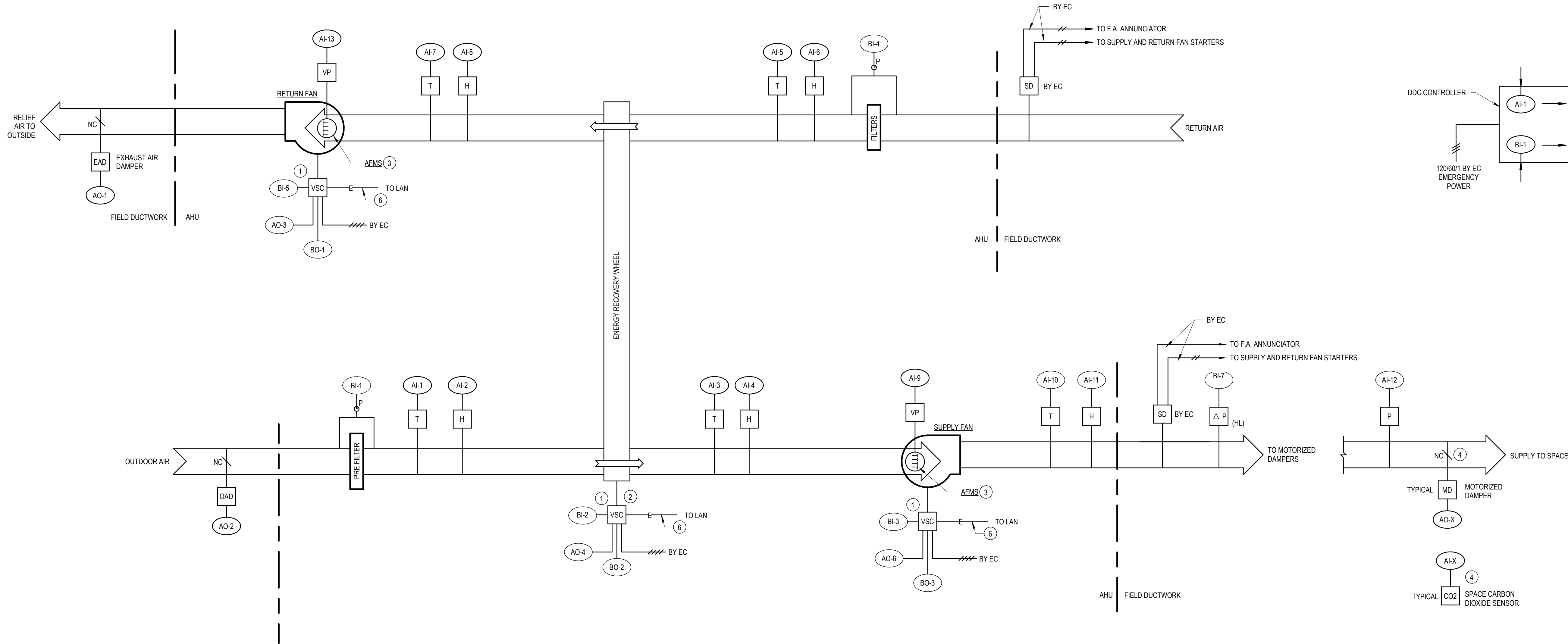




SCHEDULE OF DDC POINTS:

ANALOG INPUT

AI-1 OUTDOOR AIR TEMPERATURE (ENTERING ERU)
AI-2 OUTDOOR AIR HUMIDITY (ENTERING ERU)
AI-3 OUTDOOR AIR TEMPERATURE (LEAVING ERU)
AI-4 OUTDOOR AIR HUMIDITY (LEAVING ERU)
AI-5 EXHAUST AIR TEMPERATURE (ENTERING ERU)
AI-6 EXHAUST AIR HUMIDITY (ENTERING ERU)
AI-7 EXHAUST AIR TEMPERATURE (LEAVING ERU)
AI-8 EXHAUST AIR HUMIDITY (LEAVING ERU)
AI-9 SUPPLY AIR VOLUME
AI-10 SUPPLY FAN DISCHARGE TEMPERATURE
AI-11 SUPPLY AIR HUMIDITY
AI-12 DUCT STATIC PRESSURE SENSOR
AI-13 RETURN FAN AIR VOLUME

ANALOG OUTPUT

AO-1 EXHAUST AIR DAMPER
AO-2 OUTDOOR AIR DAMPER
AO-3 RETURN FAN SPEED
AO-4 ENERGY RECOVERY WHEEL SPEED
AO-5 SPARE
AO-6 SUPPLY FAN SPEED
AO-7 SPARE

BINARY INPUT

BI-1 OUTSIDE AIR FILTER STATUS
BI-2 ENERGY WHEEL STATUS
BI-3 SUPPLY FAN STATUS
BI-4 RETURN AIR FILTER STATUS
BI-5 RETURN FAN STATUS
BI-6 DISCHARGE PRESSURE HIGH LIMIT ALARM

