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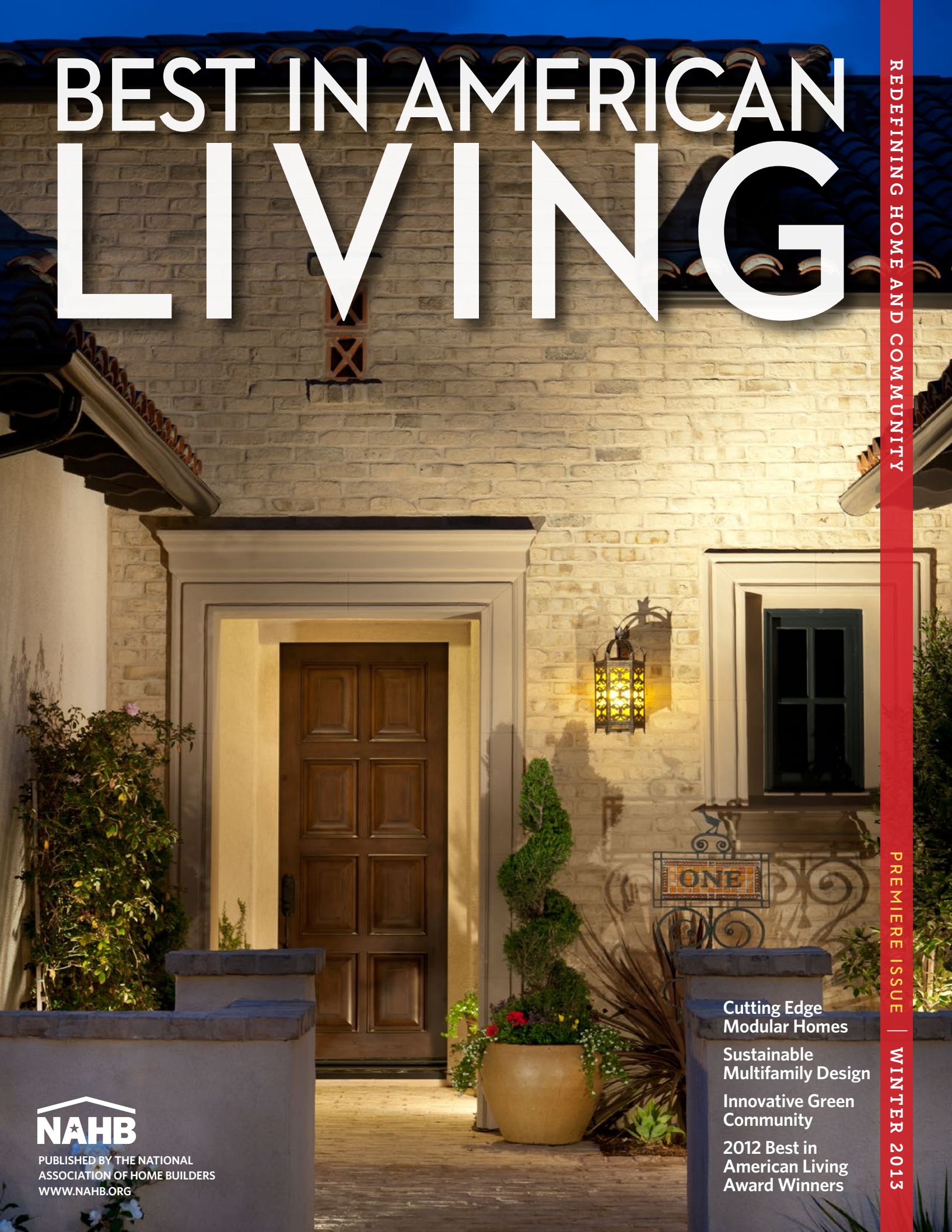

REDEFINING HOME AND COMMUNITY

PREMIERE ISSUE | WINTER 2013

Cutting Edge Modular Homes

Sustainable Multifamily Design

Innovative Green Community

2012 Best in American Living Award Winners

NAHB

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BEST IN AMERICAN
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ON THE COVER: *The cover features 2012 Best in American Living Gold Award Winner, Arista at the Crosby – Plan 1 designed by Bassenian | Lagoni Architects, Newport Beach, Calif. and built by Davidson Communities, Del Mar, Calif. Photo taken by David Harrison.*

REDEFINING HOME AND COMMUNITY

WINTER 2013

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WELCOME

Welcome to *Best in American Living–Redefining Home and Community*, NAHB's new digital magazine that showcases the value of good design and the connection between home and community.

Buying a home is the most significant purchase people will make in their lifetimes. They are increasingly focused both on what's inside *and* what's outside the front door as they evaluate this investment in their futures and look for the best possible match for how they live, work and play. Turning those hopes and dreams into reality is at the heart of this magazine. *Best in American Living* will explore what is appealing and what sells in today's market, spotlighting what building industry professionals need to know to set their products apart and hit the right mark with today's highly educated and discerning home buyers.

Within these pages you will learn about the latest design trends in homes and communities based on national award-winning projects. Floor plan critiques will show how to redesign for changing demographic needs and market dynamics. We'll offer "it's in the details" expert advice on correct proportioning, historical precedents, and appropriate use of common building design elements.

No other magazine gives you access to industry news direct from the source and on a range of topics, such as the standards and value of green building; industry best practices and techniques; the latest market trends; credentialed research and consumer preferences; and the policy and regulatory framework that determines what can be built.

Debra L. Bassert
Editor in Chief

BECAUSE OF THE HOUSING BUST, half-built projects and idle building sites were not uncommon in Florida nearly four years ago when Gulfstream Gardens LLC reluctantly shut down a plan for a luxury condo community.

That would have been the end of the story for the Meehan Boynton Beach project had it not been for visionary thinking by the city of Boynton Beach, its Community Redevelopment Agency (CRA), and its Green Coalition, as well as enthusiasm from the three developers who make up Gulfsteam Gardens—Rick Lococo, Charles Funk and Jeff Meehan.

These developers had spent more than five years acquiring land for the planned large condo project at the south entrance to Boynton Beach off an old main drag, U.S. Route 1—once the main north-south artery for car travel on the East Coast. The developers' original plan was to replace a declining corridor of vacant lots, underperforming small retail shops and strip centers that rose up when Route 1 was replaced by interstate highway U.S. 95 with high-quality condominium housing that would help revitalize the entire area. But the troubled economy put all that on hold.

At about the same time the developers were beginning their planning for the condo community, the city of Boynton Beach was hatching plans for a green initiative to differentiate itself from other Florida cities by reinventing itself into "ground zero of sustainable living and development in Florida, and possibly the nation," as the developers characterize it. According to Vivian Brooks, executive director of the city's CRA, Boynton Beach had begun to formulate its own green building code—the first city in the nation to do so.

When the market began to suffer, Brooks says Lococo approached her and described a plan to continue the project, but as

VICTORIOUS

PHOTOGRAPHY BY GREG WILSON OF THE GREG WILSON GROUP EXCEPT WHERE NOTED OTHERWISE

The community revised its goal from luxury condo to top-level green rental community. Boynton Beach could not have happened if the city, its CRA and the developer had not worked together to revamp the original vision.

REVIVAL

Shelved Florida Community Comes Back Green —and Gold

RENDERING: UNITED LANDMARK ASSOCIATES

a rental community that would incorporate cutting-edge green features. He explained that lenders were not willing to consider the eventual operational cost savings of a green project as a factor in their loan applications and asked what the city might be able to do to help.

Boynton Beach Stepped Up

Shortly thereafter, said Brooks, "It all came together: the city approved its green building code, and the CRA began looking for something that would deliver a big impact for the city," thereby demonstrating commitment to green.

All parties worked together to transform the condo project into Seabourn Cove, a community of 46 buildings of market-rate luxury rental apartments and townhomes. The project was to be what the Palm Beach Post described as "a poster project…to brand Boynton Beach as a leader in sustainable energy and development."

The community is built for walkability.

The CRA devised a tax increment financing plan to make up the difference between what banks would lend and what the project would need through a structured tax rebate. Brooks said the first part of the agreement called for performance monitoring of the project for 10 years to generate data showing that green building features can save money on the operation of a community, thus providing enhanced return on investment.

If the project delivers as promised, the city will give the developers 50 percent of the difference between the assessed pre-redevelopment value of the parcel of land and the current value (or tax increment, estimated to be about $2 million over the 10-year period) every year.

"There was no risk to the city," said Brooks. "If the project didn't meet its projections, the company's rebate would be proportionally less."

Another challenge besides the financing was to select third-party monitoring and certification for the construction. After researching available options, the city and the developers chose to use the ICC 700 National Green Building Standard (NGBS), as certified by the National Association of Home Builders (NAHB) Research Center in Upper Marlboro, Md.

The developers were confident this approach would work to everyone's advantage. "Our ultimate goal was to reduce overall energy usage with the highest quality products," said Lococo. "During the two-plus years we spent planning the project, we'd see newer, more efficient products introduced, and we'd upgrade our product choices. We wanted that NGBS Gold rating, and we came up with everything we could to get that rating."

Field Test

In addition to evaluating endless product specs, the developers conducted onsite research of their own to see if product choices worked the way the manufacturers said they would. To test the noise levels in the community's proposed highway-side units, they built a mini-sized version of a unit (Lococo describes it as slightly bigger than an outhouse) using the same door, windows and insulation planned for the project. They enlisted a professor from a nearby college to come and measure the audible noise and found that the system worked better than anyone had expected. One visitor to the site who stepped inside was amazed and described the little building in the middle of a noisy construction site as "whisper quiet."

Compare and Contrast

As the developers made plans to achieve high levels of energy and water efficiency, they were helped along in documenting the new community's energy savings by their own experience. The firm had built a community with nearly identical buildings in Coral Springs, Fla. not long before they embarked on the Boynton Beach project. The Coral Springs community was built to code, but not designed to be green. The developers compared energy and water bills from individual units at both communities and were able to show that Seabourn Cove's residents will pay between 30 percent and 40 percent less on their energy bills, and between 20 percent and 25 percent less on their water bills.

Lococo acknowledges that building green carried a higher price tag—the entire 456-unit project will cost nearly $3 million more than it would have if built to the code that applies to the company's Coral Springs community. He noted that lenders aren't exactly lining up to put money into the hands of residential developers these days, especially for green projects, and that very

With the right window and door choices, the community is amazingly quiet.

little data is readily available to support a higher value for energy-efficient communities. However, Lococo suggests that even if builders don't have the types of data available to his firm, many options exist for builders that don't cost much but add much value for residents. For example, "By using high-quality windows we were able to cut at least 200 tons of air conditioning capacity from the 800 tons that would have been needed otherwise," he explains. That savings goes right into residents' pockets, a great benefit that the community's marketing highlights.

Lococo understands that most cities aren't as supportive of green building as Boynton Beach, but notes that "there are still some [local] rebate programs out there" that can help bring costs down.

RICK LOCOCO

A mini-building was constructed to test noise levels.

More Benefits

In their proposal, the developers also included a path that would connect to a planned Blueway/Greenway pedestrian trail built to improve walkability throughout the city. The connecting quarter-mile path now exists as an "Eco-art walk," displaying structural elements of Florida stone carved into seating areas, along with descriptive panels describing the 51 different species of butterfly-friendly trees and shrubs along the path. Stamped concrete panels show 12 different species of butterflies that frequent those trees.

A recently-completed clubhouse includes many of the same high-efficiency standards as the residences. It offers resort-style amenities, including a racquetball/sports court, a fully equipped gym, saunas and a computer room. A clubroom includes a large flat-screen television and lounge seating, and an adjoining café includes a bar for socializing and private gatherings. It also has wi-fi hotspots, a large conference room, a 1,100-square-foot business center and a resort-style pool with a 14,000-square-foot shell deck and gazebo. A similar clubhouse is planned for the second phase of the project.

