



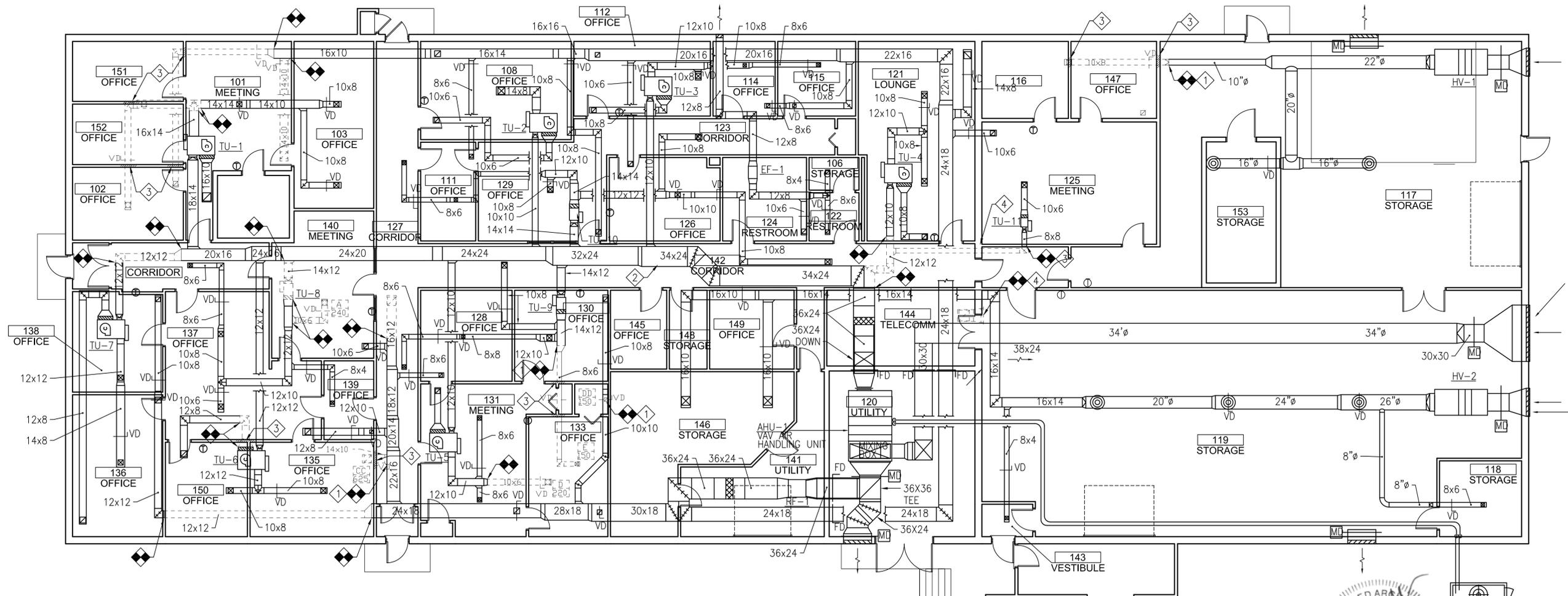


ADD ALTERNATE PRICING:

1. BID OPTION 1: CLEAN ALL EXISTING DUCTWORKS.
2. BID OPTION 2: REMOVAL AND REPLACEMENT OF ALL DUCTWORK ASSOCIATED WITH THE FOLLOWING SYSTEMS:
  - 2.1. AHU-1
  - 2.2. RF-1
  - 2.3. HV-1
  - 2.4. HV-2
  - 2.5. ALL TERMINAL UNITS "TU"

KEYNOTES:

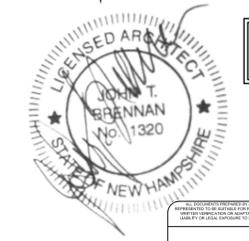
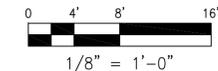
- 1 DUCTWORK SHALL BE SEALED AIRTIGHT POST REMOVAL
- 2 REMOVE DUCTWORK AND SEAL OPENING FROM MAIN SUPPLY DUCTWORK SERVING OFFICE 145.
- 3 PATCH WALL OPENING AFTER REMOVAL OF DUCT
- 4 NO CMU WALL PASS-THROUGH DEMO. WALL DOESNT GO ALL THE WAY UP.



