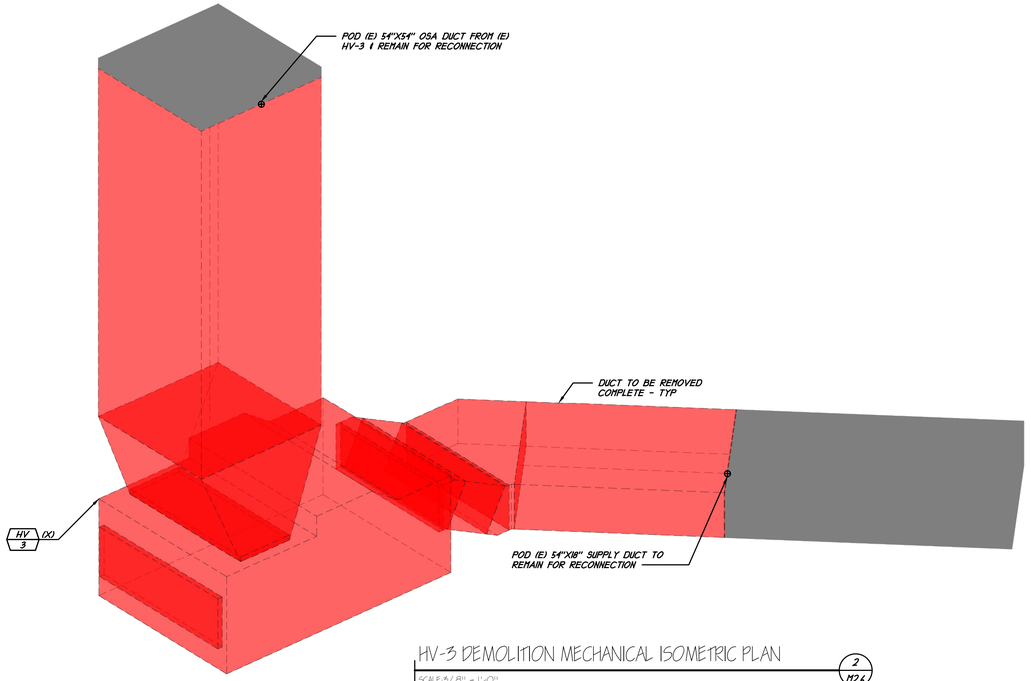
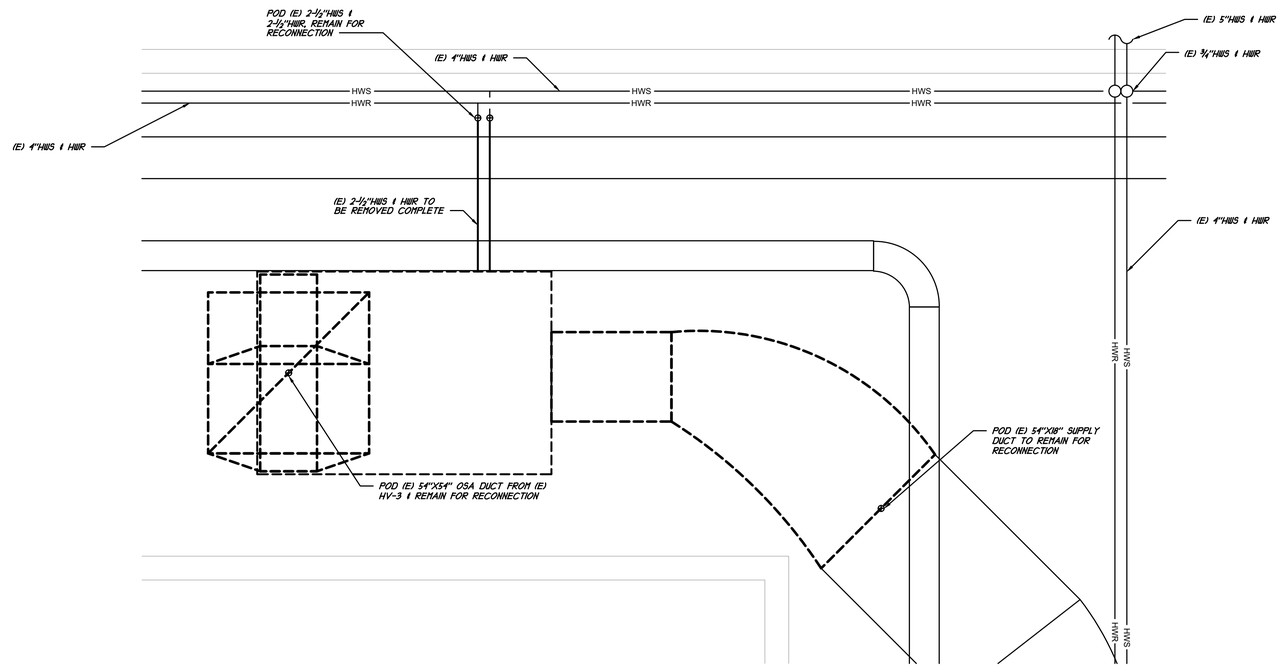
M2.5



HV-3 DEMOLITION MECHANICAL ISOMETRIC PLAN

SCALE: 3/8" = 1'-0"

2 / M2.6



HV-3 DEMOLITION MECHANICAL PLAN

SCALE: 1/2" = 1'-0"

1 / M2.6

GENERAL NOTE:

1. ALL EXPOSED PNEUMATIC PIPING ℄ COMPONENTS ARE TO BE REMOVED COMPLETE

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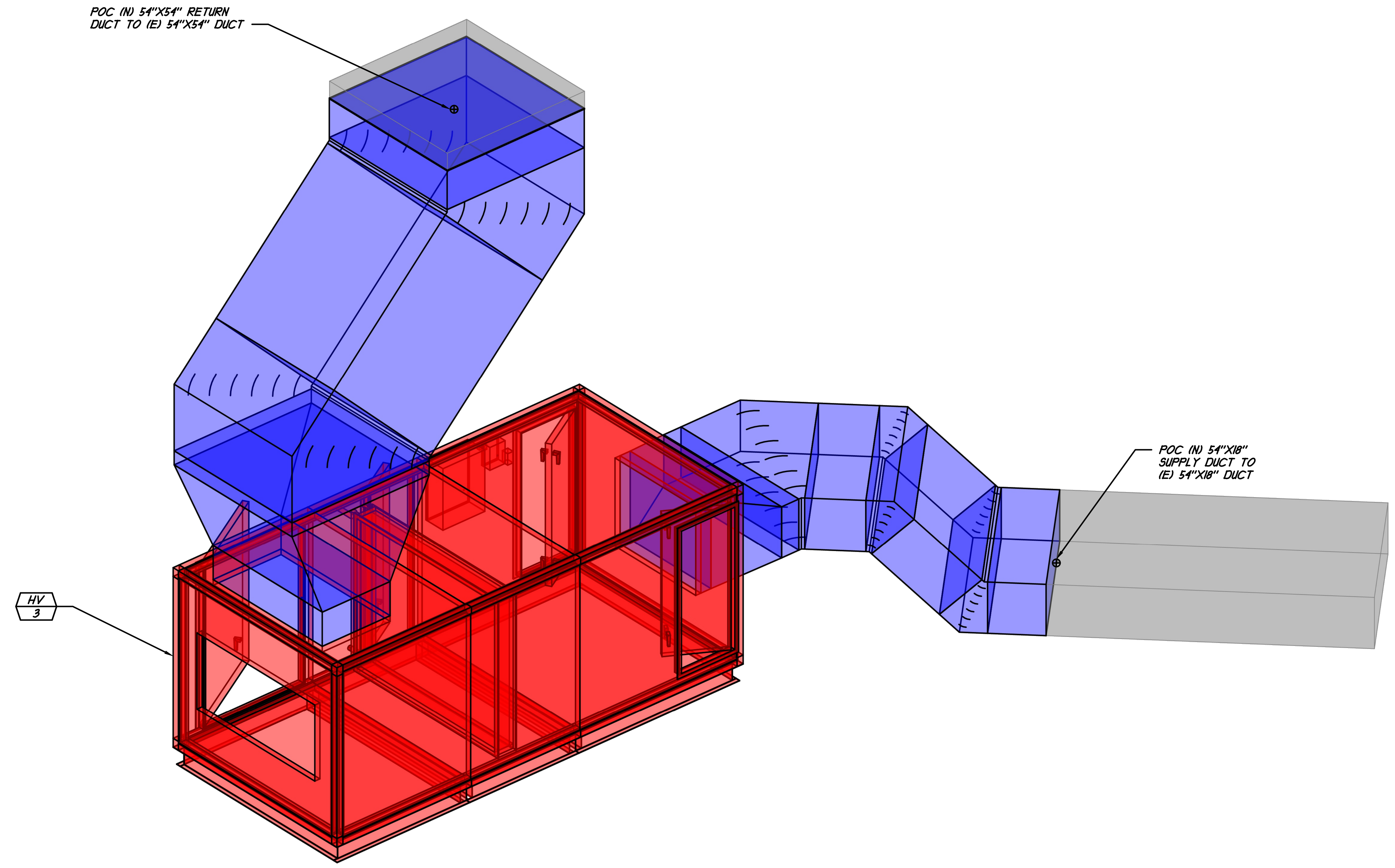
DRAWING TITLE

HV-3 MECHANICAL DEMOLITION PLANS

date	02/25/26
job number	25087
drawn	BAT
checked	BAT

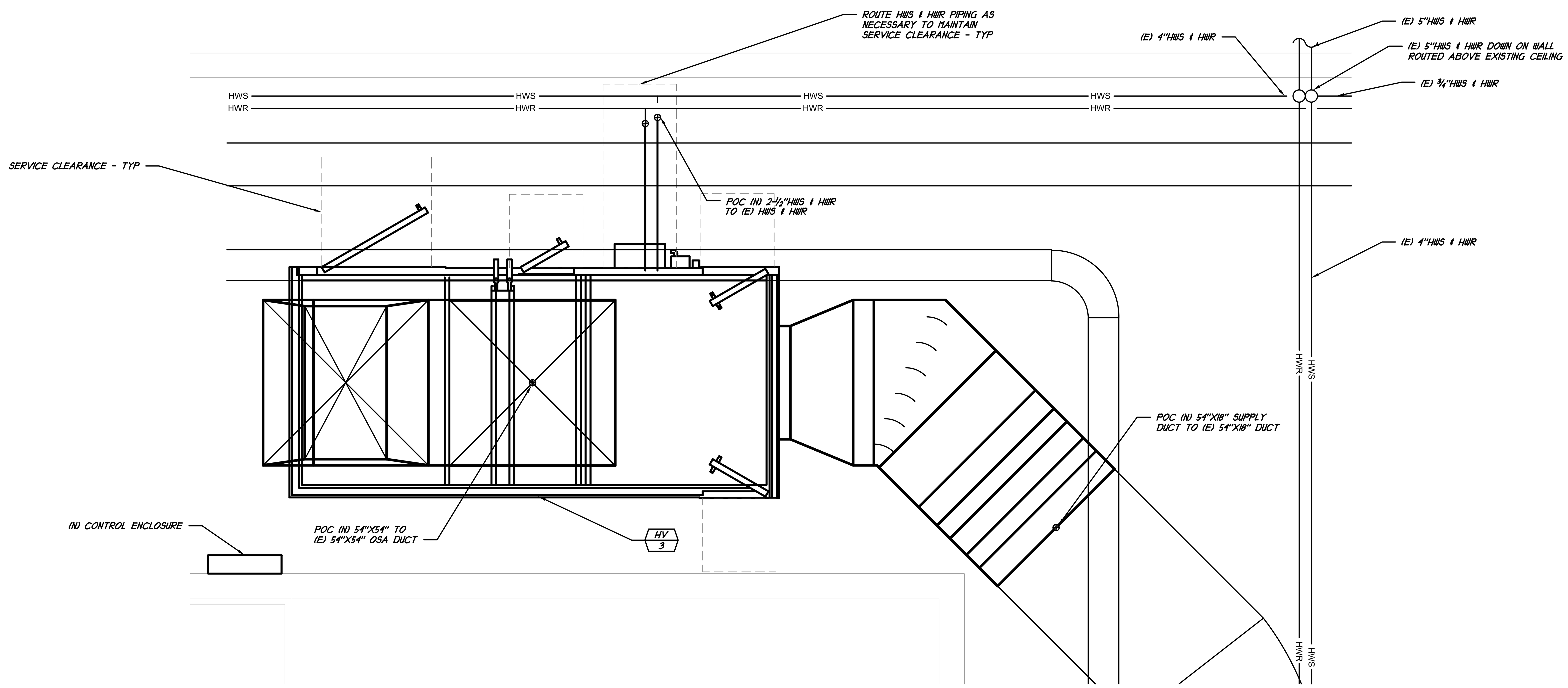
M2.6



HV-3 MECHANICAL ISOMETRIC PLAN

SCALE: 3/8" = 1'-0"

2 / M2.7



HV-3 MECHANICAL PLAN

SCALE: 1/2" = 1'-0"

1 / M2.7

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HV-3 MECHANICAL PLANS

date	02/25/26
job number	25087
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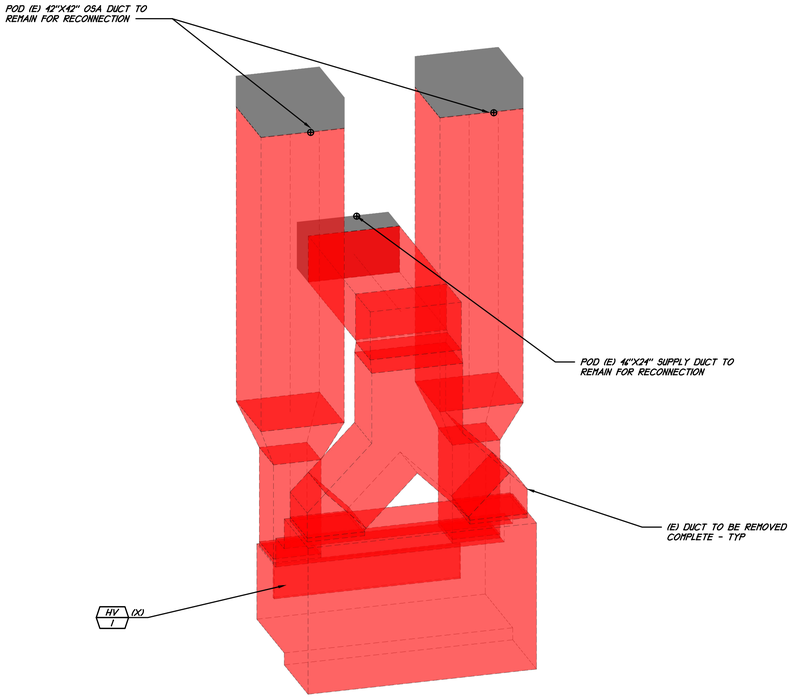
checked	BAT

M2.7

GENERAL NOTE:

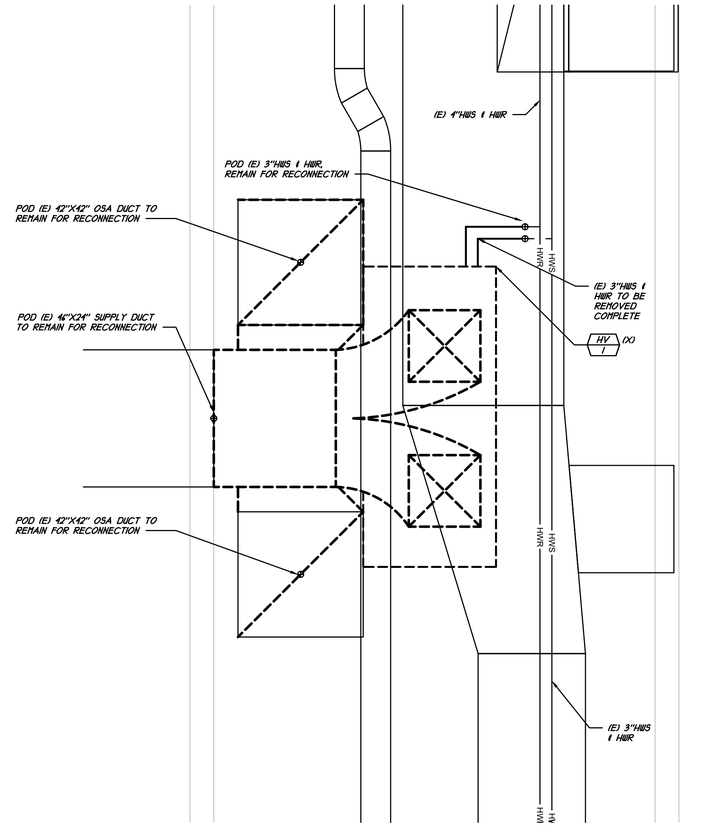
1. ALL EXPOSED PNEUMATIC PIPING & COMPONENTS ARE TO BE REMOVED COMPLETE



HV-1 DEMOLITION MECHANICAL ISOMETRIC PLAN

SCALE: 3/8" = 1'-0"

2 / M2.8



HV-1 DEMOLITION MECHANICAL PLAN

SCALE: 1/2" = 1'-0"

1 / M2.8

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HV-1 MECHANICAL DEMOLITION PLANS

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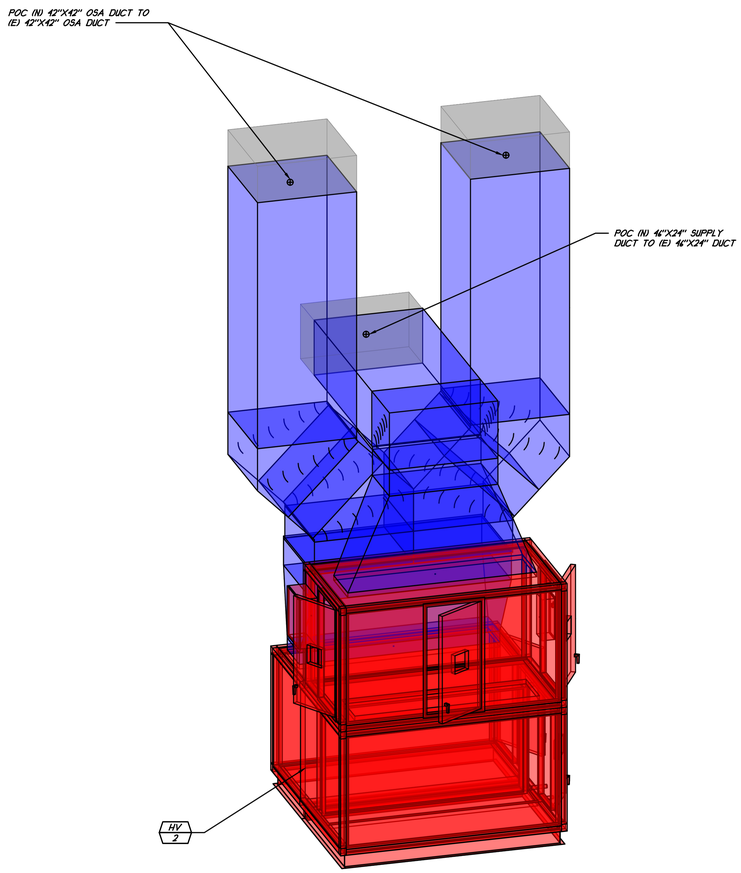
checked	BAT

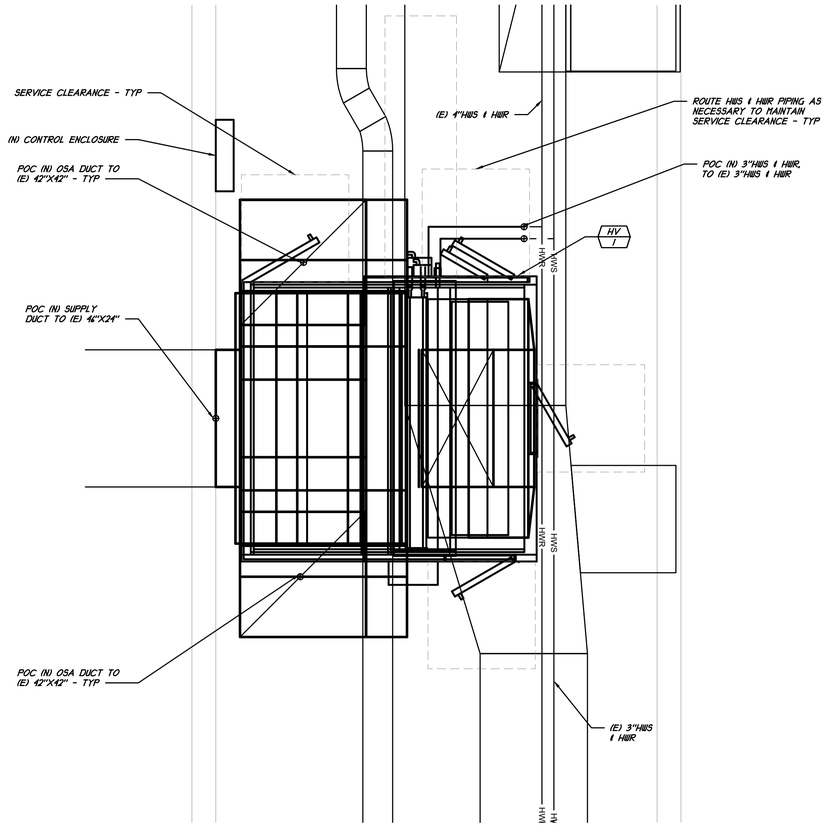
M2.8



HV-1 MECHANICAL ISOMETRIC PLAN

SCALE: 3/8" = 1'-0"

