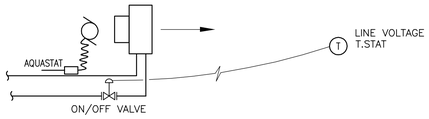


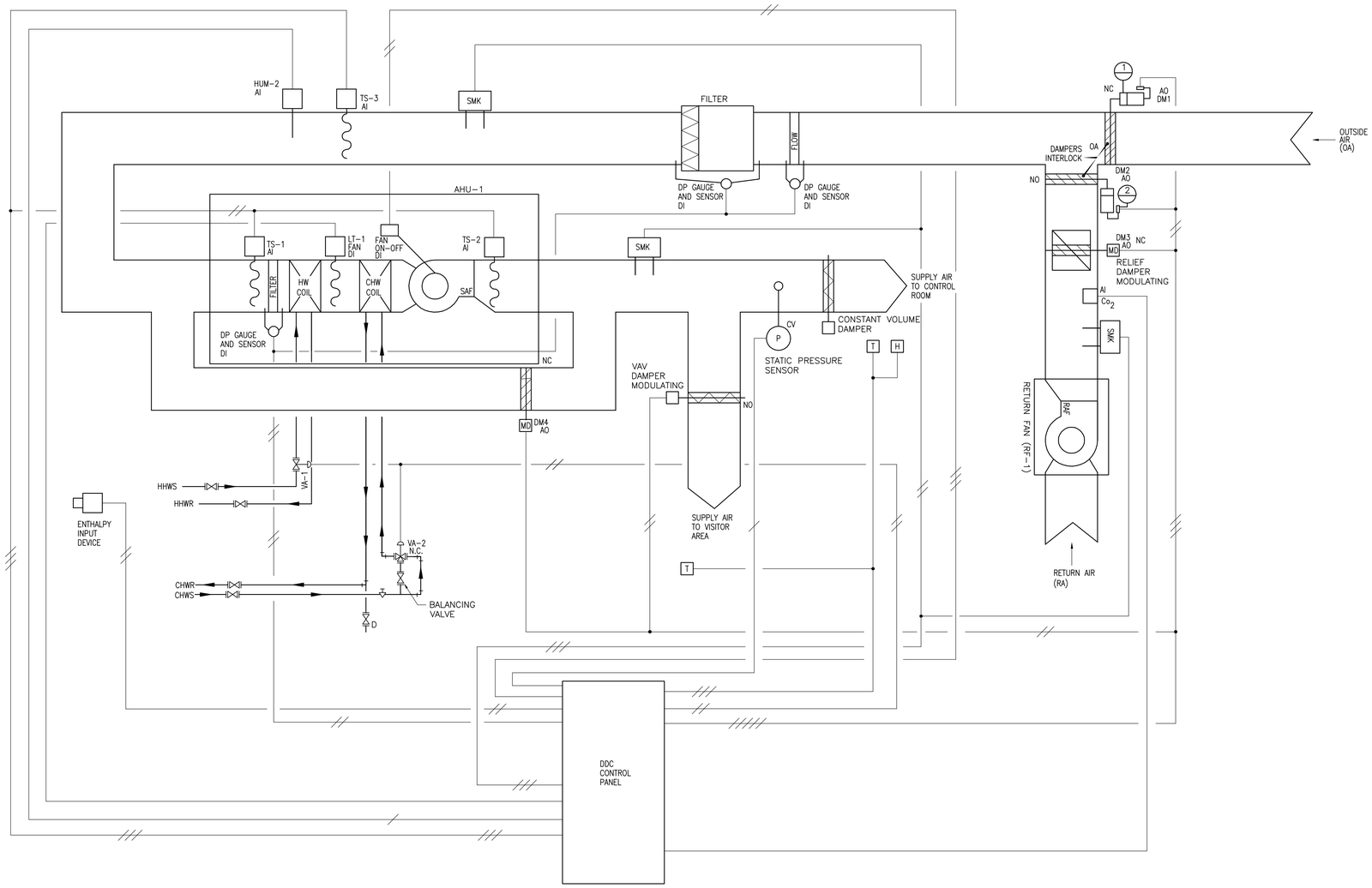
2 UNIT HEATER CONTROL DIAGRAM
NTS

BUILDING TEMPERATURE CONTROL SYSTEM:

1. PROVIDE A BACNET OR LON BASED DDC CONTROL SYSTEM WITH OPEN PROTOCOL SOURCE CODE, NETWORK AND DEVICES TO CONTROL DEDICATED CHILLER SYSTEM, AIR HANDLING UNIT, RETURN FANS, RETURN RELIEF, RELIEF, OUTDOOR AIR AND BYPASS CONTROL DAMPERS, AND HYDRONIC CONTROL VALVES.
2. PROVIDE ALL NECESSARY CONTROL PANELS, RELAYS, DAMPER AND VALVES, ACTUATORS, CONTROL WIRING AND CONTROL TRANSFORMERS, NETWORK COMMUNICATION, MONITORING DEVICES, INCLUDING SAFETY CONTROLS, OUTSIDE AIR FLOW MONITOR, OUTSIDE AIR ENTHAPY MONITOR AND OTHER DEVICES SHOWN IN AIR HANDLING UNIT CONTROL DIAGRAM.
3. PROVIDE ALL INCIDENTAL LABOR AND MATERIAL INCLUDING, SOURCE CODE AND GRAPHIC PROGRAMMING, SET POINT ADJUSTMENTS, CALIBRATION, START UP TESTING AND TRAINING OF OWNER'S PERSONNEL.
4. INSTALL AND WIRE SMOKE DETECTORS FURNISHED BY DIVISION 16 TO SHUT DOWN AC UNIT AND RETURN FAN.
5. SUBMIT SHOP DRAWINGS INCLUDING SYSTEM ARCHITECTURE, WIRING DIAGRAMS, EQUIPMENT SPECIFICATIONS AND DATA SHEETS, VALVE AND DAMPER CHART AND SEQUENCE OF OPERATION INCLUDING POINTS LIST.
6. WORK SHALL BE PERFORMED BY FACTORY LICENSED CONTRACTOR WITH MINIMUM OF 10 YEARS OF EXPERIENCE IN MAINTENANCE AND INSTALLATION OF PROPOSED SYSTEM.

