



SERVICE AND APPLICATION NOTES

Smart Vent Product

We have been asked to provide a Service and Application note on the use of the Smart Vent product that is on the market with Lennox brand equipment.

DESCRIPTION:

Smart vent is a homeowner damper device that drops into an existing A/C vent trying to make it into a zoning application. It requires no dealer interaction. It is a Low-cost product (\$80+ per vent) that is designed to direct air where needed in the home. It has an onboard temperature and pressure sensors that works with a program algorithm in the smart thermostat to ensure that excess pressure is not induced to the system by allowing only 30 percent of smart vents can be closed at a time. 30% of a duct blockage will increase system duct pressures.

WE have looked at the smart vent applications and found the following Risks/Disadvantages:

- Batteries only last 2- 3 years max. Most smart vents use 4 batteries per register. (That's a lot of batteries if a homeowner has several rooms equipped with smart vents.)
- Noisier HVAC operation when registers are partially closed, leading to homeowner discomfort.
- Works against variable-speed HVAC systems (vents actuate, inducing blower motors and compressor to ramp, which induces vents to actuate again and repeat the cycle). (They are not recommended for systems with variable speed systems.)
- On single-stage HVAC systems, vent actuation could cause more frequent cycling of blower motors, compressors, and furnaces leading to unnecessary wear and tear.
- While only 30% of smart vents can be closed at a given time, this restriction could still cause evaporator coil freezing and overheating of furnace heat exchangers.
- While vents can measure pressure and temperature, they cannot measure true static pressure. Vents do not know the length of duct work runs, number of turns, and what type of duct work is used.
- Smart vents could cause more strain on leaky duct work by inducing more pressure at the points of leakage, thereby further reducing the efficiency of the HVAC system.
- Limited warranties on smart vent products.

SOLUTIONS

Homeowners should have an HVAC audit done to identify problem areas in their HVAC system that are preventing it from performing well. Replace duct work to provide the proper airflow to the space.

Bottom line

Smart vents are a cost-effective band aid solution for an improperly designed/maintained HVAC system. Homeowners can save in up-front cost and purported energy savings, but they may experience other drawbacks in their HVAC system performance and reliability. An HVAC audit can guide homeowners toward the right decisions to improve their home comfort and HVAC efficiency. Lennox does not recommend the use of this type of system temperature control