

energy view

2012

Winning
Energy
Snapshots

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EVHA
Behind the
Scenes

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The **National Renewable Energy Laboratory** develops renewable energy and energy efficiency technologies and practices, advances related science and engineering, and transfers knowledge and innovations to address the nation's energy and environmental goals. It is the only national laboratory solely dedicated to advancing renewable energy and energy efficiency technologies from concept to commercial application. NREL's 327-acre main campus in Golden, Colo., is a living model of sustainable energy, as is its nearby National Wind Technology Center.



The **NAHB Energy Subcommittee** focuses on issues related to cost-effective and affordable energy codes, standards, and regulations, as well as state and federal legislation, and recommends actions for addressing those issues to NAHB's Construction, Codes and Standards Committee. The subcommittee advises NAHB staff and members on the implementation of NAHB policy as it relates to energy conservation requirements for residential construction, and convenes advisory groups in response to critical code and legislative issues.

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EnergyValue View

From the Program Coordinator



The EnergyValue Housing Award (EVHA) is designed to recognize builders and remodelers who successfully integrate energy efficiency into all aspects of new and existing homes, as exemplified by a specific home. Through educational programs and national media coverage, the award promotes increased awareness of the value of energy efficiency among home builders, remodelers, homebuyers, homeowners and others within the residential market. Seventeen builders and remodelers from 12 states were selected to receive 2012 EnergyValue Housing Awards. All of the applicants deserve congratulations for significantly improving their energy performance, as well as considering the costs and value of the energy upgrades.

The EVHA is not just an award program, it is also a professional journey for many companies. Every year, at least one non-winning past applicant has returned as a winner. "The EVHA has really changed what I do and the way I think and has made a difference," says Orlo Stitt, winner of 17 EnergyValue Housing Awards, including the 1999 EVHA Builder of the Year, the 2006 and 2008 EVHA People's Choice Awards, and a 2012 award. "I can tell you, it will do the same for you and your customers."

As part of the process, the EVHA applicants are challenged to participate in energy and green programs. Of this year's EVHA winners, half stepped up and took the Builders Challenge, a voluntary energy certification program through the U.S. Department of Energy, an EVHA partner. In addition, two-thirds of all applicants had their homes certified under an ENERGY STAR program and/or a green building program and many had multiple certifications under these programs.

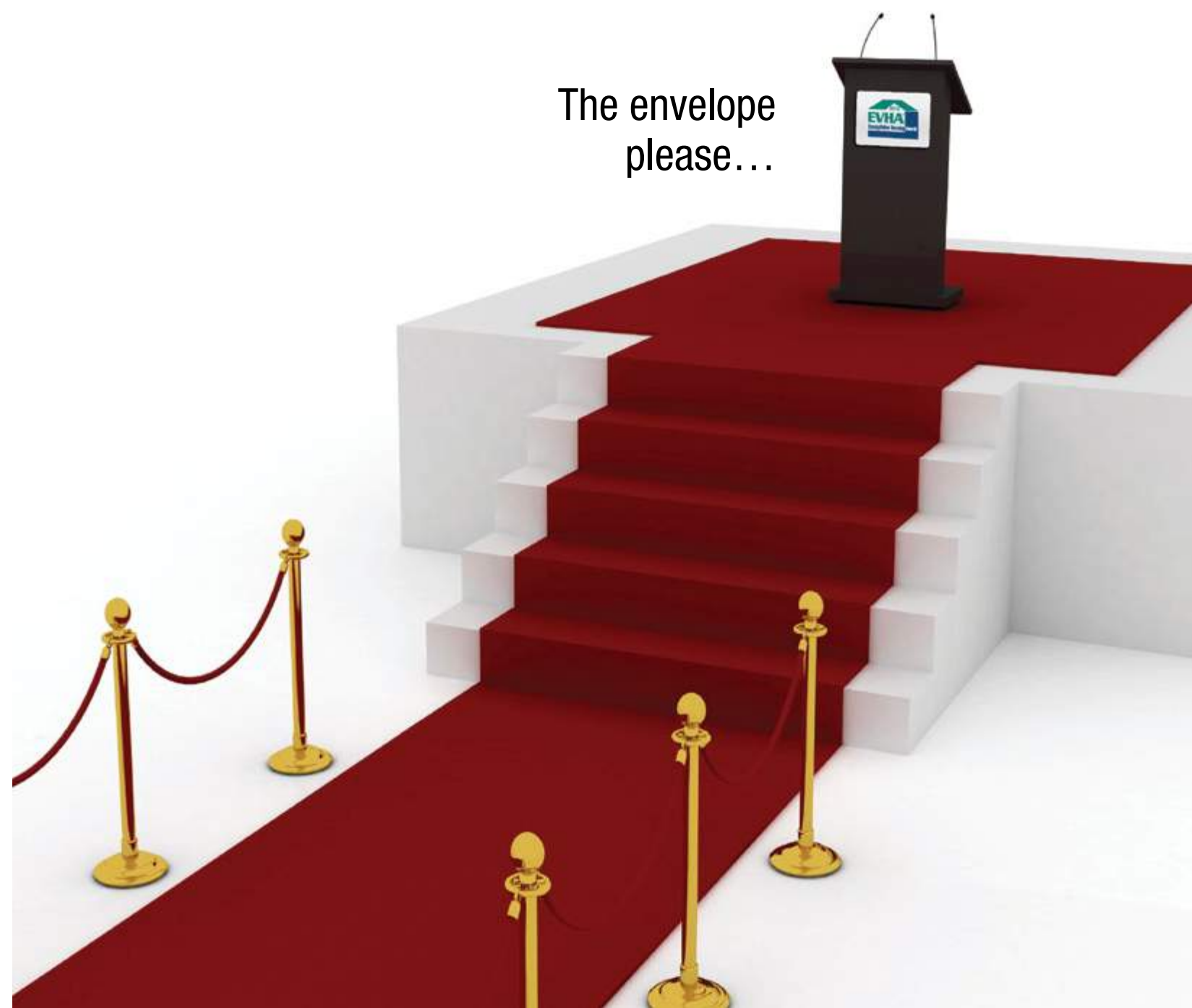
Many of the winners are also active in the Building America Program, which means they are willing to go the extra mile personally to help advance the entire home building industry. Building America partners take on significant risks and dedicate a tremendous amount of time and resources to build demonstration test homes. But there is a great deal of satisfaction and other benefits partners get in return. By partnering in Building America energy efficiency research, builders benefit from the teams' collective expertise and garner a competitive advantage.

The fresh approaches that this year's award-winning builders and remodelers have taken serve as shining examples of what is possible. If you are ready to see examples of satisfied customers and projects contributing to a critical shift in the residential construction industry, read on! Discover exemplary approaches to the design, construction, and marketing of high performing homes and learn how the 2012 EVHA winners are setting the bar higher for the entire industry.

Debra Sagan
EVHA Program Coordinator



The envelope
please...



Sharing EnergyValue Lessons

IBS Educational Session

Education is a key component to building energy-efficient homes and winning EnergyValue Housing Awards. As Michael Chandler, a former EVHA winner says, "We don't build them like they used to," and that applies to the materials, practices, design, research, and testing that goes into every high performance

We don't build them like they used to. home. But while many mainstream contractors view energy efficiency and high performance building as

requiring cutting-edge technology, exotic materials, and unlimited budgets, EVHA winners are proving just the opposite.

To say that EVHA-winning builders are different from their competitors may be an understatement. Not only do they hold themselves and their products to a much higher standard of performance and sustainability; they also willingly share their experiences and knowledge with anyone who will listen. They truly are ambassadors for the concept of efficiency and strive to spread the energy savings and wealth of knowledge so others can profit from their experiences.

The three speakers at the 2012 EVHA Educational Session have some unique and exciting stories to tell about their quests. Michael Murphy, Division President of Nexus EnergyHomes, in Stevensville, Md., is quick to share the story of the upstart company. Before even turning one shovel of dirt in their first project, they investigated, researched, and conducted pre-construction energy simulations with a number of consultants. This careful analysis, choice of materials, and education as well as close supervision of sub-contractors made it possible for Nexus EnergyHomes to realize their dream of building net-zero homes in a production environment for less than \$300,000.

Lauren Kuenzel's GreenPinkies story is fascinating in so many ways, beginning with the fact that it's a newly-founded Arkansas company headed by Lauren and her mother Kimberly – neither of whom had any remodeling or construction experience. Despite of their inexperience, they were determined to breathe new life into a mid-century brick ranch house with mold and air leakage/insulation problems without

changing the exterior. They also wanted to do it all at a reasonable price—\$66 a s.f. was the final cost. In the end, they learned that "nearly anyone" with motivation and a vision can transform a tired, older house into an energy-efficient, healthy, "green" home.

Heather Ferrier Laminack, representing both Ferrier Builders and Ferrier Custom Homes, is the youngest generation of the Ferrier family business that was founded in Texas over 100 years ago. Heather's mentor/father has dedicated his custom home building career to increasing efficiency, sustainability, and responsibility. Heather continued that legacy in the remodeling of a historic house in downtown Fort Worth. Transitioning from new construction to complete renovations while embracing the goals to make the home energy efficient, healthy, and functional presented both expected and unexpected challenges and provided a wealth of on-the-job learning to the Ferrier companies.

Join us at the
EVHA Educational Session:
**"Secrets for Success from EnergyValue
Housing Award Winners"**

**Friday, February 10, 2012
1:30 – 3:00 PM**

**Orange County Convention Center – West
Room 304E**

**Hear how the experiences of these high
performing builders and remodelers can
help you advance your business and
construction practices and increase your
bottom line!**



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Above: PV support brackets ready for panel installation.
Below: Ducts installed completely within the building's well-sealed envelope.



Master suite retreat.

would be an excellent fit. Thus far, their intuition has been on the money and the company has already sold 16 homes with a backlog of 14 to build in the 59-home development. The market rate homes in the revitalized neighborhood are being purchased precisely by the target market they had originally envisioned.

Nexus EnergyHomes' award-winning 2,710-s.f. duplex home, their first in the development, was the "epitome of value engineering," according to one EVHA judge, that resulted in a very tight 1.2 ACH50. They selected structural insulated panels (SIPs), installed using best industry practices and sealed with the EnergyComplete system, to help construction go quickly. As a bonus, the SIPs contribute to a quiet interior, despite the busy city location. With open-webbed floor trusses and spray-foam band joist insulation, the company minimized the total length of their well-sealed duct runs, and we were able to prevent any duct losses to the exterior.

Transfer grilles and shorter central returns cut costs and enhanced the air distribution system performance. These cost savings allowed the company to install a top of the line geothermal heat pump, solar water heating, and sufficient

An outstanding and comprehensive package.

PV (4.1 kW) to bring the HERS to 28. "This is the whole package," said one judge. "[It contains] high quality materials, outstanding energy efficient features, and incredible marketing. [It is] an outstanding and comprehensive package."

Not content to just be technically sound, Nexus EnergyHomes is also on the cutting edge of marketing. By leveraging free publicity in the local media, the company was able to generate a lot of interest in the innovative project and increased attendance at several open house events, including a groundbreaking and ribbon cutting. Both of these hosted about 175 people, including some high-profile politicians from nearby Washington and Annapolis. When the model was opened, "We had a line out the back," said Murphy. "People waited an hour or more to tour the home." The project received extensive media coverage, including a full-page article in the *Washington Post*.

Recognizing that many potential buyers may be unfamiliar with the attributes and operations of such a highly efficient house, Nexus EnergyHomes developed a sales package that entices customers to learn more about the features. Post-sale homeowner education provides more detailed information and instructions for monitoring and maintaining all components in the house. With each home's whole-house monitoring and control system, any homeowner with access to the internet can remotely set temperatures, control switches, and view their home's energy consumption and production.

"Our system offers complete real-time control of a home via the internet. It's a way for homeowners to communicate with their homes." The savvy homeowners that are flocking to Nexus EnergyHomes' Frederick project are communicating with and learning from their homes.

team extensively researched technologies, materials, and practices necessary to get to net-zero electric for everything the builder installs. Murphy describes their big "a-ha moment" being when they figured out that they could get to net zero in a production environment on a budget of \$300,000 or less.

The young company serendipitously discovered a multi-unit project in Frederick, Md., a city rich in heritage and innovation. Just an hour from Washington, D.C., Frederick is home to Hood College, Frederick Memorial Hospital, Fort Dietrich, and Bechtel Corp. Murphy felt all of these high-tech employers would attract "the exact people we thought would buy our homes—doctors, nurses, professors, and techies."

So when the opportunity for building on the site of a former housing authority apartment complex presented itself, Nexus EnergyHomes knew their net-zero energy concept

Nothing But Net... Zero

Nexus EnergyHomes, Inc.

