

# AS - BUILT

## Windsor School District Palmer Middle School

Windsor, New York

Application Engineering by Randy Langille

Engineer/Architect      M/E Engineering



Mechanical Contractor      J.L. Lewis

Job Number      P7979

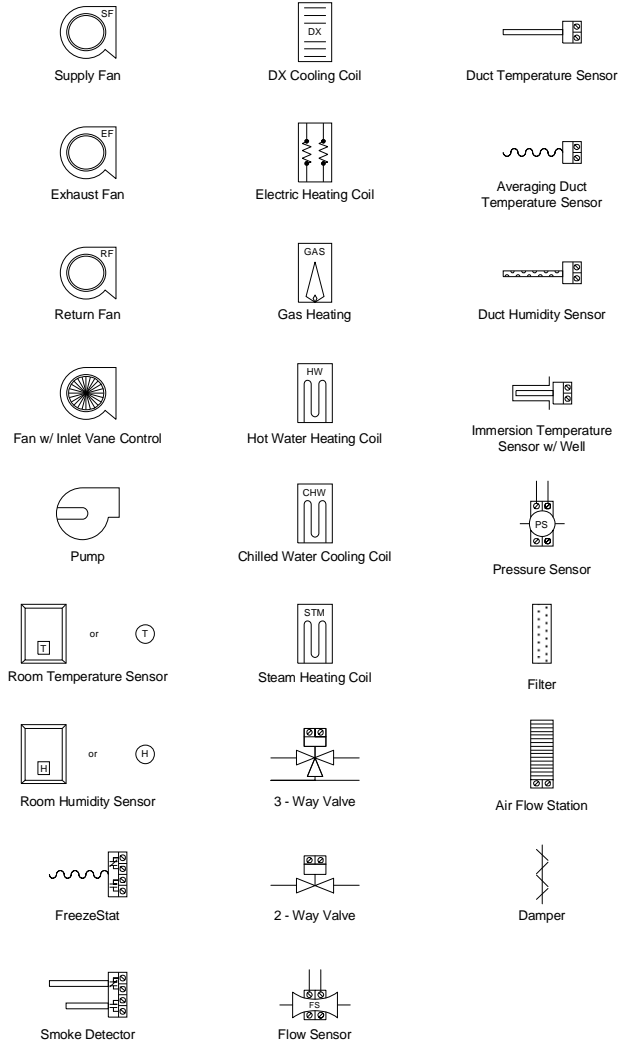
**AUTOMATEDLOGIC**<sup>®</sup>  
CORPORATION

## Table of Contents

- 1: Titlepage
- 2: Table of Contents
- 3: Symbol Legend
- 4: Riser
- 5: Summary Bill of Materials
- 6: RTU 1
- 7: HC2&3
- 8: Split A/C
- 9: UV New
- 10: UV Existing
- 11: VF-1
- 12: Cabinet Unit Heater O.A.
- 13: Cabinet Unit Heaters
- 14: U.H.
- 15: Fintube A
- 16: Electric Wall Heater
- 17: Domestic Hot Water
- 18: Exhaust Fans Existing
- 19: Exhaust Fans
- 20: Intake 1&2
- 21: Exterior Lights
- 22: Valve Schedule
- 23: Damper Schedule

Windsor School District Palmer Middle School			
Windsor, New York			
 AIR TEMP HEATING & AIR CONDITIONING, INC. A LINC SERVICE @ CONTRACTOR			
Table of Contents			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			2 of 23

# Symbol Legend

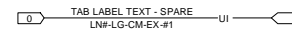


## Common Abbreviations:

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):

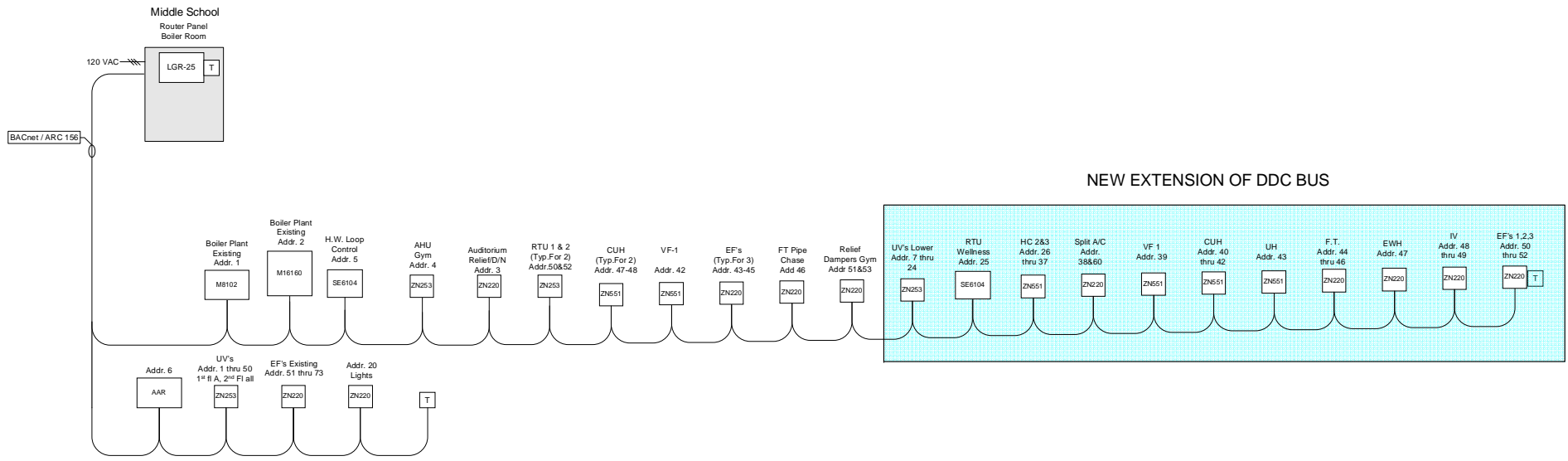




- LN# - The line number (optional).
- LG - The gateway number (optional).
- CM - The control module address.
- EX - The expander module number.
- #1 - The channel number.

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

Windsor School District Palmer Middle School Windsor, New York			
AIR TEMP HEATING & AIR CONDITIONING, INC. A LINC SERVICE CONTRACTOR			
Symbol Legend			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
AUTOMATED LOGIC CORPORATION			DSCODE:
			3 of 23



# Riser



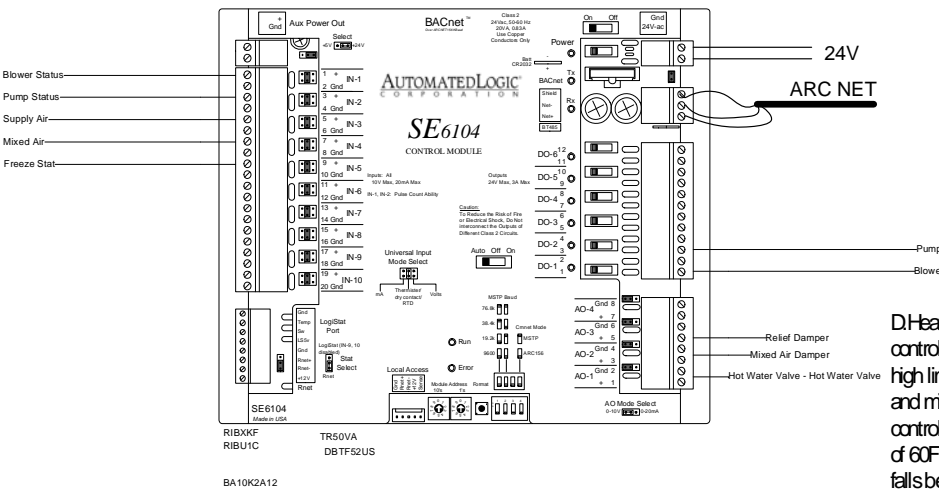
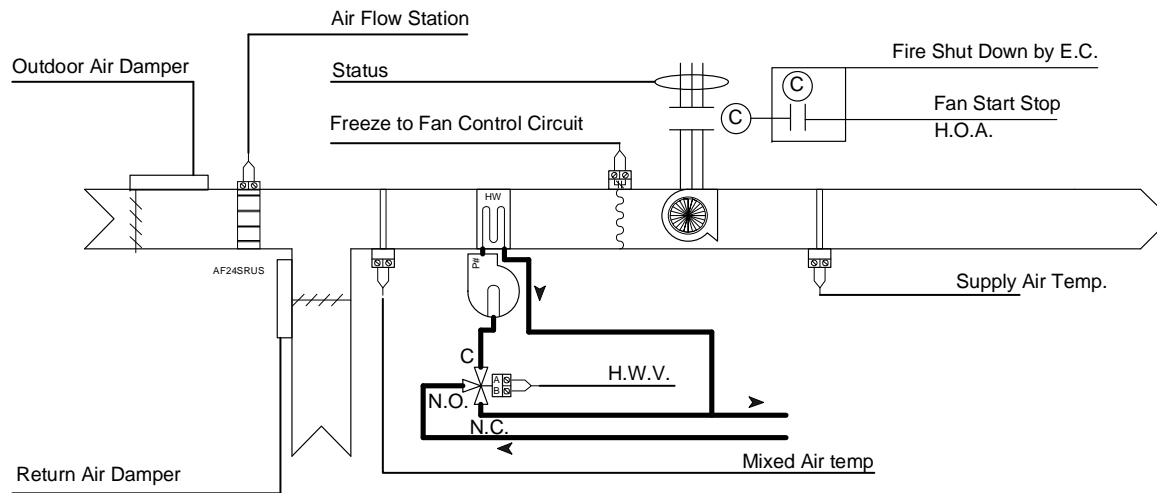
Windsor School District Palmer Middle School			
Windsor, New York			
 <b>AIR TEMP HEATING &amp; AIR CONDITIONING, INC.</b> A LINC SERVICE CONTRACTOR			
Riser			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			4 of 23

