A PARTIAL 1ST FLOOR PIPING PLAN — NORTH

SCALE: 1/16=1'–0"

KEYED NOTES:

1. DUAL-TEMPERATURE CHANGE-OVER ZONE CONTROL VALVE ASSEMBLY. REFER TO F/M8.7.

2. COOLING—ONLY ZONE CONTROL VALVE ASSEMBLY. REFER TO F/M8.7.

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ADD05-M02

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303-322-7323
303-623-2656 Fax
PARTIAL 1ST FLOOR PIPING PLAN — NORTH

SCALE: 1/16"=1'—0"

A

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PARTIAL 1ST FLOOR PIPING PLAN – SOUTH

Scale: 1/16"=1'-0"

KEYED NOTES:

1. Dual-temperature changeover zone control valve assembly. Refer to F/M8.7.

2. Cooling-only zone control valve assembly. Refer to F/M8.7
PARTIAL 1ST FLOOR PIPING PLAN – SOUTH

SCALE: 1/16"=1'-0"
A  PARTIAL MECHANICAL PIPING SYSTEM SCHEMATIC

B  PARTIAL MECHANICAL PIPING SYSTEM SCHEMATIC
NOTE: ALL FLOOR-/PAD-MOUNTED EQUIPMENT SHALL HAVE FLEXIBLE CONNECTIONS CAPABLE OF UP TO 3" VERTICAL MOVEMENT IN EITHER DIRECTION WITHOUT ADVERSELY AFFECTING SYSTEM OPERATION.
CSU-PUEBLO ACADEMIC RESOURCES CENTER

0850-00

M6.1

AUGUST 21, 2009

GAS FIRED HOT WATER BOILER SCHEDULE

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SITE ALTITUDE: 4900 FEET ABOVE SEA LEVEL

GAS HEATING VALUE: 848 BTU/CF

NOTES:
1. SCHEDULED PERFORMANCE IS BASED UPON SITE ALTITUDE.
2. PROVIDE AN ECCS BOILER CONTROL PANEL, TO CONTROL BOILER STAGING, LEAD/LAG ROTATION, BURNER MODULATION, AND OUTDOOR AIR TEMPERATURE RESET.
3. PROVIDE AL29-4C VENT SYSTEM. SIZE IN ACCORDANCE WITH MANUFACTURER’S INSTRUCTIONS.
4. PROVIDE GALVANIZED SMOKE PIPE COMBUSTION AIR INLET. SIZE IN ACCORDANCE WITH MANUFACTURER’S INSTRUCTIONS.
5. PROVIDE SECONDARY HEAT EXCHANGER PIPING ASSEMBLY AND FACTORY-INSTALLED CIRCULATOR FOR PRIMARY HEAT EXCHANGER TEMPERATURE CONTROL.
6. PROVIDE LOW WATER CUTOFF.
7. PROVIDE ANGLED TRIPLE-DUTY VALVE.
8. PROVIDE SUCTION DIFFUSER WITH STAINLESS STEEL, 1/8" MESH STRAINER.

PUMP SCHEDULE

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GENERAL NOTES:
1. PROVIDE SUCTION DIFFUSER WITH STAINLESS STEEL, 1/8" MESH STRAINER
2. PROVIDE GALVANIZED SMOKE PIPE COMBUSTION AIR INLET
3. PROVIDE ANGLED TRIPLE-DUTY VALVE
4. PROVIDE SUCTION DIFFUSER WITH STAINLESS STEEL, 1/8" MESH STRAINER
5. PROVIDE ANGLED TRIPLE-DUTY VALVE
# SCHEDULE OF INITIAL SETPOINTS

