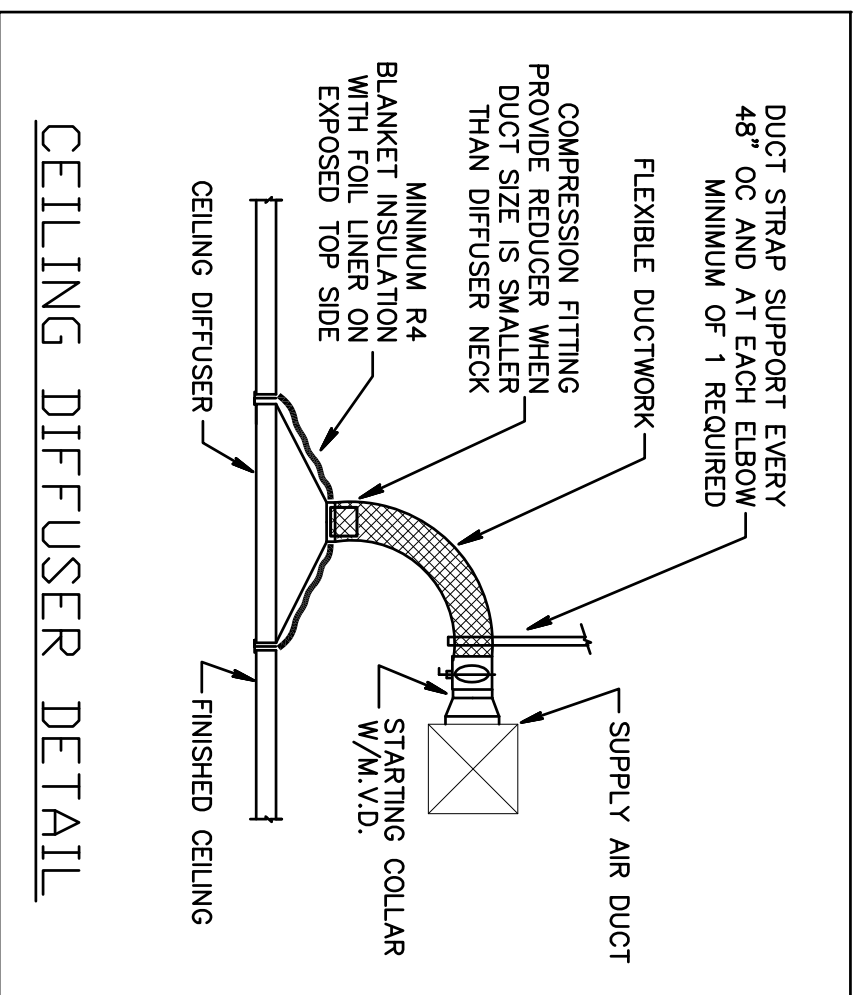


MECHANICAL GENERAL NOTES:

