

GENERAL					
POINT DESCRIPTION	INPUT		OUTPUT		FLN
	DIGITAL	ANALOG	DIGITAL	ANALOG	
HW RECIRC PUMP START/STOP			X		
RED LIGHT(TYPICAL)	X				
GREEN LIGHT (TYPICAL)	X				
CONTROLS FOR AHU-1&2/CU-1&2					
POINT DESCRIPTION	INPUT		OUTPUT		ALARM
	DIGITAL	ANALOG	DIGITAL	ANALOG	
SUPPLY FAN START/STOP			X		
POWER EXHAUST START/STOP			X		
SUPPLY FAN STATUS	X				X
POWER EXHAUST STATUS	X				X
EXHAUST FAN SPEED				X	X
SUPPLY FAN SPEED				X	X
DISCHARGE AIR TEMPERATURE		X			
MIXED AIR TEMPERATURE		X			
RETURN AIR TEMP		X			
SMOKE DETECTOR	X				X
OUTSIDE DAMPER POSITION				X	
EXHAUST DAMPER POSITION				X	
RETURN AIR DAMPER POSITION				X	
COMPRESSOR COMMAND ( 2 COMPRESSORS)			X		
COMPRESSOR STATUS (2 COMPRESSORS)	X				X
COMPRESSOR VFD (COMPRESSOR #1)				X	X
HEATING VALVE				X	
DUCT PRESSURE		X			
DUCT PRESSURE ALARM	X				X
RA CO2 (AHU-1 ONLY)	X				X
CONTROLS FOR VAV BOX, EACH					
POINT DESCRIPTION	INPUT		OUTPUT		FLN
	DIGITAL	ANALOG	DIGITAL	ANALOG	
SPACE TEMP		X			
AIR FLOW		X			
DAMPER POSITION				X	
HEATING VALVE				X	
DISCHARGE AIR TEMP		X			
CONTROLS FOR PROCESS EXH. FAN, EACH					
POINT DESCRIPTION	INPUT		OUTPUT		FLN
	DIGITAL	ANALOG	DIGITAL	ANALOG	
EXHAUST FAN START/STOP			X		
EXHAUST FAN VFD				X	X
EXHAUST FAN STATUS				X	X
SPACE PRESSURE	X				
CONTROLS FOR NEW BOILERS & PUMPS					
POINT DESCRIPTION	INPUT		OUTPUT		FLN
	DIGITAL	ANALOG	DIGITAL	ANALOG	
BOILER CONTROL PANEL ENABLE/DISABLE			X		X
EMERGENCY SWITCH (TYP. 2)	X				X
BURNER ALARM	X				X
BURNER STATUS (TYP. 2)	X				X
INLET WATER TEMPERATURE		X			
OUTLET WATER TEMPERATURE (TYP. 2)		X			
ISOLATION VALVE			X		
PUMP START/STOP (P-6&7), EA				X	
PUMP STATUS VFD (P-6&7), EA.		X			X
PUMP SPEED (P-6&7), EA.				X	
LOOP DP		X			
CONTROLS FOR VAV BOX, EACH					
POINT DESCRIPTION	INPUT		OUTPUT		FLN
	DIGITAL	ANALOG	DIGITAL	ANALOG	
SPACE TEMP		X			
HEATING VALVE				X	
DISCHARGE AIR TEMP		X			
CONTROLS FOR FIRE/SMOKE DAMPER					
POINT DESCRIPTION	INPUT		OUTPUT		FLN
	DIGITAL	ANALOG	DIGITAL	ANALOG	
DAMPER SMOKE DETECTOR	X				X
DAMPER END SWITCH	X				
DAMPER RELAY CONTACTS			X		

CONTROLS FOR SPLIT SYSTEMS, EACH					
POINT DESCRIPTION	INPUT		OUTPUT		FLN
	DIGITAL	ANALOG	DIGITAL	ANALOG	
SPACE TEMP		X			X
CONTROLS FOR GENERAL EXH. FAN, EACH					
POINT DESCRIPTION	INPUT		OUTPUT		FLN
	DIGITAL	ANALOG	DIGITAL	ANALOG	
EXHAUST FAN START/STOP			X		
EXHAUST FAN STATUS				X	X
CONTROLS FOR HEATING COIL, EACH					
POINT DESCRIPTION	INPUT		OUTPUT		FLN
	DIGITAL	ANALOG	DIGITAL	ANALOG	
SPACE TEMP		X			
HEATING VALVE				X	
DISCHARGE AIR TEMP		X			

