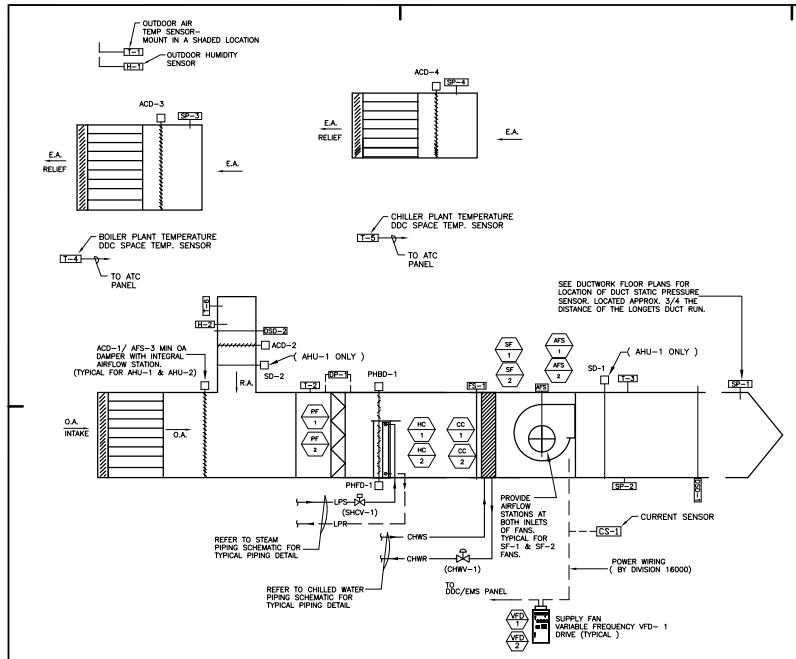
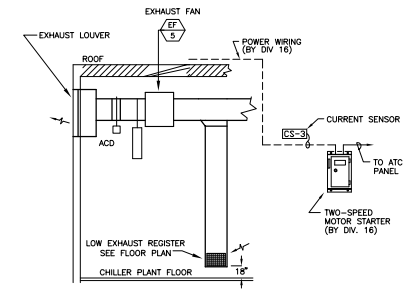
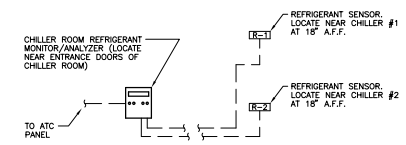


INPUT/OUTPUT SUMMARY TABLE - AIR HANDLING UNIT (AHU-1 AND AHU-2)