The Gold Standard

This past summer, the developers of Boynton Beach achieved a NGBS Gold-level designation for the first of the completed buildings. A total of 32 buildings in Phase I of the community have now been Gold-certified, and a similarly-sized Phase II is in the pipeline. According to the NAHB Research Center, Seabourn Cove is already

AERIAL PHOTOGRAPHY INC.

The community, which is 46 buildings of 456 market-rate luxury rental apartments and townhomes, serves as "a poster project" for green. The community revised its goal from luxury condo to top-level green rental community.

Environmental Checklist

Seabourn Cove's builder/developers spent two years in design and development, incorporating scores of sustainable environmental systems, techniques, devices and products at a cost of nearly $3 million above and beyond what is required by local and state building codes.

As a result, Seabourn Cove is the nation's largest multifamily community to receive a Gold designation by the NAHB's esearch Center, based on the prestigious ICC 700 National Green Building Standard.

These efforts will reduce residents' monthly energy costs by 30 percent to 40 percent, and water bills by 20 percent to 25 percent, resulting in more than $1 million in energy savings for the community in its first 10 years.

To view an inventory of Seabourn Cove's current green features, go to www.nahb.org/seacove checklist.

the largest community in the country whose residential buildings are certified at that level.

In addition, the city of Boynton Beach and its CRA won Florida's 2012 Sustainable Best Practice Award for its climate action plan, which incorporated the International Green Construction Code and a tax increment plan to support the cost of raising Seabourn Cove's energy efficiency.

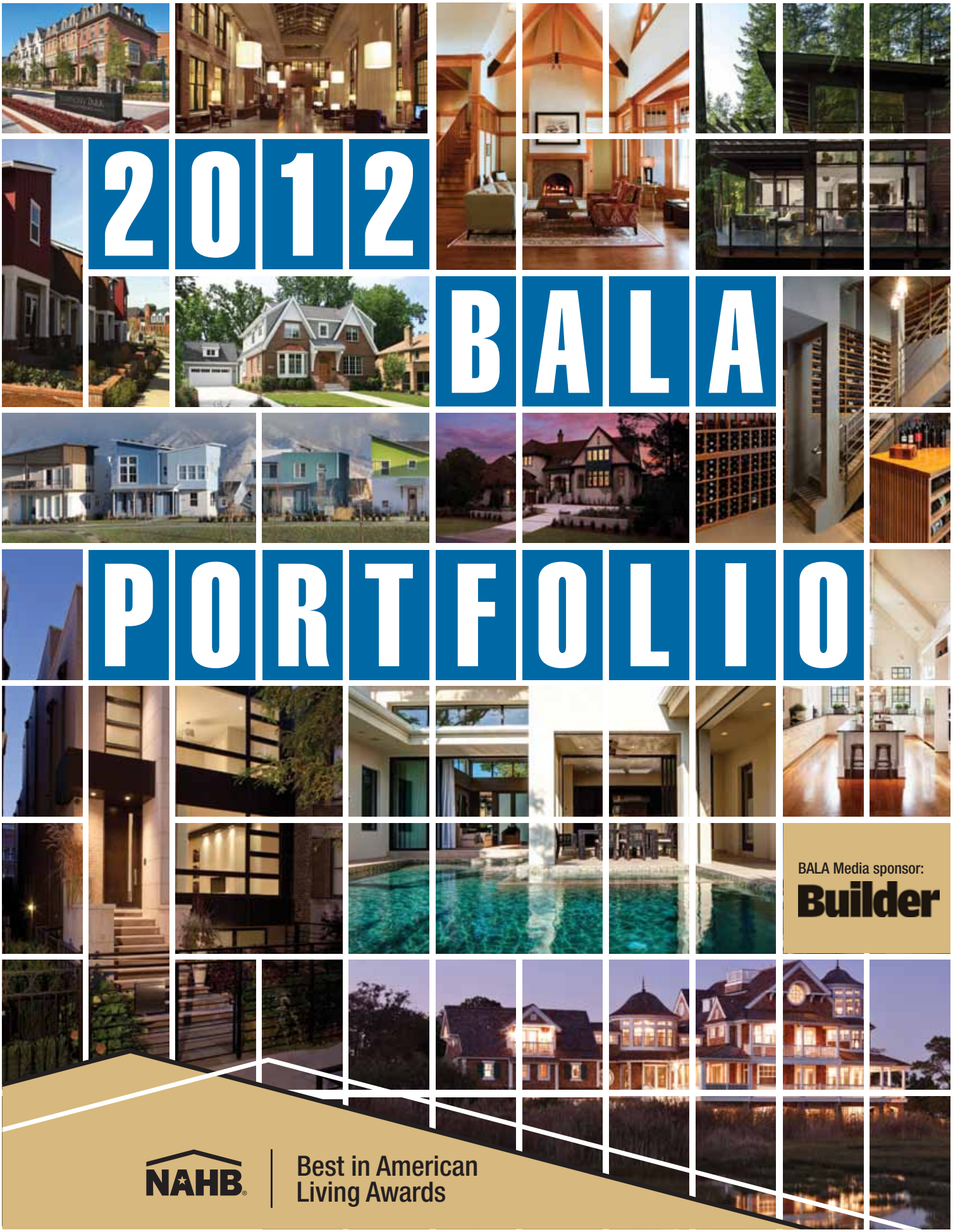
The company has distributed its environmental checklist, which lists the types of energy-efficient and sustainable products used in the construction (see Environmental Checklist). The overwhelmingly positive local media coverage—such as a news story from CBS 12—helped generate a continuing groundswell of interest with prospective renters often stopping members of the construction crew to find out if they could get on a waiting list.

The first residents moved in July 1. Rental rates range from $1,288 to $1,316 for one-bedroom apartment homes with carport parking, to $1,645 to $1,695 for two-bedroom townhomes with attached garages, to $1,895 for three-story, three-bedroom townhomes with 2.5 baths and attached garages.

The enthusiasm for the community has continued. As of last fall, 200 pre-leases had been secured, with move-ins scheduled through December 2012 and the expectation that all units would be leased by January 2013. Brooks concluded that the city has been delighted at "the high quality of the residents who have responded to the community and its green features."

Ann Marie Moriarty *handles communications for NAHB Multifamily and 50+ Housing. She can be reached at amoriarty@nahb.org.*

Learn more about the National Green Building Standard through additional multifamily case studies. Watch Sanford Steinberg, Principal, Steinberg Design Collaborative LLP, Houston, Texas present several different multifamily projects in Texas and South Carolina that have achieved NGBS certification. View now at www.nahb.org/ngbsmfcasestudies.



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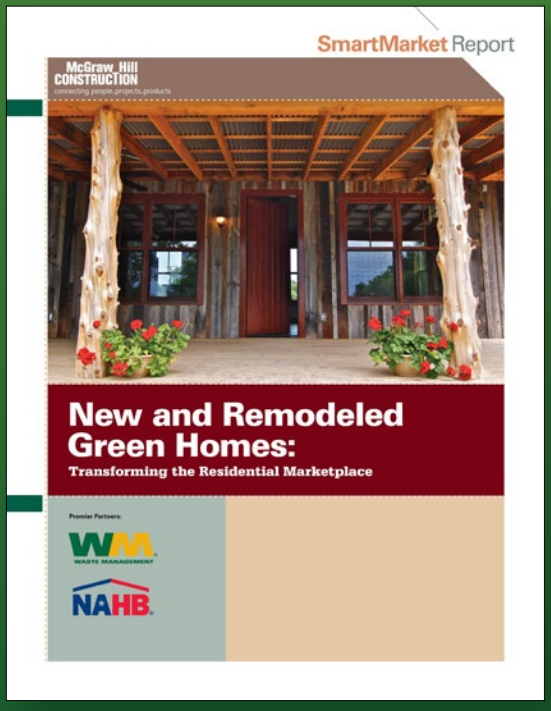


BIGSTOCK

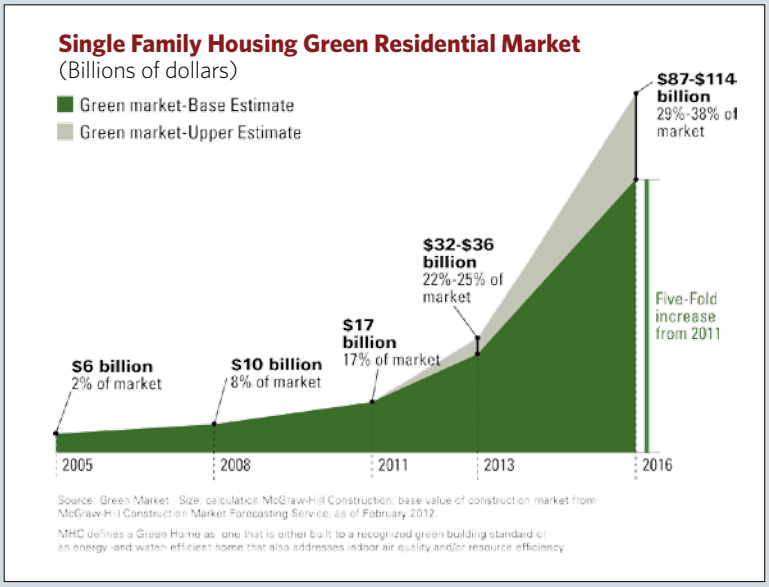
ONE WAY TODAY'S FORWARD-LOOKING COMPANIES are setting themselves apart from competition is targeting consumers concerned with the long-term impacts of their purchasing decisions. Labels such as "organic," "recyclable" and "sustainable" are used to describe everything from toothpaste to tires in hopes of capturing the interest of today's green-minded buyer. Builders, remodelers, architects and others in the housing industry have taken this movement to heart.

"Green" homes, which were once a small niche in the industry, are quickly moving toward mainstream. Just how prevalent this trend is—and where it's going—was the subject of the Smart Market Report, the latest study from the National Association of Home Builders (NAHB), McGraw Hill Construction and Waste Management. Even the most ardent green enthusiasts were surprised by some findings of the report.

For example, the study found:

- Green homes' share of the construction market jumped to 17 percent in 2011, up from just 2 percent only a decade ago. That translates to an opportunity of about $17 billion last year alone.
- The forecast for the future was even more unexpected: Green homes are expected to comprise as much as 29 percent to 38 percent of the market by 2016.

But these unexpected growth projections are just the beginning of the report's surprising discoveries.



Report Background

Released earlier this year, the Smart Market Report compiles responses from across the broad NAHB builder and remodeler membership. The findings are backed by proprietary research surveys and McGraw-Hill Construction's Dodge database.

In addition to market size data and projections, the report explores:

- The triggers and obstacles affecting the growth of green building
- What practices and features are preferred by industry practitioners
- Green building product awareness
- The many green-related certification protocols such as the ICC 700 National Green Building Standard (NGBS)

The report's revelations promise to influence the business decisions of thousands of companies that serve the home building and remodeling industries as the information is used to chart short- and long-term strategies and keep abreast of what's happening in the growing green wave.

For example, the study shows that, as recently as 2009, more than two-thirds of builders described their businesses' involvement in green projects as "marginal" or "not-at-all involved." For remodelers, that number exceeded 75 percent. Yet less than a quarter of these same two groups believe they will still be operating without a more significant green influence by 2016. Since the study queries the industry practitioners themselves about how their own businesses will respond to the green marketplace, the implications of this trend are clear: in the very near future, green building and remodeling will become much less about tapping into a niche and more about staying relevant amid a rapidly changing competitive landscape.

This presents challenges and opportunities for forward-looking businesses. For example, it requires industry practitioners to take steps to understand the fundamentals of green building and become familiar with the available practices and technologies that can make homes more efficient, more durable and offer improved indoor environmental quality. Groups such as NAHB offer this training.

It also means analyzing the economic climate to determine what green designs and features will work in builders' specific markets. Finally, it will require developing a marketing message that buyers will respond to—for example, some buyers are turned off by the term "green," but are very interested in owning energy-efficient homes. Industry professionals who undertake these initiatives will be better positioned to thrive in the greener housing market of the future.

