Ask Jon Eakes

WHAT IS A CONTROLLED COLD-AIR INLET?

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Stale, humid air must be exhausted from the house, both to allow for fresh air and to maintain a high neutral plane. For this reason we need a planned-hole-high-in-the-house, but the air going out must come into the house from somewhere. If you carefully seal all the leaks in the house to make it more comfortable and less costly, you can then make an inlet vent that is totally under your control with a simple manual or automatic damper.To make an inlet vent, cut a hole through the wall in the basement about 10 cm. (4 inches) in diameter (a window or any convenient part of the basement wall or header will do) and fit it with a length of ducting. Seal the joints between the duct and the wall carefully with caulking (inside and outside). If you do not want the duct to simply dump into the basement, which could get a bit cold, connect it to the cold-air intake of the furnace.An adjustable damper should be installed. An automatic damper would be controlled either by house humidity or by outside temperature or both. (Household humidity must be lowered during very cold spells, but may be raised without condensation problems when the weather is less severe. You can either change the humidity control manually on cold days or spend a bit more money and have the air quality in your house automated). To find the right setting with a manual set-up, close the damper and wait for a cold day to cause some condensation on the coldest windows. Then open the damper a little, day by day, until the problem stabilizes -- no more frost on the windows.Fresh-air intakes for furnace combustion should not be used as a cold-air inlet, because dampers on them could starve the furnace of oxygen. (search the keyword "exhaust fans" for the title "ARE BALANCED AIRCHANGE SYSTEMS WORTHWHILE?")You can close the furnace and its combustion air duct off in a furnace room and make the household ventilation input and exhaust separate from all furnace combustion operations. (search keyword "combustion air" and look for the title "WHAT IS A SEALED FURNACE ROOM & WHY IS IT NOT RECOMMENDED?")

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Air Quality, Furnace, Exhaust Fans, Ventilation