DESCRIPTION	INPUTS: ANALOG: SPACE TEMPERATURE	DUCT HUMIDITY	OUTDOOR AIR TEMPERATURE	O.A. PRESSURE	F/P	INPUTS: BINARY: FLOW SWITCH	DIFFERENTIAL PRESSURE (DIRTY FILTER)	SMOKE DETECTION	OUTPUTS: ANALOG: MODULATING INSTALLATION	A.O.D. SIGNAL CONTROL	A.O.D. FEEDBACK SIGNAL	OUTPUTS: BINARY: CONTROL RELAY	START/STOP	CHILLED WATER VOL.	SMOKE DETECTOR	ACTUATOR	SECURITY RELAY	OUTPUTS: 3-POINT FLOATING:	ALARMS: FAN FAILURE	LOW AIR TEMP.	MAIN TRANS. MESSAGE	FEATURES: TEMPERATURE SETPOINT ADJUSTMENT (LOCAL)	DIFFERIAL SPRING	SOLENOID VALVE	SOLENOID VALVE	SUB FREEZE S.P.A. TEMPERATURE	WATER BALANCING	WATER BALANCING	DIRTY FILTER	COLOR CHANGE	FRONT LOCKOUT	PRINT LOG
SUPPLY FAN (AHU-1)										•				•							•	•	•	•						•	•
SUPPLY FAN (AHU-2)				•			•			•				•							•	•	•	•			•			•	•
SF-1 (CS-1)								•													•	•								•	•
SF-2 (CS-2)								•													•	•								•	•
AFS (AFS-1) SUPPLY FAN AHU-1					•																•	•								•	•
AFS (AFS-2) SUPPLY FAN AHU-2					•																•	•								•	•
OUTDOOR AIR TEMPERATURE (T-1)			•																												
MIXED AIR TEMPERATURE (T-2) TYP. OF 2	•																				•	•								•	•
SUPPLY AIR TEMPERATURE (T-3) TYP. OF 2	•																				•	•								•	•
BOILER PLANT SPACE TEMPERATURE (T-4)		•																			•	•								•	•
CHILLER PLANT SPACE TEMPERATURE (T-5)		•																			•	•								•	•
RETURN AIR TEMPERATURE (T-4) TYP. OF 2	•																				•	•								•	•
MINIMUM O.A. DAMPER (ACD-1/AFS-3) TYP. OF 2					•			•	•																					•	•
RETURN AIR DAMPER (ACD-2) TYP. OF 2								•	•																					•	•
EXHAUST AIR DAMPER (ACD-3) BOILER PLANT								•	•																					•	•
EXHAUST AIR DAMPER (ACD-4) CHILLER PLANT								•	•																					•	•
SMOKE DAMPER SD (SD-1) (AHU-1)							•						•	•	•															•	
SMOKE DAMPER SD (SD-2) (AHU-1)							•						•	•	•															•	
PREFILTER (DP-1) TYP. OF 2					•																•									•	•
STEAM CONTROL VALVE (SHCV-1) TYP. OF 2									•	•																				•	•
STEAM COIL FACE DAMPER (PHFD-1) TYP. OF 2									•	•																				•	•
STEAM COIL BY PASS DAMPER (PHBD-1) TYP. OF 2									•	•																				•	•
CHILLED WATER CONTROL VALVE (CHWV-1) TYP. OF 2									•	•																				•	•
SUPPLY SMOKE DETECTOR (DSD-1) TYP. OF 2							•						•	•	•															•	
RETURN SMOKE DETECTOR (DSD-2) TYP. OF 2							•						•	•	•															•	
SUPPLY STATIC PRESSURE (SP-1) TYP. OF 2				•																•	•									•	•
DISCHARGE HI LIMIT STATIC (SP-2) TYP. OF 2						•														•	•									•	
BOILER PLANT STATIC PRESSURE (SP-3)				•																•	•									•	
CHILLER PLANT STATIC PRESSURE (SP-4)				•																•	•									•	
OUTSIDE AIR O.A. HUMIDITY (H-1)	•																			•	•									•	
RETURN HUMIDITY (H-2) TYP. OF 2	•																			•	•									•	
FREEZESTAT SENSOR (FS-1) TYP. OF 2	•																			•	•									•	•

NOTES: 1. ALL THE TEMPERATURE SENSORS, PRESSURE SENSORS , HUMIDITY SENSORS, AND ALL CONTROL SET POINTS SHALL BE ADJUSTABLE.
2. THE CONTROL POINTS LISTED SHALL BE TYPICAL FOR AHU-1 AND AHU-2 UNLESS OTHERWISE NOTED.
3. PROVIDE E/P TRANSDUCER FOR ALL MODULATING PNEUMATIC DAMPERS AND VALVES.





INPUT/OUTPUT SUMMARY TABLE - CHILLER ROOM EXHAUST SYSTEM

DESCRIPTION	INPUTS: ANALOG: ROOM TEMPERATURE	DUCT TEMPERATURE	O.A. TEMPERATURE	O.A. PRESSURE	R.A. PRESSURE	F/P	INPUTS: BINARY: FAN RELAY	STATUS	FREEZE PROTECTION	DIFFERENTIAL PRESSURE	SMOKE DETECTION	OUTPUTS: ANALOG: MODULATING ACTUATOR	E/P PRESSURE	OUTPUTS: BINARY: CONTROL RELAY	START/STOP (2-SPEED)	S-POINTOPEN DAMPER MOD.	S-POINTCLOSE DAMPER MOD.	OUTPUTS: 3-POINT FLOATING: ACTUATOR	SECURITY RELAY	ALARMS: REFRIGERANT LEAK	FAN FAILURE	LOW AIR TEMP.	LOW AMBIANT MESSAGE	FEATURES: MAX. OPERATING PRESSURE	TOUCHT CERAMICS	TOUCHT CERAMICS	PRINT LOCKOUT	PRINT LOG
REFRIGERANT MONITORS (R-1 &R-2)								•							•					•					•		•	
EXHAUST FAN (EF-5)											•					•						•					•	
CURRENT SENSOR (CS-3/ EF-9)								•																			•	
ACD-5												•	•															
SMOKE DETECTOR (DSD-3)									•							•											•	