**GENERAL CONTROLS NOTES:**

- SEE M1.0 FOR PROCESS SUITE INSTRUMENTATION LOCATIONS. REVIEW LOCATIONS WITH OWNER PRIOR TO INSTALLATION.
- SEE MP SERIES, MECHANICAL PIPING PLANS FOR SENSOR LOCATIONS FOR OFFICE BLDGS.
- REFER TO PLUMBING PLANS FOR CONTROLS ASSOCIATED WITH WASTE WATER TREATMENT. COORDINATE AND REVIEW ALL CONTROLS COMPONENTS AND DEVICES WITH OWNER PRIOR TO INSTALLATION. PROCEED ONLY WITH OWNER APPROVAL.

**PLUMBING CONTROLS:**

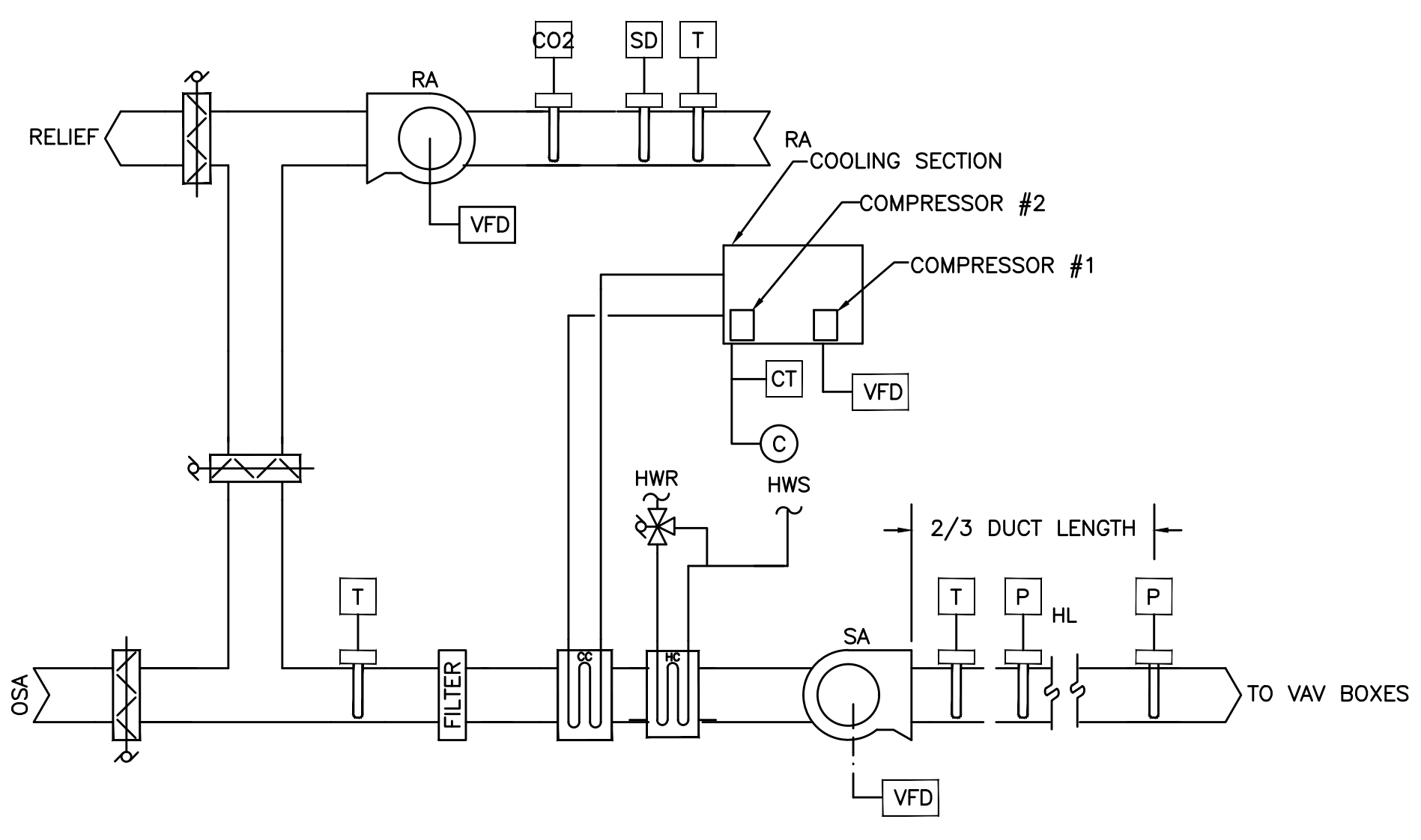
CONTROLS CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF THE FOLLOWING PLUMBING RELATED CONTROLS:

