



ADDENDUM #3

Date: March 22, 2024

Oliver Ellsworth Humidity Mitigation
730 Kennedy Rd, Windsor, CT 06095

Response to RFIs

1. Question: Could we please receive a copy of the complete As-Builds Distech Control Drawings?

Answer: Drawings attached.

Oliver Ellsworth School As-Builts

730 Kennedy Rd Windsor, Ct. 06095

As Prepared By



Building Solutions
Reputation for Service
Commitment to Quality


500 Corporate Row.
Cromwell, CT 06416

Phone Number (800) 890-2022
Fax Number (860) 316-5348

4/5/2019

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Typical Wiring Rules 1. Blue Wire = Analog Input 2. Yellow Wire = Analog Output 3. Green Wire = Digital Input 4. Orange Wire = Digital Output 5. Purple/White Stripe = LonWorks Com 6. White/Purple Stripe = Bacnet Com 7. Gray Wire = 24 Vac Power				Oliver Ellsworth School 730 Kennedy Rd Windsor, Ct. 06095			
Typical Conductor Signal Wiring Black Conductor = Com/Neg Red Conductor = 24Vac Jacket Color Conductor = Signal Green Conductor = Feedback				Connecticut Temperature Controls 500 Corporate Row Cromwell, CT 06416			
Phone (800) 890-2022		SIZE	DRAWN BY PFH	Page Name Table Of Contents	Job Number 17-00037	REV 1	
Fax (860) 860-316-5348		SCALE	None	6/16/2017	SHEET	2 OF 25	

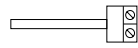
Symbol Legend



Supply Fan



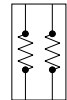
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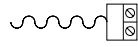
Duct Temperature Sensor



Exhaust Fan



Electric Heating Coil



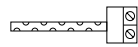
Averaging Duct Temperature Sensor



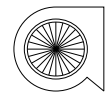
Return Fan



Gas Heating



Duct Humidity Sensor



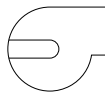
Fan w/ Inlet Vane Control



Hot Water Heating Coil



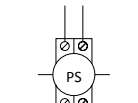
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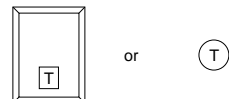
Pump



Chilled Water Cooling Coil



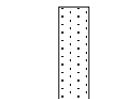
Pressure Sensor



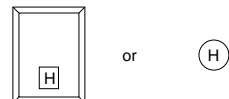
Room Temperature Sensor



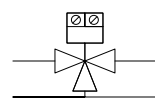
Steam Heating Coil



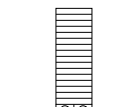
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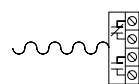
Room Humidity Sensor



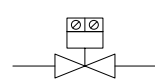
3 - Way Valve



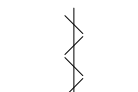
Air Flow Station



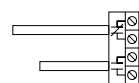
FreezeStat



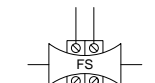
2 - Way Valve



Damper



Smoke Detector



Flow Sensor



Part Label

Common Abbreviations:

AC - Air Conditioning
 ACU - Air Conditioning Unit
 AHU - Air Handling Unit
 AI - Analog Input
 AO - Analog Output
 AUTO - Automatic
 AUX - Auxiliary
 C - Common
 CHW - Chilled Water
 CHWP - Chilled Water Pump
 CHWR - Chilled Water Return
 CHWS - Chilled Water Supply
 COND - Condenser
 CW - Condenser Water
 CWP - Condenser Water Pump
 CWR - Condenser Water Return
 CWS - Condenser Water Supply
 DA - Discharge Air
 DI - Digital Input
 DO - Digital Output
 EA - Exhaust Air
 EF - Exhaust Fan

EVAP - Evaporator
 F - Fahrenheit
 FCU - Fan Coil Unit
 HOA - Hand / Off / Auto
 HP - Heat Pump
 HRU - Heat Recovery Unit
 HTEX - Heat Exchanger
 HW - Hot Water
 HWP - Hot Water Pump
 HWR - Hot Water Return
 HWS - Hot Water Supply
 MAX - Maximum
 MIN - Minimum
 MISC - Miscellaneous
 NC - Normally Closed
 NO - Normally Open
 OA - Outdoor Air
 PIU - Powered Induction Unit
 RA - Return Air
 RF - Return Fan
 RH - Relative Humidity
 RTU - Roof-top Unit

SA - Supply Air
 SF - Supply Fan
 SP - Static Pressure
 TEMP - Temperature
 UH - Unit Heater
 UV - Unit Ventilator
 VAV - Variable Air Volume
 VVTU - Variable Volume Terminal Unit
 W/ - with
 W/O - without
 WSHP - Water-Source Heat Pump

Typical Wiring Rules
 1. Blue Wire = Analog Input
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 3. Green Wire = Digital Input
 4. Orange Wire = Digital Output
 5. Purple/White Stripe = LonWorks Com
 6. White/Purple Stripe = Bacnet Com
 7. Gray Wire = 24 Vac Power

Typical Conductor Signal Wiring
 Black Conductor = Com/Neg
 Red Conductor = 24Vac
 Jacket Color Conductor = Signal
 Green Conductor = Feedback



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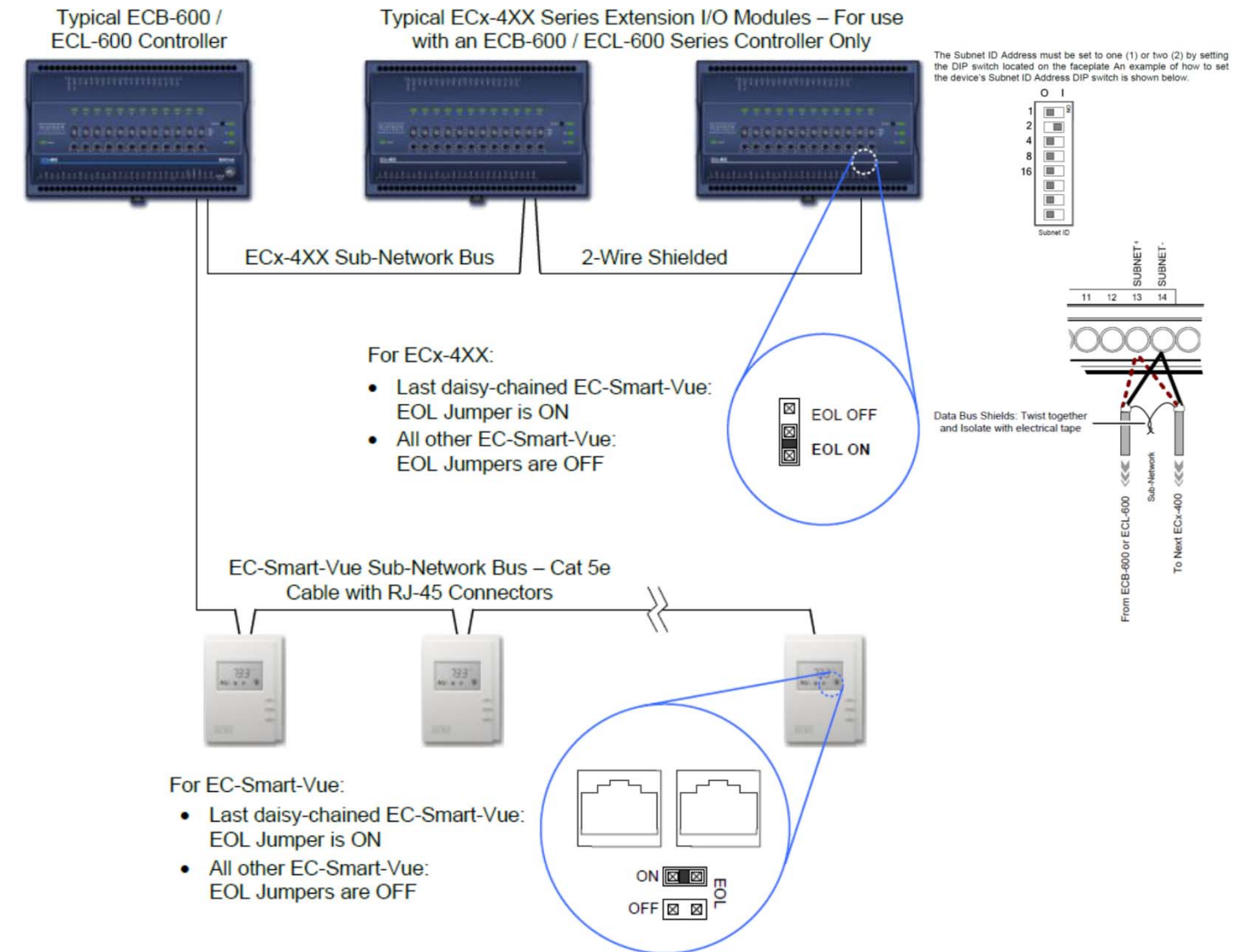
Connecticut Temperature Controls
 500 Corporate Row
 Cromwell, CT 06416

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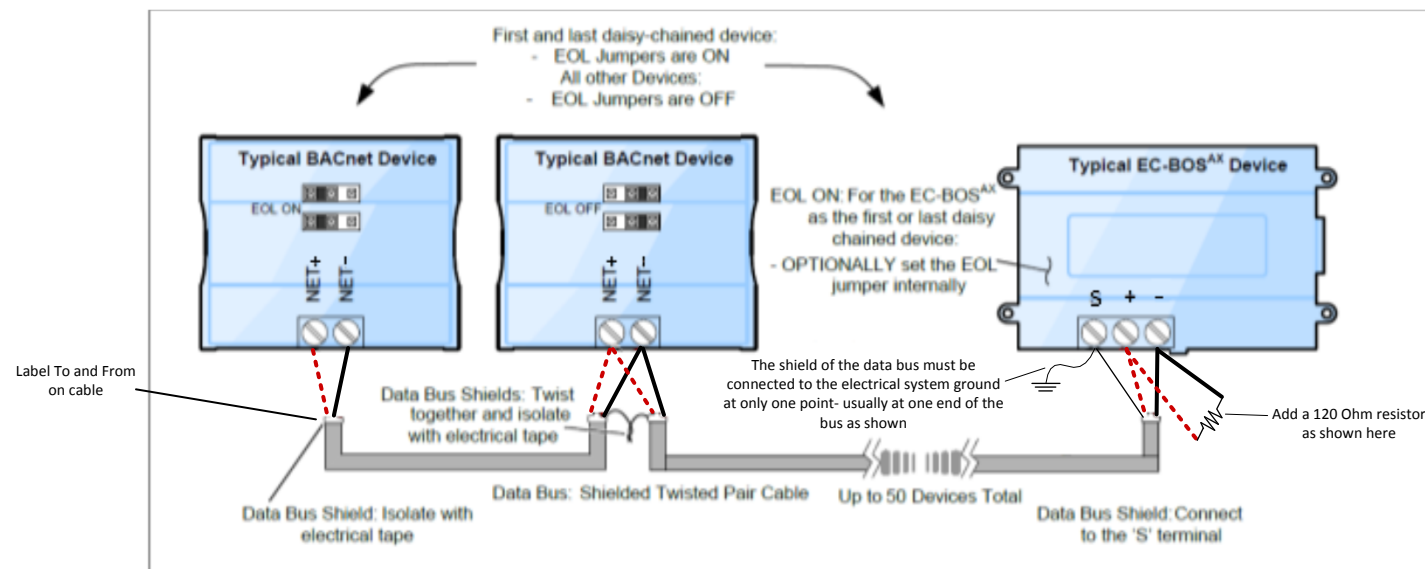
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SCALE	None	6/16/2017	SHEET	3 OF 25

Wire Specification

Connecticut Temperature Controls Cable Specification and abbreviations					
Cable Line Types	Part Number	Wire Type	Manufacturer	Typical Application	Circuit Type
1	002377CTC-S	18/3 Gray Jacket	Windy City	Internal Panel Wiring	24VAC
2	Not specified	14 AWG THHN	Windy City	Power Wiring	
3	Not specified	12 AWG THHN	Windy City	Power Wiring	
4	0033260CTC-S	20/2 AWG Twisted Pair	Windy City	Digital Input	Green Signal Digital In
	003329CTC-S	20/2 AWG Twisted Pair	Windy City	Analog Input	Blue Signal Analog In
5	002349CTC-S	18/4 AWG Twisted Pair	Windy City	Analog Input	Blue Signal Analog In
6	0023430 CTC-S	18/4 AWG Twisted Pair	Windy City	Analog Output	Yellow Signal Analog Out
7	0023240 CTC-S	18/2 AWG Twisted Pair	Windy City	Digital Output	Orange Signal Digital Out
	0421010-05	24/3 TSP Plenum	Windy City	Bacnet / Wht-Pur	Serial RS-485
	042010-05	24/2 TSP Plenum	Windy City	Bacnet / Wht-Pur	Serial RS-485
8	042005-S	24/2 TP Plenum	Windy City	LON Purple	Serial LonWorks
9	VEX-556619	CAT6	Windy City	Ethernet Communication	Network Communication
10	VEX-5566050	CAT5E	Windy City	Communicating Smart Sensor	Network Communication



Communications Wiring Bacnet Controllers



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SIZE	DRAWN BY	Page Name	Wire Specification	REV
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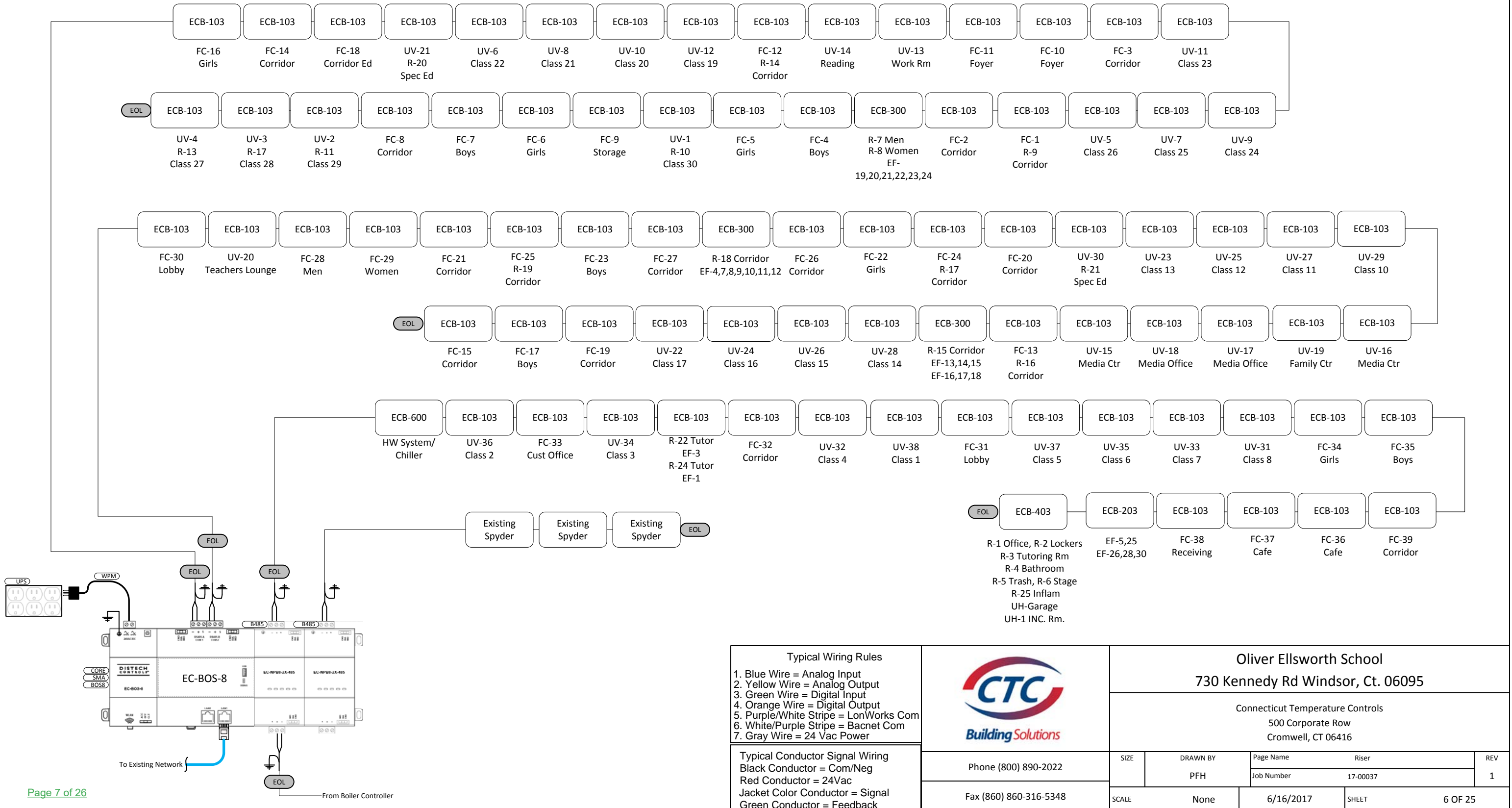
Summary of Material

Parts this Page				
Label	Description	Manufacturer	PN	Quantity
50VA	Transformer 24VAC 50VA	Veris	X050CHA	40
75VA	Transformer 24VAC 75VA	Veris	X075CHA	6
B485	Additional MST Ports	Distech	NPB-8000-2X-485	2
BOS8	Compact, embedded controller/server platform.	Distech	CDID-BOS8USWIFI	1
CMP	Capillary Mounting Clip	Kele	M-648-K	74
CORE	Core-100 Devices/5000 Points	Distech	SDITR-NC-8100	1
CS3	Current Sw itch .5-50a Solid State	Solidyne	CS-30	27
DP-I	Wet Differential Pressure Transducer	Veris	PWLXO4S	1
DPRA1	Damper Actuator	Belimo	LF24MFT-S US	4
DPRA5	Damper Actuator 35in-lbs 24v Modulating	Belimo	LF24SR US	38
DT3	ACI Duct Temp Sensor 8"	ACI	A/AN-D8-GD	2
DT4	ACI Duct Temp Sensor 4"	ACI	A/CP-D4-GD	77
DT6	ACI Duct Temp Sensor	ACI	A/AN-A-8'-GD	1
ECB103	Bacnet programmable controller	Distech	CDIB-103X-00	77
ECB203	Bacnet programmable controller with LCD Display	Distech	CDIB-203X-00	1
ECB300	Bacnet programmable controller	Distech	CDIB-300X-00	3
ECB400	Bacnet programmable controller	Distech	CDIB-400X-00	1
ECB403	Bacnet programmable controller	Distech	CDIB-403X-00	1
ECB600	Bacnet programmable controller	Distech	CDIB-600X-00	1
ENC4	NEMA 1 12X12X3 Enclosure w /Panel	Kele	B-12-P	6
FZ5	Freeze Stat DPST Auto Reset 6' Capillary	Kele	TF142-SOAP06	38
H608	Current Sw itch .5-17a Split-Core	Veris	H608	1
IT2	ACI Immersion Sensor 4"	ACI	A/CP-I-4-GD	2
OAT1	Outside Air Temperature	ACI	A/CP-O-EH	1
RB2	Distech DC Relay With Base	Distech	07REL-12DC-SPDT/RT-78724	8
RC1	120v Relay And Current Sensor Combined	Veris	H120	77
RN1	Relay Nippled SPDT 10-30VAC/DC/120vac Coil	Veris	V100	29
SMA	Core-100 Devices/5000 Points SMA	Distech	SDITR-SMA-BOS8100-1YR-INIT	1
SMAIR	Smart-Air Space Temperature	Distech	PDIDS-SMRTAIR-00	4
UPS	Uninterruptible Pow er Supply	Functional Devices	PSH550-UPS	1
WPM	Wall Adapter-Pow er	Distech	PDITR-BOS8WPM-00	1
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	87

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		<p>Connecticut Temperature Controls 500 Corporate Row Cromwell, CT 06416</p>			
<p>Typical Conductor Signal Wiring Black Conductor = Com/Neg Red Conductor = 24Vac Jacket Color Conductor = Signal Green Conductor = Feedback</p>	Phone (800) 890-2022	SIZE	DRAWN BY	Page Name	REV
	Fax (860) 860-316-5348		PFH	Summary of Material	1
		SCALE	None	6/16/2017	SHEET 5 OF 25