SEQUENCE OF OPERATION (CHILLER ROOM VENTILATION SYSTEM)

A. GENERAL

1. THE EXHAUST FAN (EF-9) SHALL BE ENABLED AND DISABLED FROM A DIRECT DIGITAL CONTROL SYSTEM AND SHALL BE INTERLOCKED WITH AHU-2. THE EXHAUST FAN SHALL START AND STOP AUTOMATICALLY FROM THE DIRECT DIGITAL CONTROL SYSTEM WHEN THE STARTER "HAND-OFF-AUTO" SWITCH IS IN THE "AUTO" POSITION. THE EXHAUST FAN SHALL BE STARTED MANUALLY WHEN THE STARTER "HAND-OFF-AUTO" SWITCH IS IN THE "HAND" POSITION. THE FAN SHALL BE OFF WHEN THE "HAND-OFF-AUTO" SWITCH IS IN THE "OFF" POSITION.

B. DISABLED MODE

1. WHEN THE REFRIGERANT EXHAUST FAN (EF-9) IS DISABLED THE FAN SHALL BE OFF AND AUTOMATIC CONTROL DAMPER ACD-5 SHALL CLOSE.

C. NORMAL OPERATING MODE

1. THE AIR HANDLING UNIT (AHU-2) AND THE REFRIGERANT EXHAUST FAN (EF-9) SHALL BE ENABLED TO OPERATE TO PROVIDE NORMAL VENTILATION WITHIN CHILLER PLANT.
2. AHU-2 AND EF-5 SHALL OPERATE UNDER NORMAL OPERATION WITH EF-5 RUNNING AT LOW SPEED (5,000 CFM) TO MAINTAIN A CHILLER PLANT SPACE TEMPERATURE OF 85 F ADJ. (SUMMER) AND 60 F ADJ. (HEATING) AS SENSED BY T-5. SEE AHU-2 CONTROL SEQUENCE FOR FURTHER DETAILS ON THIS DRAWING.

D. REFRIGERANT PURGE

1. UPON DETECTION OF A REFRIGERANT LEAK, AS SENSED BY THE REFRIGERANT MONITOR/ANALYZER, THE AIR HANDLING UNIT (AHU-2) SHALL MODULATE TO 9,000 CFM AND THE REFRIGERANT EXHAUST FAN (EF-5) SHALL SWITCH TO HIGH SPEED (10,000 CFM). AN AUDIBLE AND VISUAL ALARM SHALL BE INITIATED IN THE CHILLER ROOM AND AT THE DDC CONTROL SYSTEM. THE AHU-2 AND EF-5 AIR VOLUMES SHALL REMAIN IN PURGE EXHAUST UNTIL THE CONDITION IS RESET THROUGH THE DDC/EMS SYSTEM.

E. SAFETIES AND ALARMS

1. THE CONTROL SYSTEM SHALL MONITOR THE STATUS OF THE REFRIGERANT EXHAUST FAN (EF-5) VIA CURRENT SENSOR (CS-3). IF ANYTIME THE REFRIGERANT EXHAUST FAN (EF-5) IS "ENABLED" AND AFTER A 20 SECOND DELAY THE CONTROL SYSTEM SENSES NO CURRENT AN ALARM SHALL BE INITIATED. CURRENT SENSOR CS-3 SHALL BE CONTINUOUSLY MONITORED AND SHALL INITIATE AN ALARM IF THERE IS A CHANGE IN FAN STATUS DURING NORMAL OPERATION.
2. THE DUCT SMOKE DETECTORS (DSD) FURNISHED AND WIRED UNDER DIVISION 16000 ; INSTALLATION IN DUCTWORK BY HVAC CONTRACTOR. THE SMOKE DETECTORS SHALL INITIATE AN ALARM TO THE BUILDING FIRE ALARM SYSTEM WHENEVER SMOKE IS DETECTED. THE AHU-2 SHALL SHALL BE ARRANGED TO STOP UNDER A SMOKE CONDITION AND EF-5 SHALL CONTINUE OPERATE.

