CONTROL VALVE SCHEDULE

TAG	FLOW RATE (GPM)	Cv	VALVE SIZE (IN)	TYPE	SERVICE
V-1	2.0	1.3	½"	2-WAY, 2-POSITION	FTR-1/WALL HEATERS
V-2	5.0	6.8	¾"	3-WAY, MIXING	ERV-1 (HC-1)

ENERGY RECOVERY VENTILATOR PERFORMANCE SCHEDULE

* - AT A.R.I. STANDARD CONDITIONS.

TAG	MINIMUM O.A. (CFM)	MAXIMUM O.A. (CFM)	FAN	DRIVE	AIRFLOW (CFM)	T.S.P. (IN.WG)	E.S.P. (IN.WG)	ELECTRICAL REQUIREMENTS							TAG HEAT RECOV.	TAG HEATING COIL	WT. (LBS)	BASIS OF DESIGN = GREENHECK	
								HP	BHP	VFD	PREHEAT KW	MCA	MOCP	V/PH/HZ				SERVICE	MODEL
ERV-1	2100	2100	SUPPLY	BELT	2100	1.59	0.75	3.0	2.25	N	12.3	108.8	110.0	230/1/60	ERW-1	HC-1	1250	BUILDING VENTILATION	ERH-20H-15
			EXHAUST	BELT	1200	0.87	0.75	0.75	0.60	N									

SOUND POWER (dB RE 10^{-12} WATTS) OCTAVE BAND & CENTER FREQUENCY (HZ)

1	2	3	4	5	6	7	8
63	125	250	500	1000	2000	4000	8000
84	86	80	75	75	70	70	65

AIR DEVICE PERFORMANCE SCHEDULE

TAG	PANEL SIZE(IN)	NECK SIZE(IN)	AIRFLOW (CFM)	SP.LOSS (IN.WG.)	THROW(L)	THROW(S)	Nc	BASIS OF DESIGN = METALAIRE		
								DUCT CONN.(IN)	PATTERN	MODEL
A	-	8x4	60	0.02	-	-	15	8x4	15° DEFL	2115OBD
B	-	9x9	200	0.05	-	-	20	9x9	SEE DWGS	5000D*
C	-	16x8	250	0.05	-	-	20	16x8	DOUBLE DEFL	42CD-1*
AA	-	8x4	50	0.02	-	-	15	8x4	15° DEFL	2115OBD
BB	-	8x8	90	0.05	-	-	25	8x8	1/2", 45°	RHD*
CC	-	10x10	235	0.05	-	-	25	10x10	1/2", 45°	RHD*

* - PROVIDE WITH ADJUSTABLE VOLUME DAMPER
** - PROVIDE ALL CEILING MOUNTED REGISTERS, GRILLES AND DIFFUSERS WITH CEILING RADIATION DAMPERS

TEMPERATURE MIXING VALVE PERFORMANCE SCHEDULE

TAG	FLOW RATE (GPM)	INLET CONNECTION (INCHES)	OUTLET CONNECTION (INCHES)	W.P.D (PSIG)	SET POINT (DEGREES F.)	PROVIDE SPARE CARTRIDGE (Y) OR (N)	BASIS OF DESIGN = SYMMONS		
							SERVICE	ARRANGEMENT	MODEL
TMV-1	35.0	1-½"	2"	9.0	110°F	Y	DOM HW	WALL	5-500-W

BFP PERFORMANCE SCHEDULE

TAG	SIZE	FLOW RATE (GPM)	W.P.D (PSI)	MAX. WORK'G. TEMPERATURE (DEGREES F.)	MAX. WORK'G. PRESSURE (PSI)	TESTABLE (Y) OR (N)	BASIS OF DESIGN = ZURN-WILKINS		
							BODY STYLE*	SERVICE	MODEL
BFP-1	1-¼"	30.0	15.0	180	175	Y	RPZ	WATER ENTRANCE	975XL
BFP-2	1-¼"	30.0	15.0	180	175	Y	RPZ	WATER ENTRANCE	975XL
BFP-3	3/4"	40.0	18.0	180	175	Y	RPZ	BOILER FILL	975XL

NOTE
HYDRONIC HEATING SYSTEM TO BE FILLED WITH 35% PROPYLENE GLYCOL, 65% WATER SOLUTION. ALL EQUIPMENT PERFORMANCE SHALL BE BASED ON THE ABOVE SOLUTION PERCENTAGES.

