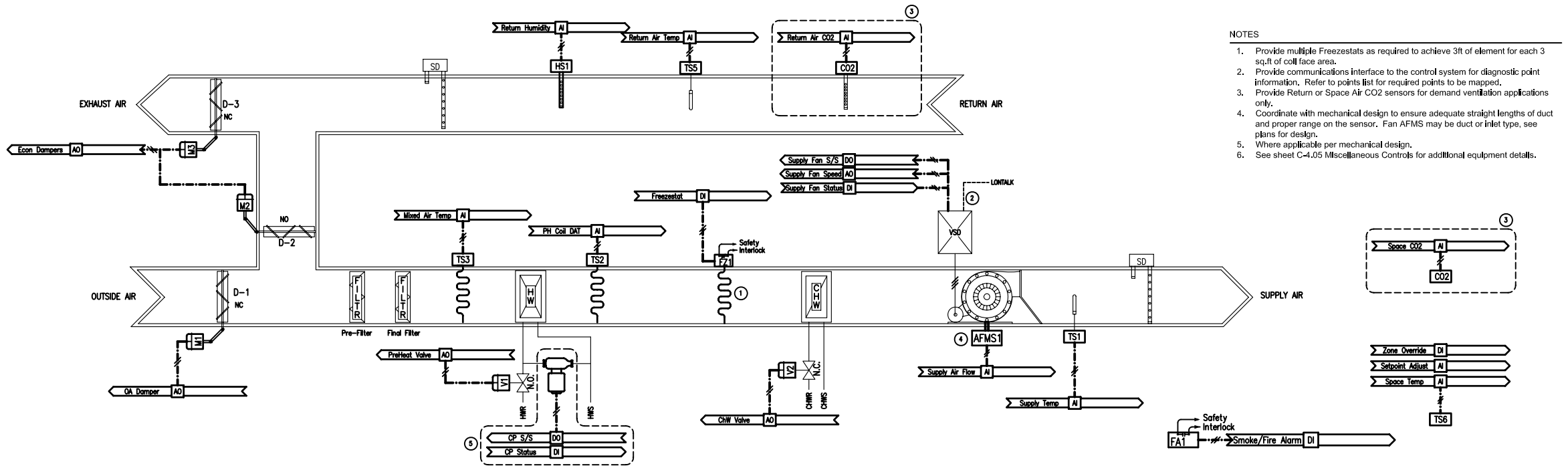
