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## Go green to go home

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# Go green to go home

Green building continues to gain  
more ground as builders and  
municipalities meet consumers  
on their own turf

BY KIM JACKSON



If you're not already building energy efficient homes with a reduced carbon footprint — and a forecast by the U.S. Green Building Council (USGBC) is right — you will be soon.

According to the USGBC, LEED-related construction spending from 2000-2008 generated \$830 million in GDP, supported 15,000 jobs and provided more than \$700 million in labor earnings. The organization forecasts that from 2009-2013, LEED-related spending will generate an additional \$12.5 billion in GDP, support 230,000 jobs and provide nearly \$11 billion in labor earnings.

Of that, residential construction spending during 2000-2008 generated \$94 million in GDP, supported 1,240 jobs and provided \$61 million in labor earnings. The USGBC forecasts that from 2009-2013, residential construction — LEED for Home — spending will jump to \$1.5 billion in GDP, support more than 19,000 jobs and provide \$945 million in labor earnings.

The writing is on the wall. Green building has hit its stride and continues to gain ground. Those builders who adopted green building principles from the days of the Denver Metro HBA's Built Green program easily adapt to the trend of municipalities incorporating green building standards into their codes. Those who haven't will be left behind — or have to make up a lot of ground to stay in the race.

## Building green is "business as usual"

"Everybody's talking about green and sustainability," observed John Hovde, operations manager with Infinity Home Collection. "People come into our sales office and they ask about it. People are definitely more aware of it."

The custom home builder got started with building green during the 2002 Denver Parade of Homes, when the Denver Metro HBA requested all the homes comply with Built Green. Since then, Hovde said, Infinity Home Collection evolved to the ENERGY STAR® program, and evaluated the LEED for Home and the National Green Building Standard for its new product line in the Stapleton neighborhood, Lime.

"We've just made the decision that we're going to pursue a LEED certification on all homes in that product category," he said. "So every home we build will be an ENERGY STAR-certified home, as well as a LEED-certified home."

## Review, analyze then choose the program that works best for you

If you're deciding which program (of the many out there) to use when building green, that effort can be a full-time job all by itself. After wading through the requirements, comparing them with how you currently build, estimating the increased costs involved with complying, then comparing the programs against each other, it's easy to imagine throwing all the paperwork in the air and building as you always have.

Yet there are risks to doing things the way they've always been done. Some of those risks come in the form of construction defects (see Jan/Feb '11 Colorado Builder Forum for the story on that). Others come in the form of being forced to restructure your business as the municipalities you where you build increasingly adopt stricter green building codes. It's easier to start building green while compliance is still voluntary for many jurisdictions than it is to stick your head in the sand.

Two programs have risen to the top and claim most of the green building market share: the USGBC's LEED for Home and the partnership that was forged in 2007 between the National Association of Home Builders and the ICC 700, the National Green Building Standard (NGBS), LEED for Home incorporates the EPA's ENERGY STAR as the energy efficiency component of its program. However, ENERGY STAR released its version 2.5 this year; next year's 3.0 version is expected to be very rigorous and include many other components, such as indoor air quality and low- or no-VOC paints.

## HERS rating is barometer of efficiency

Each of the programs has its point-based system. Each has its system for verifying energy savings, however, the only true mark of an energy efficient home is the HERS rating. In Colorado, the minimum HERS rating for a new home is 85. Yet because many of the homes that Scott Rodwin designs for home owners are in Boulder County, the principal for

With 5,200 sq ft, five bedrooms and four-and-a-half baths, Rodwin Architecture's Edge house in Boulder was finished in 2009 and was the second house in the state to receive LEED-H Platinum certification. The house achieved a HERS rating of 6; it uses 94 percent less energy than a code compliant house. Advanced Lighting Package certification. The house also pioneered the first legally permitted gray-water system in Boulder.