Riser

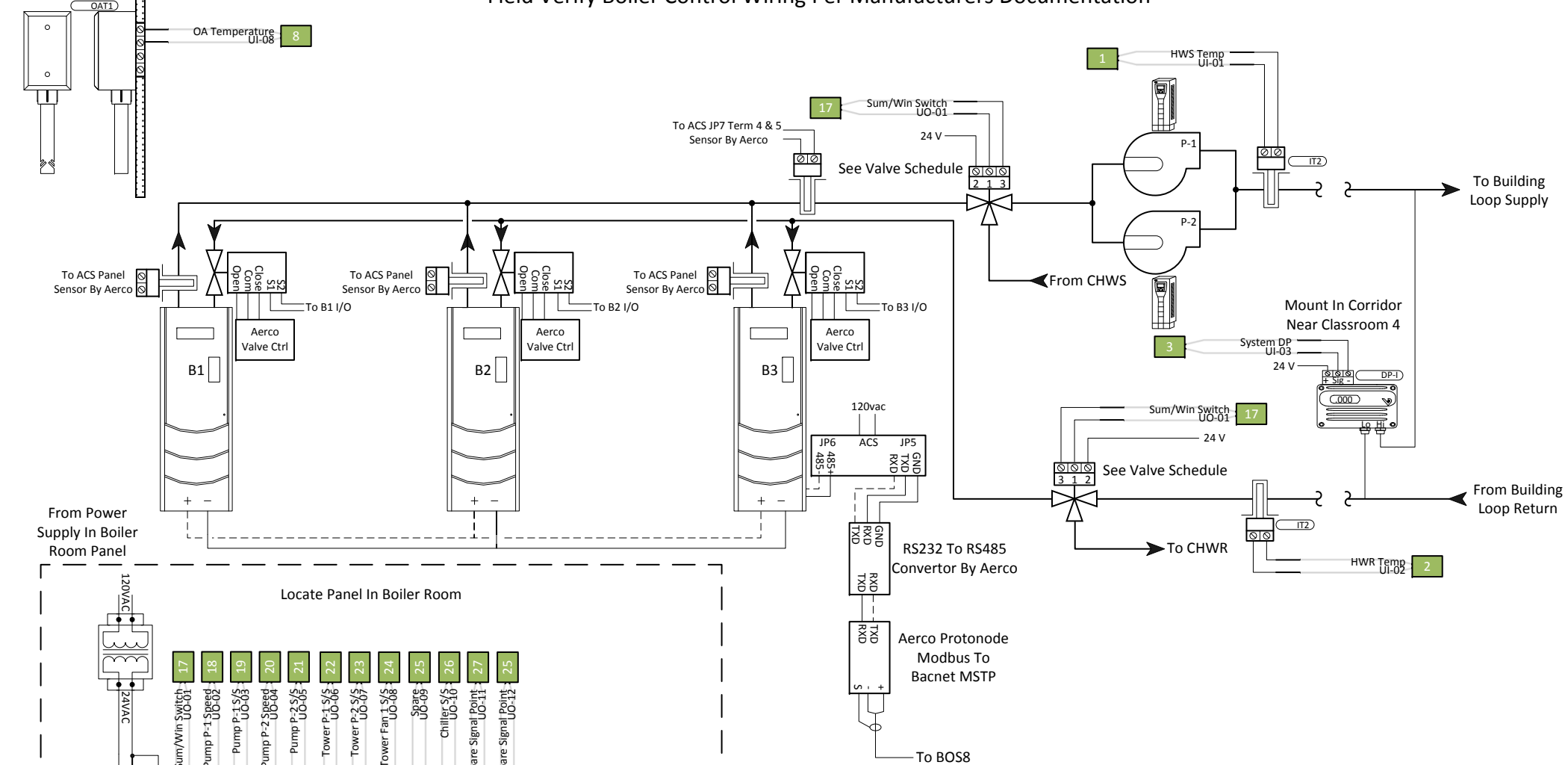
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Label	Description	Manufacturer	PN	Quantity
B485	Additional MST Ports	Distech	NPB-8000-2X-485	2
BOS8	Compact, embedded controller/server platform.	Distech	CDIDI-BOS8USWIFI	1
CORE	Core-100 Devices/5000 Points	Distech	SDITR-NC-8100	1
SMA	Core-100 Devices/5000 Points SMA	Distech	SDITR-SMA-BOS8100-1YR-INIT	1
UPS	Uninterruptible Power Supply	Functional Devices	PSH550-UPS	1
WPM	Wall Adapter-Power	Distech	PDITR-BOS8WPM-00	1



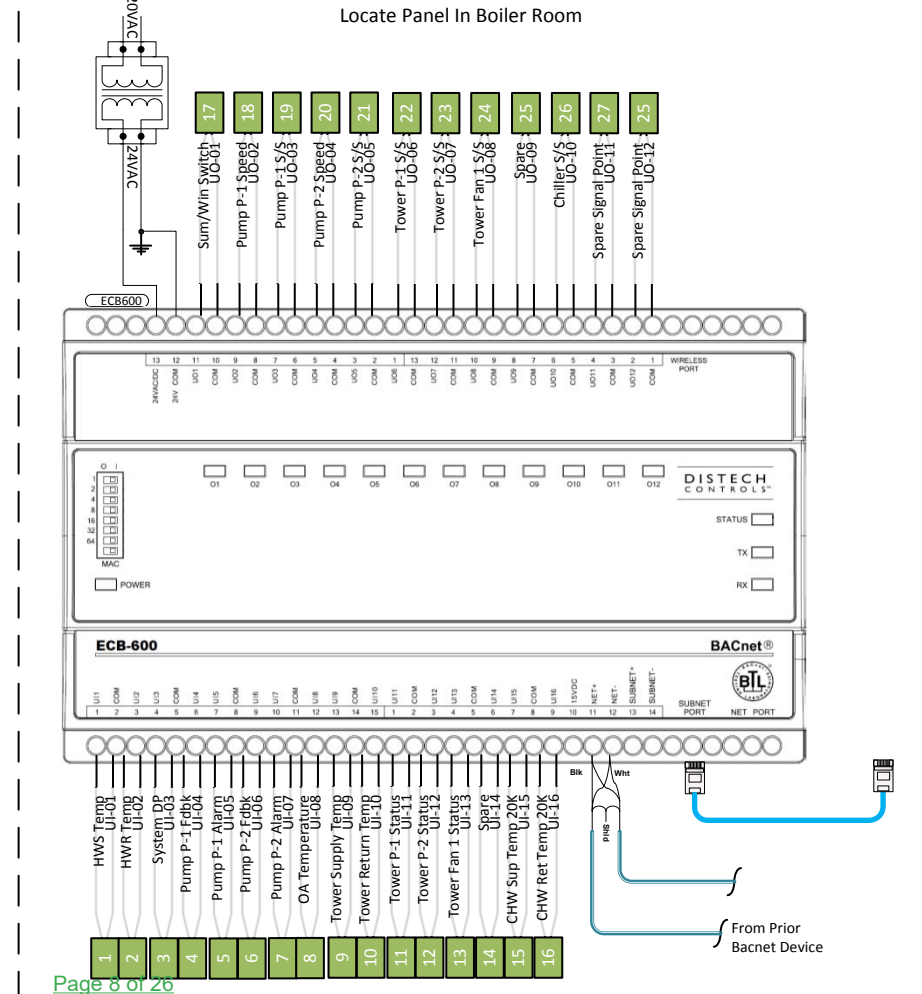
Hot Water System

Outside Air Sensor To Be Mounted On North Facing Wall

Field Verify Boiler Control Wiring Per Manufacturers Documentation

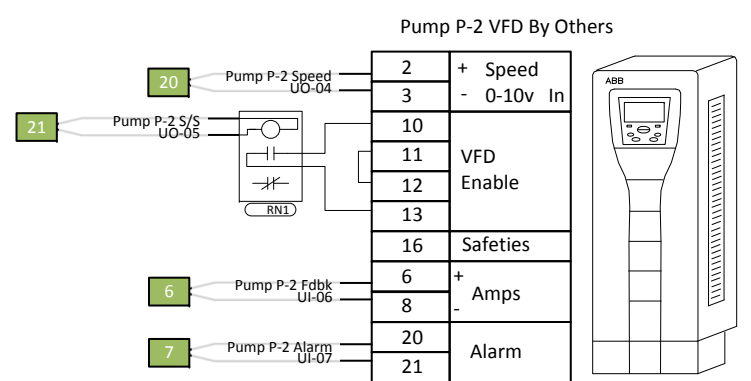
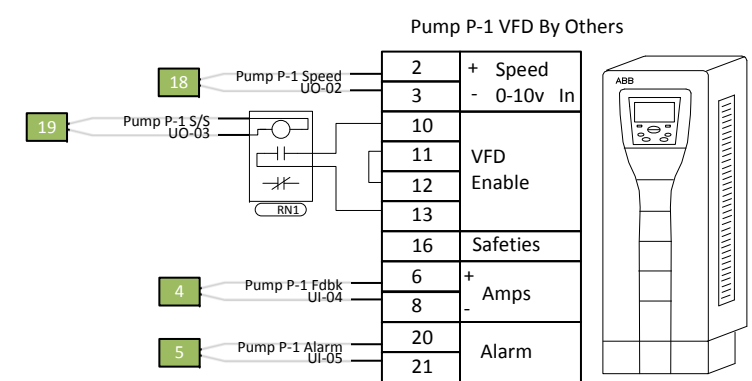


Parts this Page				
Label	Description	Manufacturer	PN	Quantity
DP-I	Wet Differential Pressure Transducer	Veris	PWLXO4S	1
ECB600	Bacnet programmable controller	Distech	CDIB-600X-00	1
IT2	ACI Immersion Sensor 4"	ACI	A/CP-I-4-GD	2
OAT1	Outside Air Temperature	ACI	A/CP-O-EH	1
RN1	Relay Nipped SPDT 10-30VAC/DC/120vac Coil	Veris	V100	2



Note: Existing Chilled Water Supply and Return Temp Sensors are 20K

Note: Tower Water Supply and Return Temp Sensors are 10K Type III



- Typical Wiring Rules**
- Blue Wire = Analog Input
 - Yellow Wire = Analog Output
 - Green Wire = Digital Input
 - Orange Wire = Digital Output
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 - White/Purple Stripe = Bacnet Com
 - Gray Wire = 24 Vac Power
- Typical Conductor Signal Wiring**
- Black Conductor = Com/Neg
 - Red Conductor = 24Vac
 - Jacket Color Conductor = Signal
 - Green Conductor = Feedback

Phone (800) 890-2022

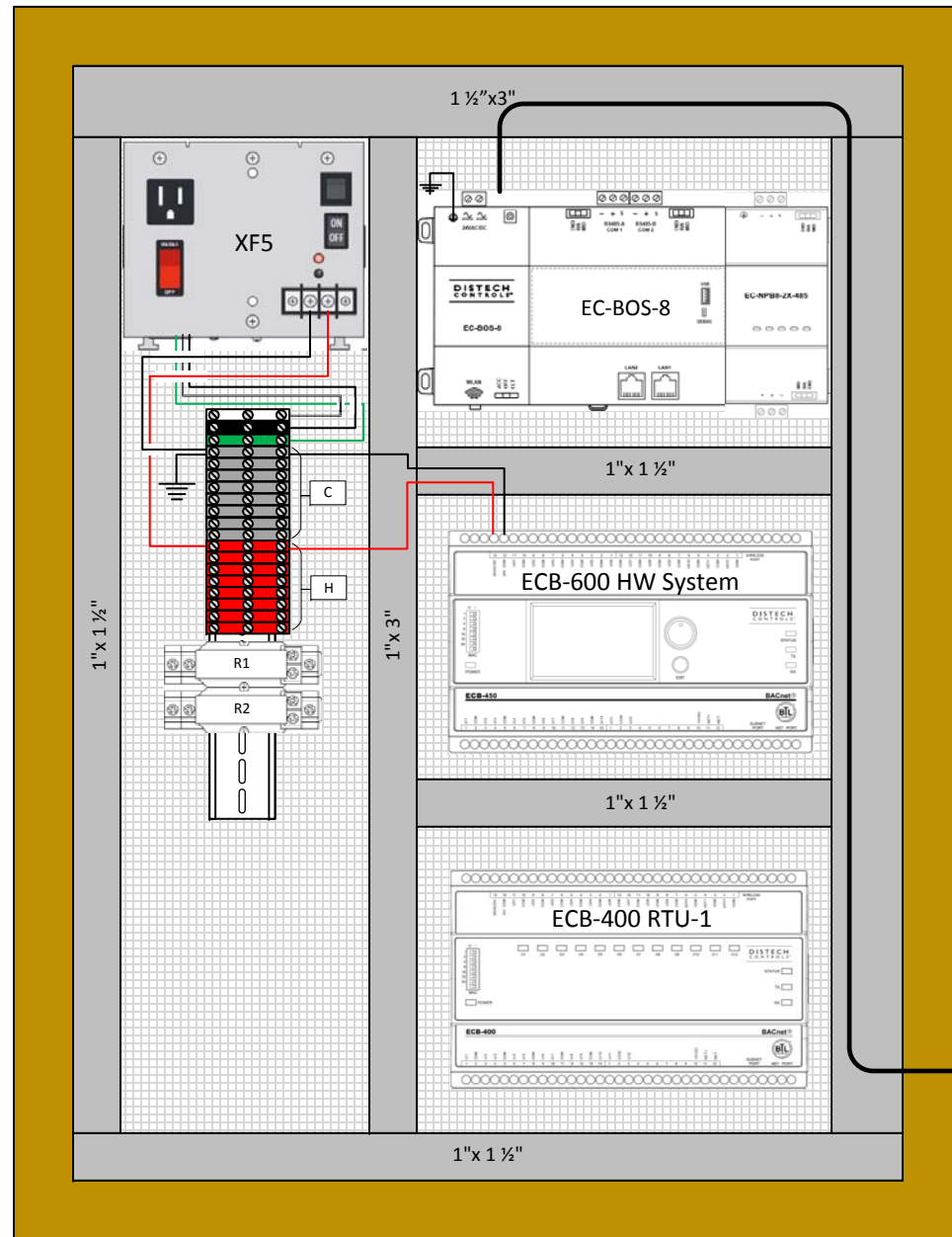
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Connecticut Temperature Controls
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Hot Water System Panel And Sequence



Sequence of Operation – Dual Temperature Water System

General: The dual temperature water system consists of (1) water cooled chiller, a boiler plant, (2) switchover valves, two dual temp system water pumps and (1) cooling tower.

Dual Temperature Seasonal Switchover: Switchover between the heating and cooling systems will be a manual operation by the owner through the BAS system by toggling a graphic button at the workstation. Once a seasonal mode is selected, the proper equipment will be enabled by the BAS system.

Heating Season

Switchover Valve: During the heating season, the switchover valve will be positioned to bypass the chiller.

Chiller Control: During the heating season, the chiller will be disabled and shutdown.

Boiler Plant Control: During the heating season, the BAS system will enable the boiler plant. The factory packaged boiler plant safeties and controls will stage the boilers to maintain the hot water setpoint. The boiler plant system will have a BACnet interface allowing the BAS system to monitor a variety of boiler plant system variables.

Boiler BACnet Interface:

General: The new building heating systems consists of new condensing boilers with factory packaged controls and a BACnet BMS interface. The factory controls include a field mounted HW supply temperature sensor and a field mounted outdoor air temperature sensor. Each boiler has its own new dedicated isolation valve allowing hot water into the building heating loop. The building heating/cooling loop has two building loop pumps operating in a lead/standby fashion.

Heating Plant Operation: The BMS shall monitor the outdoor air temperature. When outdoor air temperature drops below 60°F (adj.) for 15 minutes, the BMS system shall start the lead building loop pump and enable the boiler system.

Building Loop Pump Control: The building heating loop consists of two building loop pumps, each under VFD control. The pumps shall operate in a lead/standby fashion, alternating on a weekly basis to equalize runtime. When the lead pump is called to operate, the BMS system shall modulate the pump speed to maintain the hot water differential pressure setpoint. Setpoint to be determined with balancer at start-up. If the lead pump initiates a pump failure alarm, the standby pump shall be started and shall ramp up in speed to maintain the DP setpoint. The failed pump shall be locked out until status is detected or unit is reset by the operator. Should both pumps fail, the boiler will be disabled and a critical building alarm will be generated at the operator's workstation. A pump failure alarm will be defined as either a pump failed flow status or a pump VFD fault alarm when a pump is operating.

Boiler Control: Once the BMS system enables the boiler plant, and there is a call for hot water, the boilers factory packaged controls will initiate the start routine of the lead boiler. Each boiler has a dedicated primary boiler isolation valve to provide heating hot water into the building heating loop.

Once the boiler's factory packaged controls establish flow, the boiler is allowed to fire.

The boiler's packaged controls will switch to a lag boiler upon a no-flow condition and generate a boiler fault alarm. The BMS shall read this alarm through the BACnet interface and display. The factory packaged controls have optimized the lead/lag parameter settings to maintain the hot water supply temperature setpoint. The lead/lag routine shall balance overall run hours for each boiler and rotate boilers upon a boiler failure.

Boiler HW Reset Control: The boiler plant HW supply temperature setpoint shall be reset based on outdoor air temperature. The boilers have their own field mounted outdoor air temperature sensor and field mounted HW supply sensor. The boiler's factory packaged controls shall be configured by the supplying vendor to provide a HW supply temperature setpoint reset based on the following schedule:

Outside Air Temperature	Boiler Hotwater Supply Setpoint
0 DegF	180 DegF
60 DegF	100 DegF
65 DegF	Warm Weather Shutdown

Boiler Safety Control: The boiler manufacturer's packaged boiler controls shall provide boiler safeties, such as, low water cut-off, proof of water flow, etc. Failure of a boiler to fire shall annunciate an alarm at the BMS system (through the BACnet interface).

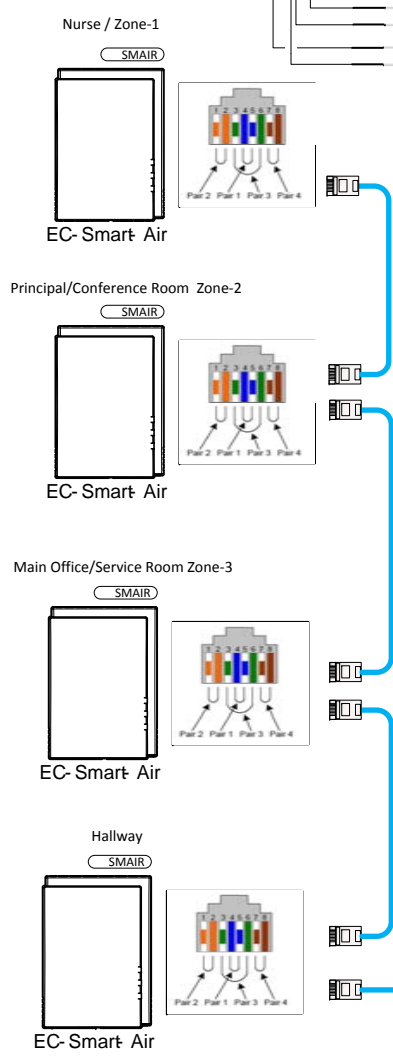
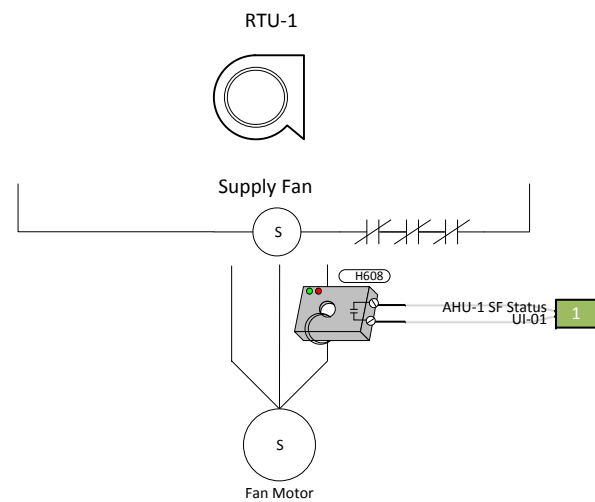
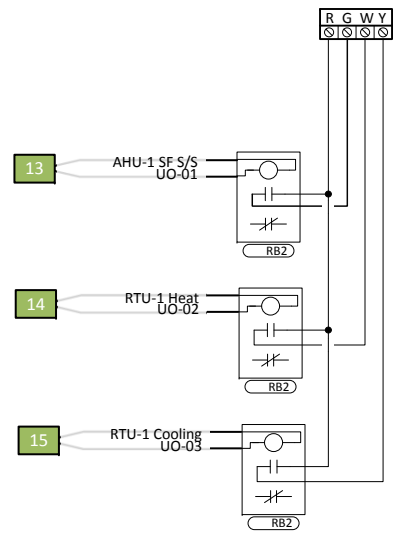
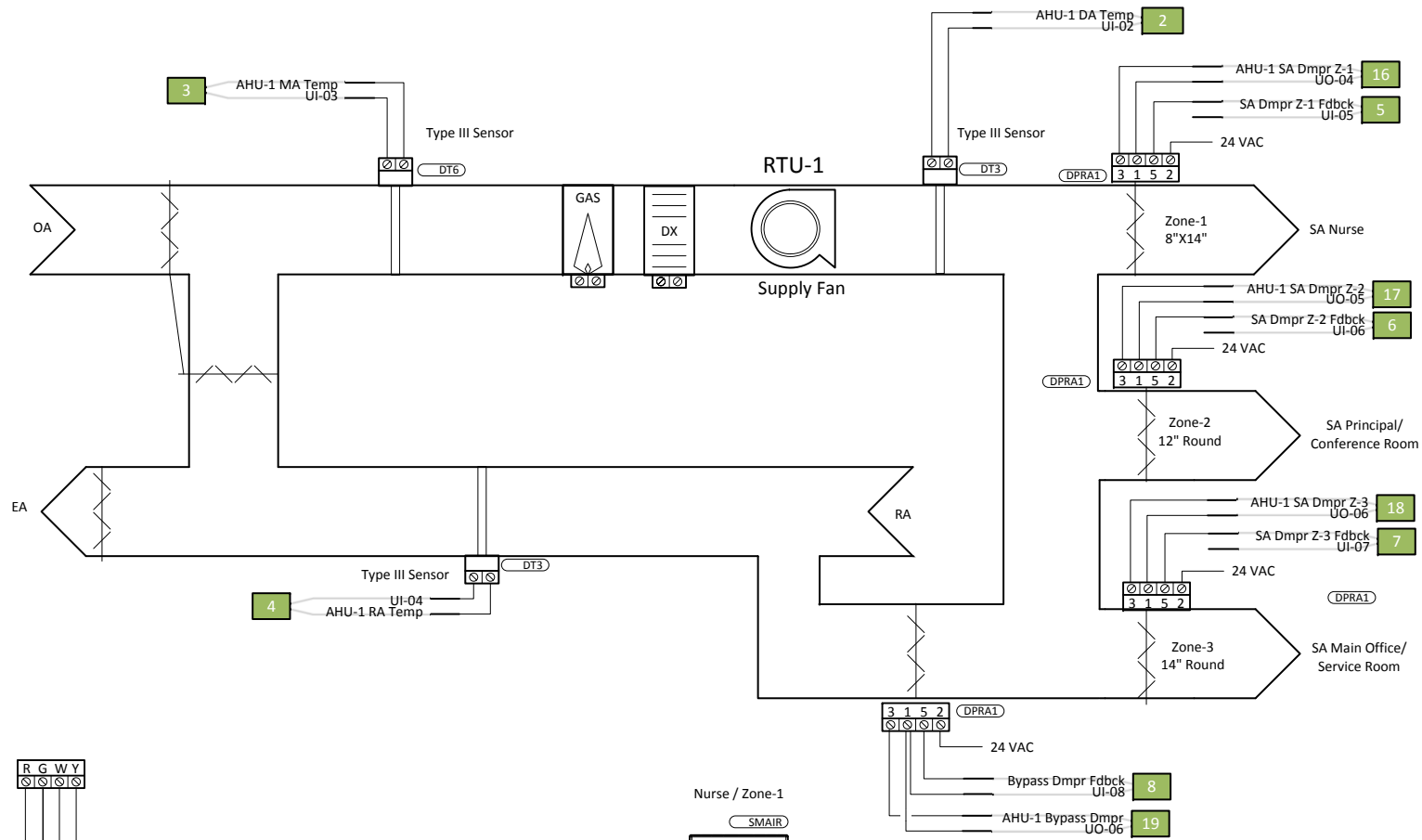
Cooling Season

Switchover Valve: During the cooling season, the switchover valve will be positioned to bypass the hot water heat exchanger.

