

AIR CONDITIONING UNITS																
UNIT NO	LOCATION	AREA SERVED	VENT	SUPPLY FAN			COOLING COILS			PRE-FILTER EFFICIENCY	FINAL FILTER EFFICIENCY	ELECTRICAL DATA			MANUFACTURER MODEL	REMARKS
				CFM	ESP	HP	DX COOLING COIL					VOLTS	PH	HZ		
							EAT	TMBH	SMBH							
AC-1	MECHANICAL ROOM	RF ROOMS 485	500	2,400	2.0	3.0	58°F DB 54°F WB	74.00	58.23	2" MERV-7	4" MERV-14	460	3	60	CARRIER 39L	SEE NOTES

- NOTES:
- PROVIDE DUAL CIRCUIT SPLIT FACE AIR COOLED DX COIL.
  - UNIT SHALL BE UP-FLOW SUPPLY & FRONT FACED RETURN CONFIGURATION.
  - UNIT SHALL BE PROVIDED WITH A SMOKE DETECTORS WITH THE CAPABILITY TO BE CONNECTED TO THE BASE BUILDING EXISTING FIRE ALARM SYSTEM.
  - PROVIDE PREMIUM EFFICIENCY MOTOR FOR USE WITH VFD.
  - UNIT SHALL BE PROVIDED WITH PRE-MANUFACTURED FILTER RACK SIMILAR TO CAMFIL FARR FILTER HOUSINGS. RACK SHALL BE ABLE TO SUPPORT FINAL FILTERS (4" MERV-14) AT THE DISCHARGE OF THE UNIT.

AIR COOLED CONDENSER UNITS															
UNIT NO	SERVING		TONS	STAGES	COMPRESSOR			FAN		ELECTRICAL			SEER	MAKE/MODEL	REMARKS
	AREA	EQUIP.			MCA	LRA	FLA	FLA	HP	VOLTS	PHASE	HZ			
ACCU-182	ROOF	AC-1	3	1	7.7	5.6	0.7	0.7	1/10	460	3	60	14	CARRIER/24AB336	SEE NOTES

- NOTES:
- OUTDOOR CONDENSER UNIT SHALL BE MOUNTED ON ROOF AND BE PROVIDED WITH ALL REQUIREMENTS FOR LOW AMBIENT OPERATION AT -20°F.
  - THE COMPRESSORS SHALL BE SCROLL AND UTILIZE R-410A REFRIGERANT.
  - PROVIDE FACTORY INSTALLED DISCONNECT SWITCH.
  - REFRIGERATION SYSTEM TO BE COMPLETE WITH EXPANSION VALVE, DIGITAL SCROLL COMPRESSOR(S), HIGH PRESSURE SWITCH, LIQUID LINE FILTER DRYER, HOT GAS BYPASS AND CRANKCASE HEATER.

DUCT MOUNTED HOT WATER HEATING COILS														
SYMBOL	LOCATION	CAPACITY (MBH)	AIR DATA				WATER DATA				DUCT SIZE (IN.)	MANUFACTURER	REMARKS	
			CFM	MAX. P.D IN W. G.	TEMP.		GPM	MAX. P.D (FT)	TEMP.					MAX VEL. FPM
					ENT.	LVG.			ENT.	LVG.				
RHC-1	REFER TO PLANS	32.8	1200	1'	55.0	80.0	3.3	5'	180	160	700	20x10	USA COIL MODEL HW	
RHC-2	REFER TO PLANS	32.8	1200	1'	55.0	80.0	3.3	5'	180	160	700	20x10	USA COIL MODEL HW	

CONDENSATE PUMPS													
UNIT NO	LOCATION	SYSTEM SERVED	RECEIVER		PUMP DATA				ELECTRICAL			MAKE/MODEL	REMARKS
			GALLONS	MATL	GPH	FT HEAD	QUAN	HP	VOLTS	PH	RPM		
CP-1	REFER TO PLAN	AC-1 CONDENSATE	1.0	ABS	200	1.0	-	1/50	115	1	1750	LITTLE GIANT VCL-14ULS	NONE

- NOTES:
- PROVIDE A SHUTOFF SWITCH AT UNIT IN THE EVEN PUMP FAILS, AHU SHALL BE DE-ENERGIZED.

FANS															
UNIT NO	LOCATION	SYSTEM SERVED	TYPE	CFM	SP	MAX BHP	FAN RPM	TIP SPEED	SOUND	ELECTRICAL				MAKE/MODEL	REMARKS
										HP	VOLTS	PH	RPM		
EF-1	SOILED UTILITY	EXHAUST	CEILING MOUNTED	150	0.75	-	1049	-	4.0 SONES	173 W	115	1	1100	GREENHECK SP-B200	1

- NOTES:
- PROVIDE A SHUTOFF SWITCH AT UNIT IN THE EVEN PUMP FAILS, AHU SHALL BE DE-ENERGIZED.
  - PROVIDE BACK DRAFT DAMPER.