What Buyers Will Pay

Another eye opener revealed by the study is that more than 60 percent of builders and remodelers report that buyers are willing to pay a premium for a green project. This runs counter to the popular notion that customers aren't really willing to pay more for green. Further, the more involved an industry professional is in green building; the more he or she feels that buyers are willing to pay for it. To illustrate, as a whole, the survey group felt buyers are willing to pay an additional 3 percent on average for a green home. However, "dedicated" green practitioners (those doing 90 percent or more of their projects in the green field) put that figure closer to a 6 percent. Similarly, while about half the respondents acknowledge green homes are easier to sell than non-green ones, a full 70 percent of the dedicated-to-green respondents felt that way.

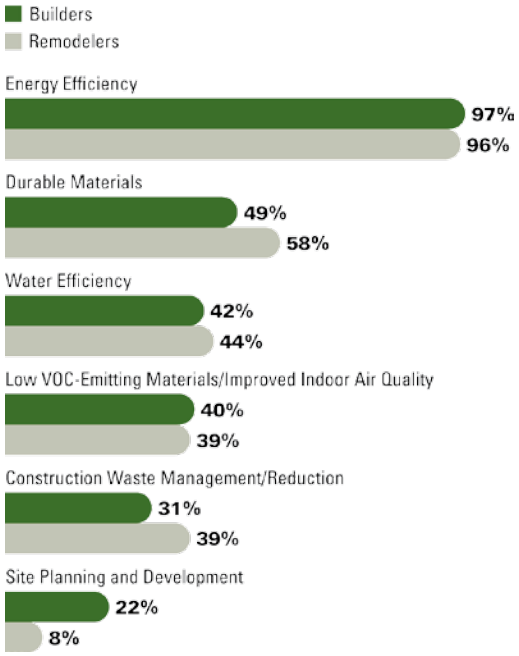
It's logical that how deeply housing professionals are involved in green building would correlate with how likely they are to think green is easier to sell and can command higher premiums. But what's interesting is that, among those practitioners who are not-at-all or only marginally involved in green building (which constitutes 0 to 15 percent of projects) a full 85 percent cite "consumer unwillingness to pay additional costs" as the top obstacle to building green.

Why this disagreement exists between these groups over buyers' responses to green merits some consideration. Of course geographic, social, economic and many other factors affect the degree to which buyers will accept green premiums. But in general, practitioners that are most engaged in green seem to have figured out how to sell projects that admittedly cost more.

One possible explanation is that the dedicated green professionals, by virtue of their high degree of experience in designing and constructing mostly green projects, are in a better position to understand and appreciate the

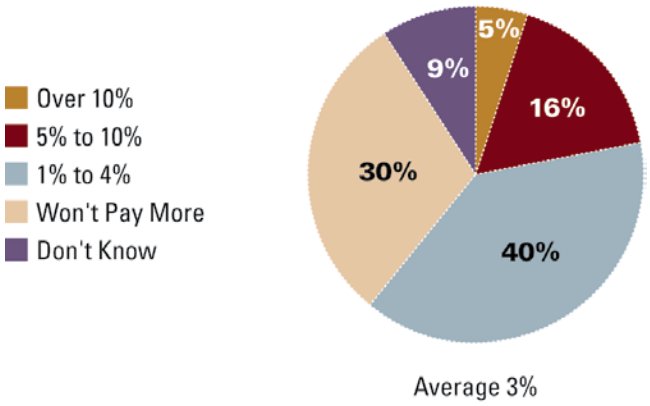
Most Important Green Practices for Green Homes and Remodeling Projects

Source: McGraw-Hill Construction, 2012



Additional Amount Customers Are Willing to Pay for Green
(According to Firms Doing New Construction)

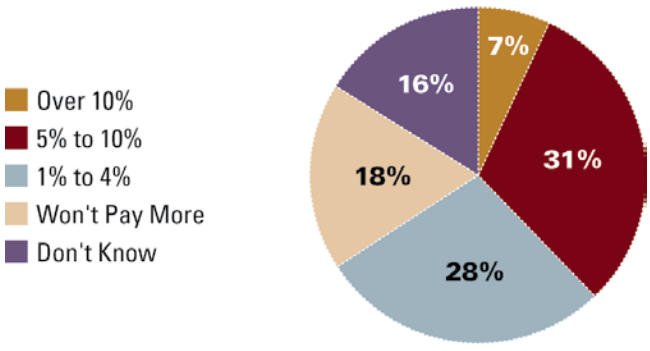
Source: McGraw-Hill Construction, 2012



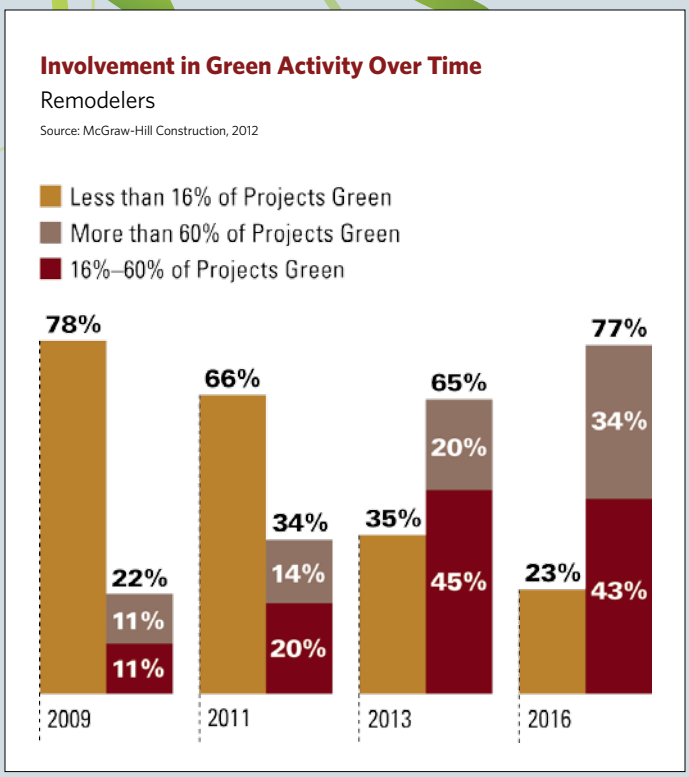
Average 3%

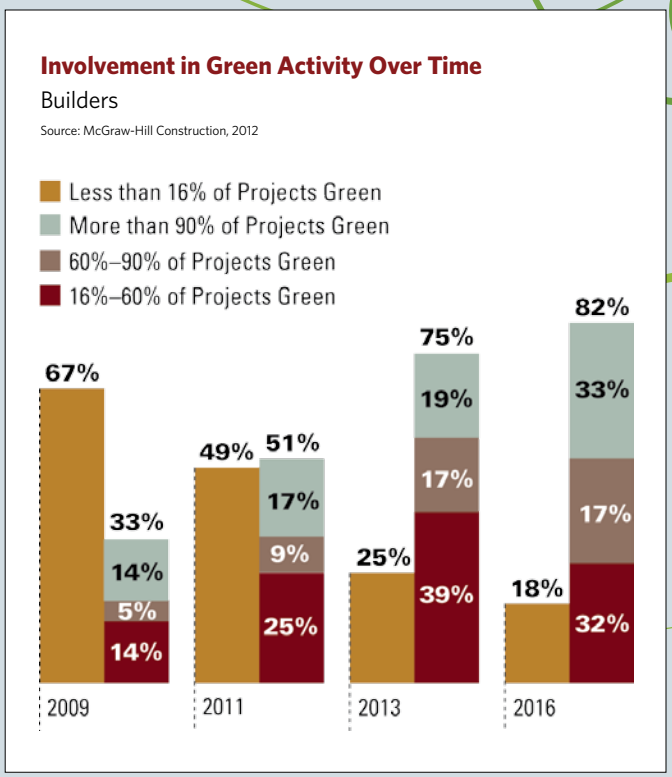
Additional Amount Customers Are Willing to Pay for Green
(According to Firms Doing Remodeling)

Source: McGraw-Hill Construction, 2012



Average 5%





value and long-term benefits green features can add. This deeper understanding and experience better enables them to develop value-focused messages that resonate with buyers and provide informed responses to cost concerns.

All the various categories of construction and design practices that collectively qualify a building as "green" are important to the environmental performance of a home, but perhaps not so when it comes to selling a green project. Those who find buyers unwilling to pay for green may not be making the right pitch, or they may be selling "green" as a concept or an upgrade rather than focusing on its value. Green building and remodeling veteran Matt Belcher, principal, Belcher Homes, describes his marketing philosophy this way: "We focus on the value of high-performing homes and tell them we're throwing in saving the planet for free!"

Fortunately for the industry, the Smart Market Report is also helpful in identifying what green features are popular among builders, and by extension, what value propositions the successful green practitioner may be employing to sell his or her projects. For example, when asked to select the most important green practices, more than 95 percent selected "energy efficiency." That nearly doubled the next most popular "durable materials." The rest in decreasing order were: "water efficiency," "low VOC [volatile organic compound]-emitting materials/improved indoor air quality," "construction waste management/reduction" and "site planning and development."

The most popular green features are those that can provide more tangible, nearer-term value directly to the buyer: lower utility bills and less maintenance. Next are those with benefits down the road such as reducing landfill waste or minimizing stormwater runoff. That's not to say these practices aren't important, just that they might not be imperatives when pitching projects to buyers.

Done well, green building starts at the design phase of a home and is integral to the construction process. It provides a framework for making decisions during the stages of the process that have long-term impacts on the home owner and the planet. If McGraw Hill Residential Construction's projections hold true, green building could become an $87 billion to $114 billion market in less than four years. This presents a huge opportunity for architects, builders, remodelers and just about every other industry connected to housing. Still, getting informed about green building, understanding what buyers want (and are willing to pay for) and learning how to communicate with green consumers will be tremendously important to success.

The full 59-page Smart Market Report "New and Remodeled Green Homes: Transforming the Residential Marketplace" contains many more insights about this exciting trend than are explored here. It is available for free download on NAHBGreen.org.

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KEVIN MORROW

A Place in Building History

NGBS CONTINUES MAKING ITS MARK

Visit http://www.nahb.org/ngbschanges to listen to Bruce Boncke,Chief Executive Officer of BME Associates, Fairport, N.Y., discuss changes to the standard in depth.

CHANGE IS ON THE HORIZON for designers, builders and remodelers involved in the green residential marketplace, and one of the reasons is that the ICC 700 National Green Building Standard (NGBS) underwent its first formal update in 2012 since its initial publication in early 2009. The changes that have been made took into consideration a broad range of perspectives that should make NGBS an even more robust standard.

The process was run by a 41-member consensus committee representing a wide range of green building practitioners, manufacturers and green advocates that met last February to begin a months-long effort to update the standard. Their task included publishing two drafts of the rating system and responding to scores of public comments.

As of this writing, a finalized draft of NGBS has been submitted to the American National Standards Institute (ANSI) for review and approval.

The Standard Catches On

The original version of NGBS was already a game-changer for residential construction because it was the first green rating system to undergo the consensus process established by ANSI, and the first to earn approval by that organization. Since then, NGBS has come to define "green building" for single-family homes; low-, mid-, and high-rise multifamily buildings; residential remodeling projects; and site development projects. The 2012 review and update take the standard to the next level, reflecting what's been learned in NGBS's four years of existence.

The building industry has been quick to embrace NGBS. Dozens of regional and local green initiatives refer to the standard within their own program criteria. Also, the International Green Construction Code (IGCC) requires compliance with NGBS for jurisdictions that choose to regulate residential buildings of less than five stories. Buildings over five stories can also choose compliance with NGBS silver level or better as an alternative within the IGCC. Additionally, the NAHB Research Center (an adopting entity of NGBS) has certified for standard compliance thousands of dwelling units and developed lots for green-minded builders, remodelers and developers voluntarily seeking to set themselves apart from their competition.

The 2012 review and update take the standard to the next level, reflecting what's been learned in NGBS's four years of existence.

This Emerald-certified home in Redington Shores, Fla. is a one-of-a-kind contemporary home. The clean lines and harmony of materials are inspired by minimalism that fits naturally into its waterfront community.

