

Green-Building Programs

Isn't it about time you got recognized for building right?

BY MATTHEW TEAGUE

Green building has come a long way. Only a few years ago, the words brought to mind fields of windmills and rooftops clad with solar panels—expensive propositions that in most cases were neither practical nor affordable for builders or buyers. In the past decade, however, building green has become more economical and more mainstream. You don't have to build a house out of recycled tires or water your garden with bathwater. Simply build smart, and you'll save energy and money. The green-building concept has become less daunting, resulting in a market that's calling for more green homes and an industry full of builders willing to supply them.

Not that long ago, homebuyers looking for a green home had to rely on the reputation of local, state, or regional green-building programs. If a green-building program didn't exist, buyers had to place complete trust in the builder—a marketing challenge for builders and a leap of faith for buyers. In 1996, the Department of Energy launched the Energy Star for Homes program, which focused on energy consumption rather than building practices. There simply weren't any national green-building certification programs that applied to residential structures, so even the definition of what constituted a green home was nebulous. In recent years, however, two dominant national programs began issuing green-built certifications, and a third, older program may be drawing new breath.

LEED for Homes was implemented by the U.S. Green Building Council (USGBC) in early 2008 after two years as a pilot program. A similar program, the National Green Building Standard (NGBS), was initiated by the National Association of Home Builders (NAHB)



"Anybody can say that they're a green



LEED FOR HOMES

www.usgbc.org/LEED/homes



L EED for Homes was developed by the U.S. Green Building Council in conjunction with a variety of interested organizations, including local green-building programs, production builders, the National Association of Realtors, Energy Star for Homes, and major corporations involved in insulation and HVAC systems. Much like the commercial LEED program from which it came, LEED-H is highly esteemed for its rigorous standards and has quickly gained recognition in the construction industry and the housing market. At present, LEED-H has certified more than 2500 homes and has another 12,000 in the pipeline.

LEED-H offers certification at four levels: certified, silver, gold, and platinum. To reach certification, a project must meet a few prerequisites, then earn points from eight categories, such as site selection, water efficiency, materials, and resources. As certification levels increase, the

point requirements increase. The results are verified through HERS (home-energy rating system) specialists. The certification process is facilitated through one of more than 60 LEED providers located throughout North America.

Cost

Enrollment for a single-family home requires a \$225 registration fee and an additional \$300 for certification (for nonmembers of the USGBC). Multifamily dwellings cost slightly more, and affordable housing slightly less. Verification and consultation both vary by market and degree of involvement required, but fees range from \$700 to \$5000 for a single-family home. In all, certifying a 2500-sq.-ft. house at the entry level averages about \$2500. However, discounts are available to production builders who build large numbers of certified houses.

Unique requirements

Even at the most basic level of certification, meeting LEED standards can be challenging. Their requirements are less lenient on details that

many other programs would consider insignificant or cumbersome. When ordering lumber, for instance, LEED requires that you order no more than 10% extra to account for waste, whether or not you plan to return unused stock.

Choose it because...

... You want recognition from the most well-known, most demanding green-building program currently available. If a project is certified LEED, few people will question the performance of the home or the builder. This is largely by design: To generate market pull, LEED-H certification was intended to recognize the top 25% of builders in the country. "The power of emulation is what they're after," says Ann Edminster, who chaired LEED-H through much of its inception. "As you start to recognize and publicize leaders in the industry, other builders want to be like them. If the market rises up to meet LEED, it's expected that LEED will raise its standards as well." Builders may find themselves in frequent need of re-education.

in January 2009. A third program, Environments for Living (EFL), was created in 2001 and was revamped as a green program in 2007 by construction conglomerate Masco. In addition to the three national programs, builders and homeowners now also can choose from more than 100 local, state, and regional green-building programs.

Speaking to builders who've enrolled in these programs, you find two dominant themes: First, there's a definite learning curve to building a certified-green house; and second, the green-building process is worth learning. Beyond the obvious environmental arguments,

there now are convincing economic reasons to have your next house certified green.

Gain recognition in the marketplace

Residential green-building programs are young, but all early signs of the economic advantages of certification and the market's demand for certified-green homes are positive. A May 2009 study spearheaded by nonprofit green-building program provider Earth Advantage showed that in the Portland, Oregon, area, certified homes sold at an average

builder, but a certified builder can now prove it." —Michael Chandler, builder

NATIONAL GREEN BUILDING STANDARD

www.nahbgreen.org



Initiated by the National Association of Home Builders, the NGBS traces back to the Model Green Home Building Guidelines, which were introduced in 2005. Although builders can still certify homes to the NAHB's earlier guidelines, which builder Michael Chandler refers to as a "green-building program with training wheels," the NAHB's emphasis is now clearly on the NGBS. Formed in partnership with the International Code Council and in conjunction with a range of industry players, the NGBS completed the ANSI process in January 2009, which means it is written in a language that could easily be adopted by codes. Although the NGBS is too young to have much name recognition with homeowners, the program is quickly becoming known among builders. The NAHB is focusing much of its attention on training verifiers and builders, generating recognition that will eventually trickle down to homeowners.

