CONTROL POINT LIST - TYPICAL TARGET BUILDING TRUSS LEVEL AIR HANDLER

BUILDING: TARGET AIR HANLDERS

POINT DESCRIPTION	GRAPHIC DISPLAY(WINDOWS BASED SOFTWARE)	OUTPUT FROM DDC – DIGITAL: CONTROL RELAY	HAND/OFF/AUTO	OPEN / CLOSE	OUTPUT FROM DDC – ANALOG: CONTROL POINT ADJUSTMENT	PROPORTIONAL CONTROL	INPUT TO DDC – DIGITAL: CONACT CLOSURE	PULSE	DIFFERENTIAL PRESSURE SWITCH	PRESSURE SWITCH	AUXILIARY CONTACT	GENERAL ALARM	INPUT TO DDC – ANALOG: TEMPERATURE (F)	% RELATIVE HUMIDITY	DIFFERENTIAL PRESSURE, INTAKE W.G.	SPEED (RPM)	FLOW	SOFTWARE – ALARMS – DIGITAL: CONTACT CLOSURE--DIRTY FILTER	CONTACT CLOSURE--EQUIPMENT FAILTURE	ALARMS – ANALOG: HIGH LIMIT	LOW LIMIT	RUN TIME	APPLICATIONS: DUTY CYCLING	START/STOP	ECONOMIZER OFF/AUTO	LEAD/LAG	CHILLED WATER RESET	FAILURE MODE
AH-TA-01, 02, 03, & 04	X																											
AHU OA/RA DAMPER						X																						
ROOF EXHAUST AIR FAN-START/STOP		X																						X				
ROOF EXHAUST FAN SPEED						X																						
SPEED FEED BACK																X												
VFD FAULT							X																					X
ZONE TEMPERATURE													X							X	X							
ZONE HEATING VALVE						X																						
EA DAMPER				X																								
COOLING COIL WATER FLOW CONTROL VALVE						X																						
HEATING COIL WATER FLOW CONTROL VALVE						X																						
SUPPLY AIR FLOW																	X		X			X						
OUTSIDE AIR FLOW																	X											
FAN START/STOP		X																						X				
SPACE STATIC PRESSURE																	X											
SUPPLY AIR TEMPERATURE													X							X	X							
SPACE RELATIVE HUMIDITY														X						X	X							
RETURN AIR TEMPERATURE													X															
RETURN AIR RELATIVE HUMIDITY														X														
OUTSIDE AIR TEMPERATURE													X															
OUTSIDE AIR RELATIVE HUMIDITY														X														
EXH. AIR FAN DIFF. PRESSURE-STATUS									X										X			X						
HUMIDIFIER						X																						
SUPPLY AIR DISCHARGE DAMPER				X																								

SEQUENCE OF OPERATION

1. GENERAL:
THE AIR HANDLING UNIT SHALL BE ENERGIZED THRU THE CONTROL SYSTEM AND SHALL RUN CONTINUOUSLY. THE ROOF EXHAUST FAN SHALL BE INTERLOCKED TO THE SUPPLY FAN SUCH THAT IT CAN RUN ONLY WHEN THE SUPPLY FAN IS ENERGIZED. A DAMPER IN THE SUPPLY AIR DISCHARGE SHALL BE CLOSED WHEN THE UNIT IS DE-ENERGIZED AND SHALL BE COMMANDED OPEN WHEN THE UNIT IS ENERGIZED. DUCT SMOKE DETECTORS (DSDs) IN THE SUPPLY AIR AND RETURN AIR STREAMS SHALL BE CONNECTED TO THE FIRE ALARM CONTROL PANEL. SHOULD SMOKE BE DETECTED THE FIRE ALARM PANEL THRU THE CONTROL MODULE WILL SHUT-DOWN THE UNIT. AN AIR FLOW MEASURING STATION (AFMS) IN THE SUPPLY AIR DUCT SHALL REPORT UNIT AIR FLOW, AND THUS OPERATING STATUS, TO THE CENTRAL CONTROL STATION.

