

SYMBOLS AND ABBREVIATIONS

ABV	AUTOMATIC BALANCING VALVE	HWS	HOT WATER SUPPLY		WATER SUPPLY PIPING
AC	AIR CONDITIONING	H&V	HEATING & VENTILATING		WATER RETURN PIPING
AD	ACCESS DOOR	IER	INVERTED ECCENTRIC REDUCER		COLD WATER PIPING
AFF	ABOVE FINISH FLOOR	L	LOUVER		REFRIGERANT LIQUID PIPING
AH	AIR HANDLER	LAT	LEAVING AIR TEMPERATURE		REFRIGERANT SUCTION PIPING
AP	ACCES PANEL	LDB	LEAVING DRY BULB		EXISTING PIPING
APD	AIR PRESSURE DROP	LWB	LEAVING WET BULB		PIPING TO BE REMOVED
ATC	AUTOMATIC TEMP. CONTROL	LWCO	LOW WATER CUT-OFF		UNION
AV	AUTOMATIC VENT	MBH	THOUSAND BTU PER HOUR		HOSE CONNECTION
B	BOILER	MBV	MANUAL BALANCING VALVE		FLANGE
BD	BACKDRAFT DAMPER	MD	MANUAL DAMPER		GATE VALVE
CD	CONDENSATE DRAIN	MOD	MOTOR OPERATED DAMPER		GLOBE VALVE
CFH	CUBIC FEET PER HOUR	MV	MANUAL VENT		CHECK VALVE
CFM	CUBIC FEET PER MINUTE	NG	NATURAL GAS		BALANCING VALVE
CP	CONDENSATE PUMP	NTS	NOT TO SCALE		CONTROL VALVE (TWO WAY)
CTE	CONNECT TO EXISTING	OA	OUTDOOR AIR		CONTROL VALVE (THREE WAY)
CUH	CABINET UNIT HEATER	OD	OUTSIDE DIMENSION		PRESSURE REDUCING VALVE
CV	CONTROL VALVE	OU	OUTDOOR UNIT		FLOW CONTROL VALVE
D	DRAIN	P	PUMP		BALL VALVE
DIC	DOWN IN CORNER/CHASE	PC	PLUMBING CONTRACTOR		STRAINER
DIW	DOWN IN WALL	PD	PUMP DISCHARGE		INVERTED ECCENTRIC REDUCER
DO	DRAW-OFF	PG	PRESSURE GAUGE		THERMOSTAT
DSD	DUCT SMOKE DETECTOR	PRV	PRESSURE REDUCING VALVE		THERMOSTAT WITH GUARD
EAT	ENTERING AIR TEMPERATURE	R	RETURN		CONNECT TO EXISTING
EC	ELECTRICAL CONTRACTOR	RL	REFRIGERANT LIQUID		MANUAL DAMPER
EDB	ENTERING DRY BULB	RS	REFRIGERANT SUCTION		SUPPLY AIR DUCT
EF	EXHAUST FAN	RV	RELIEF VALVE		RETURN / RELIEF AIR DUCT
ER	EXHAUST REGISTER	RWV	RESET WATER VALVE		
EG	EXHAUST GRILLE	S	SUPPLY		
ESP	EXTERNAL STATIC PRESSURE	SF	SUPPLY FAN		
EWB	ENTERING WET BULB	SFM	SIGHT FLOW MONITOR		
EWT	ENTERING WATER TEMPERATURE	SG	SUPPLY GRILLE		
FC	FLEXIBLE CONNECTOR	SP	STATIC PRESSURE		
FCV	FLOW CONTROL VALVE	SR	SUPPLY REGISTER		
FD	FIRE DAMPER	T	THERMOMETER		
FP	FINNED PIPE	TC	TEMPERATURE CONTROL		
FS	FLOW SENSOR	TCP	TEMPERATURE CONTROL PANEL		
FMS	FLOW MEASURING STATION	TSP	TOTAL STATIC PRESSURE		
FV	FACE VELOCITY	T'STAT	THERMOSTAT		
GC	GENERAL CONTRACTOR	TV	TURNING VANE		
GPH	GALLONS PER HOUR	UC	UNDERCUT		
GPM	GALLONS PER MINUTE	VI	VIBRATION ISOLATOR		
GV	GATE VALVE	VRF	VARIABLE REFRIGERANT FLOW		
HC	HEATING COIL	WPD	WATER PRESSURE DROP		
HRV	HEAT RECOVERY VENTILATOR	WTD	WATER TEMPERATURE DROP		
HWR	HOT WATER RETURN	WTR	WATER TEMPERATURE RISE		

DUCT HEATING COIL SCHEDULE

TAG	TYPE	SIZE	CFM	ROWS	APD	EAT	LAT	EWT	MBH	GPM	WPD	REMARKS
BHC-1	HEADER TYPE, HOT WATER	30" x 21"	3,315	1	0.198"	40.0	72.0	180	115.04	7.50	0.86"	DRAINABLE COIL

