DUCTWORK SYMBOLS

RECTANGULAR	ROUND / OVAL	
	CONICAL FITTING	ROUND BRANCH DUCTWORK
ACOUSTIC FITTING	ACOUSTIC FITTING	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 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
AD	AD	ACCESS DOOR OR PANEL
R	R	DUCTWORK RISE IN DIRECTION OF AIR FLOW
D	D	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
26x20		RECTANGULAR DUCTWORK DIMENSIONS (W x H)
26ø		ROUND DUCTWORK DIMENSIONS (DIA)
26x20 OV		OVAL DUCTWORK DIMENSIONS (W x H)

DUCTWORK DEVICE SYMBOLS

A3 10ø 300	AIR DEVICE. A3 = DESIGNATION (REFER TO FLOOR PLANS AND AIR DEVICE SCHEDULE FOR VARIOUS DESIGNATIONS). 10ø = 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.
SG1 20x12 300 BOG: 9'-0"	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
XXX	BDD = BACK DRAFT DAMPER CBD = COUNTER-BALANCED BACK DRAFT DAMPER
A-D	FIRE DAMPER A = TYPE (REFER TO FLOOR PLANS FOR VARIOUS TYPES) D OR S = DYNAMIC OR STATIC
XX	SD = SMOKE DAMPER FS = COMBINATION FIRE - SMOKE DAMPER MDD = MOTORIZED DAMPER AFMS = AIR FLOW MEASURING STATION
SD	DUCT MOUNTED SMOKE DETECTOR. COORDINATE LOCATION.
H	HUMIDITY SENSOR - DUCT MOUNTED
SP	STATIC PRESSURE SENSOR - DUCT MOUNTED
C	CARBON DIOXIDE SENSOR - DUCT MOUNTED
S	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
FOT / FOB	ECCENTRIC PIPE REDUCER
P	PRESSURE GAUGE
T	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 P/T PLUG IN AND OUT
	EXPANSION JOINT
	MANUAL AIR VENT
A	AUTOMATIC AIR VENT
	PRESSURE REDUCING VALVE
M	MODULATING 2 PORT AUTOMATIC CONTROL VALVE
M	2 PORT AUTOMATIC CONTROL VALVE, 2-POSITION UNLESS SPECIFIED OTHERWISE
M	MODULATING 3 PORT AUTOMATIC CONTROL VALVE
M	3 PORT AUTOMATIC CONTROL VALVE, 2-POSITION UNLESS SPECIFIED OTHERWISE
M	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
N	NEEDLE VALVE
	PRESSURE AND TEMPERATURE TEST PLUG
V	VACUUM GAUGE WITH STOP
	END CAP
	GLOBE VALVE
VB	SHUTOFF VALVE AND BOX
	SHUTOFF VALVE ON RISER
S	SOLENOID VALVE
WM	WATER METER
FI	FLOW METER
BM	BI-METALIC STEAM TRAP AND DRIP ASSEMBLY
TD	THERMODYNAMIC STEAM TRAP AND DRIP ASSEMBLY
IB	INVERTED BUCKET STEAM TRAP AND DRIP ASSEMBLY
FT	FLOAT AND THERMOSTATIC STEAM TRAP AND DRIP ASSEMBLY
TS	THERMOSTATIC STEAM TRAP AND DRIP ASSEMBLY
	PRESSURE GAUGE WITH COCK AND SIPHON LOOP

MISC SYMBOLS

C	CARBON DIOXIDE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
CO	CARBON MONOXIDE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
DP	DIFFERENTIAL PRESSURE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
H	HUMIDITY SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
S	TEMPERATURE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 46" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
S	TEMPERATURE SENSOR MOUNTED IN CEILING PLENUM.
SP	STATIC PRESSURE SENSOR.
T	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

3	PLAN NOTE. APPLIES ONLY TO THE SHEET WHICH IT IS SHOWN UNLESS NOTED OTHERWISE.
3	DETAIL NOTE. APPLIES ONLY TO THE ASSOCIATED DETAIL.
A1	EQUIPMENT, DEVICE, OR PLUMBING FIXTURE MARK. LETTER DESIGNATIONS REFER TO SCHEDULES.
H1 OR H1	EQUIPMENT REFERENCE. LETTER DESIGNATION VARIES. REFER TO SCHEDULES.
2	RISER OR STACK NUMBER
B / H2	DETAIL: B = DETAIL DESIGNATION H2 = SHEET WHERE DETAIL IS LOCATED
1 / H2	SECTION: 1 = SECTION DESIGNATION H2 = SHEET WHERE DETAIL IS LOCATED
A1	"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
10" ELEV: 8' - 0" / 10" ELEV: 8' - 0"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO CENTERLINE OF PIPE, UNLESS NOTED OTHERWISE
20x20 TOD: 8' - 10" 20x20 BOD: 7' - 2"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO TOP OR BOTTOM OF DUCTWORK, UNLESS NOTED OTHERWISE
UC-X	DOOR UNDERCUT. X = HEIGHT OF UNDERCUT IN INCHES. 0.75 INCH UNDERCUT IF NO HEIGHT IS NOTED. COORDINATE WITH GC.
DL-1	DOOR LOUVER. 1 = SQUARE FEET OF LOUVER.
	CONNECT TO EXISTING

PIPING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		BOTTOM CONNECTION (45°)
		BOTTOM CONNECTION (90°)
		BRANCH TEE CONNECTION (NOTE: BULLHEAD TEE'S ARE NOT PERMITTED)
		DIRECTION OF PITCH
D	D	DROP
		ELBOW DOWN
		ELBOW UP
		EXISTING PIPE TO BE REMOVED
		EXISTING PIPE TO REMAIN
		FLOW DIRECTION DESIGNATION
		PIPE RISER
		PUMP
R D	R	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

