

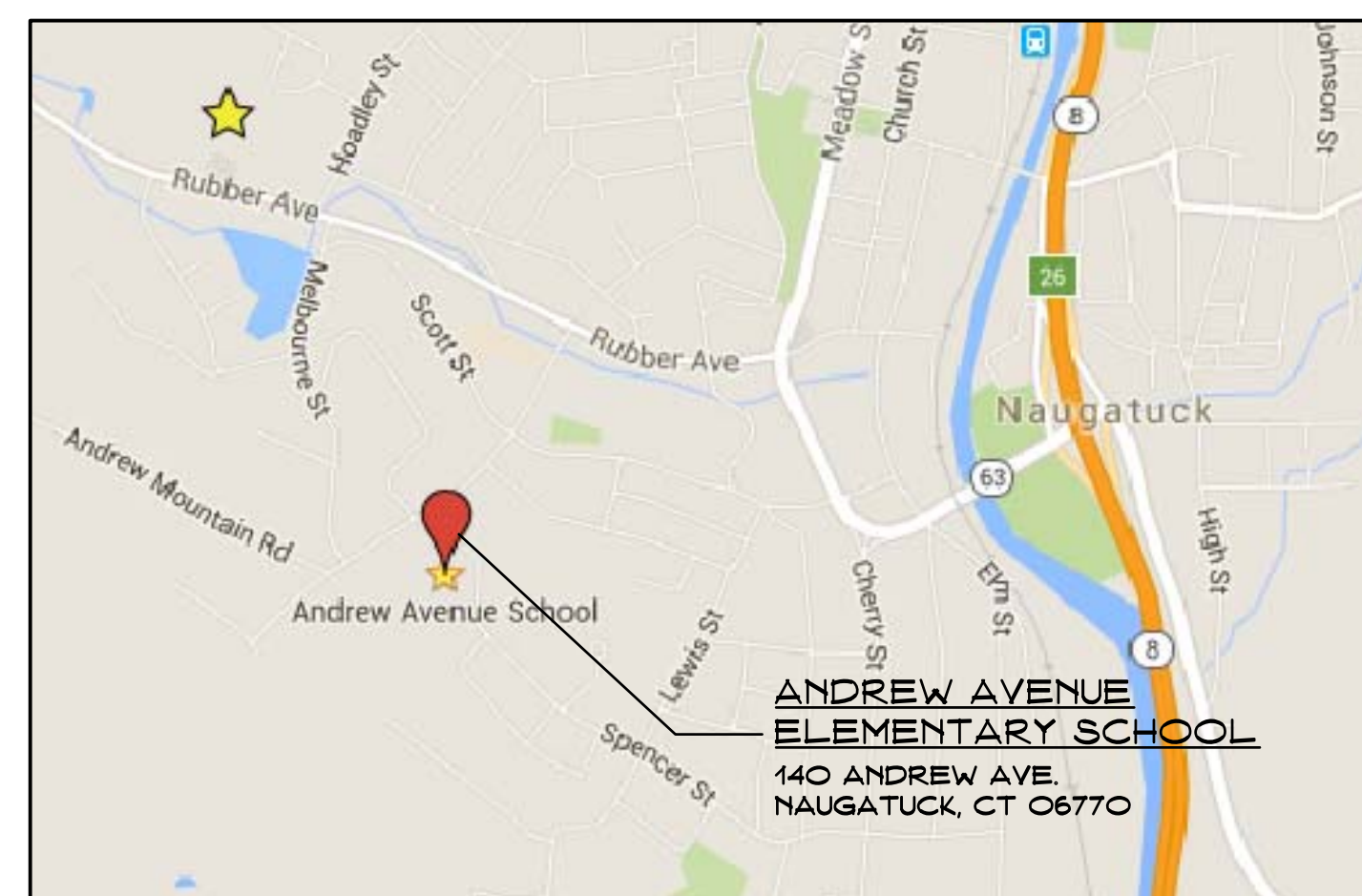
Borough of Naugatuck

District Wide School Upgrades

497 Rubber Ave.
Naugatuck, Connecticut 06770

Andrew Ave. School HVAC Upgrades

PROJECT LOCATION MAP



LIST OF DRAWINGS

GENERAL

CS - COVER SHEET

ELECTRICAL:

E100 ELECTRICAL FLOOR PLAN
E101 LIGHTING PLAN & NOTES

MECHANICAL:

M001 GENERAL NOTES - MECHANICAL
M100 MECHANICAL DEMOLITION PLAN
M101 MECHANICAL FLOOR PLAN
M102 MECHANICAL ROOF PLAN
M200 MECHANICAL SCHEDULES
M201 MECHANICAL DETAILS
M202 MECHANICAL DETAILS



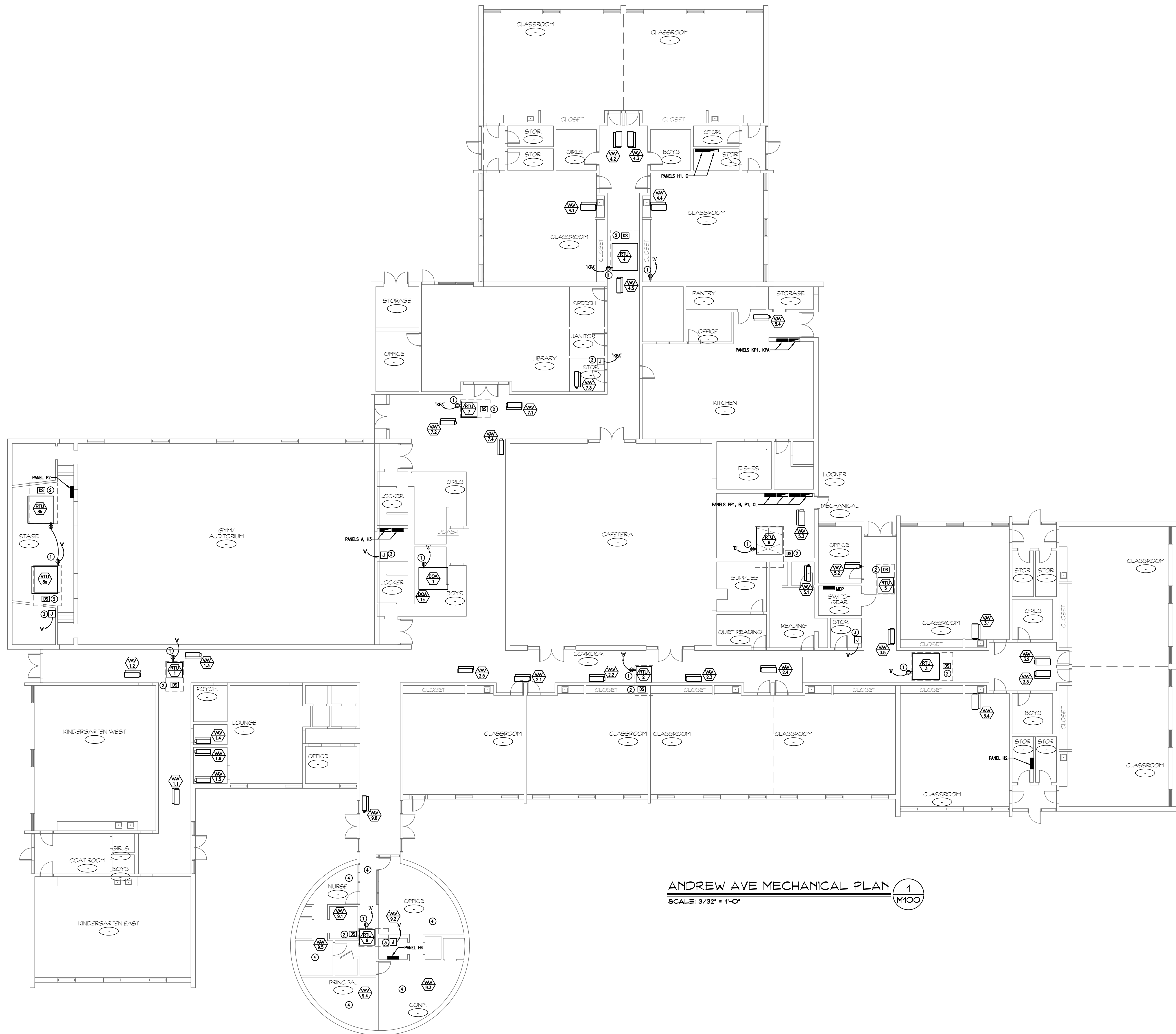
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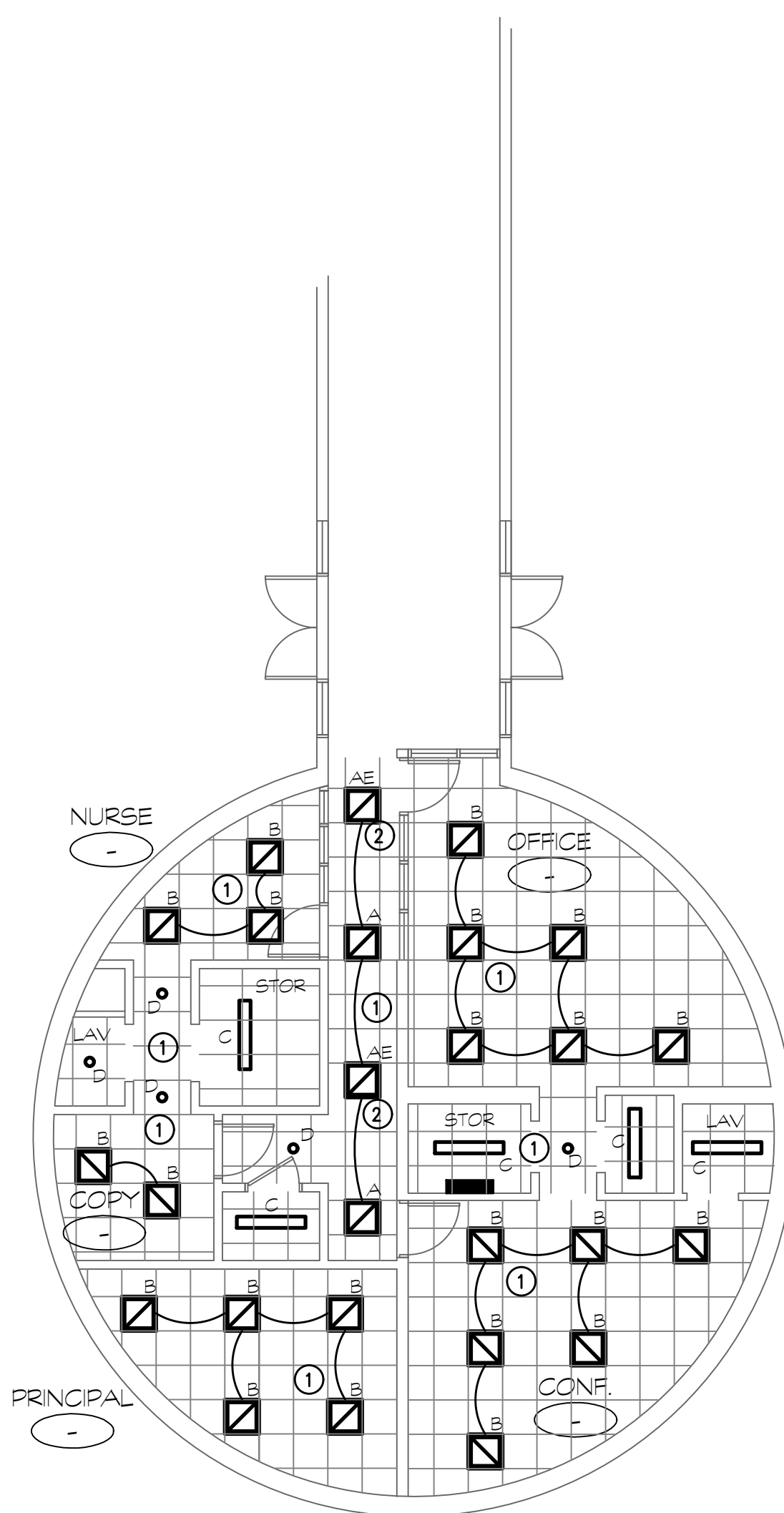
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EQUIPMENT SCHEDULE VAV 1-1						
SYMBOL	VOLTAGE	PHASE	CIRCUIT AMPS	BREAKER	PANEL	WIRE CONNECTION
RTU-1	480	3	40	35A/3P	H3	4 #8 HARDWARE TO DISC. FURN. WITH UNIT
RTU-2	480	3	40	35A/3P	MDP	4 #8 HARDWARE TO DISC. FURN. WITH UNIT
RTU-3	480	3	50	45A/3P	MDP	4 #8 HARDWARE TO DISC. FURN. WITH UNIT
RTU-4	480	3	50	45A/3P	H1	4 #8 HARDWARE TO DISC. FURN. WITH UNIT
RTU-5	480	3	20	20A/3P	PP1	4 #12 HARDWARE TO DISC. FURN. WITH UNIT
RTU-6	480	3	50	45A/3P	KP1	4 #8 HARDWARE TO DISC. FURN. WITH UNIT
RTU-7	480	3	20	20A/3P	H3	4 #12 HARDWARE TO DISC. FURN. WITH UNIT
RTU-8a	480	3	50	45A/3P	P2	4 #8 HARDWARE TO DISC. FURN. WITH UNIT
RTU-8b	480	3	50	45A/3P	P2	4 #8 HARDWARE TO DISC. FURN. WITH UNIT
RTU-9	480	3	30	30A/3P	H4	4 #10 HARDWARE TO DISC. FURN. WITH UNIT
DOA-1	480	3	80	80A/3P	P2	4 #4 HARDWARE TO DISC. FURN. WITH UNIT
DOA-1e	480	3	80	70A/3P	P2	4 #4 HARDWARE TO DISC. FURN. WITH UNIT
VAV-1.1	480	3	20	15A/3P	H3	4 #12 NON-FUSED DISCONNECT
VAV-1.2	480	3	20	15A/3P	H3	4 #12 NON-FUSED DISCONNECT
VAV-1.3	480	3	20	15A/3P	H3	4 #12 NON-FUSED DISCONNECT
VAV-1.4	120	1	20	20A/1P	A	3 #12 NON-FUSED DISCONNECT
VAV-1.5	480	3	20	15A/3P	H3	4 #12 NON-FUSED DISCONNECT
VAV-1.6	480	3	20	15A/3P	H3	4 #12 NON-FUSED DISCONNECT
VAV-2.1	480	3	20	15A/3P	H2	4 #12 NON-FUSED DISCONNECT
VAV-2.2	480	3	20	15A/3P	H2	4 #12 NON-FUSED DISCONNECT
VAV-2.3	480	3	20	15A/3P	H2	4 #12 NON-FUSED DISCONNECT
VAV-2.4	480	3	20	15A/3P	H2	4 #12 NON-FUSED DISCONNECT
VAV-2.5	480	3	20	15A/3P	H2	4 #12 NON-FUSED DISCONNECT
VAV-3.1	480	3	20	15A/3P	MDP	4 #12 NON-FUSED DISCONNECT
VAV-3.2	480	3	20	15A/3P	H2	4 #12 NON-FUSED DISCONNECT
VAV-3.3	480	3	20	15A/3P	H2	4 #12 NON-FUSED DISCONNECT
VAV-3.4	480	3	20	15A/3P	H2	4 #12 NON-FUSED DISCONNECT
VAV-3.5	480	3	20	15A/3P	MDP	4 #12 NON-FUSED DISCONNECT
VAV-4.1	480	3	20	15A/3P	H1	4 #12 NON-FUSED DISCONNECT
VAV-4.2	480	3	20	15A/3P	H1	4 #12 NON-FUSED DISCONNECT
VAV-4.3	480	3	20	15A/3P	H1	4 #12 NON-FUSED DISCONNECT
VAV-4.4	480	3	20	15A/3P	H1	4 #12 NON-FUSED DISCONNECT
VAV-4.5	480	3	20	15A/3P	H1	4 #12 NON-FUSED DISCONNECT
VAV-5.1	480	3	20	15A/3P	PP1	4 #12 NON-FUSED DISCONNECT
VAV-5.2	480	3	20	15A/3P	PP1	4 #12 NON-FUSED DISCONNECT
VAV-5.3	480	3	20	20A/3P	PP1	4 #12 NON-FUSED DISCONNECT
VAV-5.4	120	1	20	20A/1P	B	3 #12 NON-FUSED DISCONNECT
VAV-7.1	480	3	20	15A/3P	H3	4 #12 NON-FUSED DISCONNECT
VAV-7.2	480	3	20	15A/3P	H3	4 #12 NON-FUSED DISCONNECT
VAV-7.3	120	1	20	20A/1P	A	3 #12 NON-FUSED DISCONNECT
VAV-7.4	480	3	20	15A/3P	H3	4 #12 NON-FUSED DISCONNECT
VAV-9.1	277	1	20	20A/1P	H4	3 #12 NON-FUSED DISCONNECT
VAV-9.2	277	1	20	20A/1P	H4	3 #12 NON-FUSED DISCONNECT
VAV-9.3	277	1	20	15A/1P	H4	3 #12 NON-FUSED DISCONNECT
VAV-9.4	277	1	30	25A/1P	H4	3 #10 NON-FUSED DISCONNECT
VAV-9.5	277	1	30	30A/1P	H4	3 #10 NON-FUSED DISCONNECT
VAV-9.6	277	1	20	15A/1P	H4	3 #12 NON-FUSED DISCONNECT

