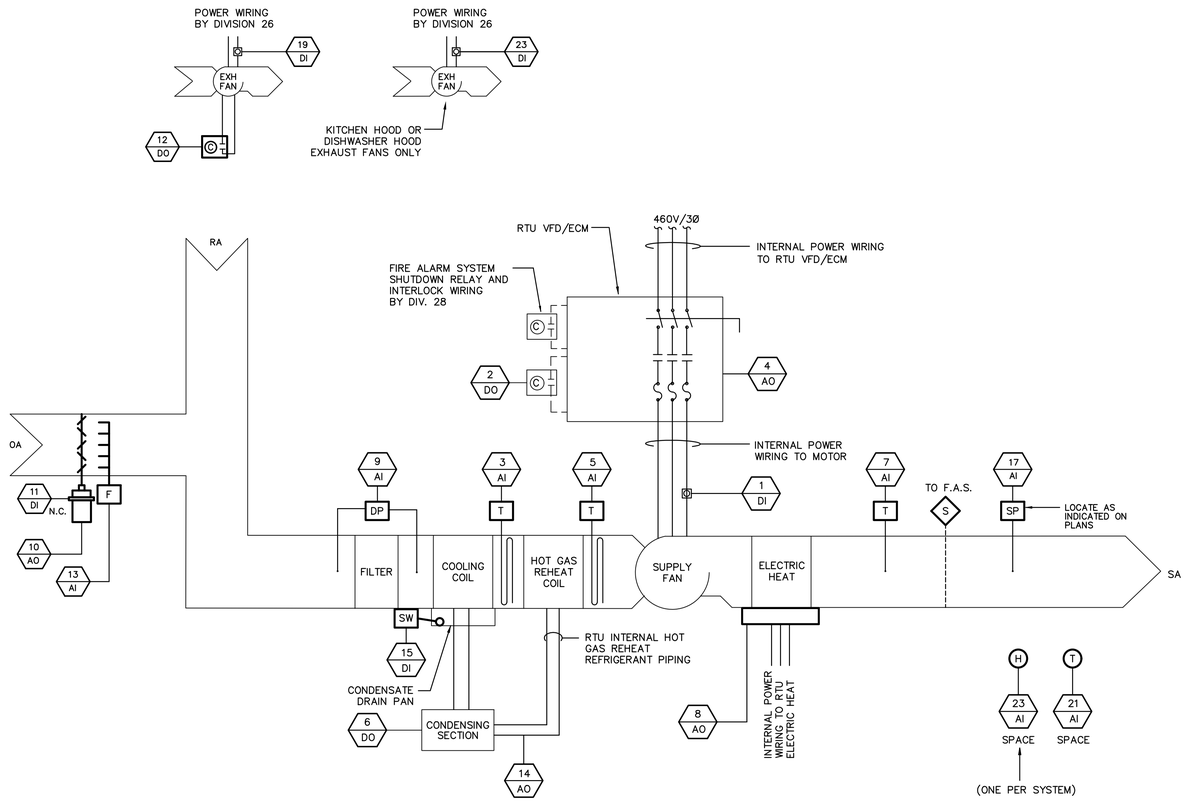
SEQUENCE OF OPERATION

AIR COOLED ROOFTOP UNIT – SINGLE–ZONE CONSTANT AIR VOLUME WITH HIGH PERCENTAGE OUTDOOR AIR FLOW:

1. THE ROOFTOP (RTU) UNIT SHALL OPERATE UNDER THE MANUFACTURERS INTEGRAL OPERATING AND SAFETY CONTROLS. THE BUILDING MANAGEMENT SYSTEM (BMS) SHALL CONTROL SCHEDULING, ROOFTOP UNIT ENABLE, COOLING AND HEATING MODE, AND COMMUNICATE VIA BACNET.
