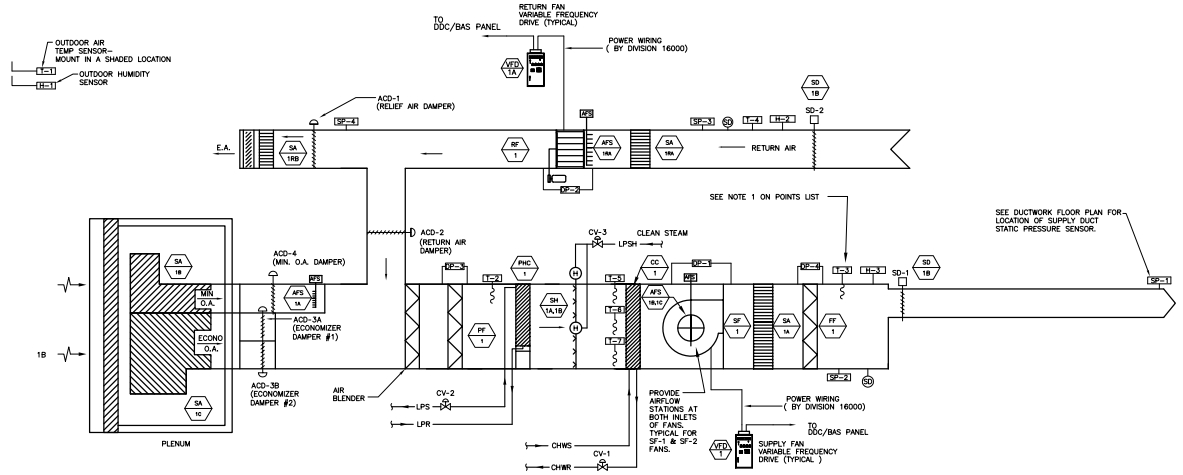


INPUT/OUTPUT SUMMARY TABLE - AIR HANDLING UNITS AND RETURN FANS

DESCRIPTION	QTY	INPUTS: ANALOG: DIFFERENTIAL PRESSURE	DUCT HUMIDITY	DUCT TEMPERATURE	STATIC PRESSURE	AIRFLOW	FLOW METER	OUTDOOR AIR HUMIDITY	INPUTS: BINARY: DIFFERENTIAL PRESSURE	SMOKE DETECTION	OUTPUTS: ANALOG: MODULATING ACTUATOR	4-20 MA MONITOR	0-10 VDC	OUTPUTS: BINARY: CONTROL RELAY	2-POSITION VALVE	2-POSITION DAMPER MOD.	SMOKE DETECTOR	3-POINT FLOATING: MODULATE RELAY	FEEDBACK SAV	ALARMS: HIGH LIMIT	LOW LIMIT	FLOW FAIL	SMOKE DETECTION ALARM	FEATURES: VALVE POSITION PROVEN (OPEN)	VALVE POSITION PROVEN (CLOSED)	OPTIMIZED START (SLAVE)	OPTIMIZED START (MASTER)	EMERGENCY PWR RESTART DELAY	CONTROLLER CALC (DYNALOY)	INTERFACE W/ FIRE ALARM SYSTEM	REMOTE RESET/RESET	REMOTE READ/READ	COLOR GRAPHICS	TREND LOG	NOTES
AHU FEATURES (AHU-1, 2, 3, 4 & 5)	5																							●	●	●	●	●	●		●		●		
SUP FAN VFD (VFD-1, 2, 3, 4 & 5) (DP-1)	5								●			●			●							●	●										●		
RET. FAN VFD (VFD-1A, 2A, 3A, 4A & 5A) (DP-2)	5								●			●			●							●	●										●		
AFS MIN O.A. (AFS-1A)	5					●														●	●												●		
AFS RETURN FAN (AFS-1RA)	5					●														●	●												●		
AFS SUPPLY FAN INLET #1 (AFS-1A)	5					●														●	●												●		
AFS SUPPLY FAN INLET #2 (AFS-1B)	5					●														●	●												●		
OUTDOOR AIR TEMP (T-1)	1			●																													●	●	
MIXED AIR TEMP (T-2)	5	●																		●	●												●	●	NOTE 1
DISCH AIR TEMP (T-3)	5	●																		●	●												●	●	NOTE 1
RET AIR TEMP (T-4)	5	●																		●	●												●	●	NOTE 1
COIL FACE AIR TEMP (T-5)	5	●																		●	●												●	●	NOTE 1
COIL FACE AIR TEMP (T-6)	5	●																		●	●												●	●	NOTE 1
COIL FACE AIR TEMP (T-7)	5	●																		●	●												●	●	NOTE 1
ECON DAMPER (ACD-3A)	5										●																						●	●	
ECON DAMPER (ACD-3B)	5										●																						●	●	
MIN O.A. DAMP (ACD-4)	5										●																						●	●	
RET AIR DAMP (ACD-2 / SD-1B)	5										●																						●	●	
RELIEF AIR DAMP (ACD-1)	5										●																						●	●	
PREFILTER (DP-3)	5	●																		●	●		●										●	●	
FINAL FILTER (DP-4)	5	●																		●	●		●										●	●	
CH WATER VALVE (CV-1)	5										●															●							●	●	
STEAM PRE-HEAT VALVE (CV-2)	5										●															●							●	●	
HUMIDFER (CV-3)	5										●															●							●	●	
SUP SMOKE DETECTOR	5									●							●						●										●		
RET SMOKE DETECTOR	5									●							●						●										●		
SUP SMOKE DAMPER (SD-1)	5									●						●																	●		
RET SMOKE DAMPER (SD-2)	5									●						●																	●		
DUCT STATIC PRESS (SP-1)	5				●															●	●												●	●	
DISCH STATIC (SP-2)	5								●											●													●		
RET STATIC (SP-3)	5								●												●												●		
RET PLENUM STATIC PRESS (SP-4)	5				●															●	●												●	●	
O.A. HUMIDITY (H-1)	1					●																											●	●	
SUP HUMIDITY (H-2)	5		●																	●	●												●	●	
RET HUMIDITY (H-2)	5		●																	●	●												●	●	