Like LEED-H, the NGBS is an all-encompassing building program available at four levels of certification: bronze, silver, gold, and emerald. It evaluates projects in six cate-

gories, including energy, water, and resource efficiency. The NGBS is set up with mandatory requirements for attaining a basic level of certification. Similar to LEED, builders and homeowners have the ability to earn additional points to achieve a higher level of certification.

To take the mystery out of certifying a home, go to the NGBS Web site and use its scoring tool. It's worth noting that you can score your home for free whether you plan to spend the money for certification or not. The scoring tool is a great way to become educated about certification requirements.

Cost

For a single-family home, certification costs \$200 for NAHB members and \$500 for nonmembers. Additional charges for third-party verification range from \$700 to \$1300, depending on the scope and the location of the project. Certification for a 2500-sq.-ft. house averages between \$1000 and \$1500. Simi-



lar to LEED-H, discounts are available to production builders.

Unique requirements

One common complaint from those serious about green building is that entry-level certification is too easily achieved and allots points for basic measures. For instance, simply building a house out of wood garners valuable points under the NAHB program requirements.

Choose it because ...

... You're looking for a builder-friendly program. NAHB has tried to make building a certified-green home accessible to as many builders as possible. Chandler, who has built LEED and NGBS homes, puts it this way: "We all want people to build green, and we're all evangelists. But LEED for Homes is like the pristine little church on the hill, and the (NGBS) standard is like the little revival tent in the valley. You don't even have to be sober to come inside—we just want to save you." That said, most builders consider homes in the top levels of the NGBS and LEED-H to be comparable in performance.

of 12% more than noncertified houses. The same study showed that certified homes sold faster. A study done by McGraw-Hill Construction for the USGBC estimates that in the next five years, 10% to 12% of all new homes will have had green-building practices incorporated into their construction.

Enrollment numbers for certification are growing at a steady clip as well. For its *Green Building Guidelines*, a precursor to the brand-new NGBS, NAHB has seen builder enrollment grow at an average of 10% per month. Builders are looking to certification programs not only because they want to build better homes but also because

they want to differentiate themselves from those who aren't building homes of similar quality.

Third-party certification provides transparency in an industry that previously gave advantage to builders who promised quality but built junk. Until now, buyers were on their own as they tried to sort green builders from green marketers. "Anybody can say that they're a green builder," says Michael Chandler, a builder who has built to both NGBS and LEED standards, "but a certified builder can now prove it." With multiple programs to choose from and various certification levels within programs, builders can even document how well their

If your home's **energy bills exceed** a given

homes perform. Certification becomes a powerful marketing tool for builders as well as homeowners who plan to sell their homes one day.

Streamline job-site management

Building a certified home affects the construction process in a number of ways. Nowhere is that change more significant than with those who are involved in the project. Green-building consultants are typically brought in on the front end of the project to help with everything from site planning to the design of the mechanical systems to scheduling. While hiring consultants is not mandatory, it saves tremendous amounts of time and limits surprises when it comes to verification. This is especially true for builders who have little experience building green or who seek a high level of certification.

This sounds like a lot of extra work, but the end result is a project that is more organized and successful. Not only do you start with a

road map of the workflow for the entire project, but you also obtain an engineered plan ensuring that the home will function as a system and that all verifications are successful.

The verification process is stringent and thorough. "It is like a traditional code inspection," says builder Jim Picton of Picton Brothers, LLC, in Washington, Conn. "But it's a little more rigorous because these guys are looking for very specific things, and they study them very closely. Building inspectors, on the other hand, have a broad range of issues that they have to cover in a short period of time." Most builders choose to be on site when green raters or HERS inspectors are there for verification. When the Pictons built their first LEED home, the green rater was there all day on two occasions. "The inspectors are really there to help," says Picton.

Verifications also ensure that those who helped to build the house, particularly subcontractors, are responsible for the quality of their



purchase of the guarantee, you should know that it's valid only for a few years and not for the life of the house.

Unique requirements

With its roots in the earlier 2001 program, Certified Green is not concerned with anything outside the home itself, making it an attractive program to builders who are less concerned—or unable to control—site planning.

Choose it because ...

... You can't help but be impressed by Certified Green's comfort and heating-and-cooling guarantees. No other green-building program offers anything similar. Also, because EFL's Certified Green is performance-based rather than a points-based system, there is no need to scramble for points or to manage cumbersome documentation. EFL also promotes pairing its certification with those from other national or local programs. This way, you get the name recognition of a more well-known program with the guarantees of EFL certification.