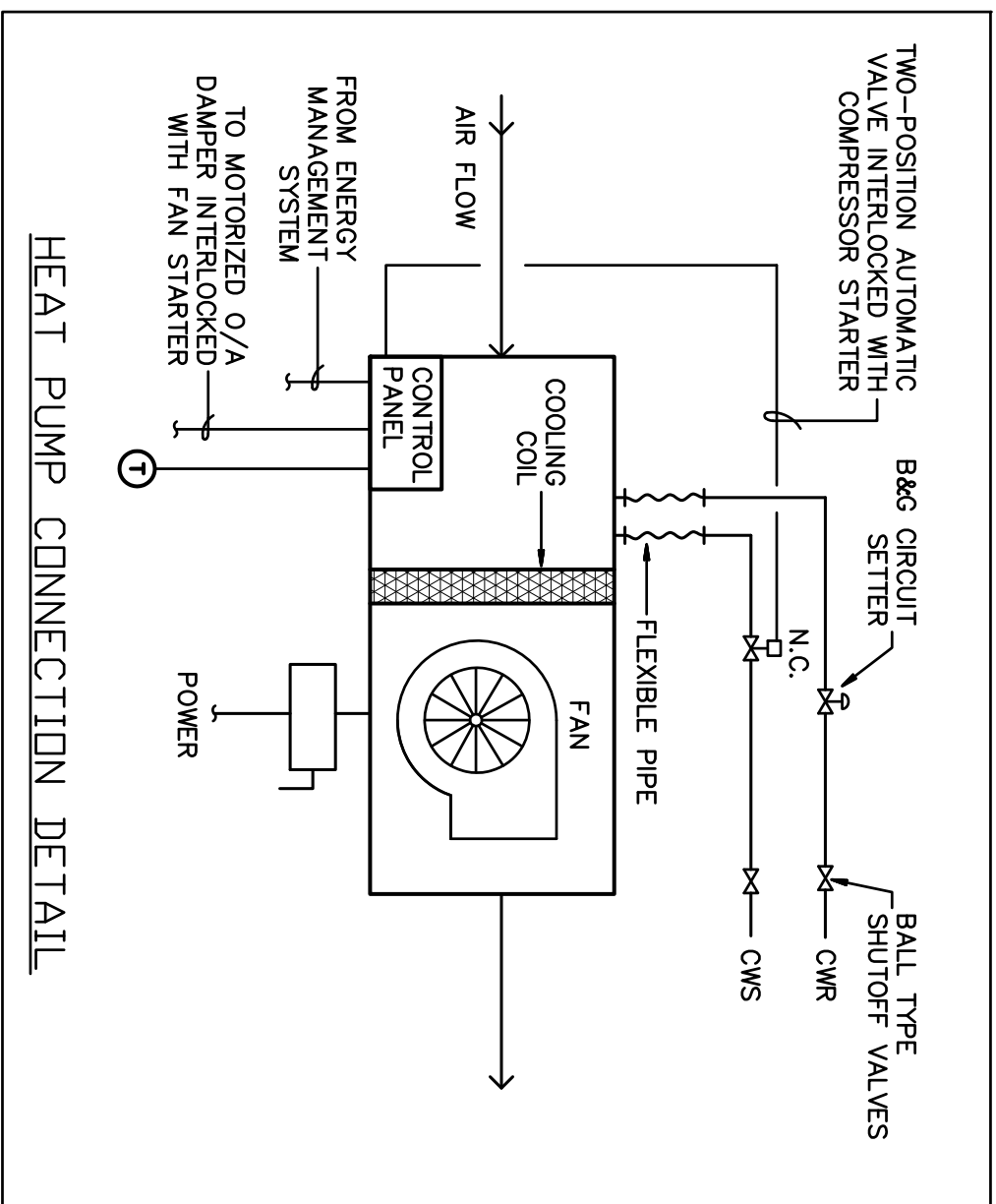
1. THESE DRAWINGS ARE DIAGRAMMATIC. ALL OFFSETS, FITTINGS, TRANSITIONS AND ACCESSORIES ARE NOT SHOWN. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL ITEMS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. DO NOT SCALE DRAWINGS FOR INSTALLATION.
2. ALL WORK SHALL BE PERFORMED IN A FIRST CLASS WORKMANLIKE MANNER BY LICENSED CONTRACTORS.
3. THE CONTRACTOR SHALL OBTAIN AT HIS EXPENSE ALL NECESSARY FEES PERMITS AND TESTS.
4. ALL WORK SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE AND NATIONAL CODES. NO CONTRACTOR SHALL BID UNLESS FAMILIAR WITH THESE CODES. CORRECTION OF DEFECTS TO THIS WORK SHALL BE MADE PROMPTLY WITHOUT CHARGE TO THE OWNER. REPAIR AND REPLACEMENT FOR DAMAGE CAUSED BY THIS CONTRACTOR SHALL BE MADE PROMPTLY WITHOUT CHARGE TO THE OWNER.
5. ALL WORK OF THIS TRADE SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID ANY INTERFERENCES THAT MAY DELAY PROGRESS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL INCLUDE THE WORK OF ALL REQUIRED SUB-CONTRACTORS, SUCH AS ELECTRICAL, INSULATING, TEST & BALANCE, ETC., AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
7. EQUIPMENT SHALL BE A U.L. OR OTHER RECOGNIZED LABEL MANUFACTURER. WIRING DIAGRAMS, AND ENERGY RATINGS AS APPLICABLE.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND ACCESSORIES TO BE READILY ACCESSIBLE FOR SERVICING, TESTING, BALANCING, AND RE-ADJUSTMENT.
9. THE CONTRACTOR SHALL PROVIDE A WRITTEN GUARANTEE AGAINST DEFECTS IN ALL MATERIALS AND WORKMANSHIP FOR ONE YEAR FROM ACCEPTANCE. WITH FOUR ADDITIONAL YEARS OF WARRANTY ON COMPRESSORS.
10. THE CONTRACTOR SHALL PROVIDE THREE COPIES OF SUBMITTAL DATA, SHOP DRAWINGS, AND AT COMPLETION OF THE PROJECT TWO SETS OF OPERATION AND MAINTENANCE MANUALS FOR ALL PROJECT ITEMS.
11. PROVIDE ALL CONTROLS, STARTERS, CONTROL WIRING, DISCONNECTS, AND OTHER ELECTRICAL EQUIPMENT AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