The updated version of NGBS will contain some notable changes based on input from stakeholders who have been using it during its first several years. Still, the fundamental characteristics that contributed to its widespread success will remain in place. That means the scoring structure will continue to provide the inherent flexibility needed to design and build market-appropriate green projects. It also will continue to require users to achieve elevated minimum scores across all categories to reach higher levels, a key to NGBS's rigor and a feature that sets it apart from other nationally known protocols such as LEED [Leadership in Energy and Environmental Design, U.S. Green Building Council]. NGBS will continue to apply to all types of residential green projects, both new and remodeled, including single-family homes and multi-family buildings such as high-rise apartments and condominiums. Finally, the standard will continue to provide a stand-alone scoring system for green residential land developments.

The two most significant changes expected from the 2012 revisions pertain to its energy code basis and to a complete restructuring of how remodeling projects are scored. Another noteworthy enhancement increases the synergy across the building and the land development scoring systems.

Changes to Energy Requirements

The original NGBS used the 2006 version of the International Energy Conservation Code (IECC) as a basis. Energy chapter levels were set based on estimated levels of performance above that code (15 percent for Bronze, 30 percent for Silver, 50 percent for Gold and 60 percent for Emerald.) The next version will use the 2009 IECC as a basis instead, which will result in energy efficiency performance that is about 15 percent higher than the 2006 code. In the new version of the standard, the levels above the referenced energy code remain at 15 percent and 30 percent for the Bronze and Silver levels and have been revised to 40 percent and 50 percent for the Gold and Emerald levels respectively. That means projects across all levels will need to achieve better energy performance to comply with the new version, though the jump will be more pronounced at lower levels. This leap shouldn't prove to be overly challenging, though it may impact the compliance level that is ultimately achieved.

A Bronze-certified home in Chapel Hill, N.C. was designed to create a more comfortable, healthier, energy-efficient environment for residents.

Changes to Remodeling

Remodelers using the original version of NGBS will recall the scoring of Renovations, Remodels and Additions to be a challenging task. Requirements for homes constructed after 1980 often differed from those for new construction and were presented as notes within various sections—often with alternate scoring. This created a convoluted and frustrating scoring exercise. When the Consensus Committee convened to update NGBS, it made improving the scoring system to facilitate wider use in the remodeling community a priority, and the model for scoring renovations and remodeling projects was completely reconfigured. Instead of a litany of notes, the new standard has two entirely new chapters wholly devoted to existing building projects.

The first new chapter provides criteria for entire buildings and includes requirements for improved energy and water efficiency that increase as higher levels of compliance are sought. Also, a discretionary point component requires users to choose from a list of green-related practices to achieve minimum point levels commensurate with the score level sought. Points are available for sites, materials, indoor environments and other green-related practices.

The second new chapter provides a green protocol for the most common renovation and addition projects—those that focus on a functional area of a home, such as a kitchen, bathroom, basement or additions under 400 square feet. Like the other scoring protocols in NGBS, the chapter contains provisions for a variety of common, green-related concentrations such as energy and water usage, material conservation and indoor environmental quality. Unlike other chapters, all applicable measures are mandatory for compliance. Overall, the new format should make NGBS a much more user-friendly tool for green remodelers.

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A Silver-certified home in Madison, Va. has features such as ERV for improved air quality, spray foam for better insulation, LED lighting for energy savings, top-rated windows, locally sourced hardwood floor and retaining walls built from native rock excavated on the site.

PERMISSION GRANTED BY TERI WATSON; COURTESY OF EQUITY RESIDENTIAL

The TEN23 Apartment Building in New York City, which has a façade that is a combination of poured-in-place ornamental concrete and sophisticated, highly insulated glass, has applied for Silver certification.

Better Synergy Between Builders and Developers

In addition to the major energy and remodeling changes, the new version of NGBS includes many minor updates. One particularly noteworthy addition is a new scoring opportunity for those choosing to build lots in green communities. In a move aimed to encourage green developers and green builders to work together, developers seeking compliance with NGBS will, for the first time, be awarded points for requiring builders to achieve NGBS bronze or better. Likewise, green builders will be rewarded for selecting lots in NGBS-compliant developments. Previously, NGBS did not offer this link between its rating systems. The new system should better align the goals of homes that meet the standard with developments that also meet its requirements. Additional development-related enhancements include providing more point incentives for brownfield redevelopment, more accommodation for low-slope site conditions and a tiered point allocation for preserving natural resources.

The 2012 updates to NGBS promise to increase its popularity and utility across the entire residential industry. Those on the committee overseeing the revision hope this will translate to more green building, remodeling and land development. The standard will be published upon ANSI approval as an electronic publication through www.BuilderBooks.com. In the meantime, those interested in tracking its progress through the ANSI process can do so at www.NAHBRC.com.

Kevin Morrow, CGP, *is Senior Program Manager, Green Building Programs, National Association of Home Builders. He can be reached at kmorrow@nahb.org.*

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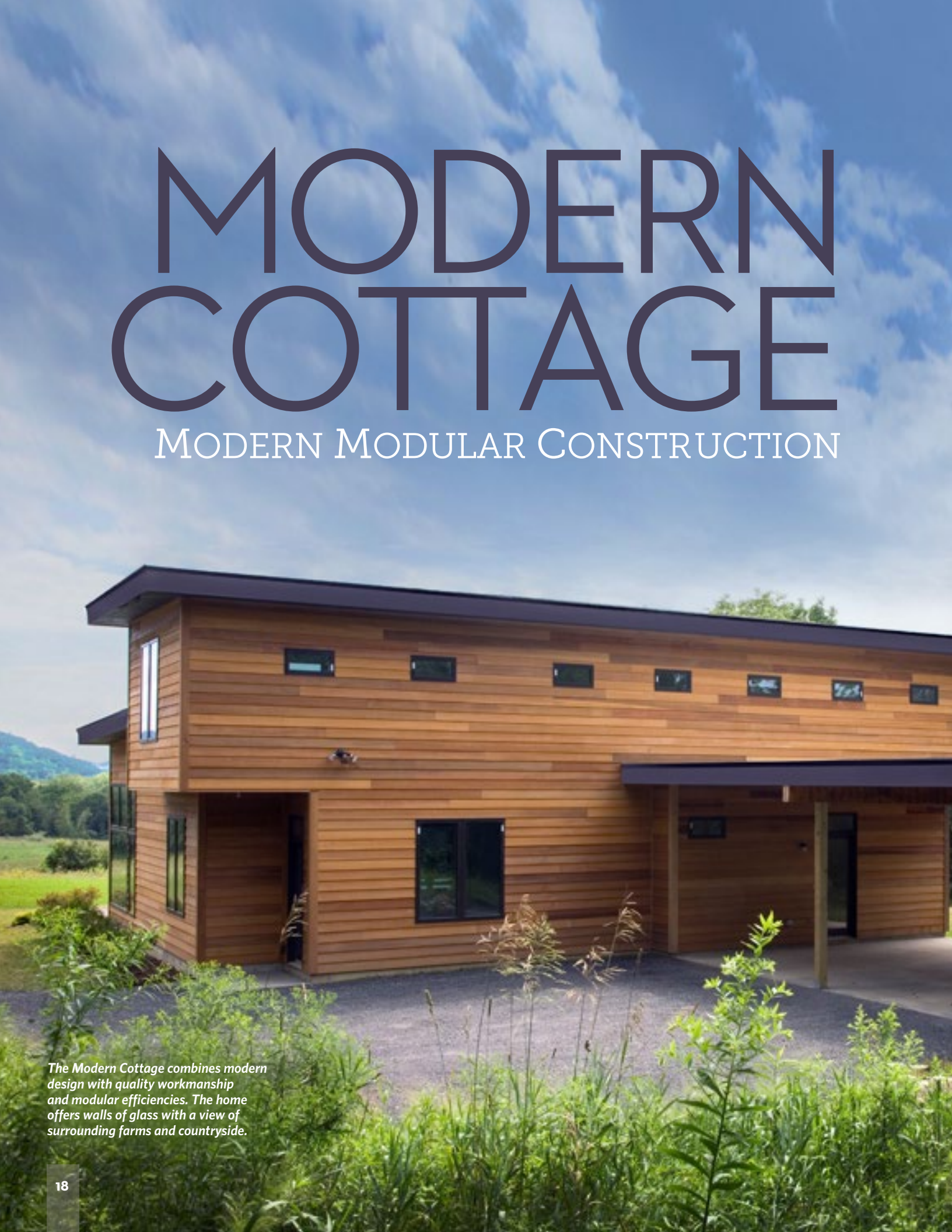
MODERN COTTAGE

Modern Modular Construction



The Modern Cottage combines modern design with quality workmanship and modular efficiencies. The home offers walls of glass with a view of surrounding farms and countryside.

CLAIRE WORSHTIL

BUILDER: Modern Cottage, LLC
MANUFACTURER: Epoch Homes
ARCHITECT: Turkel Design, LLC
DEVELOPER: Modern Cottage, LLC
INTERIOR DESIGN: Modern Cottage, LLC

PHOTOS COURTESY OF *PREFABULOUS + ALMOST OFF THE GRID: YOUR PATH TO BUILDING AN ENERGY-INDEPENDENT HOME* BY SHERI KOONES, AND MODERN COTTAGE, LLC

IN ITS EARLY YEARS, the term "modular home" carried with it the image of an out-of-the-box kit that, when put together, created a simple structure. But that has changed greatly in the last 20 years with the introduction of new technologies, new factory techniques, better cranes for lifting bigger pieces and with efforts by companies such as Epoch Homes, Pembrooke, N.H., to offer a host of customization options.

Epoch recently won a major National Association of Home Builder's (NAHB) award, the Jerry Rouleau Award for Excellence in Home Design, for a project in New York: The Modern Cottage. The cottage shows how today's modular homes have created an option for building using a design that, by other means of construction, would be expensive to construct a home that is beautiful, green and more affordable.

Today's Modular World

In modern times, the term "modular" has come to mean a construction approach, rather than a particular style of home. The approach is to create custom-designed pieces of the home pre-built in a quality-controlled indoor environment using sophisticated manufacturing systems, then delivered to the jobsite via large modules, set on a prepped foundation and finished with new and old types of building techniques.

Epoch Homes has been involved in the industry since its 1983 founding and has made it a mission to create quality custom homes using both modern and established techniques. The builder combines the finest materials and old world craftsmanship with the efficiencies and economies that modular construction offer.

The company begins each residential project by creating a unique home plan based upon the individual buyer's needs and tastes. All Epoch homes are built for energy efficiency, and the products Epoch offers range in size from a 900-square-foot cottage to a 15,000-square-foot modular mansion. Epoch Homes also uses modular construction for home additions and remodeling, entire modular subdivisions, multifamily projects and light commercial buildings.

In 2013, Epoch Homes was awarded the Jerry Rouleau Award for Excellence in Home Design for its creation "The Modern Cottage," which was designed by Turkel Design. The award, which is presented by NAHB's Building Systems Council, has existed for more than a decade and is given to outstanding designs that show excellence in the systems-built industry. (This year, the awards were renamed to honor Jerry Rouleau, a marketing authority and longtime building systems advocate, who lost a battle with cancer in the spring of 2011.)

Epoch was also the first modular home manufacturer in the nation to be certified under the Modular Green Approved program offered by the NAHB Research Center. In addition, the Modern Cottage was the first modular home in New York certified by the Research Center as an Emerald level project under the National Green Building Standard (NGBS) in May of 2012.

The Winning Design

Epoch Homes partnered with Modern Cottage, LLC to build the Modern Cottage, a 2,700-square-foot, three-bedroom home in in Ancram, N.Y., a few hours north of New York City. The minimalist modern-styled home was designed as a weekend getaway for Manhattanites seeking refuge from the city in New York's Hudson Valley.