2. OCCUPANCY SCHEDULE: A TIME OF DAY SCHEDULE SHALL BE CONFIGURED AT THE BMS REFLECTING BUILDING OCCUPANCY WITH OCCUPIED AND UNOCCUPIED (I.E., OFF) OPERATIONAL MODES. OCCUPIED AND UNOCCUPIED MODE SCHEDULES SHALL BE ADJUSTABLE.THE CONTROL CONTRACTOR SHALL COORDINATE SCHEDULING REQUIREMENTS WITH THE OWNER.
3. START/STOP: A HAND-OFF-AUTO (H-O-A) SWITCH SHALL BE PROVIDED FOR LOCAL CONTROL OF ROOFTOP UNIT (RTU) SUPPLY FAN (SF) START/STOP OPERATION. IN THE HAND POSITION THE RTU SF SHALL START. IN THE OFF POSITION THE RTU SF SHALL STOP. IN THE AUTO POSITION THE RTU SF SHALL START IN THE OCCUPIED MODE.
4. OPTIMUM START: AN OPTIMUM START ROUTINE SHALL BE PROVIDED THAT ADJUSTS THE OCCUPIED MODE START TIME OF THE RTU. THE BMS SHALL CALCULATE AN OPTIMUM START TIME BASED UPON THE OUTDOOR TEMPERATURE, ZONE TEMPERATURES, AND HISTORICAL OPERATING DATA. FOR EACH DAY WHERE OCCUPIED PERIODS ARE SCHEDULED, THE PROGRAM SHALL CALCULATE THE START TIME IN ORDER TO SUFFICIENTLY PRE-COOL OR PRE-HEAT THE SPACE TO ACHIEVE SPACE SETPOINT TEMPERATURE CONDITIONS AT THE BEGINNING OF THE OCCUPIED MODE. DURING THIS PERIOD.
5. UNOCCUPIED MODE OVERRIDE: A TIMED LOCAL OVERRIDE (TLO) SHALL BE AVAILABLE VIA THE OPERATOR'S WORKSTATION AND ON ZONE SPACE TEMPERATURE SENSORS (ADJUSTABLE). WHEN THE HOA SWITCH IS IN THE AUTO POSITION AND THE UNIT IS IN THE UNOCCUPIED MODE, THE TLO SHALL FUNCTION TO PLACE THE RTU IN THE OCCUPIED MODE FOR 2 HOURS (ADJUSTABLE).
6. PROOF OF FAN OPERATION: FAN RUN STATUS SHALL BE VERIFIED VIA A CURRENT SENSOR AT THE FAN MOTOR. COMMAND FAN OFF IN THE EVENT OF A FAN FAILURE ALARM.
7. COOING AND HEATING MODES: WHEN THE OCCUPIED MODE INITIATES, THE INITIAL SYSTEM COOLING OR HEATING MODE SHALL BE DETERMINED BY THE OUTDOOR DEWPOINT TEMPERATURE. GLOBAL OUTDOOR AIR TEMPERATURE AND HUMIDITY SENSORS SHALL BE USED TO CALCULATE THE OUTDOOR AIR DEWPOINT TEMPERATURE. THE COOLING MODE SHALL BE ACTIVE WHEN THE DEWPOINT TEMPERATURE IS 50°F (ADJUSTABLE) OR GREATER AND THE HEATING MODE SHALL BE ACTIVE WHEN THE DEWPOINT IS BELOW 50°F (ADJUSTABLE). AFTER THE INITIAL HEATING/COOLING MODE IS DETERMINED, THE CAC SHALL SCAN ZONE SPACE TEMPERATURE(S) TO DETERMINE THE HEATING/COOLING MODE. A 15 MINUTE (ADJUSTABLE) MINIMUM RUN TIME BETWEEN CHANGE OVER SHALL BE PROVIDED. THE MINIMUM CHANGE OVER RUN TIME ELAPSED SHALL BE DISPLAYED ON THE SYSTEM GRAPHIC.