Frederick, Maryland

Production Category, Moderate Climate

Gold

Nexus EnergyHomes began with company president Paul Zanecki's vision to build net-zero energy homes in a production environment. Joining with experienced production builder Mike Murphy and assisted by the NAHB Research Center Industry Partnership through the U.S. Department of Energy's Building America Program, the



Builder of the Year

EVHA judges do not choose the annual Builder of the Year without a great deal of consideration and discussion. Narrowing the nominees for Builder of the Year to two Gold winners who proved outstanding in the design and construction of the home, the discussion turned to value of the home, how reproducible the plans are, the likelihood of Nexus EnergyHomes was unanimously chosen as the 2012 Builder of the Year after

the judges weighed all facets of the production home builder's application. They realized that the company, while relatively new to the business, has enormous potential to affect both the local and national home building industry.

The strategic planning and research done by Nexus EnergyHomes prior to turning the first shovel of dirt is an indication that the company is dedicated to doing things right the first time. Post-construction review and testing that revealed possible future improvements shows that the company is not content to remain stagnant with respect to energy efficiency and the quality of their construction.

By revisiting design features, practices, and materials and equipment used during the model home build, the Nexus team was able to identify training needs, cost and time saving measures, and products that could contribute to higher efficiency in both the building process and the end product.

Congratulations to Nexus EnergyHomes of Stevensville, Md. for being named 2012 EnergyValue Housing Award Builder of the Year.



Building on Tradition

Silver **Armstrong Builders, LLC**
Honolulu, Hawaii
Affordable Category, Hot Climate

Building an affordable home in Hawaii—where most natural resources except sun and sand are scarce—can be a daunting task. Yet, Armstrong Builders, in a 45-home development built for the Department of Hawaiian Home Lands (DHHL), accomplished this mission with finesse, as exemplified by this EVHA-winning home.

The DHHL helps native Hawaiians return to their land and began with a goal to create a development of homes that are affordable to own and operate, fit the Hawaiian lifestyle, and respect the Hawaiian custom of "kuleana," or responsibility. DHHL selected Armstrong Builders who jumped at the chance to combine its experience building green homes with the challenges of making each home affordable and culturally significant.

Armstrong Builders started by keeping the homes small (1,169 s.f.). Because the weather is usually pleasant in Hawaii, ample outdoor living space helps improve the functionality of a smaller home while reducing cooling needs and encouraging the traditional Hawaiian way of life.

With high electric rates and electricity bills driven by cooling loads, Armstrong Builders wanted to focus on creating a net-zero energy home to keep homeownership



Hawaiians use their outdoor living space for everything from family gatherings to laundry. This makes it possible to comfortably live in a more modest indoor space.

affordable. To this end, the company designed elements that reflect heat away from the structure, catch prevailing breezes for natural cooling, and generate electricity from the sun.

To prevent the intense sunlight from heating up the home's interior,

Armstrong Builders installed radiant barrier roof sheathing and ENERGY STAR reflective metal roofing; designed large overhangs to prevent unwanted solar heat gain through windows; provided additional shading for outdoor living areas; and selected windows with low solar heat gain properties.

Capturing the trade winds began with orienting the homes toward prevailing winds and designing ventilation shafts to passively evacuate hot air while drawing in cooler air. When needed, the natural ventilation is boosted by a whole-house fan or exhaust fans in each bedroom.



Trade winds provide free natural ventilation in properly designed houses like this one.

With the solar orientation and clear roof lines, adding sufficient capacity to reach a HERS Index of 24 was relatively simple. Because of the abundant solar resource, favorable pricing for solar energy, and the high cost of electricity (\$0.25 per kWh), Armstrong Builders did install sufficient initial capacity—a total of 2.5 kW—to power an electric vehicle charging station in addition to most of the home's energy needs. There is still available roof area to accommodate enough PV to bring the house to net-zero in the future. Compared with a typical home's electric bill of \$300 to \$500 per month, the first month's electric bill of \$45 seems to prove the home is providing the homeowners with a new tradition of energy value.



The Dream of Value



Colorado Dream Homes, Inc.

Pagosa Springs, Colorado

Custom/Demonstration Category, Cold Climate

Colorado Dream Homes attributes the rebirth of its business in large part to energy efficiency. “People associate energy efficiency with a quality, well-built home,” says company president Tegan Brown. “They still want it all—granite countertops, cedar siding—and they want it affordable. I think one of the reasons we’re so busy now is because we are a good value.”

So, while Colorado Dream Homes builds what customers want, it never compromises on energy efficiency. This steadfast determination, in turn, is driving the company’s recent success despite the industry’s downturn. Whereas many area builders have closed their doors, Brown says, “We currently have five homes under construction and have no doubt it’s because of energy efficiency.”

Through careful cost analysis and product selection, this EVHA-winning mountain beauty achieved an impressive HERS index of 48 at a price point (\$130/s.f.) not often achieved in custom homes. This 3,361-s.f. home, built to complement the vernacular architecture, includes

a number of efficiency features within the mountain-home façade. For example, windows were minimized to cut heat loss and strategically

placed for cross ventilation—and breezes are supplemented by seven ceiling fans. The insulation package starts with two inch of rigid foam insulation



Display of double wall construction in Colorado Dream Homes’ Sales Center.

under the basement slab and continues with an insulating concrete form (ICF) foundation system. At the core of the efficiency package in this home is the builder’s trademark double-framed wall system that produces an R-38 highly-insulated wall. ENERGY STAR mechanical equipment and lighting and an innovative fireplace heat recovery system round out the efficiency features.

Beyond the double-wall system, Colorado Dream Homes strives to find other creative approaches to building custom homes at a competitive price. For instance, this homeowner wanted a wood finish on interior walls, so by selecting cedar siding, the builder was able to eliminate drywall on all interior walls, saving about \$10,000.

While the builder recognizes that renewable energy production can be part of the solution for highly efficient homes, they have not yet installed renewable energy systems. Rather, the company is focusing on putting customers’ investment dollars toward the home’s energy efficiency to reduce utility bills. Brown comments, “These days it’s all about the biggest bang for the buck,” and energy efficiency technology, for now, is where they are finding that bang.

For Colorado Dream Homes, energy efficiency doesn’t simply provide good value to customers; it is a huge component of the company’s market distinction. Their model home showcases energy efficiency practices by including hands-on wall assembly mock-ups, step-by-step photos of the construction process, and educational signs. “By the time [potential customers] are through taking our tour, they have a thorough understanding about how and why we build energy efficiently,” Brown says.

For its influence in the marketplace and its solid performance, the EVHA judges presented this builder a 2012 Silver EnergyValue Housing Award. As one EVHA judge noted, “Colorado Dream Homes’s exemplary marketing approach, combined with unwavering dedication to efficiency made this application stand out.”

One of the reasons we’re so busy now is because we are a good value.

Building Value with a View

CVH dba Clifton View Homes

Coupeville, WA

Custom/Demonstration Category, Moderate Climate

When undertaking any building project, Clifton View Homes (CVH) prides itself on providing style and substance. As a custom builder, CVH dials-in on the client’s wishes, but always manages to deliver an energy and resource-efficient final product.

To achieve a solid mix of style and efficiency, CVH invests a great deal of time in planning before drawings are finalized. This process always begins with a solar site survey in which house orientation and window placement for passive solar gain is determined. “The owners may own the home for a time, but the site owns the home forever, so it is critical that the design fits the site,” says company president Ted Clifton.

The site owns the home forever, so it is critical that the design fits.

This narrow lot with spectacular views of Admiralty Inlet presented some challenges to passive solar design Clifton admits, “The view effectively [dominates] the lot; the home’s design needed to take this into account.” The northeast-to-southwest orientation, combined with setback constraints, left little room for the perfect passive solar placement. Yet, the builder and the owner made the most of the situation.

The first design decision was to build a hip roof to accommodate future solar water heating and PV systems—the homeowners plan to install up to 6.75-kW of PV once they retire and move into the home full-time. The next challenge was determining how they would handle passive solar gains with the less-than-ideal

orientation. In a marine climate, Clifton notes, “The most useful passive solar heat gain comes in the morning, when the house needs to warm back up from the overnight lows.” Windows on the southeast, therefore, garner the morning sunshine. On the southwestern façade, a major expanse of glass was added to take in the views. To mitigate excess heat through these windows, thermal mass floors—slate upstairs and concrete below—will absorb the sun’s rays and slowly release warmth into the space. Additionally, the upper-level deck will often shade the lower-level windows to prevent overheating.

Cleverly rolling solar design considerations into a tightly built, efficient (HERS 55 without PV), charming, 1,469-s.f. accessible home, at a construction cost of less than \$75 per s.f., is what energy value is all about.



Slate floor provides thermal storage for the sun’s warmth (or energy).





Making a List, Checking it Twice

Ferrier Custom Homes

Fort Worth, Texas

Custom/Demonstration Category, Hot Climate

Silver



Spray foam all around seals and insulates at the same time.

"A great deal of time was spent designing this EVHA-winning home to make sure the homeowners were getting the best value for their investment," according to Heather Ferrier, general manager of Ferrier Custom Homes. For example, after the design loads were calculated, the builder discovered that a significant proportion of the home's energy losses would be attributed to the uninsulated slab foundation. Though rare and not usually cost-effective in Texas, Ferrier didn't want to leave any stone unturned in creating a the most efficient home for the money and asked the project's energy consultant to run the numbers on insulating the slab. Ultimately, based on the very low total level of energy loss the home would experience and the rater's confirmation that adding insulation to the slab would not be an added value to the client, the builder decided to keep the design as it was. "Because there is so little overall loss," said Ferrier, "correcting this [loss through the slab] would be like trying to lose that last five pounds" – a lot of effort for very little net gain.

Once plans were in place, Ferrier and the crew started building the modest, 1,746-s.f. home using customized scopes of work that have proven very successful in previous projects. These scopes of work are the basis for communicating expectations to each trade involved in the build and are based on a standardized set that was purchased from NAHB. Through an "evolutionary process," Ferrier Custom Homes has revised the standardized set of tools to conform to its high performance building methods.

To maintain quality, an inspection checklist accompanies each scope of work. These checklists, which are sometimes used at multiple points during construction, help each trade contractor ensure that details are executed properly. And just as each house is customized to fit the

client's needs, so are the company's quality management tools tailored to each project.

"As no two projects of ours are the same, neither are the tools," says Ferrier. "We modify inspection checklists based on the products and technologies incorporated into the home. Since we do not build typical homes, we expect—and inspect—more than the typical contractor."

In a departure from its standard SIPs construction technique, the builder used advanced framing with spray foam insulation for the wall system in this home. "This system was just a better fit for the owners," explains Ferrier. She also explored other technologies that owners don't often elect, such as a ductless mini-split heat pump, but decided the best combination was the more commonly installed systems such as tankless gas water heating with clustered hot water devices.

Evidence that the custom scopes of work and inspection checklists did their job can be found in the home's test results, which showed air leakage at a diminutive 1.0 ACH50 and a HERS Index of 52 without PV.



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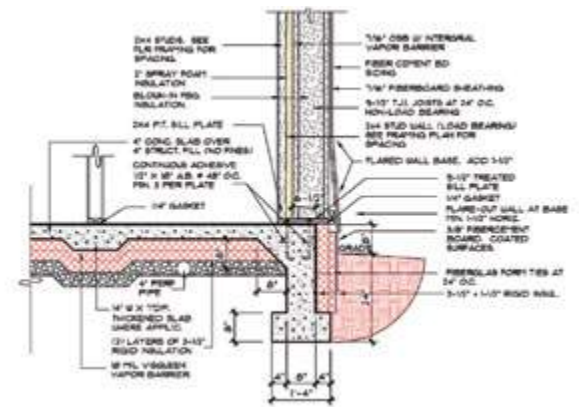
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Great Value, Great Cause



mechanical system efficiency, and renewable energy that would get to net zero.

In their final design, they elected a highly insulated double-wall system, triple pane windows, a ductless mini-split heat pump, and an HRV. Combined with a 110-s.f. evacuated tube solar thermal water heating system and an 8.2 kW PV array, the home received a HERS of -8 with PV (40 without). Flynn explains, "Designing this house was a very thorough process and a learning experience for all of us."

The new homeowners living in the 1,935-s.f. St. Jude Dream Home Giveaway won big—not only by winning a house with a \$100 raffle ticket, but also by reaping the rewards of net-zero energy living. And while Flynnner Building Company revels in the joy of giving and the limelight created by its participation, it's no doubt that the real winner is the St. Jude Children's Research Hospital, which raised over \$700,000 through the drawing for this home!



Building under a tent during the cold Idaho winter helped keep this project on schedule.

Not being content with this achievement and continuously pushing the envelope, Flynnner Building Company has just completed their second St. Jude Dream Home, a NGBS Green Certified, carbon-neutral home also located in the Boise area.

Flynnner Building Company *Gold* Boise, Idaho Custom/Demonstration Category, Cold Climate

Like most of EVHA winners, Flynnner Building Company enjoys giving back to the community. So, when the company was approached by Northwest ENERGY STAR and Idaho Power to build Idaho's first net-zero energy home for the St. Jude Children's Hospital Dream Home Giveaway, owner Scott Flynn says he waited about half a second before saying "yes."