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▲ Since 2004, Infinity Home Collection has been building Energy Star®-certified homes. Priced in the low \$600s, this is one of seven homes in the builder's Vita collection at Solterra community. The home features 2,850 sq ft with three bedrooms, two-and-a-half baths and a main floor master. The floor plan easily expands to a four-, five- or six-bedroom home, up to 4,400 sq ft. Other homes in this collection start in the high \$500s.

Rodwin Architecture uses a HERS rater right out of the gate. Boulder County has one of the most-strict building codes in the country and when building a new home that's up to 4,000 sq ft, homes must have a HERS rating of 50 or below. An 8,000 sq ft home has to have a HERS rating of 10. "It makes doing very large houses extremely difficult," Rodwin explained, "which is why we utilize HERS right off the bat. We always want to be in a position to deliver a house to a home owner in a most cost efficient way." When he meets with clients, he asks what their objectives are for a "green" home. Some just want to keep their utility bills down. Others want to minimize their carbon footprint as much as possible. He incorporates ENERGY STAR guidelines in all his designs, not only to lower the cost of construction, but to give the owner tax breaks offered by ENERGY STAR. "Finding the most cost effective measures all over the house, really adds value to our services, as far as the home owner is concerned," he added.

### Architects lean toward LEED

Because ENERGY STAR is incorporated in the process, Rodwin uses the LEED certification process for the homes he designs. "One thing that's rarely taken into account is when architects take on a LEED-certified project, the level of investigation of materials and project management is dramatically higher than when you're not doing a LEED program," he said. "It's the same with ENERGY STAR. You can't have a casual set of specifications with high performance. If one subcontractor is out of compliance with the minimum, it can scuttle the entire project." In fact, Infinity Home Collection's Hovde added that the biggest hurdle the builder has faced since committing to build green in 2004 has been the change of culture with trade partners and contractors "and getting them to do things differently — and understand why they're doing the things different than they way they used to do them," he said. "Some trades are more adept than others, but when you sit down and try to have a conversation with your framing contractor about insulation, they look at you like, 'Well, what does that have to do with me?' And it has a lot to do with it." Hovde has opted for building with the LEED program because, he said, "It's more encompassing. It takes into account the location, the home's distance to transportation, existing infrastructure, distance to bodies of water and redeveloped land, versus raw land. Then it addresses indoor air quality, water conservation, energy usage, durability and sustainability. ENERGY STAR tends to focus more on energy conservation, although that's evolving, too."

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-Winston Churchill

Ron Flax is an associate and project manager for Rodwin Architecture. He's also the resident expert on green building there. He noted that the NGBS program focuses on energy issues more than anything else. While there are elements that discuss site and site design, he said, “there's a fairly reasonable attempt to talk about resource conservation in a wider perspective.”

He seems to favor the LEED-Home program because, “it pushes the resource issue and indoor air quality further than the ICC 700 (NGBS). The LEED is still more progressive simply by declaring intent. As these programs have ratcheted up, the LEED standard is above and beyond what the common code requires.”

That said, Flax added that municipalities tend to align with the NGBS program, which is an ANSI standard. “It has to do with how codes are written. NGBS is specifically designed to be adopted by municipalities.”

### Municipalities favor NGBS

In fact, the city of Longmont adopted the NGBS program into its green building code last year. “We adopted that at the same time we adopted the IECC 2009 codes,” said Chris Allison, chief building official for the city. “Compliance is set at a bronze level, the lowest level of compliance.”

Compliance with the code is voluntary until 2012, when it officially becomes code. “The NGBS bronze level of compliance is basic building requirements,” Allison said. “It's what people are already doing. If you input that information, they'll be in compliance. The ICC 700 is a fairly comprehensive code. If I'm looking at adopting something, the one that seems closest to what we do, it's easiest. And when you have a code book and commentary, it makes it easier to interpret than something we write ourselves.”

