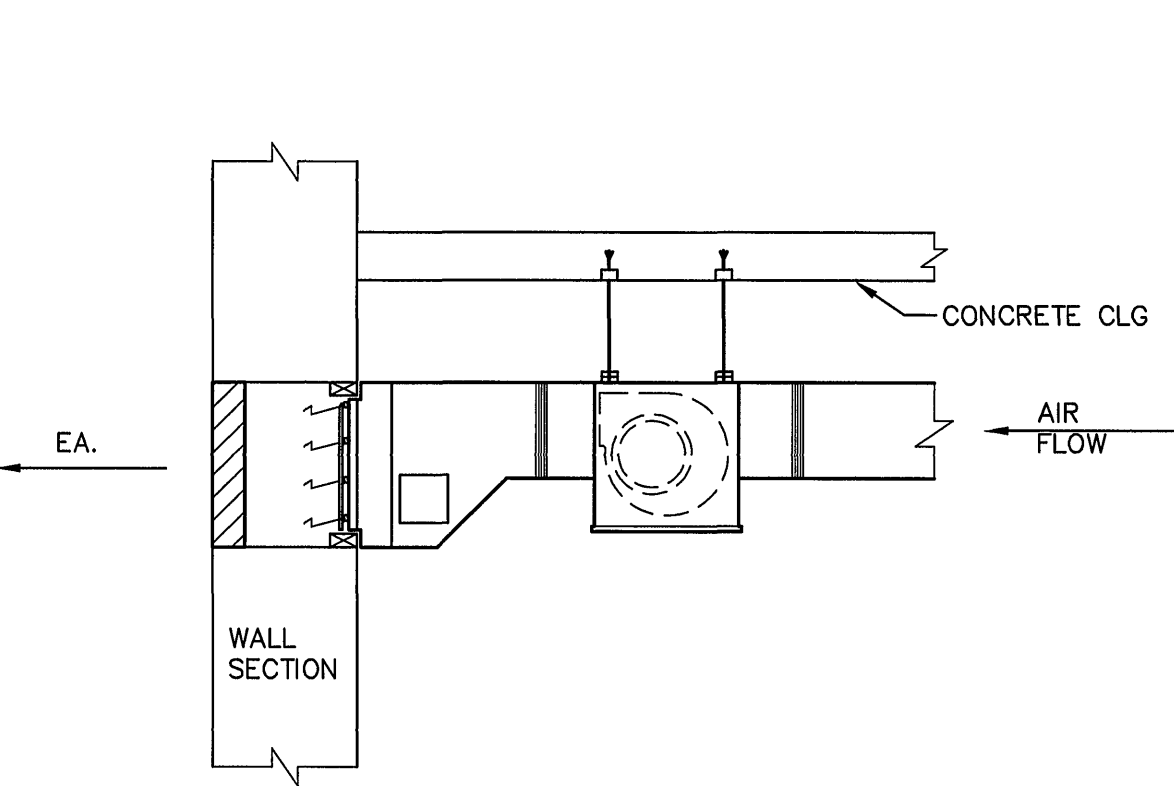
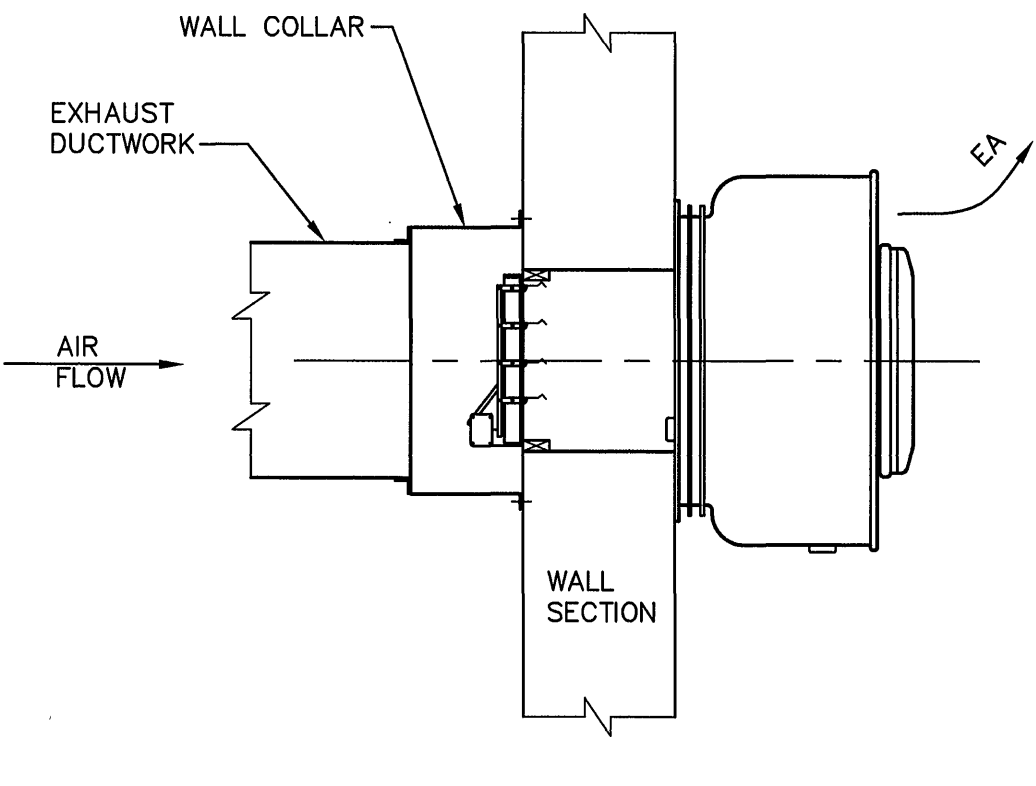


