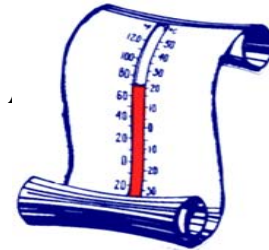


Hancock School 2008 Capital Improvements

Binghamton , New York



AIR TEMP HEATING & AIR CONDITIONING, INC.
A LINC SERVICE ® *CONTRACTOR*

1165 Front Street
Binghamton, New York 13905

Phone Number: (607)772-8362

Fax Number: (607)771-8470

Engineer/Architect Fraser & Fassler Consulting Engineers



Mechanical Contractor ABC Refrigeration

Job Number P7619

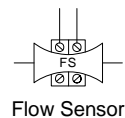
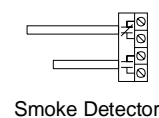
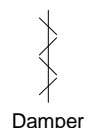
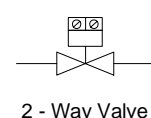
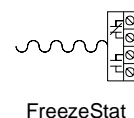
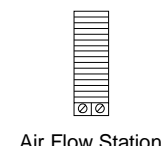
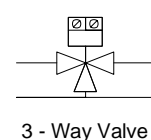
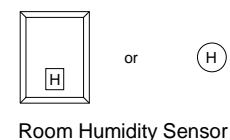
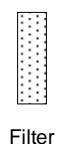
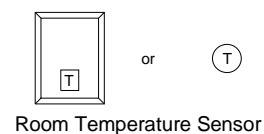
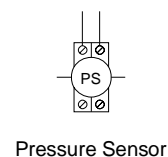
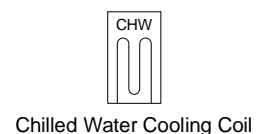
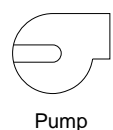
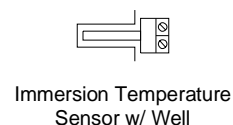
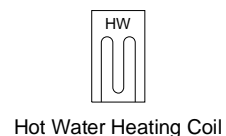
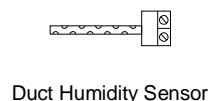
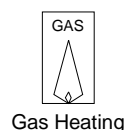
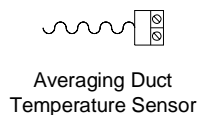
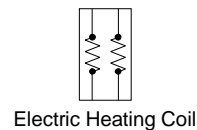
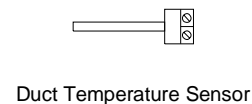
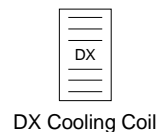
AUTOMATEDLOGIC
CORPORATION

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Hancock School 2008 Capital Improvements			
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 AIR TEMP HEATING & AIR CONDITIONING, INC. A LINC SERVICE ® CONTRACTOR			
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Symbol Legend

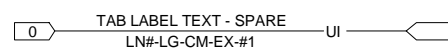


Common Abbreviations:

AC - Air Conditioning	EVAP - Evaporator	SA - Supply Air
ACU - Air Conditioning Unit	F - Fahrenheit	SF - Supply Fan
AHU - Air Handling Unit	FCU - Fan Coil Unit	SP - Static Pressure
AI - Analog Input	HOA - Hand / Off / Auto	TEMP - Temperature
AO - Analog Output	HP - Heat Pump	UH - Unit Heater
AUTO - Automatic	HRU - Heat Recovery Unit	UV - Unit Ventilator
AUX - Auxiliary	HTEX - Heat Exchanger	VAV - Variable Air Volume
C - Common	HW - Hot Water	VVTU - Variable Volume Terminal Unit
CHW - Chilled Water	HWP - Hot Water Pump	W/ - with
CHWP - Chilled Water Pump	HWR - Hot Water Return	W/O - without
CHWR - Chilled Water Return	HWS - Hot Water Supply	WSHP - Water-Source Heat Pump
CHWS - Chilled Water Supply	MAX - Maximum	
COND - Condenser	MIN - Minimum	
CW - Condenser Water	MISC - Miscellaneous	
CWP - Condenser Water Pump	NC - Normally Closed	
CWR - Condenser Water Return	NO - Normally Open	
CWS - Condenser Water Supply	OA - Outdoor Air	
DA - Discharge Air	PIU - Powered Induction Unit	
DI - Digital Input	RA - Return Air	
DO - Digital Output	RF - Return Fan	
EA - Exhaust Air	RH - Relative Humidity	
EF - Exhaust Fan	RTU - Roof-top Unit	

General Notes:

- All control modules are drawn using standard ALC module representations.
- Electrical points are identified by a tagged method (LN# - LG - CM - EX - Z0):



- LN# - The line number (optional).
- LG - The gateway number (optional).
- CM - The control module address.
- EX - The expander module number.
- #1 - The channel number.

These tags include wiring for all AI's, DI's, AO's and DO's. Points using pneumatic tubing follow the same convention.

Hancock School 2008 Capital Improvements
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AIR TEMP HEATING & AIR CONDITIONING, INC.
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Symbol Legend

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

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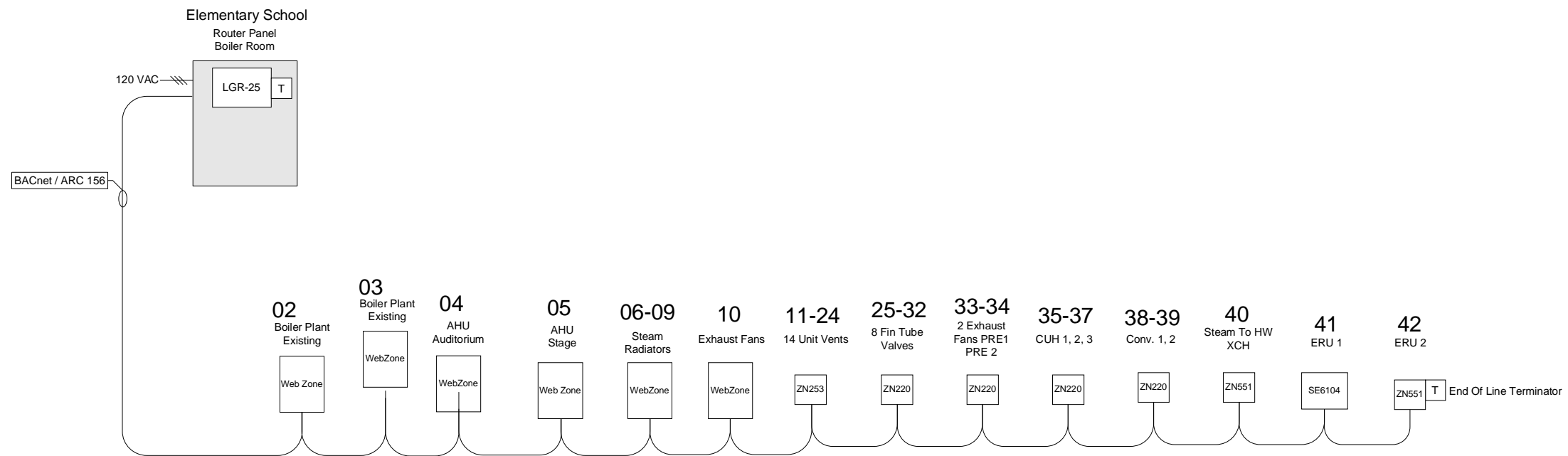
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Summary Bill of Materials

Summary Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
				1 ea
AFS-B	FAN AIR FLOW SWITCH	CLEVELAND	AFS-222	2 ea
DA-BB	SR OPEN/CLOSE 35 IN-LB 24 V	BELIMO	LF24 ALC	2 ea
DA-BE	SR PROPORTIONAL 60 IN-LB 24 V	BELIMO	NF24-SR ALC	2 ea
DA-BF	SR OPEN/CLOSE 133 IN-LB 24 V SWITCH	BELIMO	AF24-S ALC	2 ea
DTS-A	DUCT 10K THERMISTOR PROBE 12 IN.	BAPI	ALC/10K-2-D-12	3 ea
DTS-B	DUCT 10K THERMISTOR AVERAGING 12 FT.	BAPI	ALC/10K-2-A-12	2 ea
IAQ-AB	CO SPACE SENSOR 0-200 PPM 4-20MA	R.E. TECH	WCO-1B	1 ea
OAS-A	OUTDOOR AIR SENSOR 10K THERM	BAPI	ALC/10K-2-O	1 ea
RBXKF	CURRENT SENSOR	RIB	RBXKF	9 ea
REL-AD	SPDT RELAY W/ IND LGHT 24 VAC	IDEC	RH1B-ULC-AC24V	2 ea
RIBU1C	RELAY 24 V	RIB	RIBU1C	3 ea
RIBXKF	CURRENT SENSOR	RIB	RIBXKF	3 ea
RS	ROOM SENSOR	AUTOMATED LOGIC	RS	5 ea
RSPLUS	ROOM SENSOR WITH PB AND SA	ALC	RSPLUS	8 ea
RTS-F	10K ROOM THERMISTOR RS	BAPI	ALC/10K-2-RS	15 ea
SE6104	SE6104	AUTOMATED LOGIC	SE6104	1 ea
TR-A	TRANSFORMER, 120/24VAC, 50VA	CORE COMPONENTS	LE-117	14 ea
TR-B	TRANSFORMER, MULTITAP 24VAC, 75VA	CORE COMPONENTS	LE-150	3 ea
WEBZONE	WEBZONE	AUTOMATED LOGIC	WEBZONE	7 ea
WS-A	10K IMMERSION THERMISTOR	BAPI	ALC/10K-2-I-4	1 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	16 ea
ZN253	ZN253	AUTOMATED LOGIC	ZN253	13 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	2 ea

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Summary Bill of Materials			
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Riser



General Notes:

All ARC156 wiring shall be 22AWG single twisted pair, low capacitance (12.5pF/ft), shielded, plenum rated cable. ALC recommends Magnum Cable Corporation Product number A3ARC156.

Each ARC156 segment must be wired in a daisy chain configuration. Branching requires the use of a REP485.



Each ARC156 segment should have one (1) PROT485 installed to provide protection from electrical surges.

Each ARC156 segment end must be terminated with a TERM485 (120 ohm) terminating resistor.

The ARC156 network segment must have at least one (1) DIAG485 installed to supply bias.

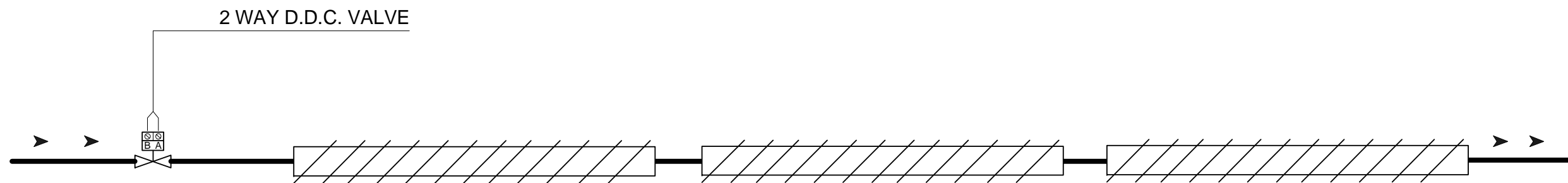
Do not strip back shielded cable sheath more than 1" in order to keep twisted pair from separating. Do not ground shield to the panel or chassis ground. The shield should only be connected to the "Optional Shield" connection at a module.

Routing of communications cabling and control module locations shall be field verified.

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 AIR TEMP HEATING & AIR CONDITIONING, INC. A LINC SERVICE ® CONTRACTOR			
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Elementary School Fin Tube

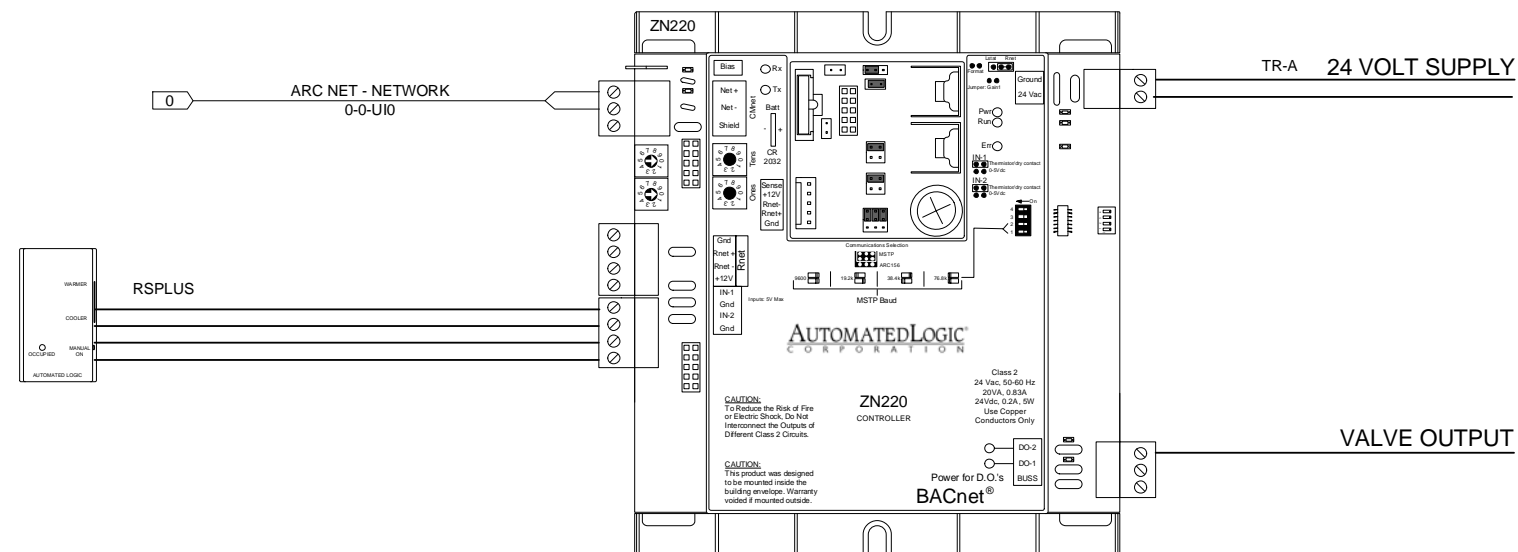
Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
RSPLUS	ROOM SENSOR WITH PB AND SA	ALC	RSPLUS	8 ea
TR-A	TRANSFORMER, 120/24VAC, 50VA	CORE COMPONENTS	LE-117	8 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	8 ea



- Class 122 26FT 1.6 GPM
- Class 124 26FT 1.6 GPM
- Class 126 26FT 1.6 GPM
- Resource 15FT .9 GPM
- Bathroom 20FT 1.2 GPM
- Girls Bathroom 20FT 1.2 GPM
- Boys Locker 26FT 1.6 GPM
- Girls Locker 26FT 1.6 GPM

FTR CONTROL

- A. Sequence Occupied
 1. D.D.C. Valve shall open to maintain occupied set point.
 2. Set point is adjustable at room sensor. Set point adjust can be limited, or disabled by operator.
- B. Sequence Unoccupied
 1. D.D.C. Valve shall remain closed. If room space temp drops below the unoccupied set point, valve shall open to maintain unoccupied set point.
 2. When override button is pushed on the wall mounted space temp sensor, the room shall operate as occupied until the override timer has expired. Override time is adjustable by operator

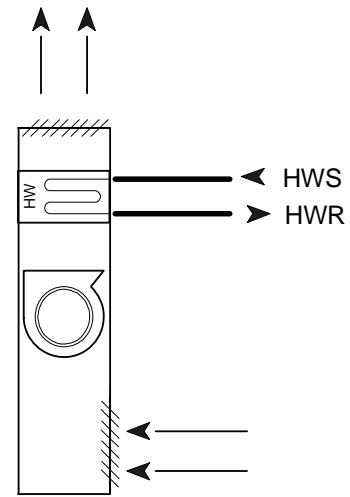


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Elementary School Fin Tube			
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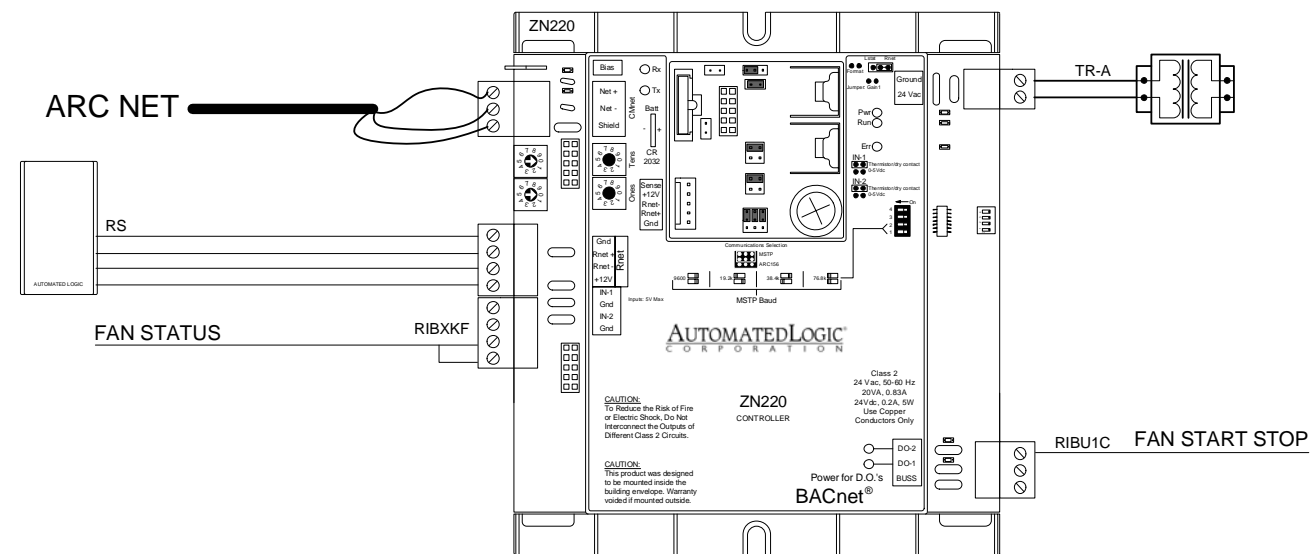
Elementary CUH

