

# ENERGY VALUE HOUSING AWARD®

## 2009 Winners

A look at design features from the nation's elite energy-efficient home builders



[www.nahbrc.org/evha](http://www.nahbrc.org/evha)

NAHB Research Center

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The *EnergyValue Housing Award® 2009 Winners* magazine is a snapshot of the best practices from those award-winning energy-efficient builders. Now in its 14th year, the EVHA is the nation's preeminent energy-efficiency award honoring builders who voluntarily incorporate energy efficiency into all aspects of new home construction. Builders across the nation submit detailed applications in any of five categories (Affordable, Custom, Factory-Built, Multifamily, and Production) in one of three climate regions (Cold, Moderate, Hot). 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 unveiled at the EVHA Dinner Ceremony held during the International Builders' Show (IBS) — the world's largest annual construction tradeshow. The ceremony is a semi-formal affair that includes a presentation about the winners' building practices, addresses from key industry leaders, and industry networking with EVHA judges, winners, and sponsors. EVHA winners also participate in educational outreach programs during the IBS.

The EVHA is funded primarily through the U.S. Department of Energy's Building America program and the National Renewable Energy Laboratory with additional support from private-sector sponsors.

## NREL/ADJ-5-55044-01

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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 2009 EVHA program: Edith Crane, Jacquita Ellis, Anne Holtz, Thomas Kenney, Rita Knab, Monica Maher, Sally McGee, Vladimir Kochkin, Kevin Mo, Debra Sagan, Debbie Scott, Jeannie Sikora, William Watkins, Joseph Wiehagen, and Amber Wood.

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**On the Cover:** Ferrier Custom Homes' Kitchen, 2009 EVHA Gold Award Winner

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## 2009 IBS Educational Session

### Energy Efficiency Sells: Hear from EVHA Winners

Wednesday, January 21, 2009  
1:15 p.m. – 2:45 p.m.

Las Vegas Convention Center  
Room North 101/102/103

Now in its 14th year, the EnergyValue Housing Award has recognized builders willing to go the extra mile to provide a comprehensive energy package that sells. Hear from 2009 award winners about their innovative approaches to energy-efficient design.

#### Moderator:

##### Amber Wood

Program Manager of Energy  
Efficiency  
NAHB Research Center

#### Speakers:

##### Scott Bergford

Scott Homes

##### Arn McIntyre

McIntyre Builders, Inc.

##### Carl Seville

Seville Consulting

##### Howard Feldman

Coastal Green Building Solutions

##### Zane Underwood

Urbane Homes

## Awards Banquet

Monday, January 19, 2009, 7:00 – 10:00 p.m.  
Flamingo Las Vegas Hotel, Savoy Room, Las Vegas, Nev.

### Keynote Presenter



#### Dominic Sims

COO, International Code Council

Dominic Sims is currently the Chief Operating Officer of the International Code Council, a membership organization dedicated to developing and maintaining a single set of comprehensive and coordinated model codes for the built environment. Sims has overall corporate responsibilities for the operation and financial performance of the association, working in conjunction with the CEO.

Prior to his current position, Sims guided the consolidation of SBCCI into the ICC, as its CEO. Prior to joining SBCCI, Sims served as Executive Director of the Palm Beach County, Florida, Planning, Zoning, and Building Department which had responsibility for development, construction, licensing, and compliance activities for one of the most rapidly growing areas in the United States.

Sims is a past member of the SBCCI Board of Directors. He has held numerous positions, both elected and appointed, at the federal, state, and local levels. Most notably his service as a Councilman/Vice Mayor in Jupiter Florida, and as Vice Chairman of the Florida Governor's Building Code Study Commission has shaped his view on how important it is to be active in public policy discussions concerning building safety.

### Special Guests

#### Mark Ginsberg

EVHA Master of Ceremonies

Senior Executive, Office of Energy Efficiency and Renewable Energy  
(EERE), U.S. Department of Energy, Washington, D.C.

#### Michael Luzier

Awards Presenter

President, NAHB Research Center, Upper Marlboro, Md.

# INTRODUCTION

**Sample EVHA Standings  
(1996-2009)**

State	Winning Applications	Total Applications
TX	30	60
CO	25	43
AR	15	19
FL	14	41
AZ	15	26
CA	11	32
VA	11	14
PA	9	25
OH	8	22
OK	8	18
MI	5	13
KY	2	9
SC	2	3
GA	1	10

Shaded rows show states of this year's winners

## Meeting the Challenge, Raising the Bar

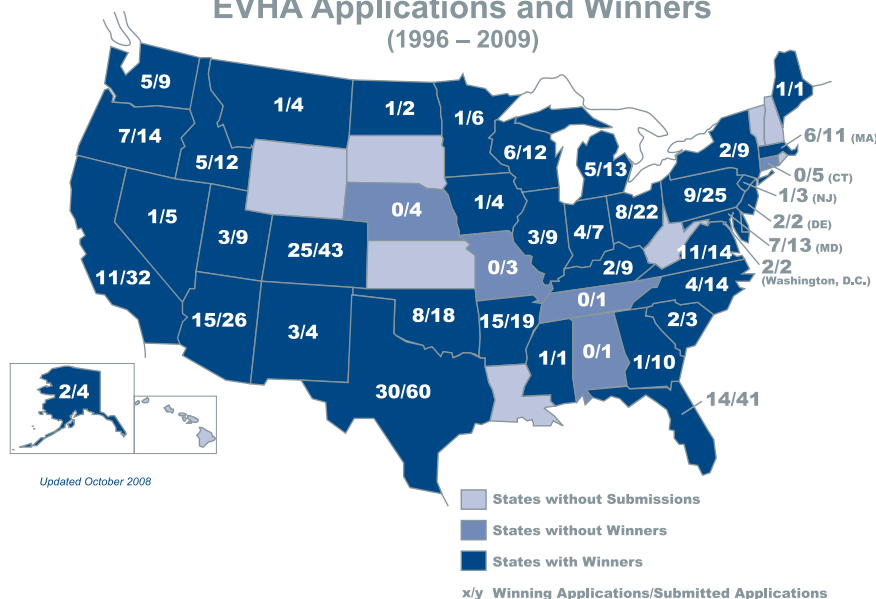
Since its 1996 debut, the EnergyValue Housing Award has been the gold standard of energy-efficient home construction. EVHA winners have always represented the top-tier of knowledgeable and forward-thinking builders. Subsequently, the attention that EVHA builders pay to energy-efficiency details often extends into other aspects of their home construction practices and business philosophies. It's not surprising, then, that many EVHA builders are also leaders in the green home building movement.

With the proliferation of green marketing—these days, it seems that nearly every U.S. business has a green angle—and in light of the current economic challenges facing the housing industry, it is critical that builders can distinguish themselves from the competition. EVHA applicants are judged on their ability to market energy efficiency and the winners, by definition, have proven their ability to create a successful market niche. Yet, winners of the EVHA aren't simply using efficiency and green building as a marketing tool; they have proven their merit and withstood the rigors of testing and verification, as well as scrutiny by expert EVHA judges. Due in a large part to their informative marketing and homebuyer education efforts, EVHA winners report that, despite the recent slowdown in home sales, customers are flocking.

Yet it appears that customers want even more than exceptionally efficient homes. Fortunately, in addition to the EnergyValue Housing Awards, there are a growing number of local green building programs as well as an emerging National Green Building Standard to provide another level of distinction for worthy builders. These programs provide an unbiased, methodical, third-party-verified rating system for green homes that customers are craving.

As the green home building industry progresses through research, education, and consumer awareness, look to the winners of the EVHA to be at the forefront as they continue to offer customers homes that transcend expectations.

**EVHA Applications and Winners  
(1996 – 2009)**



Demographic information of EVHA applications and winners in the program's 14 years.

