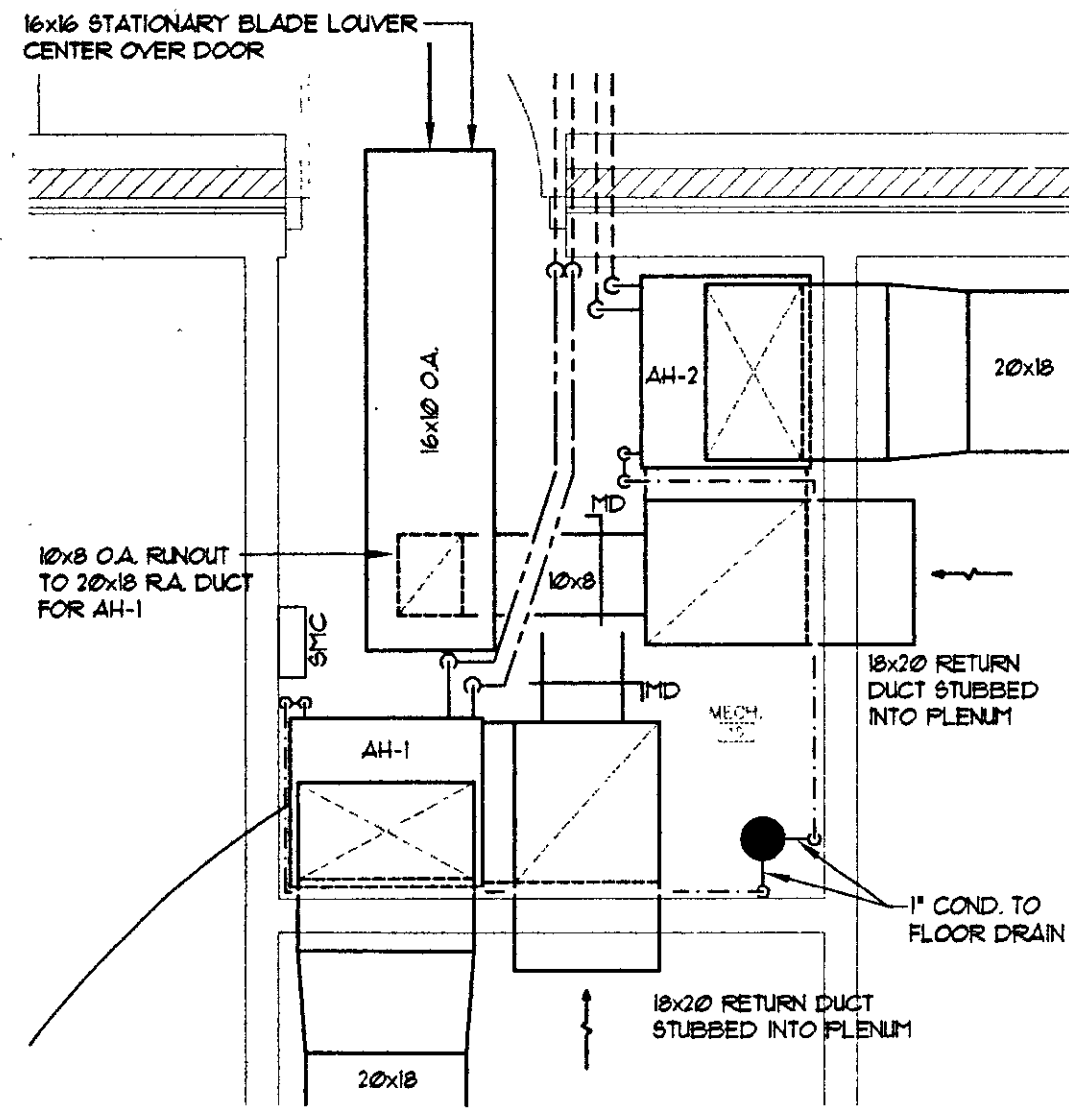
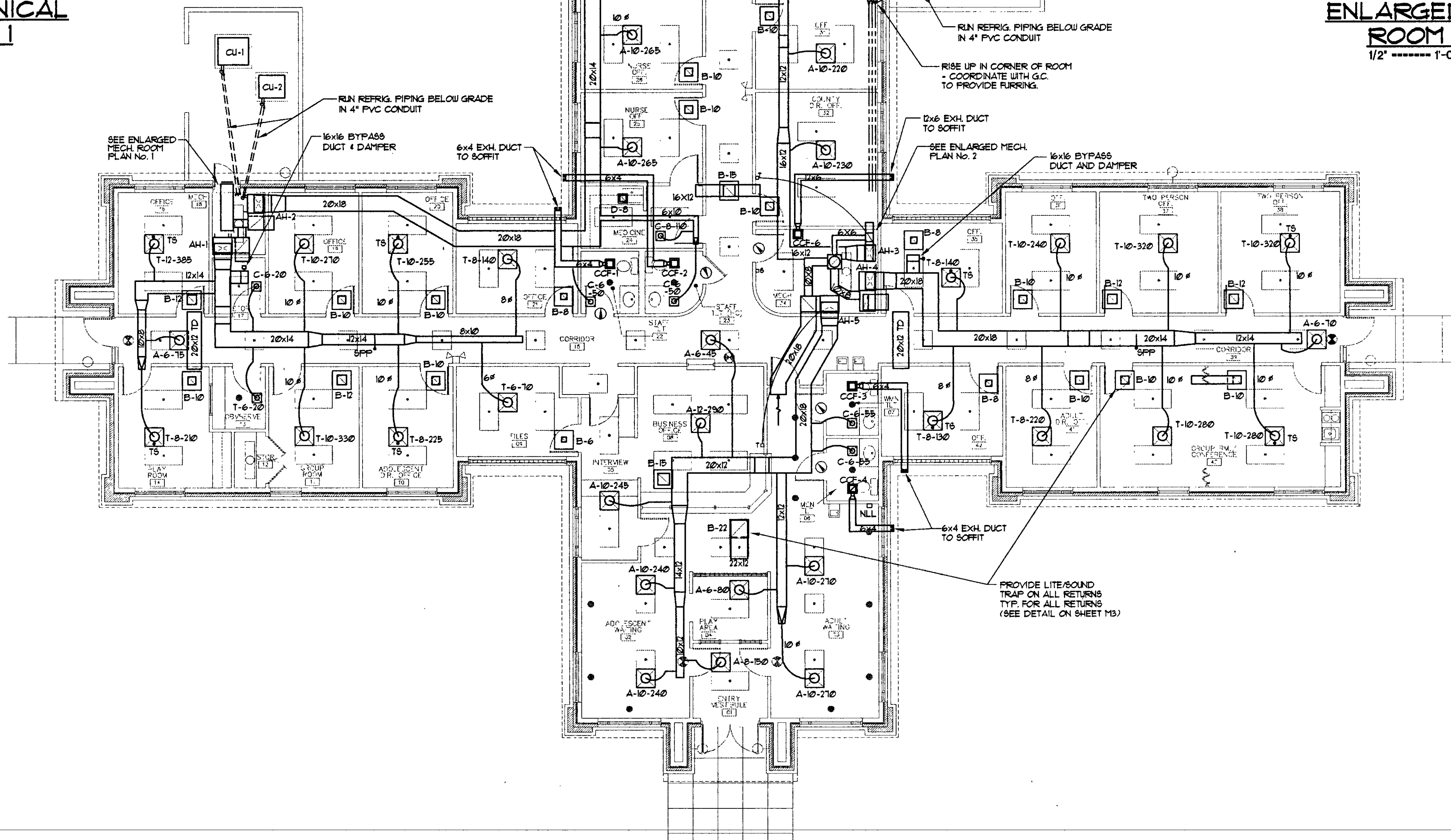