MECHANICAL - DUCTWORK DEMOLITION PLAN

1/8" = 1'-0"

MD-100 MD-100



ACCU-1



MARK	DESCRIPTION	DATE	APPR
1	AS-BUILT	10-31-22	

DESIGNED BY:	DATE:
DWN BY:	CKD BY:
SUBMITTED BY:	CONTRACT NO.:
SCALE:	FILE NO.:
AS NOTED	PLT DATE:
ANSI D	FILE NAME:
	ANSI D

USAF NEW BOSTON AIR FORCE STATION  
NEW BOSTON, NEW HAMPSHIRE  
B120 DUCTWORK REPAIR  
PROJECT # RNF176887

PENNINT ASSOCIATES, INC.  
1900 MARKET STREET, SUITE 300  
PHILADELPHIA, PA 19103

B120 DUCTWORK DESIGN  
MECHANICAL DUCTWORK  
DEMOLITION PLAN

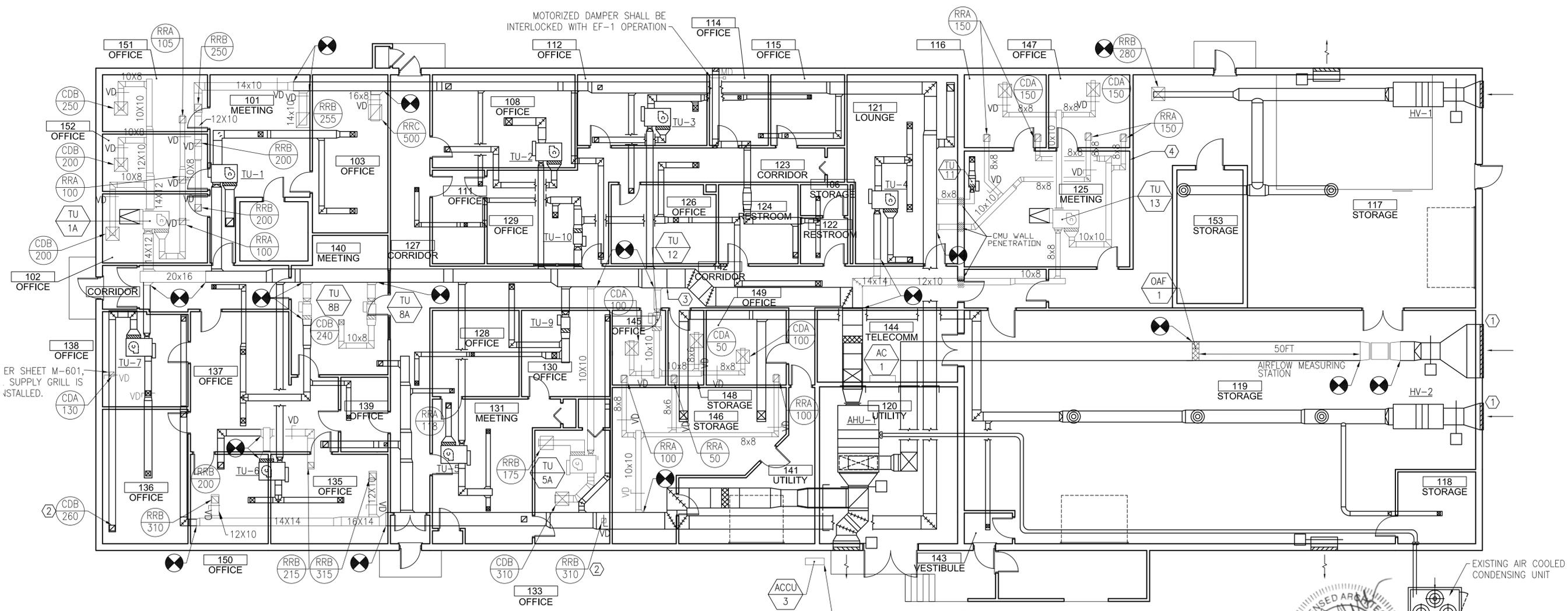
SHEET IDENTIFICATION  
MD-100

### GENERAL NOTES:

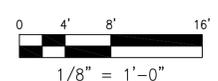
- ALL EQUIPMENT SHALL COME WITH STANDALONE CONTROLS. PROVIDE NECESSARY SENSORS AND WIRING TO MEET THE SPECIFIED CONTROL SEQUENCES.
- ALL DUCT SPLITS AND TAKE-OFFS SHALL BE PROVIDED WITH VOLUME DAMPERS. SPLITTER DAMPERS AND AIR EXTRACTORS ARE NOT ACCEPTABLE.
- VOLUME DAMPERS IN BRANCH DUCTS SHALL BE LOCATED AS FAR AS POSSIBLE FROM AIR OUTLET OR INLET IN ORDER TO REDUCE NOISE AND TURBULENCE. ALL VOLUME DAMPERS LOCATED ABOVE IN INACCESSIBLE CEILING SHALL BE CABLE OPERABLE FROM FACE OF AIR OUTLET. ALL BRANCH DUCT TAKE-OFF TO AIR OUTLET SHALL BE PROVIDED WITH (VD) VOLUME DAMPER.