# Summary Bill of Materials

Summary Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
A10KCPD8	SUPPLY SENSE	ALPS	A10KCPD08	73 ea
		JC	A19ABC83C	2 ea
		JC	A19ABC83C	3 ea
A2.5	WELL	BAPI	A25	2 ea
BA10K2A1	AVERAGING	BAPI	BA102A12	70 ea
DA-BB	SR OPEN/CLOSE 35 IN-LB 24 V	BELIMO	LF24 ALC	3 ea
DBTF52US	FREEZE/STAT	ALPS	DBTF52US	1 ea
E-AB	HOFFMAN NEMA 3 12X12X4	HOFFMAN	A12R124	3 ea
LF24SRUS	ACTUATOR	BELIMO	LF24SRUS	2 ea
LF24US	2POS ACTUATOR	BELIMO	LF24US	6 ea
PXP3	TRANSDUCER	ALPS	PXP3	136 ea
RIBU1C	RELAY	FUNCTIONAL DEVICES	RIBU1C	3 ea
RIBXKF	25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	82 ea
RS	TEMP SENSE	ALC	RS	1 ea
RSPLUS	WALLSTAT	ALC	RSPL	80 ea
SE6104	SE6104	AUTOMATED LOGIC	SE6104	1 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	92 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	15 ea
ZN253	ZN253	AUTOMATED LOGIC	ZN253	70 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	6 ea
af24srus	SR PROPORTIONAL 133 IN-LB 2-10VDC	BELIMO	AF24SRUS	4 ea
ba2i	SENSOR	BAPI	BA2I	2 ea
rbu1c	RELAY	FUNCTIONAL	RIBU1C	31 ea

Windsor School District Palmer Middle School			
Windsor, New York			
 <b>AIR TEMP HEATING &amp; AIR CONDITIONING, INC.</b> A LINC SERVICE @ CONTRACTOR			
Summary Bill of Materials			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			5 of 23

# RTU 1



D. Heating Coil Control: During occupied mode, the normally open heating coil control valve shall modulate as necessary to satisfy the space sensor, subject to a high limit of 100°F and a low limit of 40°F. Generate an alarm outside of the listed max and min parameters. During unoccupied mode, the normally opened heating coil control valve shall modulate to maintain an unoccupied space temperature set point of 60°F. An alarm shall sound through the D.D.C. system if the space temperature falls below 40°F.

## Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
A10KCPD8	SUPPLY SENSE	ALPS	A10KCPD8	1 ea
BA102A12	AVERAGING	BAPI	BA102A12	1 ea
DBTF52US	FREEZE/STAT	ALPS	DBTF52US	1 ea
RIBXKF	25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	2 ea
SE6104	SE6104	AUTOMATED LOGIC	SE6104	1 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	1 ea
AF24SRUS	SR PROPORTIONAL 133 IN-LB 2-10VDC	BELIMO	AF24SRUS	4 ea
rbu1c	RELAY	FUNCTIONAL	RBU1C	2 ea

### CONTROL SEQUENCE FOR CONSTANT VOLUME SINGLE ZONE AIR HANDLING UNITS

- A. RTU-1 Wellness Center: Constant volume air handling unit.
- B. Fan Control: During occupied mode, the supply fan shall run continuously. During unoccupied mode, the supply fan shall cycle as required to maintain the unoccupied temperature set point.
- C. Damper Control: During morning warm-up or cool down modes, the outside air damper and relief dampers shall be fully closed. During occupied mode, the outside air damper shall open to minimum set point. Whenever the return air enthalpy is greater than the outside air enthalpy, the unit shall be in economizer mode. During economizer mode, the return and outside air dampers shall modulate in sequence to maintain the discharge air set point (subject to a mixed air low limit of 55°F). The relief damper shall track the return air damper to maintain a slightly positive space pressure. If the mixed air low limit drops below set point, the outside air dampers shall modulate to minimum position and the return damper shall open.
- D. Unit mounted pre-heating Coil Control: During occupied mode, the normally open heating coil control valve shall modulate to maintain the unit supply air temperature set point. Set point shall vary linearly from 50 when the outside air temperature is 55 or greater to 65 when outside air temperature is 10 or less. An alarm shall sound through the D.D.C. system if the supply air temperature rises above 100, or drops below 40. During the unoccupied mode, the heating coil control valve shall modulate to maintain a unit supply air temperature sensor set point of 50. Whenever the outside air temperature is below minimum set point of 38, the heating coil pump shall run continuously to maintain water flow through the heating coil and the valve shall continue to maintain set point. When pump fails to operate an alarm shall sound through the D.D.C. system.

### Fire Alarm Interlock and shut down.

All Automated Logic controllers are networked via BACnet and receive a broadcast fire or smoke alarm signal from the facility's fire alarm panel. A fire or smoke alarm from the fire panel will initiate a global fan shutdown of all equipment controlled by Automated Logic.

15A 972-20  
3.3

Fire fan Shut Down  
Division 16 ELECTRIC to provide a signal to stop air handling unit fans and close air handling unit smoke dampers upon activation of the fire alarm system. Wiring to be directly to the motor starter. An end switch shall prevent the operation of the air handling unit fans until corresponding smoke dampers are open.

Windsor School District Palmer Middle School  
Windsor, New York

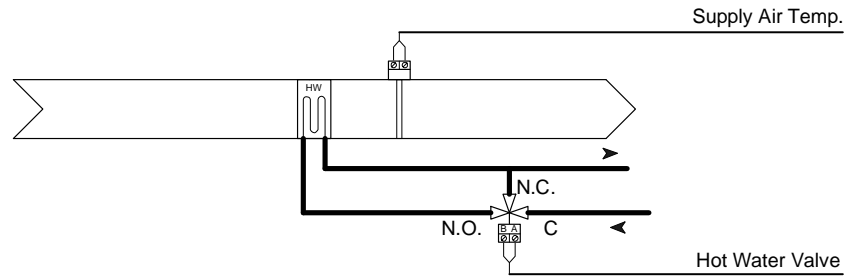
**AIR TEMP HEATING & AIR CONDITIONING, INC.**  
A LINC SERVICE CONTRACTOR

RTU 1

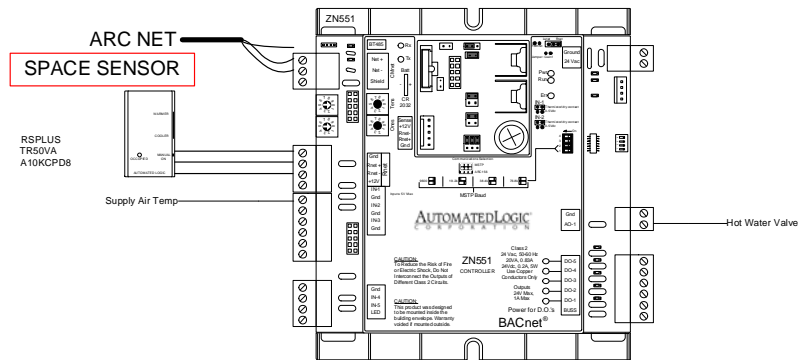
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
<b>AUTOMATED LOGIC</b> CORPORATION			DSCODE:
			6 of 23