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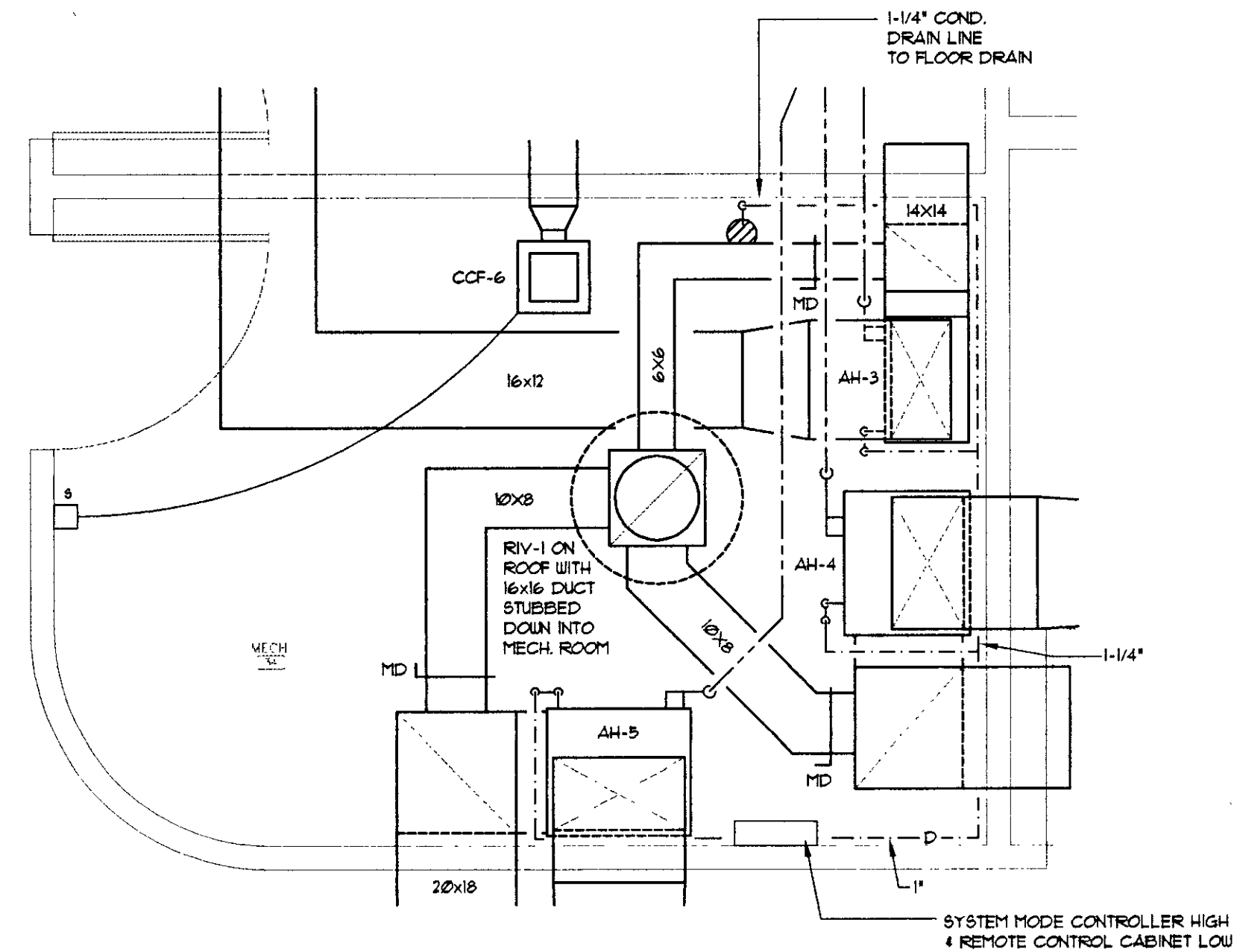
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ENLARGED MECHANICAL ROOM PLAN No. 1
1/2" = 1'-0"



HVAC FLOOR PLANS
1/8" = 1'-0"



ENLARGED MECHANICAL ROOM PLAN No. 2
1/2" = 1'-0"

DMH
Lancaster Satellite
CATAWBA M.H.C.
Lancaster, S.C.
STATE PROJECT NO. J12-9592-PC
Commission: 093-1510
Date: OCT. 23, 1995

FELKEL & HASTINGS
MECHANICAL ENGINEERS
2740 Devine Street
Columbia, S.C. 29205
Comm. No.: 9520 Date: 11-23-95