- BACKGROUND AND DUCT LAYOUT SHOWN BASED ON EXISTING DRAWINGS AND SHALL BE VERIFIED IN FIELD
- CONTRACTOR TO RESEAL AND PRESSURE TEST ALL DUCTWORK BASED ON PRESSURE CLASSES LISTED ON DUCTWORK CONSTRUCTION SCHEDULE. DUCT LEAKAGE SHALL CONFORM WITH SMACNA STANDARDS.
- RE-BALANCE ENTIRE DUCTWORK SYSTEM BASED ON DESIGN DRAWINGS. REFER TO EXISTING MECHANICAL PLAN (MH-101) FOR AIRFLOW VOLUMES NOT SHOWN ON NEW DUCTWORK PLAN.

### KEYNOTES:

- CONTRACTOR TO WATERPROOF, FLASH, RESEAL AND RE-INSULATE EXTERIOR LOUVER.
- RE-BALANCE EXISTING TERMINAL
- SEAL OPENING FROM MAIN SUPPLY DUCTWORK SERVING OFFICE.
- REPLACE EXISTING EMERGENCY SHUTOFF SWITCH. SEE M-400 FOR MORE DETAIL.



**MECHANICAL - PROPOSED DUCTWORK PLAN**  
 1/8" = 1'-0"  
 MH-100 MH-100



MARK	DESCRIPTION	DATE	APPR
1	AS-BUILT	10-31-22	

DESIGNED BY:	DATE:
DWN BY:	CONTRACT NO.:
SUBMITTED BY:	FILE NO.:
SCALE:	AS NOTED
SIZE:	ANSI D
FILE NAME:	

USAF NEW BOSTON AIR FORCE STATION  
 NEW BOSTON, NEW HAMPSHIRE  
 B120 DUCTWORK REPAIR  
 PROJECT # RNF176887  
 PENNING ASSOCIATES, INC.  
 1900 MARKET STREET SUITE 300  
 PHILADELPHIA, PA 19103