- EMERGENCY SHUT-OFF VALVE CONTROL. SEE DETAIL 2/P6.1, SHEET P2.0 & P2.1.
- BREAK TANK FLOAT SWITCH ALARM (SEE CIVIL FOR THE TANK AND FLOAT SWITCH). CONTROLS CONTRACTOR TO PROVIDE VISUAL/AUDIO ALARM. SEE M1.0 FOR LOCATION. COORDINATE WORK WITH CIVIL.
- DOUBLE CONTAINMENT LEAK DETECTION AND MONITORING UNIT. SEE PLUMB SPEC FOR DETECTION CABLE AND MONITORING UNIT.

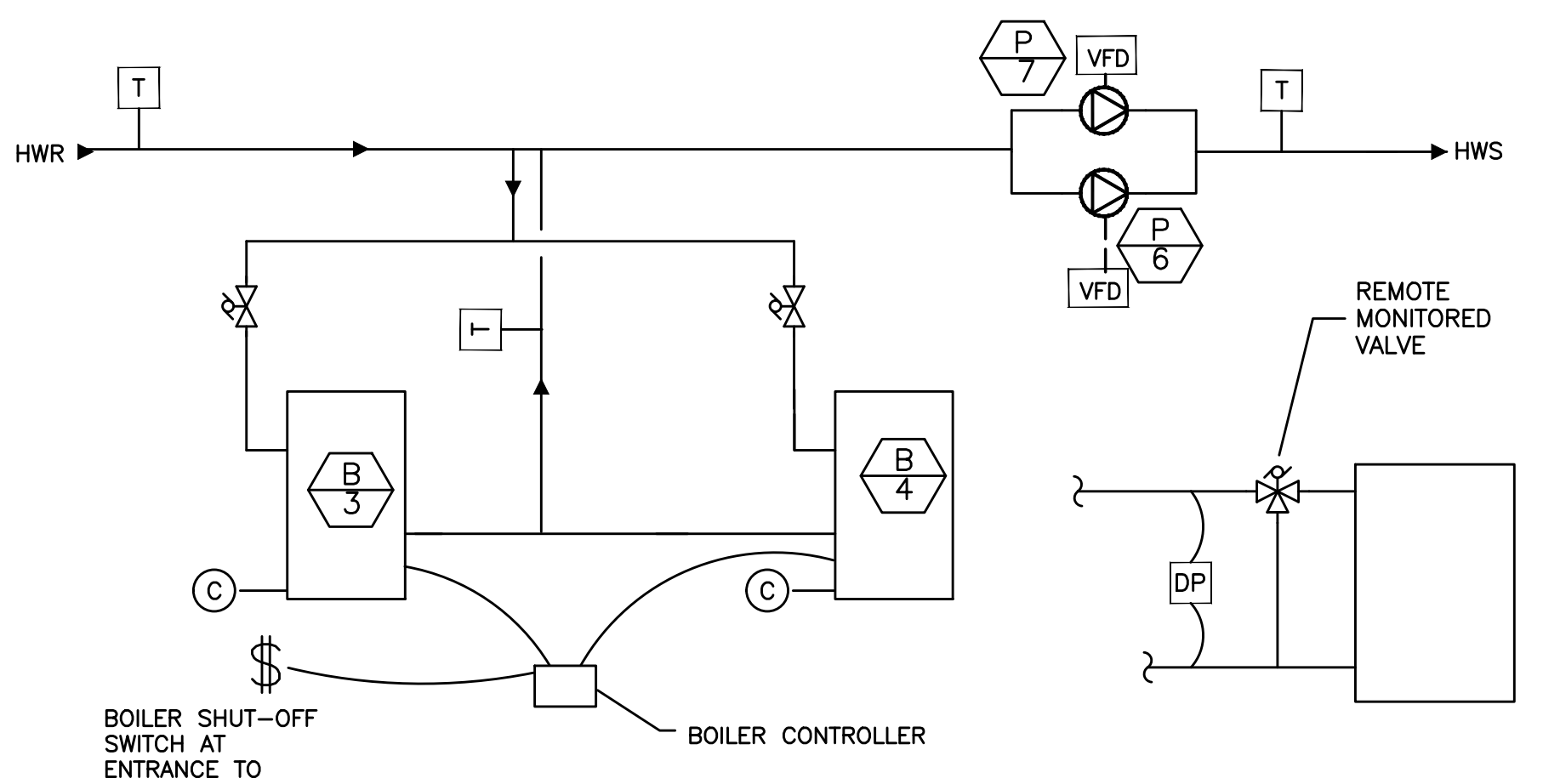
THE ABOVE CONTROLS DO NOT REQUIRE MONITORING/CONNECTION TO DDC SYSTEM.