12. THE HVAC CONTRACTOR IS RESPONSIBLE FOR MAINTAINING, ON SITE, A DETAILED AS-BUILT PLAN SHOWING ACTUAL INSTALLATIONS. THE CONTRACTOR IS TO PROVIDE A NEATLY DRAWN COMPREHENSIVE AS-BUILT SET OF PLANS UPON COMPLETION, WHICH ARE SUITABLE FOR SUBMISSION TO THE BUILDING DEPARTMENT AND TO THE OWNER.
13. PRIOR TO ACCEPTANCE BY THE OWNER THE SYSTEMS SHALL BE TESTED AND BALANCED BY AN INDEPENDENT ABC OR NEBB CERTIFIED TEST & BALANCE FIRM, AND A TYPED WRITTEN COMPREHENSIVE REPORT SUBMITTED.
14. SUPPLY AND INSTALL DUCT MOUNTED SMOKE DETECTORS AS REQUIRED.
15. COORDINATE LOCATION OF CEILING DIFFUSERS, GRILLES AND REGISTERS IN THE FIELD WITH LIGHTS AND ARCHITECTURAL ELEMENTS.
16. ALL GRILLES TO BE THIS OR METALWARE UNLESS OTHERWISE NOTED. SIZES AS SHOWN ON PLANS. ALUMINUM CONSTRUCTION.
17. ALL DUCT WORK SHALL BE BUILT AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS AND LOCAL BUILDING CODES.
18. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.
19. ALL OUTSIDE AIR DUCTWORK SHALL BE SHEETMETAL WITH EXTERIOR R-6 INSULATION. PROVIDE BLANKET TYPE INSULATION IN CONCEALED SPACES, AND BOARD TYPE IN EXPOSED AREAS.
20. ALL EXHAUST AIR DUCT SHALL BE GALVANIZED SHEET METAL CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS.
21. FLEXIBLE DUCT, WHERE SHOWN, SHALL BE U.L. CLASS 1, R-6 INSULATION.
22. LOW PRESSURE SUPPLY AND RETURN RECTANGULAR DUCTWORK IS RIGID DUCTBOARD, 1 IN. THICK, R-4.2 INSULATION.
23. PROVIDE ELBOW TURNING VANES IN ALL RECTANGULAR DUCTS WHERE TURNS ARE GREATER THAN 45 DEGREES.
24. PROVIDE BACKDRIFT DAMPERS FOR ALL EXHAUST FANS.
25. VERIFY ALL THERMOSTAT LOCATIONS WITH THE LANDLORD.
26. CONDENSATE DRAIN PIPING SHALL BE ABOVE GRADE COPPER DRAIN, WASTE AND VENT FINISH. INSULATE ALL CONDENSATE PIPING W/3/4" MINCO MEGALOCK PIPE INSULATION.
27. CONDENSER WATER SUPPLY AND RETURN PIPING SHALL BE TYPE 1" COPPER. PROVIDE DIELECTRIC COUPLINGS FOR ALL CONNECTIONS BETWEEN DISSIMILAR MATERIALS. PROVIDE ISOLATOR PADS AT ALL HANGERS AND SUPPORTS.