NOTES: 1. TEMPERATURE SENSOR SHALL BE AVERAGING SERPENTINE ELEMENT TYPE (17'-0" MIN LENGTH).
2. INPUTS, OUPUTS, AND/OR FEATURES NOT LISTED IN THE TABLE, BUT REQUIRED TO ACCOMPLISH THE SEQUENCE OF OPERATION ON THIS DRAWING SHALL BE PROVIDED.

AIR HANDLING UNIT SUPPLY AND RETURN AIR SYSTEMS SEQUENCE OF OPERATION – AIR HANDLING UNITS AHU-1, 2, 3, 4 & 5 AND RETURN FANS RF-1, 2, 3, 4 & 5

A. GENERAL

1. THE SEQUENCE LISTED BELOW APPLIES TO EACH AIR HANDLING UNIT (AHU-1, 2, 3, 4 & 5). WHERE A REFERENCE IS MADE TO A COMPONENT IN AHU-1 IT SHALL BE IMPLIED THAT IT APPLIES TO THE CORRESPONDING COMPONENT IN ALL OTHER AIR HANDLING UNITS

2. THE UNIT SHALL BE ENABLED AND DISABLED FROM A DIRECT DIGITAL CONTROL PANEL LOCATED IN THE PENTHOUSE. THE UNIT SHALL TYPICALLY RUN CONTINUOUSLY. ALL CONTROL FUNCTIONS SHALL BE ACCOMPLISHED THROUGH THE NEW DIRECT DIGITAL CONTROL SYSTEM.

B. DISABLED MODE

1. WHEN THE UNIT IS DISABLED SUPPLY FAN (SF-1) SHALL BE OFF AND RETURN FAN (RF-1) SHALL BE OFF. ALL OF THE ASSOCIATED SUPPLY SMOKE DAMPERS AND RETURN AIR SMOKE DAMPERS SHALL BE CLOSED. THE RELIEF AIR DAMPER (ACD-1), RETURN AIR DAMPER (ACD-2), ECONOMIZER DAMPERS (ACD-3), AND MINIMUM OUTDOOR AIR DAMPER (ACD-4) SHALL BE CLOSED. MODULATING HUMIDIFIER VALVE (CV-3) SHALL BE CLOSED. CHILLED WATER CONTROL VALVE (CV-1) SHALL BE CLOSED. STEAM PRE-HEAT COIL CONTROL VALVE (CV-2) SHALL BE CLOSED.

