

SHELL AND TUBE HEAT EXCHANGERS

MARK	MFR	MODEL	DIMENSIONS		HEATING AREA (FT ²)	SHELL SIZE (STEAM)	TUBE SIZE (HOT WATER)				REMARKS	
			DN	LN			IN	OUT	P.D.	SWT		WT
HC-1												

REMARKS:

- 4" INLET, 4" OUTLET
- PROVIDE THE SUPPORT STRUCTURE. SEE MECHANICAL DETAILS.
- FRONT HEAD-CUT FROM K SHARED.
- BRASS BUFFLES, STEEL SHELL, BRASS THE ROOF/SPEAKERS.

LOOP FILTER SCHEDULE

MARK	MFR/MODEL	QPM	W/CON	P.D. (INS)	FOOTPRINT	REMARKS
L-F-1H	HANCOCK W805C					
L-F-1W	HANCOCK W805C					

REMARKS:

- PROVIDE TWO DEAN FILL SETS OF 50 MICRON FILTERS TO OWNER.

CONDENSATE PUMPS AND RECEIVERS

MARK	MANUFACTURER	MODEL	PUMP CAP. (GPM)	RECEIVER CAP. (GAL)	REMARKS

REMARKS:

- PROVIDE WATER LEVEL GAUGE WITH SHUT-OFF VALVE, DALI THERMOMETER, MET BASKET STRAINER, DISCHARGE BRITTLEY VALVE AND DRAIN RISERS.
- PROVIDE THE FOLLOWING WITH CONTROL PANEL: MAGNETIC SWITCHES, DISCONNECT SWITCHES AND GROUP BREAKERS, 90 AMPERE FUSES, SELECTOR SWITCHES, ELECTRIC ALARMING, HANDS-ON, 150V LIGHTS AND CONTACTS FOR REMOTE ALARM.

AIR SEPARATOR SCHEDULE

MARK	MFR/MODEL	MAX FLOW (GPM)	P.D. (INS)	AIR REMOVAL (%)
AS-1H				
AS-1W				

EXPANSION TANK

MARK	SERVICE	BAKE MODEL	TOTAL VOLUME GALL.	REQUIRED SIZE (IN)
ET-1H	HOT WATER			
ET-1W	CHILLED WATER			

REMARKS:

- PROVIDE ASME RATED TANKS WITH NPT SYSTEM CONNECTION.
- ET-1H SHALL BE PNO MOUNTED.

LOUVER SCHEDULE

MARK	MODEL	QPM	SERVICE SIZE	FREE HEIGHT	P.D. IN	REMARKS
L-1	RSJON 2800	36" X 36"				
L-2	RSJON 2800	48" X 36"				
L-3	RSJON 3600	48" X 36"				
L-4	RSJON 4500	60" X 36"				
L-5	RSJON 5700	60" X 48"				
L-6	RSJON 7000	72" X 60"				
L-7	RSJON 7000	60" X 60"				
L-8	RSJON 7000	72" X 60"				

REMARKS AND CUSTOM COLOR SELECTED BY ARCHITECT:

- DRINKABLE GLASS, 4" DEEP FRAME AND BRASSSCREEN.

DUST COLLECTION SYSTEM

MARK	MANUF. MODEL	TYPE	QPM	ESP IN. W.G.	NUM. OF FILTERS	HP	V/A	REMARKS
DC-1								

REMARKS:

- BLOWER MOTOR SHALL BE 1/4 HP.
- SHAKER MOTOR SHALL BE 3/4 HP.
- CONTRACTOR TO PROVIDE 2" DIA. HOLES FOR DUST COLLECTION.
- CONTRACTOR TO MAINTAIN ALL MANUFACTURER'S REQUIRED CLEARANCES.
- PROVIDE WITH SHAKER DETECTION SYSTEM. REFER TO SPECIFICATIONS FOR DETAILS.
- FILTERS AND SHAKER DETECTION SYSTEMS 2-24 MULTI-HOOKET MODULES 24" X 30".
- FILTERS AND SHAKER DETECTION SYSTEMS 2-24 MULTI-HOOKET MODULES 24" X 30".
- PROVIDE WITH EXHAUSTION RELIEF DOOR.
- PROVIDE WITH SINGLE POINT POWER CONNECTION.
- SHAKER MOUNTED NEAR 4 SPEED CONTROLLER SHALL INCLUDE MAGNETIC SWITCHES FOR BLOWER AND SHAKER.
- PROVIDE WITH STANDARD WEATHERPROOF FINISH RED OXIDE PRIMER AND EXTERIOR ONE COAT GRAY.
- ACCEPTABLE MANUFACTURERS INCLUDE VIBROTECH, AMEK INDUSTRIES, OR APPROVED EQUAL.
- BLOWER MOTOR SHALL BE 3 HP.
- SHAKER MOTOR SHALL BE 1/4 HP.