GENERAL DEMOLITION NOTES

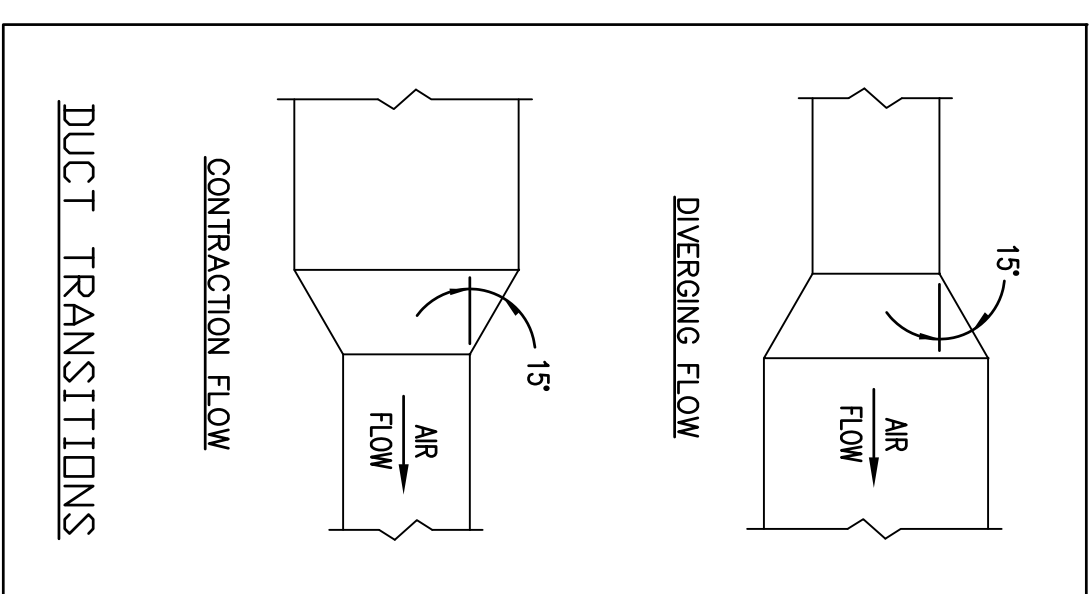
1. UNLESS OTHERWISE NOTED, ALL EQUIPMENT AND DUCTWORK IN THE PROJECT AREA WHICH IS NOT INDICATED TO REMAIN, IS TO BE REMOVED. THE CONTRACTOR SHALL INVESTIGATE THE PROJECT AREA PRIOR TO BID TO DETERMINE ALL REQUIRED DEMOLITION.
2. EXISTING CONDITIONS SHOWN ON THIS DRAWING ARE TAKEN FROM ORIGINAL DRAWINGS AND FIELD INVESTIGATION. ALL EXISTING CONDITIONS MUST BE VERIFIED PRIOR TO BID. FIELD CONDITIONS SHALL PREVAIL.
3. DEMOLITION WORK IS NOT SPECIFICALLY IDENTIFIED ON THESE PLANS, AND MAY BE DESCRIBED ON THE ARCHITECT'S PLANS. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED DEMOLITION WHETHER SHOWN ON THE PLANS OR NOT.
4. ALL MECHANICAL SYSTEMS SERVING OTHER SPACES OR FLOORS, THAT RUN THROUGH THE PROJECT AREA SHALL REMAIN ACTIVE DURING CONSTRUCTION, SO AS NOT TO CAUSE ANY DISRUPTION TO THESE OTHER SPACES.
5. ALL ITEMS REMOVED UNDER THIS PROJECT SHALL BE DISPOSED OF OR TURNED OVER TO THE OWNER AT THE OWNER'S DISCRETION.
6. PROPERLY REMOVE AND DISPOSE OF ALL HVAC DUCTWORK AND AIR DISTRIBUTION DEVICES WHICH ARE TO BE REMOVED. CONSULT WITH OWNER AND OBTAIN THE OWNER'S APPROVAL PRIOR TO DISPOSAL OF REMOVED MATERIAL.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL PIPING AND DUCTS, ALL OCCUPIED SPACES ARE TO REMAIN OPERATIONAL DURING BUSINESS HOURS THROUGHOUT THE DEMOLITION AND CONSTRUCTION PERIOD. COORDINATE ALL WORK AS DESCRIBED IN THE ARCHITECT'S DOCUMENTS.



CEILING DIFFUSER DETAIL



HEAT PUMP CONNECTION DETAIL



DUCT TRANSITIONS

HVAC CONTROLS NOTE

AIR CONDITIONING CONTRACTOR SHALL PROVIDE OR CAUSE TO BE PROVIDED ALL CONTROLS, CONTROL WIRING & CONTROL, POWER WIRING & CONTROL, AND AIR CONDITIONING SYSTEMS. IN ADDITION, CONTRACTOR SHALL PROVIDE INTERFACE CONDITIONING UNITS. IN ADDITION, CONTRACTOR SHALL PROVIDE INTERFACE LAYOUT WITH ON SCREEN DISPLAYS THAT ARE CONTROLLED BY THE EXISTING ENERGY MANAGEMENT SYSTEM (EMS). PROGRAMMING IS TO ALSO INCLUDE INTERFACE TO EXISTING PROGRAM DESIGNED TO CALCULATE TENANT SERVICE ENERGY USAGE. CONTRACTOR SHALL PROVIDE ALL CONTROLS AND WIRING TO MEET ALL SPECIFICATIONS AND DETAILS. A COMPLETE AND OPERATIONAL CONTROL SYSTEM IS TO BE PROVIDED.