- NOTES:
- DISCONNECT SWITCHES & MOTOR STARTERS LISTED SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.
 - PROVIDE ANY 120V WIRING REQUIRED TO INTERLOCK EQUIPMENT WITH HVAC CONTROLS.
 - CONTRACTOR SHALL PROVIDE NEW CIRCUIT BREAKERS FOR ALL BRANCH CIRCUITS INDICATED IN SCHEDULE. MATCH EXISTING BREAKER TYPE. UPDATE PANEL DIRECTORIES.

- PLAN NOTES
- PROVIDE 120V/20A DEDICATED BRANCH CIRCUIT FROM PANEL INDICATED FOR WP GFI RECEPTACLE FURNISHED WITH NEW ROOFTOP EQUIPMENT.
 - PROVIDE NEW ADDRESSABLE PHOTOELECTRIC DUCT SMOKE DETECTOR WITH SAMPLING TUBE AND REMOTE TEST SWITCH. UNIT SHALL BE COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM. UNIT SHALL BE INSTALLED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR. PROVIDE ALL REQUIRED POWER & SIGNAL WIRING PLUS SYSTEM PROGRAMMING TO SIGNAL THE FIRE ALARM PANEL & SHUT DOWN THE ASSOCIATED UNIT ON DETECTION OF SMOKE. COORDINATE ACCESSIBLE LOCATION OF TEST SWITCH IN FIELD.
 - PROVIDE 120V/20A DEDICATED BRANCH CIRCUIT FROM PANEL INDICATED FOR NEW HVAC CONTROLS. COORDINATE LOCATIONS WITH CONTROLS CONTRACTOR.
 - SEE SHEET E101 FOR CEILING AND LIGHTING WORK IN THIS AREA.



ANDREW AVE PARTIAL LIGHTING PLAN 1
SCALE: 1/8" = 1'-0" E101

GENERAL NOTES -- ELECTRICAL

- SPECIFICATION SECTIONS, GENERAL CONDITIONS, SUPPLEMENTAL GENERAL CONDITIONS AND DRAWINGS ARE INTEGRAL PARTS OF CONTRACT DOCUMENTS.
- SYSTEM COMPONENTS ARE LOCATED APPROXIMATELY ON DRAWINGS. BASE ACTUAL LOCATIONS ON FIELD VERIFICATION OF EXISTING BUILDING CHARACTERISTICS INCLUDING BUT NOT LIMITED TO STRUCTURAL, MECHANICAL, ELECTRICAL & ARCHITECTURAL COMPONENTS.
- ALL WORK AND ACTION DEPICTED AND DESCRIBED IN CONTRACT DOCUMENTS SHALL BE PERFORMED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
- REFERENCE TO SPECIFIC SUB-CONTRACTORS SUCH AS "MECHANICAL", "ELECTRICAL", ETC. ARE INTENDED TO SUGGEST POSSIBLE DIVISION OF RESPONSIBILITY. PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND EXECUTION OF ALL WORK.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT, MATERIALS AND RELATED SYSTEM COMPONENTS SHALL BE NEW UNLESS NOTED OTHERWISE.
- REPAIR AND REPLACE AT NO COST TO OWNER ALL EQUIPMENT AND MATERIALS DAMAGED DURING CONSTRUCTION.
- CIRCUITING DEPICTED FOR RECEPTACLES & LIGHTING FIXTURES DEFINES GROUPING OF FIXTURES, DEVICES AND COMPONENTS AND REQUIRED CONDUCTORS. CIRCUITING IS NOT INTENDED TO DEFINE CONDUIT LOCATIONS.
- STUDY THE PROJECT MANUAL & DRAWINGS OF OTHER DISCIPLINES INCLUDING ARCHITECTURAL, STRUCTURAL, CIVIL & MECHANICAL.
- ELECTRICAL CONDUITS & BOXES SHALL BE CONCEALED IN WALLS OR ABOVE CEILINGS WHEREVER POSSIBLE.
- FURNISH & INSTALL GFCI RECEPTACLES IN ALL WET LOCATIONS.
- ALL PENETRATIONS THRU RATED WALLS & CEILINGS SHALL BE SEALED USING U.L. LISTED METHODS APPROPRIATE FOR INDICATED RATING.
- NO PENETRATIONS ARE ALLOWED INTO STAIR ENCLOSURES EXCEPT AS REQUIRED FOR SERVICES UTILIZED IN THE STAIR.
- ALL INSTALLATIONS ON NEW WALLS SHALL BE FULLY RECESSED. INSTALLATIONS ON EXISTING MASONRY WALLS SHALL BE RUN WITH SURFACE RACEWAY PAINTED TO MATCH WALL FINISH AND SURFACE BOXES. INSTALLATIONS ON EXISTING STUD WALLS SHALL CUT IN OLD-WORK STYLE BOXES AND FISH WIRING IN WALL CAVITY.

GENERAL DEMOLITION NOTES -- ELECTRICAL

- ELECTRICAL DEMOLITION TO BE SUPERVISED BY LICENSED ELECTRICAL CONTRACTOR. EACH CIRCUIT SHALL BE VERIFIED "COLD" & DISCONNECTED FROM ELECTRICAL SERVICE PRIOR TO COMMENCING REMOVAL.
- REMOVE EXISTING ELECTRICAL EQUIPMENT & MATERIALS AS REQUIRED TO ACCOMMODATE MECHANICAL & ARCHITECTURAL WORK AND AS SPECIFICALLY NOTED ON THE DEMOLITION DRAWINGS.
- ALL MATERIALS BEING REMOVED SHALL BE HANDLED IN A MANNER COMPLYING WITH ALL PERTINENT LAWS, CODES AND ENVIRONMENTAL REGULATIONS.
- WHERE ELECTRICAL EQUIPMENT & DEVICES ARE BEING REMOVED, COORDINATE AND FIELD VERIFY IF BRANCH CIRCUIT FEEDS THROUGH TO EQUIPMENT/DEVICES TO REMAIN. BRANCH CIRCUITS SHALL BE SPLICED OR RELOCATED TO MAINTAIN CONTINUATION OF SERVICES.
- WHERE EXISTING DEVICES ARE REMOVED & NO NEW DEVICES ARE INSTALLED IN THE SAME LOCATION, REMOVE ALL WIRING FROM BOX & PROVIDE PROPERLY SIZED BLANK COVER PLATE.
- CONTRACTOR SHALL REMOVE ALL FLUORESCENT LIGHT FIXTURE BALLASTS & IDENTIFY THOSE CONTAINING PCB'S. THESE SHALL BE TURNED OVER TO THE OWNER FOR DISPOSAL.
- ALL REMOVED COMPONENTS SHALL BE LEGALLY DISPOSED OF BY CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
- ELECTRICAL COMPONENTS IDENTIFIED BELOW, AND THE ASSOCIATED CONDUIT, WIRE & BOXES ARE TO BE REMOVED AND DISPOSED OF UNLESS SPECIFICALLY NOTED OTHERWISE.
- ELECTRICAL DEMOLITION SCOPE SHALL CONSIST OF REMOVAL OF LIGHTING FIXTURES IN THE AREA SHOWN WITH NEW LIGHTS AND REMOVAL OF BRANCH CIRCUITS SERVING THE FOLLOWING MECHANICAL EQUIPMENT: (5) 3-PHASE EF, (2) 120V EF, CAFETERIA AHUS- MOTOR AND HEATER CIRCUITS, (16) 480/3Ø/20A HEATERS, (12) 480/3Ø/30A HEATERS, (3) 480/3Ø/40A HEATERS, (22) 120 OR 277V/20A HEATERS, (5) 277V/20A AC UNITS, GYM AHU-1 & 2 MOTOR AND HEATER CIRCUITS.

PLAN NOTES

- REMOVE ALL EXISTING LIGHT FIXTURES IN AREA SHOWN. REMOVE BRANCH WIRING, CABLE & CONDUIT TO FIXTURES BUT RETAIN EXISTING CIRCUIT AND CONTROLS. PROVIDE NEW BRANCH CIRCUIT WIRING TO SERVE NEW FIXTURES AS SHOWN.
 - PROVIDE UNSWITCHED POWER FROM AREA LIGHTING CIRCUIT TO BATTERY PACK FURNISHED WITH EMERGENCY FIXTURE.
- GEN. CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORT OF EXISTING CABLE ANTICIPATED TO BE SUPPORTED BY EXISTING CEILING TO BE REMOVED. CONTRACTOR SHALL BUNDLE THE CABLE TO THE EXTENT ALLOWED BY LENGTHS AND SUPPORT WITH J-HOOKS FROM THE STRUCTURE ABOVE. ALLOW FOR 50 J-HOOKS FOR BIDDING PURPOSES.
- GEN. CONTRACTOR SHALL ALLOW FOR REMOVAL AND REINSTALLATION OF 6 CEILING MOUNTED SMOKE DETECTORS TO ACCOMMODATE CEILING REPLACEMENT.

LIGHT FIXTURE SCHEDULE

DESIGNATION	MFR	MODEL NUMBER
A	LITHONIA	2TL2-33L-PV-A12-EZ-LP840
AE	LITHONIA	2TL2-33L-PV-A12-EZ-LP840-ELM4L
B	LITHONIA	2VT2-40L-ADP-EZ-LP840
C	LITHONIA	LB4-LP840
D	LITHONIA	480MMWLED-40K/LBLED724



ABBREVIATIONS

(NOT ALL SYMBOLS ARE USED)