MAKE-UP AIR UNITS

MARK	MANUFACTURER / MODEL	MAU-1	MAU-2	MAU-3
		AAON	AAON	AAON

SPRINT FAN

MARK	MANUFACTURER / MODEL	TYPE	QPM	HP	V/A	REMARKS
			7000			

REMARKS:

- PROVIDE SINGLE POINT ELECTRICAL CONNECTION ON ALL OUTSIDE AIR HANDLERS.
- PROVIDE INSULATED ROOF CURB WITH ALL OUTSIDE AIR HANDLERS.
- UNIT TO BE DOWN-DRAW CONFIGURATION.
- PROVIDE MOTORIZED DAMPER.
- ACCEPTABLE MANUFACTURERS INCLUDE TRANE, YORK, CARRIER, OR APPROVED EQUAL.

VARIABLE AIR VOLUME BOX SCHEDULE

MARK	MANUFACTURER & MODEL	VAR-5	VAR-6	VAR-8	CV-12	CV-16
		NALOR-3000 SERIES	NALOR-3000 SERIES	NALOR-3000 SERIES	NALOR-3000 SERIES	NALOR-3000 SERIES
		VARIABLE VOLUME WITH DUCT MOUNTED HOT WATER COIL	VARIABLE VOLUME WITH DUCT MOUNTED HOT WATER COIL	VARIABLE VOLUME WITH DUCT MOUNTED HOT WATER COIL	VARIABLE VOLUME WITH DUCT MOUNTED HOT WATER COIL	VARIABLE VOLUME WITH DUCT MOUNTED HOT WATER COIL
		0.04" WG	0.10" WG	0.05" WG	0.01" WG	0.01" WG
		300	500	900	2000	3000
		0	0	0	-	-
		2.0K	2.0K	2.0K	2.0K	2.0K
		YES	YES	YES	YES	YES
		579	674	876	1371 X 1074	2023 X 1074

REMARKS:

- TOTAL PRESSURE DROP INCLUDING HEATING COIL SHALL BE 0.20" WG. COILS TO BE MOUNTED IN DOWNDRAG PER DETAIL. INTERNAL COIL IN VAV BOX NOT ACCEPTABLE.
- BOX SHALL BE DOUBLE WALL WITH 1" THICK INSULATION.
- COILS SHALL BE DUCT MOUNTED WITH ACCESS PANELS ON EITHER SIDE. REFER TO DETAIL.
- PROVIDE CONTROLS ENCLOSURE PER FIELD MOUNTED CONTROLS.

REHEAT COIL SCHEDULE

MARK	QPM	REH-5	REH-6	REH-8	REH-12	REH-16
	300	500	900	2000	3000	
	597/997	597/997	597/997	597/997	597/997	
	1807/1507	1807/1507	1807/1507	1807/1507	1807/1507	
	0.87/7 FT	1.44/7 FT	2.67/7 FT	5.87/7 FT	8.64/7 FT	
	12.9	21.6	38.9	129.6	194.4	
	3/4"	1"	1-1/4"	1-1/2"	1-1/2"	

DX SPLIT SYSTEM HEAT PUMP

MARK	MFR / SERIES	INDOOR UNIT		OUTDOOR UNIT		REMARKS
		QPM	E.S.P. MOTOR	QPM	HEATING COOLING (MBH)	
AC-X						

REMARKS:

- MAINTAIN MANUFACTURER'S CLEARANCES ON INDOOR AND OUTDOOR UNITS.
- HEATING CAPACITY IS BASED ON 70 INDOOR AIR TEMPERATURE. COOLING CAPACITY IS BASED ON 78 DB/67 WB INDOOR AIR TEMPERATURE AND 95 DB AMBIENT.
- PROVIDE A SEPARATE SINGLE POINT ELECTRICAL CONNECTION FOR INDOOR UNIT AND OUTDOOR UNIT.
- PROVIDE CONDENSATE DRAIN TRAP PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE CONDENSATE DRAIN TRAP PER MANUFACTURER'S RECOMMENDATIONS.
- SIZE ALL REFRIGERANT PIPING PER MANUFACTURER'S INSTRUCTIONS. REVIEW PIPING RUNS WITH MANUFACTURER. PROVIDE ALL COMPONENTS NECESSARY FOR PROPER OPERATION.
- SET INDOOR UNIT TO DAMP. SPEED POSSIBLE TO MAINTAIN AIR FLOW. REFER TO THE MANUFACTURER'S HEATER/FAN SPEED MANUAL.