THERMOSTATS ARE TO BE WHITE-RODGERS, MODEL 1F98-344 SINGLE STAGE NON-PROGRAMMABLE TYPE.

THE ABOVE NOTES APPLY TO ALL EQUIPMENT IN THE TENANT SPACES, INCLUDING EXISTING HEAT PUMPS.

HORIZONTAL HEAT PUMP A/C UNIT SCHEDULE

A/C UNIT TAG NO.	HP-1	HP-2	HP-3
MANUFACTURER	FHP	FHP	FHP
MODEL NO.	EM060	EC030	ECO18
TOTAL SENSIBLE MBH	45.8	22.4	14.4
TOTAL COOLING MBH	59.8	29.3	18.7
HEATING CAPACITY MBH	77.0	35.0	24.0
SUPPLY AIR CFM/EXT. S.P.	1800/0.5	950/0.4	500/0.5
OUTSIDE AIR CFM	—	—	—
ERR	12.5	13.0	13.0
COP	4.5	4.3	4.4
CFM	15.0	7.5	4.5
PIPE SIZE	1" FPT	3/4" FPT	3/4" FPT
UNIT SIZE (WxHxD)	36x43x21	22x45x19	22x43x17
OPERATING WEIGHT LBS.	363	230	180
MAX. FUSE SIZE	10.9	12.2	8.9
POWER VOLT-FH-HZ	480-3-60	277-1-60	277-1-60
COMPRESSORS	1	1	1
NO. OF STEPS	1	1	1
NOMINAL TONS	5.0	2.5	1.5
R.L.A. EACH	—	8.5	5.8
INDOOR FANS:			
NO. OF FAN(S)/MOTORS	1	1	1
FAN MOTOR H.P. EACH	3/4	1/4	1/4
FAN MOTOR F.L.A. EACH	—	—	1.6

ACCESSORIES AND NOTES:

PROVIDE HIGH TEMPERATURE & PRESSURE STAINLESS STEEL BRASS FITTINGS FOR ALL UNITS.

RATINGS SHOWN ARE AT 80DB, 67WB EAT AND 85°F EWT

① EXISTING A/C UNIT TO BE RE-INSTALLED PER THESE PLANS AND DETAILS. PROVIDE ANY REQUIRED MAINTENANCE. THOROUGHLY CLEAN THE UNIT INSIDE AND OUT, INCLUDING ALL SURFACES, THE COILS AND ALL OTHER COMPONENTS. REMOVE ALL DEBRIS AND WASTE. STRAIGHTEN ANY BENT COIL FINS AND REPLACE ANY MISSING HARDWARE. STRAIGHTEN ANY BENT COIL FINS AND REPLACE ANY MISSING HARDWARE. PROVIDE NEW FILTERS, BALANCE AIR AND WATER QUANTITIES AND VERIFY PROPER OPERATION.