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		
AFF	- ABOVE FINISHED FLOOR	KEC	- KITCHEN EQUIPMENT CONTRACTOR
AFG	- ABOVE FINISHED GRADE		
AFMS	- AIR FLOW MEASURING STATION	L	- LENGTH
ALT	- ALTERNATE	LAT	- LEAVING AIR TEMPERATURE
AP	- ACCESS PANEL	LAV	- LAVATORY
APPROX	- APPROXIMATE	LBS	- POUNDS
ARCH	- ARCHITECT OR ARCHITECTURAL	LPC	- LOW PRESSURE CONDENSATE RETURN
ASSY	- ASSEMBLY	LPS	- LOW PRESSURE STEAM SUPPLY
ATC	- AUTOMATIC TEMPERATURE CONTROL (SYNONYMOUS WITH BAS)	LWT	- LEAVING WATER TEMPERATURE
		MAX	- MAXIMUM
BAS	- BUILDING AUTOMATION SYSTEM	MDD	- MOTORIZED DAMPER
BDD	- BACK DRAFT DAMPER	MEZZ	- MEZZANINE
BFP	- BACKFLOW PREVENTER	MFR	- MANUFACTURER
BLDG	- BUILDING	MH	- MANHOLE
BOB	- BOTTOM OF BEAM	MIN	- MINIMUM OR MINUTE
BOD	- BOTTOM OF DUCT	MISC	- MISCELLANEOUS
BOE	- BOTTOM OF EQUIPMENT	MTD	- MOUNTED
BOF	- BOTTOM OF FOOTING	MTG	- MOUNTING
BOG	- BOTTOM OF GRILLE	MPC	- MEDIUM PRESSURE CONDENSATE RETURN
BOP	- BOTTOM OF PIPE		
BOT	- BOTTOM	MPS	- MEDIUM PRESSURE STEAM SUPPLY
BTU	- BRITISH THERMAL UNIT	MU	- WATER MAKE-UP
BTUH	- BRITISH THERMAL UNIT PER HOUR		
		N/C	- NORMALLY CLOSED
CBD	- COUNTER BALANCED BACKDRAFT DAMPER	NIC	- NOT IN CONTRACT
CFCI	- CONTRACTOR FURNISHED CONTRACTOR INSTALLED	N/O	- NORMALLY OPEN
		NOM	- NOMINAL
CFM	- CUBIC FEET PER MINUTE	NPT	- NATIONAL PIPE THREAD
CHS	- CHILLED WATER SUPPLY	NTS	- NOT TO SCALE
CHR	- CHILLED WATER RETURN		
CHGR	- CHILLED WATER GLYCOL SOLUTION RETURN	OA	- OUTDOOR AIR
CHGS	- CHILLED WATER GLYCOL SOLUTION SUPPLY	OBD	- OPPOSED BLADE DAMPER
CLG	- CEILING	OD	- OUTSIDE DIAMETER
CMU	- CONCRETE MASONRY UNIT	OFCI	- OWNER FURNISHED CONTRACTOR INSTALLED
CO	- CLEAN OUT		
CO2	- CARBON DIOXIDE	OFOI	- OWNER FURNISHED OWNER INSTALLED
CONN	- CONNECT OR CONNECTION		
CONTR	- CONTRACTOR	P	- PROPANE GAS
CTR	- CENTER	PC	- PLUMBING CONTRACTOR (DIVISION 22) OR PUMPED CONDENSATE RETURN
CU	- COPPER		
CW	- COLD WATER	PLBG	- PLUMBING
CWR	- CONDENSER WATER RETURN	PRESS	- PRESSURE
CWS	- CONDENSER WATER SUPPLY	PRV	- PRESSURE REGULATING VALVE
		PSF	- POUNDS PER SQUARE FOOT
D	- DRAIN LINE	PSI	- POUNDS PER SQUARE INCH
DB	- DRY BULB	PSIG	- POUNDS PER SQUARE INCH GAUGE
DDC	- DIRECT DIGITAL CONTROLS		
DI	- DEIONIZED WATER	RA	- RETURN AIR
DIA	- DIAMETER	RAD	- RADIUS
DIM	- DIMENSION	RCP	- REFLECTED CEILING PLAN
DN	- DOWN	RD	- ROOF DRAIN
DWG	- DRAWING	REC	- RECESSED
		REQD	- REQUIRED
EA	- EACH OR EXHAUST AIR	RI	- ROUGH IN
EAT	- ENTERING AIR TEMPERATURE	RL	- REFRIGERANT LIQUID
EC	- ELECTRICAL CONTRACTOR (DIVISION 26)	ROS	- REVERSE OSMOSIS WATER SUPPLY
EJ	- EXPANSION JOINT	ROR	- REVERSE OSMOSIS WATER RETURN
ELEC	- ELECTRICAL	RPM	- REVOLUTIONS PER MINUTE
ELEV	- ELEVATOR	RS	- REFRIGERANT SUCTION
EQUIP	- EQUIPMENT		
ET	- EXPANSION TANK	S	- SPRINKLER (WET)
ETR	- EXISTING TO REMAIN	SA	- SUPPLY AIR
EQS	- EQUIPMENT SUPPLIER	SAN	- SANITARY OR SANITARY DRAIN
EWT	- ENTERING WATER TEMPERATURE	SCH	- SCHEDULE
EXH	- EXHAUST	SCW	- SOFT COLD WATER
EXP	- EXPANSION	SHT	- SHEET
EXT	- EXTERIOR	SPEC	- SPECIFICATIONS
EX	- EXISTING	SQ	- SQUARE
		SR	- SUPPLY RISER
FD	- FLOOR DRAIN	SRV	- SAFETY RELIEF VALVE
FF	- FINISHED FLOOR ELEVATION	SS	- STAINLESS STEEL
FLR	- FLOOR	STD	- STANDARD
FOB	- FLAT ON BOTTOM	STM	- STORM OR STORM DRAINAGE
FOF	- FUEL OIL FLOW	STRUC	- STRUCTURAL OR STRUCTURE
FOG	- FUEL OIL GAUGE	SUC	- SITE UTILITY CONTRACTOR
FOR	- FUEL OIL RETURN		
FOS	- FUEL OIL SUPPLY	TEMP	- TEMPERATURE
FOT	- FLAT ON TOP	TOB	- TOP OF BEAM
FPM	- FEET PER MINUTE	TOD	- TOP OF DUCT
FSC	- FIRE SUPPRESSION CONTRACTOR (DIVISION 21)	TOE	- TOP OF EQUIPMENT
FT	- FEET	TOF	- TOP OF FOOTING
FTG	- FOOTING	TOJ	- TOP OF JOIST
		TOP	- TOP OF PIPE
G	- GAS OR NATURAL GAS	TOS	- TOP OF SLAB OR TOP OF STEEL
GA	- GAUGE	TYP	- TYPICAL
GAL	- GALLON		
GALV	- GALVANIZED	UNO	- UNLESS NOTED OTHERWISE
GC	- GENERAL TRADES CONTRACTOR		
GPM	- GALLONS PER MINUTE	V	- VENT
		VAC	- VACUUM
HB	- HOSE BIBB	VEL	- VELOCITY
HC	- HVAC CONTRACTOR (DIVISION 23)	VFD	- VARIABLE FREQUENCY DRIVE (ADJUSTABLE FREQUENCY MOTOR CONTROLLER)
HD	- HUB DRAIN		
HG	- REFRIGERANT HOT GAS		
HP	- HORSEPOWER	VIB	- VALVE IN BOX
HPC	- HIGH PRESSURE CONDENSATE RETURN	VOL	- VOLUME
HPS	- HIGH PRESSURE STEAM SUPPLY	VTR	- VENT THROUGH ROOF
HR	- HOUR	VR	- VENT RISER
HT	- HEAT TRACE		
HTR	- HEATER	W/	- WITH
HVAC	- HEATING, VENTILATING, AND AIR CONDITIONING	W/O	- WITHOUT
HW	- HOT WATER	WB	- WET BULB
HWR	- HEATING HOT WATER RETURN	WCO	- WALL CLEANOUT
HWS	- HEATING HOT WATER SUPPLY		

NOTE: ALL SYMBOLS AND ABBREVIATIONS ARE SUBJECT TO MODIFICATIONS ON OTHER DRAWINGS.