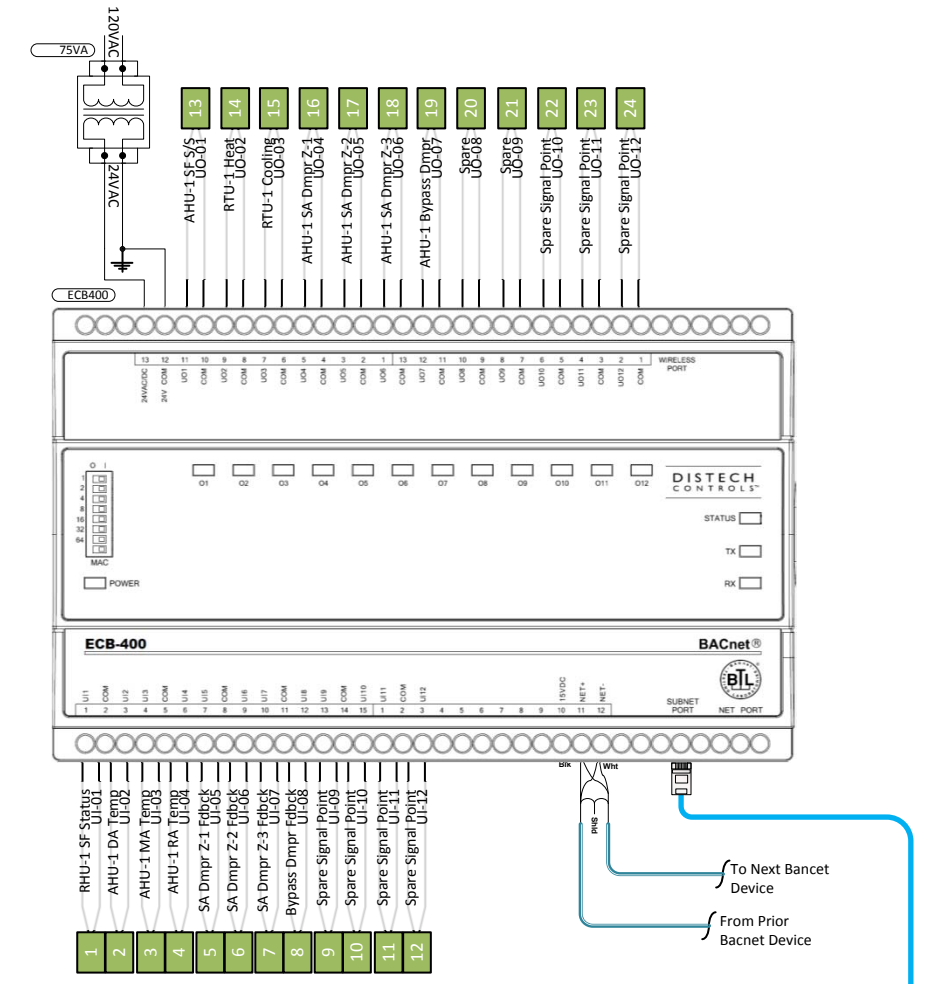


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<p>Typical Conductor Signal Wiring</p> <p>Black Conductor = Com/Neg</p> <p>Red Conductor = 24Vac</p> <p>Jacket Color Conductor = Signal</p> <p>Green Conductor = Feedback</p>	<p>Phone (800) 890-2022</p>	<p>SIZE</p>	<p>DRAWN BY</p>	<p>Page Name Hot Water System Panel And Sequence</p>	<p>REV</p>
	<p>Fax (860) 860-316-5348</p>		<p>PFH</p>	<p>Job Number 17-00037</p>	<p>1</p>
		<p>SCALE</p>	<p>None</p>	<p>6/16/2017</p>	<p>SHEET 8 OF 25</p>

RTU-1



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
75VA	Transformer 24VAC 75VA	Veris	X075CHA	1
DPRA1	Damper Actuator	Belimo	LF24MFT-S US	4
DT3	ACI Duct Temp Sensor 8"	ACI	A/AN-D8-GD	2
DT6	ACI Duct Temp Sensor	ACI	A/AN-A-8'-GD	1
ECB400	Bacnet programmable controller	Distech	CDIB-400X-00	1
H608	Current Switch .5-17a Split-Core	Veris	H608	1
RB2	Distech DC Relay With Base	Distech	07REL-12DC-SPDT/RT-78724	3
SMAIR	Smart-Air Space Temperature	Distech	PDIDS-SMRTAIR-00	4



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Cromwell, CT 06416

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	PFH	Job Number	17-00037	1
SCALE	None	6/16/2017	SHEET	9 OF 25

RTU-1 Sequence of Operation

RTU- 1 – Multi-Zone Unit (Admin Area)

Occupied Mode:

The unit shall run whenever the user defined TOD schedule is active

Supply Air Smoke Detection:

The unit shall shut down upon smoke detector activation. (Existing)

Supply Fan:

The supply fan shall run anytime the unit is commanded to run, unless shutdown on safeties. To prevent short cycling, the supply fan shall have a 2 minute minimum runtime.

Alarms shall be provided as follows:

- Supply Fan Failure: Commanded on, but the status is off.
- Supply Fan in Hand: Commanded off, but the status is on.

DX - Cooling:

If more zones call for cooling than heating and the OSA Temp. is below the cooling lockout adj. set point and fan is running then cooling will be enabled.

Alarms shall be provided as follows:

- High Cooling Supply Air Temp: If the cooling supply air temperature is not below 60 deg. F for 10 min.

Gas - Heating:

If more zones call for heating than cooling and the OSA Temp. is below the heating lockout adj. set point and fan is running then heating will be enabled.

Alarms shall be provided as follows:

- Low Heating Supply Air Temp: If the heating supply air temperature is less than 75 deg. F. after 10 min.

Economizer:

By Factory Unit Controller

Zone Damper Control:

The (3) zone dampers shall modulate to maintain zone temperature set points anytime the unit is commanded on. Maintain a minimum 25% (adj) open for each zone.

Occupied Set Point: 70°F (adj)

Unoccupied Mode:

During unoccupied times the fan shall be off, OSA & EA dampers closed and MA Damper open.

Unoccupied Set Points:

Space Heating Set Point: 60°F (adj)


Space Cooling Set Point: 85°F (adj)

Unoccupied Cooling:

If any zone temperature sensor raises above the unoccupied cooling set point, the unit will start and that zone damper will modulate to maintain unoccupied set point until the space temp. is satisfied.

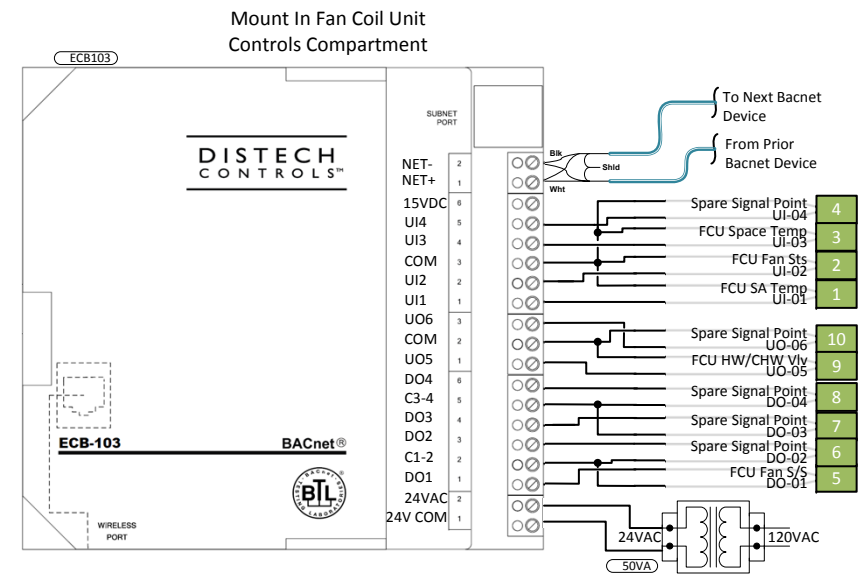
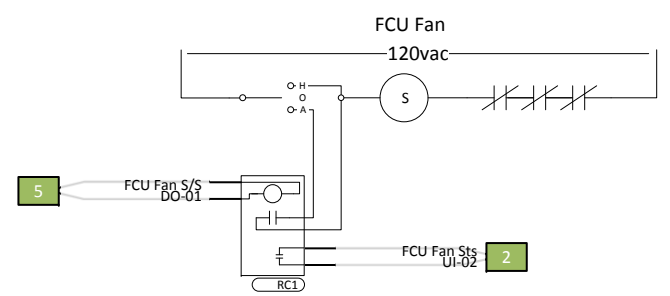
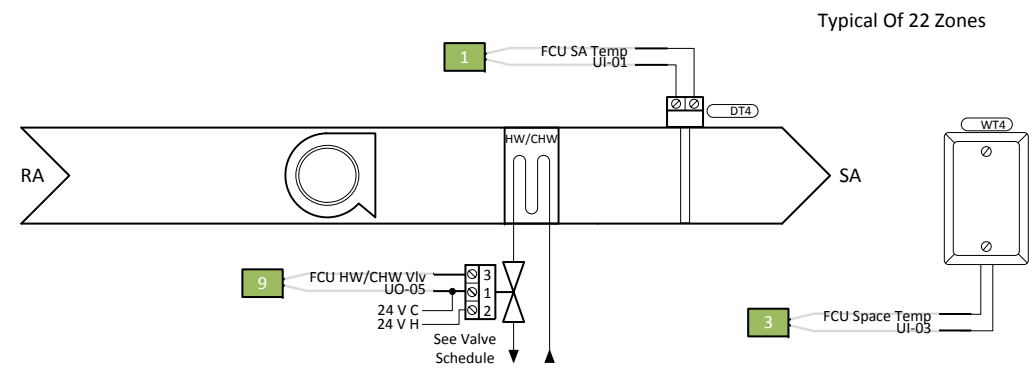
Unoccupied Heating:

If any zone temperature sensor falls below the unoccupied heating set point, the unit will start and that zone damper will modulate to maintain unoccupied set point until the space temperature set point is satisfied.

<p>Typical Wiring Rules</p> <ol style="list-style-type: none"> 1. Blue Wire = Analog Input 2. Yellow Wire = Analog Output 3. Green Wire = Digital Input 4. Orange Wire = Digital Output 5. Purple/White Stripe = LonWorks Com 6. White/Purple Stripe = Bacnet Com 7. Gray Wire = 24 Vac Power 		<p>Oliver Ellsworth School 730 Kennedy Rd Windsor, Ct. 06095</p>			
		<p>Connecticut Temperature Controls 500 Corporate Row Cromwell, CT 06416</p>			
<p>Typical Conductor Signal Wiring</p> <p>Black Conductor = Com/Neg Red Conductor = 24Vac Jacket Color Conductor = Signal Green Conductor = Feedback</p>	<p>Phone (800) 890-2022</p>	<p>SIZE</p>	<p>DRAWN BY</p>	<p>Page Name RTU-1 Sequence of Operation</p>	<p>REV</p>
	<p>Fax (860) 860-316-5348</p>		<p>PFH</p>	<p>Job Number 17-00037</p>	<p>1</p>
		<p>SCALE</p>	<p>None</p>	<p>6/16/2017</p>	<p>SHEET 10 OF 25</p>

Fan Coil Units

Parts this Page				
Label	Description	Manufacturer	PN	Quantity
50VA	Transformer 24VAC 50VA	Veris	X050CHA	26
DT4	ACI Duct Temp Sensor 4"	ACI	A/CP-D4-GD	26
ECB103	Bacnet programmable controller	Distech	CDIB-103X-00	26
RC1	120v Relay And Current Sensor Combined	Veris	H120	26
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	26



Fan Coil Units. The BAS supplied controller shall control the Fan Coil in accordance with the provided sequence of operation.

Run Conditions - Scheduled:
 The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
 - 75°F (adj.) cooling setpoint
 - 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
 - 85°F (adj.) cooling setpoint.
 - 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).

Supply Fan: The fan shall run whenever heating or cooling is required during occupied periods, during unoccupied periods the fan shall be enabled whenever zone temperature is outside of the unoccupied setpoint, and shall run until space temperature is within the unoccupied setpoints. The fan shall have a minimum run time of 20 (adjustable) minutes.

Optimal Start: During unoccupied periods the Unit Controller shall monitor the space temperature and start the unit up to 4 hours before the occupied period to ensure the Zone Temperature is at setpoint when the building transitions from unoccupied to occupied.

Cooling: The controller shall measure the zone temperature and modulate the control valve to maintain its cooling setpoint. The cooling shall be enabled whenever the zone temperature is above cooling setpoint, the fan is on, and the plant is in cooling mode.

Heating Mode: The controller shall measure the zone temperature and modulate the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:

- The zone temperature is below heating setpoint, and the plant is in heating mode.

Fan Status: The controller shall monitor the fan status.

Alarms shall be provided as follows:

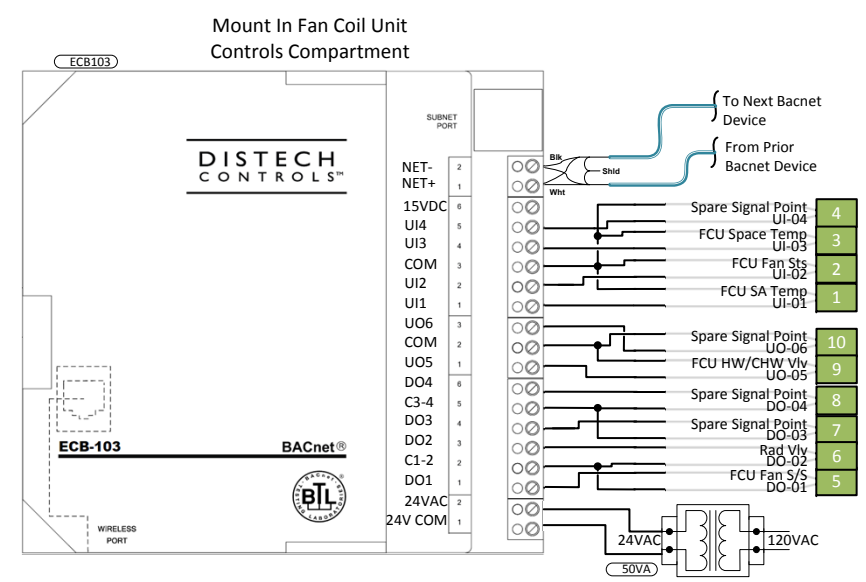
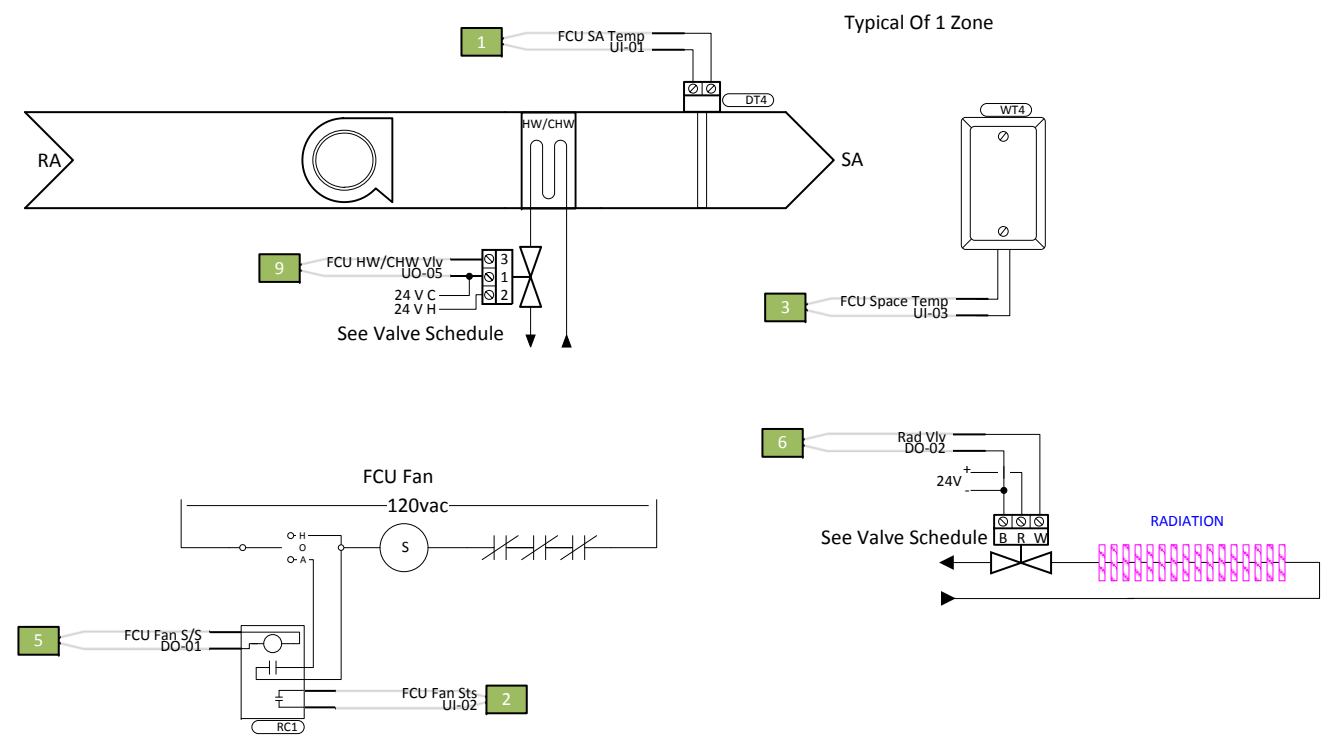
- Fan Failure: Commanded on, but the status is off.

Fan Coil Units	
FC#	Location
FC-4	Boys
FC-5	Girls
FC-6	Girls
FC-7	Boys
FC-8	Foyer
FC-9	Storage Rm
FC-16	Girls
FC-17	Boys
FC-18	Corridor
FC-19	Corridor
FC-20	Corridor
FC-21	Corridor
FC-22	Girls
FC-23	Boys
FC-28	Men
FC-29	Women
FC-30	Lobby
FC-31	Corridor
FC-32	Corridor
FC-33	Cust Office
FC-34	Girls
FC-35	Boys
FC-36	Cafeteria/Auditorium
FC-37	Cafeteria/Auditorium
FC-38	Receiving
FC-39	Corridor

<p>Typical Wiring Rules</p> <ol style="list-style-type: none"> 1. Blue Wire = Analog Input 2. Yellow Wire = Analog Output 3. Green Wire = Digital Input 4. Orange Wire = Digital Output 5. Purple/White Stripe = LonWorks Com 6. White/Purple Stripe = Bacnet Com 7. Gray Wire = 24 Vac Power 		<p>Oliver Ellsworth School 730 Kennedy Rd Windsor, Ct. 06095</p>				
		<p>Connecticut Temperature Controls 500 Corporate Row Cromwell, CT 06416</p>				
<p>Typical Conductor Signal Wiring</p> <p>Black Conductor = Com/Neg</p> <p>Red Conductor = 24Vac</p> <p>Jacket Color Conductor = Signal</p> <p>Green Conductor = Feedback</p>	<p>Phone (800) 890-2022</p>	<p>SIZE</p>	<p>DRAWN BY</p>	<p>Page Name</p>	<p>Fan Coil Units</p>	<p>REV</p>
	<p>Fax (860) 860-316-5348</p>		<p>PFH</p>	<p>Job Number</p>	<p>17-00037</p>	<p>1</p>
		<p>SCALE</p>	<p>None</p>	<p>6/16/2017</p>	<p>SHEET</p>	<p>11 OF 25</p>

Fan Coil Units With Radiation

Parts this Page				
Label	Description	Manufacturer	PN	Quantity
50VA	Transformer 24VAC 50VA	Veris	X050CHA	1
DT4	ACI Duct Temp Sensor 4"	ACI	A/CP-D4-GD	1
ECB103	Bacnet programmable controller	Distech	CDIB-103X-00	1
RC1	120v Relay And Current Sensor Combined	Veris	H120	1
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	1



Fan Coil Units. The BAS supplied controller shall control the Fan Coil in accordance with the provided sequence of operation.

Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
 - 75°F (adj.) cooling setpoint
 - 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
 - 85°F (adj.) cooling setpoint.
 - 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).

Supply Fan: The fan shall run whenever heating or cooling is required during occupied periods, during unoccupied periods the fan shall be enabled whenever zone temperature is outside of the unoccupied setpoint, and shall run until space temperature is within the unoccupied setpoints. The fan shall have a minimum run time of 20 (adjustable) minutes.

Optimal Start: During unoccupied periods the Unit Controller shall monitor the space temperature and start the unit up to 4 hours before the occupied period to ensure the Zone Temperature is at setpoint when the building transitions from unoccupied to occupied.

Cooling: The controller shall measure the zone temperature and modulate the control valve to maintain its cooling setpoint. The cooling shall be enabled whenever the zone temperature is above cooling setpoint, the fan is on, and the plant is in cooling mode.

Heating Mode: The controller shall measure the zone temperature and modulate the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:

- The zone temperature is below heating setpoint, and the plant is in heating mode.

Fan Status: The controller shall monitor the fan status.

Alarms shall be provided as follows:

- Fan Failure: Commanded on, but the status is off.

Perimeter Radiation Control Valve:

Some Units have a perimeter radiation zone, see BMS schedules for a list of units with perimeter radiation. On the Perimeter Radiation equipped units, the perimeter radiation control valve shall open/close simultaneously with the unit ventilator control valve while the plant is in heating mode.