C. NORMAL OPERATING MODE AHU'S-1, 2, 3, 4 & 5

1. WHEN THE UNIT IS ENABLED, ALL OF THE ASSOCIATED DUCT MOUNTED SUPPLY AND RETURN SMOKE DAMPERS (SD-1 AND SD-2/SD-1B), RETURN AIR DAMPER (ACD-2), AND MINIMUM OUTDOOR AIR DAMPER (ACD-4) SHALL OPEN. AFTER A 60 SECOND TIME DELAY AND SUPPLY AND RETURN AIR SMOKE DAMPERS HAVE PROVEN OPEN VIA THEIR END SWITCHES, SUPPLY FAN (SF-1) AND RETURN FAN (RF-1) SHALL START AND THEIR RESPECTIVE VARIABLE FREQUENCY DRIVES SHALL RAMP UP THE SPEED OF THE FANS AT A RATE NO GREATER THAN 0.5 HERTZ PER SECOND (ADJUSTABLE THROUGH SOFTWARE) THE FANS SHALL THEN BE PLACED UNDER SUPPLY STATIC PRESSURE/RETURN CFM CONTROL. THE SPEED OF SUPPLY FAN (SF-1) SHALL BE MODULATED TO MAINTAIN STATIC PRESSURE SETPOINT FOR DUCT STATIC PRESSURE SENSOR (SP-1). THE SETPOINT SHALL BE DETERMINED DURING THE TESTING AND BALANCING PHASE (INITIAL SETPOINT SHALL BE 1.0" W.C. UNTIL A FINAL VALUE IS DETERMINED THROUGH TESTING AND BALANCING).

2. THE RETURN FAN SPEED SHALL BE MODULATED TO TRACK SUPPLY AIRFLOW AS SENSED BY AIRFLOW MEASURING STATIONS (AFS-1B & 1C) (SUPPLY) AND (AFS-1RA) (RETURN). THE DDC SYSTEM SHALL MONITOR SUPPLY CFM AS SENSED BY SUMMING (AFS-1B & 1C) AND CALCULATE A RETURN AIRFLOW SETPOINT BY SUBTRACTING A FIXED OFFSET AND SCALING THE RESULT BY A FIXED ADJUSTABLE PERCENTAGE FOR PRESSURIZATION. THE FIXED ADJUSTABLE PERCENTAGE SHALL BE INITIALLY SET AT 95%. THE INITIAL RETURN FAN SETPOINTS FOR THE AIR HANDLERS UNDER THIS PROJECT ARE SHOWN ON THE TABLE BELOW AND SHOULD BE VERIFIED BY THE PROJECT BALANCING CONTRACTOR. THE SUPPLY AND RETURN AIR CONNECTED CFM'S SHALL BE DETERMINED BY THE BALANCER THROUGH INSPECTION OF THE CONSTRUCTION DOCUMENTS PER SPECIFICATION SECTION 15990. THE CALCULATED RETURN AIR SETPOINT SHALL BE MAINTAINED BY MODULATING THE SPEED OF RETURN AIR FAN (RF-1) VIA ITS VARIABLE FREQUENCY DRIVE TO SATISFY THE RETURN AIRFLOW SETPOINT AS SENSED BY AIRFLOW STATION (AFS-1RA). THE FAN SPEED SHALL INCREASE ON A DROP IN AIRFLOW BELOW SETPOINT AND SHALL DECREASE ON A RISE IN AIRFLOW ABOVE SETPOINT.

RETURN FAN SETPOINT CALCULATIONS AND SETPOINTS					
AHU	CONNECTED SUPPLY FAN CFM	CONNECTED RETURN FAN CFM	FIXED OFFSET SUP – RET	RETURN AIRFLOW SCALE %	CORRESPONDING RETURN FAN SETPOINT
AHU-1				95	
AHU-2				95	
AHU-3				95	
AHU-4				95	
AHU-5				95	

NOTE: VALUES LISTED ON THIS TABLE ARE FOR CURRENT DESIGN AND WILL CHANGE IN THE FUTURE.