REFER TO PLUMBING AND CIVIL PLANS FOR DETAILS. COORDINATE WORK WITH PLUMBING & SITE CONTRACTOR.

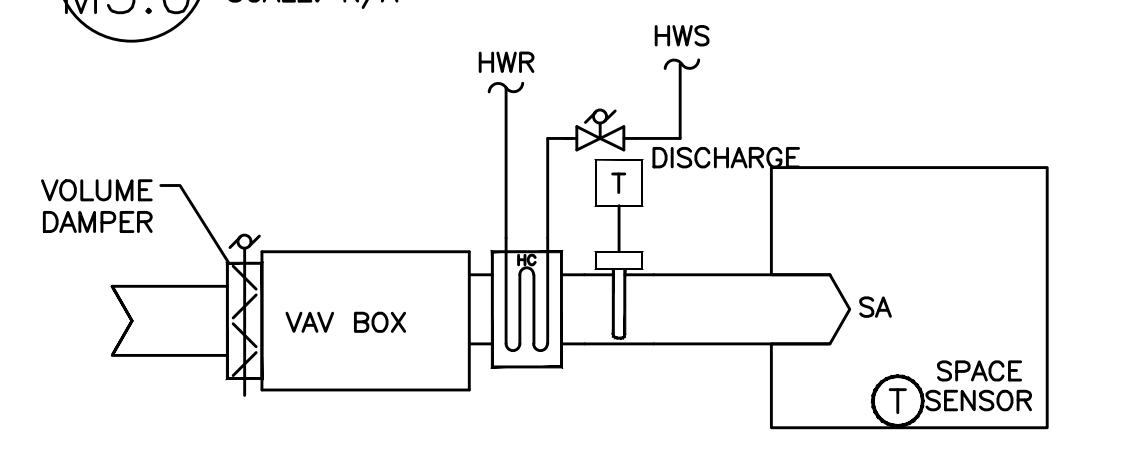
PLAN REVIEW APPROVAL STAMP



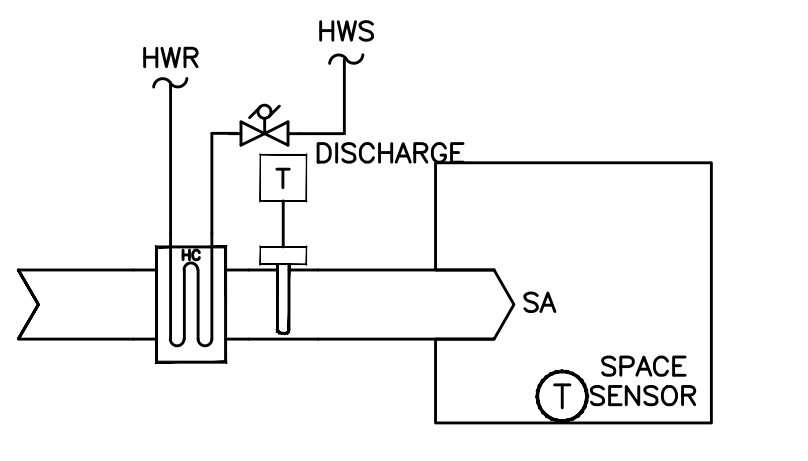
1 AHU-1&2/CU-1&2 CONTROL  
M5.0 SCALE: N/A