2. SUPPLY AIR HEATING:
A SUPPLY AIR TEMPERATURE SENSOR SHALL PROVIDE INPUT TO THE CONTROL SYSTEM. SHOULD THE SUPPLY AIR TEMPERATURE DROP BELOW SETPOINT (52 DEGREES F), THE CONTROL SYSTEM SHALL MODULATE OPEN THE HEATING COIL CONTROL VALVE AS REQUIRED TO MAINTAIN THE DESIRED SUPPLY AIR TEMPERATURE. OUTSIDE AIR DAMPERS SHALL BE AT MINIMUM POSITION DURING HEATING.

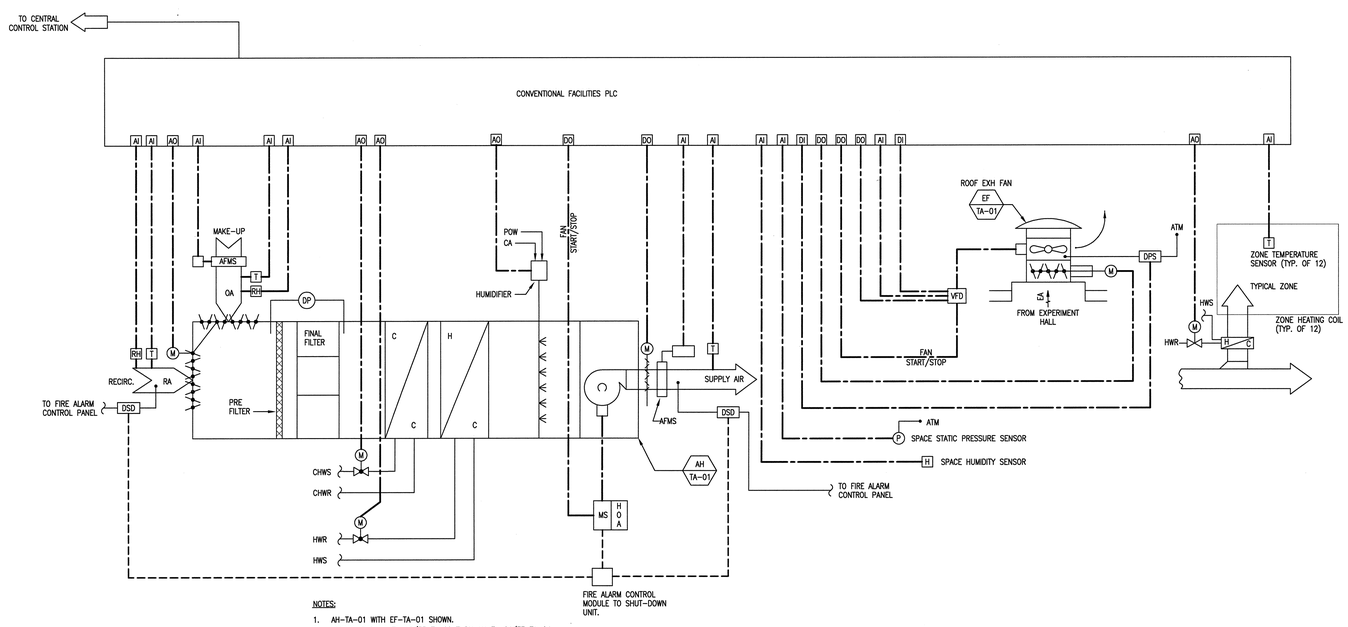
3. COOLING:
A SUPPLY AIR TEMPERATURE SENSOR SHALL PROVIDE INPUT TO THE CONTROL SYSTEM. SHOULD THE SUPPLY AIR TEMPERATURE RISE ABOVE SETPOINT (54 DEGREES F), THE CONTROL SYSTEM SHALL MODULATE OPEN THE OUTSIDE AIR DAMPERS WHILE CLOSING CLOSING THE RETURN AIR DAMPERS IN AN ATTEMPT TO UTILIZE FREE OUTDOOR AIR FOR COOLING. SHOULD INSUFFICIENT COOLING BE AVAILABLE AND THE SUPPLY AIR TEMPERATURE RISE TO 56 DEGREES F, THE CONTROL SYSTEM SHALL MODULATE OPEN THE COOLING COIL CONTROL VALVE AS REQUIRED TO MAINTAIN THE DESIRED SUPPLY AIR TEMPERATURE.

