HOUSTON BUSINESS JOURNAL
Strictly Houston. Strictly Business.

Vol. 41 No. 50 Week of April 22–28, 2011 www.houstonbusinessjournal.com

New products, methods make homebuilding increasingly airtight

DESIGN & CONSTRUCTION

SCOTT FRANKEL

Building with sustainable, energy-efficient materials is imperative to both the industry and the consumer.

Though builders can't control the way an occupant lives, the number of people in their house, the number of appliances they use and how they use them, we can try to decrease their footprint through efficient design and construction.

Products on the market and green methods available to homeowners and builders are cost-effective — and many times easily amalgamate into a pre-existing home.

Manufacturers and those who sell products can help a customer determine how to integrate them into their homes, but homeowners ultimately decide what is cost-effective and will bring a reasonable payoff.

Achieving a good return on investment in energy efficiency starts with reducing air infiltration by creating a tight building envelope.

Spray polyurethane foam, also called SPF or sprayfoam, is a great insulator for achieving airtightness, not just because of exceptional R-values — a measure of thermal resistance used to gauge the quality of insulation materials — but for its structural qualities and moisture-vapor retarder.

Reducing air infiltration also reduces condensation and mold potential and improves air quality in the form of reduced allergens, pollutants and noise.

What builders are striving for and can now achieve is what the International Residential Construction Commission refers to as a home of "irregular tightness."

With the advent of products like sprayfoam, the commission has actually had to strengthen building codes, because they were based on standards where air leakage was accepted.

According to Energy Star, air leakage accounts for up to 40 percent of the energy used for heating and cooling a typical home. An air-tight home minimizes heating and cooling losses from air infiltration. Cooling demands are a significant source of energy expense, especially during Houston's hot summer months.

Any Houstonian would likely compare opening his or her attic in the summer to opening the oven door. In a tightly built home, the attic temperature remains quite close to the home's temperature. Not only will equipment last longer and run more efficiently in a cooler attic, but products stored in the attic will last longer, too.

Reducing air infiltration means homes will typically require 30 to 50 percent less energy to heat or cool. This, according to the U.S. Department of Energy, translates into a 30 percent or more utility cost savings each month.

Further savings can be realized, since with reduced heating and cooling requirements, heating, ventilating and air conditioning equipment can be downsized.

> *"Any Houstonian would likely compare opening his or her attic in the summer to opening the oven door. In a tightly built home, the attic temperature remains quite close to the home's temperature."*

When a tight building envelope is achieved, manufacturers and builders must change the way they design and select an HVAC system for a home. New HVAC systems are smaller, more efficient and operate on varying speeds.

Other energy-efficient system considerations include switching to a "tankless" water heater, which is a more efficient, greener option than a much larger, traditional water heater.

Building sustainably should have been encouraged years ago. With the plethora of affordable options available today, homeowners and builders shouldn't make it an option, but a deliberate choice. ■

SCOTT FRANKEL is vice president of operations and construction for Houston-based Frankel Building Group. Monica Ntiru Karamagi is the regional marketing and industry affairs manager for Huntsman Polyurethanes.