8. SPACE TEMPERATURE SETPOINTS: THERE SHALL BE SEPARATE OCCUPIED AND UNOCCUPIED MODE COOLING AND HEATING SPACE TEMPERATURE SETPOINTS.
   A. REFER TO THE DESIGN CONDITIONS SCHEDULE FOR SETPOINT VALUES.
9. SPACE HUMIDITY SETPOINTS: THERE SHALL BE SEPARATE OCCUPIED AND UNOCCUPIED MODE HUMIDITY SETPOINTS.
   A. THE OCCUPIED MODE SETPOINT SHALL BE 60% RH (ADJUSTABLE).
   B. THE UNOCCUPIED MODE SETPOINT SHALL BE 65% RH (ADJUSTABLE).
10. SUPPLY FAN CONTROL: FAN SPEED SHALL BE CONTROLLED TO PROVIDE CODE REQUIRED TWO STAGE HIGH/LOW FAN SPEED AIR VOLUME CONTROL AND CONSTANT AIR VOLUME AT HIGH/LOW STAGED AIR VOLUME SETPOINTS AS FILTERS LOAD FROM A CLEAN TO A DIRTY CONDITION AT THE FAN SPEED STAGE AND MAINTAIN ZONE DAMPER DUCT STATIC PRESSURE.
    A. A STARTER/VFD/ECM SHALL CONTROL FAN AIR VOLUME AT HIGH/LOW FAN SPEED SETPOINTS FOR COOLING SPACE TEMPERATURE CONTROL.
    B. A DUCT MOUNTED STATIC PRESSURE SENSOR LOCATED IN THE SUPPLY AIR DUCT NEAR THE UNIT SHALL PROVIDE AN INPUT SIGNAL TO THE RTU CONTROL PANEL (CP) AND THE CP SHALL PROVIDE AN ANALOG SIGNAL TO THE VFD/ECM FOR CONTROL OF FAN SPEED TO MAINTAIN THE DUCT STATIC PRESSURE SETPOINT. WHEN DUCT STATIC PRESSURE FALLS BELOW SETPOINT FAN SPEED SHALL SLOWLY INCREASE TO MAINTAIN SETPOINT. WHEN THE DUCT STATIC PRESSURE RISES ABOVE SETPOINT, FAN SPEED SHALL SLOWLY DECREASE TO MAINTAIN SETPOINT.
    C. THE TEST AND BALANCE CONTRACTOR SHALL DETERMINE THE INITIAL HIGH/LOW SPEED SF VFD/ECM SETPOINTS AND CORRESPONDING DUCT STATIC PRESSURE SETPOINTS WITH CLEAN FILTERS.
11. COOLING MODE TEMPERATURE CONTROL
    A. GENERAL: IN THE COOLING MODE, WHEN THE RTU SF IS PROVED OPERATIONAL AND SPACE TEMPERATURE RISES ABOVE THE COOLING TEMPERATURE SETPOINT, THE COOLING CONTROL SEQUENCE SHALL BE INITIATED. A SPACE TEMPERATURE SENSOR SHALL BE UTILIZED TO MAINTAIN SPACE TEMPERATURE SETPOINT. IF MULTIPLE SPACE TEMPERATURE SENSORS ARE INDICATED ON THE FLOOR PLANS, THE SENSORS SHALL BE UTILIZED ON A WEIGHTED AVERAGE BASIS TO MAINTAIN A COMMON SPACE TEMPERATURE SETPOINT. THE COOLING MODE SHALL REMAIN ACTIVE UNTIL THE HEATING MODE IS INITIATED.