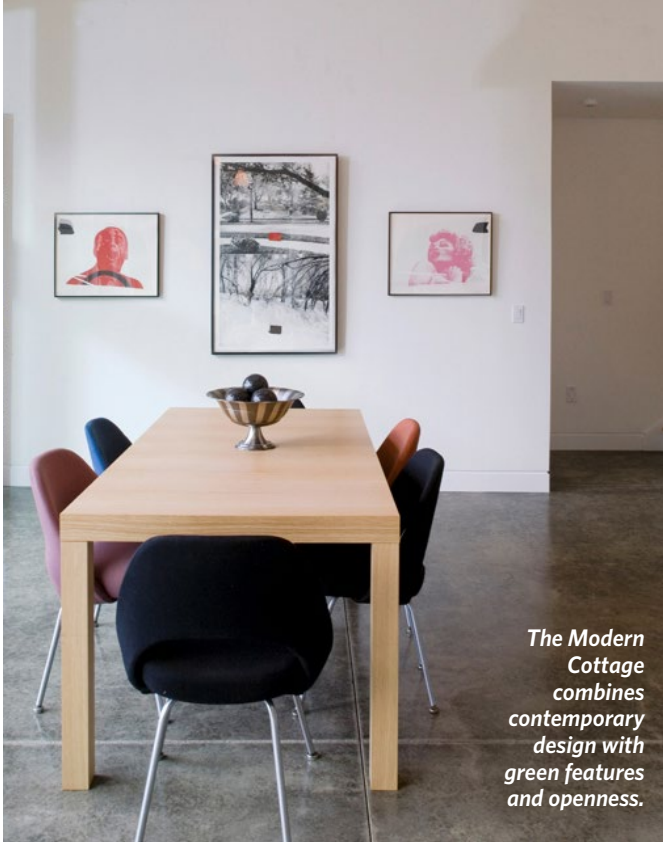
Epoch Homes, Modern Cottage Builders and architect Joel Turkel collaborated to create a design that incorporates a unique architectural appeal for the target market of home buyers looking for modern design, while also incorporating high performance building science. The home not only achieved the top level (Emerald) for NGBS, but also a Home Energy Rating System rating of 45, meaning that it is 55 percent more energy efficient than a standard built home.

Modern design in this particular region of New York usually means architect-designed, custom-built (and therefore expensive) homes, often more than $1 million in price. Such custom modern homes are most often built for an older demographic market—people who have already achieved success and a comfortable level of financial stability. The target market for the Modern Cottage, however, was a younger, less affluent household that appreciates modern design but has less than $1 million to spend.

"This house is essentially a city loft located in the country, and we were looking for the city dweller interested in both the greener aspects of the house as well as the modern design aspects of an open floor plan, high ceilings, modern and clean lines, and walls of glass with a view of surrounding farms and countryside," says Brenden Maloof of Turkel Design and co-founder of Modern Cottage LLC.

Set on three acres of abandoned pasture with views of the Berkshire Hills, the home is a unique hybrid of prefabricated components and site-built construction, a combination that results in 12-foot ceilings in the great room. The design goal was to maintain affordability and increase building efficiency by constructing the major portions of the structure in a factory setting.

The minimalist home was designed as a weekend getaway from the stress of the city. The house was designed to be affordable in an area where homes can run in the millions.



The Modern Cottage combines contemporary design with green features and openness.

The home and its construction leveraged many energy-saving and green construction techniques including a super-insulated shell that eliminates 99.9 percent of all thermal bridge and a state-of-the-art geothermal system using only a water well and zero fossil fuel consumption. Other green elements included:

- Minimization of impact on the existing site to protect local habitats
- Native plants for landscaping
- Sustainability elements and materials with recycled content such as recycled counters, bamboo flooring, compact fluorescent lighting, lumber certified by the Forest Stewardship Council, high thermal efficiency windows
- Energy Star-rated lighting and appliances
- Water-conserving fixtures and appliances such as low-flow toilets
- Low-VOC (volatile organic compound) paints and Greenguard-rated glues and caulks
- Energy recovery ventilation and an active radon mitigation system.

Knowing that the Modern Cottage would also serve as a model for future projects in the region, a system of modular, panelized walls was incorporated with a Structural Insulated Panel (SIP) roof system to showcase the range of technological capabilities these systems and modular building in general offer. The different building systems were assembled on site once the modules were delivered.

These elements were used as part of the effort toward gaining the Emerald level of NGBS, but the Modern Cottage project had a headstart on that certification because Epoch's manufacturing facility was "green approved" by the NAHB Research Center. To receive that approval, the center inspects the factory itself, looking for green building details that are listed in the NGBS Scoring Tool. That means that once approved by the research center, the work done in the plant is already verified for the NGBS, saving cost and allowing Epoch Homes to provide training and green building support to the rest of its own builder network.

Challenges

One design challenge was to create custom design that was simple and inexpensive to build but contained all the house features the architect wanted to include. Active cooperation between the builder, architect and manufacturer facilitated cost savings in terms of size and function. Meanwhile, the way in which the different parts of the building came together, including details on sealing and elimination of thermal bridges, what type of HVAC and lighting systems were specified, and what type of appliances were used helped the different parties achieve energy goals.

A second design challenge was balancing the need for high energy efficiency with the desire for large spans of glass to bring in the views of the surrounding area. This was accomplished with Epoch's high-performance wall system with Icynene spray foam insulation, which incorporates a thermal break between the sheet rock and the wall framing. A layer of rigid insulation was added to wrap the exterior of the house. The thermal mass concrete slab floor, a radiant heating and a geothermal system also lesson the solar heat gain from the windows.

Why Build Modular?

The misconception that modular construction has a limited architectural range has lost a lot of ground in recent times spurred on by successes such as the Modern Cottage. Modular can be applied to almost any design or style today, and the homes are built to the same building codes as stick-built homes. The same materials used in traditional types of custom homes can be used in modular custom design.

As with any type of building, differences in quality exist depending on factory practices and different builders, but in general, modular homes offer many benefits. Epoch Homes lists these benefits for its product offerings:

- Fast construction time and faster onsite completion
- Top level structural integrity
- Weather-protected materials
- Risk-reducing warranty
- Costs that can be predicted
- Less waste used in the process
- Environmentally friendly materials used
- Greater energy efficiency
- Greater quality and process control in the building process
- Economic benefits, including initial cost savings; longer life cycle; reduced architectural fees; lower maintenance costs; lower energy costs; lower operating costs; faster move-in; and thus lower carrying costs/construction financing

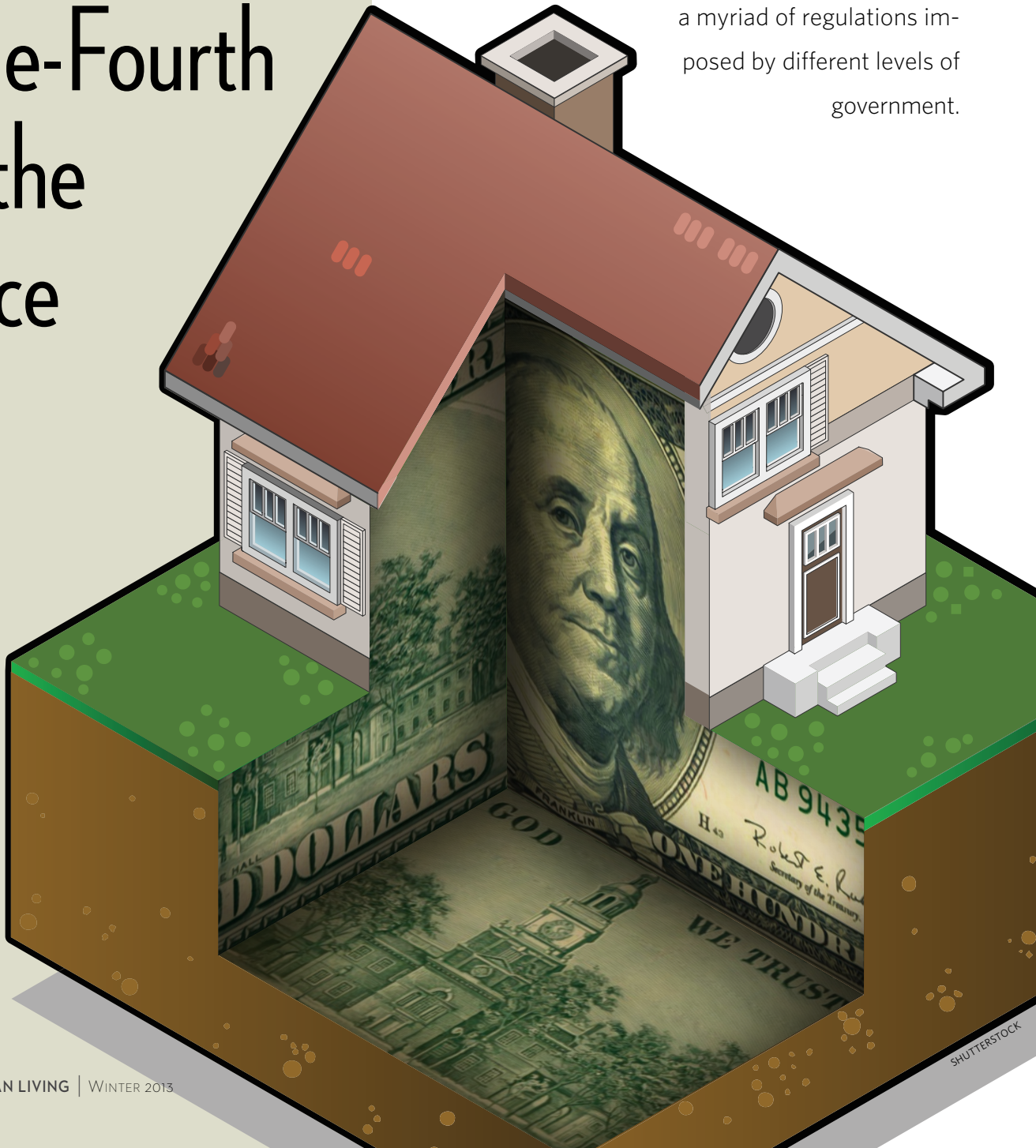
According to John Ela, CEO, Epoch Homes, who was named NAHB's 2011 Certified Green Professional of the Year: "Once consumers visit a quality factory and learn about the quality, speed and cost savings, they readily see the advantages. Education is our best sales tool."

Claire Worshtil *is Program Manager, Land Use, for the National Association of Home Builders. She can be reached at cworshtil@nahb.org.*

PAUL EMRATH, Ph.D.

For Typical New Home, Regulation is One-Fourth of the Price

HOUSING MARKETS across the country struggling to recover from a historic downturn are confronting many obstacles. In addition to ongoing competition from distressed sales, economic uncertainty, tight credit conditions, rising costs of building materials and an emerging shortage of lots, markets face the reality that it costs more to build and sell a home because of a myriad of regulations imposed by different levels of government.



SHUTTERSTOCK

The National Association of Home Builders (NAHB) recently estimated the impacts government regulations have on the price of a home. The estimates are based on a survey of builders and developers as well as long-term assumptions chosen to give the numbers a longer shelf life (e.g., loan terms and profit margins that have prevailed historically under normal economic conditions). The estimates show that, on average, regulations imposed by government at all levels account for 25 percent of the final price paid by the buyer of a new home.

Total Impact on Price Paid

Regulations come in many forms and can be imposed at different stages in the development and construction process. Jurisdictions may charge permit, hook-up and impact fees, and establish development and construction standards that either directly increase costs to builders and developers or cause delays that translate to higher costs. The federal government also gets into the act by requiring, for example, stormwater permits, which may lead to delays in construction in addition to the hard costs of filing for a permit.

Many regulations imposed during development may be invisible to the builder who buys a finished lot and doesn't come into the picture until the development phase is complete. This is the leading case addressed by the recent NAHB survey. The survey was in the form of special questions added to the instrument that generated the NAHB/Wells Fargo Housing Market Index (HMI) for April 2011. Some of the questions were for a developer who acquires land, obtains approval for a subdivision and develops a finished lot. Other questions were for a builder who purchases the lot, constructs a single-family home to sell on it, then ultimately sells the home to a buyer. The HMI is a survey primarily of single-family builders, but many of them have experience in developing land and selling lots as well so they can answer both sets of questions.