KEYED NOTES

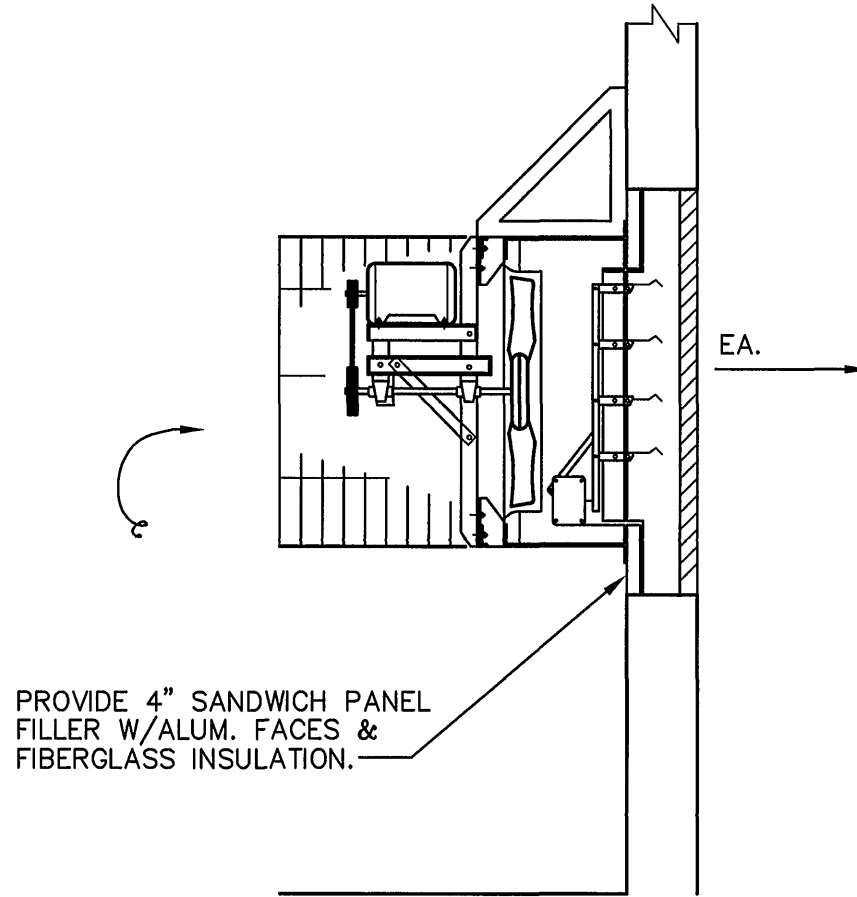
- ① PROVIDE 24"H. SUPPORT FRAME OF 1 1/2"x1 1/2"x3/16" ALUMINUM ANGLES. WITH ALUMINUM DUCTWORK. DUCTWORK TO BE FLOOR SUPPORTED WHERE POSSIBLE, WITH WALL AND OVERHEAD SUPPORT FOR REMAINDER. ALL DUCTWORK TO HAVE EXTERNAL INSULATION. CONDENSER OUTDOOR INTAKE DUCT TO HAVE INTERIOR AND EXTERNAL DUCT INSULATION.
- ② SUPPORT DUCTWORK FROM WALL WITH KNEE BRACES 1 1/2"x1 1/2"x3/16" ALUMINUM ANGLES.
- ③ FIRE DAMPER FD-5 AT FLOOR DUCT PENETRATION FOR 24"x12" DUCT.
- ④ EXISTING WINDOW TO HAVE COMBINATION FIXED AND MOTOR DAMPERS PER ARCHITECTURAL DRAWINGS. WITH DAMPER MOTOR MD8. INSTALL DUCTED CONNECTION AS INDICATED WITH UPPER LOUVER SECTION OPEN FOR ROOM VENTILATION WITH EXHAUST FAN EF-5.
- ⑤ EXISTING WINDOW TO HAVE FIXED LOUVERS PER ARCHITECTURAL DRAWINGS. INSTALL 24"x48" WIDE EXHAUST OPENING IN UPPER WINDOW SECTION. PROVIDE CLOSURE PANEL IN REMAINDER OF OPENING. PANEL TO BE DOUBLE WALL SANDWICH PANEL, 4" THICK W/FIBERGLASS INSULATION OF ALUMINUM FABRICATION.
- ⑥ INSTALL FLEXIBLE CONNECTION AT ALL EQUIPMENT OPENINGS.
- ⑦ PROVIDE SOURCE OF DISTILLED WATER FOR HUMIDIFIER WITHIN EVAPORATOR SECTION.
- ⑧ PROVIDE 5/8"Ø COPPER DRAIN FOR COOLING CONDENSATE. ROUTE TO NEAREST DRAIN POINT.
- ⑨ MD-5 AND MD-6 ARE DIVERTING DAMPERS ALLOWING HVAC - ① SYSTEM TO OPERATE WHEN HVAC - ② SYSTEM IS INOPERATIVE TO SERVE THE CONTROL ROOM.
- ⑩ EQUIPMENT ELEVATION TO BE DETERMINED BY FIELD CONDITIONS AND IS TO BE BASED ON MAINTAINING 2'-6" TO THE BOTTOM OF SUPPLY DUCT AS INDICATED. PROVIDE STRUCTURAL SKID, CONFIGURATION AND LOCATION BASED ON EQUIPMENT DIMENSIONS AND REQUIREMENTS. PROVIDE VIBRATION ISOLATORS. USE NON-SHRINK GROUT AT BEAM SEATS. REFER TO ARCHITECTURAL DRAWINGS.