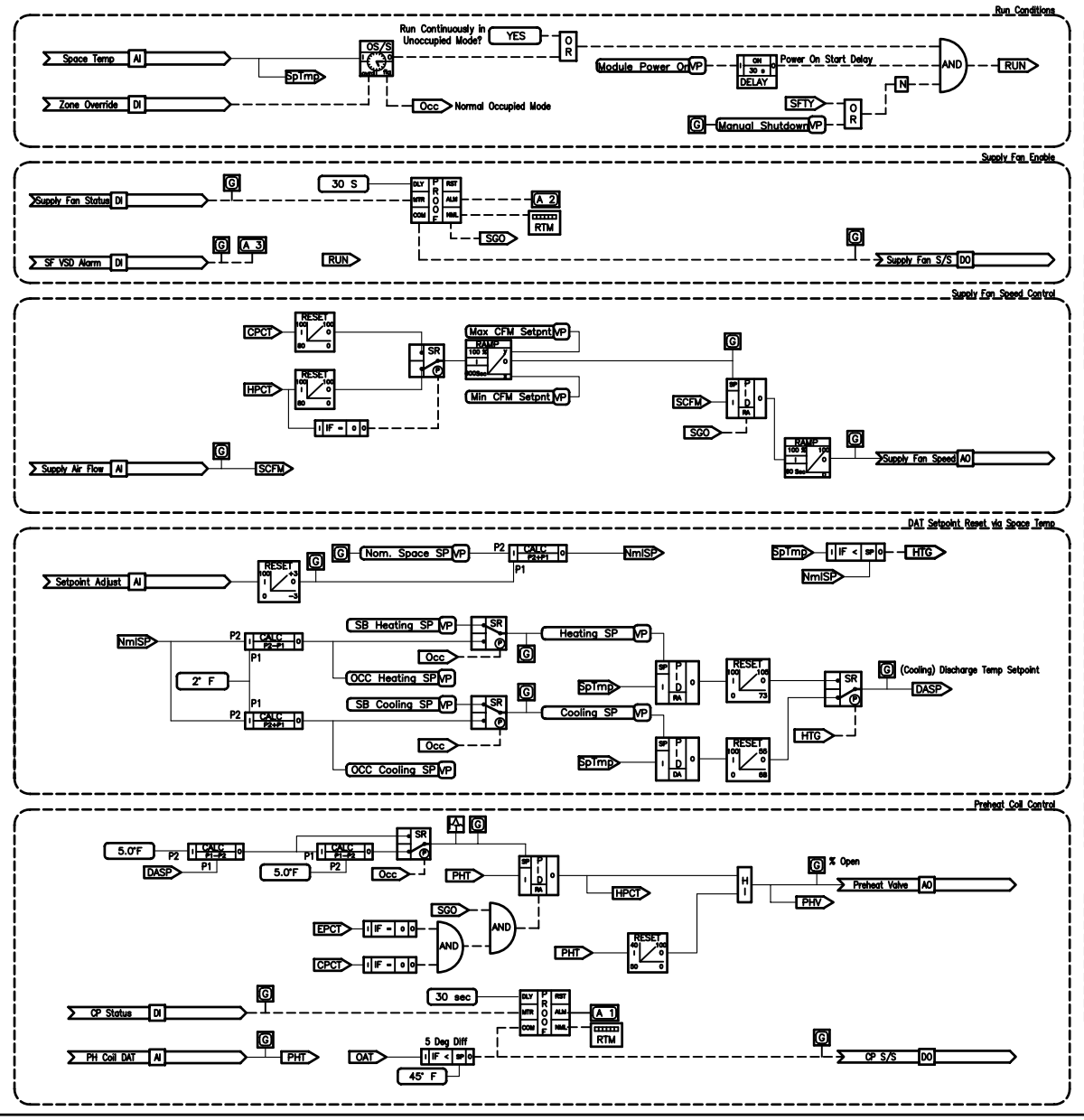