As mentioned, after monetizing the cost of excessive delays and accounting for normal interest costs and profit margins, the results show that government regulation on average accounts for one-fourth of the final house price. Nearly two-thirds of this—16.4 percent—is due to a higher price for a finished lot because of regulations imposed during development. A little over one-third—8.6 percent—results from costs incurred by the builder after purchasing the lot (Figure 1).

Figure 1. Regulatory Costs = 25% of the Final Home Price

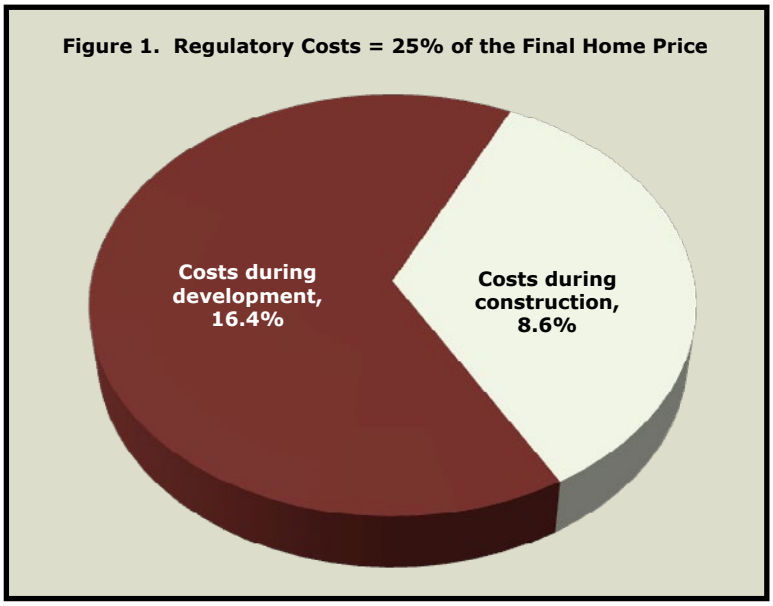
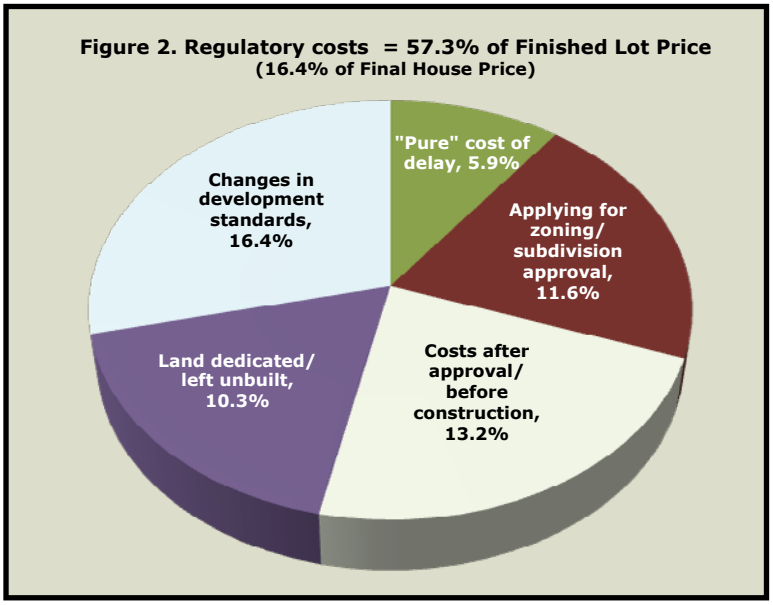


Figure 2. Regulatory costs = 57.3% of Finished Lot Price (16.4% of Final House Price)



Costs During Development

The survey results show that, on average, regulation accounts for a little more than 57 percent of the price of a developed lot. This is the sum of individual regulatory cost components that range from just under 6 percent for a "pure" cost of delay to more than 16 percent for changes in development standards, such as setbacks and road widths (Figure 2).

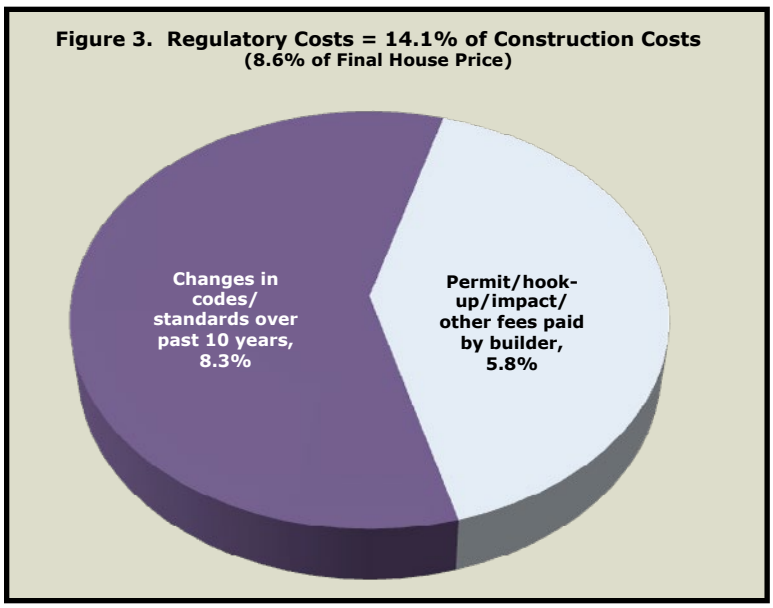
The survey asked specifically only about changes in development standards over the last 10 years. In follow-up conversations, many developers who answered the survey said they could estimate the cost of current development standards but couldn't really say how much of that cost was due to incremental changes over the decade. Therefore, the 16.4 percent in Figure 2 is likely to include the impact of some standards imposed more than 10 years ago.

The relatively high share of regulatory costs embodied in the price of the lot is particularly important given evidence that a shortage of lots is emerging in many local markets.

The pure cost of delay is the estimated cost that delays from waiting for approval and complying with development regulations would impose in the absence of any other type of regulatory cost. Delay also factors indirectly into the other regulatory costs in Figure 2 through higher interest payments on land acquisition and development loans.

Previous estimates have shown that a finished lot typically accounts for 23.7 percent of the house price and that the builder who purchases the lot will incur associated costs that will increase this by 20.5 percent when passed on to the buyer. The bottom line is that regulation accounts for 57.3 percent of the cost of a finished lot, and that this translates to 16.4 percent of the final price of a single-family home paid by the buyer of the home.

Figure 3. Regulatory Costs = 14.1% of Construction Costs (8.6% of Final House Price)



Cost During Construction

Single-family home buyers must also cover costs of government regulation imposed during construction—i.e., after the lot is sold to a builder. Results from NAHB's survey show that, on average, regulation accounts for a little over 14 percent of construction costs. Of this, just under 6 percent is the cost of actual fees builders pay and the rest is the cost of changes to construction codes and standards over the last 10 years (Figure 3).

The vast majority of builders in the survey were constructing homes 10 years ago, and few of these had trouble assessing the impact of changes in building codes over that time period. Building codes were well established decades ago in most parts of the country and typically revised many times during that span.

Previous estimates have shown that construction costs account for 52.9 percent of the house price and that the costs are increased by over 16 percent before being passed on to the buyer. The bottom line is that regulation during construction of a single-family home accounts for 14.1 percent of construction cost, on average, and this translates to 8.6 percent of the home's final sales price.

Conclusion

In summary, responses to these special questions on the monthly NAHB/Wells Fargo HMI and average, long-run assumptions about loan terms, profit margins and time lags between different construction project phases show that regulation imposed during the development phase accounts for 16.4 percent of the price of a home and regulation imposed during the construction phase accounts for another 8.6 percent—for a total of one-fourth of the price of the home.

The relatively high share of regulatory costs embodied in the price of the lot is particularly important given evidence that a shortage of lots is emerging in many local markets. In the HMI surveys, the share of builders reporting low or very low inventories in their market areas increased dramatically from 7 percent in February 2009 to 43 percent in September. This is consistent with results from NAHB's quarterly Survey on Acquisition, Development & Financing, which shows many developers putting projects on hold and not acquiring land or developing lots during this period. If demand for new housing picks up in these areas, builders and developers will have to contend not only with the difficulties of trying to bring new lots online at faster-than-usual pace, but also the delays and costs attributable to government regulation.

The survey questionnaire and a complete description of the assumptions underlying the calculations can be found in NAHB's online research article "How Government Regulation Affects the Price of a New Home."

Paul Emrath, Ph.D., *is Vice President for Survey and Housing Policy Research for the National Association of Home Builders. He can be reached at pemrath@nahb.org.*

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CLAIRE WORSHTIL

GETTING NATIONAL GREEN BUILDING STANDARD CERTIFIED

PROJECT PLANNERS looking for a good example of what becoming certified under the ICC 700 National Green Building Standard (NGBS) can do for the market value of a property need look no further than Woodland's Edge.

The low impact development, which is located in the foothills of the Ozark Mountains in the western part of Little Rock, Ark., was the first development in the nation to receive a Green Certified-Four Star community award based on the NGBS program.

NGBS, which was created through a partnership between the International Code Council and NAHB through a rigorous American National Standards Institute consensus process, recognizes the importance of green site development by devoting two chapters exclusively to "Site Design and Development" (chapter 4) and "Lot Design, Preparation and Development" (chapter 5).

Chapter 4 provides a stand-alone rating system for green subdivision site design and development. Chapter 5 addresses site design and development of individual lots as a component of a green home.

Rocket Properties, the developer, and Tyne and Associates, the landscape architect and planner, successfully took the project through its steps towards certification by preserving the natural and scenic qualities of the site. They accomplished this by using sustainable concepts for layout, configuration and design of lots, structures, roads, underground utility lines and other infrastructure.

The 778-acre site is characterized by rolling terrain, steep ridges and forest, and contains three pristine streams as well as wetlands. From the beginning, the planning and development of Woodland's Edge focused on preserving more than 40 percent of the land as undisturbed forest and meadow. To date, 350 acres, including 604 home sites in eight neighborhoods, have been developed. To meet the 40 percent goal, the development team employed innovative low impact development practices that reduced development costs and added

PHOTOS COURTESY OF TYNE AND ASSOCIATES

Locations and configurations of streets were chosen to preserve existing hydrology and to conserve high priority vegetation.

DLAND'S EDGE

great value to the community. Needless to say, this effort has contributed greatly to the market's positive response to the neighborhood.

While the developer does not yet have complete figures for Woodland's Edge, it relied on figures derived from Gap Creek, in Sherwood, Ark., which was developed in the late 1990s, for planning Woodland's Edge. Gap Creek is another sustainable community Tyne & Associates designed. The chart on the next page compares two different sites plans to show what sustainable practices can do.

The developer achieved points under NGBS for using the following techniques:

Planning to protect natural resources onsite: At the beginning of the design and planning process, the project team established goals and a mission statement to guide them through attaining NGBS certification. The team was trained on green development practices, and training sessions were conducted onsite to achieve maximum effectiveness. The land planners began the process with an inventory and analysis of the existing natural resources. A plan to protect

Homeowners have been instructed on how to maintain the trees in their neighborhoods.

these high-priority resources during construction was then prepared. Many of these areas became community amenities, such as trails and wildlife habitats, which added tremendous value to the property.

Using care to locate streets, buildings, utilities and other features to conserve vegetation: All features that were constructed were located to preserve the site's existing hydrology and to conserve high priority vegetation, which reduced the amount of landscaping needed. Efforts to preserve the onsite natural resources were so effective that an entire park was created with removal of only three trees. The roadways were designed to follow the natural contours of the land and located to avoid significant vegetation and other resources. This required a reduction in street width, which the city granted along with various waivers for horizontal and vertical alignment and reduced rights of way. The waivers allowed the developer to save trees closer to the roadway while also reducing traffic speeds. The result was so positive that the city has now incorporated this standard into its master street plan.

