



High Performance Housing — FAQ for Greensburg, Kansas Filtration

Q: *Kansas can be a little dusty at certain times of the year – inside as well as outside. Is special filtration required if outdoor ventilation air is supplied through a duct directly to the air return?*

A: Wind blown dust from fields or a dusty construction site finds its way into buildings and is a constant annoyance for homeowners. Our experience building in dusty places like Las Vegas, Tucson and Albuquerque has shown that complaints about dust on their countertops stop once the airtightness of the building is increased and mechanical ventilation systems are installed.

In the recommended system configuration where an outdoor air duct is connected to the return, a “pre-filter” can be installed at the connection between the outdoor air intake duct and the return to the furnace (highlighted in Figure 1). The “pre-filter” is mounted in a 12”x12” register box with a slot cut in for a 12”x12” filter at the outside air duct connection point.

Typical forced-air systems have a filter on the return side of the furnace that does filter air drawn into the return. The additional filter allows for outside air to be pre-filtered before it is re-filtered by the main system filter.

We recommend that the pre-filter be changed or cleaned more frequently during dusty seasons to improve the performance of the primary air filter on the return side of the furnace.

This system of a tight building enclosure with controlled mechanical ventilation that filters outside air drawn in from a known fresh air location is far better than random uncontrolled infiltration which may be “filtered” by the building enclosure to a much lesser extent. An airtight building enclosure and a mechanical ventilation system with a dedicated outdoor air intake greatly reduces uncontrolled dust entry and provides an opportunity to effectively filter outdoor air drawn into the house.

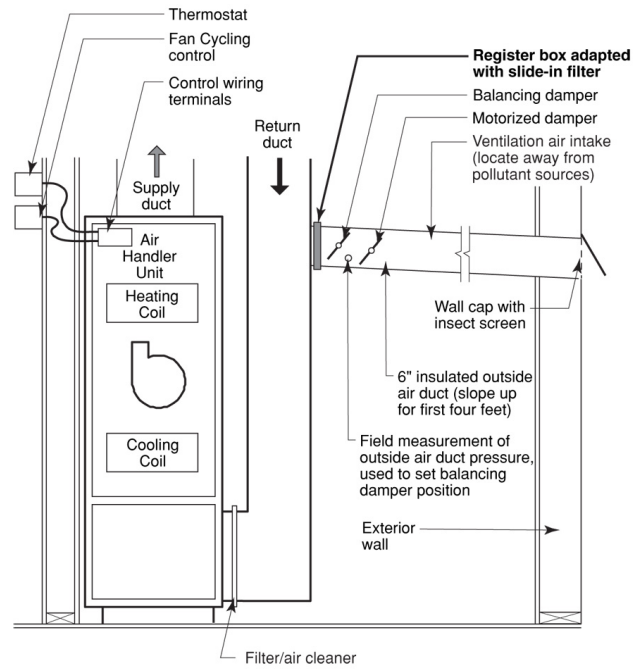


Figure 1: Secondary filter located where the incoming outdoor air duct connects to the return.