Cabinet unit heater 1 thru 4

C.U.H. 1 & 2 share wall sensor and control module



CABINET HEATER



Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
RIBU1C	RELAY 24 V	RIB	RIBU1C	3 ea
RIBXKF	CURRENT SENSOR	RIB	RIBXKF	3 ea
RS	ROOM SENSOR	AUTOMATED LOGIC	RS	3 ea
TR-A	TRANSFORMER, 120/24VAC, 50VA	CORE COMPONENTS	LE-117	3 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	3 ea

C.U.H. CONTROL

A. Sequence Occupied

1. Fan shall run to maintain occupied set point

B. Sequence Unoccupied

1. Fan shall remain off. If room space temp drops below the unoccupied set point, fan shall start and run to maintain unoccupied set point

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Elementary CUH

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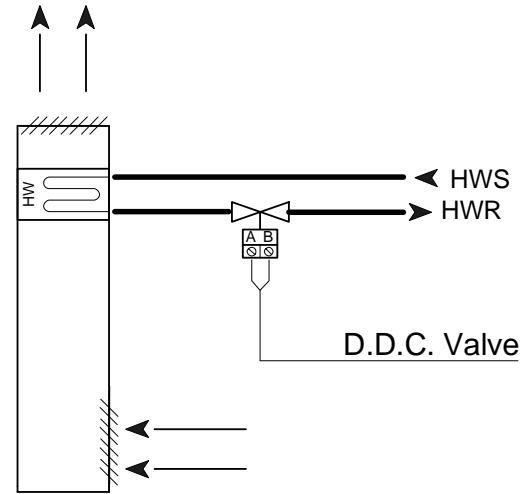
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Elementary Convector

Cabinet unit heater 1 thru 2

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
RS	ROOM SENSOR	AUTOMATED LOGIC	RS	2 ea
TR-A	TRANSFORMER, 120/24VAC, 50VA	CORE COMPONENTS	LE-117	2 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	2 ea



CONVECTOR HEATER

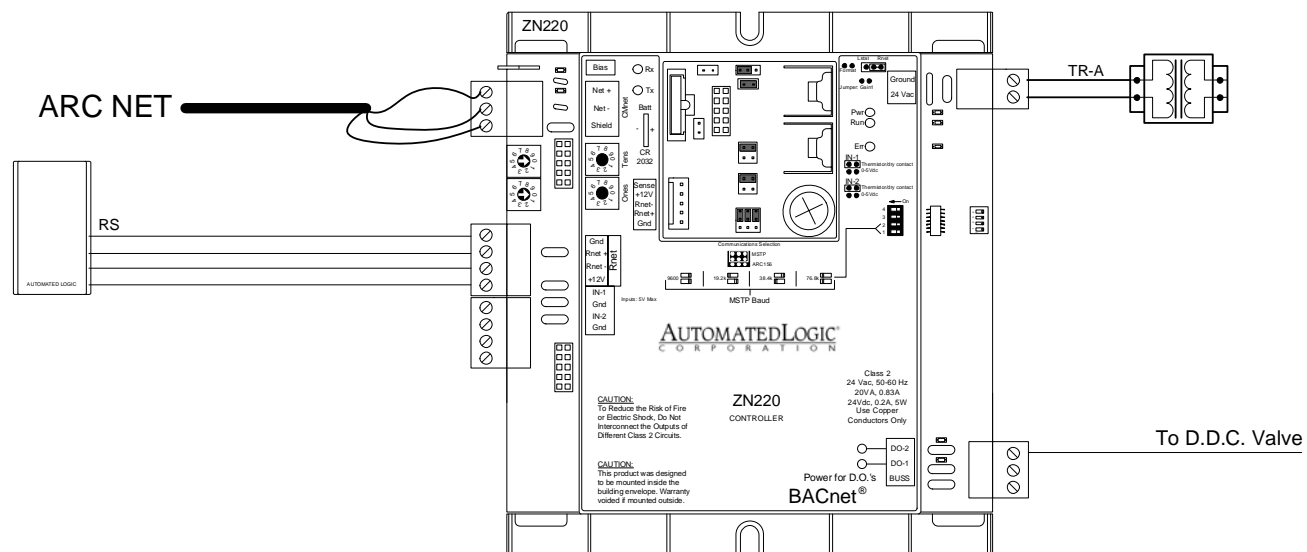
C.U.H. CONTROL

A. Sequence Occupied

1. Valve shall open to maintain occupied set point

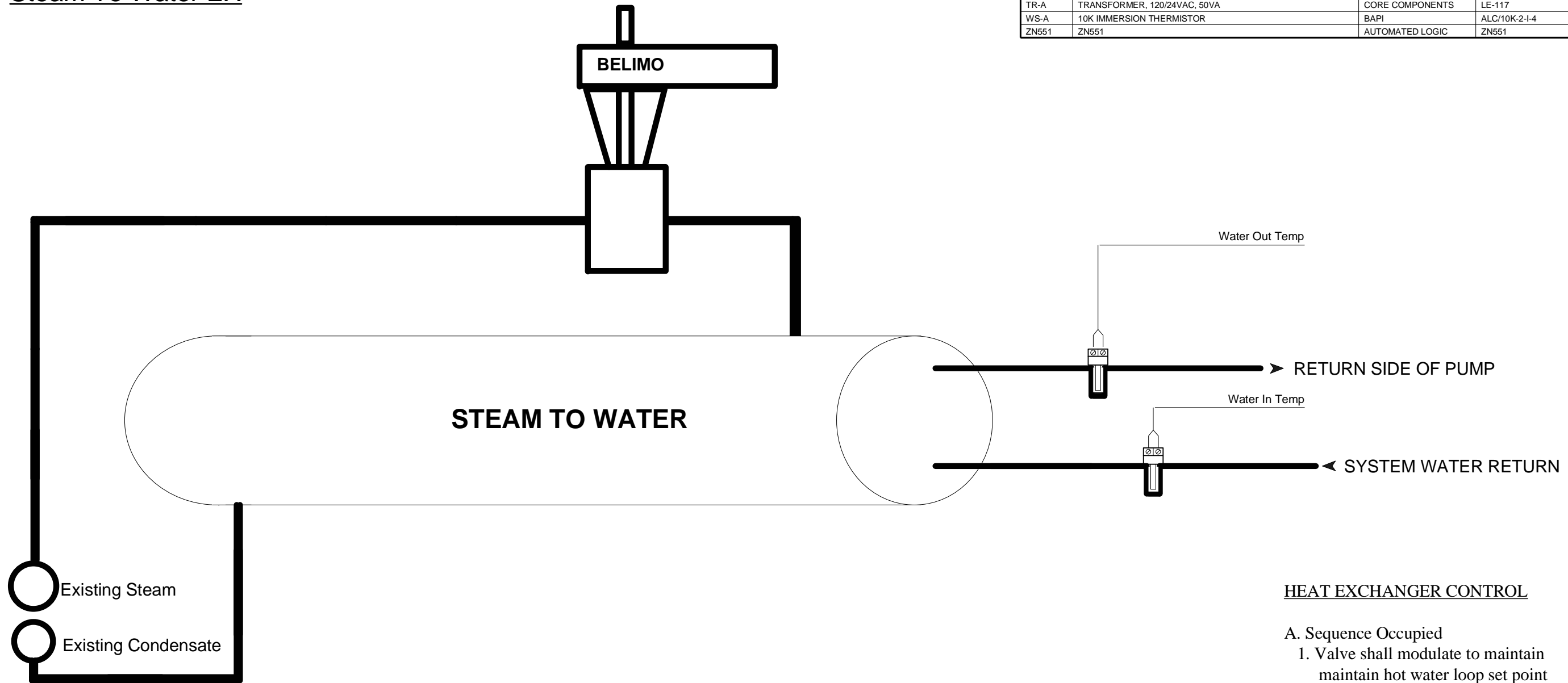
B. Sequence Unoccupied

1. Valve shall remain closed. If room space temp. drops below the unoccupied set point, valve shall open to maintain occupied set point



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Elementary Convector			
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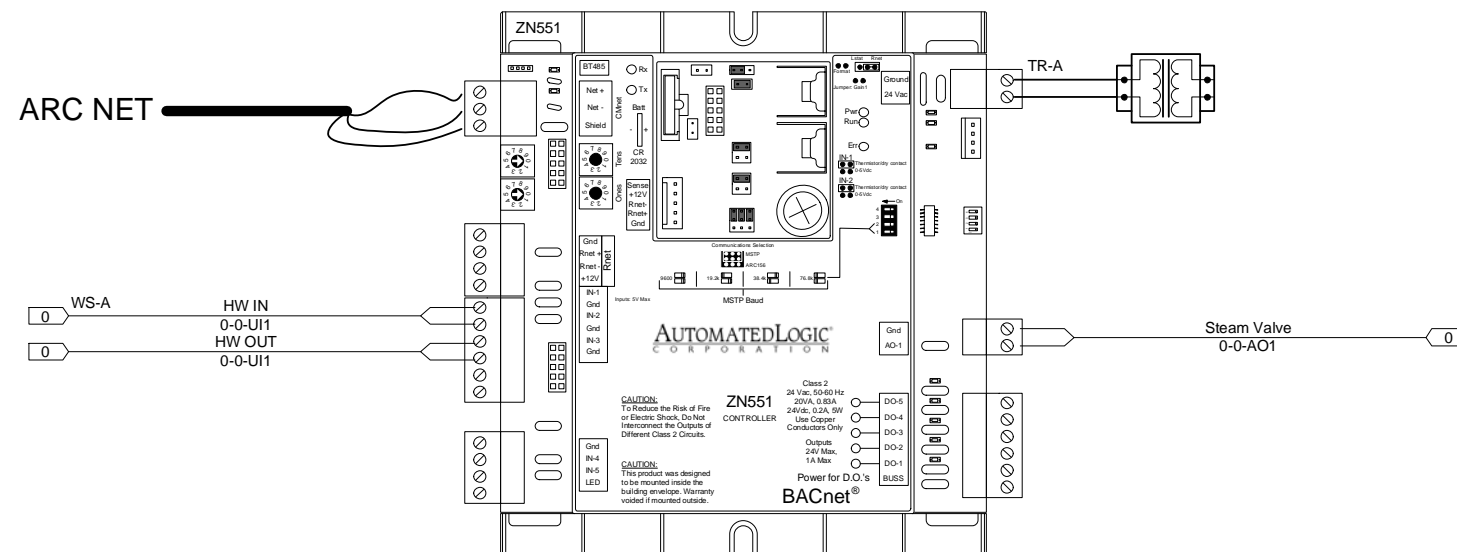
Steam To Water EX



Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
TR-A	TRANSFORMER, 120/24VAC, 50VA	CORE COMPONENTS	LE-117	1 ea
WS-A	10K IMMERSION THERMISTOR	BAPI	ALC/10K-2-I-4	1 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	1 ea

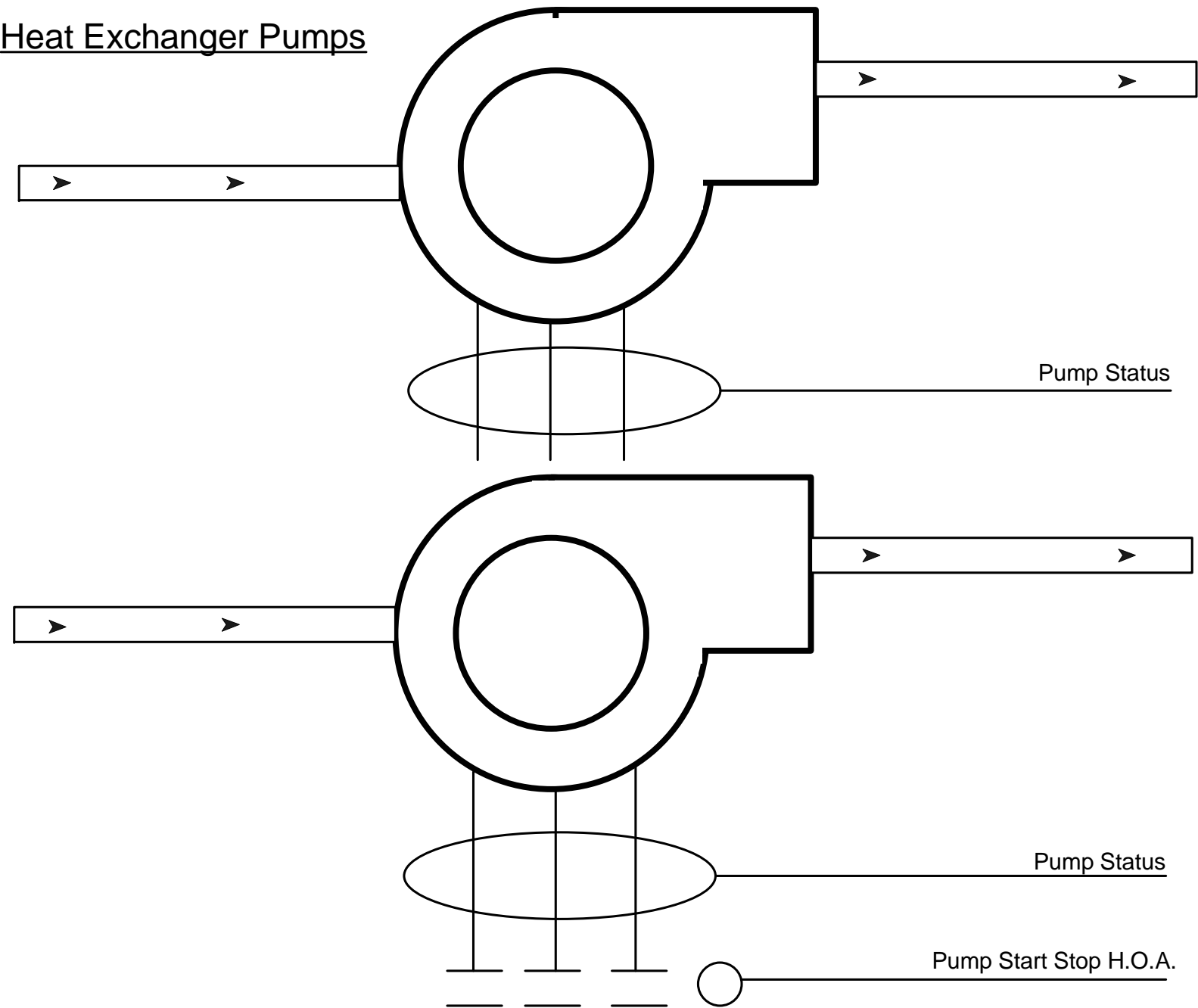
HEAT EXCHANGER CONTROL

- A. Sequence Occupied
1. Valve shall modulate to maintain maintain hot water loop set point
Set point will be based on a reset schedule, driven by outdoor temp.



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Steam To Water EX			
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Heat Exchanger Pumps

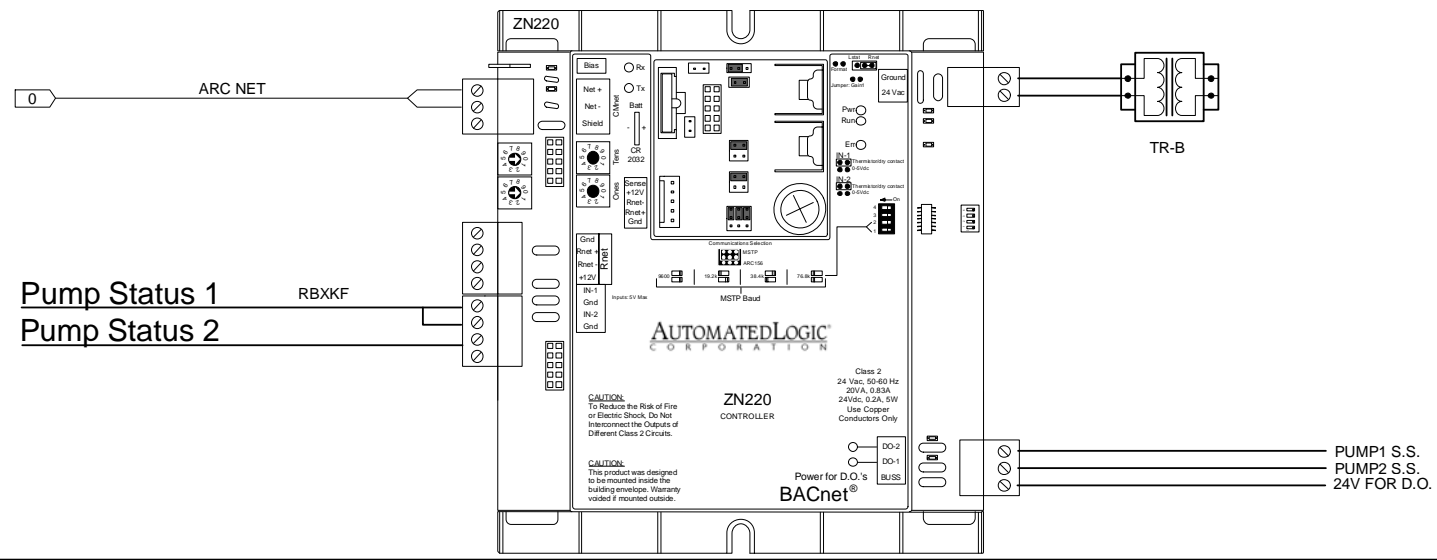


Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
RBXKF	CURRENT SENSOR	RIB	RBXKF	1 ea
TR-B	TRANSFORMER, MULTITAP 24VAC, 75VA	CORE COMPONENTS	LE-150	2 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	1 ea

PUMP SEQUENCE

A. General:

1. When outdoor air temperature falls below 65 Deg F. E.M.C.S. Shall switch the building to heating mode. The lead pump (as selected by the E.M.C.S.) shall energize. P1 and P2 shall operate in a lead/lag sequence.