**B120 DUCTWORK DESIGN**  
**MECHANICAL DUCTWORK PLAN**

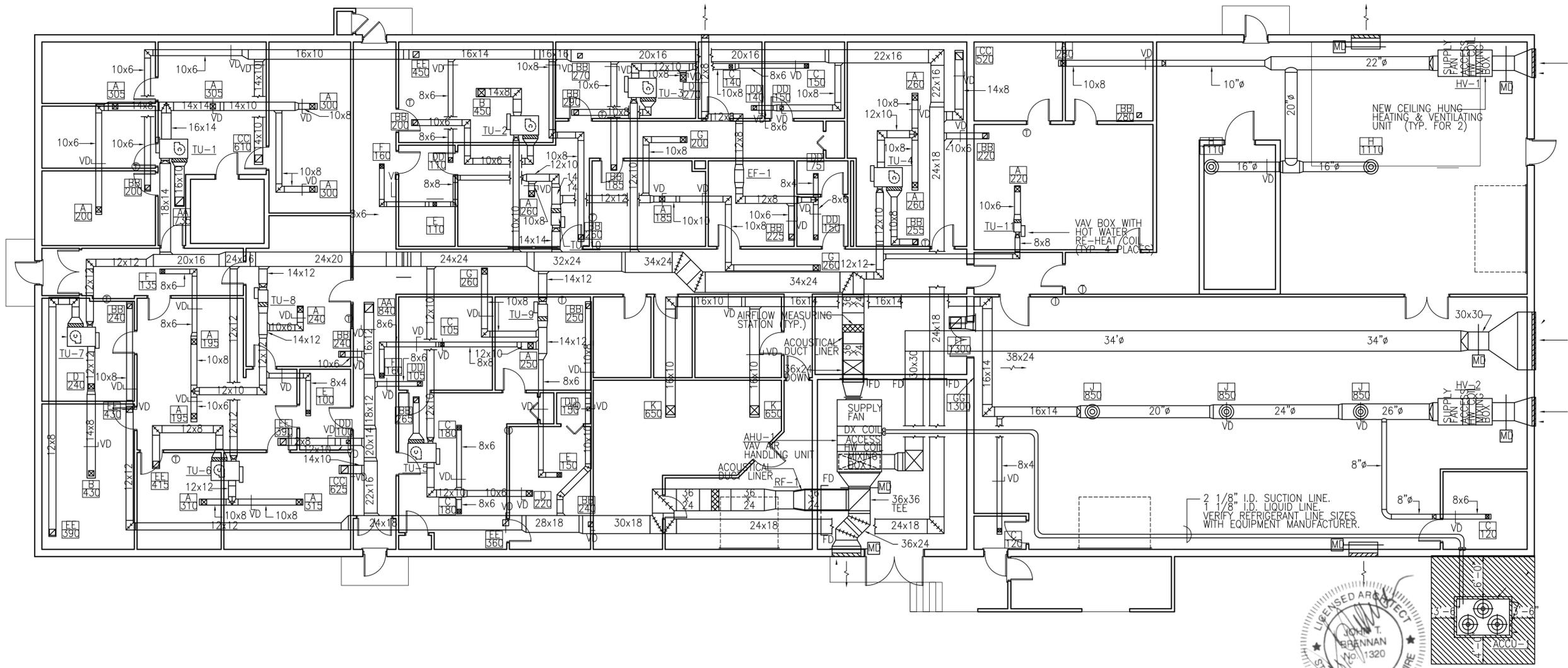
SHEET IDENTIFICATION  
**MH-100**

GENERAL NOTES:

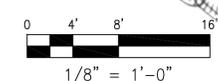
- FOR REFERENCE ONLY. EXISTING PLAN DOES NOT REFLECT ASBUILT CONDITIONS. VERIFY IN FIELD
- EXISTING DIFFUSERS THAT ARE NOT MODIFIED UNDER THIS PROJECT SHALL BE BALANCED TO VALUES SHOWN HERE

EXISTING AIR TERMINAL SYMBOL LEGEND

XX	EXISTING AIR TERMINAL DESIGNATION
XX	EXISTING AIR TERMINAL VOLUME (CFM)



MECHANICAL - EXISTING DUCTWORK FOR REFERENCE  
 1/8" = 1'-0"  
 MH-101 MH-101



PROPERTY OF THE UNITED STATES AIR FORCE: FOR OFFICIAL USE ONLY.



MARK	DESCRIPTION	DATE	APPR
1	AS-BUILT	10-31-22	

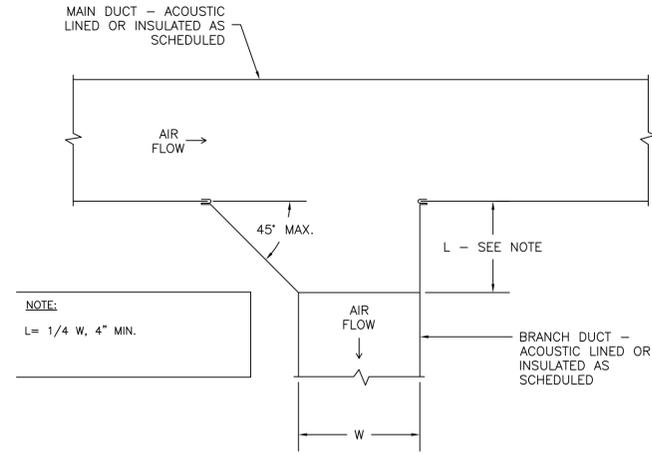
DESIGNED BY:	DATE:
DWN BY:	CKD BY:
SUBMITTED BY:	CONTRACT NO.:
SCALE:	FILE NO.:
SIZE:	FILE NAME:
ANSI D	

