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HVAC SCHEDULES

M601

PUMP SCHEDULE (P)

Table with columns: TAG, SERVES, FLOW (GPM, FT), MOTOR (BHP, FT HD, RPM, HP), NPSH, SPEED, FLUID (TYPE, AVG TEMP, F), ELEC. (AMPS, V/HZ/PH), WEIGHT (LBS), MFG & MODEL, NOTES. Includes pumps P-CHW1 & 2, P-HW1&2, P-CH1, P-CH2, P-B1,2,3,4, P-SM1.

NOTES:
1. PUMP TO RUN CONTINUOUSLY.

UNIT HEATER SCHEDULE (UH)

Table with columns: TAG, DESCRIPTION, HEATING CAPACITY (MBH), AIRSIDE (CFM, EAT, LAT, FLOW, WPD, ROWS, EWT, LWT), ELECTRIC (MOTOR, V, PH, MCA), SIZE (W, H, D), LBS, MAKE & MODEL, NOTES. Includes units UH-1.2, UH-3, UH-4.

NOTES:
1. HYDRONIC UNIT HEATER TO SERVE AS PRIMARY HEAT FOR SPACE. SECONDARY IS GAS UNIT HEATER
2. PROVIDE UNIT WITH MOUNTING BRACKETS TO BE HUNG FROM ROOF STRUCTURE. MOUNTING HEIGHT: 9'-0" AFF.
3. PROVIDE WITH BASIC CONTROLS AND REMOTE MOUNTED T-STAT.
4. SETUP UNIT WITH HORIZONTAL DISCHARGE

RADIANT HEAT AND SNOWMELT MANIFOLD SCHEDULE

Table with columns: MANIFOLD, ZONE NAME, AREA (SF), ROOM LOAD (BTU/SF, BTU), TOTAL LOAD (BTU), SURFACE (F), TUBE (IN), SPACE (IN OC), CIRCUITS, FPD (FT), EWT (F), LWT (F), FLOW (GPM). Includes manifolds SMZ-1 through SMZ-10.

NOTES:
1. SYSTEM TO BE 40% PROPYLENE GLYCOL
2. SLAB MOISTURE SENSOR AND OUTDOOR AIR TEMP SENSOR TO BE USED FOR AUTOMATIC OPERATION OF SNOWMELT ZONES

ELECTRIC UNIT HEATER SCHEDULE (EUH)

Table with columns: TAG, DESCRIPTION, HEATING CAPACITY (KW/MBH), AIRSIDE (CFM, EAT, LAT), ELECTRIC (V, PH, MCA), SIZE (W, H, D), LBS, MANUFACTURER & MODEL, NOTES. Includes units EUH-1, EUH-2.

NOTES:
1. HEATER IS PROVIDED WITH INTEGRAL TAMPER RESISTANT T-STAT.
2. HEATER IS PROVIDED WITH INTEGRAL DISCONNECT SWITCH INSIDE ENCLOSURE
3. HEATER IS PROVIDED WITH MOUNTING HARDWARE NECESSARY FOR RECESSED WALL MOUNTING.

EXPANSION TANK SCHEDULE (ET)

Table with columns: TAG, SYSTEM, TYPE, SYSTEM VOLUME (GAL), FLUID, MIN TEMP (F), MAX TEMP (F), FILL PRESSURE (PSI), MAX PRESSURE (PSI), TOTAL CALC. EXPANSION (GAL), TANK VOLUM. (GAL), TANK ACCEPTANCE (GAL), SIZE (DIA, H, EMPTY WEIGHT, FULL WEIGHT), MANUFACTURER & MODEL, NOTES. Includes tanks ET-1.2, ET-3, ET-SM1.

NOTES:
1. EXPANSION TANKS SIZED TO HANDLE 1/2 OF TOTAL SYSTEM EXPANSION MINIMUM
2. ASME RATED FOR 125 PSI @ 240 DEG F.

MECHANICAL PIPE INSULATION SCHEDULE

Table with columns: PIPING SYSTEM, PIPING MATERIAL, FLUID OPERATING TEMPERATURE RANGE (DEG F), INSULATION CONDUCTIVITY RANGE (BTU-IN/HR-FT2 DEG F), MEAN TEMPERATURE RATING (DEG F), NOMINAL PIPE OR TUBE SIZE (INCHES), INSULATION THICKNESS (INCHES), INSULATION MATERIAL, VAPOR BARRIER REQUIRED. Includes systems for chilled water, heating water, snowmelt, and condensate.