# HC2&3

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
A10KCPD8	SUPPLY SENSE	ALPS	A10KCPD8	2 ea
RSPLUS	WALLSTAT	ALC	RSPL	2 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	2 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	1 ea



A. Heating Coil Control: During occupied mode, the normally open heating coil control valve shall modulate as necessary to satisfy the space sensor, subject to a high limit of 100°F and a low limit of 40°F. Generate an alarm outside of the listed max and min parameters. During unoccupied mode, the normally opened heating coil control valve shall modulate to maintain an unoccupied space temperature set point of 60°F. An alarm shall sound through the D.D.C. system if the space temperature falls below 40°F.

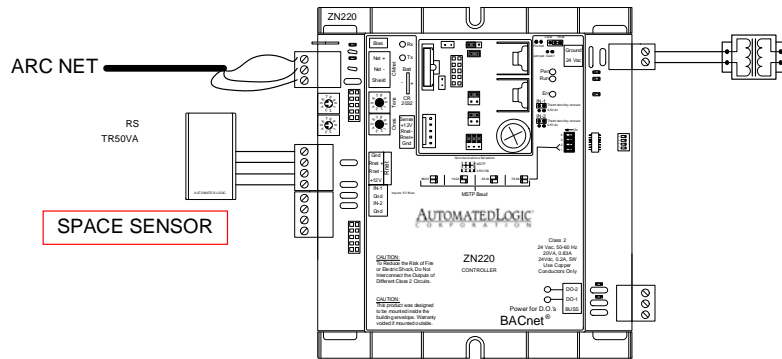
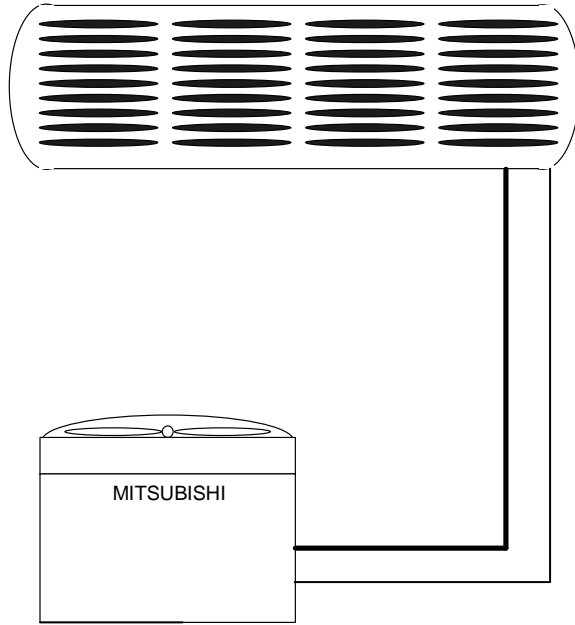


Windsor School District Palmer Middle School Windsor, New York			
 A LINC SERVICE CONTRACTOR			
HC2&3			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			7 of 23

# Split A/C

Typical for 2

These units ship with proprietary microprocessor controller, sensors, and wiring



## Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
RS	TEMP SENSE	ALC	RS	1 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	1 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	1 ea

High Temp Alarm .

Provide High Temperature alarm if space goes above 80F. Utilize U.V. sensor for reference

Windsor School District Palmer Middle School  
Windsor, New York

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

Split A/C

REV: 1	As-Built	4/19/2010	JOB NO: P7979
--------	----------	-----------	---------------

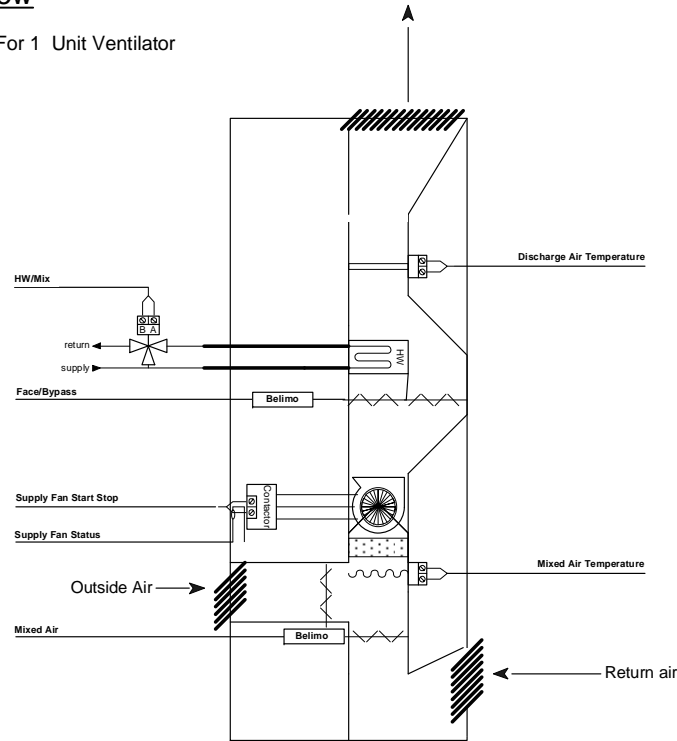
**AUTOMATEDLOGIC**  
CORPORATION

CHECK BY: RSL  
DSCODE:



# UV New

Typical For 1 Unit Ventilator



Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
A10KCPD8	SUPPLY SENSE	ALPS	A10KCPD8	1 ea
BA102A12	AVERAGING	BAPI	BA102A12	1 ea
LF24SRUS	ACTUATOR	BELIMO	LF24SRUS	2 ea
RIBXKF	25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	1 ea
RSPLUS	WALLSTAT	ALC	RSPL	1 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	1 ea
ZN253	ZN253	AUTOMATED LOGIC	ZN253	1 ea
rbu1c	RELAY	FUNCTIONAL	RIBU1C	1 ea

## Unit Ventilators

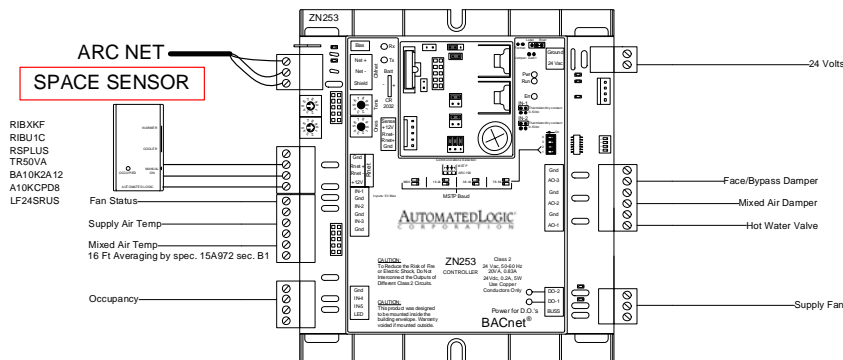
- The DDC system shall provide occupied/unoccupied scheduling of the unit ventilators. Classroom unit vents shall be interlocked with the lighting circuit occupancy sensor through the DDC system. Electrical Contractor to provide occupancy sensor with spare relay.
- During occupied hours, the fan shall run continuously. The space temperature sensor will modulate the outside air and the return air dampers, subject to a 55°F discharge air low limit, in sequence with the heating coil control valve or face and bypass damper to maintain its setting in according to ASHRAE Cycle #2. At the coil, the discharge air high limit set at 125°F shall stop the fan, close the outside air damper and open the return air damper. During scheduled unoccupied hours, the space sensor will intermittently start and stop the fan, open the control valve or position face and bypass damper to full face with the outside air damper fully closed. The unit ventilator outside air damper when operating during ASHRAE Cycle #2 sequence shall be open to minimum or greater position to maintain a discharge air temperature low limit of 40°F. Unit ventilator control system shall modulate coil control valve in full face when outside air temperature is below 35°F. Open coil control valve with modulating face and bypass damper to maintain space temperature setting above 35F.
- The occupancy sensor shall control the unit vent as follows when the room is unoccupied during scheduled occupied hours: Close the outside air damper and maintain occupied space temperature setpoint as noted above.

