



**SUPPLY FAN VFD CONTROL**

CONNECT FIRE ALARM TO AHU START/STOP CIRCUIT SO FIRE ALARM CAN SHUT DOWN AND SO AHU CAN AUTOMATICALLY RESTART AFTER A FIRE ALARM TEST

| AHU OUTSIDE AIR FLOW RATE SCHEDULE |  |   |
|------------------------------------|--|---|
| SYSTEM                             | HIGH MINIMUM OUTSIDE AIR FLOW RATE (CFM) | LOW MINIMUM OUTSIDE AIR FLOW RATE (CFM) |
| AHU-1L                             | 650                                      | 650                                     |
| AHU-2L                             | 700                                      | 700                                     |

**SEQUENCE OF OPERATION:**  
**WHEN AHU IS INDEXED TO RUN, THE FOLLOWING SHALL OCCUR:**  
 SUPPLY FAN SHALL BE ENABLED TO RUN.  
**SUPPLY AIR TEMPERATURE CONTROL:**  
 • THE SUPPLY AIR TEMPERATURE WILL BE CONTROLLED TO MAINTAIN THE SPACE COOLING SETPOINT OF 80°F (ADJ.) AND HEATING SETPOINT OF 65°F (ADJ.). THE DX COOLING COIL & ELECTRIC HEATING COIL SCR IN SEQUENCE SO THAT SIMULTANEOUS COOLING & HEATING ARE NOT POSSIBLE EXCEPT IN DEHUMIDIFICATION MODE.  
 • THE MAXIMUM ALLOWABLE RETURN AIR HUMIDITY SETPOINT SHALL BE 60% (ADJ.). IF RETURN AIR HUMIDITY IS GREATER THAN SETPOINT, RESET DISCHARGE AIR TEMPERATURE TO 52°F UNTIL RETURN AIR HUMIDITY IS 5% LESS THAN MAXIMUM SETPOINT FOR 10 MINUTES (ADJ.).  
**COOLING COIL OPERATION:**  
 BAS SHALL MODULATE THERMAL EXPANSION VALVE AS REQUIRED TO MAINTAIN THE COOLING TEMPERATURE SET POINT.  
**HEATING COIL OPERATION:**  
 THE SCR CONTROLLER WILL BE MODULATED TO MAINTAIN THE SPACE HEATING SETPOINT.

**ALARMS, INTERLOCKS, AND SAFETIES:**  
 WHEN FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION, AHU SHALL BE SHUT DOWN.  
 THE FOLLOWING CONDITIONS SHALL SHUT DOWN THE AHU AND SHALL INDICATE AN ALARM CONDITION AT THE BAS WORKSTATION:  
 • SHOULD ANY ONE FOOT SECTION OF THE MANUAL RESET LOW LIMIT TEMPERATURE SWITCH #1 SENSE AIR TEMP <34°F (ADJ.). IF MULTIPLE FREEZE STATS ARE REQUIRED, WIRE ALL TO A COMMON RESET SWITCH.  
 • WHEN THE DRAIN PAN OVERFLOW FLOAT SWITCH IS ACTIVATED.  
 THE FOLLOWING CONDITIONS SHALL INDICATE AN ALARM AT THE FMCS, HOWEVER AHU SHALL CONTINUE TO OPERATE:  
 • AN ALARM IS INDICATED AT ANY SUPPLY FAN VFD.  
 • DIFFERENTIAL PRESSURE TRANSDUCER ACROSS FILTER BANK EXCEEDS 1.5 INCHES W.G. (ADJ.)  
 • SHOULD ANY ONE FOOT SECTION OF THE AUTO RESET LOW LIMIT TEMPERATURE SWITCH #2 SENSE AIR TEMPERATURE <38°F (ADJ.) THE FOLLOWING SHALL OCCUR:  
 • THE RETURN AIR DAMPER SHALL FULLY OPEN.  
 • THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE.  
 • THIS ACTION SHALL OCCUR INDEPENDENT OF THE BAS AHU CONTROLLER. ONCE THE LOW LIMIT TEMPERATURE SWITCH #2 AIR TEMPERATURE RISES ABOVE SET POINT, OPERATION OF THE OUTSIDE AIR, RELIEF AIR, AND RETURN AIR DAMPERS SHALL BE RESTORED. HOWEVER, THE ALARM SHALL CONTINUE UNTIL ACKNOWLEDGED AND MANUALLY RESET BY THE BAS OPERATOR.  
 • SEND AN ALARM TO THE BAS OPERATOR INTERFACE IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 5°F (ADJ.) ABOVE OR BELOW SETPOINT.  
**WHENEVER AHU IS SHUT DOWN THE FOLLOWING SHALL OCCUR:**  
 • THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE.  
 • SUPPLY FAN VFD SHALL BE DE-ENERGIZED.

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**AIR HANDLING UNIT - DX COOLING AND ELECTRIC HEAT**

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|--|--|--|---|--|
| A/E FIRMS:<br>ARCH:<br>QUINN EVANS<br>219 1/2 N. MAIN STREET<br>ANN ARBOR, MI<br>T: 734.663.5888 | DESIGNED:<br>CADD:<br>TECH. REVIEW:<br>DATE:<br>10.27.2023 | SUB SHEET NO.<br><b>02</b><br><b>ME8.0</b> | TITLE OF SHEET<br>LIBBEY BATHHOUSE<br><b>TEMPERATURE CONTROLS</b><br>REHABILITATE BATHHOUSES<br>HOT SPRINGS NATIONAL PARK | DRAWING NO.<br><b>128</b><br><b>182951</b><br>PMS/PKG NO.<br>318915<br>SHEET<br>192 OF 286 |
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10.27.2023