ENERGY RECOVERY WHEEL PERFORMANCE SCHEDULE

BASIS OF DESIGN = GREENHECK

TAG	AIR STREAM	AIRFLOW (CFM)	S.P. (IN.WG)	WINTER OPERATION							SUMMER OPERATION							WEIGHT (LBS)	TAG AHU
				E.D.B.(°F)	E.W.B.(°F)	R.H.(%)	L.D.B.(°F)	L.W.B.(°F)	RPM	EFF(%)	E.D.B.(°F)	E.W.B.(°F)	R.H.(%)	L.D.B.(°F)	L.W.B.(°F)	RPM	EFF(%)		
ERW-1	OUTSIDE AIR	2100	-	-16*	-3.9*	-	36.5	32.9	-	51.7	87.0	74.0	-	80.8	68.4	-	51.7	-	ERV-1
	EXHAUST AIR	1200	-	72.0	-	35.0	5.3	4.0			75.0	-	50.0	85.9	73.0				

* - TEMPERATURE AFTER ELECTRIC PREHEAT FROST CONTROL.

HEATING COIL PERFORMANCE SCHEDULE

TAG	OUTPUT (MBH)	COIL AREA (SQ. FT.)	FLOW RATE (GPM)	W.P.D (FT.WG)	WATER VELOCITY (FPS)	E.W.T. (°F)	L.W.T. (°F)	ROWS	TUBES (Y,N)	HTG. AIR FLOW (CFM)	A.P.D (IN.WG)	E.A.T. (°F)	L.A.T. (°F)	FIN TYPE	FPF	BASIS OF DESIGN = GREENHECK		
																MODEL	VALVE	SERVICE
HC-1	77.2	4.50	5.0	0.7	-	180.0	147	1	N	2100	0.10	36.0	65.0	-	144	5WQI20IB	V-2	ERV-1

INDIRECT-FIRED WATER HEATER PERFORMANCE SCHEDULE

TAG	STORAGE (GALS)	INPUT (GPM)	W.P.D (FT.WG)	1ST HOUR 90°F RISE (GPH) *	WORKING PRESSURE (PSIG)	INLET CW TEMP (DEG F)	INLET HW TEMP (DEG F)	ELECTRICAL REQUIREMENTS			BASIS OF DESIGN = SUPERSTOR ULTRA COMMERCIAL		
								HP	WATTS	V/PH/HZ	SERVICE	FUEL	MODEL
IFWH-1	80.0	24.0	10.0	370.0	150.0	50.0	180.0	-	-	-	DOMESTIC HW	HWS/R	66U-80C
IFWH-2	80.0	24.0	10.0	370.0	150.0	50.0	180.0	-	-	-	DOMESTIC HW	HWS/R	66U-80C

DRAWING LIST

MECHANICAL AND PLUMBING SYMBOLS AND ABBREVIATIONS LEGEND

NOTE - USE SYMBOLS AND ABBREVIATIONS AS APPLICABLE FOR THIS MECHANICAL DRAWING SET. SOME SYMBOLS AND ABBREVIATIONS IN THIS LEGEND MAY NOT APPLY.

SYMBOL	DESCRIPTION
CA	COMPRESSED AIR PIPING (CA)
C	CONDENSATE DRAIN PIPING (C)
CTR	COOLING TOWER RETURN PIPING (CTR)
CTS	COOLING TOWER SUPPLY PIPING (CTS)
CWR	CHILLED WATER RETURN PIPING (CWR)
CWS	CHILLED WATER SUPPLY PIPING (CWS)
FOR	FUEL OIL RETURN PIPING (FOR)
FOS	FUEL OIL SUPPLY PIPING (FOS)
G	GAS PIPING (G)
HWR	HOT WATER RETURN PIPING (HWR)
HWS	HOT WATER SUPPLY PIPING (HWS)
RL	REFRIGERANT LIQUID PIPING (RL)
RG	REFRIGERANT GAS PIPING (RG)
	SANITARY PIPING BELOW FLOOR (SAN)
	SANITARY PIPING ABOVE FLOOR (SAN)
	SANITARY VENT PIPING
RWL	RAINWATER LEADER ABOVE SLAB (RWL)
	COLD WATER PIPING (CW)
	HOT WATER PIPING (HW)
	RECIRCULATED HOT WATER PIPING (RHW)
	PIPE CAP
	DIRECTION OF FLUID FLOW
	ELBOW UP
	ELBOW DOWN
	PIPE TEE UP
	PIPE TEE DOWN
	PIPE REDUCER
	PIPE WITH GUIDE
	PIPE WITH ANCHOR
	BUTTERFLY VALVE
	OS & Y GATE VALVE

