



DUAL HEAT EXCHANGER SYS CONTROL WITH CONSTANT VOLUME PUMPS CONTROL DIAGRAM

**SEQUENCE OF OPERATION**

**HOT WATER HEATING SYSTEM - WITH DUAL HEAT EXCHANGERS AND CONSTANT VOLUME PUMPS**

NOTE: ALL SETPOINTS AND TIME INTERVAL SETPOINTS DESCRIBED IN SEQUENCE SHALL BE ADJUSTABLE BY SYSTEM OPERATOR. (CREATE REQUIRED VIRTUAL POINTS)

- HOT WATER HEATING SYSTEM PUMPS P-01 AND P-02 ARE DEDICATED TO THEIR RESPECTIVE HX AND SHALL HAVE START/STOP CAPABILITY FROM THE DDC SYSTEM. ONE OF THE TWO HX'S WITH IT'S DEDICATED PUMP SHALL BE ACTIVATED BY THE DDC TO OPERATE BASED ON OUTDOOR AIR TEMPERATURE. THE OTHER HX WITH DEDICATED PUMP WILL SERVE AS STANDBY. ACTIVATION.
- DDC SHALL ALTERNATE THE HX AND PUMP OPERATION BASED ON MONTH, EVEN MONTHS THE EVEN NUMBERED HX WITH PUMP SHALL RUN AND ON ODD MONTHS THE ODD NUMBERED HX WITH PUMP SHALL RUN.

- DDC SHALL MONITOR OPERATING STATUS OF EACH PUMP THRU A CURRENT RELAY. UPON PUMP FAILURE, DDC SHALL ACTIVATE FAILURE ALARM AND AUTOMATICALLY START THE STANDBY HX AND PUMP.
- UPON PUMP PROOF THE RESPECTIVE (ACTIVE) HX, DDC SHALL MODULATE HX 1/3 AND 2/3 CONTROL VALVES IN SEQUENCE TO MAINTAIN TERMINAL HEATING SUPPLY (THS) TEMP SETPOINT AS SENSED BY THE HX SUPPLY TEMPERATURE SENSOR. WHEN THE OUTDOOR AIR TEMPERATURE IS 0 DEGREES F, THE SET POINT IS 180 DEGREES F AND WHEN THE OUTDOOR AIR TEMPERATURE IS 60 DEGREES F, THE SET POINT IS 120 DEGREES F
- WHEN CIRC PUMP P-01 AND/OR P-02 ARE OFF, THE RESPECTIVE HX STEAM VALVES SHALL REMAIN CLOSED

- SAFETIES: UPON A CONTROLS FAILURE THE PUMPS WILL FAIL ON. THE STEAM CONTROL VALVES WILL FAIL CLOSED AND HARDWIRED HIGH TEMPERATURE SENSORS (TE-1 AND TE-2) WILL BE USED TO CLOSE THE STEAM VALVES WHEN 200 DEG F (ADJ.) IS EXCEEDED. THERE SHALL ALSO BE A DDC POINT FOR REMOTE ALARMING AND MESSAGING. LOCAL PILOT-LIGHT INDICATION ON AUXILIARY PANEL FOR ALARM SHALL ALSO BE USED. 24HR ALARMS AND MESSAGES WILL BE USED TO INDICATE PUMP AND SYSTEM FAILURE.

**ALARMING**

- NORMAL**
- SUPPLY WATER TEMPERATURE (+/- 8 DEGREES FROM SETPOINT)

- "ENHANCED" 24/7**
- PUMP FAILURE
  - HIGH TEMPERATURE LIMITS

DATE  
9/12/10

DRAWN

REVISION  
7/11/16  
RLANDRUM

DETAIL NO.  
XXXXXX-XX

SHEET

