



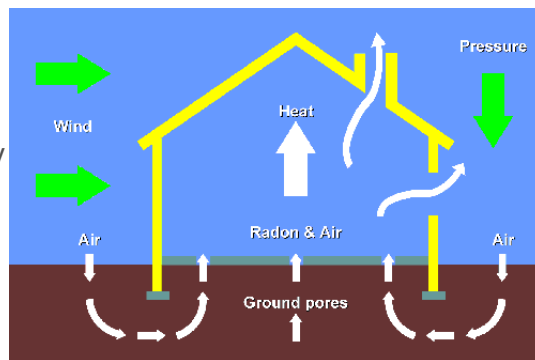
## Andy's Corner - Indoor Air Quality

When home performance contractors talk with potential clients, one of the most beneficial discussion points to raise is how much a home's indoor air quality will improve due to a successful retrofit. For example, after we completed work on SMUD's Home Energy Makeover Sweepstakes winning home last December, the owner said publicly that the most immediate improvement he felt in the house was its air quality. His asthma, he said, had disappeared when he was inside the house.

Upgrading air quality in the home is one of the most overlooked opportunities in SMUD's Home Performance Program. Uncontrolled air infiltration into the home, combined with a home's normal kitchen activities (especially on an unvented gas stove), excess moisture, the use of household cleaning products, and tobacco and other types of smoke, are just some examples of a long list of indoor pollutants that home performance retrofits address.

### Educating a Homeowner

An easy way to make homeowners aware of how they affect the quality of air inside their home is to educate them about the products that they bring into the home on a regular basis. A contractor can walk up and down the non-food aisles at a local grocery store, create a list of contaminants, and then provide it to a homeowner. Then, the contractor simply can ask the homeowner whether any of these types of products are in the house, ask the homeowner to find them, and then look at their chemical makeup. (Also, don't forget to bring the homeowner to the gas range and check its ventilation.)



Another way to educate homeowners about indoor air quality is to talk

with them about air infiltration that occurs through exterior walls, doors, and windows. After all, these are the most obvious places through which air can pass into the house.

However, successful home performance contractors also educate their clients about the attic and crawl space. Homeowners generally are unfamiliar with what happens there, yet these places are where the home's air quality is the poorest. The air that



enters the living space from the attic passes through insulation that likely is contaminated with some combination of dirt, dust, roofing debris, and animal droppings, and the air that moves up from the crawlspace also contributes to moisture and unhealthy air quality. Most homeowners don't realize that the air that enters the living space from outside the home, in general, is cleaner than the air that enters from above and below. And studies show that up to half of the air in the living space comes from above and [below](#)!

### **A Successful Ventilation Strategy**

Contractors can then talk with homeowners about how to create a successful ventilation strategy. This strategy reduces uncontrolled air leakage (air infiltration) by supplying clean, dry, controlled air for the living space and drawing contaminated and moist air outside by using exhaust fans.

For air to move it needs two things – a driving force and a hole to pass through. The primary driving forces for air infiltration are physics: warm air rises, cold air falls, and changing air pressure (wind) affects how the house operates. This means that unconditioned and contaminated air moves from the attic and crawlspace into the living space. Because contractors can't control the driving forces, which can vary from near zero on a beautiful windless summer day to



very high on a windy day, we need to control air infiltration by sealing holes.

That is why SMUD highly recommends that all attics be air sealed as part of the HPP, and includes in the Contractor Handbook a chart detailing when such air sealing actually is required. Air sealing reduces unwanted dirty air infiltration very effectively. In addition, by placing a simple moisture barrier on top of the ground in the crawlspace, a contractor can significantly reduce moisture infiltration, which is a big advantage for the homeowner. From a building science approach, SMUD's goal is clear – seal a home as well and as cost-effectively as possible.

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Thank you for your continued participation and feedback! Please contact [contractorsupport@theebpca.org](mailto:contractorsupport@theebpca.org) if you have any questions.

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