2 / M2.9



HV-1 MECHANICAL PLAN

SCALE: 1/2" = 1'-0"

1 / M2.9

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PROFESSIONAL ENGINEER
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Exp 06-30-26
MECHANICAL
No. 22251 STATE OF NEVADA
02/25/26

HVAC RENOVATIONS

STEWART BUILDING 160
SPWD 25-M03-03
5500 SNYDER AVE #160
CARSON CITY, NEVADA 89701

REVISIONS

DRAWING TITLE

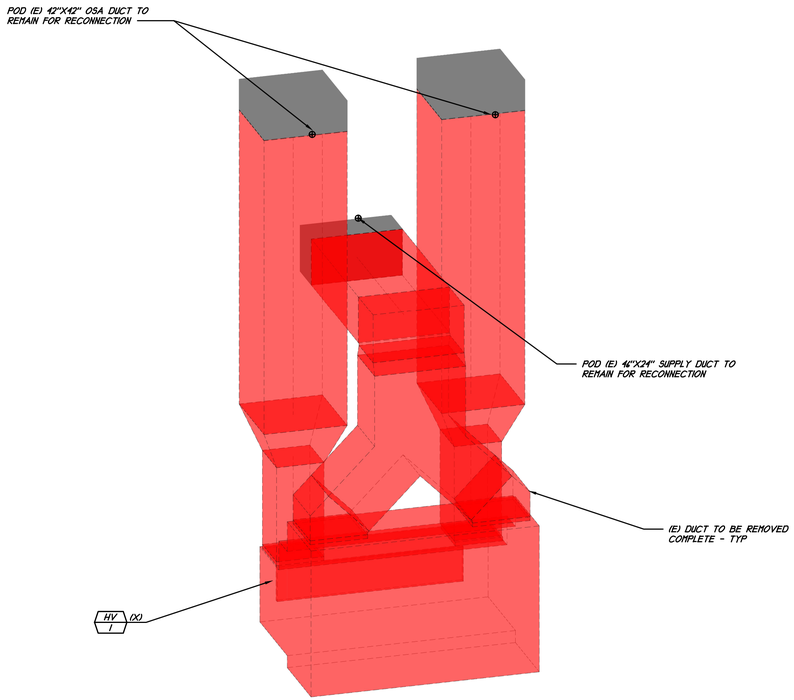
HV-1
MECHANICAL
PLANS

date:	02/25/26
job number:	25087
drawn:	BAT
checked:	BAT

M2.9

GENERAL NOTE:

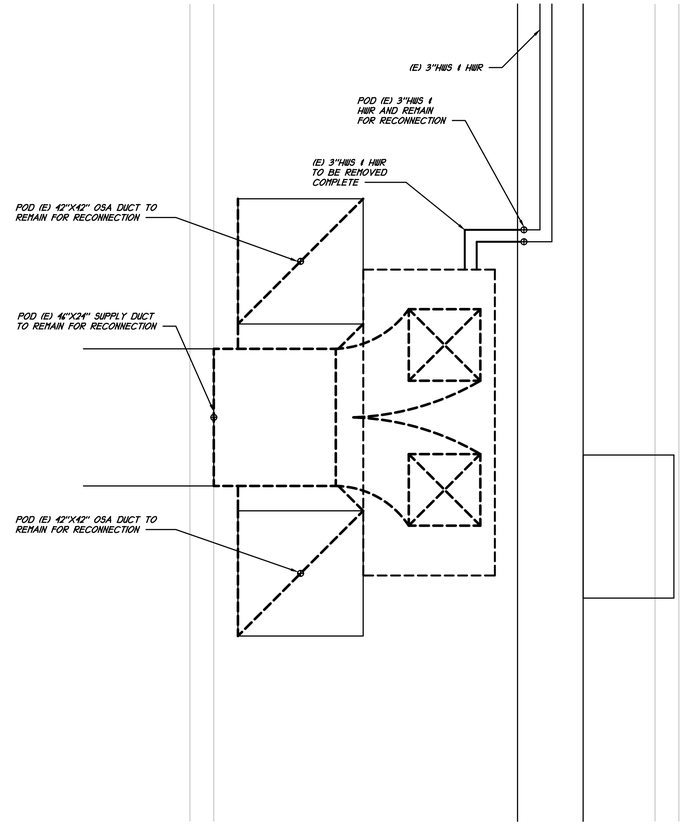
1. ALL EXPOSED PNEUMATIC PIPING & COMPONENTS ARE TO BE REMOVED COMPLETE



HV-2 DEMOLITION MECHANICAL ISOMETRIC PLAN

SCALE: 3/8" = 1'-0"

2 M2.10



HV-2 DEMOLITION MECHANICAL PLAN

SCALE: 1/2" = 1'-0"

1 M2.10

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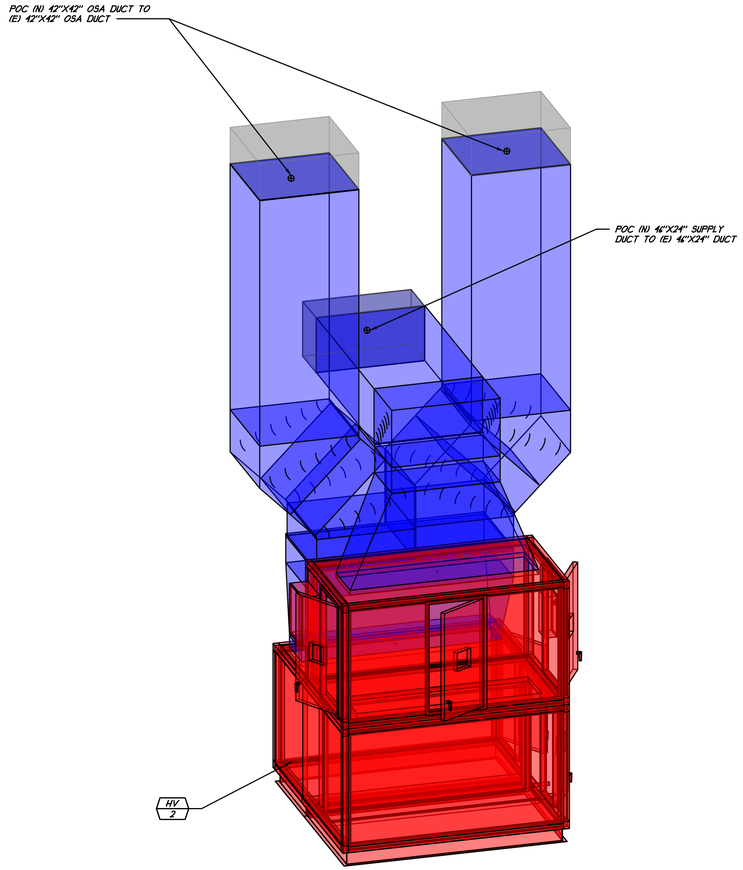
DRAWING TITLE

HV-2 MECHANICAL DEMOLITION PLANS

date	02/25/26
job number	25087
drawn	BAT
checked	BAT

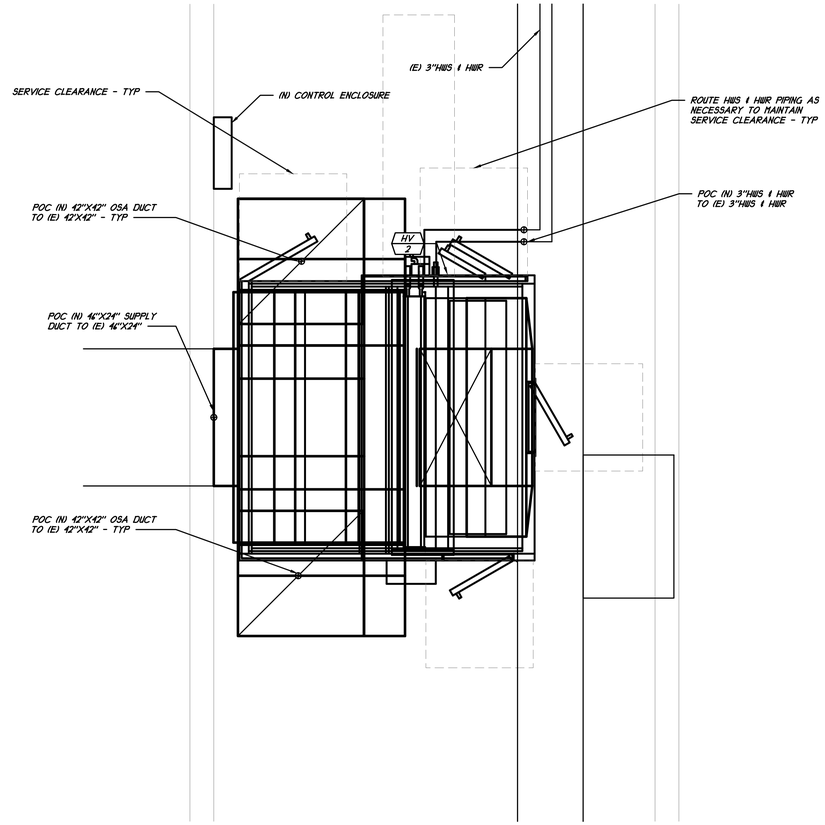
M2.10



HV-2 MECHANICAL ISOMETRIC PLAN

SCALE: 3/8" = 1'-0"

2 M2.5



HV-2 MECHANICAL PLAN

SCALE: 1/2" = 1'-0"

1 M2.11

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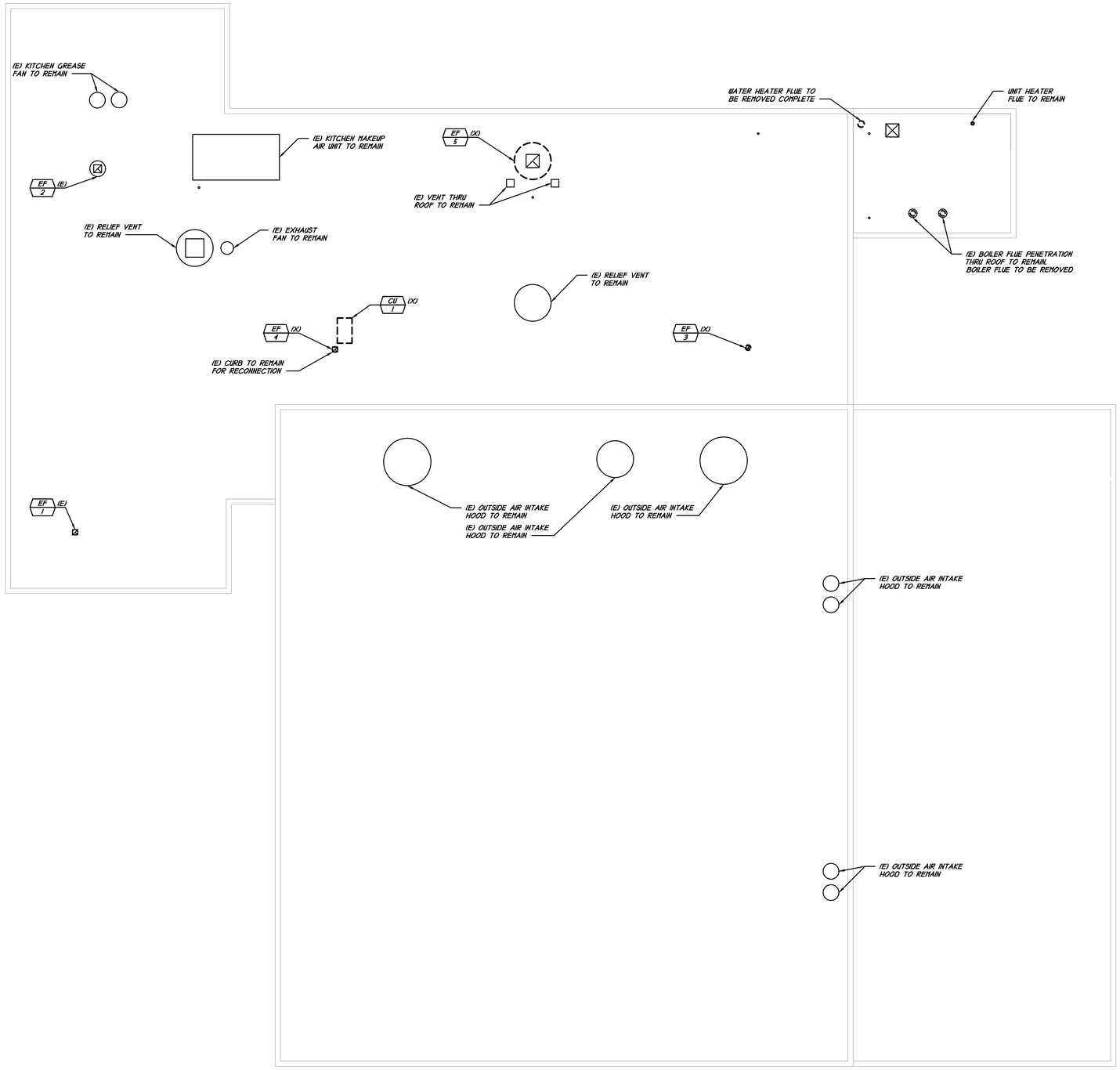
HV-2 MECHANICAL PLANS

date	02/25/26
job number	25087
drawn	BAT
checked	BAT

M2.11



DEMOLITION ROOF MECHANICAL PLAN

SCALE: 3/32" = 1'-0"

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STEWART BUILDING 160

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REVISIONS

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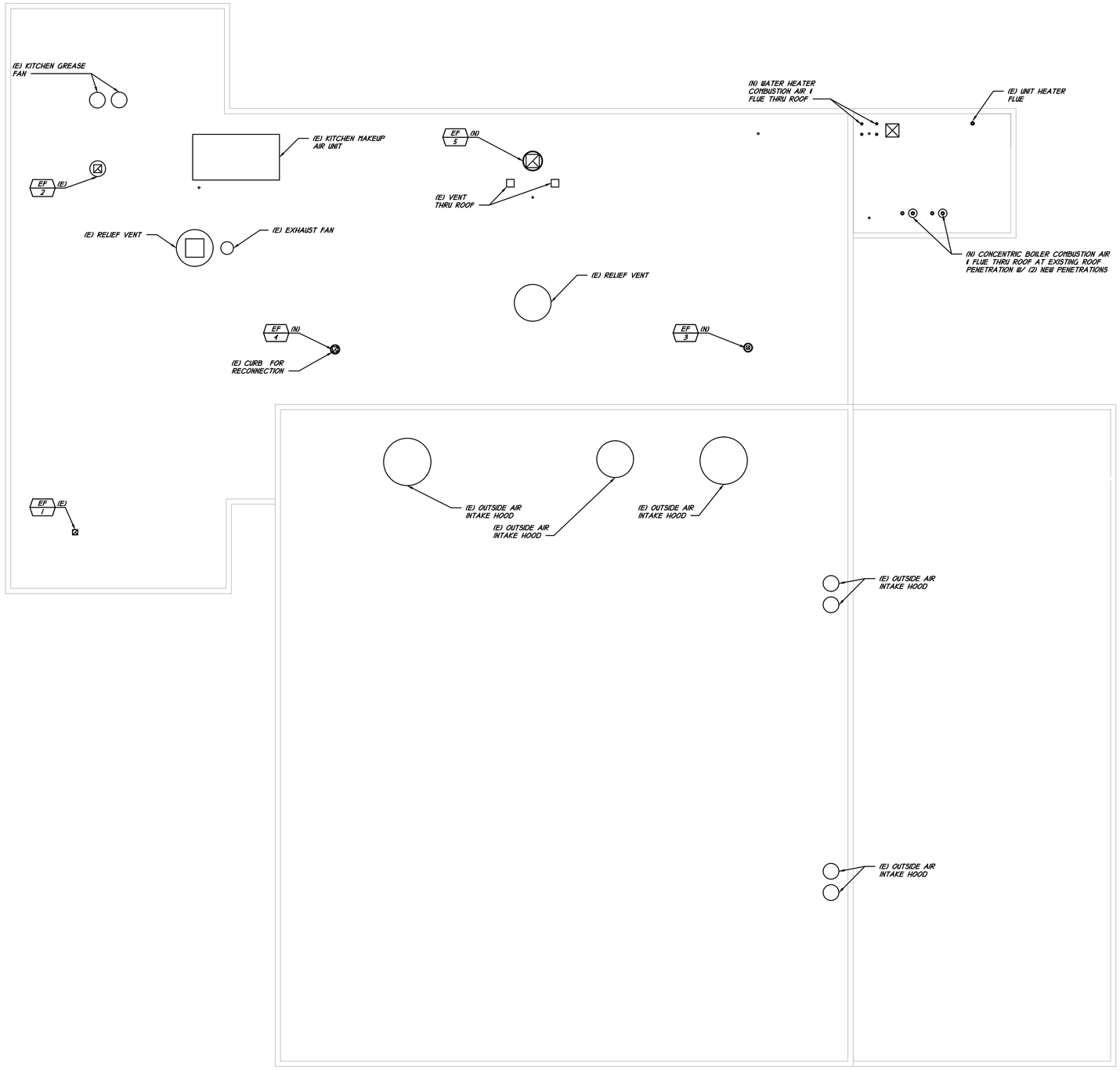
DEMOLITION ROOF MECHANICAL PLAN

date:	02/25/26
job number:	25087
drawn:	BAT
checked:	BAT

M2.12



ROOF MECHANICAL PLAN

SCALE: 3/32" = 1'-0"

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DRAWING TITLE

ROOF MECHANICAL PLAN

date:	02/25/26
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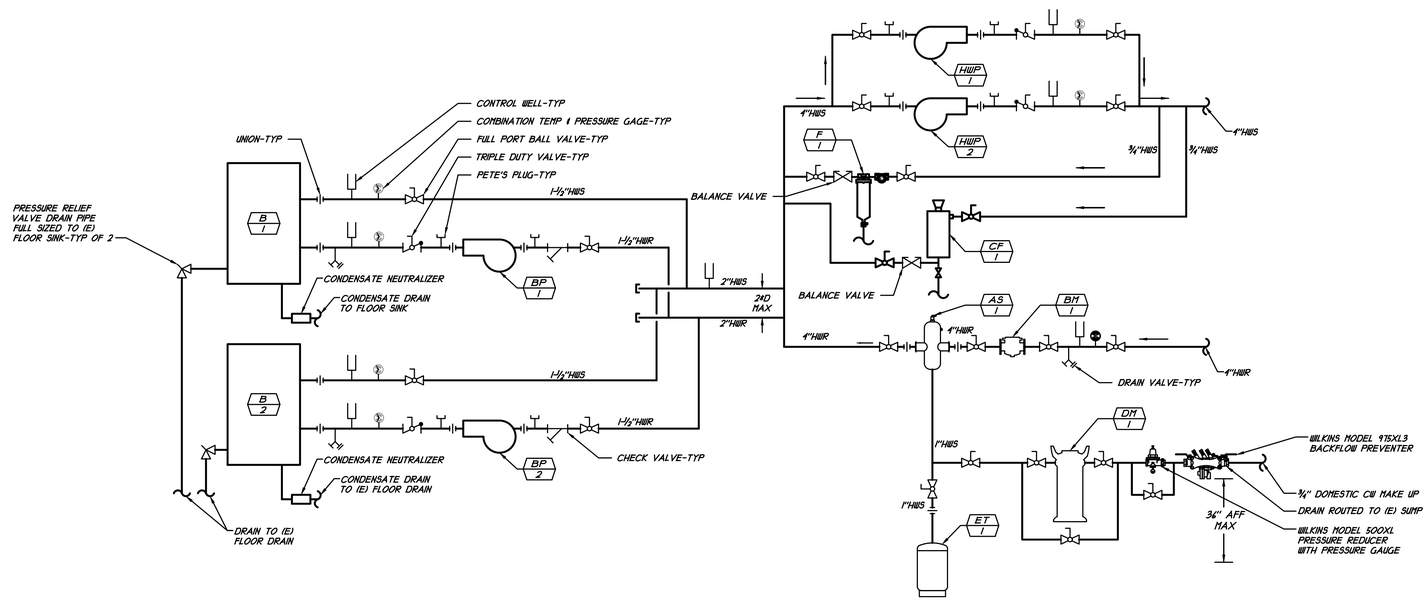
drawn:	BAT
checked:	BAT