Fan Coil With Radiation		
FC#	Location	Rad#
FC-1	Corridor	R-9

- Typical Wiring Rules**
1. Blue Wire = Analog Input
 2. Yellow Wire = Analog Output
 3. Green Wire = Digital Input
 4. Orange Wire = Digital Output
 5. Purple/White Stripe = LonWorks Com
 6. White/Purple Stripe = Bacnet Com
 7. Gray Wire = 24 Vac Power

- Typical Conductor Signal Wiring**
- Black Conductor = Com/Neg
 - Red Conductor = 24Vac
 - Jacket Color Conductor = Signal
 - Green Conductor = Feedback



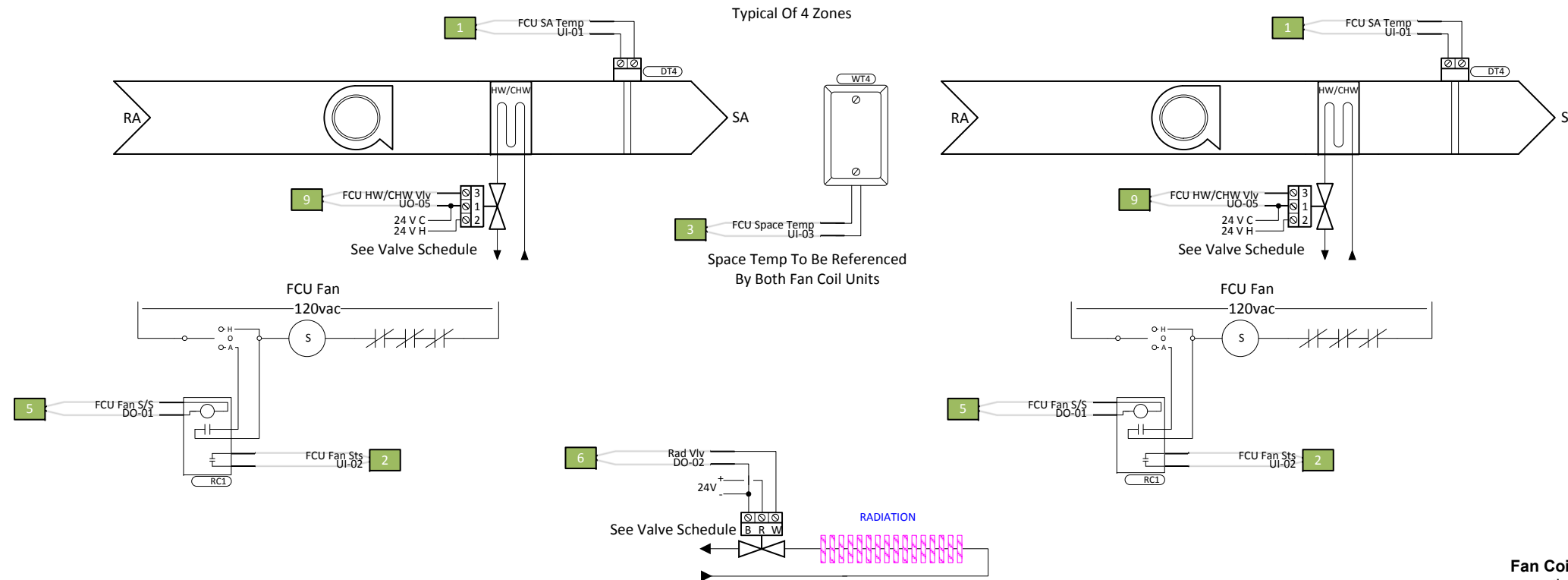
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SIZE	DRAWN BY	Page Name	Fan Coil Units With Radiation	REV
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Multiple Fan Coil Units With Radiation



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
50VA	Transformer 24VAC 50VA	Veris	X050CHA	8
DT4	ACI Duct Temp Sensor 4"	ACI	A/CP-D4-GD	8
ECB103	Bacnet programmable controller	Distech	CDIB-103X-00	8
RC1	120v Relay And Current Sensor Combined	Veris	H120	8
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	4

Multiple Fan Coils With Radiation			
FC#	Space Temp Connection	Location	Rad#
FC-12	Space Temp	Corridor	R-14
FC-14		Corridor	
FC-13	Space Temp	Corridor	R-16
FC-15		Corridor	
FC-24	Space Temp	Corridor	R-17
FC-26		Corridor	
FC-25		Corridor	
FC-27	Space Temp	Corridor	R-19

Fan Coil Units. The BAS supplied controller shall control the Fan Coil in accordance with the provided sequence of operation.

Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
 - 75°F (adj.) cooling setpoint
 - 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
 - 85°F (adj.) cooling setpoint.
 - 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).

Supply Fan: The fan shall run whenever heating or cooling is required during occupied periods, during unoccupied periods the fan shall be enabled whenever zone temperature is outside of the unoccupied setpoint, and shall run until space temperature is within the unoccupied setpoints. The fan shall have a minimum run time of 20 (adjustable) minutes.

Optimal Start: During unoccupied periods the Unit Controller shall monitor the space temperature and start the unit up to 4 hours before the occupied period to ensure the Zone Temperature is at setpoint when the building transitions from unoccupied to occupied.

Cooling: The controller shall measure the zone temperature and modulate the control valve to maintain its cooling setpoint. The cooling shall be enabled whenever the zone temperature is above cooling setpoint, the fan is on, and the plant is in cooling mode.

Heating Mode: The controller shall measure the zone temperature and modulate the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:

- The zone temperature is below heating setpoint, and the plant is in heating mode.

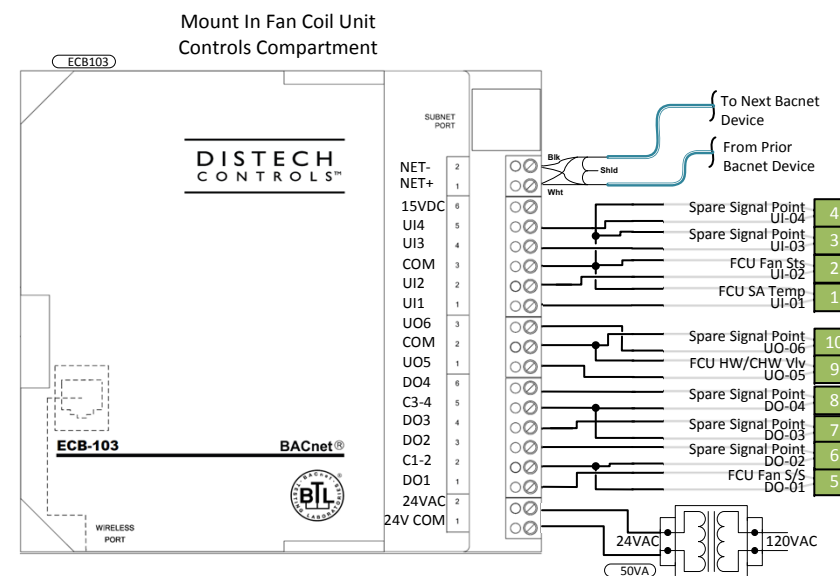
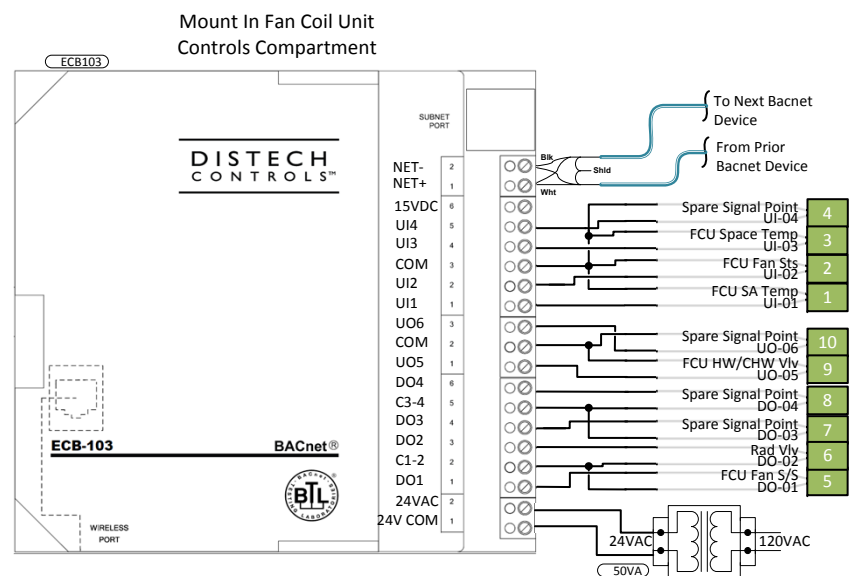
Fan Status: The controller shall monitor the fan status.

Alarms shall be provided as follows:

- Fan Failure: Commanded on, but the status is off.

Perimeter Radiation Control Valve:

Some Units have a perimeter radiation zone, see BMS schedules for a list of units with perimeter radiation. On the Perimeter Radiation equipped units, the perimeter radiation control valve shall open/close simultaneously with the unit ventilator control valve while the plant is in heating mode.



Typical Wiring Rules
1. Blue Wire = Analog Input
2. Yellow Wire = Analog Output
3. Green Wire = Digital Input
4. Orange Wire = Digital Output
5. Purple/White Stripe = LonWorks Com
6. White/Purple Stripe = Bacnet Com
7. Gray Wire = 24 Vac Power

Typical Conductor Signal Wiring
Black Conductor = Com/Neg
Red Conductor = 24Vac
Jacket Color Conductor = Signal
Green Conductor = Feedback



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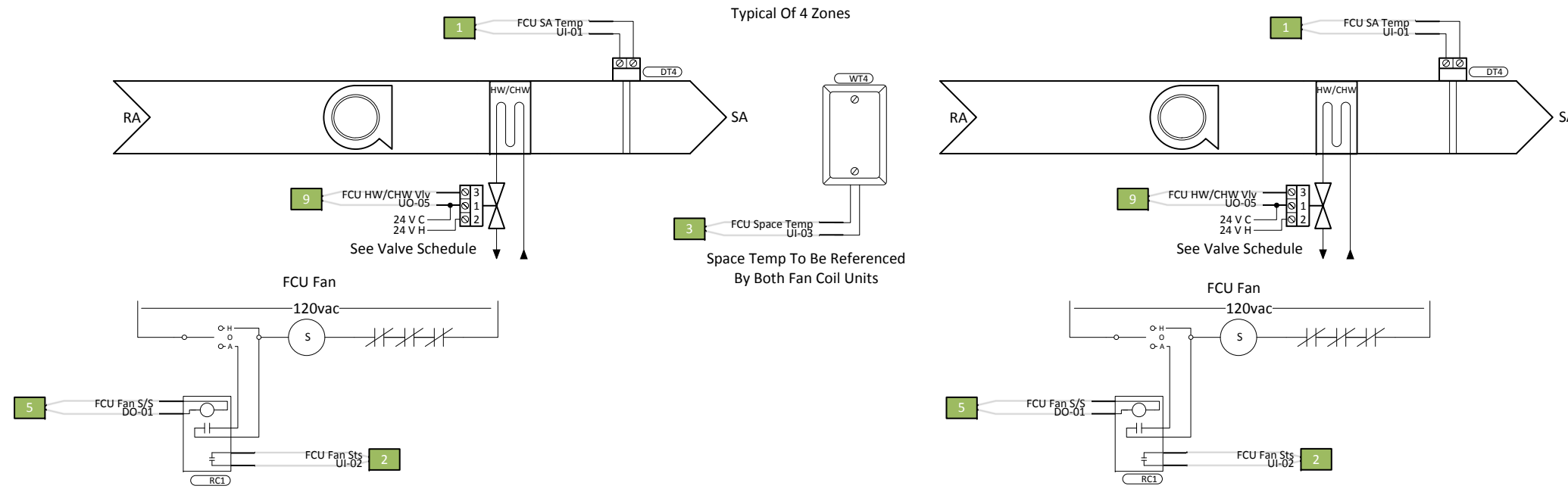
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Cromwell, CT 06416

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Fax (860) 860-316-5348

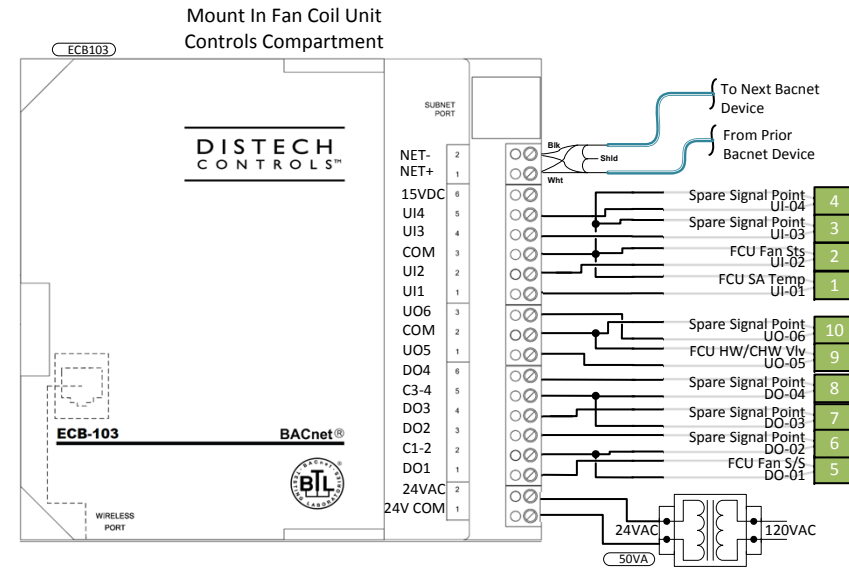
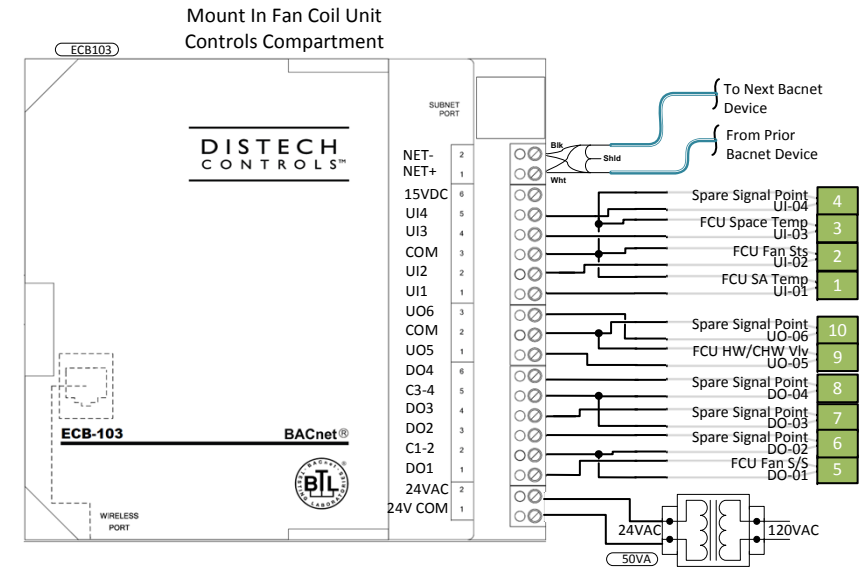
SIZE	DRAWN BY	Page Name	Multiple Fan Coil Units With Radiation	REV
	PFH	Job Number	17-00037	1
SCALE	None	6/16/2017	SHEET	13 OF 25

Multiple Fan Coil Units



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
50VA	Transformer 24VAC 50VA	Veris	X050CHA	4
DT4	ACI Duct Temp Sensor 4"	ACI	A/CP-D4-GD	4
ECB103	Bacnet programmable controller	Distech	CDIB-103X-00	4
RC1	120v Relay And Current Sensor Combined	Veris	H120	4
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	2

Multiple Fan Coils		
FC#	Space Temp Connection	Location
FC-2		Corridor
FC-3	Space Temp	Corridor
FC-10	Space Temp	Entrance
FC-11		Entrance



Fan Coil Units. The BAS supplied controller shall control the Fan Coil in accordance with the provided sequence of operation.

Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
 - 75°F (adj.) cooling setpoint
 - 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
 - 85°F (adj.) cooling setpoint.
 - 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).

Supply Fan: The fan shall run whenever heating or cooling is required during occupied periods, during unoccupied periods the fan shall be enabled whenever zone temperature is outside of the unoccupied setpoint, and shall run until space temperature is within the unoccupied setpoints. The fan shall have a minimum run time of 20 (adjustable) minutes.

Optimal Start: During unoccupied periods the Unit Controller shall monitor the space temperature and start the unit up to 4 hours before the occupied period to ensure the Zone Temperature is at setpoint when the building transitions from unoccupied to occupied.

Cooling: The controller shall measure the zone temperature and modulate the control valve to maintain its cooling setpoint. The cooling shall be enabled whenever the zone temperature is above cooling setpoint, the fan is on, and the plant is in cooling mode.

Heating Mode: The controller shall measure the zone temperature and modulate the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:

- The zone temperature is below heating setpoint, and the plant is in heating mode.

Fan Status: The controller shall monitor the fan status.

Alarms shall be provided as follows:

- Fan Failure: Commanded on, but the status is off.

Perimeter Radiation Control Valve:

Some Units have a perimeter radiation zone, see BMS schedules for a list of units with perimeter radiation. On the Perimeter Radiation equipped units, the perimeter radiation control valve shall open/close simultaneously with the unit ventilator control valve while the plant is in heating mode.

Typical Wiring Rules
1. Blue Wire = Analog Input
2. Yellow Wire = Analog Output
3. Green Wire = Digital Input
4. Orange Wire = Digital Output
5. Purple/White Stripe = LonWorks Com
6. White/Purple Stripe = Bacnet Com
7. Gray Wire = 24 Vac Power

Typical Conductor Signal Wiring
Black Conductor = Com/Neg
Red Conductor = 24Vac
Jacket Color Conductor = Signal
Green Conductor = Feedback



Phone (800) 890-2022

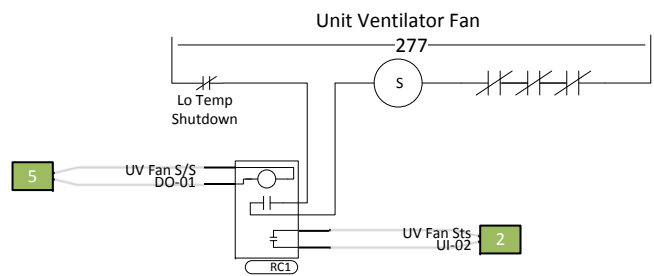
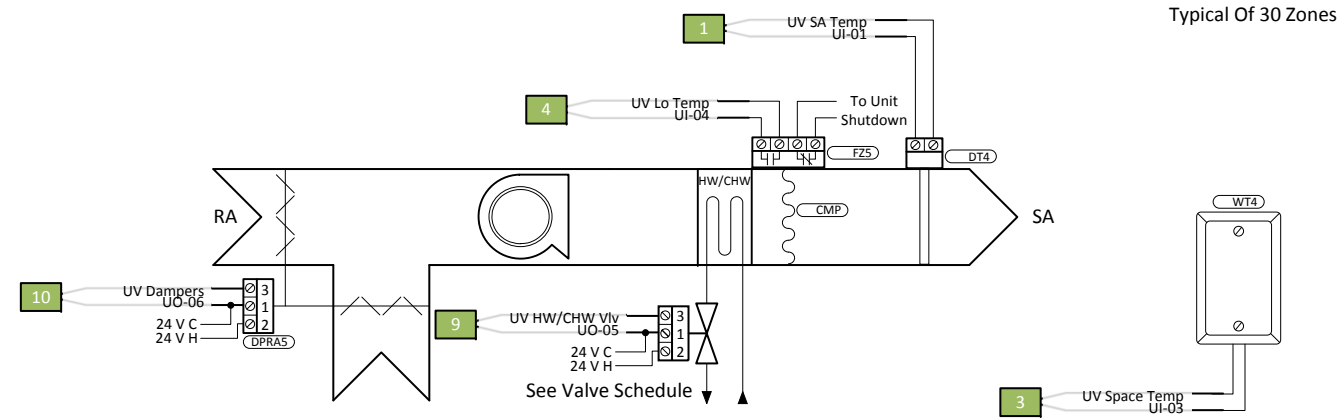
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Cromwell, CT 06416

SIZE	DRAWN BY	Page Name	Multiple Fan Coil Units	REV
	PFH	Job Number	17-00037	1
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Unit Ventilators



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
CMP	Capillary Mounting Clip	Kele	M-648-K	60
DPRA5	Damper Actuator 35in-lbs 24v Modulating	Belimo	LF24SR US	30
DT4	ACI Duct Temp Sensor 4"	ACI	A/CP-D4-GD	30
ECB103	Bacnet programmable controller	Distech	CDIB-103X-00	30
FZ5	Freeze Stat DPST Auto Reset 6' Capillary	Kele	TF142-SOAP06	30
RC1	120v Relay And Current Sensor Combined	Veris	H120	30
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	30

Unit Ventilators	
UV#	Location
UV-5	Classroom 26
UV-6	Classroom 22
UV-7	Classroom 25
UV-8	Classroom 21
UV-9	Classroom 24
UV-10	Classroom 20
UV-11	Classroom 23
UV-12	Classroom 19
UV-13	Work Room
UV-14	Reading
UV-15	Media Center
UV-16	Media Center
UV-19	Family Center
UV-20	Teachers Lounge
UV-22	Classroom 17
UV-23	Classroom 13
UV-24	Classroom 16
UV-25	Classroom 12
UV-26	Classroom 15
UV-27	Classroom 11
UV-28	Classroom 14
UV-29	Classroom 10
UV-31	Classroom 8
UV-32	Classroom 4
UV-33	Classroom 7
UV-34	Classroom 3
UV-35	Classroom 6
UV-36	Classroom 2
UV-37	Classroom 5
UV-38	Classroom 1

Unit Ventilators – The BAS supplied controller shall control the Unit Ventilator in accordance with the provided sequence of operation.

Run Conditions - Scheduled:
The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
 - 75°F (adj.) cooling setpoint
 - 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
 - 85°F (adj.) cooling setpoint.
 - 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).

Freeze Protection:
When leaving coil temperature is less than 38 degF an Auto Reset Low Temperature Sensor (Freezestat) shall lock the unit off, open the coil valve, shut the outdoor air damper, and send an alarm to the BMS. The unit shall remain off until a software reset is initiated at the BMS. When the unit is running, the economizer maximum position shall be PID controlled to maintain a minimum discharge air temperature of 40 degF. If outside air temperature is less than 40 degF, and the unit is commanded off, the heating control shall be enabled and the coil valve shall control to a discharge air temperature of 55 degF.

Supply Fan: The fan shall run continuously during occupied periods, during unoccupied periods the fan shall be enabled whenever zone temperature is outside of the unoccupied setpoint, and shall run until space temperature is within the unoccupied setpoints.

Optimal Start:
During unoccupied periods the Unit Controller shall monitor the space temperature and start the unit up to 4 hours before the occupied period to ensure the Zone Temperature is at setpoint when the building transitions from unoccupied to occupied.