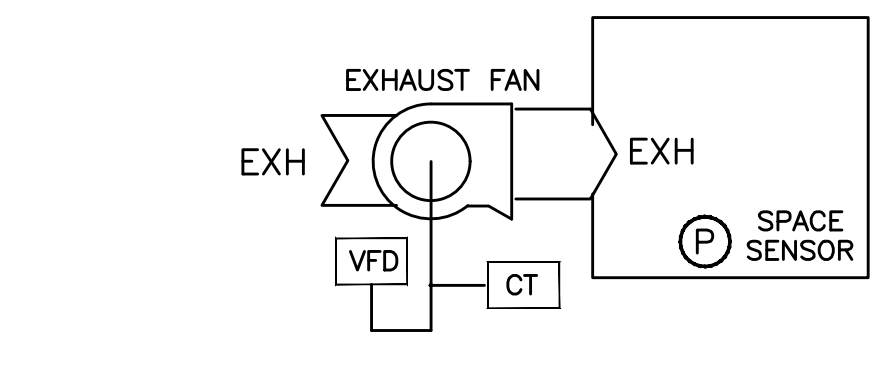
4 B-3/4 CONTROL DIAGRAM  
M5.0 NTS



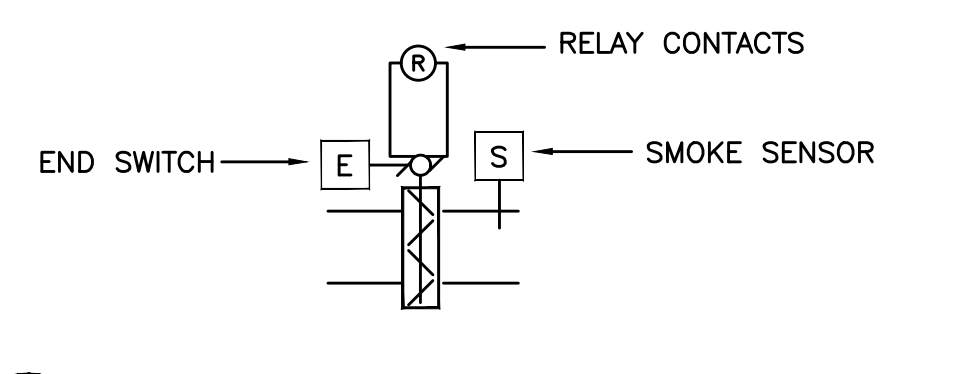
2 VAV BOX CONTROL DIAGRAM  
M5.0 NTS



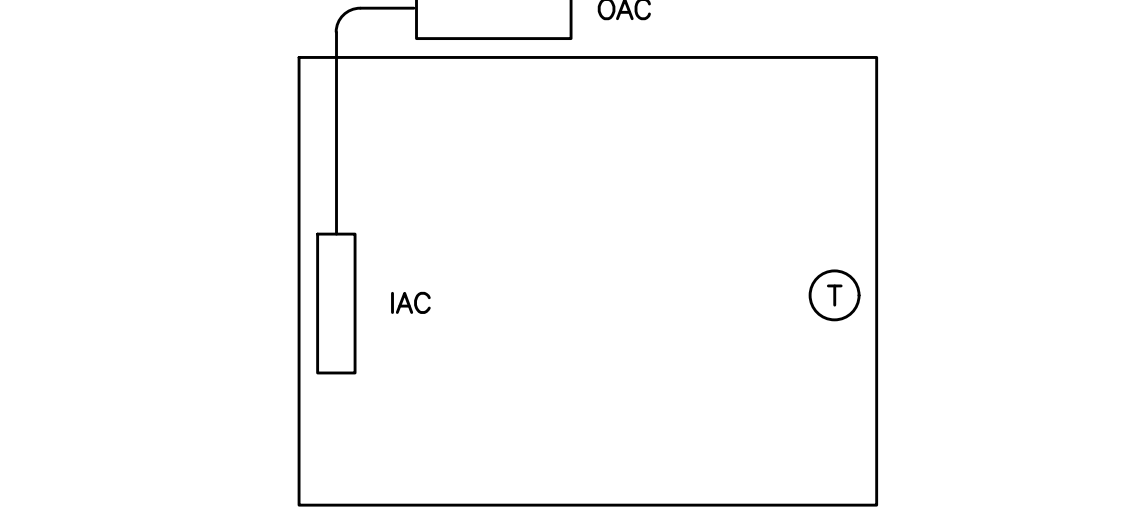
5 HEATING COILS CONTROL DIAGRAM  
M5.0 NTS