    B. COOLING CAPACITY CONTROL: CONDENSING SECTION CAPACITY AND SUPPLY FAN HIGH/LOW AIR VOLUME STAGING SHALL BE CONTROLLED TO MAINTAIN SPACE TEMPERATURE SETPOINT. THE INITIAL SF SPEED SETPOINT SHALL BE HIGH SPEED. WHEN SPACE TEMPERATURE RISES ABOVE SETPOINT, THE CONDENSING SECTION CAPACITY SHALL BE SLOWLY STAGED UPWARD IN MODULATING (COMPRESSOR CIRCUIT #1) AND STEPS (COMPRESSOR CIRCUIT #2) PROPORTIONAL TO THE OFFSET BETWEEN THE SPACE TEMPERATURE SETPOINT AND THE SPACE TEMPERATURE. WHEN THE SPACE TEMPERATURE FALLS TOWARDS SETPOINT, THE CONDENSING SECTION CAPACITY SHALL BE SLOWLY STAGED DOWNWARD IN MODULATING (COMPRESSOR CIRCUIT #1) AND STEPS (COMPRESSOR CIRCUIT #2) PROPORTIONAL TO THE OFFSET BETWEEN THE SPACE TEMPERATURE SETPOINT AND THE SPACE TEMPERATURE. THE SF LOW SPEED LOW AIR VOLUME STAGING SHALL BE THE INCLUDED IN CAPACITY STAGING CONTROL LOGIC.
12. DEHUMIDIFICATION MODE CONTROL
    A. OCCUPIED MODE
       a. GENERAL: IN THE OCCUPIED COOLING MODE, THE SPACE HUMIDITY LEVEL SHALL BE MONITORED. IF A HIGH HUMIDITY CONDITION IS INDICATED FOR AT LEAST 15 MINUTES (ADJUSTABLE), THE DEHUMIDIFICATION SEQUENCE SHALL BE INITIATED.
       b. REHEAT CONTROL: MAXIMUM CONDENSING SECTION STAGING SHALL BE ENABLED AND A HOT GAS REHEAT COIL MODULATING VALVE SHALL MODULATE REHEAT COIL CAPACITY TO MAINTAIN A 70°F SPACE TEMPERATURE SETPOINT UNTIL THE SPACE HUMIDITY FALLS BELOW SETPOINT. THE SYSTEM SHALL EXIT THE DEHUMIDIFICATON SEQUENCE WHEN THE SPACE HUMIDITY LEVEL IS BELOW SETPOINT FOR 30 MINUTES (ADJUSTABLE.). IF THE SPACE HIGH HUMIDITY LEVEL HAS NOT RETURNED TO NORMAL AFTER 1 HOUR (ADJUSTABLE), AN ALARM SHALL BE GENERATED INDICATING THIS CONDITION.
    B. UNOCCUPIED MODE
       a. GENERAL: IN THE UNOCCUPIED COOLING MODE, THE SPACE HUMIDITY LEVEL SHALL BE MONITORED. IF A HIGH HUMIDITY CONDITION IS INDICATED FOR AT LEAST 15 MINUTES (ADJUSTABLE) AND IT HAS BEEN AT LEAST 1 HOUR (ADJUSTABLE) SINCE ENTERING THE UNOCCUPIED MODE, THE DEHUMIDIFICATION MODE SHALL BE INITIATED.
       b. REHEAT CONTROL: MAXIMUM CONDENSING SECTION STAGING SHALL BE ENABLED AND A HOT GAS REHEAT COIL MODULATING VALVE SHALL MODULATE REHEAT COIL CAPACITY TO MAINTAIN A 70°F SPACE TEMPERATURE SETPOINT UNTIL THE SPACE HUMIDITY FALLS BELOW SETPOINT. THE SYSTEM SHALL EXIT THE DEHUMIDIFICATON SEQUENCE WHEN THE SPACE HUMIDITY LEVEL IS BELOW SETPOINT FOR 30 MINUTES (ADJUSTABLE.) THE SEQUENCE SHALL RUN FOR A MAXIMUM OF 2 HOURS EVERY 12 HOURS. IF THE HIGH HUMIDITY LEVEL HAS NOT RETURNED TO NORMAL AFTER 2 HOURS (ADJUSTABLE), THEN THE CYCLE WILL STOP AND AN ALARM SHALL BE GENERATED INDICATING THIS CONDITION.
