

DUCTWORK SYMBOLS

RECTANGULAR	ROUND / OVAL	
		ROUND BRANCH DUCTWORK
		RECTANGULAR BRANCH DUCTWORK
		SQUARE TEE WITH TURNING VANES NOTE: ALL SQUARE ELBOWS IN RECTANGULAR AND ROUND / OVAL DUCTWORK SHALL BE PROVIDED WITH TURNING VANES. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.
		RADIUS'D TEE
		RADIUS'D BRANCH
		UNLESS NOTED OTHERWISE ON DRAWINGS, 15' MAX FOR DIVERGING, 30' MAX FOR CONVERGING TRANSITION EXISTING DUCTWORK TO REMAIN
		EXISTING DUCTWORK TO BE REMOVED
		RETURN AIR, RELIEF AIR, OR TRANSFER AIR DUCTWORK. (UP AND DOWN) RADIUSED OR SQUARE WITH TURNING VANES. SUPPLY AIR OR OUTDOOR AIR DUCTWORK (UP AND DOWN) RADIUSED OR SQUARE WITH TURNING VANES.
		EXHAUST AIR DUCTWORK. (UP AND DOWN) RADIUSED OR SQUARE WITH TURNING VANES.
		RECTANGULAR AND ROUND / OVAL DUCTWORK RISE / DROP WITH 90° RADIUSED OR SQUARE ELBOWS AND TURNING VANES.
		RADIUS ELBOW
		90° SQUARE ELBOW (WITH TURNING VANES) NOTE: ALL SQUARE ELBOWS IN RECTANGULAR AND ROUND DUCTWORK SHALL BE PROVIDED WITH TURNING VANES.
		SQUARE THROAT / RADIUS HEEL FITTINGS NOT ACCEPTABLE
		ACCESS DOOR OR PANEL
		DUCTWORK RISE IN DIRECTION OF AIR FLOW
		DUCTWORK DROP IN DIRECTION OF AIR FLOW
		FLEXIBLE DUCTWORK
		DUCTWORK WITH ACOUSTICAL LINER. LISTED DUCT SIZES ARE INSIDE CLEAR DIMENSIONS.
		FLEXIBLE CONNECTION
		DUCTWORK CONSTRUCTED OF SPECIAL MATERIAL AS NOTED
		DIRECTION OF PITCH
		RECTANGULAR DUCTWORK DIMENSIONS (W x H)
		ROUND DUCTWORK DIMENSIONS (DIA)
		OVAL DUCTWORK DIMENSIONS (W x H)

DUCTWORK DEVICE SYMBOLS

	AIR DEVICE. A3 = DESIGNATION (REFER TO FLOOR PLANS AND AIR DEVICE SCHEDULE FOR VARIOUS DESIGNATIONS). 10# = NECK SIZE (IN INCHES). 300 = REQUIRED CFM. ALL AIR DEVICE DISCHARGE 4-WAY UNLESS NOTED WITH FLOW ARROWS. AIR DEVICE SHOWN IS 2-WAY SIDE THROW. METHOD OF IDENTIFICATION ALSO APPLIES TO OTHER CEILING MOUNTED AIR DEVICES.
	WALL OR DUCTWORK MOUNTED AIR DEVICE. SG1 = DESIGNATION (REFER TO AIR DEVICE SCHEDULE). 20x12 = DUCT CONNECTION SIZE (IN INCHES). 300 = REQUIRED CFM. 9'-0" = MOUNTING HEIGHT FROM FLOOR TO BOTTOM OF GRILLE.
	MANUAL BALANCING DAMPER WITH LOCKING DEVICE
	BDD = BACK DRAFT DAMPER CBD = COUNTER-BALANCED BACK DRAFT DAMPER
	FIRE DAMPER A = TYPE (REFER TO FLOOR PLANS FOR VARIOUS TYPES) D OR S = DYNAMIC OR STATIC
	SD = SMOKE DAMPER FS = COMBINATION FIRE - SMOKE DAMPER MDD = MOTORIZED DAMPER AFMS = AIR FLOW MEASURING STATION
	DUCT MOUNTED SMOKE DETECTOR. COORDINATE LOCATION.
	HUMIDITY SENSOR - DUCT MOUNTED
	STATIC PRESSURE SENSOR - DUCT MOUNTED
	CARBON DIOXIDE SENSOR - DUCT MOUNTED
	TEMPERATURE SENSOR - DUCT MOUNTED

VALVES AND FITTINGS

	CHECK VALVE
	SHUTOFF VALVE (REFER TO SPECIFICATIONS FOR REQUIRED TYPE BASED ON APPLICATIONS)
	COMBINATION SHUTOFF AND BALANCING VALVE (REFER TO SPECIFICATIONS FOR REQUIRED TYPE BASED ON APPLICATIONS)
	CONCENTRIC PIPE REDUCER
	ECCENTRIC PIPE REDUCER
	PRESSURE GAUGE
	TEMPERATURE GAUGE OR THERMOMETER
	UNION
	CLEANOUT
	STRAINER
	STRAINER WITH A BLOW DOWN VALVE AND HOSE CONNECTION
	DRAIN VALVE WITH HOSE END CONNECTION
	AUTOMATIC FLOW CONTROLLER WITH PIT PLUG IN AND OUT
	EXPANSION JOINT
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	PRESSURE REDUCING VALVE
	MODULATING 2 PORT AUTOMATIC CONTROL VALVE
	2 PORT AUTOMATIC CONTROL VALVE. 2-POSITION UNLESS SPECIFIED OTHERWISE
	MODULATING 3 PORT AUTOMATIC CONTROL VALVE
	3 PORT AUTOMATIC CONTROL VALVE. 2-POSITION UNLESS SPECIFIED OTHERWISE
	AUTOMATIC PRESSURE INDEPENDENT CONTROL VALVE
	QUICK OPENING MANUAL VALVE
	SAFETY RELIEF VALVE. FOR HYDRONIC SYSTEMS PIPE DISCHARGE AIR GAPPED TO FLOOR DRAIN UNLESS NOTED OTHERWISE. FOR STEAM SYSTEMS PIPE DISCHARGE TO OUTDOORS.
	VACUUM BREAKER
	NEEDLE VALVE
	PRESSURE AND TEMPERATURE TEST PLUG
	VACUUM GAUGE WITH STOP
	END CAP
	GLOBE VALVE
	SHUTOFF VALVE AND BOX
	SHUTOFF VALVE ON RISER
	SOLENOID VALVE
	WATER METER
	FLOW METER
	BI-METALLIC STEAM TRAP AND DRIP ASSEMBLY
	THERMODYNAMIC STEAM TRAP AND DRIP ASSEMBLY
	INVERTED BUCKET STEAM TRAP AND DRIP ASSEMBLY
	FLOAT AND THERMOSTATIC STEAM TRAP AND DRIP ASSEMBLY
	THERMOSTATIC STEAM TRAP AND DRIP ASSEMBLY
	PRESSURE GAUGE WITH COCK AND SIPHON LOOP

MISC SYMBOLS

	CARBON DIOXIDE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
	CARBON MONOXIDE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
	DIFFERENTIAL PRESSURE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
	HUMIDITY SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
	TEMPERATURE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
	NO2 SENSOR.
	STATIC PRESSURE SENSOR.
	SPACE TEMPERATURE SENSOR / THERMOSTAT. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
	EMERGENCY SHUTOFF STATION. 46" MOUNTING HEIGHT UNLESS NOTED OTHERWISE.

GENERAL FLOOR PLAN NOTES

	PLAN NOTE. APPLIES ONLY TO THE SHEET WHICH IT IS SHOWN UNLESS NOTED OTHERWISE.
	DETAIL NOTE. APPLIES ONLY TO THE ASSOCIATED DETAIL.
	EQUIPMENT. SHALL, OR PLUMBING FIXTURE MARK. LETTER DESIGNATIONS REFER TO SCHEDULES.
	EQUIPMENT REFERENCE. LETTER DESIGNATION VARIES. REFER TO SCHEDULES.
	RISER OR STACK NUMBER
	DETAIL: B = DETAIL DESIGNATION H2 = SHEET WHERE DETAIL IS LOCATED
	SECTION: 1 = SECTION DESIGNATION H2 = SHEET WHERE DETAIL IS LOCATED
	"UP TO" SYMBOL (ITEM ON FLOOR ABOVE)
	TOE: 3'-0"
	BOE: 0'-6"
	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO TOP OR BOTTOM OF EQUIPMENT, UNLESS NOTED OTHERWISE
	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO CENTERLINE OF PIPE, UNLESS NOTED OTHERWISE
	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO TOP OR BOTTOM OF DUCTWORK, UNLESS NOTED OTHERWISE
	DOOR UNDERCUT. X = HEIGHT OF UNDERCUT IN INCHES; 0.75 INCH UNDERCUT IF NO HEIGHT IS NOTED. COORDINATE WITH GC.
	DOOR LOUVER. 1 = SQUARE FEET OF LOUVER.
	CONNECT TO EXISTING
	DEMOLISH TO POINT INDICATED

PIPING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		BOTTOM CONNECTION (45°)
		BOTTOM CONNECTION (90°)
		BRANCH TEE CONNECTION (NOTE: BULLHEAD TEES ARE NOT PERMITTED)
		DIRECTION OF PITCH
		ELBOW DOWN
		ELBOW UP
		FLOW DIRECTION DESIGNATION
		PIPE RISER
		RISE
		TOP CONNECTION (45°)
		TOP CONNECTION (90°)

HVAC PIPING DESIGNATIONS

CHS	CHILLED WATER SUPPLY PIPE
CHR	CHILLED WATER RETURN PIPE
CWS	CONDENSER WATER SUPPLY PIPE
CWR	CONDENSER WATER RETURN PIPE
CHGS	CHILLED WATER GLYCOL SOLUTION SUPPLY PIPE
CHGR	CHILLED WATER GLYCOL SOLUTION RETURN PIPE
D	DRAIN LINE. PITCH IN DIRECTION INDICATED
HWR	HEATING HOT WATER RETURN PIPE
HWS	HEATING HOT WATER SUPPLY PIPE
MU	WATER MAKE-UP PIPE
V	VENT PIPE
ET	EXPANSION TANK PIPE
HG	REFRIGERANT HOT GAS LINE
RL	REFRIGERANT LIQUID LINE
RS	REFRIGERANT SUCTION LINE
10	STEAM SUPPLY PIPE - NUMBER INDICATES P.S.I.G.
HPC	HIGH PRESSURE CONDENSATE RETURN PIPE
HPS	HIGH PRESSURE STEAM SUPPLY PIPE
LPC	LOW PRESSURE CONDENSATE RETURN PIPE
LPS	LOW PRESSURE STEAM SUPPLY PIPE
MPC	MEDIUM PRESSURE CONDENSATE RETURN PIPE
MPS	MEDIUM PRESSURE STEAM SUPPLY PIPE
PC	PUMPED CONDENSATE RETURN PIPE