BINARY OUTPUT

BO-1 RETURN FAN START/STOP
BO-2 ENERGY RECOVERY WHEEL START/STOP
BO-3 SUPPLY FAN START/STOP
BO-4 CONDENSER WATER CONTROL VALVE

PLAN NOTES

- VSC DRIVES BY UNIT MFR. VSC TO BE WIRED AND COMMISSIONED BY ECC. VARIABLE SPEED CONTROLLERS SHALL MODULATE FROM THE CONTROLLED EQUIPMENT MANUFACTURERS REQUIRED SAFE OPERATING MAXIMUM AND MINIMUM SPEED.
- ECC TO INTEGRATE CONTROLS TO ENERGY WHEEL TO PROVIDE SEQUENCE AS NOTED. ECC TO COORDINATE SEQUENCE WITH WHEEL MANUFACTURER TO PROVIDE PROPER WHEEL CONTROL AND ADDITIONAL MAINTENANCE SEQUENCES.
- AFMS TO BE PIEZOMETER FURNISHED AND INSTALLED BY FAN MANUFACTURER; VELOCITY PRESSURE SENSORS BY ECC.
- REFER TO PLANS FOR MOTORIZED DAMPER AND CO2 LOCATIONS. POWER PROVIDED BY TEMPERATURE CONTROL CONTRACTOR.
- WHEEL BYPASS DAMPERS TO BE SLOW CLOSING AND OPENING 120 SEC FOR 90 DEGREE OPERATION.
- THROUGH THE LAN, VSC SHALL TRANSMIT TO DDC CONTROLLER AND OWS STATUS OF ALL FAN DATA MONITORED IN ADDITION TO ALL ALARMS ASSOCIATED WITH VSC OPERATION. POINTS TO MAPPED SHALL BE SELECTED BY OWNER. NOTE THAT STATUS, START-STOP AND SPEED CONTROL ARE DIRECT WIRED DDC POINTS.

SEQUENCE OF OPERATION

OCCUPIED CYCLE:

- SUPPLY FAN AND RETURN FAN OPERATES CONTINUOUSLY SUBJECT TO SAFETY LIMIT CONTROLS.
- OUTSIDE AIR DAMPER AND EXHAUST AIR DAMPER FULLY OPEN.
- THE SUPPLY AIR STATIC PRESSURE CONTROLLER SHALL MODULATE THE SUPPLY FAN VOLUME TO MAINTAIN THE SUPPLY STATIC PRESSURE AT 0.5" OF PRESSURE AT DUCT PRESSURE SENSOR ON EACH FLOOR. (SEE DRAWINGS FOR LOCATIONS.) COORDINATE WITH BALANCE CONTRACTOR ON STATIC PRESSURE SETTING TO ACHIEVE FLOW RATES SHOWN ON DRAWINGS.
- THE ENERGY RECOVERY WHEEL OPERATING SEQUENCE SHALL FUNCTION AS FOLLOWS:
 - ABOVE 75°F AND BELOW 55°F OUTDOOR AIR TEMPERATURE THE WHEEL SHALL BE GRADUALLY INCREASED TO MAXIMUM SPEED THROUGH VSC CONTROL LOOP TO MAXIMIZE HEAT RECOVERY.
 - BETWEEN 75°F AND 55°F OUTDOOR AIR TEMPERATURE THE WHEEL SHALL STOP AND BYPASS DAMPERS SHALL OPEN.
- UNIT SAFETIES TO FUNCTION AS FOLLOWS:
 - SMOKE DETECTORS IN RETURN AIR STOP SUPPLY AIR AND RETURN AIR FANS AND CLOSE OUTDOOR AIR AND EXHAUST DAMPERS.
 - ALARM IF DISCHARGE PRESSURE HIGH LIMIT 5" SP IS REACHED AND SHUT DOWN SUPPLY AND RETURN FANS AND CLOSE OUTDOOR AIR AND EXHAUST DAMPERS.

UNOCCUPIED CYCLE:

- UNOCCUPIED CYCLE IS CONTROLLED BY EACH SUPPLY AIR MOTORIZED DAMPER SCHEDULE. SCHEDULING OF MOTORIZED DAMPERS IS ALLOWED TO BE GROUPED INTO MULTIPLE DIFFERENT GROUPS THROUGH THE SOFTWARE.
- LOCAL OVERRIDE OF THE UNOCCUPIED SCHEDULE TO OCCUPIED IS POSSIBLE THROUGH ANY FAN COIL UNIT THERMOSTAT SERVED BY A MOTORIZED DAMPER. OVERRIDE IS FOR 2 HOURS.
- IN UNOCCUPIED MODE THE SUPPLY AIR MOTORIZED DAMPER SHALL FULLY CLOSE.
- WHEN ALL SUPPLY AIR MOTORIZED DAMPERS ARE IN UNOCCUPIED MODE DOAS-1 SUPPLY FAN AND RETURN FAN SHUTDOWN AND THE EXHAUST AND OUTDOOR AIR DAMPERS CLOSE.

1 DOAS-1(100% OA, SINGLE FAN, WHEEL) CONTROL SCHEMATIC
NO SCALE