OUTSIDE AIR VENTILATION CALCULATIONS

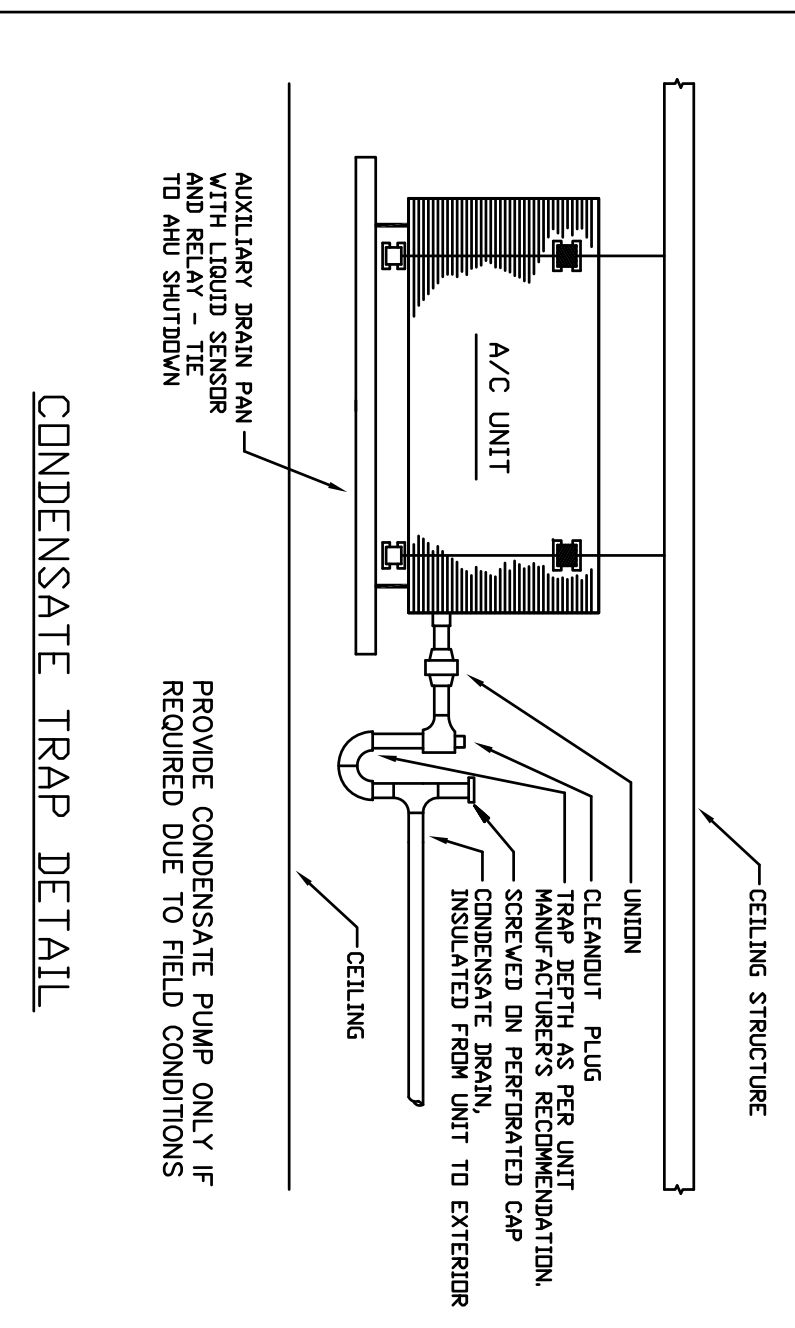
MARK	ZONE TYPE	COUNTER	OFFICE	WAITING	BREAK	OFFICE	OFFICE
		220	480	284	100	770	350
	SQUARE FEET OF AREA	0.08	0.06	0.06	0.06	0.06	0.06
	CFM/SQ.FT. REQUIRED	11	3	3	2	4	2
	TOTAL OCCUPANTS	5	5	5	5	5	5
	CFM/PERSON REQUIRED	68	44	31	16	66	31
	ZONE CFM REQUIRED	0.86	0.86	0.86	0.86	0.86	0.86
	TOTAL SYSTEM	102	102	102	102	102	102
	HIGHEST ZONE - 2p	0.17	—	0.16	0.13	—	—
	EFFICIENCY - Ev	0.98	—	—	0.99	—	—
	TOTAL SYSTEM REQUIREMENT	104	—	—	110	—	31