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Revision	Description

Design Collaborative
ARCHITECTS PLANNERS / COLUMBIA SOUTH CAROLINA

SPLIT SYSTEM HEAT PUMP SCHEDULE

SYMBOL	MFR.	INDOOR UNIT DATA										OUTDOOR UNIT DATA					COOLING CAPACITY		HEATING CAPACITY			TOTAL HEATING CAPACITY M.B.H.	REMARKS	
		MODEL NO.	TYPE	NOM. C.F.M.	EXT. ST. PRESS. (IN.)	FAN H.P.	BLOWER MOTOR CURRENT	FRESH AIR (CFM)	ELECT. SUPP. HEATER SECTION			MODEL NO.	TYPE DISCH.	FAN H.P.	TOTAL POWER INPUT – K.W.	CURRENT	TOTAL M.B.H. 80/67	AMBIENT TEMP.	1st STAGE HEAT PUMP CYCLE		2nd STAGE SUPPLEMENTAL			
									K.W.	NO. OF STAGES	CURRENT								M.B.H.	OUTDOOR AMB. TEMP.	ELECT. HEAT M.B.H.			
AH-1 & CU-1	TRANE	TWE060C	VERT.	2000	.40"	.75	208-1-60	180	14.4	2	208-1-60	TWA060C	VERT.	1/4	6.05	208-3-60	56.5	95	55.5	17	49.10	104.6	2, 3, 4, 5, 6, 7	
AH-2 & CU-2	TRANE	TWE060C	VERT.	2000	.40"	.75	208-1-60	210	14.4	2	208-1-60	TWA048C	VERT.	1/4	5.26	208-3-60	44.5	95	41.5	17	49.10	90.6	1, 2, 3, 4, 5, 6, 7	
AH-3 & CU-3	TRANE	TWE024B	VERT.	800	.40"	.25	208-1-60	80	5.76	2	208-1-60	TWP018C	VERT.	1/15	1.71	208-1-60	18.1	95	17.0	17	19.64	36.64	1, 2, 3, 4, 5, 6, 7	
AH-4 & CU-4	TRANE	TWE060C	VERT.	2000	.40"	.75	208-1-60	270	14.4	2	208-1-60	TWA060C	VERT.	1/4	6.05	208-3-60	56.5	95	55.5	17	49.10	104.6	2, 3, 4, 5, 6, 7	
AH-5 & CU-5	TRANE	TWE060C	VERT.	2000	.40"	.75	208-1-60	310	14.4	2	208-1-60	TWA060C	VERT.	1/4	6.05	208-3-60	56.5	95	55.5	17	49.10	104.6	1, 2, 3, 4, 5, 6, 7	
AH-2A & CU-2A	TRANE	TWE030C	VERT.	1000	.40"	.75	208-1-60	180	7.68	2	208-1-60	TWA030C	VERT.	1/5	3.37	208-3-60	30.3	95	30.2	17	26.19	56.39	1, 2, 3, 4, 5, 6, 7, 8	

1. FURNISH WITH AUTO-CHANGEOVER THERMOSTAT.
2. FURNISH WITH OUTDOOR THERMOSTAT.
3. FURNISH WITH ANTI-SHORT-CYCLE TIMER CONTROLS.
4. FURNISH WITH LOW AMBIENT CONTROLS (0°F.)
5. FURNISH WITH RUBBER-IN-SHEAR VIBRATION ISOLATORS.
6. FURNISH WITH TWO SETS OF 1" THROWAWAY AIR FILTERS.
7. CONTRACTOR TO PROVIDE A RETURN PLENUM & PEDESTAL FOR A BOTTOM RETURN UNIT.
8. ALTERNATE NO. 1

VENTILATING EQUIPMENT SCHEDULE

SYMBOL	MFR.	MODEL NO.	FAN				MOTOR			CAPACITY		SPACES SERVED	TYPE FAN	REMARKS
			TYPE	DIA.	RPM	MAX. SONES	NO. OF SPEEDS	WATTS	CURRENT CHART	C.F.M.	S.P.			
CCF-1,2,3,4	GREENHECK	SP-115	CENT.	—	1070	2.0	ONE	41	120-1-60	90	.125"	TOILETS - 22,23,7,6	CABINET CEILING FAN	1, 2, 3
CCF-5	GREENHECK	SP-150	CENT.	—	1000	4.0	ONE	120	120-1-60	400	.125"	BREAK ROOM - A44	CABINET CEILING FAN	1, 2, 3
CCF-6	GREENHECK	SP-125	CENT.	—	1030	3.0	ONE	76	120-1-60	240	.125"	JANITOR'S CLOSET - 34	CABINET CEILING FAN	1, 2, 4

1. EGG CRATE GRILLE
2. BACK-DRAFT DAMPER
3. SINGLE SPEED WALL SWITCH
4. THERMOSTAT

AIR DISTRIBUTION SCHEDULE

SYMBOL	MOUNTING	MFR.	MODEL NO.	FRAME SIZE (IN)	FACE TYPE	NECK	FINISH (FACE/INT)	USE	MATERIAL	REMARKS
A	LAY-IN CEILING SUPPLY	METAL-AIRE	7000-6	24X24	PERFORATED	SQUARE	WHITE/WHITE	SUPPLY	ALUMINUM	1, 2, 3
B	LAY-IN CEILING RETURN/EXH.	METAL-AIRE	7000R-6	24X24	PERFORATED	SQUARE	WHITE/WHITE	RET/EXH	ALUMINUM	1
C	SURFACE CEILING SUPPLY	METAL-AIRE	7000-1	NECK+6"	PERFORATED	SQUARE	WHITE/WHITE	SUPPLY	ALUMINUM	1, 2, 3
D	SURFACE CEILING RETURN/EXH.	METAL-AIRE	7000R-1	NECK+2"	PERFORATED	SQUARE	WHITE/WHITE	RET/EXH	ALUMINUM	1
S	SECURITY SUPPLY GRILLE	METAL-AIRE	SG5500S	12x12	STEEL LATTICE	6x6	WHITE/WHITE	SUPPLY	STEEL	1
T	THERMAFUSER	ACCUTHERM	TF-HC	24x24	FLAT PLATE	ROUND	WHITE/WHITE	SUPPLY	STEEL	4, 5

1. FURNISH WITH OPPOSED BLADE DAMPER.
2. FURNISH WITH SQUARE TO ROUND NECK ADAPTER
3. SEE PLANS FOR DIRECTION OF THROW.
4. MINIMUM AIRFLOW SET FOR 20%.
5. TYPE "T" DIFFUSERS SHOWN AS SMALL SCALE ARE 12x12 FRAME SIZE.

