

1 TYPICAL 4-PIPE HORIZONTAL FAN COIL UNIT W/ MIXING BOX P&ID

# GENERAL NOTES: 1. REFER TO HVAC CONTROLS SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. 2. REFER TO DWG M001 FOR INSTRUMENTATION SYMBOLS AND LEGEND. 3. FOLLOWING SYMBOLS INDICATES POINT OF RESPONSIBILITY. 1 BY LSS/FIRE ALARM CONTRACTOR. 2 PROVIDED BY UNIT MANUFACTURER, INSTALLED BY CONTROLS CONTRACTOR. 3 BY LSS/FIRE ALARM CONTRACTOR. 4. FOR EQUIPMENT SCHEDULES SEE DRAWINGS SERIES M600.

### KEY NOTES:

FOR COIL CONNECTION & DETAILS SEE DRAWING SERIES M500.

5. FOR EQUIPMENT AND PIPING DETAILS SEE DRAWINGS SERIES M500.

- DAMPERS PROVIDED BY UNIT MANUFACTURER, ACTUATORS BY CONTROL CONTRACTOR.
- PIPE CONDENSATE TO DRAIN, FULL SIZE BASE ON UNIT MANUFACTURER.
- SMOKE DETECTOR ON UNITS EQUAL OR GREATER THAN 2000 CFM. (RETURN SIDE)
- ALL FAN COIL UNIT WITH EVAPORATOR COOLING COILS SHALL BE PROVIDED WITH A MANUFACTURERS FLOAT SWITCH INSIDE MAIN DRAIN PAN OR A SECONDARY DRAIN PAIN (NON-PIPED) WITH LEAK DETECTION. DETECTION OF WATER SHOULD DE-ENERGIZE UNIT & CLOSE CHILLED WATER VALVE.
- 6 ALL INTERCONNECT WIRING & CONTACT ARE PROVIDED BY ATC CONTRACTOR.

### GENERAL NOTES:

1. REQUIREMENTS OF "SEQUENCE OF OPERATION - GENERAL" ON DWG. M701 APPLY TO ALL SEQUENCES.

- TEMPERATURE SETTINGS SHALL BE AS OUTLINED IN THE "SEQUENCE OF CONTROLS - GENERAL" ON M701.
- 3. ALL SETPOINTS SHALL BE ADJUSTABLE FROM THE DDC SYSTEM.

# SEQUENCE OF OPERATIONS

- A. GENERAL

  1. FAN COIL UNITS (FCU) SHALL BE PROVIDED WITH DDC CONTROLLERS AND INTERLOCKED TO THE BMS.
- 2. SUPPLY FAN SPEED SHALL BE CONTROLLABLE THROUGH THE BMS.

2. HEATING 85 F

# B. OCCUPIED MODE

1. <u>GENERAL</u>

a. UNIT CONTROL VALVES SHALL OPERATE TO MAINTAIN CONSTANT DISCHARGE AIR TEMPERATURE:

1. COOLING: 55 F

- 2. THE FAN SHALL ENERGIZE AND RUN AT 40% SPEED DURING OCCUPIED MODE.
- 3. COOLING: AT MINIMUM FAN SPEED, THE CONTROL VALVE SHALL MODULATE BASED ON SPACE TEMPERATURE. UPON RISE IN SPACE TEMPERATURE ABOVE THE OCCUPIED SETPOINT, THE FAN SHALL SLOWLY RAMP UP TO MAXIMUM SPEED AND THE CHILLED WATER COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. WHEN SET POINT IS ACHIEVED THE REVERSE SHALL OCCUR. IF SPACE TEMPERATURE REACHES 3°F (ADJ.) BELOW SPACE SETPOINT, CONTROL VALVE SHALL MODULATE TOWARDS CLOSED POSITION UNTIL SPACE TEMPERATURE RISES ABOVE SETPOINT.
- 4. HEATING: AT MINIMUM FAN SPEED, THE CONTROL VALVE SHALL MODULATE BASED ON SPACE TEMPERATURE. UPON DROP IN SPACE TEMPERATURE BELOW THE OCCUPIED HEATING SETPOINT, THE FAN SHALL SLOWLY RAMP UP TO MAXIMUM SPEED AND THE HEATING COIL SHALL ENERGIZE AND MODULATE TO MAINTAIN DISCHARGE TEMPERATURE SETPOINT. WHEN SET POINT IS ACHIEVED THE REVERSE SHALL OCCUR. IF SPACE TEMPERATURE REACHES 3°F (ADJ.) ABOVE SPACE SETPOINT, CONTROL VALVE SHALL MODULATE TO CLOSED POSITION UNTIL SPACE TEMPERATURE FALLS BELOW SETPOINT.

# C. UNOCCUPIED MODE

- 1. THE SUPPLY FAN SHALL BE DE-ACTIVATED AND THE CHILLED WATER CONTROL VALVES SHALL BE CLOSED AND AND HEATING COIL DE-ENERGIZED.
- 2. UPON A RISE IN SPACE TEMPERATURE ABOVE THE UN-OCCUPIED SETPOINT THE SUPPLY FAN SHALL ENERGIZE AND THE THE CHILLED WATER COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE TEMPERATURE SETPOINT. WHEN SET POINT IS ACHIEVED THE COOLING COIL CONTROL VALVE SHALL CLOSE AND THE SUPPLY FAN SHALL DE-ENERGIZE.
- 3. UPON A DROP IN SPACE TEMPERATURE BELOW THE UN-OCCUPIED SETPOINT THE SUPPLY FAN SHALL ENERGIZE AND THE HHEATING COIL SHALL ENERGIZE AND MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT. WHEN SET POINT IS ACHIEVED THE HEATING COIL SHALL DE-ENERGIZE AND THE SUPPLY FAN SHALL DE-ENERGIZE.

# D. LEAK DETECTION

1. LEAK DETECTOR TO BE HARD WIRED TO SHUT DOWN THE UNIT AND TO SHUT OFF THE CHILLED WATER CONTROL VALVE. ATC CONTRACTOR TO PROVIDE ALL INTERCONNECTION WIRING, CONTACTS AND ALARM THROUGH THE DDC SYSTEM.

# E. DEHUMIDIFICATION

1. IF SPACE HUMIDITY RISES ABOVE 60%RH, THE FCU SHALL OPERATE IN DEHUMIDIFCATION MODE FOR 30 MINUTES.

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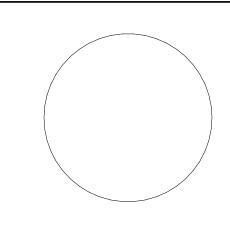
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SCALE 12" = 1'-0"

REVISIONS

CONTROLS DIAGRAMS

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