ABOVE PER ASHRAE 62.1, 2007
MAINTAIN ROOM AND BREAK ROOM OCCUPANCY AVERAGED PER 62.1-6.2.8.2

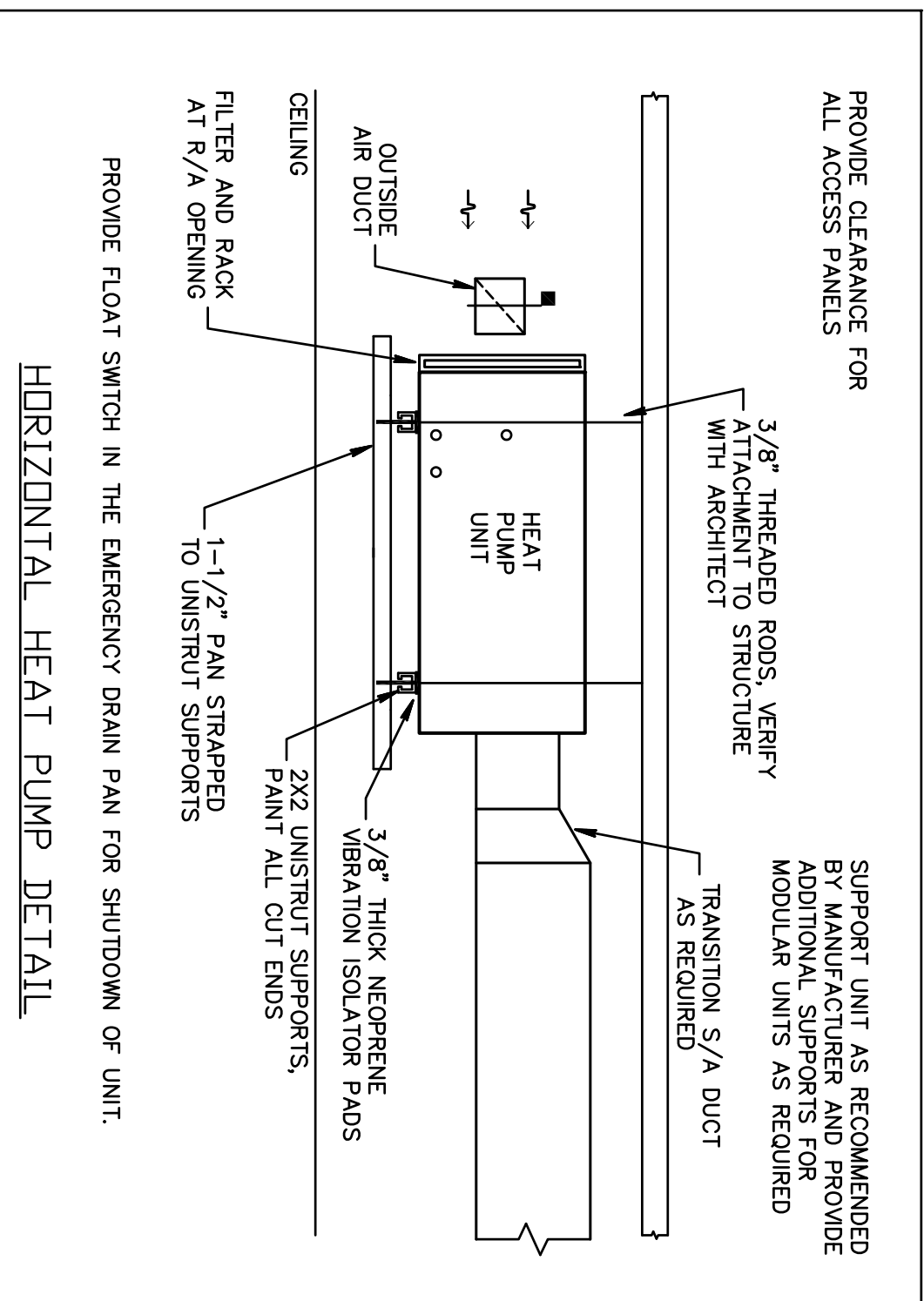
AIR DISTRIBUTION SCHEDULE

MARK	MAKE	MODEL	SIZE	NECK	MATERIAL	BORDER MOUNTING TYPE	DAMPER	THROW	FINISH	REMARKS
A	TTUS	PAS-AA	24X24	6"	ALUMINIUM	LA-IN	AG-100	4 WAY	WHITE	SEE NOTES
B	TTUS	PAS-AA	24X24	8"	ALUMINIUM	LA-IN	AG-100	4 WAY	WHITE	SEE NOTES
C	TTUS	PAS-AA	24X24	10"	ALUMINIUM	LA-IN	AG-100	4 WAY	WHITE	SEE NOTES
RA	TTUS	PAR-AA	24X24	22X22	ALUMINIUM	LA-IN	—	—	WHITE	SEE NOTES
RB	TTUS	PAR-AA	24X12	22X10	ALUMINIUM	LA-IN	—	—	WHITE	SEE NOTES

PROVIDE ROUND FLEXIBLE DUCT RUN-OUT SIZED TO MATCH S/A DIFFUSER NECK UNLESS NOTED OTHERWISE.
PROVIDE DAMPERS ONLY WHERE DUCT TAKE-OFF DAMPER IS NOT ACCESSIBLE ABOVE CEILING.



CONDENSATE TRAP DETAIL



HORIZONTAL HEAT PUMP DETAIL