USAF NEW BOSTON AIR FORCE STATION  
 NEW BOSTON, NEW HAMPSHIRE  
 B120 DUCTWORK REPAIR  
 PROJECT # RNF176887

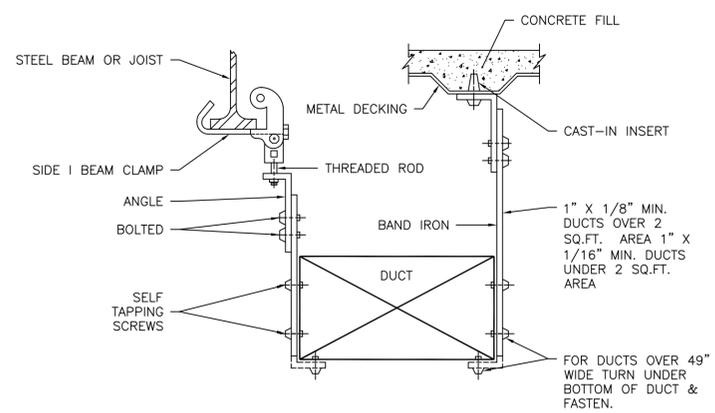
PENNINI ASSOCIATES, INC.  
 1900 MARKET STREET, SUITE 300  
 PHILADELPHIA, PA 19103

B120 DUCTWORK DESIGN  
 MECHANICAL EXISTING  
 DUCTWORK PLAN

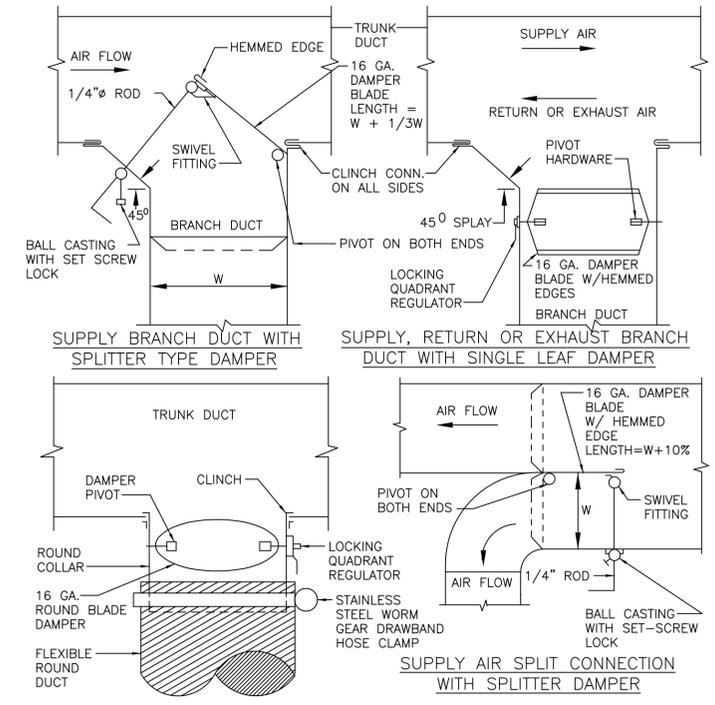
SHEET IDENTIFICATION  
 MH-101



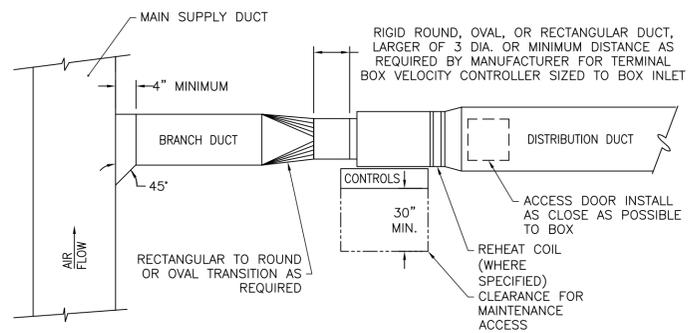
**1** RECTANGULAR BRANCH DUCT TAKE-OFF  
 MAX.+2" WG/2500 FPM  
 M-500 SCALE: N.T.S.