(###)	GPM	FA	FACE AREA	NO	NORMALLY OPEN
ABV	ABOVE	FBO	FURNISHED BY OTHERS	NTS	NOT TO SCALE
AC	AIR COMPRESSOR	FC	FORWARD CURVE	OA	OUTSIDE AIR
ACU-H	AIR CONDITIONING UNIT	FCU	FAN COIL UNIT	OAT	OUTDOOR AIR TEMPERATURE
AD	ACCESS DOOR	FD	FIRE DAMPER WITH ACCESS DOOR	OAI	OUTDOOR AIR INTAKE
AF	AIRFOIL	FF	FINAL FILTER	OD	OPPOSED BLADE DAMPER
AFC	ADJUSTABLE FREQUENCY CONTROLLER	FBO	FURNISHED AND INSTALLED BY OTHERS	OED	OUTSIDE DIMENSION
AFV	ABOVE FINISHED FLOOR	FN FL	FINISH FLOOR	O.E. T.D.	OPEN END TRANSFER DUCT
AHUS	AIR HANDLING UNIT	FL	FLOOR	P#	PUMP
AH-U#	AIR HANDLING UNIT	FLA	FULL LOAD AMPERES	PB	PUSH BUTTON
AL	ACOUSTIC LINING	FLB	FLEXIBLE	PBD	PARALLEL BLADE DAMPER
ALD	AUTOMATIC LOUVER DAMPER	FLX	FLEXIBLE	PD	PRESSURE DROP
APD	AIR PRESSURE DROP	FPF	FINS PER FOOT	PF	PREFILTER
AUTO	AUTOMATIC	FPV	FAN POWERED VAV BOX	PH	PHASE
B-H	BOILER	FT	FEET	PHC	PREHEAT COIL
BC	BACKWARD CURVED	F.T.	FLOUT & THERMOSTATIC TRAP	PPH	POUND PER HOUR
BD	BELT DRIVE	FTR	FIN TUBE RADIATION	PRV	PRESSURE REDUCING VALVE
BMCS	BUILDING MANAGEMENT & CONTROL SYSTEM	FV	FACE VELOCITY	PSI	POUND PER SQUARE INCH
IBT	INVERTED BUCKET TRAP	GC	GENERAL CONTRACTOR	RA	RETURN AIR
BTU	BRITISH THERMAL UNIT	GH	GRAVITY INTAKE HOOD	RAF-#	RETURN AIR FAN
CH	CHILLER	GPH	GALLONS PER HOUR	RAT	RETURN AIR TEMPERATURE
CAP	CAPACITY	GPM	GALLONS PER MINUTE	R	REGISTER
CB-#	CHILLED BEAM	GWL/S	GEO THERMAL WATER LOOP SUPPLY	RH	RELATIVE HUMIDITY
CC-#	COOLING COIL	GWLR	GEO THERMAL WATER LOOP RETURN	RHC	REHEAT COIL
CD	CEILING DIFFUSER	H/C	HEATING/COOLING	RM	ROOM
CFM	CUBIC FEET PER MINUTE	H-#	HUMIDIFIER	RP	RADIANT PANEL
CG	CEILING GRILLE	H-O-A	HAND-OFF-AUTOMATIC	RP#	REVOLUTIONS PER MINUTE
CLG	CEILING	H-C-#	HEATING COIL	RS	RISE
CONV-#	HOT WATER CONVECTOR	H-#	FEET OF HEAD	RTU-#	ROOFTOP AIR CONDITIONING UNIT
CP	CONDENSATE RECEIVER/PUMPING SYSTEM	HP	HORSEPOWER	SA	SUPPLY AIR
CR	CEILING REGISTER	HTG	HEATING	SAP-#	SUPPLY AIR FAN
CT-#	COOLING TOWER	HTR	HEATER	SAT	SUPPLY AIR TEMPERATURE
CTD	CEILING TRANSFER DUCT	HV-#	HEATING AND VENTILATING UNIT	SB	SECURITY BARS
CU-#	CABINET UNIT HEATER HOT WATER	HVAC	HEATING, VENTILATING & AIR CONDITIONING	VSC	VERTICAL SPLIT CASE
CV	CONTROL VALVE	H-C	HEATING COIL	HSC	HORIZONTAL SPLIT CASE
CW	COLD WATER	HX-#	HEAT EXCHANGER CONVERTOR	SD	SMOKE DAMPER
DET	DRIP AND TRAP	ID	INSIDE DIMENSION	SG	SUPPLY GRILLE
dB	DECIBELS	IN	INCHES	SP	STATIC PRESSURE
DB	DRY BULB	IV	INLET GUIDE VANES	SG FT	SQUARE FOOT (AREA)
DD	DIRECT DRIVE	KW	KILOWATT	ST	SINGLE POLE SWITCH
DDC	DIRECT DIGITAL CONTROL	LW	LEAVINGS WATER TEMPERATURE	SWR	W/ THERMAL OVERLOAD
DIFF	DIFFUSER	LD	LINEAR DIFFUSER	SWR	SIDE WALL REGISTER
DL	DOOR LOUVER	LN	LINEAR	TSTAT	THERMOSTAT
DN	DOWN	LRA	LOCKED ROTOR AMPERES	TD	TEMPERATURE DIFFERENCE
DOAS	DEDICATED OUTDOOR AIR SYSTEM	LPR	LOW PRESSURE RETURN	TEMP	TEMPERATURE
DP	DEWPOINT TEMPERATURE	LPS	LOW PRESSURE SUPPLY	TG	TON HOUR REFRIGERATION
DR	DROP	LVS	LEAVINGS	TOT	TOTAL
DTWS	DUAL TEMPERATURE WATER SUPPLY	LWT	LEAVINGS WATER TEMPERATURE	TWHR	TON-HOUR REFRIGERATION
DTWR	DUAL TEMPERATURE WATER RETURN	MAN	MANUAL	TRD	TRANSFER DUCT
DX	DUCT EXPANSION	MAT	MIXED AIR TEMPERATURE	TT	THERMOSTATIC TRAP
EF-#	EXHAUST FAN	MAX	MAXIMUM	TYP	TYPICAL
EAT	ENTERING AIR TEMPERATURE	MBH	1000 BTUS	UC	UNDERCUT DOOR
EER	ENERGY EFFICIENCY RATIO	MCA	MINIMUM CIRCUIT AMPACITY	UH-#	UNIT HEATER HOT WATER
EG	EXHAUST GRILLE	MD	MOTORIZED DAMPER	UV-#	UNIT VENTILATOR
EH-#	ELECTRIC HEATING COIL	MER	MECHANICAL EQUIPMENT ROOM	VAV-#	VARIABLE AIR VOLUME
ENT	ENTERING	MEZZ	MEZZANINE	VD	VOLUME DAMPER
HEPA	HIGH EFFICIENCY PARTICULATE FILTER	MFS	MAXIMUM FUSE SIZE	VE	VOLUME EXTRACTOR
ER	EXHAUST REGISTER	MIN	MINIMUM	VFD	VARIABLE FREQUENCY DRIVE
ES	END SUCTION	MOT	MOTOR	VI	VIBRATION ISOLATOR
ESP	EXTERNAL STATIC PRESSURE	MVA	MAKE-UP AIR	VSP	VARIABLE SPEED FAN SWITCH
ET-#	EXPANSION TANK	MV	MOTORIZED VALVE	W	WITH
EU-#	ELECTRIC UNIT HEATER	NC	NORMALLY CLOSED	WB	WET BULB
EWT	ENTERING WATER TEMPERATURE	NC	NOISE CRITERIA	WFM	WATER FLOW MEASURING STATION
EXT	EXTERNAL	NFA	NET FREE AREA	WMS	WIRE MESH SCREEN
EX-#	EXHAUST	NF	NET FREE AREA	WPD	WATER PRESSURE DROP
FEB	FACE & BYPASS DAMPER	NC	NOT IN THIS CONTRACT	WT	WEIGHT (LBS)
				ZD	ZONE DAMPER

SYMBOL LEGEND

(NOT ALL SYMBOLS ARE USED)

	POINT OF CONNECTION		MECHANICAL NOTE REFERENCE NUMBER INDICATES NOTE
	RETURN OR EXHAUST DUCT UP	CFM	CUBIC FEET PER MINUTE
	SUPPLY OR OUTSIDE AIR DUCT UP	DIA. OR Ø	DIAMETER
	ACOUSTICALLY LINED DUCTWORK		VOLUME DAMPER
	SINGLE-WALL DUCTWORK		BACKDRAFT DAMPER
	THERMOSTAT OR SPACE TEMPERATURE SENSOR		DUCT STATIC PRESSURE SENSOR
	HUMIDISTAT/HUMIDITY SENSOR		MOTORIZED DAMPER
	PRESSURE SENSOR		SUPPLY OR OUTSIDE AIR DUCT UP OR CSO
	DUCT SMOKE DETECTOR		SUPPLY OR OUTSIDE AIR DUCT DOWN
	DIRECTION OF FLOW		RETURN OR EXHAUST DUCT UP OR CSO
	RETURN GRILLE		RETURN OR EXHAUST DUCT DOWN
	T DOOR UNDERCUT		FLEXIBLE CONNECTION
	DIRECTION OF SUPPLY OR OUTSIDE AIR		DUCT TRANSITION
	DIRECTION OF RETURN OR EXHAUST AIR		RECTANGULAR TO ROUND TRANSITION
	AIR TERMINAL UNIT		DUCT WORK, DIRECTION OF FLOW
	DUCT-MOUNTED HUMIDITY SENSOR		POSITIVE PRESSURE DUCT
	DUCT MOUNTED CARBON DIOXIDE SENSOR		NEGATIVE PRESSURE DUCT
	SMOKE DAMPER		CHANGE OF ELEVATION, RISE (R) OR DROP (D)
	COMBINATION FIRE AND SMOKE DAMPER		DUCT ACCESS DOOR
	FIRE DAMPER WITH ACCESS DOOR		

GENERAL

- THE INTENT OF THESE CONTRACT DOCUMENTS IS FOR THE CONTRACTOR TO FURNISH AND INSTALL COMPLETE MECHANICAL AND CONTROL SYSTEMS. THESE SYSTEMS INCLUDE FIRE PROTECTION, HVAC, ELECTRICAL AND ALL ASSOCIATED SPECIAL SYSTEMS. ALL SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS, OPERATING, TESTED, ADJUSTED, APPROVED BY THE AUTHORITIES HAVING JURISDICTION AND READY FOR BENEFICIAL USE BY THE OWNER.
- THE CONTRACTOR SHALL OBTAIN AND REVIEW ALL CONTRACT DOCUMENTS, INCLUDING PROJECT MANUAL, PLANS AND SPECIFICATIONS OF ALL TRADES BEFORE SUBMITTING BID. REFER TO SPECIFICATIONS, PROJECT MANUAL AND PLANS, INCLUDING ALL EQUIPMENT SCHEDULES FOR MECHANICAL AND ELECTRICAL INFORMATION. CONTRACTOR SHALL WALK THROUGH BUILDING TO BECOME FAMILIAR WITH THE EXISTING FIELD CONDITIONS PRIOR TO SUBMITTING BID.
- ALL OF THE CONTRACT DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY TO FORM A TOTAL DESIGN PACKAGE. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER TO DETERMINE WHICH TRADE CONTRACTOR IS RESPONSIBLE FOR VARIOUS PORTIONS OF THE WORK.
- ALL WORK AND ACTION DERIVED AND DESCRIBED SHALL BE PERFORMED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
- PROVIDE SUPPORT/BRACING OF EQUIPMENT AND BUILDING SERVICES FOR SEISMIC RESTRAINT AS REQUIRED BY CODES.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
- ALL EQUIPMENT, MATERIALS AND RELATED SYSTEMS COMPONENTS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
- REPAIR AND/OR REPLACE AT NO COST TO OWNER ALL EQUIPMENT AND MATERIALS DAMAGED DURING CONSTRUCTION.
- THE DRAWINGS ARE DIAGNOSTIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION OF EQUIPMENT AND EXISTING CONNECTION LOCATIONS WITH ALL TRADES BEFORE STARTING CONSTRUCTION. ANY MODIFICATIONS TO THE EQUIPMENT LAYOUT REQUIRED FOR INSTALLATION ARE TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
- REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATION OF DIFFUSERS, REGISTERS AND GRILLES AND MOUNTING HEIGHTS OF EQUIPMENT INCLUSIVE OF RECEPTACLES, SWITCHES, THERMOSTATS, ETC. ALL SUCH EQUIPMENT AND COLORS SHALL BE COORDINATED WITH THE ARCHITECT. CONTACT ARCHITECT FOR CLARIFICATION OF MOUNTING REQUIREMENTS, IF INFORMATION IS NOT CONTAINED IN THE DRAWINGS.
- ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE APPLICABLE CODES IN THE ORDINANCES AND THE REGULATORY AGENCIES HAVING JURISDICTION.
- ALL EQUIPMENT SHALL BE LOCATED IN ACCESSIBLE LOCATIONS, WHEN A PIECE OF EQUIPMENT MUST BE LOCATED ABOVE AN INACCESSIBLE CEILING OR WALL, THEN THE APPROPRIATE ACCESS DOOR SHALL BE PROVIDED. THESE SHALL BE COORDINATED WITH THE ARCHITECT.
- WHEN CONFLICTS OCCUR BETWEEN THE DRAWINGS AND/OR SPECIFICATIONS IT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE CONTRACTOR SHALL CARRY AS PART OF THE BID THE LARGER QUANTITY AND/OR MORE EXPENSIVE ITEM(S).
- CONTRACTORS SHALL COORDINATE THEIR WORK WITH ALL OWNER-FURNISHED EQUIPMENT, INCLUDING REQUIRED SERVICE CONNECTIONS, RECEPTACLES, ETC. BEFORE INSTALLATION.
- CONTRACTORS SHALL PROVIDE ALL REQUIRED SLEEVES AND SEALS FOR PIPES OR CONDUIT PENETRATING WALLS OR FLOOR SLABS WITH FIRE STOPPING SEALANT WHERE REQUIRED.
- ELECTRICAL CONDUITS & BOXES TO BE CONCEALED IN WALLS OR ABOVE CEILING WHEREVER POSSIBLE.
- COORDINATE ALL PIPES AND CONDUITS LEAVING THE BUILDING WITH THE SITE CONTRACTOR(S) BEFORE INSTALLATION.
- PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT.
- PROVIDE VIBRATION ISOLATORS FOR ALL PIPES SUPPORTS CONNECTED TO AND WITHIN 50 FEET OF ISOLATED EQUIPMENT THROUGHOUT MECHANICAL EQUIPMENT ROOMS.
- LOCATE ALL TEMPERATURE, PRESSURE AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UP/DOWN STREAM AS REQUIRED BY THE MANUFACTURER FOR GOOD ACCURACY.
- PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS AND OTHER CONCEALED MECHANICAL EQUIPMENT.
- ALL EQUIPMENT, PIPES, DUCT WORK SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
- LOCATION AND SIZES OF ALL FLOOR, WALL AND ROOF PENETRATIONS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
- INSTALL COMPLETE OPERATING SYSTEMS. PROVIDE ALL COMPONENTS, DEVICES, CONTROLS, RELAYS, TRANSFORMERS, ETC. WHETHER INDICATED OR NOT, FOR COMPLETE SYSTEMS AS INTENDED BY THE CONSTRUCTION DOCUMENTS.
- ALL PENETRATIONS THRU RATED WALLS, FLOORS & CEILINGS SHALL BE SEALED USING UL LISTED METHODS APPROPRIATE FOR INDICATED RATING.
- SOME PART OF THE BUILDING WILL BE OCCUPIED DURING CONSTRUCTION. REFER TO PHASING PLAN FOR MORE INFORMATION. MAINTAIN EXISTING SERVICES TO OCCUPY AREAS. SEAL ALL DUCTWORK AND VENTILATION OPENINGS COMMUNICATING CONSTRUCTION AREAS WITH OCCUPIED AREAS TO PREVENT THE TRANSFER OF AIR CONTAMINATED BY CONSTRUCTION ACTIVITIES.
- DRAWINGS OF EXISTING FIELD CONDITIONS AND INSTALLATION OF EXISTING SYSTEMS AND EQUIPMENT ARE BASED ON ORIGINAL DESIGN DRAWINGS AND LIMITED SURVEY TO ACCESSIBLE AND VISIBLE LOCATIONS. CONTRACTORS SHALL TAKE THIS INTO CONSIDERATION IN THEIR BIDS AND MAKE ANY REQUIRED ADJUSTMENTS BASED ON THESE DISCREPANCIES AT NO ADDITIONAL COST TO THE OWNER.