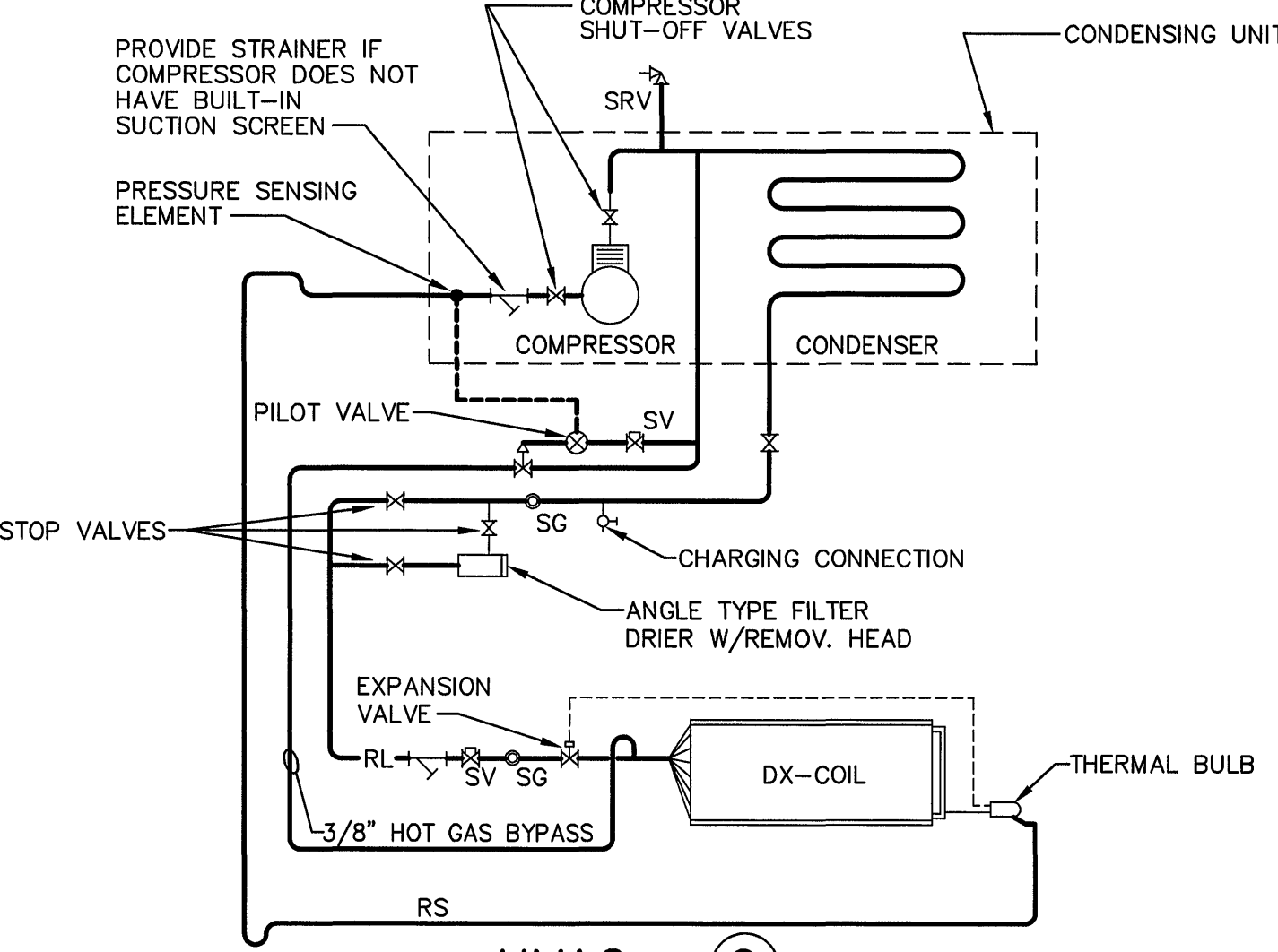
TYPICAL DETAIL-EF7
INLINE EXHAUST FAN
NO SCALE



