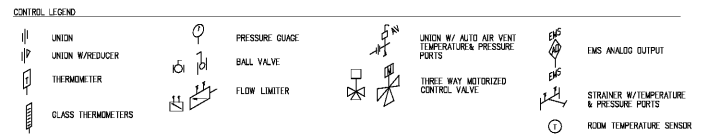
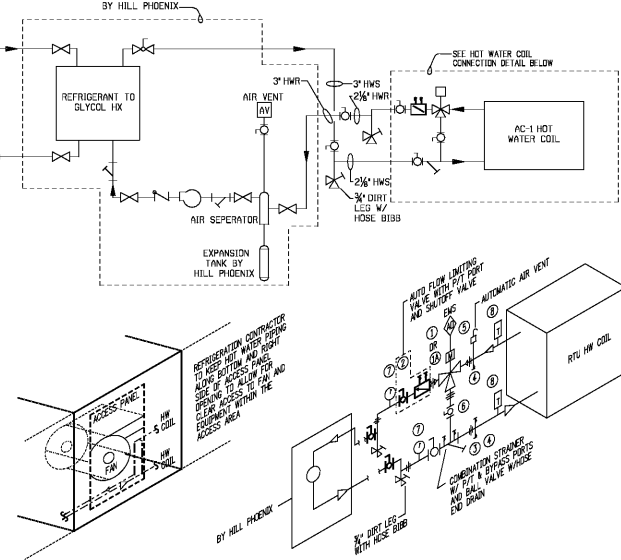


HEATING HOT WATER COIL OPERATIONS AND SPECIFICATIONS

THE HEAT RECLAIM COIL SHALL PROVIDE HEAT FOR SPACE HEATING AND SUPPLY AIR (SA) REHEAT DURING DEHUMIDIFICATION OPERATIONS. HEAT RECLAIMED FROM THE REFRIGERATION SYSTEM GENERATES THE HEAT NEEDED TO HEAT THE ZONE OR REHEAT THE DEHUMIDIFIED AIR. THE REFRIGERATION SYSTEM'S HEAT OF REJECTION IS CAPTURED BY A HEAT EXCHANGER AND TRANSPORTED TO THE HOT WATER COIL BY A GALVANIZED SECONDARY PIPING SYSTEM.

WHENEVER THE OIL DR DROPS BELOW 41 DEGREES F, AND ZONE'S TEMPERATURE DROPS BELOW 70 DEGREES F, OR WHEN OPERATING IN THE DEHUMIDIFICATION MODE AND THE ZONE'S DB TEMPERATURE IS BELOW 74 DEGREES F, THE UNIT SHALL REHEAT THE HEATING SUPPLY TO CIRCULATE HOT WATER THROUGH THE HEATING HW COIL. THE LOOP SHALL REMAIN OPERATIONAL AS LONG AS THERE IS A CALL FOR HEATING FROM EITHER OIL DR OR DB DEGREES F AND BELOW. THE SECONDARY PIPING SYSTEM'S PUMP SHALL SECURE WHEN THE CALL FOR HEATING REHEAT FROM ALL ZONES AND/OR THE OIL DR EXCEEDS 90 DEGREES F.



1. A/C HOT WATER HYDRONIC SYSTEM
SCALE: NTS

AC-1 SEQUENCE OF OPERATIONS

AC-1 IS A BRASS 1/4" BALL VALVE WITH 1/2" NPT PORTS. IT IS USED TO CONTROL THE FLOW OF REFRIGERANT TO THE HOT WATER COIL. THE SEQUENCE OF OPERATIONS IS AS FOLLOWS:

- WHENEVER THE OIL DR DROPS BELOW 41 DEGREES F, AND ZONE'S TEMPERATURE DROPS BELOW 70 DEGREES F, OR WHEN OPERATING IN THE DEHUMIDIFICATION MODE AND THE ZONE'S DB TEMPERATURE IS BELOW 74 DEGREES F, THE UNIT SHALL REHEAT THE HEATING SUPPLY TO CIRCULATE HOT WATER THROUGH THE HEATING HW COIL. THE LOOP SHALL REMAIN OPERATIONAL AS LONG AS THERE IS A CALL FOR HEATING FROM EITHER OIL DR OR DB DEGREES F AND BELOW. THE SECONDARY PIPING SYSTEM'S PUMP SHALL SECURE WHEN THE CALL FOR HEATING REHEAT FROM ALL ZONES AND/OR THE OIL DR EXCEEDS 90 DEGREES F.
- THE UNIT'S CONTROLLER SHALL MAINTAIN ZONE'S HEATING SETPOINT (+0.4 TO +0.9) OR ZONE'S DEHUMIDIFICATION SETPOINT (DP) BY MODULATING THE HOT WATER COIL 3-WAY VALVE. WHEN THE ZONE HEATING REQUIREMENTS ARE MET THE VALVE WILL CLOSE AND THE CONTROLLER SHALL SIGNAL THE 1- PROVIDE MOTORIZE ZONE 1 SHIRTS BALL TYPE CONTROL VALVE AND SPIND RETURN. PROPORTIONAL 24V ACTUATOR WITH NEMA 2 HOUSING AND LIMITED INACCURACY WITH UL #73. 2 INCH NPT BALL VALVE WITH 1/2" NPT PORTS. 3 INCH NPT BALL VALVE WITH BRASS BODY CHARACTERISTIC CONTROL VALVE (+0.4 TO +0.7) WITH BELLOWS AF24 US 24VDC ACTUATOR OR APPROVED EQUAL.
- COMBINATION AUTOMATIC FLOW LIMITING VALVE AND BALL VALVE WITH UNION. THE VALVE'S FLOW CHARACTERISTICS SHALL ALLOW FOR REMOVAL OF THE HEATING MAIN PIPING AND MAINTAIN FLOW WITHIN 5 PERCENT OF THE TOTAL FLOW. THE BALL VALVE SHALL HAVE A LARGE DIAMETER PLATED BALL WITH A FULL SIZE HANDLE AND A BLOWOUT PROOF STEM WITH A BRASS PACKING NUT. THE UNION SHALL HAVE AN EPDM O-RING AND MODEL: 100C 2" NPT CIRCUIT 80815 OR APPROVED EQUAL.
- COMBINATION BALL VALVE AND WYE STRAINER WITH HOSE END DRAIN AND UNION. THE STRAINER SHALL HAVE A 20 MESH STAINLESS STEEL SCREEN AND A FORGE BRASS END DRAIN WITH A 3/4" HOSE HOOD. THE BALL VALVE SHALL HAVE A LARGE DIAMETER PLATED BALL WITH A FULL SIZE HANDLE AND A BLOWOUT PROOF STEM WITH A BRASS PACKING NUT. THE UNION SHALL HAVE AN EPDM O-RING AND MODEL: 100C 2" NPT CIRCUIT 80815 OR APPROVED EQUAL.
- WASS UNION WITH PRESSURE / TEMPERATURE PORT AND AIR VENT PORT. 3/4" NPT MODEL: 100A OR APPROVED EQUAL.
- CONTINUOUS AUTOMATIC AIR VENT WITH A BRASS BODY AND A 1/4" NPT CONNECTION. 1/2" NPT MODEL: 100B OR APPROVED EQUAL.
- ISOLATION BALL VALVE WITH UNION. THE BALL VALVE SHALL HAVE A LARGE DIAMETER PLATED BALL WITH A FULL SIZE HANDLE AND A BLOWOUT PROOF STEM WITH A BRASS PACKING NUT. THE UNION SHALL HAVE AN EPDM O-RING AND MODEL: 100C 2" NPT CIRCUIT 80815 OR APPROVED EQUAL.
- 4" X 1/2" STIM STIM MOUNTED PRESSURE GAUGE, BRASS BODY WITH HOSE END AND 1/2" NPT. LEAKN WINDOW 0.50 PSI RANGE. BRASS SOCKET AND 1/4" NPT. ACCURACY 1%. 3/4" BRASS BODY PRESSURE TEST INSTRUMENT SET 83.0 TO 72.0 PSI. COMPRESSORS 83.0 TO 110.0 PSI. 1/4" NPT. ACCURACY 1%. WEISS 892-NR TEST PLUG OR APPROVED EQUAL.
- WEISS BIMALTHERMOMETER WITH 1/4" DIA. 304 SS CASE AND GLASS WINDOW. ACCURACY 1% OF READING RANGE. 0.001 IN EXTENSION FROM TEMPERATURE. WEISS 9288-DI. THERMOMETER WITH WEISS 925-788 THERMOWELL OR APPROVED EQUAL.

