

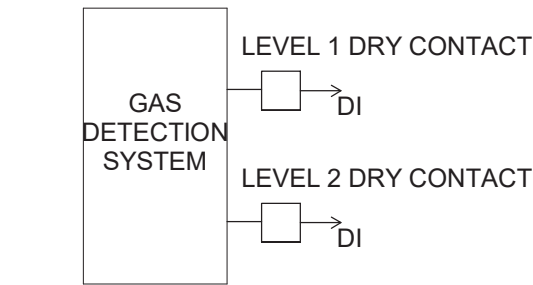
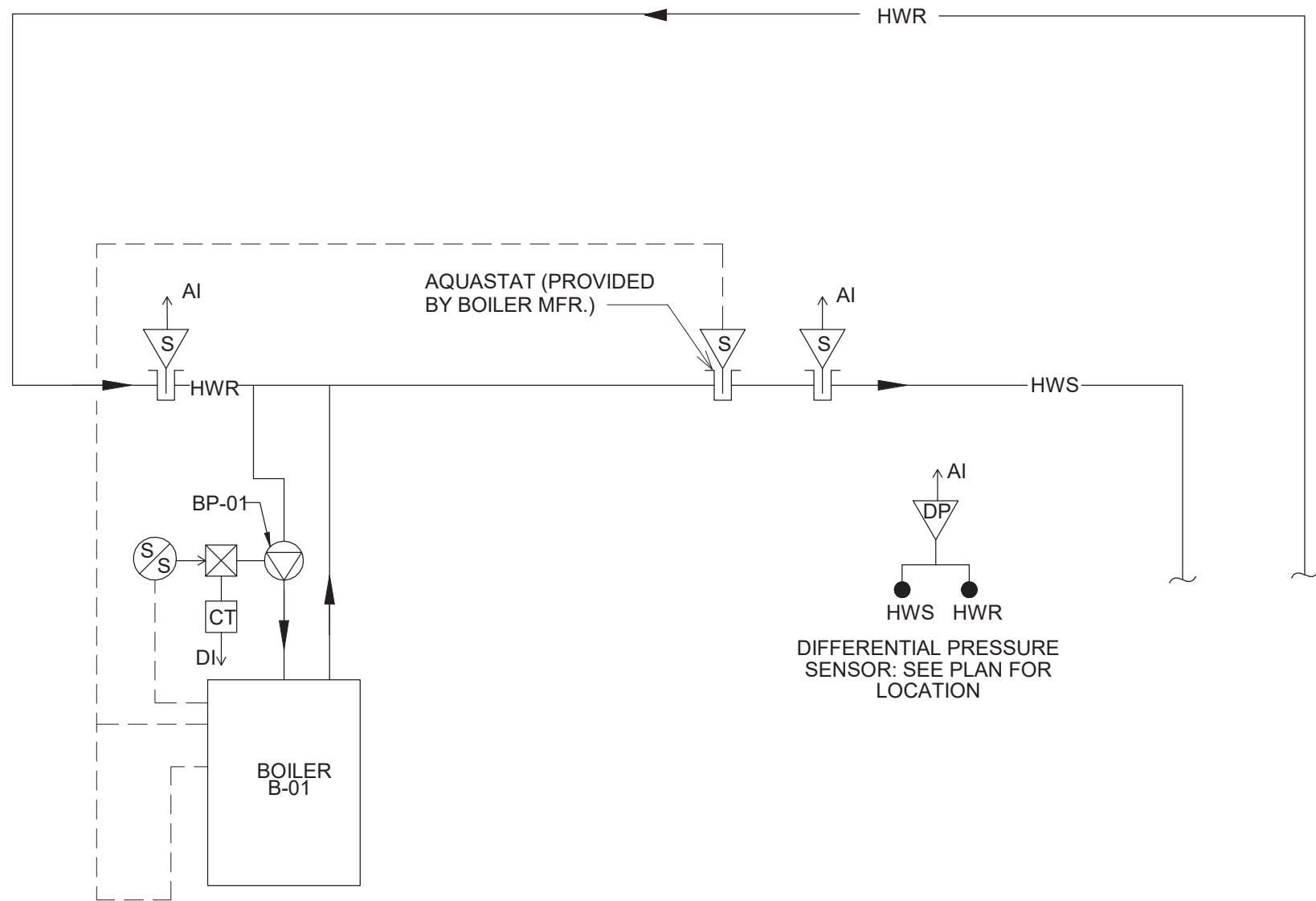
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BOILER SYSTEM CONTROLS SEQUENCE

