

NOTE
 FOLLOWING IS THE EXISTING SEQUENCE OF OPERATION FROM THE JUNE 30, 1978 G.H. AVERY COMPANY CONTROL DRAWINGS. CONTRACTOR SHALL TEST, VERIFY, AND ADJUST SEQUENCE OF OPERATION AND PROVIDE REPORT OF MODIFICATIONS. MODIFY SEQUENCES OF OPERATION TO INCORPORATE ITEMS DESCRIBED IN THE KEYNOTES ON THIS SHEET.

AIR HANDLING UNIT AHU-5B AND AHU-7B

A DISCHARGE AIR THERMOSTAT SHALL THROUGH AN AUTOMATIC RESET RELAY, CONTROL THE DISCHARGE AIR TEMPERATURE. A BULB THERMOSTAT SENSING OUTDOOR AIR ABOVE 55°F SHALL START THE CHILLED WATER BOOSTER PUMP AND ALLOW THE DISCHARGE AIR THERMOSTAT TO MODULATE THE CHILLED WATER VALVE TO MAINTAIN THE 55°F DISCHARGE AIR TEMPERATURE. THE MINIMUM OUTSIDE DAMPER SHALL BE OPEN. THE MAXIMUM OUTSIDE AIR DAMPER AND RELIEF DAMPER SHALL BE CLOSED, AND THE ELECTRIC HEAT COIL SHALL BE DEENERGIZED.

WHEN IT IS BELOW 55°F OUTSIDE AND THERE IS A DROP IN DISCHARGE AIR TEMPERATURE, THE BULB THERMOSTAT SHALL MODULATE IN SEQUENCE THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER CLOSED AND THE RETURN AIR DAMPER OPEN. THE HOT WATER VALVE OPEN, AND ENERGIZE THE STAGES OF ELECTRIC HEAT. THE REVERSE SEQUENCE OCCURS ON A RISE IN DISCHARGE TEMPERATURE. SMOKE DETECTORS LOCATED ON EACH FLOOR IN THE RETURN AIR OPENING SHALL BE ACTIVATED WHEN SENSING PRODUCTS OF COMBUSTION. WHEN ONLY ONE SMOKE DETECTOR IS ACTIVATED, IT CLOSURES ITS RETURN AIR SMOKE DAMPER, OPENS THE SMOKE RELIEF DAMPER FOR THAT FLOOR AND STARTS THE SMOKE RELIEF FAN. INDUCTION UNITS SERVING THE AREA SHALL GO TO FULL PRIMARY AIR AND NO INDUCED AIR. THE AIR HANDLING UNIT CONTINUES TO RUN ON THE NORMAL CYCLE. WHEN TWO OR MORE SMOKE DETECTORS FOR A UNIT ARE ACTIVATED, THE AIR HANDLING UNIT RETURN FAN SHALL BE STOPPED; THE RETURN DAMPER SHALL CLOSE, THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL GO FULL OPEN. THE CHILLED WATER VALVE WILL BE OPENED AND THE CHILLED WATER LOOP PUMP SHALL START WHEN A SMOKE CONDITION EXISTS IN TWO OR MORE AREAS. THE RETURN AIR FAN SHALL BE INTERLOCKED TO RUN WITH ITS AIR HANDLING UNIT FAN EXCEPT AS DESCRIBED ABOVE.

KEYNOTES THIS SHEET (K)