TYPICAL DETAIL-EF5 & EF6
WALL EXHAUST FAN WITH DUCTWORK INLET FOR EF6
NO SCALE



TYPICAL DETAIL
WALL MOUNTED EXHAUST FANS
EF-1, 2, 3, & 4
NO SCALE

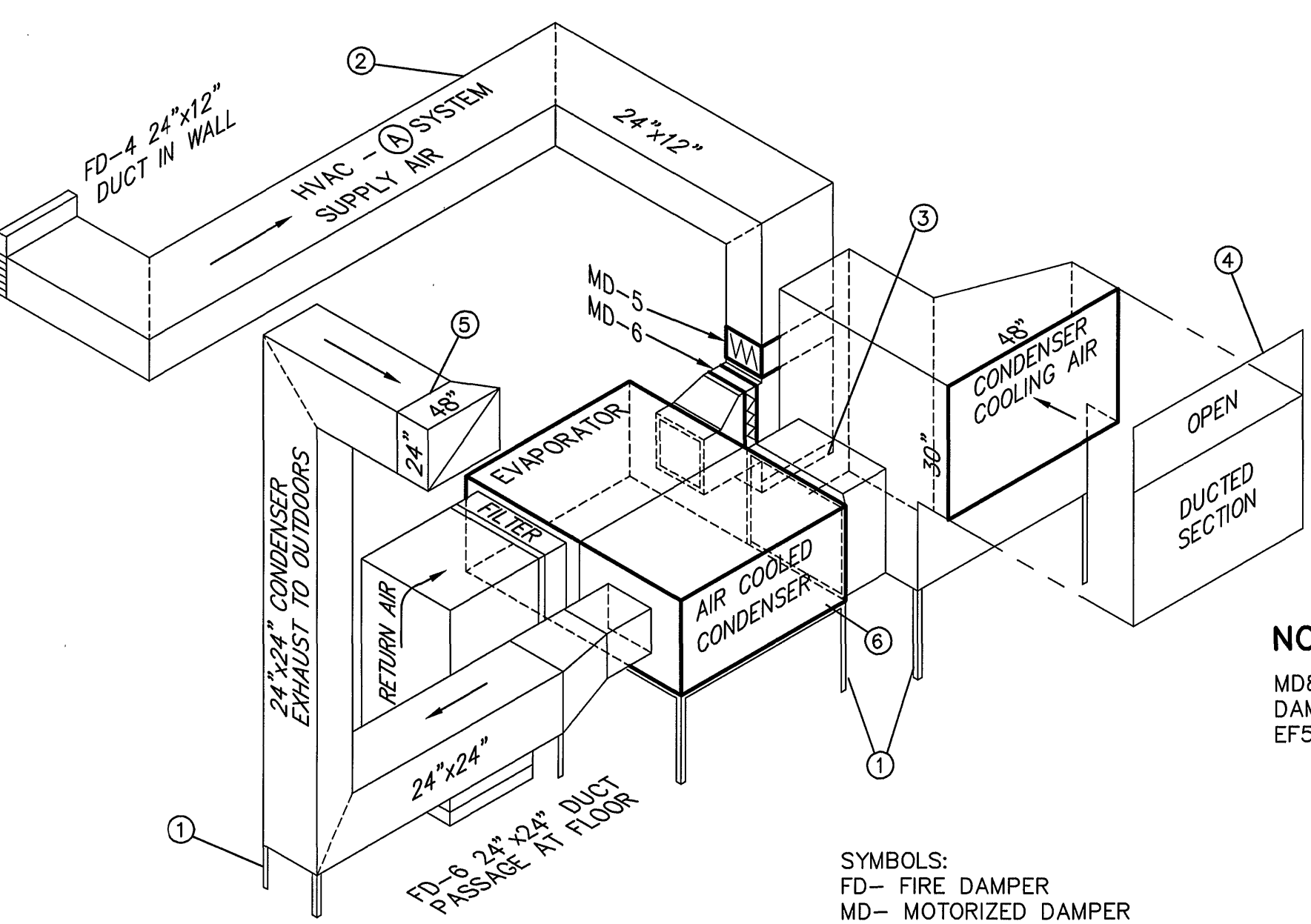


TYPICAL REFRIGERANT PIPING DETAIL
NO SCALE

- SYMBOL LIST**
- PDS - PRESS. DIFF. SWITCH
HL - HIGH LIMIT
LL - LOW LIMIT
MTT - MIN. TEMP. STAT.
MAX-T - MAX. TEMP. STAT.
DM - DAMPER MOTOR
SD - SMOKE DETECTOR
SV - SOLENOID VALVE
GV - GAS VALVE
BDD - BACKDRAFT DAMPER
PV - PILOT VALVE
SG - SIGHT GLASS
SRV - SAFETY RELIEF VALVE
- NOTES**
- ① DETAIL SHOWS SINGLE CIRCUIT REFRIG. PIPING. DUPLICATE PIPING FOR DOUBLE CIRCUIT SYSTEMS.
- ② HOT GAS BYPASS SHALL BE INOPERABLE UNTIL COMPRESSOR IS ON LOWEST STEP.
- ③ EQUIPMENT VENDOR IS RESPONSIBLE FOR SELECTING AND MATCHING AIR HANDLER, CONDENSING UNIT AND DX REFRIGERANT COILS AS A COMPLETE SYSTEM.