    C. AN ALARM SHALL BE GENERATED IF SPACE HUMIDITY DOES NOT RETURN TO ACCEPTABLE LEVELS FOR A PERIOD OF 24 CONTINUOUS HOURS.
    D. A LEAVING AIR TEMPERATURE SENSOR SHALL MONITOR REHEAT LEAVING AIR TEMPERATURE (SEE EQUIPMENT SCHEDULE FOR THE MAXIMUM LEAVING AIR TEMPERATURE).
13. HEATING MODE CONTROL
    A. GENERAL: IN THE HEATING MODE, WHEN THE RTU SF IS PROVED OPERATIONAL AND THE SPACE TEMPERATURE FALLS BELOW THE HEATING SPACE TEMPERATURE SETPOINT, THE HEATING MODE SHALL BE INITIATED. THE SF SPEED SETPOINT SHALL BE AT HIGH SPEED TO LIMIT SUPPLY AIR TEMPERATURE NO GREATER THAN 85°F. THE HEATING MODE SHALL REMAIN ACTIVE UNTIL THE COOLING MODE IS INITIATED. ELECTRIC HEAT (EH) CAPACITY MAY BE SCHEDULED AS EITHER MODULATING OR STAGED PER THE EQUIPMENT SCHEDULE.
    B. MODULATING HEAT CAPACITY CONTROL: WHEN THE SPACE TEMPERATURE FALLS BELOW SETPOINT, THE EH SHALL BE ENABLED AND CAPACITY SHALL BE SLOWLY MODULATED TOWARDS 100% CAPACITY TO MAINTAIN SETPOINT. WHEN THE SPACE TEMPERATURE RISES TOWARDS SETPOINT, EH CAPACITY SHALL BE SLOWLY MODULATED TOWARDS 0% CAPACITY. WHEN THE SPACE TEMPERATURE RISES ABOVE THE SETPOINT, THE EH SHALL BE DISABLED.
    C. STAGED HEAT CAPACITY CONTROL: WHEN THE SPACE TEMPERATURE FALLS BELOW SETPOINT, THE EH SHALL BE ENABLED AND EH CAPACITY STAGED UPWARD IN CAPCITY STEPS IN PROPORTION TO THE OFFSET BETWEEN THE SPACE TEMPERATURE SETPOINT AND THE SPACE TEMPERATURE. WHEN THE SPACE TEMPERATURE RISES TOWARDS SETPOINT, EH CAPACITY STEPS SHALL BE STAGED OFF IN PROPORTION TO THE OFFSET BETWEEN THE SPACE TEMPERATURE SETPOINT AND THE SPACE TEMPERATURE. WHEN THE SPACE TEMPERATURE RISES ABOVE SETPOINT THE EH SHALL BE DISABLED.
14. VENTILATION OUTDOOR AIR FLOW CONTROL: WHEN THE RTU SF IS OFF, THE OUTDOOR AIR DAMPER SHALL CLOSE. WHEN THE RTU SF IS PROVED OPERATIONAL, THE OUTDOOR DAMPER SHALL OPEN. THE INITIAL TEST AND BALANCE SHALL DOCUMENT THE OUTDOOR AIR FLOW (SEE EQUIPMENT SCHEDULE FOR AIR FLOW QUANTITY). A DAMPER END SWITCH SHALL MONITOR THE OUTDOOR AIR DAMPER CLOSED POSITION AND PROVIDE AN ALARM IF THE DAMPER IS NOT FULLY CLOSED WHEN THE DAMPER HAS BEEN COMMANDED CLOSED.