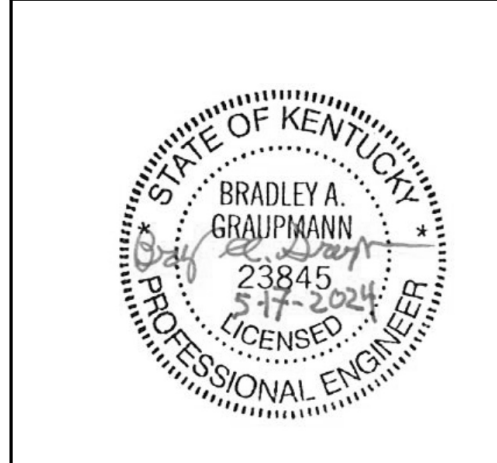
ABBREVIATIONS

AC	AIR COMPRESSOR OR AIR CONDITIONER	ID	INSIDE DIAMETER
ACCU	AIR COOLED CONDENSING UNIT	INV	INVERT ELEVATION
AD	ACCESS DOOR OR AREA DRAIN	IN	INCHES
ADJ	ADJUSTABLE	KEC	KITCHEN EQUIPMENT CONTRACTOR
AF	ABOVE FINISHED FLOOR	L	LENGTH
AFG	ABOVE FINISHED GRADE	LAT	LEAVING AIR TEMPERATURE
AFMS	AIR FLOW MEASURING STATION	LAV	LAVATORY
ALT	ALTERNATE	LBS	POUNDS
AP	ACCESS PANEL	LPC	LOW PRESSURE CONDENSATE RETURN
APPROX	APPROXIMATE	LPS	LOW PRESSURE STEAM SUPPLY
ARCH	ARCHITECT OR ARCHITECTURAL	LWT	LEAVING WATER TEMPERATURE
ASSY	ASSEMBLY	MAX	MAXIMUM
ATC	AUTOMATIC TEMPERATURE CONTROL (SYNONYMOUS WITH BAS)	MDD	MOTORIZED DAMPER
BAS	BUILDING AUTOMATION SYSTEM	MEZZ	MEZZANINE
BDD	BACK DRAFT DAMPER	MFR	MANUFACTURER
BFP	BACKFLOW PREVENTER	MH	MANHOLE
BLDG	BUILDING	MIN	MINIMUM OR MINUTE
BOB	BOTTOM OF BEAM	MISC	MISCELLANEOUS
BOD	BOTTOM OF DUCT	MTD	MOUNTED
BCE	BOTTOM OF EQUIPMENT	MTG	MOUNTING
BOF	BOTTOM OF FOOTING	MPC	MEDIUM PRESSURE CONDENSATE RETURN
BOG	BOTTOM OF GRILLE	MPS	MEDIUM PRESSURE STEAM SUPPLY
BOP	BOTTOM OF PIPE	MU	WATER MAKE-UP
BOT	BOTTOM	N/C	NORMALLY CLOSED
BTU	BRITISH THERMAL UNIT PER HOUR	NIC	NOT IN CONTRACT
BTUH	BRITISH THERMAL UNIT PER HOUR	NIO	NORMALLY OPEN
CBD	COUNTER-BALANCED BACKDRAFT DAMPER	NO	NON
CFI	CONTRACTOR FURNISHED CONTRACTOR	NPT	NATIONAL PIPE THREAD
CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
CHS	CHILLED WATER SUPPLY	OA	OUTDOOR AIR
CHR	CHILLED WATER RETURN	OB	OPPOSED BLADE DAMPER
CHGR	CHILLED WATER GLYCOL SOLUTION RETURN	OD	OUTSIDE DIAMETER
CHGS	CHILLED WATER GLYCOL SOLUTION SUPPLY	OF	OWNER FURNISHED CONTRACTOR
CLS	CEILING	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CMU	CONCRETE MASONRY UNIT	OFI	OWNER FURNISHED OWNER INSTALLED
CO	CLEAN OUT	OP	OWNER FURNISHED OWNER INSTALLED
CO2	CARBON DIOXIDE	P	PROPANE GAS
CON	CONNECT OR CONNECTION	PC	PLUMBING CONTRACTOR (DIVISION 22)
CONTR	CONTRACTOR	PLBG	PLUMBING CONTRACTOR (DIVISION 22)
CTR	CENTER	PRV	PRESSURE REGULATING VALVE
CU	COPPER	PSF	POUNDS PER SQUARE FOOT
CW	COLD WATER	PSI	POUNDS PER SQUARE INCH
CWR	CONDENSER WATER RETURN	PSIG	POUNDS PER SQUARE INCH GAUGE
CWS	CONDENSER WATER SUPPLY	RA	RETURN AIR
D	DRAIN LINE	RAD	RADIUS
DB	DRY BULB	RCP	REFLECTED CEILING PLAN
DDC	DIRECT DIGITAL CONTROLS	RD	ROOF DRAIN
DI	DRAINAGE WATER	REC	RECESSED
DIA	DIAMETER	REQD	REQUIRED
DIM	DIMENSION	RI	ROUGH IN
DN	DOWN	RL	REFRIGERANT LIQUID
DWG	DRAWING	ROS	REVERSE OSMOSIS WATER SUPPLY
EA	EACH OR EXHAUST AIR	ROR	REVERSE OSMOSIS WATER RETURN
EAT	ENTERING AIR TEMPERATURE	RPM	REVOLUTIONS PER MINUTE
EJ	ELECTRICAL JOINT	RS	REFRIGERANT SUCTION
ELC	ELECTRICAL	S	SPRINKLER (WET)
ELEV	ELEVATOR	SA	SUPPLY AIR
EQUIP	EQUIPMENT	SAN	SANITARY OR SANITARY DRAIN
ET	EXPANSION TANK	SCH	SCHEDULE
ETR	EXISTING TO REMAIN	SCW	SOFT COLD WATER
EQ	EQUIPMENT SUPPLIER	SHT	SHEET
EWT	ENTERING WATER TEMPERATURE	SPEC	SPECIFICATIONS
EXH	EXHAUST	SQ	SQUARE
EXP	EXPANSION	SR	SUPPLY RISER
EXT	EXTERIOR	SRV	SAFETY RELIEF VALVE
EX	EXISTING	SS	STAINLESS STEEL
FD	FLOOR DRAIN	STD	STANDARD
FF	FINISHED FLOOR ELEVATION	STM	STORM OR STORM DRAINAGE
FLR	FLOOR	STRUC	STRUCTURAL OR STRUCTURE
FOB	FLAT ON BOTTOM	SUC	SITE UTILITY CONTRACTOR
FOF	FUEL OIL FLOW	TEMP	TEMPERATURE
FOG	FUEL OIL GAUGE	TOB	TOP OF BEAM
FOR	FUEL OIL RETURN	TOD	TOP OF DUCT
FOS	FUEL OIL SUPPLY	TOE	TOP OF EQUIPMENT
FOT	FLAT ON TOP	TOF	TOP OF FOOTING
FPM	FEET PER MINUTE	TOJ	TOP OF JOIST
FSC	FIRE SUPPRESSION CONTRACTOR (DIVISION 21)	TOP	TOP OF PIPE
FT	FEET	TOS	TOP OF SLAB OR TOP OF STEEL
FTG	FOOTING	TYP	TYPICAL
G	GAS OR NATURAL GAS	UNO	UNLESS NOTED OTHERWISE
GAL	GALLON	V	VENT
GALV	GALVANIZED	VAC	VACUUM
GC	GENERAL TRADES CONTRACTOR	VEL	VELOCITY
GPM	GALLONS PER MINUTE	VFD	VARIABLE FREQUENCY DRIVE (ADJUSTABLE FREQUENCY MOTOR CONTROLLER)
HB	HOSE BIBB	VIB	VALVE IN BOX
HC	HVAC CONTRACTOR (DIVISION 23)	VOL	VOLUME
HD	HUB DRAIN	VTR	VENT THROUGH ROOF
HG	REFRIGERANT HOT GAS	VR	VENT RISER
HP	HORSEPOWER	W	WITH
HPC	HIGH PRESSURE CONDENSATE RETURN	W/O	WITHOUT
HPS	HIGH PRESSURE STEAM SUPPLY	WB	WET BULB
HR	HOUR	WCO	WALL CLEANOUT
HT	HEAT TRACE		
HTR	HEATER		
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING		
HW	HOT WATER		
HWR	HEATING HOT WATER RETURN		
HWS	HEATING HOT WATER SUPPLY		

GENERAL NOTES

- COORDINATE THE LOCATION OF ALL DEVICES LOCATED IN THE CEILING WITH THE ARCHITECT'S REFLECTED CEILING PLAN AND OTHER TRADES DURING CONSTRUCTION. ALL CEILING AIR DEVICES SMALLER THAN THE GRID DIMENSIONS SHALL BE MOUNTED CENTERED WITHIN THE CEILING GRID TILE.
- ALL EQUIPMENT ABOVE THE CEILING REQUIRING MAINTENANCE ACCESS SHALL BE MOUNTED A MAXIMUM OF 18" ABOVE CEILING TO ALLOW FOR ACCESS.
- ANNULAR SPACE AROUND DUCTWORK, PIPING, CONDUIT, AND OTHER SIMILAR PENETRATIONS OR COMBINATIONS OF PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE FIRESTOPPED TO RETARD THE PASSAGE OF FIRE AND SMOKE. REFER TO SPECIFICATION SECTION 23 05 05 FIRESTOPPING.
- H.C. TO COORDINATE LOCATIONS OF ALL EQUIPMENT, DUCTWORK, PIPING AND AIR DEVICES WITH STRUCTURAL MEMBERS AND THE WORK OF OTHER TRADES PRIOR TO FINAL INSTALLATION OFFSET PIPING AND DUCTWORK AS REQUIRED TO MAINTAIN ALL MANUFACTURER'S RECOMMENDED CLEARANCES.
- COORDINATE ALL WALL AND ROOF OPENINGS WITH GENERAL TRADES CONTRACTOR.
- IN GENERAL, KEEP DUCT AND PIPING MAINS HIGH IN CEILING CAVITY. TIGHT TO STRUCTURE, WHERE POSSIBLE. ALL DUCTS AND PIPES SHALL BE RUN ABOVE CEILING UNLESS NOTED OTHERWISE. WHERE NO CEILING ARE INSTALLED HOLD AS HIGH AS POSSIBLE TO STRUCTURE UNLESS NOTED OTHERWISE.
- BRANCH TRUNKS TO AIR DEVICES SHALL BE EQUAL TO DEVICE INLET SIZE UNLESS NOTED OTHERWISE.
- HVAC CONTRACTOR SHALL CLEAN AND PREPARE FOR PAINTING ALL HVAC PIPING, DUCTWORK, AND HVAC TEMPERATURE CONTROL CONDUIT LOCATED IN FINISHED ROOMS WHICH DO NOT HAVE A CEILING. THESE ITEMS ARE EXPOSED DUE TO THE LACK OF A CEILING AND WILL BE PAINTED BY THE GENERAL CONTRACTOR.
- RUN-OUTS TO SUPPLY DIFFUSERS, RETURN GRILLES, AND EXHAUST GRILLES SHALL INCLUDE MANUAL DAMPERS PER DETAILS (NOT SHOWN ON PLANS FOR CLARITY). PROVIDE ADDITIONAL DAMPERS AS SHOWN ON FLOOR PLANS OR WHERE REQUIRED FOR SYSTEM BALANCING REGARDLESS OF BEING SHOWN OR NOT.
- ALL SQUARE CORNER DUCT FITTINGS SHALL BE EQUIPPED WITH TURNING VANES AS SPECIFIED IN 23 31 13.
- DUCT RUN-OUT SIZE TO CEILING DIFFUSERS TO BE SAME SIZE AS THE DIFFUSER NECK UNLESS OTHERWISE NOTED.
- EXACT LOCATION OF ALL WALL MOUNTED ITEMS (STATS, SENSORS, SWITCHES, CONTROL PANELS) SHALL BE SUBMITTED FOR REVIEW AND APPROVED BY THE OWNER AND ENGINEER. SUBMITTAL SHALL BE MADE IN A TIMELY FASHION SO REVIEW MAY BE CONDUCTED PRIOR TO INSTALLATION OF FINISHED WALL SURFACES.
- HVAC CONTRACTOR SHALL COORDINATE CLOSELY WITH OTHER TRADES IN LOCATING THE INSTALLING ALL SYSTEMS ABOVE CORRIDORS. SPECIFICALLY, COORDINATE LAYOUT WITH E.C. TO ALLOW SUFFICIENT SPACE FOR CABLE TRAY SYSTEM.