AIR OUTLETS / INLETS										
AREA	SERVICE	MFR.	MODEL	BLOW	CONN.	TYPE	DAMPER	MATERIAL FINISH	CEILING	REMARKS
LABORATORIES, OFFICE, CONTROL ROOM	SUPPLY DIFFUSERS	TITUS	PAS-AA	1,2,3, 4 WAY	RND. NECK FLEX.	RND. NECK	OBD D-75 AA	ALUM. WHITE	2x2 LAY-IN	
LOCKER ROOM	SUPPLY DIFFUSERS	TITUS	PAS-AA	1,2,3, 4 WAY	RND. NECK FLEX.	RND. NECK	OBD D-75 AA	ALUM. WHITE	PLASTER	PROVIDE ACCESS PANELS TO FLEX. CONN.
CHEMICAL & BACTERIOLOGICAL LABS	SUPPLY DIFFUSERS	TITUS	ML-37	1 WAY	RND. NECK FLEX.	2 SLOT	ADJ. VOL./PAT	ALUM. WHITE	2x2 LAY-IN	MDI-37 PLENUM 2 SLOT
LABORATORIES, OFFICE, CONTROL ROOM	RETURN REGISTERS	TITUS	PAR-AA		RND. NECK FLEX.		OBD AA	ALUM. WHITE	2x2 LAY-IN	
LOCKER ROOM	EXHAUST REGISTERS	TITUS	PAR-AA		DUCTED CONN.		OBD AA	ALUM. WHITE	PLASTER	PROVIDE ACCESS PANELS TO FLEX. CONN.

