



ECOBROKER International

Green Topic Pages

Heating - Outside Source for Combustion Air

Technology Snapshot & Benefits:

Combustion units for heating buildings benefit from drawing combustion air directly from the outside using sealed and insulated ductwork. The advantages of this are two-fold: 1) conservation of warm indoor room air; and 2) reduced infiltration of cold outside air through cracks in windows, doors, and elsewhere in the building envelope. When combustion air is drawn from a heated basement room, it returns to the outside via a chimney after supporting combustion in the firebox. This loss of air slightly depressurizes the interior of the building, and pressure recovery is most likely through leaks to the outside. Bringing combustion air to the firebox through an insulated and sealed duct solves this problem.

Estimated Cost Savings:

A typical home furnace, rated at 80,000 Btu/hour, may operate at a duty cycle of 50% (it is operating about half of the time). To support this combustion, X cubic feet of air per hour are required, or 24X cubic feet of air per day, more or less, depending upon how much your furnace runs. Savings accrue from retaining warm indoor room air and particularly from reduced infiltration of cold outside air. Drafts, particularly annoying to occupants, are eliminated or greatly reduced. In dollars, this translates to a potential savings of 5-10 cents on the dollar for the heating costs of the typical home or building owner. For an average heating bill of \$200 per month, this translates into a savings of \$10-20 per month, directly to the bottom line.

Issues:

Enabling ductwork may present logistical issues to rooms that are already finished. These are often easily overcome.

Regional Issues:

The value of this modification depends upon the annual heating requirement of your furnace or boiler. The [National Weather Service provides an historical record](http://www.ncdc.noaa.gov/oa/documentlibrary/hcs/hcs.html) (<http://www.ncdc.noaa.gov/oa/documentlibrary/hcs/hcs.html>) of departures of average daily temperatures from a reference temperature of 65 degrees F. This information is available as Heating Degree-Days per Year and provides a very useful estimate of how often your heating plant will run.

Installation (Getting It Done):

The air intake source should be covered with a screen to prevent access by rodents and pests.