ALL SYMBOLS OR ABBREVIATIONS MIGHT NOT NECESSARILY BE USED ON THIS PROJECT.

SHEET LIST - HVAC

GENERAL NOTES

A. 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.

B. ALL EQUIPMENT ABOVE THE CEILING REQUIRING MAINTENANCE ACCESS SHALL BE MOUNTED A MAXIMUM OF 18" ABOVE CEILING TO ALLOW FOR ACCESS.

C. 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.

D. 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.

E. COORDINATE ALL WALL AND ROOF OPENINGS WITH GENERAL TRADES CONTRACTOR.

F. 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 CEILINGS ARE INSTALLED HOLD AS HIGH AS POSSIBLE TO STRUCTURE UNLESS NOTED OTHERWISE.

G. BRANCH DUCTS TO AIR DEVICES SHALL BE EQUAL TO DEVICE INLET SIZE UNLESS NOTED OTHERWISE.

H. 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.

I. 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.

J. ALL SQUARE CORNER DUCT FITTINGS SHALL BE EQUIPPED WITH TURNING VANES AS SPECIFIED IN 23 31 13.

K. DUCT RUN-OUT SIZE TO CEILING DIFFUSERS TO BE SAME SIZE AS THE DIFFUSER NECK UNLESS OTHERWISE NOTED.

L. BRANCH PIPING TO ALL HEATING COILS OR HEATING EQUIPMENT SHALL BE SIZED AS NOTED ON THE EQUIPMENT SCHEDULE.

M. EXACT LOCATION OF ALL WALL MOUNTED ITEMS (STATS, SENSORS, SWITCHES, CONTROL PANELS) SHALL BE SUBMITTED FOR REVIEW AND APPROVED BY THE OWNER ENGINEER. SUBMITTAL SHALL BE MADE IN A TIMELY FASHION SO REVIEW MAY BE CONDUCTED PRIOR TO INSTALLATION OF FINISHED WALL SURFACES.

N. ALL RETURN GRILLES OPEN TO THE CEILING PLENUM SHALL HAVE A RETURN AIR SOUND BOOT PER DETAIL ON SHEET H002.

O. MEP ABOVE-CEILING COORDINATION: ALL CONTRACTORS SHALL PARTICIPATE IN DEVELOPMENT OF COORDINATION DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS. THE CONTRACT DRAWINGS SHOW THE INTENDED ARRANGEMENT FOR MEP SYSTEMS, BUT IT IS UNDERSTOOD ADJUSTMENTS MAY RESULT FROM THE COORDINATION PROCESS. WHEN THIS OCCURS, THE FOLLOWING SHALL SERVE AS THE GENERAL GUIDELINE FOR ARRANGEMENT OF THE VARIOUS MEP SYSTEMS AND EQUIPMENT; DUCT MAINS AND ELECTRICAL FEEDER CONDUIT SHALL BE HIGH; HYDRONIC AND PLUMBING PIPING SHALL BE BELOW THESE ITEMS; CABLE TRAY AND HVAC EQUIPMENT SHALL BE NOT MORE THAN 18" ABOVE THE CEILING; SPRINKLER PIPING, BRANCH CIRCUITRY CONDUIT, AND BRANCH DUCTWORK SHALL BE PLACED WHERE NECESSARY FOR COORDINATION.

P. HVAC CONTRACTOR SHALL COORDINATE CLOSELY WITH OTHER TRADES IN LOCATING AND INSTALLING ALL SYSTEMS ABOVE CORRIDORS, SPECIFICALLY, COORDINATE LAYOUT WITH E.C. TO ALLOW SUFFICIENT SPACE FOR CABLE TRAY SYSTEM.

Q. WHERE SUPPLY DUCTWORK WILL REMAIN EXPOSED TO VIEW IN FINISHED SPACES, DO NOT APPLY EXTERNAL INSULATION. DUCTWORK SHALL BE INTERNALLY LINED. HVAC CONTRACTOR SHALL CLEAN AND PREPARE DUCT SURFACE FOR FINISH PAINTING BY THE GENERAL CONTRACTOR.

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FAC 24-03 Move and Upgrade eLearn Production Studio (Re-bid)

SINCLAIR COMMUNITY COLLEGE
444 W 3rd St,
Dayton, OH 45302
Building 4

ISSUANCES

No.	Description	Date
	75% REVIEW SET	10/02/2023
	90% REVIEW SET	10/23/2023
1	CONSTRUCTION DOCS	11/13/2023
3	CD RE-BID	02/12/2024

Drawn By: AJS
Checked By: AJS
Client No.: 659
Project No.: 7262

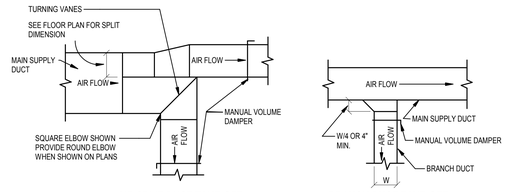
STATE OF OHIO — LANE G. OATMAN — 72812 — REGISTERED PROFESSIONAL ENGINEER — 11-15-2023

LEGEND, INDEX & GENERAL NOTES

H001

HEAPY PROJECT NO. 2023-06062

2/9/2024 10:35:16 AM

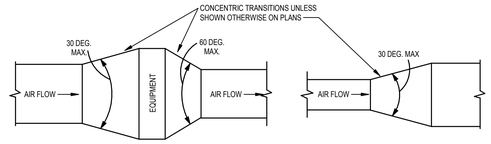


AIR SPLIT DUCT TAKE-OFF PLAN VIEW

BRANCH DUCT TAKE-OFF 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

1 SUPPLY DUCTWORK BRANCH TAKE-OFFS
SCALE: NONE

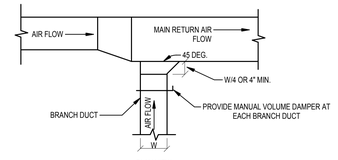


TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT PLAN OR SIDE VIEW

TYPICAL DUCTWORK TRANSITION PLAN OR SIDE VIEW

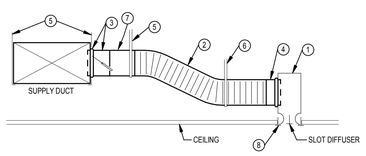
NOTE:
A. UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.
B. TRANSITION ANGLES IN AND OUT OF FANS SHALL BE 50% OF THOSE SHOWN ABOVE.