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Heat Exchanger Pumps

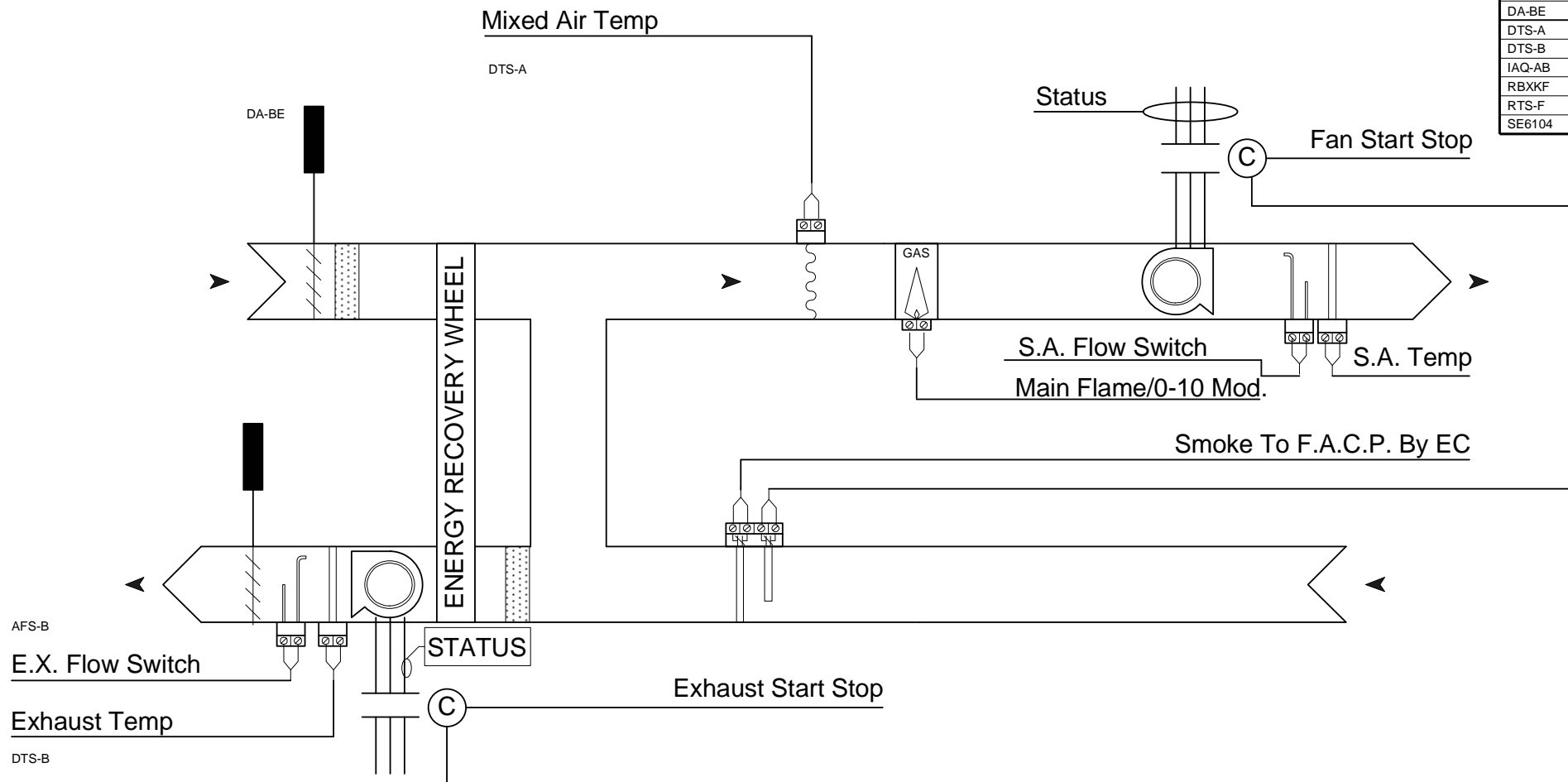
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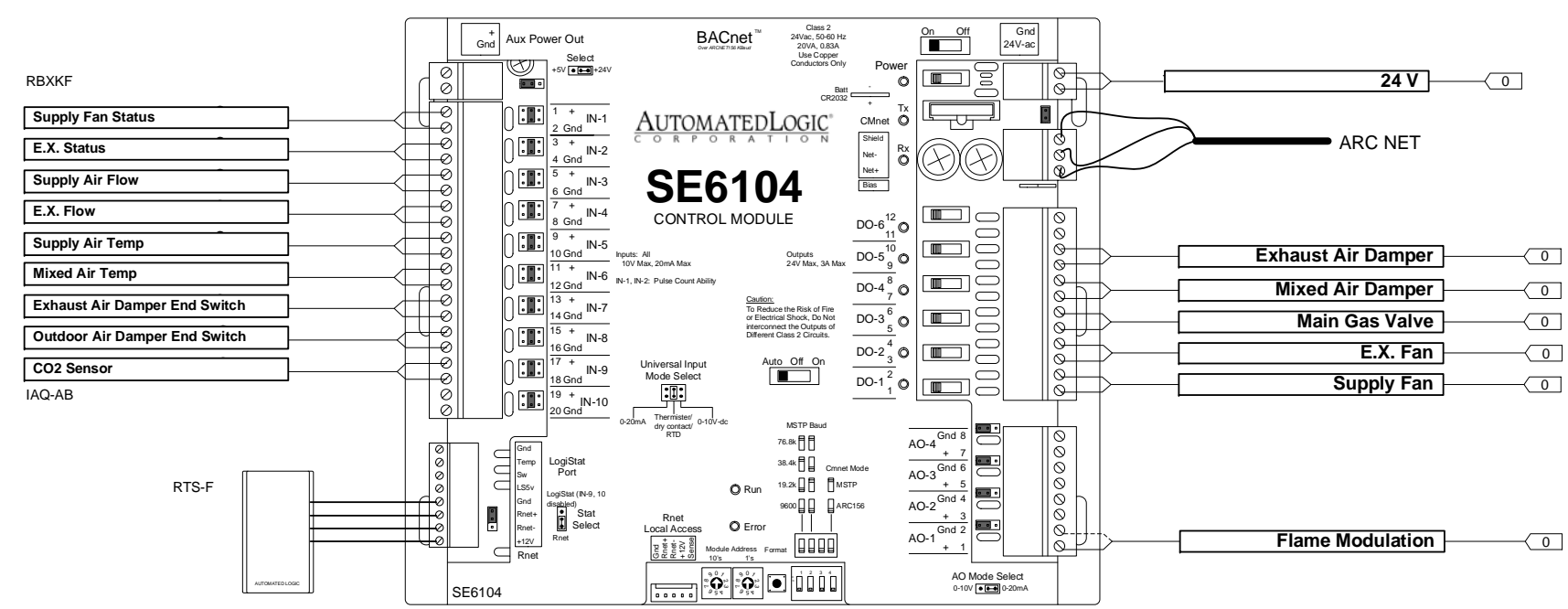
ERU 1



Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
AFS-B	FAN AIR FLOW SWITCH	CLEVELAND	AFS-222	2 ea
DA-BE	SR PROPORTIONAL 60 IN-LB 24 V	BELIMO	NF24-SR ALC	2 ea
DTS-A	DUCT 10K THERMISTOR PROBE 12 IN.	BAPI	ALC/10K-2-D-12	1 ea
DTS-B	DUCT 10K THERMISTOR AVERAGING 12 FT.	BAPI	ALC/10K-2-A-12	2 ea
IAQ-AB	CO SPACE SENSOR 0-200 PPM 4-20MA	R.E. TECH	WCO-1B	1 ea
RBXKF	CURRENT SENSOR	RIB	RBXKF	2 ea
RTS-F	10K ROOM THERMISTOR RS	BAPI	ALC/10K-2-RS	1 ea
SE6104	SE6104	AUTOMATED LOGIC	SE6104	1 ea

AHU Control

- A. General:**
- Unit is provided with factory D.D.C. controls
 - Index unit to occupied and unoccupied cycles from BMS.
- B. Occupied Cycle:**
- Enable unit
 - The heat wheel control, and furnace modulate in sequence without overlap to maintain supply air temperature set point.
 - The supply air temperature is reset based on based on space temperature S.P.
 - The outside air and exhaust air dampers shall open 100% for a 30 minute pre-occupancy purge when the system goes from unoccupied to occupied
 - Following the purge the outside and exhaust dampers will go to minimum position until a co2 demand calls for more outdoor air based on a 100 PPM differential with outdoor co2, and to never allow a co2 level above 400 PPM during occupied.
 - Allow economizer operation to override co2 control when outdoor air entalpy is adequate for free cooling when cooling is needed.
- C. Unoccupied Cycle:**
- Following post occupancy flush, the outdoor air and exhaust air damper open and the return air damper remains in recirculation position.
- During an unoccupied heating call the recirculation damper opens and after a time delay the supply and return fans start with the furnace to maintain 65 Deg.
- D. Safety**
- Smoke detectors in the supply and return airs will shut fans down with a hard shutdown when activated.
 - Current switches will monitor fans statuses, and activate an alarm through D.D.C. system if the fan status does not match the fan call.



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ERU 1

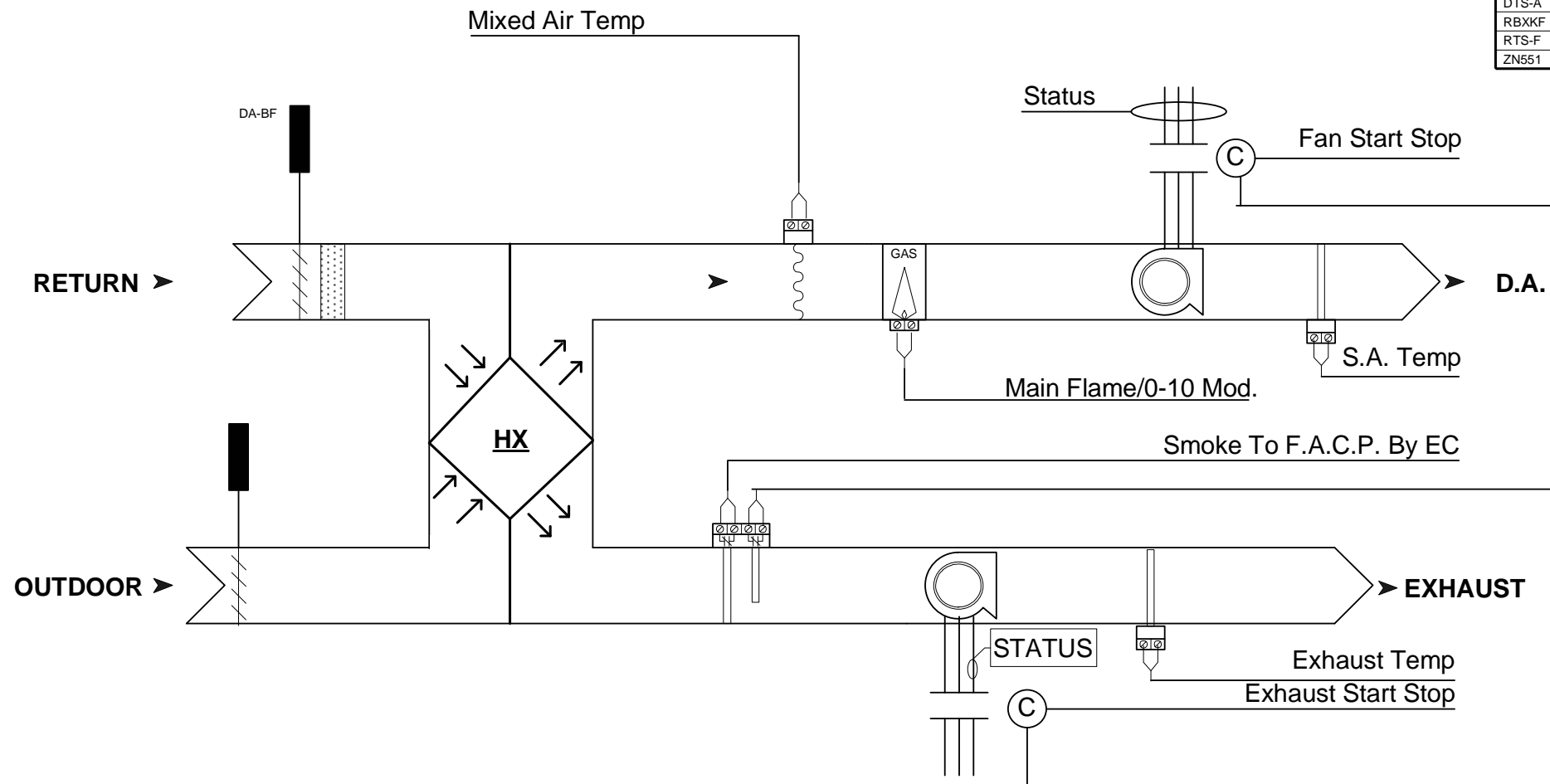
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ERU 2



Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
DA-BF	SR OPEN/CLOSE 133 IN-LB 24 V SWITCH	BELIMO	AF24-S ALC	2 ea
DTS-A	DUCT 10K THERMISTOR PROBE 12 IN.	BAPI	ALC/10K-2-D-12	2 ea
RBXKF	CURRENT SENSOR	RIB	RBXKF	2 ea
RTS-F	10K ROOM THERMISTOR RS	BAPI	ALC/10K-2-RS	1 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	1 ea

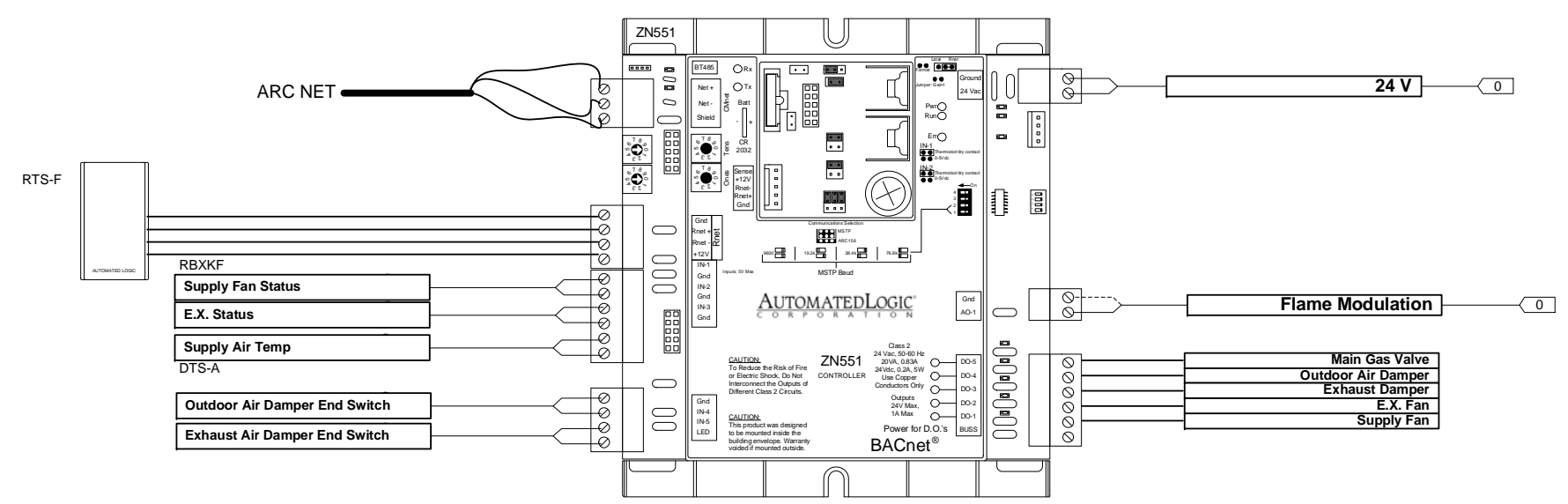
AHU Control

- A. General:
 1. Unit is provided with factory D.D.C. controls
 2. Index unit to occupied and unoccupied cycles from BMS.

- B. Occupied Cycle:
 1. The supply Air is reset based on a space temp S.P. of 70 Deg. F. The outside and exhaust air dampers open, and prove open with an end switch before fans start.

- C. Unoccupied Cycle:
 1. The supply and return fans stop. The outside air and exhaust dampers close.

- D. Safety:
 1. Smoke detectors in the supply and return air de-energize the supply and return fans with a hard shut down at the motor starters.
 2. Current sensors shall be used to monitor the fan status through D.D.C. system, and report an alarm is the fan status deviates from the fan call.