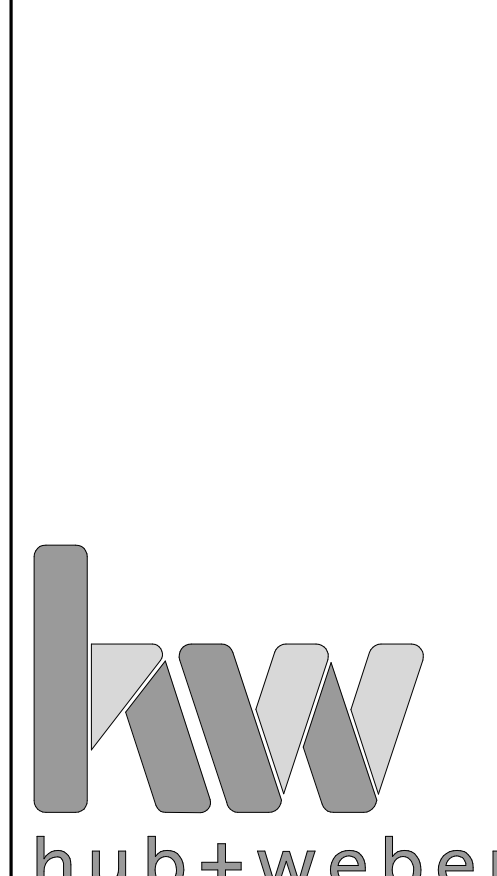
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NEW CONSTRUCTION

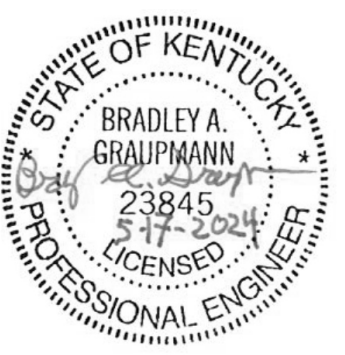
BOONE COUNTY PARKS & REC ADMINISTRATIVE BUILDING

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Revised:

#	Date	Description

SCHEDULES

M003

GAS-FIRED UNIT HEATERS

GENERAL NOTES:
 A. GAS DELIVERY PRESSURE IS 7" W.C.
 B. ELECTRIC SERVICE - SINGLE POINT POWER SERVICE CONNECTION TO UNIT.
 ADEQUACY OF LISTED CIRCUIT SIZE MUST BE VERIFIED BY H.C. AND UNIT SUPPLIER. COST FOR INCREASE OR CHANGE OF ELECTRIC SERVICE FOR EQUIPMENT SELECTED SHALL BE BORNE BY H.C.

NOTES:
 1. DISCONNECT PROVIDED BY E.C.
 2. MOUNTING KIT.

MARK	DESCRIPTION	MOUNTING	LOCATION		TYPE		FAN		ELECTRICAL SERVICE			DIMENSIONS			THERMOSTAT		BASIS OF DESIGN		SEE NOTE											
			ROOM NAME	ROOM NUMBER	HORIZONTAL DISCHARGE	VERTICAL DISCHARGE	CFM	MOTOR HP / W	VOLTS	PHASE	FULL LOAD AMPS (FLA)	MIN. CIRCUIT AMPS (MCA)	MAX. OVER CURRENT PROTECTION (MOCP)	MINIMUM SCCR (AMPS)	GAS CONNECTION SIZE	VENT OUTLET SIZE	COMB. AIR INLET SIZE	WIDTH		HEIGHT	DEPTH	APPROX. OPERATING WEIGHT (LBS)	UNIT MOUNTED	WALL MOUNTED	LINE VOLTAGE	24 VOLT	MANUFACTURER	MODEL		
GFUH-1	GAS FIRED UNIT HEATER	SUSPENDED	BAYS	128	•	•	400	332	5,440	3/4	-	208-1	6.16	7	20	5K	0.75"	6"	6"	40"	41"	39"	498	•	•	•	•	MODINE	PDP 400	1,2
GFUH-1	GAS FIRED UNIT HEATER	SUSPENDED	BAYS	128	•	•	400	332	5,440	3/4	-	208-1	6.16	7	20	5K	0.75"	6"	6"	40"	41"	39"	498	•	•	•	•	MODINE	PDP 400	1,2
GFUH-1	GAS FIRED UNIT HEATER	SUSPENDED	MUD	127	•	•	400	332	5,440	3/4	-	208-1	6.16	7	20	5K	0.75"	6"	6"	40"	41"	39"	498	•	•	•	•	MODINE	PDP 400	1,2
GFUH-1	GAS FIRED UNIT HEATER	SUSPENDED	BAYS	128	•	•	400	332	5,440	3/4	-	208-1	6.16	7	20	5K	0.75"	6"	6"	40"	41"	39"	498	•	•	•	•	MODINE	PDP 400	1,2
GFUH-2	GAS FIRED UNIT HEATER	SUSPENDED	MECHANICAL	202	•	•	30	25	505	1/15	-	120-1	4.2	5	20	5K	0.75"	3"	3"	27"	13"	22"	70	•	•	•	•	MODINE	HD 30	1,2

FANS

GENERAL NOTES:
 A. ALL FANS SHALL BE A.M.C.A. 211 AND 311 PERFORMANCE CERTIFIED AND SHALL BEAR THE A.M.C.A. LABEL.
 B. SONES VALUES BASED ON A.M.C.A. 301 MEASURED AT 5 FT.
 C. MOTOR HORSEPOWERS LISTED SHALL BE CONSIDERED MINIMUM.
 E. ROOF & WALL OPENINGS ARE APPROX. VERIFY SIZE & COORDINATE.
 F. COORDINATE STEEL FRAMING AROUND ROOF OPENING WHERE REQUIRED FOR DECK SUPPORT, AND WALL LINTELS FOR WALL OPENINGS.
 G. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR VIBRATION ISOLATOR TYPES.
 H. VFD'S SHALL BE CONSTRUCTED AND LABELED FOR REQUIRED SCCR (SHORT CIRCUIT CURRENT RATING). COORDINATE WITH DIVISION 26.

NOTES:
 1. VFD-ABB-ACH580 COORDINATE MOUNTING LOCATION WITH E.C.
 2. DISCONNECT BY E.C.
 3. HVLS TOUCHSCREEN CONTROLLER.
 4. FACTORY MOUNTED DISCONNECT.
 5. REVERSE ACTING T-STAT SET TO 80° F (ADJUSTABLE).
 6. BACK DRAFT DAMPER.
 7. COORDINATE FAN OPERATION WITH E.C.

MARK	DESCRIPTION	SERVICE	FAN CFM	STATIC PRESSURE (IN. W.C.)	APPROX. WHEEL DIAMETER	MAXIMUM SONES	HORSEPOWER (HP)	VOLTAGE - PHASE	ELECTRONICALLY COMMUTATED	MOTOR			APPROX. WEIGHT (LBS.)	VIBRATION ISOLATOR TYPE	BASIS OF DESIGN		SEE NOTE
										ECM MCA (AMPS, TOTAL)	ECM MOCP (AMPS, TOTAL)	VARIABLE FREQUENCY DRIVE			MINIMUM SCCR (AMPS)	MANUFACTURER	
EF-1	VANEAXIAL	GARAGE EXHAUST	13575	.76	32	33	5	460-3	-	-	-	5K	190	J1	GREENHECK	AX-72-190-0425-A50	1,2
EF-2	IN LINE CENTRIFUGAL	OFFICE EXHAUST	1030	.52	18	5.3	1/4	115-1	-	-	-	5K	61	J1	GREENHECK	SQ-130	4,6,7
EF-3	IN LINE CENTRIFUGAL	ISOLATION EXHAUST	300	.32	-	2.6	118 W	115-1	-	-	-	5K	36	J1	GREENHECK	CSP-A410	4,5,6
EF-4	IN LINE CENTRIFUGAL	ELECTRIC ROOM	300	.32	-	2.6	118 W	115-1	-	-	-	5K	36	J1	GREENHECK	CSP-A410	4,5,6
HVL-1	HVLS	GARAGE	76300	NA	288	-	500 W	460-3	-	-	-	5K	173	-	GREENHECK	DS-3-24-70HV	2,3

AIR DISTRIBUTION DEVICES

GENERAL NOTES:
 A. ALL LAY-IN AIR DEVICES SHALL FIT IN 24"X24" LAY-IN CLG SYSTEM. VERIFY GRID TYPE AND COORDINATE AIR DEVICE COMPATIBILITY.
 B. FINISH KEY: "W.B.E." - WHITE BAKED ENAMEL. "E.C.L." - ETCHED CLEAR LACQUER OR ANODIZED. "C.C.B.A." - CUSTOM COLOR SELECTED BY ARCHITECT.
 C. SUPPLY AIR DIFFUSERS SHALL BE 4-WAY BLOW, UNLESS INDICATED OTHERWISE ON DRAWINGS.
 D. PROVIDE AUX. FRAMES FOR AIR DEVICES IN PLASTER, OR OTHER HARD SURFACES.

NOTES:
 1.