2 DUCTWORK TRANSITIONS
SCALE: NONE



PLAN VIEW

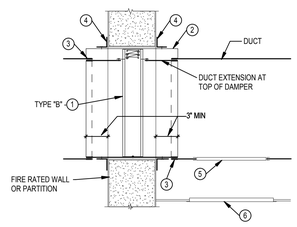
3 RETURN BRANCH DUCTWORK
SCALE: NONE



NOTES

1. 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.
2. 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.
3. 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.
4. SPIN-IN TAP FITTING SIMILAR TO (2) EXCEPT NO DAMPER.
5. DUCT STRAP HANGER. ATTACH TO STRUCTURE.
6. STRAP HANGER REQUIRED IF LENGTH OF FLEXIBLE DUCT IS LONGER THAN 4 FT.
7. ROUND SHEET METAL BRANCH DUCT, SAME SIZE AS DIFFUSER INLET UNLESS NOTED OTHERWISE.
8. CEILING T-BAR SUPPORT (FOR LAY-IN APPLICATIONS). COORDINATE AND VERIFY T-BAR TYPE FOR COMPATIBILITY WITH DIFFUSER.

4 SLOT DIFFUSER DUCT CONNECTION
SCALE: NONE



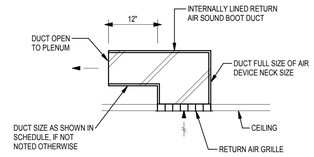
NOTES

1. FIRE DAMPER, FOLDED BLADE CURTAIN TYPE. EXCEPT AS NOTED. VERTICAL MOUNT, GRAVITY DROP; HORIZONTAL MOUNT, SPRING LOADED TO CLOSE. REFER TO SPECS FOR VELOCITY LIMITATIONS OF EACH TYPE. REFER TO DRAWINGS FOR STATIC OR DYNAMIC REQUIREMENTS.
   TYPE "A" - BLADES STORED IN AIR STREAM. RECTANGULAR, ROUND OR OVAL DUCT CONNECTION.
   TYPE "B" - BLADES STORED OUT OF AIR STREAM. RECTANGULAR, ROUND OR OVAL DUCT CONNECTION.
2. SHEET METAL WALL SLEEVE, SAME MATERIAL AS DUCT (EXCEPT GALVANIZED SHEET METAL FOR FIBERGLASS DUCT). SHEET METAL GAUGE PER SMACNA. USE EXTENDED HEAVY GAUGE SLEEVES WHEN INSTALLED CONDITION REQUIRES.
3. DUCT/SLEEVE CONNECTION. BREAKAWAY TYPE SHOWN. CONNECTION MAY BE RIGID TYPE IF ALLOWED BY CODE AUTHORITY.
4. RETAINING ANGLE ALL FOUR SIDES, GAUGE PER SMACNA. 1" MINIMUM OVERLAP OF WALL OPENING. LONGER LEG MAY BE REQUIRED TO ATTAIN REQUIRED OVERLAP. BOLT, SCREW OR TACK WELD TO WALL SLEEVE. SPACING OF FASTENERS PER SMACNA.
5. DUCT ACCESS PANEL OR DOOR. REFER TO SPECIFICATIONS.
6. CEILING ACCESS PANEL IF CEILING IS NOT ACCESSIBLE.

5 FIRE DAMPER TYPE "B"
SCALE: NONE

GENERAL NOTES

A. FIRE DAMPERS SHALL BE UL LABELED.
B. INSTALLATION OF FIRE DAMPERS AND ACCESSORIES SHALL CONFORM TO NFPA 90A, SMACNA AND MANUFACTURER'S INSTRUCTIONS.
C. DETAILS SHOW INSTALLATION OF FIRE DAMPER IN WALL. DAMPER INSTALLATION IN FLOOR SIMILAR. COORDINATE REQUIRED ACCESS LOCATIONS.
D. INSULATE RETAINING ANGLES FOR SYSTEMS REQUIRED TO BE INSULATED.



AIR DEVICE SIZE	DUCT SIZE
12x12	12x10
24x12	12x12
24x24	24x12

6 RETURN AIR SOUND BOOT
SCALE: NONE

HVAC DESIGN DATA

GENERAL NOTES:
A. OUTDOOR DESIGN CONDITIONS:
92°F DB SUMMER
74°F WB SUMMER
1°F DB WINTER
B. DESIGN ALTITUDE: 850 FT.

NOTES:
1. LISTED RH IS MAXIMUM ANTICIPATED AT LISTED DB TEMPERATURE.
2. "FLOATING" MEANS THERE IS NO ACTIVE CONTROL.

	INTERIOR DESIGN DATA			
	SUMMER		WINTER	
SPACE NAME / TYPE	°F DB	% RH (NOTE 1)	°F DB	% RH
OFFICES	74	50	70	FLOATING
STUDIOS	74	50	70	FLOATING
CONTROL ROOM	74	50	70	FLOATING
MACHINE ROOM	78	50	70	FLOATING
ALL OTHER SPACES	74	50	70	FLOATING

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, GYPSUM BOARD, TILE OR OTHER HARD SURFACES.

NOTES:
1. COORDINATE BORDER TYPE WITH CEILING TYPE. REFER TO AND COORDINATE WITH REFLECTED CEILING PLAN.

		MOUNTING TYPE				MATERIAL			FINISH				BASIS OF DESIGN		
MARK	DESCRIPTION	LAY-IN	SURFACE	DUCT	SPLINE	SNAP-IN	STEEL	ALUMINUM	STAINLESS STEEL	W.B.E.	E.C.L.	C.C.B.A.	OPPOSED BLADE DAMPER	SQ-TO-RD NECK ADAPTOR	MANUFACTURER	MODEL	SEE NOTE
F1	22.5° LOUVERED SUPPLY GRILLE		•				•			•			•		PRICE	510	
F2	SPIRAL DUCT MOUNTED SUPPLY GRILLE			•			•					•	•		PRICE	SDGE	
G1	SIDEWALL RETURN GRILLE		•				•			•			•		TITUS	350FL	
J1	EGGCRATE RETURN GRILLE	•						•		•					TITUS	50F	
S1	HIGHTHROW SLOT DIFFUSER - 2 SLOT, 48" LENGTH	•						•		•					TITUS	FL-20	1

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. CONCEALED ROUND RUNOUT DUCTS TO AIR DEVICES MAY BE 1" S.P. CLASS.
3. REFER TO DETAIL 6 ON THIS SHEET F
4. EXPOSED DUCTWORK SHALL BE PAINTED BY GENERAL CONTRACTOR. REFER TO SPECIFICATIONS FOR DUCT REQUIREMENTS.