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ERU 2

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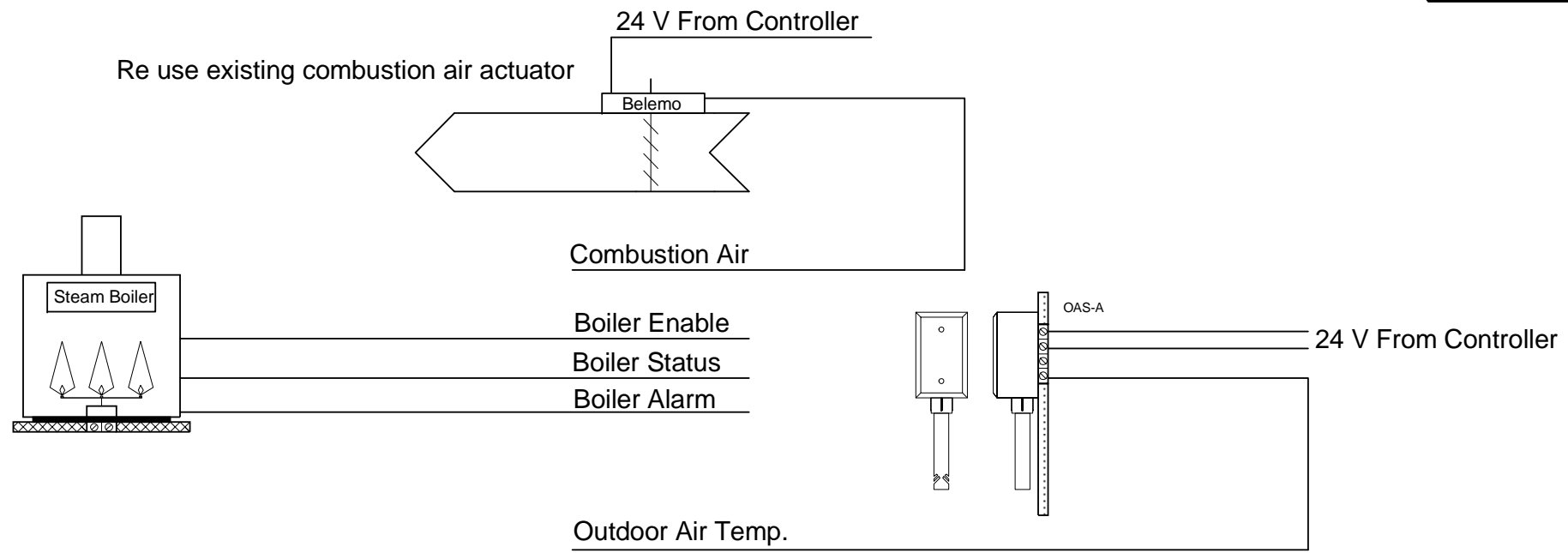
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AUTOMATED LOGIC
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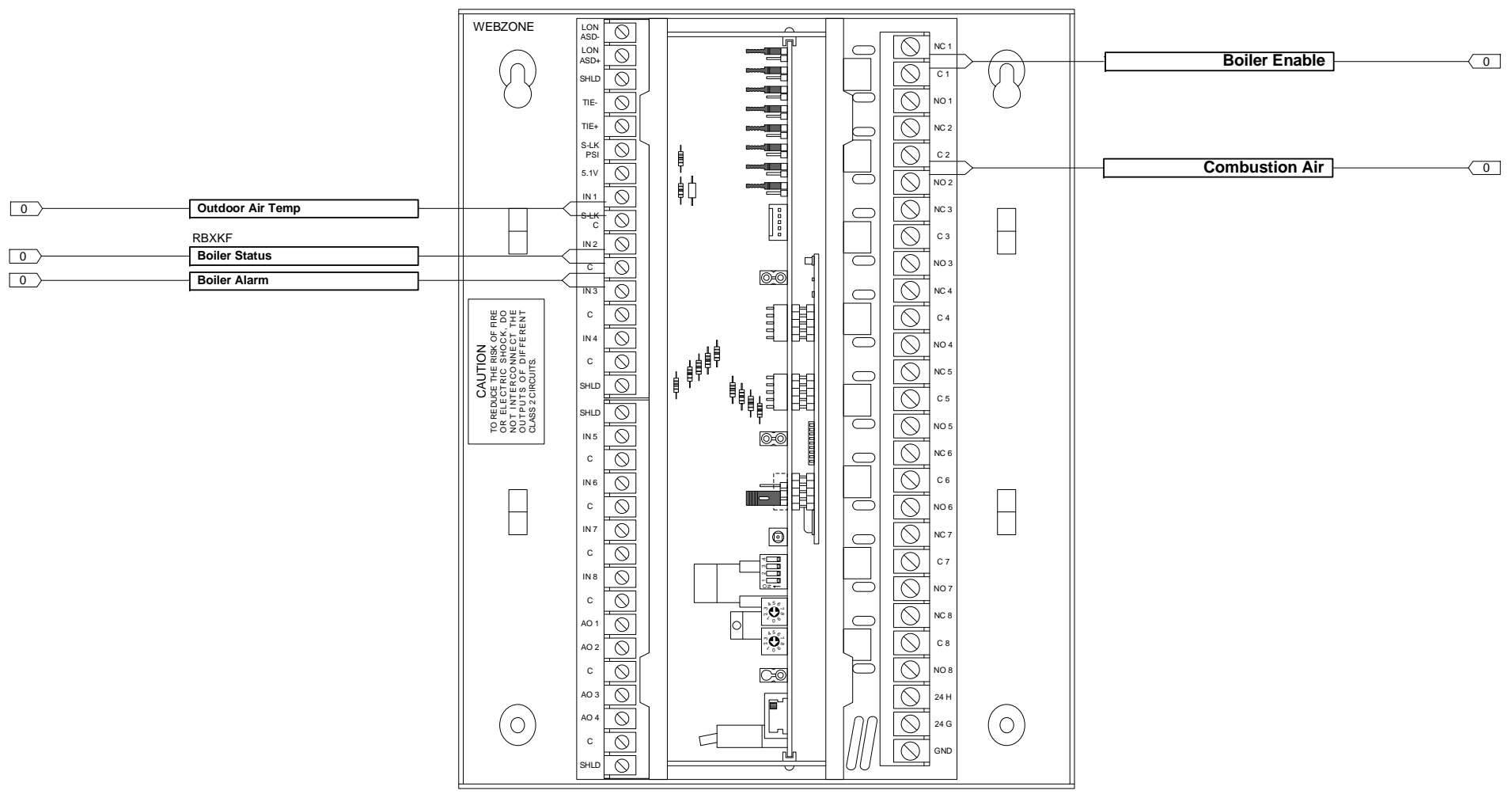
Boiler Plant

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
OAS-A	OUTDOOR AIR SENSOR 10K THERM	BAPI	ALC/10K-2-O	1 ea
RBXKF	CURRENT SENSOR	RIB	RBXKF	1 ea
WEBZONE	WEBZONE	AUTOMATED LOGIC	WEBZONE	1 ea



BOILER CONTROL

- A. General:
- Existing mechanical steam boiler operating controls to remain.
- B. Occupied Cycle:
- Enable unit based on an outside air temperature below 65 Deg. F.
 - Generate alarm at operator work station if boiler alarm occurs.
 - Open combustion damper air when status is on.



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Boiler Plant

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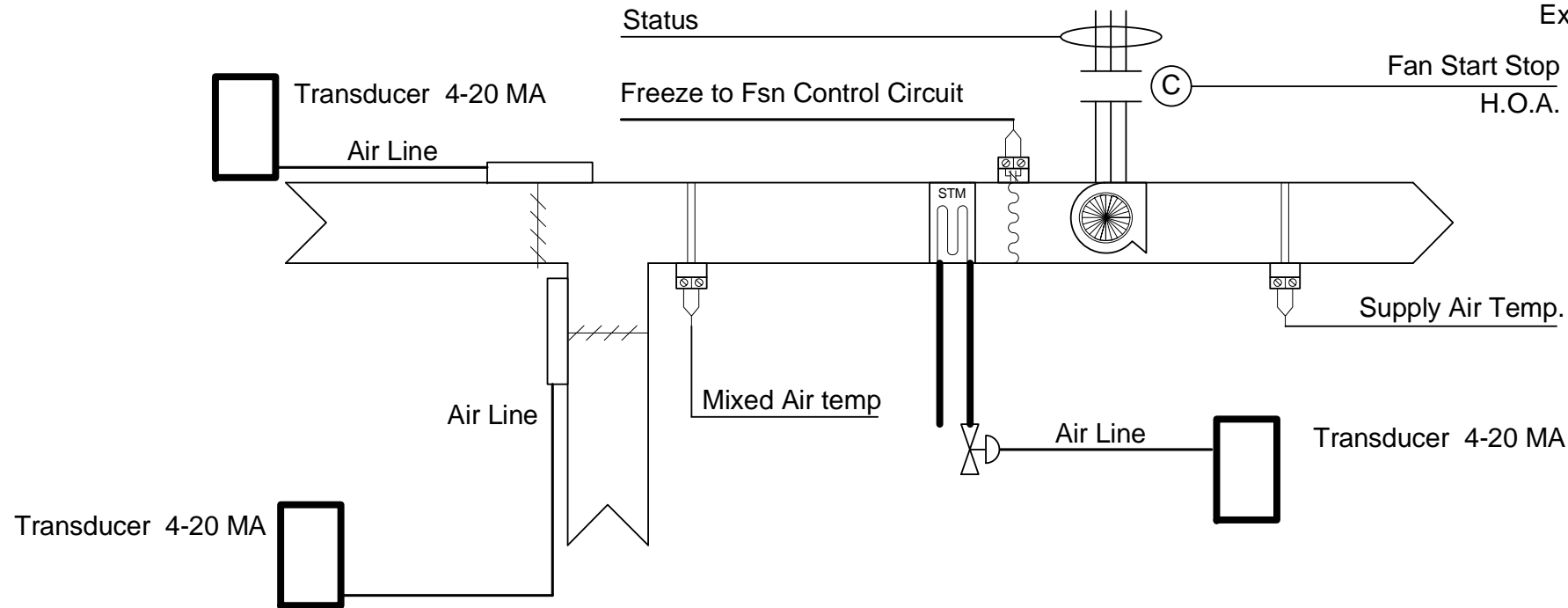
AUTOMATED LOGIC
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Stage AHU

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
WEBZONE	WEBZONE	AUTOMATED LOGIC	WEBZONE	1 ea

Existing control relays, transducers, and sensors are to be re used with new controllers
Existing actuators and wire are to be re used with new controllers



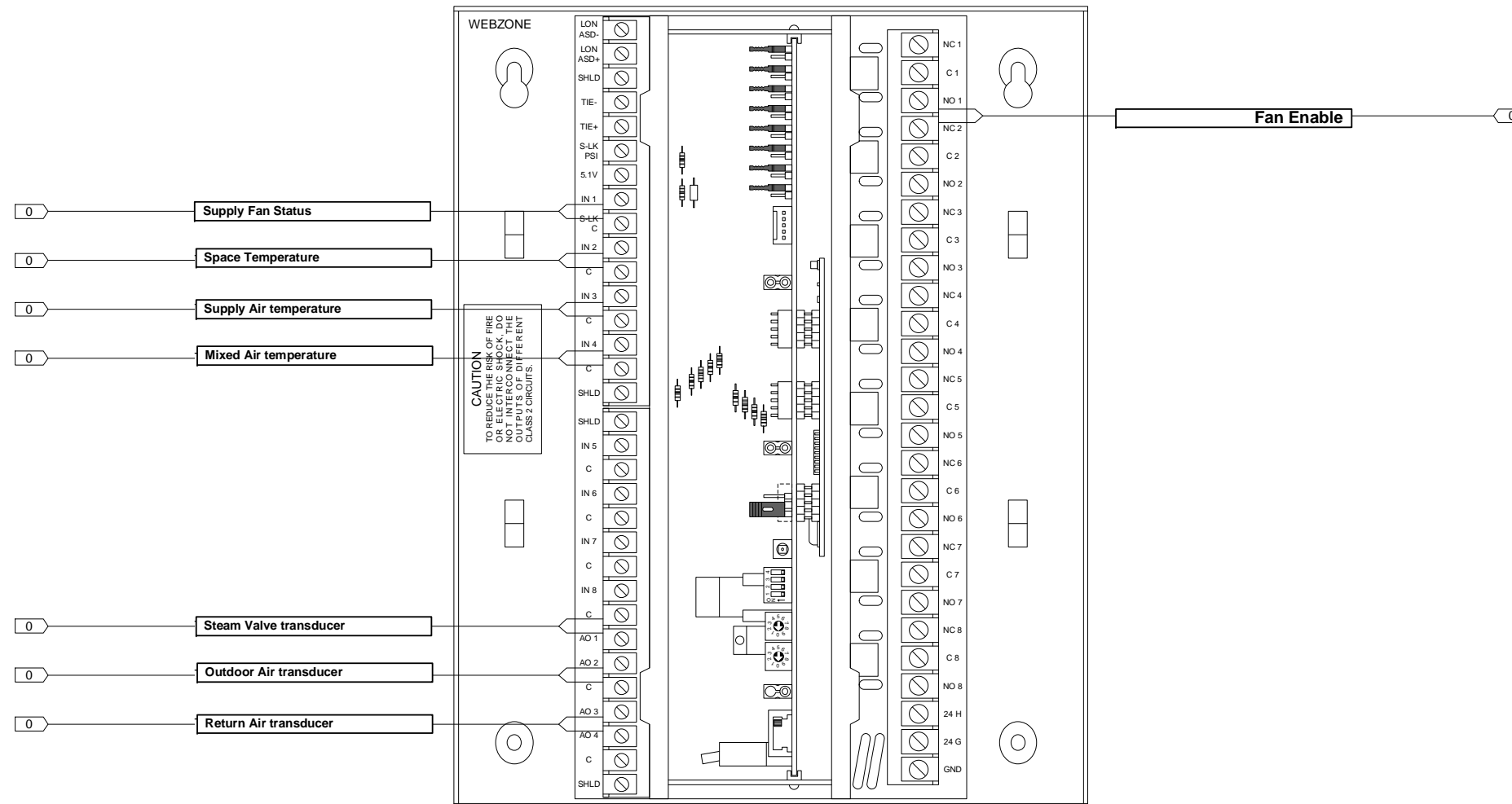
AHU STAGE CONTROL

A. General:

Index Unit to Occupied and Unoccupied mode
From Energy Management system

B. Occupied Cycle:

1. Run fan continuously with the outdoor air damper at 15 % minimum position
2. If space temperature is above set point modulate outdoor air damper to maintain set point. If space temperature is below set point maintain 15% minimum position outdoor air damper, and modulate steam valve to maintain a resetting discharge air temperature that resets with space temperature deviation. Reset D.A. Between 70 and 95 DEG F.



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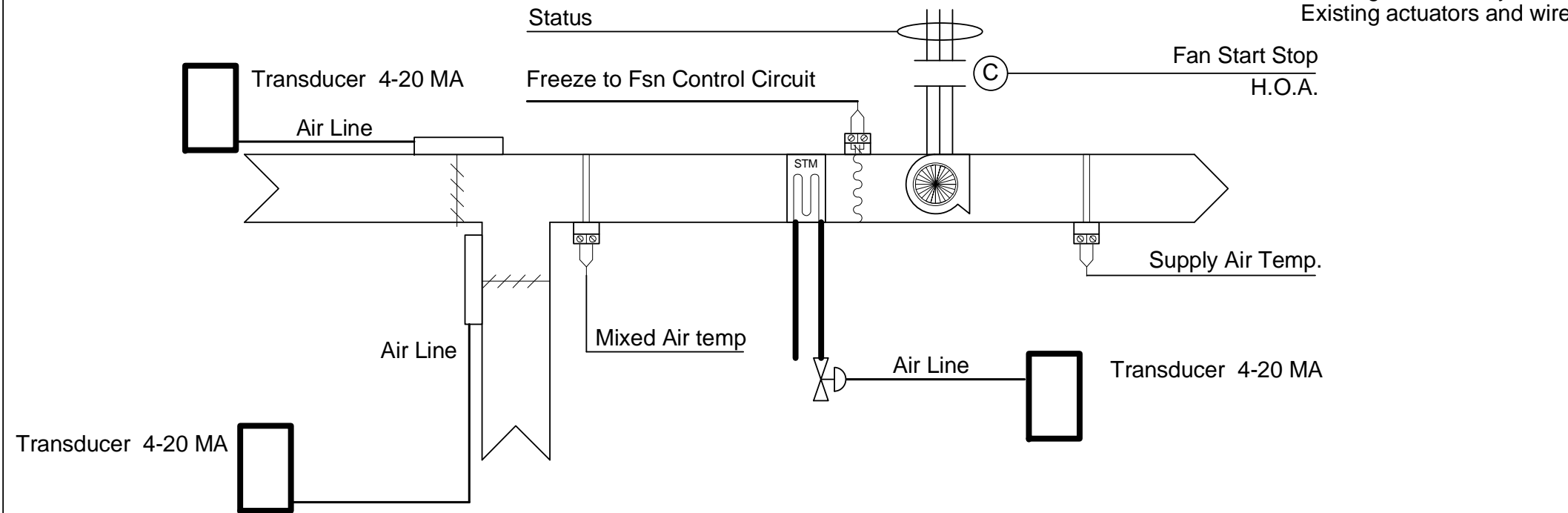
Stage AHU

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AUTOMATED LOGIC CORPORATION			CHECK BY: RSL
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Auditorium AHU

