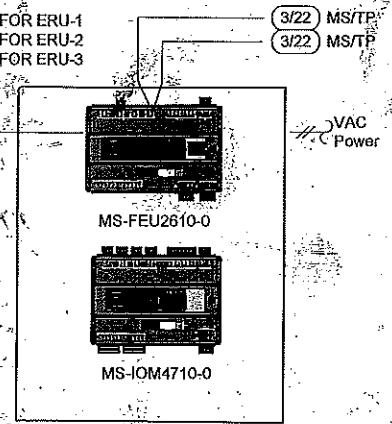


- OA-DPR (4/18)
- OA-T (2/18)
- HW-T (2/18)
- FBY-DPR (4/18)
- HTG-VLV (4/18)
- LT-ALM (2/18)
- DA-T (2/18)
- DA-SMK (2/18)
- RA-SMK (2/18)
- DA-T (2/18)
- RA-T (2/18)
- EA-T (2/18)
- SF-C (2/18)
- SF-S (2/18)
- SF-O (2/18)
- SF-ALM (2/18)
- SAFE-C (2/18)
- RF-C (2/18)
- RF-S (2/18)
- RF-O (2/18)
- RF-ALM (2/18)
- HW-C (2/18)
- HW-S (2/18)
- ZN-T (2/18)
- ZN-CO (4/18)
- ZN-NO (4/18)
- ZN-CO (4/18)
- ZN-NO (4/18)



**BILL OF MATERIALS**

Designation	Qty	Part Number	Description
<b>Field Devices:</b>			
DA-T, RA-T	2	TE-6311M-1	8" 1000 OHM NI DUCT TEMP
FBY-DPR	1	M9210-GGA-3	DAMPER ACTUATOR 10 NM SR
HW-C	1	RIBU1S	SPST, 10A, HC=10-30 VAC/DC, W/LED, W/OVRD
HW-S	1	CSD-CA1G0-1	SPLT/ADJ LED 1.25A W/O RY
HW-T	1	TE-6316M-1	NICKEL DUCT AVERAGE, 17 FEET
OA-DPR	1	M9210-BGC-3	DAMPER ACTUATOR 10 NM SR
OA-T, EA-T	2	TE-6311M-1	8" 1000 OHM NI DUCT TEMP
SAFE-C	1	RIBU1C	SPDT, 10A, HC=10-30 VAC/DC, W/LED
SF-ALM, RF-ALM	2	N.O. CONTACT	VSD ALARM CONTACT
SF-C, RF-C	2	RIBU1C	SPDT, 10A, HC=10-30 VAC/DC, W/LED
SF-O, RF-O	2	0-10VDC	0-10VDC CONTROL SIGNAL
SF-S, RF-S	2	CSD-CA1G0-1	SPLT/ADJ LED 1.25A W/O RY
ZN-CO	2	CO-ST-010-NB	CARBON MONOXIDE SENSOR, 24VAC, 0-10VDC
ZN-NO	2	NO-ST-010-NB	NITROGEN DIOXIDE SENSOR, 24VAC, 0-10VDC
ZN-T	1	TE-6314P-1	SENSOR, T-NI, 0.1%, RM
<b>Panel Devices:</b>			
ENC-x	1	PAKBJD002AH0	PANEL FEC/IOM 20X24
<b>Other Devices:</b>			
D-1,2,3	3	D-1,2,3	SEE DAMPER SCHEDULE
HTG-VLV	1		SEE VALVE SCHEDULE

**Energy Recovery Unit Control:**  
The unit shall run according to a user defined time schedule in the following modes:  
Occupied Mode: The unit shall maintain 60F (adj) heating setpoint.  
Unoccupied Mode: The unit shall maintain 50F (adj) heating setpoint.

**Zone Optimal Start:**  
The unit shall use an optimal start algorithm for morning start-up. The algorithm shall minimize the warm-up period while still achieving comfort condition by the start of the occupied period.

**Freeze Protection:**  
The unit shall shut down and generate an alarm upon receiving a freeze status.

**Supply Air Smoke Detector:**  
The unit shall shut down and generate an alarm upon receiving a supply air smoke detector status.

**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 user defined minimum runtime (adj).  
Alarm shutdown shall be provided as follows:  
Supply Fan Failure: Commanded on, but the status is off  
Supply Fan In Hand: Commanded off, but status is on.  
Supply Fan Runtime Exceeded: Status runtime exceeds user defined limit (adj).

**Zone Toxic and Combustible Gas Control:**  
The controller shall measure the zone Carbon Monoxide and Nitrogen Dioxide levels and initiate Energy Recovery Unit Exhaust and Supply fans to run until gas levels are within standard ranges.

**Return Fan:**  
The return fan shall run whenever the supply fan runs.  
Alarm shutdown shall be provided as follows:  
Return Fan Failure: Commanded on, but the status is off  
Return Fan In Hand: Commanded off, but status is on.  
Return Fan Runtime Exceeded: Status runtime exceeds user defined limit.

**Heat Recovery Wheel:**  
The controller shall run the heat recovery wheel for energy recovery as follows:  
Heating Recovery Mode:  
The controller shall measure the zone temperature and run the heat recovery wheel to maintain setpoint 2F (adj) greater than the zone heating setpoint. The heat wheel shall run for heat recovery whenever:  
Return air temperature is 5F (adj) or more above the outside air temperature  
And the zone temperature is below setpoint  
And the supply fan is on.

**Frost Protection:**  
The heat wheel shall run for 10 seconds (adj) every 60 seconds (adj) whenever:  
Outside air temperature is below 15F (adj)  
Or the exhaust air temperature drops below 20F (adj).  
Alarm shutdown shall be provided as follows:  
Heat Wheel Rotation Failure: Commanded on, but the status is off  
Heat Wheel In Hand: Commanded off, but status is on.  
Heat Wheel Runtime Exceeded: Status runtime exceeds user defined limit (adj).

**Face & Bypass Damper Control:**  
The unit shall maintain zone heating setpoint by modulating the face & bypass dampers through one of the following:  
When the zone temperature is less than the heating setpoint, the face & bypass damper shall modulate open to the face position to maintain setpoint by modulating the air passing over the heating coil.  
When the zone temperature is greater than the heating setpoint, the face & bypass damper shall modulate close to the face position.