# BUILDER OF THE YEAR



## Scott Homes, Inc.

*"The Builder of the Year candidate should be a full package... good on every standard possible."*

2009 EVHA Judges

This year's EVHA Builder of the Year, Scott Homes, Inc. of Olympia, Wash., demonstrated across-the-board excellence in all areas of its business, including planning, construction, quality control, customer relations, and marketing. With more than a century of combined experience in state-of-the-art construction practices and business management, green building is certainly nothing new to this company. As a first-time EVHA entrant, Scott Homes' recognition for top honors in the EnergyValue Housing Awards is remarkable.

EVHA judges described Scott Homes as "doing it all very well but constantly looking for ways to improve." There were discussions about how the company "flawlessly and seamlessly" incorporates energy efficiency and green aspects into its construction while doing "a really good job of improving its process and incorporating what it is learning."

Scott Homes learned the intricacies of green home construction through a partnership with DOE's Building America program and integrated that knowledge into its business philosophy. "They're committed to the idea and are open-minded enough to try things and to make things work," said one EVHA judge. "They even have a strategic plan that integrates the energy value-added proposition. They truly understand the value of building green – and they can pitch it!"

When it comes to "pitching it," the builder says, "Our office walls are adorned with awards and certificates [from energy efficiency and green building programs]. From the moment new clients first visit our office, the point is driven home that we care about energy efficiency, and that we are good at achieving it."



*Overhangs provide shading*

**Scott Homes, Inc.**  
*Cold Climate, Custom Home*  
**2009 EVHA Gold Award Winner**  
**and Builder of the Year**



*Natural lighting, arts and crafts style built-ins, stained concrete heated floors*



*Even the garage shows that attention to detail is a priority of Scott Homes*



*Built-ins, recycled wood stairs*

# GOLD AWARD WINNERS



*Gold Winner*

## McIntyre Builders, Inc.

One essential element of McIntyre Builders' mission is to strive for continuous improvement in all that it does. Through a structured, continuous improvement process, McIntyre Builders constructs highly energy-efficient homes that perform as designed. Although the builder describes continuous improvement as a "simple process," it greatly impressed the EVHA judges, leading them to remark that the builder "is really working at testing and integrating as they continue to improve" home performance. Using the same trade contractors to build energy-efficient homes has paid off for McIntyre Builders. The company's trade contractors, who have been trained and understand energy efficiency concepts in practice, are often the ones who find ways to improve a home's performance or optimize a construction process. Overall, the judges felt that McIntyre Builders "integrates the whole house-as-a-system approach in all that it does in home building, and takes advantage of continual testing and improvement to refine their unique philosophy."

### Cold Climate, Custom Home

**Years in business:** 21  
**Average homes built per year:** 15  
**Member:** Home and Building Association of Greater Grand Rapids

### House Description

**Size:** 2,315 s.f.  
**Location:** Grand Rapids, Mich.  
**Construction cost:** \$75 per s.f.  
**Date completed:** May 2007

### Energy Features

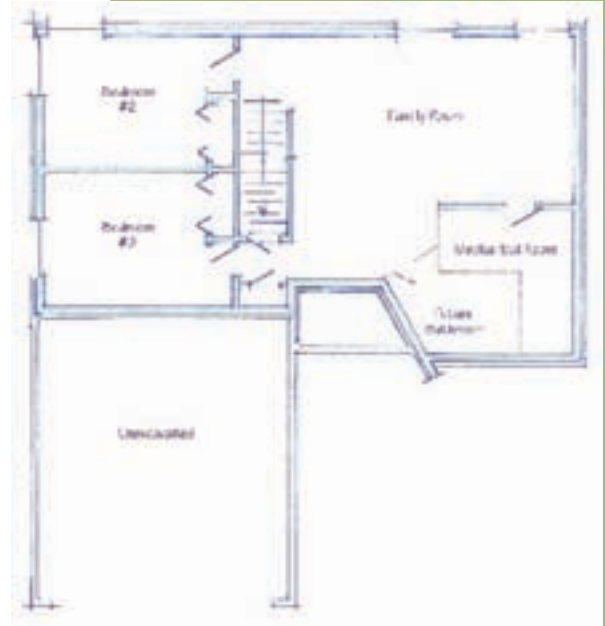
Foundation	R-24 foam-insulated precast concrete foundation with R-6 under slab insulation
Wall Construction	2x4 @ 16" o.c.
Wall Insulation	R-19 soy-based spray foam insulation + R-5 rigid foam exterior sheathing
Rim Joist Insulation	R-30 soy-based spray foam
Roof Construction	Raised-heel trusses @ 24" o.c.
Ceiling Insulation	R-50 blown cellulose
Windows	Low-e, gas-filled vinyl; Orientation-specific SHGC
HVAC	93 AFUE furnace, 13 SEER air conditioner; Energy recovery ventilation
Ducts	100% in conditioned space; Manual D design
Water Heating	0.83 EF gas tankless water heater
Lighting	10% ENERGY STAR fixtures, 90% CFLs
Appliances	ENERGY STAR refrigerator, clothes washer, dishwasher
Innovative Features	Programmable thermostats; Advanced framing including open corners, ladder blocking, raised-heel trusses;
Duct Leakage Test	5 cfm to exterior
Blower Door Test	1.3 ACH50
HERS Index	49



# Floor Plan



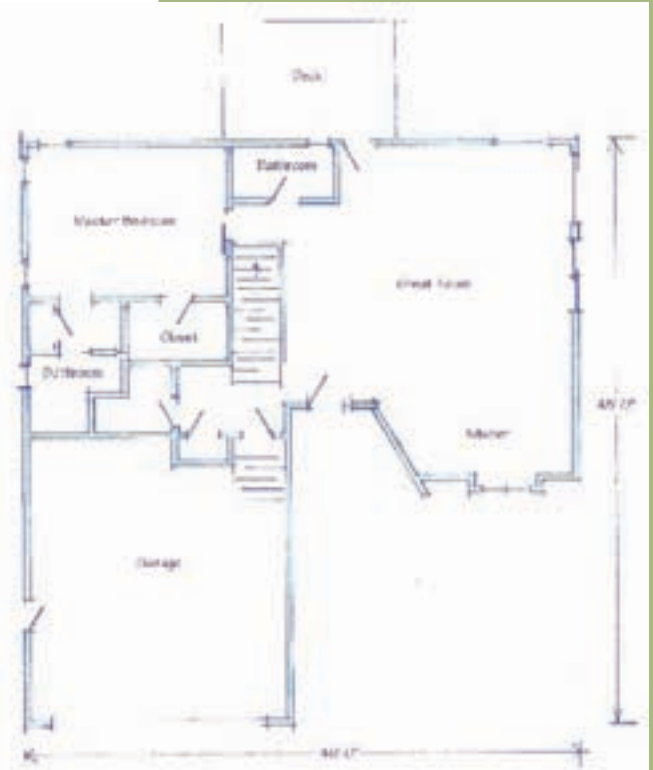
On-demand hot water heater



Foundation



Superior Foundation



Main Floor

**We would like to thank the following for their help and support during the construction of this home:**

- Homeowners, Stephen and Linda Prescott
  - State of Michigan Energy Office
  - Green Built Michigan
  - Ultimate Air
  - JeldWen
  - Rheem/Ruud
  - Superior Walls
  - Electrolux
  - Noritz
  - DOW
- And our trade partners:
- Enviro Comfort, Inc.
  - Durst Drywall
  - Britton Builders
  - Forest Ridge Construction
  - New Lawns Plus
  - Robinson Heating & Cooling
  - A.B. Excavating
  - Imkamp Builders
  - Don Andrews Concrete
  - Jeffrey De Jager, Mason
  - Contract Electric
  - Brillinger Plumbing
  - Picture Perfect
  - Scott'e Ceramic Tile
  - Ed Rogers, Trim Carpenter



HOUSING  
AWARD

2009

*Gold  
Winner*

## Scott Homes, Inc.

When this seasoned builder started energy-efficient construction in the mid 1980s, it noticed such a big difference in home performance that it has been on a self-proclaimed “odyssey to build energy-efficient homes” ever since. Through the custom home building process, clients are starting to bring ideas and products to the table, creating a synergy that helps the company find practical, economical ways to build high performance homes. This team effort extends beyond the builder-client relationship to the subcontractors, suppliers, field workers, and field supervisors. The builder identifies this commitment and cooperation among the entire team as a key to the company’s success. The EVHA judges were impressed with the company’s “ability to convey the message” about energy efficiency to everyone involved in the home’s construction and with its “great homeowner’s manual.”