ENVIRONMENTS FOR LIVING

www.environmentsforliving.com

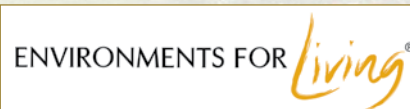
Developed for construction conglomerate Masco Corporation by building scientists John Tooley of the Advanced Energy Corporation (www.advancedenergy.org) and Joseph Lstiburek of Building Science Corporation (www.buildingscience.com), the original Environments for Living launched in 2001. It was revamped in 2007 through a partnership with GE's Ecomagination program as EFL Certified Green. Although less known than the other national green-building programs, EFL can be considered a much larger program. After all, EFL has certified more than 150,000 homes, far more than either the LEED or the NGBS programs.

EFL's Certified Green program is slightly different from LEED or the NGBS. The program essentially covers the same elements as the other programs with the exception of site planning. However, EFL is a performance-based program rather than point-based. Certification requires HERS verification, but on a pass/fail platform. You either make certification, or you don't.

For an additional fee, Certified Green comes with two performance guarantees: a comfort guarantee stating that the temperature in the center of any room will not vary more than 3°F from the thermostat setting and a heating-and-cooling energy-use guarantee stating that if your home's energy bills exceed a given amount, Masco will pay the difference.

Cost

A preconstruction plan review, which also includes recommendations from EFL, runs \$450 for production plans (100 homes or more) and \$550 for custom plans on homes up to 2500 sq. ft., plus 5¢ per additional square foot. To add the comfort guarantee and heating-and-cooling energy-use guarantee, prices range from \$250 to \$650, with significant cost breaks for production builders. The cost of the guarantees typically includes the required HERS-testing fee. When considering



amount, **Masco will pay the difference**

LOCAL, STATE, AND REGIONAL PROGRAMS

In addition to the national programs, there are also more than 100 state, local, and regional green-building programs across the country. Most of these programs predate the national programs, which often means a track record and better name recognition with local buyers. Although requirements of local programs vary greatly—from being so easily achieved that they border on insignificance to having requirements that surpass portions of national programs—it takes a little research to determine whether a local program is worth considering.

While smaller green-building programs may see a decline in enrollments with the advent of national programs, the larger ones have a strong foothold and are expected to thrive. Many are handled out of the same offices that now serve as providers for LEED-H or use the same verifiers as the NGBS, so tying a local program to a national



one often involves only a nominal cost. EarthCraft Homes (Georgia), Austin Energy Green Building (Texas), and Earth Advantage (Oregon) are three programs that garner more attention in their regions than national programs.

Cost

The price of certification varies widely but is generally less expensive than certification through national programs. Many are tied to their own sets of local or regional incentive programs, which means additional funding is often available.

Unique requirements

Verification with larger, better known programs is usually similar to the national programs, but some are less stringent and costly. In areas where there are local environmental issues, local programs often do a more



thorough job of addressing local environmental concerns or climatic conditions, such as water issues in the desert or heat along the Gulf Coast. These requirements are not easily addressed in a national program that has to cover conditions ranging from the Arizona desert to the upper reaches of Maine.



Choose it because ...

... You want the market pull of a program with a strong local following. Some programs are also working on progressive initiatives. The Energy Trust of Oregon, with the help of Earth Advantage, has recently started assigning homes with an energy-performance score that labels a home's energy efficiency much in the same way that cars are assigned miles-per-gallon ratings.



work. For example, when it comes time to perform a duct-blaster test to determine how tightly the ductwork is sealed, the HVAC contractor can be held accountable for reaching certain standards.

Documentation is another important factor in many programs, and a potential sticking point for builders. While requirements vary, purchases, materials, and processes must be documented every step of the way—from the type of concrete used for the footings to the location of the mill that made the window trim. It can be a nuisance, but these records help to highlight efficiencies and inefficiencies.

Increase value, decrease cost

We've all heard *value* and *cost* brought into the context of social and environmental reform. For a lot of builders, though, it really comes down to dollars and cents.

Simply enrolling in a program can cost between \$200 and \$550 up front. Verifications usually start around \$700, and consultations can range from \$500 to \$4000, with \$1500 being a fairly typical price. With some programs, the consultation is built into the price of certification (through EFL or a LEED provider, for instance). With other programs, though, such as the NGBS, the consulting work is usually done by the verifier, if at all. As the builder and his team become more knowledgeable and competent, these expenses decrease

dramatically—to the point where the consultants and their fees may disappear completely.

Achieving some level of certification usually requires anywhere from a 1% to 20% increase in the construction costs. The increased expense can vary from one builder to another. California builders, for instance, are used to building to strict codes, so their costs may increase only due to enrollment fees. A builder who gets by on code minimums in a state with less-than-stringent codes may have to make sizable financial leaps to reach the standards of green certification.

There are builders and homebuyers willing to build green no matter what the cost. For many homebuyers, though, building a green home usually comes down to a question of budget, weighing the front-end expenses against the later gains. The challenge is educating both builders and buyers to look beyond the initial construction expense, which is usually financed over time. It's worth noting the wide range of financial incentives, tax credits, and rebate programs that help to offset the cost of certification. (For more information, go to www.dsireusa.org.) Once they're on board with the movement, the real question then becomes whether they want certified performance. It's that simple. □

Matthew Teague is a contributing writer.