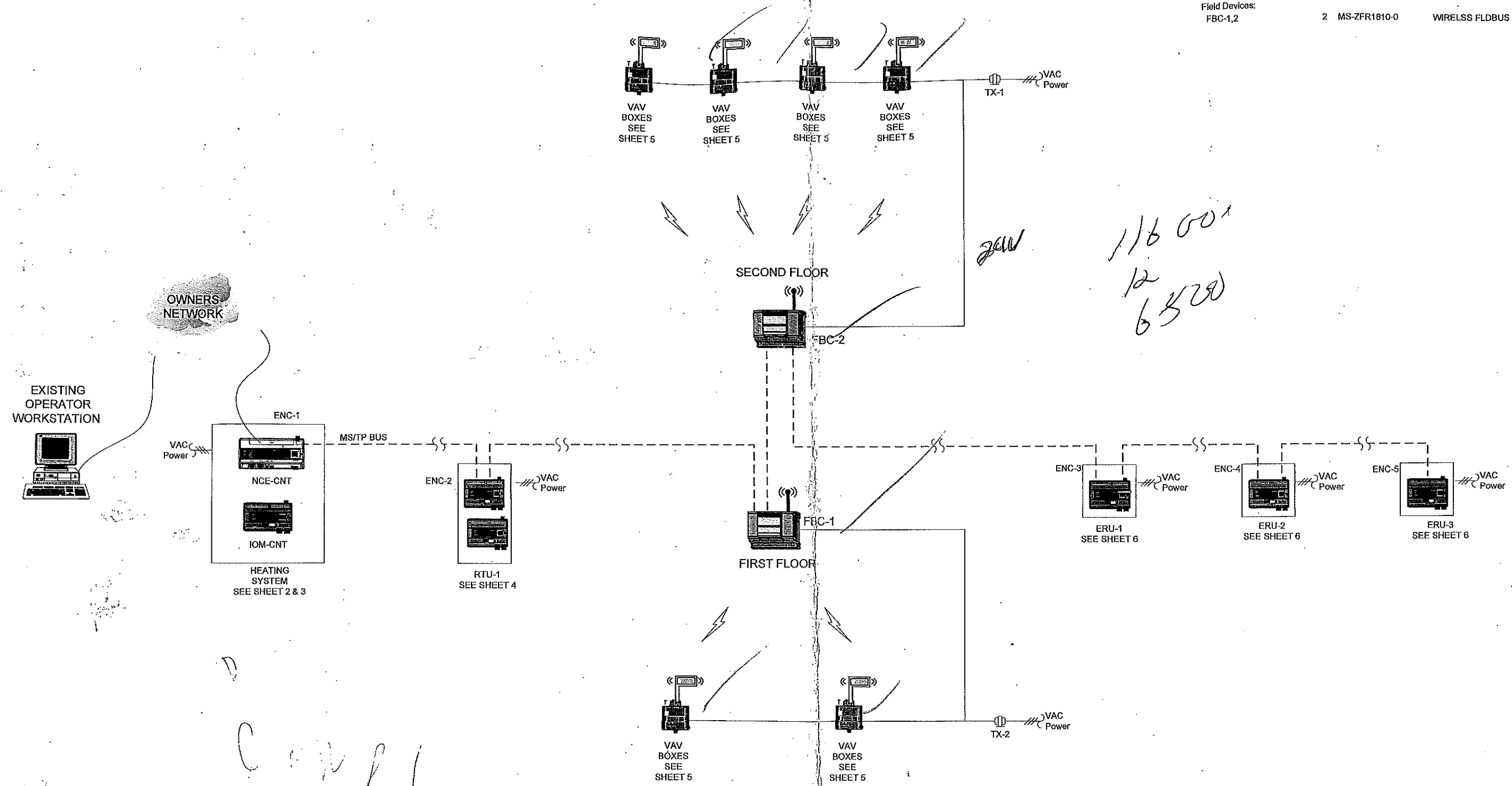
**Heating Coil Valve:**  
The controller shall measure the zone temperature and modulate the heating coil valve to maintain its heating setpoint  
The heating valve shall be enabled whenever:  
Outside air temperature is less than 55F (adj)  
And the zone temperature is below heating setpoint  
And the supply fan status is on.  
The heating coil valve shall open whenever the freeze status is on.

Drawing Title									
<b>ENERGY RECOVERY UNIT (TYPICAL OF THREE)</b>									
Project Title		DATE		REVISION-LOCATION		ECN		DATE	
DTA RTU REPLACEMENT DULUTH, MN		07/28/09							
Sales Engineer		Project Manager		Application Engineer		DRAWN		APPROVED	
BCS		BAA		BAA		BY BA		DATE	
						07/28/09		DATE	
Branch Information		CONTRACT NUMBER		DRAWING NUMBER					
Johnson Controls		9106-0082		6					
Johnson Controls, Inc. 4627 Airpark Blvd Duluth, MN 55811 Phone (218) 727-8996 Fax (218) 727-7945									



**BILL OF MATERIALS**

Designation	Qty	Part Number	Description
Field Devices: FBC-1,2	2	MS-ZFR1810-0	WIRELESS FLD BUS COORDINATR