### Cold Climate, Custom Home

**Years in business:** 25  
**Average homes built per year:** 10  
**Member:** Olympia Master Builders

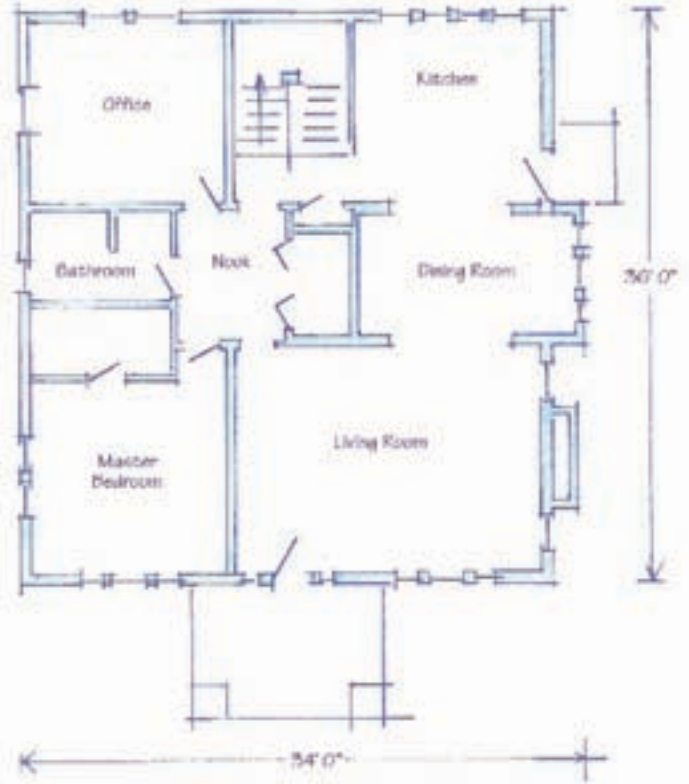
### House Description

**Size:** 1,930 s.f.  
**Location:** Olympia, Wash.  
**Construction cost:** Not reported  
**Date completed:** June 2006

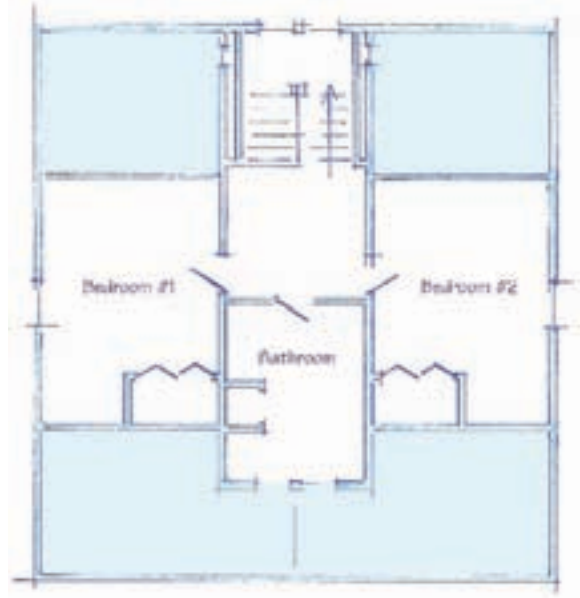
# Floor Plan



A green neighborhood nestled among mature trees



Main Floor



Upper Floor

## Energy Features

Foundation	Frost-protected shallow foundation
Wall Construction	Structural Insulated Panels
Wall Insulation	R-23
Rim Joist Insulation	Spray foam
Roof Construction	Trusses
Ceiling Insulation	R-22 spray foam + R-19 fiberglass batts
Windows	Low-e, gas-filled vinyl; U-0.32, SHGC 0.5
HVAC	Hydronic radiant floor heating served by 0.87 EF tankless gas water heater; No cooling; 76% efficient heat recovery ventilation
Ducts	None
Water Heating	0.87 EF gas tankless
Lighting	60% CFLs
Appliances	ENERGY STAR refrigerator and dishwasher
Innovative Features	Programmable thermostats; Zoned HVAC; PEX plumbing pipe; Thermal mass tempering
Duct Leakage Test	N/A
Blower Door Test	2.3 ACH50
HERS Index	58



Arts and craft charm



Rumford fireplace with custom built-ins



HOUSING  
AWARD

2009

*Gold  
Winner*

### Cold Climate, Production Home

**Years in business:** 8

**Average homes built per year:** 105

**Member:** HBA of Northern Colorado

### House Description

**Size:** 2,896 s.f. conditioned space

**Location:** Windsor, Colo.

**Construction cost:** \$110 per s.f.

**Date completed:** April 2008

## Aspen Homes of Colorado, Inc.

According to one EVHA judge, Aspen Homes is the company you should look to "if you want to see how it should be done ... with respect to marketing to the public." From the company's perspective, energy efficiency is the cornerstone of its business and is incorporated into all marketing materials. Further, by making every member of the company "highly knowledgeable about the energy-efficiency product," the company can effectively communicate energy efficiency to potential customers. It's not just talk with Aspen Homes. Their exceptional energy-efficient construction practices prompted the EVHA judges to remark about the "nice, thorough job" that Aspen Homes does, and the company's "outstanding attention to detail."

*PV and solar hot water*



Final rating

## Energy Features

Foundation	Poured on site w/ R10 exterior and under slab
Wall Construction	2x6 @ 16" o.c. finger-jointed studs
Wall Insulation	R-28 total (R-23 dry-blown fiberglass + R-5 rigid foam sheathing)
Rim Joist Insulation	R-23 (R-15 blown fiberglass + R-5 foam sheathing)
Roof Construction	Trusses
Ceiling Insulation	R-50 blown cellulose
Windows	Low-e, gas-filled vinyl; U-0.32, SHGC 0.28
HVAC	14 SEER/HSPF 9.6 Air source HP with HRV rated at 72%
Ducts	100% in conditioned space
Water Heating	Solar with 119 gal. tank & tankless backup
Lighting	100% ENERGY STAR fixtures with 100% CFL's
Appliances	ENERGY STAR dishwasher
Innovative Features	Passive Solar Design, 4.0kw PV array, Grid Tied Net Meter, Solar Hot Water, Programmable thermostats, PEX plumbing, Advanced framing, Lighting controls
Duct Leakage Test	0 cfm to exterior/76 cfm total at 25 Pa
Blower Door Test	1.42 ACH50
HERS Index	39 (with Photovoltaic)



HRV ducted wet rooms



PV inverter



Blower door test



Spray insulation

## Floor Plan



Main Floor



Basement



*Gold Winner*

**Moderate Climate,  
Affordable Home**

**Years in business: 23  
Average homes built per year: 1**

**House Description**

**Size:** 1,600 s.f.  
**Location:** Chino Valley, Ariz.  
**Construction cost:** \$62 per s.f.  
**Date completed:** May 2008



# Yavapai College Residential Building Technology Program

According to the EVHA judges, Yavapai College Residential Building Technology Program does “an incredible job” building state-of-the-art energy efficient homes and demonstrates a “great commitment to quality.” This affordable home, built in partnership with the local Habitat for Humanity affiliate, is a shining example of the program’s philosophy that “everyone deserves to live in healthy, energy- and resource-efficient, environmentally-responsive surroundings.” According to program director Tony Grahame, one of the keys to the program’s success is its balanced approach, which combines classroom instruction with practical, hands-on skills training. Each of the homes built by the program follows green building strategies, such as those of the NAHB Model Green Home Building Guidelines, with the goal of educating students, home buyers, and the local industry about the benefits of green building.