Since Flynnner Building Co. already builds and certifies all of its homes to the National Green Building Standard, Flynn was intrigued by the challenge of building net-zero. "I didn't

know much about St. Jude's at the time," he says, "but when I started learning about [the charity], I found that our messages align. We are cutting edge builders, and they are a cutting edge research hospital. We had a nice fit."

In order to maximize the profits from the \$100-per-chance raffle, the majority of the material and all the labor were donated by a variety of suppliers, sub-contractors, and

Before, we were building 100% NGBS Green Certified homes, but now we are known as the green builder in the valley. It really sets us apart.

they are a cutting edge research hospital. We had a nice fit."

In order to maximize the profits from the \$100-per-chance raffle, the majority of the material and all the labor were donated by a variety of suppliers, sub-contractors, and

they are a cutting edge research hospital. We had a nice fit."



Solar thermal bypass heat exchange prevents the domestic water from overheating.





The Power of Beauty

Gold

Josh Wynne Construction

Sarasota, Florida

Custom/Demonstration Category, Hot Climate

Josh Wynne Construction of Sarasota, Florida, proved that beauty isn't only skin deep with this EVHA gold-winning project. When designing and building this upscale home with magazine-worthy looks, the company demonstrated that sustainability can hold equal weight to aesthetics—and that often, the two go hand-in-hand.

Every livable room in this home is on an exterior wall which allows natural lighting to be the primary light source throughout the day time hours.

Recognizing that duct leakage into attics is a big waste of energy, particularly in the hot attics of Florida, the builder eliminated attic space altogether by using spray foam in the cathedral rafters.

In a unique twist not often found in residential design, the ducts were left exposed to the living space and made part of the architectural appeal. This produced the lofty ceilings and open feeling that the homeowners wanted, eliminated problems with duct losses, and contributed to the air sealing package that led to blower door test results of 1.38 ACH50 in this architecturally complex design.

Given the abundance of solar resources, the builder carefully designed the windows and overhangs to provide plentiful daylight without overheating this "Sunshine State" home. Company owner Josh Wynne explains, "Every livable room in this home is on an exterior wall which allows natural lighting to be the primary light source throughout the daytime hours." On the eastern façade, operable clerestory windows allow gentle morning light to penetrate

the space. When the windows are opened, they help induce the stack effect and promote natural cooling. In addition, four-foot overhangs shade windows and doors nearly year round and the western façade is further shaded from the setting sun by a forest of over 150 hardwood trees. As the deciduous trees shed their leaves in the colder months, sunlight filters through the branches and helps passively warm the home's interior.

Supplementing the daylighting is an energy-efficient lighting package consisting entirely of LED fixtures. These state-of-the-art lights don't simply complement the home's modernist décor, they help define it. Dimmer switches on the majority of the fixtures make the LEDs even more efficient and give the homeowner more control over ambience and lighting levels.



Deciduous trees provide shade in summer and allow the sun to shine on this energy-producing house in the winter.



PV and solar thermal panels give the roof a futuristic appearance.

Capitalizing further on solar energy, as well as tax credits for renewable energy, the builder installed sufficient photovoltaic capacity to generate more than enough power for the 3,070-s.f. home over the course of a year. In fact, the 14-kW system was solely responsible for bringing the energy rating from a HERS Index of 55 without renewable energy, to HERS -22 with renewable energy—and there is still some roof area for expansion!

To minimize the impact on the architecture, the builder and homeowner selected a building-integrated photovoltaic product that is resistant to hurricanes. In addition, the system selected is also designed to ensure that even if one section is shaded, the whole array's output is not compromised—just like a good set of holiday lights that still works when one bulb goes out.

Between energy conservation and on-site generation, it's easy to see why the builder calls this project the Power Haus.



Exposed ducts in the well-sealed cathedral ceiling add architectural interest to this modern interior design.

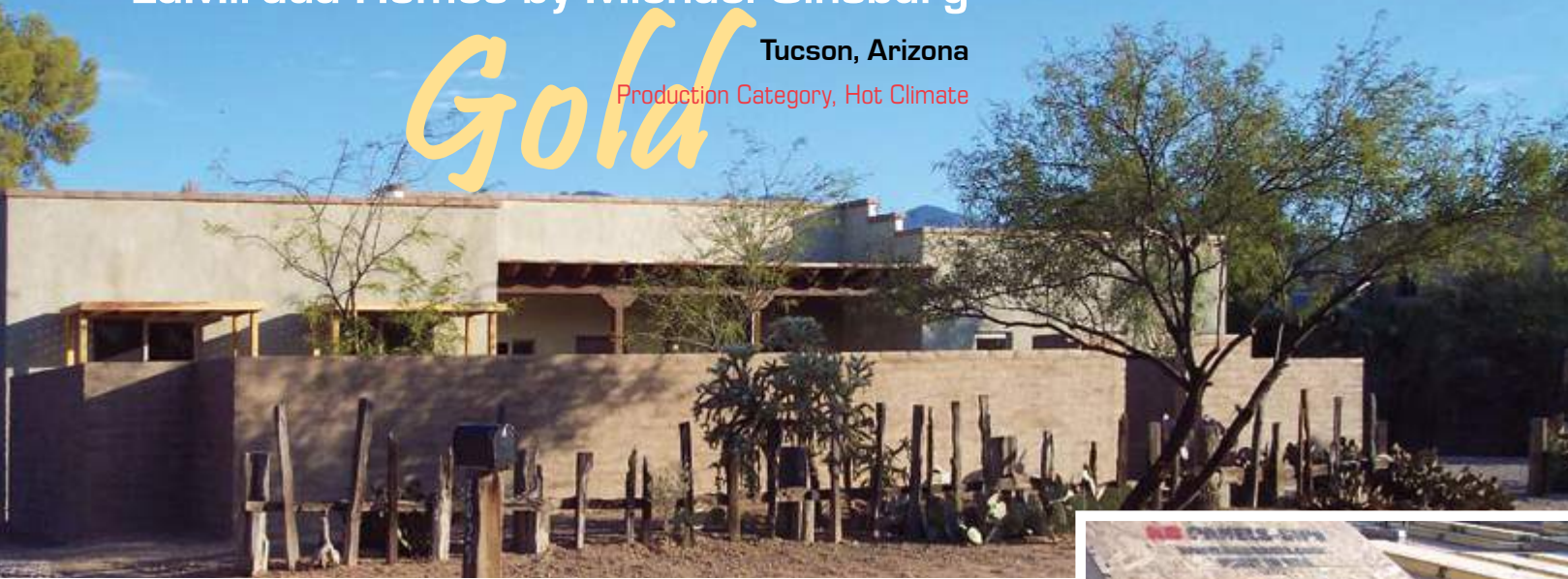
It's Always Sunny in Tucson

LaMirada Homes by Michael Ginsburg

Tucson, Arizona

Gold

Production Category, Hot Climate



When building new homes in Tucson, Ariz.—which happens to be the fifth sunniest city in the United States and has an electric utility that actively encourages renewable energy production—solar energy is almost a no-brainer. So, while production builder LaMirada Homes harnessed the sun by

installing a solar water heating system and 3.4 kW of photovoltaic capacity on this ultra-efficient urban infill home, it also recognized that the amount of sun through the windows affects the amount of cooling

needed. As a result, to prevent unwanted solar heat gain, the production home builder didn't just use reflective windows and roofing material, it went further by designing the home with the proper solar orientation and using architectural features like a covered patio and louvered trellises to shade the structure's south side.

The builder wanted the superiority and integrity of the thermal envelope to be the primary design factor.

But passive solar design features weren't the only techniques that were new to 35-year residential construction veteran and company president, Michael Ginsburg. In tackling this project, Ginsburg wanted to push the envelope to see what was possible. Working with the Davis Energy Group as part of the U.S. Department of Energy's Building America Alliance for Residential Building Innovation team, Ginsburg designed this 1,935-s.f. home to be as energy efficient and cost effective as possible. Ginsburg wanted the "superiority and

integrity of the thermal envelope [to be] the primary design factor."

To effectively meet LaMirada's construction goals, the design team chose SIPs walls and roof because of their thermal efficiency and ease of installation. With SIPs installed to exacting specifications and combined with continuous insulation under the slab and around the slab edge, Ginsburg likens the home's thermal envelope to an "icebox." Designed without any interior load-bearing walls and exposed support beams that add architectural interest, the homeowners will have lots of flexibility with any future redesign.

One of the most unique aspects of this home is the hydronic radiant floor heating and cooling system that eliminates the need for a forced air system, although one was provided for occasional dehumidification and additional capacity. In this system, a reverse-cycle chiller heats or cools liquid that is circulated through piping embedded in



Multiple layers of protection and insulation were used to ensure the efficiency of the unique hydronic heating and cooling system.



The mechanical area is truly the heart of the home's functions.



the concrete floor. To cool the house, the chiller operates between midnight and 7 a.m., when electricity rates are low, and uses the concrete mass to store the cooling energy. Despite the chiller operating only at night, the system has worked like a charm during the early cooling season—with evening temperatures deviating only 3°F above the morning temperature. Energy-efficient ceiling fans can supplement cooling, when needed.

To allow the hydronic heating and cooling system to do its job most effectively, the concrete floors throughout the house were left exposed, eliminating the need for expensive floor coverings. The savings nearly covered all of the additional expense of the efficiency features.

According to the EVHA judges, LaMirada has done an exceptional job with this first effort. "This is a very unique and well-executed concept home," that received an "impressively low HERS Index (40 without & 20 with renewable energy sources)" due to its excellent systems engineering. Asked if he'd do it again, Ginsburg said, "This is the process and method by which I will design and build all future homes."



SIPs Installation.



Testing the Limits

Lend Lease

Fort Campbell, Kentucky

Multifamily Category, Moderate Climate

Silver



Lend Lease, a company which specializes in large, complex development projects, embarked on an innovative project at Fort Campbell (KY) to build a net-zero home for the newly-privatized military housing market. The first of its kind on a military installation, the ZEH at Campbell Crossing blends not only with the other homes on the base, but also with Lend Lease's core belief that a sustainable business is not simply a profitable one. Since the company's founding, says the Fort Campbell project manager Jeff Morrow, "Sustainability has been an integral part of our corporate culture. Today it is a central part of our core business strategy."

specifications to significantly reduce energy consumption and add solar renewable energy systems to accomplish a ZEH. For superior air sealing and insulation, the team selected spray foam insulation. To thwart unwanted solar heat gain, the team incorporated awnings and extended roof truss overhangs to shade south-facing windows. A geothermal heat pump provides heating and cooling, and solar is the primary fuel for water heating. Capping off the package is a 7.4-kW PV system that brings the HERS Index to -5 (43 without PV).

Without any financial incentives for the project, Morrow said the company did not expect to have a high return on investment. But, that hasn't prevented competitors from getting on the bandwagon. "It started a competition with one of our rival projects at Camp LeJeune, which just started building a ZEH," notes Morrow.

Imitation, as we all know, is the finest form of flattery!

But Morrow is secure in the ZEH product he offers. "Our tenants love it," he said. "They find the house is exceptionally comfortable and quiet. They love seeing the technologies," which include a whole-house monitoring system that makes the tenants much more cognizant of their energy usage and which has dramatically influenced the occupants use of energy.

On top of the performance and occupant satisfaction, Morrow notes enthusiastically, "It has started to become a big marketing tool for us; a real plus. When senior Army leadership comes to Fort Campbell, they want a tour."



Retractable awnings provide shading only when needed.

To get to ZEH, the company enlisted the help of Concurrent Technologies Corporation (CTC) and the NAHB Research Center to define the most appropriate technologies and construction techniques, and conduct energy analyses of numerous design options. The design team started with the 2,066-s.f. standard duplex floor plan that was already being built on the installation and modified the

While Lend Lease builds all of its units to ENERGY STAR standards, it wanted to find out if the zero energy goal was possible, and to gather lessons to apply to its nationwide portfolio. According to Morrow, "Since Lend Lease is responsible for utilities at the military rental properties, it made sense to figure out how far we could take energy efficiency."

CONGRATULATIONS TO THE WINNERS OF THE 2012 ENERGY VALUE HOUSING AWARDS®

Congratulations to these builders and remodelers who are passionate about improving sustainability in the housing market. You are to be commended for elevating the standards for energy-efficient construction and driving the adoption of energy-efficiency principles.



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The Science of Value

Gold

Scott Homes, Inc.
Olympia, Washington
Custom/Demonstration Category, Cold Climate

Scott Bergford, owner of Scott Homes, has been in the business long enough to have accumulated a few stories. "We've been building efficient homes since 1983," says Bergford. "Over the years we've learned a lot, made mistakes, and done many things right!" The fact that this winning home received a blower door test of 0.65 ACH50 is testament to the things that the company is doing right. This 2,066-s.f. home received an astounding HERS Index of 39 (without PV) in large part due to its tight SIPs



construction. Yet the crew is always striving to make it better. For example, when an initial blower door test showed a slightly higher air infiltration, Bergford's team found the small gaps and cracks and fixed them before they became hidden behind the walls.