## Heating System
- **System Restart Delay**: 60 sec.
- **Unoccupied Override Duration**: 120 min.
- **MDF Room Temperature Setpoint**: 72°F
- **Fan Motor Overcurrent Value**: To be determined during commissioning
- **Poll-Frequency Interval**: 60 sec.
- **Differential CO2 Concentration Limit**: +700 ppm
- **Unoccupied Space Temperature (Cooling)**: 80°F Global
- **Occupant Temperature Adjustment Range**: ±3°F Global
- **Unoccupied Drift Temperature**: 5°F Global
- **HWS Maximum Temperature**: 140°F
- **HWS Minimum Temperature**: 90°F
- **Heating Reset OA Upper Temperature**: 0°F
- **Heating Outdoor Air Cutoff**: 60°F
- **Heating Outdoor Air Cutoff Differential**: 5°F
- **Heating Plant Shut-down Duration**: 10 min.
- **Minimum Pump Speed**: 30%
- **Maximum HW Differential Pressure**: 12 ft w.g. Each DPS. Adjust during TAB/Cx.
- **Minimum HW Differential Pressure**: 3 ft w.g. Each DPS. Adjust during TAB/Cx.
- **HW Differential Pressure Reset Increment**: 1 ft w.g.
- **HW Valve Position Lower Target**: 90%
- **HW Valve Position Upper Target**: 95%
- **Lag Pump Drop-Out Speed**: 40%
- **Pump Delay**: 5 min.
- **Pump Position Rotation Cycle**: 168 hr.
- **HWS Temperature Margin**: 10°F
- **HWS Low Limit Temperature**: 80°F

## Cooling System
- **Cooling Outside Air Cutoff**: 50°F
- **Cooling Outside Air Cutoff Differential**: 5°F
- **Reheat Coil Return Temperature**: 95% open
- **New Pump Temperature Buffer**: 2°F
- **Cooling Tower Flush/Fill Cycle**: 7 days
- **Cooling Plant Shutoff Duration**: 10 min.
- **Minimum Pump Speed**: 20%
- **Maximum CHW Differential Pressure**: 12 ft w.g. Each DPS. Adjust during TAB/Cx.
- **Minimum CHW Differential Pressure**: 3 ft w.g. Each DPS. Adjust during TAB/Cx.
- **CHW Differential Pressure Reset Increment**: 1 ft w.g.
- **CHW Valve Position Lower Target**: 90%
- **CHW Valve Position Upper Target**: 95%
- **Lag Pump Drop-Out Speed**: 40%
- **Pump Delay**: 5 min.
- **Pump Position Rotation Cycle**: 168 hr.
- **CHW temperature margin**: 3°F
- **CHS High Limit Temperature**: 65°F
- **CHS Low Limit Temperature**: 38°F
- **Minimum CH Fan Speed**: 30%
- **Cooling Setpoint difference - temperature**: 3°F
- **Water-Side Economizer Wind-Bulk Differential**: 3°F
- **Minimum CWS Temperature**: 70°F
- **Minimum Evaporator Fan Rate**: 50 gpm
- **Chiller Restart Differential Temperature**: 3°F

## Air-Handling Systems (General)
- **AHU Start Delay**: 60 sec.
- **Building Differential Pressure**: +0.03 in.w.g.
- **Minimum Supply Air Exchange temperature**: 11°F
- **Supply Air Temperature Reset Increment**: 1°F
- **Reheater Exit Temperature**: 95°F
- **Indo. Bulb Temperature Offset**: 3°F
- **Evaporative Cooler Exit Temperature**: 40°F
- **Evaporative Cooler Drain Delay**: 60 min.
- **Evaporative Cooler Drain Temperature**: 40°F
- **Evaporative Cooler Fill Temperature**: 55°F
- **Wet Bulb Temperature Offset**: 3°F
- **Evaporative Cooler Flush-Fill Cycle**: 7 days
- **Evaporative Cooler Drain Temperature**: 40°F
- **Evaporative Cooler Drain Speed**: 50%

## Thermal Displacement Ventilation (TDV) Air-Handling Systems
- **Minimum Fan Speed**: 20%
- **Minimum Supply Air Static Pressure**: 1.5 in.w.g. Each AHU. Adjust during TAB/Cx.

## Chilled Beam Air-Handling Systems
- **Minimum Supply Air Temperature**: 70°F

## TOP TERMINAL BOXES
- **Zone Priority/Weighting**: 1 Each zone
- **Occupied Space Temperature (Cooling)**: 79°F Each zone
- **Occupied Space Drift**: 5°F Each zone
- **Occupied Position Lower Limit**: 79°F
- **Occupied Position Upper Limit**: 79°F

## Chilled Beams
- **Zone Priority/Weighting**: 1 Each zone
- **Occupied Space Temperature (Cooling)**: 79°F Each zone
- **Occupied Space Drift**: 5°F Each zone
- ** Occupied Position Lower Limit**: 79°F
- **Occupied Position Upper Limit**: 79°F