Allison added that because most builders are already building that way, NGBS simply requires them to provide more documentation. “From a building official's standpoint, it doesn't affect them much,” he said. “From a builder's standpoint, there's more documentation. We have a study guide that builders have to complete every year — and builders complain. What it means is they had to open the code book and get the answer. What did that hurt? Nothing. It gets the builder out on the property to take pictures and find out something needs to be fixed if it wasn't right. To comply with the code we adopted, builders have to do some picture taking. It doesn't require third-party inspection at this point.”

### Programs can chew into time, cost money

Feels a bit like watching a tennis match, doesn't it? Robby Schwarz is principal of Berthoud-based Energy Logic, a company that verifies and certifies for program and code compliance — including LEED and NGBS — throughout the front range. He works with builders at the planning stage

to establish a check list and “figure out how that particular project is going to meet the intent of a particular program, using a checklist for that project,” he explained. “The verification comes from when you are verifying when they say what they are going to do is done. You start with a checklist and go against it.” While the LEED and NGBS programs give builders choice and leeway, he added, “there's so much confusion about what's mandatory and what's optional.”

The LEED-H program tries to separate the verifier from the designing process, “but the reality is the verifier has the expertise to give information to the builder for decisions they have to make on what products and techniques they have to use,” he said. “In the NGBS program, there's not that separation. There's so much choice in documentation gathering for those two programs to ensure that they're viable for the builder.

Add to that the fees that are required to the organizations themselves, such as LEED provider and verification fees. Schwarz said that a green rater goes out to the site and funnel it through their provider to get the information back to the USGBC, which ultimately certifies the house as whatever level it achieves. It's like preparing to defend a dissertation. You collect all this information and present it to the powers that be at LEED. Depending on the project, that process adds — not materials and all that — in the \$2,000-\$4,000 range.”

The NGBS program doesn't work quite the same way. Schwarz said, “The verifier fills out the checklist. There's a scoring tool and it scores the house. That information goes back to the NAHB and the house is labeled. That process is in the \$1,000 - \$2,000 range.”

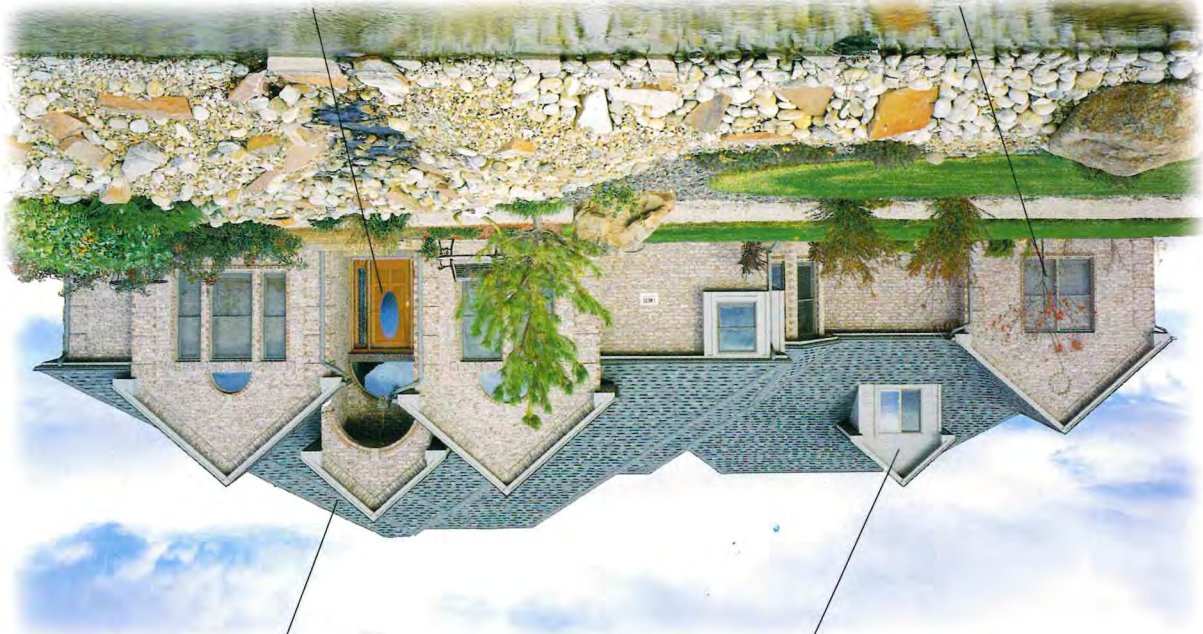
### One opinion: Energy Star best fits builders