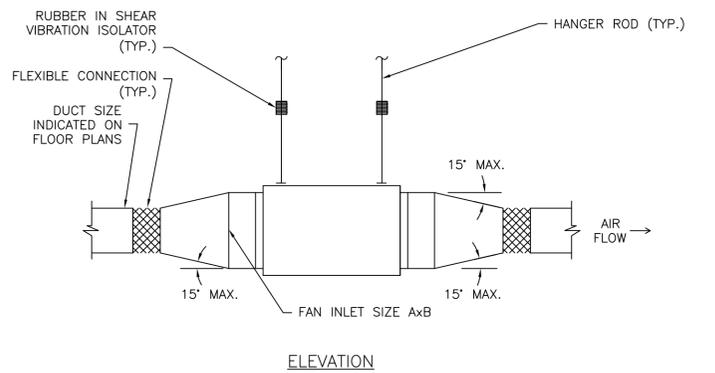
**2** METHOD OF HANGING DUCTWORK DETAIL  
 M-500 SCALE: N.T.S.



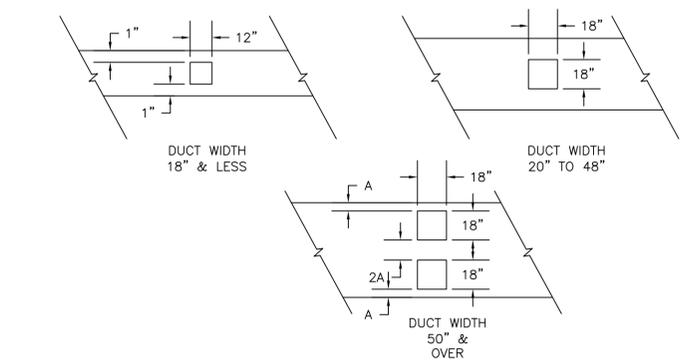
**3** BRANCH DUCT VOLUME DAMPERS  
 M-500 SCALE: N.T.S.



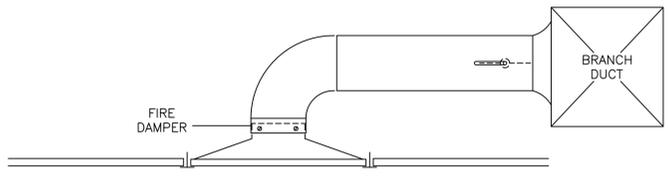
**4** TERMINAL BOX DUCT CONNECTION DETAIL  
 M-500 SCALE: N.T.S.



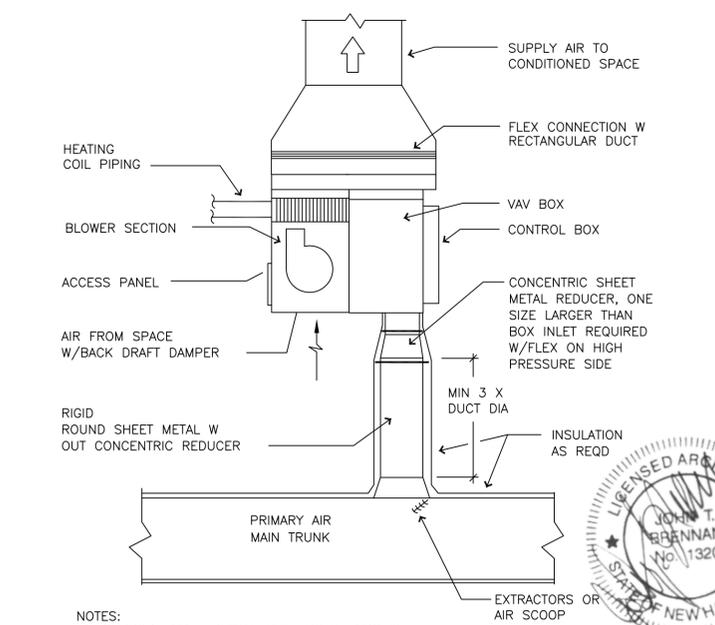
**5** INLINE FAN DETAIL  
 M-500 SCALE: N.T.S.