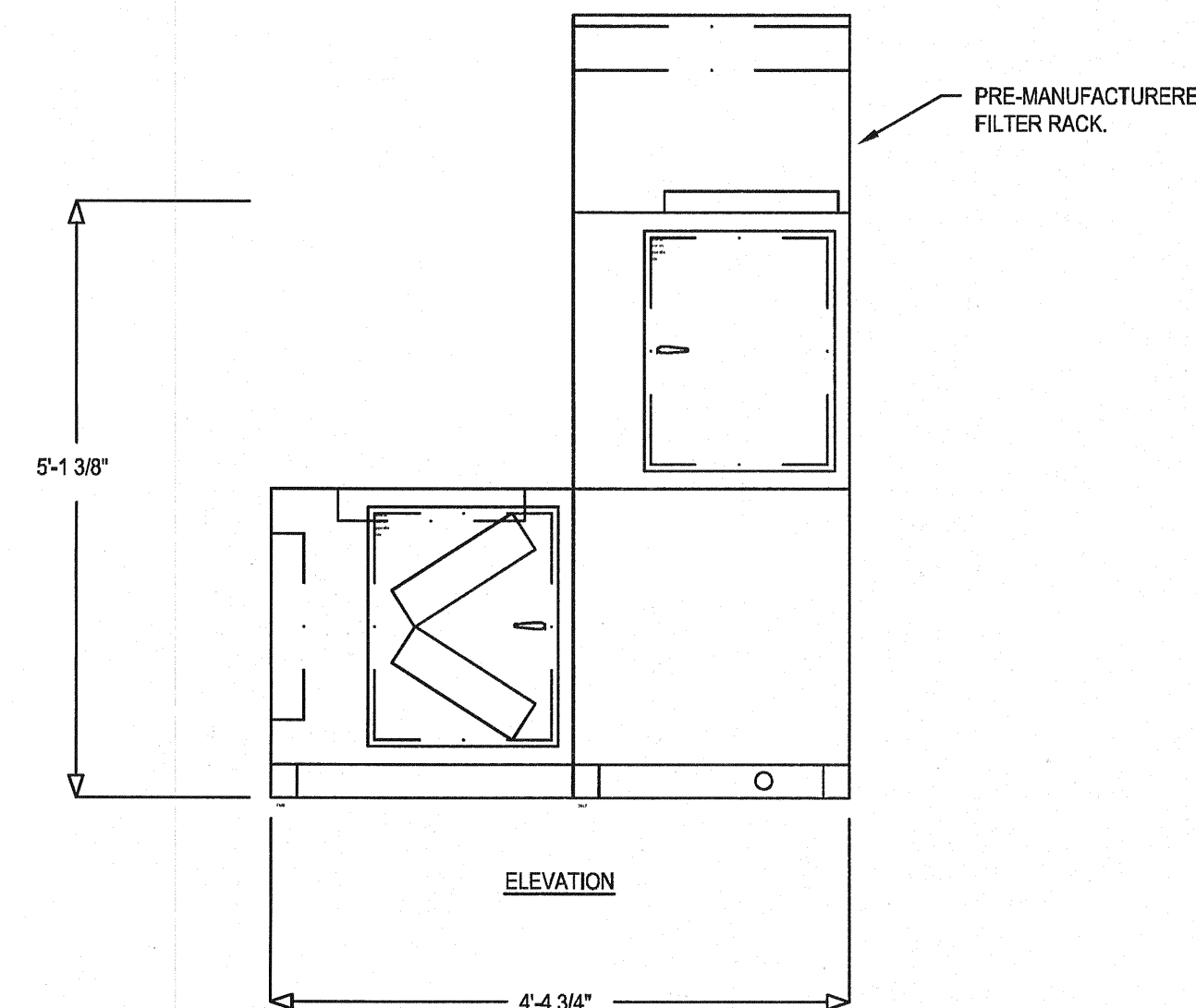
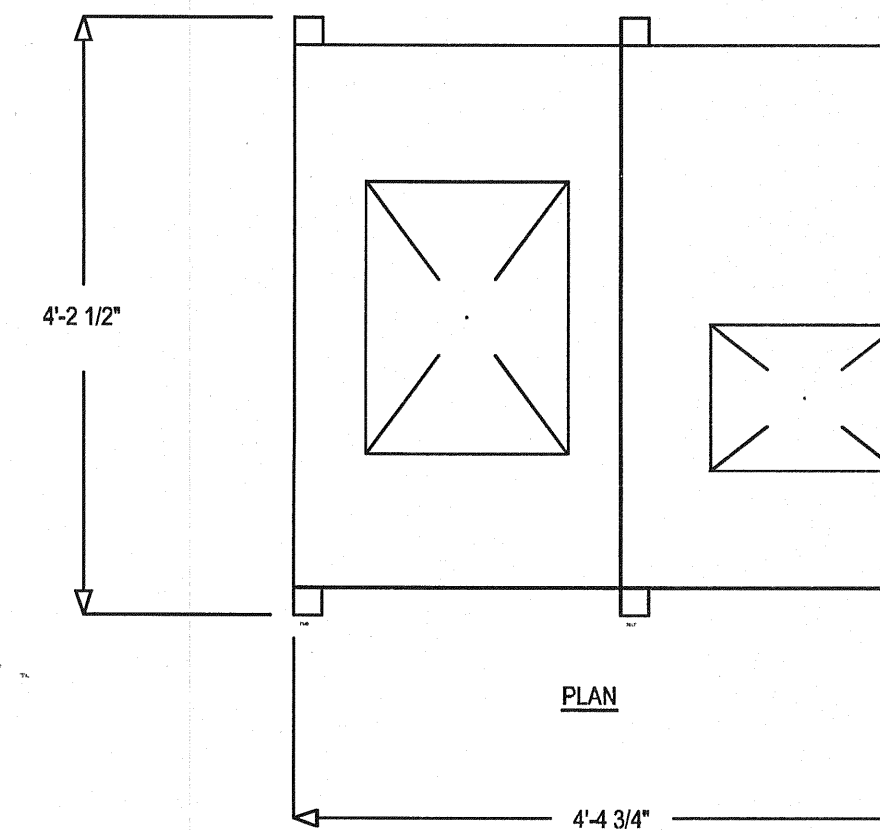
HVAC VIBRATION-CONTROL AND SEISMIC-RESTRAINT DEVICE SCHEDULE				
EQUIPMENT	BASE	ISOLATOR*	SEISMIC RESTRAINT	DEFLECTION
CONDENSING UNITS (GRADE AND ROOF MOUNTED)	24" HIGH EQUIPMENT RAILS	NP	LAG BOLT TO RAIL. RAIL TO BE ATTACHED TO STRUCTURE.	0.2"
SUSPENDED INLINE FANS	-	HSN	CABLE RESTRAINTS	1.5"
INDOOR AHU'S, FLOOR MOUNTED	4" HOUSEKEEPING PAD	NP	RESILIENT ISOLATION WASHERS AND MECHANICAL ANCHOR BOLTS	0.2"