THE CONTROL SYSTEM SHALL USE TEMPERATURE AND RELATIVE HUMIDITY SENSORS IN THE RETURN AIR AND OUTSIDE AIR TO DETERMINE THE ENTHALPY OF EACH AIR STREAM. SHOULD THE ENTHALPY OF THE OUTSIDE AIR REACH THAT OF THE RETURN AIR, THE CONTROL SYSTEM SHALL DRIVE THE OUTSIDE DAMPERS TO MINIMUM POSITION. THE ROOF EXHAUST FAN ASSOCIATED WITH EACH AIR HANDLING UNIT SHALL BE DEENERGIZED WHENEVER THE OUTSIDE AIR DAMPER IS AT MINIMUM POSITION. WHEN THE OUTSIDE AIR DAMPER BEGINS TO OPEN THE EXHAUST FAN SHALL BE ENERGIZED.

4. PRESSURE CONTROL:
ONCE THE ROOF EXHAUST FAN IS ENERGIZED, SPACE STATIC PRESSURE SENSOR THRU THE CONTROL SYSTEM SHALL MODULATE THE EXHAUST FAN SPEED, UTILIZING THE VFD, TO MAINTAIN REQUIRED SPACE PRESSURIZATION.

5. HUMIDIFICATION:
A SPACE RELATIVE HUMIDITY SENSOR SHALL PROVIDE INPUT TO THE CONTROL SYSTEM. THE CONTROL SYSTEM SHALL SEND A SIGNAL TO MODULATE HUMIDIFIER OUTPUT, THRU THE HUMIDIFIER UNIT CONTROL PANEL TO MAINTAIN THE SPACE RELATIVE HUMIDITY AT 40%.

6. ZONE TEMPERATURE CONTROL:
A ZONE TEMPERATURE SENSOR SHALL PROVIDE INPUT TO THE CONTROL SYSTEM. THE CONTROL SYSTEM SHALL MODULATE TOE ZONE HEATING COIL CONTROL VALVE AS REQUIRED TO MAINTAIN THE DESIRED SPACE TEMPERATURE.



NOTES:
1. AH-TA-01 WITH EF-TA-01 SHOWN.
2. TYPICAL FOR AH-TA-02/EF-TA-02 THRU AH-TA-04/EF-TA-04.

TRUSS LEVEL AIR HANDLER CONTROL DIAGRAM - TYPICAL FOR AH-TA-01, 02, 03 & 04

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NUMBER OF SECTION OR DETAIL
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN OR TAKEN
SECTION AND DETAIL KEY

THIS DOCUMENT CONTROLLED BY
CHANGE CONTROL SYSTEM 3
ENGINEERING PROCEDURE SNS-ENG-G001

REV	CHANGE TYPE	CHANGE CONTROL SYSTEM	CHANGE REQUEST NUMBER	DESCRIPTION (REVISION OR ISSUE PURPOSE)	DSN	CHK	DEPT	DATE	PE	DATE	PJ	DATE	REQ	DATE	UTB	DATE	RPE	RPE NO	DATE	ST	CV	EC	EE	EM	IE	M	PD	SE	AR
A				ISSUED FOR REFERENCE – 10/26/01	MMK	BWJ											BWJ	105869	10/26/01	REW	–	WRS	AK	WRS	BWJ	–	MP	–	ED

REVISION OR ISSUE PURPOSE — REVISION APPROVALS — SQUAD CHECK

RPE: FOR REFERENCE ONLY

DRAWING APPROVALS		
DSN	M.KEHOE	10/26/01
DRW	J.STEIN	10/26/01
CHK	B.JOHNSON	10/26/01
DEPT		
PE		
PJ		
REQ		
UTB		
REV. DATE		

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PROJECT NAME:
SPALLATION NEUTRON SOURCE

TARGET BUILDING
TARGET TRUSS LEVEL AHU CONTROL DIAGRAM

1	48	49	50	PLANT	BLDG	FL	SH.	OF	TYPE	CLASS
3	H	X	X	8	8700		1	1	D	U
51		52		53	WBS		H8.40.02			REV
NC		NA			1.8.3.7					A

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