SYMBOL	DESCRIPTION
	BACKFLOW PREVENTER (BFP)
	CHECK VALVE
	BALANCING VALVE (ADJUSTABLE)
	AUTOMATIC FLOW CONTROL VALVE
	RELIEF VALVE (RV)
	BALL VALVE
	BALL VALVE
	3/4" BALL VALVE WITH 3/4" HOSE END
	GATE VALVE
	PRESSURE REDUCING VALVE
	FUSIBLE VALVE
	STRAINER W/BLOWDOWN BALL VALVE
	2-WAY CONTROL VALVE
	SOLENOID VALVE
	3-WAY CONTROL VALVE
	3-WAY CONTROL VALVE (TOP VIEW)
	4-WAY CONTROL VALVE (TOP VIEW)
	2 BUTTERFLY VALVES W/SINGLE ACTUATOR
	BUTTERFLY VALVE W/ACTUATOR
	TRIPLE-DUTY VALVE
	UNION
	PIPE FLANGE
	PUMP WITH FLANGES
	BASE MOUNTED PUMP
	CARTRIDGE TYPE INLINE PUMP
	VERTICAL INLINE PUMP
FC	FLEXIBLE PIPE CONNECTION (FC)
	PITCH DOWN
	PETCOCK

SYMBOL	DESCRIPTION
	PRESSURE GAGE WITH GAGE COCK
	THERMOMETER IN WELL
	WATER FLOW SWITCH
	PRESSURE SWITCH OR SENSOR
	EMURSION TEMPERATURE SENSOR
	DUCT MOUNTED SMOKE DETECTOR
	ROOM TEMPERATURE SENSOR
	THERMOSTAT OR SENSOR ON WALL
	TSTAT OR SENSOR W/ TAMPERPROOF GUARD
	MANUAL AIR VENT
	NOTE TAG (NUMBER)
A/250	AIR DEVICE TAG (LETTER) WITH CFM
	ROOM NUMBER
	TURNING VANES
	DUCT W/MANUAL DAMPER
	DUCT W/FLEXIBLE CONNECTION (FC)
	LAGGED DUCT
	DUCT W/ACOUSTIC LINING
	DUCT W/SQUARE-TO-ROUND TRANSITION
	FLEXIBLE DUCT
MOD	MOTOR OPERATED DAMPER
	AIRFLOW OUT
	AIRFLOW IN
ϕ	DIAMETER OR FLAT OVAL
	FIRE DAMPER
	ROUND OR FLAT OVAL DUCT DOWN
	ROUND OR FLAT OVAL DUCT UP
	SUPPLY DIFFUSER
	RETURN GRILLE
	STEAM TRAP
	WATER HAMMER ARRESTOR

ABBREVIATION	DESCRIPTION
AAV	AUTOMATIC AIR VENT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHU-*	AIR HANDLING UNIT TAG
AMS	AIRFLOW MONITORING STATION
AMPS	AMPERES
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
AS-*	AIR SEPARATOR TAG
ATC	AUTOMATIC TEMPERATURE CONTROL
B-*	BOILER TAG
BD-*	BYPASS DAMPER TAG
BFP-*	BACKFLOW PREVENTER TAG
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNITS PER HOUR
CBD	COUNTER BALANCED DAMPER
CC-*	COOLING COIL TAG
CFM	CUBIC FEET PER MINUTE
CHLR-*	CHILLER TAG
CO	CLEANOUT
CONV-*	CONVECTOR TAG
CUH-*	CABINET UNIT HEATER TAG
CP-*	CIRCULATING PUMP TAG
CT-*	COOLING TOWER TAG
Cv	VALVE COEFFICIENT
CW	COLD WATER
C	CONDENSATE
DB	DRY BULB
dB RE	DECIBELS RELATIVE TO
DC	DOUBLE CHECK
DCA	DOUBLE CHECK ATMOSPHERIC
DEG F	DEGREES FAHRENHEIT
DIA	DIAMETER
DIW	DOWN IN WALL
DN	DOWN
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE