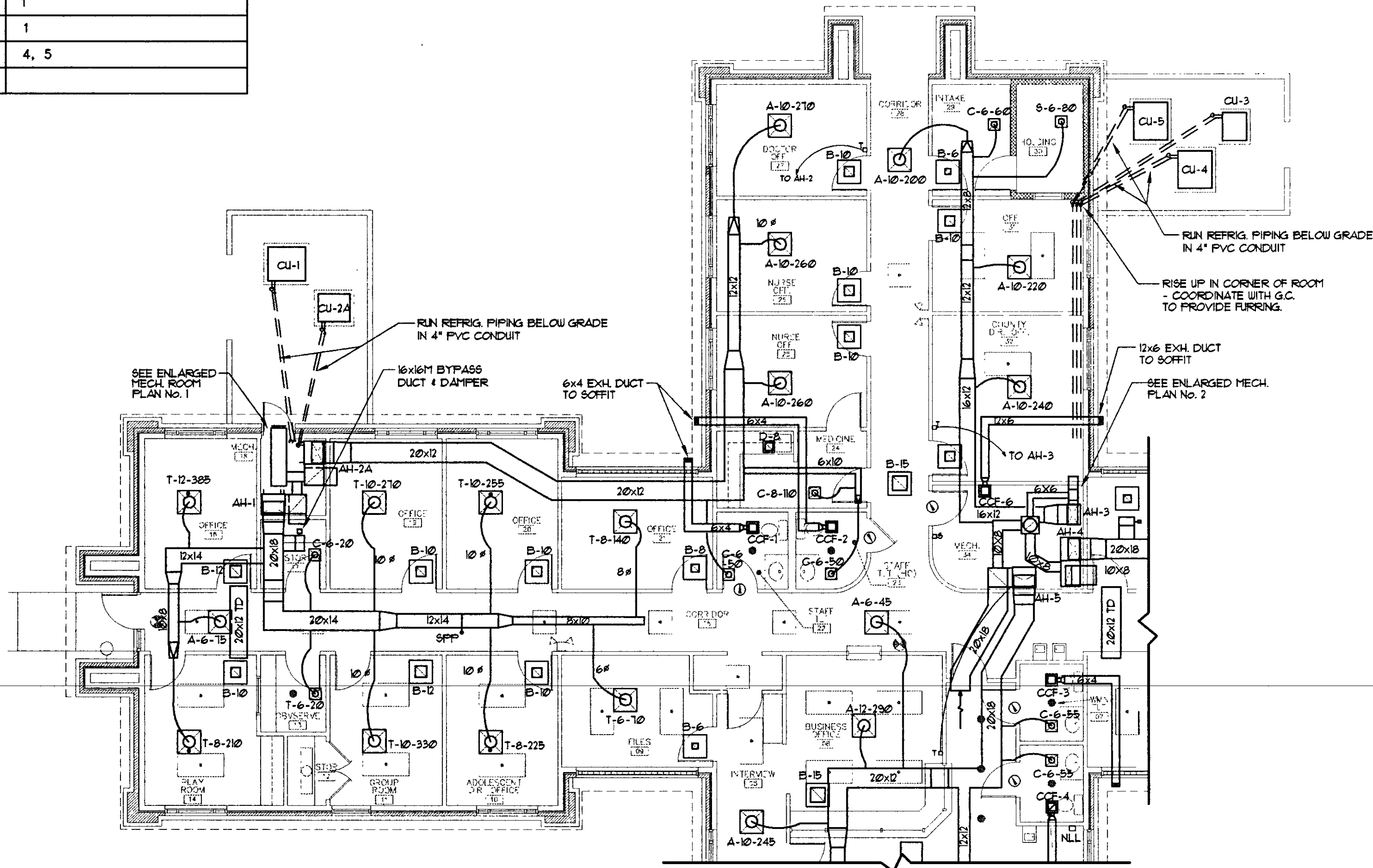
HVAC GENERAL NOTES

- REFER TO ARCHITECTURAL SELECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED AIR DISTRIBUTION DEVICES. IF A PARTICULAR ITEM IS NOT SHOWN ON THE REFLECTED CEILING PLANS, COORDINATE ITS LOCATION WITH ALL DISCIPLINES.
- COORDINATE WITH STRUCTURAL CONTRACTOR THE EXACT LOCATION OF ALL ROOF, WALL AND FLOOR PENETRATIONS. AVOID PENETRATING ANY STRUCTURAL MEMBERS UNLESS NOTED ON THE STRUCTURAL PLANS. WHERE CONFLICTS ARISE THE MECHANICAL CONTRACTOR SHALL SUBMIT A DRAWING TO THE ENGINEER SHOWING HIS PROPOSED SOLUTION.
- FLEXIBLE DUCT RUNOUTS TO CEILING DIFFUSERS SHALL BE FREE OF SAGS AND KINKS AND SHALL BE THE SAME SIZE AS THE DIFFUSER INLET UNLESS OTHERWISE NOTED. MAXIMUM LENGTH = 6 FEET.
- ALL DUCT TRANSITIONS FROM SQUARE TO ROUND SHALL BE SMOOTH AND TAPERED SQUARE TO ROUND TRANSITIONS. SPIN-IN FITTINGS AT THE END OF CAPPED DUCTS ARE NOT ACCEPTABLE.
- DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS.
- VERIFY ALL THERMOSTAT AND FAN SWITCH LOCATIONS WITH THE ARCHITECT.
- ROUTE ALL CONDENSATE LINES TO FLOOR DRAIN IN MECHANICAL ROOM. CONDENSATE SHALL BE TRAPPED AND SLOPED 1/8" PER FOOT IN HORIZONTAL RUNS.
- ALL 2X2 DIFFUSERS TO HAVE 4-WAY AIR FLOW PATTERNS UNLESS INDICATED OTHERWISE ON DRAWINGS.
- MOUNT ALL THERMOSTATS 4'-0" ABOVE FINISHED FLOOR.
- REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL BUILDING CONFIGURATION, DIMENSIONS, ETC.
- USE SPIN-IN AND THIST LOCK FITTINGS WITH QUADRANT AND EXTRACTOR IN ALL ROUND DUCT TAKE-OFFS FROM RECTANGULAR DUCTWORK. PROVIDE A MANUAL DAMPER IN ALL RUNOUTS TO DIFFUSERS (THIS IS IN ADDITION TO OBD AT DIFFUSER).
- ALL FIRE DAMPERS SHALL BE RATED TO MATCH WALL, CEILING OR PARTITION RATINGS AS SPECIFIED ON ARCHITECTURAL PLANS. INSTALL FIRE DAMPERS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- IF EQUIPMENT IS TO BE SUPPLIED BY CONTRACTOR IS DIFFERENT THAN THAT SPECIFIED IN PLANS OR SPECIFICATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL DISCIPLINES ANY CHANGES NEEDED BECAUSE OF UNIT SIZE, ROOF OPENING SIZE, HEIGHT, LOCATION, ELECTRICAL SERVICE, ETC.
- COORDINATE VOLTAGE OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR BEFORE SUBMITTING SHOP DRAWINGS OR ORDERING EQUIPMENT. ALL POWER AND CONTROL WIRING TO DAMPER MOTORS, SWITCHES, TIME CLOCKS AND ALL OTHER CONTROL COMPONENTS IS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR. IT IS HIS RESPONSIBILITY TO COORDINATE WITH HIS SUBCONTRACTORS TO ENSURE THAT THIS PRICE IS INCLUDED IN THE OVERALL MECHANICAL PRICE.
- THE VENTILATION RATE PROCEDURE HAS BEEN USED TO ASSURE ACCEPTABLE INDOOR AIR QUALITY PER ASHRAE 62-1984. THIS DESIGN SHOULD BE RE-EVALUATED, IF AT A LATER TIME, SPACE USE CHANGES OCCUR OR IF UNUSUAL CONTAMINANTS OR UNUSUALLY STRONG SOURCES OF SPECIFIC CONTAMINANTS ARE TO BE INTRODUCED INTO THE SPACE.
- DUCT SMOKE DETECTORS SHALL BE FURNISHED, WIRED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- SPACE ABOVE THE CEILING IS USED AS A RETURN AIR PLENUM.