*Handwritten notes:*  
 116 00'  
 12  
 6520

OWNERS NETWORK

EXISTING OPERATOR WORKSTATION

HEATING SYSTEM  
SEE SHEET 2 & 3

RTU-1  
SEE SHEET 4

FIRST FLOOR

SECOND FLOOR

VAV BOXES  
SEE SHEET 5

VAV BOXES  
SEE SHEET 5

VAV BOXES  
SEE SHEET 5

VAV BOXES  
SEE SHEET 5

VAV BOXES  
SEE SHEET 5

VAV BOXES  
SEE SHEET 5

ERU-1  
SEE SHEET 6

ERU-2  
SEE SHEET 6

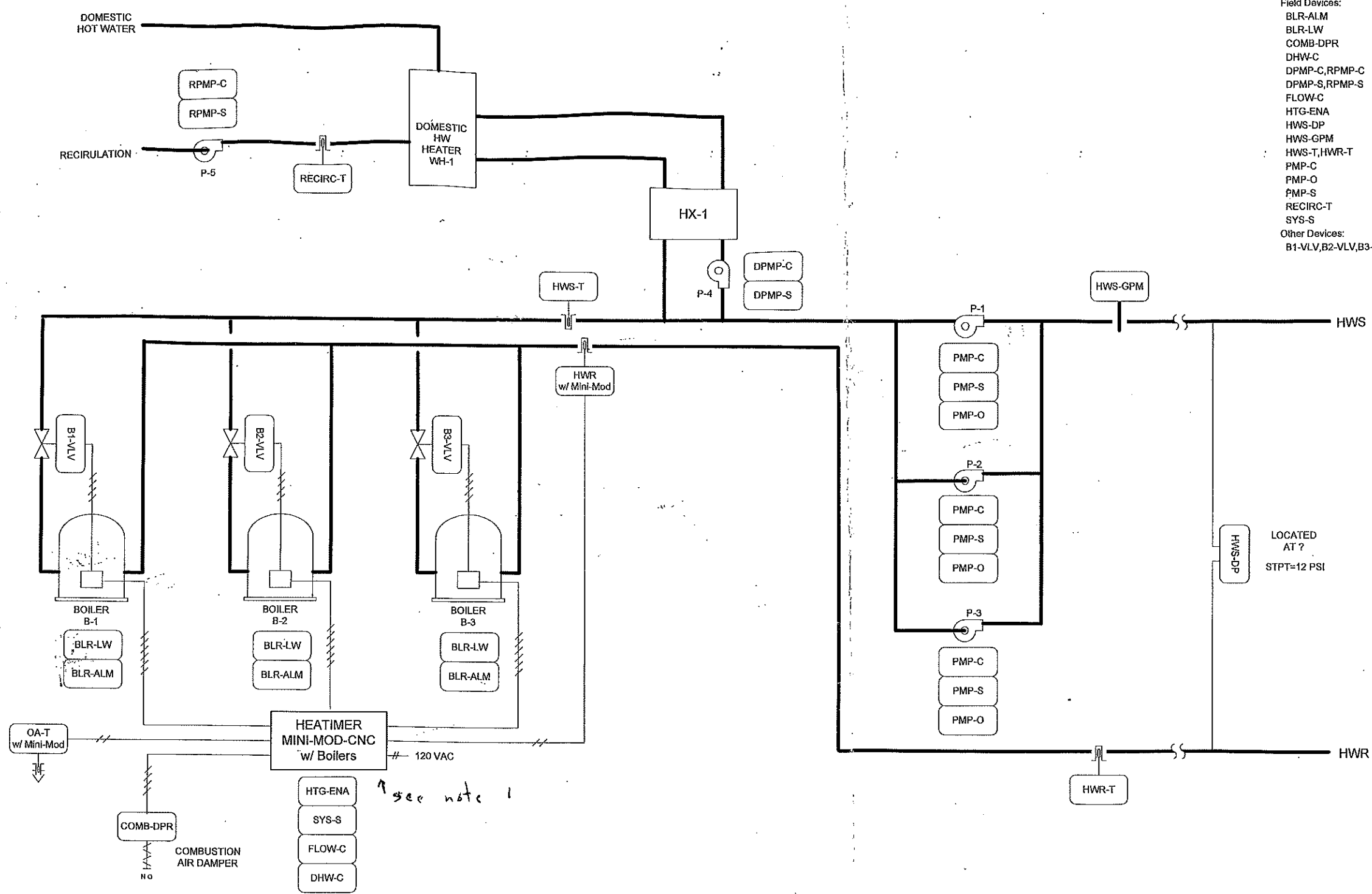
ERU-3  
SEE SHEET 6

*Handwritten notes:*  
 B  
 C  
 0  
 1

DRAWING TITLE		NO.		REVISION-LOCATION		ECN	DATE	BY
SYSTEM CONFIGURATION								
DATE	BY	DATE	BY	DATE	BY	APPROVED		
BCS	BAA	BAA						
PROJECT TITLE		Branch Information		CONTRACT NUMBER		DRAWING NUMBER		
DTA BOILER REPLACEMENT DULUTH, MN		 JOHNSON CONTROLS 4627 AIRPARK BLVD DULUTH, MN 55811 1-218-727-8996		9106-5062		1		

**BILL OF MATERIALS**

Designation	Qty	Part Number	Description
<b>Field Devices:</b>			
BLR-ALM	3	N.O. CONTACT	BOILER ALARM CONTACT
BLR-LW	3	N.O. CONTACT	BOILER LOW WATER CONTACT
COMB-DPR	1	M9220-BGC-3	20NM,SR,ACT,24V ON/OFF,2 AUX SW
DHW-C	1	RIBU1C	SPDT,10A,HC=10-30 VAC/DC,W/LED
DPMP-C,RPMP-C	2	RIBU1S	SPST,10A,HC=10-30 VAC/DC,W/LED,W/OVRD
DPMP-S,RPMP-S	2	CSD-CA1G0-1	SPLT/ADJ LED 1.25A W/O RY
FLOW-C	1	RIBU1C	SPDT,10A,HC=10-30 VAC/DC,W/LED
HTG-ENA	1	RIBU1S	SPST,10A,HC=10-30 VAC/DC,W/LED,W/OVRD
HWS-DP	1	DPT2302-025D-V	PRESS SENS,DP,0-25 PSI,VDC,0.25%,3-VLV
HWS-GPM	1	F-1110	FLOW METER,SINGLE TURBINE,AO
HWS-T,HWR-T	2	TE-631AM-1	6" 1000 OHM NI WELL TEMP W/METAL ENC
PMP-C	3	RIBU1C	SPDT,10A,HC=10-30 VAC/DC,W/LED
PMP-O	3	0-10VDC	0-10VDC CONTROL SIGNAL
PMP-S	3	N.O. CONTACT	VFD STATUS CONTACT,N.O.
RECIRC-T	1	TE-631AM-1	6" 1000 OHM NI WELL TEMP W/METAL ENC
SYS-S	1	N.O. CONTACT	SYSTEM STATUS CONTACT,N.O.
<b>Other Devices:</b>			
B1-VLV,B2-VLV,B3-VLV	3		SEE VALVE SCHEDULE



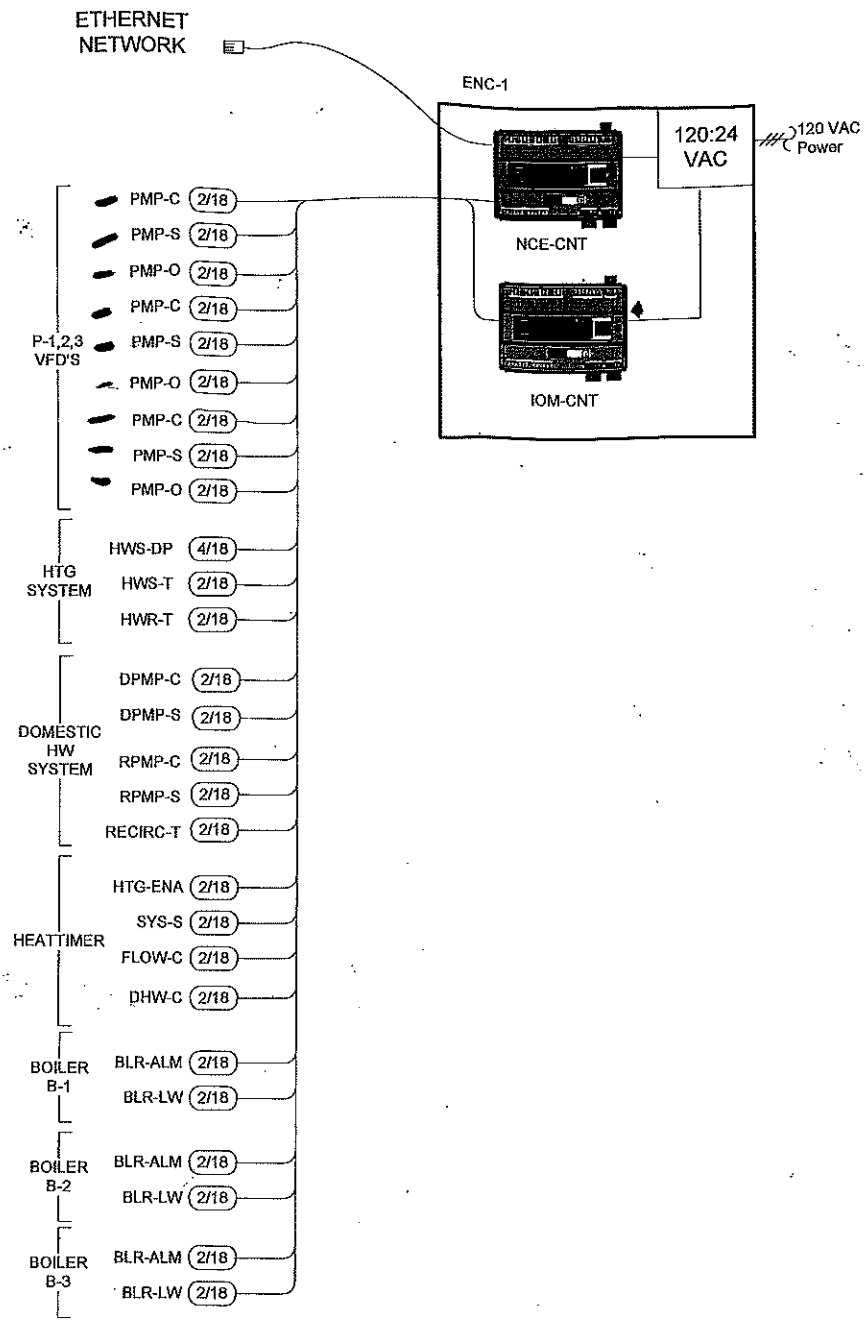
*Note 1 - controller supplied by stout*

LOCATED AT ?  
STPT=12 PSI

Drawing Title									
<b>HEATING SYSTEM FIELD</b>									
REFERENCE DRAWING	NO.	REVISION LOCATION		ECH	DATE	BY			
Sales Engineer <b>BCS</b>	Project Manager <b>BAA</b>	Application Engineer <b>BAA</b>	DATE <b>07/28/09</b>	BY <b>BA</b>	DATE	APPROVED			
Project Title		Branch Information		CONTRACT NUMBER					
<b>DTA BOILER REPLACEMENT DULUTH, MN</b>		Johnson Controls, Inc. Great Northern Area Phone (612) 566-7650 Watts (800) 677-7650 Fax (612) 566-2208		<b>9106-5062</b>		DRAWING NUMBER <b>2</b>			