Scott Homes' marketing techniques have evolved into a somewhat unique "preach what we practice" approach as Bergford and his staff reach-out to educate and inform the public and potential clients. "Our success in branding ourselves as a quality, energy-efficient builder is due to concentrated marketing efforts and involvement in the community."

Rather than pushing an agenda, Bergford notes, "We use common sense and building science education to win people over." Through numerous speaking and networking opportunities, Bergford is able to grab people's attention quickly. "I start by telling them we build homes that are heated for less than \$100 per year - then I tell them how we do it."

Bergford admits that most of his audience is already



indoctrinated in the green building arena. "The challenge, as always, is reaching out to people who have not yet seen the point of building an energy-efficient home, or who feel it is something they cannot afford."

This house costs about \$2.12 per day to run, including water. That's less than a vanilla latté!

To initiate the uninitiated, Bergford always starts by giving potential customers a brief building science "seminar" using visual aids to help illustrate the concepts. "Discussing the awards displayed on our office walls helps, too," he adds, noting that the awards validate that he knows what he's doing. But it's not just paper and plaques: Bergford points out, proudly, "[This EVHA-winning] house costs about \$2.12 per day to run, including water. That's less than a vanilla latté. That's an example I can sell."

With such a low HERS Index, this home could have undoubtedly achieved net zero with the addition of renewable energy generation but that didn't fit into the homeowners'



construction budget. Instead they accepted the company's recommendation to roughing-in for future solar panels by adding a conduit to the south-facing garage roof and installing a circuit in the garage for a future electric car charging station. With the infrastructure in place, adding solar panels in the future will be a breeze.



Far left: Solar site surveys—the basis for design and positioning an energy-efficient home.
Left: Tankless water heater installed to minimize run lengths to appliances.



Seasoned Green

Stitt Energy Systems, Inc.

Rogers, Arkansas

Silver

Custom/Demonstration Category, Moderate Climate

Stitt Energy Systems, Inc (SESI), a company founded on owner W. Orlo

Stitt's passion for energy conservation, is certainly not green when it comes to winning EnergyValue Housing Awards. The company was among the program's honorees at the first EVHA ceremony in 1996.

When the company was formed in 1978, SESI was way ahead of the competition with its energy-efficient, passive- and active-solar homes. As building science information has become more widely available and some builders have begun to catch up, the company continues to improve its practices and integrate new products into its projects.

"We have standards that we consider to be very basic," says Orlo Stitt. "We aren't interested in a project unless those features are included. Look at it this way: if you are making an energy efficient-

car, you have to start with round wheels. If we build a house with 'square wheels,' we've missed a chance to do it right."

With the current economic climate and the conservative nature of lending, Stitt is encouraged by a trend he has noticed recently—buyers sacrificing glitz for efficiency. But he admits he'd rather see buyers getting everything they want.

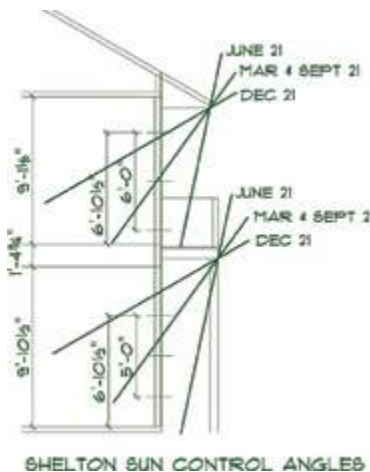
This 3,474-s.f. mountain oasis, like all of Stitt's homes, began with a solar survey and a discussion about orientation to take

advantage of both passive and active solar applications. Strategically placing windows and designing overhangs for shading during the summer months helps prevent excessive solar exposure while allowing natural heat gains in the winter. Although roof orientation was not ideal for PV, the owners were dedicated enough to put the 2.2 kW photovoltaic system on "spider legs" on the rear of the house and find space for a solar water heating system. The active solar system was just part of the package that resulted in a HERS Index of 43 (53 without PV).

Beyond the passive solar features, Stitt points out the other "round wheel" aspects of the home, which include an ICF foundation, soy-based spray foam on exterior walls, and its own trademarked "Ice House Roof." In the Ice House Roof system, the attic is insulated at the roofline with soy-based spray foam, but the roof deck remains vented. The builder likes the system for its simplicity in contributing to a tight (1.4 ACH50) and well-insulated building shell and for its moisture management capabilities.

In the spirit of practicing what it preaches, SESI built a new headquarters that was crowned 2009's "Greenest Office Building in Northwest Arkansas" by the *Arkansas Building Journal* and which joins the William J. Clinton Presidential Library and Heifer International's headquarters as the first three LEED Platinum buildings in the state .

We work to balance the customer's dream with the reality.



Spray foam on the roof deck is a critical part of Stitt's trademarked "ICE HOUSE ROOF."

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Zero-Energy Plans,
Kirby Nagelhout Construction
Gold Mitchell, Oregon
Custom/Demonstration Category, Cold Climate

The mission of the National Park Service (NPS) is to “preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations.” It is no wonder, then, that when building a ranger’s house at John Day Fossil Beds National Monument in Oregon, the NPS sought to create a functional and durable net-zero energy home that would serve park rangers for generations to come.

Net-zero energy was a mandate. Anything better would be a bonus.

The park service was off to a good start when it placed Ted Clifton of Zero-Energy Plans (ZEP) and president of 2011 EVHA Remodeler of the Year,

Clifton View Homes, at the helm of the design team. Yet, all along, ZEP’s objective was to exceed expectations without dramatically increasing cost. To accomplish this, Clifton stuck to “tried and true” approaches like SIPs construction, previously-proven slab insulation details, triple-pane windows, and a ductless mini-split heat pump.

When it came time to put the construction out for bid though, Washington-based Clifton’s building company was never in the running. “We knew that federal government procurement regulations would prohibit us from bidding on the construction,” Clifton said. Besides, he noted, “the site was more than seven hours from my office.” Therefore, in the plans, ZEP thoroughly spelled out all construction materials, methods, and sequences. “We made sure, before [the plans] went out to bid, that every note or required detail was clear,” Clifton explained.

When the construction contract was awarded to Kirby Nagelhout Construction based in Bend, Oregon, a unique partnership ensued. The project exemplified how, with the right mix of communication, detailed plans and scopes of work, and quality control mechanisms, carefully crafted plans can be well executed by a good contractor, even if the construction methods are unfamiliar.

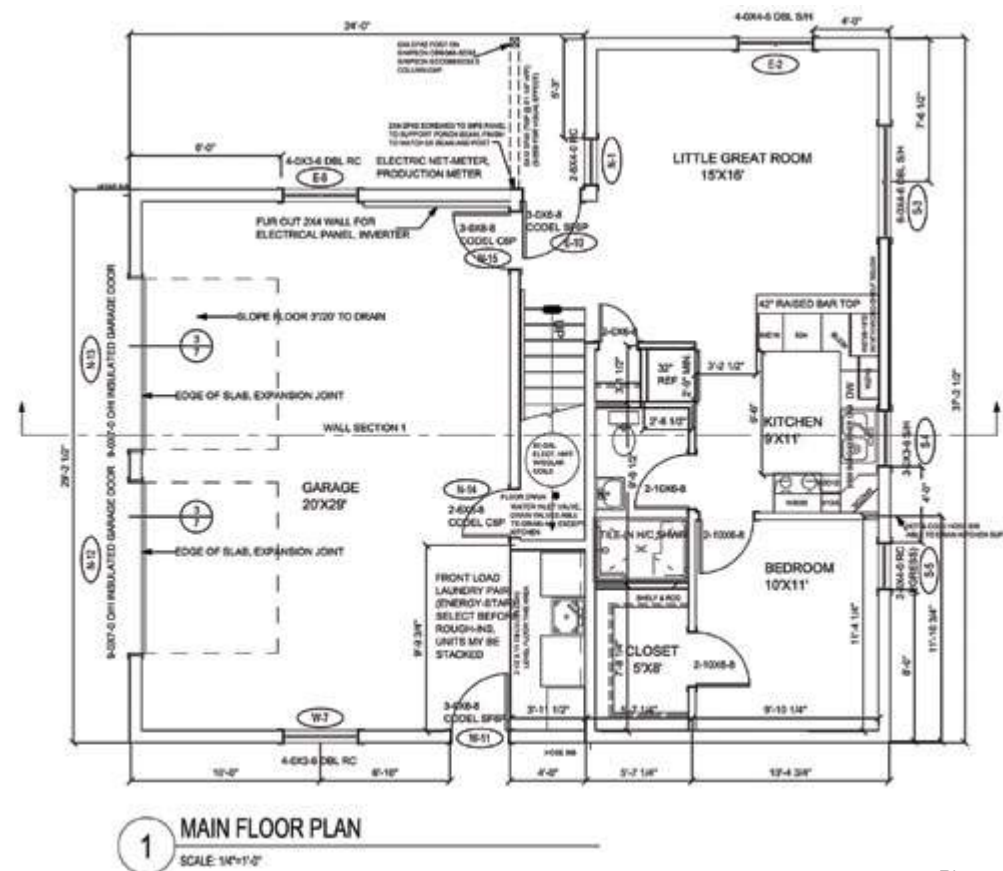
According to Chris Prah, project manager at Kirby Nagelhout Construction, “The combination of great documentation, our experience and standard quality control procedures, and Clifton’s vast SIP experience was critical to the project’s success.” Part of the success was also due to Clifton’s two-day site visit at the start of the SIPs construction Prah noted, “It was very helpful to have [Clifton’s] knowledge transferred to our personnel on site.”



Volcano domes on the site made it challenging to position the house at the optimum solar orientation.

Besides the two-day site visit and the comprehensive construction documents, the team held weekly conference calls and occasional educational sessions with subs and the NPS project manager to maintain quality standards. As evidence of the successful coordination in this 1,002-s.f. house, air leakage tested at 1.27 ACH50. As Clifton notes, “There are many experienced SIPs builders who would be quite happy with [that result]!”

The noteworthy project execution resulted in a highly functional and energy-efficient final product with a HERS Index of 44 without and -15 with renewable energy production. The compact design isn’t fancy, but it provides everything a ranger needs to live comfortably and in alignment with the park service’s philosophy. In fact, the 5.6-kW PV system produces enough electricity to power the home, the visitors’ kiosk and restrooms, and the ranger’s vehicle—often with a credit remaining from the electric company!



Blower door tests done before drywall is installed helps builders find and fix leaks.





No Gut, No Glory

Gold

Ferrier Builders, Inc.

Fort Worth, Texas

Reconstruction/Demonstration (Existing) Category, Hot Climate

One person's trash is another's treasure. That's exactly how this deteriorating Fort Worth home, which underwent an extensive green renovation by Ferrier Builders, can be described. To be able to envision what is possible when faced with bleak initial conditions—and the reality of what may lie beneath the surface—is an extraordinary gift. Heather Ferrier of Ferrier Builders had that foresight when she found this two-story home in a well established neighborhood in Fort Worth. Ferrier knew instantly that, with a little imagination and a lot of determination and patience, this diamond-in-the-rough could become the brightest gem on the block.

We invested in as many energy upgrades as the market would bear.

Cautious of spending too much on the renovation and pricing the home out of the market, Ferrier said, "We invested in as many energy upgrades as the market would bear. We worked passionately to find the best value for

the investment dollar when it came to energy efficiency." Within the limited budget, Ferrier's company "stretched it as far as we could to incorporate every green building feature possible." What resulted, she notes, is "a beautiful,

high-performance remodel that is a beacon of light in an historic neighborhood."

To get the most "bang for the buck," the company focused on sealing the attic with spray foam insulation and adding spray foam insulation to any wall cavity that was accessible during the whole-house renovation. This insulation helped the home, post-remodel, receive a HERS of 81. By keeping the original "bones" and footprint of the house, but ridding it of years of neglect, Ferrier Builders created a home that remains true to the architect's original vision, but which performs like a modern energy-efficient home.



Before



Before

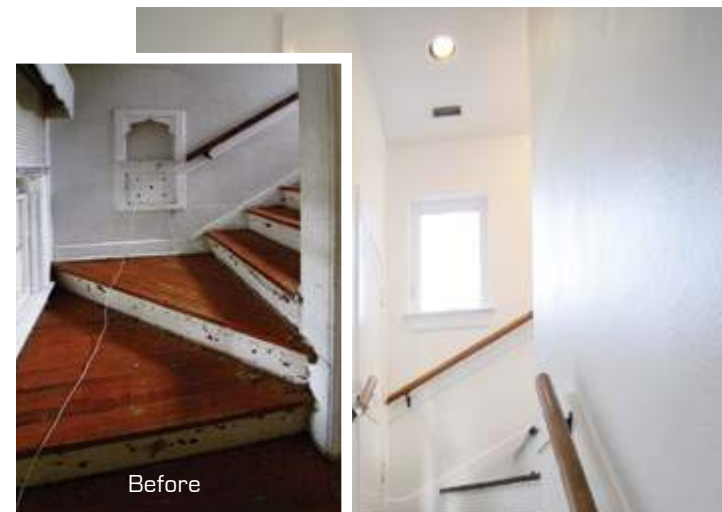
Taking on the project, given the home's obvious state of disrepair, was somewhat risky. "We experienced our fair share of surprises," Ferrier notes. For example, when the previous owners added a utility room next to the kitchen, they simply laid untreated wood boards on an earthen floor. "Needless to say, this technique had not stood well against the test of time," she added.