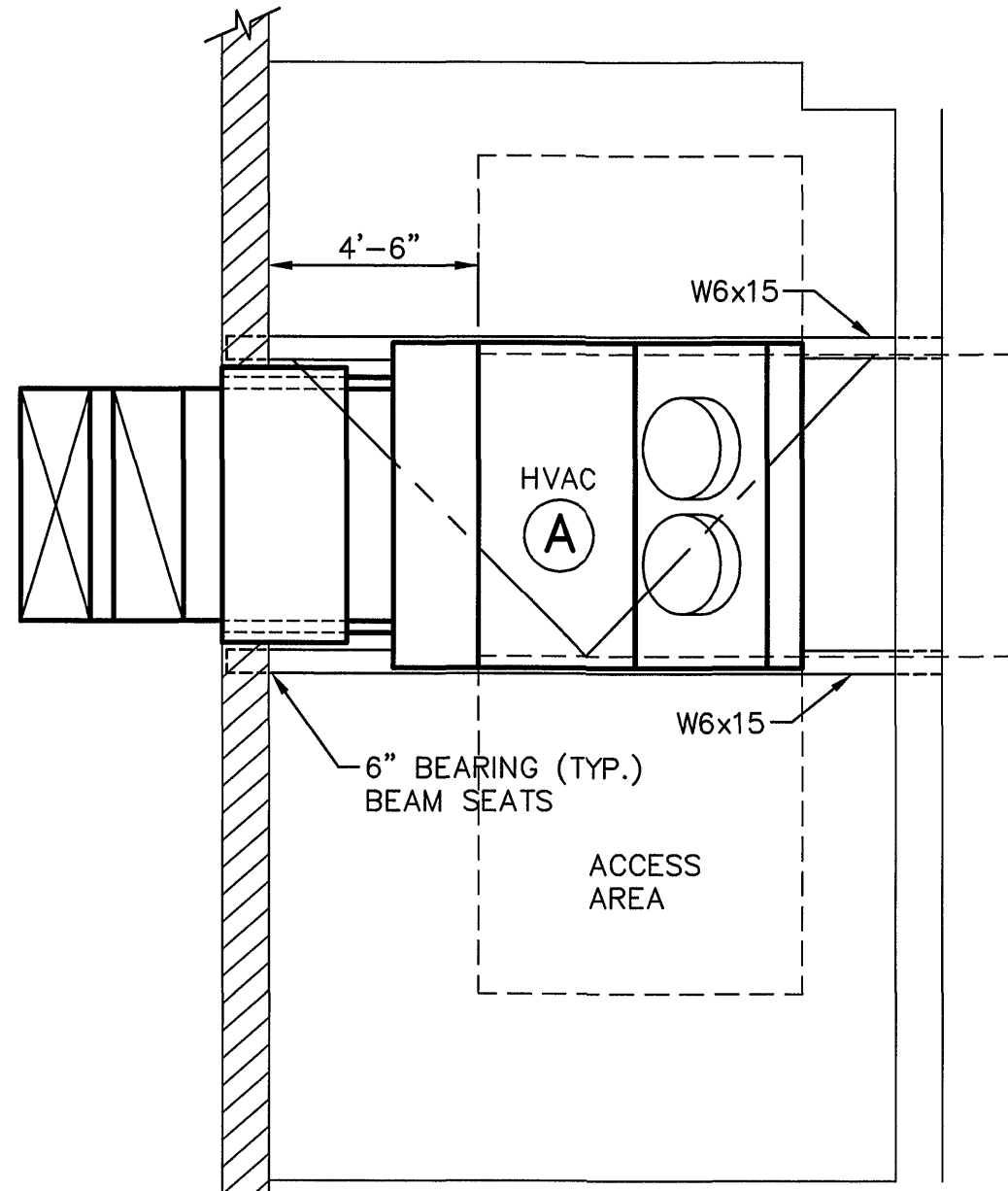
AIR DISTRIBUTION VENDOR TO PROVIDE SELECTION OF OUTLETS/INLETS BASED ON INFORMATION PROVIDED.



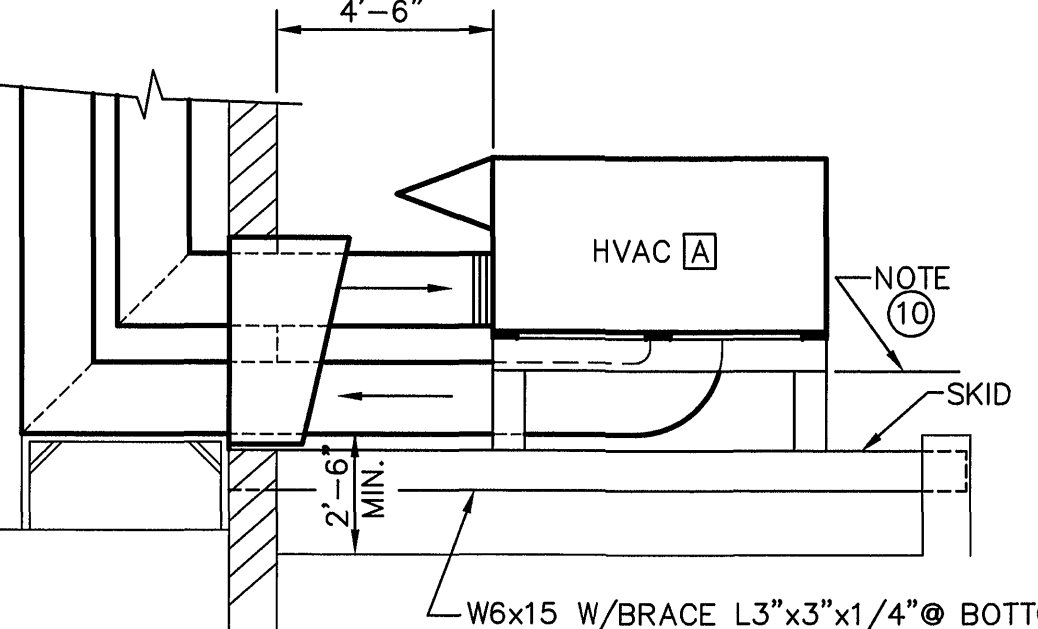
HVAC - ① CONTROL ROOM BACKUP UNIT
NOT TO SCALE