3. ONCE SUPPLY FAN (SF-1) AND RETURN FAN (RF-100) HAVE STARTED, MINIMUM OUTDOOR AIR DAMPER (ACD-4) SHALL OPEN AND MODULATE TO MAINTAIN THE MINIMUM OUTDOOR AIRFLOW SETPOINT (AS SENSED BY AIRFLOW MEASURING STATION (AFS-1A)) BY MODULATING THE MINIMUM OUTDOOR AIR DAMPER (ACD-4) OPEN ON A DROP IN AIRFLOW AND CLOSED ON A RISE IN AIRFLOW.

4. THE RELIEF DAMPER (ACD-1) SHALL BE MODULATED TO RELIEVE EXCESS RETURN AIR NOT REQUIRED BY THE AIR HANDLING UNIT. RETURN PLENUM STATIC PRESSURE (AS SENSED BY SP-4) SHALL BE MAINTAINED AT 0.15" WG (ADJUSTABLE) BY MODULATING RELIEF AIR DAMPER (ACD-1) OPEN ON A RISE IN PRESSURE AND CLOSED ON A DROP IN PRESSURE BELOW THE STATIC PRESSURE SETPOINT.

5. THE AIR HANDLING UNIT SHALL BE PROVIDED WITH AN ECONOMIZER CONTROL CYCLE. THIS MODE OF OPERATION SHALL BE ENABLED WHENEVER THE OUTDOOR AIR ENTHALPY IS LOWER THAN THE RETURN AIR ENTHALPY. IN ECONOMIZER MODE, THE MIN OA DAMPER SHALL MODULATE BETWEEN ITS MIN. OA SETPOINT AND ITS MAX OPEN POSITION TO MAINTAIN THE SUPPLY DISCHARGE AIR TEMPERATURE SETPOINT. WHEN THE MIN OA DAMPER IS 100% OPEN AND THE SUPPLY AIR DISCHARGE TEMPERATURE RISES ABOVE SETPOINT THE DDC CONTROLLER SHALL KEEP THE MIN OA DAMPER 100% OPEN AND MODULATE ECONOMIZER DAMPER #1 (ACD-3A) OPEN BETWEEN 0% AND 100% WHILE MODULATING THE RETURN AIR DAMPER (ACD-2) CLOSED BETWEEN 0% AND 50% CLOSED TO MAINTAIN SETPOINT. WHEN ECONOMIZER DAMPER #1 IS 100% OPEN AND THE SUPPLY AIR DISCHARGE TEMPERATURE RISES ABOVE SETPOINT THE DDC CONTROLLER SHALL KEEP (ACD-3A) 100% OPEN AND MODULATE ECONOMIZER DAMPER #2 (ACD-3B) OPEN FROM 0%-100% WHILE MODULATING THE RETURN AIR DAMPER (ACD-2) CLOSED BETWEEN 50% AND 100% CLOSED TO MAINTAIN SETPOINT. THE RETURN AIR DAMPER 100% OPEN POSITION SHALL BE DETERMINED BY THE BALANCER DURING THE TESTING AND BALANCING PHASE. UPON A DROP BELOW SUPPLY AIR DISCHARGE TEMPERATURE SETPOINT ECONOMIZER DAMPER (ACD-3B) SHALL MODULATE CLOSED AND RETURN AIR DAMPER (ACD-2) SHALL MODULATE OPEN 50%, FOLLOWED BY DAMPER ACD-3A MODULATING CLOSED AND RETURN AIR DAMPER (ACD-2) MODULATING TO FULLY OPEN AS REQUIRED TO MAINTAIN SETPOINT. UPON A FURTHER DROP IN DISCHARGE AIR TEMPERATURE THE MIN OA DAMPER SHALL MODULATE DOWN TO ITS MIN OA CONTROL SETPOINT.

6. WHEN THE SUPPLY AIR TEMPERATURE EXCEEDS SETPOINT BY 2°F FOR 5 MINUTES (ADJ.) AND OUTDOOR AIR ECONOMIZER DAMPERS (ACD-3A AND ACD-3B) ARE AT THEIR FULLY OPEN POSITIONS, MECHANICAL COOLING SHALL BE MODULATED ON TO SUPPLEMENT THE ECONOMIZER. CHILLED WATER VALVE (CV-1) SHALL BE MODULATED OPEN TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT AS SENSED BY (T-3).

