

STG-11-... RESIDENTIAL VENTILATION DESIGN OF ROTARY HEAT EXCHANGER

When outdoor temperatures are low and humidity is high, there is a risk of rotor icing. At the same time, unwanted odors must be removed, and as much heat as possible should be recovered.

Pressure sensors monitor the pressure drop across the rotor to initiate defrosting when icing occurs and ensure negative pressure in the exhaust air duct using an exhaust damper to prevent odor transfer through the rotor.

When the outdoor temperature is low, the pressure drop across the rotor is monitored. If the pressure rises, indicating rotor icing, heat recovery is reduced until the ice melts. Once the pressure drop is below the setpoint, the rotor returns to normal operation. If the pressure drop exceeds the alarm limit at higher outdoor temperatures than the setpoint, an alarm is triggered.

To prevent odor transfer from exhaust air to supply air, a negative pressure is maintained in the exhaust air duct. A pressure sensor measures the pressure balance between supply and exhaust ducts, and by regulating the exhaust damper, the negative pressure is kept constant.