MARK	DESCRIPTION	MOUNTING TYPE								FINISH	BASIC OF DESIGN	SEE NOTE				
		LAY-IN	SURFACE	DUCT	SPLINE	SNAP-IN	STEEL	ALUMINUM	STAINLESS STEEL				W.B.E.	E.C.L.	C.C.B.A.	OPPOSED BLADE DAMPER
A10	SQ. PLAQUE CEILING DIFFUSER - ROUND NECK	•	•	•	•	•	•	•	•	•	•	•	•	TITUS	OMNI	
J1	EGGCRATE CEILING GRILLE	•	•	•	•	•	•	•	•	•	•	•	•	TITUS	50F	
J2	SIDEWALL RETURN GRILLE	•	•	•	•	•	•	•	•	•	•	•	•	TITUS	350RL	
K1	EGGCRATE CEILING GRILLE, EXHAUST	•	•	•	•	•	•	•	•	•	•	•	•	TITUS	50F	
L1	INTAKE LOUVER	•	•	•	•	•	•	•	•	•	•	•	•	GREENHECK	ESD-403	
L2	EXHAUST LOUVER	•	•	•	•	•	•	•	•	•	•	•	•	GREENHECK	ESD-403	
L3	EXHAUST LOUVER	•	•	•	•	•	•	•	•	•	•	•	•	GREENHECK	ESJ-202	
S1	LINEAR SLOT SUPPLY DIFFUSER	•	•	•	•	•	•	•	•	•	•	•	•	TITUS	FL-25 2-SLOT 2.5" SLOT WIDTH	

HVAC DESIGN DATA

GENERAL NOTES:
A. OUTDOOR DESIGN CONDITIONS: 92°F DB SUMMER, 74°F WB SUMMER, 6°F DB WINTER. B. DESIGN ALTITUDE: 869 FT.

NOTES:
1. "FLOATING" MEANS THERE IS NO ACTIVE CONTROL.
2. OUTDOOR AIR VENTILATION ONLY.

SPACE NAME / TYPE	INTERIOR DESIGN DATA				SEE NOTE
	SUMMER		WINTER		
	*F DB	% RH (NOTE 1)	*F DB	% RH	
OFFICES	74	55	72	FLOATING	1
TRUCK BAY	NOTE 1	NOTE 1	NOTE 1	FLOATING	2
MECHANICAL ROOMS	NOTE 1	FLOATING	55	FLOATING	2

DUCT CONSTRUCTION, SEALING, AND INSULATION

GENERAL NOTES:
A. REFER TO SPECIFICATIONS FOR DUCT CONSTRUCTION: SHEET METAL DUCT; INTERIOR LINING: EXTERIOR INSULATION; FIBERGLASS DUCTBOARD, ETC. B. DUCT CONSTRUCTION AND SEALING SHALL BE PER LATEST S.M.A.C.N.A. STANDARDS.

NOTES:
1. ROUND SHEET METAL RUN-OUTS TO AIR DEVICES DOWNSTREAM OF VAV BOXES SHALL BE EXTERNALLY INSULATED.
2. RETURN DUCTWORK WITHIN 15' OF AIR HANDLING UNIT SHALL BE INTERNALLY LINED.
3. WATERTIGHT SEAL.
4. INSULATE FROM 24" UPSTREAM OF BACKDRAFT / ISOLATION DAMPER TO PENETRATION OF WALL / ROOF.
5. CONCEALED ROUND RUNOUT DUCTS TO AIR DEVICES MAY BE 1" S.P. CLASS.

DUCT SYSTEM	S.M.A.C.N.A. CLASS.		LEAKAGE CLASS		INTERNALLY LINED	EXTERNAL INSULATION	DOUBLE WALL INSULATED	NOT INSULATED	SEE NOTE
	S.P. CON-STRUCT.	SEAL CLASS	RECT	RND					
	SUPPLY DUCTWORK UPSTREAM OF VAV BOXES FOR AHU-1 & 2	+3"	A	8					
SUPPLY DUCTWORK DOWNSTREAM OF VAV BOXES AHU-1 & 2	+1"	A	16	8	-	•	-	-	1
MUA DUCTWORK FOR TRUCK BAY	+2"	A	16	8	-	-	-	•	-
RETURN DUCTWORK FOR AHU-1 & 2	-2"	A	16	8	-	•	-	-	2.5
TOILET OR GENERAL EXHAUST DUCTWORK	-1"	A	16	8	-	NOTE 4	-	-	-
EXHAUST DUCTWORK FOR TRUCK BAY	-2"	A	16	8	-	-	-	•	-
RELIEF AIR DUCTWORK	+1	A	16	8	-	NOTE 4	-	-	-
OUTSIDE AIR DUCTWORK	-1"	A	16	8	-	•	-	-	3

ELECTRIC FIN TUBE CONVECTORS

GENERAL NOTES:
A. HEATING CAPACITY BASED ON 60°F ENT. AIR. B. ELECTRICAL SERVICE TO 3-PHASE UNITS SHALL BE 3-WIRE UNLESS NOTED OTHERWISE. C. 3-PHASE COIL LOADS SHALL BE DIVIDED EVENLY ACROSS EACH PHASE. D. ENCLOSURES SHALL INCLUDE ALL ACCESSORIES TO PROVIDE A FINISHED APPEARANCE, SUCH AS END CAPS, FILLERS, ETC. E. VERIFY/COORDINATE CABINET DIMENSIONS, MOUNTING & RECESS REQUIREMENTS PRIOR TO ORDERING. F. RECESSED UNITS SHALL HAVE FOUR(4) SIDE OVERLAP UNLESS NOTED OTHERWISE. G. COORDINATE LINTELS IN MASONRY WALLS FOR FULL & SEMI-RECESSED UNIT WALL OPENINGS.

NOTES:
1. ENCLOSURE EXTENDING WALL-TO-WALL SHALL BE FIELD MEASURED PRIOR TO ORDERING.
2. MOUNTING HEIGHT TO BOTTOM OF UNIT UNLESS NOTED OTHERWISE ON FLOOR PLANS. 3. BASIS OF DESIGN: RAYWALL, F3712-060.
4. DISCONNECT SWITCH PROVIDED BY HC.

MARK	DESCRIPTION	MOUNTING	HEATING		ELECTRICAL SERVICE				APPROX. CABINET DIMENSIONS				THERMOSTAT					
			CAPACITY(MBH)	KW	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	INTEGRAL DISCONNECT	LENGTH (NOTE 1)	DEPTH	HEIGHT	RECESS	MOUNTING HEIGHT (AFF. NOTE 2)	UNIT MOUNTED	WALL MOUNTED	SEE NOTE	
EFT-1	SUPPLEMENTAL HEAT	WALL MOUNT	4250	1.25	208-1	6					60"	6"	12"	0"	0'-6"	-	•	2,3,4

ELECTRIC UNIT HEATERS

GENERAL NOTES:
A. HEATING CAPACITY BASED ON 60°F ENT. AIR. B. ELECTRICAL SERVICE - SINGLE POINT POWER CONNECTION WITH INTEGRAL CONTROLS TRANSFORMER. ADEQUACY OF LISTED CIRCUIT SIZE MUST BE VERIFIED BY H.C. AND UNIT SUPPLIER. COST FOR INCREASE OR CHANGE OF ELECTRICAL SERVICE FOR EQUIPMENT SELECTED SHALL BE BORNE BY H.C. C. ELECTRICAL SERVICE TO 3-PHASE UNITS SHALL BE 3-WIRE UNLESS NOTED OTHERWISE. D. 3-PHASE COIL LOADS SHALL BE DIVIDED EVENLY ACROSS EACH PHASE. E. VERIFY/COORDINATE CABINET DIMENSIONS, MOUNTING & RECESS REQUIREMENTS PRIOR TO ORDERING. F. RECESSED UNITS SHALL HAVE FOUR(4) SIDE OVERLAP UNLESS NOTED OTHERWISE. G. COORDINATE LINTELS IN MASONRY WALLS FOR FULL & SEMI-RECESSED UNIT WALL OPENINGS.

NOTES:
1. MOUNTING HEIGHT TO BOTTOM OF UNIT, UNLESS NOTED OTHERWISE ON FLOOR PLANS. 2. UNIT SHALL OPERATE WHEN SPACE TEMPERATURE FALLS BELOW 60°F.
3. DISCONNECT SWITCH PROVIDED BY E.C. 4. BASIS OF DESIGN TPI - FIF5105N

MARK	DESCRIPTION	MOUNTING	FAN		HEATING		ELECTRICAL SERVICE				APPROX. CABINET DIMENSIONS				THERMOSTAT								
			CFM	MOTOR	CAPACITY(MBH)	KW (MIN)	KW (MAX)	STAGES	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCRR (AMPS)	INTEGRAL DISCONNECT	WIDTH	DEPTH	HEIGHT	RECESS	MOUNTING HEIGHT (AFF. NOTE 1)	VIBRATION ISOLATOR TYPE	UNIT MOUNTED	WALL MOUNTED	SEE NOTE
			ECH-1	ISOLATION HEAT	SUSPENDED	400		5	5	5	1	208-1	24.1	25	30	5K	-	24"	6"	12"	0"	9'-0"	

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SCHEDULES

M004



PROJECT NO. 2023-07214

2311.068



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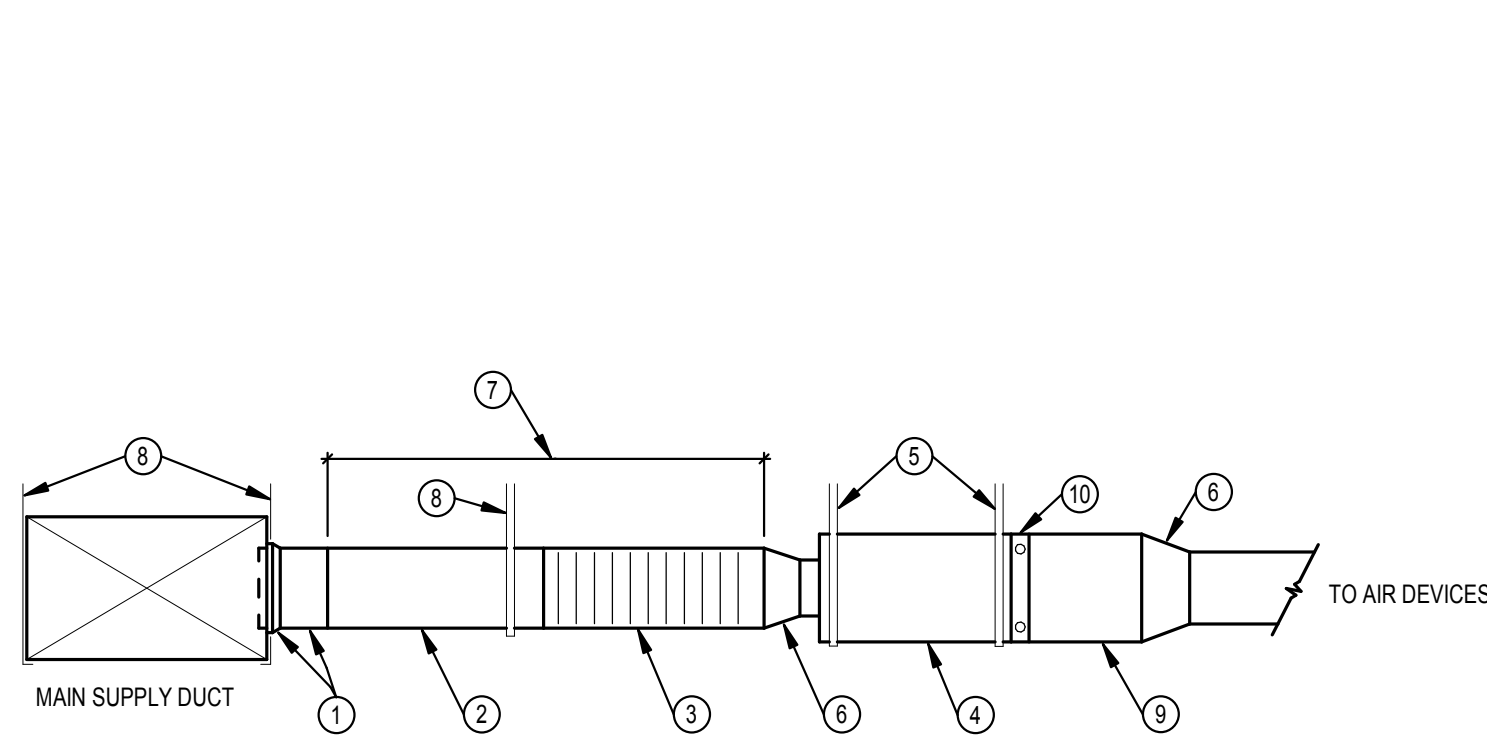
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DETAILS