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
WEBZONE	WEBZONE	AUTOMATED LOGIC	WEBZONE	1 ea

Existing control relays, transducers, and sensors are to be re used with new controllers
Existing actuators and wire are to be re used with new controllers



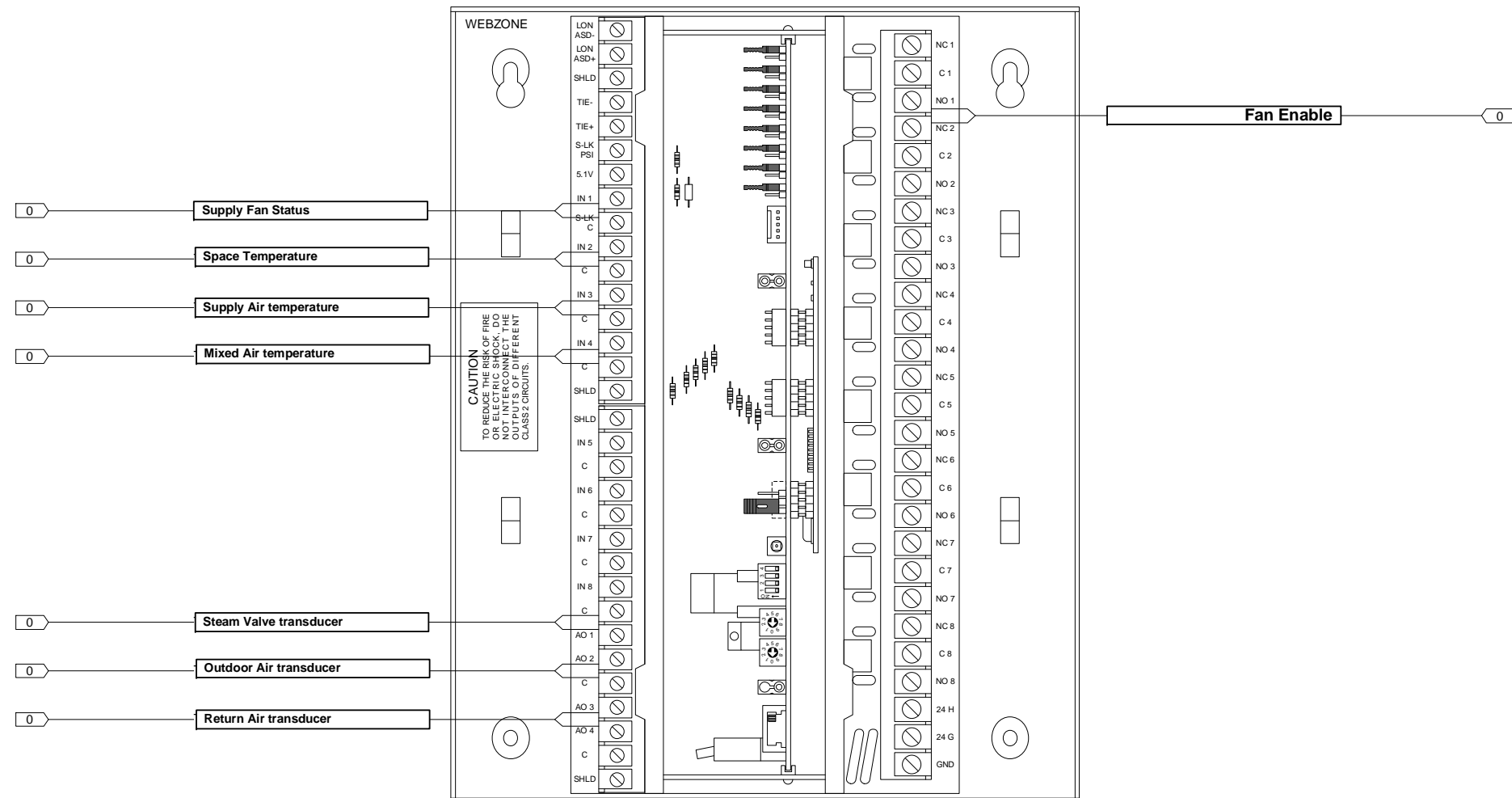
AHU STAGE CONTROL

A. General:

Index Unit to Occupied and Unoccupied mode
From Energy Management system

B. Occupied Cycle:

1. Run fan continuously with the outdoor air damper at 15 % minimum position
2. If space temperature is above set point modulate outdoor air damper to maintain set point. If space temperature is below set point maintain 15% minimum position outdoor air damper, and modulate steam valve to maintain a resetting discharge air temperature that resets with space temperature deviation. Reset D.A. Between 70 and 95 DEG F.

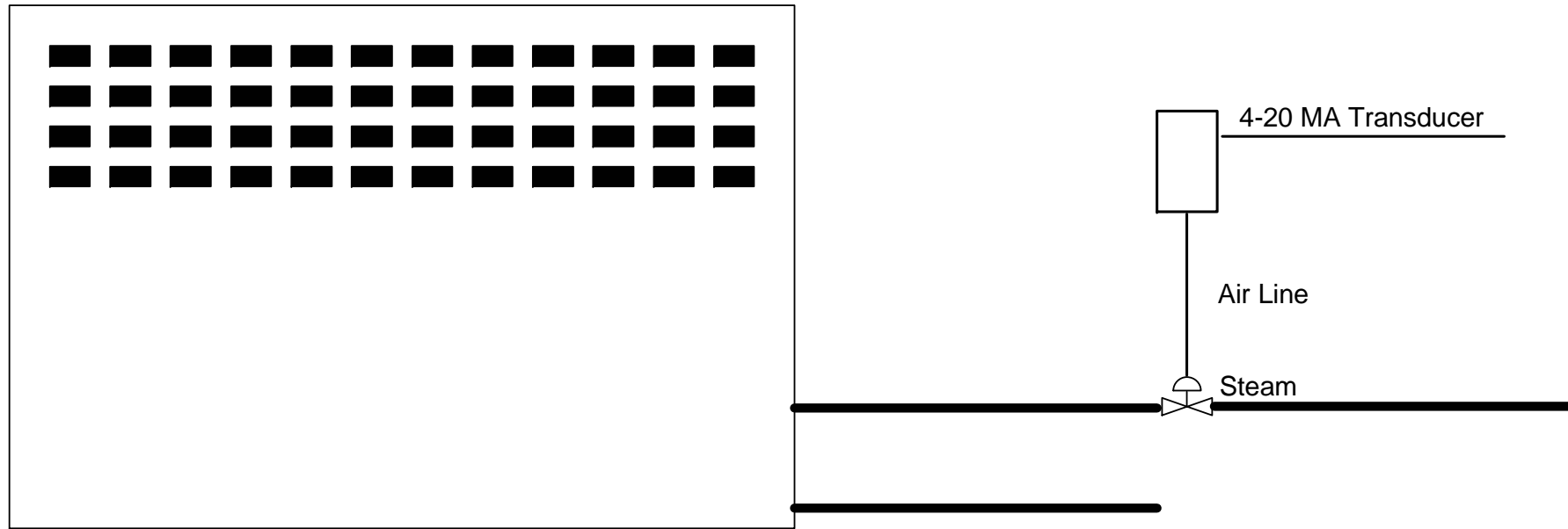


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Auditorium AHU			
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Steam Radiators 1

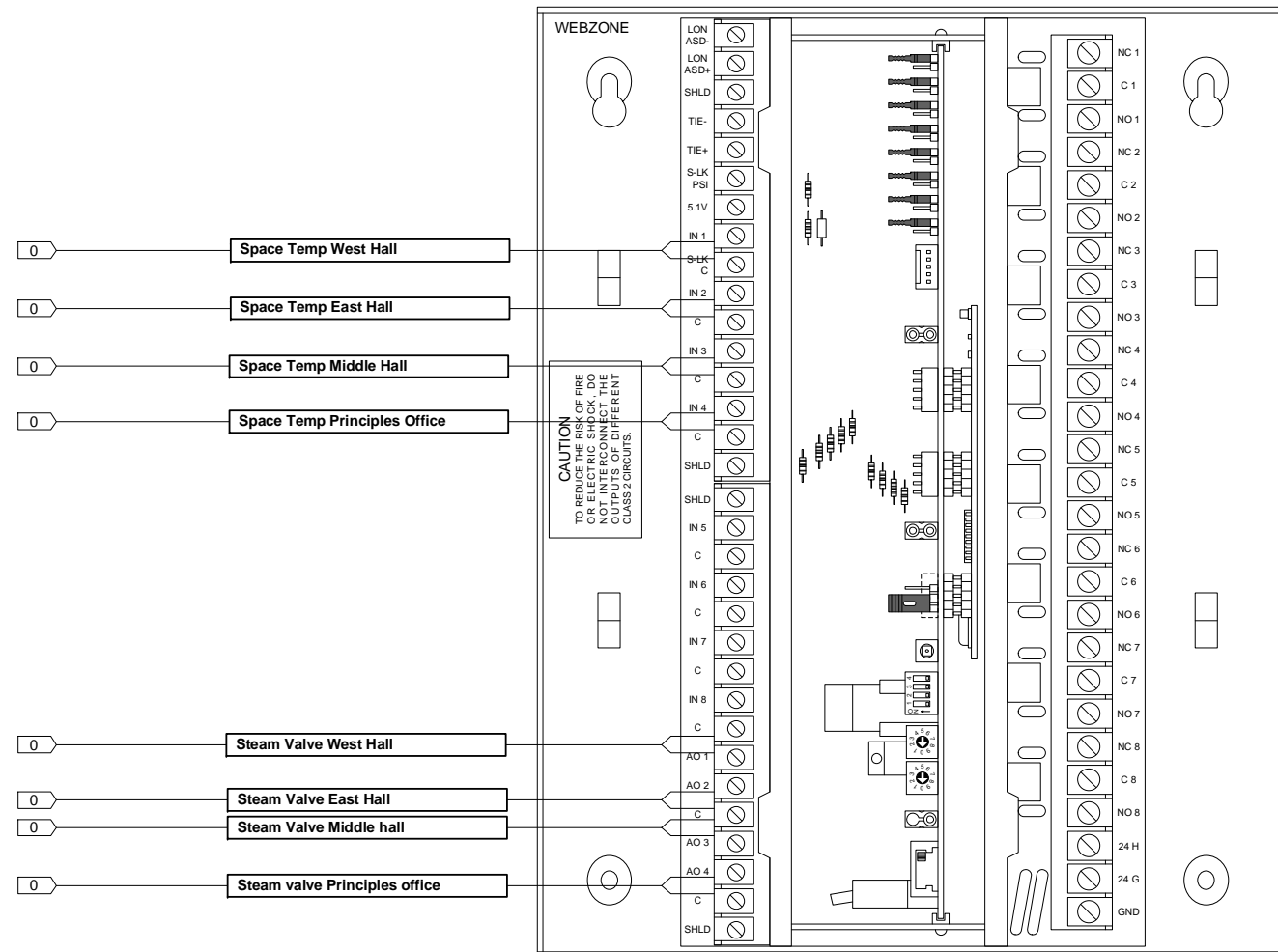
Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
WEBZONE	WEBZONE	AUTOMATED LOGIC	WEBZONE	1 ea

Existing control relays, transducers, and sensors are to be re used with new controllers
 Existing actuators and wire are to be re used with new controllers



STEAM RADIATOR CONTROL

- A. Occupied Cycle:
 Modulate steam valve to maintain occupied set point.
- B. Unoccupied Cycle:
 Modulate steam valve to maintain unoccupied set point.

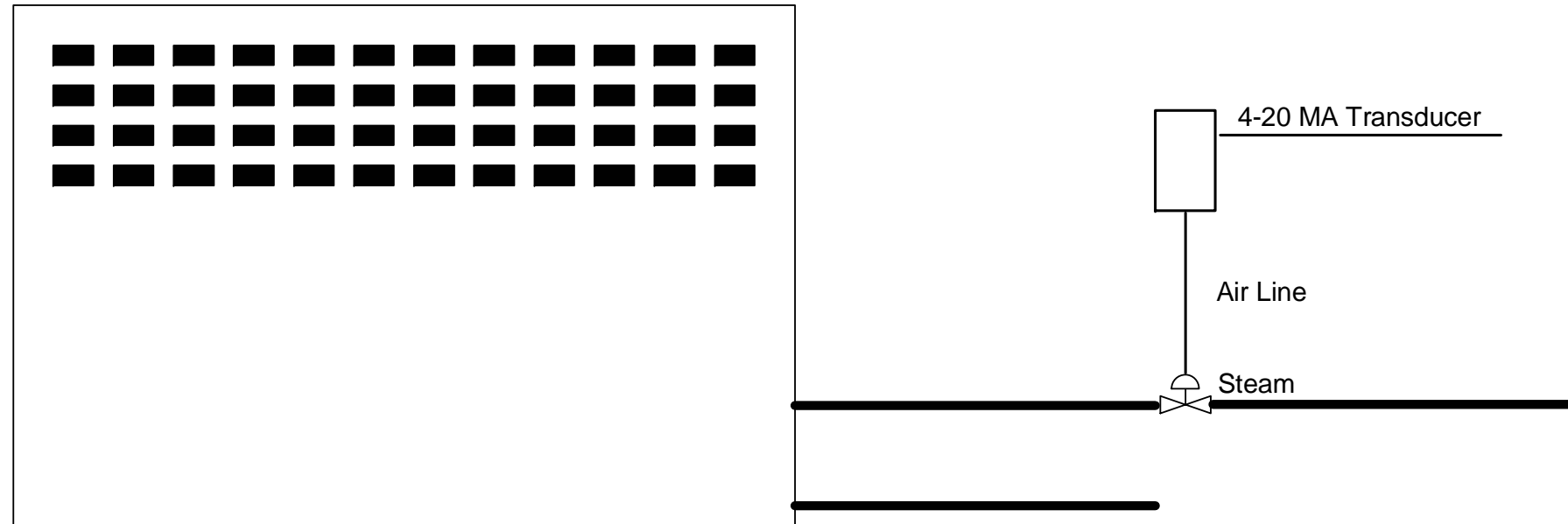


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Steam Radiators 1			
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Steam Radiators 2

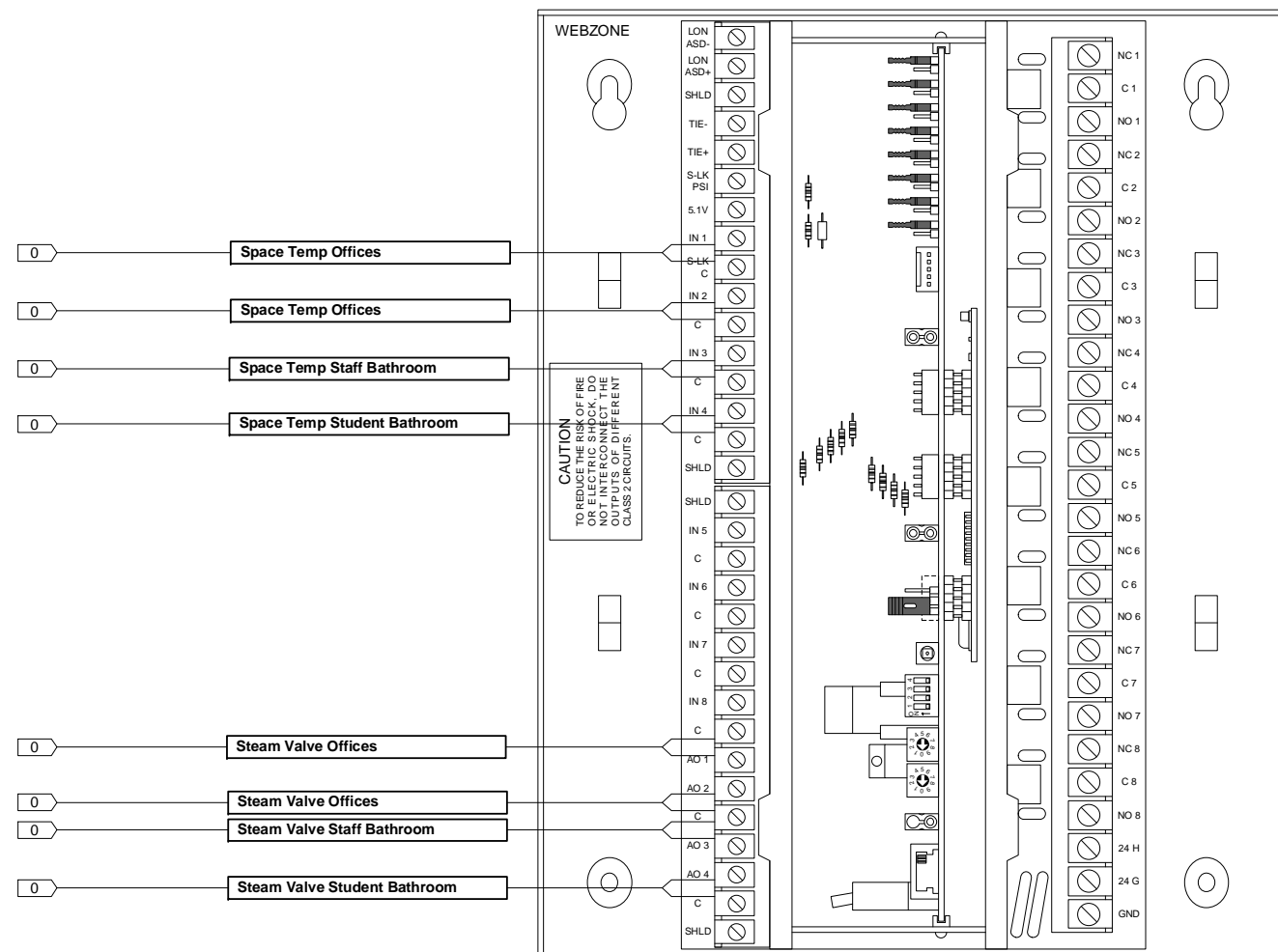
Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
WEBZONE	WEBZONE	AUTOMATED LOGIC	WEBZONE	1 ea

Existing control relays, transducers, and sensors are to be re used with new controllers
 Existing actuators and wire are to be re used with new controllers



STEAM RADIATOR CONTROL

- A. Occupied Cycle:
 Modulate steam valve to maintain occupied set point.
- B. Unoccupied Cycle:
 Modulate steam valve to maintain unoccupied set point.