NOTES

1. Provide multiple Freezestats as required to achieve 3ft of element for each 3 sq.ft of coil face area.
2. Provide communications interface to the control system for diagnostic point information. Refer to points list for required points to be mapped.
3. Provide Return or Space Air CO2 sensors for demand ventilation applications only.
4. Coordinate with mechanical design to ensure adequate straight lengths of duct and proper range on the sensor. Fan AFMS may be duct or inlet type, see plans for design.
5. Where applicable per mechanical design.
6. See sheet C-4.05 Miscellaneous Controls for additional equipment details.

SINGLE DUCT CV-VSD AH WITH PREHEAT & CHW



Software Logic Diagram

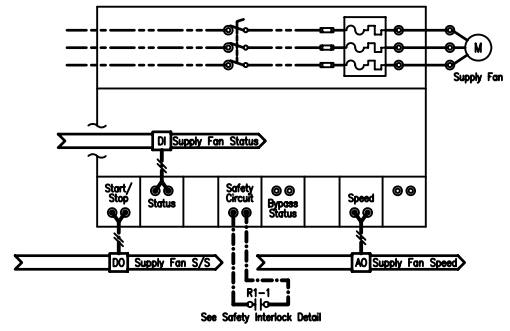
POINTS LIST

ADDRESS	POINT DESCRIPTOR	DI	AI	DO	AO	VP	REMARKS
	Supply Fan S/S			•			
	Supply Fan Status	•					
	Supply Fan Speed				•		
	Supply Air Flow		•				
	Supply Temp		•				
	PH Coil DAT		•				
	Freezestat	•					
	Mixed Air Temp		•				
	Space Temp		•				
	Setpoint Adjust		•				
	Zone Override	•					
	Return Air Temp		•				
	Return Air Humidity		•				
	Return Air CO2		•				See Note 3
	Space CO2		•				See Note 3
	PreHeat Valve				•		
	CHW Valve				•		
	Econ Dampers				•		
	OA Damper				•		
	Fire Alarm	•					
	Circ Pump S/S			•			See Note 5
	Circ Pump Status	•					See Note 5
	VFD Alarm/Fault					•	Interface Point
	VFD Fault Code					•	Interface Point
	VFD Spd Feedback					•	Interface Point
	VFD KW					•	Interface Point
	VFD In Bypass					•	Interface Point

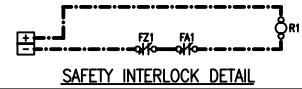
LOGIC VARIABLES

BINARY	ANALOG	DESCRIPTION
Occ		ON WHEN OCCUPIED MODE ACTIVE
RUN		ON WHEN UNIT COMMANDED TO START
SBH		ON WHEN SETBACK HEATING MODE ACTIVE
SBC		ON WHEN SETBACK COOLING MODE ACTIVE
WUP		ON WHEN WARM-UP MODE ACTIVE
CDN		ON WHEN COOL-DOWN MODE ACTIVE
SGO		ON WHEN SUPPLY FAN ENERGIZED AND STATUS PROVEN
MAGO		ON WHEN OA CONDITIONS ALLOW ECONOMIZER CONTROL
HTG		ON WHEN SPACE TEMPERATURE LOWER THAN NORMAL SPACE SETPOINT
FRZ		ON WHEN FREEZESTAT IS IN ALARM
Fire		ON WHEN FIRE ALARM IS ACTIVE
SFTY		ON WHEN UNIT SHUTDOWN SAFETY IS ON
	PHV	VARIABLE CALCULATED VALUE OF PREHEAT VALVE POSITON
	SpTmp	VARIABLE VALUE OF SPACE TEMPERATURE
	NmlSP	VARIABLE CALCULATED VALUE OF NORMAL SPACE TEMPERATURE SETPOINT
	SCFM	VARIABLE VALUE OF SUPPLY AIR FLOW (CFM)
	OAT	VARIABLE VALUE OF OUTSIDE AIR TEMPERATURE
	SAT	VARIABLE VALUE OF SUPPLY AIR TEMPERATURE
	PHT	VARIABLE VALUE OF PREHEAT AIR TEMPERATURE
	MAT	VARIABLE VALUE OF MIXED AIR TEMPERATURE
	MINOA	VARIABLE VALUE OF MIN OA DAMPER POSITION
	DASP	VARIABLE CALCULATED VALUE OF DISCHARGE TEMPERATURE SETPOINT
	CPCT	VARIABLE CALCULATED VALUE OF CHW VALVE POSITION
	HPCT	VARIABLE CALCULATED VALUE OF HEATING OUTPUT
	EPCT	VARIABLE CALCULATED VALUE OF ECONOMIZER PID OUTPUT
	RHP	VARIABLE CALCULATED VALUE OF CHW VALVE POSITION FOR DEHUMIDIFICATION

ELECTRIC LADDER DIAGRAMS



SUPPLY FAN VSD



SAFETY INTERLOCK DETAIL

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REVISIONS

NO.	DESCRIPTION	DATE

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

The University of North Carolina
Chapel Hill, North Carolina

Standard Control Drawings

Eng	RR
Drawn	BMV
Chkd	---
Appd	---
Issued	06/06/2010
Job No.	----
Scale	N/A
Proj Code	

REV. 5

SINGLE DUCT CV-VSD AH WITH PREHEAT & CHW

00 OF 00
SHEET NUMBER

C-1.12
DWG NUMBER