

MECHANICAL LEGEND AND SYMBOLS

SA		SUPPLY AIR DUCT CROSS-SECTION
RA		RETURN AIR DUCT CROSS-SECTION
RA		EXHAUST AIR DUCT CROSS-SECTION
OSA		OUTSIDE AIR DUCT CROSS-SECTION
CD		CEILING DIFFUSER, 2 - WAY
CD		CEILING DIFFUSER, 4 - WAY
CR		CEILING RETURN AIR GRILLE
CE		CEILING EXHAUST AIR GRILLE
SWS		SIDE WALL SUPPLY REGISTER
SWR		SIDE WALL RETURN GRILLE
CD		CONDENSATE DRAIN
		ROOM THERMOSTAT
		EQUIPMENT IDENTIFICATION
		SINGLE LINE
		DOUBLE LINE
		DESCRIPTION
		VOLUME DAMPER
		FIRE DAMPER
		FIRE/SMOKE DAMPER
		SMOKE DAMPER
		MOTORIZED DAMPER
		MITERED ELBOW WITH TURNING VANES
		RADIUSED ELBOW
		RECTANGULAR MAIN WITH ROUND BRANCH
		RECTANGULAR MAIN WITH RECTANGULAR BRANCH
		CONCENTRIC SQUARE TO ROUND
		CONCENTRIC TRANSITION, RECTANGULAR OR ROUND
		ECCENTRIC TRANSITION, RECTANGULAR OR ROUND
		NON-SYMMETRICAL WYE
		SYMMETRICAL WYE
		RECTANGULAR DUCT RISER
		ROUND DUCT RISER
		RECTANGULAR DUCT DROP
		ROUND DUCT DROP
		RECTANGULAR OFFSET LESS THAN 15°
		RECTANGULAR OFFSET MORE THAN 15°
		ROUND WYE
		ROUND DUCT WITH ROUND BRANCH
		ACOUSTICALLY LINED DUCT (SIZES SHOWN ARE NET INSIDE)
		FLEXIBLE CONNECTION

MECHANICAL ABBREVIATIONS

ABBR.	DESCRIPTION	ABBR.	DESCRIPTION	ABBR.	DESCRIPTION
ABV	ABOVE	DBT	DRY BULB TEMP.	NTS	NOT TO SCALE
AFF	ABOVE FINISHED FLOOR	DX	DIRECT EXPANSION	OAI	OUTSIDE AIR INTAKE
AD	ACCESS DOOR	EA	EXHAUST AIR	OSA	OUTSIDE AIR
AP	ACCESS PANEL	EAT	ENTERING AIR TEMPERATURE	OBD	OPPOSED BLADE DAMPER
A/C	AIR CONDITIONING	EF	EXHAUST FAN	PD	PRESSURE DROP
ARCH	ARCHITECTURAL	EER	ENERGY EFFICIENCY RATING	PH	PHASE
BDD	BACKDRAFT DAMPER	ELEC.	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
BHP	BRAKE HORSE POWER	ET	EXPANSION TANK	QTY	QUANTITY
BTU	BRITISH THERMAL UNIT	EX.	EXHAUST	R	RISE
BTUH	BTU PER HOUR	(E)	EXISTING	RA	RETURN AIR
CEG	CEILING EXHAUST GRILLE	FC	FLEXIBLE CONNECTION	RPM	REVOLUTION PER MINUTE
CER	CEILING EXHAUST REGISTER	FLR	FLOOR	RTU	ROOF TOP UNIT
CLG	CEILING OR COOLING	FPM	FEET PER MINUTE	SA	SUPPLY AIR
CRG	CEILING RETURN GRILLE	GPM	GALLONS PER MINUTE	SEER	SEASONAL ENERGY EFFICIENCY RATING
CRR	CEILING RETURN REGISTER	HP	HORSE POWER	SP	STATIC PRESSURE
CSD	CEILING SUPPLY DIFFUSER	HZ	HERTZ	SPEC.	SPECIFICATION
CL	CENTER LINE	KW	KILOWATT	MBH	THOUSAND BTU PER HOUR
COL	COLUMN	LAT	LEAVING AIR TEMPERATURE	TEMP.	TEMPERATURE
CONT	CONTINUATION	LBS	POUNDS	TG	TRANSFER GRILLE
CV	CONSTANT VALVE	MA	MIXED AIR	TYP.	TYPICAL
CP	CONTROL PANEL	MUA	MAKE-UP AIR UNIT	V	VOLT
CC	COOLING COIL	MAX.	MAXIMUM	VD	VOLUME DAMPER
CFM	CUBIC FEET PER MINUTE	MIN.	MINIMUM	W/	WITH
CU	CONDENSING UNIT	(N)	NEW	W/O	WITHOUT
DIA.	DIAMETER	N/A	NOT APPLICABLE	W	WATT
DN	DOWN	NO	NUMBER	WB	WET BULB
DWG	DRAWING	NIC	NOT IN CONTRACT	WC	WATER COLUMN
DB	DRY BULB				

