

Technical Bulletin

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Topic: Tight House Syndrome

The focus of this bulletin is not about EIFS or stucco or even water barriers. It is more an observation on how we are building or how we are going to be building in the near future. With energy codes dictating how much continuous insulation we need and how little air they can leak, we are more or less building our own version of a cooler.

Coolers are amazing things. They keep hot things hot. They keep cold things cold. However, they don't keep live things alive and we need to think about that. People live in our coolers...

....and those people! They're stinky, they cook, they take a lot of showers and they let loose with a surprising amount of moisture. The typical house is a gold mine of toxins, out gassing building products and cleaning chemicals. No wonder they say home air is much worse than outdoor air, and some people experience sick building syndrome.

For the most part, we engineer commercial buildings to provide continuous air changes. Fresh air is brought in, stale air is sent out and the building is under positive pressure. Being slightly pressurized the building "leaks" filtered air to the exterior. That's OK.

Residential buildings are exactly the opposite, for years we have relied on the home's "leakiness" to change the air. The leaky air is unfiltered and uncontrolled. This does not work well. We can be left with a stinky home with unusually high humidity and negatively pressurized. This negative pressure or suction can bring in dirty air and occasionally water. The point is that with the new tools available such as liquid applied air/water barriers, homeowners can be the victims of a well-planned air barrier strategy but a poorly executed mechanical solution. Building code officials are thinking about it...as you can guess, it costs more.

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A great place to store a cold one...but you do not want to live there

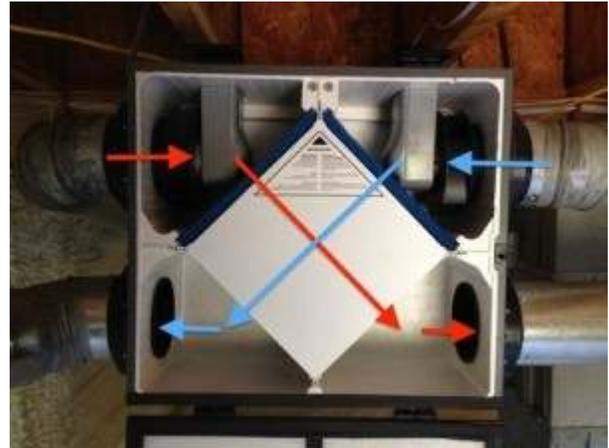
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Of course, you could just open a window to ventilate the home but this doesn't work well in extreme temperatures and controlling humidity will be a problem. Mechanically provided air changes are going to be the future of residential HVAC because they can heat or cool the air as needed along with removing any excess moisture in the home. The two most common units are a Heat Recovery Ventilator (HRV) and an Energy Recovery Ventilator (ERV). There are nuances to each, but the point is both exchange either the heated or the cooled air with incoming air to save energy while providing fresh filtered air from a single location.

In addition to defining required air changes in a home, some local code agencies are now requiring balanced mechanical ventilation. Since products like our Rollershield Liquid-applied Air/Water Barrier (LAB) have reduced the air leakage rate to practically zero, it is likely you will start to see these units in use on homes soon.

Is Tight House Syndrome something you should focus your business on? Probably not. However, it is something you need to be aware of as your business grows and building codes begin to mandate these advanced systems.



HRV or ERV's either pre-heat or cool the entering air to reduce energy loss. The intake and exhaust never touch each other and exchange energy through a radiator.

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