Cooling: The controller shall measure the zone temperature and modulate the control valve to maintain its cooling setpoint. The cooling shall be enabled whenever the zone temperature is above cooling setpoint, the fan is on, and the plant is in cooling mode.

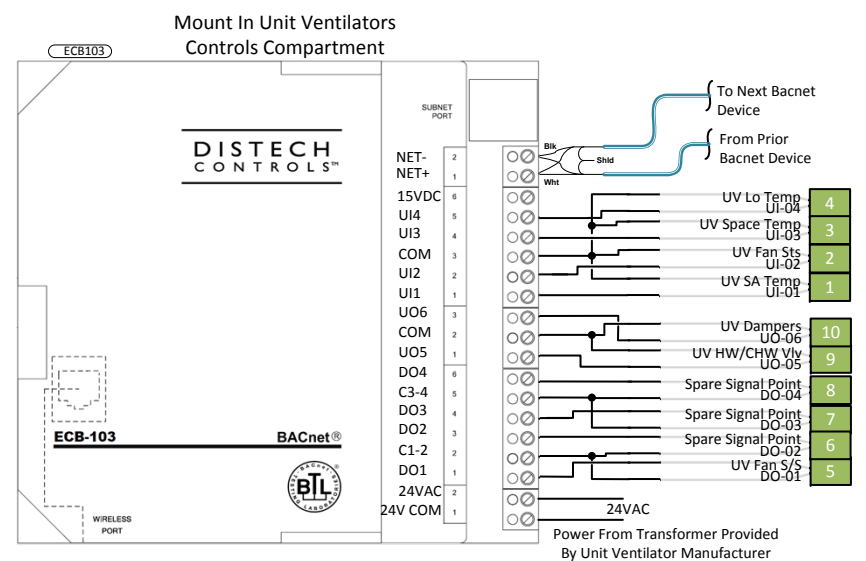
Heating Mode: The controller shall measure the zone temperature and modulate the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:

- The zone temperature is below heating setpoint, and the plant is in heating mode.

Economizer: The controller shall measure the zone temperature and modulate the mixed air dampers in sequence to maintain the zone cooling setpoint. Whenever occupied, the outside air dampers shall maintain a minimum fixed ventilation position as set by the balancer. When the unit is unoccupied, the outdoor air damper shall remain shut. The economizer shall be enabled whenever outside air temperature is at least 3°F (adj.) less than the Zone Temperature, and the supply fan is verified to be running.

Fan Status:
The controller shall monitor the fan status.
Alarms shall be provided as follows:

- Fan Failure: Commanded on, but the status is off.



- Typical Wiring Rules**
1. Blue Wire = Analog Input
 2. Yellow Wire = Analog Output
 3. Green Wire = Digital Input
 4. Orange Wire = Digital Output
 5. Purple/White Stripe = LonWorks Com
 6. White/Purple Stripe = Bacnet Com
 7. Gray Wire = 24 Vac Power

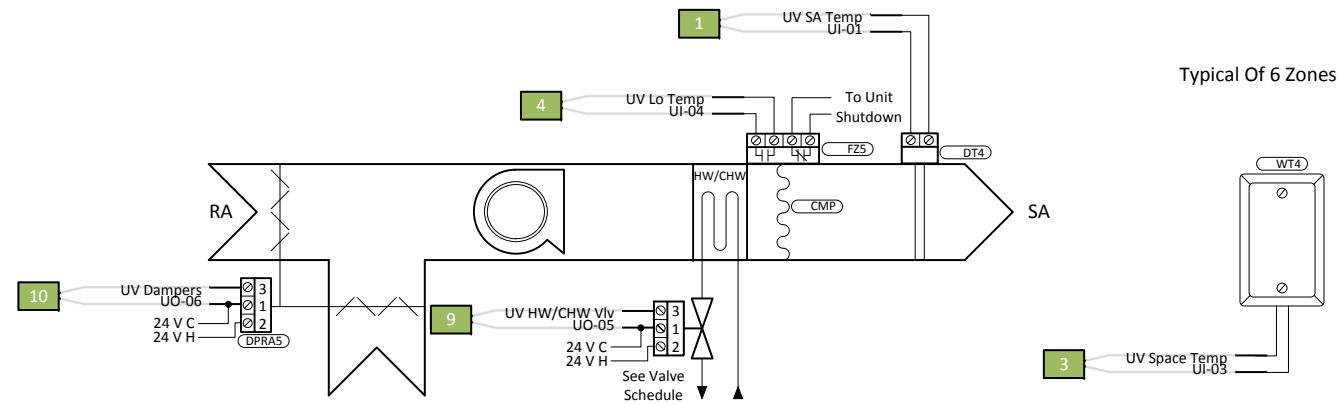
- Typical Conductor Signal Wiring**
- Black Conductor = Com/Neg
 - Red Conductor = 24Vac
 - Jacket Color Conductor = Signal
 - Green Conductor = Feedback

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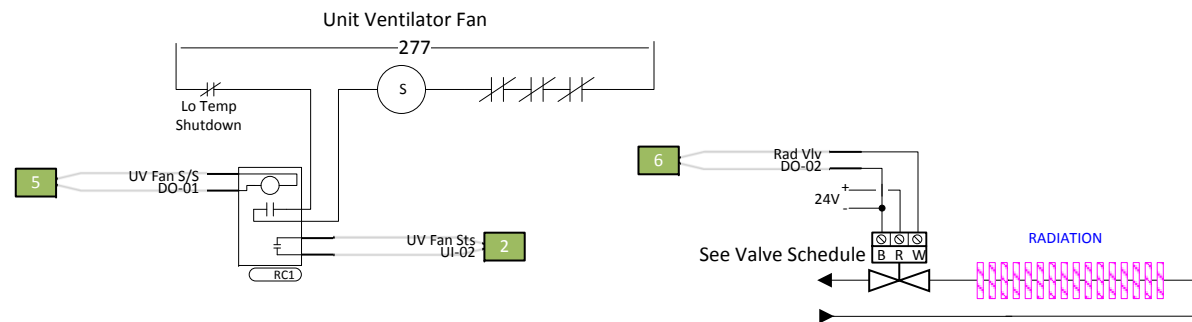
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Cromwell, CT 06416

Phone (800) 890-2022	SIZE	DRAWN BY	Page Name	Unit Ventilators	REV
		PFH			1
Fax (860) 860-316-5348	SCALE		None		
			6/16/2017	SHEET	15 OF 25

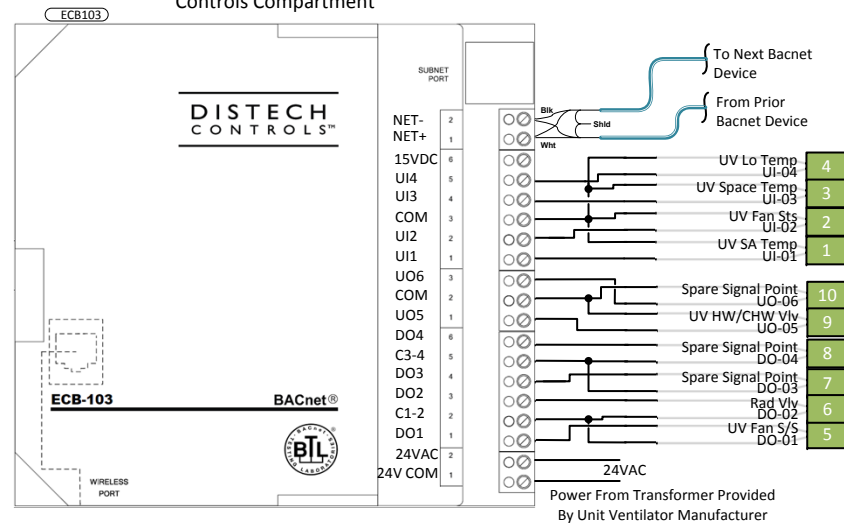
Unit Ventilators With Radiation



Typical Of 6 Zones



Mount In Unit Ventilators Controls Compartment



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
CMP	Capillary Mounting Clip	Kele	M-648-K	12
DPRA5	Damper Actuator 35in-lbs 24v Modulating	Belimo	LF24SR US	6
DT4	ACI Duct Temp Sensor 4"	ACI	A/CP-D4-GD	6
ECB103	Bacnet programmable controller	Distech	CDIB-103X-00	6
FZ5	Freeze Stat DPST Auto Reset 6' Capillary	Kele	TF142-SOAP06	6
RC1	120v Relay And Current Sensor Combined	Veris	H120	6
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	6

Unit Ventilators – The BAS supplied controller shall control the Unit Ventilator in accordance with the provided sequence of operation.

Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
 - 75°F (adj.) cooling setpoint
 - 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
 - 85°F (adj.) cooling setpoint.
 - 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).

Freeze Protection:

When leaving coil temperature is less than 38 degF an Auto Reset Low Temperature Sensor (Freezestat) shall lock the unit off, open the coil valve, shut the outdoor air damper, and send an alarm to the BMS. The unit shall remain off until a software reset is initiated at the BMS. When the unit is running, the economizer maximum position shall be PID controlled to maintain a minimum discharge air temperature of 40 degF. If outside air temperature is less than 40 degF, and the unit is commanded off, the heating control shall be enabled and the coil valve shall control to a discharge air temperature of 55 degF.

Supply Fan: The fan shall run continuously during occupied periods, during unoccupied periods the fan shall be enabled whenever zone temperature is outside of the unoccupied setpoint, and shall run until space temperature is within the unoccupied setpoints.

Optimal Start:

During unoccupied periods the Unit Controller shall monitor the space temperature and start the unit up to 4 hours before the occupied period to ensure the Zone Temperature is at setpoint when the building transitions from unoccupied to occupied.

Cooling: The controller shall measure the zone temperature and modulate the control valve to maintain its cooling setpoint. The cooling shall be enabled whenever the zone temperature is above cooling setpoint, the fan is on, and the plant is in cooling mode.

Heating Mode: The controller shall measure the zone temperature and modulate the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:

- The zone temperature is below heating setpoint, and the plant is in heating mode.

Economizer: The controller shall measure the zone temperature and modulate the mixed air dampers in sequence to maintain the zone cooling setpoint. Whenever occupied, the outside air dampers shall maintain a minimum fixed ventilation position as set by the balancer. When the unit is unoccupied, the outdoor air damper shall remain shut. The economizer shall be enabled whenever outside air temperature is at least 3°F (adj.) less than the Zone Temperature, and the supply fan is verified to be running.

Fan Status:

The controller shall monitor the fan status.

Alarms shall be provided as follows:

- Fan Failure: Commanded on, but the status is off.

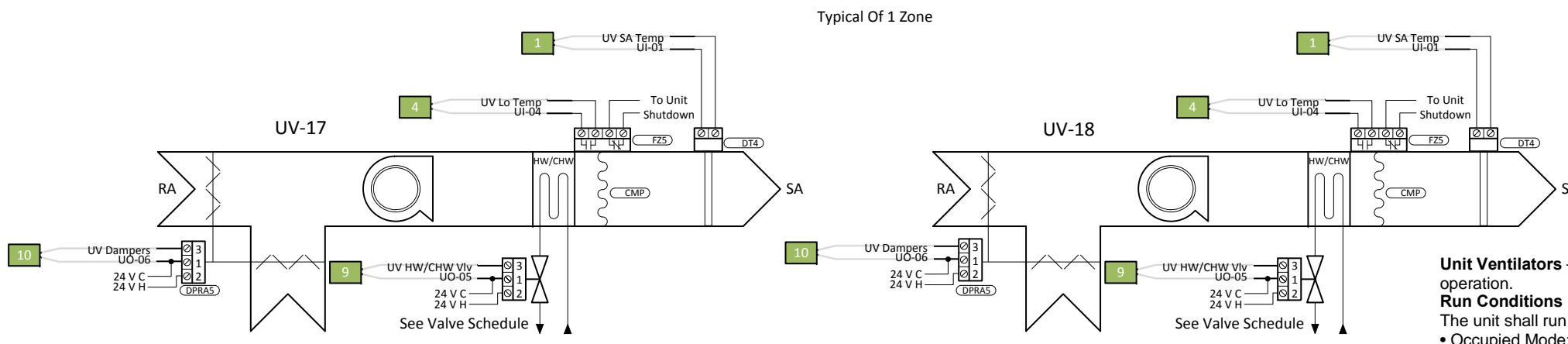
Perimeter Radiation Control Valve:

Some Units have a perimeter radiation zone, see BMS schedules for a list of units with perimeter radiation. On the Perimeter Radiation equipped units, the perimeter radiation control valve shall open/close simultaneously with the unit ventilator control valve while the plant is in heating mode.

Unit Ventilators With Radiation		
UV#	Location	Rad#
UV-1	Classroom 30	R-10
UV-2	Classroom 29	R-11
UV-3	Classroom 28	R-12
UV-4	Classroom 27	R-13
UV-21	Special ED Classroom	R-20
UV-30	Special ED Classroom	R-21

<p>Typical Wiring Rules</p> <ol style="list-style-type: none"> 1. Blue Wire = Analog Input 2. Yellow Wire = Analog Output 3. Green Wire = Digital Input 4. Orange Wire = Digital Output 5. Purple/White Stripe = LonWorks Com 6. White/Purple Stripe = Bacnet Com 7. Gray Wire = 24 Vac Power 		<p>Oliver Ellsworth School 730 Kennedy Rd Windsor, Ct. 06095</p>			
		<p>Connecticut Temperature Controls 500 Corporate Row Cromwell, CT 06416</p>			
<p>Typical Conductor Signal Wiring</p> <p>Black Conductor = Com/Neg Red Conductor = 24Vac Jacket Color Conductor = Signal Green Conductor = Feedback</p>	<p>Phone (800) 890-2022</p> <p>Fax (860) 860-316-5348</p>	<p>SIZE</p>	<p>DRAWN BY</p> <p>PFH</p>	<p>Page Name</p> <p>Unit Ventilators With Radiation</p>	<p>REV</p> <p>1</p>
		<p>SCALE</p>	<p>None</p>	<p>6/16/2017</p>	<p>SHEET</p> <p>16 OF 25</p>

Unit Ventilators Media Office



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
CMP	Capillary Mounting Clip	Kele	M-648-K	2
DPRA5	Damper Actuator 35in-lbs 24v Modulating	Belimo	LF24SR US	2
DT4	ACI Duct Temp Sensor 4"	ACI	A/CP-D4-GD	2
ECB103	Bacnet programmable controller	Distech	CDIB-103X-00	2
FZ5	Freeze Stat DPST Auto Reset 6' Capillary	Kele	TF142-SOAP06	2
RC1	120v Relay And Current Sensor Combined	Veris	H120	2
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	1

Unit Ventilators – The BAS supplied controller shall control the Unit Ventilator in accordance with the provided sequence of operation.

Run Conditions - Scheduled:
The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
 - 75°F (adj.) cooling setpoint
 - 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
 - 85°F (adj.) cooling setpoint.
 - 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).

Freeze Protection:
When leaving coil temperature is less than 38 degF an Auto Reset Low Temperature Sensor (Freezestat) shall lock the unit off, open the coil valve, shut the outdoor air damper, and send an alarm to the BMS. The unit shall remain off until a software reset is initiated at the BMS. When the unit is running, the economizer maximum position shall be PID controlled to maintain a minimum discharge air temperature of 40 degF. If outside air temperature is less than 40 degF, and the unit is commanded off, the heating control shall be enabled and the coil valve shall control to a discharge air temperature of 55 degF.

Supply Fan: The fan shall run continuously during occupied periods, during unoccupied periods the fan shall be enabled whenever zone temperature is outside of the unoccupied setpoint, and shall run until space temperature is within the unoccupied setpoints.

Optimal Start:
During unoccupied periods the Unit Controller shall monitor the space temperature and start the unit up to 4 hours before the occupied period to ensure the Zone Temperature is at setpoint when the building transitions from unoccupied to occupied.

Cooling: The controller shall measure the zone temperature and modulate the control valve to maintain its cooling setpoint. The cooling shall be enabled whenever the zone temperature is above cooling setpoint, the fan is on, and the plant is in cooling mode.

Heating Mode: The controller shall measure the zone temperature and modulate the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:

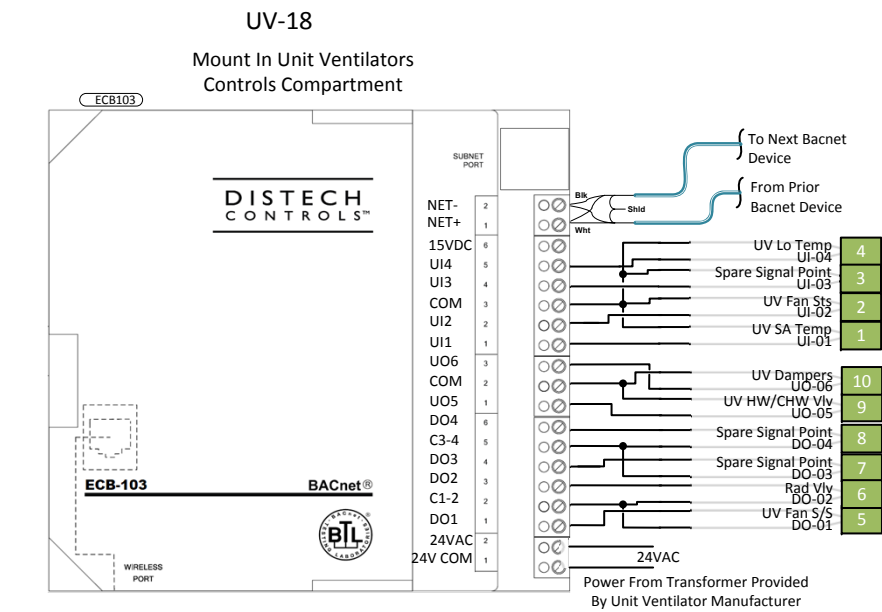
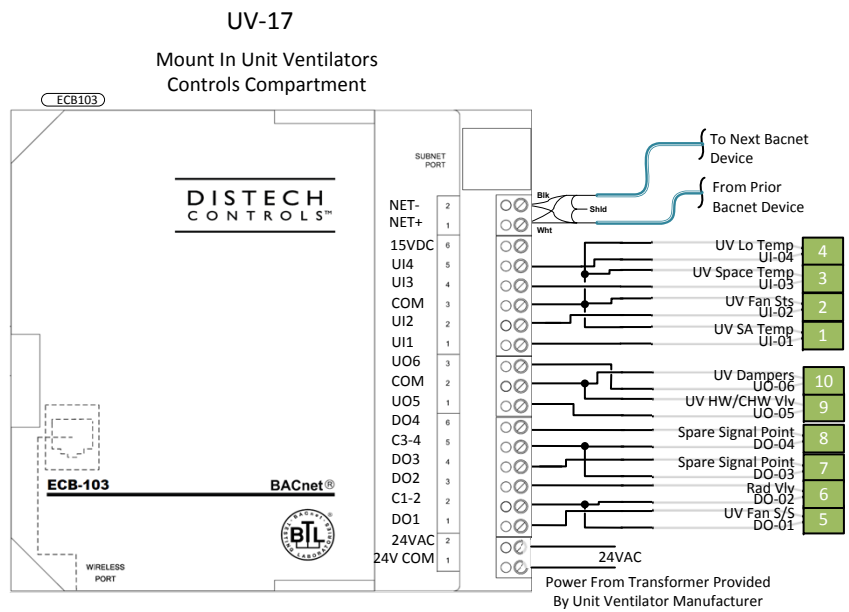
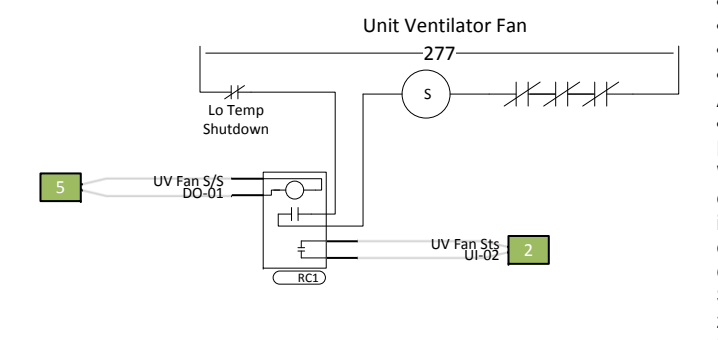
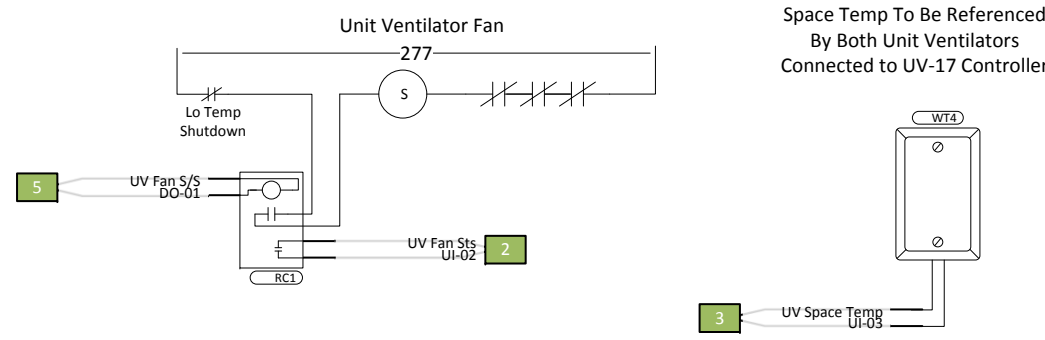
- The zone temperature is below heating setpoint, and the plant is in heating mode.

Economizer: The controller shall measure the zone temperature and modulate the mixed air dampers in sequence to maintain the zone cooling setpoint. Whenever occupied, the outside air dampers shall maintain a minimum fixed ventilation position as set by the balancer. When the unit is unoccupied, the outdoor air damper shall remain shut. The economizer shall be enabled whenever outside air temperature is at least 3°F (adj.) less than the Zone Temperature, and the supply fan is verified to be running.

Fan Status:
The controller shall monitor the fan status.
Alarms shall be provided as follows:

- Fan Failure: Commanded on, but the status is off.

Perimeter Radiation Control Valve:
Some Units have a perimeter radiation zone, see BMS schedules for a list of units with perimeter radiation. On the Perimeter Radiation equipped units, the perimeter radiation control valve shall open/close simultaneously with the unit ventilator control valve while the plant is in heating mode.