HVAC DESIGN CRITERIA

- I. OUTDOOR DESIGN TEMPERATURE:
 - A. SUMMER: 91°DB/68°WB (BASED ON: 2001 ASHRAE 1% PORTLAND, OR)
 - B. WINTER: 22°DB (BASED ON: 2001 ASHRAE PORTLAND, OR)
- II. INDOOR DESIGN CONDITIONS:
 - A. ALL AREA'S
 1. COOLING SETPOINT: 72°F ± 1.5°F
 2. HEATING SETPOINT: 68°F ± 1.5°F
 - B. HUMIDITY CONTROL
 1. ALL AREA'S: NONE
- III. VENTILATION CRITERIA:
 - A. ALL AREA'S: 15 CFM/PERSON
- IV. EXHAUST:
 - A. TOILET ROOMS: 10 AIR CHANGES PER HOUR O.A.R.
- V. BUILDING ENVELOPE:
 - A. GLAZING:
 1. TYPICAL VERTICAL FIXED: 1" Advanced Low-EIG w argon. U=0.28 SHGC=0.33
 2. TYPICAL VERTICAL OPERABLE: 11/16" Advanced Low-EIG w argon. U=0.30 SHGC=0.27
 - B. WALL CONSTRUCTION:
 1. 6" METAL STUD WALL WITH R-21 INSULATION
 2. CMU W/4" METAL STUD WALL WITH R-15 INSULATION
- VI. INTERNAL HEAT GAIN:
 - A. LIGHTING:
 1. 1.2 W/SQ.FT.
 2. 30% OF LIGHTING HEAT TO PLENUM
 - B. RECEPTACLE POWER:
 1. 1.2 W/SQ.FT.
 2. 30% OF RECEPTACLE POWER CONVECTIVE TO RETURN PLENUM
 - C. OCCUPANTS:
 1. 245 BTUH SENSIBLE/205 BTUH LATENT
 2. 50% OF HEAT TO RETURN PLENUM
- VII. OCCUPANT CRITERIA
 - A. OFFICES: 200 SQ.FT. PER PERSON
 - B. RETAIL: 60 SQ.FT. PER PERSON
- VIII. DUCTWORK DESIGN CRITERIA:
 - A. LOW PRESSURE: 0.08" W.G./100 FT.
 - B. MEDIUM PRESSURE SUPPLY:
 1. 2,000 FPM MAX. ABOVE CEILING
 - C. RETURN VELOCITY: 1,500 FPM MAXIMUM
 - D. EXHAUST VELOCITY: 1,000 FPM MAXIMUM