But the seasoned building and remodeling company welcomed the challenge as an opportunity. They re-poured the foundation and rebuilt the area into an expanded, sunny, and highly functional kitchen.

In part, Ferrier—who moved from a high-performance new home into this remodeled beauty—took on the project to gain valuable experience of buying and restoring an old home. "It's quite an education to go through the process on your own home!" she said. Yet, realizing that it is more realistic for many Americans to remodel an existing home than it is to start from scratch, Ferrier sees an opportunity for the green remodeling aspect of her family's business.



Before



Before



After

Left: Restored original wood work gives the house a vintage charm.

Above: Hidden damage exposed during the process was not anticipated but still a bit shocking.



Before



Removing the wall between the kitchen and utility room opened the space to more light and better functionality.

2012
EVHA
 EnergyValue Housing Award
Remodeler of the Year

After

More and more home building contractors are transitioning into the world of remodeling and renovation of existing homes as a way of supporting their business in lean times. While building new and remodeling are dissimilar in many ways, applying lessons learned from designing and building new energy efficient homes can serve the versatile builder/remodeler very well. Such is the case for Ferrier Builders, Inc., the 2012 EVHA Remodeler of the Year.

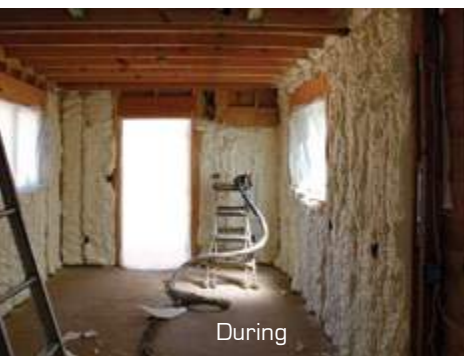
An ancillary company of Ferrier Custom Homes, Ferrier Builders, headed by Heather Ferrier, is taking the same approach to remodeling as the fourth generation new home builder uses—cost effectiveness, practicality, value, and efficiency—but also considers the integrity and charm of the original home. So by combining years of experience with great imagination, Ferrier is able to revitalize both the appearance and the performance of older homes and preserve neighborhood gems that might otherwise be lost because of neglect and deterioration.

As one judge remarked, “[We] couldn’t ask for a better representative ... Ferrier is so committed to [the EnergyValue concept] and is a great company to represent the award.”

Congratulations to Ferrier Builders, Inc. for being named 2012 EVHA Remodeler of the Year.



Before



During



Before



After

Reuse of the light and new fixtures that resemble the original helped maintain the home's character.



Before

G, That House is Efficient!

Silver **G Street**
 Scottsdale, Arizona
 Single-Family (Existing) Category, Hot Climate

G Street of Scottsdale, Ariz., has a lofty goal for all of its remodeling projects—to cut energy and water use by half. With this speculative gut-rehab project in a city neighborhood, the company accomplished its goal and much more. While maintaining the original footprint and historic exterior charm of this 900-s.f. 1947 home, G Street slashed energy use by 75 percent from its pre-remodel levels and cut water usage by 62 percent, for a combined projected utility savings of \$1,400 per year.

According to founder Philip Beere, “At the core of the decisions G Street makes during every renovation is energy efficiency and its benefits of making the home superior and environmentally responsible.” To limit construction waste and raw material usage, as well as to create the most energy-efficient final product, Beere says it is G Street policy never to tear down an exterior wall. Within the original footprint, the company made impressive energy use reductions in this home. Energy ratings went from a pre-remodel HERS Index of 238 to a final HERS 58. Instead of making a home bigger, Beere says, “We make the best use of the existing structure through creative and professional design,” to make it more livable, comfortable, and attractive.

The home’s small size wasn’t a deterrent to its marketability. In fact, the new homeowners chose to move from a substantially larger home in the suburbs to this stylish beauty in order to be closer to work and to live in a home more harmonious with their conservationist ideals. In the end, G Street earned a 30 percent return on its investment and sold the renovated home in just 20 days, despite a sluggish local home sales market.

By sprucing up the home and tripling its sales price, the project not only helped increase local property values, the neighborhood also benefited from G Street-hosted workshops before, during, and after renovation. These workshops—attended by over 400 people, including 100 students and neighbors—focused on educating the community about what is possible through renovation. In an area of similar homes, these workshops will undoubtedly inspire other homeowners to consider energy efficiency in subsequent home remodeling projects—homeowners who may, of course, also become new G Street clients!

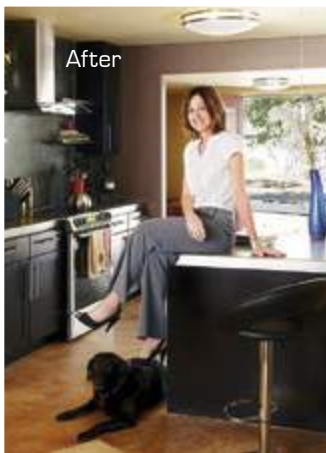


Neighbors turned out in droves to learn how they could make their homes more efficient.

Because Scottsdale has operated a green new home building program since 1998 and it has many green-savvy home shoppers, G Street developed a unique marketing tool. The trademarked “Green Street Performance Report” window sticker sets the company apart from the competition. Displayed on each project, the sticker describes a remodeled home’s green features and monthly utility costs—for this home \$36/month—which is a notable and highly marketable feature for potential buyers.



G Street’s educational process doesn’t end at the sale. The builder-installed energy monitoring system allows homeowners to see real-time energy usage for each circuit. For the ecologically-minded homeowners that G Street tends to attract, this information can help them understand how to further cut their energy use, or how to choose electricity rate structures that best suit their usage patterns.



After



Before



It's fair to say she didn't know what was in store when she volunteered to strip the old insulation from the house!

Trials and Teamwork

GreenPinkies, LLC
Fayetteville, Arkansas

Reconstruction/Demonstration Category, Moderate Climate

The idea for starting the GreenPinkies remodeling business began when Lauren Kuenzel, a mechanical engineering graduate of the University of Arkansas, realized that a typical desk job wasn't for her. By joining forces with her mother and sister, GreenPinkies, LLC, was formed. Being "green" to the remodeling business yet wanting to set themselves apart from other contractors, the team set out to do an environmentally friendly renovation that resulted in their first project being an EVHA-winning house.

For a company without construction experience, the level of research and effort toward applying building science best practices is remarkable.

As an alternative to new homes built in the Fayetteville countryside, the company has a simple business model: renovate 30+ year-old homes to dramatically improve

energy efficiency, comfort, and livability. In the process, the women are seeking to dispel the negative public perception of these smallish, ranch-style homes as 'old-fashioned.' "We want to increase the 'cool' factor," says Kuenzel, who notes their intrinsic green features of modest size, proximity to town, public



Before

Unique placement of a solar tube in the light fixture brings brightness to the kitchen day and night.



After

transportation, and existing services, and building materials reuse. Without changing the footprint of this 1,478-s.f. home, the company's gut-rehab corrected moisture and structural problems, modernized the interior, and installed efficiency features that cut the HERS Index by more than half, taking it from HERS 118 pre-renovation to HERS 51 post.

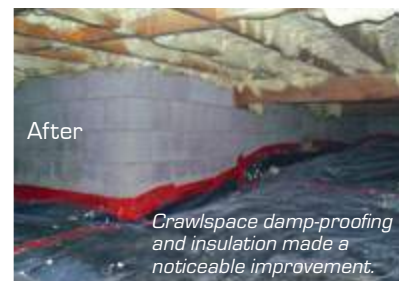
At the root of GreenPinkies' approach is an innovative solar-assisted hydronic heating system with sufficient capacity for space and water heating during about 10 months of the year. A tankless gas water heater provides additional capacity when necessary. The advantage of this system—besides capitalizing on the 218 days of sunshine each year in Fayetteville—is that it can be combined with ducts or with radiant distribution—making it virtually "plug and play" for the homes that the company is targeting for future renovations.

Some of GreenPinkies' selections, particularly their innovative (not off-the-shelf) solar thermal heating system, were unfamiliar to many of the trade contractors. But, rather than alter their choices, they worked through the issues as a team—often with smiles, food, and drink. This informal interaction, which included a picnic and a happy hour for the trades, led to the creation of a cohesive team of subs that will implement the company's renovations methods in future projects. "The most important outcome is that we and our key crews learned together," said Kuenzel. And on the next project each crew will know just how to interface their system and methods with all the others."

Beyond the heating system, the team made big efficiency strides by applying spray foam insulation on the walls and crawlspace floor, and streamlining the duct system and bringing it into conditioned space. "For a company without construction experience, the level of research and effort toward applying building science best practices is remarkable," said one EVHA judge.



Before



After

Crawlspace damp-proofing and insulation made a noticeable improvement.



Before

Sweat Equity, Optimal Efficiency

Habitat for Humanity South Sarasota County, Inc.

Venice, Florida

Reconstruction/Demonstration Category, Hot Climate

Since its founding in 1992, Habitat for Humanity (HFH) South Sarasota County, Inc., a Florida HFH affiliate, has dealt with the difficulties and rewards of having volunteers build and renovate affordable housing. This HFH affiliate builds all of its new homes to ENERGY STAR, DOE's Builder's Challenge, and Florida Green Building Coalition (FGBC) Certified Green standards. Yet, this EVHA-winning remodeling project presented an entirely new set of challenges for the experienced team. Because this project was the first major energy-efficient renovation it had undertaken, says construction manager Michael Sollitto, "It was challenging to figure out how we could transform a 1970s home into one that would rival any newly-built home in the efficiency department and accomplish that with volunteer labor. It was also one of the most exciting projects we have ever done."

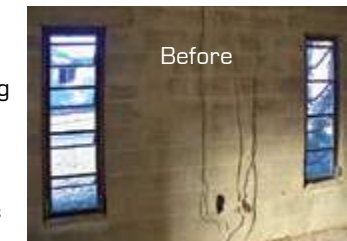
Due to the anemic housing market in Florida, the affiliate has begun to focus on rehabilitating abandoned homes, in partnership with Sarasota County's Neighborhood Stabilization Program. During this project's remarkable transformation, the 1978 vintage, single-story, 1,812-s.f. home was made dramatically more energy efficient and, thus, more affordable while being kept from deteriorating and contributing to neighborhood blight.

When the house was obtained by HFH, it had uninsulated concrete block walls, ducts in a vented attic, single-pane windows, and an air infiltration rate of 31 ACH50—or the equivalent of a nearly 20" x 24" gaping hole in the structure—and energy bills of \$2,600 per year. Post-retrofit energy bills should be \$950 per year—with the buyers pocketing an extra \$140 each month.

"Through all of our efforts, we have made this home truly affordable," Sollitto noted with pride.

To achieve this extraordinary result, HFH South Sarasota County joined forces with the Florida Solar Energy Center's BA-PIRC team as part of the DOE's Building America program to find cost-effective efficiency measures that could be implemented by volunteers. One of the first decisions was to create an unvented attic to bring the ducts and air handler into conditioned space and solve the issue of major air leakage between the house and the vented attic. All exterior walls were insulated with rigid insulation and furring strips placed over the reflective insulation surface to provide a nailing surface for new drywall and, more importantly, the airspace needed for the low-e surface to prevent heat gain into the space.

After installing new low-e, double-pane windows, drywall, and final air sealing measures, the building tested at 5.6 ACH50, an 82 percent improvement over pre-retrofit test results. Because of these improvements, a two-ton (SEER 16) heat pump was sufficient to replace the old, inefficient (SEER 10) three-ton unit. Along with CFL lights, ENERGY STAR appliances, and an ERV system, the home received a post-retrofit HERS Index of 57—less than one-third of its pre-retrofit HERS 185!



Before

Typical Florida block construction without insulation (above) and a great solution (below).



After



Meaningful Improvements

TAG Mechanical Systems, Inc.

Syracuse, New York

Single-Family (Existing) Category, Cold Climate

It's not often that a remodeling project is undertaken for the express purpose of saving energy and enhancing durability. Yet, through an innovative New York State Energy Research and Development Authority (NYSERDA) program, TAG Mechanical Systems was granted the opportunity to do just that. Without making changes to the living space, TAG Mechanical made impressive improvements in how this 100-year-old Utica, New York, home uses energy and handles moisture.



Before



After

Insulation on the basement walls, damp-proofing, new HVAC equipment and insulated ducts all made huge improvements.

Before the project began, the home was in a state of disrepair that included obvious energy and moisture problems such as ice damming, standing water in the basement and crawlspace, peeling paint, rotting wood, and sparse insulation. On top of the obvious issues, leaky construction and leaky ducts in an unconditioned basement led to discomfort and unnecessarily high energy bills for the homeowner.