Unit Ventilators	
UV#	Location
UV-17	Media Office
UV-18	Media Office

Typical Wiring Rules

1. Blue Wire = Analog Input
2. Yellow Wire = Analog Output
3. Green Wire = Digital Input
4. Orange Wire = Digital Output
5. Purple/White Stripe = LonWorks Com
6. White/Purple Stripe = Bacnet Com
7. Gray Wire = 24 Vac Power

Typical Conductor Signal Wiring
Black Conductor = Com/Neg
Red Conductor = 24Vac
Jacket Color Conductor = Signal
Green Conductor = Feedback

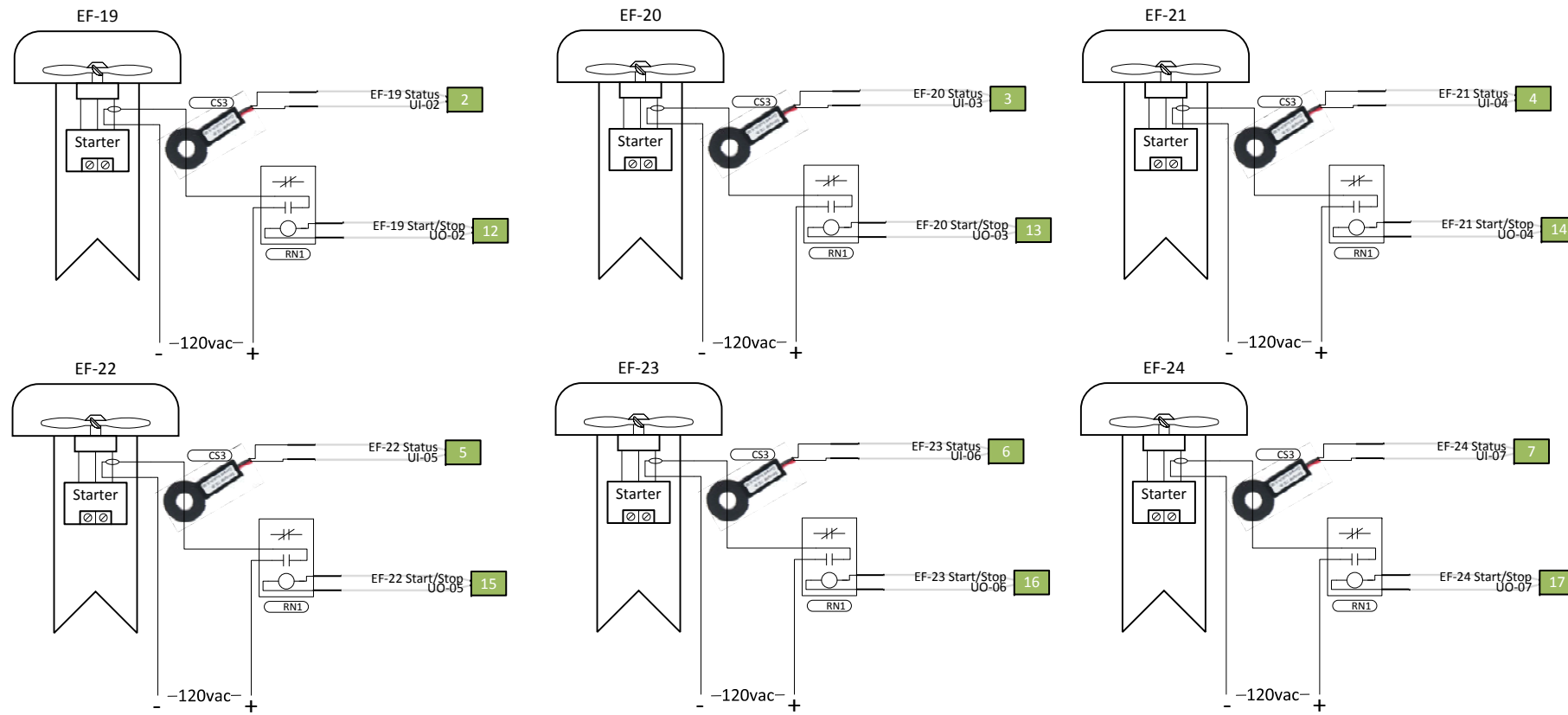
Phone (800) 890-2022
Fax (860) 860-316-5348

Oliver Ellsworth School
730 Kennedy Rd Windsor, Ct. 06095

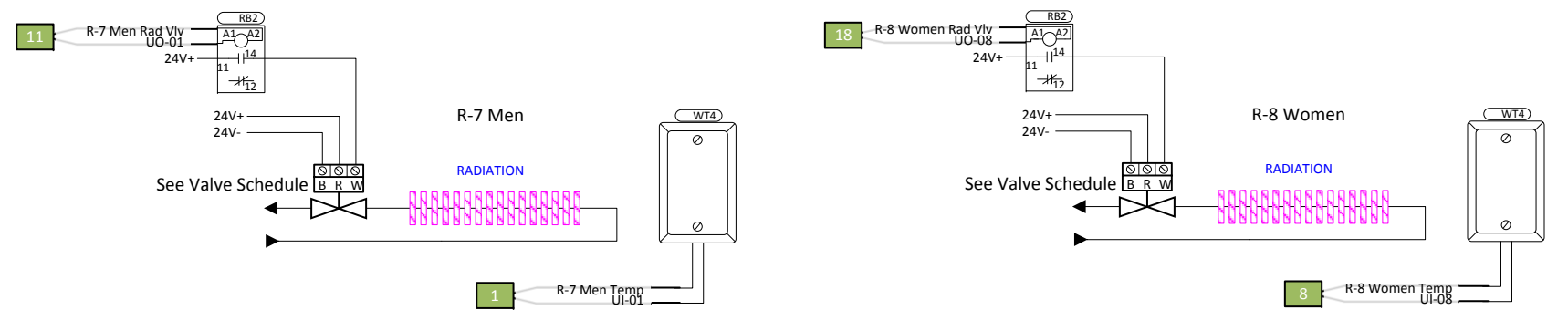
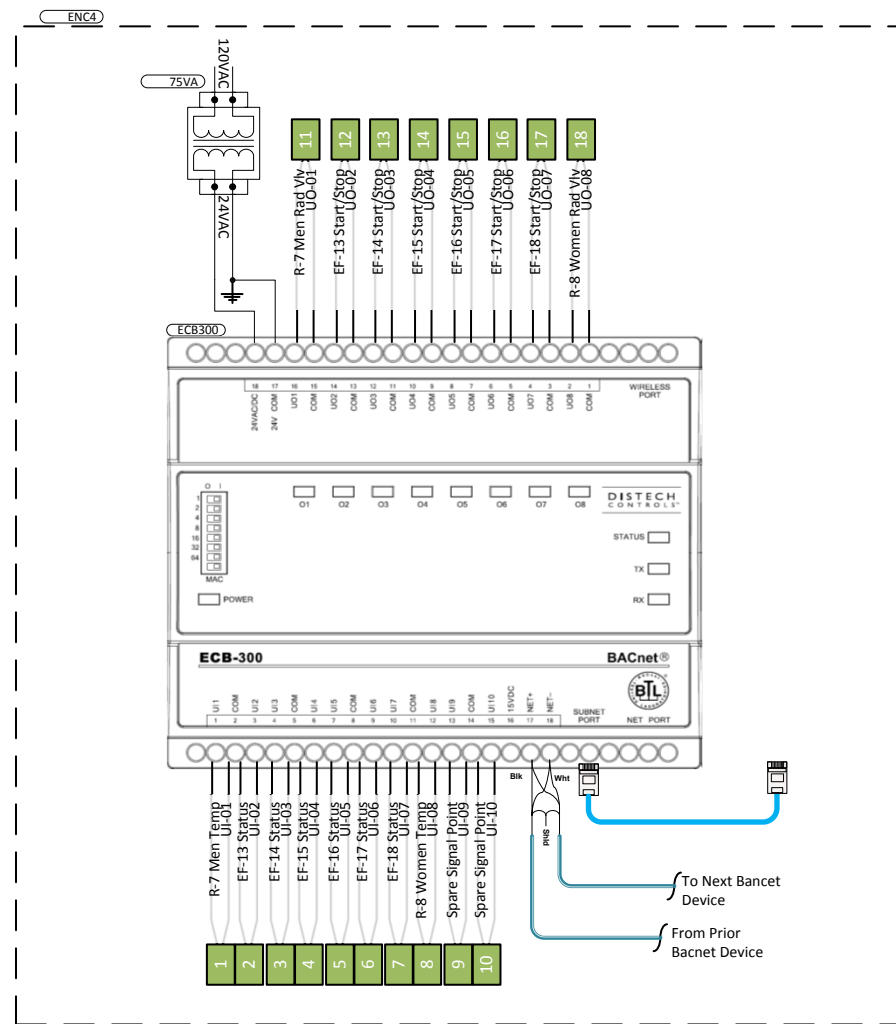
Connecticut Temperature Controls
500 Corporate Row
Cromwell, CT 06416

SIZE	DRAWN BY	Page Name	Unit Ventilators Media Office	REV
	PFH	Job Number	17-00037	1
SCALE	None	6/16/2017	SHEET	17 OF 25

Radiation R-7, 8 and Exhaust Fan's EF-19,20,21,22,23,24



Location Of Panel To Be Determined In Field



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
75VA	Transformer 24VAC 75VA	Veris	X075CHA	1
CS3	Current Sw itch .5-50a Solid State	Solidyne	CS-30	6
ECB300	Bacnet programmable controller	Distech	CDIB-300X-00	1
ENC4	NEMA 1 12X12X3 Enclosure w /Panel	Kele	B-12-P	1
RB2	Distech DC Relay With Base	Distech	07REL-12DC-SPDT/RT-78724	2
RN1	Relay Nippled SPDT 10-30VAC/DC/120vac Coil	Veris	V100	6
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	2

Convective / Fin Tube Radiation

Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
- 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
- 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).
- Heating Coil Valve:** The controller shall measure the zone temperature and open the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:
- The zone temperature is below heating setpoint, and the plant is in heating mode.

Exhaust Fans

Run Conditions - Scheduled:

The fan shall run according to a user definable schedule. The fan shall have a user definable (adj.) minimum runtime.

Alarms shall be provided as follows:

Fan Failure: Commanded on, but the status is off.

Exhaust Fan	Rooms Served	Associated UV's
EF-19	Classroom 19, 20, Special Ed. Classroom + Corr Lockers	UV - 10, 12, 21
EF-20	Classroom 23, 24 + Corrr. Lockers	UV - 9 + 11
EF-21	Classroom 21, 22 + Corr. Lockers	UV - 6 + 8
EF-22	Classroom 25, 26 + Corr. Lockers	UV - 5 + 7
EF-23	Classroom 27, 28, 29, 30 + (2) Storage Rooms	UV - 1, 2, 3, 4
EF-24	(2) Boys Rm., (2) Girls Rm. + Cust. Closet	NA

Typical Wiring Rules

1. Blue Wire = Analog Input
2. Yellow Wire = Analog Output
3. Green Wire = Digital Input
4. Orange Wire = Digital Output
5. Purple/White Stripe = LonWorks Com
6. White/Purple Stripe = Bacnet Com
7. Gray Wire = 24 Vac Power

Typical Conductor Signal Wiring
 Black Conductor = Com/Neg
 Red Conductor = 24Vac
 Jacket Color Conductor = Signal
 Green Conductor = Feedback



Phone (800) 890-2022

Fax (860) 860-316-5348

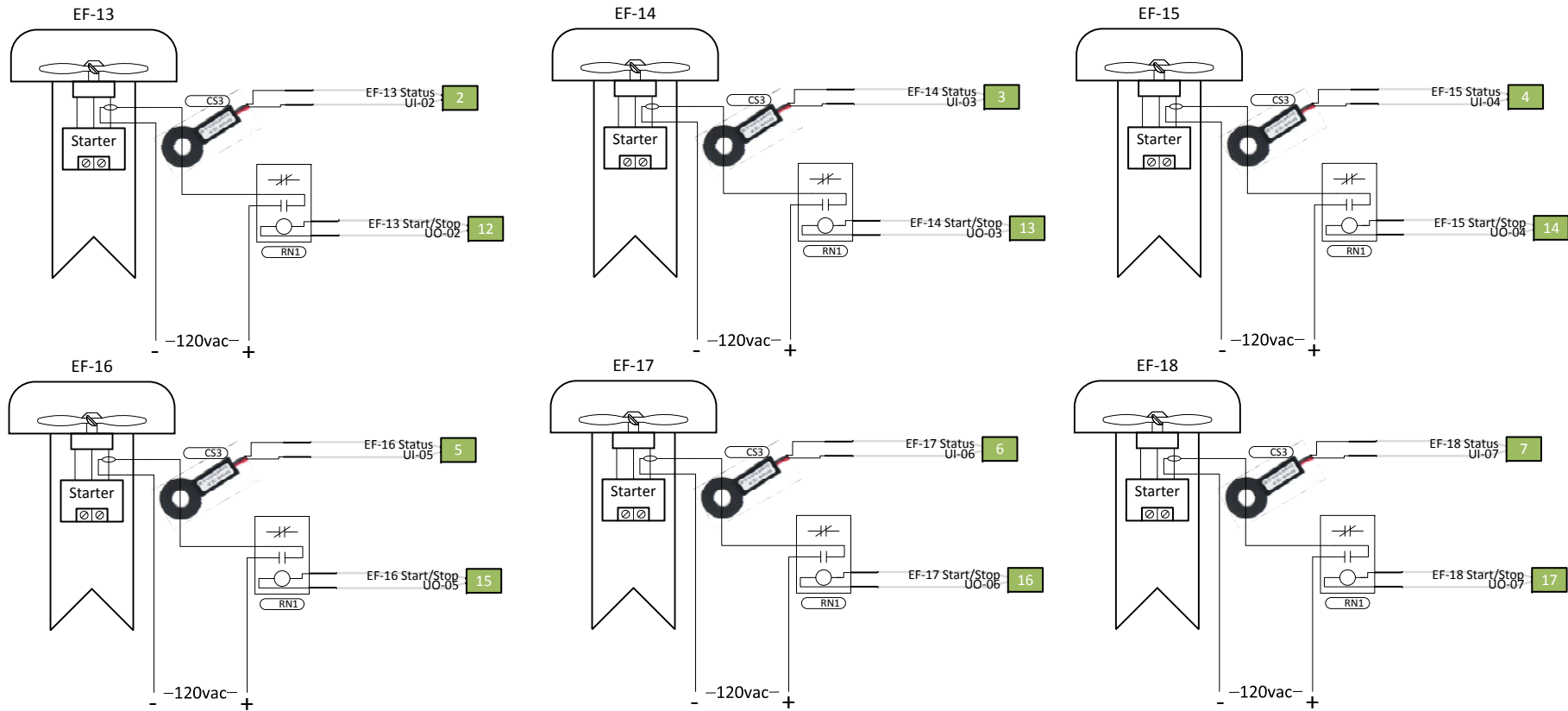
Oliver Ellsworth School

730 Kennedy Rd Windsor, Ct. 06095

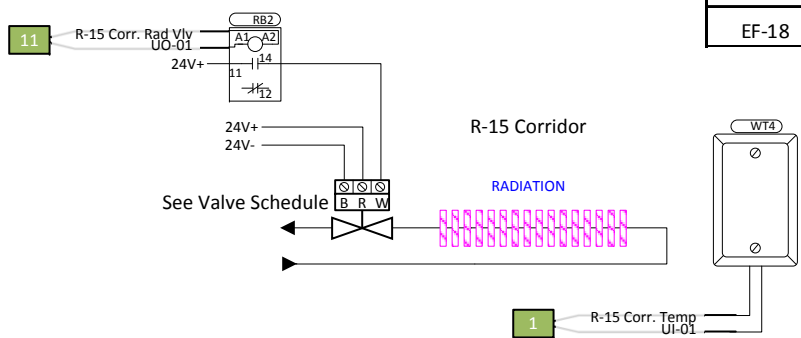
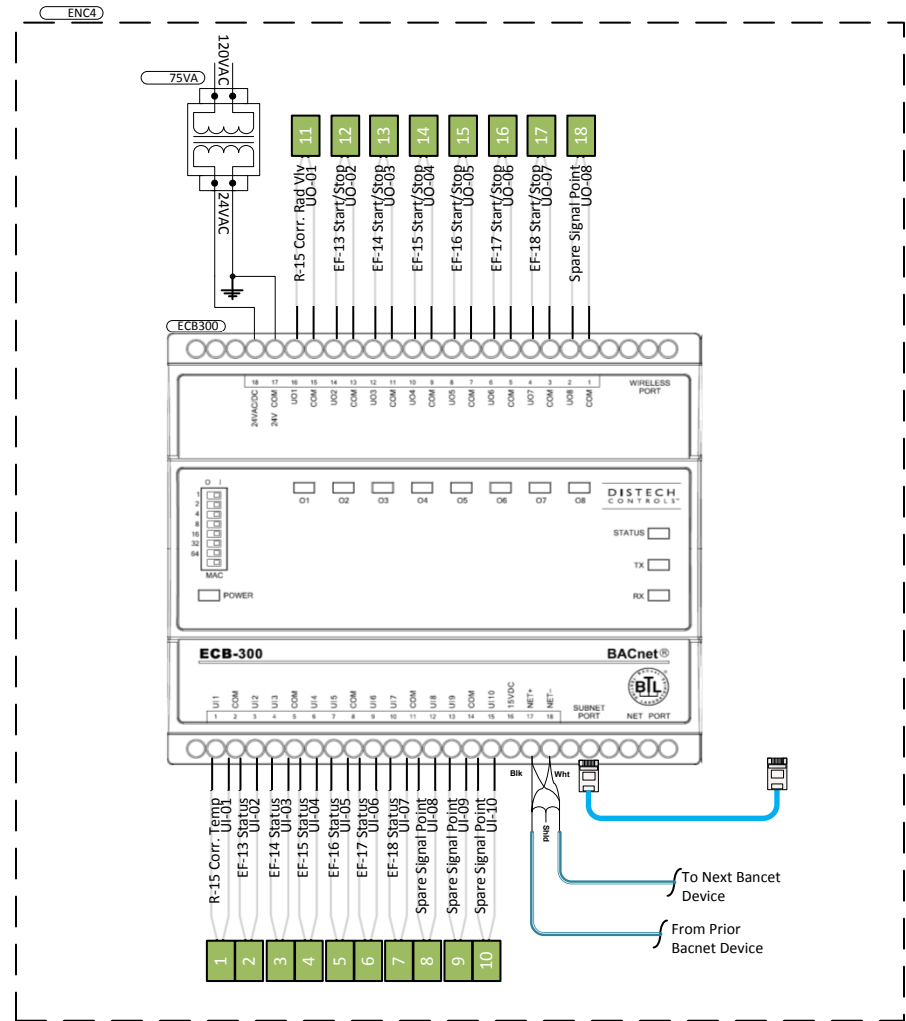
Connecticut Temperature Controls
 500 Corporate Row
 Cromwell, CT 06416

SIZE	DRAWN BY	Page Number	Revision
	PFH	Radiation R-7, 8 and Exhaust Fan's EF-19,20,21,22,23,24	REV
SCALE	None	Job Number 17-00037	1
		6/16/2017	SHEET 18 OF 25

Radiation R-15 and Exhaust Fans EF-13,14,15,16,17,18



Location Of Panel To Be Determined In Field



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
75VA	Transformer 24VAC 75VA	Veris	X075CHA	1
CS3	Current Sw Switch .5-50a Solid State	Solidyne	CS-30	6
ECB300	Bacnet programmable controller	Distech	CDIB-300X-00	1
ENC4	NEMA 1 12X12X3 Enclosure w /Panel	Kele	B-12-P	1
RB2	Distech DC Relay With Base	Distech	07REL-12DC-SPDT/RT-78724	1
RN1	Relay Nippled SPDT 10-30VAC/DC/120vac Coil	Veris	V100	6
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	1

Convective / Fin Tube Radiation

Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).
- Heating Coil Valve:** The controller shall measure the zone temperature and open the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:
- The zone temperature is below heating setpoint, and the plant is in heating mode.

Exhaust Fans

Run Conditions - Scheduled:

The fan shall run according to a user definable schedule. The fan shall have a user definable (adj.) minimum runtime.

Alarms shall be provided as follows:

Fan Failure: Commanded on, but the status is off.