	S.M.A.C.N.A. CLASS.								
			LEAKAGE CLASS						
DUCT SYSTEM	S.P. CON-STRUCT.	SEAL CLASS	RECT	RND	INTERNALLY LINED	EXTERNAL INSULATION	DOUBLE WALL INSULATED	NOT INSULATED	SEE NOTE
CONCEALED SUPPLY DUCTWORK UPSTREAM OF VAV BOXES & VRF UNITS	+3"	A	8	4	-	•	-	-	-
CONCEALED SUPPLY DUCTWORK DOWNSTREAM OF VAV BOXES & VRF UNITS	+1"	A	16	8	•	-	-	-	1, 2
EXPOSED SUPPLY DUCTWORK DOWNSTREAM OF AIR TERMINAL UNITS	+1"	A	16	8	-	-	•	-	4
RETURN DUCTWORK	-2"	A	16	8	-	-	-	•	-
TRANSFER/RETURN AIR SOUND BOOT	-1"	A	16	-	•	-	-	-	3

EXISTING AIR TERMINAL UNITS - HW HEAT

GENERAL NOTES:
A. TYPES: "V.V." - VARIABLE VOLUME;
"V.V.R." - VARIABLE VOLUME REHEAT;
"C.V.R." - CONSTANT VOLUME REHEAT;
B. ALL TERMINAL UNITS ARE EXISTING. CONTRACTOR SHALL REBLANCE UNITS TO ACCOMMODATE NEW AIR DEVICES.
C. LEAVING AIR TEMP. SHALL BE APPROXIMATELY 110°F FOR UNITS.
D. ALL EXISTING CONTROL SEQUENCES TO REMAIN.

			MIN. INLET SIZE	CFM			
MARK	TYPE		DIAMETER	COOLING MAXIMUM	WINTER MINIMUM	SUMMER MINIMUM	ASSOCIATED RISER
A4Z038	V.V.R.		12"	1,800	750	750	12
A4Z045	V.V.R.		12"	1,600	560	325	15

VRF HEAT PUMP MULTI-SPLIT A/C SYSTEMS

GENERAL NOTES:
A. UNLESS NOTED OTHERWISE, CAPACITIES SHALL BE BASED ON INTERIOR DESIGN CONDITIONS OF 75 DB / 63 WB COOLING; 70 DB HEATING.
B. REFRIGERANT PIPING - SIZES LISTED ARE APPROX. CIRCUITING, SIZING, NUMBER OF PIPES AND CIRCUITS, ARRANGEMENT, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
C. ELECTRIC SERVICES FOR OUTDOOR UNIT AND INDOOR UNIT - SINGLE POINT POWER SERVICE CONNECTIONS TO EACH UNIT. UNLESS NOTED OTHERWISE, ADEQUACY OF LISTED CIRCUIT SIZES 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.
D. COOLING COIL CONDENSATE PUMPS SHALL BE FACTORY-FURNISHED, COMPATIBLE WITH INDOOR FAN COIL UNIT VOLTAGE AND POWERED FROM THE INDOOR FAN COIL UNIT SINGLE POINT POWER CONNECTION.
E. IF EC MOTORS ARE INDICATED OR SPECIFIED, EACH MOTOR SHALL BE PROVIDED WITH FACTORY DISCONNECTING MEANS, INTERNAL OVERLOAD PROTECTION, FIELD ADJUSTABLE SPEED CONTROL, AND REMOTE ANALOG SPEED CONTROL INPUT WHEN REMOTE CONTROL IS SPECIFIED, COORDINATED WITH THE BUILDING AUTOMATION SYSTEM.
F. BASIS OF DESIGN IS TRANE/MITSUBISHI 2-PIPE SYSTEM. 3-PIPE SYSTEMS ARE ALLOWED. COST FOR INCREASE OR CHANGE OF ELECTRIC SERVICE FOR THE EQUIPMENT SELECTED SHALL BE BORNE BY THE H.C.

NOTES:
1.

		INDOOR UNIT																											
		TYPE			FAN			DX COOLING				HEATING		ELECTRICAL SERVICE				APPROX. DIMENSIONS							BASIS OF DESIGN		
												TYPE																	
MARK	DESCRIPTION	WALL-MOUNTED	CEILING-MOUNTED	CEILING RECESSED	DUCTED	CFM	EXT. STATIC PRESSURE (IN. W.C.)	ELECTRONICALLY COMMUTATED MOTOR	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	ENTERING AIR TEMP DB / WB (°F)	LEAVING AIR TEMP DB (°F)	HEAT PUMP	ELECTRIC RESISTANCE	CAPACITY (MBH)	VOLTAGE - PHASE	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCCR (AMPS)	LENGTH	WIDTH	HEIGHT	COOLING COIL CONDENSATE DRAIN PUMP (NOTE D)	MANUFACTURER	MODEL	SEE NOTE
IU-1	CEILING SUSPENDED (CONCEALED)	-	•	-	-	875	0.6	•	22.3	17.5	75/64	56.5	•	-	16.5	208-3	3	15	5000	44"	29"	10"	•	TRANE	TPEFYP024	
IU-2	CEILING SUSPENDED (CONCEALED)	-	•	-	-	1400	0.6	•	50.34	35.7	75/64	52.5	•	-	36.6	208-3	4	15	5000	65"	29"	10"	•	TRANE	TPEFYP054	
IU-3	CEILING SUSPENDED (CONCEALED)	-	•	-	-	600	0.6	•	16.78	12.5	75/64	55.4	•	-	12.2	208-3	.2	15	5000	36"	30"	10"	•	TRANE	TPEFYP018	
IU-4	WALL MOUNTED (EXPOSED)	•	-	-	-	425	-	•	16.78	11.1	75/64	55.4	•	-	12.2	208-3	0.5	15	5000	36"	10"	12"	•	TRANE	TPKFYP018	

VRF CONDENSING UNITS - AIR-COOLED

GENERAL NOTES:
A. REFER TO VRF MULTI-SPLIT A/C SYSTEMS SCHEDULE FOR ASSOCIATED INDOOR UNITS.
B. CONDENSING UNIT COOLING CAPACITY SHALL BE BASED ON 95°F AMBIENT CONDITIONS. HEATING CAPACITY SHALL BE BASED ON 5°F AMBIENT CONDITIONS.
C. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR VIBRATION ISOLATOR TYPES AND REQUIREMENTS.
D. REFRIGERANT PIPING - SIZES LISTED ARE APPROX. CIRCUITING, SIZING, NUMBER OF PIPES AND CIRCUITS, ARRANGEMENT, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
E. ELECTRIC SERVICES FOR OUTDOOR UNIT AND INDOOR UNIT - SINGLE POINT POWER SERVICE CONNECTIONS TO EACH UNIT. UNLESS NOTED OTHERWISE, ADEQUACY OF LISTED CIRCUIT SIZES 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.
F. WHEN VARIABLE SPEED COMPRESSOR IS SELECTED, SPEED CONTROLLER SHALL BE INTEGRAL WITH UNIT.