MECHANICAL

- PIPES AND DUCT WORK LAYOUTS AS INDICATED ON THE DRAWINGS ARE DIAGNOSTIC. PROVIDE ADDITIONAL TRANSITIONS AND OFFSETS AS REQUIRED FOR COORDINATION WITH BUILDING CONSTRUCTION AND THE WORK OF OTHER TRADES.
- PROVIDE VOLUME DAMPERS, THROTTLING VALVES AND ISOLATION VALVES AT EACH BRANCH CONNECTION, AS SPECIFIED AND AS INDICATED ON THE DRAWINGS.
- PROVIDE FIRE DAMPERS AT DUCT PENETRATIONS OF FIRE RATED PARTITIONS.
- PROVIDE SMOKE DETECTORS ON THE SUPPLY AND RETURN SIDE OF ALL AIR HANDLING EQUIPMENT 2000 CFM AND OVER.
- ALL MOTORS AND EQUIPMENT SHALL BE OF EFFICIENCIES THAT ARE ELIGIBLE FOR UTILITY COMPANY ENERGY INCENTIVE PROGRAMS.
- THE UNIT MOUNTED AND STATIC PRESSURE CONTROL SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS, TESTED AND CAPABLE OF ACHIEVING THE SEVERITIES OF OPERATING AREAS. ALL DUCTWORK AND VENTILATION OPENINGS COMMUNICATING CONSTRUCTION AREAS WITH OCCUPIED AREAS TO PREVENT THE TRANSFER OF AIR CONTAMINATED BY CONSTRUCTION ACTIVITIES.
- MAINTAIN MANUFACTURERS RECOMMENDED MINIMUM CLEARANCES FOR INSTALLATION OF EQUIPMENT.
- FLEXIBLE DUCT RUNS SHALL NOT BE LONGER THAN 5 FT.
- PROVIDE VOLUME DAMPERS AT ALL SUPPLY DIFFUSERS, RETURN GRILLES, AND EXHAUST GRILLES, AS INDICATED.
- PROVIDE VANDAL RESISTANT COVERS THERMOSTATS, AS NOTED.
- ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.
- PROVIDE ALL 90 DEGREE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED. ELBOWS SHALL BE UNVANED SMOOTH RADIUS CONSTRUCTION WITH A RADIUS EQUAL TO 1/2 TIMES THE WIDTH OF THE DUCT. PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS WITH TURNING VANES.
- COORDINATE DIFFUSER, REGISTER AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING AND OTHER CEILING ITEMS.
- PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS CONNECTED TO AIR HANDLING UNITS, FANS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
- ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL SMOKE DETECTORS, FIRE DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, COILS AND OTHER ITEMS LOCATED IN DUCTWORK WHICH REQUIRE SERVICE OR INSPECTION.
- PROVIDE ACCESS DOORS IN DUCTWORK FOR OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL FANS, VALVES AND MECHANICAL EQUIPMENT.
- SUPPLY AND RETURN DUCTS FROM THE MAIN AIR HANDLING UNIT SHALL HAVE ACOUSTICAL LINING, R VALUE OF 5, WITHIN 15 FT OF DUCTWORK CONNECTED TO THE UNIT. METAL NOISINGS SHALL BE SECURELY INSTALLED OVER TRANSVERSELY ORIENTED LINER EDGES FACING THE AIR STREAM AT FAN DISCHARGE, AT ACCESS DOORS, AND AT ANY INTERVAL OF LINED DUCT PRECEDED BY UNLINED DUCT METAL NOISING SHALL BE USED ON UPSTREAM EDGES OF LINER AT EVERY TRANSVERSE JOINT.
- DUCTWORK SHALL BE CLEANED, PRESSURE TESTED AND SEALED FOR LEAKAGE IN ACCORDANCE WITH CODE AND THE PROJECT REQUIREMENTS.
- THE SUPPLY AIR SYSTEM SHALL BE PURGED TO ENSURE ALL FOREIGN PARTICLES ARE REMOVED PRIOR TO FINAL CONNECTION OF SUPPLY AIR DIFFUSERS.
- ALL ELBOWS AND TEES FROM DOWNFLOW ROOF MOUNTED UNITS SHALL BE WRAPPED WITH A SOUND LAGGING MATERIAL, IN ADDITION TO DUCT LINER.

MECHANICAL DEMOLITION NOTES

ALL EQUIPMENT, FIXTURES, PIPES ETC. TO BE REMOVED SHALL BE DISPOSED OF, TURNED OVER TO THE OWNER, OR SALVAGED AS DIRECTED BY THE OWNER. EQUIPMENT, FIXTURES, PIPES, DEVICES, ETC. SHALL NOT BE REMOVED FROM THE PREMISES WITH OUT THE OWNERS APPROVAL.

ALL ABANDONED PIPES TO REMAIN SHALL BE PROPERLY PLUGGED, VALVED, CAPPED AND/OR BY PASSED SUCH THAT UPON COMPLETION OF WORK ALL ABANDONED SYSTEMS ARE PROPERLY CONCEALED, AND THAT EXISTING SYSTEMS TO REMAIN, REMAIN OPERATIONAL.

NO DEAD ENDS SHALL BE LEFT ON ANY PIPING SYSTEMS UPON COMPLETION OF WORK.

EXISTING EXPOSED PIPING SYSTEMS NOT TO BE REUSED, AND NOT SPECIFICALLY NOTED FOR REMOVAL SHALL BE COMPLETELY REMOVED. CONTRACTOR SHALL VERIFY PRIOR TO REMOVAL.

ALL SYSTEMS SHALL BE LEFT IN PERFECT WORKING ORDER UPON COMPLETION OF ALL NEW WORK.

ALL EXISTING EXPOSED, UNNECESSARY PIPING RELATED TO NEW WORK SHALL BE COMPLETELY REMOVED.

REROUTE OR REMOVE ALL EXISTING PIPING, AND SYSTEMS WHERE NECESSARY TO AVOID NEW EQUIPMENT, STRUCTURAL, OR MASONRY WORK AS REQUIRED BY THE PROPOSED ALTERATIONS.

COORDINATE PLUMBING SERVICES SHUT DOWNS (HEOW, GAS, WASTE, VENT & STORM SYSTEMS) WITH THE BUILDING MANAGER AND UTILITY COMPANY.

MECHANICAL CONSTRUCTION NOTES

ALL EQUIPMENT, FIXTURES, PIPES ETC. TO BE REMOVED SHALL BE DISPOSED OF, TURNED OVER TO THE OWNER, OR SALVAGED AS DIRECTED BY THE OWNER. EQUIPMENT, FIXTURES, PIPES, DEVICES, ETC. SHALL NOT BE REMOVED FROM THE PREMISES WITH OUT THE OWNERS APPROVAL.

ALL ABANDONED PIPES TO REMAIN SHALL BE PROPERLY PLUGGED, VALVED, CAPPED AND/OR BY PASSED SUCH THAT UPON COMPLETION OF WORK ALL ABANDONED SYSTEMS ARE PROPERLY CONCEALED, AND THAT EXISTING SYSTEMS TO REMAIN, REMAIN OPERATIONAL.

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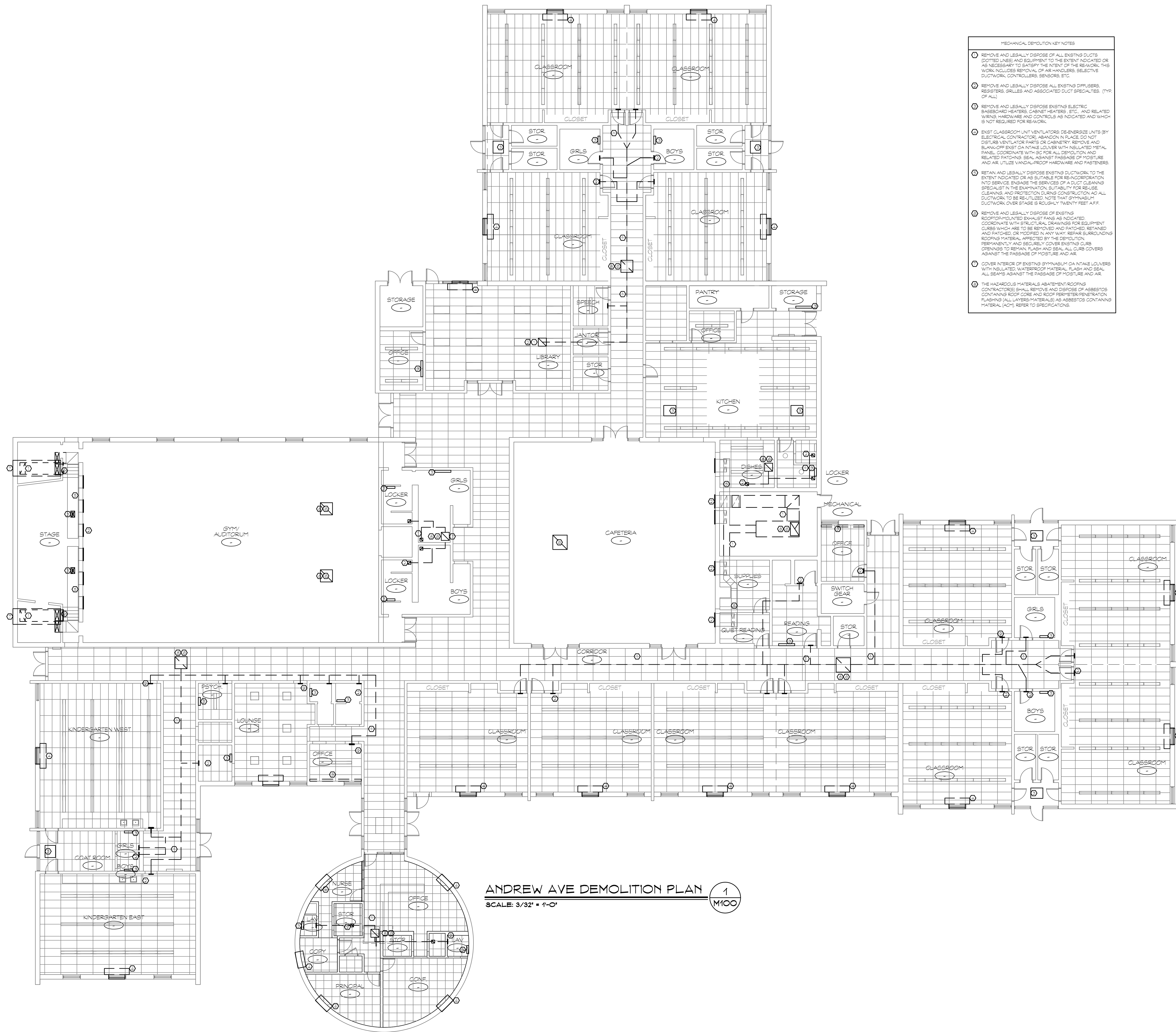
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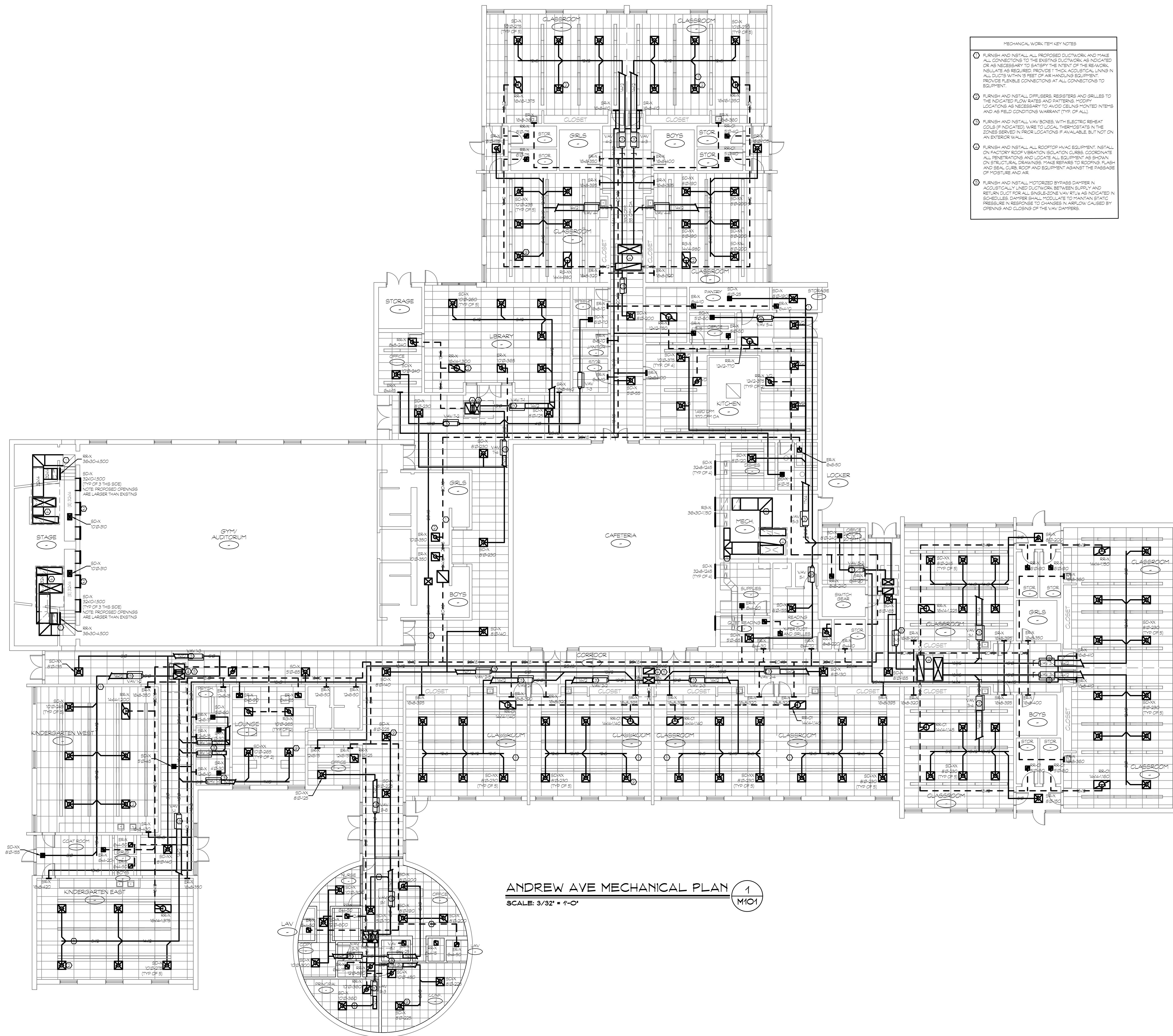