**BILL OF MATERIALS**

Designation	Qty	Part Number	Description
ENC-1	1	EN-EWC25-0	UPM DUAL W/TRANSFORMER
IOM-CNT	1	MS-IOU4710-0	I/O M 6UL2BL3BO.2AO.4CO
NCE-CNT	1	MS-NCE2560-0	NCE, 33 POINTS, MSTP



**Boiler Control:**  
**Boiler System-Run Conditions:**  
 The boiler system shall be enabled to run whenever the outside air temperature is less than 60F (adj).  
 To prevent short cycling, each boiler shall run for and be off for minimum adjustable times unless shutdown on safeties or outside air conditions.  
 Each boiler shall run subject to its own internal safeties and controls.  
**Boiler Safeties**  
 The following safeties and alarms shall be monitored: Boiler alarm, Low water level.

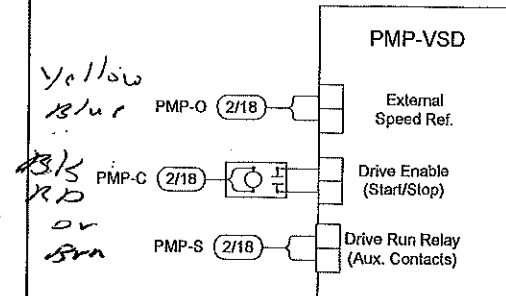
**Hot Water Differential Pressure Control: (Typical of P-1, P-2, & P-3)**  
 The controller shall measure hot water differential pressure to maintain its hot water differential pressure setpoint. Provide differential pressure sensor 2/3 distance down longest run of each pump system.  
 All setpoints shall be field adjustable during TAB period to meet the requirements of actual field conditions.  
 If the hot water differential pressure drops below a setpoint (adj), the lag pump shall turn on and run in unison with the lead pump. If the hot water differential pressure rises back above setpoint, the lag pump shall turn off and the lead pump shall continue to run. To prevent short cycling, there shall be minimum user definable (adj) delay between stages.  
 Alarms shall be provided as follows:  
 • High Hot Water Differential Pressure: If the hot water differential pressure is greater than setpoint (adj).  
 • Low Hot Water Differential Pressure: If the hot water differential pressure is lower than setpoint (adj).

**Circulation Pump:**  
 The Circulation Pump shall run anytime Boiler is called to run and shall have a user definable delay on stop.  
 Alarms shall be provided as follows:  
 Circulation Pump Failure: Commanded on, but the status is off.  
 Circulation Pump Running In Hand: Commanded off, but the status is on,  
 Circulation Pump Runtime Exceeded: Status runtime exceeds a user definable limit.

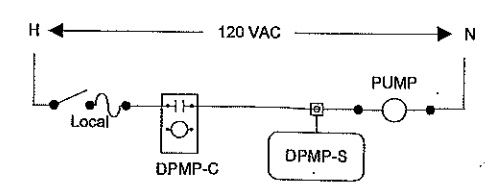
**Boiler Lead/Standby Operation: (By heat timer: MINI-MOD-CNC)**  
 The boilers shall operate in a lead/standby fashion when called to run and flow is proven.  
 The lead boiler (B-1) shall run first. Boiler (B-2) shall be set to supply 140F (adj) with a 30F temperature drop through the system. On failure of the lead boiler to maintain hydronic heating loop temperature or other failure, the standby boiler shall be cycled up to operation temperature per the manufacturers recommendations (up to 180F (adj)) and once the lag boilers have cycled to maintain the load, boiler (B-1) shall be cycled off. Upon load reduction, boiler (B-1) shall be cycled on and one boiler (B-1) can maintain load, then lag boilers shall be cycled off. An operating trend shall be established per occupancy and outside air temperatures.  
 Alarms shall be provided as follows:  
 Failure: Commanded on but the status is off.  
 Running In Hand: Commanded off but the status is on.  
 B-1 return water temperature of 120F or lower.  
 Lead Boiler Failure: The lead boiler is in failure and the standby boilers are on.

**Hot Water Supply Temperature Setpoint Reset:**  
 The hot water supply temperature setpoint shall reset based on outside air temperature.  
 As outside air temperature rises from -25F (adj.) to 60F (adj.) the hot water supply temperature shall reset downwards by subtracting from OF (adj.) to 30F (adj.) from the current boiler setpoint.  
**Primary Hot Water Temperature Monitoring:**  
 The following temperatures shall be monitored: Primary hot water supply, Primary hot water return.  
 Alarms shall be provided as follows:  
 High Primary Hot Water Supply Temp: If greater than 195F (adj.).  
 Low Primary Hot Water Supply Temp: If less than 120F (adj.). When standby boiler (B-1) is in operation.

**Domestic Hot Water Control:**  
 Recirculation pump P-5 shall operate based on time schedule. On detection of low temperature at the recirculation line below the domestic hot water setpoint (adj) when the recirculation pump P-5 is operating, circulating pump P-4 shall be started.