## Fin Tube Radiation

- Control valve shall modulate to maintain space temperature as sensed by wall mounted thermostat/
- Occupied/unoccupied scheduling shall be accomplished by DDC system

## Fire Alarm Interlock and shut down.

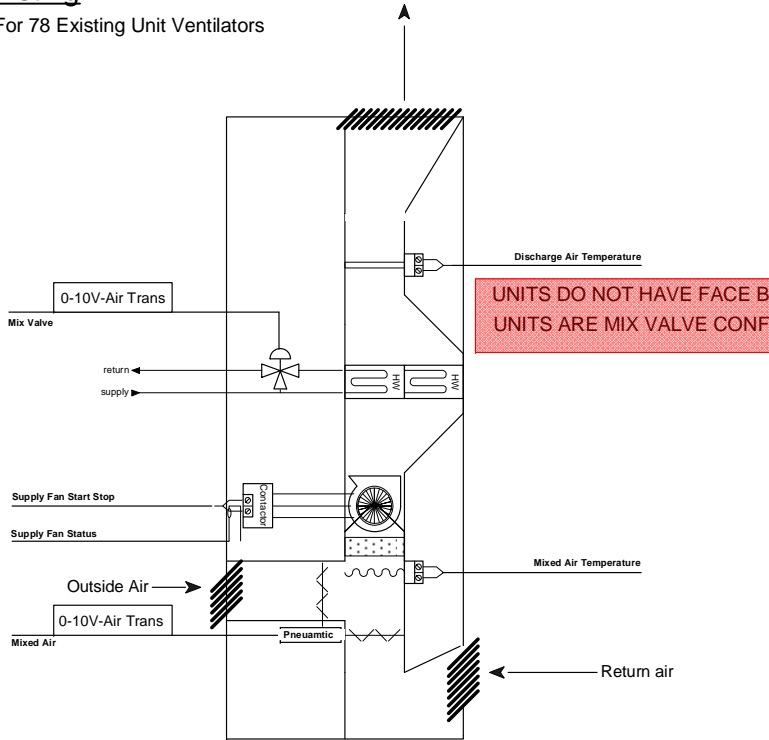
All Automated Logic controllers are networked via BACnet and receive a broadcast fire or smoke alarm signal from the facility's fire alarm panel. A fire or smoke alarm from the fire panel will initiate a global fan shutdown of all equipment controlled by Automated Logic.



Windsor School District Palmer Middle School Windsor, New York			
AIR TEMP HEATING & AIR CONDITIONING, INC. A LINC SERVICE CONTRACTOR			
UV New			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
AUTOMATED LOGIC CORPORATION			CHECK BY: RSL
			DSCODE:
			9 of 23

# UV Existing

Typical For 78 Existing Unit Ventilators



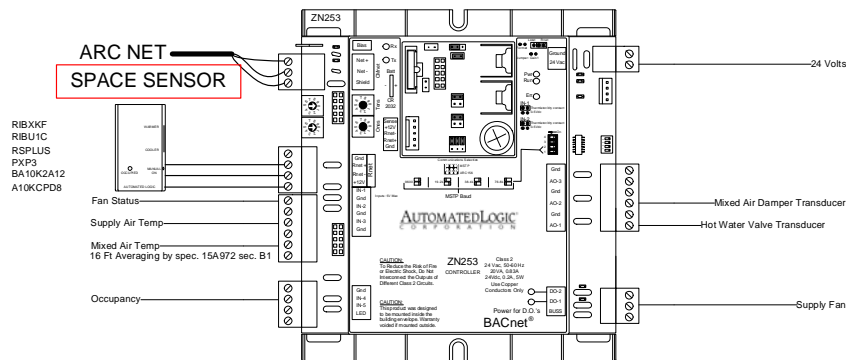
Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
A10KCPD8	SUPPLY SENSE	ALPS	A10KCPD8	69 ea
BA102A12	AVERAGING	BAPI	BA102A12	69 ea
PXP3	TRANSDUCER	ALPS	PXP3	136 ea
RIBXKF	.25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	68 ea
RSPLUS	WALLSTAT	AIC	RSPL	68 ea
ZN253	ZN253	AUTOMATED LOGIC	ZN253	69 ea
ribu1c	RELAY	FUNCTIONAL	RIBU1C	68 ea

## Unit Ventilators

1. The DDC system shall provide occupied/unoccupied scheduling of the unit ventilators. Classroom unit vents shall be interlocked with the lighting circuit occupancy sensor through the DDC system. Electrical Contractor to provide occupancy sensor with spare relay.
2. During occupied hours, the fan shall run continuously. The space temperature sensor will modulate the outside air and the return air dampers, subject to a 55°F discharge air low limit, in sequence with the heating coil control valve or face and bypass damper to maintain its setting in according to ASHRAE Cycle #2. At the coil, the discharge air high limit set at 125°F shall stop the fan, close the outside air damper and open the return air damper. During scheduled unoccupied hours, the space sensor will intermittently start and stop the fan, open the control valve or position face and bypass damper to full face with the outside air damper fully closed. The unit ventilator outside air damper when operating during ASHRAE Cycle #2 sequence shall be open to minimum or greater position to maintain a discharge air temperature low limit of 40°F. Unit ventilator control system shall modulate coil control valve to maintain space temperature setting.
3. The occupancy sensor shall control the unit vent as follows when the room is unoccupied during scheduled occupied hours: Close the outside air damper and maintain occupied space temperature setpoint as noted above.

## Fire Alarm Interlock and shut down.

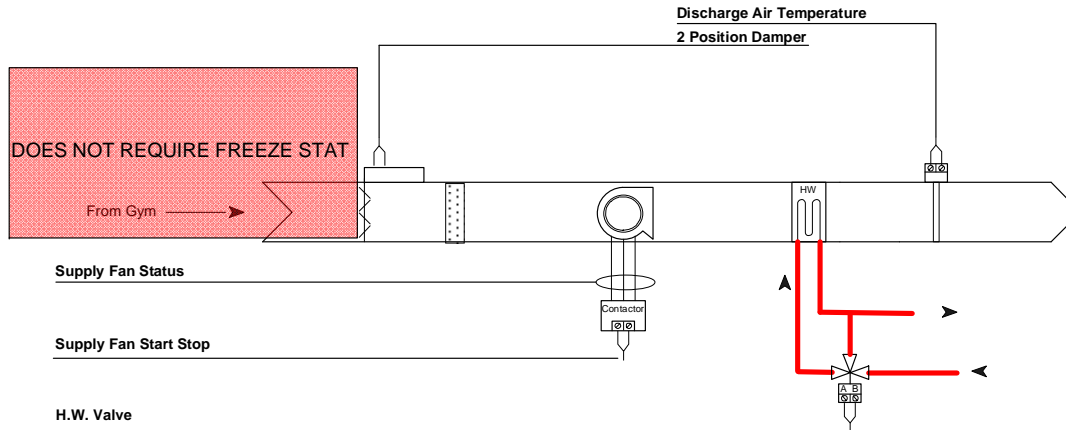
All Automated Logic controllers are networked via BACnet and receive a broadcast fire or smoke alarm signal from the facility's fire alarm panel. A fire or smoke alarm from the fire panel will initiate a global fan shutdown of all equipment controlled by Automated Logic.