**6** DUCT ACCESS DOORS DETAIL  
 M-500 SCALE: N.T.S.



**7** FLEX CONNECTION AT DIFFUSER/GRILLE DETAIL  
 M-500 SCALE: N.T.S.



**8** PARALLEL FAN POWERED VAV TERMINAL  
 M-500 SCALE: N.T.S.



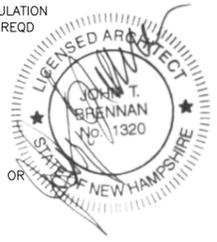
DESIGNED BY:	DATE:
DWN BY:	10-12-2022
SUBMITTED BY:	MARK
SCALE:	AS-BUILT
AS NOTED	DESCRIPTION
AS NOTED	1
AS NOTED	DATE
AS NOTED	APPR

DESIGNED BY:	DATE:
DWN BY:	CONTRACT NO.:
SUBMITTED BY:	FILE NO.:
SCALE:	PLOT DATE:
AS NOTED	FILE NAME:
AS NOTED	ANSI D

USAF NEW BOSTON AIR FORCE STATION  
 NEW BOSTON, NEW HAMPSHIRE  
 B120 DUCTWORK REPAIR  
 PROJECT # RNF176887  
 PENNING ASSOCIATES, INC.  
 1900 MARKET STREET, SUITE 300  
 PHILADELPHIA, PA 19103

**B120 DUCTWORK DESIGN**  
**MECHANICAL DETAILS SHEET**

SHEET IDENTIFICATION  
**M-500**



### VAV TERMINAL BOX SCHEDULE

UNIT NO.	SERVICE	CFM		HEATING FAN	INLET SIZE	SP		REHEAT COIL			ELECTRICAL (V/PH/Hz)	FAN HP	OPER. UNIT WEIGHT (LBS)	BASIS OF DESIGN: MANUFACTURER TITUS. MODEL NO.	REMARKS
		MIN.	MAX.	CFM		INLET	DOWNSTREAM	CAPACITY MBH	GPM	EWT					
TU-1	101,103	278	925	700	10	0.85	0.25	15	1.5	180.0	160.0	-	-	-	REBALANCE VAV
TU-1A	101,152,151	195	650	500	10	0.53	0.25	10	1.1	180.0	160.0	120/1/60	1/6	-	DTQP
TU-5	131	170	360	288	10	0.88	0.25	10	1.0	180.0	160.0	-	-	-	REBALANCE VAV
TU-5A	133	105	350	280	8	0.82	0.25	10	1.0	180.0	160.0	120/1/60	1/6	-	DTQP
TU-8B	137,139	188	625	n/a	8	0.40	0.25	5	0.5	180.0	160.0	-	-	-	DESV
TU-8A	125	225	300	n/a	6	0.83	0.25	5	0.5	180.0	160.0	-	-	-	DESV
TU-9	142,130,128,127	370	775	N/A	10	0.69	0.25	12	1.2	180.0	160.0	-	-	-	REBALANCE VAV
TU-12	145,148,149	75	250	N/A	6	0.87	0.25	5	0.5	180.0	160.0	-	-	-	DESV
TU-13		100	300	300	8		0.25	10	1.0	180.0	160.0	120/1/60	1/6	-	DTQP

- NOTES:  
 1. DESV MODELS SHALL UTILIZE LOW VOLTAGE POWER.  
 2. REBALANCE AIR AND WATER FLOW EXISTING VAV TERMINALS WHERE NOTED