- HOT WATER HEATING SYSTEM CONTROLS SEQUENCE:
- A. RUN CONDITIONS: THE HEATING SYSTEM SHALL RUN CONTINUOUSLY. TO PREVENT SHORT CYCLING, EACH BOILER SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE), UNLESS SHUT DOWN ON SAFETIES OR OUTSIDE AIR CONDITIONS
- B. EACH BOILER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS. BOILER CIRCULATOR PUMP (BP-01 & BP-02) SHALL BE INTERLOCKED WITH BOILER OPERATION AND SHALL BE OFF ONLY WHEN BOILER IS IN STANDBY MODE
- C. BOILER B-01 SAFETIES: THE FOLLOWING SAFETIES SHALL BE MONITORED
- BOILER ALARM
 - LOW WATER LEVEL
- D. ALARMS SHALL BE PROVIDED AS FOLLOWS:
- BOILER ALARM
 - LOW WATER LEVEL ALARM
- E. THE BOILER SHALL BE INDEXED ON YEAR ROUND AND SHALL BE CONTROLLED BY THEIR ON-BOARD CONTROLS. WHEN A BOILER IS INDEXED TO START, ITS ASSOCIATED BOOSTER PUMP SHALL BE STARTED AND FLOW SHALL BE CHECKED AS SENSE BY ITS ASSOCIATED FLOW SWITCH. ONCE FLOW IS SENSED THE BOILER SHALL BE ALLOWED TO START. THE BOILERS SHALL HAVE THE ABILITY TO COMMUNICATE AT A MINIMUM THE FOLLOWING POINTS:
- BOILER RUN CONDITION (ON/OFF) FOR EACH BOILER
 - BOILER PUMP COMMAND OUTPUT FOR EACH BOILER
 - BOILER SUPPLY HEADER TEMPERATURE
- F. A MANUAL EMERGENCY SHUTDOWN SWITCH AT THE EXIT OF THE MECHANICAL ROOM SHALL SHUT DOWN THE BOILERS COMPLETELY. THE BAS SYSTEM SHALL INCORPORATE A CONTACT FROM THESE SWITCHES TO PROVIDE AN ALARM AT THE FRONT END COMPUTER IN THE EVENT OF A MANUAL SHUT DOWN OCCURRING
- G. THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTED DURING THE COMMISSIONING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS
- H. ALARMS SHALL BE PROVIDED AS FOLLOWS:
- BOILER B-01
 - FAILURE: COMMANDED ON, BUT THE STATUS IS OFF
 - RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON
 - RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT
- I. HOT WATER SUPPLY TEMPERATURE SETPOINT RESET: THE HOT WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET BASED ON OUTSIDE AIR TEMPERATURE
- AS OUTSIDE AIR TEMPERATURE RISES FROM 0°F (ADJ.) TO 70°F (ADJ.) THE HOT WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET DOWNWARDS BY SUBTRACTING FROM 0°F (ADJ.) TO 20°F (ADJ.) FROM THE CURRENT BOILER SETPOINT
- J. PRIMARY HOT WATER TEMPERATURE MONITORING: THE FOLLOWING TEMPERATURES SHALL BE MONITORED
- PRIMARY HOT WATER SUPPLY
 - PRIMARY HOT WATER RETURN
- K. ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH PRIMARY HOT WATER SUPPLY TEMP: IF GREATER THAN 140°F (ADJ.)
 - LOW PRIMARY HOT WATER SUPPLY TEMP: IF LESS THAN 80°F (ADJ.)
- L. BOILER B-01 HOT WATER TEMPERATURE MONITORING: THE FOLLOWING TEMPERATURES SHALL BE MONITORED
- BOILER B-01 HOT WATER SUPPLY
 - BOILER B-01 HOT WATER RETURN
- M. ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH HOT WATER SUPPLY TEMP: IF GREATER THAN 140°F (ADJ.)
 - LOW HOT WATER SUPPLY TEMP: IF LESS THAN 80°F (ADJ.)
- N. ALARMS SHALL BE PROVIDED AS FOLLOWS:
- DIFFERENTIAL PRESSURE: +/- 5PSI FROM SETPOINT
 - SUPPLY WATER TEMPERATURE: +/- 10°F FROM SETPOINT