NOTES:
1. THE TABLE ABOVE APPLIES TO METALLIC PIPES AND SCHEDULE 80 OR LESS NON-METALLIC PIPES. THE BASIS OF THE ABOVE SCHEDULE IS ECONOMIC THICKNESS, PREVENTION OF CONDENSATION, AND COMPLIANCE WITH ASHRAE 90.1-2013 MINIMUM INSULATION THICKNESSES. ASHRAE 90.1-2013 DOES NOT PROVIDE REDUCED INSULATION THICKNESS FOR BRANCH RUNOUTS.
2. PIPING INSULATION THICKNESSES MAY BE REDUCED AS INDICATED ABOVE FOR BRANCH RUNOUTS BETWEEN COIL CONTROL VALVE AND THE COIL WHEN THE CONTROL VALVE IS LOCATED WITHIN 4 FEET OF THE COIL AND THE PIPE SIZE IS 1 INCH OR LESS.
3. FOR OUTDOOR ABOVEGROUND REFRIGERANT PIPING, INSULATION REQUIREMENTS SHALL BE THE SAME AS FOR INDOOR ABOVEGROUND REFRIGERANT PIPING, WITH THE FOLLOWING EXCEPTION: INSULATION SHALL BE JACKED WITH FLEXCAD-250, OR APPROVED EQUAL, ALUMINUM JACKETING SYSTEM, INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

PIPE INSULATION SPECIFICATIONS:
FLEXIBLE ELASTOMERIC INSULATION (FC): CLOSED-CELL, FIBER-FREE, ELASTOMERIC FOAM RUBBER TUBULAR INSULATION, ARMSTRONG AP ARMAFLEX, OR APPROVED EQUAL. COMPLY WITH ASTM C 534, TYPE 1 FOR TUBULAR MATERIALS WITH FLAME SPREAD INDEX LESS THAN 25 AND SMOKE DEVELOPED INDEX LESS THAN 50. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS.

MINERAL-FIBER PREFORMED PIPE INSULATION (MF): TYPE 1, MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 547, TYPE 1, GRADE A. INSULATION SHALL HAVE A FACTORY-APPLIED ALL-SERVICE JACKET (ASJ). JACKET SHALL BE WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING; COMPLYING WITH ASTM C 1136, TYPE 1. FOR INDOOR EXPOSED PIPING REQUIRING FIBERGLASS INSULATION, PROVIDE A WHITE HIGH-IMPACT RESISTANT PVC JACKET COMPLYING WITH ASTM D 1784 CLASS 16354-C. INSTALL INSULATION PER THE MANUFACTURER'S RECOMMENDATIONS

ABBREVIATIONS: (APPLIES TO PIPE INSULATION THICKNESS SCHEDULES & PIPE INSULATION SPECIFICATIONS ON THIS DRAWING)
FC - FLEXIBLE CLOSED-CELL
MF - MINERAL FIBER
N/A - NOT APPLICABLE

BOILER SCHEDULE

Table with columns: TAG, DESCRIPTION, FUEL, BOILER INPUT (MBH), BOILER OUTPUT (MBH), EFF. (%), WATER SIDE (HWST, HWRT, FLOW, WPD, CONN., VOL., PRV, IN, GAL, PSI), BURNER CONTROLS, BURNER GAS PRESSURES (MIN/MAX) (IN WC), ELECTRICAL (VOLTAGE/PHASE, AMPS), PHYSICAL (MFA, VENT, INTAKE, WIDTH, HEIGHT, DEPTH, WEIGHT), MANUF. & MODEL, NOTES. Includes boiler B-1,2,3,4.

NOTES:
1. FLOOR MOUNTED BOILER, MOUNTED ON 6" HOUSEKEEPING PAD
2. PROVIDE CONDENSATE NEUTRALIZER KIT FOR ALL BOILERS OR COMMON KIT FOR ALL
3. BOILERS PROVIDED WITH BUILT-IN FACTORY CONTROLS FOR STAGING AND SEQUENCING, INCLUDING OUTSIDE AIR RESET AND DOMESTIC HEAT PRIORITY
4. BOILERS PROVIDED WITH NETWORK COMMUNICATION CARD (TYPE TBD)
5. BOILER IS CONSTRUCTED WITH SS 409 TUBES AND SS 316L HEADERS. MAXIMUM WORKING PRESSURE OF 160 PSIG.
6. BOILER SHALL USE CATEGORY IV DIRECT VENTING. MULTIPLE BOILERS CAN NOT BE COMBINED. VENT MATERIAL SHALL BE AL29-4C, PREFERRED VERTICAL TERMINATION.
7. PROVIDE LOW AND HIGH GAS PRESSURE SWITCH, AUTO RESET
8. BOILER SHALL PROVIDE POWER AND CONTROL TO BOILER CIRCULATOR PUMP
9. PROVIDE LOW WATER OUT-OFF, MANUAL RESET

CHILLER SCHEDULE (CH)

Table with columns: TAG, DESCRIPTION, NOM. SIZE (TONS), DESIGN PERFORMANCE (CAPACITY, COOLING EFFICIENCY), EVAPORATOR (TYPE, FLOW, LWT, EWT, WPD), CONDENSER (NO. FANS, AMBIENT TEMP, FAN POWER, REFRIG, CIRCUIT 1 CHARGE, CIRCUIT 2 CHARGE), ELECTRICAL DATA (VOLTS, PH, HZ, MCA, MFS), WEIGHT OPERATING, ACOUSTICAL (POWER, PRESSURE), MANUFACTURER & MODEL, NOTES. Includes chillers CH-1, CH-2.

NOTES:
1. UNIT PROVIDED WITH INTEGRAL NON-FUSED DISCONNECT ON CABINET
2. UNIT PROVIDED WITH NETWORK COMMUNICATION CARD (TYPE TBD).
3. UNIT PROVIDED WITH ULTIMATE SOUND ATTENUATION PACKAGE.
4. UNIT PROVIDED WITH FREE-COOLING ECONOMIZER COIL.