**Yavapai College RBT Program would like to thank the following:**

- Residential Building Technology Program students, class of 2007-2008
- Prescott Area Habitat for Humanity (PAHH), Miriam Haubrich, Director
- PAHH, Susan Herdt, Construction Coordinator
- YC RBT Program, Tony Grahame, Program Director
- YC RBT Program, Keith Mion, Project Manager
- YC RBT Program, Richard Peterson, Program Development Consultant
- MI Windows, Mike DeSoto • Panasonic, Brian Kincaid
- Weatherization Partners (Dupont Tyvek), Drake Nelson
- Whirlpool Corporation, Valerie Slade
- Chino Rentals, Adam ten Berge
- Asphalt Paving Supply, Gary Hudder
- Dow Products • Hunter Douglas
- Neumann High Country Doors, June Hawkins
- K’s Lighting, Karen Lollar • Fann Construction, Michael Fann



*Commissioning testing, duct blaster test*

# Floor Plan



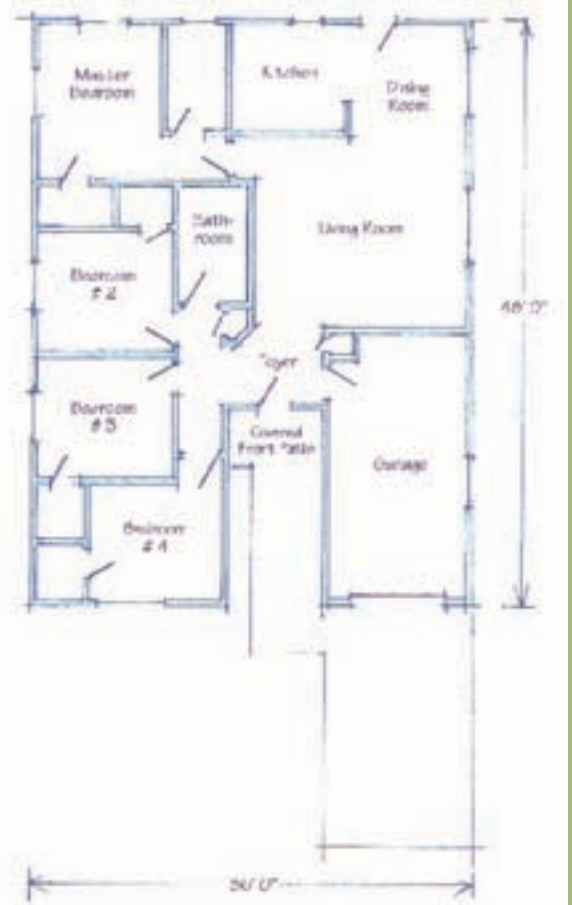
Cementitious siding installation



Building site, installation of stemwalls, ICF



Foundation preparation compaction, gravel, vapor barrier, perimeter insulation



Main Floor

## Energy Features

Foundation	Slab-on-grade with R-10 slab edge insulation
Wall Construction	2x6 @ 24" o.c.
Wall Insulation	R-19 spray cellulose + R-5 XPS rigid foam
Roof Construction	Trusses @ 24" o.c.
Ceiling Insulation	R-27 spray foam unvented attic
Windows	Low-e vinyl; Orientation-specific SHGC
HVAC	19 SEER, 8.3 HSPF heat pump; Balanced whole-house heat recovery ventilation system; ENERGY STAR spot ventilation fans
Ducts	100% in conditioned space; Mastic sealed
Water Heating	Solar with 80-gallon storage tank
Lighting	100% CFLs
Appliances	ENERGY STAR dishwasher
Innovative Features	Pre-wired for future photovoltaic system; Tubular skylight; Advanced framing techniques including 24" o.c. framing, 2-stud corners, single king stud window framing, right-sized headers
Duct Leakage Test	0 cfm to exterior/32 cfm total @ 25 Pa
Blower Door Test	0.4 ACH50
HERS Index	54



## Clifton View Homes

One thing that struck the EVHA judges about Clifton View Homes is that “they’re preaching energy efficiency, not just building [it].” Clifton View Homes is not content to build homes that use less than half the energy of similar code-built homes, nor to build homes that meet or exceed the three-star level of the local builders association’s Built Green program. Instead, company president Ted Clifton is extremely active in educating consumers and other builders about building green. He speaks at a variety of local and national venues about green building and energy efficiency and is involved in a number of green building committees and organizations. Not surprisingly, Clifton View Homes has a multi-year backlog of custom energy-efficient homes to build.



### Moderate Climate, Custom Home

**Years in business:** 19

**Average homes built per year:** 4

**Member:** Skagit/Island Counties Builders Association

### House Description

**Size:** 1,927 s.f.

**Location:** Coupeville, Wash.

**Construction cost:** \$169 per s.f.

**Date completed:** February 2008

### Clifton View Homes would like to thank the following:

- Zero-Energy Plans, LLC, Coupeville, WA; for the design of the home and energy systems,
- Barron Heating, Bellingham, Washington; for the Ground-Source Heat Pump installation,
- Premier Building Systems, Fife, WA; for the SIPS wall and roof panels,
- Whidbey Sun & Wind, Coupeville, WA; for the PV solar power system installation,
- Energy Federation Inc., Greenville, Wisconsin; for the indoor air quality systems,
- Au Sable Institute, Coupeville, WA; for their donation of native prairie plants for the landscaping,
- CK Electric Services, Coupeville, WA; for the connection of the energy systems,
- O'Brien & Company, Seattle, WA; for the HERS rating and Built Green® verification.





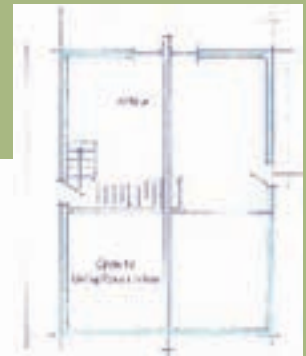
## Energy Features

Foundation	Slab-on-grade with R-20 under slab and slab edge insulation
Wall Construction	Structural Insulated Panels
Wall Insulation	R-25
Rim Joist Insulation	R-10 rigid foam + R-19 fiberglass batt insulation
Roof Construction	Raised-heel roof trusses
Ceiling Insulation	R-38 (flat); R-32 SIPs (vaulted)
Windows	Low-e, gas-filled vinyl windows; U-0.3; SHGC 0.31
HVAC	Zoned ductless mini-split geothermal heat pump; COP 3.7; Balanced mechanical ventilation with HEPA filter
Ducts	None
Water Heating	Desuperheater and geothermal heat pump
Lighting	20% ENERGY STAR fixtures; 80% CFLs
Appliances	ENERGY STAR refrigerator, clothes washer, and dishwasher
Innovative Features	3.0 kW photovoltaic system; Passive solar design with thermal mass storage; Programmable thermostats; PEX plumbing pipe; zoned HVAC system
Duct Leakage Test	N/A
Blower Door Test	3.26 ACH50
HERS Index	32 including PV system



ENERGY STAR laundry with storage

## Floor Plan



Second Floor



Main Floor



Insulated and sound-proofed heat pump closet



HOUSING  
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2009

Gold  
Winner

## Scandia USA

The EVHA judges were impressed with the attention to detail paid by Scandia USA while building this “very green home” in a mixed-use, urban development on a former industrial site. From design to completion, Scandia USA endeavors to incorporate sustainability, energy efficiency, and indoor air quality into all of its homes. Exemplifying this effort, this winning home received accolades from the judges for energy efficiency as well as for its innovative features that piqued the judges’ interest. For example, the vegetated roof will reduce not only cooling needs but also runoff into the storm sewers, which will be especially helpful on this ex-industrial property. Dual-flush toilets will decrease household water consumption, thereby diminishing the load on municipal sewage treatment capacity.

