GEOTHERMAL WATER SOURCE HEAT PUMP SCHEDULE

GSHP NO.	TYPE	QTY	SUPPLY FAN SA CFM	SUPPLY FAN E.S.P. (IN.W.C.)	SUPPLY FAN OA CFM	COOLING EAT (F)	COOLING TOT. CAP. (MBH)	COOLING SENS. CAP. (MBH)	HEATING EAT (F)	HEATING REQD CAP. (MBH)	CONDENSER WATER GPM	CONDENSER WATER WPD (FT HEAD)	ELECTRIC MIN CKT AMPS	ELECTRIC MAX FUSE SIZE	ELECTRIC VOLTS-PH	NOTES	MANUFACTURER / MODEL
GSHP-1-1	HORIZONTAL	1	1,350	0.75	180	75.5	36.4	28.6	68.4	33.7	9.1	12.4	16.5	25	208-3	1,2,3	MAMMOTH / F036HLU
GSHP-1-2	HORIZONTAL	1	1,060	0.65	170	75.6	16.5	21.8	68.1	28.1	8.0	10.3	12.7	20	208-3	1,2,3	MAMMOTH / F030HLU
GSHP-1-3	HORIZONTAL	1	800	0.50	155	75.7	16.0	15.1	67.7	18.2	4.5	8.9	12.1	20	208-1	1,2,3	MAMMOTH / D019HLU
GSHP-1-4	VERTICAL (RIGHT)	1	1,050	0.75	360	76.2	37.0	25.2	65.9	38.0	10.0	11.6	20.9	30	208-3	1,2,4	MAMMOTH / F043VLU
GSHP-1-5	CONSOLE	1	240	–	20	75.3	9.3	7.0	69.0	11.8	2.4	–	7.9	15	120-1	1,2,3	ICE-AIR / 5HPW09
GSHP-1-6	VERTICAL (RIGHT)	1	1,235	0.75	160	75.5	37.5	26.9	68.4	39.1	11.0	15.4	20.9	30	208-3	1,2,4	MAMMOTH / F043VLU
GSHP-1-7	VERTICAL (RIGHT)	1	1,400	0.5	250	75.6	38.5	30.1	67.9	40.0	12.5	15.4	20.9	30	208-3	1,2,4	MAMMOTH / F043VLU
GSHP-2-1	VERTICAL (RIGHT)	1	1,275	0.6	125	75.3	37.5	26.9	68.8	39.1	11.0	15.4	20.9	30	208-3	1,2,3	MAMMOTH / F043VLU
GSHP-2-2	HORIZONTAL	1	995	0.75	130	75.5	28.6	21.5	68.4	28.0	8.0	10.3	12.7	20	208-3	1,2,3	MAMMOTH / F030HLU
GSHP-2-3	HORIZONTAL	1	850	0.5	175	75.7	23.5	17.7	67.5	21.9	6.5	9.7	13.4	20	208-3	1,2,3	MAMMOTH / F024HLU
GSHP-2-4	VERTICAL (RIGHT)	1	915	0.75	145	75.6	25.4	17.4	68.1	27.1	8.5	12.4	12.7	20	208-3	1,2,3	MAMMOTH / F030VLU
GSHP-2-5	HORIZONTAL	1	1,325	0.75	620	76.6	36.4	27.7	64.4	32.9	9.5	12.4	16.5	25	208-3	1,2,3	MAMMOTH / F036HLU
GSHP-2-6	HORIZONTAL	1	1,125	0.75	170	75.5	29.2	23.1	68.2	28.9	9.0	12.4	12.7	20	208-3	1,2,3	MAMMOTH / F030HLU
GSHP-2-7	VERTICAL (LEFT)	1	990	0.75	140	75.5	25.0	17.2	68.3	24.2	8.5	12.4	12.7	20	208-3	1,2,3	MAMMOTH / F030VLU

NOTES:
1. ENTERING FLUID TEMPERATURE : 88 DEGREES SUMMER, 52.8 DEGREES WINTER (12.9% PROPYLENE GLYCOL SOLUTION)
2. PROVIDE WITH AUTOMATIC DISCONNECT SWITCH
3. UNIT SHALL HAVE 2-WAY VALVE COIL PIPING ASSEMBLY
4. UNIT SHALL HAVE 3-WAY VALVE COIL PIPING ASSEMBLY