Windsor School District Palmer Middle School Windsor, New York			
 A LINC SERVICE CONTRACTOR			
UV Existing			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			10 of 23

VF-1

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
A10KCPD8	SUPPLY SENSE	ALPS	A10KCPD8	1 ea
LF24US	ZPOS ACTUATOR	BEILMO	LF24US	1 ea
RIBXKF	25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	1 ea
RSPLUS	WALLSTAT	ALC	RSPL	1 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	1 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	1 ea
rbu1c	RELAY	FUNCTIONAL	RIBU1C	2 ea

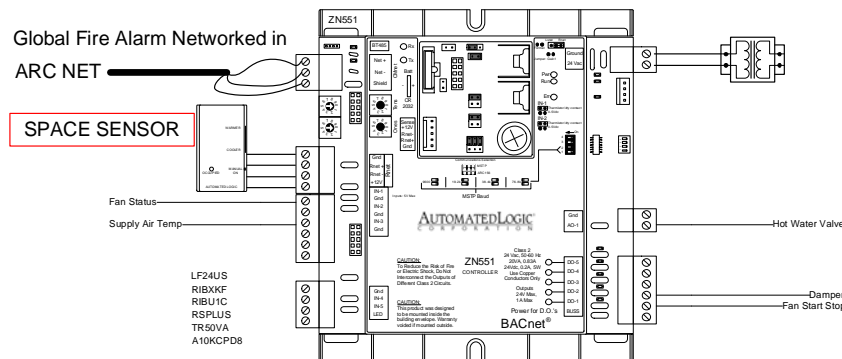


VENTILATION FAN

1. fan shall be energized by BAS during occupied mode
2. Valve will open to maintain occupied set point
3. During unoccupied, fan shall remain off until an unoccupied heating call. Valve will modulate during an unoccupied heat call.

VENTILATION FAN ALARMS

1. VF will generate an alarm if status is not proved when fan is enabled
2. VF will be shut down, and damper closed during a global fire alarm .
3. Controller Will generate an alarm if supply temperature goes above 100F, or below 40F
4. An alarm shall be generated if the space temperature goes below 40F



15A 972-20

3.3

Fire fan Shut Down

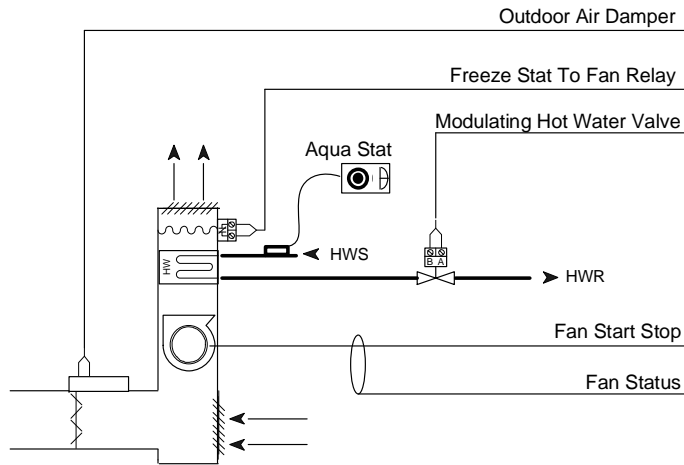
Division 16 ELECTRIC to provide a signal to stop air handling unit fans and close air handling unit smoke dampers upon activation of the fire alarm system. Wiring to be directly to the motor starter. An end switch shall prevent the the operation of the air handling unit fans until corresponding smoke dampers are open.

Fire Alarm Interlock and shut down.

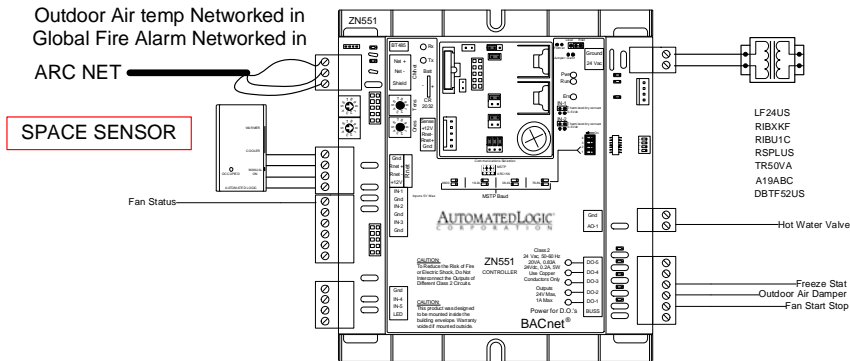
All Automated Logic controllers are networked via BACnet and receive a broadcast fire or smoke alarm signal from the facility's fire alarm panel. A fire or smoke alarm from the fire panel will initiate a global fan shutdown of all equipment controlled by Automated Logic.

Windsor School District Palmer Middle School Windsor, New York			
AIR TEMP HEATING & AIR CONDITIONING, INC. A LINC SERVICE CONTRACTOR			
VF-1			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
AUTOMATED LOGIC CORPORATION			CHECK BY: RSL DSCODE:
			11 of 23

# Cabinet Unit Heater O.A.



## CABINET HEATER



## Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
A19ABC	AQUASTAT	JC	A19ABC83C	1 ea
DBTF52US	FREEZESTAT	ALPS	DBTF52US	1 ea
LF24US	2POS ACTUATOR	BELIMO	LF24US	1 ea
RIBXKF	.25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	1 ea
RSPLUS	WALLSTAT	ALC	RSPL	1 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	1 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	1 ea
ribu1c	RELAY	FUNCTIONAL	RIBU1C	2 ea

## CUH CONTROL

1. fan shall be energized by BAS during a heat call, and off when space temperature is satisfied.
2. Valve will open during occupied mode, and hot water will continuously circulate. During unoccupied mode, valve will remain closed until a heat call is generated based on unoccupied set point.
3. Aqua stat will hold fan off if water temperature is under 100 deg. F.
4. Outdoor air damper shall open during occupied schedule

## CUH ALARMS

1. CUH will generate an alarm if status is not proved when fan is enabled.
2. CUH will be shut down, and damper closed during a global fire alarm .
3. CUH fan will stop, and hot water valve will go full open during freeze alarm
4. An Alarm will be generated if the space temperature goes below 40F

Windsor School District Palmer Middle School  
Windsor, New York

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

Cabinet Unit Heater O.A.

REV: 1 | As-Built | 4/19/2010 | JOB NO: P7979

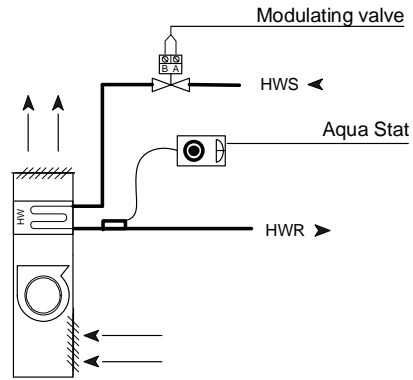
AUTOMATED LOGIC CORPORATION

CHECK BY: RSL

DSCODE:

# Cabinet Unit Heaters

Bill of Materials				
QTY	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
3 ea	AQUASTAT	JC	A19ABC83C	3 ea
2 ea	25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	2 ea
2 ea	WALLSTAT	ALC	RSPL	2 ea
2 ea	TRANSFORMER	FUNCTIONAL	TR50VA	2 ea
2 ea	ZN551	AUTOMATED LOGIC	ZN551	2 ea
2 ea	RELAY	FUNCTIONAL	RIBU1C	2 ea



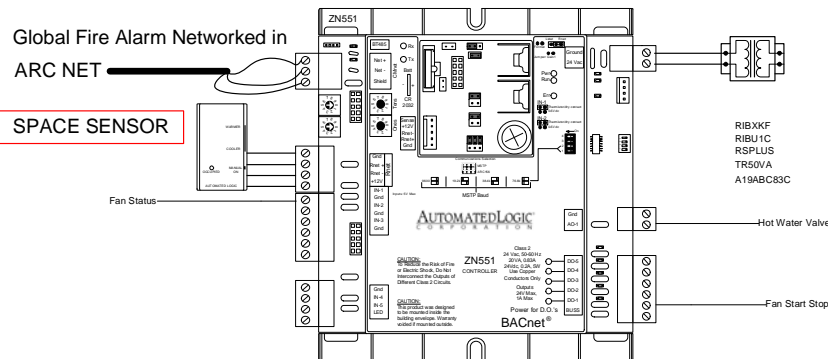
**CABINET HEATER**

## CUH CONTROL

1. fan shall be energized by BAS during a heat call, and off when space temperature is satisfied.
2. Valve will open during occupied mode, and hot water will continuously circulate. During unoccupied mode, valve will remain closed until a heat call is generated based on unoccupied set point.
3. Aqua stat will hold fan off if water temperature is under 100 deg. F.

