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Colorado **Builder** FORUM

Journal of the Colorado Association of Home Builders

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Bonus Room

Building energy efficient homes puts green in builders' pockets

By Kim Jackson

Built Green. LEED for Home. Environments for Living. Energy Star. Model Green Building Program. High Performance Homes. The list of certified programs could go on, but you get the idea: building energy efficient homes is fast becoming the norm for forward-thinking builders.

“Doing the right thing” for Mother Earth has other benefits: it’s putting solid profits into builders’ pockets — and when some traditional builders are having a tough time just breaking even.

John Keith is an example of a high-performance home builder who is being sought out for building energy efficient homes. The president of Harvard Communities (harvardcommunities.com), a semi-custom builder whose homes average \$800,000 and 3,300 sq. ft., said, “I would have been hard pressed up to a year ago to say that it’s the reason people are buying some of our houses. But in the last year, I’ve seen a major shift to where people knock on the door of our Architect Collection model home in Stapleton and say, ‘We might want to buy one of your homes because we’ve heard about the energy efficiency and the solar electric.’ We’ve had more sales with our Architect Collection in the last two quarters than we’ve ever had in a two-quarter period. It’s good for business and it justifies all the effort we’ve put in over the years.”

Buyers want efficient homes

His sentiments reflect what national surveys have found. The NAHB reported at the International Builders Show in February that of the 2,300 home owners recently surveyed, more than 50 percent would pay an extra \$5,000 to \$11,000 up front on a new home, so they could save on utility bills. Another 16 percent would pony up more than \$11,000 for energy efficient features in a new home. A high level of insulation, energy efficient windows and energy-saving equipment topped the list of must-haves by home owners.

Another survey by *Better Homes and Gardens* magazine revealed that nearly 60 percent of 2,000

readers surveyed wanted builders to explain what the green options to a home are and how much they cost, so they can then decide which ones they want in their new homes.

Energy efficiency sells homes

All of the 26 homes Harvard Communities built last year met — or exceeded — the certification criteria for each of the Energy Star, Built Green and Environments for Living programs. A High Performance Home builder for four years, Harvard Communities has focused on building energy efficient homes. Each home is a minimum 40 percent more energy efficient than code built homes. To be certified by Energy Star, homes must be 15 percent more energy efficient than code. “We’re 25 percent above Energy Star,” Keith said. “We’ve added solar electric to all of our homes at Stapleton, and that pushes us up to the 50 percent plus range.”

He’s upped the ante for himself recently by building two near-zero-energy homes. “These are the same ultra-efficient homes,” he said, “but we enhance everything. These homes are projected to have a total utility bill of \$500 to \$600 a year. With even more solar electric on the homes, that puts us up into the 90 percent range of what they need.”

While it may not be sexy to focus on energy efficiency, that’s what keeps utility bills down and homes comfortable in Colorado’s weather extremes. In business for 18 years, Bob Woodley is president of Joyce Homes (joycehomes.com), a semi-custom home builder whose homes range from 2,100 to 3,800 sq. ft. and in price from the high \$300s. He’s been focused on building energy efficient homes for two-and-a-half years.

Each of the 45 homes he built last year was verified under the Environments for Living program and independently tested by an energy rating company, complete with a blower door test after construction. “We emphasize more on the energy efficient side than we do on the green side,” he said. “We have a hybrid insulation system I don’t think anybody else in town does. We put an inch of polyurethane foam in all our exterior walls first, then we fill up the rest of the cavity with blown in cellulose. We dense pack all of our ceilings. We don’t use bats on anything; it’s all either blown in cellulose or it’s foam.”



Top: **Harvard Communities’** first near-zero energy home was 2,700 sq. ft. Priced at \$700,000, it featured a super-tight building envelope and an advanced lighting package. Solar electric provides 90 percent of the electricity the house uses, while the solar water heating system provides an equal amount of hot water. The house produces a surplus of electricity on any sunny day.

Bottom: Prospective buyers have been seeking out **The Architect Collection in Stapleton** by Harvard Communities, due to the homes’ reputed energy efficiency and designs. Homes in the Architect Collection start at \$700,000 and they sport a new feature for the builder’s homes: solar electric. All of Harvard Communities’ homes are 40 percent more energy efficient than code built homes.

When visiting one of his home owners in February, the owner told Woodley that after December — when they had 14 people coming and going — the utility bill finally got out of the \$20 range. “The December bill for the 2,700 sq. ft. home was \$76,” Woodley said. “I hear this from all of our customers. They rave about how tight and efficient the houses are in terms of heating and cooling.”