*Naturally lighted kitchen*

### Moderate Climate, Production Home

**Years in business:** 28  
**Average homes built per year:** 4  
**Member:** Home Builders Association of Virginia

### House Description

**Size:** 2,350 s.f.  
**Location:** Richmond, Va.  
**Construction cost:** \$152 per s.f.  
**Date completed:** January 2008

#### Scandia USA would like to thank the following:

- Steve Winter Associates and the Building America Program sponsored by the Department of Energy
- Earth Craft Virginia
- Applegate Insulation Company
- Thermal Tec Insulation
- Blazer Services
- American Standard Heating and Air Conditioning
- Bonneville Window and Door Company
- Gerber Plumbing Fixtures LLC
- Ridgefield Supply Company
- GE Appliances

## Energy Features

Foundation	Frost-protected shallow foundation
Wall Construction	2x6 @ 16" o.c.
Wall Insulation	R-22 cellulose insulation
Rim Joist Insulation	R-19 spray foam
Roof Construction	Raised-heel trusses; Vegetated roof
Ceiling Insulation	R-50 spray foam and cellulose + roof vegetation
Windows	Low-e, gas-filled aluminum clad wood windows; U-0.34; SHGC 0.40
HVAC	Two HVAC systems to avoid problematic duct system; 14-SEER, 7.9 HSPF heat pump; ERV offered as upgrade
Ducts	95% in conditioned space; sealed with mastic and tape; Run through open-webbed floor trusses
Water Heating	0.65 EF 50-gallon gas tank-type water heater
Lighting	11% ENERGY STAR fixtures
Appliances	ENERGY STAR refrigerator and dishwasher
Innovative Features	3-stud corners; Programmable thermostats; Vegetated roof; Dual-flush toilets
Duct Leakage Test	55 cfm to exterior/645 cfm total @ 25 Pa
Blower Door Test	2.9 ACH50
HERS Index	68

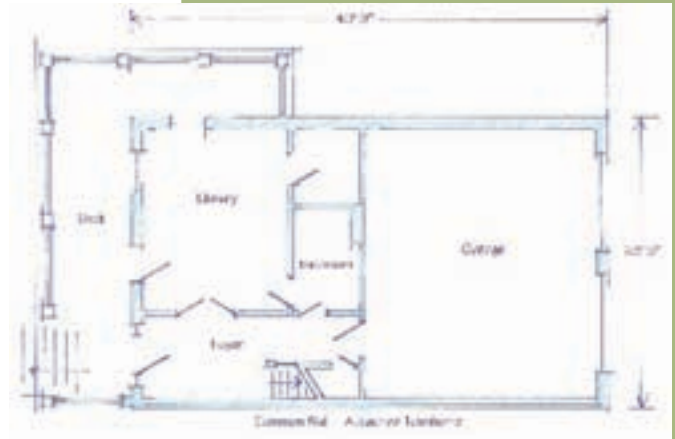


Ecoflush toilet

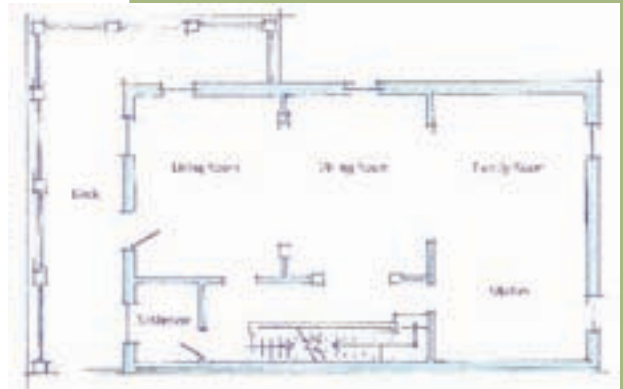


Rooftop garden

## Floor Plan



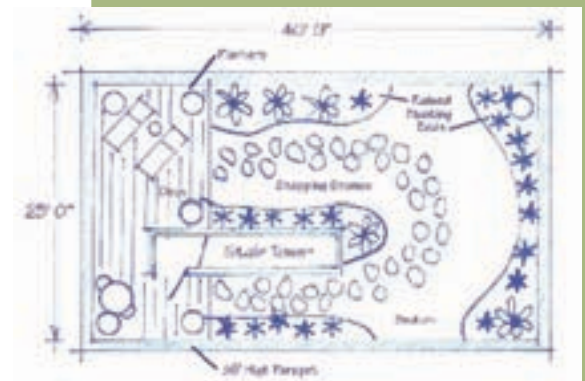
First Floor



Second Floor



Third Floor



Rooftop Garden



Library—built-ins and natural lighting



# Ferrier Custom Homes

## Hot Climate, Custom Home

**Years in business:** 24  
**Average homes built per year:** 9  
**Member:** Home Builders Association of Greater Dallas & Greater Fort Worth Builders Association

## House Description

**Size:** 3,212 s.f.  
**Location:** Grapevine, Texas  
**Construction cost:** \$120 per s.f.  
**Date completed:** August 2007

**Ferrier Builders would like to thank the following companies:**

- First and foremost, we would like to thank the homeowners, John and Becky St. John, for their vision, dedication and willingness to let us be a part of their high performance home journey.
- Damian Pataluna of FischerSIPS
- Keith Wolverton of Wolverton Co.
- Calvin Burton of Fox Electric
- Kelly Parker of Guaranteed Watt Savers
- George James of the Building America Program

The EVHA judges were impressed by Ferrier Custom Homes' long track record of dedication and their tireless effort to educate "anybody who'll listen" about the value of energy-efficient construction. As one EVHA judge put it, "This builder demonstrates a complete understanding of the concepts, value, and systems that create an energy-efficient home." Ferrier Custom Homes produces "a complete package" and attempts to "push the envelope and make sure it's done right." Doing it right, according to the EVHA judges, includes an "extensive cost benefit analysis used in the selection of equipment and materials for indoor air quality," plus taking "great care to create the most energy-efficient home possible." The judges added that the company's marketing materials provide an "exceptional example of responsible marketing and commitment to educating consumers and the building industry."



Shaded windows

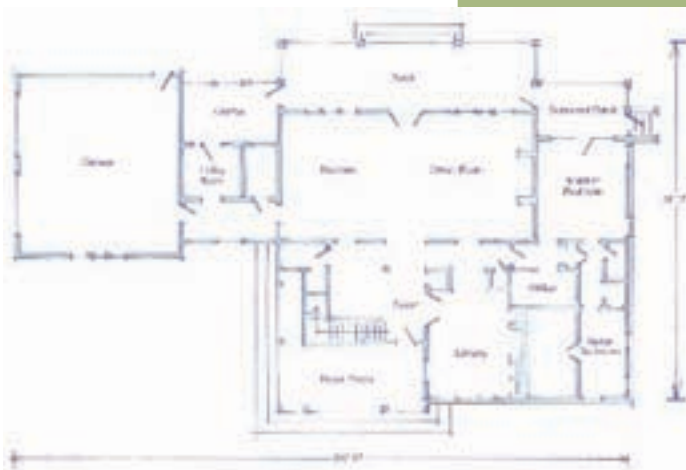


Master bath — three windows provide natural lighting

### Energy Features

Foundation	Slab-on-grade
Wall Construction	Structural Insulated Panels and 2x4 wood-frame
Wall Insulation	R-17 SIPs and R-15 spray foam insulation
Rim Joist Insulation	SIPs
Roof Construction	SIPs
Ceiling Insulation	R-35 unvented attic
Windows	Low-e, gas-filled vinyl; U-0.31, SHGC 0.27
HVAC	20 SEER, 8.6 HSPF air source heat pump; Energy recovery ventilator; Zoned system
Ducts	100% in conditioned space; mastic-sealed
Water Heating	0.83 EF gas tankless water heater
Lighting	15% ENERGY STAR fixtures; 64% CFLs
Appliances	ENERGY STAR dishwasher
Innovative Features	Radiant barrier; PEX plumbing; Programmable thermostats; Lighting controls; Advanced-framed interior walls; Passive solar design
Duct Leakage Test	22.3 cfm to exterior/35 cfm total @ 25 Pa
Blower Door Test	3.0 ACH50
HERS Index	53