- MECHANICAL DEMOLITION KEY NOTES
- 1 REMOVE AND LEGALLY DISPOSE OF ALL EXISTING DUCTS (DOTTED LINE) AND EQUIPMENT TO THE EXTENT INDICATED OR AS NECESSARY TO SATISFY THE INTENT OF THE REWORK. THIS WORK INCLUDES REMOVAL OF AIR HANDLERS, SELECTIVE DUCTWORK, CONDENSERS, SENSORS, ETC.
 - 2 REMOVE AND LEGALLY DISPOSE ALL EXISTING DIFFUSERS, REGISTERES, GRILLES AND ASSOCIATED DUCT SPECIALTIES (TYPE OF ALL).
 - 3 REMOVE AND LEGALLY DISPOSE EXISTING ELECTRIC BASEBOARD HEATERS, CABINET HEATERS, ETC., AND RELATED WIRING HARDWARE AND CONTROLS AS INDICATED AND WHICH IS NOT REQUIRED FOR REWORK.
 - 4 EXIST CLASSROOM UNIT VENTILATORS, DEHUMIDIFIERS UNITS BY ELECTRICAL CONTRACTORS ABANDON IN PLACE. DO NOT DISTURB VENTILATOR PARTS OR CABINETS. REMOVE AND BLANK-OFF INSET ON FRAME LOUVERS WITH INSULATED METAL PANEL. COORDINATE WITH RC FOR ALL DEMOLITION AND RELATED PATCHING. SEAL AGAINST PASSAGE OF MOISTURE AND AIR. UTILIZE VANDAL-PROOF HARDWARE AND FASTENERS.
 - 5 RETAIN AND LEGALLY DISPOSE EXISTING DUCTWORK TO THE EXTENT INDICATED OR AS SUITABLE FOR REINTEGRATION INTO SERVICE. ENGAGE THE SERVICES OF A DUCT CLEANING SPECIALIST IN THE EXAMINATION, SUITABILITY FOR REUSE, CLEANING, AND PROTECTION. DEMOLITION AND ALL DUCTWORK TO BE REUTILIZED. NOTE THAT SYMMETRICAL DUCTWORK OVER STAGE IS 20" X 12" X 10' FEET AFF.
 - 6 REMOVE AND LEGALLY DISPOSE OF EXISTING ROOF-MOUNTED EXHAUST FANS AS INDICATED. COORDINATE WITH STRUCTURAL DRAWINGS FOR EQUIPMENT CURBS WHICH ARE TO BE REMOVED AND PATCHED, RETAINED AND PATCHED, OR MOVED IN ANY WAY. REMOVE SURROUNDING ROOFING MATERIAL AFFECTED BY THE DEMOLITION. REPAIRS AND LEGALLY DISPOSE EXISTING CURB OPENINGS TO REPAIR, FLASH AND SEAL. ALL CURB COVERS AGAINST THE PASSAGE OF MOISTURE AND AIR.
 - 7 COVER INTERIOR OF EXISTING SYMMETRICAL GYMNASTIC LOUVERS WITH INSULATED WATERPROOF MATERIAL, FLASH AND SEAL. ALL SEALS AGAINST THE PASSAGE OF MOISTURE AND AIR.
 - 8 THE HAZARDOUS MATERIALS ABATEMENT CONTRACTORS SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING ROOF JOBS AND ROOF SHEET METEORIC FLASHING (ALL LAYERS/MATERIALS) AS ASBESTOS CONTAINING MATERIAL (ACM). REFER TO SPECIFICATIONS.

ANDREW AVE DEMOLITION PLAN 1
SCALE: 3/32" = 1'-0" M100



Revision	Description	Date	Revised By

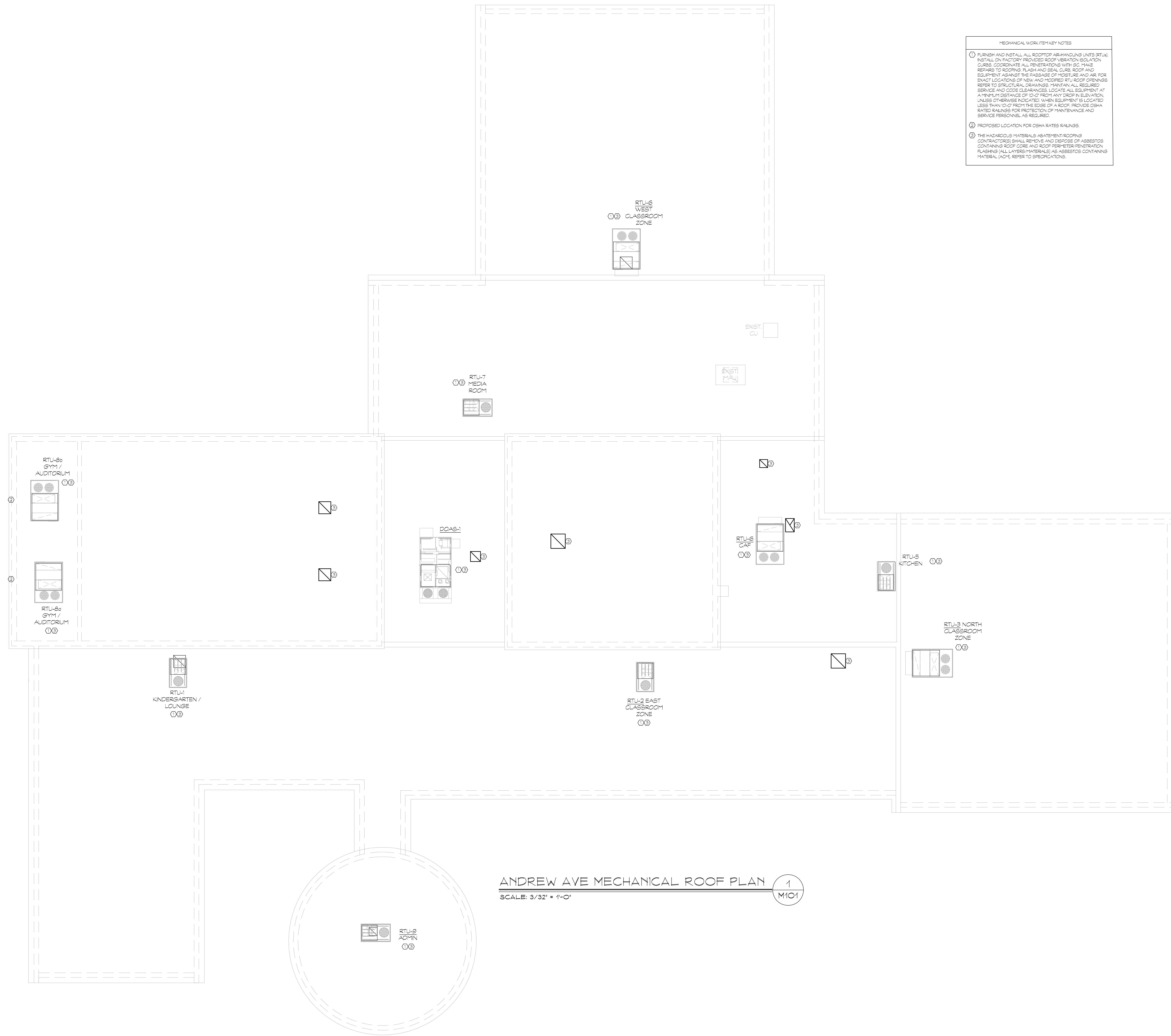


- MECHANICAL WORK ITEM KEY NOTES
1. FURNISH AND INSTALL ALL PROPOSED DUCTWORK AND MAKE ALL CONNECTIONS TO THE EXISTING DUCTWORK AS INDICATED OR AS NECESSARY TO SATISFY THE INTENT OF THE REWORK. INSULATE AS REQUIRED. PROVIDE THICK ACoustICAL LINING IN ALL CLUTS WITHIN 5 FEET OF AIR HANDLING EQUIPMENT. PROVIDE FLEXIBLE CONNECTIONS AT ALL CONNECTIONS TO EQUIPMENT.
 2. FURNISH AND INSTALL DIFFUSERS, REGISTERS AND GRILLES TO THE INDICATED FLOW RATES AND PATTERNS. HOOKUP LOCATIONS AS NECESSARY TO AVOID CEILING MOUNTED INTERFERS AND AS FIELD CONDITIONS WARRANT (TYP OF ALL).
 3. FURNISH AND INSTALL VAV BOXES WITH ELECTRIC REPEAT COILS IF INDICATED, WIRE TO LOCAL THERMOSTATS IN THE ZONES SERVED IN FIELD LOCATIONS IF AVAILABLE BUT NOT ON AN EXTERIOR WALL.
 4. FURNISH AND INSTALL ALL ROOFTOP HVAC EQUIPMENT. INSTALL ON FACTORY REAR VIBRATION ISOLATION CURBS. COORDINATE ALL PENETRATIONS AND LOCATE ALL EQUIPMENT AS SHOWN ON STRUCTURAL DRAWINGS. MAKE REPAIRS TO ROOFING FLASHING AND SEAL CURB, ROOF AND EQUIPMENT AGAINST THE PASSAGE OF MOISTURE AND AIR.
 5. FURNISH AND INSTALL MOTORIZED BYPASS DAMPERS IN ACoustICALLY LINED DUCTWORK BETWEEN SUPPLY AND RETURN DUCT FOR ALL SINGLE ZONE VAV RTUs AS INDICATED IN SCHEDULES. DAMPER SHALL MODULATE TO MAINTAIN STATIC PRESSURE IN RESPONSE TO CHANGES IN AIRFLOW CAUSED BY OPENING AND CLOSING OF THE VAV DAMPERS.

ANDREW AVE MECHANICAL PLAN 1
SCALE: 3/32" = 1'-0"



Revision	Description	Date	Revised By

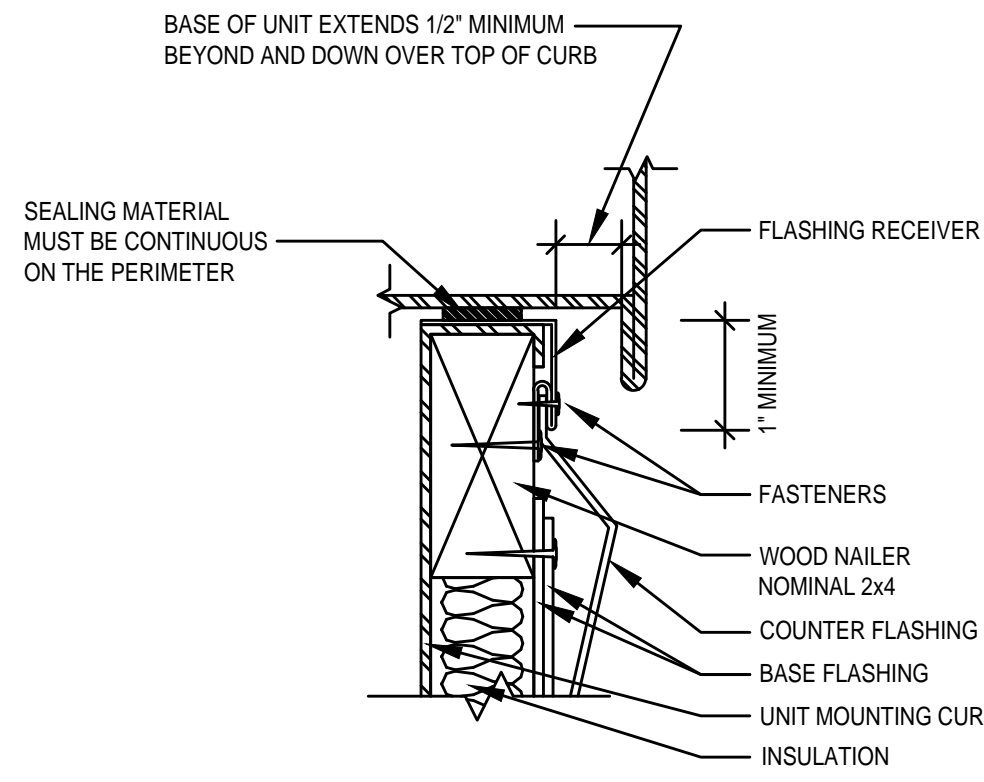


- MECHANICAL WORK ITEM NOTES
- 1. FURNISH AND INSTALL ALL ROOFTOP AIR HANDLING UNITS (RTU) IN ACCORDANCE WITH THE SPECIFICATIONS. PROVIDE SCOPED VENTILATION SOLUTIONS. COORDINATE ALL PENETRATIONS WITH SC. MAKE SURE TO PROVIDE FLASH AND SEAL. GASKET ROOF AND EQUIPMENT AGAINST THE PASSAGE OF MOISTURE AND AIR. FOR EXACT LOCATIONS OF NEW AND EXISTING RTU ROOF CRANES REFER TO STRUCTURAL DRAWINGS. MAINTAIN ALL REQUIRED SERVICE AND CODE CLEARANCES. LOCATE ALL EQUIPMENT AT A MINIMUM DISTANCE OF 5'-0" FROM ANY DROP IN ELEVATION, UNLESS OTHERWISE INDICATED. WHEN EQUIPMENT IS LOCATED LESS THAN 12'-0" FROM THE EDGE OF A ROOF, PROVIDE OSHA RATED RAILINGS FOR PROTECTION OF MAINTENANCE AND SERVICE PERSONNEL AS REQUIRED.
 - 2. PROPOSED LOCATION FOR OSHA RATED RAILINGS.
 - 3. THE HAZARDOUS MATERIALS ABATEMENT SCOPING CONTRACTORS SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING ROOF CORE AND ROOF PERIMETER PENETRATION FLASHING IN ALL LAYERS/MATERIALS AS ASBESTOS CONTAINING MATERIAL (ACM). REFER TO SPECIFICATIONS.