M2.13



NEW BOILER PLANT PIPING DIAGRAM

SCALE: NOT TO SCALE

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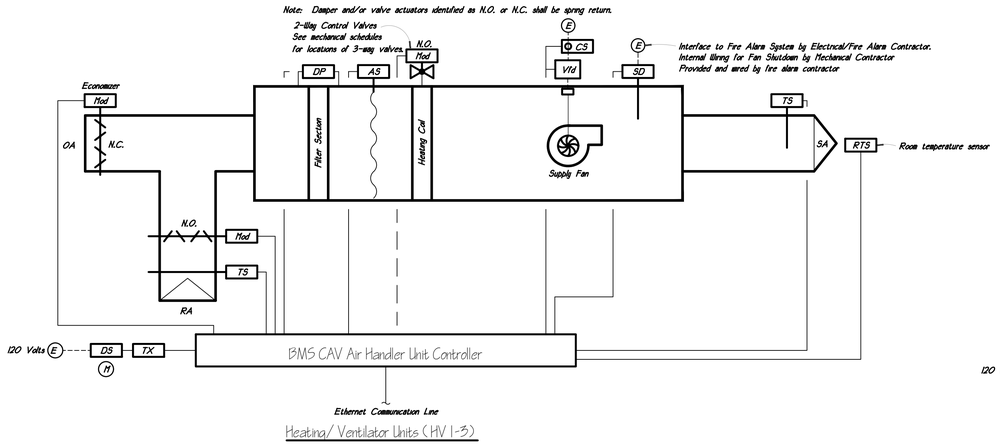
BOILER PLANT PIPING DIAGRAM

date	02/25/26
job number	25087
drawn	BAT
checked	BAT

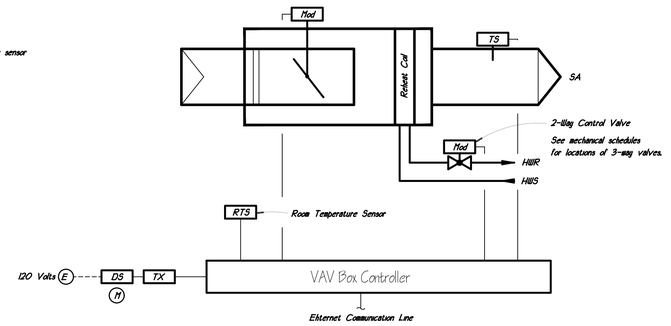
M3.1



CAV HEATING/ VENTILATION UNIT CONTROL DIAGRAM

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

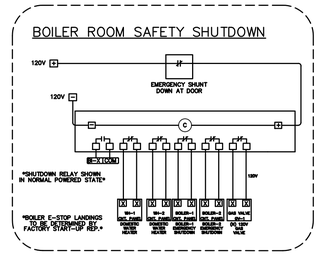
5 M4.1



VAV UNIT CONTROL DIAGRAM

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

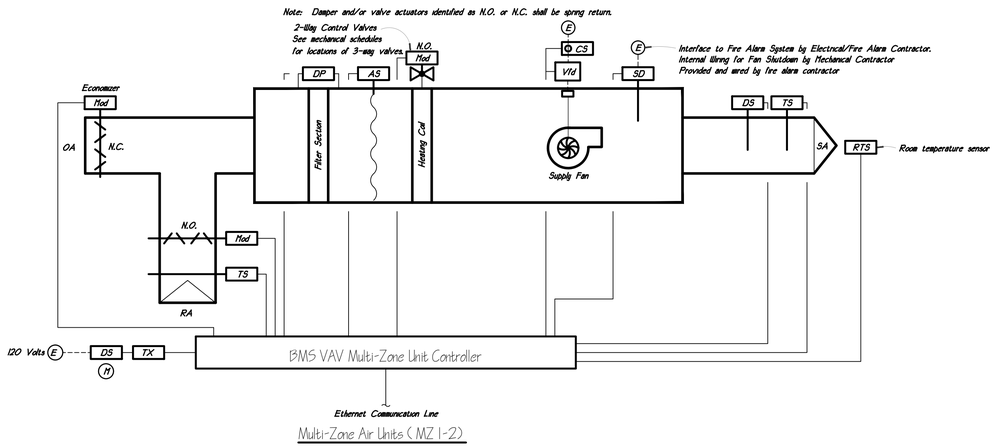
3 M4.1



EMERGENCY SHUNT WIRING DIAGRAM

SCALE: NOT TO SCALE

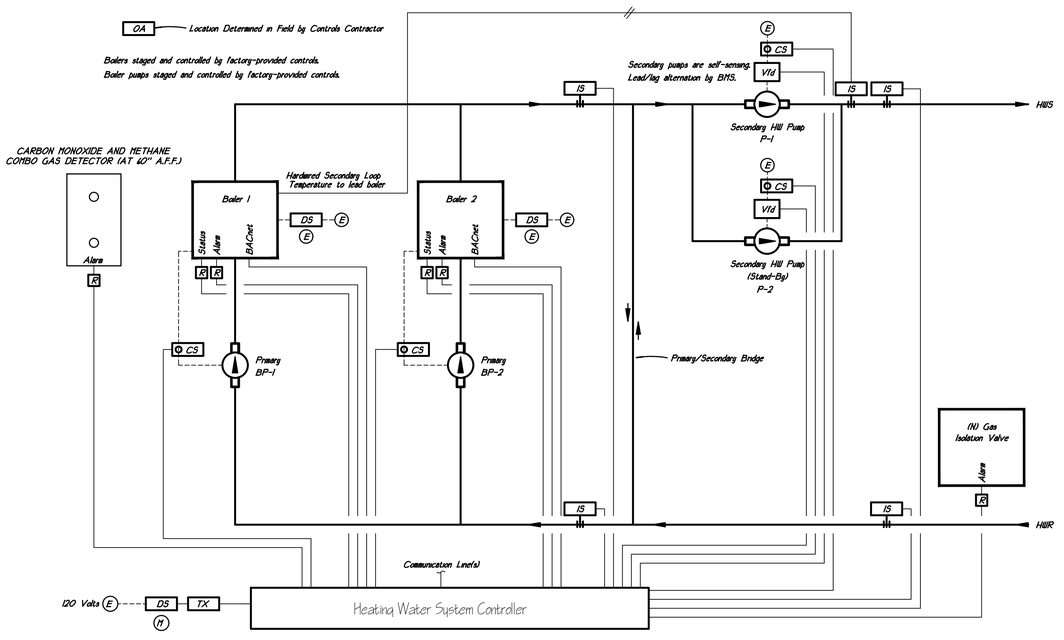
2 M4.1



VAV MULTI-ZONE AIR HANDLER CONTROL DIAGRAM

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

4 M4.1



BOILER PLANT CONTROL DIAGRAM

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

1 M4.1

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STEWART BUILDING 160

HVAC RENOVATIONS

SPWD 25-M03-03
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REVISIONS

DRAWING TITLE

CONTROLS DIAGRAM

date:	02/25/26
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checked:	BAT

M4.1

BUILDING ZONE MAP

SCALE: 3/32" = 1'-0"

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BUILDING ZONE MAP

date	02/25/26
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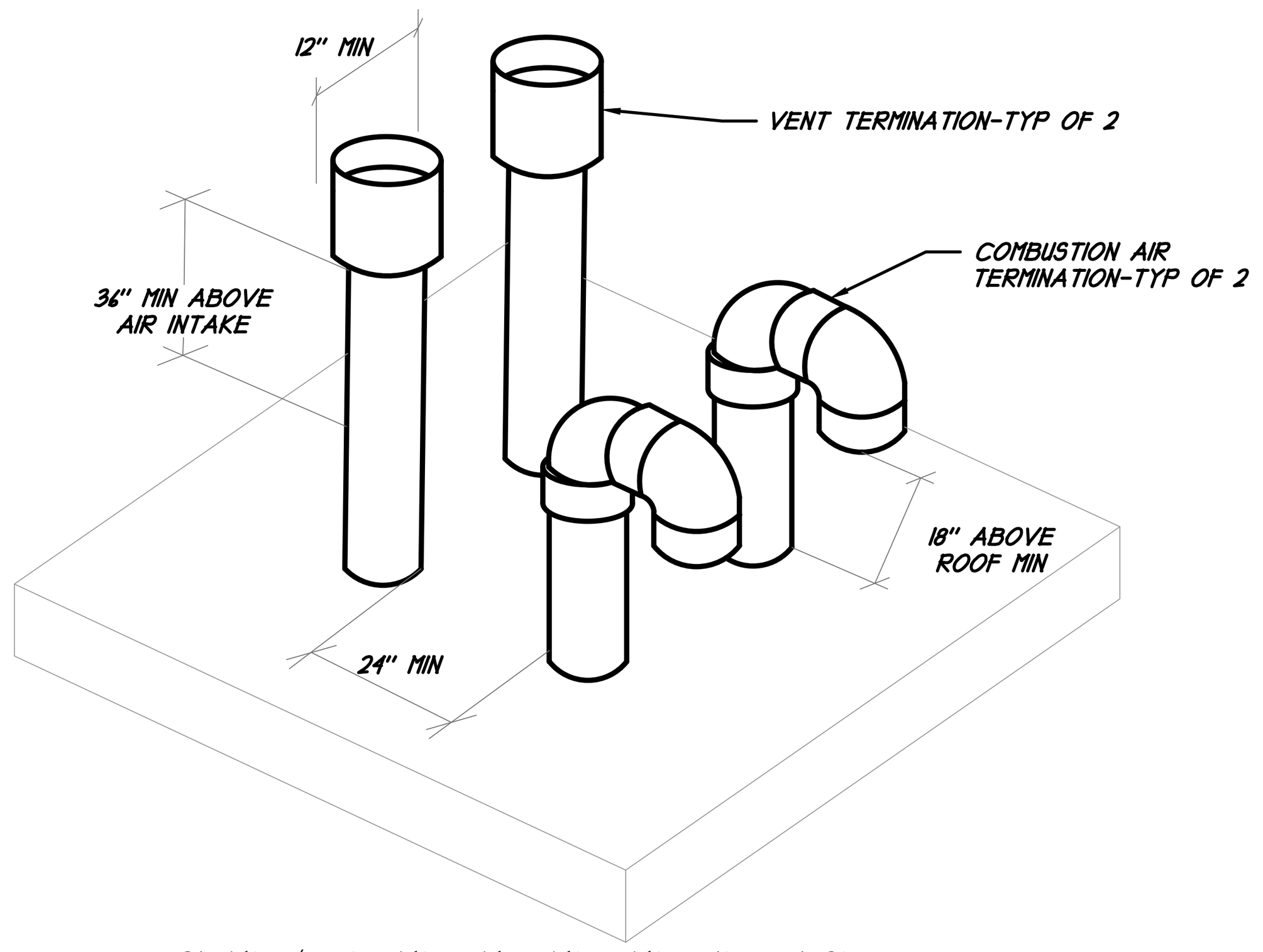
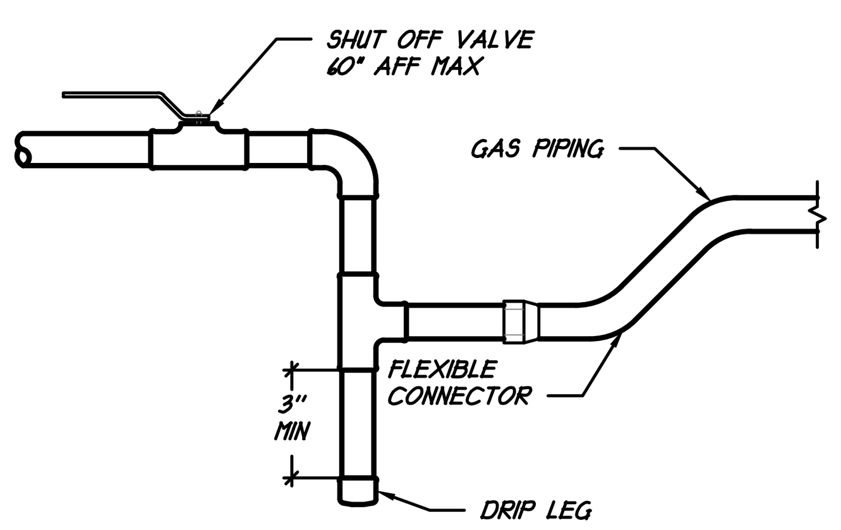
checked	BAT

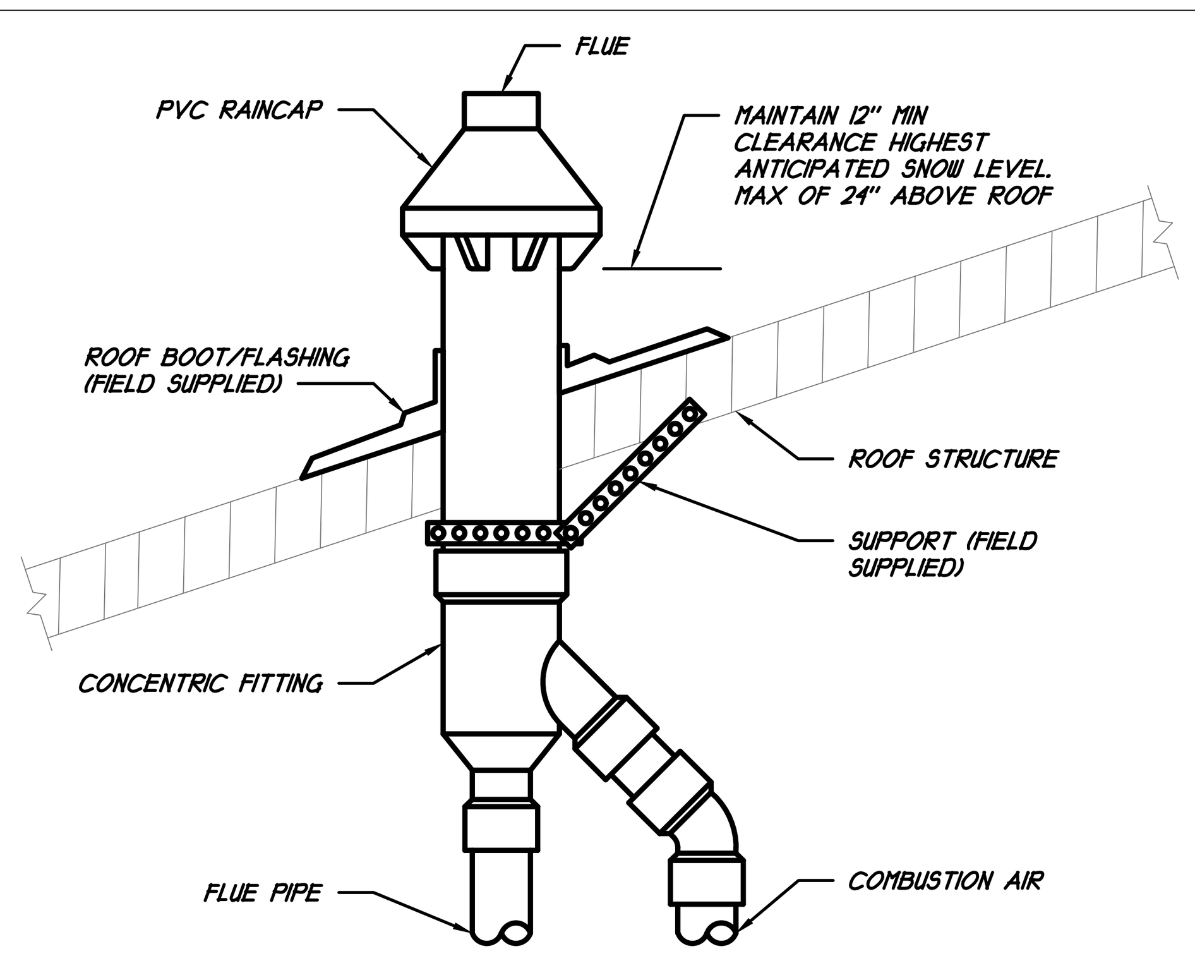
M4.2



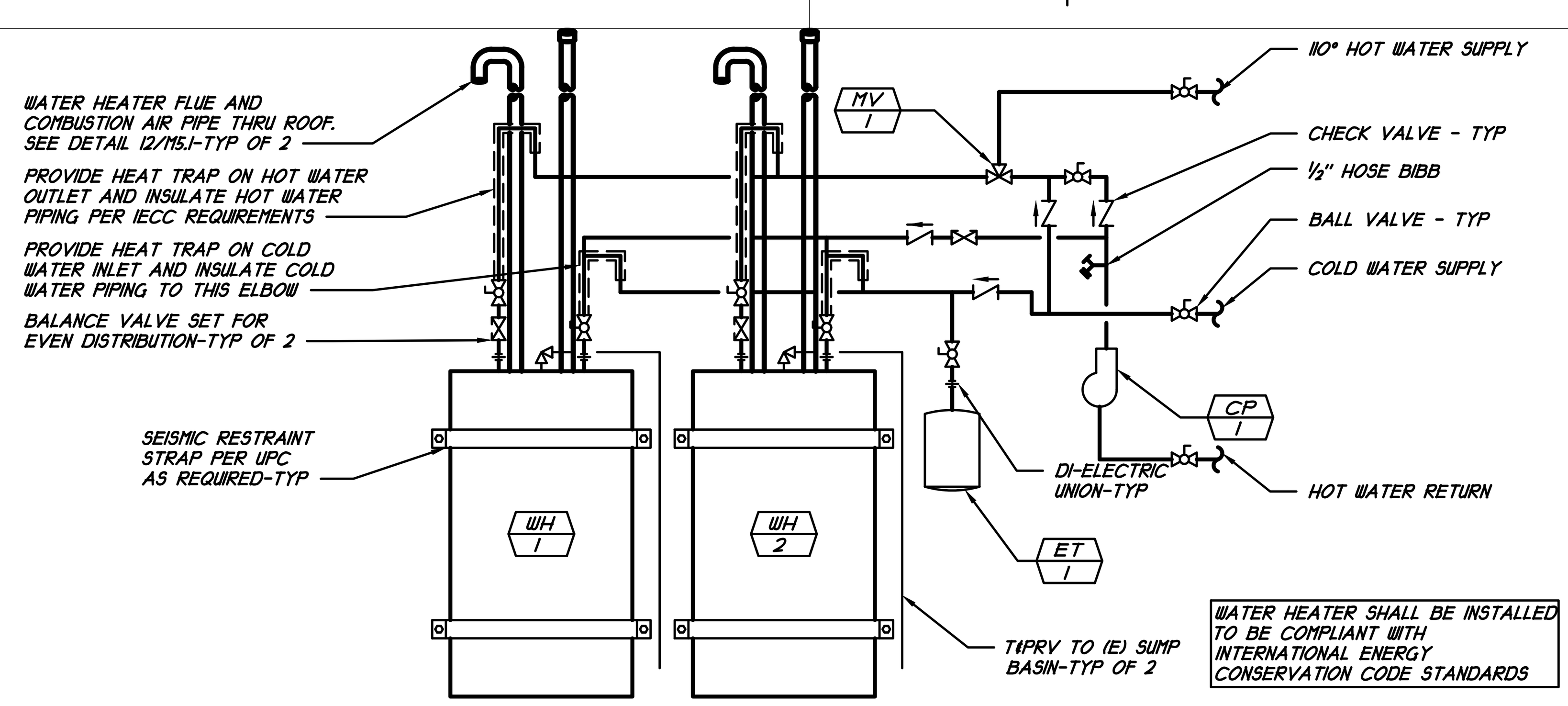
BOILER/ WATER HEATER TERMINATION (12)
SCALE: NOT TO SCALE



GAS PIPE TERMINATION DETAIL (11)
SCALE: NOT TO SCALE



WATER HEATER CONCENTRIC TERMINATION (10)
SCALE: NOT TO SCALE



WATER HEATER PIPING DIAGRAM (8)
SCALE: NOT TO SCALE

SCHEDULE 40 STEEL

PIPE SIZE	ROD HANGER	MAX SPACING	LATERAL SPACING
2-½"	⅜"	11'	16'
3	⅜"	12'	20'
4	⅜"	12'	20'
5	⅜"	12'	20'

TYPE L COPPER

PIPE SIZE	ROD HANGER	MAX SPACING	LATERAL SPACING
½"	¼"	5'	10'
¾"	¼"	5'	10'
1"	¼"	6'	12'
1-¼"	⅜"	7'	12'
1-½"	⅜"	8'	16'
2"	⅜"	8'	16'