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Steam Radiators 2

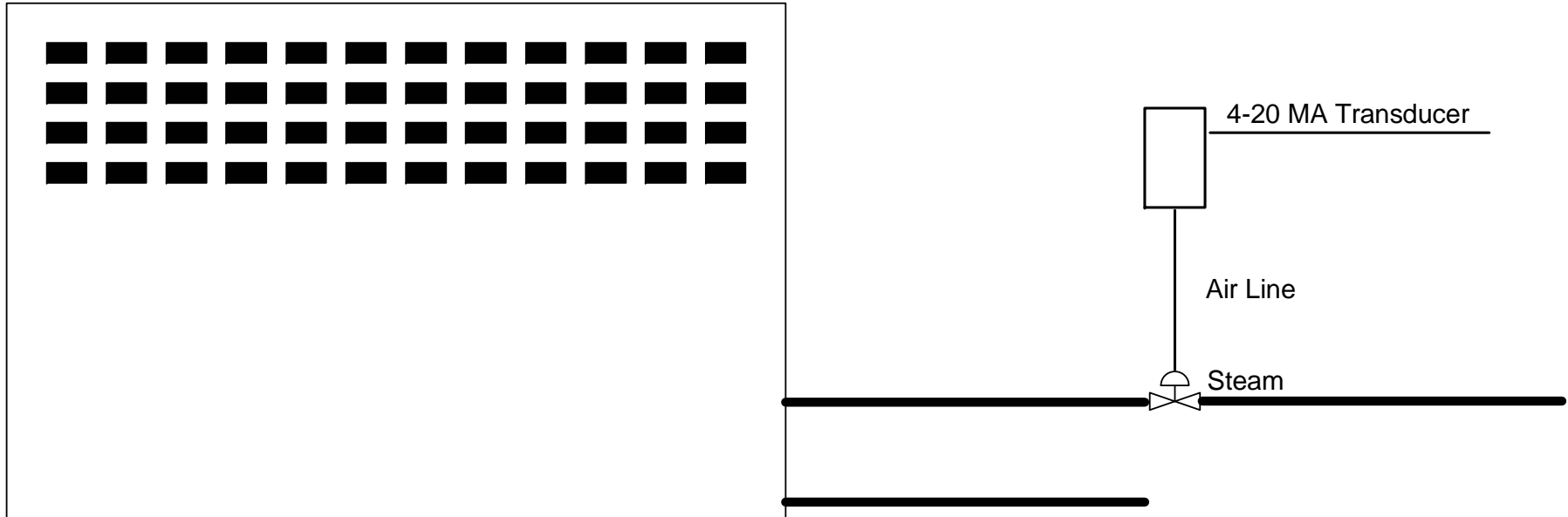
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AUTOMATED LOGIC CORPORATION			CHECK BY: RSL
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Steam radiators 3

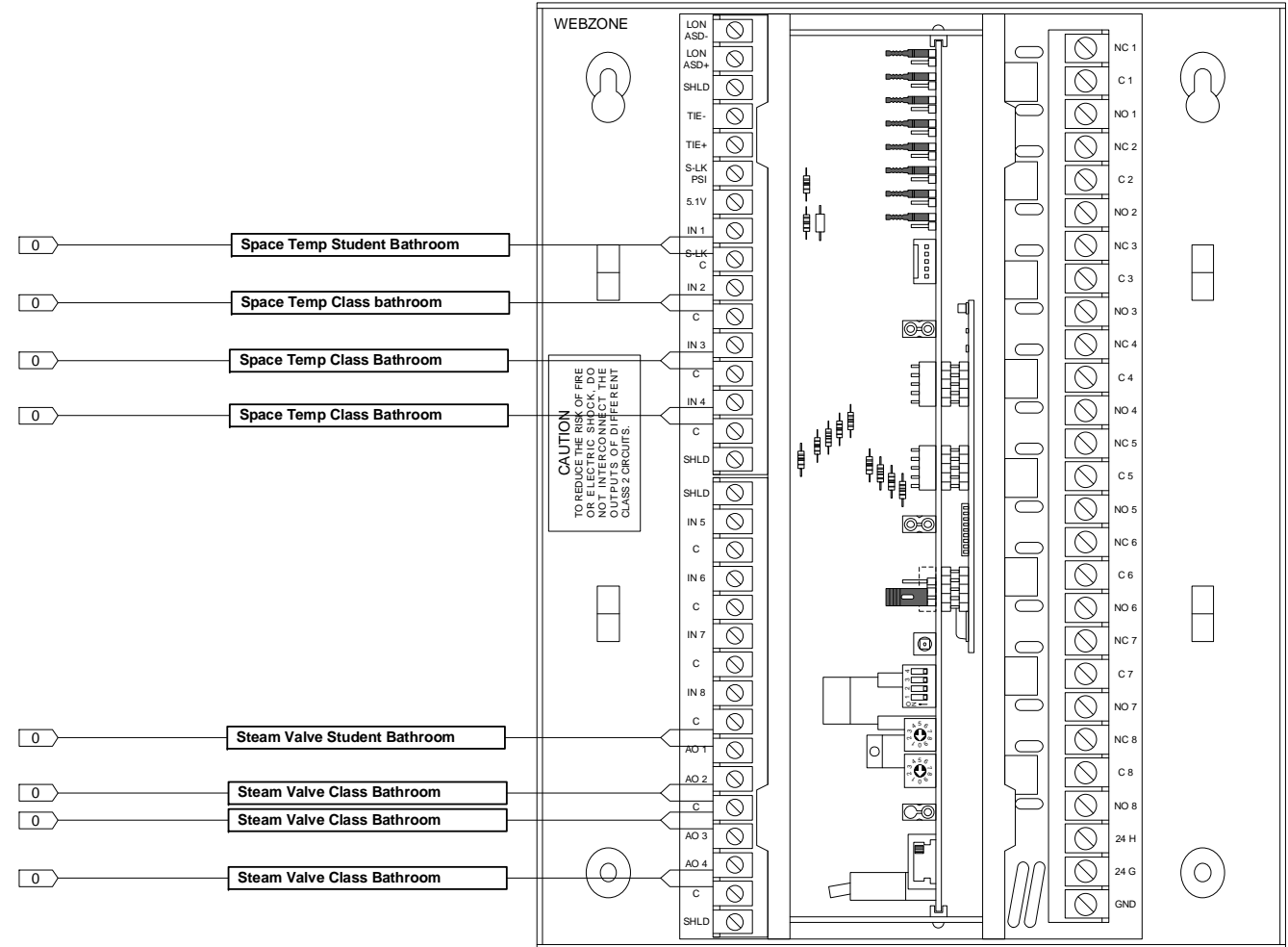
Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
WEBZONE	WEBZONE	AUTOMATED LOGIC	WEBZONE	1 ea

Existing control relays, transducers, and sensors are to be re used with new controllers
 Existing actuators and wire are to be re used with new controllers



STEAM RADIATOR CONTROL

- A. Occupied Cycle:
 - Modulate steam valve to maintain occupied set point.
- B. Unoccupied Cycle:
 - Modulate steam valve to maintain unoccupied set point.



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Steam radiators 3

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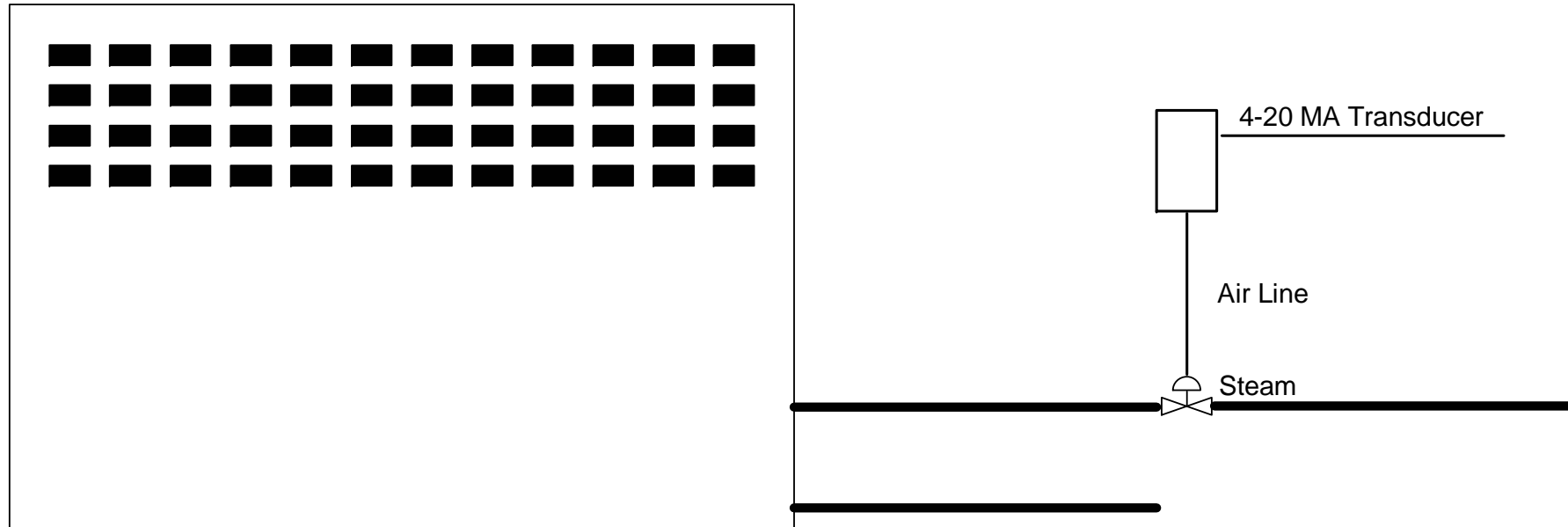
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Steam Radiators 4

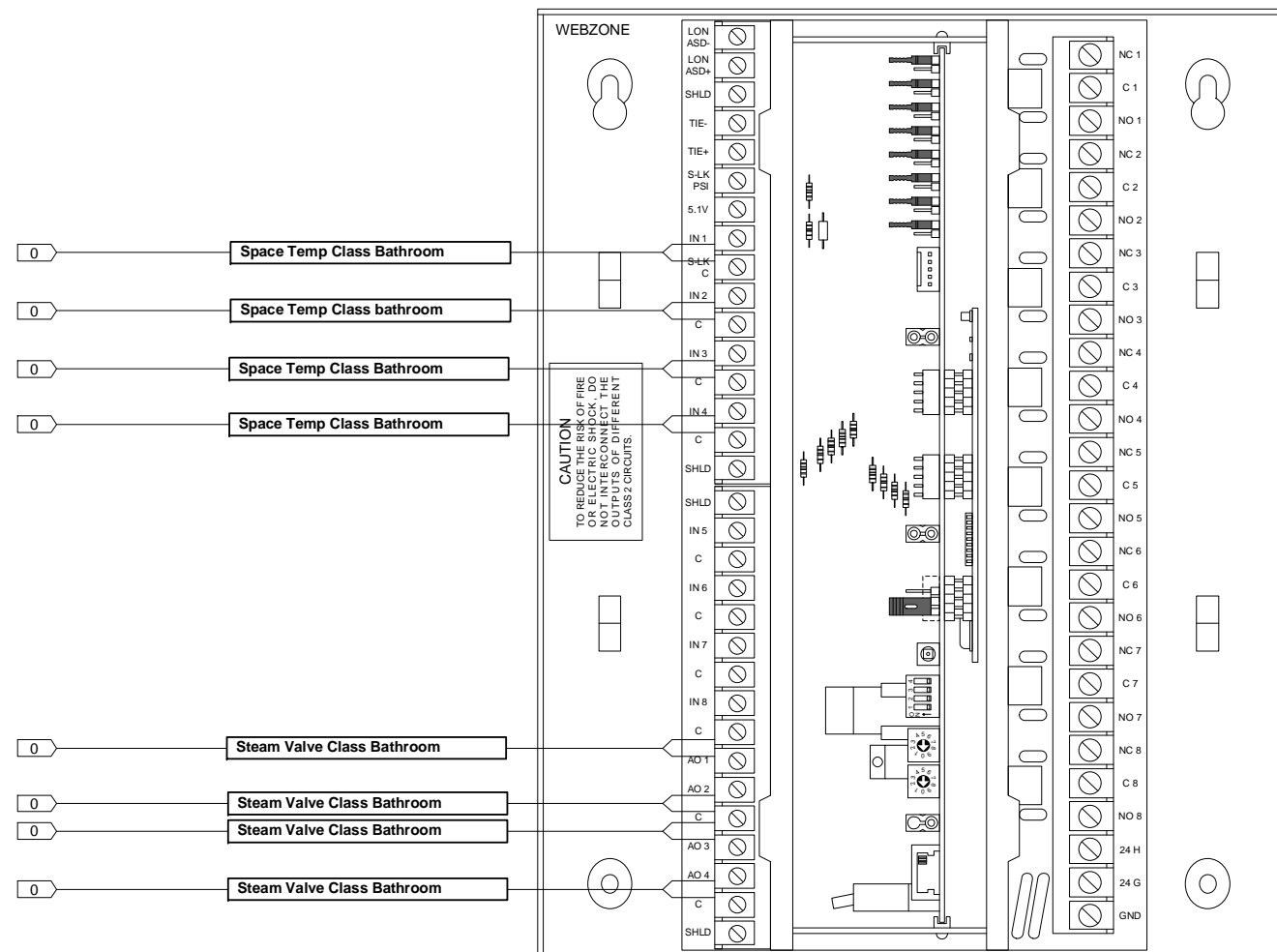
Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
WEBZONE	WEBZONE	AUTOMATED LOGIC	WEBZONE	1 ea

Existing control relays, transducers, and sensors are to be re used with new controllers
 Existing actuators and wire are to be re used with new controllers