After rectifying the basement water problem and removing water-damaged wood, TAG Mechanical was able to seal and insulate the home. The company redefined



During



Before

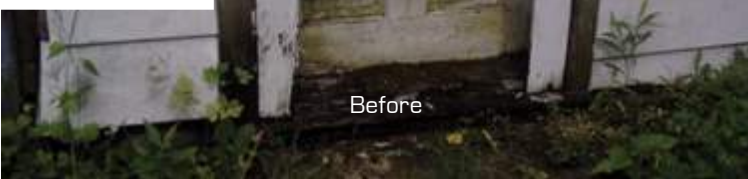
Remodeling for energy saving while the home was occupied required that most upgrades take place on the exterior.

the thermal and air boundary of the home to the roofline, basement/crawlspace walls, and basement floor, thereby bringing all mechanicals into conditioned space. The tactic presented some challenges—for example, window openings had to be extended to accommodate four inches of foam on the home's exterior. But, this approach greatly improved the R-value and tightened up the house against air leakage helping the company cut air infiltration by two-thirds from 3500 CFM to 1203 CFM @ 50 PA. TAG Mechanical added a high efficiency gas tankless water heater—for water and hydronic space heating to replace the older, natural draft unit—and cut duct leakage 93 percent using the Aeroseal system. Combined, the efficiency upgrades netted a final HERS Index of 60.

The resultant savings of about 70 therms per month during the heating season were welcomed by the elderly, disabled homeowner, who wouldn't otherwise have been financially able to fix up her house. And, in an area in which natural gas prices consistently exceed the national average by 25 percent, every therm saved is that much more valuable. Furthermore, the durability enhancements, including a standing seam metal roof, a water-managed foundation, and siding attached using a rainscreen approach, will all contribute to the home's long-term affordability.



After



Before

This NYSERDA-supported retrofit was one of our most interesting projects.



Top Row (L to R):
Kathleen Dorgan, AIA, LEED- AP, principal of Dorgan Architecture & Planning; Steve Lindsley, EarthCraft Renovation Project Manager; Stacey Rothgeb, PE CEM, Research Engineer, National Renewable Energy Laboratory (NREL).

Bottom Row:
Jeannie Leggett-Sikora; Sam Rashkin, EPA & DOE; Joe Gregory, Bob Ward Companies; Jerry Leach, CGP, Dir. Of Building Codes, PA Builders Association.

Missing from photo:
Subrato Chandra, Ph.D., senior buildings engineer, Pacific Northwest National Laboratory

Behind the Scenes:

The EnergyValue Housing Award Judging Process

As any competitor knows, you've got to impress the judges. The EnergyValue Housing Award competition is no different. All of the applications are painstakingly critiqued by a panel of volunteer judges, and the program owes much of its success to this group of experts that donate their time and expertise to the task of determining the worthy award recipients.

Before applications are due, EVHA program manager Debra Sagan gets busy finding judges who are willing and able to volunteer several days of their time to the judging process. "We try to get a mix of experts in building science, construction practices, design, and testing so there is a balanced team to make decisions," according to Sagan. She also notes that she looks for judges who understand the nuances of building various types of homes in the different U.S. climate regions. The goal is to award homes that truly combine energy efficiency and value.

Going through the application process is a very good way of evaluating the work you are doing.

Once judges are selected and paired, applications are divvied among the group. Having two independent evaluations for every application, Sagan notes, "keeps us all on our toes—but is what makes the judging process rigorous and thorough." Using a rubric created by the EVHA program, the judges objectively rank each application in five areas: energy performance, design, construction, marketing, and energy program participation.

The independent judging process is not trivial—each judge spends several hours combing through each of the dense applications, which include technical specifications, builder narratives, detailed drawings, photos, marketing materials, performance test results, and product-specific technical materials. Every judge is tasked with gaining in-depth knowledge of their group of entries.

Once EVHA staff gather and compile the preliminary scores, judges convene at the NAHB Research Center in suburban Washington, D.C., for a day of final judging. The NAHB Research Center team works hard to create a collegial atmosphere for the judges, starting with an informal dinner on the evening prior to the final judging event. Southface's Steve Lindsley said, "The dinner helped me get to know everyone involved in the process, which made it more relaxing [and productive] the next day."

Getting down to business the next morning, each pair of judges is sequestered with their applications and evaluation forms for a preliminary judging phase. Tasked with reaching consensus and making recommendations to the group, the judges discuss any discrepancies and reach a compromise. Connecticut architect Kathy Dorgan, who was paired with Maryland production builder Joe Gregory, explained that in the morning session, "We had very similar preliminary scoring. We had a very detailed discussion about relative ranking and we carefully went through the scoring to make sure we were being as fair as possible."

In the afternoon, the final judging phase occurs. Each pair of judges presents their recommendations to the entire group, noting the highlights or limitations of each application. The judges raise questions and use the brief application summaries prepared by EVHA staff to help with the decision-making process. Once all applications and preliminary judging recommendations are presented, the group makes the final award decisions.

The final step for the judges is to then decide upon both a Builder of the Year (for New Homes) and Remodeler of the Year (for Existing Homes). Only gold award winners are considered for these honors and quite often extensive discussions are needed before a consensus is reached and the recipient of the superlative awards are selected. These winners best exemplify the values of energy efficiency and value and going above and beyond by providing the "entire package" to the residential construction industry.

One of the most important parts of the EVHA process is that the applicants receive feedback on their applications. After the EVHA Celebration each year, the judges' comments are forwarded to each applicant. "For many applicants, this expert feedback more than compensates for the application fee," says Sagan, "Having a group of experts review your construction practices and provide candid, unbiased feedback can be a real eye opener." To which Dorgan adds, "I would encourage more builders to apply. Going through the [application] process is a very good way of evaluating the work you are doing." Rather than simply applying to get the feedback, however, Dorgan almost sees it as a builder's duty, "There are marvelous things being done around the country. It is important to get this good work out in front of other builders."

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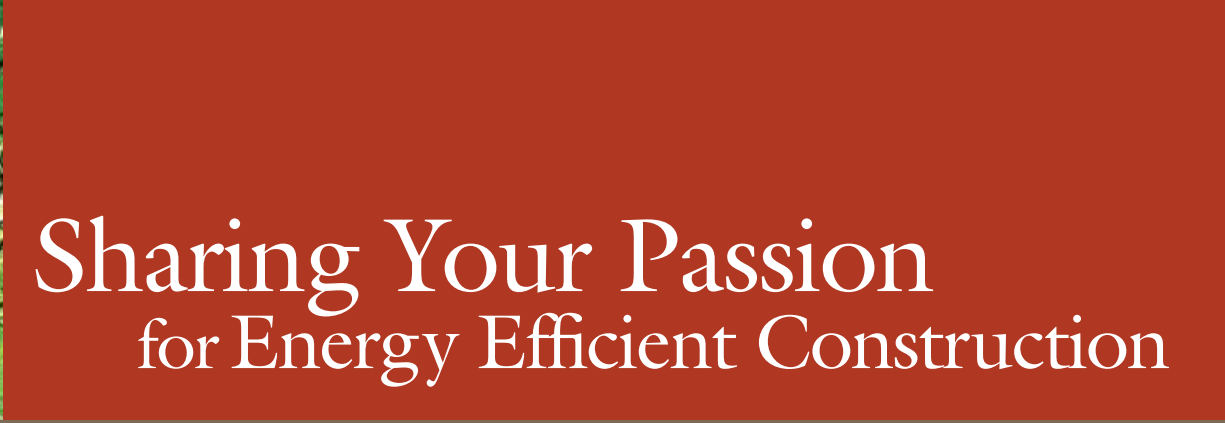
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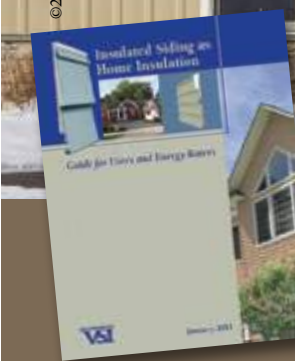
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Appendix: Energy Features, New Homes Division

Winning Home						
Builder	Nexus EnergyHomes, Inc. Pages 8 - 10	Armstrong Builders, LLC Page 11	Colorado Dream Homes, Inc. Page 12	CVH dba Clifton View Homes Page 13	Ferrier Custom Homes Page 14	Flynn Building Company Pages 16 - 17
Website	www.nexusenergyhomes.com	www.armstrongbuilders.com	www.coloradodreamhomesinc.com	www.cliftonviewhomes.com	www.ferriercustomhomes.com	www.flynnrhomes.com
Category	Production	Affordable	Custom/Demonstration	Custom/Demonstration	Custom/Demonstration	Custom/Demonstration
Climate	Moderate	Hot	Cold	Moderate	Hot	Cold -
Location	Frederick, MD (company headquartered in Stevensville, MD)	Honolulu, Hawaii	Pagosa Springs, CO	Coupeville, WA	Fort Worth, TX	Boise, ID
Square Footage	2,710	1,169	3,361	1,469	1,746	1,935
Foundation	10" poured concrete w/R-10 interior insulation	6" Slab on Grade	12" ICF	9.25" ICF R-25 insulation with 4" slab on grade	4" concrete slab on grade	Slab on Grade with insulated stem wall
Wall Construction	6.5" SIPs	Panelized light gauge recycled metal framing	2 x 4 double wall - 12" thick	6.5" SIPs & ICF	2 x 6 advanced framing	14" 2 x 4 Double stud zip wall
Wall Insulation	R-24 foam	R-11 Ecobatt	12" unkrated fiberglass	R-25 foam	R-20 spray foam	R - 58 spray foam & blown in batt
Rim Joist Insulation	R-9 spray foam with air sealant	N/A	R-38 spray foam	R- 38 batt + R-7 foam		
Roof Construction	Trusses	Trusses with radiant barrier sheathing	engineered I-joists	14" raised heel trusses	engineered trusses	Raised heel trusses
Ceiling Insulation	R-40 open cell foam	R-19 Ecobatt	R-49 fiberglass	R-49 blown in fiberglass	R-27 total - 2" Polyiso board + 7.25" spray foam	R - 70 total - spray foam & blown in batt
Windows	Energy Star Low-E, argon filled; U - 0.31; SHGC - 0.27	Low-E; U - 0.29; SHGC 0.25 - 0.30	Energy Star, Argon filled; U - 0.28 - 0.33; SHGC - 0.22 - 0.33	U - 0.29 - 0.30; SHGC 0.25	Energy Star, Low-E, Gas-filled; U - 0.26 SHGC - 0.18 + one 10" solar tube	Energy Star triple pane: .34 - .42; U-0.18 - 0.22 SHGC - 0.21 - 0.42
HVAC	Ground Source HP split system 4.2 & 4.7 COP: 18.6 & 26.8 SEER with TRV ventilation	Cooling: natural ventilation aided by whole house fan & ceiling fans	95% EF Gas forced air heat coupled with ducted fireplace; cooling - 7 ceiling + 6 exhaust fans	COP 2.8 Air to Water HP: Cooling - ventilation + exhaust fans	Mini-split system with 5 indoor units; 135cfm ERV	HSPF 9.2 mini-split + whole house ventilation
Ducts	R-6 metal 100% in conditioned space		Insulated metal 98% in conditioned space	for air handling system only 100% in conditioned space		
Water Heating	Desuperheater with 80% EF gas back-up	Solar thermal & electric assist	98% EF gas tankless heater	Hybrid HP water heater with provisions for Solar Thermal installation	.82 EF gas tankless	solar evacuated tube with electric back-up
Lighting	39 total fixtures: 34 Energy Star, 24 LED's; 10 CFL's	100% CFL's	91% CFL's	100% Energy Star & CFL's	87% energy star fixtures, 100% CFL's	100% CFL's
Appliances	Energy Star	Energy Star	Energy Star	Energy Star	Energy Star	Energy Star
On-Site Energy Generation	4.1 kW PV	2.5 kW system	N/A	provisions made for installation of 6.75kW system	None	8.2 kW PV
Duct Leakage Test	195 total 0 to exterior		58 cfm total; 38 to exterior	None		
Blower Door Test	450 cfm @ 50PA (1.17 ACH @50PA)		2936cfm @ 50 PA (5.16ACH50)	362 cfm @ 50PA (1.83 ACH @ 50PA)	184 cfm @ 50 PA (1.0 ACH50)	580 cfm @ 50PA (2.0 ACH @ 50PA)
HERS Index	51 w/o PV: 28 with PV	N/A not preformed in HI	48	55	52	40 w/o PV: - 8 with PV
Award Level						