AIR HANDLING UNIT SUPPLY AND RETURN AIR SYSTEM

SEQUENCE OF OPERATION - AIR HANDLING UNIT (AHU-1 AND AHU-2)

I. GENERAL

A. SYSTEM DESCRIPTION

1. THE AIR HANDLING UNITS SHALL BE ENABLED AND DISABLED THROUGH THE DDC/EMS CONTROL SYSTEM. THE AIR HANDLING UNIT AND ASSOCIATED RETURN FAN SHALL TYPICALLY RUN CONTINUOUSLY DURING THE OCCUPIED MODE. ALL CONTROL FUNCTIONS SHALL BE ACCOMPLISHED THROUGH THE DDC/EMS CONTROL SYSTEM. THE DDC/EMS CONTROL SYSTEM SHALL COMMAND THE AIR HANDLING UNIT AND RETURN FAN INTO THE OCCUPIED/UNOCCUPIED SCHEDULE BASED ON THE PROGRAMMED 7 DAY, 24 HOUR SCHEDULE ASSIGNED TO EACH AIR HANDLING SYSTEM.

B. DISABLED MODE

1. WHEN THE UNIT IS DISABLED; THE SUPPLY FANS SHALL BE DE-ENERGIZED, AND ALL OF THE ASSOCIATED SUPPLY AIR SMOKE DAMPERS SHALL BE CLOSED. THE EXHAUST AIR DAMPERS (ACD-3) & AHU-4 AND OUTSIDE AIR DAMPERS (ACD-1/AFS-3) SHALL BE CLOSED, WHILE THE RETURN AIR DAMPER (ACD-2) SHALL OPEN FULLY. CHILLED WATER CONTROL VALVE SHALL MODULATE CLOSED. STEAM CONTROL VALVE SHALL MODULATE CLOSED. THE FACE DAMPER PHFD-1 AND BY DAMPER PHBD-1 SHALL GO FULLY OPEN.

II. NORMAL OPERATING MODE - OCCUPIED SCHEDULE

A. FAN CONTROL

1. WHEN THE AIR HANDLING UNITS ARE ENABLED BY THE DDC/EMS SYSTEM COMMAND, THE ASSOCIATED DUCT MOUNTED SMOKE DAMPERS (SD-1& SD-2) SHALL OPEN AND AN END SWITCH SHALL PROVE THE DAMPER'S OPEN STATUS. UPON PROVING THE SMOKE DAMPER'S OPEN STATUS AND AFTER A 60 SECOND TIME DELAY, THE SUPPLY FANS SHALL START. THE OUTSIDE AIR DAMPER (ACD-1/AFS-4) SHALL OPEN TO ITS MINIMUM CFM FLOW AND (ACD-1/AFS-3) AIR FLOW SHALL BE CONSTANTLY MONITORED THROUGH THE DDC/EMS SYSTEM AND MODULATED TO MAINTAIN MINIMUM SCHEULED OUTSIDE AIR CFM. THE EXHAUST DAMPER (ACD-3)& ACD-4 SHALL OPEN AND RETURN AIR (ACD-2) SHALL BE MODULATED TO ITS RESPECTIVE POSITION.
2. THE AIR HANDLING UNIT SUPPLY FAN'S VARIABLE FREQUENCY DRIVE (VFD-1 & VFD-2) SHALL RAMP UP THE SPEED OF THE FANS FROM 0HZ TO 60 HZ AT A RATE NO GREATER THAN 0.5 HZ PER SECOND.
3. THE AIR HANDLING UNIT'S SUPPLY AIR FLOW STATIONS (AFS-1 & AFS-2) SHALL CONSTANTLY MEASURE THE AIR FLOW VOLUME AND THE DDC/EMS CONTROL SYSTEM SHALL MODULATE THE SPEED OF THE SUPPLY FANS VIA THEIR VFD DRIVES.
4. THE AIR HANDLING UNITS DUCT STATIC PRESSURE SENSOR SP-1 LOCATED IN THE SUPPLY DUCT SHALL BE INITIALLY SET TO MAINTAIN (2" W.G.) AND ADJUSTED DURING THE TESTING AND BALANCING PHASE.
5. THE EXHAUST DAMPER (ACD-3) SHALL BE MODULATED TO MAINTAIN A POSITIVE PRESSURE AT 0.15" WG (ADJUSTABLE) (AS SENSED BY SP-3) IN BOILER PLANT BY MODULATING (ACD-3) OPEN ON A RISE IN PRESSURE ABOVE SETPOINT.
6. THE EXHAUST DAMPER (ACD-4) 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 (ACD-4) OPEN ON A RISE IN PRESSURE ABOVE SETPOINT.