EXHAUST FAN SCHEDULE

DESIG.	AREA(S) SERVING	CFM	E.S.P. (IN.WC.)	FAN SPEED (RPM)	TYPE	DRIVE	ELECTRIC WATTS / HP	ELECTRIC VOLTS-PH	MANUFACTURER / MODEL (BASIS OF DESIGN)	WEIGHT (LBS.)	NOTES
EF-1	100 APPARATUS BAY	3,100	0.50	1,725	CENTRIFUGAL ROOF	DIRECT	2 HP	208-3	GREENHECK / CUE-161-A	90	1
EF-2	STAIR 3	500	0.25	1,080	CEILING	DIRECT	285 WATTS	120-1	GREENHECK / SP-A710	43	1

NOTES:
1. PROVIDE FAN WITH BACKDRAFT DAMPER, BIRD SCREEN AND AUTOMATIC DISCONNECT SWITCH

UNIT HEATER SCHEDULE

DESIG.	SERVICE	TYPE	KW	VOLTS-PH	AMPS	CFM	MANUFACTURER / MODEL (BASIS OF DESIGN)	NOTES
UH-1	101 – EMS DECONTAMINATION	CEILING HUNG	2.50	208-1	12.0	270	BERKO / HUH-524TA	1,2
UH-2	102 – TURNOUT GEAR	CEILING HUNG	3.75	208-1	18.0	270	BERKO / HUH-524TA	1,2
UH-3	103 – REPAIR SHOP	CEILING HUNG	2.50	208-1	12.0	270	BERKO / HUH-524TA	1,2
UH-4	104 – HOSE STORAGE	CEILING HUNG	3.75	208-1	18.0	270	BERKO / HUH-524TA	1,2
UH-5	119 – SPRINKLER	CEILING HUNG	2.50	208-1	12.0	270	BERKO / HUH-524TA	1,2
UH-6	STAIR 1	CABINET	2.00	208-3	6.0	250	BERKO / CUH935	1
UH-7	STAIR 2	CABINET	2.00	208-3	6.0	250	BERKO / CUH935	1
UH-8	140 – CANINE STORAGE	CEILING HUNG	2.50	208-1	12.0	270	BERKO / HUH-524TA	1,2
UH-9	142 – VESTIBULE	WALL	1.80	120-1	15.0	100	BERKO / FRA1812	1
UH-10	134A – MANIFOLD RM.	CEILING HUNG	2.50	208-1	12.0	270	BERKO / HUH-524TA	1,2

NOTES:
1. PROVIDE HEATER WITH FACTORY FURNISHED DISCONNECT SWITCH, FAN DELAY, THERMAL OVERLOAD PROTECTION, INTEGRAL THERMOSTAT & MOUNTING BRACKET – REFER TO CONTRACT DOCUMENTS FOR MOUNTING ORIENTATION.
2. FIELD ADJUST FOR SPECIFIED OUTPUT

PUMP SCHEDULE

DESIG.	SERVICE	GPM	FT. OF HEAD	HP	RPM	ELECTRIC (V-PH)	TYPE	MANUFACTURER / MODEL (BASIS OF DESIGN)	NOTES
CP-1	CONDENSER WATER	160	150	10	1760	208-3	INLINE, VERTICAL CLOSE-COUPLED	TACO KV SERIES MODEL 3013	1
CP-2	CONDENSER WATER (STAND-BY)	160	150	10	1760	208-3	INLINE, VERTICAL CLOSE-COUPLED	TACO KV SERIES MODEL 3013	1
CP-3	RADIANT FLOOR DISTRUBUTION	29	15	1/4	1725	120-1	INLINE, VERTICAL CLOSE-COUPLED	BELL & GOSSETT SERIES 90 MODEL 1-1/4AA	
CP-4	RADIANT FLOOR DISTRUBUTION (STAND-BY)	29	15	1/4	1725	120-1	INLINE, VERTICAL CLOSE-COUPLED	BELL & GOSSETT SERIES 90 MODEL 1-1/4AA	

