



AMC CONSTANT VOLUME RTU

SEQUENCE OF OPERATIONS

BUILDING AUTOMATION SYSTEM INTERFACE:
THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER WARM-UP / PRE-COOL, OCCUPIED / UNOCCUPIED AND HEAT / COOL MODES. IF A BAS IS NOT INSTALLED, COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE UNDER DEFAULT MODES AND SETPOINTS.

OCCUPIED MODE:
DURING OCCUPIED PERIODS, THE SUPPLY FAN SHALL RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPER SHALL OPEN TO MAINTAIN MINIMUM VENTILATION REQUIREMENTS. THE DX COOLING AND GAS HEAT SHALL STAGE TO MAINTAIN THE OCCUPIED SPACE TEMPERATURE SETPOINT. ECONOMIZER IS ENABLED THE OUTSIDE AIR DAMPER SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.

UNOCCUPIED MODE:
WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 80.0 DEG. F (AND) THE SUPPLY FAN SHALL STOP. THE OUTSIDE AIR DAMPER SHALL BE CLOSED. THE GAS HEAT SHALL BE ENGAGED TO RAISE THE SPACE TEMPERATURE TO UNOCCUPIED HEATING SETPOINT PLUS THE UNOCCUPIED SETPOINT OFFSET. WHEN THE SPACE TEMPERATURE REACHES THE UNOCCUPIED HEATING SETPOINT PLUS THE UNOCCUPIED SETPOINT OFFSET, THE SUPPLY FAN SHALL STOP. THE GAS HEAT SHALL BE DISABLED.

WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 85.0 DEG. F (AND) THE SUPPLY FAN SHALL START. THE OUTSIDE AIR DAMPER SHALL OPEN IF ECONOMIZER IS ENABLED AND REMAIN CLOSED IF ECONOMIZER IS DISABLED. THE DX COOLING SHALL BE ENGAGED. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 65.0 DEG. F (AND) THE SUPPLY FAN SHALL STOP. THE DX COOLING SHALL BE DISABLED AND THE OUTSIDE AIR DAMPER SHALL CLOSE.

STOP FAN:
THE UNIT SHALL MONITOR THE SCHEDULED UNOCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.

MORNING WARM-UP MODE:
DURING MORNING START-UP, THE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT A MORNING WARM-UP SHALL BE ACTIVATED. WHEN MORNING WARM-UP IS INITIATED THE UNIT SHALL ENABLE SUPPLY FAN AND SUPPLY FAN. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (OCC), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.

PRE-COOL MODE:
ON OPTIMAL START, IF THE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE-COOL MODE SHALL BE ACTIVATED. WHEN PRE-COOL IS INITIATED THE UNIT SHALL ENABLE THE FAN AND COOLING OF ECONOMIZER. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. WHEN ECONOMIZER IS ENABLED, THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (OCC), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.

OPTIMAL STOP:
THE FAN SHALL MONITOR THE SCHEDULED UNOCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT.

COOLING MODE:
THE UNIT CONTROLLER SHALL USE SPACE TEMPERATURE AND SPACE TEMPERATURE SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR COOLING. WHEN THE SPACE TEMPERATURE RISES ABOVE THE SETPOINT, THE UNIT CONTROLLER SHALL MODULATE THE ECONOMIZER OR STAGE THE DX COOLING AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. THE FIRST COMPRESSOR SHALL ENERGIZE AFTER ITS MINIMUM START-UP OFF TIME HAS EXPIRED. IF ADDITIONAL COOLING CAPACITY IS REQUIRED, THE SECOND STAGE OF COOLING SHALL BE ENABLED. ONCE THE SPACE TEMPERATURE FALLS BELOW THE SETPOINT, THE COMPRESSORS SHALL BE DEACTIVATED AND THE ECONOMIZER SHALL RETURN TO MINIMUM POSITION.

HEATING MODE:
THE UNIT CONTROLLER SHALL USE THE SPACE TEMPERATURE AND SPACE TEMPERATURE SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR HEAT. WHEN THE SPACE TEMPERATURE FALLS BELOW THE SETPOINT, THE UNIT CONTROLLER SHALL DISABLE GAS HEATING STAGES TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. ONCE THE SPACE TEMPERATURE RISES ABOVE THE SETPOINT THE GAS HEATING STAGES SHALL BE DISABLED.

DEHUMIDIFICATION:
FACTORY INSTALLED HOT GAS REHEAT SHALL ALLOW APPLICATION OF DEHUMIDIFICATION. DEHUMIDIFICATION SHALL BE ALLOWED ONLY WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 40.0 DEG. F AND BELOW 100.0 DEG. F. THE ECONOMIZER OUTSIDE AIR DAMPER SHALL DRIVE TO MINIMUM POSITION DURING DEHUMIDIFICATION.

SINGLE COMPRESSOR UNITS:
ON A CALL FOR DEHUMIDIFICATION, THE REHEAT VALVE SHALL ENERGIZE AND THE COMPRESSOR SHALL ENABLE. WHEN THE HUMIDITY CONTROL SETPOINT IS SATISFIED, THE VALVE SHALL BE DE-ENERGIZED AND THE COMPRESSOR SHALL BE DISABLED. IF THERE IS A CALL FOR COOLING FROM THE SPACE TEMPERATURE CONTROLLER, WHILE IN REHEAT, THE REHEAT VALVE SHALL BE DE-ENERGIZED AND THE COMPRESSOR CONTINUES TO RUN.