15. VENTILATION OUTDOOR AIR FLOW CONTROL: TWO SEPARATE OUTDOOR AIR FLOWS SHALL BE PROVIDED, ONE WITH ASSOCIATED KITCHEN HOODS OFF AND ONE WHEN KITCHEN HOODS ARE OFF. WHEN THE RTU SF IS OFF, THE OUTDOOR AIR DAMPER SHALL CLOSE. WHEN THE RTU SF IS PROVED OPERATIONAL, THE OUTDOOR DAMPER SHALL MODULATE OPEN (ADJUSTABLE). AN AIRFLOW STATION IN THE OUTDOOR AIR STREAM SHALL MEASURE THE OUTDOOR AIR FLOW RATE AND PROVIDE AN ANALOG SIGNAL FOR CONTROL AND DOCUMENTATION OF OUTDOOR AIR FLOW (SEE EQUIPMENT SCHEDULE FOR SETPOINTS). SHOULD THE OUTDOOR AIRFLOW DEVIATE FROM SETPOINT BY MORE THAN 10% (ADJUSTABLE) FOR LONGER THAN 5 MINUTES (ADJUSTABLE), AN ALARM SHALL BE GENERATED. A DAMPER END SWITCH SHALL MONITOR THE OUTDOOR AIR DAMPER CLOSED POSITION AND PROVIDE AN ALARM IF EITHER THE DAMPER IS NOT OPEN OR THE DAMPER IS NOT FULLY CLOSED WHEN THE DAMPER COMMANDED TO POSITION.
16. FIRE/SMOKE CONTROL: THE UNIT SHALL BE INTERLOCKED UNDER DIVISION 28 WITH DUCT MOUNTED SUPPLY AIR SMOKE DETECTORS (NUMBER OF DETECTORS PER UNIT AS SHOWN ON THE BUILDING FLOOR PLANS). UPON SENSING PRODUCTS OF COMBUSTION, THE SMOKE DETECTOR SHALL SIGNAL THE BUILDING FIRE ALARM SYSTEM. THE FIRE ALARM SYSTEM SHALL IN-TURN ACTIVATE THE FIRE ALARM SHUTDOWN RELAY(S) WHICH SHALL BE INTERLOCKED WITH THE RTU SF STARTER/VFD/ECM, TO SHUT DOWN THE UNIT, PREVENTING UNIT OPERATION WHEN AN RTU SMOKE DETECTOR ALARM CONDITION EXISTS. PROVIDE A SECOND SET OF NORMALLY OPEN AUXILIARY CONTACTS IN THE FIRE ALARM SHUTDOWN RELAY AND IN THE RTU SF STARTER/VFD/ECM WIRED TO ALL SMOKE AND FIRE/SMOKE DAMPERS ASSOCIATED WITH THE UNIT AS LOCATED ON THE PLANS. ALL FIRE/SMOKE AND SMOKE DAMPERS SHALL CLOSE WHENEVER THE RTU IS OFF. WHEN THE RTU IS SHUT DOWN, ALL ASSOCIATED EXHAUST AND OUTDOOR AIR DAMPERS SHALL CLOSE, AND EXHAUST FANS SHALL STOP.
17. POWER FAILURE: UPON A LOSS OF POWER THE RTU SHALL SHUT DOWN. WHEN POWER IS RESTORED, THE RTU SHALL RESTART AUTOMATICALLY. RTU START-UP SHALL BE STAGGERED TO LIMIT KW DEMAND.
18. SAFETIES:
    A. A CONDENSATE DRAIN PAN OVERFLOW LEVEL SENSOR SHALL BE PROVIDED IN THE COOLING COIL DRAIN PAN. IN THE EVENT OF A HIGH CONDENSATE LEVEL SAFETY TRIP, THE RTU SHALL CONTINUE TO RUN AND A HIGH PRIORITY ALARM SHALL BE GENERATED FOR A SERVICE/MAINTENANCE CALL.