### Floor Plan



First Floor



Second Floor



*Gold Winner*



## Coastal Green Building Solutions

### Hot Climate, Production Home

**Years in business:** 8

**Average homes built per year:** 3

**Member:** Hilton Head Area Home Builders Association

### House Description

**Size:** 1355 s.f.

**Location:** Hilton Head, S.C.

**Construction cost:** \$140 per s.f.

**Date completed:** February 2008

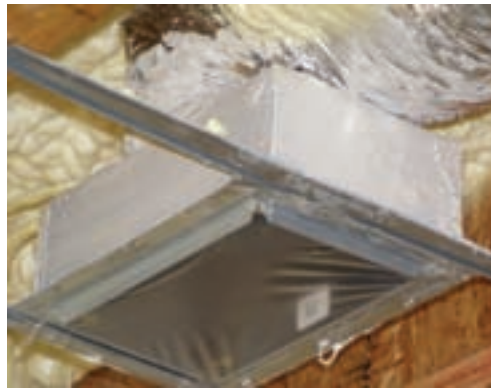
The “driving force” behind this small community of cottages by Coastal Green Building Solutions was to offer the most energy-efficient homes on Hilton Head. The builder’s objective was to construct the best quality, most efficient home with the highest level of indoor air quality while remaining cost effective. To accomplish this goal, the builder worked with the Building America program and the local EarthCraft House program during the planning stages. In the model home, prospective buyers learn about the energy features through small signs placed throughout the home. Exposed insulation helps people see what’s behind the walls. In the builder’s words, “It is one thing to tell them what we do. It is quite another to show them.”



*Solar water panel*



Energy-efficient washer and dryer



Sealed HVAC



Advanced framing and foam insulation

## Energy Features

Foundation	Uninsulated slab-on-grade
Wall Construction	2x6
Wall Insulation	R-26 spray foam + R-1 XPS exterior foam
Rim Joist Insulation	R-26 spray foam + R-1 XPS exterior foam
Roof Construction	2x10 rafters @ 24" o.c.
Ceiling Insulation	R-42 spray foam unvented attic
Windows	Low-e, gas-filled vinyl; U-0.32 SHGC 0.33
HVAC	Whole-house dehumidifier; Air handler integrated supply ventilation; 16 SEER, 8.5 HSPF heat pump
Ducts	Minimized duct design with supply registers at interior walls, central returns with jump ducts across bedroom doors, mastic sealed joints, boots caulked to drywall
Water Heating	32 s.f. solar water heating panel with 0.82 EF propane tankless auxiliary heater
Lighting	50% ENERGY STAR light fixtures; 50% CFLs
Appliances	ENERGY STAR refrigerator, clothes washer, and dishwasher
Innovative Features	Programmable thermostats; Advanced framing techniques including ladder blocking, insulated headers, open corners
Duct Leakage Test	0 cfm to exterior/78 cfm total @ 25 Pa
Blower Door Test	4.0 ACH50
HERS Index	64



Tankless water heater and valving

## Floor Plan



First Floor



Second Floor



**Build America**  
U.S. Department of Energy  
Research Toward Zero Energy Homes

U.S. DEPARTMENT OF ENERGY

# Builders Challenge

*Recognizing Energy Leadership in American Homebuilding*



The challenge to builders is to construct homes that rate 70 or lower on the EnergySmart Home Scale and that deliver comfort, quality, durability, and a healthy indoor environment.



**Visit our booth #N1373 to join the challenge**



## 2010 EVHA SPONSORSHIPS

### Opportunities for Highlighting Your Commitment to Energy Efficiency and a Sustainable Environment

The NAHB Research Center is accepting sponsors for the 2010 EnergyValue Housing Award (EVHA) Program. Supported by U.S. Department of Energy (DOE) through its Building America Program, the National Association of Home Builders (NAHB), and the National Renewable Energy Laboratory (NREL), the EVHA challenges builders to elevate standards for energy-efficient construction, provides educational opportunities for home builders, and fosters the adoption of energy-efficiency principles.

The 2010 EVHA winners will be recognized in Las Vegas, Nev., during the 2010 International Builders' Show—the world's largest annual construction show. Sponsors will be acknowledged during the awards banquet and their ads will be included in the *2010 EVHA Winner Magazine*.

#### Sponsor Benefits

- Ad in 2010 EVHA Winner Magazine, well circulated in national green building conferences and energy efficiency seminars, workshops
- VIP tickets for the 2010 EVHA Banquet
- Permission to use the EVHA sponsor logo for one year
- Company logo on the EVHA website
- Prominent display of logo during the 2010 EVHA Banquet
- Recognition on the cover of the 2010 EVHA Winner Magazine
- Company listing and acknowledgement in the Sponsor section of 2010 EVHA Winner Magazine
- Recognition in marketing, public relations, and outreach materials

For more information contact:

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EVHA Program Coordinator  
NAHB Research Center  
400 Prince George's Blvd.  
Upper Marlboro, MD 20774  
☎ (800) 638-8556, ext. 6210  
☎ (301) 430-6180  
dsagan@nahbrc.org  
www.nahbrc.org/evha





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Broan® and NuTone® offer a wider variety of products that help meet ENERGY STAR®, LEED and NAHB Green Building Requirements than anyone.

Broan® Model No.	CFM	Sones	Light / Nightlight	Ducting
QTXE050	50	<0.3	-	6"
QTXE080	80	0.3	-	6"
QTXE080FLT▲	80	0.3	42W / 4W	6"
QTXE110	110	0.7	-	6"
QTXE110FLT▲	110	0.7	42W / 4W	6"
QTXE150	150	1.4	-	6"
QTXE150FLT▲	150	1.4	42W / 4W	6"
QTRE080	80	0.8	-	4"
QTRE080FLT▲	80	0.8	42W / 4W	4"
QTRE110	110	1.3	-	4"
QTRE110FLT▲	110	1.3	42W / 4W	4"
QTXE110S	110	0.7	-	4"
QTXE110SFLT▲	110	0.7	42W / 4W	4"
744FL▲	70	1.5	14W / -	4"
HD50	50	1.5	-	4"

▲ Complies with California's Title 24 regulations.

NuTone® Model No.	CFM	Sones	Light / Nightlight	Ducting
QTXEN050	50	<0.3	-	6"
QTXEN080	80	0.3	-	6"
QTXEN080FLT▲	80	0.3	42W / 4W	6"
QTXEN110	110	0.7	-	6"
QTXEN110FLT▲	110	0.7	42W / 4W	6"
QTXEN150	150	1.4	-	6"
QTXEN150FLT▲	150	1.4	42W / 4W	6"
QTREN080	80	0.8	-	4"
QTREN080FLT▲	80	0.8	42W / 4W	4"
QTREN110	110	1.3	-	4"
QTREN110FLT▲	110	1.3	42W / 4W	4"
QTXEN110S	110	0.7	-	4"
QTXEN110SFLT▲	110	0.7	42W / 4W	4"
744FLNT▲	70	1.5	14W / -	4"
HD50NT	50	1.5	-	4"

▲ Complies with California's Title 24 regulations.



The Broan® and NuTone® products listed above have earned the ENERGY STAR. They use high efficiency motors and lighting to reduce energy consumption – without sacrificing performance.

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# SILVER AWARD WINNERS



Moderate Climate,  
Affordable Home

Moderate Climate,  
Production Home

## Urbane Homes

As a start-up company, created with the goal of setting itself apart by building a better home than its competitors, Urbane Homes is off to an exceptional beginning. Through extensive research before production, they created a highly efficient home at a very affordable price. According to the company, price per square foot is paramount to success in the local market. And when it comes to energy value, this affordable home packs a powerful punch. Every decision is governed by the overriding principle that the home-buyer must have the highest level of energy efficiency at a sales price below \$150,000. According to the Urbane Homes, "building for energy efficiency is not only smart from an environmental perspective, it's smart from a business perspective."