PUMPS

MARK	MFR & MODEL	SERVICE	TYPE	QPM	HEAD (FT)	% EFF.	HPW	HP	VOL/4	DUPPLICATES	REMARKS
P-1H1		HEATING HOT WATER									P-1H2
P-1W1		CHILLED WATER									P-1W2

REMARKS:

- PERFORMANCE BASED ON WATER AS WORKING FLUID.
- PUMPS SHALL BE NON-OVERLOADING.
- FINISH EACH WITH VARIABLE SPEED DRIVE AND NED DISCONNECT.
- PROVIDE WITH 250 PSI WORKING PRESSURE RATING.

SAFETY RELIEF VALVES

MARK	MANUFACTURER	MODEL	NO. INLET SIZE	ORIFICE SIZE	OUTLET SIZE	CAPACITY (GPM)	SET PRESSURE	REMARKS
SRV-1								
SRV-2								

REMARKS:

- SERVICE STEAM TRAP HEAT EXCHANGER STEAM PRESSURE REDUCING STATION SAFETY VALVE. PROVIDE STEAM TRAP HEAT EXCHANGER TRAP FLANT AND THERMOSTATIC. LOCATE ROOF BOOM AND DRIP PAN ELBOW. VENT TAIL SIZE VALVE DISCHARGE PIPING THRU ROOF.
- SERVICE PRESSURE STEAM PRESSURE REDUCING STATION SAFETY VALVE. PROVIDE STEAM TRAP HEAT EXCHANGER TRAP FLANT AND THERMOSTATIC. LOCATE ROOF BOOM AND DRIP PAN ELBOW. VENT TAIL SIZE VALVE DISCHARGE PIPING THRU ROOF.

ELECTRIC HEATER SCHEDULE

MARK	MANUF.	MODEL	TYPE	KW	V/A	REMARKS
EH-1						

REMARKS:

- PROVIDE AND NEI COMPACT PUMP DISCONNECT.
- PROVIDE WITH THERMAL OVERLOAD PROTECTION.
- PROVIDE INTERAL THERMOSTAT.
- CONNECTION MANUFACTURERS ARE G-MARK, RENZO AND CHROMALOX.

STEAM TRAPS

MARK	MANUFACTURER	TYPE	MODEL	ORIFICE SIZE	MAX. OP. CONNECTION DIFF. PRESS.	REMARKS
T-1	ARMSTRONG					
T-2	ARMSTRONG					
T-3	ARMSTRONG					

REMARKS:

- SERVICE END OF MAIN TRAPS. THERMOSTATIC STEAM TRAP. FINGERED STEEL BODY WITH ALL SHAKES. STEEL INTERVALS. RATED FOR 300 PSF IN 500 DEG F.
- SERVICE STEAM TRAP HEAT EXCHANGER TRAP FLANT AND THERMOSTATIC. LOCATE ROOF BOOM AND DRIP PAN ELBOW. VENT TAIL SIZE VALVE DISCHARGE PIPING THRU ROOF.

STEAM PRESSURE REDUCING VALVES

MARK	MANUFACTURER	MODEL	SIZE (LBS/HR)	UPSTREAM DELIVERY PRESSURE	MAX. INODE LEVEL @ 5'	REMARKS
PRV-1						
PRV-2						

REMARKS:

- STEAM TRAP HEAT EXCHANGER STEAM PRESSURE REDUCING VALVE. EXTERNAL PRESSURE REDUCING VALVE. PROVIDE STEAM TRAP HEAT EXCHANGER TRAP FLANT AND THERMOSTATIC. LOCATE ROOF BOOM AND DRIP PAN ELBOW. VENT TAIL SIZE VALVE DISCHARGE PIPING THRU ROOF.
- REFER TO PAV DETAIL TYPICAL FOR EACH PAV.

UNIVERSITY LOFTS - Renovate Academic Facility UK School of Art & Visual Studies

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