19. MONITORING POINTS: THE BMS SHALL MONITOR EQUIPMENT AND PROVIDE A REAL-TIME GRAPHICAL DISPLAY OF THE STATUS AND VALUE OF ALL RTU AND EF POINTS AT THE OPERATORS WORKSTATION. THE RTU OPERATING STATUS AND OCCUPANCY MODE SHALL BE DISPLAYED (OCCUPIED/UNOCCUPIED/OVERRIDE) AS WELL AS THE ACTIVE CONTROL MODE OF OPERATION (COOLING/DEHUMIDIFICATION/HEATING/OPTIMUM START, ETC.) IN ADDITION, SAFETY AND ALARM STATUS SHALL BE DISPLAYED. AN OVERALL FLOOR PLAN OF THE AREA SERVED BY EACH RTU SHALL BE PROVIDED THAT DISPLAYS THE LOCATION OF EACH RTU. GRAPHICALLY INDICATE THE LIMITS OF THE AREA THAT EACH UNIT SERVES.
20. VFD/ECM OPERATING PARAMETERS SHALL BE OBTAINED THROUGH A COMMUNICATIONS BUS INTERFACE CARD AND DISPLAYED ON THE RTU GRAPHIC AT THE OPERATOR WORKSTATION. THE INTERFACE CARD PROVIDED SHALL BE COMPATIBLE WITH AND FULLY COMMUNICATE WITH THE BMS.
21. ALARMS: PROVIDE THE FOLLOWING ALARMS AT THE OPERATORS WORKSTATION:
    A. SF COMMAND MISMATCH: FAN START COMMAND ISSUED AND STATUS NOT PROVED AFTER A 60 SECOND DELAY (ADJUSTABLE); FAN STOP COMMAND ISSUED AND RUN STATUS CONTINUES TO BE SENSED, AFTER A 60 SECOND DELAY (ADJUSTABLE); UNAUTHORIZED FAN START/STOP DURING UNOCCUPIED AND OCCUPIED MODES.
    B. GENERAL RTU FAILURE.
    C. GENERAL VFD/ECM FAILURE.
    D. VFD/ECM ALARMS PROVIDED THRU THE NETWORK CONNECTION.
    E. COOLING MODE HIGH COOLING COIL LEAVING AIR TEMPERATURE - SETPOINT + 5°F (ADJUSTABLE) FOR LONGER THAN 15 MINUTES (ADJUSTABLE).
    F. HIGH SPACE TEMPERATURE IN COOLING MODE - SPACE SETPOINT + 3°F (ADJUSTABLE) FOR LONGER THAN 15 MINUTES (ADJUSTABLE).
    G. HIGH SPACE TEMPERATURE IN COOLING MODE - SPACE SETPOINT NOT MET WHEN THE CONDENSING SECTION IS AT 100% CAPACITY FOR LONGER THAN 30 MINUTES (ADJUSTABLE).
    H. HIGH REHEAT LEAVING AIR TEMPERATURE IN COOLING MODE - SETPOINT + 5°F (ADJUSTABLE) FOR LONGER THAN 15 MINUTES (ADJUSTABLE).
    I. LOW REHEAT LEAVING AIR TEMPERATURE IN COOLING MODE - SETPOINT - 5°F (ADJUSTABLE) FOR LONGER THAN 15 MINUTES (ADJUSTABLE).
    J. LOW SPACE TEMPERATURE IN HEATING MODE - SPACE SETPOINT - 3°F (ADJUSTABLE) FOR LONGER THAN 15 MINUTES (ADJUSTABLE).
    K. LOW SPACE TEMPERATURE IN HEATING MODE - SPACE SETPOINT NOT MET WHEN EH IS AT 100% CAPACITY FOR LONGER THAN 30 MINUTES (ADJUSTABLE).