How they made the switch

Neither Woodley or Keith transitioned to energy-efficient builder over night. Woodley began by reading about the performance of different materials, then talking to people. “I’ve been building homes in Colorado since 1973; through those years, I’ve gotten to know quite a few people. I know who I can call when considering a product. I can talk to the person who’s peddling the product, but I also talk to competitors to get their opinion. Usually people will shoot straight with you; they’ll usually tell you what to look for and whether a product is good or bad.”



Each energy efficient home that **Joyce Homes** builds is independently tested by an energy rating company. With 2,188 sq. ft., the Florencia model at the Meadows starts at \$373,600 and will save buyers thousands over the life of the home. The company uses a hybrid insulation system that uses polyurethane first in the exterior walls, followed by blown-in cellulose. "Customers rave about how tight and efficient their houses are," President Bob Woodley said.



Keith's move was accidental. After building homes for more than 22 years, he was becoming restless. One day, while rooting around his basement for something, he stumbled on an article he wrote as a graduate student for *Landscape Architecture* magazine 25 years ago. His bio reminded him of his sustainable development roots. He then discovered high-performance building "and realized that it lined up with certain values of mine."

He began his own research and met with "a bunch of consultants who are experts in the field. We looked at Built Green, Energy Star, Environments for Living and distilled all the things they said are good to do," Keith said. Because there are so many approaches to building an energy efficient home, "you have to choose the things you can do as a builder, such as things that make economic sense."

Fad or here to stay?

With all the corporate green washing today, it's tough to figure out what's a fad and what's not. It's also very subjective. For example, most energy efficient homes today use advanced lighting strategies. That often means using compact-fluorescent light bulbs, which use about 70 percent less energy than incandescent bulbs. Keith puts them in his homes.

Woodley used to, and is waiting for the price of light emitting diodes to come down, so that he can make them standard in his homes. LEDs are more efficient than CFLs by half and are said to last 50,000 hours. He does, however, put tankless water heaters in his homes, where Keith has opted against them.

Building scientists were key

Building scientists helped both builders reach their energy efficiency goals. The U.S. Department of Energy's Building America program (eere.energy.gov/buildings/building_america/) conducts research and helps builders with energy efficient

solutions for their homes. Its systems engineering research helps builders produce homes that use 30 to 90 percent less energy, while improving builder productivity, reducing on-site waste, recommending products and saving time. Privately held Building Knowledge (buildingknowledge.com) helps builders improve the quality of their homes, while also making them better for the environment and economy. What's more, Colorado's Built Green program (builtgreen.org) is very advanced — and it's in our own back yard.

While there are many builder resources available, the transition is easier said than done, Keith said, "because it's a process. You have to train your subcontractors and everybody else. It's a philosophical shift and it doesn't happen overnight, because it's too complex." He added that working with building scientists helped Harvard Communities become more efficient with its internal processes. "It's about laying out a multi-year process to learn and integrate everything."

Woodley stays up to date by reading articles. "If there's an article that has the word 'green' in it, I've got to read it," he said. He also has learned a lot through trial and error. He built a house for his daughter and insulated it throughout with polyurethane foam, so he could test its energy efficiency. After reviewing her utility bills, he was convinced. "It's unbelievable how efficient her house is."

Efficiency message sells homes

Keith credits his successes to the fact that he has developed a brand. "I think we're selling houses because of what we're doing. We're taking a risk that it's going to be more important to people and a selling point. I hope I'm right. I think we're doing a little better than most builders because we're doing something for a reason. We have a mission to build the most energy efficient house we can. That excites everybody and ultimately, it helps us be successful. While it's not my main motivation, I do feel good about what we're doing." 🏡

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CAHB Calendar

June

Conference Committee

Wed 6/11 8:30 a.m.

Editorial Board

Thur 6/12 9:00 a.m.

HomeAid Board of Directors

Thur 6/12 2:00 p.m.

Government Affairs Committee

Thur 6/19 9:00 a.m.

July

Conference Committee

Wed 7/9 8:30 a.m.

Committee Meetings/

Board Dinner

Thur 7/10

CAHB Board of Directors

Fri 7/11 9:00 a.m.

Editorial Board

Thurs 7/17 9:00 a.m.

August

Conference Committee

Wed 8/13 8:30 a.m.

Editorial Board

Thur 8/14 9:00 a.m.

HomeAid Board of Directors

Thur 8/14 2:00 p.m.

Government Affairs Committee

Thur 8/21 9:00 a.m.

Executive Committee

Thur 8/21 11:30 a.m.