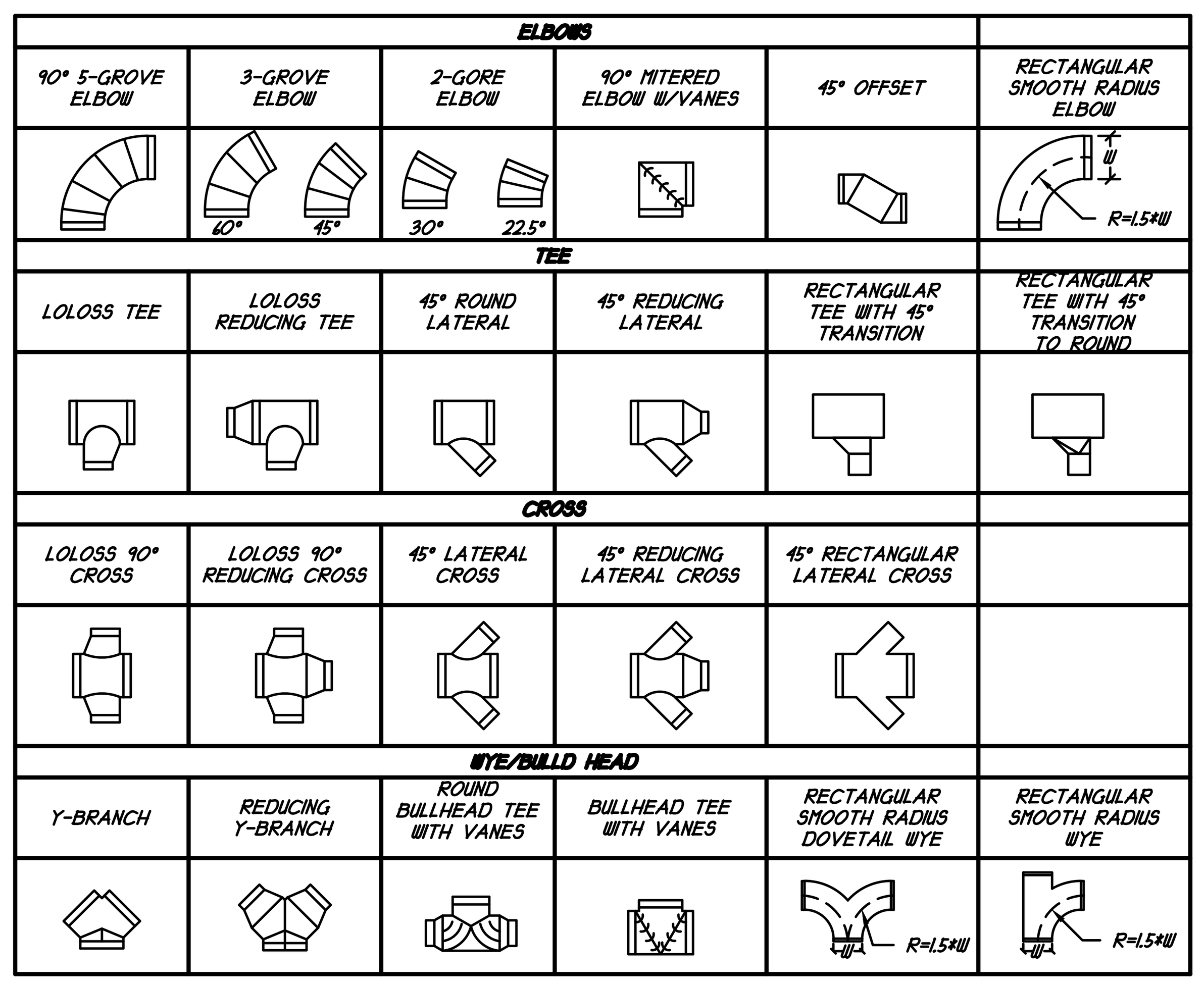
DUCT CONST. MIN. SHEET METAL THICKNESS

RECTANGULAR DUCTS

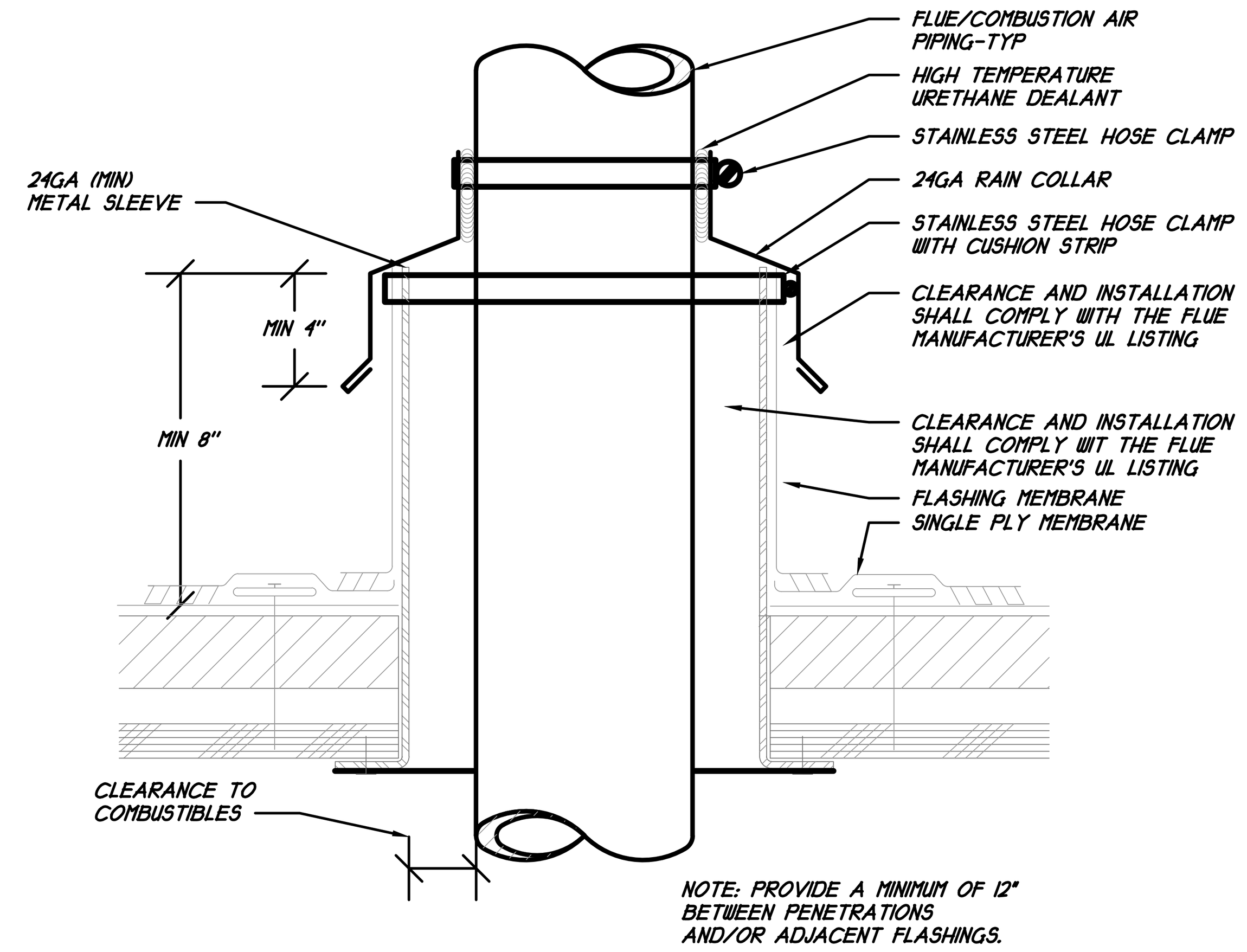
MAXIMUM SIZE (INCHES)	STEEL (MINIMUM THICKNESS, NOMINAL)	ALUMINUM (MINIMUM THICKNESS, NOMINAL)
THROUGH 12	0.022 INCH (26 GAUGE, GALV.)	0.020 INCH (NO.24 B&S GAUGE)
13 THROUGH 30	0.028 INCH (24 GAUGE, GALV.)	0.025 INCH (NO.22 B&S GAUGE)
31 THROUGH 54	0.034 INCH (22 GAUGE, GALV.)	0.032 INCH (NO.20 B&S GAUGE)
55 THROUGH 84	0.040 INCH (20 GAUGE, GALV.)	0.040 INCH (NO.18 B&S GAUGE)
OVER 84	0.052 INCH (18 GAUGE, GALV.)	0.051 INCH (NO.16 B&S GAUGE)

ROUND DUCTS

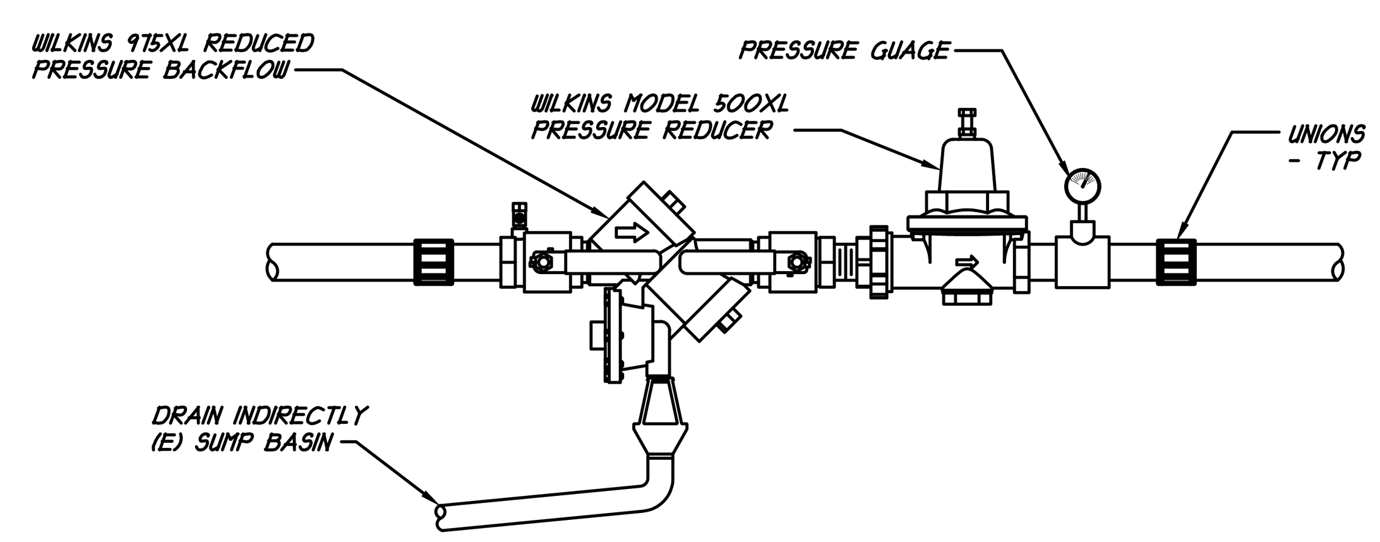
MAXIMUM SIZE (INCHES)	SPIRAL SEAM DUCT	LONGITUDINAL SEAM DUCT	FITTINGS
	STEEL (MINIMUM THICKNESS, NOMINAL)	STEEL (MINIMUM THICKNESS, NOMINAL)	STEEL (MINIMUM THICKNESS, NOMINAL)
THROUGH 12	0.019 INCH (28 GAUGE, GALV.)	0.022 INCH (26 GAUGE, GALV.)	0.022 INCH (26 GAUGE, GALV.)
13 THROUGH 18	0.022 INCH (26 GAUGE, GALV.)	0.028 INCH (24 GAUGE, GALV.)	0.028 INCH (24 GAUGE, GALV.)
19 THROUGH 28	0.028 INCH (24 GAUGE, GALV.)	0.034 INCH (22 GAUGE, GALV.)	0.034 INCH (22 GAUGE, GALV.)
29 THROUGH 36	0.034 INCH (22 GAUGE, GALV.)	0.040 INCH (20 GAUGE, GALV.)	0.040 INCH (20 GAUGE, GALV.)
37 THROUGH 52	0.040 INCH (20 GAUGE, GALV.)	0.052 INCH (18 GAUGE, GALV.)	0.052 INCH (18 GAUGE, GALV.)



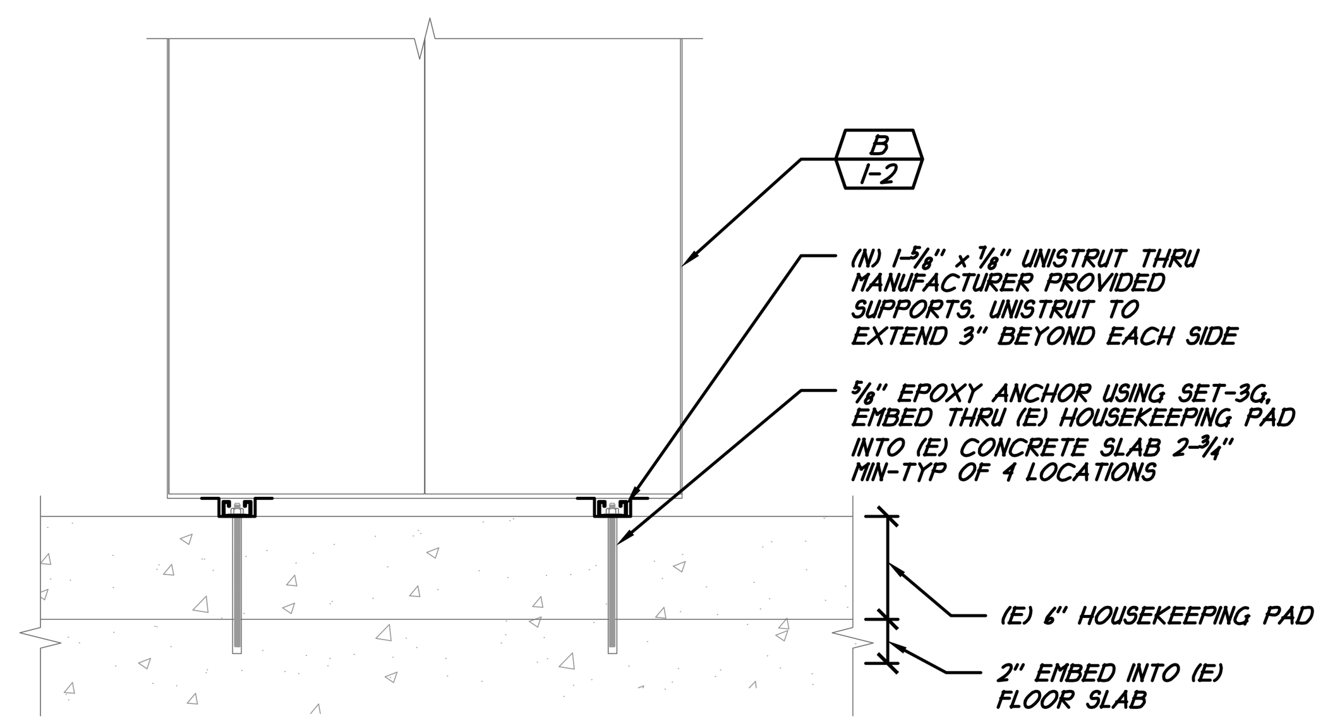
ACCEPTABLE DUCT FITTINGS DETAIL (9)
SCALE: NOT TO SCALE



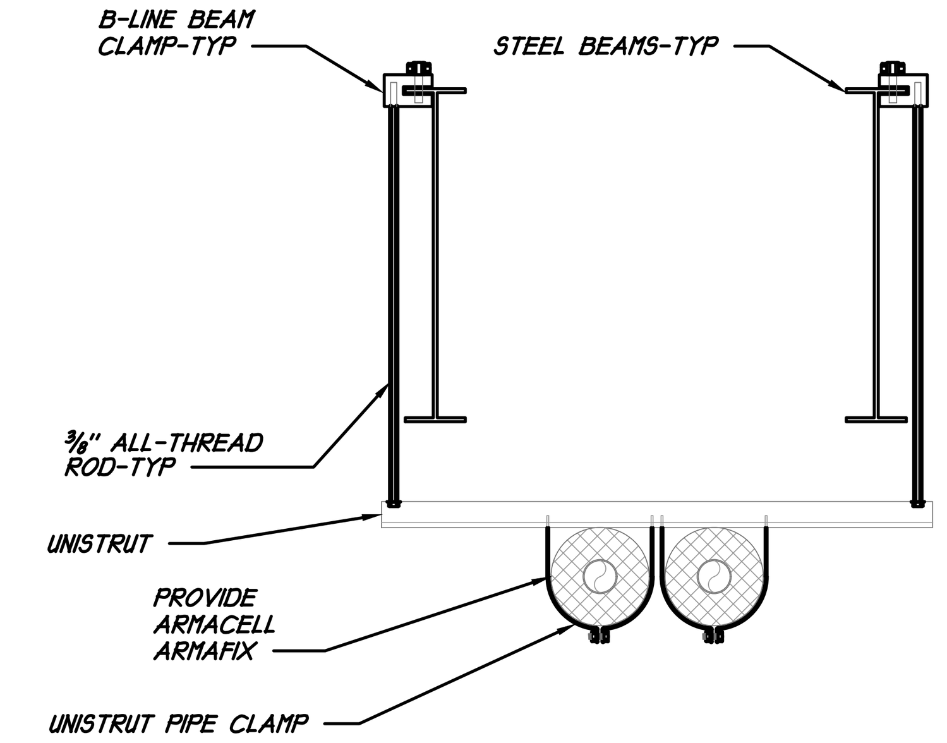
FLUE DUCT THRU ROOF (7)
SCALE: NOT TO SCALE



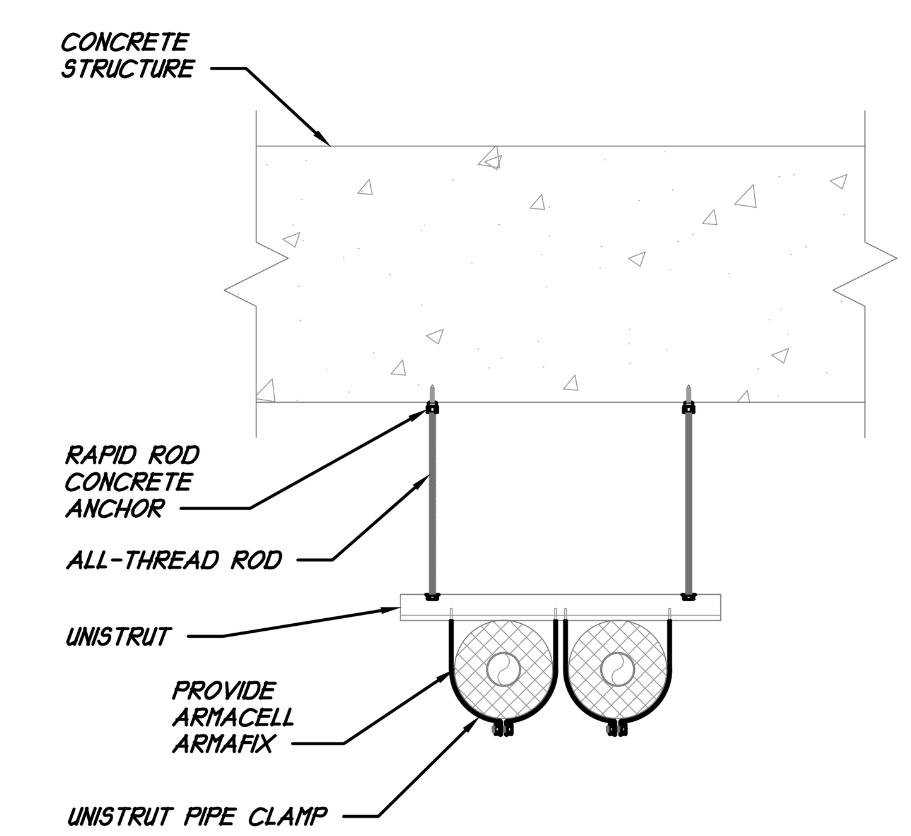
COLD WATER BACKFLOW DETAIL (6)
SCALE: NOT TO SCALE