DIFFUSERS, REGISTERS AND RETURN AIR GRILLES

SYMBOL	MODEL NO.	TYPE	FACE	MODULE SIZE	FRAME	FINISH	REMARKS
SW-1	TITUS 272FL	SIDEWALL SUPPLY	BLADES	SEE DRAWING	SURFACE	-	1,2
CD-1	TITUS TDC	CEILING DIFFUSER	LOUVERED	24x24	SURFACE	-	1,2
CD-2	TITUS TDC	CEILING DIFFUSER	LOUVERED	12x12	SURFACE	-	1,2
RG-1	TITUS 350 ZFL	SIDEWALL RETURN	LOUVERED	SEE DRAWING	SURFACE	-	1,2

NOTES:
 1. SEE DRAWINGS FOR NECK SIZES. 2. COORDINATE WITH ARCHITECT/OWNER.

EXHAUST FAN SCHEDULE

MARK	LOCATION	CFM	SP IN. WG.	DRIVE	HP/WATTS	RPM	WEIGHT LBS.	POWER SUPPLY VOLT PH Hz	MAKE/MODEL	NOTES
EF 1	BATHROOM CEILING	75	.375	-	50	1380	8	115 1ø 60	BROAN: HD80	1,2,3,4,5
EF 2	ELEVATOR MACHINE ROOM	250	.35	-	80	1,050	21	115 1 60	GREENHECK: CSP-B290	1,2,3,4,6

NOTES: 1. PROVIDE BACK DRAFT DAMPER. 2. PROVIDE ROOF JACK KIT. 3. PROVIDE INTEGRAL DISCONNECT SWITCH. 4. CEILING HUNG. PROVIDE ISOLATION KIT. 5. CONTROLLED BY WALL SWITCH. 6. CONTROLLED T-STAT.

VRV INDOOR FAN COIL UNIT SCHEDULE

MARK	MANUFACTURER & MODEL NUMBER	INDOOR FAN			MIN. OSA (CFM)	COOLING		HEATING		UNIT WEIGHT	POWER UTILIZATION					NOTES
		CFM	ESP IN WG.	MTR. WATTS		BTUH TOTAL	SEER	(KW)	BTUH		VOLT	PH	Hz	MCA	MOCP	
FCU 1	DAIKIN: FXSQ24MVJU	490	0.35	130W	30	24,000	-	-	27,000	75	208	1	60	1.4	15	1,2,3,4,6
FCU 2	DAIKIN: FXMQ36MVJU	1,050	0.35	745W	200	36,000	-	-	40,000	140	208	1	60	2.9	15	1,2,3,6
FCU 3	DAIKIN: FXMQ48MVJU	1,300	0.35	745W	250	48,000	-	-	54,000	150	208	1	60	4.4	15	1,2,3,6
FCU 4	DAIKIN: FXZQ07M7VJU	250	0.35	75W	50	7,500	-	-	8,700	42	208	1	60	0.8	15	1,2,3,5,6

NOTES: 1. PROVIDE EXTERNAL DISCONNECT SWITCH. 2. T*STAT PROVIDED BY DIV. 15, INSTALLED BY DIV. 16. 3. PROVIDE FACTORY CONDENSATE PUMP. 4. PROVIDE BOTTOM RETURN WITH CEILING RETURN PANEL. 5. PROVIDE FACTORY FRESH AIR KIT. 6. PROVIDE/INSTALL BRANCH SELECTOR BOX

VRV OUTDOOR HEAT PUMP SCHEDULE

MARK	MANUFACTURER & MODEL NUMBER	UNIT FAN			COOLING		HEATING		UNIT WEIGHT	POWER UTILIZATION					NOTES	
		CFM	ESP IN WG.	MTR. WATTS	BTUH TOTAL	EER	(KW)	BTUH		VOLT	PH	Hz	MCA	MAX FUSE AMPS		MAX START AMPS
HP 1	DAIKIN: REYQ240PTJU	(2) 7,060	-	(2) 750W	240,000	11.1	-	270,000	(2) 560	208	3	60	41.3+41.3	60+60	155	1

NOTES: 1. PROVIDE FACTORY MANIFOLD KIT.