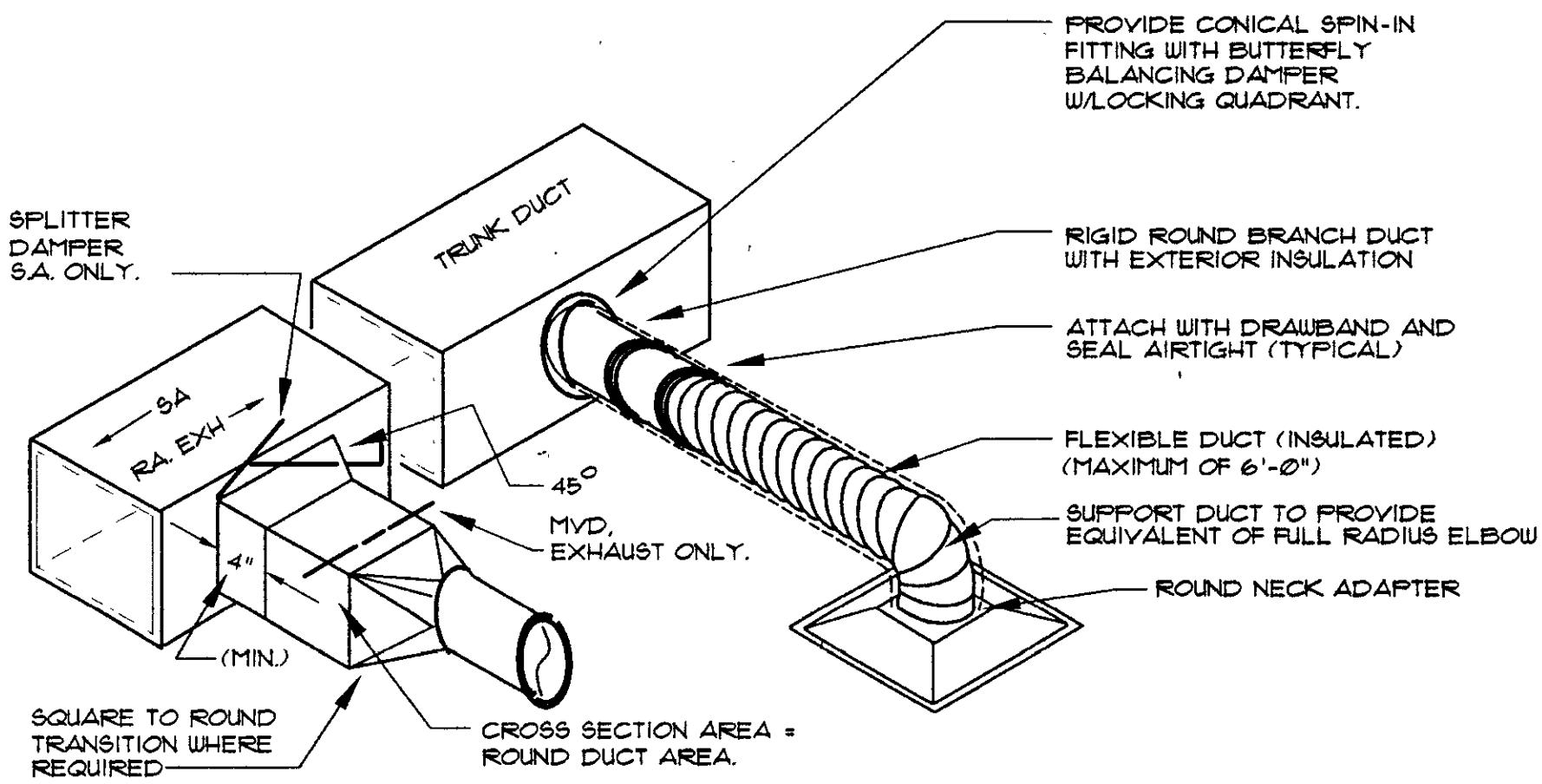
ROOF FRESH AIR INTAKE SCHEDULE

SYMBOL	MFR.	MODEL	THROAT AREA - SQ. FT.	CFM	VELOCITY F.P.M.	P.D. (IN.)	REMARKS
RIV-1	GREENHECK	GSR	1.45	650	—	.05	1, 2

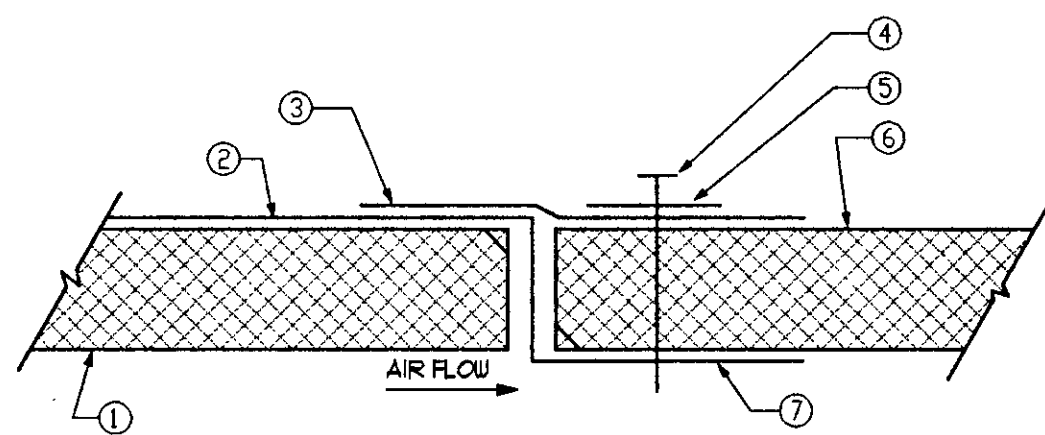
1. FURNISH WITH A PRE-FAB ROOF CURB FOR SLOPED METAL ROOF (CURB TO HAVE WATER DIVERTER).
2. FURNISH WITH A GRAVITY TYPE BACK DRAFT DAMPER.