DUAL COMPRESSOR UNITS:
ON A CALL FOR DEHUMIDIFICATION, THE REHEAT VALVE SHALL ENERGIZE AND BOTH COMPRESSORS SHALL ENABLE. WHEN THE HUMIDITY CONTROL SETPOINT IS SATISFIED, THE VALVE SHALL BE DE-ENERGIZED AND BOTH COMPRESSORS SHALL BE DISABLED. IF THERE IS A CALL FOR 1ST STAGE COOLING WHILE IN THE DEHUMIDIFICATION MODE, NO ACTION SHALL TAKE PLACE. IF THERE IS A CALL FOR 2ND STAGE COOLING, THE REHEAT VALVE SHALL BE DE-ENERGIZED, AND THE UNIT SHALL REVERT TO THE COOLING MODE. IF 2ND STAGE COOLING IS SATISFIED AND THERE IS STILL A CALL FOR DEHUMIDIFICATION, THE REHEAT VALVE SHALL RE-ENERGIZE.

ECONOMIZER:
OUTSIDE AIR ENTHALPY SHALL BE COMPARED WITH RETURN AIR ENTHALPY POINT. THE ECONOMIZER SHALL ENABLE WHEN O.A. ENTHALPY IS LESS THAN R.A. ENTHALPY + 0.0 BTU/LB. THE ECONOMIZER SHALL DISABLE WHEN O.A. ENTHALPY IS GREATER THAN R.A. ENTHALPY.

DEMAND CONTROL VENTILATION (DCV):
IF THE RETURN CO2 LEVEL IS GREATER THAN OR EQUAL TO THE DESIGN MINIMUM CO2 SETPOINT, THE OUTDOOR AIR DAMPER SHALL OPEN TO THE DESIGN MINIMUM OUTDOOR AIR DAMPER SETPOINT. IF THERE IS A CALL FOR ECONOMIZER COOLING, THE DAMPER MAY BE OPENED FURTHER TO SATISFY THE COOLING REQUEST.

IF THE RETURN CO2 LEVEL IS LESS THAN OR EQUAL TO THE DCV MINIMUM CO2 SETPOINT, THE OUTDOOR AIR DAMPER SHALL CLOSE TO THE DCV MINIMUM OUTDOOR AIR DAMPER SETPOINT. IF THERE IS A CALL FOR ECONOMIZER COOLING, THE DAMPER MAY BE OPENED FURTHER TO SATISFY THE COOLING REQUEST.

IF THE RETURN CO2 LEVEL IS GREATER THAN THE DCV MINIMUM CO2 SETPOINT AND LESS THAN THE DESIGN MINIMUM CO2 SETPOINT, THE OUTDOOR AIR DAMPER POSITION SHALL BE MODULATED PROPORTIONALLY TO THE SPACE CO2 LEVEL RELATIVE TO A TARGET POSITION BETWEEN THE DCV MINIMUM CO2 SETPOINT AND THE DESIGN MINIMUM CO2 SETPOINT. IF THERE IS A CALL FOR ECONOMIZER COOLING, THE DAMPER MAY BE OPENED FURTHER TO SATISFY THE COOLING REQUEST.

SUPPLY FAN:
THE SUPPLY FAN SHALL BE ENABLED WHILE IN THE OCCUPIED MODE AND CYCLED ON DURING THE UNOCCUPIED MODE. A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FAN. IF THE SWITCH DOES NOT OPEN WITHIN 40 SECONDS AFTER A REQUEST FOR FAN OPERATION, A FAN FAILURE ALARM SHALL BE ANNUNCIATED AT THE BAS. THE UNIT SHALL STOP, REQUIRING A MANUAL RESET.

BUILDING PRESSURE CONTROL:
THE BAROMETRIC RELIEF DAMPERS SHALL OPEN WITH INCREASED BUILDING PRESSURE. AS THE BUILDING PRESSURE INCREASES, THE PRESSURE IN THE UNIT RETURN SECTION ALSO INCREASES, OPENING THE DAMPERS AND RELIEVING AIR.

FILTER STATUS:
A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSURES FOR 2 MINUTES AFTER A REQUEST FOR FAN OPERATION, A DIRTY FILTER ALARM SHALL BE ANNUNCIATED AT THE BAS.



ENGINEERING
Cibbems, Drake, Scott, Inc.
9921 E. 63rd Street, Suite 100
Buckner, Missouri 64133
Phone: (816) 538-1790
Fax: (816) 538-1947
www.cdseng.com
GEORGIA: 60227-0003

SHEET LEGEND

0000	GENERAL NOTATIONS & DETAILS
1000	FLOOR PLANS & DETAILS
2000	MECHANICAL & ELECTRICAL
3000	BUILDING SECTIONS
4000	MECHANICAL & ELECTRICAL DETAILS
5000	MECHANICAL & ELECTRICAL
6000	MECHANICAL & ELECTRICAL
7000	MECHANICAL & ELECTRICAL
8000	MECHANICAL & ELECTRICAL
9000	MECHANICAL & ELECTRICAL

MADISON YARDS 8

AMC NEW BUILD
905 MEMORIAL DRIVE SE
ATLANTA, GA 30316



No.	Date	Description

KEY PLAN

SHEET TITLE
CONTROL DIAGRAM

SHEET NUMBER
M002

THIS DOCUMENT IS THE PROPERTY OF AMERICAN MULTI CINEMA, INC. AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION IN WRITING FROM AMERICAN MULTI CINEMA, INC. ALL RIGHTS ARE RESERVED. ANY UNAUTHORIZED REPRODUCTION OF THIS DOCUMENT IS PROHIBITED. THE USER ACCEPTS ALL LIABILITY FOR THE ACCURACY AND COMPLETENESS OF THE INFORMATION CONTAINED HEREIN. THE USER SHALL INDEMNIFY AND HOLD HARMLESS AMERICAN MULTI CINEMA, INC. FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES, ARISING OUT OF OR FROM THE USE OF THIS DOCUMENT.

Order Plans @ www.dolline.com