M005

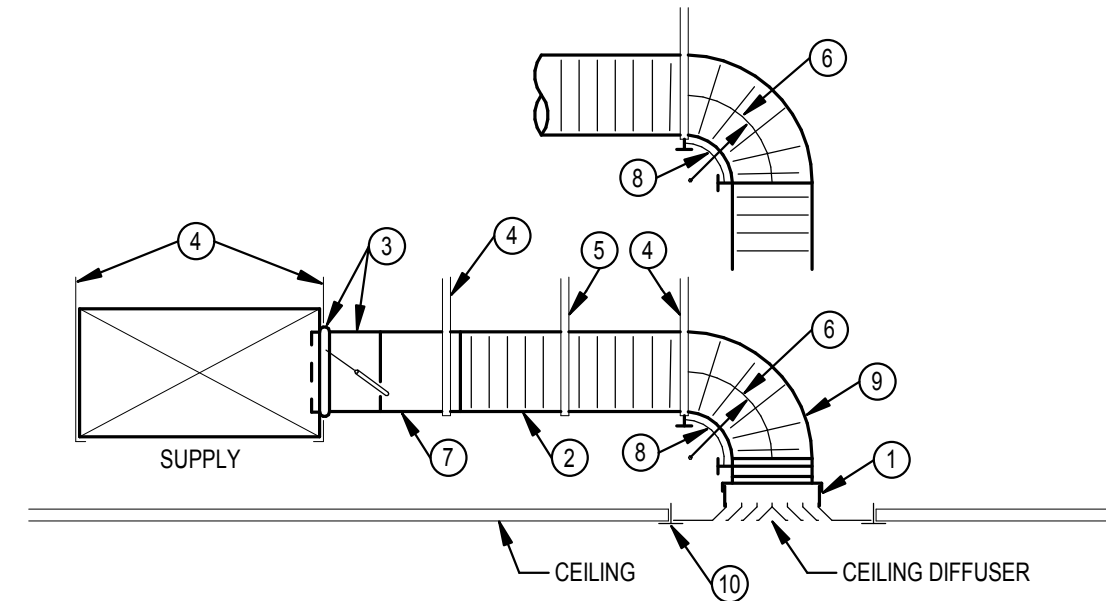


NOTES

- CONICAL SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN SUPPLY DUCT WITH INTERNAL INSULATION.
- ROUND SHEET METAL BRANCH DUCT, SAME SIZE AS AIR TERMINAL UNIT INLET SIZE UNLESS NOTED OTHERWISE.
- INSULATED FLEXIBLE DUCT, MAXIMUM LENGTH OF 4 FT. MINIMUM LENGTH OF 4 IN. STRETCH FLEXIBLE DUCT TO 90% OF FULLY EXTENDED LENGTH.
- AIR TERMINAL UNIT.
- MINIMUM FOUR HANGER RODS FOR UNIT (CORNER POINTS), ATTACH TO STRUCTURE.
- TRANSITION WHEN REQUIRED.
- MINIMUM STRAIGHT LENGTH OF DUCT SHALL BE TERMINAL UNIT MANUFACTURER'S REQUIRED LENGTH, BUT AT LEAST 3 TIMES UNIT INLET DIAMETER.
- DUCT HANGER, ATTACH TO STRUCTURE.
- DUCT SHALL BE FULL SIZE OF UNIT OUTLET UNLESS NOTED OTHERWISE ON FLOOR PLANS.
- REHEAT COIL WHEN SPECIFIED. REFER TO COIL DETAIL.

1 AIR TERMINAL UNIT DUCT CONNECTION

SCALE: NONE

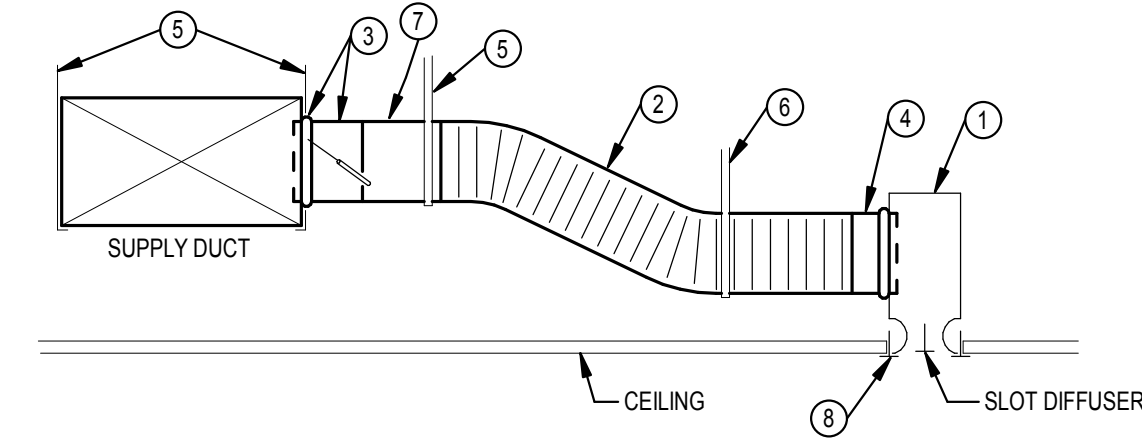


NOTES

- SQUARE-TO-ROUND ADAPTER IF DIFFUSER NECK IS SQUARE. CONNECT ADAPTOR TO DIFFUSER. SEAL TO AIR DEVICE, SEAL CLASS A. INSULATE ADAPTOR AND EXPOSED BACKSIDE SURFACES OF AIR DEVICE.
- INSULATED FLEXIBLE DUCT SAME DIAMETER AS BRANCH DUCT (7), 5 FT. MAXIMUM TOTAL LENGTH PER AIR DEVICE. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH.
- SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE WITH MANUAL DAMPER. DAMPER SHAFT IN HORIZONTAL. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION, AND EXTENDED DAMPER SHAFT AND HANDLE WITH STAND-OFF TO ACCOMMODATE EXTERNAL INSULATION.
- DUCT STRAP HANGER, ATTACH TO STRUCTURE.
- STRAP HANGER REQUIRED IF LENGTH OF FLEXIBLE DUCT IS LONGER THAN 4 FT.
- MINIMUM CENTERLINE RADIUS EQUAL TO DUCT DIAMETER.
- ROUND SHEET METAL BRANCH DUCT, SAME SIZE AS DIFFUSER INLET UNLESS NOTED OTHERWISE.
- FLEXIBLE DUCT ELBOW SUPPORT, INSTALLED WITH NYLON BANDING PER MANUFACTURER'S INSTRUCTIONS.
- A RADIUS SHEET METAL ELBOW MAY BE USED IN LIEU OF A FLEXIBLE ELBOW SUPPORT WHEN CONNECTED DIRECTLY TO AIR DEVICE.
- CEILING T-BAR SUPPORT (FOR LAY-IN APPLICATIONS). COORDINATE AND VERIFY T-BAR TYPE FOR COMPATIBILITY WITH DIFFUSER.

2 CEILING DIFFUSER DUCT CONNECTION

SCALE: NONE

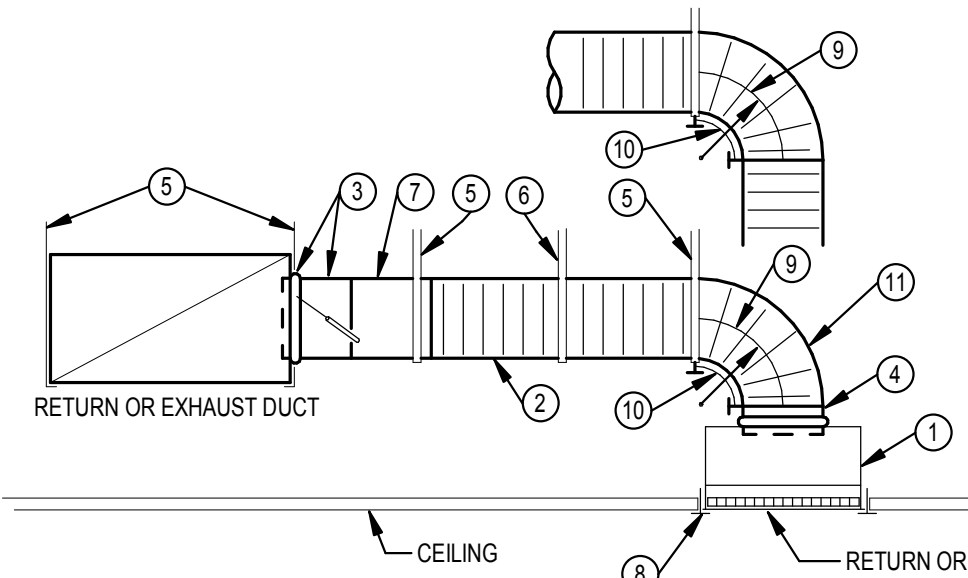


NOTES

- SLOT DIFFUSER ASSEMBLY AND PLENUM WITH SAME INTERNAL OR EXTERNAL INSULATION AS MAIN SUPPLY DUCT. CONNECT PLENUM TO DIFFUSER. SEAL PLENUM TO DIFFUSER, SEAL CLASS A. INSULATE BACKSIDE SURFACES OF DIFFUSER.
- INSULATED FLEXIBLE DUCT SAME DIAMETER AS BRANCH DUCT (7), 5 FT. MAXIMUM TOTAL LENGTH PER AIR DEVICE. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH.
- SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE WITH MANUAL DAMPER. DAMPER SHAFT IN HORIZONTAL. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION, AND EXTENDED DAMPER SHAFT AND HANDLE WITH STAND-OFF TO ACCOMMODATE EXTERNAL INSULATION.
- SPIN-IN TAP FITTING SIMILAR TO (3) EXCEPT NO DAMPER.
- DUCT STRAP HANGER, ATTACH TO STRUCTURE.
- STRAP HANGER REQUIRED IF LENGTH OF FLEXIBLE DUCT IS LONGER THAN 4 FT.
- ROUND SHEET METAL BRANCH DUCT, SAME SIZE AS DIFFUSER INLET UNLESS NOTED OTHERWISE.
- CEILING T-BAR SUPPORT (FOR LAY-IN APPLICATIONS), COORDINATE AND VERIFY T-BAR TYPE FOR COMPATIBILITY WITH DIFFUSER.