- REMARKS:
- REFER TO SPECIFICATION SECTION "VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT" FOR A DESCRIPTION OF EACH VIBRATION CONTROL DEVICE.
  - (NP) - NEOPRENE PAD, (DNP) - DOUBLE NEOPRENE PAD, (FNC) - FLOOR NEOPRENE RESTRAINED MOUNTS, (FSN) - FLOOR SPRING AND NEOPRENE SPRING ISOLATOR, (FSNTL) - FLOOR SPRING AND NEOPRENE TRAVEL LIMITED RESTRAINED SPRING ISOLATOR, (HN) - NEOPRENE HANGER, (HSN) - SPRING AND NEOPRENE HANGER, (RC2) - ROOF CURB, TYPE 2, (BSF) - BASE, STEEL FRAME, (BIB) - BASE, INERTIA BASE, (FPC) - FLEXIBLE PIPE CONNECTIONS, (SRC) - SEISMIC ROOF CURB.

\* IN ADDITION TO ANY INTERNAL VIBRATION ISOLATION.  
\*\* SYSTEM SHALL BE DESIGNED TO BE 90% EFFICIENT.

VARIABLE FREQUENCY DRIVE SCHEDULE								
ITEM	MANUFACTURER	MODEL	LOCATION	HORSEPOWER	VOLT/PHASE		EQUIPMENT SERVED	REMARKS
					IN	OUT		
VFD-1	AESA BROWN BOVERI	ACH550	MECHANICAL ROOM	REFER TO NOTE #1	460/3	460/3	AC-1	SEE BELOW

- NOTES:
- REFER TO EQUIPMENT SCHEDULES FOR HORSEPOWER REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE FINAL VFD SIZING WITH RATED MOTOR AMPS INDICATED ON APPROVED SHOP DRAWINGS FOR THE EQUIPMENT SERVED.
  - ALL VFD'S SHALL BE PROVIDED WITH ELECTRONIC BYPASS AND SERVICE SWITCH.