ALTERNATE NO. 1 HVAC FLOOR PLAN
1/8" = 1'-0"



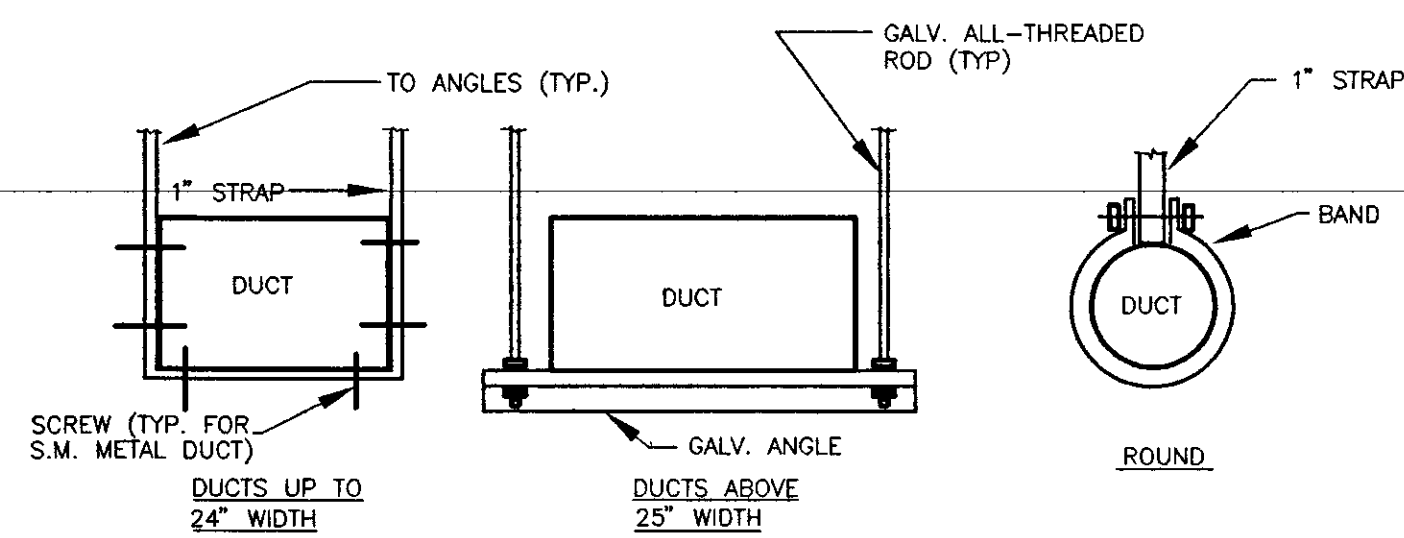
DUCT TAKE-OFF DETAIL
NTS



LEGEND

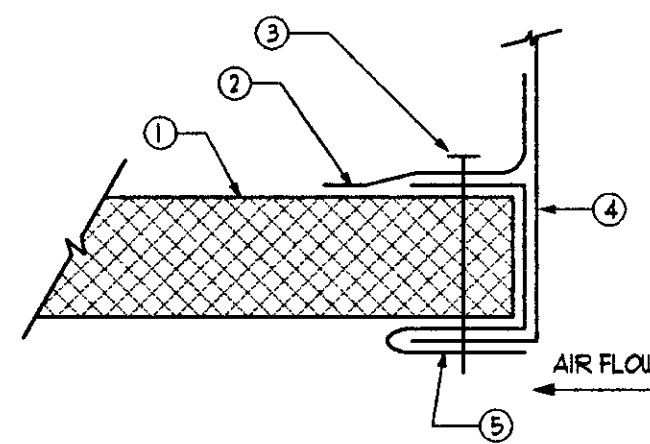
- ① ACOUSTIC DUCT LINER
- ② SHEETMETAL DUCT
- ③ GLASSFAB WITH MASTIC
- ④ PLATED SHEETMETAL SCREW
- ⑤ 1/2" METAL WASHER
- ⑥ FIBERGLASS DUCT
- ⑦ SHEETMETAL LIP