NOTES:
1. LOW AMBIENT COOLING DOWN TO 35°F OUTSIDE AIR TEMPERATURE. PROVIDE ADDITIONAL ACCESSORIES AS REQUIRED TO MEET THIS REQUIREMENT.

					COMPRESSORS			ELECTRICAL SERVICE				DIMENSIONS			REFRIG. CONN. SIZES		MISC.					BASIS OF DESIGN		
MARK	DESCRIPTION	COOLING (MBH)	HEATING (MBH)	REFRIGERANT TYPE	TYPE	MINIMUM QUANTITY	VARIABLE SPEED QUANTITY	VOLTAGE - PHASE	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCCR (AMPS)	LENGTH	WIDTH	HEIGHT	LIQUID	SUCTION	APPROXIMATE WEIGHT (LBS)	HOT GAS BYPASS	CRANKCASE HEATER	CONCRETE PAD	MAX SOUND LEVEL (DBA AT 3FT)	MANUFACTURER	MODEL	SEE NOTE
HP-1	HEAT RECOVERY	118.6	77.63	410A	SCROLL	1	1	208-3	41	60	5000	49"	30"	72"	0.75"	1.13"	625	-	•	-	80	TRANE	TURYE120	1

VRF BRANCH CONTROLLERS

GENERAL NOTES:
A. COORDINATE REQUIRED POWER CONNECTION.

		ELECTRICAL SERVICE		APPROX. DIMENSIONS		
MARK	MIN. NUMBER OF CIRCUITS	VOLTAGE - PHASE	WATTS	LENGTH	WIDTH	HEIGHT
BC-1	5	208-3	800	24"	20"	10"

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ISSUANCES

No.	Description	Date
	75% REVIEW SET	10/02/2023
	90% REVIEW SET	10/23/2023
1	CONSTRUCTION DOCS	11/13/2023
2	ADDENDUM 2	12/08/2023
3	CD RE-BID	02/12/2024

Drawn By: AJS
Checked By: AJS
Client No.: 659
Project No.: 7262

STATE OF OHIO · LANE G. OATMAN · 72912 · REGISTERED PROFESSIONAL ENGINEER · 11-13-2023

SCHEDULES & DETAILS

HEAPY PROJECT NO. 2023-06062

H002

2/9/2024 10:35:17 AM

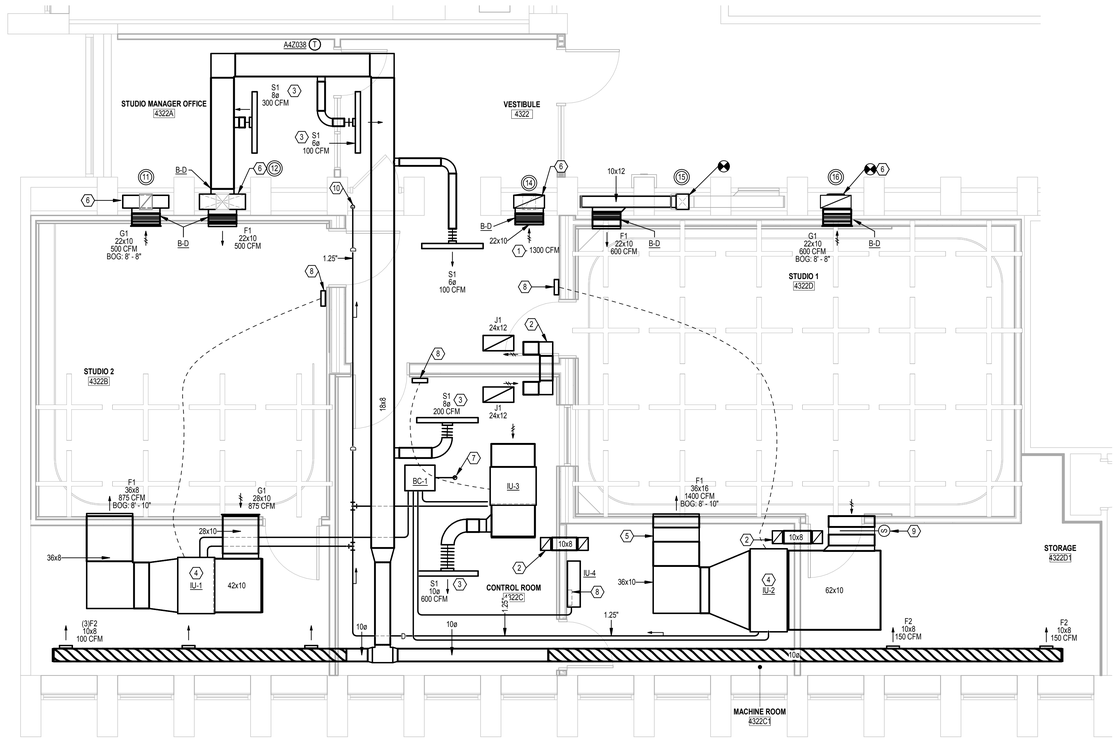
GENERAL NOTES

A. HATCHED DUCTWORK SHALL BE DOUBLE WALL INSULATED. REFER TO DUCT CONSTRUCTION SCHEDULE.

B. REFRIGERANT PIPING IS SHOWN IN SINGLE LINE. IT IS EXPECTED THAT BOTH THE LIQUID AND SUCTION LINES WILL BE ROUTED TOGETHER. COORDINATE FINAL ROUTING, OFFSETS, FITTINGS, ETC. WITH VRF MANUFACTURER TO DETERMINE THE CORRECT REFRIGERANT CHARGE AND PIPE SIZING.