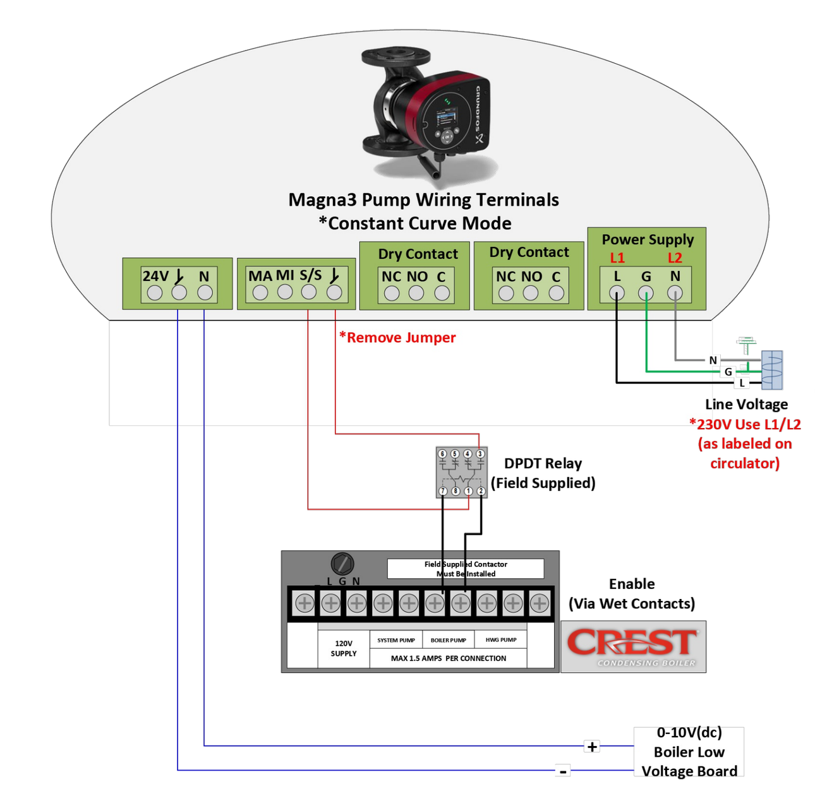
BOILER MOUNTING (5)
SCALE: NOT TO SCALE



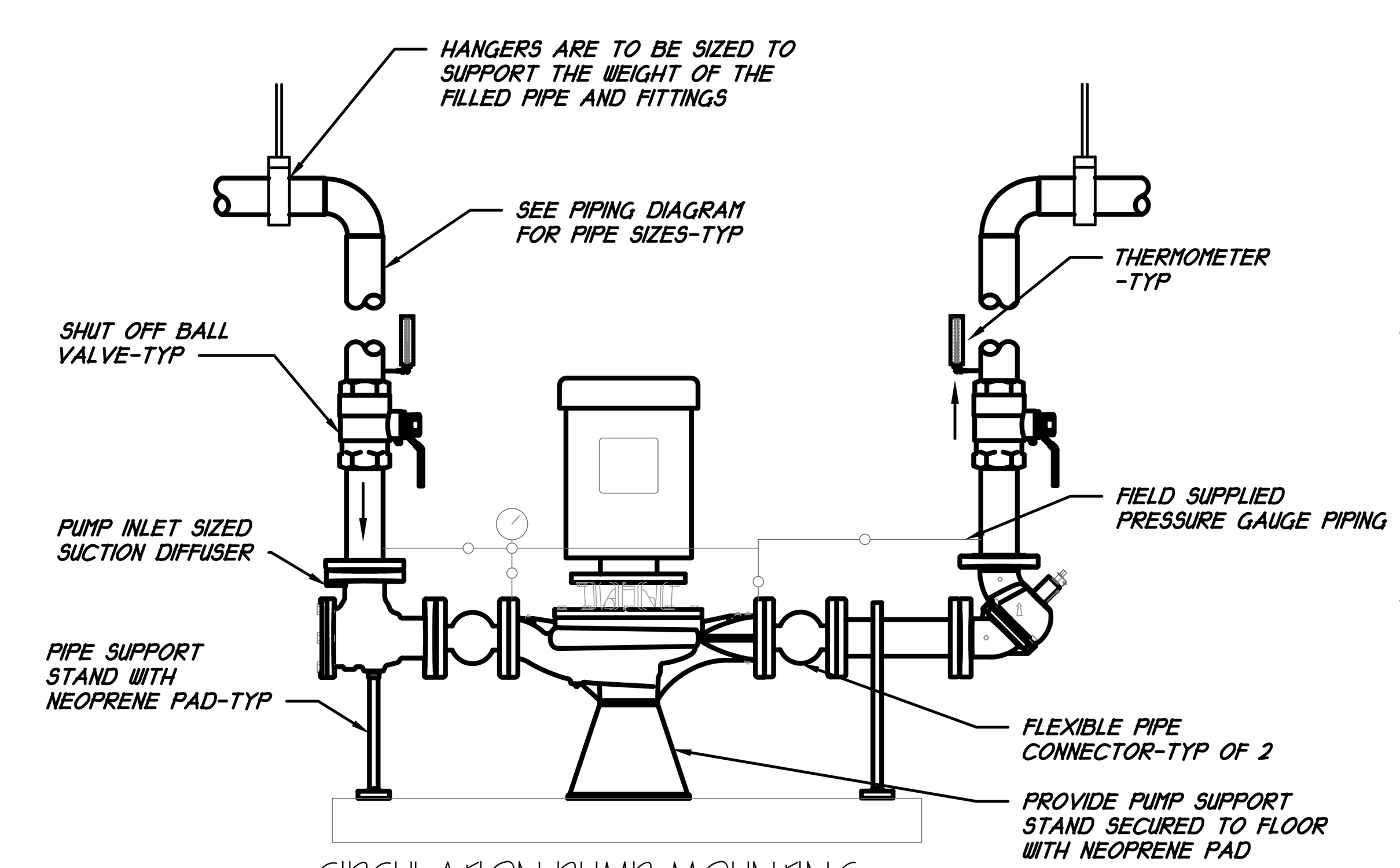
STEEL PIPING SUPPORT DETAILS (4)
SCALE: NOT TO SCALE



CONCRETE PIPING SUPPORT DETAILS (3)
SCALE: NOT TO SCALE



BOILER CIRCULATION PUMP WIRING (2)
SCALE: NOT TO SCALE



CIRCULATION PUMP MOUNTING (1)
SCALE: NOT TO SCALE

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02/25/26

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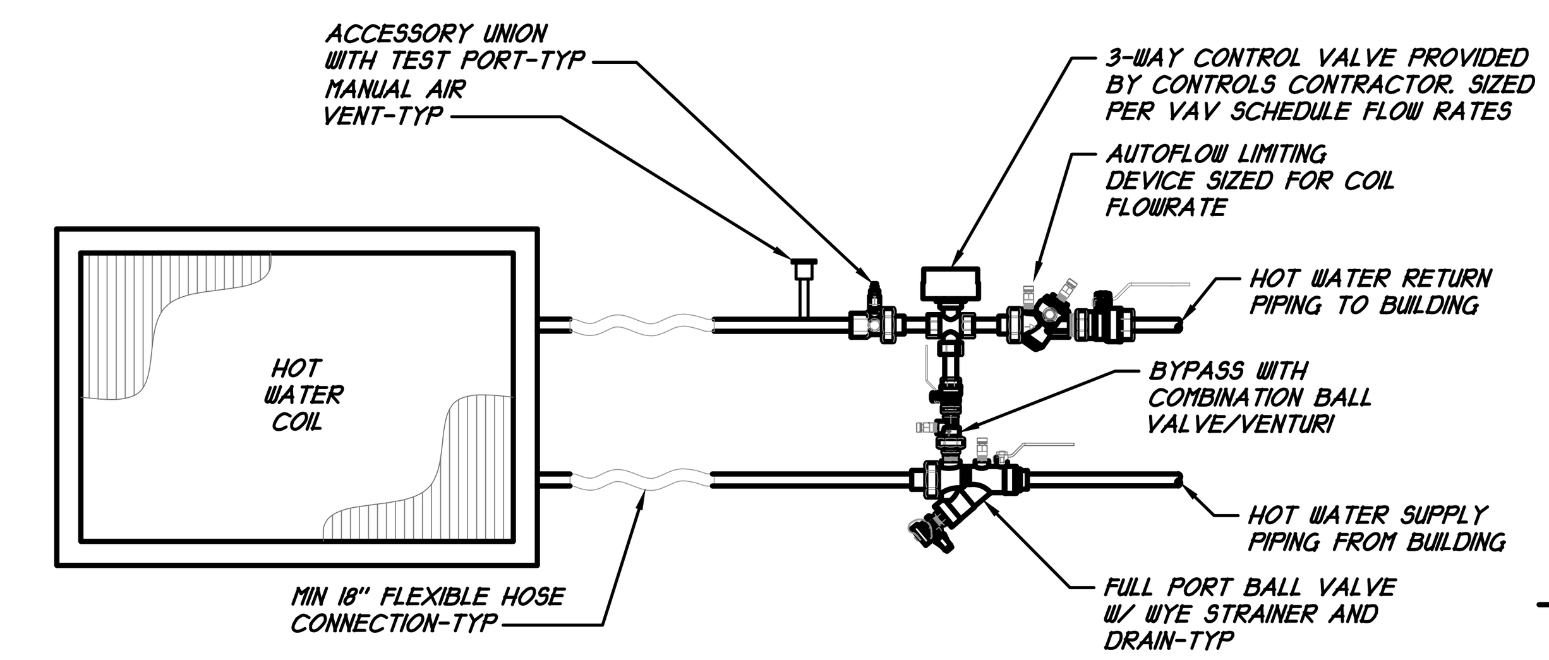
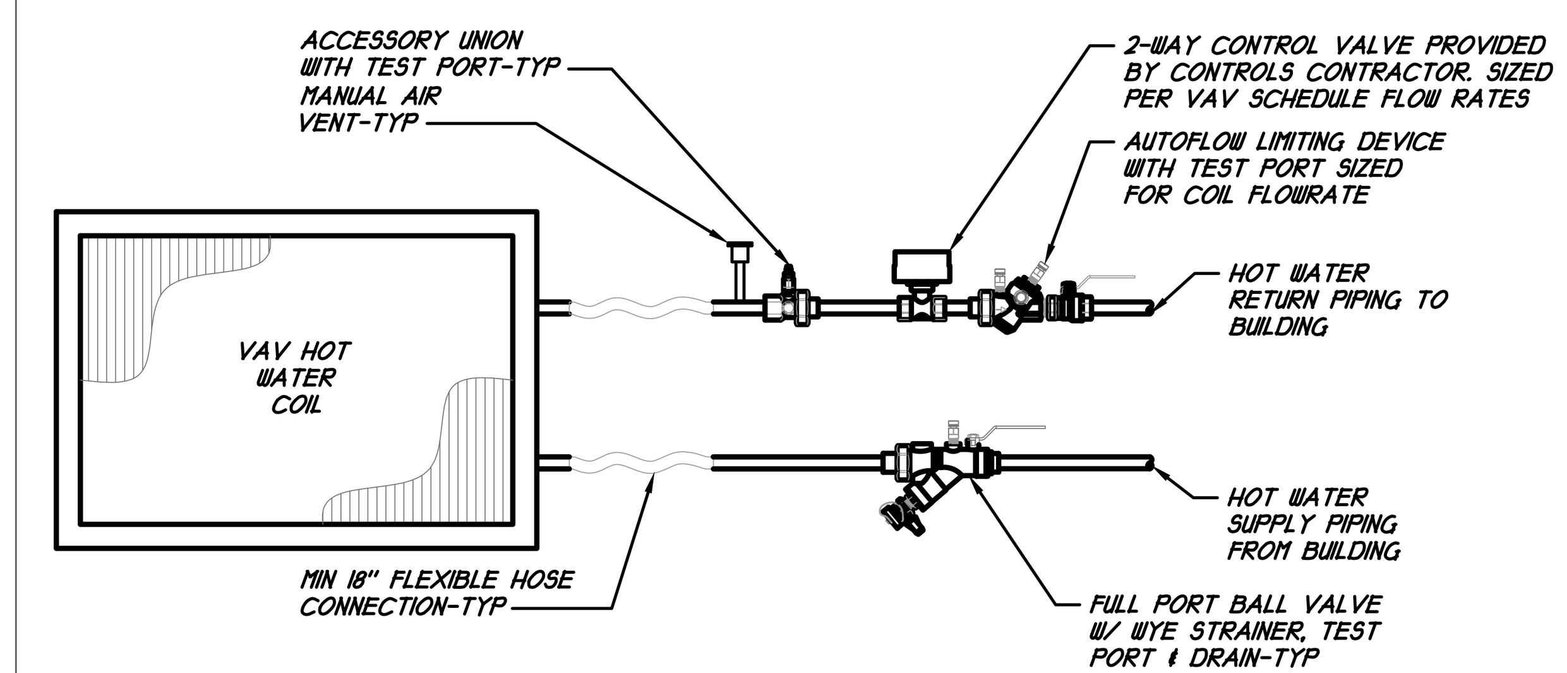
checked	BAT

M5.1



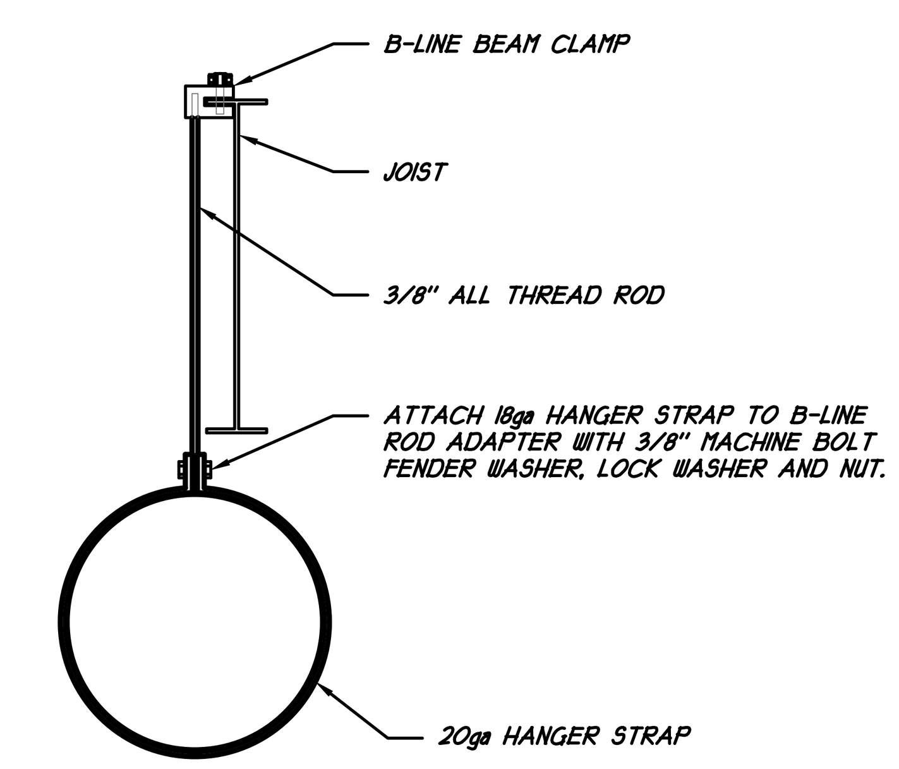
VAV 3-WAY COIL PIPING DIAGRAM (4)

SCALE: NOT TO SCALE



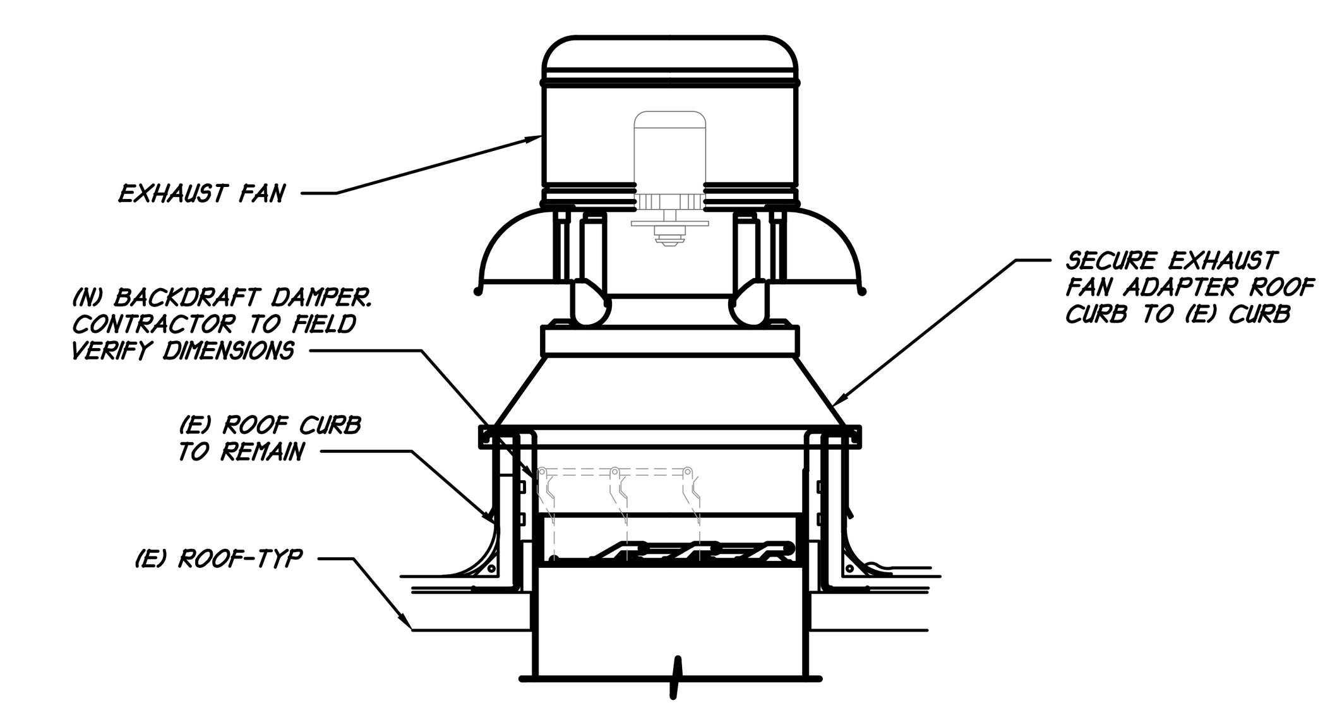
VAV 2-WAY COIL PIPING DIAGRAM (3)

SCALE: NOT TO SCALE



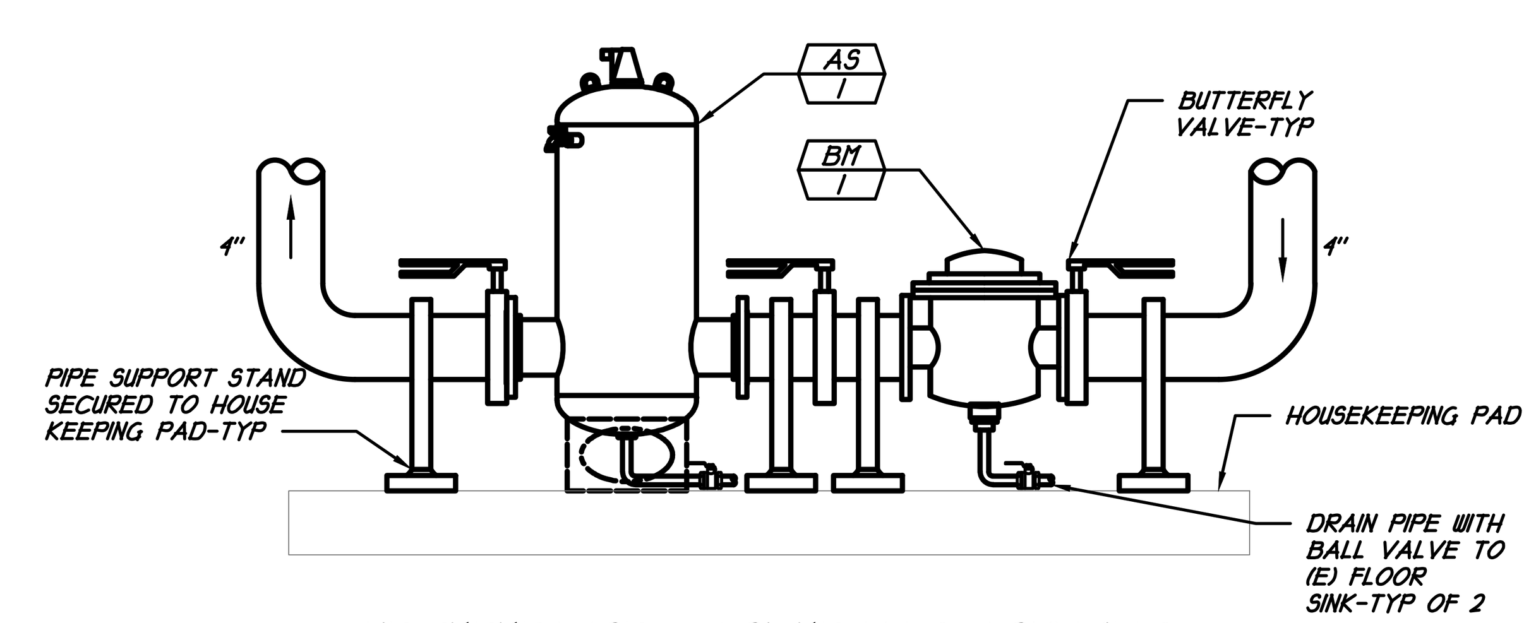
DUCT SUPPORT DETAIL (6)