ANDREW AVE MECHANICAL ROOF PLAN 1
 SCALE: 3/32" = 1'-0" M101



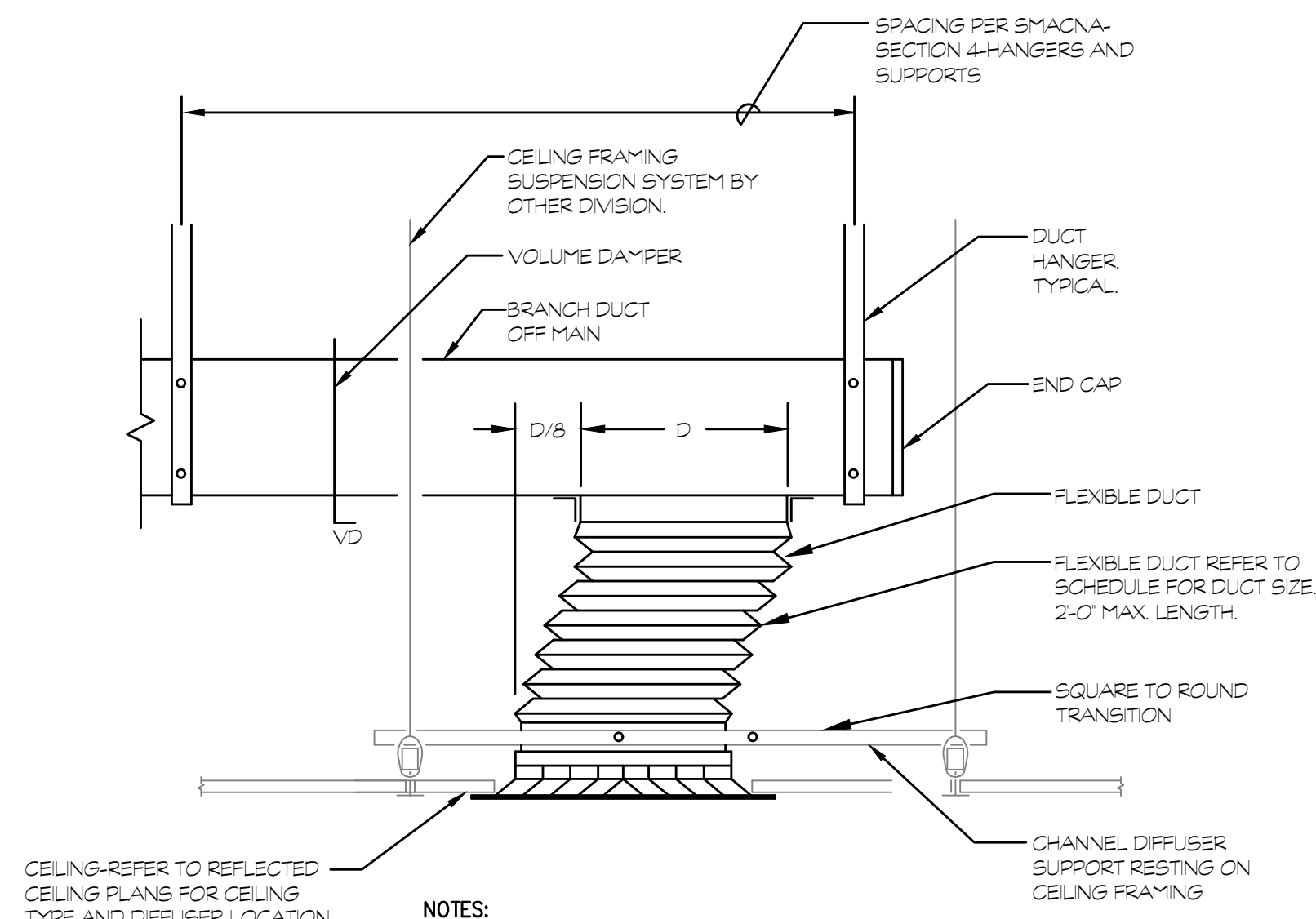
Revision	Description	Date	Revised By



NOTES:
1. ROOF CURB HEIGHT SHALL BE COORDINATED WITH THE ROOFING CONTRACTOR. CURB HEIGHT SHALL BE A MINIMUM OF 14" ABOVE THE FINISHED ROOF SURFACE.

SMACNA ROOFTOP AIR-HANDLING UNIT SECTION DETAIL

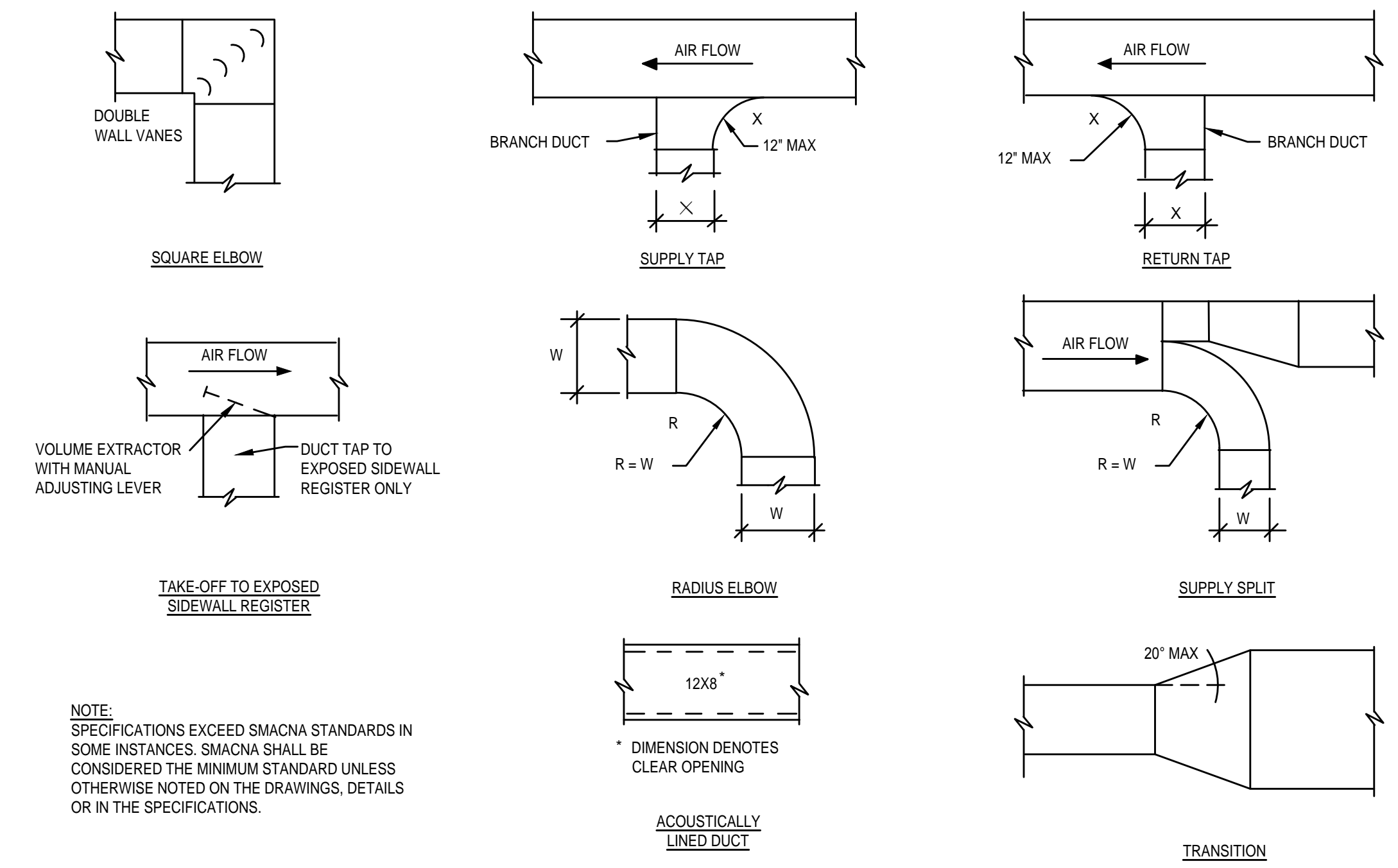
NOT TO SCALE



NOTES:
1. PROVIDE DIFFUSER W/ OPPOSED BLADE CABLE OPERATED DAMPERS W/ HANDSTREAM OPERATORS WHERE INSTALLED IN HARD ACCESSIBLE CEILING.
2. OFFSET SHALL NOT EXCEED D/8.

TYPICAL DIFFUSER DETAIL WITH FLEXIBLE DUCTWORK CONNECTION

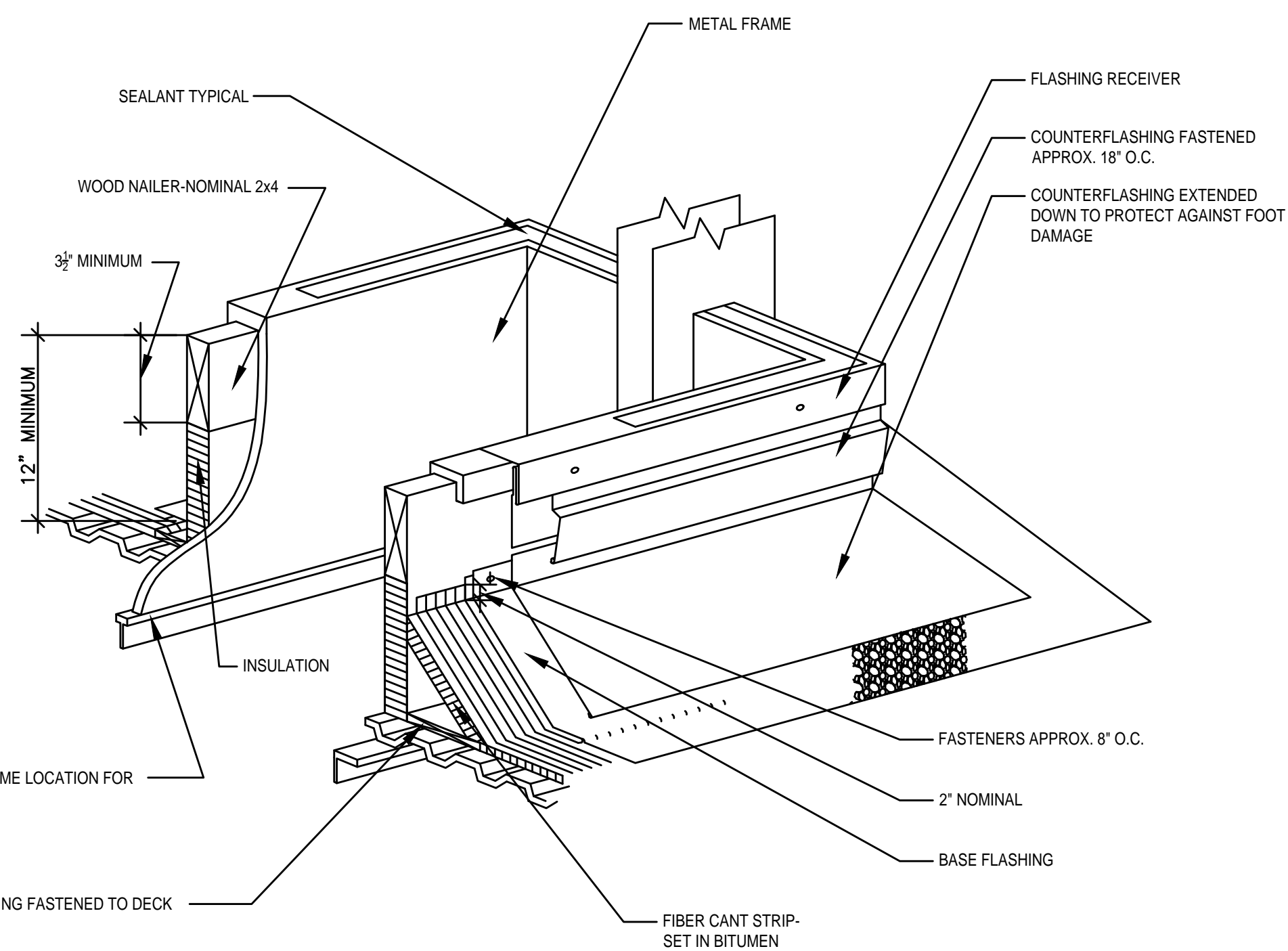
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NOTE:
SPECIFICATIONS EXCEED SMACNA STANDARDS IN SOME INSTANCES. SMACNA SHALL BE CONSIDERED THE MINIMUM STANDARD UNLESS OTHERWISE NOTED ON THE DRAWINGS, DETAILS OR IN THE SPECIFICATIONS.