⎔ NOTES

1. RETURN DUCT OPEN TO THE PLENUM ABOVE THE CEILING. PROVIDE MANUAL BALANCE DAMPER TO ACHIEVE AIRFLOW SPECIFIED ON PLAN.
2. PROVIDE TRANSFER AIR DUCTWORK BETWEEN SPACES WITH A MINIMUM OF TWO ELBOW FITTINGS FOR SOUND ATTENUATION PURPOSES. INTERNALLY LINE PER SPECIFICATIONS AND SIZE 10X8 UNLESS SHOWN OTHERWISE ON PLANS. IN EXPOSED CEILING SPACES TURN ELBOW FITTINGS UP TOWARD THE BOTTOM OF STRUCTURE. INSTALL AS HIGH AS POSSIBLE.
3. PROVIDE LINEAR SLOT DIFFUSER FRAME THAT IS APPROPRIATE FOR CEILING TYPE. REFER TO REFLECTED CEILING PLANS.
4. INSTALL EQUIPMENT AND DUCTWORK AS TIGHT AS POSSIBLE TO BOTTOM OF STRUCTURE.
5. PROVIDE ECCENTRIC TRANSITION FITTING TO BACK OF SUPPLY GRILLE.
6. PROVIDE NEW DUCTWORK AND TRANSTIION FITTING IN RISER TO ACCOMMODATE NEW GRILLE.
7. REFRIGERANT PIPING UP TO ROOF. REFER TO ROOF PLAN.
8. LOCAL CONTROLLER FROM VRF EQUIPMENT MANUFACTURER TO INCLUDE THERMOSTAT UNLESS NOTED OTHERWISE. REFER TO VRF EQUIPMENT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
9. PROVIDE DUCT MOUNTED TEMPERATURE SENSOR IN IU-2 RETURN DUCT IN LIEU OF A WALL-MOUNTED THERMOSTAT FOR FAN COIL UNIT CONTROL. THEROMSTAT SHAL CONTROL THE FAN COIL UNIT AND THE ASSOCIATED VAV BOX A4Z045 LOCATED IN THE BASEMENT.
10. ROUTE NEW CONDENSATE DRAIN LINE INTO EXISTING SHAFT AND TIE INTO EXISTING PLUMBING DRAIN RISER ON FLOOR BELOW. COORDINATE NEW HVAC WORK AND PLUMBING DEMOLITION WORK WITH PLUMBING CONTRACTOR.



1 LEVEL THREE HVAC FLOOR PLAN - NEW WORK

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

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Drawn By AJS	STATE OF OHIO LANE G. OATMAN 72812 REGISTERED PROFESSIONAL ENGINEER 11-13-2023
Checked By AJS	
Client No. 659	
Project No. 7262	

THIRD FLOOR NEW WORK

H102

HEAPY
PROJECT NO. 2023-06062

2/9/2024 10:35:18 AM

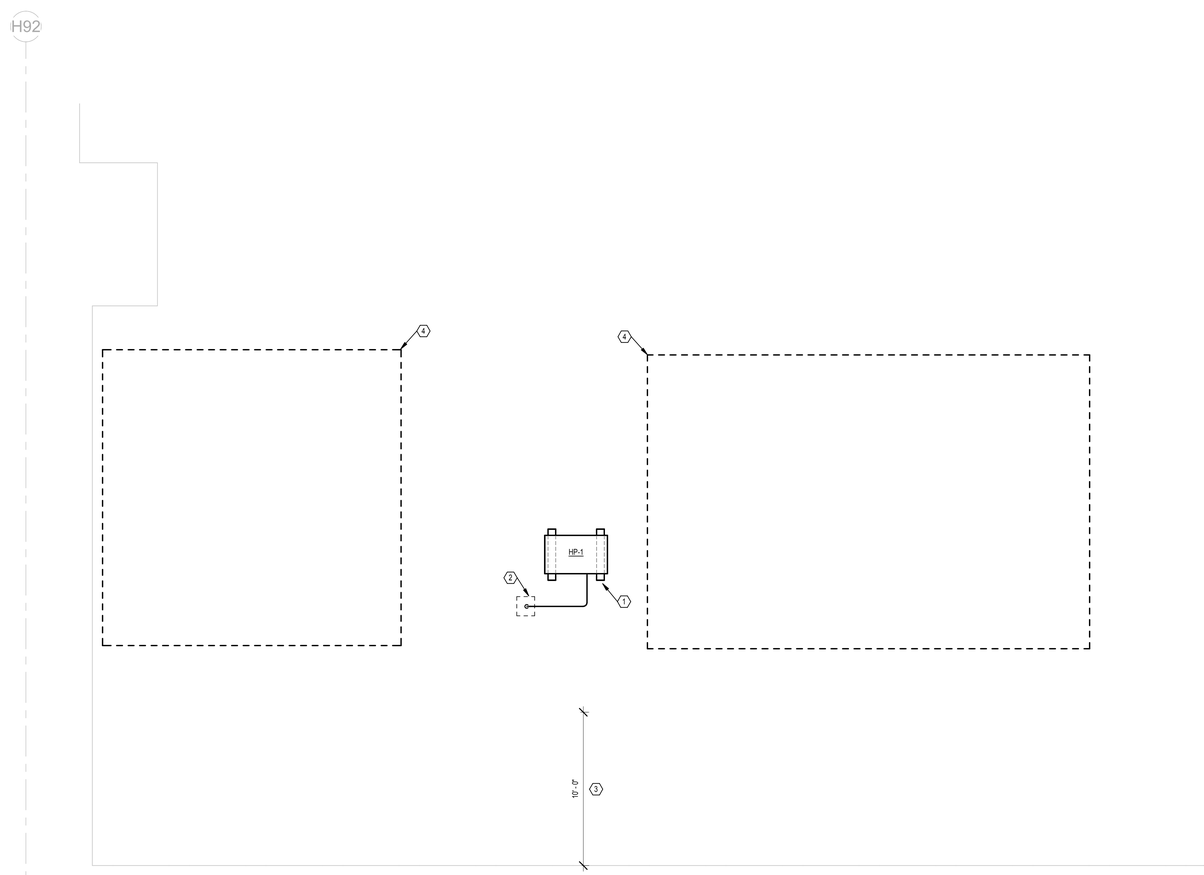
GENERAL NOTES

A. EQUIPMENT LOCATED ON THE ROOF AND EXPOSED TO WIND MUST MEET RESTRAINT REQUIREMENTS AS DESCRIBED IN SPECIFICATION SECTION 23 05 30.

B. REFRIGERANT PIPING IS SHOWN IN SINGLE LINE. IT IS EXPECTED THAT BOTH THE LIQUID AND SUCTION LINES WILL BE ROUTED TOGETHER. COORDINATE FINAL ROUTING, OFFSETS, FITTINGS, ETC. WITH VRF MANUFACTURER TO DETERMINE THE CORRECT REFRIGERANT CHARGE AND PIPE SIZING.

