



Saving Energy With Your Forced Air Heating System

Now and then I like to write about things I see in homes that, contrary to popular belief, actually waste energy while the well-intentioned homeowner is actually trying to save energy!

So let's get right to the issue. Do you have a forced-air heating system with ducts and, if so, have you closed off registers in rooms to save energy? If the answer to both questions is "yes", you're probably wasting more energy than you're saving! Here's why -

Think of your duct system like a hose with leaks in it. The hose starts at your furnace and the opening is your outlet register (this example is simplified – obviously your home has lots of outlet registers and the hose has just "one", but the analogy still holds). OK, now imagine you've got that hose in your hand and you put your thumb over the end of the hose. Those leaks start spraying a lot more water out when you put your thumb over the end, right?

Well, the same thing happens with your ducts. Your typical duct system has a lot of leaks at the joints and around the furnace plenum. If you start closing outlet registers the pressure in the duct builds up and the air starts spurting out of those leaks like the water in the hose! And where does that nice hot air (that you paid good money to heat) go? It goes into the area where your ducts are located – the attic, crawlspace, or both.

Studies of actual homes have verified that closing off outlet registers actually wastes more energy than it saves, and the more registers you close the more energy you waste. The register that wastes the least when closed is the one at the very end of the duct run. Likewise, the register closest to the furnace will waste the most energy if it's closed. In extreme cases, where more than half the registers are closed, the furnace can actually overheat and shut down; in the cooling season the cooling coil can ice up.

In addition to losing heat from leaks when closing outlet registers, the duct between your return air grille(s) and the furnace can also leak except, in this case, crawlspace or attic air is sucked in rather than blown out. But in this case, what's increasing the leakage in your return ducts are the interior doors closed in rooms with outlet registers. With the door open there's plenty of room for the air coming out the outlet register(s) to get back to the return grille. Close the door, however, and that little "undercut" under your door creates the same kind of back-pressure you get when closing off outlet registers.

The only case where an undercut is usually sufficient is a small bathroom or utility room. There are solutions that allow doors to be closed for privacy while allowing outlet register air to return to the

return grille. They include things like adding a return grille in the room or, for less cost, a “transfer grille” in the wall between the room with the outlet register and the room with the return grille. Ask your heating contractor about these options for your home and, in the meantime, open up your outlet registers and start saving energy!

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