### DUCT CONSTRUCTION AND INSULATION SCHEDULE

SERVICE	SUPPLY AIR	SUPPLY AIR	RETURN AIR	EXHAUST AIR
DUCT SECTION	FROM: VAV	AHU	SPACE	SPACE
	TO: SPACE	VAV	UNIT	UNIT
DUCT SECTION	INDOORS EXPOSED:	X	X	X
	INDOORS CONCEALED:	X	X	X
	OUTDOORS:	-	-	X
PRESSURE CLASSIFICATION:	+/- 2.0" H2O	+/- 4.0" H2O	+/- 2.0" H2O	+/- 2.0" H2O
SMACNA CLASSIFICATION:	A	A	B	B
OUTER WALL MATERIAL:	G90	G90	G90	G90
INNER WALL MATERIAL:	-	-	-	-
DUCT AIR TEMPERATURE:	>52 DEG F	>52 DEG F	ALL TEMPS.	ALL TEMPS.
EXTERIOR INSULATION	TYPE:	FIBERGLASS	FIBERGLASS	FIBERGLASS
	THICKNESS:	2" MINIMUM R5 WHEN INSTALLED	2" MINIMUM R5 WHEN INSTALLED	2"
	VAPOR BARRIER:	FRK	FRK	FRK
REMARKS:	* EXTERIOR WALL SEALED WATERTIGHT	* EXTERIOR WALL SEALED WATERTIGHT		* SEALED WATERTIGHT WHERE OUTDOORS

### FAN SCHEDULE

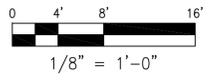
UNIT No.	FAN TYPE	SERVICE	CFM	EXT. S.P.	RPM	DRIVE	ELECTRICAL					WEIGHT (LBS.)	BASIS OF DESIGN : MANUFACTURER & MODEL NO.	REMARKS
							BHP	HP	V	PH	Hz			
OAF-1	INLINE	AHU-1	8000	1	1725	BELT	4.03	5	208	3	60		GREENHECK MODEL#:	SEE NOTES

- NOTES:  
 1. PROVIDE MOTOR WITH THERMAL OVERLOAD, UL 705 LISTED "POWER VENTILATORS", SWITCH: NEMA-1 TOGGLE, JUNCTION BOX WIRED AND MOUNTED, AND WIRING PIGTAIL INTERNAL (9FT).  
 2. PROVIDE ONE YEAR STANDARD UNIT WARRANTY.  
 3. MOTOR SHALL BE PREMIUM EFFICIENCY AND RATED FOR VFD

### COMPUTER ROOM SPLIT SYSTEM AIR CONDITIONING SCHEDULE

INDOOR UNIT							CONDENSING UNIT - CU														
UNIT No.	SERVES	SUPPLY FAN	COOLING COIL			ELECTRICAL DATA	UNIT No.	LOCATION	COND. FAN	COMPRESSOR			REF	AMBIENT TEMP.	ELECTRICAL DATA					EER/SEER	REMARKS
		TOTAL CFM (H/M/L)	EAT °F DB/WB	TOTAL MBH	SENSIBLE MBH	AMPS			No.	No.	AMP	AMPS			MCA	MOCP	V	PH	HZ		
AC-1	IT CLOSET	706/530/459	80/67	21.4	16.6	0.5	ACCU-3	EXTERIOR WALL	1	1	17.3	R410A	105F	0.25	23	35	208	1	60	12.5/21	LIEBERT, MODEL SRC2

- NOTES:  
 INDOOR UNIT SHALL BE POWERED FROM THE OUTDOOR UNIT, PROVIDE DISCONNECT  
 PROVIDE PROGRAMMABLE THERMOSTAT  
 PROVIDE CONDENSATE PUMP, POWERED THROUGH UNIT. MODEL EC-400, 208/1/60, 20 WATT POWER, 3FT SUCTION LIFT, 2GPH AT 2FT HEAD  
 PROVIDE LEAK DETECTOR  
 PROVIDE LOW AMBIENT BAFFLE KIT



DATE	10-12-2022
DESCRIPTION	AS-BUILT
MARK	1

DESIGNED BY:	DATE:
DWN BY:	CKD BY:
SUBMITTED BY:	CONTRACT NO.:
SCALE: AS NOTED	PLOT DATE:
SIZE: ANSIC	FILE NAME:
USAF NEW BOSTON AIR FORCE STATION NEW BOSTON, NEW HAMPSHIRE B120 DUCTWORK REPAIR PROJECT # RNF176887 PENNING ASSOCIATES, INC. 1900 MARKET STREET SUITE 300 PHILADELPHIA, PA 19103	

**B120 DUCTWORK DESIGN**  
**MECHANICAL SCHEDULES SHEET**

SHEET IDENTIFICATION  
**M-600**