B. ECONOMIZER CONTROL

1. THE ECONOMIZER SHALL BE AN ENTHALPY TYPE AND SHALL BE COMMANDED BY THE DDC/EMS CONTROL SYSTEM. THE ENTHALPY ECONOMIZER SHALL CALCULATE THE ENTHALPIES OF BOTH THE OUTSIDE AIR AND RETURN AIR; AND SHALL CONTROL THE MIXTURE OF OUTSIDE AIR AND RETURN AIR TO MINIMIZE CHILLED WATER USAGE WHENEVER FREE COOLING IS AVAILABLE.
2. THE ECONOMIZER SHALL MODULATE THE OUTSIDE AIR DAMPER (ACD-1/AFS-3), EXHAUST AIR DAMPER (ACD-3)& (ACD-4), AND RETURN AIR DAMPER (ACD-2) TO SATISFY THE DISCHARGE AIR SET POINT OF 60°F (ADJUSTABLE) FOR AHU-1 AS SENSED BY (T-3). THE ASSOCIATED AIR HANDLER'S CHILLED WATER CONTROL VALVE SHALL BE CLOSED WHENEVER THE ECONOMIZER CAN SATISFY THE DISCHARGE AIR TEMPERATURE SET POINT. THE ECONOMIZER SHALL BE DE-ENERGIZED WHENEVER THE DISCHARGE AIR TEMPERATURE RISES 3°F (ADJUSTABLE) ABOVE THE AIR HANDLING UNIT'S SETPOINT AND CONTINUES TO RISE FOR A PERIOD OF 5 MINUTES.

C. COOLING COIL CONTROL

1. THE CHILLED WATER COOLING CONTROL SHALL BE ENABLED WHENEVER THE DISCHARGE AIR TEMP. RISES ABOVE THE 60 F (ADJ.) SETPOINT BY 3 F FOR A PERIOD OF 2 MINUTES. THEN, THE CHILLED WATER CONTROL VALVE (CHWV-1) SHALL MODULATE OPEN TO MAINTAIN THE DISCHARGE AIR TEMP. OF 60 F (ADJ.) AS SENSED BY T-3. THE CHILLED WATER VALVE SHALL BE CLOSED WHENEVER SETPOINT OF 60 F IS MET. THE CHILLED WATER CONTROL VALVE SHALL BE LOCKED OUT WHENEVER THE HEATING CYCLE IS INITIATED.

D. STEAM HEATING COIL CONTROL

1. WHEN THE DISCHARGE AIR TEMPERATURE DROPS BELOW 57 F (ADJ.) SETPOINT BY 2°F FOR 2 MINUTES THE HEATING CYCLE SHALL BE INITIATED. WHENEVER THE HEATING CYCLE IS INITIATED AND THE MIXED AIR TEMPERATURE IS ABOVE 40°F (ADJ.) THEN THE STEAM PREHEAT COIL'S FACE DAMPER (PHFD-1) SHALL OPEN FULLY TO THE COIL, THE BYPASS DAMPER (PHBD-1) SHALL BE CLOSED AND STEAM CONTROL VALVE (SHCV-1) SHALL MODULATE TO MAINTAIN DISCHARGE AIR TEMPERATURE OF 57 F (ADJ.) AS SENSED BY DISCHARGE AIR TEMP. SENSOR (T-3). WHENEVER THE HEATING CYCLE IS INITIATED AND THE MIXED AIR TEMP. FALLS BELOW 40 F(ADJ.); THEN THE STEAM CONTROL VALVE SHALL OPEN FULLY AND THE DISCHARGE AIR TEMP. SHALL BE MAINTAINED BY MODULATING THE FACE DAMPER (PHFD-1) AND THE BYPASS DAMPER (PHBD-1) TO MAINTAIN SETPOINT OF 57 F (ADJ.)AS SENSED BY T-3. THE HEATING CYCLE SHALL BE LOCKED OUT WHENEVER EITHER THE ECONOMIZER CAN MAINTAIN SETPOINT AND WHEN THE CHILLED WATER COIL CONTROL VALVE IS OPEN.