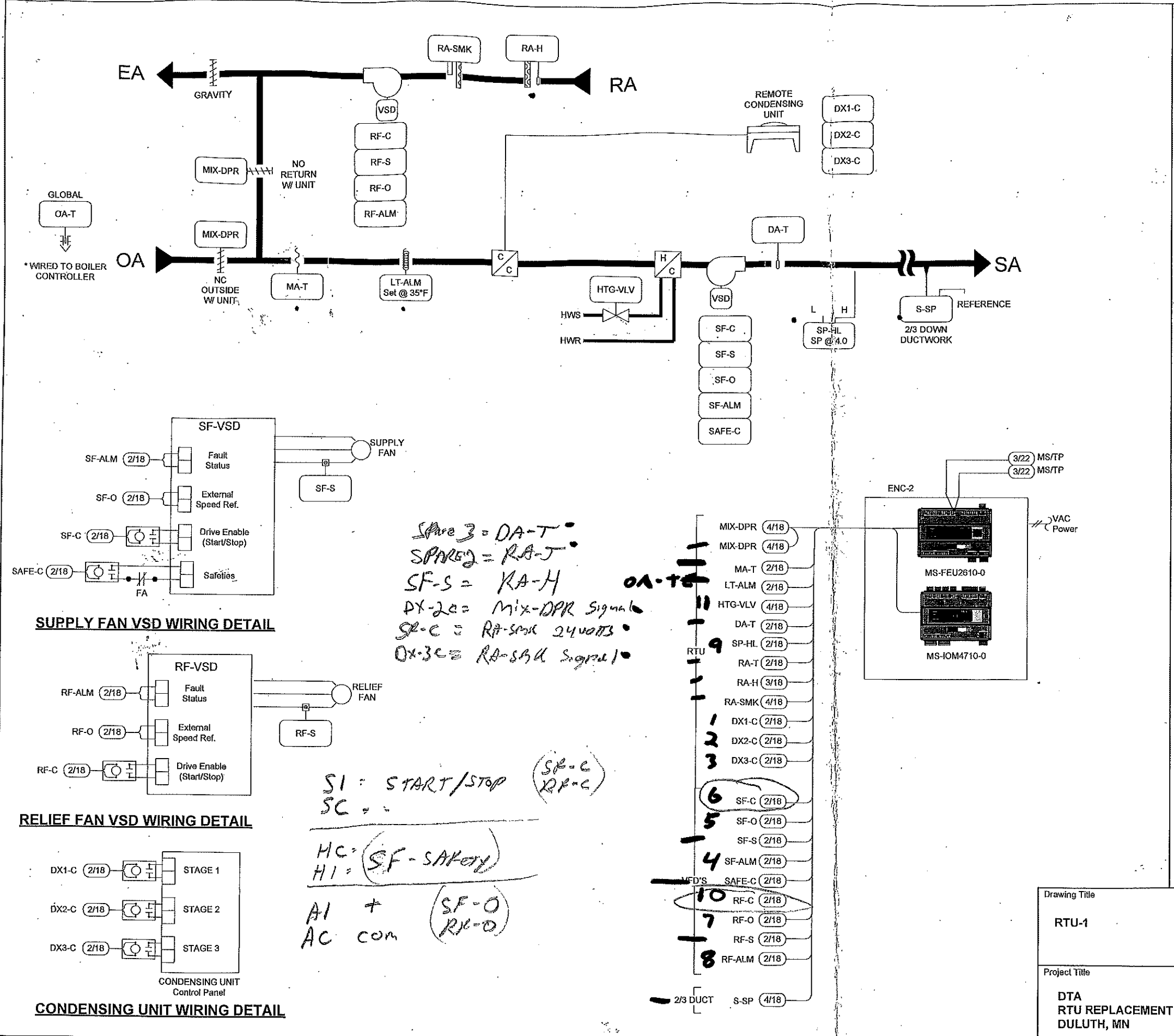


**P-1,2,3 VSD WIRING DETAIL**



**P-4 & P-5 WIRING DETAIL**

Drawing Title							
<b>HEATING SYSTEM PANEL</b>							
Project Title		REFERENCE DRAWING		NO.		REVISION-LOCATION	
DTA BOILER REPLACEMENT DULUTH, MN		Sales Engineer		Project Manager		Application Engineer	
		BCS		BAA		BAA	
		BY BA		DATE 07/27/09		APPROVED	
		BY		DATE		DATE	
		Branch Information		CONTRACT NUMBER			
		Johnson Controls, Inc. Great Northern Area Phone (612) 568-7650 Watts (800) 677-7650 Fax (612) 568-2208		9106-5062			
		DRAWING NUMBER		3			



**BILL OF MATERIALS**

Designation	Qty	Part Number	Description
Field Devices:			
DA-T	1	TE-6311M-1	8" 1000 OHM NI DUCT TEMP
DX1-C,DX2-C,DX3-C	3	RIBU1C	SPDT,10A,HC=10-30 VAC/DC,W/LED
LT-ALM	1	A11B-1C	PLN,MLT,SP=35-45 F (2-7 C),STG=1
MA-T	1	TE-6316M-1	NICKEL DUCT AVERAGE,17 FEET
MIX-DPR	2	M9210-GGA-3	DAMPER ACTUATOR 10 NM SR
OA-T	1	TE-6313P-1	SENSOR,T-NI,0.1%,3IN OAT
RA-SMK	1	DH100ACDCLP	INNOVAIR 4-WIRE PHOTO
	1	ST-3	SAMPLING TUBE 3 FEET
RA-T,RA-H	1	HE-67N2-0N00P	SENSOR,2%RH & 1K NI TEMP,WHT,DUCT-PROBE
S-SP	1	DPT2640-2R5D-1	PRESS SENS,DP,0-2.5"WC,VDC,1%
SAFE-C	1	RIBU1C	SPDT,10A,HC=10-30 VAC/DC,W/LED
SF-ALM,RF-ALM	2	N.O. CONTACT	VSD ALARM CONTACT
SF-C,RF-C	2	RIBU1C	SPDT,10A,HC=10-30 VAC/DC,W/LED
SF-O,RF-O	2	0-10VDC	0-10VDC CONTROL SIGNAL
SF-S,RF-S	2	CSD-CA-150-1	SPLT/ADJ LED 1.25A W/O RY.
SP-HL	1	AFS-460	DIF,0.4 - 12 INWC,DIF=MR,NC
Panel Devices:			
ENC-2	1	PAKBJD002AH0	PANEL FEC/IOM 20X24
Other Devices:			
HTG-VLV	1		SEE VALVE SCHEDULE

**Roof Top AHU/RTU-1 Control:**  
The unit shall run based upon an adjustable schedule.

**Freeze Protection:**  
The unit shall shut down and generate an alarm upon receiving a freeze status signal.

**High Static Shutdown:**  
The unit shall shut down and generate an alarm upon receiving a high static shutdown signal.

**Return Air Smoke Detector:**  
The unit shall shut down and generate an alarm upon receiving a return air smoke detector status.

**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 user defined minimum runtime (adj).  
Alarm shutdown shall be provided as follows:  
Supply Fan Failure: Commanded on, but the status is off  
Supply Fan in Hand: Commanded off, but status is on  
Supply Fan Runtime Exceeded: Status runtime exceeds user defined limit (adj).

**Supply Fan Duct Static Pressure Control:**  
The controller shall measure duct static pressure and shall modulate the supply fan VFD speed to maintain a duct static pressure setpoint of 1.5". The supply fan VFD speed shall not drop below 30% (adj).  
Alarm shutdown shall be provided as follows:  
High Supply Air Static Pressure: If the supply air static pressure is 25% greater than setpoint.  
Low Supply Air Static Pressure: If the supply air static pressure is 25% less than setpoint.  
Supply Fan VFD Fault.

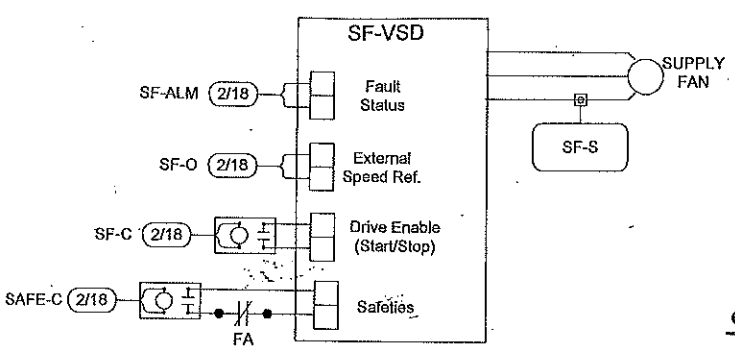
**Return Fan:**  
The return fan shall run whenever the supply fan runs.  
Alarm shutdown shall be provided as follows:  
Return Fan Failure: Commanded on, but the status is off  
Return Fan in Hand: Commanded off, but status is on  
Return Fan Runtime Exceeded: Status runtime exceeds user defined limit (adj).

