

# Moisture Problems

**I have been told by an HVAC contractor that I have an air barrier problem in my home. What does that mean?**

Air barriers are part of all modern home designs. You have probably seen homes under construction with a wrap that looks like plastic (put on the outside before they put on the siding). That is an example of an air barrier. Additionally, seals on windows and doors are designed to block air leakage, called air infiltration by building professionals, into your home. A small, controlled amount of air infiltration is a good thing, because it will result in some outside fresh air being brought in. However, if too much air is coming in, or if air is coming in through the insulation, it often causes problems.

## How can too much air infiltration cause problems?

First, when air passes through insulating material, like fiberglass, the insulation material loses its ability to act as a buffer between outside and inside temperatures, allowing the outside air temperature transfers directly into your home unblocked. Thus, your energy bills are higher and you may feel drafts (hot and cold spots) throughout your home. Often, the outside air leaking in can cause moisture damage in homes. In time, the air passing unchecked through your walls, floors, or ceilings may cause structural damage and can promote mold growth.

## How can air infiltration be the cause of the moisture problems in my home?

Have you ever noticed how a glass of ice tea will appear to sweat on a warm day? Obviously, the glass can't sweat, so what is happening? The answer is: air contains moisture, and when moisture in the air comes into contact with a cooler surface, it condenses into water. When your walls are cooler due to air conditioning, and warm humid outside air comes into contact with them, the moisture in the air can condense inside of the wall assembly. Where there are large gaps or holes in the insulation, the walls may experience moisture damage. Additionally, if the seals around window frames are not working properly, there may be signs of moisture damage in the walls around them. Worse yet, for all of the above, since wood used in framing homes is not designed to be in a moist environment, over a number of years the wood could rot and fall apart like the rotting stumps you see in the woods.

## It sounds like I need a window guy, a door guy, an insulation guy, and a carpenter, to fix all of that; where do I start?

Traditionally, it was up to the homeowner to hire all of the specialties, or a general remodeling contractor, to fix moisture-related problems found in the home. That approach worked for fixing a specific moisture problem. However, it did not take full advantage of other opportunities available for improving the home's environmental quality and comfort levels. Recently, leading HVAC contractors have developed practices designed to resolve a homeowner's comfort related needs. You may have seen the IE3 logo; it stands for Indoor Environment & Energy Efficiency. Leading professional HVAC contractors now are capable of offering you turnkey solutions to all of your home performance problems.

## Wait, why did you jump from air leaks and moisture to home performance?

Your home is built as a complete integrated system and all of the components are designed to work together. When one part fails, it will generally cause problems to other building parts. HVAC designs are based on how all of the parts of the home's systems are designed to work together. So, when one part of the design fails, it often results in a comfort issue long before it causes damage to the home. HVAC contractors get the first call when a home is uncomfortable. Thus, they are uniquely positioned to be able to develop a system based repair or upgrade. It is a natural progression for professional HVAC contractors to want to meet their all customer's needs.

## Is this whole moisture thing a smoke screen for an upsale?

No. A moisture problem can be fixed as a single item and definitely needs to be done as soon as possible. The real issue is who is best qualified to make sure the moisture problem fix is integrated into your home's overall system design. As a service, your professional contractor is capable of doing a quick fix, or a complete home comfort and efficiency evaluation and upgrade. The best practice for a homeowner is to have a whole house energy upgrade plan in hand, so all future repairs can be implemented in a way that continues to make their home more comfortable and efficient. Your Professional HVAC contractor can develop that plan for you.

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