7. WHEN THE OUTDOOR AIR ENTHALPY AS SENSED BY TEMPERATURE SENSOR (T-1) AND HUMIDITY SENSOR (H-1) EXCEEDS RETURN AIR ENTHALPY (CALCULATED FROM RETURN AIR TEMPERATURE AND HUMIDITY SENSORS (T-4 AND H-2)), THE ECONOMIZER CYCLE SHALL BE LOCKED OUT. ECONOMIZER DAMPERS (ACD-3A AND ACD-3B) SHALL CLOSE COMPLETELY, RETURN AIR DAMPER (ACD-2) SHALL OPEN COMPLETELY, AND MIN OA DAMPER ACD-4 SHALL RETURN TO MAINTAIN ITS MINIMUM AIRFLOW SETPOINT.

8. WHEN THE ECONOMIZER CYCLE IS LOCKED OUT, CHILLED WATER COIL VALVE (CV-1) SHALL MODULATE TO MAINTAIN SUPPLY AIR DISCHARGE TEMPERATURE AS SENSED BY TEMPERATURE SENSOR (T-3).

9. WHEN THE SUPPLY AIR TEMPERATURE DROPS BELOW SETPOINT BY 2°F FOR 5 MINUTES (ADJ.) THE HEATING CYCLE SHALL INITIATE. CONTROL VALVE (CV-2) SHALL MODULATE TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT AS SENSED BY TEMPERATURE SENSOR (T-3).

10. UPON A DROP IN RETURN AIR RELATIVE HUMIDITY BELOW 30% (ADJUSTABLE) AS SENSED BY RETURN AIR HUMIDITY SENSOR (H-2), STEAM HUMIDIFIER CONTROL VALVE (CV-3) SHALL MODULATE OPEN TO MAINTAIN RETURN AIR HUMIDITY SETPOINT. MINIMUM OUTDOOR AIR AIRFLOW STATION (AFS-1A) SHALL BE USED TO VERIFY AIRFLOW ABOVE A PRESET MINIMUM AND DISABLE THE OUTPUT SIGNAL TO MODULATING CONTROL VALVE (CV-3) WHENEVER AIRFLOW DROPS BELOW 25% OF THE TOTAL AS SENSED BY (AFS-1B & 1C). MAXIMUM SUPPLY DUCT HUMIDITY SHALL BE MAINTAINED AT 85% RH AS SENSED BY SUPPLY DUCT HUMIDITY SENSOR (H-3).

11. THE DDC SYSTEM SHALL CONTINUOUSLY MONITOR THE POSITION OF ALL VAV TERMINAL DAMPER POSITIONS AND HOT WATER REHEAT VALVES IN ZONES ASSOCIATED WITH THEIR RESPECTIVE AIR HANDLING UNIT. THE CONTROL SYSTEM SHALL USE THIS INFORMATION TO RESET SUPPLY AIR TEMPERATURE BETWEEN A MINIMUM OF 50°F AND A MAXIMUM OF 65°F, AND TO RESET SUPPLY STATIC PRESSURE SETPOINT. WHEN ALL HOT WATER CONTROL VALVES ARE AT LEAST PARTIALLY OPEN, THE DDC SYSTEM SHALL RESET SUPPLY AIR TEMPERATURE UPWARD 5°F EVERY 20 MINUTES (ADJ). IF ALL VAV TERMINAL DAMPERS ARE AT LEAST PARTIALLY CLOSED, THE SUPPLY AIR STATIC PRESSURE SHALL BE RESET DOWNWARD 0.1" W.C. EVERY FIVE MINUTES. IF ONE VAV TERMINAL DAMPER IS OPEN FULLY AND IS CALLING FOR FURTHER COOLING, THE SUPPLY AIR STATIC PRESSURE SETPOINT SHALL BE RESET UPWARD TO ITS DESIGN VALUE. IF THE STATIC PRESSURE SETPOINT REACHES ITS DESIGN VALUE AND A TERMINAL IS STILL CALLING FOR ADDITIONAL COOLING, THE SUPPLY AIR TEMPERATURE SHALL BE RESET BACK DOWNWARD TO ITS DESIGN VALUE AT THE SAME RATE IT WAS RESET UPWARD.