## CUH ALARMS

1. CUH will generate an alarm if status is not proved when fan is enabled.
2. CUH will be shut down, and damper closed during a global fire alarm .
4. An Alarm will be generated if the space temperature goes below 40F



Windsor School District Palmer Middle School  
Windsor, New York

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

Cabinet Unit Heaters

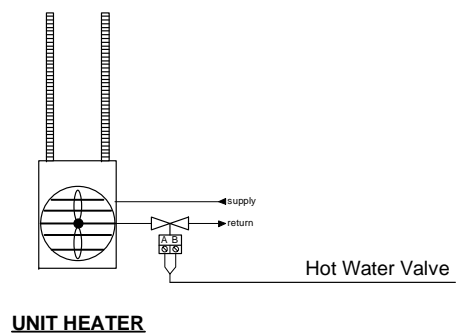
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:

**AUTOMATED LOGIC**  
CORPORATION

13 of 23

U.H.

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
A19ABC	AQUASTAT	JC	A19ABC83C	1 ea
RIBXKF	25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	1 ea
RSPLUS	WALLSTAT	ALC	RSPL	1 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	1 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	1 ea
rbutc	RELAY	FUNCTIONAL	RIBU1C	1 ea

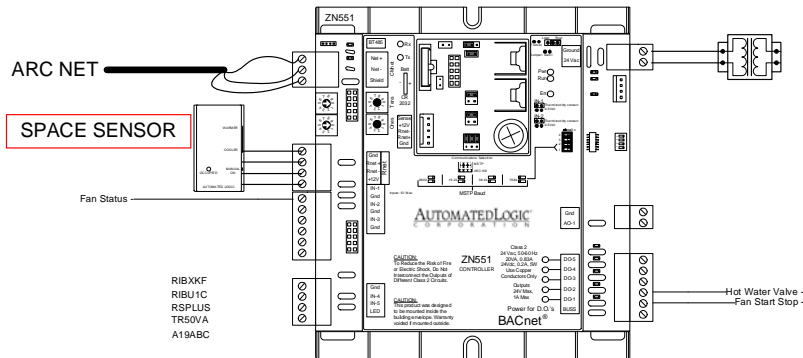


**CUH CONTROL**

1. fan shall be energized by BAS during a heat call, and off when space temperature is satisfied.
2. valve will remain closed until a heat call is generated based on unoccupied and unoccupied set point.
3. Aqua stat will hold fan off if water temperature is under 100 deg. F.

**CUH ALARMS**

1. CUH will generate an alarm if status is not proved when fan is enabled.
2. CUH will be shut down, and damper closed during a global fire alarm .
4. An Alarm will be generated if the space temperature goes below 40F

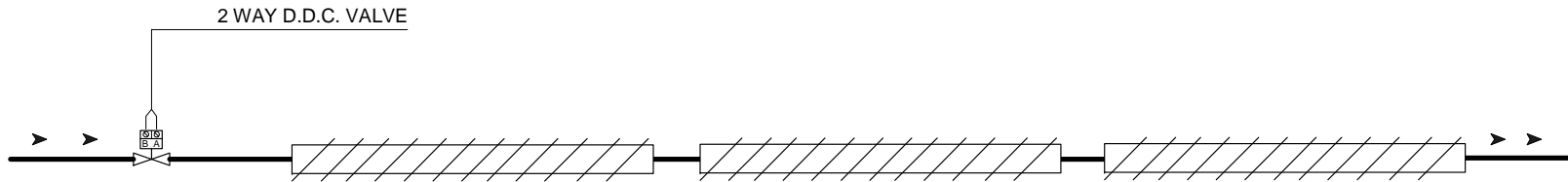


Windsor School District Palmer Middle School Windsor, New York			
 AIR TEMP HEATING & AIR CONDITIONING, INC. A LINC SERVICE CONTRACTOR			
U.H.			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
 AUTOMATED LOGIC CORPORATION			CHECK BY: RSL
			DSCODE:
			14 of 23

# Fintube A

Typical For 3

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
RSPLUS	WALLSTAT	ALC	RSPL	3 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	3 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	3 ea



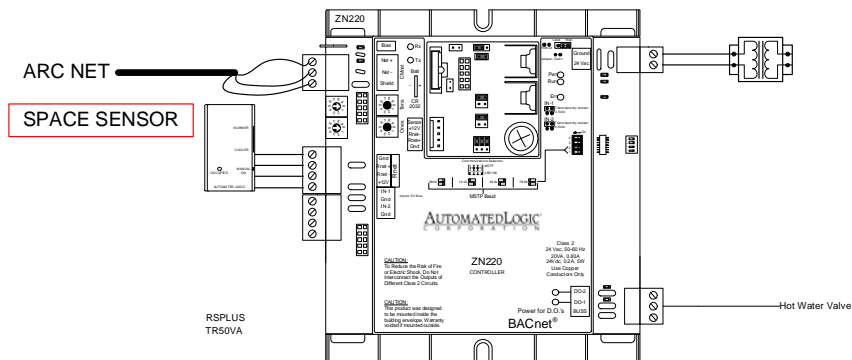
## FTR CONTROL

### 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.

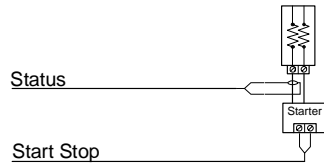
### B. Sequence Unoccupied

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.



Windsor School District Palmer Middle School Windsor, New York			
 A LINC SERVICE CONTRACTOR			
Fintube A			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
15 of 23			

# Electric Wall Heater

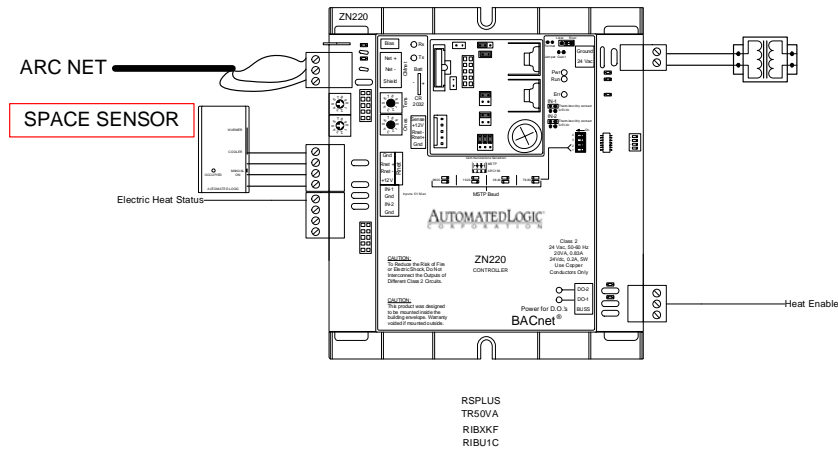


Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
RIBXKF	.25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	1 ea
RSPLUS	WALLSTAT	ALC	RSPL	1 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	1 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	1 ea
ributc	RELAY	FUNCTIONAL	RIBU1C	1 ea