CONTROL LEGEND

- UNION
- UNION W/ AUTO AIR VENT TEMPERATURE PRESSURE PORTS
- THERMOMETER
- CLASS THERMOMETERS
- PRESSURE GAUGE
- BALL VALVE
- FLOW LIMITER
- UNION W/ AUTO AIR VENT TEMPERATURE PRESSURE PORTS
- THREE WAY MOTORIZED CONTROL VALVE
- FMS ANALOG OUTPUT
- STRAINER W/ TEMPERATURE CONTROL VALVE
- ROOM TEMPERATURE SENSOR

2. GH-1 AND GH-2 CONTROLS
SCALE: NTS

GH-1 AND GH-2 CONTROLS

THE MELINK SYSTEM WILL CONTROL THE EXHAUST AND SUPPLY AIR REQUIREMENTS FOR ROOMS GH-1 AND GH-2. OPTICAL AND HEAT SENSORS IN THE HEADS AND EXHAUST DUCTS TRIGGER COOKING ACTIVITY INSTANTLY TO THE MELINK I/O PROCESSOR MOUNTED IN THE UTILITY ROOM. ON THE RIGHT SIDE OF CHILL, VARIABLE FREQUENCY DRIVES (VFD) HOUSED IN THE HEADS UTILITY CABINET WILL MODULATE F-1/F-2 AND MAU-1 SUPPLY FAN SPEED WITH CONTROLLER. THE VFD CONTROL EACH F-1/F-2 AND MAU-1. THE AVERAGE EXHAUST RATE SIGNAL SHALL BE USED TO CONTROL MAU-1 AND MODULATE AC-1'S DAMPER.

THE MELINK I/O PROCESSOR SHALL RECEIVE START AND STOP SIGNALS TO ACTIVATE THE SYSTEMS GREASE HODGS. THE SIGNALS SHALL BE CONSISTENT TO THE STORE'S OPERATING HOURS. THE SYSTEM TO BE MONITORED ON THE RIGHT SIDE OF CHILL ON THE WALL WITHIN 1 FT OF THE HOOD WILL MONITOR AND DISPLAY THE EXHAUST HOOD'S PERFORMANCE. THE CONTROLLER SHALL HAVE A SWITCH TO BYPASS THE TIME BYPASS FOR GH-1 HOOD OPERATIONS AND SYSTEM MAINTENANCE. THE HOODS BYPASS TIME PERIOD SHALL BE SET FOR 1 HOUR (ADJUSTABLE).

START-UP

UPON ACTIVATION THE MELINKS I/O PROCESSOR SHALL:

- INITIATE MONITORING OF THE OPTICAL AND HEAT SENSORS
- ADJUST THE GREASE FANS VFD'S AS NECESSARY TO MATCH THE FANS OUTPUTS TO THE COOKING LOAD. THE EXHAUST RATE SIGNAL FROM EACH HOOD AS THE COOKING LOAD INCREASES OR DECREASES THE CONTROLLER SHALL:

OPERATION:

THE MELINK CONTROLLER WILL RECEIVE 0-10 V SIGNALS FROM THE OPTICAL AND HEAT SENSORS IN THE HOOD AND EXHAUST DUCT FROM EACH HOOD. AS THE COOKING LOAD INCREASES OR DECREASES THE CONTROLLER SHALL:

- ADJUST THE GREASE FANS VFD'S AS NECESSARY TO MATCH THE FANS OUTPUTS TO THE COOKING LOAD. THE EXHAUST RATE SIGNAL FROM EACH HOOD AS THE COOKING LOAD INCREASES OR DECREASES THE CONTROLLER SHALL:
- THE MAKE-UP AIR FANS INITIATES OPERATION AT THEIR MAXIMUM CFM AND THEN ADJUST AS NECESSARY TO MEET THE REQUIREMENTS OF THEIR RESPECTIVE GREASE HODGS. SEE THE FAN SCHEDULE ON SHEET W-3 FOR THE MAXIMUM AND MINIMUM OUTSIDE AIR QUANTITIES
- WHEN THE MAKE-UP AIR FANS INITIATES OPERATION AT THEIR MAXIMUM CFM AND THEN ADJUST AS NECESSARY TO MEET THE REQUIREMENTS OF THEIR RESPECTIVE GREASE HODGS. SEE THE FAN SCHEDULE ON SHEET W-3 FOR THE MAXIMUM AND MINIMUM OUTSIDE AIR QUANTITIES
- WHEN THE MAKE-UP AIR DAMPER SIGNAL GENERATED BY THE CONTROLLER SHALL BE AN ANALOG 0-10 V SIGNAL. THE CONTROLLER SHALL CONTINUOUSLY MONITOR THE GREASE HODGS UNTIL THE END OF THE PROGRAMMED OPERATING PERIOD AT THE END OF THIS TIME PERIOD THE CONTROLLER SHALL SECURE THE EXHAUST AND MAKE-UP AIR FANS AND SEND A SIGNAL TO AC-1 TO CLOSE THE DA DAMPER.

DIGITAL OUTPUTS

1. 24V FAN PROTECT (AIRFLOW)
1. 24V FILTER STATUS
2. 24V OVERLOAD STATUS
3. 24V FAN FLAT SWITCHES
1. MANUAL BYPASS STATUS
2. COMPRESSOR #1 PROOF STATUS
3. COMPRESSOR #2 PROOF STATUS
4. COMPRESSOR #3 PROOF STATUS
5. COMPRESSOR #4 PROOF STATUS
6. COMPRESSOR #5 PROOF STATUS
7. COMPRESSOR #6 PROOF STATUS
8. COMPRESSOR #7 PROOF STATUS
9. COMPRESSOR #8 PROOF STATUS
10. COMPRESSOR #9 PROOF STATUS
11. COMPRESSOR #10 PROOF STATUS
12. COMPRESSOR #11 PROOF STATUS
13. COMPRESSOR #12 PROOF STATUS
14. COMPRESSOR #13 PROOF STATUS
15. COMPRESSOR #14 PROOF STATUS

FAN CONTROL SEQUENCE

CONSUMER FAN CONTROL SEQUENCE

- CONSUMER FAN #1 SHALL ACTIVATE IF REFRIGERANT LIQUID TEMPERATURE OF COMP #1A/1B OR COMP #2 OR COMP #3A/3B IS GREATER THAN 80°F.
- CONSUMER FAN #2 SHALL ACTIVATE IF REFRIGERANT LIQUID TEMPERATURE OF COMP #1A/1B OR COMP #2 OR COMP #3A/3B IS GREATER THAN 80°F.
- CONSUMER FAN #3 SHALL ACTIVATE IF REFRIGERANT LIQUID TEMPERATURE OF COMP #1A/1B OR COMP #2 OR COMP #3A/3B IS GREATER THAN 82°F.
- CONSUMER FAN #4 SHALL ACTIVATE IF REFRIGERANT LIQUID TEMPERATURE OF COMP #1A/1B OR COMP #2 OR COMP #3A/3B IS GREATER THAN 80°F.
- CONSUMER FAN #5 SHALL ACTIVATE IF REFRIGERANT LIQUID TEMPERATURE OF COMP #1A/1B OR COMP #2 OR COMP #3A/3B IS GREATER THAN 80°F.
- CONSUMER FAN #6 SHALL ACTIVATE IF REFRIGERANT LIQUID TEMPERATURE OF COMP #1A/1B OR COMP #2 OR COMP #3A/3B IS GREATER THAN 84°F.

NOTICES

1. 0.000Z FILTER EITHER RA OR DA
2. MAIN SHOWER WATER OVERFLOW
3. BLOCKED DRAIN PAN
4. COMPRESSOR PROBLEMS

DEFROST/STATUS

1. LOSS OF AIRFLOW

2. HIGH HEAD PRESSURE

3. HOT WATER COIL FREEZE/STAT

DIGITAL INPUT #1

DIGITAL INPUT #5

DIGITAL INPUT #8

DIGITAL OUTPUT #1

DIGITAL OUTPUT #2

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DIGITAL OUTPUT #4

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DIGITAL OUTPUT #6

DIGITAL OUTPUT #7

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