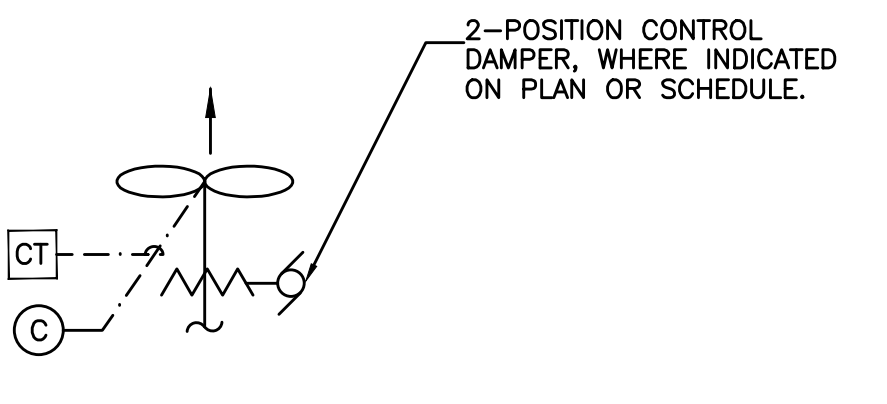
3 SUITE EXH FAN CONTROL DIAGRAM  
M5.0 NTS



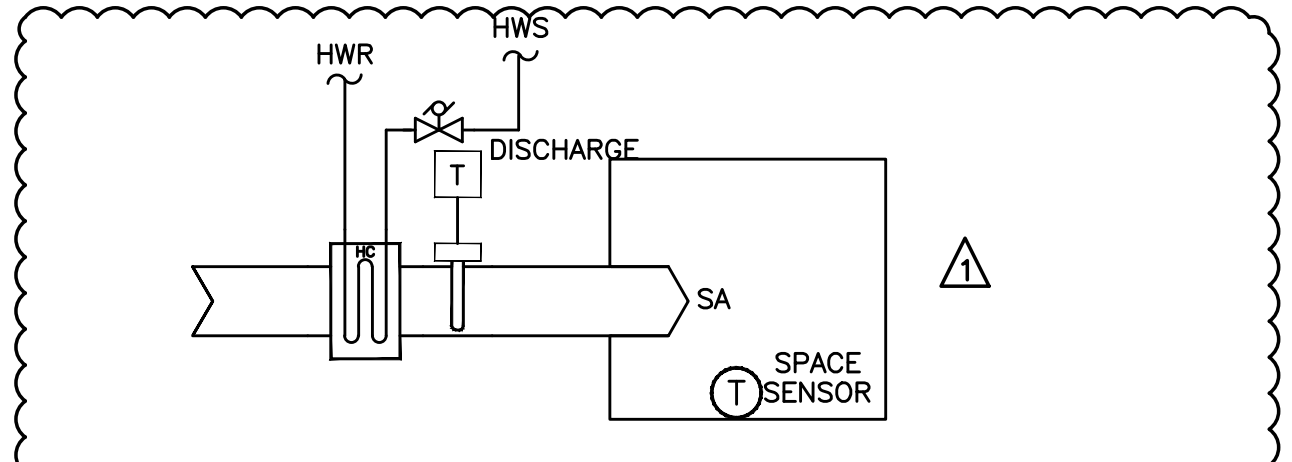
6 FIRE/SMOKE DAMPER CONTROL DIAGRAM  
M5.0 NTS



9 SPLIT SYSTEM CONTROL DIAGRAM  
M5.0 NTS



10 GENERAL EXH FAN CONTROL DIAGRAM  
M5.0 NTS



11 HEATING COIL CONTROL DIAGRAM  
M5.0 NTS

**LEGEND**

① SPACE TEMPERATURE SENSOR	CT CURRENT TRANSFORMER	→ CAPPED LINE	CONTROL SUBSCRIPTS AND SUPERSCRIPTS:
② SPACE PRESSURE SENSOR	M MANOMETER	⊕ PUMP	P - PNEUMATIC
③ SPACE HUMIDITY SENSOR	VFD VARIABLE FREQUENCY DRIVE	→ FLOW DIRECTION INDICATOR	E - ELECTRIC
DP DIFFERENTIAL PRESSURE SENSOR	C CONTACTOR/STARTER	⊕ MULTI VALVE	FLUMLING ABBREVIATIONS:
H HUMIDITY SENSOR	MCC MOTOR CONTROL CENTER	⊕ ELECTRIC 3-WAY VALVE	CHS - CHILLED WATER SUPPLY
T TEMPERATURE SENSOR	SD SMOKE DETECTOR	⊕ 2-WAY VALVE	CHR - CHILLED WATER RETURN
LL TEMPERATURE LOW LIMIT SENSOR	CO CARBON DIOXIDE SENSOR		CWS - CONDENSING WATER SUPPLY
FL FLUID LEVEL SENSOR	F FLOW SENSOR		CWR - CONDENSING WATER RETURN
			HWS - HEATING WATER SUPPLY
			HW - DOMESTIC HOT WATER
			CW - DOMESTIC COLD WATER
			CPM - GALLONS PER MINUTE
			DB - DOUBLE VALVE OPERATOR