Exhaust Fan	Rooms Served	Associated UV's
EF-13	Work Rm., Reading Rm., Media Center, Family Center, Teachers Lounge	UV - 13, 14, 15, 16, 19, 20
EF-14	Classroom 10, 11, Special Ed. Classroom + Corr. Lockers	UV - 27, 29, 30
EF-15	Classroom 14, 15 + Corr. Lockers	UV - 26 + 28
EF-16	Classroom 12, 13 + Corr. Lockers	UV - 23 + 25
EF-17	Classroom 16, 17 + Corr. Lockers	UV - 22 + 24
EF-18	Boys, Girls + Cust. Closet	NA

- Typical Wiring Rules**
1. Blue Wire = Analog Input
 2. Yellow Wire = Analog Output
 3. Green Wire = Digital Input
 4. Orange Wire = Digital Output
 5. Purple/White Stripe = LonWorks Com
 6. White/Purple Stripe = Bacnet Com
 7. Gray Wire = 24 Vac Power
- Typical Conductor Signal Wiring**
 Black Conductor = Com/Neg
 Red Conductor = 24Vac
 Jacket Color Conductor = Signal
 Green Conductor = Feedback



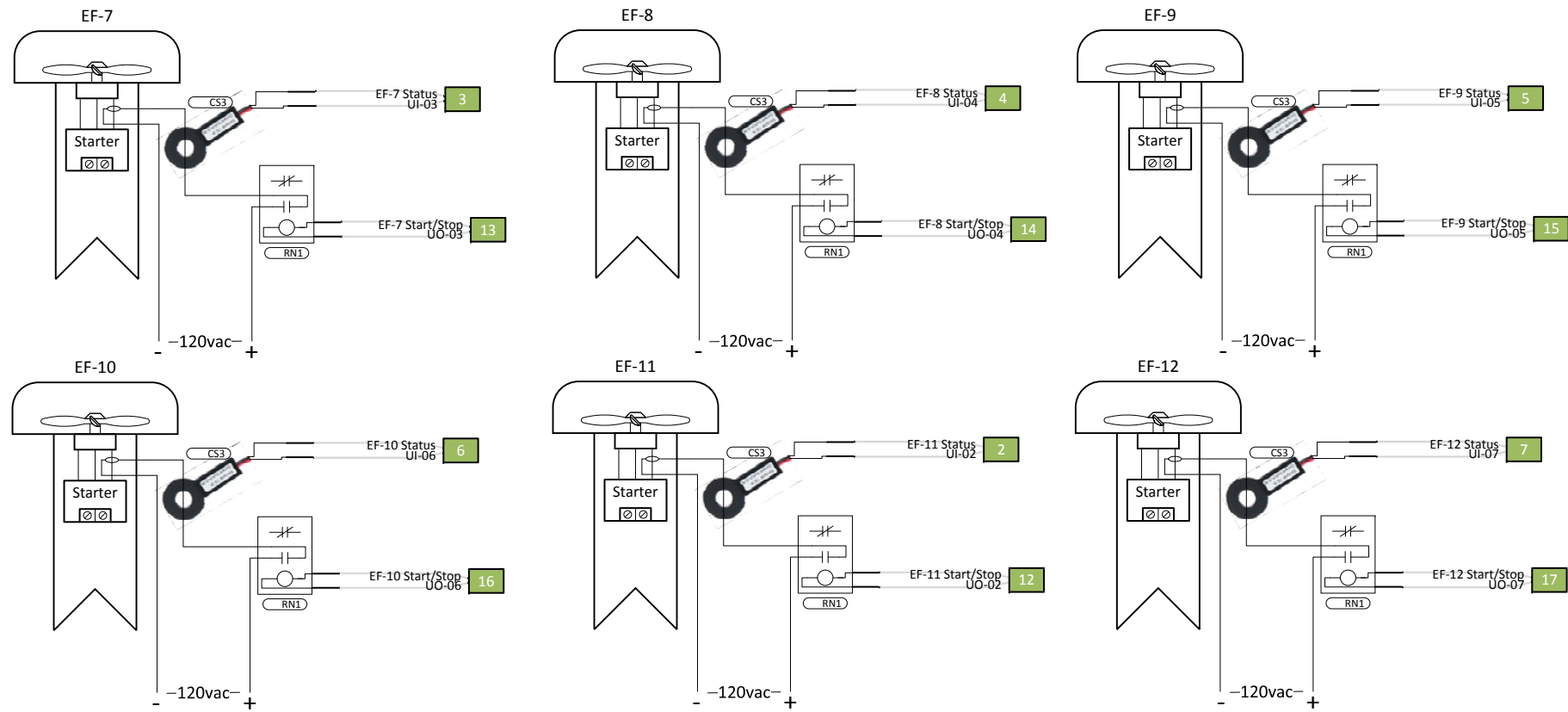
Oliver Ellsworth School
730 Kennedy Rd Windsor, Ct. 06095

Connecticut Temperature Controls
500 Corporate Row
Cromwell, CT 06416

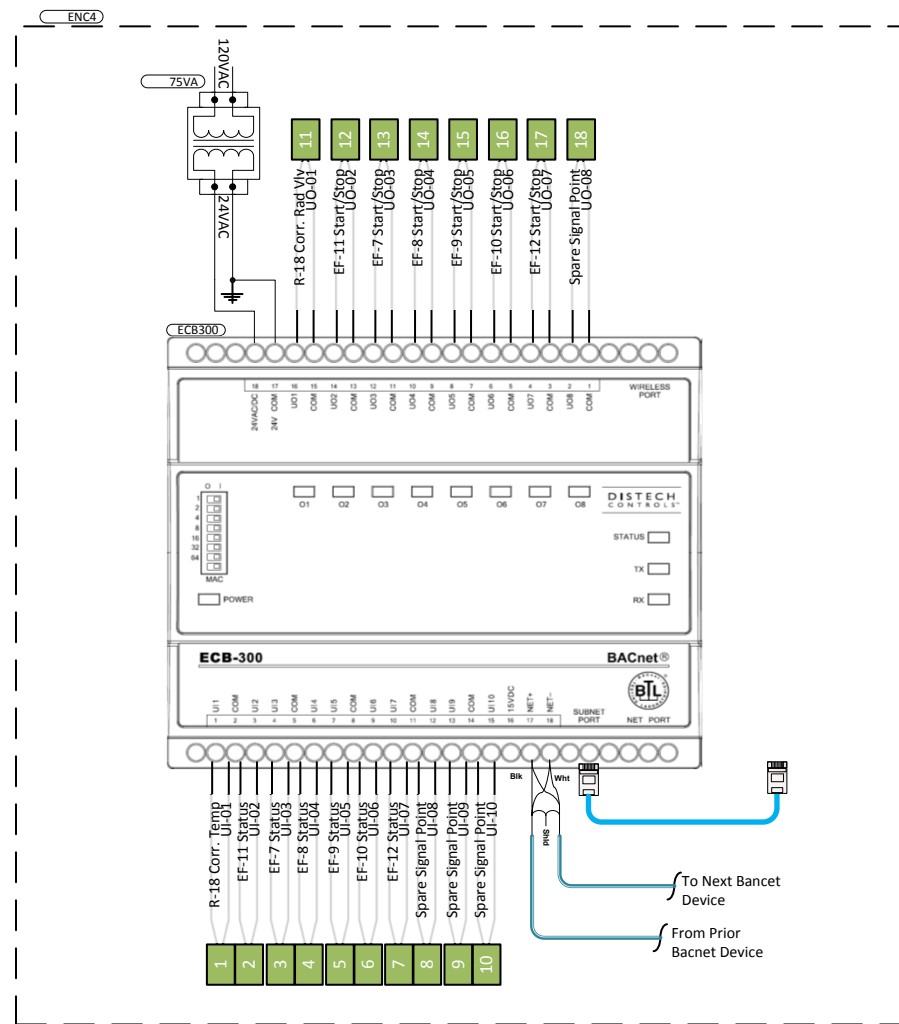
Phone (800) 890-2022
Fax (860) 860-316-5348

SIZE	DRAWN BY	Page Number	REV
	PFH	Information R-15 and Exhaust Fans EF-13,14,15,16,17,18	1
SCALE	None	Job Number 17-00037	
		6/16/2017	SHEET 19 OF 25

Radiation R-18 Exhaust Fans EF-7,8,9,10,11,12



Location Of Panel To Be Determined In Field



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
75VA	Transformer 24VAC 75VA	Veris	X075CHA	1
CS3	Current Sw itch .5-50a Solid State	Solidyne	CS-30	6
ECB300	Bacnet programmable controller	Distech	CDIB-300X-00	1
ENC4	NEMA 1 12X12X3 Enclosure w /Panel	Kele	B-12-P	1
RB2	Distech DC Relay With Base	Distech	07REL-12DC-SPDT/RT-78724	1
RN1	Relay Nippled SPDT 10-30VAC/DC/120vac Coil	Veris	V100	6
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	1

Convective / Fin Tube Radiation

Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
- 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
- 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).
- Heating Coil Valve:** The controller shall measure the zone temperature and open the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:
- The zone temperature is below heating setpoint, and the plant is in heating mode.

Exhaust Fans

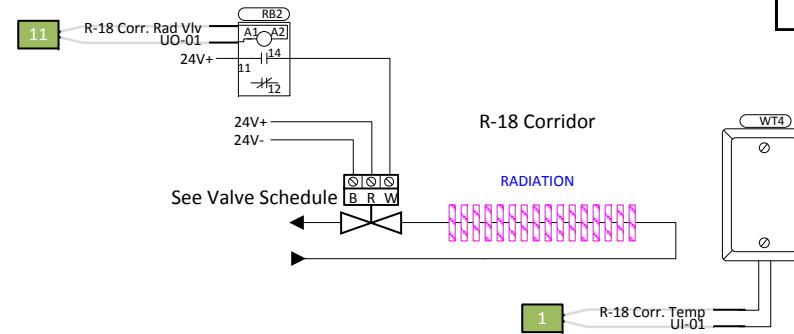
Run Conditions - Scheduled:

The fan shall run according to a user definable schedule. The fan shall have a user definable (adj.) minimum runtime.

Alarms shall be provided as follows:

Fan Failure: Commanded on, but the status is off.

Exhaust Fan	Rooms Served	Associated UV's
EF-7	Classroom 1, 2 + Corr. Lockers	UV - 36 + 38
EF-8	Classroom 5, 6 + Corr. Lockers	UV - 35 + 37
EF-9	Classroom 3, 4 + Corr. Lockers	UV - 32 + 34
EF-10	Classroom 7, 8 + Corr. Lockers	UV - 31 + 33
EF-11	Bathrooms next to Teachers Lounge	NA
EF-12	Boys, Girls + Cust. Closet	NA



Typical Wiring Rules

1. Blue Wire = Analog Input
2. Yellow Wire = Analog Output
3. Green Wire = Digital Input
4. Orange Wire = Digital Output
5. Purple/White Stripe = LonWorks Com
6. White/Purple Stripe = Bacnet Com
7. Gray Wire = 24 Vac Power

Typical Conductor Signal Wiring
 Black Conductor = Com/Neg
 Red Conductor = 24Vac
 Jacket Color Conductor = Signal
 Green Conductor = Feedback



Phone (800) 890-2022

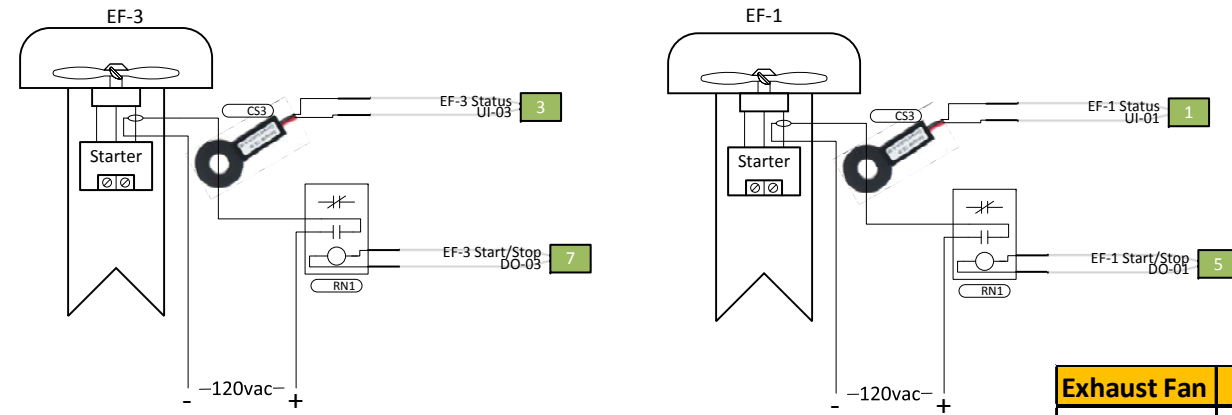
Fax (860) 860-316-5348

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SIZE	DRAWN BY	Page Name	REV
	PFH	Radiation R-18 Exhaust Fans EF-7,8,9,10,11,12	1
SCALE	None	Job Number	17-00037
		6/16/2017	SHEET 20 OF 25

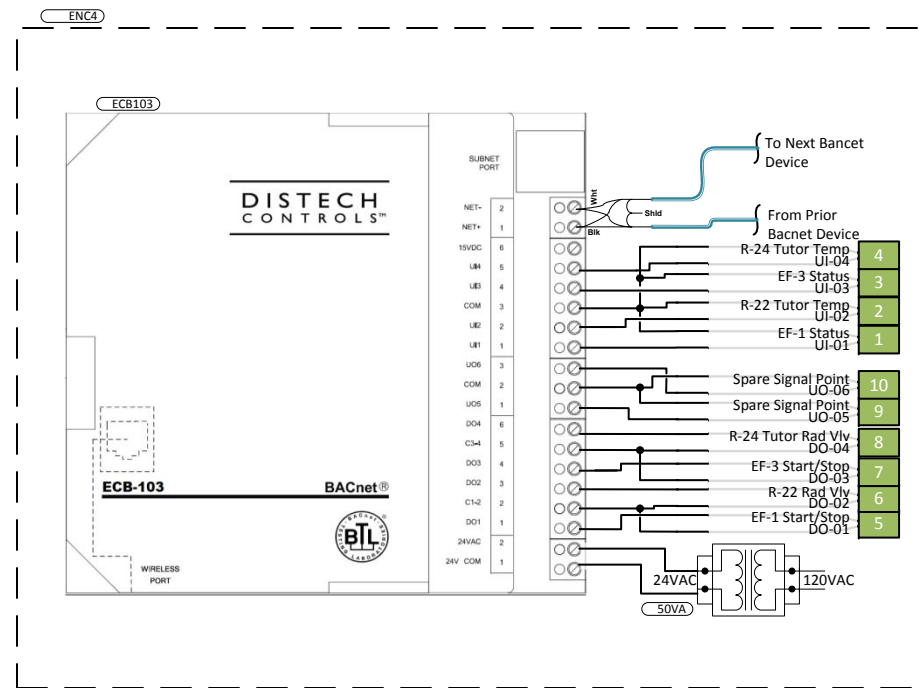
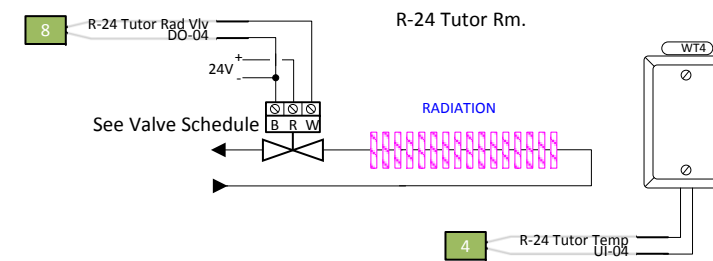
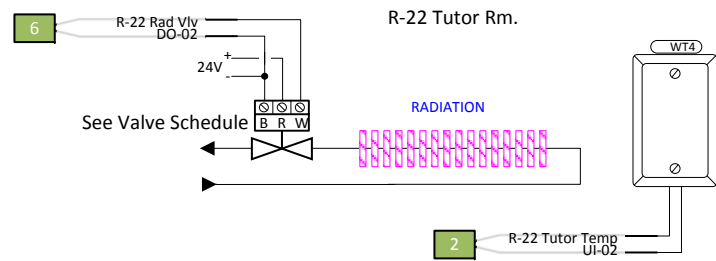
Radiation R-22, 24, EF-1, EF-3



Exhaust Fan	Rooms Served	Associated UV's
EF-1	Cust. Office	NA
3	Challenge Rm., Storage, Toilet	NA

Parts this Page				
Label	Description	Manufacturer	PN	Quantity
50VA	Transformer 24VAC 50VA	Veris	X050CHA	1
CS3	Current Sw itch .5-50a Solid State	Solidyne	CS-30	2
ECB103	Bacnet programmable controller	Distech	CDIB-103X-00	1
ENC4	NEMA 1 12X12X3 Enclosure w /Panel	Kele	B-12-P	1
RN1	Relay Nippled SPDT 10-30VAC/DC/120vac Coil	Veris	V100	2
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	2

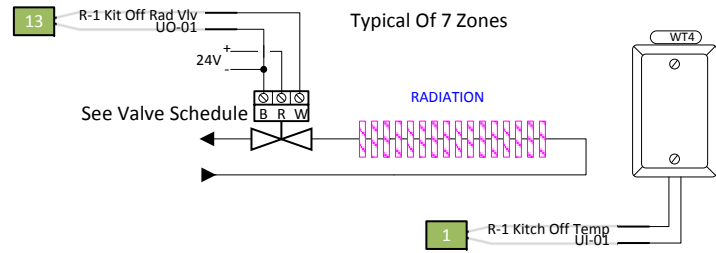
Exhaust Fans
Run Conditions - Scheduled:
 The fan shall run according to a user definable schedule.
 The fan shall have a user definable (adj.) minimum runtime.
Alarms shall be provided as follows:
Fan Failure: Commanded on, but the status is off.



Convective / Fin Tube Radiation
Run Conditions - Scheduled:
 The unit shall run according to a user definable time schedule in the following modes:
 • Occupied Mode: The unit shall maintain
 • 70°F (adj.) heating setpoint.
 • Unoccupied Mode (night setback): The unit shall maintain
 • 55°F (adj.) heating setpoint.
Alarms shall be provided as follows:
 • Low Zone Temp: If the zone temperature is less than 55 degF (adj.).
Heating Coil Valve: The controller shall measure the zone temperature and open the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:
 • The zone temperature is below heating setpoint, and the plant is in heating mode.

Typical Wiring Rules 1. Blue Wire = Analog Input 2. Yellow Wire = Analog Output 3. Green Wire = Digital Input 4. Orange Wire = Digital Output 5. Purple/White Stripe = LonWorks Com 6. White/Purple Stripe = Bacnet Com 7. Gray Wire = 24 Vac Power		Oliver Ellsworth School 730 Kennedy Rd Windsor, Ct. 06095			
		Connecticut Temperature Controls 500 Corporate Row Cromwell, CT 06416			
Typical Conductor Signal Wiring Black Conductor = Com/Neg Red Conductor = 24Vac Jacket Color Conductor = Signal Green Conductor = Feedback	Phone (800) 890-2022 Fax (860) 860-316-5348	SIZE SCALE None	DRAWN BY PFH	Page Name Radiation R-22, 24, EF-1, EF-3 Job Number 17-00037	REV 1
		6/16/2017	SHEET	21 OF 25	

Radiation R-1,2,3,4,5,6,25 and Unit Heaters



Radiation	
R#	Location
R-1	Kitchen Office
R-2	Kitchen Locker Rm
R-3	Tutoring Rm
R-4	Kitchen Toilet
R-5	Trash
R-6	Stage
R-25	Inflam

Convective / Fin Tube Radiation Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).

Heating Coil Valve: The controller shall measure the zone temperature and open the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:

- The zone temperature is below heating setpoint, and the plant is in heating mode.

Parts this Page				
Label	Description	Manufacturer	PN	Quantity
75VA	Transformer 24VAC 75VA	Veris	X075CHA	1
CS3	Current Switch .5-50a Solid State	Solidyne	CS-30	2
ECB403	Bacnet programmable controller	Distech	CDIB-403X-00	1
ENC4	NEMA 1 12X12X3 Enclosure w/Panel	Kele	B-12-P	1
RB2	Distech DC Relay With Base	Distech	07REL-12DC-SPDT/RT-78724	2
RN1	Relay Nippled SPDT 10-30VAC/DC/120vac Coil	Veris	V100	2
WT4	Stainless Steel Plate Sensor	ACI	A/CP-SP	9

UNIT HEATERS

Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

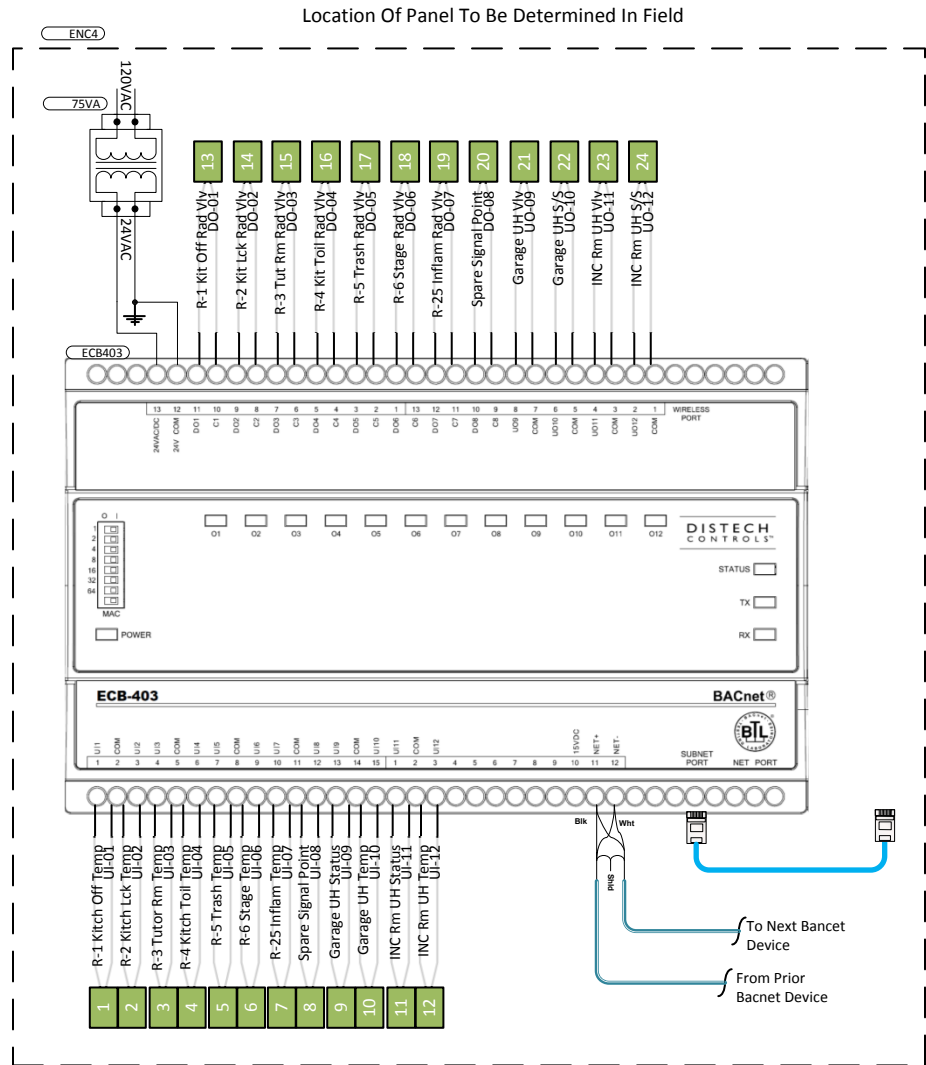
- Occupied Mode: The unit shall maintain 70°F (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain 55°F (adj.) heating setpoint.

