

Think "Whole House" Green

Energy efficiency is the most important factor in a green home.

By John Wagner

When all is said and done, what really makes a home green? When a builder turns the final key on a finished job and gets that last check, what really makes that newly built home green is its energy efficiency.

Sure, choosing "green" paint is important, as well as choosing green carpets. And there are green choices that can be made for wood, foam, insulation, and floor finishes, to say nothing of the windows, plumbing, and light fixtures.

But after all the positive impacts of these products have been accounted for, what's really green about a home is how much fuel it will use for heating and cooling over its lifetime.

Where your contractor customers can really "move the needle" on energy efficiency and green building, and where they have the greatest, longest-lasting impact, is when they build a project with a high-integrity thermal envelope that controls moisture, maintains good indoor air quality, and cuts down on fuel consumption.

Here's why: Every home creates carbon-dioxide through heating and cooling, and the typical American household can easily contribute up to 70 tons of carbon dioxide to the atmosphere each year. Over 50 years, that household is contributing 3,500 tons of CO₂.

So how do you help your contractors and their clients reduce that? Simple: *Thermal envelope integrity.*

For roofs, offer scissor trusses (a.k.a. "energy trusses") that offer more room for insulation where the bottom chord hits the wall's top plate. Use insulation and housewrap products that reduce "wind washing," where wind robs house walls of their R-value. Advocate for framing design that allows for careful foaming around utility penetrations, windows and doors, and sell green spot-application foam products to help seal up the openings.

Wall systems also offer a wide range of green options, from ICFs and SIPs to stick-built homes that are wrapped with increasingly sophisticated, drainable housewraps and insulated with spray foams or Energy-Star-rated insulation products.

Next, offer lighter-colored, reflective roofs. Three-tab products have these properties now, and they can markedly reduce cooling loads. Look for the Energy Star rating and consider a permeable roof underlayment. Radiant barriers integrated with sheathing can reduce solar radiant heat gain, too.

Next offer products for HVAC appliances and the forced-hot-air duct systems that have sealed seams and are run through conditioned spaces. The HVAC unit has the greatest impact on the home's carbon footprint because it will heat and cool the home for years to come. Contractors have an ace-in-the-hole—the cost of fuel—when spec'ing up-market HVAC units and prompting their clients to step up to a high-efficiency model. (An extra \$1,000 spent on a high-efficiency “balanced” HVAC system—which conditions fresh air with the heat from outgoing air—will be easily recovered over its operating life-time. That's an easy sell with oil over \$125 a barrel. Lumber dealers can also accessorize that system with quality products, sealants and insulation.)

For windows, look for Energy Star windows, and, for the love of Pete, visit Nfrc.org/Label.aspx and take 15 minutes to learn how to read (and explain to your client) the NFRC window label.

If you seek guidance from NAHB's National Green Building Standard and whole-house rating system or LEED-H, you'll find that my recommendations are embedded in the features that they like to see in green homes. But after you read all the tech manuals and stipulations of these admirable programs, you'll find that you'll still be building quality, low-toxic homes...something your contractors may have been doing all along.

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