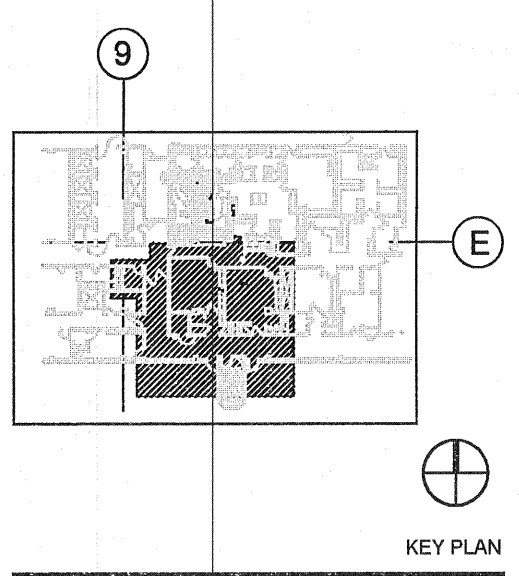
### SEQUENCE OF OPERATIONS (AC-1, ACCU-1 & 2)

- PROVIDE ALL NECESSARY CONTROLS, INCLUDING BUT NOT LIMITED TO SENSORS, ACTUATORS, HARDWARE, AND SOFTWARE IN ORDER TO SATISFY THE REQUIREMENTS INDICATED IN THE SEQUENCE OF OPERATIONS. CONTROL SYSTEM SHALL BE AN EXTENSION OF THE EXISTING RELIABLE CONTROLS SYSTEM AT DANBURY HOSPITAL. PROVIDE GRAPHICS AT THE EXISTING OPERATORS BMS INTERFACE COMPUTER INDICATING THE FOLLOWING POINTS:
  - AHU STATUS (ON/OFF)
  - VFD (FREQUENCY)
  - ROOM 4 & 5 SPACE TEMPERATURE
  - REHEAT COIL (RHO-1&2) VALVE POSITION (OPEN/CLOSED)
  - AHU-1 SUPPLY AIR DISCHARGE TEMPERATURE
  - AHU-1 MIXED AIR TEMPERATURE
  - CONDENSATE PUMP ALARM
  - REHEAT COIL DISCHARGE AIR TEMPERATURE
  - CONDENSING UNITS (ACCU-1&2) STATUS (ON/OFF)
  - ACCU-1&2 (ALARM)
- AHU-1 SHALL BE ENERGIZED ON VIA A TIME CLOCK DEFINED AT THE BMS. UPON VERIFICATION AHU-1 IS ON AND OUTSIDE AIR DAMPER SHALL OPEN. AN OVERRIDE SWITCH (ONE PER ROOM) SHALL ENABLE THE UNIT TO OPERATE FOR AN ADDITIONAL 1-1/2 HOURS. ROOM SPACE THERMOSTATS WILL ENABLE THE COOLING FUNCTION OF THE UNIT. UPON CALL FOR COOLING ACCU-1 SHALL BE ENERGIZED ON. IN THE EVENT ACCU-1 FAILS TO ENERGIZE, ACCU-2 SHALL BE ENERGIZED AND AN ALARM WILL BE SENT TO THE BMS. ACCU-1&2 SHALL OPERATE WITH EQUAL RUNTIME BASED ON A SCHEDULE AS DEFINED IN THE BMS. UPON A FURTHER INCREASE IN TEMPERATURE ACCU-2 SHALL BE ENERGIZED ON. IN THE EVENT ONE ROOM IS CALLING FOR COOLING AND THE OTHER ROOM IS SATISFIED, THE REHEAT COIL ASSOCIATED WITH THE ROOM WHICH IS SATISFIED SHALL MODULATE THE HOT WATER COIL OPEN TO SATISFY THE SET POINT.
- VFD SHALL BE CONFIGURED SUCH THAT DURING OCCUPIED MODE THE AIR HANDLING UNIT SHALL DELIVER A MINIMUM OF 20 AIR CHANGES PER HOUR (1,200 CFM) TO EACH ROOM.
- IN THE UNOCCUPIED MODE THE VFD SHALL BE CONFIGURED TO DELIVER 10 AIR CHANGES PER HOUR (ADJUSTABLE) (600 CFM) TO EACH ROOM. OUTSIDE AIR DAMPER SHALL BE CLOSED.

#### AHU-1 SEQUENCE OF OPERATION

NO	DATE	REVISION
1	11/01/2010	ISSUE FOR CONSTRUCTION
1	11/01/2010	ISSUE FOR BLDG. DEPT.

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A Difference That Matters  
**DANBURY HOSPITAL**  
3 TOWER: R/F & ERCP SUITE:  
Room 4 & 5  
Danbury, Connecticut

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RECEIVED  
DEC 13 2010

PROJECT TITLE:  
**R/F & ERCP SUITE  
ROOM 4 & 5  
3 TOWER**

24 Hospital Avenue  
Danbury, CT

PROJECT No: 41581.00

DRAWING TITLE:  
**SCHEDULE  
- MECHANICAL**

SCALE: NOT TO SCALE

**M-200**

ISSUE FOR CONSTRUCTION  
November 1, 2010