All that back and forth between the programs is why Schwarz likes the ENERGY STAR program. “It's much more simply laid out for the builders,” he said. “It's more economical. It's a government-backed label and the government doesn't charge anything for the program. What gets charged is a verifier and energy rater with the program who verifies the house.”

He explained that the ENERGY STAR program has both prescriptive and performance paths. “If a home can't qualify for the prescriptive path, the performance path gives more leeway on how to construct that house. There are mandatory aspects you have to comply with, no matter which path you choose.”

The real beauty of ENERGY STAR is that it can be incorporated into both LEED and NGBS. Builders have been working with version 2 of Energy Star, which requires 15 percent more energy efficiency than the IECC. Version 2.5, which is in effect this year, requires 20 percent more efficiency and version 3.0 — which is expected to be a much

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more rigorous program next year — will require 30 percent more efficiency than the IECC standard.

"I believe the ENERGY STAR program is much more viable for builders," Schwarz said. "It's similar to code compliance in the sense that you're given a performance matrix of what you have to achieve and the builder doesn't have any choices but how to implement any of the items. ENERGY STAR far exceeds LEED and LEED far exceeds the NAHB program."

## Forcing green building to code affects marketing advantage

Allison's practical and down-to-earth approach to the new building code is partly based on observation. "The biggest thing I've seen is the stuff that people get points for is showing up in lumber yards, such as people are stocking low-VOC paint. What does that hurt? Cleaner air? It's not bad for the environment, the energy efficiency or the home owner. I was never one of the green army people, but things have changed on the code enforcement side of it. It's different and opening people's eyes to what's available and what's better for the environment, and health wise. I'm not sure what the down side is to this."

Some would say it's money. Kim Calomino is vice president of Technical and Regulatory Affairs at the Denver Metro Home Builders Association. "The HBA actively opposed adopting the ICC 700 as a code requirement because it's expensive," she said. "We support voluntary compliance with above-code programming." The ICC 700 (NGBS) is a "voluntary, above code program that was intended to provide a market advantage to builders. If you make it mandatory, it's just code. If you can't sell faster or at a higher price, it diminishes demand."

Allison — himself a builder for 22 years before joining the city — hopes that Longmont's code will encourage builders to build differently than they way they've been building for years. "Old-school builders are not used to it and it'll be more difficult for them," he said. "The newer guys coming into the system are going to be using this stuff. They're using digital cameras and computers in the field. They've been given this technology and they're using it. Sooner or later, it's going to be mainstream."

## Builder expects all programs to become obsolete

Hovde added that he sees the energy programs — LEED, NGBS and ENERGY STAR — will become obsolete because "all of those things that are part of those programs now are going to be codified," he said. "They're not going to be optional programs that you can opt in or out of at will. These programs are getting to the point where they're close to fulfilling their goals."

He also supports municipalities codifying green building. "You can paint two pictures. One is it's a selling advantage when you're doing these things above and beyond code that aren't necessarily required. On the other hand, if you're doing all these things above and beyond code, you're also introducing more cost into your home that maybe the other guy is not doing or doesn't have — and it's not a level playing field. The whole idea of these programs in general was to raise the bar and do the right thing," he said. From our standpoint, we support seeing these things codified and making it a level playing field. It's really a marketing advantage either way."

One of the things Hovde shows to home buyers is that "green can still be cool. You can still be green and have great architecture and design, a comfortable home and it can be affordable. People are definitely more aware of it and we just think it's the right thing to do."

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