

ERU CONTROL SEQUENCE:

OCCUPIED MODE (DETERMINED BY TIME OF DAY THRU ERU CONTROLLER):

THE ERU CONTROLLER SHALL ENABLE THE ERU TO START SUBJECT TO THE SMOKE DETECTOR INTERLOCK. ON A CALL TO START, THE UNIT INTERNAL CONTROLLER SHALL OPEN THE OUTSIDE AIR DAMPER AND THE EXHAUST AIR DAMPER AND SHALL START THE OUTSIDE AIR FAN, THE ENTHALPY WHEEL AND THE EXHAUST FAN SUBJECT TO THE INTERNAL UNIT SAFETIES.

THE ERU CONTROLLER SHALL STAGE ON THE DX COOLING CIRCUITS TO MAINTAIN THE COOLING COIL DISCHARGE AIR TEMPERATURE (54°F-ADJUSTABLE) AT THE DAT SENSOR. THE ERU CONTROLLER SHALL MODULATE THE HOT GAS REHEAT COIL TO MAINTAIN THE SUPPLY AIR TEMPERATURE OF 72°F (ADJ.) AT THE SAT SENSOR.

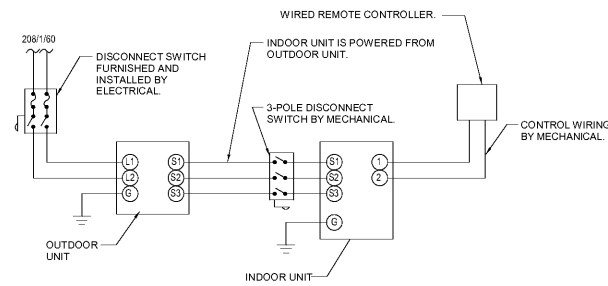
WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 55°F, THE ERU CONTROLLER SHALL STAGE ON THE ELECTRIC HEATER TO MAINTAIN THE SUPPLY AIR TEMPERATURE SET POINT OF 70°F (ADJ.) AT THE SAT SENSOR.

UNOCCUPIED MODE (DETERMINED BY ERU CONTROLLER):

THE ERU SHALL NOT RUN.

ERU CONTROLS

NO SCALE



CONTROL SEQUENCE:

THE AC UNIT SHALL BE CONTROLLED BY A WIRED WALL MOUNTED REMOTE CONTROLLER. THE CONTROLLER SHALL CYCLE ON COMPRESSOR(S) TO MAINTAIN COOLING SETPOINT (75°F - ADJUSTABLE) AND HEATING SETPOINT (70°F - ADJUSTABLE) AS APPLICABLE.

DUCTLESS SPLIT SYSTEM CONTROLS

NO SCALE

Room	Area	Volume	Peak Cooling Load (BTU/hr)	Peak Heating Load (BTU/hr)	Peak Cooling Load (Tons)	Peak Heating Load (Tons)	Notes
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TYPICAL VARIABLE REFRIGERANT SYSTEM CONTROLS DIAGRAM

NO SCALE

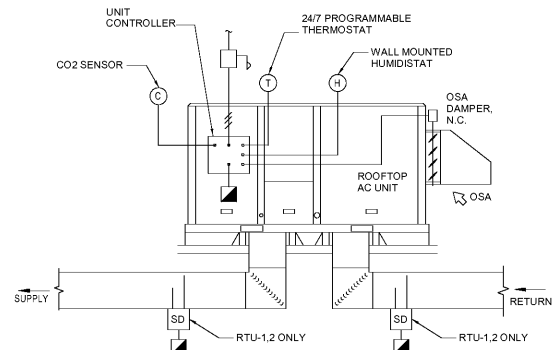
NOTES:

- MECHANICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCH AT ALL INDOOR UNITS AND ALL MCUS. DISCONNECT SWITCH SHALL BE INSTALLED AND WIRED BY ELECTRICAL.
- ALL CONTROLS WIRING FROM OUTDOOR UNIT TO INDOOR UNITS AND MCUS SHALL BE BY MECHANICAL CONTRACTOR.
- ALL POWER WIRING TO ALL INDOOR UNITS AND MCUS SHALL BE BY ELECTRICAL.
- PROVIDE CENTRAL CONTROL PANEL LOCATED IN STORAGE ROOM ADJACENT TO RESTROOMS. CENTRAL CONTROL PANEL SHALL HAVE THE FOLLOWING CAPABILITY:
 - SYSTEM CONTROL OF UP TO 128 INDOOR UNITS.
 - ON/OFF SCHEDULING OCCUPIED / UNOCCUPIED HOURS SHALL BE DETERMINED BY THE OWNER.
 - ZONE CONTROL RESTROOMS.
 - COOLING/HEATING MODE CONTROL.
 - INDOOR UNIT ERROR.

- DISCONNECT SWITCH FURNISHED AND INSTALLED BY ELECTRICAL.
- OUTDOOR HEAT PUMP.
- CONTROL WIRING BY HVAC CONTROLS CONTRACTOR (TYP.).
- CONTROL WIRING TO ADDITIONAL CHANGE UNITS.
- POWER WIRING TO ADDITIONAL CHANGE UNITS.
- CONTROL WIRING TO CENTRAL CONTROL PANEL.
- HEAT PUMP CONTROLLER (TYP.).
- INDOOR HEAT PUMP (TYP.).
- WALL MOUNTED THERMOSTAT (TYP.).