E. AIR HANDLING UNITS AIR VOLUME RESET CONTROL

1. THE DDC/EMS SYSTEM SHALL HAVE THE CAPABILITY TO COMMAND THE THE AHU-1 BOILER PLANT UNIT INTO AIR VOLUME RESET. WHENEVER, THE BOILER ROOM SPACE TEMPERATURE IS BEING MAINTAINED AT 85 F (ADJ.) OR LESS AND A ONE BOILER IS ENERGIZED. THEN, THE DDC/EMS SHALL MODULATE THE SPEED OF AHU-1/SF-1 VIA VFD-1 DOWN TO A MINIMUM VOLUME OF 12,000 CFM. IF THE SPACE TEMPERATURE CONTINUES TO RISE ABOVE 85 F (ADJ.) FOR 2 MINUTES UNDER MINIMUM VOLUME THIS SHALL CAUSE DDC/EMS TO SIGNAL THE VFD-1 TO MODULATE THE SPEED OF AHU-1/SF-1 FAN TO INCREASE THE AIR VOLUME IN ORDER TO SATISFY THE SPACE TEMP. OF 85 F (ADJ.). IF TWO BOILERS ARE ENERGIZED THE MINIMUM AIR VOLUME FLOW SHALL BE 24,000 CFM. THE DDC/EMS SHALL BE PROGRAMMED TO CONSTANT MONITOR AND ADJUST THE FAN SPEED/ AIR FLOW VOLUME BASED UPON MAINTAINED THE SPACE TEMPERATURE AND MINIMUM FLOW FOR ONE & TWO BOILER OPERATION.
2. THE DDC/EMS SYSTEM SHALL HAVE THE CAPABILITY TO COMMAND THE THE AHU-2 CHILLER PLANT UNIT INTO AIR VOLUME RESET. WHENEVER, THE CHILLER ROOM SPACE TEMPERATURE IS BEING MAINTAINED AT 85 F (ADJ.) OR LESS. THEN, THE DDC/EMS SHALL MODULATE THE SPEED OF AHU-2/SF-2 VIA VFD-2 DOWN TO A MINIMUM VOLUME OF 9,000 CFM. IF THE SPACE TEMPERATURE CONTINUES TO RISE ABOVE 85 F (ADJ.) FOR 2 MINUTES UNDER MINIMUM VOLUME THIS SHALL CAUSE DDC/EMS TO SIGNAL THE VFD-2 TO MODULATE THE SPEED OF AHU-2/SF-2 FAN TO INCREASE THE AIR VOLUME IN ORDER TO SATISFY THE SPACE TEMP. OF 85 F (ADJ.). THE DDC/EMS SHALL UPON A SIGNAL FROM THE REFRIGERANT DETECTORS COMMAND AHU-2 INTO EMERGENCY PURGE OPERATION. THE DDC/EMS SHALL MODULATE THE SPEED OF AHU-2/SF-2 VIA VFD-2 DOWN TO THE MINIMUM AIR VOLUME OF 9,000 CFM AND EF-5 CHILLER ROOM PURGE EXHAUST FAN SHALL BE SWITCHED TO HIGH SPEED OPERATION 10,000 CFM . THE AHU-2/SF-2 AND EF-5 SHALL REMAIN EMERGENCY PURGE OPERATION UNTIL THE EMERGENCY PURGE CONDITION IS RESET THROUGH THE DDC/EMS SYSTEM.

F. 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".

G. SAFETIES AND ALARMS

A. FREEZESTAT SENSOR (FS-1)

1. A FREEZESTAT SENSOR (FS-1) LOCATED UPSTREAM OF THE CHILLED WATER COIL SHALL SIGNAL THE DDC SYSTEM TO CLOSE THE OUTDOOR AIR DAMPERS (ACD-1/AFS-4) WHEN AIR TEMPERATURE SENSED ON ANY SEGMENT OF THE SERPENTINE SENSING ELEMENT HAS DROPPED BELOW 38°F (ADJUSTABLE). AT THE SAME TIME, RETURN AIR DAMPER (ACD-3) SHALL FULLY OPEN, THE COILS FACE DAMPER PHFD-1 SHALL OPEN FULLY, BYPASS DAMPER PHBD-1 SHALL CLOSE, AND EXHAUST DAMPER (ACD-3)& (ACD-4) SHALL CLOSE. UPON A FURTHER DROP IN AIR TEMPERATURE AS SENSED BY FS-1 TO 36 F(ADJ.) SHALL CAUSE THE SUPPLY FANS TO BE DE-ENERGIZED AND A SECOND ALARM ISSUED TO THE DDC/EMS SYSTEM.
2. UPON ACTIVATION OF FREEZESTAT (FS-1), AN ALARM SHALL BE INITIATED AT THE DDC/EMS CONTROL SYSTEM.
3. FREEZESTAT (FS-1) SHALL BE RESET WITH IT'S OWN MANUAL RESET BUTTON.