The land planners strived for maximum southern exposure on each home site, while at the same time avoiding sacrifice of topographic, hydrologic or significant vegetative resources. An existing farm utility shed was refurbished to become the maintenance building for the community association, designed within the site plan to conveniently fit adjacent to the recreation area as if it were deliberately placed in that location. Utilities were installed using alternatives to open-cut trenching. For example, boring, which is much less invasive to the terrain, was used, and utilities were located to lessen their impact on the resources.

Avoiding steep slope areas: A slope analysis was conducted to determine where roads should be placed. Aligning slopes with the natural topography minimized excessive cut and fill, and the use of 1:1 or 2:1 side slopes reduced erosion and excessive soil disturbance. Retaining walls, terracing, landscaping and restabilization techniques were used to reduce cut and fill and erosion, and to save vegetation. Exposed slopes were quickly stabilized, and construction was scheduled to minimize the length of time soil was exposed.

Incorporating native plants and vegetation: More than 1,000 trees are being planted annually in Woodland's Edge. These trees offer many environmental benefits, including reducing the need for summer cooling and reducing heat island effects. Incorporating native plants and vegetation has reduced the need for irrigation and fertilizing, and reduced extensive long-term maintenance.

To save as many native trees as possible, land planners strived to avoid critical root zones during construction. This was achieved by installing fencing around the root zones and using retaining walls and tree wells to protect trees from construction activities.

Trees cleared from roadways were harvested and used whenever possible. Waste materials and other trees were chipped onsite to make mulch, which was stockpiled and used for trail surfacing, covering construction scars, erosion control and landscaping. Mulch also was used as a bridging material on construction access through forested areas. A 12-inch thick layer of mulch absorbed the weight of heavy equipment, reducing soil compaction and allowing tree roots to live.

Aeration systems were also employed, allowing roots to breathe. The playground site was built over such an aeration layer, which eliminated excavation, soil compaction and root disturbance. This saved more trees, and provided instant shade and sun protection for the playground. Today, residents receive community and homeowner manuals on how to care for the trees on their properties.

Preserving wildlife habitats and corridors: The land planners developed a plan to maintain wildlife habitat by maintaining open spaces as part of a wildlife corridor. The planner used the expertise of professionals and conservation organizations to accomplish this. For example, working with Audubon Arkansas and The Nature Conservancy, a controlled burn was conducted in a grassy meadow to improve wildlife habitat. This habitat restoration project resulted in the establishment of a wildflower meadow, creating both a neighborhood amenity and a habitat for local wildlife.

Also created as an amenity was a regional detention pond. The pond was stocked by the state's Game and Fish Commission, which provided fishing opportunities for residents.

Management of stormwater: Three pristine creeks traverse the property and are preserved in their natural state as amenities. The land planners designed a stormwater management system around existing stream flows and drainage. Concentrated flows were minimized, letting stormwater take its natural course. When stormwater was intercepted and collected, it was returned to its natural course as quickly as possible. Natural rivulets were preserved to slow and filter the water, and flumes were used in lieu of inlets and pipes.

Conclusion

Upon completion, Woodland's Edge will consist of about 800 homes interwoven with 300 acres of heavily forested green space that is traversed by miles of hiking and nature trails. Half of the homes built were pre-sold and 80 percent of the remainder will be sold before completion. This is not typical for developments in Little Rock in the current market, but Ron Tyne of Tyne and Associates attributes this success to the aesthetic appeal created by adhering to NGBS for site and lot development. The techniques used cost less than traditional site development techniques, which allowed additional amenities such as trails and parks to be incorporated.

In addition to NAHB's Green Certified-Four Star Subdivision Award, Woodland's Edge received:

- 2009 Green Development of the Year, NAHB
- 2008 Developer Award, American Trails
- 2007 Honor Award/Urban Design, American Society of Landscape Architects/Arkansas Chapter
- 2007 & 2005 Landscape Award and Best of the Best, Little Rock City Beautiful
- 2005 Award of Excellence, The National Arbor Day Foundation
- 2002 Outstanding Developer, Arkansas Urban Forestry Council

As Tyne explains: "From the very beginning, preservation of nature has been the centerpiece of our green development. Natural beauty abounds in Woodland's Edge, and the market has responded aggressively. They [potential buyers] love the green spaces." As a result, "we are experiencing both high demand and high values even in this downturned market."

For more information on how to obtain NGBS certification visit the NAHB Research Center website at www.nahbrc.com/.

Claire Worshtil *is Program Manager, Land Use, for the National Association of Home Builders. She can be reached at cworshtil@nahb.org.*

A Comparison of Two Different Site Plans

PROJECT RESULTS FROM TOTAL DEVELOPMENT		
TOTAL SITE	CONVENTIONAL PLAN	SUSTAINABLE PLAN
Lot Yield	358	375
Linear Feet Street	21,770	21,125
Linear Feet Collector Street	7,360	0
Linear Feet Drainage Pipe	10,098	6,733
Drainage Structures: Inlets/ Boxes/Headwalls	103	79
Estimated Total Cost	$4,620,600	$3,942,100
Estimated Cost Per Lot	$12,907	$10,512
ACTUAL RESULTS FROM PHASE ONE		
PHASE 1	CONVENTIONAL PLAN	SUSTAINABLE PLAN
Lot Yield	63	72
Total Cost	$1,028,544	$828,523
Total Cost Per Lot	$16,326	$11,507
ECONOMIC AND OTHER BENEFITS FROM LOW IMPACT DEVELOPMENT		
Higher Lot Yield		17 additional lots
Higher Lot Value		$3,000 more per lot over competition
Lower Cost per Lot		$4,800 less per lot
Enhanced Marketability		80 percent of lots were sold in the first year
Added Amenities		23.5 acres of green space/parks
Recognition		National, state and professional groups
Total Economic Benefit		More than $2,200,000 added to profit

ETAYENESH ASFAW

Low Impact Development

A PARADIGM SHIFT IN STORMWATER MANAGEMENT

WATER QUALITY in rivers, lakes and estuaries has deteriorated over the years, largely because, as the built environment increases, so does stormwater runoff into water bodies. However, the nation is about to experience a new era in stormwater management—multiple levels of government are set to take action and a new federal rule is about to be passed. The new rule will affect the acquisition of land, site development, home design, construction and redevelopment. The rule, in essence, will require that sites are designed, constructed, managed and maintained to retain a specific stormwater volume on site for both greenfield and infill development. New development sites will need to incorporate techniques to capture water and infiltrate it into the ground, such as paving that lets water seep in and more vegetation.

Many federal, state and local stormwater runoff programs have been developed under the Clean Water Act (CWA), which is the main federal vehicle for regulating pollution discharge into the nation's water bodies. The goal under the CWA is to restore and maintain the chemical, physical and biological integrity of the nation's waters. To ensure progressive action towards clean water, the Environmental Protection Agency (EPA) has put in place regulatory and programmatic mechanisms to see that discharge is managed effectively. However, because of the sheer volume of stormwater discharge, problems continue to permeate the waterways. The new federal rule and other changes have been created to address some of those problems.

The New Era

Federal, state and local regulators are increasingly adopting green practices to manage and retain stormwater discharge runoff from sites being developed. Those practices focus on infiltrating stormwater and maintaining the natural hydrology of a site. The basic concept behind these methods is to allow stormwater to filter back into the soil onsite instead of conveying discharge to stormwater ponds and offsite facilities.

PHOTOS COURTESY OF USDA NRC

Homeowners and commercial property owners will need to be educated on the reality that LID practices look very different than traditional stormwater control facilities. However, the result is often aesthetically pleasing.

EPA is now working on a national stormwater rule that will set a performance standard for retaining stormwater onsite for new development and redevelopment projects. Such a rule could require builders and developers to plan, design and install Low Impact Development (LID) practices that would keep a certain volume of stormwater onsite, thereby reducing the need to use the traditional approach of channeling and collecting stormwater in detention ponds.

The new rule is also likely to have a component that requires retrofitting existing sites for some home owners and building owners to ensure standards are met. For sites that can't meet the performance standards and retention requirements because the soil has low infiltration capacity, high groundwater area or for other site limitation reasons, an option may be given to provide treatment on another site. In such scenarios, a payment-in-lieu program can be established where the developer will pay for offsite stormwater treatment.

In conducting research to work on the rule, EPA staff gathered a multitude of data from stormwater researchers, engineers, designers and landscape architects on efficiency and performance of LID practices. [EPA plans to propose

WHAT IS LID?

LID practices are designed to reduce the amount of stormwater volume leaving sites. To reduce the discharge, practices that increase infiltration, such as bio-retention, rainwater harvesting, green roofs, permeable parking and sustainable detention ponds, are implemented. The efficiency and the cost of LID have been found to be better than traditional stormwater management practices mostly because of reductions in curbing, pipe, catch basins and outlet control structures. In urban areas, infiltration may be limited by existing impervious areas, but underground storage, green roofs, planter boxes and other practices provide options. The infiltration capacity of the soils and other site characteristics may limit the use of LID or make it more costly.

CASH-STRAPPED GOVERNMENTS INCREASINGLY INTERESTED IN GREEN INFRASTRUCTURE

Nearly 772 communities have old combined sewer systems (CSOs), which carry sanitary sewage and stormwater in combined pipes. When overloaded from rain or snow, these old systems release untreated sewage into lakes and rivers. CSOs are expensive to upgrade. However, because of CWA, many communities are required under enforcement agreements to deal with CSO problems. For example, in the last few years, both the cities of Chicago and Philadelphia have signed CWA settlement agreements with EPA that will require these local governments to invest between $2.5 billion to $3 billion over the next decade to fix problems. To reduce the cost of digging miles of deep storage tunnels for storage of sewage and stormwater, cities are opting to invest in green infrastructure, which can hold some of the water and reduce the stormwater runoff into CSOs.

its stormwater rule by June 10, 2013 and, after gathering feedback from the public and making any changes, hopes to take final action by December 10, 2014.]

Existing Efforts

The federal government already has some stormwater runoff standards in place for federal building. Federal agencies and departments have been adopting LID practices for their facilities since about 2007 when the Energy Independence and Security Act was passed. That law requires federal development and redevelopment projects with a footprint above 5,000 square feet to achieve predevelopment hydrology to the "maximum extent technically feasible" through the use of LID practices. These federal projects serve as models for successes and failures in adopting those practices.

At the community level, EPA has a mandate that requires regulated municipalities meet minimum measures for water quality by implementing programs to manage long-term stormwater flow,[1] such as the city of Bremerton, Wash. Many municipalities have taken steps to improve adoption of LID practices through their National Pollutant Discharge Elimination System permit requirement programs.

Other major cities, such as Philadelphia, New York City and Chicago are adopting green practices because of enforcement agreements over pollution from combined sewer overflows (See Cash-Strapped Governments Increasingly Interested in Green Infrastructure, this page). LID helps in these situations because it allows water to be stored, then infiltrated onsite before that water even makes its way to the combined sewer systems. By using LID, these cities can leverage economic development opportunities in redevelopment corridors—enhancing neighborhoods and rebuilding communities by retrofitting existing sites.

Developers and Builders

Currently, builders and developers must develop a Stormwater Pollution Prevention Plan as part of state construction general permitting. This plan shows how stormwater will be managed during the active phase of the project. Some states and local jurisdictions also require builders to implement measures to control the long-term flow of stormwater. The new EPA rule will set a national threshold for this long-term control.

Developers often voice concerns about the potential for LID measures to use up a portion of the available land because ponds are sometimes required in addition to dispersal features such as rain gardens, especially in regions prone to flooding. In that situation, a variety of LID features that will not encumber developable land are key—for example, on urban redevelopment sites, green roofs might be a viable option. Increasingly, builders and developers have shown an interest in energy conservation and more environmentally friendly construction through their participation in green building programs. The ICC 700 National Green Building Standard and other green building programs provide credit for erosion and sediment control, for limitation of site disturbance and for the use of LID.

Vegetation can stop or filter runoff before it hits impervious areas.