SHEETMETAL TO FIBERGLASS
ATTACHMENT DETAIL
NTS



LOW PRESSURE DUCTWORK

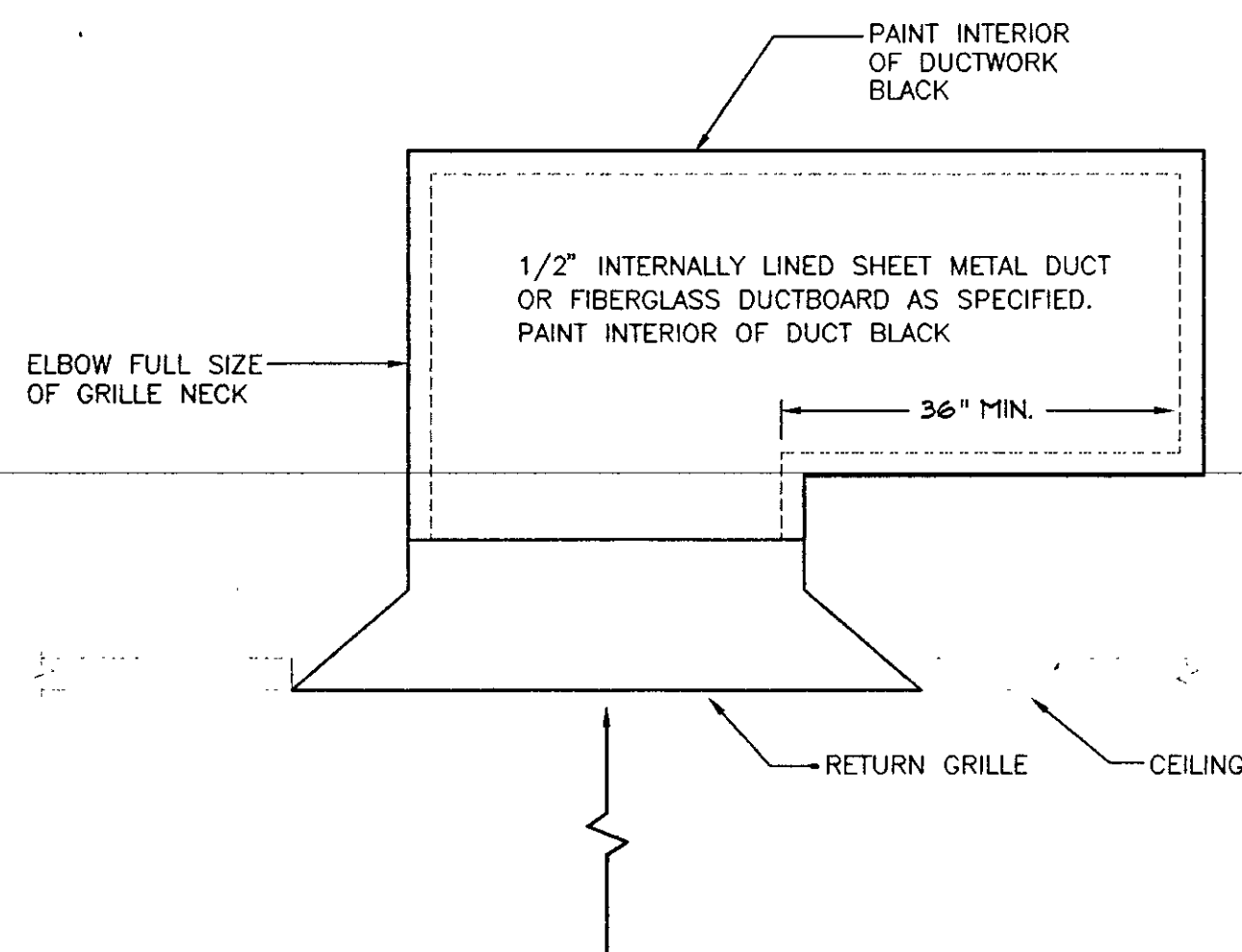
DUCTWORK HANGER DETAILS
NTS



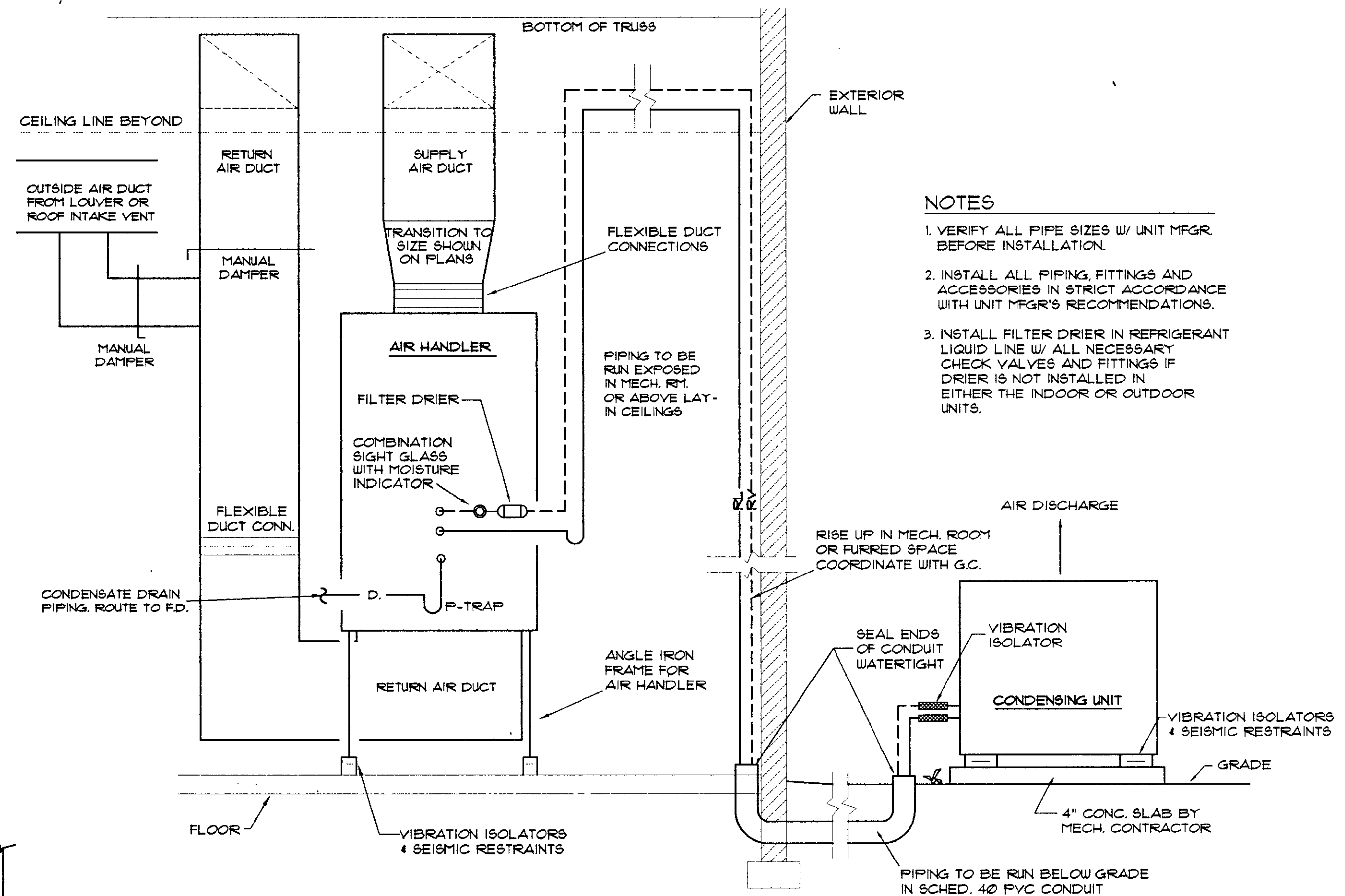
LEGEND

- ① FIBERGLASS DUCT
- ② GLASSFAB WITH MASTIC
- ③ PLATED SHEETMETAL SCREW
- ④ UNIT FLANGE
- ⑤ FORMED SHEETMETAL POCKET CLIP ALL AROUND-22 GAUGE MINIMUM

EQUIPMENT FLANGE TO FIBERGLASS
ATTACHMENT DETAIL
NTS



LITE/SOUND TRAP DETAIL
NTS
TYPICAL FOR ALL RETURN GRILLES



NOTES

1. VERIFY ALL PIPE SIZES W/ UNIT MFR. BEFORE INSTALLATION.
2. INSTALL ALL PIPING, FITTINGS AND ACCESSORIES IN STRICT ACCORDANCE WITH UNIT MFR'S RECOMMENDATIONS.
3. INSTALL FILTER DRIER IN REFRIGERANT LIQUID LINE W/ ALL NECESSARY CHECK VALVES AND FITTINGS IF DRIER IS NOT INSTALLED IN EITHER THE INDOOR OR OUTDOOR UNITS.

VERTICAL SPLIT SYSTEM HEAT PUMP DETAIL

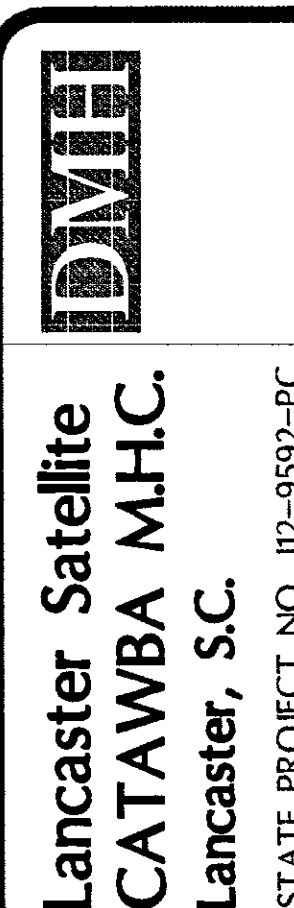
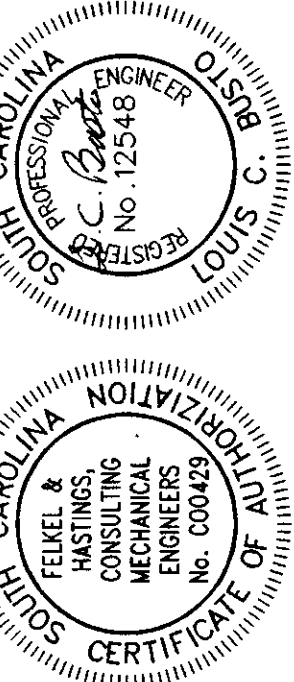
PIPE SIZING SCHEDULE *				
SYMBOL	RL-REFRIG. LIQUID	RV-REFRIG. SUCTION	D-CONDENSATE DRAIN	REMARKS
QU-1	3/8"	1-1/8"	3/4"	
QU-2 & 2A	3/8"	1-1/8"	3/4"	