**Return Fan Tracking:**  
The return fan VFD shall modulate in unison with the supply fan VFD. The return fan VFD shall track the supply fan VFD at 80% (adj) of the supply fan VFD speed. The return fan VFD speed shall not drop below 20% (adj).

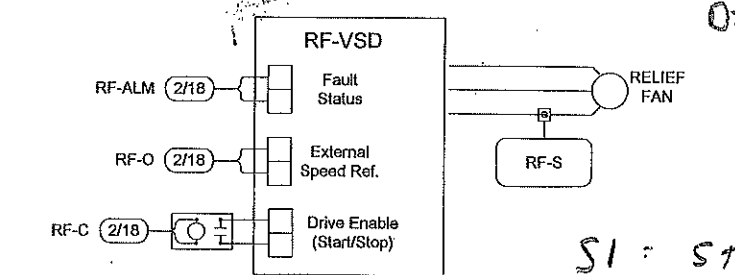
**Supply Air Temperature Setpoint:**  
The controller shall monitor the supply air temperature and shall maintain a supply air temperature setpoint reset based on zone cooling and heating requirements.  
The supply air temperature setpoint shall be reset for cooling based on zone cooling requirements as follows:  
The initial supply air temperature setpoint shall be 55F (adj).  
As cooling demand increases, the setpoint shall incrementally reset down to a minimum of 53F (adj).  
As cooling demand decreases, the setpoint shall incrementally reset up to a maximum of 72F (adj).  
If more zones need heating than cooling, then the supply air temperature setpoint shall be reset for heating as follows:  
The initial supply air temperature setpoint shall be 82F (adj).  
As heating demand increases, the setpoint shall incrementally reset up to a maximum of 85F (adj).  
As heating demand decreases, the setpoint shall incrementally reset down to a minimum of 72F (adj).

**Cooling Stages:**  
The controller shall measure the supply air temperature and stage the cooling to maintain the cooling setpoint. To prevent short cycling, there shall be a user defined delay (adj) between stages and each stage shall have a defined minimum runtime (adj).  
The cooling shall be enabled whenever:  
Outside air temperature is greater than 60F (adj),  
And the economizer is disabled  
And the supply fan is on  
And the heating is not active.  
Alarms shall be provided as follows:  
High Supply Air Temperature: If the air temperature is 5F(adj) greater than setpoint.

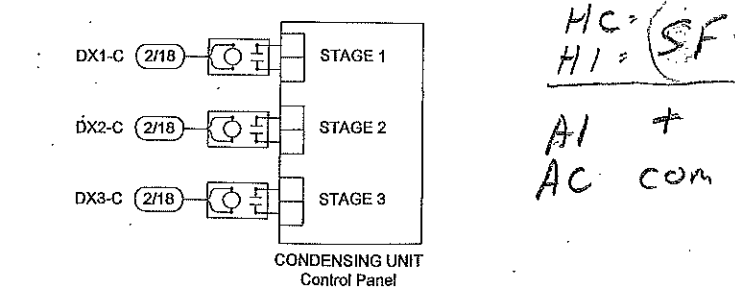
**Heating Coil Valve:**  
The controller shall measure the supply air temperature and modulate the heating coil valve to maintain its heating setpoint.  
The heating shall be enabled whenever:  
Outside air temperature is less than 65F (adj),  
And the supply fan is on  
And the cooling is not active.



**SUPPLY FAN VSD WIRING DETAIL**



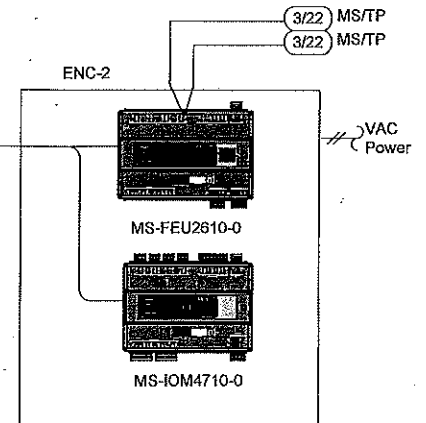
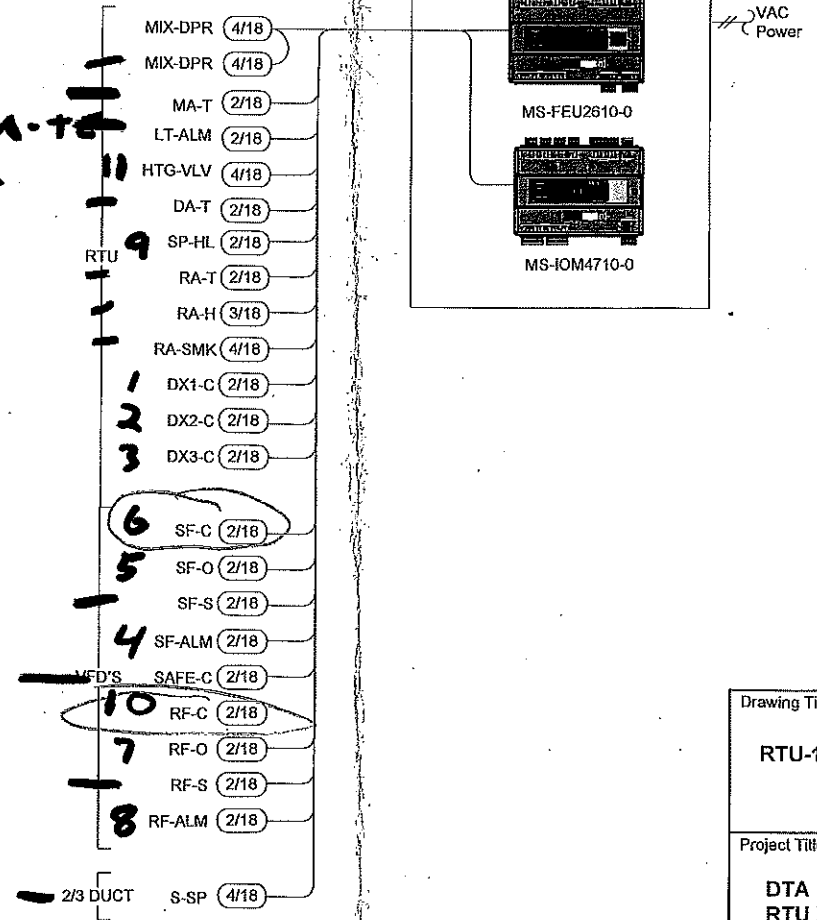
**RELIEF FAN VSD WIRING DETAIL**



**CONDENSING UNIT WIRING DETAIL**

*Save 3 = DA-T  
SPARE 2 = RA-T  
SF-S = RA-H  
DX-2C = Mix-DPR Signal  
SP-C = RA-SMK 24VOLT  
DX-3C = RA-SMK Signal*