ALSO APPLIES FOR 'KIDS' CIRCULATION DESK - 132

ALSO APPLIES FOR 'KIDS' SPECIALIST - 131



ROOFTOP PACKAGED UNIT CONTROL SEQUENCES:

OCCUPIED/UNOCCUPIED MODES: DETERMINED THRU PROGRAMMABLE THERMOSTAT.

OCCUPIED MODE:

THE SUPPLY FAN SHALL RUN SUBJECT TO THE FIRE ALARM INTERLOCK AND THE COOLING AND HEATING STAGES SHALL STAGE AS REQUIRED TO MAINTAIN SET POINTS (75°F COOLING-ADJ./70°F HEATING-ADJ.). IF THE SUPPLY FAN FAILS TO RUN, THE BAS SHALL BE ALARMED.

WHEN THE SUPPLY FAN RUNS, THE OUTSIDE AIR DAMPER SHALL OPEN AS REQUIRED TO PROVIDE THE SCHEDULED OUTSIDE AIR AMOUNT.

WHEN THE OUTSIDE AIR IS BELOW 55°F (ADJUSTABLE), THE UNIT CONTROLLER SHALL ENERGIZE THE ECONOMIZER CONTROLS AND THE POWERED EXHAUST FAN SHALL RUN AS REQUIRED.

UNITS WITH DEHUMIDIFICATION CYCLE: IF SPACE HUMIDITY LEVEL AS MEASURED BY WALL MOUNTED HUMIDITY SENSOR, RISES ABOVE SET POINT (60% RH-ADJ.), THEN COOLING SHALL BE STAGED ON AND HOT GAS REHEAT SHALL BE STAGED ON AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT UNTIL SPACE HUMIDITY LEVEL FALLS BELOW 55% RH (ADJ.).

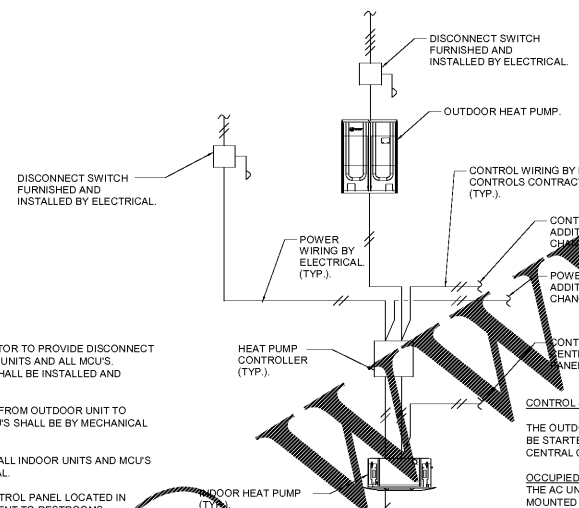
UNITS WITH DEMAND CONTROL VENTILATION: IF SPACE CO2 LEVELS RISE ABOVE 1200 PPM AS MEASURED BY THE SPACE CO2 SENSOR, THEN THE OUTSIDE AIR DAMPER SHALL OPEN TO PROVIDE SCHEDULED OSA AMOUNT. WHEN SPACE CO2 LEVELS DROP BELOW 900 PPM, OUTSIDE AIR DAMPER SHALL CLOSE AS REQUIRED TO PROVIDE THE MINIMUM OUTSIDE AIR AMOUNT (200 CFM).

UNOCCUPIED MODE:

THE SUPPLY FAN SHALL CYCLE AND THE COOLING AND HEATING AND HOT GAS REHEAT SHALL OPERATE AS REQUIRED TO MAINTAIN SET POINTS (80°F COOLING-ADJ./55°F HEATING-ADJ./60% RH-ADJ.). THE OSA DAMPER SHALL NOT OPEN.

ROOFTOP PACKAGED UNIT CONTROLS

NO SCALE



CONTROL SEQUENCE:

THE OUTDOOR HEAT PUMPS & INDOOR HEAT PUMPS SHALL BE STARTED / STOPPED BASED ON THE SCHEDULE IN THE CENTRAL CONTROLLER.

OCCUPIED MODE: THE AC UNIT SHALL BE CONTROLLED BY A WIRED WALL MOUNTED REMOTE CONTROLLER. THE INDOOR SUPPLY FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS. THE CONTROLLER SHALL CYCLE ON COMPRESSOR(S) TO MAINTAIN COOLING SETPOINT (75°F - ADJUSTABLE) AND HEATING SETPOINT (70°F - ADJUSTABLE). ALL INDOOR UNITS SHALL HAVE FULL INDIVIDUAL CONTROL AND WILL BE ABLE TO HEAT OR COOL INDEPENDENT OF WHAT MODE THE OTHER CONNECTED INDOOR UNITS ARE OPERATING IN.

UNOCCUPIED MODE: THE CONTROLLER SHALL CYCLE ON THE SUPPLY FAN AND COMPRESSOR(S) TO MAINTAIN THE UNOCCUPIED SPACE SETPOINT (60°F HEATING / 80°F COOLING - ADJUSTABLE).

Room	Area	Volume	Peak Cooling Load (BTU/hr)	Peak Heating Load (BTU/hr)	Peak Cooling Load (Tons)	Peak Heating Load (Tons)	Notes
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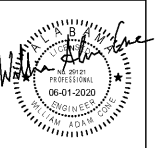
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ALSO APPLIES FOR 'KIDS' SPECIALIST - 131

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 DATE: 06-01-2020

REVISIONS

JOB NO. 19-32

SHEET NO.

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5 OF 9

SEQUENCE NO:
71 / 90