3 SLOT DIFFUSER DUCT CONNECTION

SCALE: NONE



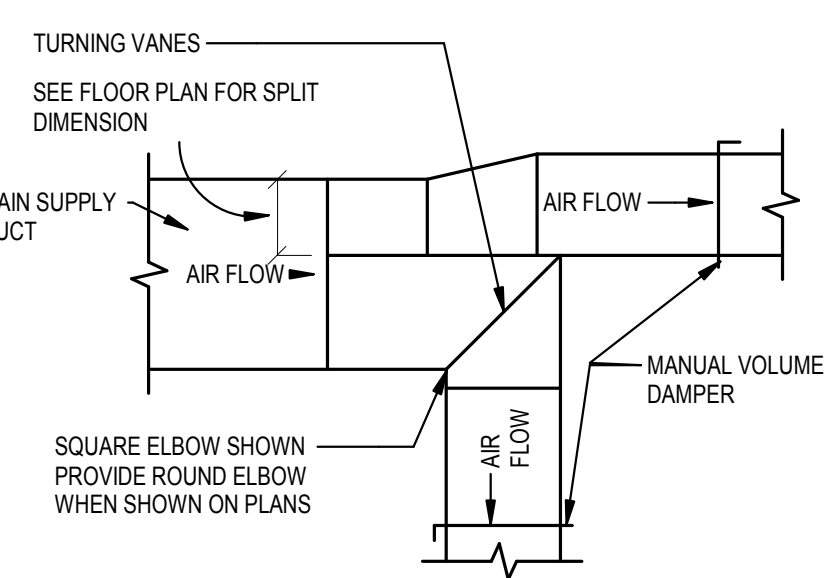
ROUND SHEETMETAL BRANCH DUCT	
BRANCH CFM	RD. DUCT SIZE
0 TO 80 CFM	6"D
81 TO 120 CFM	7"D
121 TO 200 CFM	8"D
201 TO 400 CFM	10"D
401 TO 700 CFM	12"D
701 TO 1000 CFM	14"D

NOTES

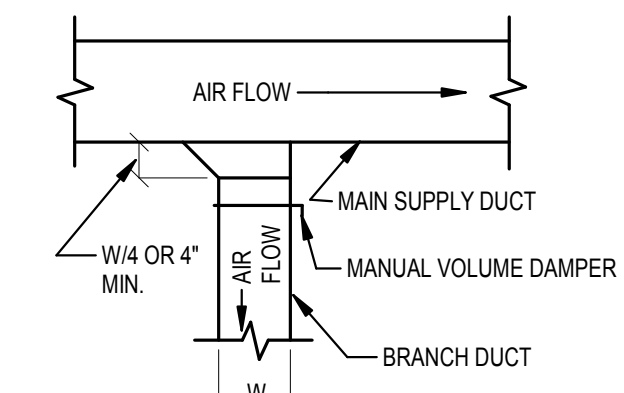
- SHEET METAL PLENUM, FULL SIZE OF GRILLE NECK, MINIMUM 6" TALL WITH SAME INTERNAL OR EXTERNAL INSULATION AS RETURN OR EXHAUST DUCT. CONNECT TO GRILLE. SEAL PLENUM AND CONNECTION TO GRILLE, SEAL CLASS A.
- FLEXIBLE DUCT, SAME DIAMETER AS BRANCH DUCT (7), 5 FT. MAXIMUM TOTAL LENGTH PER AIR DEVICE. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH.
- SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE WITH MANUAL DAMPER. DAMPER SHAFT IN HORIZONTAL. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION. EXTENDED DAMPER SHAFT AND HANDLE WITH STAND-OFF REQUIRED FOR EXTERNALLY INSULATED DUCTWORK.
- SPIN-IN TAP FITTING SIMILAR TO (3) EXCEPT NO DAMPER. DUCT STRAP HANGER, ATTACH TO STRUCTURE.
- STRAP HANGER REQUIRED IF LENGTH OF FLEXIBLE DUCT IS LONGER THAN 4 FT.
- ROUND SHEET METAL BRANCH DUCT, SIZE AS INDICATED IN ADJACENT SCHEDULE UNLESS NOTED OTHERWISE ON PLANS.
- CEILING T-BAR SUPPORT (FOR LAY-IN APPLICATIONS). COORDINATE AND VERIFY T-BAR TYPE FOR COMPATIBILITY WITH GRILLE.
- MINIMUM CENTERLINE RADIUS EQUAL TO DUCT DIAMETER.
- FLEXIBLE DUCT ELBOW SUPPORT, INSTALLED WITH NYLON BANDING PER MANUFACTURER'S INSTRUCTIONS.
- A RADIUS SHEET METAL ELBOW MAY BE USED IN LIEU OF A FLEXIBLE ELBOW SUPPORT WHEN CONNECTED DIRECTLY TO AIR DEVICE.

4 RETURN/EXHAUST GRILLE DUCT CONNECTION

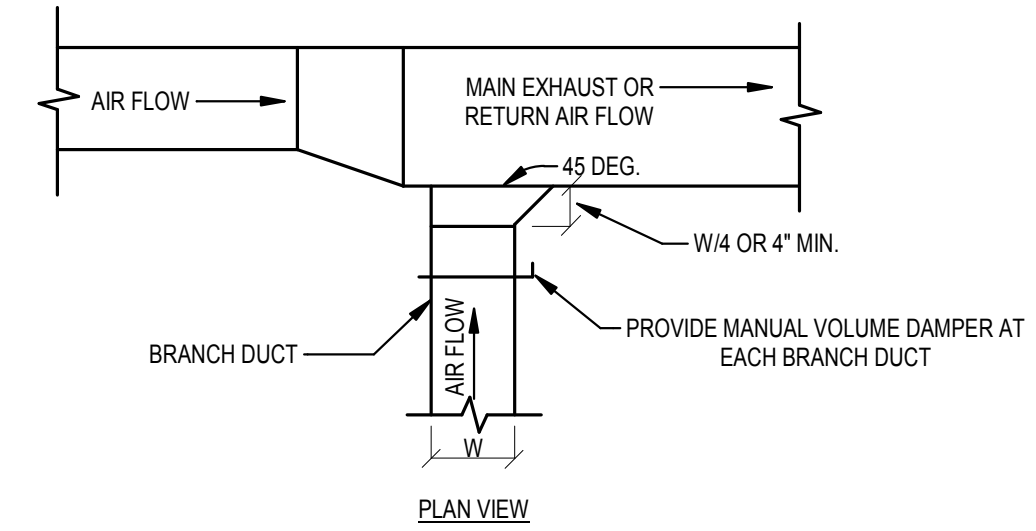
SCALE: NONE



AIR SPLIT DUCT TAKE-OFF PLAN VIEW



BRANCH DUCT TAKE-OFF PLAN VIEW

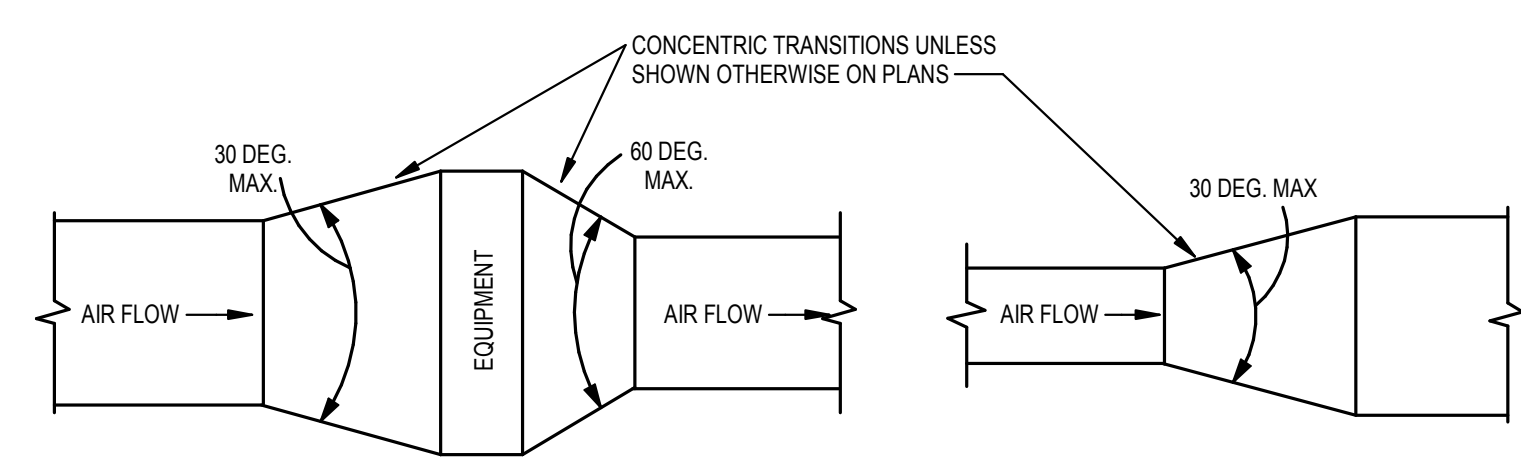


PLAN VIEW

THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM, AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES.

5 SUPPLY DUCTWORK BRANCH TAKE-OFFS

SCALE: NONE

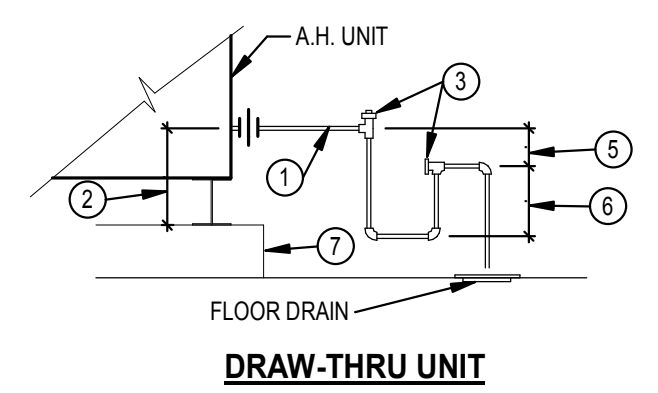


TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT PLAN OR SIDE VIEW

NOTE:
A. UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.
B. TRANSITION ANGLES IN AND OUT OF FANS SHALL BE 50% OF THOSE SHOWN ABOVE.