D. EMERGENCY POWER OPERATING MODE

1. (AHU-1, 2, 3, 4 & 5)
UPON A LOSS OF "NORMAL" POWER, THE AIR HANDLING UNIT SHALL RETURN TO DISABLED MODE AS OUTLINED ABOVE. THE CONTROL SYSTEM SHALL ENGAGE A 5 MINUTE "LOCKOUT" OF EACH AIR HANDLING UNIT. AFTER THE 5 MINUTE LOCKOUT HAS EXPIRED, THE UNIT SHALL START UNDER THE SEQUENCE OUTLINED IN "NORMAL OPERATING MODE". THE LOCKOUT SEQUENCE SHALL START AHU-1 FIRST,AND AHU-2 SECOND WITH A 2 MINUTE DELAY BETWEEN THE STARTING OF EACH AHU, ETC.. THE RUNNING UNITS SHALL REMAIN UNDER STATIC PRESSURE/DISCHARGE AIR TEMPERATURE CONTROL AS OUTLINED ABOVE.

E. SAFETIES AND ALARMS

1. FREEZE PROTECTION

a. THREE AVERAGING TYPE TEMPERATURE SENSORS (T-5,6, AND 7) LOCATED UPSTREAM OF THE CHILLED WATER COIL AND SERPENTINED FOR MAXIMUM COIL COVERAGE SHALL SIGNAL THE DDC SYSTEM TO EXECUTE THE FREEZE PROTECTION SEQUENCE. UPON ANY SENSOR SENSING A TEMPERATURE BELOW 38°F THE DDC SYSTEM SHALL COMMAND THE ECONOMIZER AIR DAMPERS TO CLOSE. IF AFTER A 60 SECOND TIME DELAY ANY TEMPERATURE SENSOR (T-5,6, OR 7) CONTINUES TO SENSE A TEMPERATURE BELOW 38°F THE PREHEAT COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN THE SYSTEM DISCHARGE AIR TEMPERATURE. IF AFTER 5 MINUTES THE FREEZE CONDITION CONTINUES TO BE SENSED THE DISCHARGE AIR TEMPERATURE SHALL BE RESET UPWARD BY 5°F. THIS SHALL BE REPEATED UNTIL A MAX DISCHARGE AIR TEMPERATURE OF 65°F IS REACHED. IF A 65°F DISCHARGE AIR TEMP IS REACHED AND THE FREEZE CONDITION IS STILL PRESENT THE AIR HANDLER SHALL BE COMMANDED TO DISABLED MODE AS OUTLINED ABOVE.. IF FIVE MINUTES AFTER THE DISCHARGE AIR TEMPERATURE IS RESET THE FREEZE CONDITION IS NO LONGER SENSED THE UNIT SHALL BE PLACED BACK INTO NORMAL OPERATING MODE.

b. UPON ACTIVATION OF THE FREEZE PROTECTION SEQUENCE, AN ALARM SHALL BE INITIATED AT THE DDC CENTRAL COMPUTER AND AT THE LOCAL CONTROL PANEL. IN ADDITION, AN AUDIBLE ALARM SHALL BE SOUNDED IN THE PENTHOUSE.

2. UNIT MOUNTED SUPPLY AND DUCT MOUNTED RETURN SMOKE DETECTORS

a. UPON ACTIVATION OF ANY DUCT MOUNTED SUPPLY OR RETURN AIR SMOKE DETECTORS, THE UNIT SHALL BE COMMANDED INTO DISABLED MODE AS OUTLINED ABOVE. FIRE ALARM SYSTEM SHALL BE WIRED DIRECTLY TO FAN START CIRCUITS. DDC SHALL MONITOR THE STATUS OF EACH SMOKE DETECTOR AND ISSUE ALARMS AS DESCRIBED BELOW.

b. UPON ACTIVATION OF ANY DUCT OR UNIT MOUNTED SMOKE DETECTOR, AN ALARM SHALL BE INITIATED AT THE DDC CENTRAL COMPUTER AND AT THE LOCAL CONTROL PANEL. SMOKE DETECTORS SHALL BE FURNISHED BY DIV. 13, INSTALLED IN THE DUCTWORK HERE INDICATED UNDER DIVISION 15, WIRED TO THE CONTROL SYSTEM BY THE ATC CONTRACTOR, AND WIRED TO THE FIRE ALARM SYSTEM BY DIV. 13.

c. FOLLOWING A SAFETY SHUT-DOWN MODE OF OPERATION, A MANUALLY INITIATED RESTART COMMAND SHALL RESTART THE SYSTEM AS PREVIOUSLY OUTLINED UNDER "ENABLE."

