

**Part 1 General**

**1.1 HHW BUILDING VENTILATION**

- .1 System Description
  - .1 The system consists of a supply fan with an electric duct heater and an exhaust fan. Both fans have associated two-position motorized dampers. The speeds of both fans are controlled simultaneously by VFDs.
- .2 System Setpoints
  - .1 Tempering of supply air at 10°C (50°F).
  - .2 Free Cooling Thermostat: 26°C (79°F)
- .3 System Start/Stop
  - .1 The supply and exhaust fans will normally be energized by a stand-alone controller and operate on 25% speed to provide ventilation to the HHW building in occupied mode. In the event of a hazardous waste spill, the fans can be run at 100% speed for a set time period in flush mode. For free cooling in the summer months, the fans will run to maintain a set temperature for cooling.
  - .2 Occupied Mode: On a signal from the stand-alone controller initiated by turning on the main building light switch, the normally closed supply air damper and the normally closed exhaust air damper will open. Once the dampers have been confirmed to be in the open position by their limit switches, the supply and exhaust fans will then be energized to run at 25% speed.
  - .3 Flush Mode: On a signal from the stand-alone controller via a push-button, the normally closed supply air damper and the normally closed exhaust air damper will open. Once the dampers have been confirmed to be in the open position by their limit switches, the supply and exhaust fans will then be energized to run at 100% speed.
  - .4 Free Cooling Mode: On a signal from the stand-alone controller initiated by the free cooling wall thermostat, the normally closed supply air damper and the normally closed exhaust air damper will open. Once the dampers have been confirmed to be in the open position by their limit switches, the supply and exhaust fans will then be energized and their speeds will be simultaneously modulated to maintain the free cooling setpoint.
  - .5 Shutdown: On a signal from the standalone controller (via the light switch, push button or thermostat) the supply and exhaust fans will be de-energized and the motorized dampers will return to their normal closed state.
- .4 Tempering Mode:
  - .1 The tempering mode will be activated when the supply temperature, as sensed by the temperature sensor, drops below the tempering setpoint by 1°C (2°F) and the fans are operating in Occupied Mode.
  - .2 The tempering mode will be deactivated when the supply temperature, as sensed by the temperature sensor, drops above the tempering setpoint by 1°C (2°F) and the fans are operating in Occupied Mode.

- .3 The heating coil will modulate as required to satisfy the supply air temperature setpoint after the airflow proving switch has been closed.

## **1.2 HHW BUILDING HEATING**

### **.1 System Description**

- .1 The building heating system consists of four electric unit heaters located throughout the HHW building as indicated. The unit heaters will each have a remote line-voltage thermostat to control its operation. The temperature of the unit heaters shall be set at 10°C.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not Used.

## **Part 3 Execution**

### **3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**