B. UNIT MOUNTED SUPPLY AND RETURN SMOKE DETECTORS

1. UPON ACTIVATION OF EITHER THE SUPPLY OR RETURN AIR SMOKE DETECTORS, SUPPLY FANS (SF-1)& (SF-2) SHALL SHUT-DOWN, ALL ASSOCIATED DUCT MOUNTED SUPPLY AND RETURN SYSTEM SMOKE DAMPERS(SD-1& SD-2) SHALL CLOSE. THE FIRE ALARM SYSTEM SHALL BE WIRED DIRECTLY TO FAN START CIRCUITS. THE DDC SYSTEM SHALL MONITOR THE STATUS OF EACH SMOKE DETECTOR AND ISSUE ALARMS AS DESCRIBED BELOW.
2. UPON ACTIVATION OF ANY SMOKE DETECTOR, AN ALARM SHALL BE INITIATED AT THE DDC/EMS CONTROL SYSTEM. SMOKE DETECTORS SHALL BE FURNISHED BY DIV. 16, INSTALLED IN THE DUCTWORK UNDER DIVISION 15, WIRED TO THE CONTROL SYSTEM BY THE ATC CONTRACTOR, AND WIRED TO THE FIRE ALARM SYSTEM BY DIV. 16.
3. FOLLOWING A SAFETY SHUT-DOWN, A MANUALLY INITIATED RESTART COMMAND SHALL RESTART THE SYSTEM AS PREVIOUSLY OUTLINED UNDER "ENABLE."

C. FILTER MONITORING AND ALARM (PRE-FILTERS)

1. THE CONTROL SYSTEM SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE PREFILTERS (PF). ANYTIME THE PREFILTER DIFFERENTIAL PRESSURE SENSOR (DP-2) MEASURES GREATER THAN 0.50" W.C. (ADJ.) FOR A PERIOD OF 10 MINUTES, AN ALARM SHALL BE INITIATED.

D. SUPPLY DUCT STATIC PRESSURE SWITCH (SP-2) SHALL SHUT DOWN THE SUPPLY FAN WHEN DUCT STATIC PRESSURE EXCEEDS 3" WG POSITIVE PRESSURE. IF ALARM CONDITION IS MET, AN ALARM SHALL BE INITIATED AT THE DDC/EMS CONTROL SYSTEM.

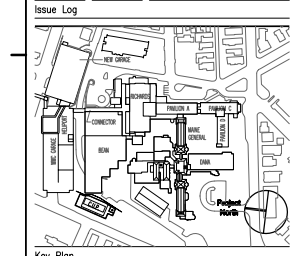
E. SUPPLY FAN MONITORING AND ALARM

1. THE CONTROL SYSTEM SHALL MONITOR THE STATUS OF THE SUPPLY FANS VIA THIER RESPECTIVE CURRENT SENSORS (CS-1) & (CS-2). IF ANYTIME THE SUPPLY FANS ARE "ENABLED" AND AFTER A 20 SECOND DELAY THE CONTROL SYSTEM SENSES ZERO OR LOW CURRENT FORM THE FAN MOTOR, AN ALARM SHALL BE INITIATED.

General Notes:

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

Issue Log



Key Plan

TRO
Architecture
Planning
Engineering
Interior Design
The Ritchie Organization
80 Bridge Street
Newton, MA 02195-1134
617-969-0400

Maine Medical Center
Central Utility Plant
Portland, Maine

Drawing Title
MECHANICAL-CENTRAL UTILITY PLANT AHU UNITS CONTROL SEQUENCE AND POINTS LIST

0' 0 0 0 0

Commission No.	4677	Date Issued	
Scale	NTS	Sheet Number	
Drawn By	MC		M505
Approved By	MC		
Filename	4677M505		

Copyright © 2004 The Ritchie Organization