**Years in business:** 1  
**Average homes built per year:** 1

### House Description

**Size:** 2184 s.f.  
**Location:** Louisville, Ky.  
**Construction cost:** \$36 per s.f.  
**Date completed:** July 2008

*Open wall between living and dining room  
allows natural light from many angles*

# Floor Plan



ICF foundation system, frost protected shallow foundation, foundation depth 12", 1" EPS foam under entire slab



First Floor



Ceiling trusses designed to span entire home. There are no bearing walls for the roof in the interior of the home. Duct shown is the fresh air intake for the house.



Second Floor

## Energy Features

Foundation	Frost protected shallow foundation + R-10 under-slab insulation
Wall Construction	2x6 @ 24" o.c.
Wall Insulation	R-21 blown cellulose + R-5 XPS foam sheathing
Rim Joist Insulation	R-13 fiberglass batt + R-5 XPS foam sheathing
Roof Construction	Trusses @ 24" o.c.
Ceiling Insulation	R-50 blown cellulose
Windows	Low-e, gas-filled vinyl; U-0.30, SHGC 0.29
HVAC	13 SEER, 8.4 HSPF heat pump
Ducts	100% in conditioned space
Water Heating	40 gallon electric tank-type water heater
Lighting	29% ENERGY STAR fixtures; 71% CFLs
Appliances	ENERGY STAR dishwasher
Innovative Features	Open-webbed floor trusses; Programmable thermostats
Duct Leakage Test	30 cfm to exterior/30 cfm total @ 25 Pa
Blower Door Test	3.6 ACH50
HERS Index	59



Kitchen with natural light



# Seville Consulting

Seville Consulting is dedicated to educating the residential construction industry about energy efficiency and green building. This home, a 2007 Southern Building Show showcase home, gave Seville Consulting a tremendous opportunity to fulfill that mission. Hundreds of builders and industry professionals who visited the show home were introduced to its green building and energy efficiency features in educational information presented throughout. Not content to stop at educating the industry, Seville Consulting installed a home energy monitoring device to help homebuyers understand their energy use – a key to energy-efficient home performance. Additionally, the home’s in-town location facilitates the homeowners’ reduction of their energy use for transportation.

## Moderate Climate, Custom Home

**Years in business:** 3  
**Average homes built per year:** 1  
**Member:** No Affiliation

## House Description

**Size:** 7,172 s.f.  
**Location:** Atlanta, Ga.  
**Construction cost:** \$120 per s.f.  
**Date completed:** June 2007

## Energy Features

Foundation	Precast concrete basement and crawlspace with R-12.5 wall and slab edge insulation
Wall Construction	2x6 @ 24" o.c.
Wall Insulation	R-20 spray foam insulation + ½" rigid foam exterior sheathing
Rim Joist Insulation	R-20 spray foam insulation
Roof Construction	Rafters
Ceiling Insulation	R-24 unvented attic
Windows	Low-e, gas-filled wood; U-0.30 SHGC 0.27
HVAC	92 AFUE gas furnace; 14 SEER air conditioner, Multi-zone system; Timers on spot ventilation fans
Ducts	100% in conditioned space
Water Heating	0.87 EF gas tankless
Lighting	40% ENERGY STAR fixtures; 55% CFLs; LED undercabinet lights
Appliances	ENERGY STAR refrigerator, clothes washer, and dishwasher
Innovative Features	Tubular skylight; Advanced framing techniques including 24" o.c. framing, right-sized headers, open corners, ladder blocking; Programmable thermostat; PEX plumbing; Lighting controls; On-demand hot water recirculation; Energy meter for homeowner feedback
Duct Leakage Test	2 cfm to exterior/158 cfm total @ 25 Pa
Blower Door Test	1.9 ACH50
HERS Index	48

### Seville Consulting would like to thank:

- Richard and Cindy Wallace
- Harrison Design Associates
- Lithonia Lighting
- Kohler
- Icnene
- Marvin
- Cosella Dorken
- Rinnai
- Superior Walls
- Schluter Systems

## Floor Plan



Basement



First Floor



Second Floor



# R Godfrey Homes

R Godfrey Homes is committed to building extremely energy-efficient, affordable homes. Their goal was acknowledged by the EVHA judges, who claimed they have produced an "excellent example of affordable energy-efficient housing." Recognizing the cost constraints of affordable housing, the judges remarked that "the project is an excellent example of an integrated package of efficiency measures." Owner Ronnie Godfrey is not content to simply build energy-efficient homes. Instead, he provides an additional service to the local community by writing a regular newspaper column that educates consumers about energy efficiency in homes. In an interesting marketing twist, Suz Godfrey (wife of Ronnie Godfrey) wrote an educational children's book that is available for free download from the company's website.

## Hot Climate, Affordable Home

**Years in business:** 31  
**Average homes built per year:** 8  
**Member:** Greater Fort Worth Builders Association

## House Description

**Size:** 1,723 s.f.  
**Location:** Rainbow, Texas  
**Construction cost:** \$83 per s.f.  
**Date completed:** May 2008



Storage and auxiliary water tanks for solar hot water

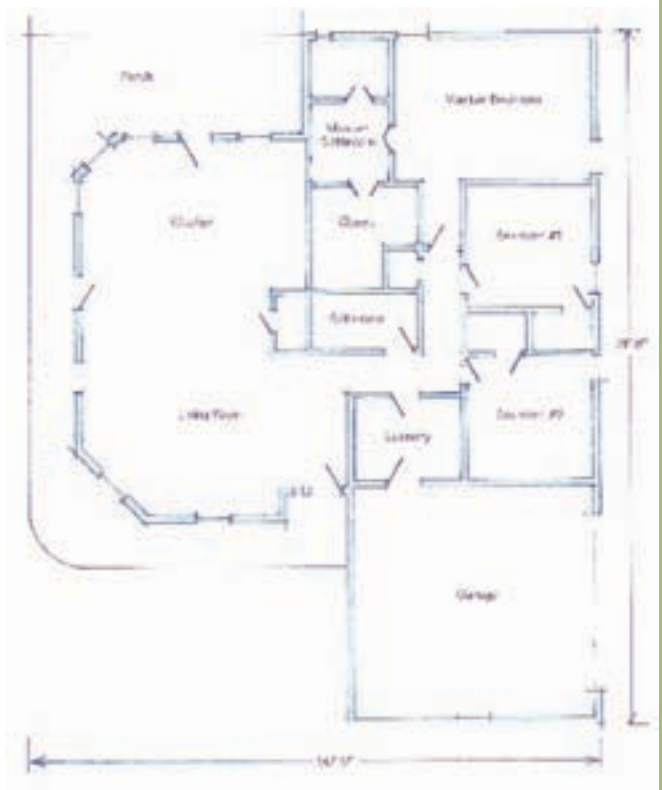
### Godfrey Homes would like to thank the subcontractor and suppliers:

- Croft Foam Insulation
- Fort Worth Lumber and Insulation
- Whirlpool Appliances     • Airco, HVAC
- Trane
- The seminar leaders at all of the ones we attend every year
- Green Built North Texas.     • DPIS Engineering

## Energy Features

Foundation	Slab-on-grade
Wall Construction	2x6 @ 16" o.c.
Wall Insulation	R-19 blown fiberglass
Rim Joist Insulation	N/A
Roof Construction	Rafters @ 24" o.c.
Ceiling Insulation	R-30 spray foam unvented attic
Windows	Low-e, gas-filled vinyl; U-0.32, SHGC 0.32
HVAC	14 SEER, 9.0 HSPF heat pump
Ducts	100% in conditioned space; Minimized duct design with supplies at interior walls; Central returns with jump ducts across bedrooms; Sealed with foil tape
Water Heating	Solar with 55 gallon electric tank storage and auxiliary
Lighting	60% ENERGY STAR fixtures; 40% CFLs
Appliances	ENERGY STAR refrigerator, dishwasher, and clothes washer
Innovative Features	Advanced framing including open corners and ladder blocking; Programmable thermostats; PEX plumbing
Duct Leakage Test	0 cfm to exterior/0 cfm total @ 25 Pa
Blower Door Test	2.5 ACH50
HERS Index	62

## Floor Plan





# GreenCraft Builders

According to the EVHA judges, GreenCraft Builders showed “dedication to quality energy-efficient construction based on sound building science” in this “excellent project.” This was a “very good application of the best systems available” in energy efficiency, the EVHA judges acknowledged. Yet, GreenCraft Builders goes well beyond energy efficiency by defining its identity, its niche, and its green building philosophy with its name, GreenCraft. The company has pledged to incorporate “the best practical building science and sustainability principles” into every home it builds. As part of its commitment to green building, GreenCraft Builders has successfully created partnerships with trade contractors who are knowledgeable about green home building practices and who use green practices within their businesses.