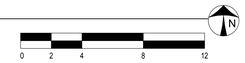
⬡ NOTES

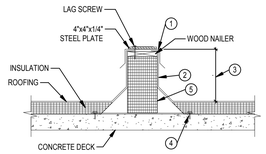
1. POSITIVELY ATTACH NEW OUTDOOR UNIT TO EQUIPMENT RAILS AND THE BUILDING STRUCTURE IN ORDER TO MEET WIND RESTRAINT REQUIREMENTS. FIELD VERIFY AND COORDINATE FINAL INSTALLATION LOCATION WITH STRUCTURE BELOW BUT DO NOT LOCATE NEW EQUIPMENT ABOVE THE FOOTPRINT OF EITHER STUDIO FOR SOUND MITIGATION PURPOSES.
2. FIELD VERIFY FINAL ROOF PENETRATION LOCATION WITH EXISTING STRUCTURE BELOW. PROVIDE PIPE PENETRATION CURB EQUAL TO PATE MODEL PCA. COORDINATE CURB WITH FINAL PIPE DIAMETERS AS DETERMINED BY THE VRF EQUIPMENT MANUFACTURER.
3. ENSURE NEW EQUIPMENT IS LOCATED AND INSTALLED A MINIMUM OF 10'-0" AWAY FROM BUILDING EDGE.
4. DASHED LINED INDICATES APPROXIMATE STUDIO AREA BELOW. DO NOT MOUNT NEW OUTDOOR VRF UNIT OVER THE NEW STUDIO SPACES.



1 HVAC ROOF PLAN - NEW WORK

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





○ NOTES

1. PROVIDE COUNTER-FLASHING.
2. HEAVY GAUGE CONTINUOUS SUPPORT EXTENDS 6" BEYOND LAST EQUIPMENT LEG. SCREW ATTACHMENT TO DECK.
3. MINIMUM 12 INCHES.
4. EXPANSION LAGS TO DECK.
5. 14 INCH HIGH INSULATED STEEL CURB.

2 HP-1 ROOF EQUIPMENT SUPPORT

SCALE: NONE

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Drawn By AJS	STATE OF OHIO LANE G. OATMAN 72042 REGISTERED PROFESSIONAL ENGINEER 11-13-2023
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Project No. 7262	

ROOF PLAN - NEW WORK

H103

HEAPY PROJECT NO. 2023-06062

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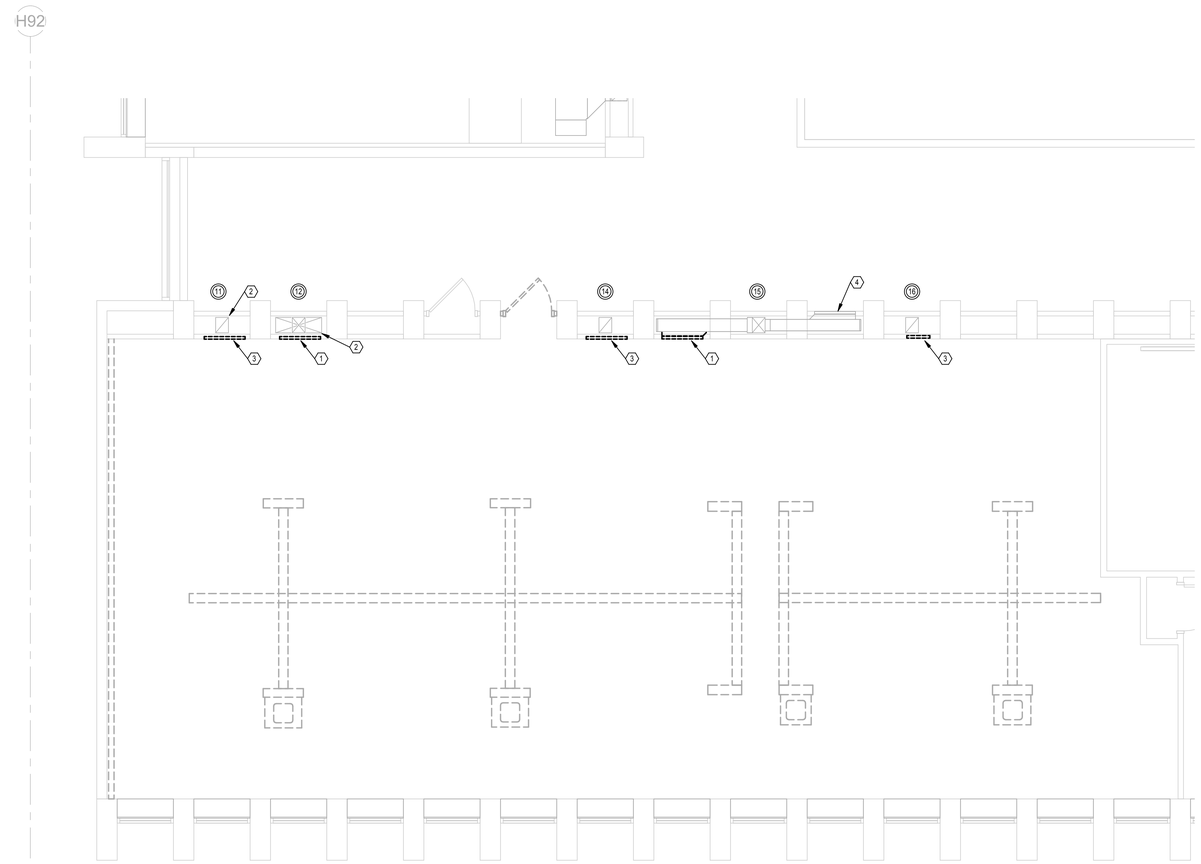
NOTES

1. REMOVE EXISTING SUPPLY AIR GRILLE AND ASSOCIATED DUCTWORK BACK TO RISER.
2. REMOVE SECTION OF EXISTING DUCT RISER TO ACCOMMODATE NEW DUCTWORK AND GRILLE. REFER TO NEW WORK PLAN AND NOTES.
3. REMOVE EXISTING RETURN AND GRILLE AND ASSOCIATED DUCTWORK BACK TO RISER.
4. EXISTING AIR DEVICE SERVING THE COMMON AREA TO REMAIN.



1 **THIRD FLOOR HVAC PLAN - REMOVALS**
SCALE: 1/4" = 1'-0"

N

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HEAPY
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Drawn By AJS
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LANE G. OATMAN
72832
REGISTERED
PROFESSIONAL ENGINEER
11-13-2023

THIRD FLOOR DEMOLITION WORK

HD102

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