

Moisture Damage

As air moves through your home, it will also circulate moisture. When moist air comes in contact with a surface cold enough to make it condense--a window, for example--it can cause sashes and sills to decay. But inside walls, or in other places you can't see, moist air can do even worse structural damage.

Home Performance Contractors often trace decaying roofs to warm moist air that has traveled from kitchens and bathrooms in other parts of the house. The vapor moves through wall cavities to the attic, where it condenses when it hits the cool roof sheathing. Roofers generally look for leaks in the roof to explain the damage. But no matter how much money you spend on roof repairs and waterproofing, this problem will not disappear until moisture from inside the house is prevented from flowing to the attic.

A **Home Performance Contractor** will seal the passageway to the attic and see that moisture is properly vented from the house.



Illustration by Rick Stover



Sealing Air Leaks in the Attic.

Most homes have holes--from tiny cracks to large cavities --leading to the attic. These cause drafts, waste energy and often lead to moisture problems. After **Home Performance Contractors** seal these leaks, they can test the house with a blower door to see that the work was done properly.

photo courtesy of Scott Finley

Peeling paint is another example of a problem commonly caused by moisture inside the wall cavity. If this is the case, no amount of scraping and repainting will stop the wall from rotting. A **Home Performance Contractor** has the tools to find the source of the moisture and the knowhow to direct it



safely out of the house.



photo courtesy of Don Stevens

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Health Hazards

Mold and Mildew

Excessive moisture in the home can contribute to chronic health problems. High relative humidity feeds the common allergens, mold and mildew. A Home Performance Contractor can test for moisture levels and look for signs of mold growth in places you might never suspect. The source of allergic reactions may be lurking in a bedroom wall or on the floor beneath the carpeting in the living room.



Illustrations by Rick Stover

Indoor Air Pollution

Air can carry pollutants as it travels through your home. Pollutants often come from outdoors, but some carpets, furniture, and building materials release noxious gases inside. Without good ventilation, they can be trapped indoors and create health problems for everyone in your family.



Most homes depend on exhaust fans in kitchens and bathrooms to remove stale air, moisture, and odors. But these fans often fail to do their job, causing indoor air quality to fall below the standards set for a healthy home. A **Home Performance Contractor** can test your house to see that your air supply is correct, and to make sure that stale, polluted air is being removed at the proper rate.

Carbon Monoxide

If your house has fuel-burning appliances--furnaces, water heaters, fireplaces, stoves, and clothes dryers--these will be equipped with exhaust pipes, vents, or chimneys to expel the combustion products produced.

All these combustion appliances need a supply of air in order for fuel to burn. A danger occurs when air pressure drops in a room where one or more of these appliances is located. Low pressure can cause the combustion byproducts, which may contain toxic carbon monoxide, to be sucked down the exhaust pipe back into the home. This condition is called *backdrafting*.



Heating and Cooling Systems



Checking Heating and Cooling Systems for Safety and Efficiency

For your home to be comfortable and safe, your heating and cooling system should be the right size and in proper working condition. But heating and cooling equipment is often oversized and inefficient, which drives up energy bills.

Photo courtesy of Zolton Cohen

If rooms are at different temperatures, if the house gets too hot or too cold, if the air is stuffy or feels clammy, then chances are your system needs a check up.

A **Home Performance Contractor** can test your heating and cooling system to see that it is working properly and not creating any safety problems. A complete evaluation will take into consideration more than the equipment itself. The performance of the equipment is affected by the size of the house, the level of insulation, the amount of window area, and a number of other factors including the type of equipment and the fuel you use.

Leaky Ducts

Homes with forced air heating or cooling systems almost always have leaky ducts. In fact, on average, 25% of the air heated or cooled by the equipment never reaches any of the rooms--even in brand new homes.



Photo courtesy of Proctor Engineering Group



As the air spills out into the basement, garage, crawlspace, or attic through leaks in the ducts, you waste energy and money.

Even worse, leaky ducts can pull in nasty pollutants from these areas and deliver them directly into your living space. The most common offenders are pollen, dust, insulation fibers, mold and mildew spores, insecticides, automobile exhaust, and vapors from stored chemicals.

Air blown through ducts is under pressure. That means it can create drafts and uneven temperatures from room to room. But it can also cause combustion appliances to backdraft, bringing carbon monoxide into your home.

Photo courtesy of Retrotec

Home Performance Contractors use special duct testing equipment to find and measure the level of leaks. They then use a permanent sealant--not duct tape--to repair the leaks. When the holes are all sealed, they test the system, balance the air flow to each room, and check for any health or safety problems.

Tracking Down Duct Leaks. Finding leaky or disconnected ducts behind the drywall can only be done with special equipment. A duct tester (above, left) and a pressure pan (right) are two tools **Home Performance Contractors** use to locate and measure duct leakage.



Photo courtesy of Florida Solar Energy Center

Buying New Equipment

It may be time to replace an old heating or air conditioning system. Your **Home Performance Contractor** will help you choose a unit that is the right size for your home. There is now a good selection of energy-saving high-efficiency units available. For safe operation of fuel-burning appliances, look for direct-vent, sealed combustion models, which avoid the danger of drawing combustion products into the house.

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Improving Insulation

Whether you live in a cold climate or a hot one, insulation is important for keeping your home comfortable. Insulation slows the movement of heat through your walls, floors, and ceilings so that they stay warmer in winter and cooler during the summer. The closer the temperature of these surfaces are to the room temperature you like, the more comfortable you and your family will be.



Home Performance Contractors will check the insulation levels (R-values) in your home to see that they are adequate for your climate. They will also look for poorly installed insulation, which is a common problem even in new houses.

Today there are many types of insulation to choose from--batts, loose fill, rigid board, and expanding spray foam. Your **Home Performance Contractor** will help you choose what's best for your needs.



Loose-fill insulation is versatile because it can be blown into walls and hard-to-reach nooks and crannies in addition to attics. It also can be "dense-packed" in closed cavities, where it will seal the area against air leakage.

When a house is insulated properly, not only is it much more comfortable, but it is also quieter. And you'll most likely see a drop in your energy bills as well.

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