STEAM RADIATOR CONTROL

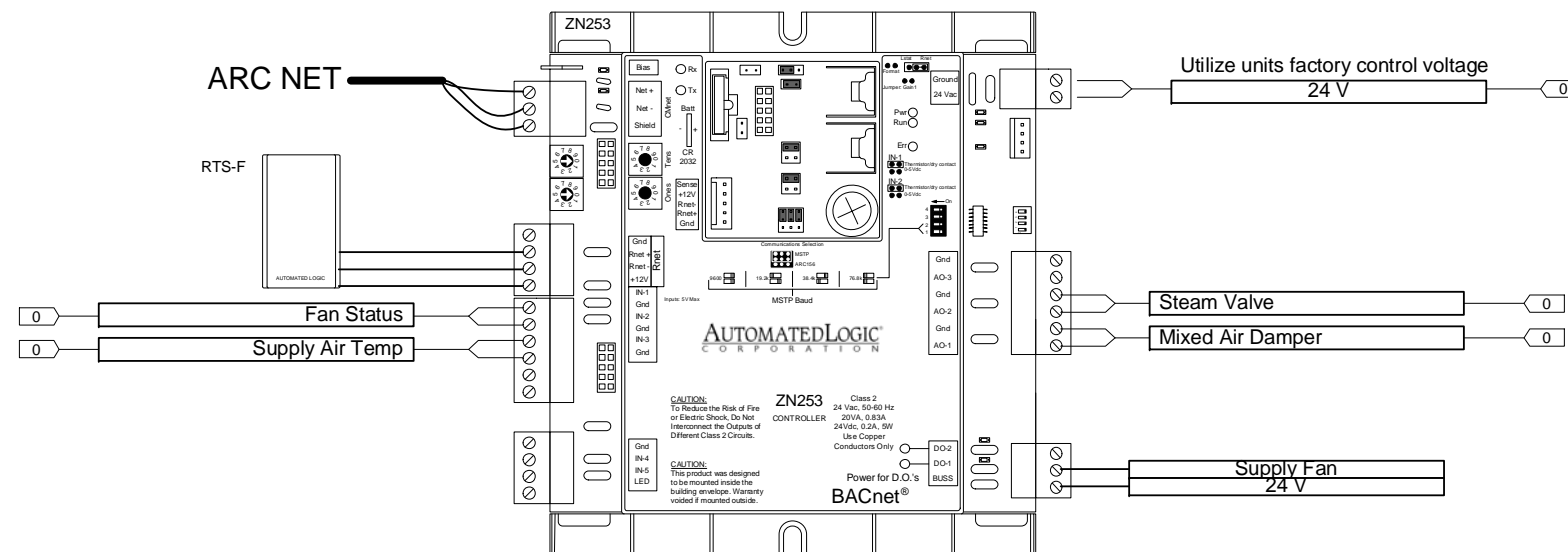
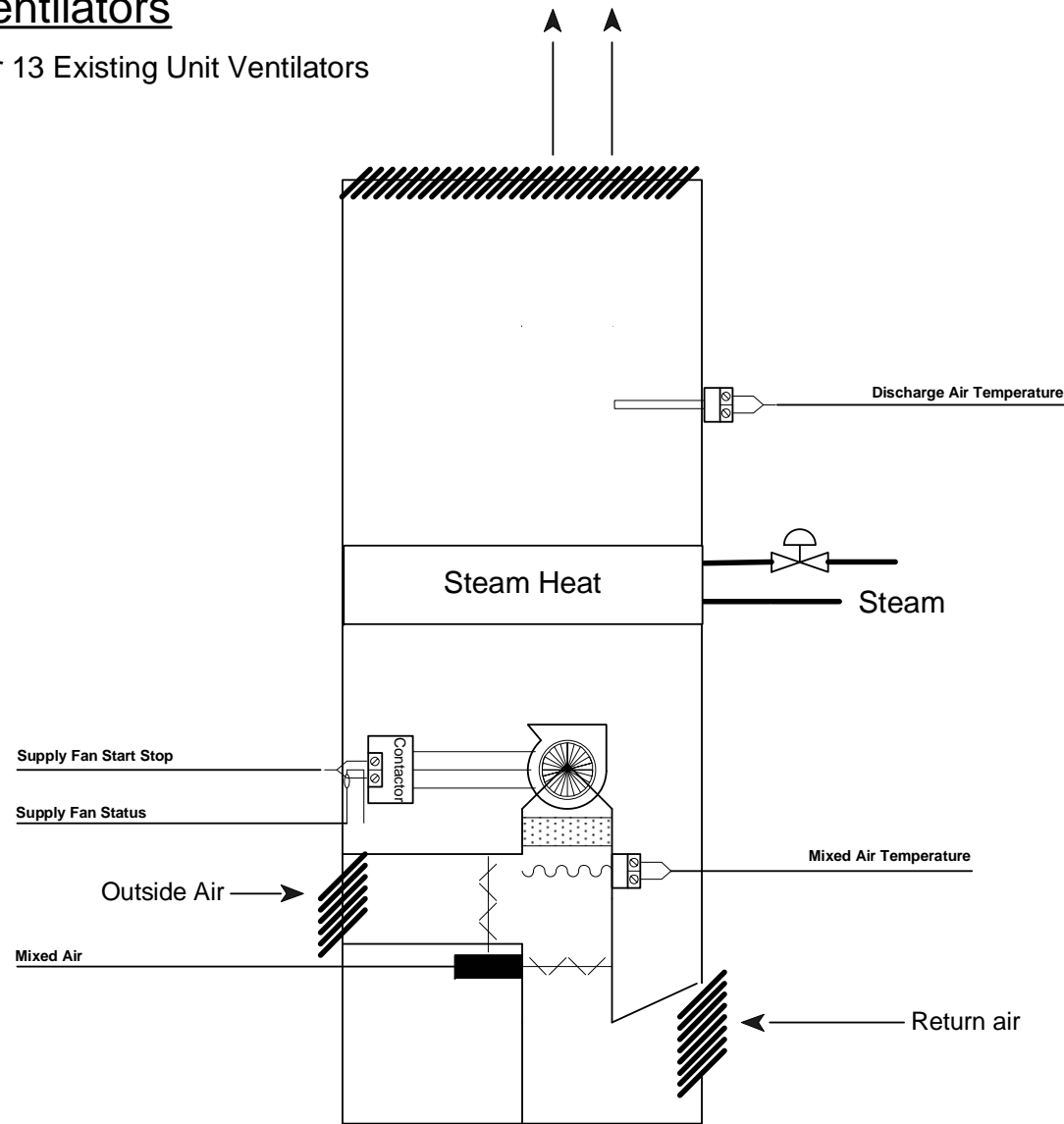
- A. Occupied Cycle:
 Modulate steam valve to maintain occupied set point.
- B. Unoccupied Cycle:
 Modulate steam valve to maintain unoccupied set point.



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Steam Radiators 4			
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Unit Ventilators

Typical For 13 Existing Unit Ventilators



Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
RTS-F	10K ROOM THERMISTOR RS	BAPI	ALC/10K-2-RS	13 ea
ZN253	ZN253	AUTOMATED LOGIC	ZN253	13 ea

Existing control relays, transducers, and sensors are to be re used with new controllers
 Existing actuators and wire are to be re used with new controllers

UV CONTROL

A. GENERAL:

1. Provide field mounted controls.
2. Index unit to occupied and unoccupied cycles from BMS.

B. SAFETIES:

1. Stop fan shut outside air damper open return air damper, open face damper, and generate and alarm at BMS when any of the following occur.

- A. Discharge air temp is above 130 degrees F.
- b. Discharge air temp is below 40 degrees F.

C. OCCUPIED CYCLE:

1. Run fan continuously.
2. Open unit outside air damper to scheduled minimum position.
3. Modulate valve to maintain set point
4. As space temperature rises above 72 degrees F. close valve and modulate unit O.A. damper and R.A. damper to maintain set point.

D. UN-OCCUPIED CYCLE:

1. Run fan only on call for heat to maintain 62 degrees F. in space.
2. Shut outside air dampers and open return air dampers.
3. Open steam valve when outside air is below 60 degrees F.

E. WARM UP CYCLE:

1. Run fan only on call for heat to maintain 72 degrees F. in space.
2. Shut O.A. damper, and open R.A. damper.
3. Open steam valve when outside air is below 60 degrees F.

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Unit Ventilators

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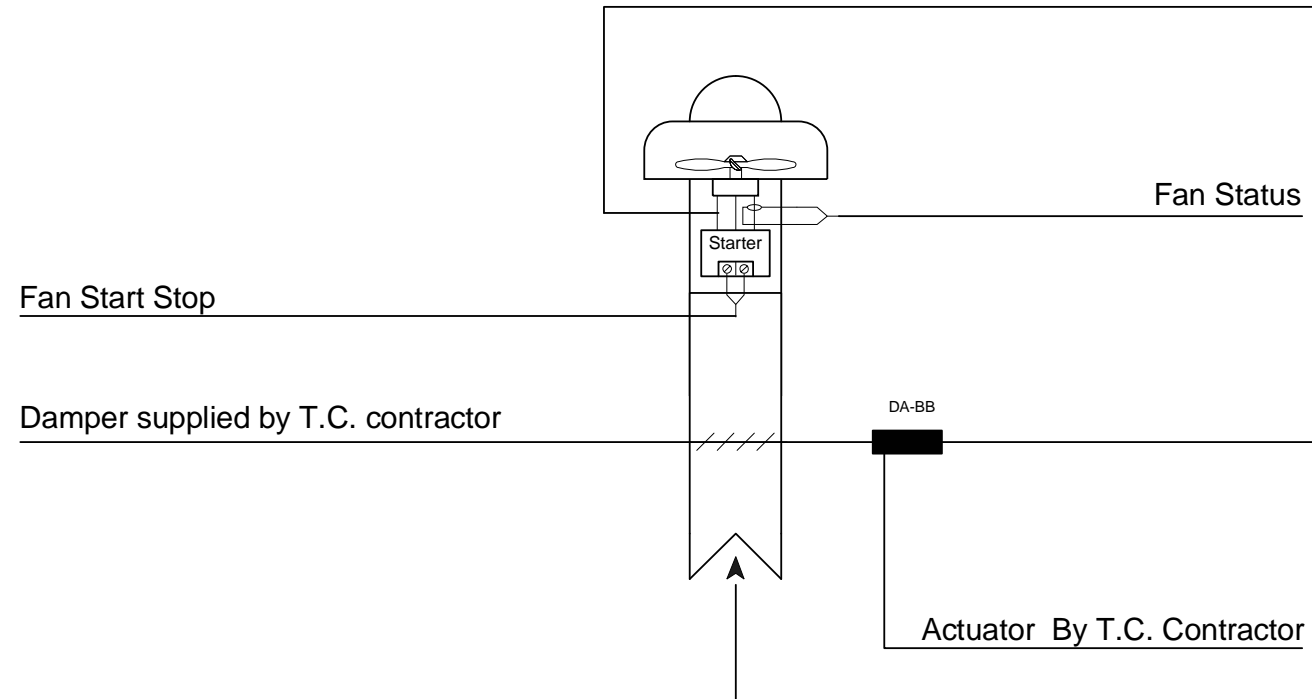
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DSCODE: 07112.00

Exhaust Fan

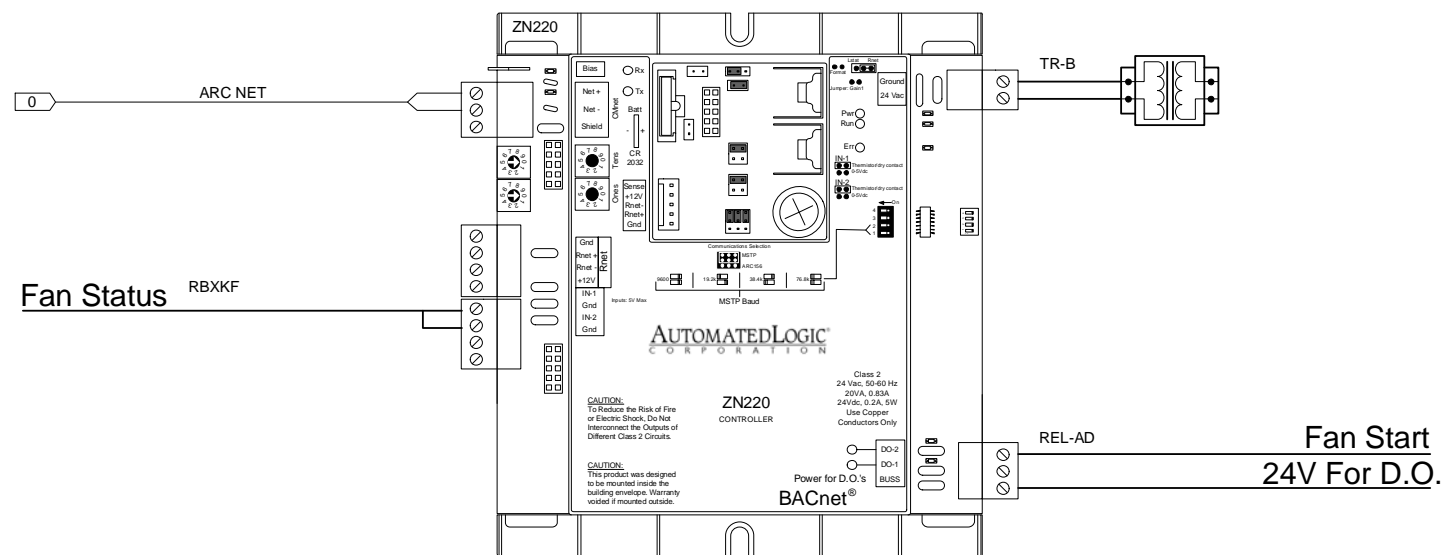
PRE 1 & PRE 2

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
DA-BB	SR OPEN/CLOSE 35 IN-LB 24 V	BELIMO	LF24 ALC	2 ea
RBXKF	CURRENT SENSOR	RIB	RBXKF	2 ea
REL-AD	SPDT RELAY W/ IND LGHT 24 VAC	IDEC	RH1B-ULC-AC24V	2 ea
TR-B	TRANSFORMER, MULTITAP 24VAC, 75VA	CORE COMPONENTS	LE-150	2 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	2 ea



EXHAUST FAN CONTROL

1. fan shall be energized by BAS during occupied mode, and off during unoccupied mode.
2. Automatic damper shall open when fan is energized and close when fan is off.
3. Damper actuator to be electric.



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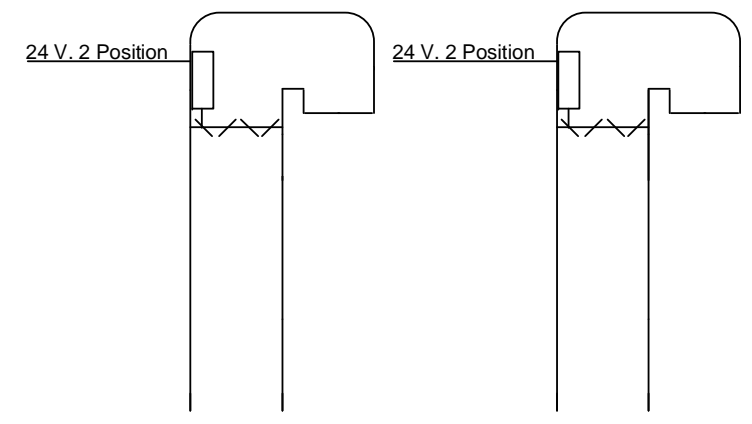
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Exhaust Fan

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Non Powered EX

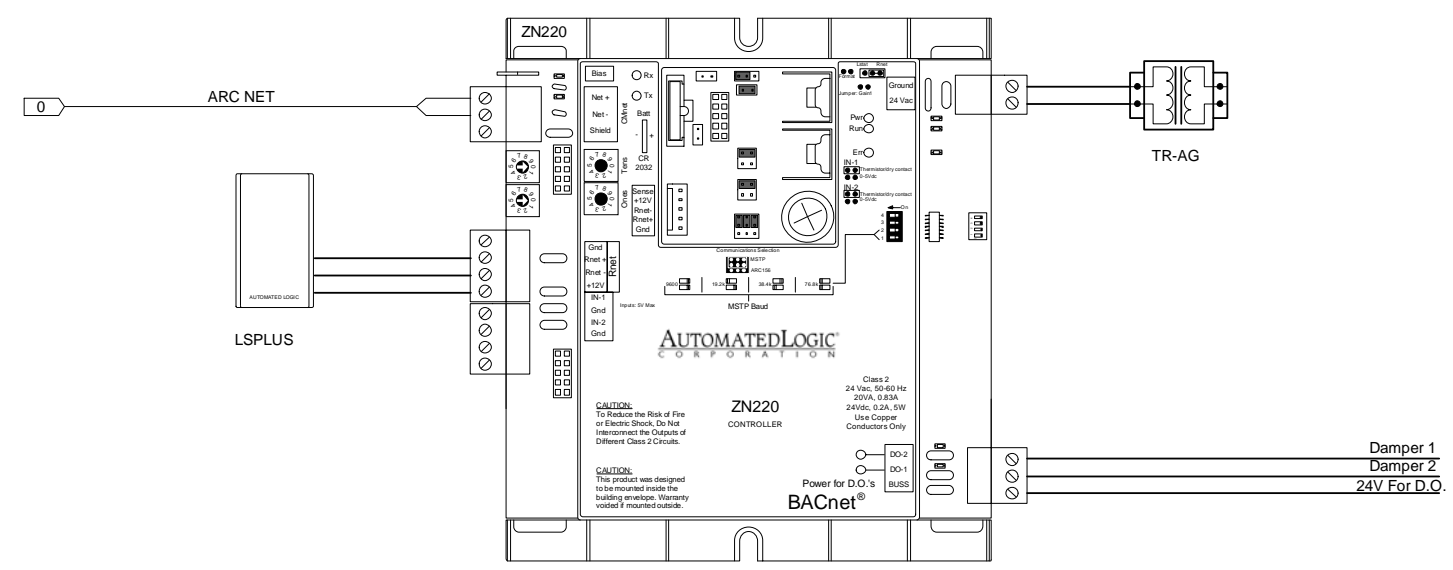
Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
LSPLUS	LOGISTAT 10K ROOM SENSOR W/ SETP ADJ, TLO, COMM	BAPI	LSPLUS	1 ea
TR-AG	TRANSFORMER, 120/24VAC 150VA W/CCT BREAKER	CORE COMPONENTS	LE-124	1 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	1 ea



Crawl Space Ventilation Sequence

When Steam to water heat exchanger crawl space goes above 65 deg F.