BOILER SCHEDULE

TAG	GROSS MBH	OUTPUT MBH	HP	FUEL	RELIEF VALVE	WATER CONTENT	ELECTRIC		REMARKS
							WATTS	VOLTAGE	
BB1	1,112.0	937.0	33.2	NAT. GAS	40 psig	74.0 GAL	368	120V-60-1P	CONDENSING GAS BOILER
BB2	1,112.0	937.0	33.2	NAT. GAS	40 psig	74.0 GAL	368	120V-60-1P	CONDENSING GAS BOILER

OUTPUT IS NET AHRI RATING

GENERAL NOTES

- Mechanical Contractor shall coordinate work with all other trades.
- All piping and ductwork shall be run concealed and on the warm side of building insulation unless shown otherwise.
- Piping and ductwork is shown diagrammatically. Exact locations to be adjusted as required to conform to field conditions.
- All duct sizes indicated are outside (sheet metal) dimensions.
- All cutting and patching by the General Contractor.
- All square duct elbows over 12 inches in width to have turning vanes.
- All duct coils, fire dampers (not behind grilles), motorized dampers and duct smoke detectors shall have duct access doors as large as possible up to 12"x12".
- All dimensions associated with existing conditions are approximate and are to be field verified.
- Heating system design is based on 180°F. water leaving the boiler(s).
- All branch water piping to individual terminal heating units or zones shall be not less than 3/4 inches in size unless noted otherwise.
- Provide automatic air vents at all locations where water piping drops in the direction of flow, at all high points in the system and elsewhere as shown.
- Provide drains with hose threads and metal caps at all low points in new parts of the water piping system.
- All removed materials shall remain the property of the Owner until such time the Owner's authorized representative has reviewed the removed items and taken what the Owner wishes to retain. All remaining items shall become the property of the Contractor and shall be immediately removed from the premises by the Contractor.

HEAT RECOVERY VENTILATOR SCHEDULE

TAG	WINTER EXHAUST AIR					WINTER OUTDOOR AIR			SUPPLY AIR TO SPACES					WHEEL MOTOR	PRE-HEAT KW	ELECTRIC			WEIGHT	REMARKS
	CFM	DB	WB	SP	HP	CFM	DB	WB	CFM	DB	WB	SP	HP			POWER	FLA	MOCP		
BHRV-1	3,315	70.0	53.0	1/4"	5	3,315	0.0	-1.6	3,315	46.8	40.0	1/2"	5	>1.0 AMP	0.00	208V-60-3P	55.2	70.0	1,000	HORIZONTAL AIRFLOW

UNIT HEATER SCHEDULE

TAG	TYPE	AREA SERVED	E.W.T.	E.A.T.	BTU	GPM	W.P.D.	CFM	MOTOR WATTS	FAN RPM	ELECTRIC	REMARKS
BCUH-1	VERT. CABINET	L-11 VESTIBULE	180	60	6,475	1.00	0.27'	73	40	1,100	120V-60-1P	WALL MTD (HIGH) w/INTERNAL T'STAT
BCUH-2	VERT. CABINET	L-12 VESTIBULE	180	60	6,475	1.00	0.27'	73	40	1,100	120V-60-1P	WALL MTD (HIGH) w/INTERNAL T'STAT

PUMP SCHEDULE

TAG	TYPE	AREA SERVED	GPM	HEAD	HP	RPM	WATTS	AMPS	ELECTRIC	REMARKS
BP1	IN-LINE	BOILER 1 INJECTION PUMP	70	10'	5/8	3,520	570	2.63	230V-60-1P	ECM MOTOR - 2 SPEED
BP2	IN-LINE	BOILER 2 INJECTION PUMP	70	10'	5/8	3,520	570	2.63	230V-60-1P	ECM MOTOR - 2 SPEED
BP3	IN-LINE	MAIN HEATING SYSTEM	110	35'	1.3/4	900 --> 3,300	40 --> 1,550	0.30 --> 6.80	230V-60-1P	ECM MOTOR - VARIABLE SPEED
BP4	IN-LINE	MAIN HEATING SYSTEM	110	35'	1.3/4	900 --> 3,300	40 --> 1,550	0.30 --> 6.80	230V-60-1P	ECM MOTOR - VARIABLE SPEED
BP5	IN-LINE	DOMESTIC HOT WATER	24	20'	1/4	3,050 --> 3,250	305 --> 315	3.10	115V-60-1P	ECM MOTOR - 2 SPEED
BP6	IN-LINE	HEATING COIL HC-1	8	15'	1/8	2,950 --> 3,200	140 --> 145	1.40	115V-60-1P	ECM MOTOR - 2 SPEED

FAN SCHEDULE

TAG	AREA SERVED	TYPE	CFM	SP	SONES	RPM	WATTS	HP	ELECTRIC	WEIGHT	REMARKS
SF-1	BOILER ROOM	AXIAL	1,500	1/4"	8.0	1,259	231	1/4	120V-60-1P	63	OPERATE FROM ATC SYSTEM

SONE RATINGS ARE MINIMUMS NOT TO BE EXCEEDED HVI SONE RATINGS WILL NOT BE ACCEPTED

project name

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PERMIT SET

revisions

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sheet title

butler
mechanical equipment
schedules

scale

1/8" = 1'-0"

drawn by

R.E.M.

project number

butpay