**EQUIPMENT ABBREVIATIONS:**

P - PUMP  
 FP - FUEL PUMP  
 SP - SUMP PUMP  
 BP - BOOSTER PUMP  
 HWP - HEATING WATER PUMP  
 CWP - CHILLED WATER PUMP  
 CWRP - CHILLED WATER RISER PUMP  
 CWP - CONDENSING WATER PUMP  
 CSP - COOLING TOWER SUMP PUMP  
 HWRP - DOMESTIC HOT WATER RECIRCULATION  
 VFD - VARIABLE FREQUENCY DRIVE  
 CT - CONTACTOR  
 CC - CONTROL COMPRESSOR  
 CH - CHILLER  
 CT - COOLING TOWER  
 B - BOILER  
 EF - EXHAUST FAN  
 RF - RETURN/RELIEF FAN  
 AH - AIR HANDLER  
 MZ - MULTIZONE AIR HANDLER  
 HP - HEAT PUMP  
 VAV - VARIABLE AIR VOLUME DAMPER BOX  
 AD - AREA DAMPER  
 SD - SMOKE DAMPER  
 SFD - FIRE SMOKE COMBINATION DAMPER  
 H - HUMIDIFIER  
 V - VALVE  
 WH - WATER HEATER  
 BAS - BUILDING AUTOMATION SYSTEM

**AIR FLOW ABBREVIATIONS:**

OSA - OUTSIDE AIR  
 RA - RETURN AIR  
 SA - SUPPLY AIR  
 EXH - EXHAUSTED AIR

**7 VOC/O2 SENSOR INSTALLATION DETAIL**  
M5.0 NTS

**8 VOC/O2/VOCI WIRING SCHEMATIC**  
M5.0 NTS

INSTALL IN CONTROL CABINET ADJACENT TO SIEMENS CONTROL PANEL. PROVIDE CABINET LARGE ENOUGH TO ACCOMMODATE TRANSMITTERS FOR (5) FUTURE SUITES..

O2 SENSOR/TRANSMITTER SEE M1.0 FOR SPECS, TYP.

VOC SENSOR/TRANSMITTER SEE M1.0 FOR SPECS., TYP..

TO O2 SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN SUITE 11

TO VOC SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN SUITE 11

TO O2 SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN SUITE 12

TO VOC SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN SUITE 12

TO O2 SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN SUITE 13

TO VOC SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN SUITE 13

TO O2 SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN SOL. STORAGE

TO VOC SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN SOL. STORAGE

TO O2 SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN FUTURE SUITE

TO VOC SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN FUTURE SUITE

TO O2 SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN FUTURE SUITE

TO VOC SENSOR -24V- -24V- TO FACILITY PLC SYSTEM. IN FUTURE SUITE

VOCI (VOC INDICATOR LIGHTS) IN SUITE 11 -24V- -24V- FROM FACILITY PLC SYSTEM. COORDINATE

VOCI (VOC INDICATOR LIGHTS) IN SUITE 12 -24V- -24V- FROM FACILITY PLC SYSTEM. COORDINATE

VOCI (VOC INDICATOR LIGHTS) IN SUITE 13 -24V- -24V- FROM FACILITY PLC SYSTEM. COORDINATE

THIS SCHEMATIC IS INTENDED TO BE DIAGRAMATIC ONLY. CONTROLS CONTRACTOR TO COORDINATE AND VERIFY ALL ASPECTS OF INSTALLATION REQUIREMENTS RELATED TO O2/VOC SENSORS, AND WIRING BETWEEN SUITES AND FACILITY PLC SYSTEM, WITH OWNER AND "POWER OF AUTOMATICS".