7 DUCTWORK TRANSITIONS

SCALE: NONE



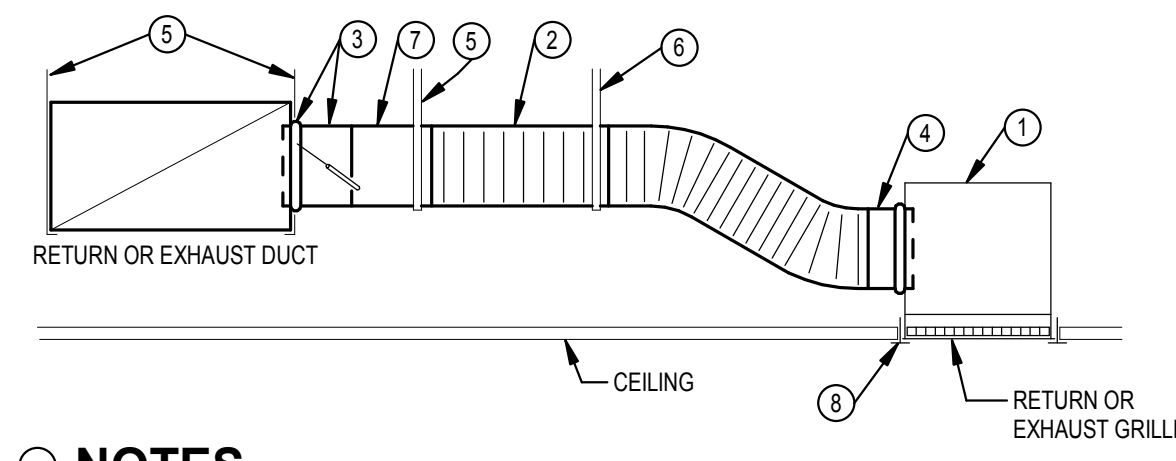
DRAW-THRU UNIT

NOTES

- DRAIN PIPE, SAME SIZE AS UNIT DRAIN PAN CONNECTION. VERIFY REQUIRED HEIGHT FOR DRAIN PIPE AND TRAP INSTALLATION. PROVIDE ADDITIONAL BEAMS OR BACK-TO-BACK CHANNELS UNDER UNIT, IF REQUIRED, TO ATTAIN REQUIRED HEIGHT.
- TEE WITH CLEANOUT PLUG.
- CENTERLINE-TO-CENTERLINE DIMENSION NOT LESS THAN SUPPLY FAN T.S.P. (INCH W.G.) + 1 INCH.
- CENTERLINE-TO-CENTERLINE DIMENSION SHALL BE 50% OF DIMENSION FOUND IN (4) ABOVE.
- CONCRETE HOUSEKEEPING PAD.

8 AIR HANDLING UNIT DRAIN PIPING-FLOOR MOUNTED

SCALE: NONE



NOTES

- SHEET METAL PLENUM, FULL SIZE OF GRILLE NECK, MINIMUM 4" TALLER THAN DUCT RUNOUT SIZE, WITH SAME INTERNAL OR EXTERNAL INSULATION AS RETURN OR EXHAUST DUCT. CONNECT TO GRILLE. SEAL PLENUM AND CONNECTION TO GRILLE, SEAL CLASS A.
- FLEXIBLE DUCT, SAME DIAMETER AS BRANCH DUCT (7), 5 FT. MAXIMUM TOTAL LENGTH PER AIR DEVICE. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH.
- SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE WITH MANUAL DAMPER. DAMPER SHAFT IN HORIZONTAL. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION. EXTENDED DAMPER SHAFT AND HANDLE WITH STAND-OFF REQUIRED FOR EXTERNALLY INSULATED DUCTWORK.
- SPIN-IN TAP FITTING SIMILAR TO (3) EXCEPT NO DAMPER.
- DUCT STRAP HANGER, ATTACH TO STRUCTURE.
- STRAP HANGER REQUIRED IF LENGTH OF FLEXIBLE DUCT IS LONGER THAN 4 FT.
- ROUND SHEET METAL BRANCH DUCT, SIZE AS INDICATED IN ADJACENT SCHEDULE UNLESS NOTED OTHERWISE ON PLANS.
- CEILING T-BAR SUPPORT (FOR LAY-IN APPLICATIONS). COORDINATE AND VERIFY T-BAR TYPE FOR COMPATIBILITY WITH GRILLE.

9 RETURN/EXHAUST GRILLE DUCT CONNECTION

SCALE: NONE

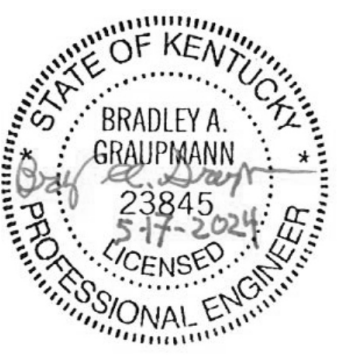
ROUND SHEETMETAL BRANCH DUCT	
BRANCH CFM	RD. DUCT SIZE
0 TO 80 CFM	6"D
81 TO 120 CFM	7"D
121 TO 200 CFM	8"D
201 TO 400 CFM	10"D
401 TO 700 CFM	12"D
701 TO 1000 CFM	14"D



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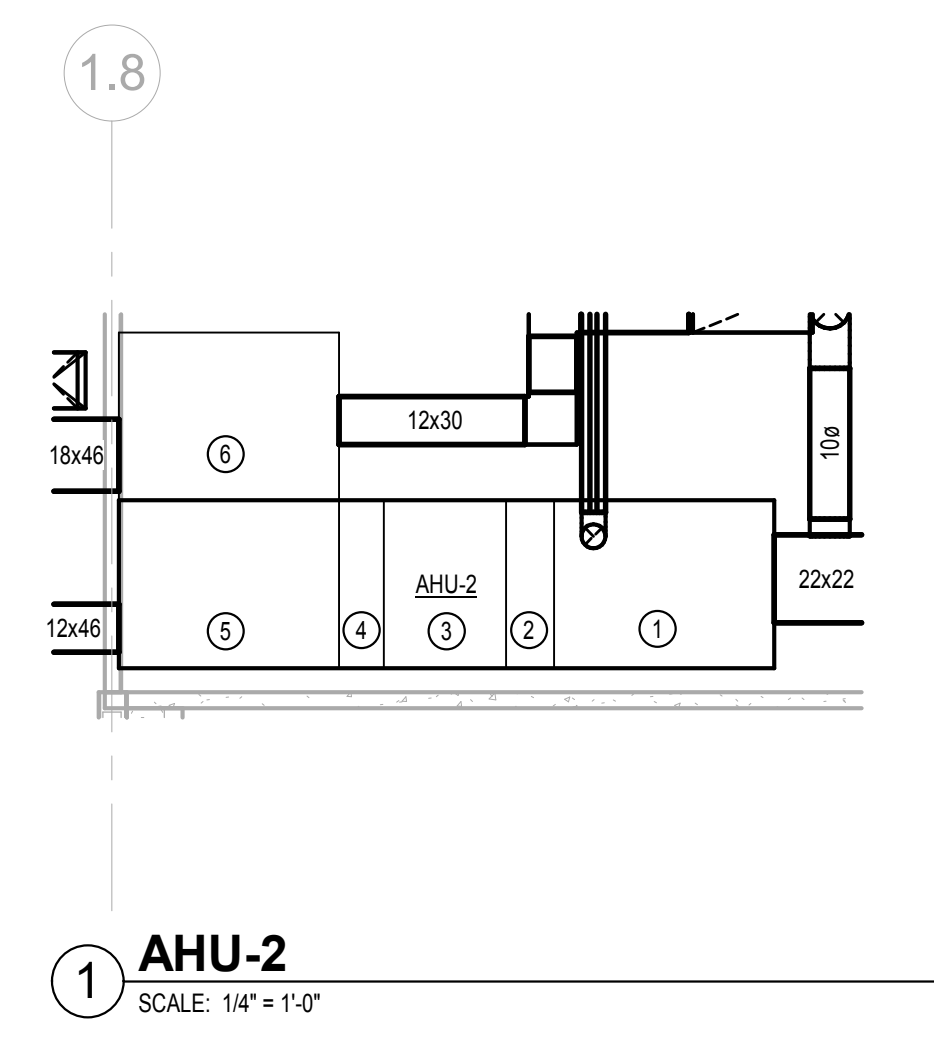
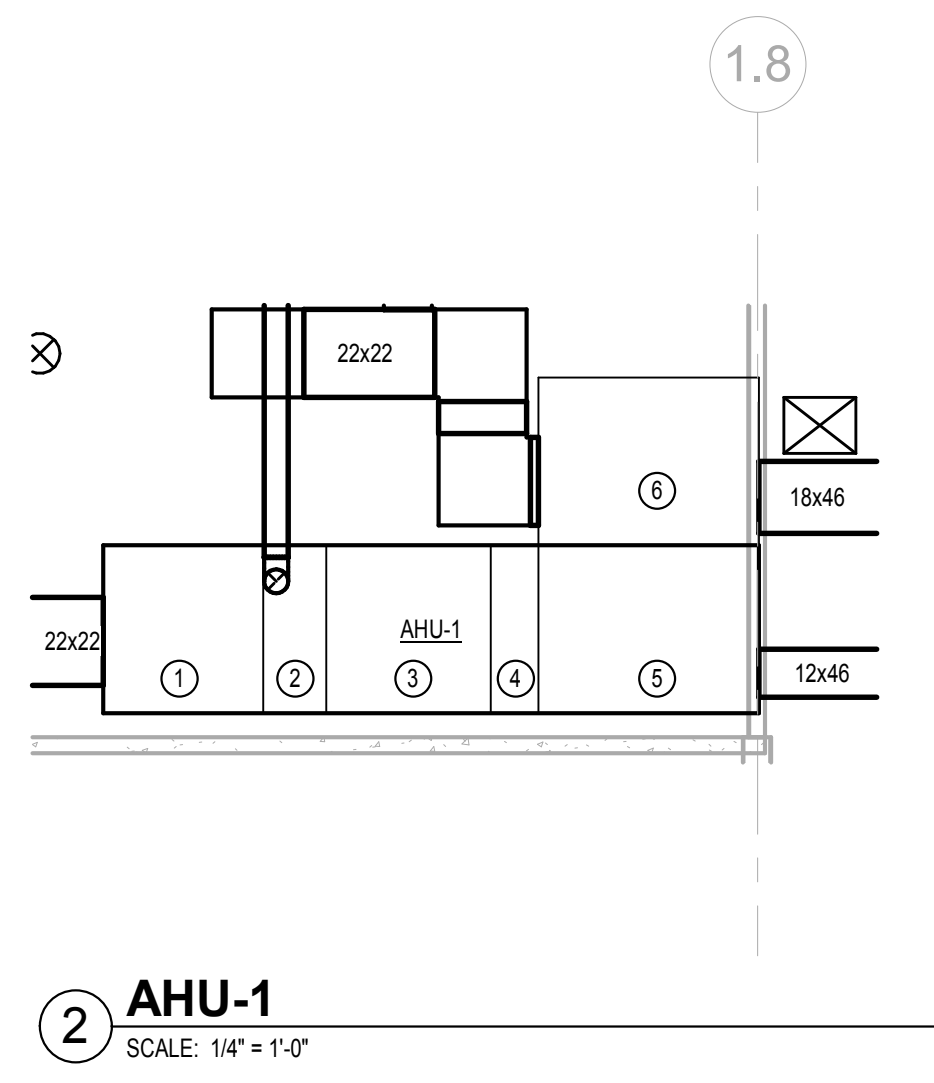
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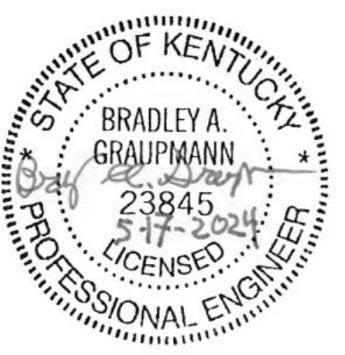
#	Date	Description