ABBREVIATION	DESCRIPTION
EDB	ENTERING DRY BULB
EDC-*	ELECTRIC DUCT COIL TAG
EER	ENERGY EFFICIENCY RATIO
EF-*	EXHAUST FAN TAG
EFF	EFFICIENCY
EG-*	EXHAUST GRILLE TAG
ER-*	EXHAUST REGISTER TAG
ESP	EXTERNAL STATIC PRESSURE
ET-*	EXPANSION TANK TAG
EWB	ENTERING WET BULB
EWH-*	ELECTRIC WATER HEATER TAG
EWT	ENTERING WATER TEMPERATURE
EXG	EXISTING
EXH	EXHAUST
FC	FLEXIBLE CONNECTION
FCO	FLOOR CLEANOUT
FD	FIRE DAMPER
FD-*	FLOOR DRAIN TAG
FLA	FULL LOAD AMPS
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FPHB	FROST PROOF HOSE BIBB
FPM	FEET PER MINUTE
FS-*	FLOOR SINK TAG
FT	FEET
FTR-*	FINTUBE RADIATION TAG
GA.	GAGE
GAL	GALLONS
GFWH-*	GAS FIRED WATER HEATER TAG
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GUH-*	GAS UNIT HEATER TAG
HC-*	HEATING COIL TAG
HP	HORSEPOWER
HRV-*	HEAT RECOVERY VENTILATOR TAG
HW	HOT WATER
HWS/R	HOT WATER SUPPLY AND RETURN

ABBREVIATION	DESCRIPTION
I=B=R	INSTITUTE OF BOILER AND RADIATOR MANUFACTURERS
IFWH-*	INDIRECT FIRED WATER HEATER TAG
IN.	INCHES
IV-*	INTAKE VENT TAG
L-*	LOUVER TAG
LAT	LEAVING AIR TEMPERATURE
LB	POUNDS
LD-*	LINEAR DIFFUSER TAG
LTHWS/R	LOW TEMPERATURE HOT WATER
LRA	LOCKED ROTOR AMPS
LWCO	LOW WATER CUTOUT
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSANDS OF BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
NC	NOISE CRITERION
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OD.	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
OFWH-*	OIL FIRED WATER HEATER TAG
OPD	OVERCURRENT PROTECTIVE DEVICE
P-*	PLUMBING FIXTURE TAG
PENETN	PENETRATION
PF-*	PADDLE FAN TAG
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PVC	POLYVINYL CHLORIDE (PIPE)
RA	RETURN AIR
RD	ROOF DRAIN
RDE	RECOMMENDED DUAL ELEMENT FUSE AMPS
RFM-*	RADIANT FLOOR MANIFOLD TAG
RG-*	RETURN GRILLE TAG
RHW	RECIRCULATED HOT WATER

ABBREVIATION	DESCRIPTION
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
RPS	REVOLUTIONS PER SECOND
RPZ	REDUCED PRESSURE ZONE
RR-*	RETURN REGISTER TAG
RTU	ROOM TEMPERATURE SENSOR
RV	RELIEF VALVE
RWL	RAINWATER LEADER
SA	SUPPLY AIR
SAN	SANITARY (DRAIN & WASTE)
SD	SMOKE DAMPER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SF	SUPPLY FAN
SG-*	SUPPLY GRILLE TAG
SP	STATIC PRESSURE
SP-*	SUMP PUMP TAG
SR-*	SUPPLY REGISTER TAG
SQFT	SQUARE FEET
△T	TEMPERATURE DIFFERENTIAL
TEMP.	TEMPERATURE
TCP	TEMPERATURE CONTROL PANEL
TMV-*	THERMOSTATIC MIXING VALVE TAG
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH-*	UNIT HEATER TAG
VAV-*	VARIABLE AIR VOLUME BOX TAG
VB	VACUUM BREAKER
VFD	VARIABLE FREQUENCY INVERTER DRIVE
VTR	VENT THRU ROOF
V/PH/HZ	VOLTS/PHASES/HERTZ
WB	WET BULB
WCO	WALL CLEANOUT
WG	WATER GAGE
WPD	WATER PRESSURE DROP
WSA	WIRE SIZING AMPS
WTD	WATER TEMPERATURE DROP
W/	WITH
ZD-*	ZONE DAMPER TAG

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MECHANICAL SCHEDULES AND LEGEND

M3.1