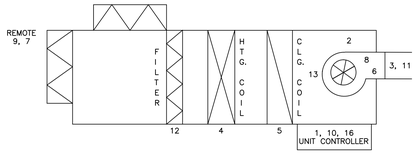
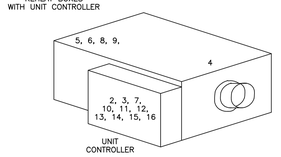


		AI	AO	BI	BO
1.	CONTROL PANEL COMMUNICATIONS			X	
2.	SUPPLY FAN STATUS INDICATION			X	
3.	SUPPLY TEMPERATURE	X			
4.	HEATING COIL		X		
5.	COOLING COIL		X		
6.	SUPPLY FAN START/STOP				X
7.	TIMED OVERRIDE			X	
8.	FAN MODULATION CONTROL		X		
9.	SPACE TEMPERATURE	X			
10.	REMOTE SETPOINT		X		
11.	SUPPLY FAN STATIC PRESSURE	X			
12.	FILTER STATUS			X	

VAV AIR HANDLER WITH UNIT CONTROLLER

NOT TO SCALE

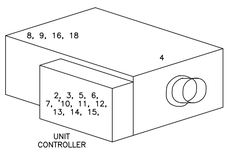


	PER SINGLE BOX	AI	AO	BI	BO
1.	ZONE TEMPERATURE	X			
2.	OCCUPIED HEATING SETPOINT		X		
3.	OCCUPIED COOLING SETPOINT		X		
4.	CFM	X			
5.	HOT WATER SUPPLY TEMPERATURE	X			
6.	HOT WATER RETURN TEMPERATURE	X			
7.	NOT USED				
8.	HEAT STATUS			X	
9.	NOT USED				
10.	UNOCCUPIED HEATING SETPOINT		X		
11.	UNOCCUPIED COOLING SETPOINT		X		
12.	NOT USED				
13.	CONTROL OFFSET				X
14.	OVERRIDE OPEN				X
15.	NOT USED				
16.	LOCKOUT HEAT				X
17.	TIMED OVERRIDE REQUEST FROM SPACE			X	

	PER GROUP OF BOXES	AI	AO	BI	BO
A.	MAXIMUM TEMPERATURE	X			
B.	MINIMUM TEMPERATURE	X			
C.	AVERAGE ZONE TEMPERATURE	X			
D.	TOTAL FLOW	X			
E.	TOTAL HEATING FLOW	X			

REHEAT BOX CONTROLS

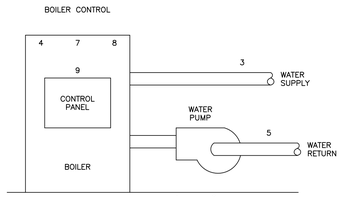
NOT TO SCALE



	PER SINGLE BOX	AI	AO	BI	BO
1.	ZONE TEMPERATURE	X			
2.	OCCUPIED HEATING SETPOINT		X		
3.	OCCUPIED COOLING SETPOINT		X		
4.	CFM	X			
5.	MAXIMUM CFM SETTING		X		
6.	MINIMUM CFM SETTING		X		
7.	HEATING MINIMUM CFM		X		
8.	HEAT STATUS			X	
9.	FAN STATUS			X	
10.	UNOCCUPIED HEATING SETPOINT		X		
11.	UNOCCUPIED COOLING SETPOINT		X		
12.	FAN ENERGIZATION SETPOINT		X		
13.	CONTROL OFFSET				X
14.	OVERRIDE OPEN				X
15.	LOCKOUT FAN				X
16.	HOT WATER SUPPLY	X			
17.	TIMED OVERRIDE REQUEST FROM SPACE			X	
18.	HOT WATER RETURN	X			

VAV BOX CONTROLS

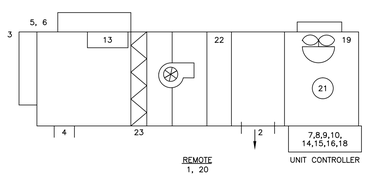
NOT TO SCALE



		AI	AO	BI	BO
1.	WATER PUMP CONTROL				X
2.	WATER PUMP STATUS			X	
3.	WATER SUPPLY TEMPERATURE	X			
4.	WATER SUPPLY SETPOINT		X		
5.	WATER RETURN TEMPERATURE	X			
6.	OUTDOOR AIR TEMPERATURE	X			
7.	BOILER ALARM (GENERAL)			X	
8.	BOILER START/STOP CONTROL (ENABLE/DISABLE)				X
9.	BOILER FLOW			X	