In some cases, the runoff can be redirected and filtered by multiple methods.

The Past and Future for LID

Traditional stormwater control practices and requirements have primarily focused on moving water away from structures and cities as quickly as possible to avoid possible flooding. However, this means great amounts of stormwater are conveyed away from sites and into water bodies. LID focuses, instead, on dispersed stormwater management devices such as rain gardens and bio-infiltration.

Also, some traditional local development requirements are at odds with LID because they result in more impervious areas such as wider streets to ensure adequate room for fire trucks. To implement LID in many jurisdictions will require that builders apply for variances or exemptions from existing city and county codes, which could slow projects and provide a disincentive for adopting LID practices. Because of such issues, local officials will need to substantially change the existing stormwater management requirements and practices if they hope to encourage better control.

Sustainable funding for stormwater programs will be critical, and currently, municipal stormwater programs are mostly funded through general tax revenues such as property taxes and sales taxes.[2] The long-term financing to manage LID devices will require a more stable source of financing such as the creation of stormwater utilities—separate organizational entities with the sole purpose of collecting stormwater fees—to run self-sustaining stormwater programs. Like any stormwater management approach, LID requires routine inspections, maintenance, repair or replacement to ensure that the devices used are functioning properly. A dedicated source of funding will ensure local governments have the resources to efficiently manage stormwater programs.

Effective implementation of LID also will require a shift in thinking from consumers, policymakers, builders and developers. Education and behavioral changes will be critical. For example, maintenance crews will need to think differently about mowing and clearing sites for aesthetic reasons because such practices may not be conducive to LID sites where vegetation is critical to infiltration and evapotranspiration. Homeowners and building owners will need to be educated to understand that facilities for LID look different from traditional stormwater management facilities.

Successful implementation of LID will require builders and developers to incorporate LID at the early stages of the project. It will also require collaboration among all parties including engineers, landscape architects, planners, the public and government.

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ENDNOTES

[1] MateL, Larry John. "An Urban Approach to LID." Civil Engineering (2010). http://cedb.asce.org/cgi/WWWdisplay.cgi?268569

[2] Guidance for Stormwater Funding. NAFSMA 2006. http://www.nafsma.org/Guidance%20Manual%20Version%202X.pdf

STEVE LINVILLE

HUD Announces Improvements to FHA Condominium Guidance

HUD HAS ANNOUNCED TEMPORARY CHANGES to condominium project approval guidelines that provide greater eligibility for FHA-insured financing. The announcement was made Sept. 13 through Mortgagee Letter 2012-18. Changes are effective immediately and will apply until Aug. 31, 2014, unless further extended by FHA. Specific changes include:

- Revisions to the ways in which projects under construction, gut rehabilitations or conversions are defined, as well as changes to construction presale requirements. These changes will better accommodate phased construction projects and provide more flexibility for developers and owners in terms of pre-sale and owner occupancy requirements as they build or convert projects.
- An increase to the allowable investor ownership percentage, from 10 percent up to a maximum of 50 percent, if at least half of the project's units are conveyed or under contract to owner-occupants.
- A developer may now own up to 50 percent of the total units at the time of project approval.
- Unoccupied and unsold units owned by a builder/developer are not considered as investor owned and subject to the requirements unless the unit is currently rented or has previously been occupied.
- The new guidelines update FHA's requirements regarding non-residential/commercial space in a condominium project, including a new exception policy for mixed-use developments unable to satisfy the previous 25 percent and/or 35 percent non-residential space limitations.
- Changes to the delinquent home owner's association assessments requirement. Previously, units that were 30 days or more past due on their assessments were counted toward the maximum allowable percentage of units with delinquent assessments; now, only those that are 60 or more days past due will be counted.
- A revised project certification to make it clearer, permit only one individual to sign it, and ensure that the certifications made are more within the realm of what can reasonably be expected to be known by the person completing the certification.

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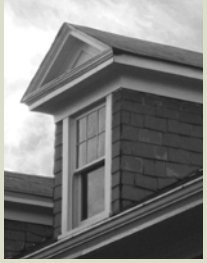
SHUTTERSTOCK



DO'S

- *Use slate with a woven corner on the side walls.*
- *«Choose a good profile for pediment trim.*

DON'TS

- *Allow pediment to protrude from face of dormer, it is not a door.*

DO'S

- *Use a true divided lite when possible.*

DON'TS

- *Throw off proportions with heavy overhangs.*
- *Allow the frieze board to interrupt the window trim.*
- *Use asphalt shingles on the side walls.*

DO'S

- *Use wood siding on the side walls.*

DON'TS

- *Choose trim profiles that have no relief and detail.*
- *Choose Fascia wrong*
- *Allow pediment to protrude from face of dormer, it is not a door.*

DO'S

- *Create a dormer design that fits with the overall style of the home.*

DON'TS

- *Allow poor soldering to compromise the flashing or aesthetic.*
- *Create muntin patterns that are a different proportion from the windows in the overall design.*

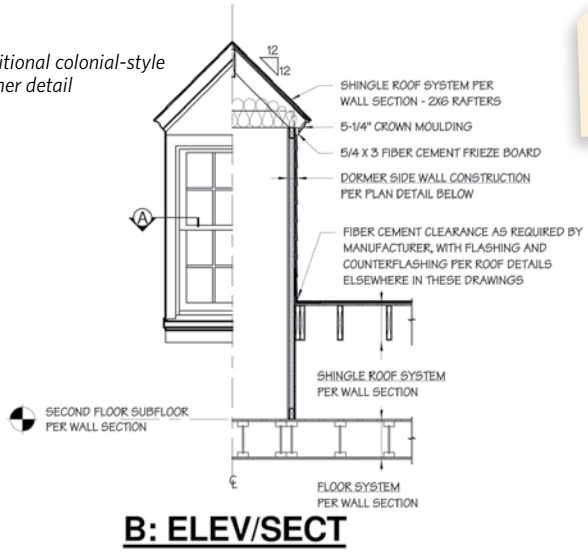
DO'S

- *Pay close attention to proportions.*
- *Choose appropriate trim profiles*
- *Proportionately size the window in relationship to the pilaster and frieze.*
- *Create a continuous frieze.*

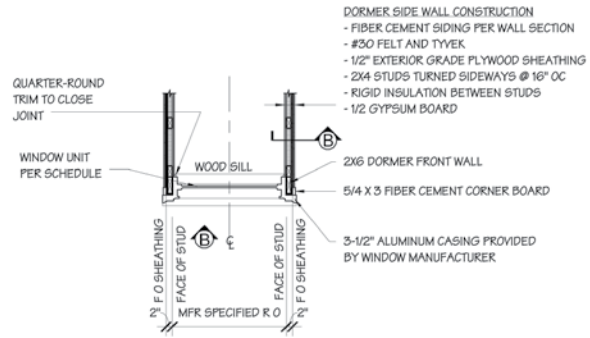
DON'TS

- *Flash bottom of dormer in sloppy manner.*
- *Create pilaster details that do not finish at the base.*

Traditional colonial-style dormer detail



B: ELEV/SECT



A: PLAN DETAIL

DORMER DETAIL PROVIDED BY BERNARDON HABER HOLLOWAY ARCHITECTS PC, WILMINGTON, DEL.

It's all in the details

Dormers

GREAT HOME DESIGNS can quickly become compromised if the details are not designed and constructed properly. In the current marketplace, one of the many qualities that home buyers expect is exquisite detailing. Without appropriate scale and proportions, designs quickly become muddled and while many potential buyers may not have the ability to pinpoint exactly what is off, they often recognize that something is not right and move on to the next house without committing to a sale.

Dormers are one of those details that can either enhance or hinder a home design. Regardless of dormer type or style, there are some basics to always consider: Size, scale and proportion. The size of the dormer is the key to the design. The scale and proportion of all of the dormer's components take their cue from the size. The scale of the sidewalls should be determined by the width of the window casing. Often, designers and builders specify the materials on the sidewalls to turn the corner onto the front face which is actually incorrect. Proportions are key, the slightest mistake can quickly undermine the design intent. Each trim piece is proportionately sized and located based on the other.

Moving forward, while designing dormers be sure to consider the entire detail while designing as well as consider the whole house design as a composition based on size, scale and proportion.

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National Association of Home Builders

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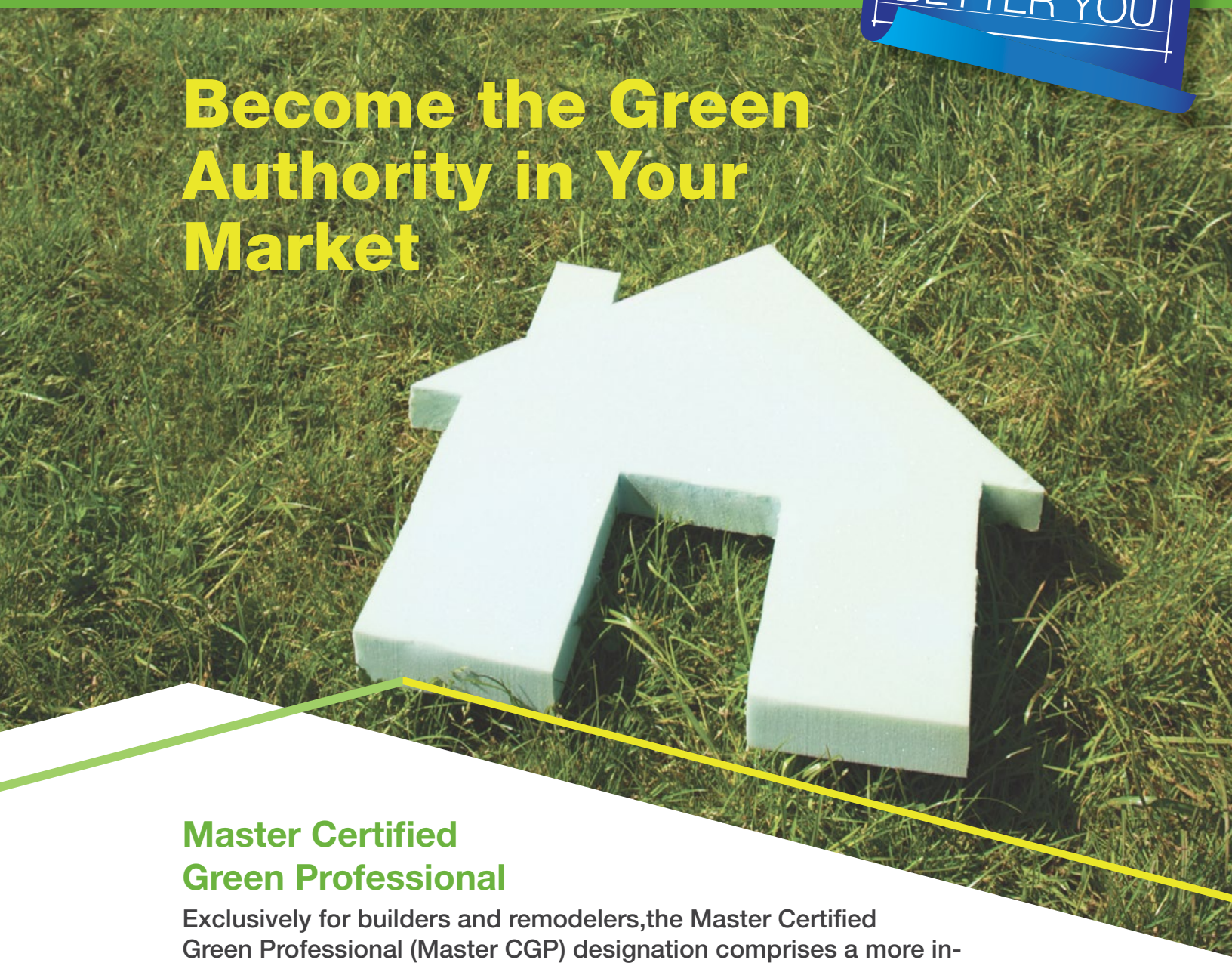

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