



“Experience the Difference”

BUILDING SUCCESS 101

Q: What is an energy recovery ventilator?

A: An energy recovery ventilator (ERV) supplies fresh outdoor air to the house while exhausting stale indoor air. Inside the unit, the supply and exhaust streams pass through a heat exchanger, where energy is transferred from one air stream to the other. This pre-heats incoming air in winter and pre-cools it in summer, reducing the heating and cooling load as well as the monthly electric bill. ERVs can be expensive, but they really earn their keep in a well-insulated home.



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No Sweat Cooling

Why choosing the right air conditioning equipment is more important than ever

The health and comfort of a new home has a lot to do with its heating, cooling and ventilation equipment. High-quality equipment will do a better job, but only if the builder works with the mechanical contractor to choose the right equipment *type*. With today's high-performance homes, that choice is no longer so simple.

It's especially complicated with air conditioning. Each new version of the International Energy Conservation Code further lowers cooling loads—how much heat and humidity has to be removed to keep a home comfortable. (The code has also lowered heating loads, but that's a topic for another day.) That's good news, in that the new code lowers cooling bills, but it can also be bad news if the system hasn't been engineered for this new reality.

The problem is that the air conditioner usually has to cool *and* dehumidify. The mix of those loads has changed.

In older homes, air conditioners usually had to remove three times as much heat as humidity, and most were engineered with that in mind. But energy-efficient construction reduces cooling loads while leaving humidity about the same, so the net cooling and humidity loads are about equal. An older system installed in a new home could cool it but leave everyone feeling sweaty and uncomfortable.

This challenge doesn't just affect hot/humid parts of the country. Even in the desert, homeowners can generate lots of moisture from activities like cooking and showering. And in temperate climates, there are plenty of days that are humid but not hot.

Proper system sizing is crucial. Old-school HVAC contractors relied on rules of thumb. Such rules worked fine for drafty, poorly insulated homes. With today's high-performance construction, however, the result tends to be too much cooling capacity—a system that cools the home so quickly it doesn't have time to remove humidity. That's why the best mechanical contractors now use sophisticated software to calculate the exact system size for the particular home.

Manufacturers have adapted their equipment to this new reality. Older systems used one-speed compressor motors, which also tend to cool a new home too quickly. The minimum today should be a two-stage compressor which, if conditions warrant, will run at a low speed and do a better job of cooling and dehumidifying.

Today you can also get true variable-speed systems, which vary the compressor speed the same way the gas pedal controls a car's motor. A good example is the ductless mini split, in which wall-mounted indoor units are placed in different areas of the house.

But while ductless mini splits are popular worldwide, Americans as a whole don't like the look of them. If the budget permits, you can get a ducted mini split instead. Here, specially designed indoor units are placed in attics or utility spaces with short ducts running to different areas (a bedroom, bath and sitting area, for example). A ducted indoor unit can be placed in each zone of the house, so you get the precise cooling and dehumidification needed for that zone. These systems are also super quiet.

The bottom line is that with today's homes, equipment choice is complicated. That's why a professional builder will work with a professional mechanical contractor—one who will recommend the best equipment for the home and precisely size it to keep the occupants cool and dry.

Warm Regards,

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