    L. OCCUPIED HIGH SPACE HUMIDITY - ABOVE SETPOINT AFTER 1 HOUR.
    M. UNOCCUPIED HIGH SPACE HUMIDITY - SPACE SETPOINT + 5% RH (ADJUSTABLE) AFTER 2 HOURS (ADJUSTABLE).
    N. UNOCCUPIED HIGH SPACE HUMIDITY - SPACE SETPOINT +5% RH (ADJUSTABLE) AFTER 24 CONTINUOUS HOURS (ADJUSTABLE).
    O. OUTDOOR AIRFLOW DEVIATES FROM SETPOINT BY MORE THAN 10% (ADJUSTABLE) FOR LONGER THAN 5 MINUTES (ADJUSTABLE).
    P. OUTDOOR AIR DAMPER COMMAND MISMATCH: DAMPER COMMANDED OPEN AND STATUS NOT PROVED AFTER 1 MINUTE (ADJUSTABLE); DAMPER COMMANDED CLOSED AND STATUS NOT PROVED AFTER 1 MINUTE (ADJUSTABLE).
    Q. DIRTY FILTER CONDITION - SEE FILTER SCHEDULE FOR SETPOINT.
    R. EF FAN COMMAND MISMATCH: FAN START COMMAND ISSUED AND STATUS NOT PROVED AFTER A 60 SECOND DELAY (ADJUSTABLE); FAN STOP COMMAND ISSUED AND RUN STATUS CONTINUES TO BE SENSED, AFTER A 60 SECOND DELAY (ADJUSTABLE); UNAUTHORIZED FAN START/STOP DURING UNOCCUPIED AND OCCUPIED MODES.
    S. COOLING CONDENSATE DRAIN PAN OVERFLOW SAFETY INITIATION.



1 / M-15 AIR COOLED DX ROOFTOP UNIT CONTROL SCHEMATIC

TYPICAL FOR RTU–4 AND RTU–6

DDC POINT TABLE – ROOFTOP UNIT

INPUTS			OUTPUTS		
POINT	TYPE	DESCRIPTION	POINT	TYPE	DESCRIPTION
1	ANALOG	RTU SUPPLY FAN STATUS	2	DIGITAL	RTU SUPPLY FAN START/STOP
3	ANALOG	COOLING COIL LEAVING AIR TEMPERATURE	4	ANALOG	RTU SUPPLY FAN SPEED
5	ANALOG	HOT GAS REHEAT COIL LEAVING AIR TEMPERATURE	6	DIGITAL	CONDENSING SECTION STAGING (ONE POINT PER STAGE)
7	DIGITAL	SUPPLY AIR TEMPERATURE	8	ANALOG	ELECTRIC HEAT CAPACITY
9	ANALOG	FILTER DIFFERENTIAL PRESSURE	10	ANALOG	OUTDOOR AIR DAMPER POSITION
11	DIGITAL	OUTDOOR AIR DAMPER POSITION	12	DIGITAL	EF START/STOP (ONE POINT PER EXHAUST FAN)
13	ANALOG	OUTDOOR AIR FLOW	14	ANALOG	HOT GAS REHEAT MODULATING VALVE POSITION
15	DIGITAL	CONDENSATE DRAIN PAN OVERFLOW	16	–	–
17	ANALOG	SA DUCT SP (FILTER LOADING CAV CONTROL)	18	–	–
19	DIGITAL	EXHAUST FAN STATUS (ONE POINT PER FAN)	20	–	–
21	ANALOG	SPACE TEMPERATURE (ONE POINT PER SENSOR)	22	–	–
23	ANALOG	SPACE HUMIDITY	24	–	–

DDC POINT TABLE NOTES:
1. THE DDC POINT TABLE INDICATES POINTS TO BE PROVIDED FOR A COMPLETE SYSTEM.
2. SYSTEM CONTROL POINTS MAY BE PROVIDED BY EITHER THE ROOFTOP UNIT MANUFACTURER OR THE CONTROLS CONTRACTOR BUILDING MANAGEMENT SYSTEM.
3. ADDITIONAL POINTS NOT LISTED MAY BE AVAILABLE VIA THE ROOFTOP UNIT MANUFACTURERS BACNET INTERFACE.

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