SYSTEM SUMMARY					
	INPUT		OUTPUT		
	ANALOG	DIGITAL	ANALOG	DIGITAL	TREND
HOT WATER RETURN TEMPERATURE	X				
DIFFERENTIAL PRESSURE SENSOR	X			X	
PUMP BP-01 STATUS		X		X	
PUMP BP-01 START/STOP			X		



SYSTEM SUMMARY					
	INPUT		OUTPUT		
	ANALOG	DIGITAL	ANALOG	DIGITAL	TREND
DRY CONTACT 1		X		X	
DRY CONTACT 2		X		X	

CARBON MONOXIDE ALARM SYSTEM CONTROL SEQUENCE:

- A. GENERAL: UNIT SHALL MONITORED THE HONEYWELL E3 POINT GAS DETECTION SYSTEM AND ALARM WHEN UNIT INTERNAL THRESHOLDS ARE REACHED.
- B. ALARM 1: THE CONTROLLER SHALL MONITOR THE DRY CONTACT AND ALARM WHEN LEVEL IS REACHED (25 PPM CO).
- C. ALARM 2: THE CONTROLLER SHALL MONITOR THE DRY CONTACT AND ONCE ALARM REACHED H&V UNIT SHALL BE SET TO FULL OA PER SEQUENCE AND ALARM (200 PPM CO).
- D. ALARMS SHALL BE PROVIDED AS FOLLOWS:
- CO LEVEL 1: IF THE UNITS DRY CONTACT 1 IS CLOSED. CO DETECTED LOW.
 - CO LEVEL 2: IF THE UNITS DRY CONTACT 2 IS CLOSED. CO DETECTED HIGH.

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CARBON MONOXIDE ALARM CONTROL SEQUENCE

SYSTEM SUMMARY					
	INPUT		OUTPUT		
	ANALOG	DIGITAL	ANALOG	DIGITAL	TREND
ZONE TEMPERATURE		X		X	
UNIT ENABLED/DISABLED			X		

DUCTLESS SPLIT SYSYTEM CONTROL SEQUENCE:

- A. GENERAL: UNIT SHALL BE ENABLED/DISABLED AND TEMPERATURE MONITORED BY THE BUILDING MANAGEMENT CONTROL SYSTEM (BCS), AND CONTROLLED BY FACTORY PACKAGED CONTROLS TO MAINTAIN SPACE TEMPERATURE SETPOINT COOLING: 75°F (ADJ.) AND HEATING: 70°F (ADJ.)
- B. ZONE TEMP: THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE
- C. ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN 80°F (ADJ.)
 - LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN 65°F (ADJ.)

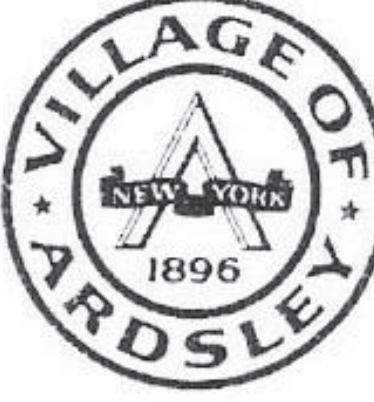
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DUCTLESS SPLIT SYSYTEM CONTROL SEQUENCE

Project:

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 RHINEBECK
ARCHITECTURE

Seal:

Rev	Date	Description
1	05/02/22	ADDENDUM NO. 3

Issued For: BID

 PROJECT

 TRUE

SCALE: AS NOTED

Date: APRIL 7, 2022

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Reviewed By: TES

Approved By: BAB

W&S Project No: N2190088

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CONTROLS

Sheet Number:

M800

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