Appendix: Energy Features, New Homes Division, CONTINUED

Winning Home						
Builder	Josh Wynne Construction Pages 18 - 19	LaMirada Homes Pages 20 - 21	Lend Lease Page 22	Scott Homes Pages 24 - 25	Stitt Energy Systems, Inc. Page 26	Zero Energy Plans/Kirby Nagelhout Construction Pages 28 - 29
Website	www.joshwynneconstruction.com	www.lamiradahomes.net	www.actuslendlease.com	www.scotthomes.com	www.stittenergy.com	www.zero-energyplans.com & www.knccbend.com
Category	Custom/Demonstration	Production	Multi-family	Custom/Demonstration	Custom/Demonstration	Custom/Demonstration
Climate	Hot	Hot	Moderate	Cold	Moderate-	Cold
Location	Sarasota, FL	Tucson, AZ	Fort Campbell, KY	Olympia, WA	Rogers, AR	Mitchell, OR
Square Footage	3,070	1,935	2,066	2,066	3,474	1,002
Foundation	5" slab-on-grade over 6 mil plastic	Stem wall w/thermal mass floors; R-10 under slab - R-7 perimeter	Post-tensioned concrete slab-on-grade with R-10 perimeter insulation	R-39 8" Stem-wall with 10" SIPs floor	R-22 ICF	Shallow foundation w/ R-20 slab & R-10 perimeter insulation
Wall Construction	Tripolymer block fill with 1.5" air space & Fiboil VR Plus 2	4.5" SIPs with 2 x 2 furring	2 x 6 panels	10" SIPs	2 x 4 @ 16" OC	6.5" SIPs
Wall Insulation	R - 17.1 total	R-20 total: R-15 SIPs + R-5 exterior finish	R- 19.8 spray foam	R-39	R - 20 - 5" spray foam	R-26
Rim Joist Insulation	N/A	N/A	R- 19.8 spray foam	R-39	R-20 spray foam	R-10 rigid & spray foam with R-22 fiberglass batts
Roof Construction	Cypress timbers, tongue & groove with metal roofing	6.5" SIPs	Open web trusses with metal roof	12" SIPs	Raised heel trusses	SIPs
Ceiling Insulation	R-28 spray foam	R-41 foam	R-60 blown in batts	R-47	R-30 - 7.5" spray foam	R-43
Windows	Energy Star Low-E, argon filled: U - 0.30 - 0.31; SHGC - 0.19 - 0.20	Low - E 3, argon filled: U - 0.29; SHGC - 0.21 - no direct solar exposure	Low-E: U - 0.34; SHGC - 0.31	Energy Star Low-E, triple-glazed: U - 0.11 - 0.15; SHGC - 0.46	Energy Star, Low-E, argon filled; U - 0.26 - 0.32; SHGC 0.22 - .029	Energy Star Low - E triple glazed: U - 0.19 - 0.21; SHGC 0.32
HVAC	3 HP systems of varying EF, SEER 21 3-ton cooling, whole-house dehumidification	Whole-house hybrid hydronic radiant floor heating & cooling + energy & heat recovery ventilation	Ground Source HP - 3.10 COP, 14.7 SEER with integrated air handler + ERV ventilation	Ductless mini-split 10.6 HSPF with 95 AFUE propane fireplace + 155 cfm HRV	Passive Solar Design, 9.2 HSPF HP; 16.7 SEER AC/ fireplace with fan + Heat Recovery Ventilator	Ductless split system HSPF 10.1 + Energy Recovery Ventilator
Ducts	Double wall R-6 Spiral metal 100% in conditioned space	R-6 flex duct 100% in conditioned space	R-4 Metal & flex 100% in conditioned space	Ducts for HRV only 100% in conditioned space	R-6 Metal ducts 100% in conditioned space	Solar thermal with electric back-up
Water Heating	2 gas tankless systems with recirculation systems .96 EF	Solar thermal with electric back-up	Solar with electric back-up	Tankless propane 98% EF	Solar thermal with .95 EF electric back-up	100% Energy Star, 100% CFL's
Lighting	100% Energy Star - 98 LED fixtures	All Energy Star & CFL's	85% CFL's	37 total fixtures: 34 Energy Star, 2 LED, 32 CFL's	96% Energy Star	Energy Star
Appliances	Energy Star	Energy Star	Energy Star	Energy Star	Energy Star	5640 watt PV provides 100% of home energy use + feeds back into grid
On-Site Energy Generation	14.2 kW amorphous silica panels provide 122% of needs	3.4 kW PV	7.4 kW PV provides 100% of needs	none - prepped for future installation	2.2 kW PV provides 42% of annual electrical needs	198 cfm @ 50PA
Duct Leakage Test	182 cfm total 0 to exterior	46 cfm total 0 to exterior	44 CFM total 0 to exterior		325 cfm total 0 to exterior	44 w/o PV - 15 with PV
Blower Door Test	883 cfm @ 50PA (1.38ACH @ 50PA)	750 cfm @ 50PA (2.4 ACH @ 50PA)	744 cfm @ 50PA	230 cfm @ 50PA (0.65 ACH @ 50PA)	980 cfm @ 50PA (0.72 ACH @ 50PA)	883 cfm @ 50PA (1.38ACH @ 50PA)
HERS Index	- 22 with PV	40 w/o PV 20 with PV	43 w/o PV - 5 with PV	39	53 w/o PV 43 with PV	- 22 with PV
Award Level	Gold	Gold	Silver	Gold	Silver	Gold

Appendix: Energy Features, Existing Homes Division

Winning Home					
Builder	Ferrier Builders, LLC Pages 30 - 32	G Street Page 33	GreenPinkies, LLC Page 34	Habitat for Humanity South Sarasota Co., Inc. Page 35	TAG Mechanical Systems, Inc. Page 36
Website	www.ferrierbuilders.com	www.gstreetinc.com	www.greenpinkies.wordpress.com	www.habitatsouthsarasota.org	www.Tagmechanical.com
Category	Existing Homes - Reconstruction/Demonstration		Existing Home Division - Single Family Home	Existing Homes - Reconstruction/Demonstration	Existing Home Division - Single Family Home
Climate	Hot		Hot	Moderate	Hot
Location	Fort Worth, TX		Scottsdale, AZ	Fayetteville, AR	Venice, FL
Square Footage	Pre Remodel: 1,683 Post Remodel: 1,615		852 unchanged	1,478 unchanged	1,812 unchanged
Foundation	Pre: crawl space Post: 4" concrete slab on grade		Slab on Grade unchanged	Pre: uninsulated enclosed crawlspace with R-19 batts installed backwards Post: drainage system installed, 3" open cell foam, double plywood subfloors w/staggered seams, 6mil barrier	Original slab-on-grab unchanged
Wall Construction	Frame: all walls examined & repaired		Pre: wood frame Post: unchanged + house wrap & finish	2 x 6 framing with brick exterior finish - gutted to studs, 80% rebuilt, brick repointed	Pre & Post: Concrete Masonry Units
Wall Insulation	Pre: various Post: R-13 spray foam in 85% of walls		Pre: not provided Post: R - 24	Pre: R-19 fiberglass batts Post: 5" spray foam	Pre: none Post: R-3 foil-faced foam board 3/4"
Rim Joist Insulation	Spray foam where applicable		none	Pre: none Post: spray foam	Pre: none Post: spray foam at all walls above block
Roof Construction	Original roof structure retained & repaired		Unchanged	Pre: framing, deck & underlayment unchanged Post: new shingles	Pre & Post: Framed
Ceiling Insulation	R-21 spray foam		Pre: not provided Post: R - 38 spray foam	Pre: blown fiberglass over parts of attic Post: R - 44 spray cellulose over entire attic	Pre: unknown Post: R-19 5.5" spray foam
Windows	Pre: various Post: Low-E; U - 0.33; SHGC - 0.21		Pre: U - 0.9; SHGC - 0.65 Post: Energy Star, Low-E, Gas-filled: U - 0.23; SHGC - 0.45	Pre: unknown Post: Energy Star, Low - E, Argon filled: U - 0.28 - 0.30; SHGC 0.18 - 0.19 + 2 TDD's	Pre: unknown Post: Low-E laminated thermal insulated, impact resistant U- 0.33; SHGC - 0.22
HVAC	Pre: 1938 gas furnace Post: 7.9 HSPF 4-zone HP (1st floor)+ 10 HSPF mini-split (2nd floor)		Pre: 80% EF gas furnace + 6 SEER swamp AC Post: 94% EF gas furnace + 16 SEER HP AC	Heat - Pre: unknown forced air gas reported 80% AFUE Post: Solar & Gas tankless hydronic 96% EF. Cooling - Pre: Unknown 10 SEER 2.5 ton Post: 16 SEER 2-stage 2 ton	Pre: 3 ton A/C HP 10 SEER Post: 2-ton split HP HSPF 9: 16.25 SEER variable speed
Ducts	1st floor: flex ducts 2nd floor 100% in conditioned space		Pre: uninsulated metal Post: R-8 flex	Pre: supplies in crawlspace & unconditioned attic Post: metal & flex 100% conditioned space	Pre: metal & flex in unconditioned space Post: metal & flex 100% in conditioned space
Water Heating	.99 EF electric tankless		Pre: 40 gal. 56% EF gas tank Post: .80 EF gas Tankless	Pre: 40 gal. gas Post: Solar thermal with 80 gal. storage tank & gas back-up (96% EF)	Pre: 40 gallon electric tank Post: 2.35 EF COP 2.2 HP water heater - 50 gallon
Lighting	Pre: 18 total fixtures Post: 24 Energy Star or CFL		Post: 100% CFL	Pre: 19 fixtures - 8 CFL's Post: 34 fixtures - 4 Energy Star, 2 LED, 21 Pin-based CFL	Pre: zero LED's, CFL's, & Energy Star Post: 5 Energy Star 100% CFL's
Appliances	Energy Star refrigerator, dishwasher, clothes washer		Pre refrigerator: 1100 kWh Post: 450 kWh refrigerator	Pre: none Post: Energy Star	Pre: none Post: Energy Star
On-Site Energy Generation	None		None	None	None
Duct Leakage Test	2nd floor - 29 cfm total		Pre: 16 cfm to exterior Post: 10 cfm to exterior	Pre: 470 cfm total, 370 to exterior Post: 177 total 13 cfm to exterior	Pre: 229 total; 112 cfm to exterior Post: 60 total; 35 cfm to exterior
Blower Door Test	Pre: unknown Post: 2757 cfm @ 50 PA (10.33 ACH50)		Pre: 2465 cfm@50PA (22.08ACH@50PA) Post: 1000cfm@50PA (8.9ACH@50PA)	Pre: 3250 cfm @ 50 PA (16.5ACH50) Post: 1075 cfm@50PA (5.5ACH@50PA)	Pre: 7578 cfm@ 50PA (31.33 ACH @50PA) Post: 1345 cfm @50PA (5.56 ACH@ 50PA)
HERS Index	Post: 81		Pre: 268 Post: 56	Pre: 118 Post: 51	Pre: 189 Post: 55
Award Level	 & 		<i>Silver</i>	<i>Silver</i>	<i>Silver</i>



APPLICATION

The EnergyValue Housing Award (EVHA) recognizes builders, remodelers, and contractors who successfully integrate energy efficiency into all aspects of new home production or energy performance remodeling, as exemplified by a specific home. Through educational programs and media coverage, the award promotes increased awareness of the value of energy efficiency among home builders, remodelers, homebuyers, and others within the residential market.

The NAHB Research Center, the National Association of Home Builders, the National Renewable Energy Laboratory, and the U.S. Department of Energy, invite you to enter the 2013 EnergyValue Housing Award competition.

PRESENTATION OF AWARDS

- Awards will be revealed during the presentation of awards at the annual EVHA Celebration
- The 2013 EVHA Celebration will be held during the International Builders Show in Las Vegas, NV (scheduled for January 22 - 25); specific date TBA.

BENEFITS OF APPLYING

- All applicants receive a professional evaluation of their entries, and two complimentary passes to the 2013 EVHA Celebration.
- Winners will be recognized at the eighteenth annual EnergyValue Housing Award Celebration during the 2013 International Builders Show in Las Vegas, NV.
- Winners receive EVHA Winner logos and customized press releases for local promotion and marketing.
- Winners are featured on the NAHB Research Center website.
- Selected winners may be featured on DOE's Building America website, NAHB's Nation's Building News (NBN), and in other national publications or invited to share their success stories at workshops, educational programs, or conferences.

ELIGIBILITY

- All professional U.S. home builders, remodeling contractors, and developers whose primary occupation is constructing/remodeling homes and/or developing real estate are eligible to participate. Applicants need NOT be members of NAHB.
- Previously submitted homes and models are ineligible; however, previous winners may submit new or different homes.
- Submitted homes must have been completed after January 2010 and before application submittal.

APPLICANT RESPONSIBILITIES

Applicants must be willing to share information with other builders through magazines and NAHB Research Center workshops, presentations, and publications. Exceptions include proprietary information that must be clearly identified on application materials.

NEW HOMES DIVISION

In all four categories addressing new home construction, builders should exhibit the integration of energy efficiency into their general design, construction, and marketing practices. The award categories are: Affordable, Custom/Demonstration, Production, and Multi-family.

The New Homes Division Application is available at www.nahbrc.com/evha/newhomes.

