

VRF TYPICAL LAYOUT

1. THE ABOVE DRAWING IS REPRESENTATIVE OF A TYPICAL SYSTEM. SEE PLANS FOR QUANTITY AND LOCATION OF INDOOR AND OUTDOOR UNITS
2. CONTROL CONTRACTOR TO PROVIDE AND INSTALL ALL LOW VOLTAGE WIRING FOR VRF SYSTEM OPERATION, INCLUDING COMMUNICATION WIRING BETWEEN INDOOR, OUTDOOR UNITS, VRF ZONE SENSOR AND COMMUNICATION WIRING TO INTERFACE VRF SYSTEM WITH CONTROL SYSTEM.
3. CONTROL CONTRACTOR TO MAP IN ALL AVAILABLE POINTS FROM THE VRF SYSTEM INTEGRATION FOR USE BY THE OWNER. PRIOR TO BID, COORDINATE REQUIREMENT WITH VRF MANUFACTURER AND PROVIDE ALL AS REQUIRED.

VRF CONTROL SEQUENCE OF OPERATION

**UNIT ENABLE:**  
WHEN THE NETWORK INPUT UNIT ENABLE SWITCH IS SET TO OCCUPIED, THE CONTROL SEQUENCE WILL BE ENABLED.

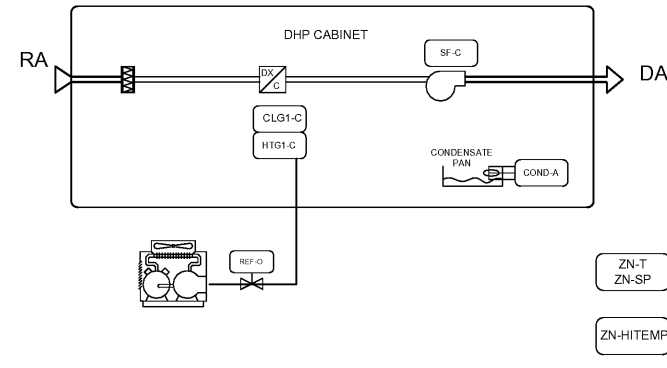
**OCCUPIED MODE:**  
OCCUPANCY MODE WILL BE CONTROLLED VIA A NETWORK INPUT. DURING OCCUPIED MODE, THE INDOOR AND RESPECTIVE OUTDOOR UNITS WILL BE STARTED. THE COOLING AND HEATING MODES WILL BE INDEXED TO MAINTAIN THE ZONE TEMPERATURE SETPOINT. WHEN THE CONDENSATE FLOAT SWITCH IN THE RESPECTIVE CONDENSATE DRAIN OR AUX. DRAIN PAN FLOAT SWITCH IS IN "ALARM", THE COOLING CONTROL SEQUENCE WILL BE DISABLED. THEN THE UNIT(S) WILL BE DISABLED AND AN ALARM SHALL BE SENT TO THE BAS OPERATOR CONSOLE. WHEN THE REFRIGERANT SENSOR IS IN "ALARM", THE SYSTEM WILL CLOSE THE AUTOMATIC REFRIGERANT ISOLATION VALVE. THE CONTROL SEQUENCE WILL BE DISABLED AND THE UNIT(S) WILL BE DISABLED.

**UNOCCUPIED MODE:**  
THE UNIT WILL CYCLE ON TO MAINTAIN UNOCCUPIED ZONE SETPOINTS DURING UNOCCUPIED PERIODS. WHEN THE CONDENSATE FLOAT SWITCH IS IN "ALARM", THE COOLING CONTROL SEQUENCE WILL BE DISABLED IN THE SUMMER MODE. THEN THE UNIT(S) WILL BE DISABLED. WHEN THE REFRIGERANT SENSOR IS IN "ALARM", THE SYSTEM WILL CLOSE THE AUTOMATIC REFRIGERANT ISOLATION VALVE. THE CONTROL SEQUENCE WILL BE DISABLED, AND THE UNIT(S) WILL BE DISABLED.

