

Order Plans



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Revisions:


HVAC AND ROOFING RENOVATIONS FOR  
**BRITT ELEMENTARY SCHOOL**  
2503 SKYLAND DRIVE SW  
SNELLVILLE, GEORGIA 30078  
Facility Code  
# 3050

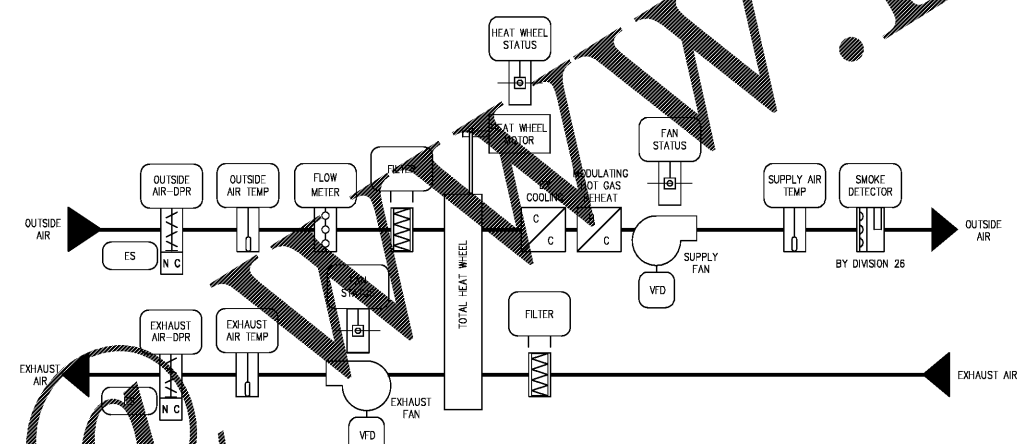
FOREMAN | SEELEY | FOUNTAIN  
architecture  
3001 Gorman Lake Drive, Suite 150, Peachtree Corners, Georgia 30071  
(770) 724-8433 www.FSArchitecture.com Fax (770) 724-8466

Sheet Title:  
HVAC CONTROLS  
Drawn By: GGP  
Scale: AS NOTED  
Date: 12/14/2018  
Job No.: 18JS97  
Sheet No.:  
**M6.3**

**CONTROL SEQUENCES - DOAS UNITS**

- DEDICATED OUTDOOR AIR SYSTEM (DOAS) UNIT  
The DOAS unit is a constant volume unitary packaged air handler with direct expansion cooling, energy wheel, gas heating and hot-gas reheat. The unit is controlled by the DDC system using electric actuation and is scheduled for automatic operation on a time of day basis. Occupied, Unoccupied and Safety modes are as follows:  
A. Occupied:  
a. The supply and exhaust fan variable frequency drives (VFD) slowly ramp the fan to speed for continuous fan operation.  
b. The DOAS unit controller modulates the cooling and heating stages to maintain a minimum supply air temperature leaving the evaporator coil at 55°F (adjustable). Modulating hot gas reheat shall increase the supply air temperature for delivery at a room neutral condition setpoint of 70°F heating and 72°F cooling mode (adjustable).  
c. The heat wheel motor shall be energized for wheel rotation under the following conditions:  
• When the outside air enthalpy is above 23 Btu/lb (adjustable) +/- 2 Btu/lb.  
• When outside air is below 50°F (adjustable).  
• When mixed air temperature in the DOAS until drops below 55°F (adjustable).  
d. The DDC system enables economizer operation for free cooling when the outside air enthalpy is less than 23 Btu/lb of dry air (adjustable) and outside air temperature is below 60°F (adjustable). The heat wheel motor is de-energized and the heat wheel bypass dampers (outside air & exhaust) are opened if equipped.  
B. Unoccupied:  
a. The DOAS unit remains off during unoccupied periods (setpoint adjustable). If the zone HVAC unit override occupancy schemes are active, then the associated DOAS unit shall enter Occupied mode for 1 hour (adjustable).  
b. The outside air intake and exhaust dampers shall be closed when the DOAS unit is off.  
C. Safety:  
a. Supply air fan(s) are de-energized upon activation of the fire alarm system or activation of a smoke detector in the supply duct. At the return position, the normal position after the fan(s) are de-energized. A current switch is installed in the supply fan starter/driver for confirmation or alarming of fan operating status. Minimum compressor run/off times and stage delays shall be programmed into the unit controller per the manufacturer.  
b. RTU shall be interlocked with a fire alarm shutdown (hardwired, no BAS processing) interlocked with the fire alarm system to shut down fan activation. Extends wiring from unit connection to fire alarm relay and designate final condition with fire alarm contractor.  
c. Activation of the fire alarm fan stop switch shall stop all unit fans.

INPUT/ OUTPUT SUMMARY	DEDICATED OUTDOOR AIR SYSTEM UNIT POINTS LIST												NOTES													
	OUTPUTS						INPUTS																			
	DIGITAL		ANALOG				DIGITAL		ANALOG					ALARM	ENERGY MANAGEMENT											
START/STOP	ENABLE/DISABLE	OCUPIED/UNOCCUPIED	DDC MODULATION	SETPOINT ADJUST	DIFF. PRESS. SWITCH	CURRENT SWITCH	ON/OFF	OPEN/CLOSE CONTACT	MANUAL OVERRIDE	AIRFLOW (CFM)	STATIC PRESSURE	WATER LEVEL	FLOW	TEMPERATURE	HUMIDITY/DEWPOINT	POWER (AMPS/W/KWH)	EQUIPMENT FAILURE	H/CO LIMIT	STATUS ALARM	OPTIMUM START	TEMPERATURE CONTROL	TIME SCHEDULE/SETBACK	RUN TIME	TREND LOGGING	OVERIDE PROGRAM	
DEDICATED OUTDOOR AIR SYSTEM (DOAS)	X																		X	X		X	X			
OUTSIDE AIR FAN (VFD)	X			X			X												X	X						
EXHAUST AIR FAN (VFD)	X			X			X												X	X						
EXHAUST AIR TEMPERATURE														X											X	
EXHAUST AIR HUMIDITY														X											X	
SUPPLY AIR TEMPERATURE														X						X				X		
OSA INTAKE TEMPERATURE													X													
COOLING STAGES (VARIES)		X																								
HEATING STAGES (VARIES)		X																								NOT APPLICABLE
CONDENSER FAN STATUS									X																	
MODULATING HOT GAS REHEAT	X																									
WHEEL OPERATION		X					X													X						
OSA/EXHAUST DAMPERS	X																									
SMOKE DETECTOR								X																		
DIRTY FILTER																				X						
OSA FLOW STATION										X										X						



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M-6.3  
DEDICATED OUTDOOR AIR SYSTEM UNIT CONTROL SCHEMATIC  
SCALE: NO SCALE

\*\*\*BAS CONTROLS NOTES\*\*\*  
1. Automatic controls manufacturer is HI Solutions. All BAS work shall be installed by Frazier Service Company.  
2. I/O points and control sequences shall comply with the latest Gwinnett County Public School design guidelines.  
3. Any deviations to the sequences or points listed on these drawings shall be specifically approved by Owner and Engineer with a credit issued during shop drawing submittal phase as applicable.

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