FACTORY PACKAGED SELF CONTAINED HVAC UNIT W/AIR COOLED CONDENSER

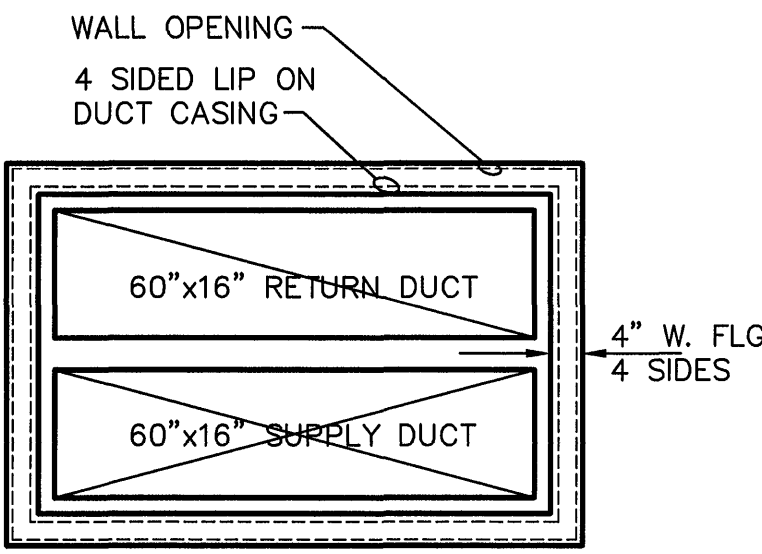
NOTE:
EQUIPMENT LAYOUT IS BASED ON CARRIER CORP. ROOF TOP UNIT SPECIFIED ON DWG. M12.



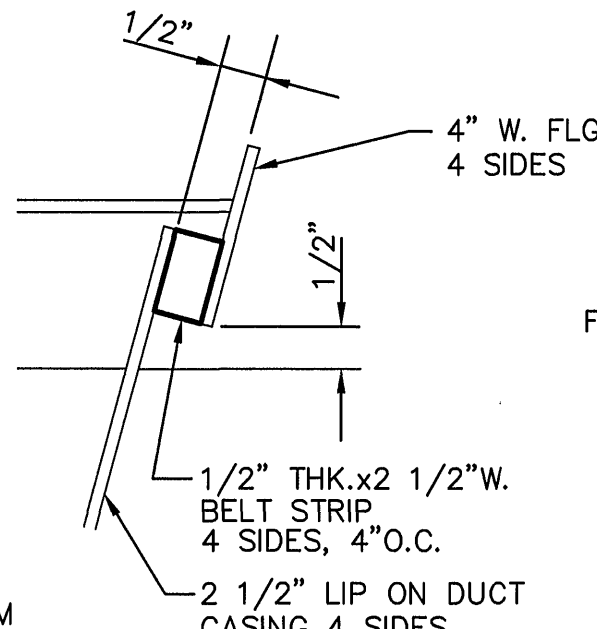
PLAN
SCALE: 1/4"=1'-0"