Alarms shall be provided as follows:

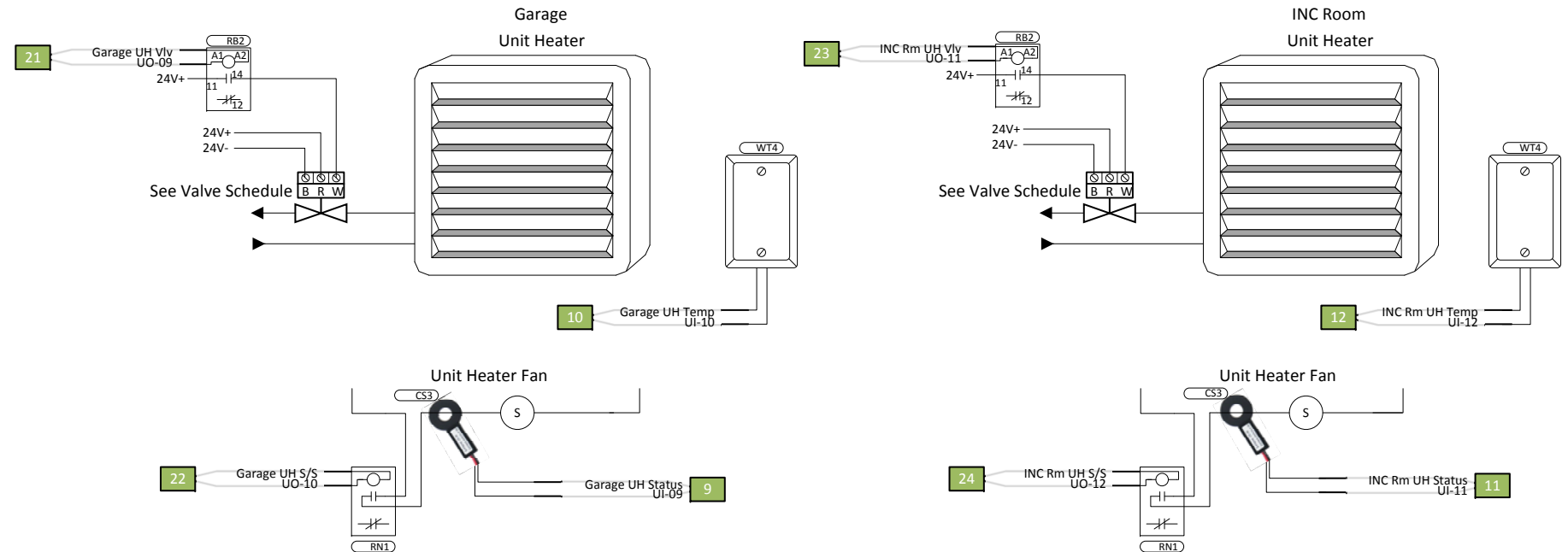
- Low Zone Temp: If the zone temperature is less than 55 degF (adj.).

Heating Coil Valve: The controller shall measure the zone temperature and open the coil valve to maintain its heating setpoint. The heating shall be enabled whenever:

- The zone temperature is below heating setpoint, and the plant is in heating mode.



Unit Heaters	
UH#	Location
UH-1	Garage
UH-1	INC Rm



Typical Wiring Rules

1. Blue Wire = Analog Input
2. Yellow Wire = Analog Output
3. Green Wire = Digital Input
4. Orange Wire = Digital Output
5. Purple/White Stripe = LonWorks Com
6. White/Purple Stripe = Bacnet Com
7. Gray Wire = 24 Vac Power

Typical Conductor Signal Wiring
 Black Conductor = Com/Neg
 Red Conductor = 24Vac
 Jacket Color Conductor = Signal
 Green Conductor = Feedback



Oliver Ellsworth School
 730 Kennedy Rd Windsor, Ct. 06095

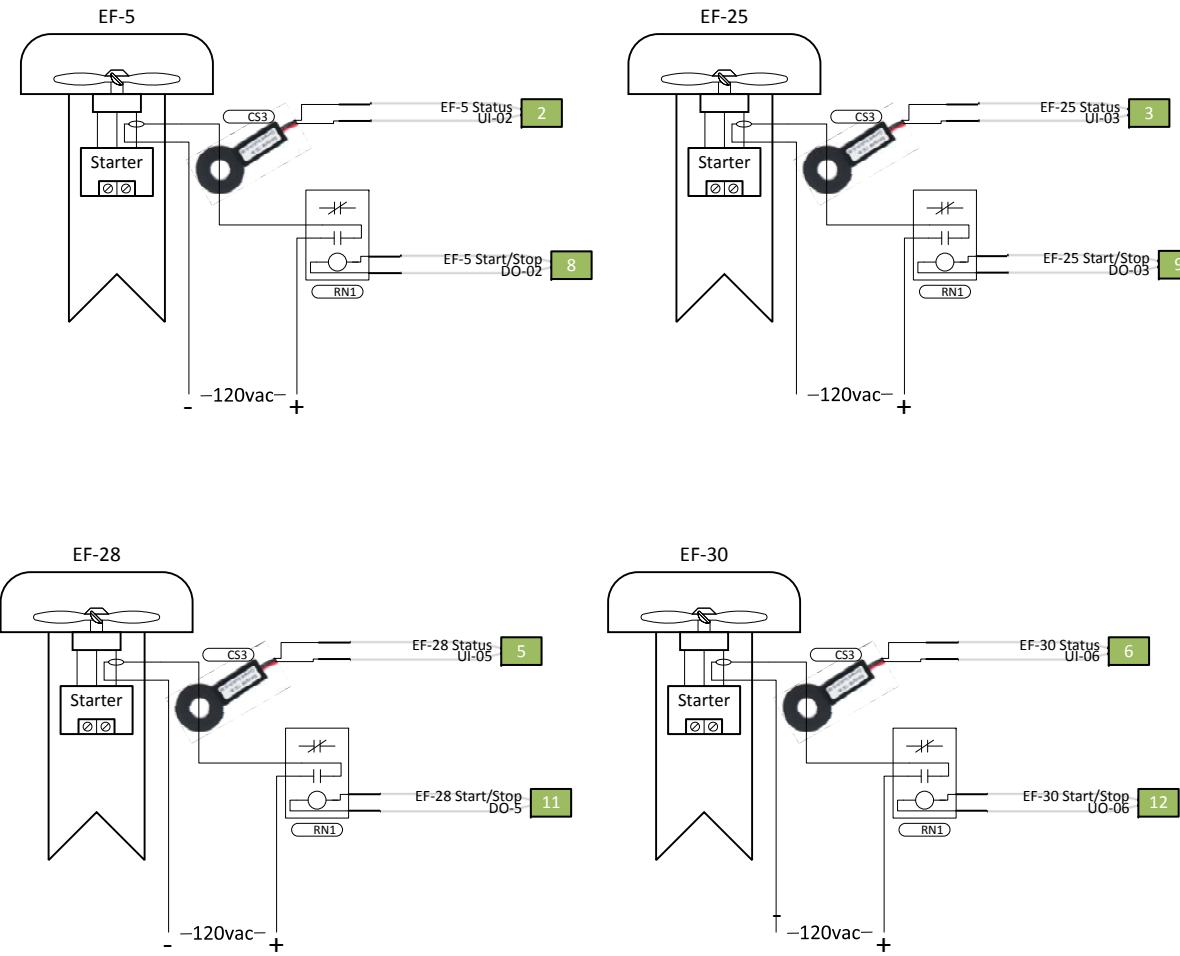
Connecticut Temperature Controls
 500 Corporate Row
 Cromwell, CT 06416

Phone (800) 890-2022

Fax (860) 860-316-5348

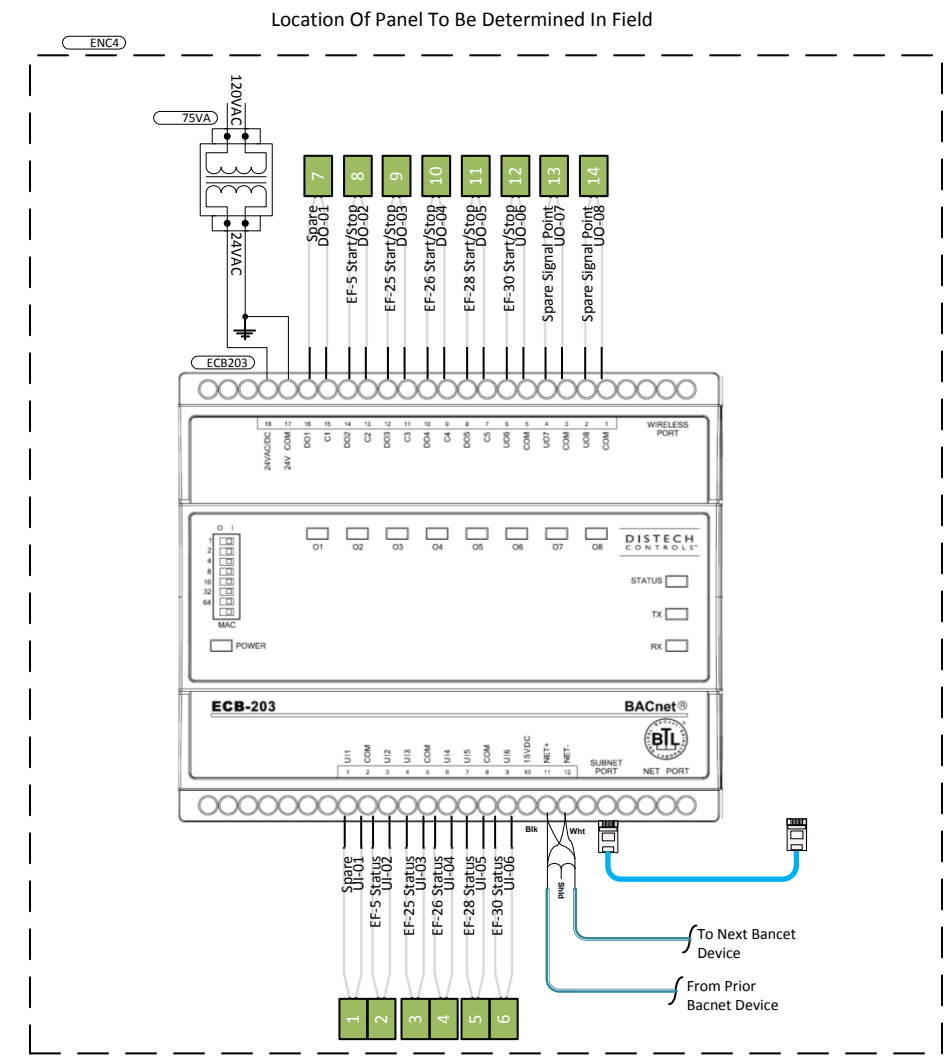
SIZE	DRAWN BY	Page Name	REV
	PFH	Radiation R-1,2,3,4,5,6,25 and Unit Heaters	1
SCALE	None	Job Number 17-00037	
		6/16/2017	SHEET 22 OF 25

Exhaust Fans EF-5, 25, 26, 28, 30



Parts this Page				
Label	Description	Manufacturer	PN	Quantity
75VA	Transformer 24VAC 75VA	Veris	X075CHA	1
CS3	Current Switch .5-50a Solid State	Solidyne	CS-30	5
ECB203	Bacnet programmable controller	Distech	CDIB-203X-00	1
ENC4	NEMA 1 12X12X3 Enclosure w /Panel	Kele	B-12-P	1
RN1	Relay Nippled SPDT 10-30VAC/DC/120vac Coil	Veris	V100	5

Exhaust Fans
Run Conditions - Scheduled:
 The fan shall run according to a user definable schedule.
 The fan shall have a user definable (adj.) minimum runtime.
Alarms shall be provided as follows:
Fan Failure: Commanded on, but the status is off.



Exhaust Fan	Rooms Served	Associated UV's
EF-5	Cust., Boys, Girls	NA
EF-25	Gym Locker Room Toilet, Shower, Towel Rm., Bathroom, Storage Rm.	NA
EF-26	Kitchen Food Storage Room	NA
EF-28	Cust. Rm., Can Wash	NA

Typical Wiring Rules
 1. Blue Wire = Analog Input
 2. Yellow Wire = Analog Output
 3. Green Wire = Digital Input
 4. Orange Wire = Digital Output
 5. Purple/White Stripe = LonWorks Com
 6. White/Purple Stripe = Bacnet Com
 7. Gray Wire = 24 Vac Power

Typical Conductor Signal Wiring
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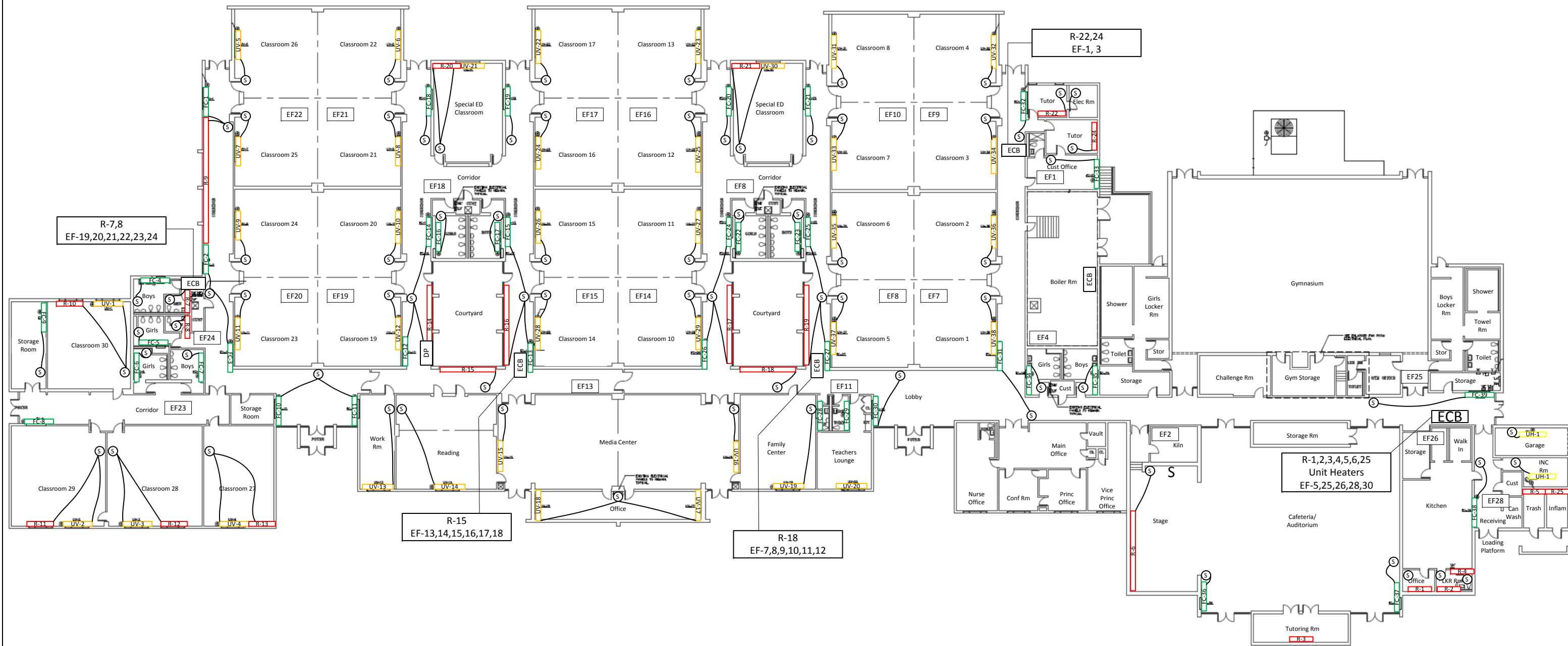
Phone (800) 890-2022	SIZE	DRAWN BY	Page Name	REV
Fax (860) 860-316-5348		PFH	Exhaust Fans EF-5, 25, 26, 28, 30	1
	SCALE	None	Job Number	17-00037
			6/16/2017	SHEET
				23 OF 25


Valve Schedule

Application	Pos	Re-Order #	Qty	Tag	Voltage	Control Signal	Valve Pattern	Flow	ΔP	Req. Cv	Body Size	Valve Cv	Actual ΔP	Close Off	Valve Part #	Actuator Part #	Set Up	P-Code
Water	1	Z2050Q-J+CQKB24-SR-LL	1	FC-1	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	2	Z2050Q-J+CQKB24-SR-LL	1	FC-2	24 VAC	2-10 VDC	2W	2.5	3	1.44	1/2"	2.7	0.86	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	3	Z2050Q-J+CQKB24-SR-LL	1	FC-3	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	4	Z2050Q-J+CQKB24-SR-LL	1	FC-4	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	5	Z2050Q-J+CQKB24-SR-LL	1	FC-5	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	6	Z2050Q-J+CQKB24-SR-LL	1	FC-6	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	7	Z2050Q-J+CQKB24-SR-LL	1	FC-7	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	8	Z2050Q-J+CQKB24-SR-LL	1	FC-8	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	9	Z2050Q-J+CQKB24-SR-LL	1	FC-9	24 VAC	2-10 VDC	2W	2.5	3	1.44	1/2"	2.7	0.86	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	10	Z2050Q-J+CQKB24-SR-LL	1	FC-10	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	11	Z2050Q-J+CQKB24-SR-LL	1	FC-11	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	12	Z2050Q-J+CQKB24-SR-LL	1	FC-12	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	13	Z2050Q-J+CQKB24-SR-LL	1	FC-13	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	14	Z2050Q-J+CQKB24-SR-LL	1	FC-14	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	15	Z2050Q-J+CQKB24-SR-LL	1	FC-15	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	16	Z2050Q-J+CQKB24-SR-LL	1	FC-16	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	17	Z2050Q-J+CQKB24-SR-LL	1	FC-17	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	18	Z2050Q-J+CQKB24-SR-LL	1	FC-18	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	19	Z2050Q-J+CQKB24-SR-LL	1	FC-19	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	20	Z2050Q-J+CQKB24-SR-LL	1	FC-20	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	21	Z2050Q-J+CQKB24-SR-LL	1	FC-21	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	22	Z2050Q-J+CQKB24-SR-LL	1	FC-22	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	23	Z2050Q-J+CQKB24-SR-LL	1	FC-23	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	24	Z2050Q-J+CQKB24-SR-LL	1	FC-24	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	25	Z2050Q-J+CQKB24-SR-LL	1	FC-25	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	26	Z2050Q-J+CQKB24-SR-LL	1	FC-26	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	27	Z2050Q-J+CQKB24-SR-LL	1	FC-27	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	28	Z2050Q-J+CQKB24-SR-LL	1	FC-28	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	29	Z2050Q-J+CQKB24-SR-LL	1	FC-29	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	30	Z2050Q-J+CQKB24-SR-LL	1	FC-30	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	31	Z2050Q-J+CQKB24-SR-LL	1	FC-31	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	32	Z2050Q-J+CQKB24-SR-LL	1	FC-32	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	33	Z2050Q-J+CQKB24-SR-LL	1	FC-33	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	34	Z2050Q-J+CQKB24-SR-LL	1	FC-35	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	35	Z2050Q-J+CQKB24-SR-LL	1	FC-34	24 VAC	2-10 VDC	2W	1	3	0.58	1/2"	1	1.00	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	36	Z2050Q-J+CQKB24-SR-LL	1	FC-36	24 VAC	2-10 VDC	2W	2.5	3	1.44	1/2"	2.7	0.86	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	37	Z2050Q-J+CQKB24-SR-LL	1	FC-37	24 VAC	2-10 VDC	2W	2.5	3	1.44	1/2"	2	1.56	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	38	Z2050Q-J+CQKB24-SR-LL	1	FC-38	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	39	Z2050Q-J+CQKB24-SR-LL	1	FC-39	24 VAC	2-10 VDC	2W	4	3	2.31	1/2"	2.7	2.19	85 psi	Z2050Q-J	CQKB24-SR-LL		
Water	40	Z2075Q-K+CQKB24-SR-LL	36	UV-1-16 ; UV-19-38	24 VAC	2-10 VDC	2W	10.5	3	6.06	3/4"	9.8	1.15	75 psi	Z2075Q-K	CQKB24-SR-LL		
Water	41	Z2050Q-J+CQKB24-SR-LL	1	UV-17	24 VAC	2-10 VDC	2W	6	3	3.46	1/2"	5.9	1.03	75 psi	Z2050Q-J	CQKB24-SR-LL		
Water	42	Z2050Q-J+CQKB24-SR-LL	1	UV-18	24 VAC	2-10 VDC	2W	6	3	3.46	1/2"	5.9	1.03	75 psi	Z2050Q-J	CQKB24-SR-LL		
Water	43	Z2050Q-J+CQB24-3	25	Rad	24 VAC/VDC	On/Off	2W	1	3	0.58	1/2"	5.9	0.03	75 psi	Z2050Q-J	CQB24-3		
Water	44	Z2050Q-J+CQB24-3	2	UH	24 VAC/VDC	On/Off	2W	1	3	0.58	1/2"	5.9	0.03	75 psi	Z2050Q-J	CQB24-3		
Water	45	F7150HDU + 2XGMX24-MFT x1	2	Sum/Win	25 VAC/VDC	On/Off	3W				6"	1579		50 psi	F7150HDU	2XGMX24-MFT x1		

<p>Typical Wiring Rules</p> <ol style="list-style-type: none"> Blue Wire = Analog Input Yellow Wire = Analog Output Green Wire = Digital Input Orange Wire = Digital Output Purple/White Stripe = LonWorks Com White/Purple Stripe = Bacnet Com Gray Wire = 24 Vac Power 		<p>Oliver Ellsworth School 730 Kennedy Rd Windsor, Ct. 06095</p>			
		<p>Connecticut Temperature Controls 500 Corporate Row Cromwell, CT 06416</p>			
<p>Typical Conductor Signal Wiring</p> <p>Black Conductor = Com/Neg</p> <p>Red Conductor = 24Vac</p> <p>Jacket Color Conductor = Signal</p> <p>Green Conductor = Feedback</p>	<p>Phone (800) 890-2022</p>	<p>SIZE</p>	<p>DRAWN BY</p> <p>PFH</p>	<p>Page Name</p> <p>Valve Schedule</p>	<p>REV</p> <p>1</p>
	<p>Fax (860) 860-316-5348</p>	<p>SCALE</p> <p>None</p>	<p>6/16/2017</p>	<p>SHEET</p> <p>24 OF 25</p>	

Floor Plan



<p>Typical Wiring Rules</p> <ol style="list-style-type: none"> Blue Wire = Analog Input Yellow Wire = Analog Output Green Wire = Digital Input Orange Wire = Digital Output Purple/White Stripe = LonWorks Com White/Purple Stripe = Bacnet Com Gray Wire = 24 Vac Power 				<p>Oliver Ellsworth School 730 Kennedy Rd Windsor, Ct. 06095</p>		
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		<p>None</p>	<p>6/16/2017</p>	<p>SHEET</p>	<p>25 OF 25</p>	