NOTES:
1) PUMP SHALL BE OPERATED VIA A VARIABLE FREQUENCY DRIVE

WATER TO WATER HEAT PUMP SCHEDULE

GSHP NO.	SOURCE EWT (F)	SOURCE LWT (F)	SOURCE GPM	SOURCE WPD (F)	LOAD EWT (F)	LOAD LWT (F)	LOAD GPM	LOAD WPD (F)	HEATING TOTAL CAPACITY (MBH)	HEATING HEAT ABSORPTION (MBH)	ELECTRIC VOLTS-PH	REMARKS	MANUFACTURER / MODEL
WWHP-1	40.0	33.8	28.0	5.2	85.0	93.0	29.0	5.5	116.1	86.8	208-3	1	MAMMOTH / F120WLK

MECHANICAL EQUIPMENT LIST

(1) ENERGY RECOVERY VENTILATOR No. 1, (ERV-1):
BASIS OF DESIGN: GREENHECK MODEL ERV-5215-15-B, PROVIDE WITH ROOF CURB, DOUBLE WALL CONSTRUCTION, OUTDOOR AIR & EXHAUST AIR FILTERS.
OUTDOOR AIR PERFORMANCE: 1,730 CFM, 0.67" E.S.P., 3/4 HP MOTOR @ 1,725 RPM
EXHAUST AIR PERFORMANCE: 1,730 CFM, 0.67" E.S.P., 3/4 HP MOTOR @ 1,725 RPM
DESIGN CONDITIONS:
OUTDOOR (SUMMER) – 93°F DB / 78°F WB
INDOOR (SUMMER) – 75°F DB / 55.0% R.H.
SUPPLY CONDITION (SUMMER) – 78.2°F DB / 66.8°F WB
OUTDOOR (WINTER) – 9°F DB / 6.8°F WB
INDOOR (WINTER) – 70°F DB / 35.0% R.H.
SUPPLY CONDITION (WINTER) – 59.3°F DB / 48.2°F WB
ELECTRICAL: 208V/3PH/60 HZ, 9.6 MCA, MOCP – 15 A

(2)
BASIS OF DESIGN: GREENHECK MODEL ERV-521H-30-B, PROVIDE WITH ROOF CURB, DOUBLE WALL CONSTRUCTION, OUTDOOR AIR & EXHAUST AIR FILTERS.
OUTDOOR AIR PERFORMANCE: 3,175 CFM, 1.0" E.S.P., 3 HP MOTOR @ 1,725 RPM
EXHAUST AIR PERFORMANCE: 3,000 CFM, 1.0" E.S.P., 3 HP MOTOR @ 1,725 RPM
DESIGN CONDITIONS:
OUTDOOR (SUMMER) – 93°F DB / 75°F WB
INDOOR (SUMMER) – 75°F DB / 55.0% R.H.
SUPPLY CONDITION (SUMMER) – 79.1°F DB / 66.7°F WB
OUTDOOR (WINTER) – 9°F DB / 6.8°F WB
INDOOR (WINTER) – 70°F DB / 35.0% R.H.
SUPPLY CONDITION (WINTER) – 56.0°F DB / 46.0°F WB
ELECTRICAL: 208V/3PH/60 HZ, 25.4 MCA, MOCP – 35 A

(3) EXPANSION TANK No.1, (XT-1):
SERVING CONDENSER WATER SYSTEM
TACO MODEL CA-140 (OR APPROVED EQUAL), BLADDER TYPE TANK, 37 GALLON TANK VOLUME, 20"ø X 40" HIGH, VERTICALLY MOUNTED, WEIGHT (APPROX.) – 195 LBS.

(4) EXPANSION TANK No.2, (XT-2):
SERVING CONDENSER WATER SYSTEM
TACO MODEL CBX-30 (OR APPROVED EQUAL), BLADDER TYPE TANK, 8 GALLON TANK VOLUME, 14"ø X 22" HIGH, VERTICALLY MOUNTED, WEIGHT (APPROX.) – 90 LBS.