SCALE: NOT TO SCALE



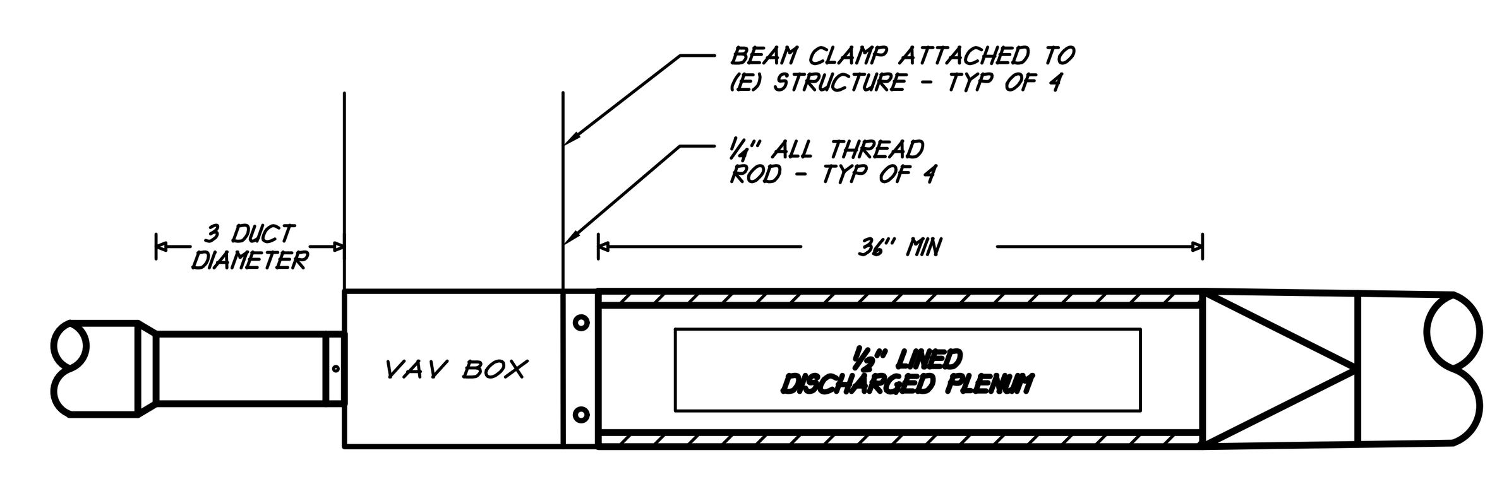
EXHAUST FAN ROOF DETAIL (2)

SCALE: NOT TO SCALE



AIR SEPERATOR & BOILER MAG MOUNTING (5)

SCALE: NOT TO SCALE



VAV MOUNTING DETAIL (1)

SCALE: NOT TO SCALE

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checked	BAT

M5.2

SPECIFICATIONS

ITEM	DESCRIPTION
16.1	STANDARDS AND CODES: ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), AS WELL AS ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. THIS DOES NOT RELIEVE THE CONTRACTOR FROM FURNISHING AND INSTALLING WORK SHOWN OR SPECIFIED WHICH MAY EXCEED THE REQUIREMENTS OF SUCH ORDINANCES, LAWS, REGULATIONS AND CODES.
16.2	COMPLETE INSTALLATION: PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, ACCESSORIES, ETC., NECESSARY TO ACCOMPLISH A COMPLETE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE PLANS TOGETHER WITH THE SPECIFICATIONS.
16.3	DRAWINGS: DATA PRESENTED ON THESE DRAWINGS SHALL BE FIELD VERIFIED SINCE ALL DIMENSIONS, LOCATIONS, AND LEVELS ARE GOVERNED BY ACTUAL FIELD CONDITIONS. REVIEW ALL ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL AND SPECIALTY SYSTEMS DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS ON CONDITIONS SHOWN THEREON. DO NOT SCALE ELECTRICAL PLANS FOR FIXTURE, DEVICE OR APPLIANCE LOCATIONS. USE CONFIGURED DIMENSIONS IF GIVEN OR CHECK ARCHITECTURAL OR MECHANICAL DRAWINGS.
16.4	COPYRIGHT: THESE PLANS, SPECIFICATIONS AND ALL RELATED ADDENDA AND DOCUMENTS CONSTITUTE COPYRIGHT MATERIALS OF JP ENGINEERING. ALL RIGHTS CONFERRED BY THE COPYRIGHT AND SIMILAR LAWS ARE RESERVED TO JP ENGINEERING. THESE MATERIALS SHALL REMAIN THE SOLE PROPERTY OF JP ENGINEERING AND MAY NOT BE REPRODUCED, DISTRIBUTED TO OTHERS OR USED FOR ANY PURPOSE WHATSOEVER WITHOUT THE PRIOR WRITTEN CONSENT OF JP ENGINEERING.
16.5	LOCATIONS: INDICATED LOCATIONS OF ALL OUTLETS AND EQUIPMENT ARE SUBJECT TO CHANGE. SHIFT/RELOCATE/RECONFIGURE ANY OUTLET, EQUIPMENT OR CONNECTION POINT UP TO 10' AS DIRECTED BY ENGINEER, AT NO ADDED COST.
16.6	RECORD DRAWINGS: CONTRACTOR SHALL PROVIDE, PRIOR TO FINAL ACCEPTANCE AND OBSERVATION, ONE SET OF REVISED RECORD ELECTRICAL CONSTRUCTION DOCUMENTS IN PDF FORMAT INDICATING THE FOLLOWING ADDITIONAL INFORMATION: EXACT ROUTING OF ALL CONDUITS LARGER THAN 1" EXACT LOCATION OF ALL SERVICE GROUNDING/BONDING CONNECTIONS CONTRACTORS NAME, ADDRESS AND TELEPHONE NUMBER RECORD NOTATIONS SHALL BE CLEARLY DRAWN AT A DRAFTING APPEARANCE EQUAL TO THE ORIGINAL DRAWINGS. CONTRACTOR SHALL ALSO PROVIDE ALL OPERATING AND MAINTENANCE MANUALS PRIOR TO FINAL PAYMENT.
16.7	EXAMINATION OF SITE AND EXISTING CONDITIONS: BEFORE SUBMITTING A PROPOSAL, CONTRACTOR SHALL EXAMINE THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND LIMITATIONS. NO EXTRAS WILL BE ALLOWED BECAUSE OF THE CONTRACTOR'S MISUNDERSTANDING OF THE AMOUNT OF WORK INVOLVED OR HIS LACK OF KNOWLEDGE OF ANY SITE CONDITIONS WHICH MAY AFFECT HIS WORK. ANY APPARENT VARIANCE OF THE DRAWINGS OR SPECIFICATIONS FROM THE EXISTING CONDITIONS AT THE SITE SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER BEFORE SUBMITTING A PROPOSAL.
16.8	EXISTING OUTLETS: EXISTING OUTLETS AND CIRCUITING NOT IN CONFLICT WITH NEW CONDITIONS SHALL REMAIN. EXTEND OUTLETS TO NEW SURFACES, CAULK AND PROVIDE JUMBO PLATES AS REQUIRED TO PRESENT A SERVICEABLE AND FINISHED APPEARANCE.
16.9	EXISTING SWITCHGEAR: REUSE EXISTING SWITCHGEAR AND PANELS IN PLACE WHERE SO INDICATED. MODIFY AS REQUIRED TO ACCOMMODATE NEW WORK. PROVIDE NEW CIRCUIT BREAKERS AND/OR FUSES AS REQUIRED. REARRANGE EXISTING CIRCUITS WITHIN PANELS TO AGREE WITH NEW PANEL SCHEDULES. TRACE AND IDENTIFY ALL EXISTING CIRCUITS ON NEW RECORD PANEL SCHEDULES.
16.10	DEMOLITION: PROVIDE COMPLETE ELECTRICAL DEMOLITION: REMOVE EXISTING OUTLETS AND EQUIPMENT IN CONFLICT WITH NEW CONDITIONS. EXISTING CONDUITS REMOVED FROM SERVICE MAY BE ABANDONED IN PLACE IF IN A CONCEALED LOCATION. REMOVE ALL WIRE FROM ABANDONED RACEWAYS. CONTRACTOR SHALL INSURE CONTINUITY OF EXISTING CIRCUITING PASSING THROUGH DEMOLITION AREAS. EXTEND AND/OR RELOCATE AS NECESSARY. SHIFT/RELOCATE EXISTING EQUIPMENT AND CIRCUITING AS REQUIRED TO ACCOMMODATE NEW WORK.
16.11	SALVAGE: ALL EXISTING EQUIPMENT REMOVED DURING THE COURSE OF THIS PROJECT SHALL BE OFFERED TO OWNER FOR SALVAGE. ANY EQUIPMENT SELECTED BY OWNER SHALL BE DELIVERED TO OWNER ON SITE. ALL REMAINING EQUIPMENT BECOMES THE PROPERTY OF THIS CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
16.12	TESTING: PRIOR TO PLACING IN SERVICE, ALL ELECTRICAL SYSTEMS SHALL BE TESTED FOR OPENS, GROUNDS, AND PHASE ROTATION. THE MAIN SERVICE GROUND AND ALL LOCAL TRANSFORMER MADE GROUNDS SHALL BE MEGGER-TESTED.
16.13	GROUNDING: TEST EXISTING SERVICE NEUTRAL FOR ADEQUACY AND FOR GROUND CONTINUITY. GROUND ALL EQUIPMENT AND SYSTEM NEUTRAL IN ACCORDANCE WITH ARTICLE 250 OF THE NEC. EQUIPMENT GROUNDS HAVE NOT BEEN SHOWN ON DRAWINGS – WHERE GROUND WIRES HAVE BEEN SHOWN THEY INDICATE AN INSULATED GROUND.
16.14	EQUIPMENT STANDARDS: ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND OF THE HIGHEST QUALITY AVAILABLE ("SPECIFICATION GRADE"). SERVICE EQUIPMENT SHALL BE FACTORY-ASSEMBLED COMMERCIAL-GRADE, CONFIGURED PER SERVING UTILITY STANDARDS. WIRING DEVICES SHALL BE SPECIFICATION GRADE WITH NYLON PLATES, WHITE UNLESS OTHERWISE NOTED, RAISED STEEL BOX COVERS MAY BE USED IN UTILITY AREAS.
16.15	MATCH EXISTING: EXISTING EQUIPMENT AND SYSTEMS SHALL BE CONSIDERED A MINIMUM STANDARD TO BE MET, IF NOT OTHERWISE EXCEEDED BY THESE PLANS AND SPECIFICATIONS. NEW MATERIALS AND EQUIPMENT SHALL MATCH EXISTING IN APPEARANCE AND FUNCTION.
16.16	TAMPER-PROOF: ALL EQUIPMENT AND CIRCUITING ACCESSIBLE BY THE PUBLIC SHALL BE TAMPER-PROOF AND VANDAL RESISTANT. OPENABLE DEVICES AND EQUIPMENT SHALL BE PADLOCKABLE.

ITEM	DESCRIPTION
16.17	CODE COMPLIANCE: A. WORKING CLEARANCE: • THE CONTRACTOR SHALL VERIFY THAT ALL ELECTRICAL EQUIPMENT MEETS THE CLEARANCE REQUIREMENTS OF NEC 110.26. DRAWINGS REPRESENT CLEARANCES ARE MET AS DESIGNED, ANY DEVIATION SHALL ALSO MEET THIS REQUIREMENT.
16.18	
16.19	CIRCUITING: ALL WIRING SHALL BE IN CONDUIT, MINIMUM 3/4"C, CONCEALED EXCEPT WHERE NOTED. EMT WITH STEEL SET SCREW INSULATED-THROAT FITTINGS MAY BE USED IN DRY, PROTECTED INTERIOR LOCATIONS. PVC SCHEDULE 40 SHALL BE USED BELOW GRADE AT MINIMUM -24". WRAPPED RIGID ELBOWS AND RISERS SHALL BE USED FOR ALL THROUGH-GRADE TRANSITIONS AND STUB-UPS. RGS OR IMC CONDUIT WITH THREADED FITTINGS SHALL BE USED IN ALL LOCATIONS WHERE EXPOSED TO THE ELEMENTS OR SUBJECT TO PHYSICAL DAMAGE. METAL-CLAD CABLE (TYPE MC) IS NOT PERMITTED. ENT IS NOT ALLOWED. CONNECT RECESSED AND SUSPENDED LIGHTING FIXTURES, MOTORIZED AND VIBRATING EQUIPMENT WITH STEEL FLEX. ALL CONDUIT SHALL HAVE PULL CORD IF OTHERWISE EMPTY.
16.20	WIRING: WIRE SHALL BE COPPER UNLESS OTHERWISE INDICATED. MINIMUM WIRE SIZE SHALL BE #12 AWG. INSULATION SHALL BE THW, THWN OR THHN.
16.21	FUSES: FUSES SHALL BE SIZED PER ACTUAL NAMEPLATE OF EQUIPMENT SERVED. FUSES SHALL BE DUAL-ELEMENT, CURRENT-LIMITING, AND SHALL BE INTERCHANGEABLE BETWEEN FRAME SIZES WITH STANDARD FACTORY FUSE REDUCERS. FUSES SHALL BE AS FOLLOWS UNLESS OTHERWISE INDICATED: a. CIRCUITS 601 TO 6000 AMPERES SHALL BE PROTECTED BY CURRENT LIMITING BUSSMANN LOW-PEAK TIME-DELAY FUSES KRP-C – UL CLASS L b. CIRCUITS 0 TO 600 AMPERES SHALL BE PROTECTED BY CURRENT LIMITING BUSSMANN LOW-PEAK DUAL-ELEMENT FUSES LPN-RK (250 VOLTS) OR LPS-RK (600 VOLTS) – UL CLASS RK1 c. ALL INDIVIDUAL MOTOR CIRCUITS RATED 480 AMPERES OR LESS SHALL BE PROTECTED BY BUSSMANN LOW-PEAK DUAL-ELEMENT FUSES LPN-RK (250 VOLTS) OR LPS-RK (600 VOLTS) – UL CLASS RK1 OR L d. CIRCUIT BREAKER PANELS SHALL BE PROTECTED BY BUSSMANN LOW-PEAK DUAL-ELEMENT FUSES LPN-RK (250 VOLTS), LPS-RK (600 VOLTS) OR BUSSMANN LOW-PEAK KRP-C TIME-DELAY FUSES – UL CLASS RK1 OR L e. ALL DUAL-ELEMENT FUSES SHALL HAVE SEPARATE OVERLOAD AND SHORT-CIRCUIT ELEMENTS. f. PROVIDE SPARE FUSE CABINET AFTER THE COMPLETION OF THE PROJECT WITH ONE SET OF SPARE FUSES FOR EVERY SIZE USED.
16.22	TEMPORARY CONSTRUCTION POWER: PROVIDE TEMPORARY ELECTRICAL POWER AND LIGHTING FOR ALL TRADES THAT REQUIRE SERVICE DURING THE COURSE OF THIS PROJECT. PROVIDE TEMPORARY SERVICE AND DISTRIBUTION AS REQUIRED. COMPLY WITH THE NEC AND OSHA REQUIREMENTS. (ENERGY COSTS BY OTHERS).
16.23	SUBMITTALS: BEFORE ORDERING ANY EQUIPMENT, CONTRACTOR SHALL SUBMIT SIX COPIES OF FACTORY SHOP DRAWINGS FOR ALL LIGHTING FIXTURES, SWITCHGEAR, PANELS, MOTOR CONTROLLERS, WIRING DEVICES, ETC. PROPOSED FOR THIS PROJECT.
16.24	SUBSTITUTIONS: PROPOSED SUBSTITUTIONS SHALL BE EQUAL OR SUPERIOR TO SPECIFIED ITEMS IN ALL RESPECTS. DETERMINATION OF EQUALITY RESTS SOLELY WITH ENGINEER. SUBSTITUTIONS MUST BE SUBMITTED A MINIMUM OF 10 WORKING DAYS PRIOR TO BID FOR CONSIDERATION. PROPOSED SUBSTITUTIONS PROVIDED LATER WILL NOT BE REVIEWED OR ALLOWED. BID SUBSTITUTED MATERIAL WILL ONLY BE ALLOWED IF ACCEPTED IN WRITING BY ENGINEER.
16.25	IDENTIFICATION: PROVIDE ENGRAVED NAMEPLATES FOR ALL SWITCHBOARDS, PANELS, TRANSFORMERS, DISCONNECTS, MOTOR STARTERS, CONTACTORS, TIME SWITCHES AND CABINETS. NAMEPLATES SHALL INCLUDE THE FOLLOWING INFORMATION AS APPLICABLE: DESIGNATION (i.e. PANEL A) FUNCTION (i.e. AIR HANDLER AH-1) VOLTAGE, PHASE, WIRE (i.e. 480 VOLT, 3Ø, 4W.) FEEDER SIZE (i.e. 4-#4/0 THWN CU IN 2" C.) SOURCE (i.e. SWITCHBOARD MSB) NAMEPLATES SHALL BE WHITE LETTERS ON BLACK FOR NORMAL EQUIPMENT AND WHITE LETTERS ON RED FOR EMERGENCY EQUIPMENT.
16.26	GUARANTEE: THE COMPLETE ELECTRICAL SYSTEM, AND ALL PORTIONS THEREOF, SHALL BE GUARANTEED TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. PROMPTLY REMEDY SUCH DEFECTS AND ANY SUBSEQUENT DAMAGE CAUSED BY THE DEFECTS OR REPAIR THEREOF AT NO EXPENSE TO THE OWNER. LAMPS ARE EXEMPT FROM THIS GUARANTEE, BUT SHALL BE NEW AT TIME OF FINAL ACCEPTANCE.
16.27	COORDINATION: THE CIVIL, ARCHITECTURAL, MECHANICAL, KITCHEN AND INTERIOR DRAWINGS CONTAIN DETAIL DESCRIPTIONS, CIRCUITING AND CONNECTION REQUIREMENTS WHICH ARE PART OF DIVISION 16 RESPONSIBILITIES. ELECTRICAL CONTRACTOR SHOULD NOT SUBMIT BIDS ON THIS PROJECT BEFORE REVIEWING ALL PROJECT DRAWINGS, SPECIFICATIONS AND ADDENDA.
16.28	ONGOING OPERATION: CONDUCT WORK TO MINIMIZE DISRUPTION OF OWNER'S ONGOING OPERATIONS. PROVIDE BARRICADES, NOISE ABATEMENT AND DUST CONTAINMENT MEASURES TO ENSURE THE SAFETY AND COMFORT OF PATRONS, STAFF AND WORKERS. INTERRUPTIONS OF EXISTING POWER, COMMUNICATIONS OR FIRE ALARM SYSTEMS SHALL BE PERFORMED ONLY AT SUCH TIMES AS DIRECTED BY RESIDENT ENGINEER. OUTAGES SHALL BE MOMENTARY IN NATURE. EACH SUCH OUTAGE (OR OPERATION WHICH MAY POSE RISK OF AN ACCIDENTAL OUTAGE) SHALL BE SCHEDULED 48 HOURS IN ADVANCE.