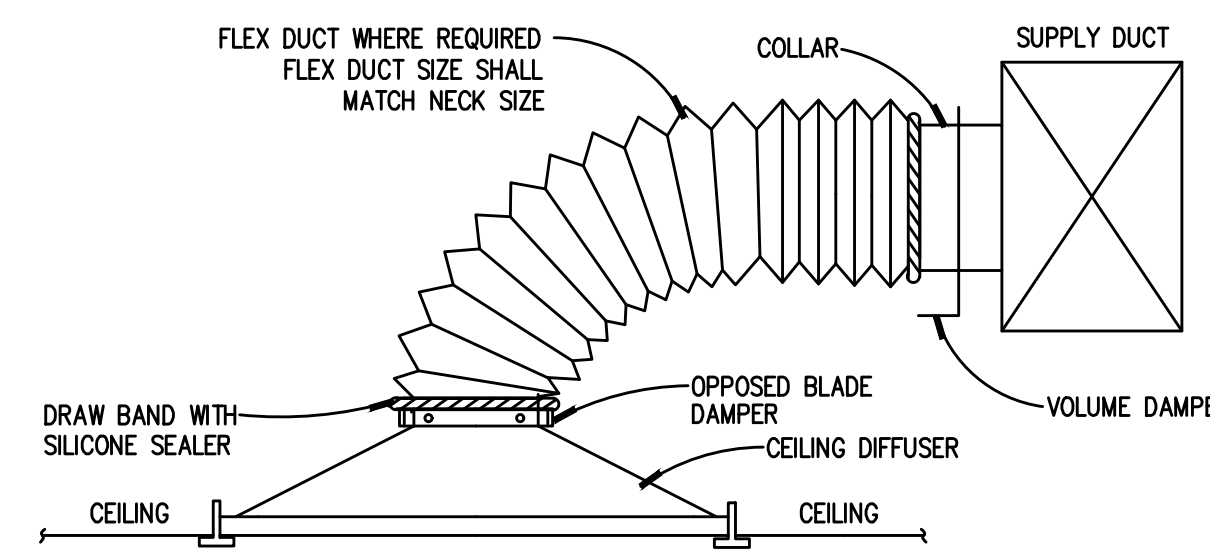
DUCT CONSTRUCTION DETAIL

NOT TO SCALE



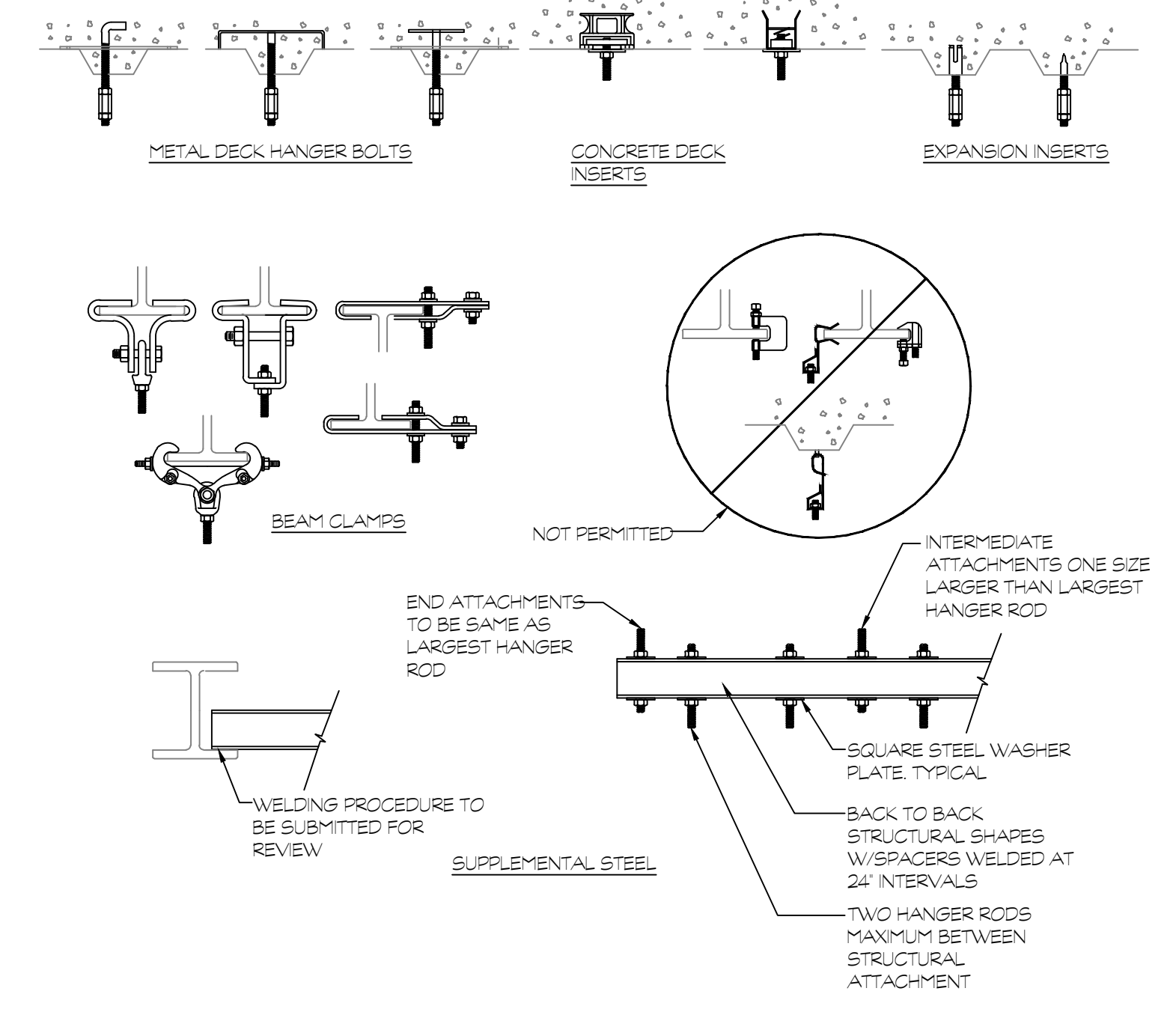
SMACNA ROOFTOP AIR-HANDLING UNIT ISOMETRIC DETAIL

NOT TO SCALE



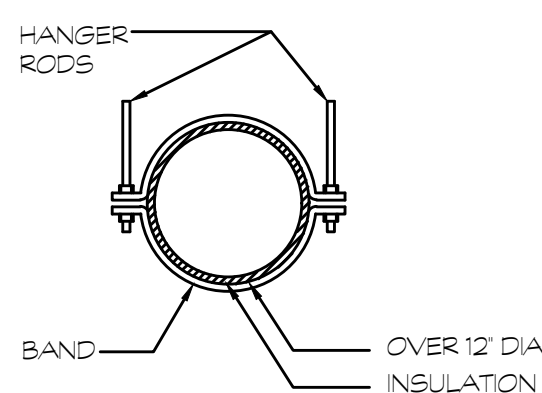
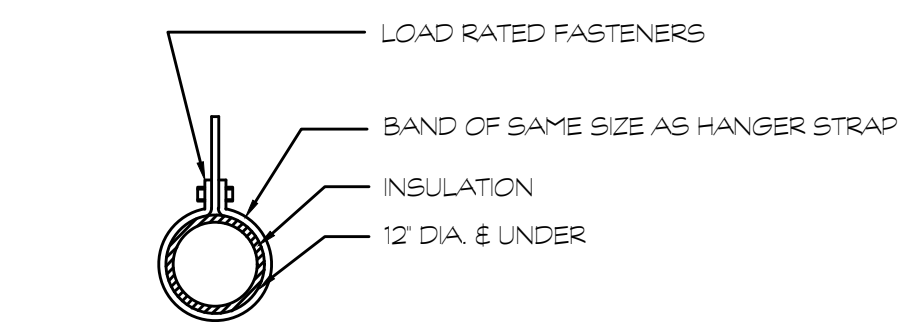
TYPICAL SIDE DIFFUSER CONNECTION DETAIL

NOT TO SCALE



HANGER ATTACHMENT DETAIL

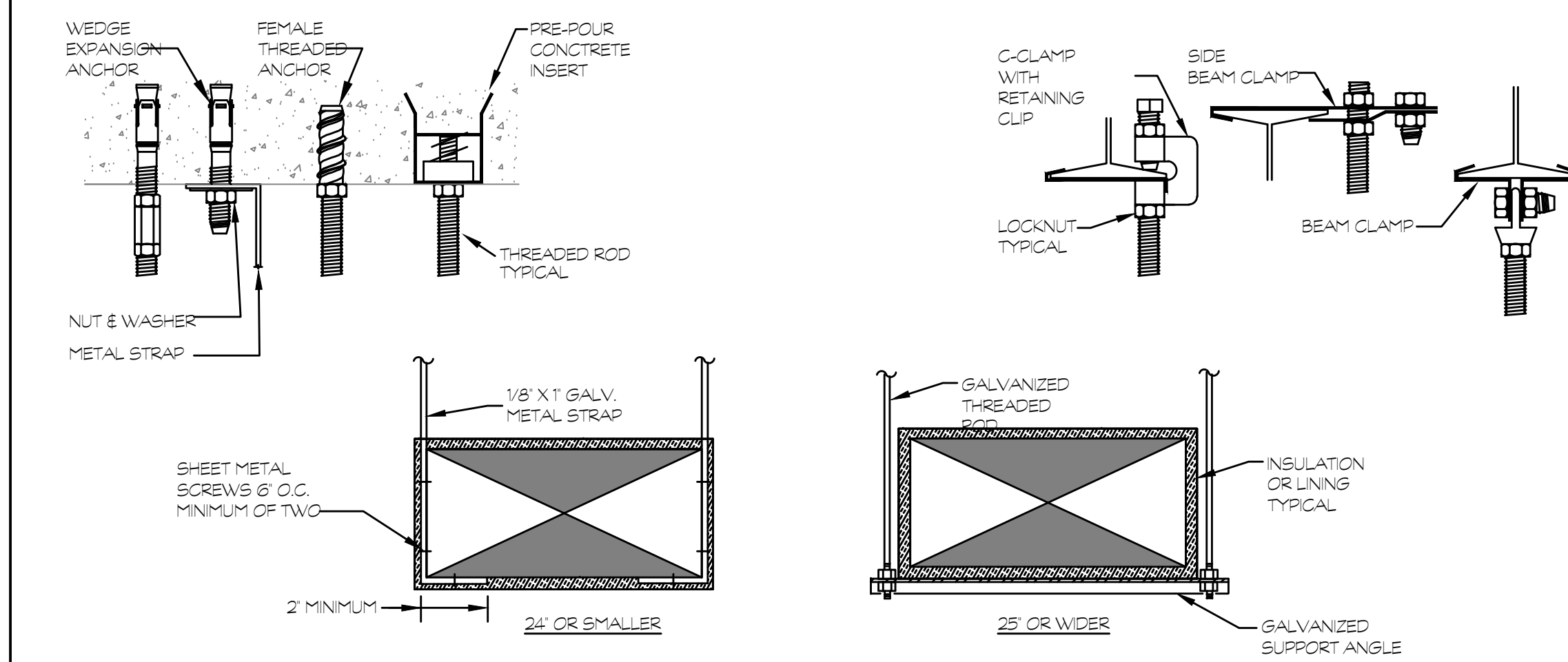
NOT TO SCALE



NOTE:
1. TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

ROUND DUCT SUPPORT DETAIL

NOT TO SCALE

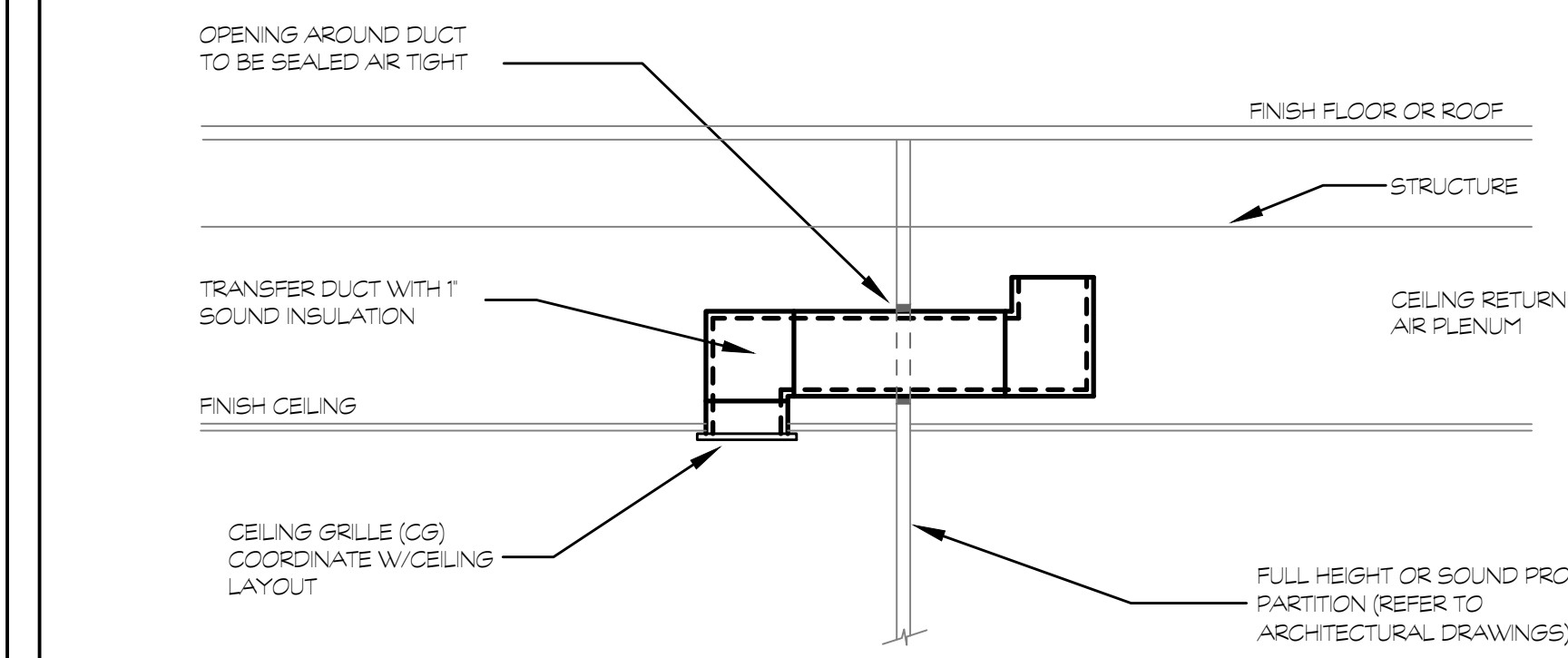


DUCT WIDTH	SUPPORT ANGLE OR EQUIV. CHANNEL	ROD DIA.	MAXIMUM SPACING	MAXIMUM AREA*
25" TO 30"	1 1/2" X 1 1/2" X 1/8"	3/8"	8'-0" O.C.	4 SQ. FT.
31" TO 42"	1 1/2" X 1 1/2" X 1/8"	3/8"	8'-0" O.C.	10 SQ. FT.
43" TO 60"	1 1/2" X 1 1/2" X 1/8"	1/2"	6'-0" O.C.	10 SQ. FT.
61" TO 84"	2" X 2" X 1/4"	1/2"	4'-0" O.C.	-
85" AND UP	2" X 2" X 1/4"	1/2"	4'-0" O.C.	-

*REDUCE SPACING TO NEXT SMALLER INTERVAL IF DUCT AREA EXCEEDS MAXIMUM.