## ELECTRIC HEAT CONTROL

### A. Sequence Occupied

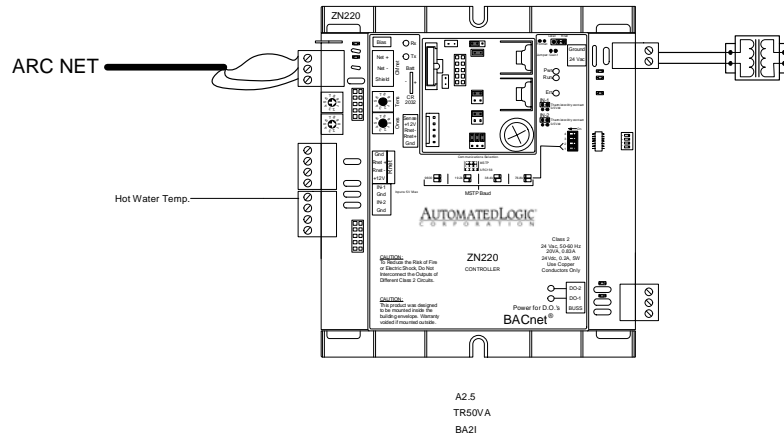
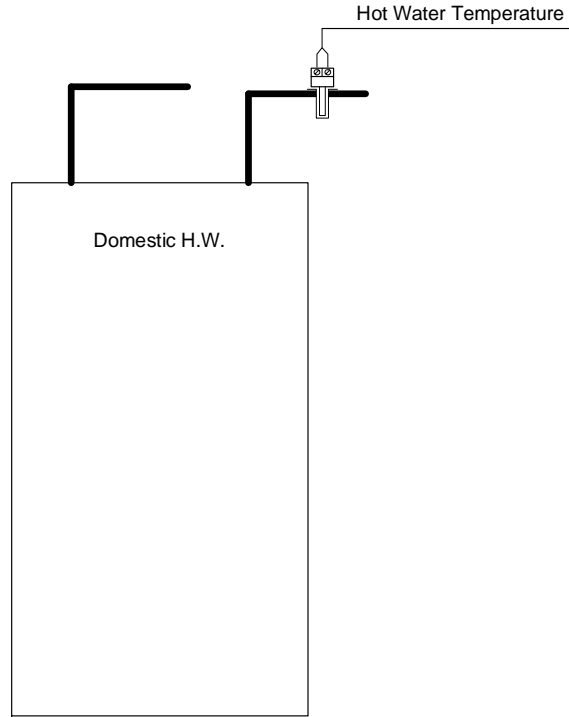
1. Heat shall be energized to maintain occupied set point.
2. Set point is adjustable at room sensor. Set point adjust can be limited, or disabled by operator.



Windsor School District Palmer Middle School Windsor, New York			
 A LINC SERVICE CONTRACTOR			
Electric Wall Heater			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			16 of 23



# Domestic Hot Water



## Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
A2.5	WELL	BAPI	A25	2 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	1 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	1 ea
ba21	SENSOR	BAPI	BA21	2 ea

Provide High and Low temperature alarms

Windsor School District Palmer Middle School  
Windsor, New York

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

Domestic Hot Water

REV: 1	As-Built	4/19/2010	JOB NO: P7979
--------	----------	-----------	---------------

**AUTOMATED LOGIC**  
CORPORATION

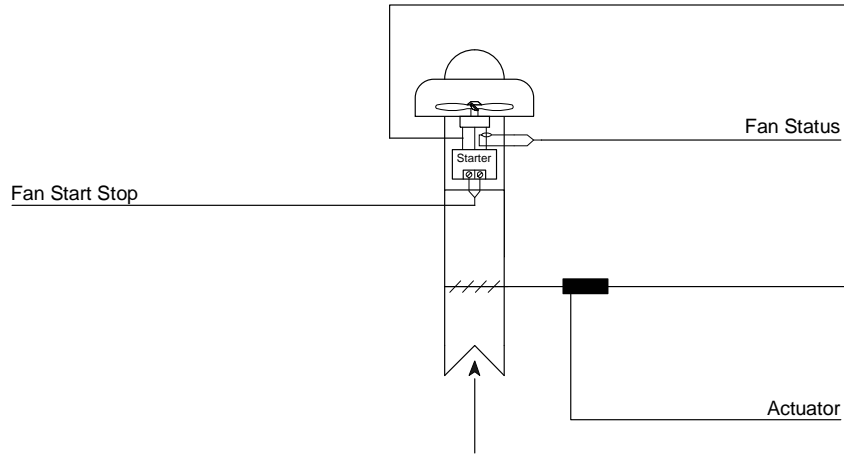
CHECK BY: RSL

DSCODE:

# Exhaust Fans Existing

Typical for 26

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
DA-BB	SR OPEN/CLOSE 35 IN-LB 24 V	BELIMO	LF24 ALC	3 ea
E-AB	HOFFMAN NEMA 3 12X12X4	HOFFMAN	A 12R124	3 ea
RIBU1C	RELAY	FUNCTIONAL DEVICES	RIBU1C	3 ea
RIBXKF	25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	3 ea
TR50VA	MULTI TAP PRIMARY 24V	FUNCTIONAL DEVICES	TR50VA	3 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	3 ea

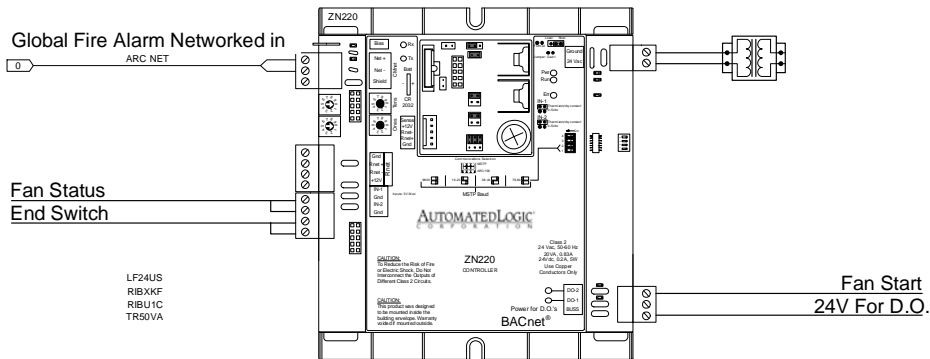


## EXHAUST FAN CONTROL

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.
4. Damper shall be proved through end switch before energizing fan

## EXHAUST FAN ALARMS

1. Fan will generate an alarm if status is not proved when fan is enabled.
2. Fan will be shut down, and damper closed during a global fire alarm .

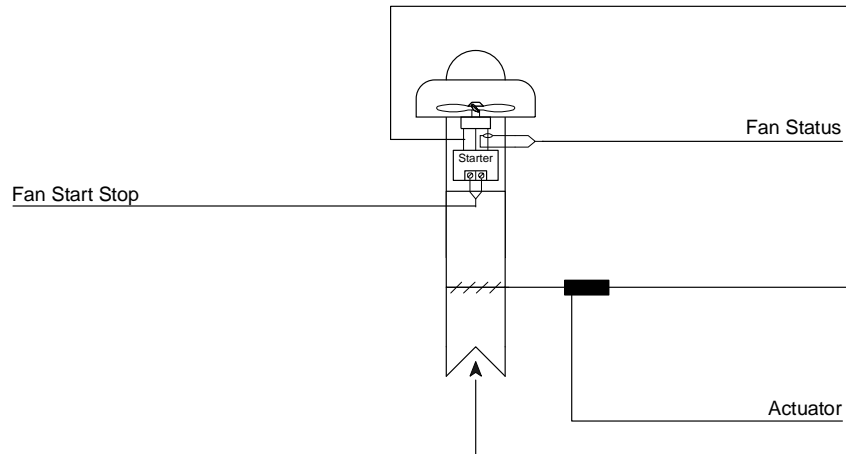


Windsor School District Palmer Middle School Windsor, New York			
 A LINC SERVICE CONTRACTOR			
Exhaust Fans Existing			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			18 of 23

# Exhaust Fans

Typical for 4

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
LF24US	ZPOS ACTUATOR	BELIMO	LF24US	4 ea
RIBXKF	25 TO 150 CURRENT SENSOR	FUNCTIONAL DEVICES	RIBXKF	4 ea
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	4 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	4 ea
ributc	RELAY	FUNCTIONAL	RIBU1C	4 ea

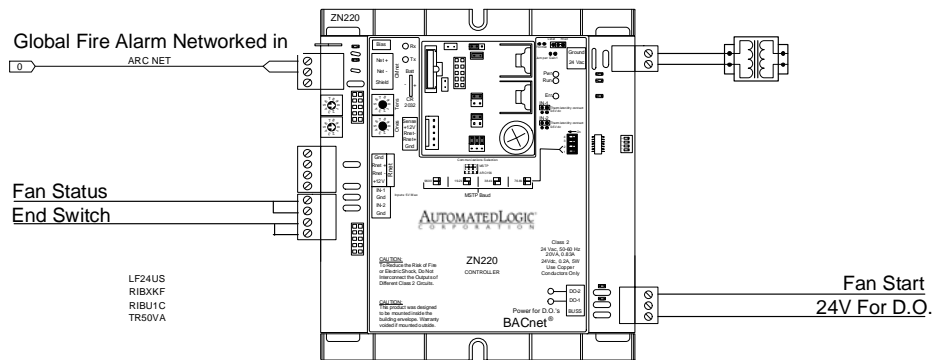


## EXHAUST FAN CONTROL

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.
4. Damper shall be proved through end switch before energizing fan