MASTER SYMBOL LIST

SIGNAL OUTLETS

▼	TELEPHONE: 4S BOX WITH SINGLE GANG MUD RING UON, +18" AFF UON
⧗	TELEPHONE: 4S BOX WITH SINGLE GANG MUD RING UON, WALL MOUNT +54" AFF UON
▽	DATA: 4S BOX WITH SINGLE GANG MUD RING UON, +18" AFF UON
▽V	VOICE/DATA: 4S BOX WITH SINGLE GANG MUD RING UON, +18" AFF UON
TV	TELEVISION: 4S BOX WITH SINGLE GANG MUD RING UON, +18" AFF UON
C	CAMERA: 4S BOX WITH SINGLE GANG MUD RING UON, CEILING MOUNTED UON
M	MICROPHONE: 4S BOX WITH SINGLE GANG MUD RING UON, +18" AFF UON
V	VOLUME CONTROL: 4S BOX WITH SINGLE GANG MUD RING UON, +48" TO TOP UON
S	SPEAKER: 8" COAXIAL WITH BACK BOX AND GRILLE, CEILING MOUNTED UON
	3/4"C (UON) STUB INTO ACCESSIBLE CEILING SPACE

SWITCHES

S	SINGLE POLE: 20A, 120/277V, +48" TO TOP UON
S_2	TWO POLE: 20A, 120/277V, +48" TO TOP UON
S_3	THREE WAY: 20A, 120/277V, +48" TO TOP UON
S_4	FOUR WAY: 20A, 120/277V, +48" TO TOP UON
S_X	X INDICATES EMERGENCY CIRCUIT
S_P	P INDICATES PILOT LIGHT (LIGHTED WHEN ON)
S_L	L INDICATES PILOT LOCATOR (LIGHTED WHEN OFF)
S_K	K INDICATES KEY OPERATED SWITCH
S_M	MANUAL MOTOR STARTER: 20A, 120/277V, POLES AND HEATERS AS REQUIRED
S_{MC}	MOMENTARY CONTACT: 20A, 120/277V, SPDT CENTER NORMALLY OFF UON, +48" TO TOP UON
D	DIMMER: 600 WATT UON, ELECTRONIC SLIDER, WITH ON/OFF TOGGLE, +48" TO TOP UON (PLANS SHALL INDICATE TYPE: FLUOR, INCAND OR LOW-VOLTAGE)
	MOTION/OCCUPANCY SENSOR SWITCH WITH OFF-AUTO SELECTOR – WALL MOUNTED AT +48" TO TOP UON
US = 360 US = 180 US = 90	ULTRASONIC MOTION/OCCUPANCY SENSOR SWITCH CEILING MOUNTED ARROWS INDICATE DIRECTION AND COVERAGE PROVIDE WITH POWER PACK PER MANUFACTURERS REQUIREMENTS
PE	PHOTO ELECTRIC SWITCH: 1600VA UON

METHODS

S_X	SHADING INDICATES: FIXTURE, OUTLET, EQUIPMENT, ETC. ON EMERGENCY 'X' OR NIGHT LIGHT 'NL' CIRCUIT
SS	DEVICE MOUNTED IN MULTIPLE UNDER COMMON COVER MAXIMUM HEIGHT ON WALL SHALL BE +48" TO TOP UON
	DEVICES MOUNTED IN OR ABOVE COUNTER/BACKSPLASH: MAXIMUM HEIGHT ON WALLS SHALL BE +48" TO TOP UON
	FLUSH FLOOR MOUNTED WIRING DEVICES
	FLUSH FLOOR MOUNTED WIRING DEVICES IN SINGLE MULTI-COMPARTMENT BOX
	RECEPTACLE MOUNTED IN CEILING OR CASEWORK
	FINE DASHING INDICATES EXISTING EQUIPMENT AND DEVICES TO BE REMOVED

DESIGNATIONS

f1	LIGHT FIXTURE: F1 = TYPE (SEE FIXTURE SCHEDULE)
2	SHEET NOTE
1	REVISION DELTA: NUMBER REPRESENTS REVISION
AC 1	MECHANICAL AND PLUMBING EQUIPMENT
A 5	MISCELLANEOUS: THESE AND OTHER SYMBOLS AS INDICATED IN TABLES AND SCHEDULES ON THE PLANS.

RECEPTACLES

	DUPLEX: 20A, 125V, NEMA 5-20, +18" AFF
	DOUBLE DUPLEX: 20A, 125V, NEMA 5-20, +18" AFF
	HALF SWITCHED DUPLEX: 20A, 125V, NEMA 5-20, +18" AFF (TOP HALF SWITCHED)
	DUPLEX GFCI: 20A, 125V, GFCI, NEMA 5-20 GFR, +18" AFF
	DUPLEX I.G.: 20A, 125V, ISO. GND., NEMA 5-20 IG +18" AFF (WHITE WITH ORANGE TRIANGLE, UON)
	DOUBLE DUPLEX I.G.: 20A, 125V, ISO. GND., NEMA 5-20 IG +18" AFF (WHITE WITH ORANGE TRIANGLE, UON)
	SPECIAL RECEPTACLE – AS INDICATED ON PLANS, +18" AFF

NOTE: DIAMOND SYMBOLS INDICATES DEDICATED CIRCUIT.

EQUIPMENT

	SWITCHBOARD
	PANELBOARD: SURFACE MOUNTED
	PANELBOARD: FLUSH MOUNTED
T	TRANSFORMER
	RELAY (120V COIL , STEP DN XFMR IF REQUIRED, UON)
M	CONTACTOR (120V COIL, STEP DN XFMR IF REQUIRED, UON)
M	COMBINATION MAGNETIC STARTER/FUSED DISCONNECT
N	NON-FUSIBLE DISCONNECT SWITCH
F	FUSIBLE DISCONNECT SWITCH
	PULLBOX: SIZE AS REQUIRED BY NEC
	JUNCTION BOX: SIZE AS REQUIRED BY NEC
	SURFACE RACEWAY WITH OR WITHOUT DEVICES
TP	TELEPOWER POLE

CIRCUITING

	CONDUIT IN WALL OR ABOVE CEILING
	CONDUIT IN FLOOR OR BELOW GRADE
	METAL CLAD CABLE (MC)
—OH—	OVERHEAD SERVICE
— P —	PRIMARY
— S —	SECONDARY
— T —	TELEPHONE
—TV—	TELEVISION
	LOW VOLTAGE AND/OR CONTROL CIRCUITING
—** —	EMERGENCY CIRCUIT
	STUB OUT: MARK AND CAP (SITE)
	CIRCUITING UP OR DOWN

TICS = NO. OF #12 WIRES (UON) IF MORE THAN TWO WITHIN CONDUIT OR MC
ISOLATED GROUNDING CONDUCTOR
GROUNDING CONDUCTOR
NEUTRAL CONDUCTOR (ONE PER PHASE CONDUCTOR)
PHASE CONDUCTOR(S)

HOMERUN DESIGNATION

PNL-{H,H,H,N}6,IG
PHASE CONDUCTOR(S)
GROUNDING CONDUCTOR
ISOLATED GROUNDING CONDUCTOR
NEUTRAL CONDUCTOR (ONE PER PHASE CONDUCTOR)
PANEL DESIGNATION

MISCELLANEOUS

T	THERMOSTAT: AT +48" TO TOP UON (OR PER MECH PLANS)
F	EXHAUST FAN: FRACTIONAL HORSEPOWER
1	MOTOR: NUMBER = HORSEPOWER
SIGN	SIGNAGE CONNECTION
	SHUNT TRIP STATION: +7'-6" AFF, 12" RED TRIANGLE, UON
	CONTROL STATION: AT +48" TO TOP UON
a b	DUAL LEVEL LIGHTING CONTROL SWITCH 'a' = CENTER (1) LAMP SWITCH 'b' = OUTER (2) LAMPS

NOTE:
THIS IS A MASTER SYMBOL LIST, ALL SYMBOLS SHOWN MAY NOT BE USED WITHIN THIS SET OF PLANS

ABBREVIATIONS

℄	CENTERLINE
AFF	ABOVE FINISHED FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
AFC	ABOVE FINISH CEILING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CB	CIRCUIT BREAKER
CLG	CEILING
CIR	CIRCUIT
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
(E)	EXISTING TO REMAIN
ELEV	ELEVATOR
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF SYSTEM
FBO	FURNISHED BY OTHERS
FPEN	FUSE PER EQUIPMENT NAMEPLATE
FLUOR	FLUORESCENT
FU	FUSE: DUAL-ELEMENT, TIME DELAY
GFI/GFCI	GROUND FAULT INTERRUPTER
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HID	HIGH INTENSITY DISCHARGE
IG	ISOLATED GROUND
INCAND	INCANDESCENT
K	kcmil (300K = 300 kcmil)
LTG	LIGHTING
LV	LOW VOLTAGE
MCP	MOTOR CIRCUIT PROTECTOR
MC	MULTI-CONDUCTOR CABLE
(N)	NEW
NC	NORMALLY CLOSED
NEUT	NEUTRAL
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
PNL	PANEL
PVC	POLYVINYL CHLORIDE CONDUIT
(R)	EXISTING TO BE RELOCATED
RAC	RIGID ALUMINUM CONDUIT
RSC	RIGID STEEL CONDUIT
SLD	SINGLE LINE DIAGRAM
SO	SEAL OFF
SPDT	SINGLE POLE DOUBLE THROW
SPEN	SIZE PER EQUIPMENT NAMEPLATE
SPST	SINGLE POLE SINGLE THROW
TEL	TELECOM
TYP	TYPICAL
UNSW	UNSWITCHED
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF (NEMA 3R)
WT	WATERTIGHT
(X)	EXISTING TO BE REMOVED
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

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No. 15551
REGISTERED PROFESSIONAL ENGINEER
2/25/26

STEWART BUILDING 160

HVAC RENOVATIONS

SPWD 25-MO3-03
5500 SNYDER AVENUE #160
CARSON CITY, NEVADA 89701

REVISIONS

DRAWING TITLE

SYMBOL LIST AND SPECIFICATIONS

date	02/25/26
job number	JP# 25188
drawn	MT
checked	JS

E0.1

E=Equipment, K=Kitchen, L=Lighting, LW=Warehouse Lighting, H=Heat, M=Motor, M1=Motor(Largest), R=Recepts — LOCATION:

DF	DESCRIPTION	LOAD	BKR	CIR	A	B	C	CIR	BKR	LOAD	DESCRIPTION	DF
L	OUTSIDE LIGHTS	500	20/1	1	1400			2	20/1	900	RECEPTACLES	R
E	SHUNT TRIP	200	20/1	3		1100		4	20/1	900	RECEPTACLES	R
M	SUMP PUMPS	200	20/1	5			400	6	20/1	200	BOILER CONTROL	M
M	**B-1 ***	**840**	20/1	7	1340			8	20/1	500	UNIT HEATER	H
M	**B-2 ***	**840**	20/1	9		1040		10	20/1	200	ROOF EXHAUST	M
E	CLOCK	100	20/1	11			100	12	20/1		SPARE	
R	JANITORS CLOSET	500	20/1	13	500			14	20/1		SPARE	
E		1000	20	15		1500		16	20/1	500	PUMP	M
E	AIR COMPRESSOR	1000	-	17			1500	18	20/1	500	TANK PUMP	M
E		1000	3	19	1000			20			SPACE	
	SPACE			21		0		22			SPACE	
	SPACE			23			0	24			SPACE	
					4240	3640	2000					

AMPS:	40	**NEUTRAL BUS:**	100%	**CON. KVA:**	9.9
VOLTAGE:	208	**GROUND BUS:**	STANDARD	**CON. AMPS:**	27.4
PHASE / WIRE:	3-PH , 4W	**AIC RATING:**	10,000	**NET KVA:**	9.9
MAIN:		**NEMA RATING:**	1	**NET AMPS:**	27.4
LUGS:	MLO	**EXISTING PANEL**		**Notes:**	
MOUNTING:	SURFACE	**M**		FED FROM 15kVA TRANSFORMER T-M	
BUS:	COPPER			PROVIDE WESTINGHOUSE TYPE NQB BREAKER	
DOOR:	STANDARD			* = UTILIZE EXISTING CIRCUIT BREAKER	

LOAD DIFFERENTIAL

1. NET ADD OF 1.636kVA = 1.9 AMPS OF TOTAL LOAD ADDED TO EXISTING 480 VOLT, 3-PHASE ELECTRICAL SERVICE

E=Equipment, K=Kitchen, L=Lighting, LW=Warehouse Lighting, H=Heat, M=Motor, M1=Motor(Largest), R=Recepts — LOCATION:

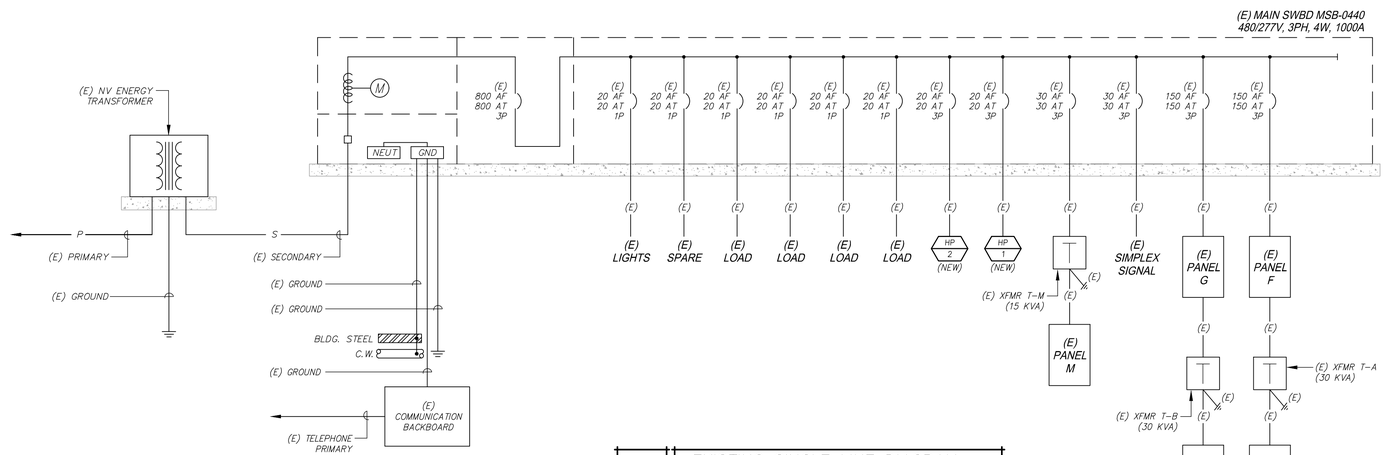
DF	DESCRIPTION	LOAD	BKR	CIR	A	B	C	CIR	BKR	LOAD	DESCRIPTION	DF
L	LIGHTS STORE ROOM	1200	20/1	1	2000			2	20/1	800	LIGHTS - BROADCAST	L
L	LIGHTS STORE ROOM	1000	20/1	3		1400		4	20/1	400	ACCENT LIGHTS	L
L	LIGHTS AND RECEPTS	500	20/1	5			1000	6	20/1	500	TEMP CTRL PANEL	E
L	LIGHTS AND RECEPTS	500	20/1	7	1500			8	20/1	1000	CURTAIN - PE	E
R	FLOOR BOX - GYM	360	20/1	9		1260		10	20/1	900	LIGHTS - STORAGE	L
R	RECEPTS - BROADCAST	720	20/1	11			1220	12	20/1	500	SCOREBOARD	E
R	RECEPTS AND CLOCK	540	20/1	13	740			14	20/1	200	FIRE CABINET	E
R	RECEPTS AND CLOCK	540	20/1	15		1080		16	20/1	540	RECEPTS AND CLOCK	R
R	FLOOR BOX - GYM	720	20/1	17			1220	18	20/1	500	FIRE CABINET	E
R	FLOOR BOX - GYM	720	20/1	19	920			20	20/1	200	EF-6	M
R	RECEPTS - PE	900	20/1	21		1900		22	20	1000		E
E		1000	20	23			2000	24	-	1000	RECEPTS	E
E	RECEPTS	1000	-	25	2000			26	3	1000		E
E		1000	3	27		1900		28	20	900	RECEPTS	E
E	RECEPTS	900	20	29			1800	30	2	900		E
E		900	2	31	1800			32	20/1	900	RECEPTS - PE	R
L	EMERG LIGHTS	200	20/1	33		400		34	20/1	200	EMERG. LIGHTS	L
L	EMERG LIGHTS	200	20/1	35			400	36	20/1	200	EMERG. LIGHTS	L
M	**VAV/1-1 ~ 1-4 ***	**768**	**20/1**	37	768			38			SPACE	
M	**VAV/2-1 ~ 2-4 ***	**768**	**20/1**	39		768		40			SPACE	
M	**VAV/2-5 ~ 2-8 ***	**768**	**20/1**	41			768	42			SPACE	
					9728	8708	8408					

AMPS:	100	**NEUTRAL BUS:**	100%	**CON. KVA:**	26.8
VOLTAGE:	208	**GROUND BUS:**	STANDARD	**CON. AMPS:**	74.5
PHASE / WIRE:	3-PH , 4W	**AIC RATING:**	10,000	**NET KVA:**	26.8
MAIN:		**NEMA RATING:**	1	**NET AMPS:**	74.5
LUGS:	MLO	**EXISTING PANEL**		**Notes:**	
MOUNTING:	SURFACE	**A**		FED FROM 30kVA TRANSFORMER T-A	
BUS:	COPPER			* = PROVIDE NEW WESTINGHOUSE TYPE	
DOOR:	STANDARD			NQB CIRCUIT BREAKER	

E=Equipment, K=Kitchen, L=Lighting, LW=Warehouse Lighting, H=Heat, M=Motor, M1=Motor(Largest), R=Recepts — LOCATION:

DF	DESCRIPTION	LOAD	BKR	CIR	A	B	C	CIR	BKR	LOAD	DESCRIPTION	DF
L	PE LIGHTS	1000	20/1	1	1000			2	20/1		SPARE	
L	PE LIGHTS	1000	20/1	3		2000		4	20/1	1000	GYM LIGHTS	L
L	PE LIGHTS	1000	20/1	5			2000	6	20/1	1000	GYM LIGHTS	L
L	GYM CORRIDOR LIGHTS	800	20/1	7	1800			8	20/1	1000	GYM LIGHTS	L
L	GYM LIGHTS	1000	20/1	9		2000		10	20/1	1000	GYM LIGHTS	L
			20/1	11			1000	12	20/1	1000	GYM LIGHTS	L
M		**4404**	20	13	6786			14	20	**2382**		**M**
M	**HV-2 ***	**4404**	-	15		6786		16	-	**2382**	**MZ-1 ***	**M**
M		**4404**	3	17			6786	18	3	**2382**		**M**
M		**3573**	20	19	7977			20	20	**4404**		**M**
M	**MZ-2 ***	**3573**	-	21		7977		22	-	**4404**	**HV-1 ***	**M**
M		**3573**	3	23			7977	24	3	**4404**		**M**
M		**3573**	30	25	3573			26	30			
M	**HV-3 ***	**3573**	-	27		3573		28	-		SPARE	
E		**3573**	3	29			3573	30	3			
E	TRANSFORMER T-A	8948	50	31	8948			32			SPACE	
E	(30 KVA)	8948	-	33		8948		34			SPACE	
		8948	3	35			8948	36			SPACE	
	SPACE			37	0			38			SPACE	
	SPACE			39		0		40			SPACE	
	SPACE			41			0	42			SPACE	
					30084	31284	30284					

AMPS:	225	**NEUTRAL BUS:**	100%	**CON. KVA:**	91.7
VOLTAGE:	480	**GROUND BUS:**	STANDARD	**CON. AMPS:**	110.2
PHASE / WIRE:	3-PH , 4W	**AIC RATING:**	14,000	**NET KVA:**	82.7
MAIN:		**NEMA RATING:**	1	**NET AMPS:**	99.5
LUGS:	MLO	**EXISTING PANEL**		**Notes:**	
MOUNTING:	SURFACE	**F**		FED FROM 150A, 3-POLE BREAKER IN MAIN	
BUS:	COPPER			SWITCHBOARD MSB-0440	
DOOR:	STANDARD			* = UTILIZE EXISTING CIRCUIT BREAKER	



A EO.2 — EXISTING SINGLE LINE DIAGRAM
SCALE: NOT TO SCALE

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JAMES P. SOLARO — REGISTERED PROFESSIONAL ENGINEER — STATE OF NEVADA — No. 15516 — Exp. 6/30/26 Electrical

2/25/26

HVAC RENOVATIONS

STEWART BUILDING 160
SPWD 25-M03-03
5500 SNYDER AVE #160
CARSON CITY, NEVADA 89701

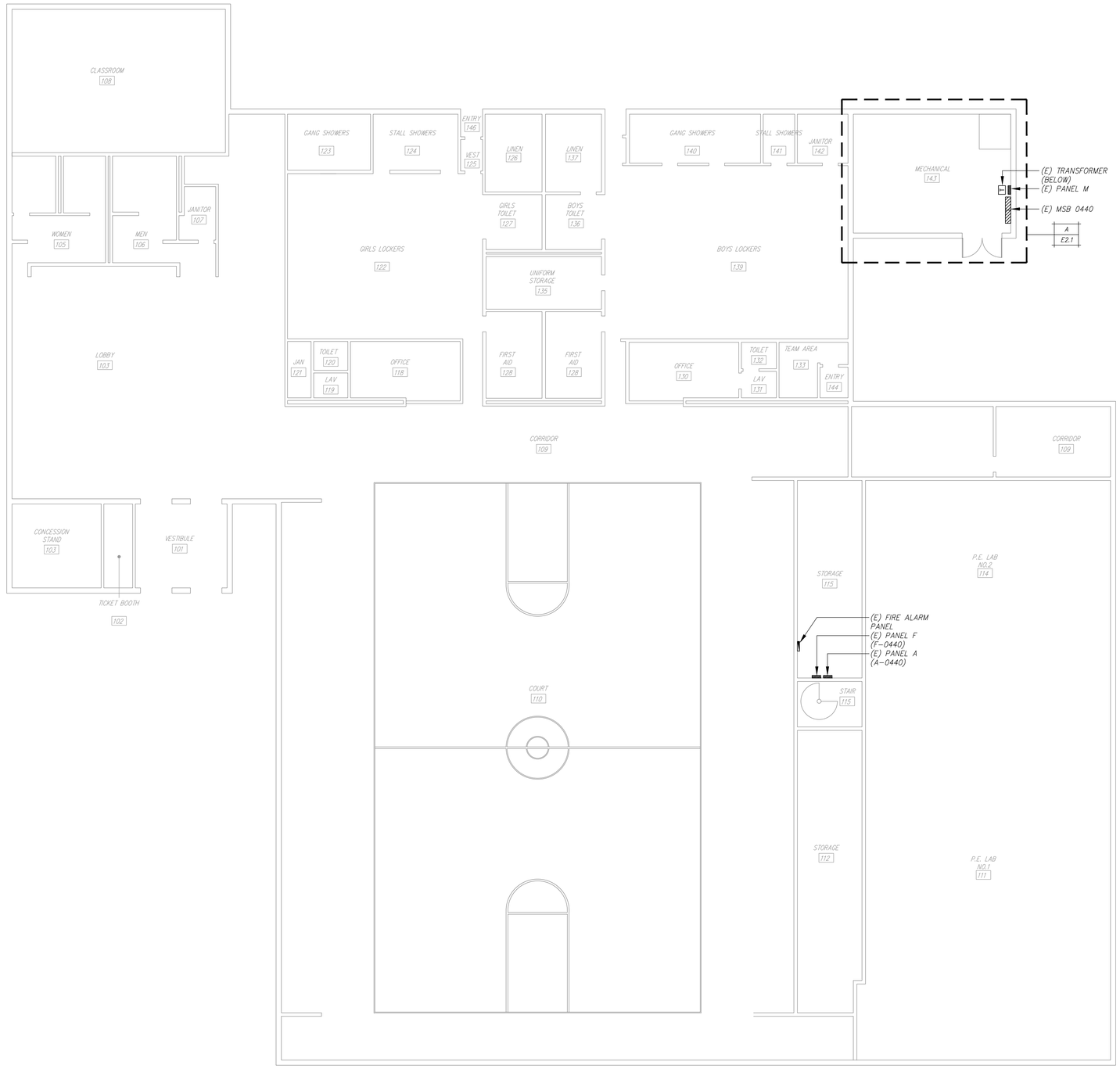
REVISIONS

DRAWING TITLE

ELECTRICAL SCHEDULES

date	02/25/26
job number	JP# 25188
drawn	MT
checked	JS

EO.2



A	FIRST LEVEL ELECTRICAL PLAN
E1.1	SCALE: 3/32" = 1'-0"