QU-3	3/8"	1/8"	3/4"	
QU-4	3/8"	1-1/8"	3/4"	
QU-5	3/8"	1-1/8"	3/4"	

* SIZES SHOWN ARE FOR BIDDING PURPOSES ONLY. VERIFY EXACT SIZES WITH UNIT MANUFACTURER BEFORE INSTALLING ANY PIPING.

LEGEND	
□ T	THERMOSTAT
A-10-260	GRILLE TYPE A (SEE SCHED.)-10" NECK SIZE-260 CFM
C-8-150	SURFACE MOUNTED SUPPLY
T-8-150	SYSTEM VAV THERMAFUSER WITH AIR TEMPERATURE SENSORS
FD	FIRE DAMPER
B-12	GRILLE TYPE "B" - 12x12" NECK
RIV	ROOF INTAKE VENT
AH	AIR HANDLER
CU	CONDENSING UNIT
EWU	ELECTRIC WALL HEATER
CCF	CEILING CABINET FAN
RECT. MAIN	INDICATES RIGID ROUND RUNOUT SAME SIZE AS DIFFUSER NECK - 6 FT MAX. LENGTH FOR FLEXIBLE DUCT
□	SQUARE TO ROUND TRANSITION
-D-	CONDENSATE DRAIN LINE
-R-	REFRIGERANT LINES (LIQUID & VAPOR)
RL	REFRIGERANT LIQUID LINE
RV	REFRIGERANT VAPOR LINE
□ S	WALL SWITCH
□ NLL	NIGHT LOW LIMIT THERMOSTAT
LMD	MANUAL DAMPER
SPP	STATIC PRESSURE PROBE FOR THERMOSTAT
▲	UNDER CUT DOOR 3/4"
TS	THERMAFUSER WITH TEMPERATURE SENSOR

Design Collaborative

ARCHITECTS PLANNERS / COLUMBIA SOUTH CAROLINA



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M-3
3 of 3 Sheets