DUCT SUPPORT DETAIL

NOT TO SCALE

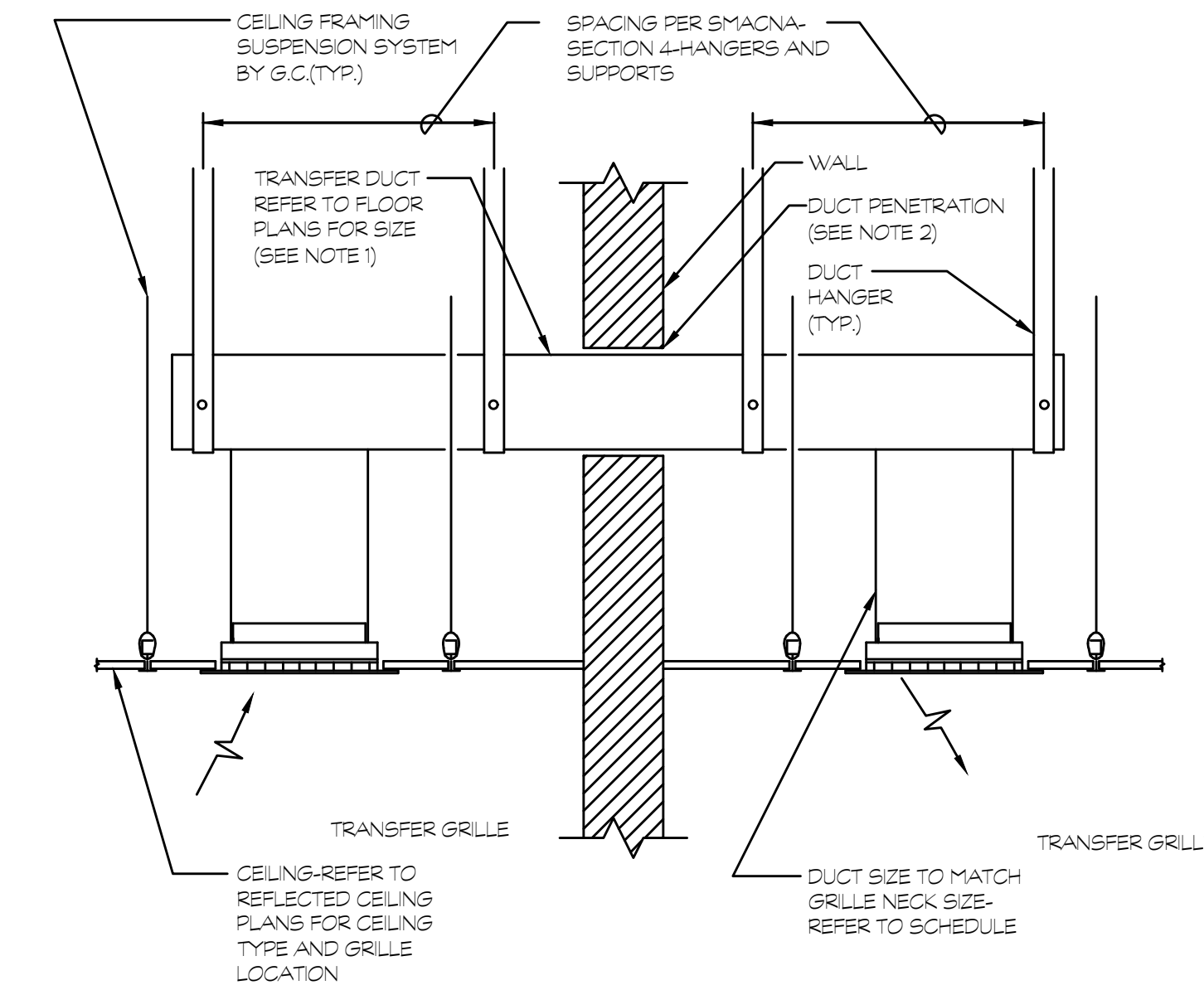


CEILING GRILLE TO R.A. PLENUM TRANSFER DUCT DETAIL

NOT TO SCALE

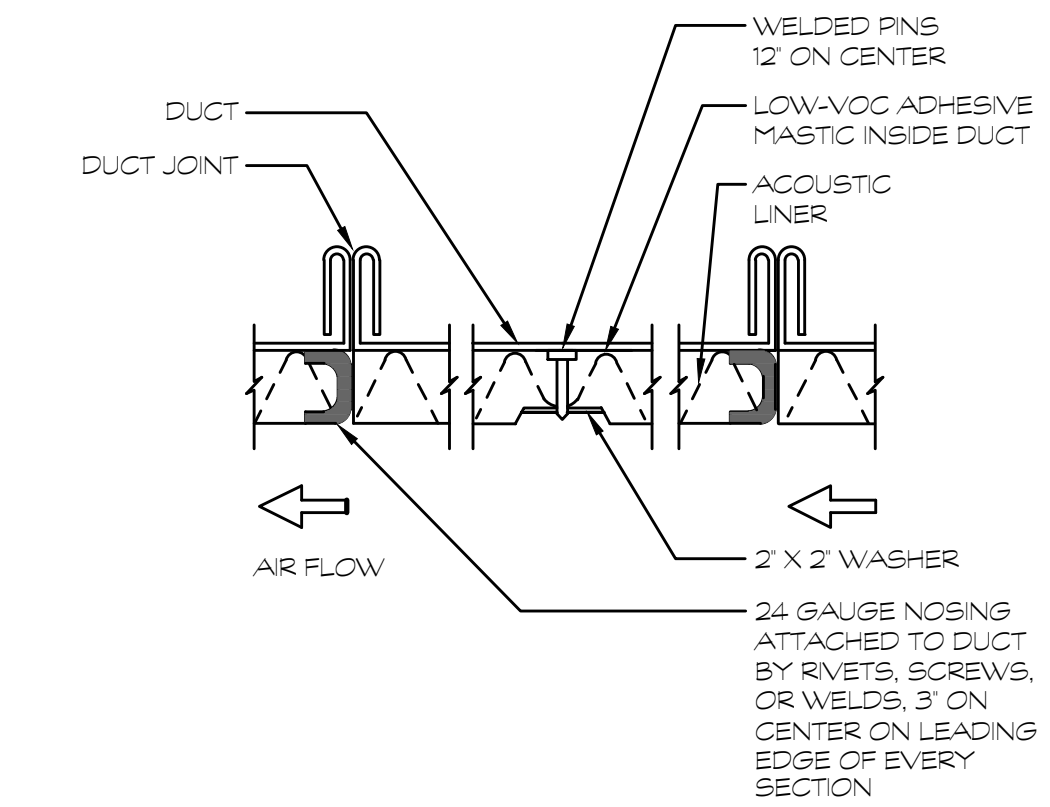
AIRFLOW RANGE (CFM)	TRANSFER DUCT SIZES (INCHES)
0-220	12x10, 20x8
221-340	20x10, 24x8
341-460	22x12, 26x10, 32x8
461-600	24x14, 28x12, 34x10
601-750	26x14, 30x12, 36x10
751-950	28x16, 32x14, 28x12
951-1200	36x16, 42x14, 48x12
1201-1600	36x20, 48x16, 54x14
1601-2000	48x20, 54x16, 60x16

NOTE:
FOR CFM GREATER THAN RANGES LISTED ABOVE, PROVIDE MULTIPLE DUCTS.

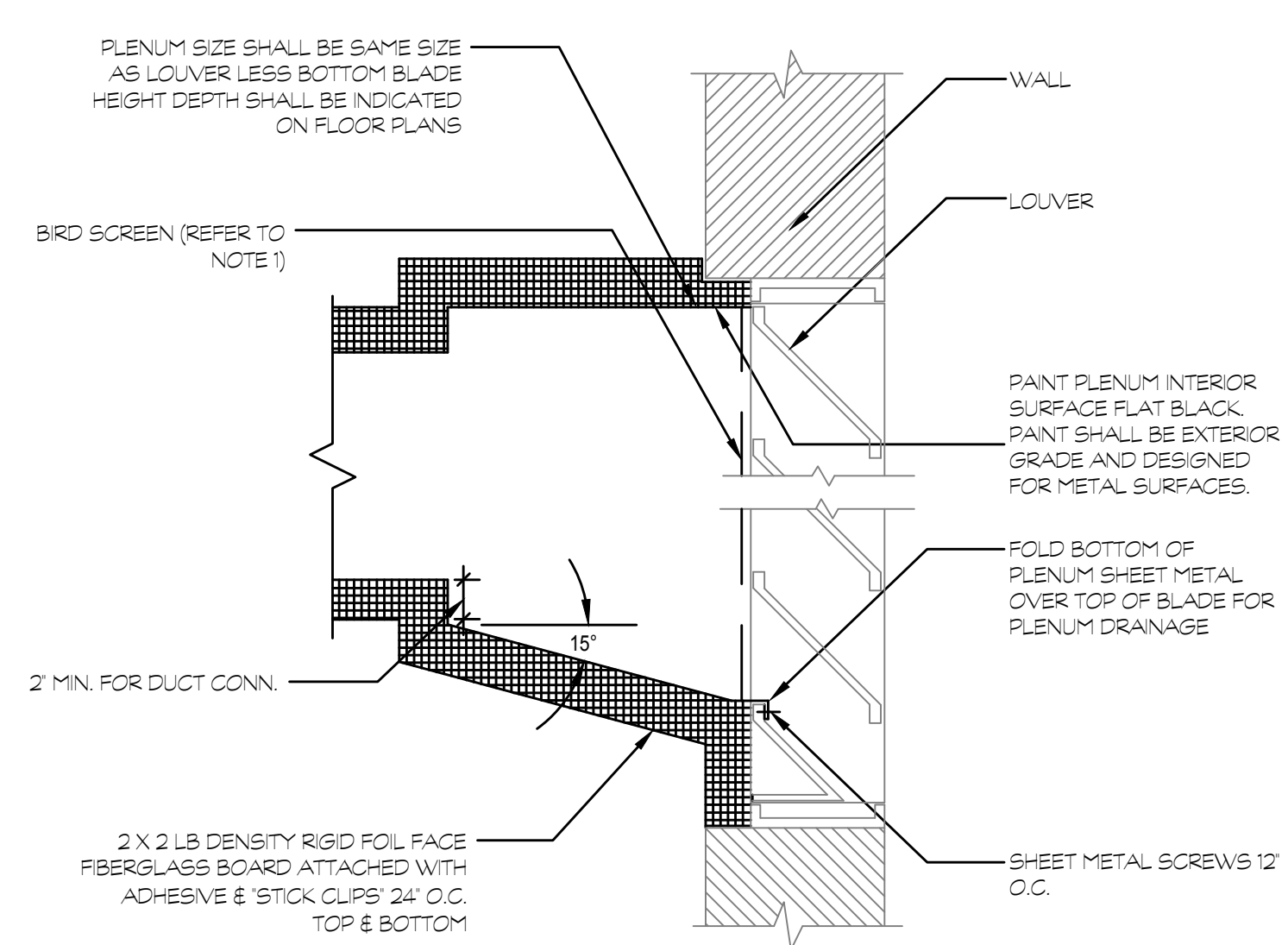


- NOTES:**
1. PROVIDE Z-BEND TYPE OFFSET WITH SQUARE ELBOWS WHERE SHOWN ON DRAWINGS TO REDUCE SOUND TRANSMISSION BETWEEN ROOMS.
 2. PROVIDE FIRE DAMPER WHERE TRANSFER DUCT PASSES THROUGH RATED WALL OF 1-HOUR OR GREATER. PROVIDE SLEEVE WHERE DUCT PASSES THROUGH WALL.

CEILING GRILLE TO R.A. PLENUM TRANSFER DUCT DETAIL
NOT TO SCALE

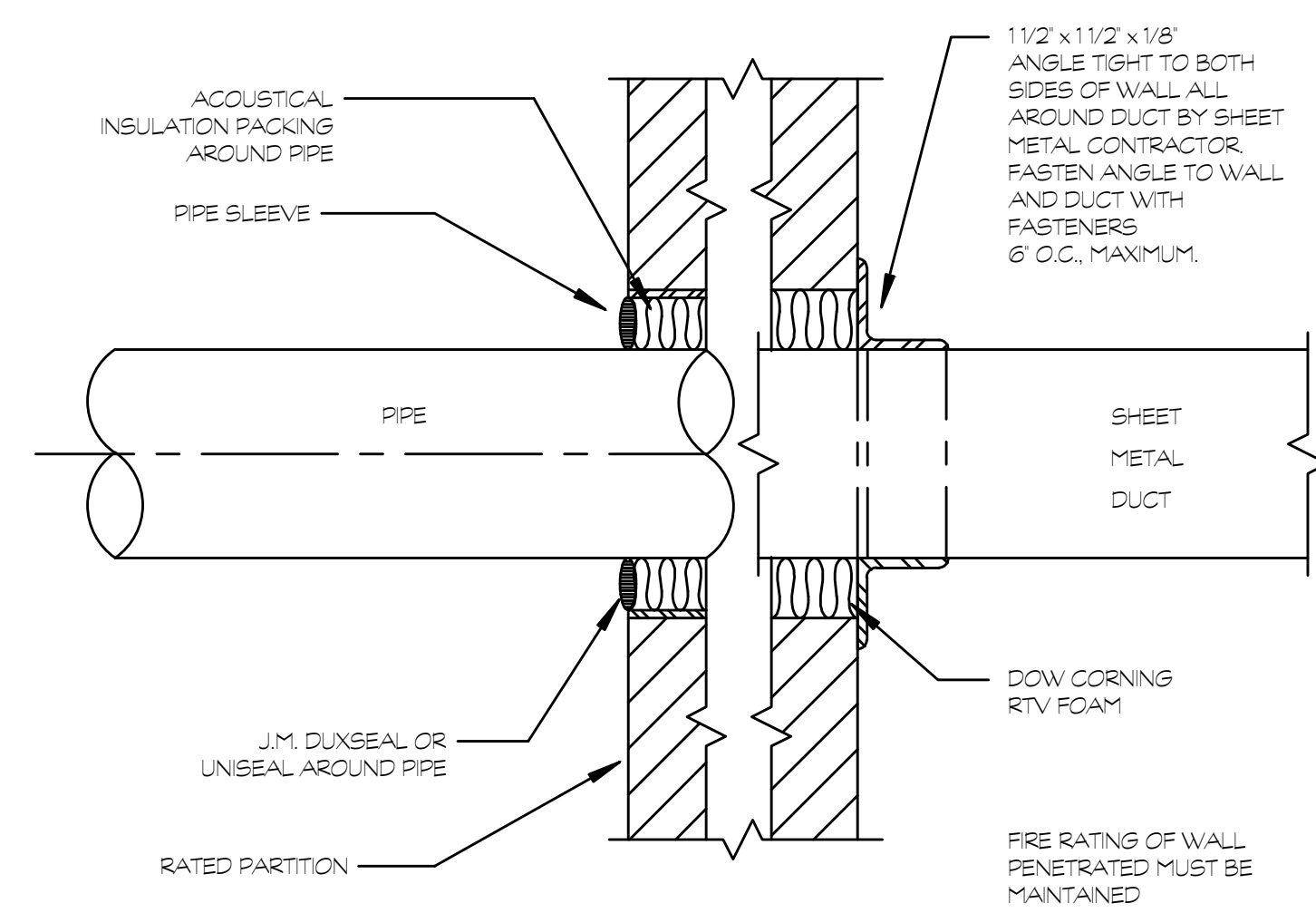


ACOUSTIC DUCT LINING DETAIL
NOT TO SCALE



- NOTES:**
1. COVER INSIDE FACE OF LOUVER WITH 1/2\"/>
 - 2. INSULATE UNUSED PORTION OF LOUVER WITH 2\"/>
 - 3. SEAL ALL PLENUM SEAMS WATER-TIGHT WITH SILICONE SEALANT.
 - 4. TYPICAL FOR SUPPLY AND EXHAUST PLENUMS.
 - 5. PROVIDE ACCESS DOOR IN PLENUM. DOOR SHALL BE FIELD COORDINATED FOR ACCESS. DOOR SIZE SHALL BE 36\"/>

INTAKE LOUVER PLENUM DETAIL
NOT TO SCALE



PIPE OR DUCT PENETRATION THROUGH WALL DETAIL
NOT TO SCALE



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