VRF UNITS CONTROL POINTS

TYPE	NAME	DESCRIPTION	SIGNAL
BO	CLG1-C	COOLING STAGE 1 COMMAND	24VAC MAINTAINED
BI	COND-A	CONDENSATE DRAIN LINE ALARM	DRY CONTACT MAINTAINED
BI	COND-AP	FAN COIL UNITS' AUX. DRAIN PAN CONDENSATE ALARM	DRY CONTACT MAINTAINED
BO	HTG1-C	HEATING COMMAND	24VAC MAINTAINED
MO	OCC-MODE	OCCUPANCY STATUS DISPLAY	SAB
BO	SF-C	SUPPLY FAN COMMAND	24VAC MAINTAINED
BI	SF-S	SUPPLY FAN STATUS	DRY CONTACT MAINTAINED
AI	ZN-SP	ZONE SETPOINT	SAB
AI	ZN-T	ZONE TEMPERATURE	SAB

NOTE: CONTROL CONTRACTOR TO MAP IN ALL AVAILABLE POINTS FROM THE VRF SYSTEM INTEGRATION FOR USE BY THE OWNER. PRIOR TO BID, COORDINATE REQUIREMENT WITH VRF MANUFACTURER AND PROVIDE ALL AS REQUIRED.



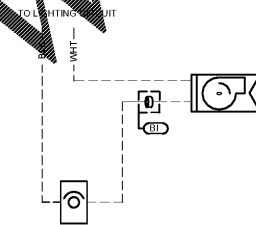
DHP TYPICAL LAYOUT

1. THE ABOVE DRAWING IS REPRESENTATIVE OF A TYPICAL SYSTEM. SEE PLANS FOR QUANTITY AND LOCATION OF INDOOR AND OUTDOOR UNITS
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DHP TYPICAL SEQUENCE OF OPERATION

THE BAS SHALL MONITOR THE STATUS OF THE INDOOR UNITS AS WELL AS THEIR ASSOCIATED ZONE TEMPERATURE. IF ANY UNITS GO INTO ALARM AND/OR THEIR ZONE TEMPERATURE EXCEEDS THE SETPOINT FOR MORE THAN FIVE MINUTES THE BAS WILL SEND A ALARM TO THE OPERATOR.

WHEN THE CONDENSATE FLOAT SWITCH IS IN "ALARM", THE COOLING CONTROL SEQUENCE WILL BE DISABLED. THE UNIT(S) WILL BE DISABLED AND AN ALARM SHALL BE SENT TO THE BAS OPERATOR CONSOLE.

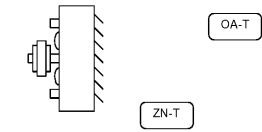


EF-A & EF-B CONTROL SCHEMATIC

**UNIT ENABLE:**  
WHEN THE NETWORK INPUT UNIT ENABLE SWITCH IS SET TO OCCUPIED, THE CONTROL SEQUENCE WILL BE ENABLED.

**OCCUPIED MODE:**  
SYSTEM IS OCCUPIED 24/7/365

EXHAUST FAN SHALL OPERATE ANYTIME THE LIGHTING SWITCH IS TURNED ON. FAN SHALL OPERATE FOR A MAXIMUM OF 10 MINUTES (ADJ.) AFTER LIGHT SWITCH HAS TURNED OFF OR, IN ABSENCE OF THE SWITCH BEING TURNED OFF, FOR A MAXIMUM OF 10 MINUTES (ADJ.)



TYP. UNIT HEATERS CONTROL SEQUENCES

SEQUENCE OF OPERATION:

THE BAS WILL ENERGIZE THE ELECTRIC HEATING ELEMENT WHENEVER THE SPACE TEMPERATURE DROPS BELOW SETPOINT. A SEPARATE OUTSIDE AIR THERMOSTAT SHALL LOCK-OUT THE HEATER WHEN THE O.A. IS AT 68 DEGREE ADJUSTABLE. THE UNIT IS SUBJECT TO THE "UNIT HEATER MASTER ENABLE/DISABLE POINT" AND THE OUTSIDE AIR TEMPERATURE (ADJ.)

UNIT HEATERS CONTROL POINTS

TYPE	NAME	DESCRIPTION	SIGNAL
BO	HTG1-C	HEATING STAGE 1 COMMAND	24VAC MAINTAINED
AI	ZN-SP	ZONE SETPOINT	SAB
AI	ZN-T	ZONE TEMPERATURE	SAB

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MOBILE, ALABAMA



DRAWN	CW	CHECK	TZ
DATE	APRIL 2, 2019 RTA		
REVISED			
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SHEET TITLE	HVAC CONTROLS
JOB NO.	PH&J#1801GV
SEQUENCE NO.	128 of 175



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