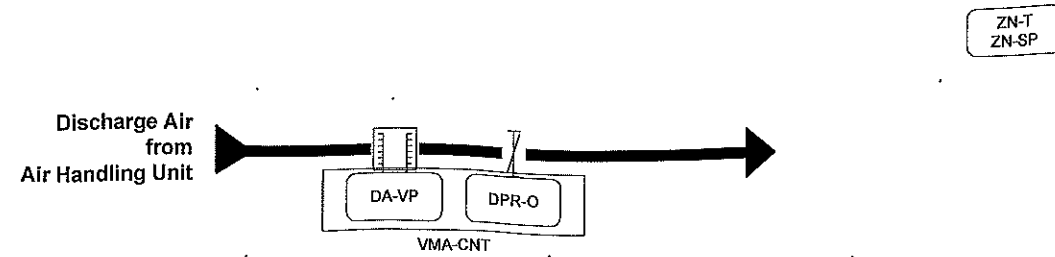
*SI = START/STOP (SP-C)  
SC = - (RF-C)  
MC = (SF-SAFETY)  
HI = (SF-SAFETY)  
AI + AC COM (SF-O)  
RF-O*



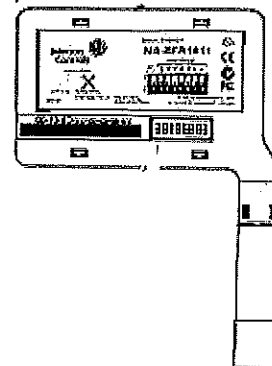
Drawing Title	RTU-1			
Project Title	DTA RTU REPLACEMENT DULUTH, MN			
REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE
BCS	BAA	BAA		07/27/09
Sales Engineer			Project Manager	
Application Engineer			DRAWN	
BY BAA			DATE 07/27/09	
Branch Information			CONTRACT NUMBER	
Johnson Controls, Inc. 4627 Airpark Blvd Duluth, MN 55811 Phone (218) 727-8996 Fax (218) 727-7945			91065062	
			DRAWING NUMBER	
			4	

**BILL OF MATERIALS**

Designation	Qty	Part Number	Description
Field Devices:			
FBR-1	6	MS-ZFR1811-0	WIRELESS FIELDBUS ROUTER
	6	MS-ZFRCBL-0	CABLE ACSRY FOR ZFR1811
TX-1,2	2	Y64T22-0	TRANSFORMER UR CLASS 2
VMA-CNT	6	MS-VMA1620-0	VAV CTRL/ACT/DP,HTG.FAN
ZNT,ZN-SP	6	WRZ-TTP0000-0	SENSOR, WIRELESS, W/C ADJ

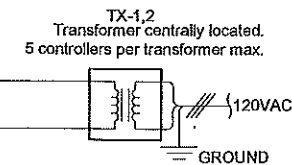
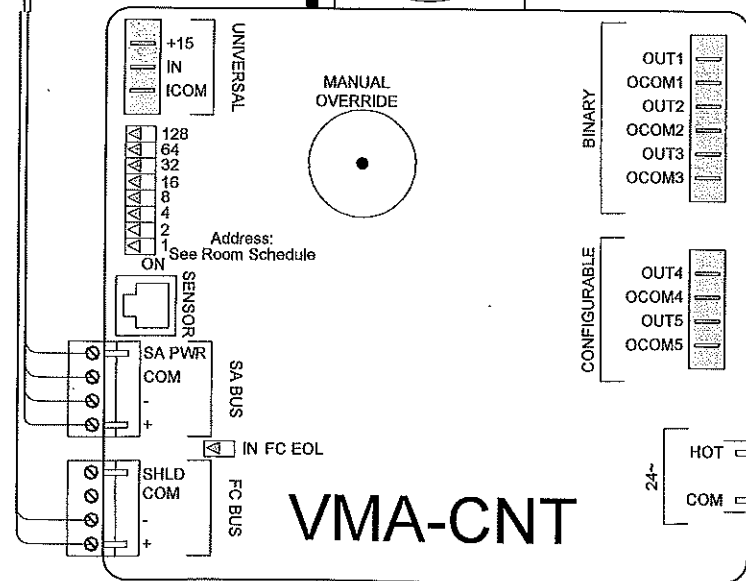


FIELD BUS ROUTER  
FBR-1



PNEUMATIC TUBING  
(DIFFERENTIAL PRESSURE)  
DA-VP

HI  
(Red)  
LO



WHERE 2 OR MORE DEVICES  
SHARE A SINGLE  
TRANSFORMER, MAINTAIN  
POLARITY (COM TO COM)  
BETWEEN DEVICES

**VAV Box Control:**

Occupied Mode: The VAV Box shall be in the occupied mode when the input from the system scheduler is occupied.  
Unoccupied Mode: The VAV Box shall be in the unoccupied mode when the input from the system scheduler is unoccupied.