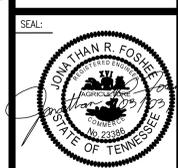
1. REPLACE EXISTING PNEUMATIC DAMPER ACTUATOR. EXISTING CONTROL DAMPER SHALL REMAIN IN SERVICE.
2. REPLACE EXISTING PNEUMATIC CONTROL VALVE AND ACTUATOR. SEE AHU SCHEDULE FOR COIL GPM.
3. REPLACE AND RELOCATE PNEUMATIC BULB THERMOSTAT IN SUPPLY AIR DUCT. EXTEND PNEUMATIC TUBING TO NEW LOCATION.
4. REPLACE EXISTING ELECTRIC LOW LIMIT THERMOSTAT.
5. EXISTING 5-STAGE ELECTRIC HEATER CONTROLS SHALL REMAIN. RECONNECT TO REFURBISHED HEATER. IF BID ALTERNATE NO.2 IS TAKEN, CONNECT TO NEW HEATER.
6. CONTROLS AND DOOR INTERLOCKS FOR EXISTING U.V. LIGHTING SYSTEM SHALL REMAIN IN SERVICE.
7. RECONNECT CONTROLS TO REPLACED CHILLED WATER OR HEATING WATER BOOSTER PUMP.
8. REPLACE EXISTING PRESSURE GAGE/SWITCH WITH A SIMILAR UNIT WITH VISUAL INDICATION OF PRESSURE ACROSS FILTERS AND SWITCHES FOR AIRFLOW STATUS AND DIRTY FILTER STATUS IN CONTROL PANEL.
9. PROVIDE FLOAT SWITCH IN COOLING COIL DRAIN PAN. UPON SENSING A HIGH WATER LEVEL, CLOSE CHILLED WATER VALVE TO THE COOLING COIL AND ADD AN ALARM LIGHT ON THE FACE OF THE AHU CONTROL PANEL.
10. REPLACE ALL COMPONENTS INSIDE EXISTING AHU CONTROL PANEL. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, SIX E/P SWITCHES, TWELVE P/E SWITCHES, FIVE CONTROL RELAYS, A PNEUMATIC REVERSING RELAY, A FAN TIME DELAY RELAY, TWO PRECON ULM-80 MODULES, SMOKE DETECTOR RELAY, AND AUTO RESET RELAY. CONTRACTOR SHALL FIELD VERIFY TYPE AND QUANTITIES OF ALL COMPONENTS IN THE PANEL AND SHALL SET UP COMPONENTS TO SAME SETTINGS AS EXISTING. CONTRACTOR SHALL VERIFY ALL SEQUENCES OF OPERATION AND PROVIDE REPORT. TURN REMOVED COMPONENTS OVER TO OWNER.
11. VERIFY OPERATION OF EXISTING PNEUMATIC ZONE RETURN DAMPER AND ACTUATOR. PROVIDE REPORT OF FINDINGS.
12. VERIFY OPERATION OF EXISTING ZONE SMOKE RELIEF DAMPER AND ACTUATOR. PROVIDE REPORT OF FINDINGS.
13. REPLACE TWO E/P SWITCHES AT EACH SMOKE DETECTOR. VERIFY OPERATION OF EXISTING ZONE SMOKE DETECTOR. PROVIDE REPORT OF FINDINGS. VERIFY THAT SMOKE DETECTORS OPERATE DAMPERS AND FANS ACCORDING TO THE SEQUENCE OF OPERATION. PROVIDE REPORT OF FINDINGS.
14. VARIABLE FREQUENCY CONTROLLER (VFC) SHALL BE USED FOR MANUAL BALANCING ONLY. FUTURE PROJECT WILL ADD DUCT DIFFERENTIAL PRESSURE CONTROLS.
15. VERIFY OPERATION OF SMOKE RELIEF FAN. PROVIDE REPORT OF FINDINGS.
16. REPLACE PNEUMATIC BULB THERMOSTAT IN SUPPLY AIR DUCT. VERIFY LOCATION.
17. AFMS SHALL HAVE A LOCAL LCD DISPLAY AND SHALL HAVE FEATURES TO CONNECT TO A FUTURE BMS. SEE SPECIFICATION SECTION 237313 (TYPICAL). POWER FOR AFMS SHALL BE PROVIDED BY THE TEMPERATURE CONTROL CONTRACTOR.
18. BID ALTERNATE NO. 2; AFMS SHALL HAVE A LOCAL LCD DISPLAY AND SHALL HAVE FEATURES TO CONNECT TO A FUTURE BMS. SEE SPECIFICATION SECTION 237313 (TYPICAL). POWER FOR AFMS SHALL BE PROVIDED BY THE TEMPERATURE CONTROL CONTRACTOR.

REVISIONS:

PROJECT #: 24308.00
 DATE: MARCH 3, 2014
 DRAWN BY: JTC
 DESIGNER: AMS
 CHECKED BY: AMS



SCG RFQ #13-001-35
HVAC RETROFIT PROJECT - DESIGN PHASE
 201 POPLAR AVENUE
 MEMPHIS, TENNESSEE 38103



SHEET NUMBER:
M-501

DESCRIPTION:
 TEMPERATURE CONTROLS