BOILER CONTROLS

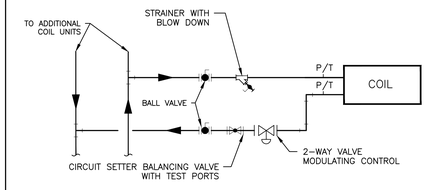
NOT TO SCALE



		AI	AO	BI	BO
1.	ZONE TEMPERATURE	X			
2.	SUPPLY AIR TEMPERATURE	X			
3.	OUTSIDE AIR TEMPERATURE	X			
4.	RETURN AIR TEMPERATURE	X			
5.	OUTSIDE AIR/RETURN AIR RELATIVE HUMIDITY	X			
6.	ACTIVE COOLING SETPOINT		X		
7.	ACTIVE HEATING SETPOINT		X		
8.	LOCAL COOLING SETPOINT		X		
9.	LOCAL HEATING SETPOINT		X		
10.	SUPPLY FAN ON/OFF STATUS			X	
11.	NOT USED				
12.	NOT USED				
13.	HEAT/COOL STATUS			X	
14.	DEFROST CONTROL				X
15.	ECONOMIZER CONTROL			X	
16.	EVAPORATOR DEFROST CONTROL			X	
17.	CONDENSER FAN STATUS			X	
18.	TIMED OVERRIDE INITIATION				X
19.	COMPRESSOR ON/OFF STATUS			X	
20.	HEAT OUTPUT				X
21.	FILTER STATUS			X	

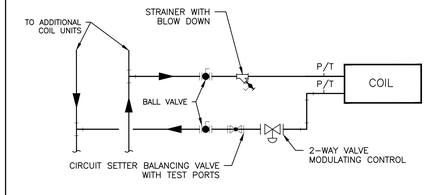
PACKAGED DX UNIT

NOT TO SCALE



TYPICAL HOT WATER COIL PIPING

NOT TO SCALE



TYPICAL CHILLED WATER COIL PIPING

NOT TO SCALE

PACKAGED UNIT CONTROL SYSTEM POINT LIST

SYSTEM POINT DESCRIPTION	ANALOG INPUT: GRAPHIC	TEMPERATURE	PRESSURE	RH	KW	KWH	BTU HR	GPM	PERCENT	CFM	SETPOINT	ANALOG OUTPUT: DDC (4-20MA, 0-10VDC)	SETPOINT ADJ.	MIN. POSITION	BINARY INPUT: PNEU. TRANSDUCER	STATUS ON/OFF	FILTER STATUS	STATUS OPEN/CLOSED	STATUS	NO. OF STARTS	TIMED OVERRIDE	BINARY OUTPUT: OFF/ON	OPEN/CLOSE	LOCK OUT	ENABLE/DISABLE	LOCAL/REMOTE	SYSTEMS FEATURES ALARMS: HIGH ANALOG	LOW ANALOG	HIGH BINARY	LOW BINARY	PROOF	SENSOR FAIL	FLOW FAIL	COMM. FAIL	DIAGNOSTICS	LOCKOUT	PROGRAMS: TIME SCHEDULING	OPTIMAL START/STOP	DEMAND LIMITING	RESET	EVENT PROGRAM	DDC	ALARM INSTRUCT	MAINT. WK. ORD.	RUN TIME	EXP. MESSAGE	SET BACK/SET UP	NIGHT PURGE	TENANT BILLING	TREND LOG	NOTES
LIGHT COMMERCIAL UNIT																																																			
UNIT CONTROLLER	X															X																				X	X				X	X						X				
SUPPLY FAN	X															X						X									X																	X				
COMP 1/COND FAN	X																								X										X																	
SPACE	X	X		X																																															
HEAT OUTPUT 1	X																								X										X																	
HEAT OUTPUT 2	X																								X										X																	
COND. FAN STATUS	X															X							X												X																	
SUPPLY AIR TEMP.	X	X																													X																			X		
HI TEMP INPUT	X															X																																				
HEAT/COOL STATUS	X																		X																																		
EVAP. DEFROST CONT.	X															X																																				

GENERAL NOTES:

(1) SET SPACE SENSOR TO ALLOW MANUAL ADJUSTMENT OF FOUR DEGREES PLUS/MINUS (ADJ.).

(2) FIELD VERIFY EXACT QUANTITY AND LOCATION.

HVAC BUILDING AUTOMATION SYSTEM DETAILS - BUILDING 90

WHORTON ENGINEERING, INC.
HVAC – PLUMBING – PROCESS CONTROL
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ANNISTON, ALABAMA 36205
ALABAMA REGISTERED No.14192 PROFESSIONAL ENGINEER RANDALL D. WHORTON

WHORTON ENGINEERING PROJECT NO. 10159

Revisions	Date

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CAVHCS
Central Alabama Veterans Health Care System

Approved:	Approved:	Drawing Title: HVAC BUILDING AUTOMATION SYSTEM DETAILS – BUILDING 90	Project Title: HVAC MODIFICATIONS TO BUILDINGS 83, 90, & 93 TUSKEGEE, ALABAMA	Date: 12/21/10	Veterans Administration
Approved:	Approved:			Project No.: 619-10-445	
Approved:	Approved:	Safety Officer	Building Number: 90 / Checked: RDW / Drawn: JAD	DRAWING NO.: 90M4.2	
Approved:	Approved:	Clinical Representative	Location: East Campus, Tuskegee, AL	Dwg. 36 Of 59	

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