DETAILS

M006

- DETAIL NOTES**
1. GAS HEAT SECTION
 2. DIFFUSER SECTION
 3. SUPPLY FAN SECTION
 4. DX COIL SECTION
 5. AIR MIXING SECTION
 6. RELIEF FAN SECTION





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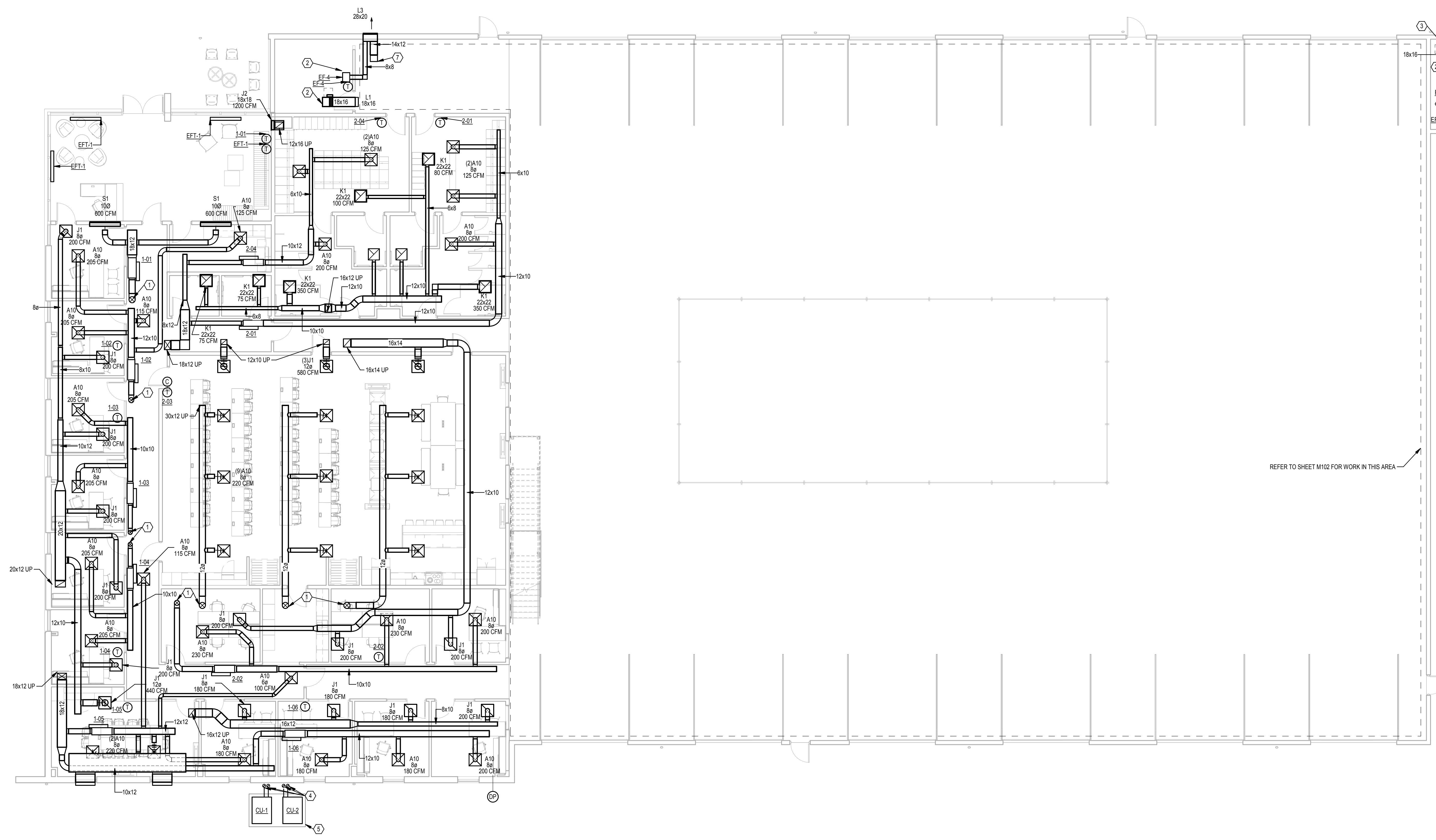
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FIRST FLOOR PLAN

M101

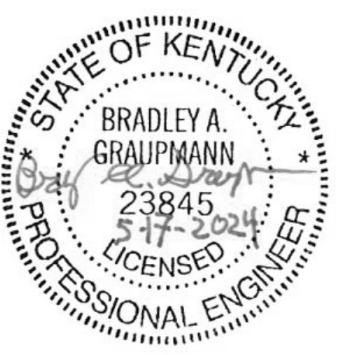
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- PLAN NOTES**
- VAV DUCTWORK UP TO FLOOR ABOVE. REFER TO VAV SCHEDULE FOR SIZE.
 - PROVIDE 0.5" WIRE MESH SCREEN AT OPENING.
 - PROVIDE 2-POSITION AUTOMATIC CONTROL DAMPER INTERLOCKED WITH EF-3 OPERATION.
 - REFRIGERANT LINES UP TO MEZZANINE. SIZE PER MANUFACTURERS RECOMMENDATIONS.
 - PROVIDE NEW CONCRETE PAD FOR EQUIPMENT.
 - PROVIDE 2-POSITION AUTOMATIC CONTROL DAMPER INTERLOCKED WITH EF-4 OPERATION.
 - REFER TO SHEET M102 FOR CONTINUATION.



FIRST FLOOR PLAN
 SCALE: 1/8" = 1'-0"





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#	Date	Description
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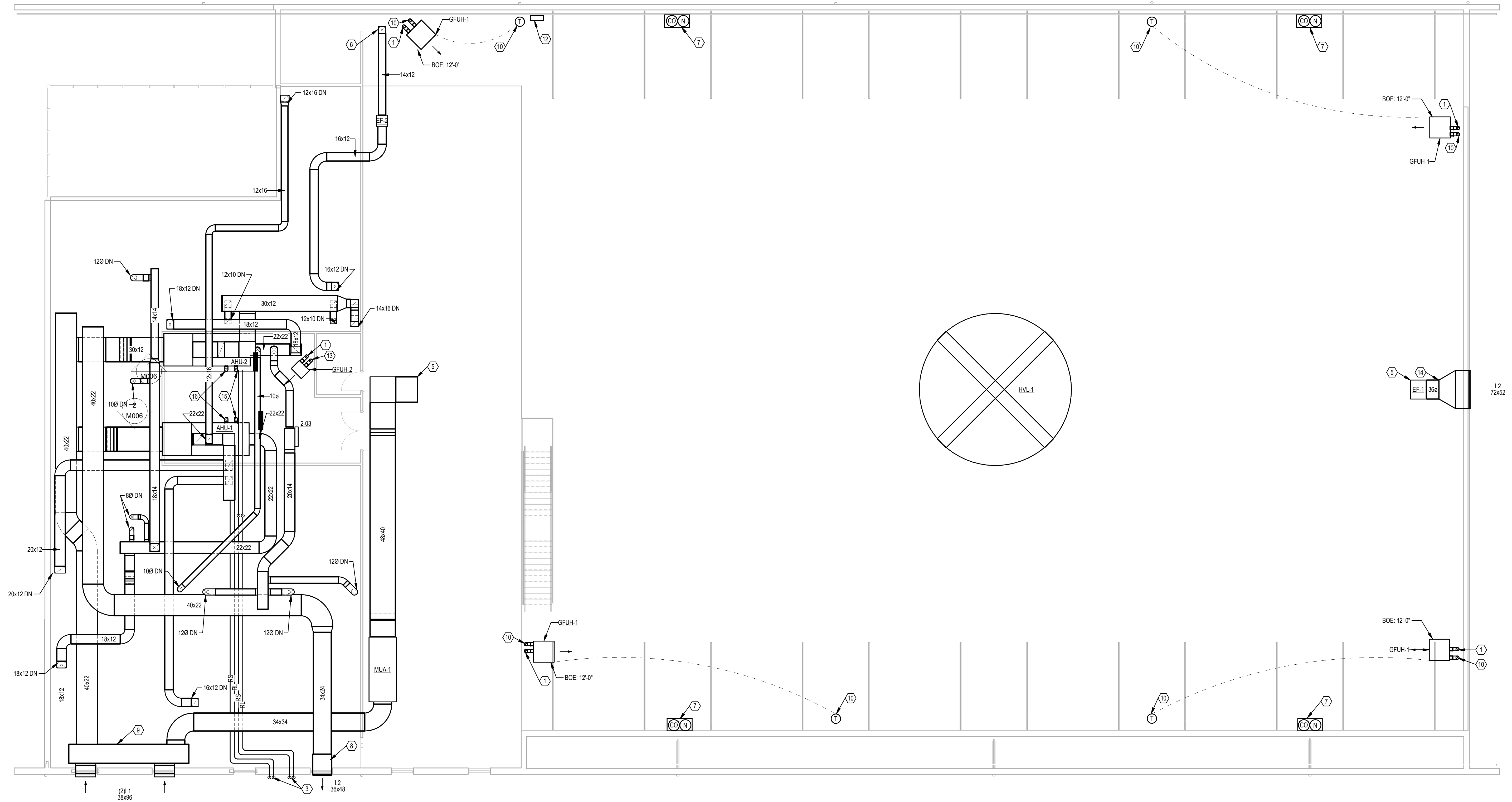
MEZZANINE FLOOR
 PLAN

M102

2311.068

PLAN NOTES

- 60 EXHAUST FLUE UP TO ROOF WITH CAP.
- 70 EXHAUST FLUE UP TO ROOF WITH CAP.
- REFRIGERANT LINES DOWN TO CONDENSING UNITS. SIZE PER MANUFACTURERS RECOMENDATIONS.
- MUA-1 INTERLOCKED WITH OPERATION OF EF-1. UNITS SHALL OPERATE UPON DETECTION OF CO AND NO2 RISES ABOVE ACETABLE LIMITS.
- PROVIDE 0.5" WIRE MECH ON OPENING.
- REFER TO SHEET M101 FOR CONTINUATION.
- PROVIDE COMBINATION CO & NO2 SENSOR AND WIRE TO CONTROLLER AND MOUNT AT 48" A.F.F.
- 36X74 RELIEF AIR DUCT PLENUM.
- 36X78 OUTSIDE AIR DUCT PLENUM.
- 60 COMBUSTION AIR UP TO ROOF WITH CAP.
- PROVIDE INSULATED MOUNTING PLATE AT THERMOSTAT.
- MOUNT GAS DETECTION CONTROLLER ON WALL. COORDINATE WITH E.C. FOR CONTROL POWER WIRING.
- 30 COMBUSTION AIR UP TO ROOF WITH CAP.
- PROVIDE MOTORIZED BACKDRAFT DAMPER. INTERLOCK DAMPER OPERATION WITH FAN. DAMPER SHALL BE ACCESSIBLE.
- 80 EXHAUST FLUE UP TO ROOF WITH CAP.
- 80 COMBUSTION AIR UP TO ROOF WITH CAP.



MEZZANINE FLOOR PLAN
 SCALE: 1/8" = 1'-0"



PROJECT NO. 2023-07214