EXISTING HOMES DIVISION

For three categories addressing existing homes, remodelers should demonstrate the integration of energy efficiency into the design/re-design, construction, and marketing practices for home retrofit and reconstruction projects. The award categories are: Single-family, Multi-family, Reconstruction/Demonstration.

The EVHA Existing Home Division Category Application is separate from the EVHA New Home Application. More information is available at www.nahbrc.com/evha/ExistingHomes.

CLIMATE REGIONS

Winners in each category will be chosen from within the following climate regions: Cold, Moderate, and Hot.

EVHA BUILDER OF THE YEAR & EVHA REMODELER OF THE YEAR

Judges may choose one overall winner in each Division who best represents energy value and the goals of the award program.

JUDGING

Judging will be based on the evaluation of criteria essential to the value of energy efficiency in new home construction or in a remodeling project. Applicants will be measured relative to a threshold based on previous winners as well as other applicants within a division, specific category, and climate region.

A panel of energy-efficiency experts representing the disciplines of engineering, construction, building, remodeling, design, and marketing will judge each entry. Judges will consider all available information to determine winners. Judges' decisions are final.

Based on the sole discretion of the judges, awards will be made in categories and regions where there are qualified applicants. If you have any questions about the different divisions, categories, or climate regions, please contact the EVHA Program Coordinator at (800) 638-8556, or email: evha@nahbrc.com

JUDGING CRITERIA

Applications will be evaluated based on the design, construction, innovation, performance, marketing & customer relations, and other criteria; please visit the Judging Criteria section online at www.nahbrc.com/evha/criteria for details. Note that homes in the New Homes Division "Custom/Demonstration" and in the Existing Homes Division "Reconstruction/Demonstration" categories are weighted differently than homes in other categories. In addition, builders/remodelers entering a "Demonstration" project should discuss the purpose of the demonstration house, level of involvement of manufacturers, interaction between energy features and benefits, cost effectiveness of the products and equipment used, and what significant impact the project could have on the building industry.

INSTRUCTIONS

To apply, please download the appropriate New Homes or Existing Homes Division application form at the NAHB Research Center website at www.nahbrc.com/evha or request by email, evha@nahbrc.com, or by phone, (800) 638-8556. Updated guidelines for completing the application will be available at the NAHB Research Center website. Please visit the EVHA website frequently for news, event notices, and updates at www.nahbrc.com/evha.

ENTRY DEADLINE AND FEE

ALL Entries must be postmarked by Tuesday, July 31, 2012. The entry fee for the EnergyValue Housing Award is \$125 per entry. A company may submit only one application in each category (A home entered under more than one category will be treated as separate entries). Please submit a separate entry fee and set of applications for each home and category. The fee and application materials are non-refundable. Make checks payable to the NAHB Research Center.

Please address inquiries and submissions to:

EnergyValue Housing Award
Attn: EVHA Program Coordinator
NAHB Research Center
400 Prince George's Blvd.
Upper Marlboro, MD 20774-8731

(800) 638-8556, ext. 6210
Fax: (301) 430-6180
Email: evha@nahbrc.com

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How to Sell a Green Certified Home

By Michelle Desiderio

NAHB Research Center Director of Green Building Programs

(Originally appeared Professional Builder magazine, November 2011)

Let's start with a basic fact – a green home can be sold to anyone. However, homebuyers are a diverse group of individuals and there is no one single way to sell green successfully. For this reason, builders and their sales teams need to identify what green home benefits are most compelling to their potential buyers.

Below are some of the “tricks from the trenches” from builders and remodelers participating in the NAHB Research Center's National Green Building Certification Program and selling third-party certified green homes. While some of the basic techniques are relevant to new home marketing in general, each has its own twist on how to specifically hone in on what makes a green home different, special, and marketable.

What Do Homebuyers Really Want?

Over the past few years there have been numerous surveys of potential homebuyers to ascertain what green features buyers want and, more importantly, which ones they are willing to pay extra for. Most surveys conclude that homebuyers are interested in energy-efficiency features.

For example, the 2010 AVID Home Design Driver Research survey looked at the home design preferences of 12,000 North Americans who built a new home in the last nine years. Of the green features surveyed, 60 percent were labeled “must haves” by survey respondents. Respondents in all of the homebuyer categories (First Time, Move Up, Second Home, Displaced, and Empty Nester) considered energy efficiency a must-have feature.

Is Energy Efficiency All that Matters to Consumers?

The short answer to this question is no. Energy efficiency is a very tangible benefit that consumers recognize as valuable. The energy efficiency benefit is easily measured by the operational savings that the home buyer will realize but consumers are looking for more than home's that are efficient, and a Green Certified home will deliver those benefits that consumers are seeking.

Skeptical builders may object and note that their buyers are not asking for “green.” It's true, few homebuyers march into a sales center and declare that they are looking for a green home. The problem is that green is too vague, overused, and often meaningless, and consumers know exactly what they want. They just don't necessarily call it green. That's why honing your sales pitch and the language you use is critical.

Some other consumers may assume that a home tagged as “green” will cost more than they can afford. In these markets it doesn't mean that select green features aren't desirable, just that consumers may be more interested in the specific benefits as opposed to a blanket categorization of features being green. The most important step in selling a green home is to convey to the buyer what makes your home green and how its environmental impact is rated.

Homebuyers Respond to Diverse Sales Points

Builders often want to sell their homes with a single marketing message. Unfortunately, research shows that gender, geography, age, and educational level all impact which green marketing message will resonate best. Some examples:

- Energy efficiency, which results in lower operating costs, may be a difficult benefit to sell in neighborhoods where utility costs are low.
- Younger buyers typically care more about the potential

environmental impact of their home and respond more favorably to information about features that reduce the home's environmental footprint.

- Women are more influenced by green features than men and they often respond very positively to homes that have “show and tell” visual aids and interactive displays.

Sell the Benefits of Your Green Home, Not the Features

In selecting a new house, most buyers have a few simple goals in mind. They aren't necessarily looking for specific products, technologies, or features but instead the advantages they will enjoy from the features. Therefore, don't tout a tight thermal envelope – explain how the home will be warmer in the winter and cooler in the summer because a tightly sealed building eliminates drafts and unwanted pollutants. Buyers want their families to be comfortable in their home. Likewise, don't automatically flaunt those low-VOC finishes or the MERV 8 air filters. Instead, boast about the improved indoor air quality with reduced pollutants and better ventilation. Buyers want their families to have a healthy home.

Green homes provide many benefits to the occupants and the community. However, when surveyed, homebuyers consistently rate the following three categories of benefits as the most important:

1. A Healthy Place to Live

Homes are healthier places to live for their occupants when they are dry, ventilated, and the contaminants within the building envelope are limited. When surveyed, these are the features that consumers said they were willing to pay a premium for even if it was difficult to quantify how fast their investment might pay them back over time. Builders should be prepared to specifically identify the practices and products that help contribute to the home being a healthier place to live.

2. Lower Operating Costs

Energy- and water-efficient homes cost less to operate. Most consumers are willing to pay more for these features if their investment will pay them back over time. Consumers will find it useful if builders can calculate the savings a typical consumer might expect, as well as the return-on-investment. However, be mindful of the expectations such statements can create for consumers, and don't unintentionally imply any guarantee of savings. Green homes include features and practices to make them more durable and require less maintenance, which also reduces operating costs.

3. Contributes to a Sustainable Lifestyle

Buyers are seeking homes and communities that improve their quality of life. These buyers are looking for features that increase their home's durability and are easier to maintain. They want neighborhoods where they can walk to community resources and their children can play. They are interested in building practices that are good for the environment; however, some may not pay a premium for those features without a payback on their investment, so look to incorporate those green features that can be incorporated without significantly increasing the consumer's bottom line. Be prepared to specifically identify the practices and products that help a home contribute to a more sustainable lifestyle. Green Certified homes are designed and built to have a smaller environmental impact

than a code-minimum home. For some buyers, a reduced environmental impact is an important selling point, but your sales staff should be trained to reveal if this is a motivation of your buyers.

Train Your Sales Staff

Too often builders who construct high-performance homes rely on sales staff and realtors who are not familiar with the home's green attributes and related benefits to make the case for buying a green home. Make sure your sales staff understands the features in the home that contribute to its performance, but also be sure that they are selling the benefits of the features and not the features themselves. Many green practices and products need explanation, such as advanced framing, thermal barriers, R-Value, Low-E windows, and air infiltration. At a minimum, sales staff should understand the basics of these practices and then know where to direct the buyer for more detailed information. The NAHB Research Center's technical website, ToolBase.org, can be a helpful, non-commercial resource for explaining many green technologies and their benefits. Remind staff to discuss those features that increase the home's durability as those are often neglected in the sales pitch.

Third-Party Certification Matters

An independent, third-party green certification means that your buyers don't have to take your word that the home is a high-performance home. In the current housing market where many buyers are fraught with anxiety, third-party certifications have never been more important to provide credibility to the builder and assurance to the buyer.

Numerous surveys and research demonstrate that independent, third-party verification and certification provides credibility and assurance that a marketer's claims are truthful and accurate. In fact, a recent opinion survey by Cone LLC found that 80 percent of respondents believed that certification by a third-party organization is “important in providing oversight to ensure environmental messaging by companies is accurate.”

Comply with the Federal Trade Commission's Green Guides

The FTC recently issued proposed revisions to its Guides for the Use of Environmental Marketing Claims (Green Guides) to help marketers avoid making deceptive marketing claims. Familiarize yourself with the Green Guides and use them so that you don't run afoul of the FTC. In general, the FTC wants environmental claims to be specific, quantified, and substantiated. Builders should not make inflated or unsubstantiated environmental claims or deceptively use certifications and labels.



For information about having a home **Green Certified** to the **National Green Building Standard** by the NAHB Research Center and marketing that certified home, visit www.nahbgreen.org/certification.

Get Your Projects Green Certified



The NAHB Research Center offers credible, third-party, national green certification of new homes, multifamily buildings, remodeling projects, and developments. Make the best choice for your customers – choose **National Green Building Certification**.

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The EnergyValue Housing Award® 2012 Winners publication contains a snapshot of the best practices from award-winning energy-efficient new and existing homes. Now in its 17th year, the EVHA is the nation's preeminent energy-efficiency award honoring builders and remodelers who voluntarily incorporate energy efficiency into all aspects of a home construction or renovation project. Builders across the nation submit detailed applications in any of four categories (Affordable, Custom/Demonstration, Multifamily, and Production) in three climate regions (Cold, Moderate, and Hot). Remodelers submit applications in any of three categories (Single-Family Existing Homes, Multifamily Existing Buildings, and Reconstruction/Demonstration) in the same three climate regions. A panel of industry experts evaluates the applications and selects winners based on Energy Value, Design, Construction, Marketing and Customer Relations, and Participation in Energy Programs. Each year the EVHA winners are honored at the EVHA Celebration held during the International Builders' Show (IBS)—the world's largest annual construction tradeshow. The event highlights the accomplishments of the finalists and provides networking opportunities with EVHA judges, winners, government representatives, and sponsors. Selected EVHA finalists also participate in educational outreach programs during the IBS. The EVHA is facilitated by the NAHB Research Center in partnership with the National Association of Home Builders, the U.S. Department of Energy's Building America Program, and the National Renewable Energy Laboratory with additional support from private-sector sponsors.

KNDJ-0-40335-02

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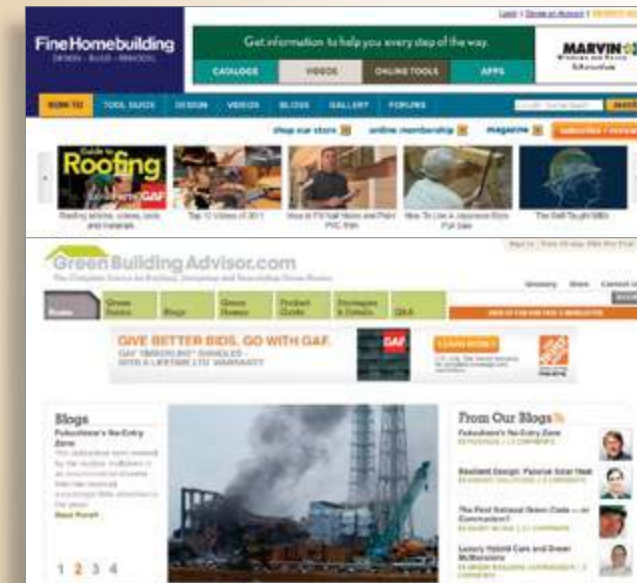
The EnergyValue Housing Award program is managed and coordinated by Debra Sagan, CGP, as part of the Building America Program. Building America is funded by the U.S. Department of Energy. The following NAHB Research Center staff and consultants made significant contributions to the success of the 2012 EVHA program: Tanya Akers, Edith Crane, Marie Del Bianco, Jacquita Ellis, Anne Holtz-Schmick, Thomas Kenney, Sally McGee, Vladimir Kochkin, Debra Sagan, Jeannie Leggett-Sikora, William Watkins, Joseph Wiehagen, and Amber Wood.

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