ELECTRIC WALL HEATER SCHEDULE

MARK	MANUFACTURER & MODEL NUMBER	BTU/HR	WATTS	AMPS	POWER SUPPLY			NOTES
					VOLT	PH	Hz	
EWH 1	Q-MARK: CRA1512-T2	5118	1500W	12.5	120V	1ø	60	1. WALL MOUNTED ELECTRIC HEATER WITH BUILT-IN T-STAT.

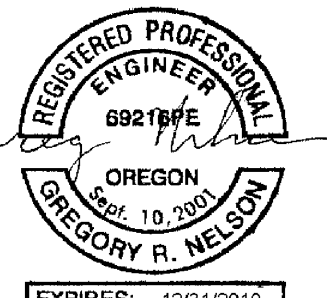
RESIDENTIAL RADIANT ELECTRIC WALL HEATER SCHEDULE

MARK	MANUFACTURER & MODEL NUMBER	WEIGHT LBS	LENGTH INCHES	WATTS	AMPS	POWER SUPPLY			NOTES
						VOLT	PH	Hz	
RWH 1	RADIANT SYSTEMS, INC. COMFORT COVE: C-4508	6	34"	450W	2.2	208V	1ø	60	1. WALL MOUNTED T-STAT MODEL# R-102.
RWH 2	RADIANT SYSTEMS, INC. COMFORT COVE: C-7508	10	59"	750W	3.6	208V	1ø	60	1. WALL MOUNTED T-STAT MODEL# R-102.
RWH 3	RADIANT SYSTEMS, INC. COMFORT COVE: C-9008	12	71"	900W	4.3	208V	1ø	60	1. WALL MOUNTED T-STAT MODEL# R-102.
RWH 4	RADIANT SYSTEMS, INC. COMFORT COVE: C-10508	13	83"	1050W	5.0	208V	1ø	60	1. WALL MOUNTED T-STAT MODEL# R-102.
RWH 5	RADIANT SYSTEMS, INC. COMFORT COVE: C-12008	15	94"	1200W	5.8	208V	1ø	60	1. WALL MOUNTED T-STAT MODEL# R-102.
RWH 6	RADIANT SYSTEMS, INC. COMFORT COVE: C-15008	18	106"	1500W	7.2	208V	1ø	60	1. WALL MOUNTED T-STAT MODEL# R-102.
RWH 7	RADIANT SYSTEMS, INC. COMFORT COVE: C-18008	20	118"	1800W	8.7	208V	1ø	60	1. WALL MOUNTED T-STAT MODEL# R-102.
RWH 8	RADIANT SYSTEMS, INC. COMFORT COVE: C-18008	22	132"	2000W	9.6	208V	1ø	60	1. WALL MOUNTED T-STAT MODEL# R-102.

NOTES: 1. SIZING BASED ON MANUFACTURES REQUIREMENT OF 10 WATT/SF.

DRAWING LIST

DRAWING	TITLE	DRAWING	TITLE
M0.1	HVAC SCHEDULES AND LEGEND	M1.6	HVAC 6TH FLOOR PLAN
M1.1	HVAC 1ST FLOOR PLAN	M1.7	HVAC 7TH FLOOR PLAN
M1.2	HVAC 2ND FLOOR PLAN	M1.8	HVAC 8TH FLOOR PLAN
M1.3	HVAC 3RD FLOOR PLAN	M1.9	HVAC ROOF PLAN
M1.4	HVAC 4TH FLOOR PLAN	M6.1	HVAC DETAILS
M1.5	HVAC 5TH FLOOR PLAN	M6.2	HVAC DETAILS



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MECHANICAL COVER SHEET
 REVISION 06.15.2010

PERMIT SET
 BID SET
 HUD SET

M0.1