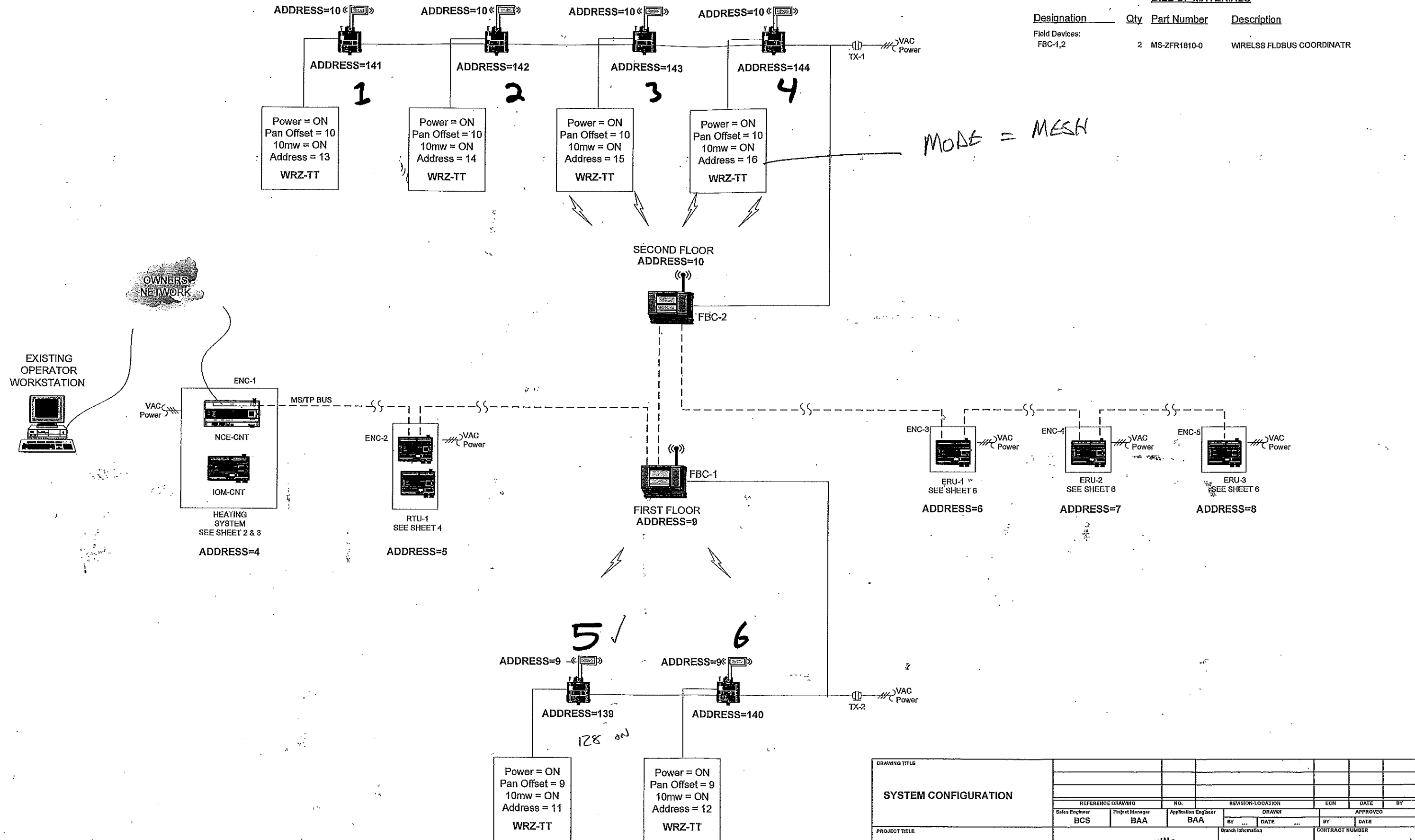
**Zone Temperature Control:**

In the Occupied Mode, the VAV Box shall control to its occupied setpoint.  
In the Unoccupied Mode, the VAV Box shall control to its unoccupied setpoint.  
The VAV Box damper shall be modulated to maintain VAV Box supply air flow as measured by a multi-point flow sensing element at the inlet to the VAV Box. Upon a rise in room temperature the room temperature setpoint, the airflow setpoint shall be adjusted between minimum and maximum flow based on the difference between the room temperature and the room temperature setpoint. Upon a fall in room temperature below the room temperature setpoint, the VAV Box supply air flow shall be at its minimum airflow setpoint.

Drawing Title									
VAV BOX CONTROL (TYPICAL OF 6)									
REFERENCE DRAWING	NO.	REVISION LOCATION		ECH	DATE	BY			
BCS	BAA	BAA				BY	DATE	BY	DATE
Project Title		Branch Information		CONTRACT NUMBER					
DTA RTU REPLACEMENT DULUTH, MN		Johnson Controls, Inc. 4627 Airpark Blvd Duluth, MN 55811 Phone (218) 727-8996 Fax (218) 727-7945		9106-5062		DRAWING NUMBER			
		Johnson Controls				5			

**BILL OF MATERIALS**

Designation	Qty	Part Number	Description
Field Devices: FBC-1,2	2	MS-ZFR1810-0	WIRELESS FLDBUS COORDINATR

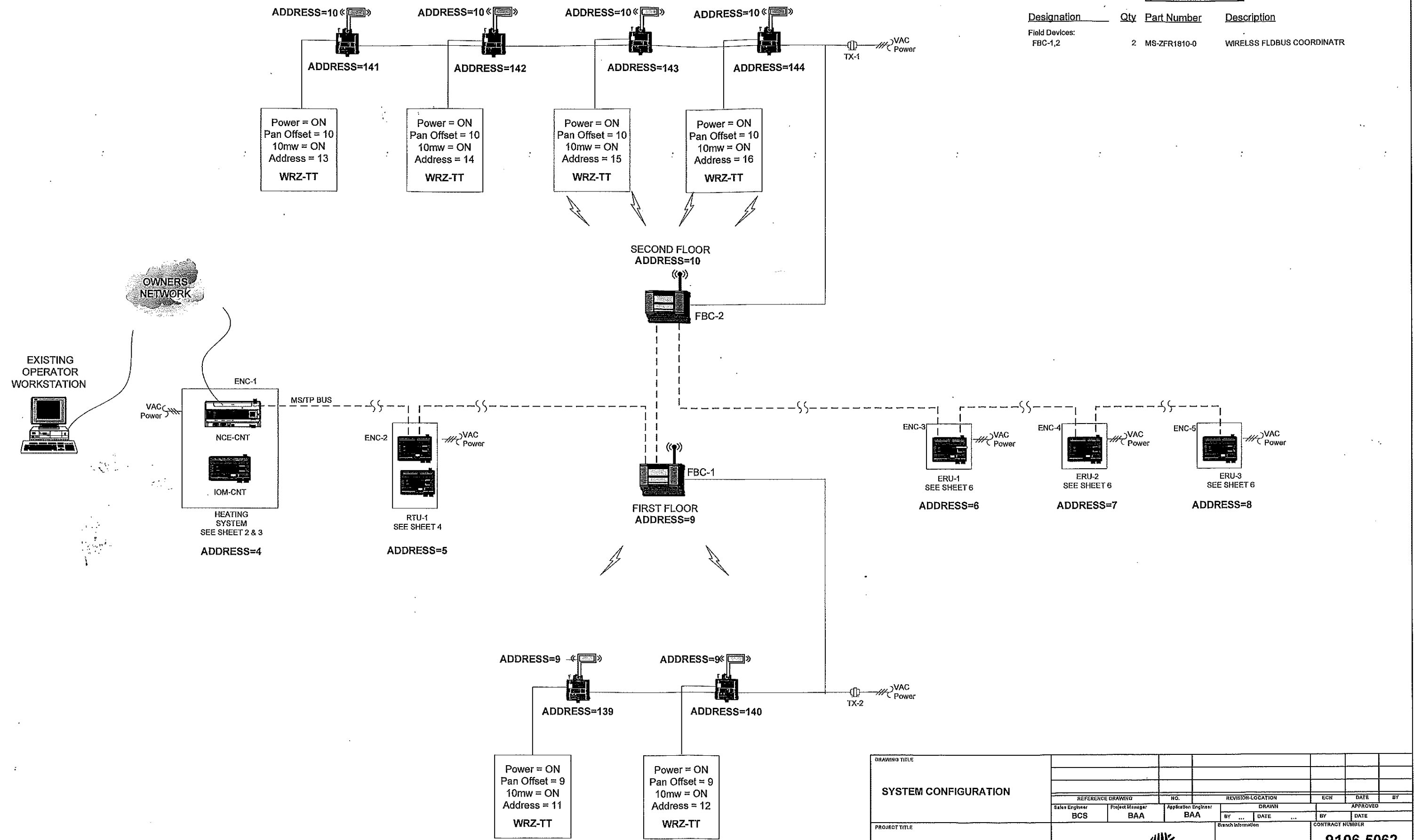


DRAWING TITLE									
SYSTEM CONFIGURATION									
PROJECT TITLE		NO.		REVISION-LOCATION		ECH		DATE	
DTA BOILER REPLACEMENT DULUTH, MN		BAA		BAA		BAA		BAA	
SALES ENGINEER		PROJECT MANAGER		APPLICATION ENGINEER		DRAWN		APPROVED	
BCS		BAA		BAA		BY ... DATE ...		BY ... DATE ...	
CONTRACT NUMBER		9106-5062		DRAWING NUMBER		1			
Branch Information		JOHNSON CONTROLS 4627 AIRPARK BLVD DULUTH, MN 55811 1-218-727-8998		CONTRACT NUMBER		9106-5062		DRAWING NUMBER	
Johnson Controls									



**BILL OF MATERIALS**

Designation	Qty	Part Number	Description
Field Devices: FBC-1,2	2	MS-ZFR1810-0	WIRELESS FLDBUS COORDINATR



DRAWING TITLE									
SYSTEM CONFIGURATION									
PROJECT TITLE		REFERENCE DRAWING		NO.		REVISION-LOCATION		ECH DATE BY	
DTA BOILER REPLACEMENT DULUTH, MN		BCS		BAA		BAA		BY ... DATE ...	
Branch Information		JOHNSON CONTROLS		4627 AIRPARK BLVD		DULUTH, MN 55811		1-218-727-8996	
CONTRACT NUMBER		DRAWING NUMBER							
9106-5062		1							