BUILDING TEMPERATURE CONTROL SYSTEM CONT.:

7. SMOKE DETECTORS SHALL BE FURNISHED AND WIRED TO FIRE ALARM SYSTEM BY DIVISION 16. WIRING TO SHUT DOWN AIR HANDLING SYSTEM SHALL BE BY CONTROL SYSTEM INSTALLER.
8. PROVIDE COMMUNICATION INTERFACE WITH LOCAL DATA NETWORK AND ROUTER TO ALLOW WEB ACCESSIBLE MONITORING AND SUPERVISION.
9. PROVIDE A DESKTOP COMPUTER WITH GRAPHICS CONTROL PROGRAMMING AND COMMUNICATION SOFTWARE TO ALLOW LOCAL MONITORING OF DDC SYSTEM. DESKTOP COMPUTER SHALL HAVE DUO CORE PROCESSOR, 2GB MEMORY, 160GB HARD DRIVE, 1024X768 MIN. GRAPHIC RESOLUTION. PROVIDE READ/WRITE CD ROM, KEYBOARD AND OPTICAL MOUSE. PROVIDE A LASER PRINTER WITH 250 PAGE TRAY MINIMUM.
10. PROVIDE EIGHT HOURS OF DOCUMENTED TRAINING FOR OWNER'S PERSONNEL. PROVIDE ONE YEAR WARRANTY SERVICE.
11. ADJUST CONTROL SYSTEM AT PROJECT COMPLETION DURING HEATING AND COOLING SEASONS AND BEFORE EXPIRATION OF ONE YEAR WARRANTY SERVICE.
12. SUPPLY/RETURN FAN AND ELECTROSTATIC FILTER SHALL BE INTERLOCKED TO START RETURN FAN AND ENERGIZE FILTER WHEN SUPPLY FAN IS STARTED BY BUILDING MANAGEMENT SYSTEM. DIVISION 16 SHALL PROVIDE INTERLOCKED RELAYS AND STARTERS WITH AUXILIARY CONTACTS.
13. RELIEF DAMPER SHALL BE INTERLOCKED WITH THE OUTSIDE AIR DAMPER SO THAT THE RELIEF DAMPER POSITION MATCHES THE OUTSIDE AIR DAMPER.



1 AIR HANDLING UNIT CONTROL DIAGRAM
NTS

LEGEND

AI	ANALOG INPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
AO	ANALOG OUTPUT
////	DENOTES MULTIPLE CIRCUITS

INSTRUMENTATION AND CONTROLS SCHEDULE

SYMB	DESCRIPTION
VFD	ADJ. FREQ. DRIVE FOR AHU EXH. FANS
VFD	ADJ. FREQ. DRIVE, FOR AHU SUPPLY FANS
TS1-6	TEMPERATURE SENSOR
DDC 1-5	DIGITAL CONTROL PANEL
GCM-1	GLOBAL CONTROL PANEL
XFRMR-5	TRANSFORMER
CS1-6	CURRENT SWITCH, VERIS
VA-2	2 WAY N.C. VALVE
VA-3	3 WAY VALVE
MF1,2	DDC VAV BOX CONTROLLER
TS-8	OUTSIDE AIR SENSOR
HUM1	HUMIDITY SENSOR
HUM2	HUMIDITY SENSOR
SP-1	STATIC PRESSURE SENSOR, MAMAC
DM1-5	DAMPER MOTOR
XDCER1-5	TRANSDUCER
TS12	SPACE SENSOR
TS9,10	AVERAGING SENSOR
OBG 1-5	PANEL (ONE PER AHU)
DP	DIFFERENTIAL PRESSURE SENSOR, MAMAC
NIM-1	NETWORK INTERFACE MODULE
FS-1-3	FLOW MEASURING STATION/FLOW PROCESSOR
Co_2	Co_2 SENSOR DCS
AMS	AIR FLOW MEASURING STATION
TS-7	HEAT RECOVERY WATER TEMPERATURE
C	CURRENT TRANSDUCER - FAN STATUS

NOTE:

POWER WIRING BY DIVISION 16, INCLUDING STARTERS AND DISCONNECTS NOT FURNISHED BY UNIT MANUFACTURES. CONTROL WIRING INCLUDING LINE VOLTAGE WIRING AND STEP DOWN TRANSFORMERS BY DIVISION 15.

CONNECTICUT RESOURCES RECOVERY AUTHORITY
TEL. NO. (860)-757-7700
FAX. NO. (860)-757-7743

A&E FIRM

URS
URS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CT. 06067
1-(860)-529-8882

A&E SEAL

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE, DISCLOSURE OTHER THAN THAT WHICH RELATES TO CRRA AND MDC IS STRICTLY PROHIBITED.

REVISIONS

NUMBER	DATE	REMARKS

CONTROL ROOM HVAC SYSTEMS IMPROVEMENT

300 MAXIM ROAD
HARTFORD, CT.

PROJECT NO:	36937520.00001
DRAWN BY:	DEP
CHECKED BY:	VMD
DATE:	04/28/08
CADD FILE:	AS NOTED

MECHANICAL DETAILS

M-503

P:\Disciplines\Mechanical\Sheet\M-503.dwg April 30, 2008 - 11:26 AM