## EXHAUST FAN ALARMS

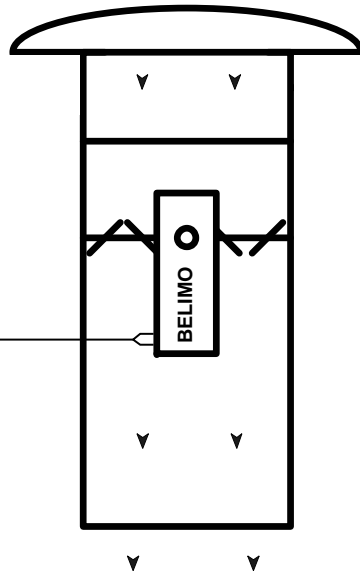
1. Fan will generate an alarm if status is not proved when fan is enabled.
2. Fan will be shut down, and damper closed during a global fire alarm .



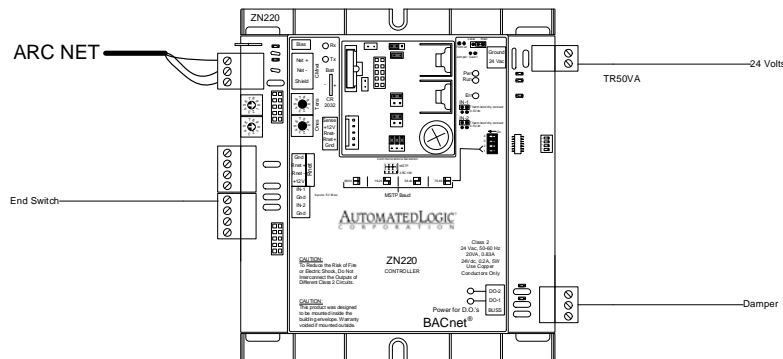
LF24US  
RIBXKF  
RIBU1C  
TR50VA

Windsor School District Palmer Middle School Windsor, New York			
 A LINC SERVICE CONTRACTOR			
Exhaust Fans			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			19 of 23

# Intake 1&2



2 Position Spring Return Actuator



## Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
TR50VA	TRANSFORMER	FUNCTIONAL	TR50VA	2 ea
ZN220	ZN220	AUTOMATED LOGIC	ZN220	2 ea

### GRAVITY RELIEF CONTROL

#### SAFETIES:

1. Shut damper, and generate an alarm at BMS panel when any of the following occur

- a. Fire alarm from fire alarm control panel by EC

#### OCCUPIED CYCLE:

1. Open damper when exhaust fans are in occupied cycle and remain open when units are in occupied cycle operation.
2. Damper shall be proved through end switch before energizing fan

#### UN-OCCUPIED CYCLE:

2. Close intake damper

Windsor School District Palmer Middle School Windsor, New York			
 A LINC SERVICE CONTRACTOR			
Intake 1&2			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			20 of 23

# Exterior Lights

## Outdoor Lighting (typical of 5)

### Run Conditions:

The lighting output shall turn on and off based upon the local sunrise and sunset times. The transitions shall be configurable as follows:

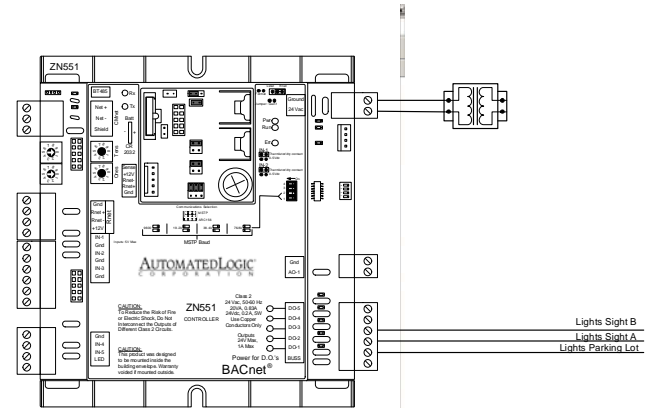
Output turns OFF (adj) at 30 minutes (adj) BEFORE (adj) sunrise.

Output turns ON (adj) at 30 minutes (adj) AFTER (adj) sunset.

Point Name	Hardware Points				Software Points				Show On Graphic	
	AI	AO	BI	BO	AV	BV	Sched	Trend		Alarm
Lighting Output				×				×		×
<b>Totals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>

Total Hardware ( 1 )

Total Software ( 1 )





Windsor School District Palmer Middle School			
Windsor, New York			
 A LINC SERVICE CONTRACTOR			
Exterior Lights			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
			CHECK BY: RSL
			DSCODE:
			21 of 23

# Valve Schedule

AUTOMATED LOGIC<sup>®</sup>

Pos	Re-Order #	Qty	Tag	Data sheet	Valve Pattern	Pipe Size	Flow [GPM]	D.P.	Req. Cv	Body Size	Valve Cv	Actual DP	Close Off Pressure
1	B312S3+TF24-SR-S US	1	HC1	B3_TF24_SR_S_300_500.pdf	3W M/D		2.5	0.87	2.68	1/2"	3	0.7	200
2	G3A3B3+LF24-SR US	1	HC2	G3_LF24_SR.pdf	3W Mix		1	0.09	3.33	1/2"	4.4	0.1	250
3	B312B3+LF24-SR US	1	HC3	B3B_LF24_SR_S.pdf	3W M/D		2	0.43	3.05	1/2"	3	0.4	200
4	G2B4B3+LF24-SR US	1	CUH1	G2_LF24_SR.pdf	2W		2.5	0.24	5.1	3/4"	5.5	0.2	185
5	G2B4B3+LF24-SR US	1	CUH2	G2_LF24_SR.pdf	2W		2.5	0.24	5.1	3/4"	5.5	0.2	185
6	G2B4B3+LF24-SR US	1	CUH3	G2_LF24_SR.pdf	2W		2.5	0.24	5.1	3/4"	5.5	0.2	185
7	B211S3+LF24-SR US	1	UH1	B2_LF24_SR_S.pdf	2W		1.9	0.95	1.95	1/2"	1.9	1	200
8	B208B3+TFX24-S US	1	FT	B2B_TFX24_S_300_500.pdf	2W		1.5	4	0.4	1/2"	0.46	3	200
9	B313S3+TFX24-S US	1	UV1	B2_TFX24_S_300_500.pdf	3W		8	3.34	4.38	1/2"	4.7	2.9	200

Windsor School District Palmer Middle School			
Windsor, New York			
 AIR TEMP HEATING & AIR CONDITIONING, INC. A LINC SERVICE © CONTRACTOR			
Valve Schedule			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
		CHECK BY: RSL	
		DSCODE:	
22 of 23			

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
UV-1	1	RUSKIN	CD50	16	16		PAR	1	2POS	LF24US
EF-1	1	RUSKIN	CD50	18	18		PAR	1	2POS	LF24US
EF-3	1	RUSKIN	CD50	10	10		PAR	1	2POS	LF24US
EF- EXISTING	20	RUSKIN	CD50	14	14		PAR	20	2POS	LF24US
EF-2	1	RUSKIN	CD50	8	8		PAR	1	2POS	LF24US
EF- EXISTING	6	RUSKIN	CD50	20	20		PAR	6	2POS	LF24US

Windsor School District Palmer Middle School			
Windsor, New York			
AIR TEMP HEATING & AIR CONDITIONING, INC. A LINC SERVICE © CONTRACTOR			
Damper Schedule			
REV: 1	As-Built	4/19/2010	JOB NO: P7979
AUTOMATEDLOGIC <sup>®</sup> C O R P O R A T I O N			CHECK BY: RSL
			DSCODE:
			23 of 23