Ventilation Dampers in 2 gooseneck ventilators open to reduce crawl space temperature



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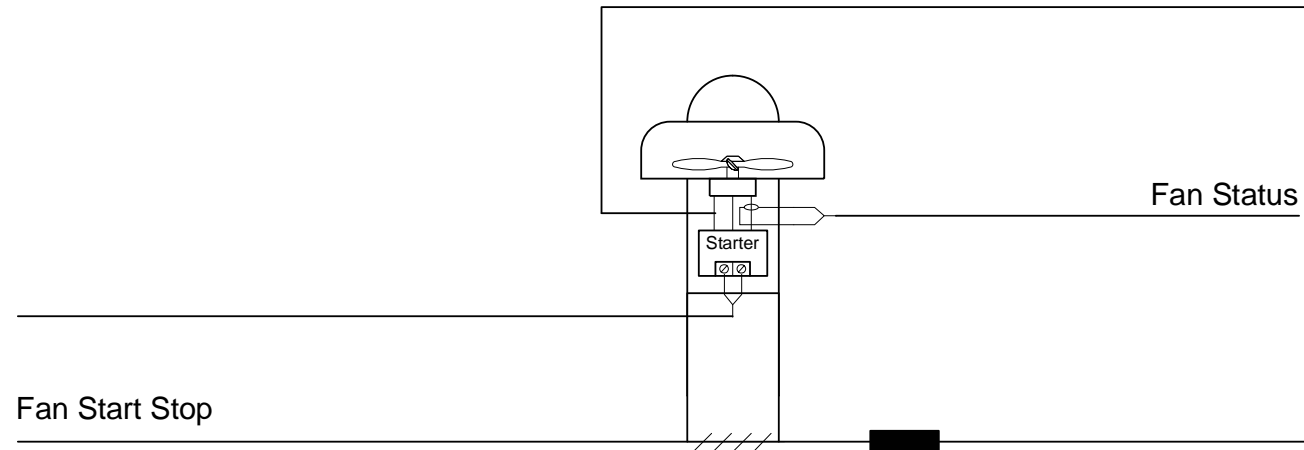
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Non Powered EX

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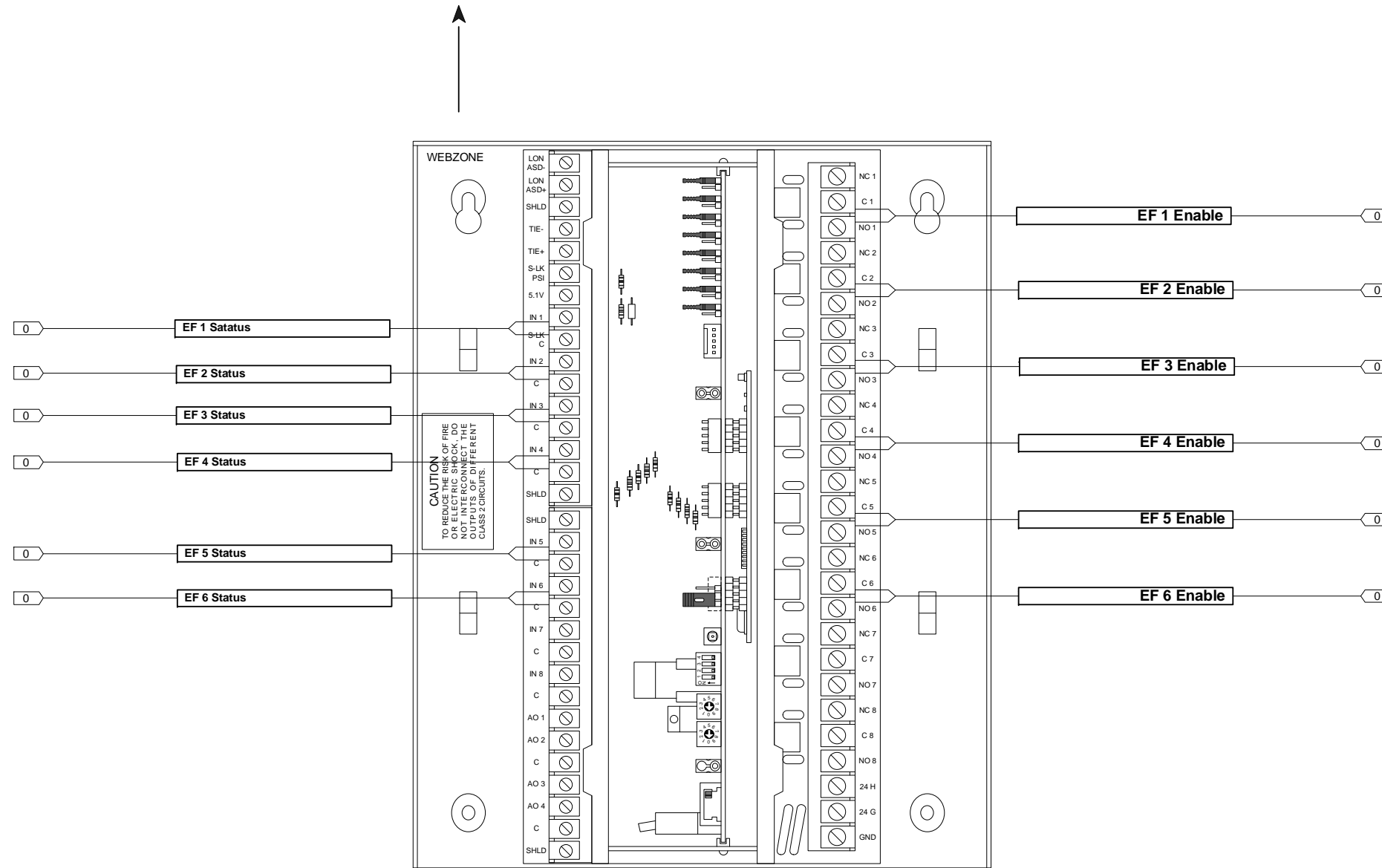
Existing Exhaust

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
WEBZONE	WEBZONE	AUTOMATED LOGIC	WEBZONE	1 ea



EXHAUST FAN CONTROL

1. fan shall be energized by BAS during occupied mode, and off during unoccupied mode.
2. Automatic damper shall open when fan is energized and close when fan is off.
3. Damper actuator to be electric.



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Existing Exhaust

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Valve Schedule



TAG	Service Hot/Chilled Water or Steam	Valve Type 2 Way NO or NC	GPM/PPH	Design PD (psi)	Calculated CV	Actual CV	Actual PD (psi)	Manufacturer	Model No.	Valve Size (in.)	Line Size (in.)	Closeoff (psi)*	Actuator Signal	Fail Position
Class 122	HW	2	1.6	0.09	5.3	5		Belemo	Zone220N-50	0.75	0.75	200	24 v	open
Class 124	HW	2	1.6	0.09	5.3	5		Belemo	Zone220N-50	0.75	0.75	200	24 v	open
Class 126	HW	2	1.6	0.09	5.3	5		Belemo	Zone220N-50	0.75	0.75	200	24 v	open
Boys Locker	HW	2	1.6	0.09	5.3	5		Belemo	Zone220N-50	0.75	0.75	200	24 v	open
Girls Locker	HW	2	1.6	0.09	5.3	5		Belemo	Zone220N-50	0.75	0.75	200	24 v	open
Resource	HW	2	0.9	0.09	6	5		Belemo	Zone220N-50	0.75	0.75	200	24v	open
Bathroom	HW	2	1.2	0.04	6	5		Belemo	Zone220N-50	0.75	0.75	200	24v	open
Girls Bathroom	HW	2	1.2	0.04	6	5		Belemo	Zone220N-50	0.75	0.75	200	24v	open
CUH 1	HW	2	2.5	0.41	3.9	5		Belemo	Zone220N-50	0.75	0.75	200	24v	open
CUH 2	HW	2	2	0.27	3.8	5		Belemo	Zone220N-50	0.75	0.75	200	24v	open
CUH 3	HW	2	1	0.07	3.8	5		Belemo	Zone220N-50	0.75	0.75	200	24v	open
CUH 4	HW	2	2	0.27	3.8	5		Belemo	Zone220N-50	0.75	0.75	200	24v	open
Convactor 1	HW	2	0.18	NA	NA	NA	NA	Belemo	to be determined	NA	NA	200	24v	open
Convactor 2	HW	2	0.22	NA	NA	NA	NA	Belemo	to be determined	NA	NA	200	24v	open
WALL HEATER	HW	2	1	0.79	1.13	1.2	0.69	Belemo	B210TFX24	0.50		200	24v	open
Heat Exchanger	Steam	2	172	2	5.6	10	2	Belemo	G224S	1.00	1	200	0-10VDC	Closed

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Valve Schedule

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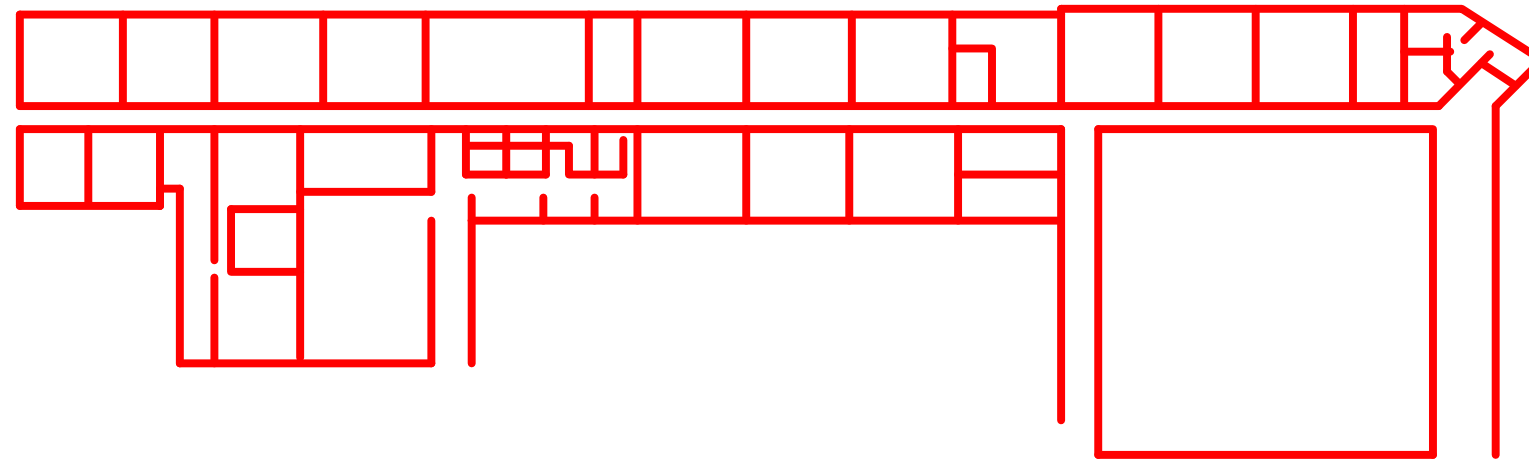
Damper Schedule




Identifier	QTY.	Damper mfg	Model	Size (W")	X Size (H")	Sq. Ft.	Opp or Par Blade	Qty Actuators	Actuator Type	Actuator mfg model
PRE 1	1	RUSKIN	CD60	12	12	1.00	OPP	1	2 POS	BELEMO LF24US
PRE 2	1	RUSKIN	CD60	12	12	1.00	OPP	1	2 POS	BELEMO LF24US
GOOSENCKS	2	RUSKIN	CD60	10	10	0.69	OPP	2	2 POS	BELEMO LF24US

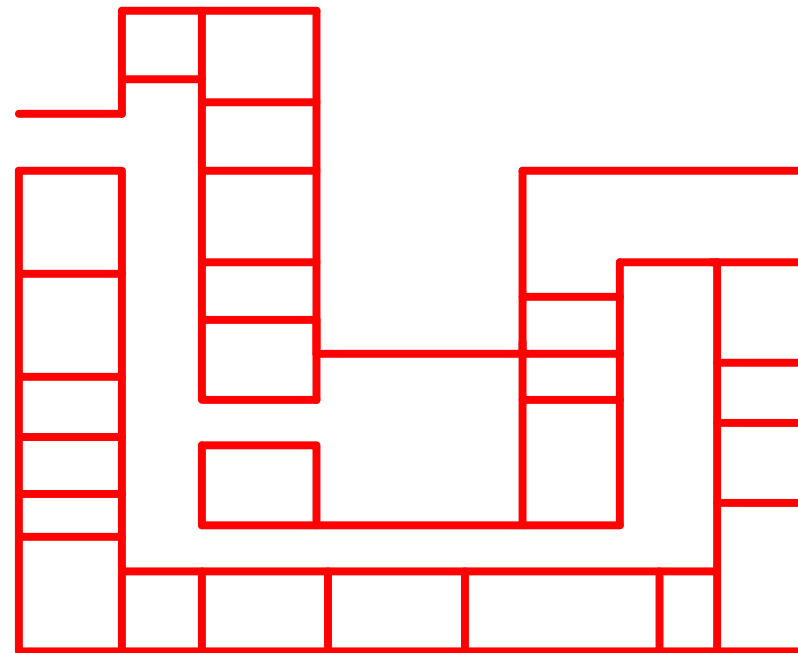
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Damper Schedule			
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HANCOCK ELEMENTARY SCHOOL



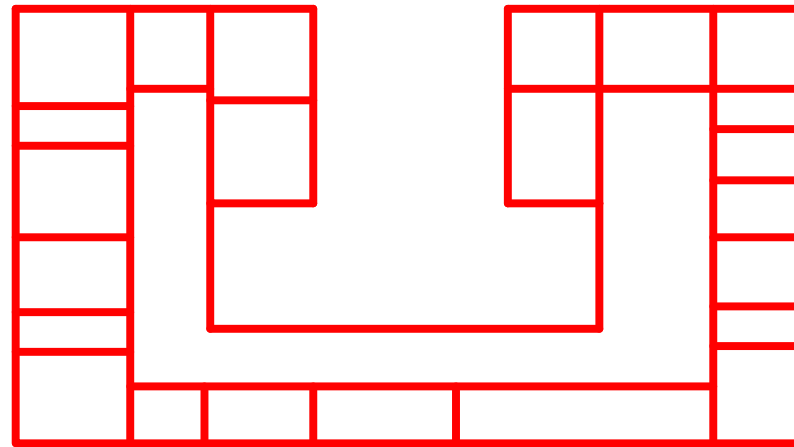
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AUTOMATEDLOGIC® CORPORATION			CHECK BY: RSL
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HANCOCK HIGH SCHOOL SECOND FLOOR



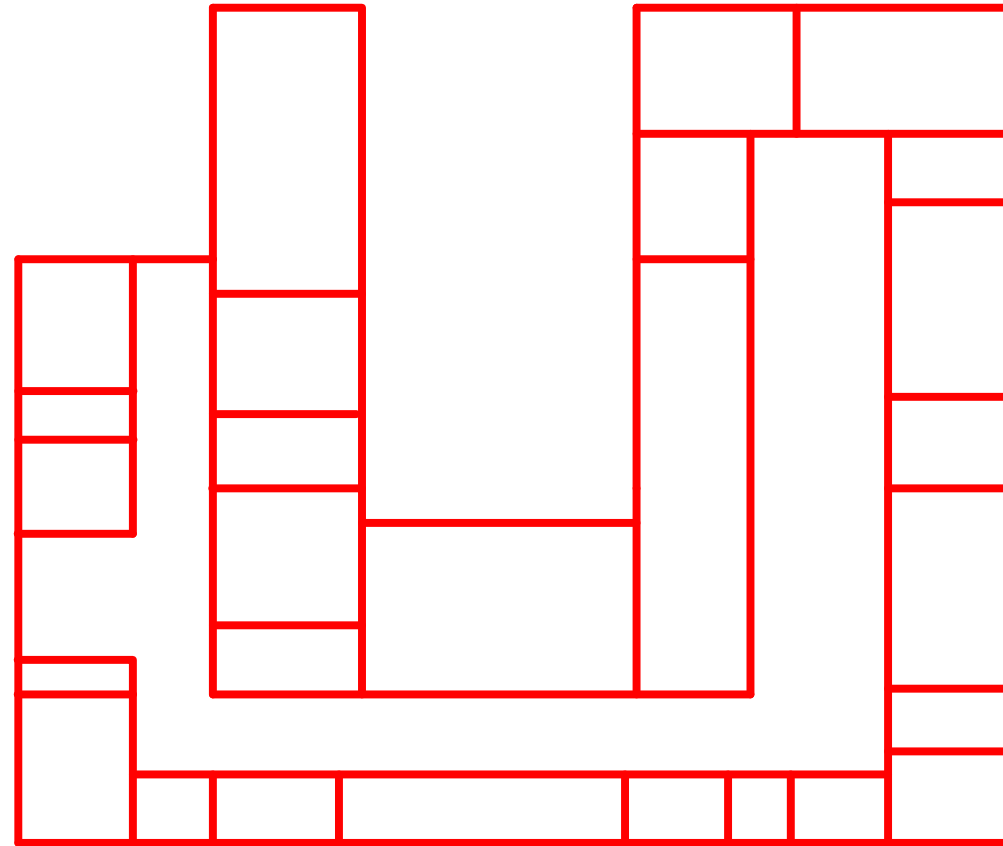
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HANCOCK HIGH SCHOOL THIRD FLOOR





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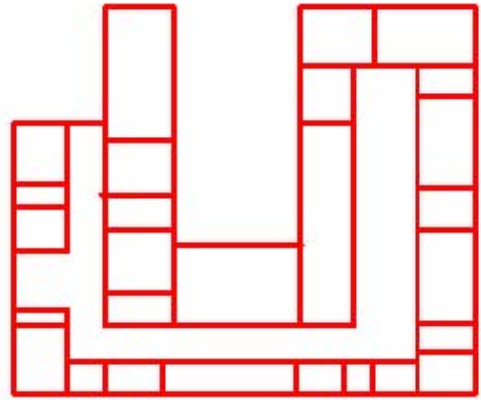
HANCOCK HIGH SCHOOL FIRST FLOOR



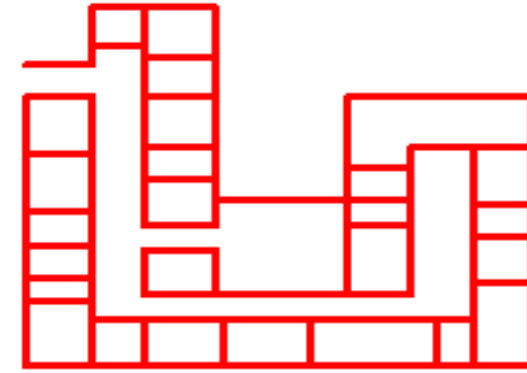
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			DSCODE: 07112.00
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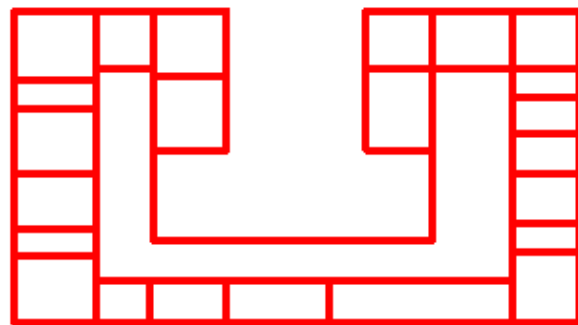
HANCOCK HIGH SCHOOL FIRST FLOOR



HANCOCK HIGH SCHOOL SECOND FLOOR



HANCOCK HIGH SCHOOL THIRD FLOOR



HANCOCK ELEMENTARY SCHOOL