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STATE OF NEVADA
Exp. 6/30/26
ELECTRICAL

2/25/26

STEWART BUILDING 160

HVAC RENOVATIONS

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FIRST LEVEL ELECTRICAL PLAN

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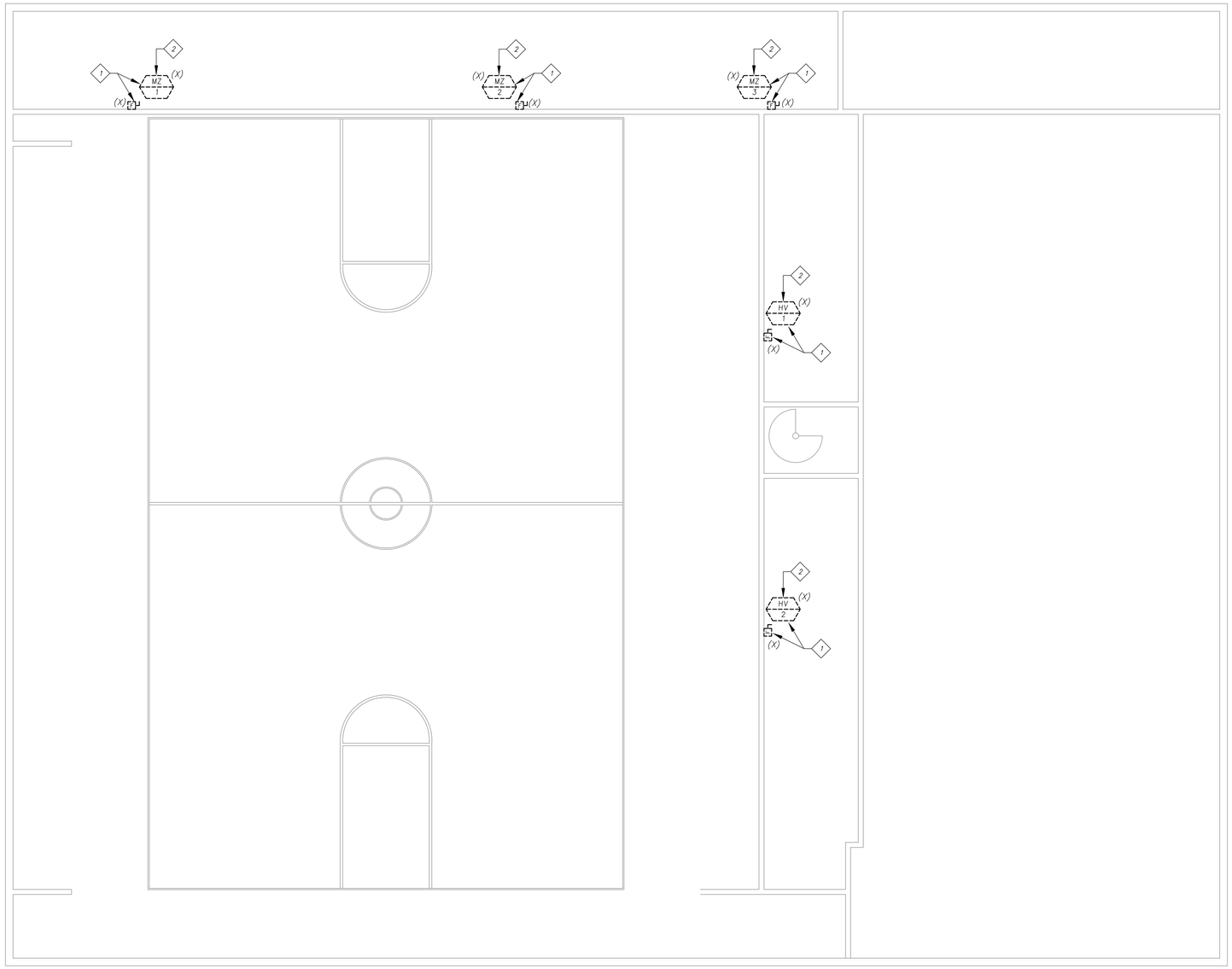
E1.1



A	SECOND LEVEL ELECTRICAL DEMOLITION PLAN	N
E1.2	SCALE: 1/8" = 1'-0"	

SHEET NOTES

1. DISCONNECT AND SAFE OFF EXISTING ELECTRICAL TO MECHANICAL UNIT TO BE REMOVED. EXISTING BRANCH CIRCUIT TO BE UTILIZED DURING NEW CONSTRUCTION.
2. EXISTING FIRE ALARM DEVICES SHALL BE DISCONNECT DURING DEMOLITION, SAFE OFF FOR RECONNECTION OF DEVICES UNDER NEW CONSTRUCTION. EXISTING CONDUIT AND CONDUCTORS SHALL BE SECURED FOR REUSE. FIRE ALARM DESIGN AND INSTALLATION SHALL BE COMPLETED UNDER A SEPARATE PERMIT.

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SECOND LEVEL ELECTRICAL DEMOLITION PLAN

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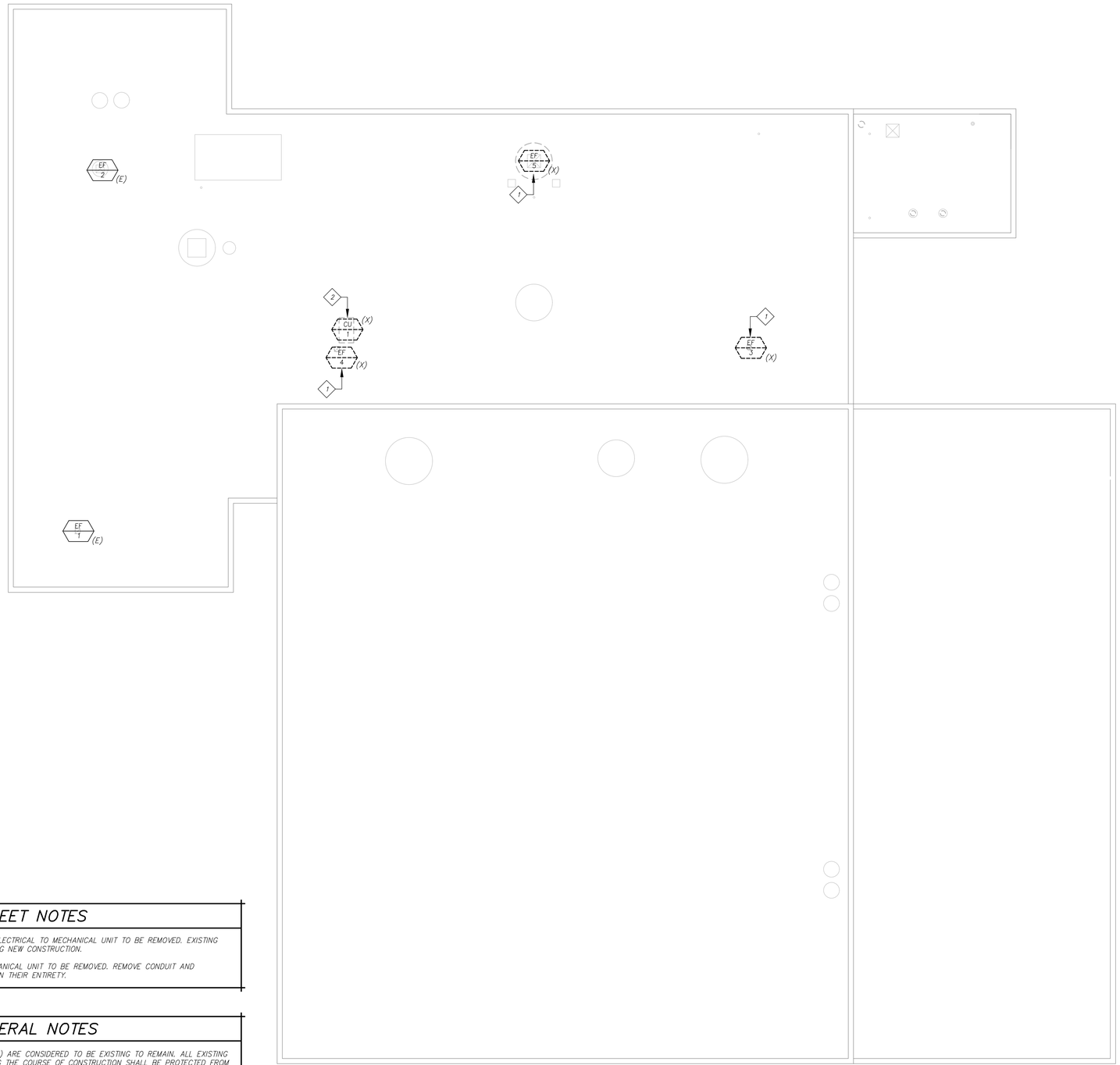
E1.2



SHEET NOTES

1	DISCONNECT AND SAFE OFF EXISTING ELECTRICAL TO MECHANICAL UNIT TO BE REMOVED. EXISTING BRANCH CIRCUIT TO BE UTILIZED DURING NEW CONSTRUCTION.
2	DISCONNECT BRANCH CIRCUIT TO MECHANICAL UNIT TO BE REMOVED. REMOVE CONDUIT AND CONDUCTORS BACK TO THEIR SOURCE IN THEIR ENTIRETY.

GENERAL NOTES

1.	ELECTRICAL DEVICES INDICATED WITH (E) ARE CONSIDERED TO BE EXISTING TO REMAIN. ALL EXISTING ELECTRICAL DEVICES TO REMAIN DURING THE COURSE OF CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND REMAIN IN OPERATIONAL ORDER THROUGHOUT.

A	ROOF ELECTRICAL DEMOLITION PLAN
E1.3	SCALE: 3/32" = 1'-0"

N

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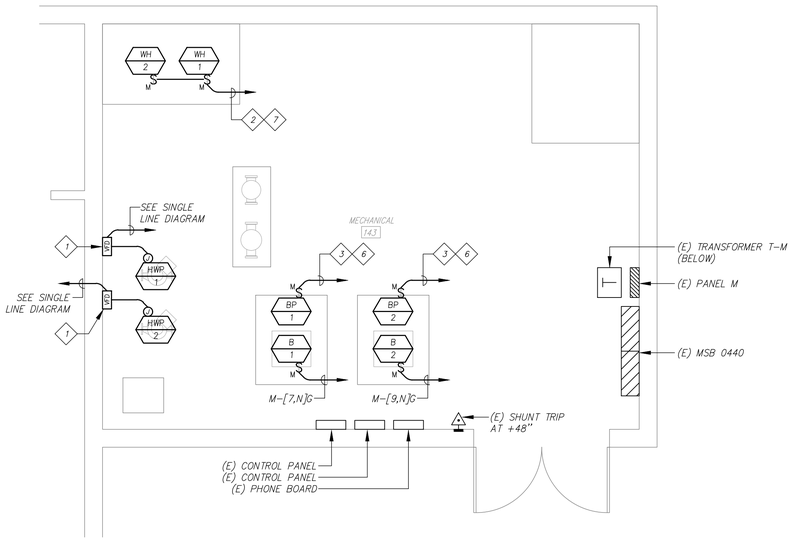
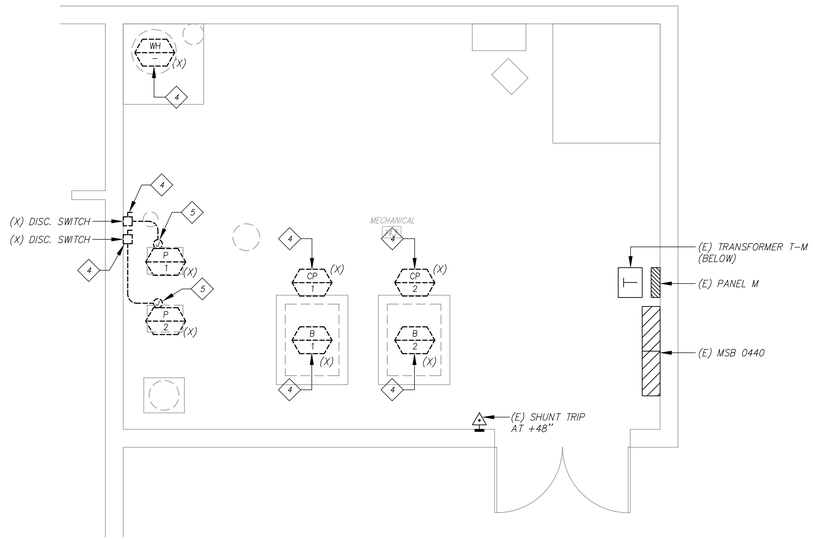
E1.3

SHEET NOTES

1. REFER TO MECHANICAL ENGINEERS DRAWINGS FOR ELECTRICAL REQUIREMENTS AND SPECIFICATIONS OF VARIABLE FREQUENCY DRIVES. VFD TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR, ELECTRICAL CONNECTION TO BE BY ELECTRICAL CONTRACTOR.
2. UTILIZE EXISTING BRANCH CIRCUITING MADE AVAILABLE THROUGH DEMOLITION FOR CONNECTION OF NEW WATER HEATER.
3. UTILIZE EXISTING BRANCH CIRCUITING MADE AVAILABLE THROUGH DEMOLITION FOR CONNECTION OF NEW BOILER PUMPS.
4. DISCONNECT AND SAFE OFF EXISTING ELECTRICAL TO MECHANICAL UNIT TO BE REMOVED. EXISTING BRANCH CIRCUIT TO BE UTILIZED DURING NEW CONSTRUCTION.
5. PROVIDE COMPLETE DEMOLITION OF ELECTRICAL DEVICE(S), REMOVE CONDUIT AND CONDUCTORS BACK TO DISCONNECT SWITCH ON WALL.
6. ROUTE BOILER BRANCH CIRCUITING THROUGH EXISTING SHUNT TRIP EMERGENCY SHUT-DOWN CONTROL. REFER TO 2/M4.1 FOR SHUNT TRIP DIAGRAM AND REQUIREMENTS.
7. ROUTE EXISTING WATER HEATER BRANCH CIRCUITING THROUGH EXISTING SHUNT TRIP EMERGENCY SHUT-DOWN CONTROL. REFER TO 2/M4.1 FOR SHUNT TRIP DIAGRAM AND REQUIREMENTS.



B E2.1 **ENLARGED ELECTRICAL PLAN**
SCALE: 1/4" = 1'-0"



A E2.1 **ENLARGED ELECTRICAL DEMOLITION PLAN**
SCALE: 1/4" = 1'-0"

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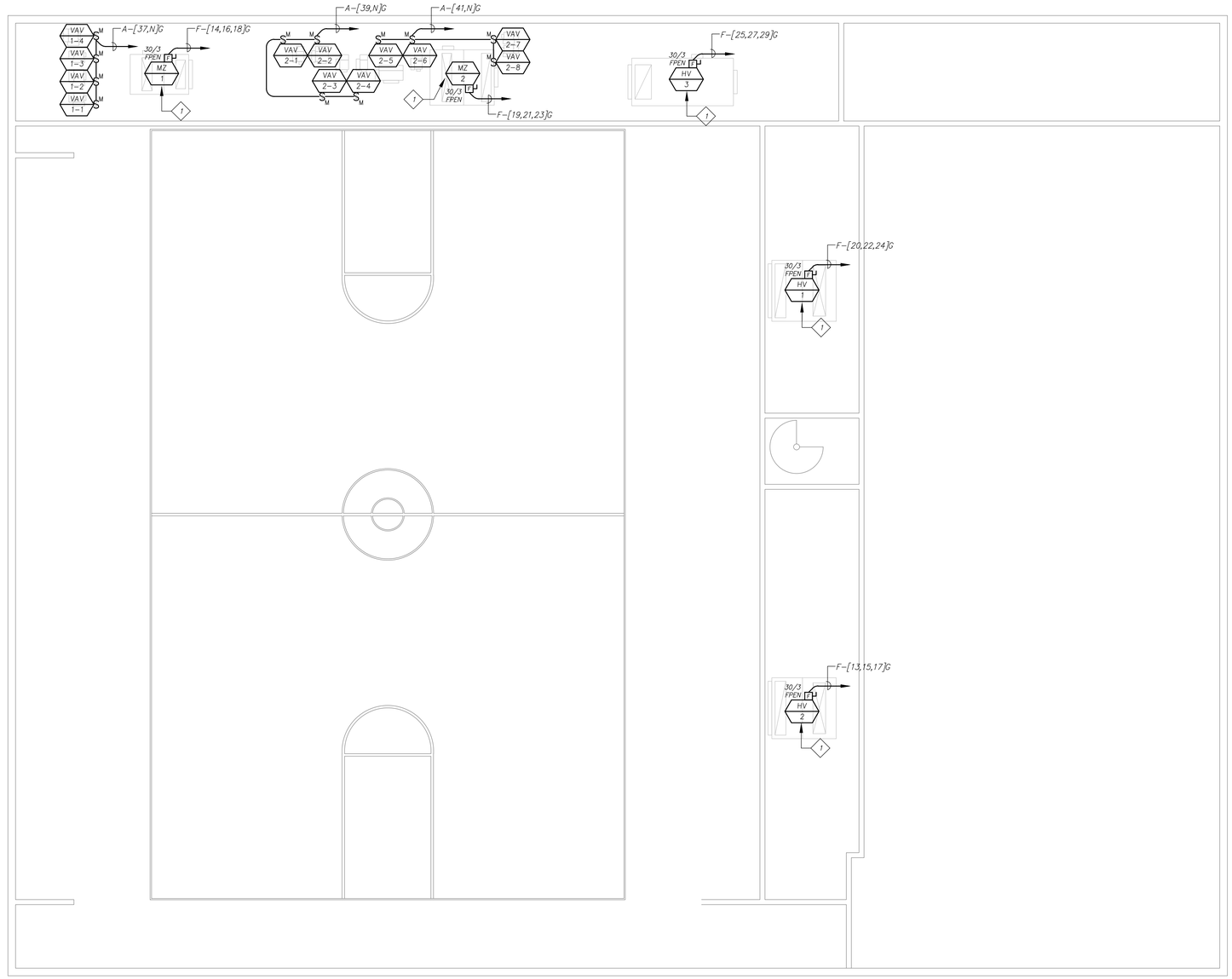
E2.1



SHEET NOTES

1. EXISTING FIRE ALARM DEVICES SHALL BE RECONNECTED DURING NEW CONSTRUCTION. EXISTING CONDUIT AND CONDUCTORS SHALL BE UTILIZED. FIRE ALARM DESIGN AND INSTALLATION SHALL BE COMPLETED UNDER A SEPARATE PERMIT.

A
E2.2

SECOND LEVEL ELECTRICAL PLAN

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

N

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SECOND LEVEL ELECTRICAL PLAN

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E2.2

SHEET NOTES

1	UTILIZE EXISTING BRANCH CIRCUITING MADE AVAILABLE THROUGH DEMOLITION FOR CONNECTION OF NEW EXHAUST FAN.

A
E2.3

ROOF ELECTRICAL PLAN

SCALE: 3/32" = 1'-0"

N

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E2.3