3. FILTER MONITORING AND ALARM (PFF-1 & FF-1)

a. THE CONTROL SYSTEM SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE PREFILTERS (PF-1). ANYTIME THE PREFILTER DIFFERENTIAL PRESSURE SENSOR (DP-3) MEASURES GREATER THAN 0.75" W.C. FOR A PERIOD OF 15 MINUTES, AN ALARM SHALL BE INITIATED.

b. THE CONTROL SYSTEM SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FINAL FILTERS (FF-1). ANYTIME THE FINAL FILTER DIFFERENTIAL PRESSURE SENSOR (DP-4) MEASURES GREATER THAN 1.5" W.C. FOR A PERIOD OF 15 MINUTES, AN ALARM SHALL BE INITIATED.

4. HIGH STATIC PRESSURE ALARMS

A. SUPPLY DUCT STATIC PRESSURE SENSOR (SP-2) SHALL PLACE AHU-1 IN DISABLED MODE WHEN DUCT STATIC PRESSURE EXCEEDS 6" WG POSITIVE PRESSURE. RETURN DUCT STATIC PRESSURE SENSOR (SP-3) SHALL SHUT DOWN RETURN FAN (RF-1) WHEN RETURN DUCT NEGATIVE STATIC PRESSURE EXCEEDS 4" WG.

B. WHEN SUPPLY OR RETURN FANS ARE SHUT DOWN ON HIGH OR LOW STATIC PRESSURE SAFETIES, AN ALARM SHALL BE INITIATED AT THE CENTRAL DDC COMPUTER AND AT THE LOCAL CONTROL PANEL. IN ADDITION, AN AUDIBLE ALARM SHALL BE INITIATED IN THE PENTHOUSE.

5. SUPPLY AND RETURN FAN MONITORING AND ALARM (SF-1, RF-1)

A. THE CONTROL SYSTEM SHALL MONITOR THE STATUS OF THE SUPPLY AND RETURN FANS VIA THE RESPECTIVE DIFFERENTIAL PRESSURE SENSORS (DP-1 & DP-2). IF ANYTIME THE SUPPLY OR RETURN FANS ARE "ENABLED" AND AFTER A 20 SECOND DELAY THE CONTROL SYSTEM SENSES NO DIFFERENTIAL PRESSURE ACROSS THE FAN, AN ALARM SHALL BE INITIATED.

6. DISCHARGE AIR TEMPERATURE MONITORING AND ALARM (T-3)

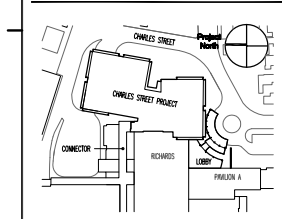
A. THE DDC CONTROL SYSTEM SHALL MONITOR THE DISCHARGE AIR TEMPERATURE VIA A TEMPERATURE SENSOR (T-3) LOCATED IN THE SUPPLY DUCT. IF THE DISCHARGE AIR TEMPERATURE DEVIATES MORE THAN 5°F ABOVE OR BELOW SETPOINT FOR A PERIOD OF 5 MINUTES WHILE THE UNIT IS OPERATING, AN ALARM SHALL BE INITIATED AND A MESSAGE SHALL APPEAR AT THE DDC OPERATOR WORKSTATION.

General Notes:

MARK	ISSUE DATE	DESCRIPTION
PERMIT	09/24/04	PERMIT SET – NOT FOR CONSTRUCTION

FOR PERMIT ONLY – NOT FOR CONSTRUCTION

Issue Log



Key Plan

TRO
Architecture
Planning
Engineering
Interior Design
The Fitchlin Organization
80 Bridge Street
Newton, MA 02458-1134
617-558-0400

Maine Medical Center
Charles Street Project
Portland, Maine MMC Project No. 21841

Drawing Title
HVAC AIR SYSTEMS CONTROL SEQUENCES

0' 0 0 0 0

Commission No.	4673
Scale	NTS
Drawn By	FWC
Approved By	GW
Filename	4673H501
Copyright © 2004 The Fitchlin Organization	

Date Issued
Sheet Number
H501