(5) AIR SEPARATOR No.1, (AS-1):
SERVING CONDENSER WATER SYSTEM
SPIROVENT AIR/DIRT SEPERATOR, MODEL VDN400, 160 GPM CAPACITY, FLANGED CONNECTIONS, INLINE AIR/DIRT SEPARATOR WITH REMOVABLE HEAD, WEIGHT (APPROX.) – 233 LBS.

(6) AIR SEPARATOR No.2, (AS-2):
SERVING CONDENSER WATER SYSTEM
SPIROVENT AIR/DIRT SEPERATOR, MODEL VDN200, 42 GPM CAPACITY, FLANGED CONNECTIONS, INLINE AIR/DIRT SEPARATOR WITH REMOVABLE HEAD, WEIGHT (APPROX.) – 107 LBS.

(7) BY-PASS FEEDER No. 1:
SERVING CONDENSER WATER SYSTEM
BASIS OF DESIGN: NEPTUNE MODEL DBF-5HP
VERTICAL STYLE – DISH BOTTOM OUT, 5 GALLON CAPACITY (APPROX.), 300 PSI MAXIMUM PRESSURE, 10" DIAM. x 30" TOTAL HEIGHT, SHIPPING WEIGHT = 40 LBS.
PROVIDE UNIT WITH FILTER BAG KIT (NEPTUNE MODEL FBK-5)

(8) INTAKE HOOD No. 1: (NON-DUCTED APPLICATION)
SERVING MAKE-UP AIR FOR EXHAUST FAN No. 1
BASIS OF DESIGN: GREENHECK MODEL FHI – 3,100 CFM, .05" (MAX) STATIC PRESSURE DROP, 28" x 28" THROAT, 60" x 51" HOOD, 19" HOOD HEIGHT, ALUMINUM CONSTRUCTION, 150 LBS. (APPROX.)
PROVIDE UNIT WITH ROOF CURB, HINGED BASE, ALUMINUM BIRDSCREEN, MOTOR OPERATED DAMPER AND INTAKE BACKDRAFT DAMPER.

(9) CABINET UNIT HEATER No. 1, (CUH-1):
BASIS OF DESIGN: TRANE MODEL FFCB02
HORIZONTAL CONCEALED CABINET UNIT HEATER – ELECTRIC HEAT, 215 CFM @ 0.25" E.S.P., 208V-3ø-60 Hz, CAPACITY – 7.7 MBH (2.2 kW), MCA – 8.57 A, MAX. FUSE SIZE – 15.0 A, APPROX. WEIGHT = 60 LBS.

(10) HEAT EXCHANGER No. 1, (HE-1):
BASIS OF DESIGN: CEMLINE MODEL BPH7750W
STAINLEE STEEL DOUBLE WALL BRAZED PLATE HEAT EXCHANGER, PACKAGED WITH CEM-TROL SOLID STATE CONTROL MODULE.
WWHP WATER:
4 GPM, 98°F EWT, 60°F LWT
SUPPLY WATER:
7 2/3 GPM, 45°F EWT, 65°F LWT
PROVIDE WITH 2-WAY ELECTRONICALLY OPERATED CONTROL VALVE, WWHP THERMOMETER, INTRA TANK CIRCULATOR, WATER PRESSURE GAUGE, SINGLE SOLENOID SAFETY SYSTEM, WWHP AND DOMESTIC WATER INLET STRAINERS. 120V-1ø-60Hz

No.	Description	Date	App.
	REVIEW SET	06/04/10	
	85% SUBMISSION	06/17/10	
	95% SUBMISSION	07/16/10	
	BID SET	07/30/10	
	100% SUBMISSION	08/27/10	
	ISSUED FOR PERMIT	09/15/10	
	CLIENT BID REVIEW SET	01/19/11	
	CLIENT REVIEW SET	03/02/11	
	BID SET	03/17/11	

Drawn: TB/SPA
Checked: SPA
Approved: SPA
Issued: 03/17/11

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Sheet Contents:
MECHANICAL SCHEDULES

Scale: AS SHOWN

Dwg. No. **M-0.2**

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