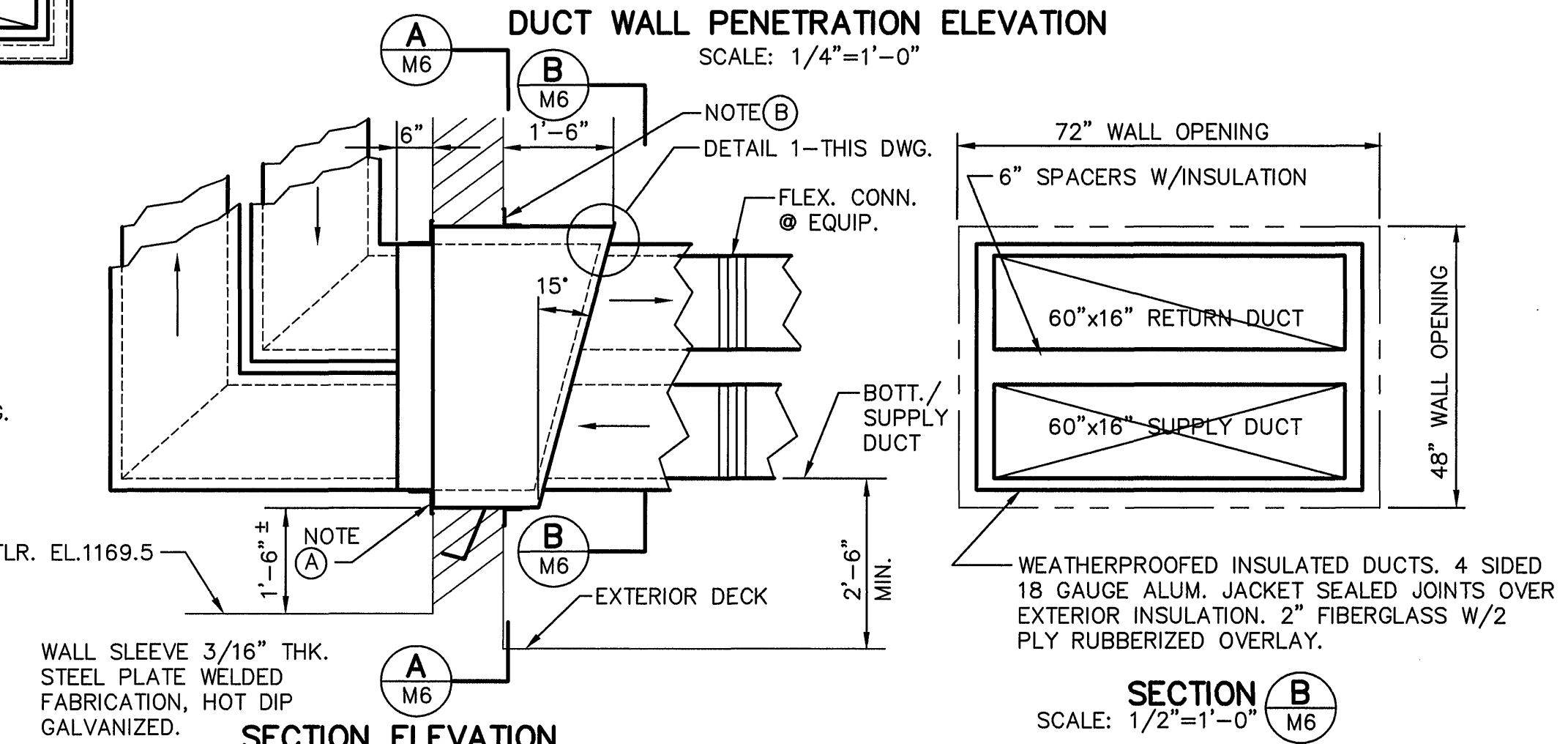
NORTH ELEVATION
SCALE: 1/4"=1'-0"



SECTION A
SCALE: 1/2"=1'-0"



DETAIL 1
NOT TO SCALE



SECTION B
SCALE: 1/2"=1'-0"

NOTE (A) BOLT SLEEVE FLANGE TO WALL. ANCHOR BODY WITHIN BRICKWORK. PACK VOID WITH INSULATION, SEAL WITH 4"x4"x1/8" ANGLE CLOSURE PLATE ON 4 SIDES.

NOTE (B) WELD 3"x3"x3/16" L ON 4 SIDES. BOLT TO WALL SEAL/CAULK ALL JOINTS.

DUCT PASSAGE WALL SLEEVE NOTE: ALL DIMENSIONS TO BE VERIFIED BEFORE FABRICATION.

DRAWING OF RECORD
DATE: SEP 30 1997

MATTERN & CRAIG
CONSULTING ENGINEERS • SURVEYORS
ROANOKE VIRGINIA

ALVORD, BURDICK & HOWSON
ENGINEERS CHICAGO

DESIGNED: S.C.
DRAWN: C.T.M. R.E.T.
CHECKED: S.C.



REV.	DATE	DESCRIPTION	BY	APP.

CARVINS COVE FILTER PLANT IMPROVEMENTS - PHASE I
ROANOKE, VIRGINIA

**ADMINISTRATION BUILDING
HVAC SYSTEMS - SECTIONS & DETAILS**

DATE: APRIL 1992
COMM. NO. 9130
SHEET M6