## Hot Climate, Custom Home

**Years in business:** 2  
**Average homes built per year:** 2  
**Member:** Home Builders Association of Greater Dallas

## House Description

**Size:** 2,384 s.f.  
**Location:** Grapevine, Texas  
**Construction cost:** \$165 per s.f.  
**Date completed:** September 2007



Concrete slab with 51% fly ash replacement



10,000 gallon rainwater collection system for irrigation and whole-house usage

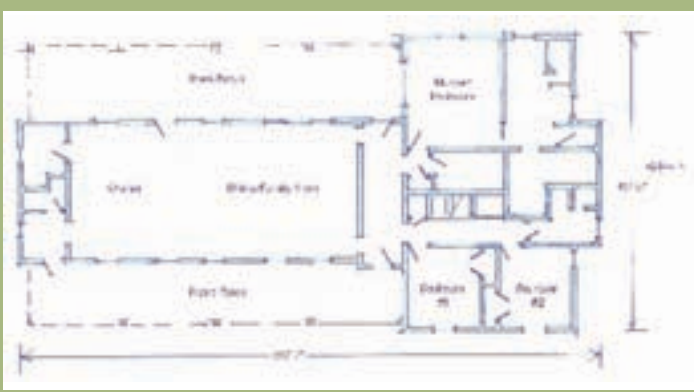
## Energy Features

Foundation	Slab-on-grade
Wall Construction	2x6 @ 24" o.c.
Wall Insulation	R-19 spray foam insulation + R-4 XPS foam sheathing
Rim Joist Insulation	R-19 spray foam insulation + R-4 XPS foam sheathing
Roof Construction	2x6 rafters
Ceiling Insulation	R-22 unvented attic
Windows	Low-e, gas-filled, aluminum-clad wood; U-0.34, SHGC 0.29
HVAC	16 SEER, 9.5 HSPF heat pump
Ducts	100% in conditioned space; Sealed with mastic and foil tape
Water Heating	0.85 EF gas tankless
Lighting	8% ENERGY STAR fixtures; 73% CFLs
Appliances	ENERGY STAR refrigerator, clothes washer, dishwasher
Innovative Features	Radiant barrier; Advanced framing; Passive solar; Rainwater collection
Duct Leakage Test	16 cfm to exterior/25 cfm total @ 25 Pa
Blower Door Test	0.16 ACH50 (including volume of conditioned attic)
HERS Index	54

## GreenCraft Builders would like to thank:

- Dupont Tyvek
- Louisiana-Pacific
- James Hardie Building Products
- KitchenAid/Whirlpool Corp
- Pella Windows and Doors
- Distinctive Roofing Systems
- Wolverton Heating and Air
- Insulation for Life
- ABC Pest and Lawn
- William Peck and Assoc, Architects

## Floor Plan



# JUDGES

2009 EVHA applications were reviewed by a six-member judging panel comprised of new and returning judges who have extensive experience in the fields of engineering, construction, design, and marketing. As the judges independently reviewed each submission, comments and questions were recorded that addressed many aspects of the application and the home. The EVHA judges' feedback that applicants receive is the most beneficial part of the application review process giving each participant unequalled access to the judges' expertise.

Being an EVHA judge is a major commitment. It takes between 20 and 40 hours for judges to complete an independent preliminary evaluation of the applications, plus a one-day trip to the NAHB Research Center for the final judging. EVHA judges also volunteer their time and knowledge through speaking engagements at EVHA workshops and educational sessions.

A special thank you is extended to the 2009 judges for their willingness to share their expertise with our applicants and their dedication to advancing energy efficiency through the EVHA.



**Michael C. DeWein** is the technical director for the Building Codes Assistance Project of the Alliance to Save Energy. He has provided technical support and direction to its programs in more than 35 states for the adoption and implementation of building energy codes and energy efficiency nationwide.

Prior to joining the Alliance, Mike worked in the Codes and Customer Service Bureaus of the New York State Energy Office and was a developer and first trainer for the NYSTAR program, one of the early HERS programs for builders in New York.

Mike is also an accredited verifier for the NAHB Research Center's National Green Building Certification program.



**Joe Gregory** is a past EVHA winner and a 2007 Energy Star Partner of the year. He has spent more than 30 years in the construction industry and is currently with Bob Ward Companies, where he led the team that built the local Habitat for Humanity's first Energy-Star rated home.

In another first, Joe worked with the NAHB Research Center spearheading the design and construction of Maryland's first production ultra-energy-efficient home.

An active panelist with the Environmental Protection Agency, Joe also serves on the Green Building Committee for the HBA of Maryland.



**David G. Hales** is a returning EVHA judge with more than 25 years experience in building science and construction.

As a building systems specialist with the Washington State University Extension Energy Program, David provides technical assistance, curriculum development, and training for utilities and the construction industry supporting energy-efficient design.

David's prior experience was as a managing partner for Sun Construction and an energy specialist for the Washington State Energy Office.



**Lee Magnusson** is a research engineer for NREL, the National Renewable Energy Laboratory.

His diverse background in energy efficiency is combined with experience in biomechanics, helping him lead the design and development of the world's first powered prosthetic ankle. Lee is also an inventor on four patents.

As the technical monitor for the NAHB Research Center's Building America team, Lee is currently engaged in experimenting and analyzing data from a set of test houses in Boulder, Colo.



**Richard Morgan** manages Austin Energy Green Building, which includes the adoption and implementation of the city's energy code for single-family, multifamily, and commercial green building programs.

With more than 20 years in the private sector building industry as a licensed general contractor and cabinet shop owner, Richard is certified by the National Development Council as a Housing

Development Finance Professional and is a Project Management Professional.

He serves on the Board of Directors of the Green Building Initiative and is a past member of the NAHB Green Building Subcommittee.



**Barb Yankie** is a returning judge and president of Homes Plus, Inc., with more than 15 years experience in the building science and construction field.

She conducts energy-efficiency audits and training for builders, contractors and realtors, and also administers Energy Star ratings and other testing services for residential and commercial structures.

Barb is a Certified HERS Rater, a Level Two Thermographer, and an accredited verifier for NAHB Research Center's Green Home Certification Program.

# PARTNERS



The **NAHB Research Center's** mission is to promote innovation in housing technology to improve the quality, durability, affordability, and environmental performance of homes and home building products. The Research Center was created in 1964 as a subsidiary of NAHB, and has established itself as *the* source for reliable, objective information and research on housing construction and development issues.

The **U.S. Department of Energy (DOE) Building America Program** is re-engineering new and existing American homes for energy efficiency, energy security, and affordability. Building America works with the residential building industry to develop and implement innovative building energy systems—innovations that save builders and home-owners millions of dollars in construction and energy costs. This industry-led, cost-shared partnership program has the following goals:

- Reduce whole-house energy use by 40-70% and reduce construction time and waste
- Encourage a systems-engineering approach for design and construction of new homes
- Improve indoor air quality and comfort
- Integrate clean on-site power systems
- Accelerate the development and adoption of high-performance residential energy systems

The **National Renewable Energy Laboratory** is the U.S. Department of Energy's premier laboratory for renewable energy research and development, and a lead lab for energy-efficiency research and development.

The **National Association of Home Builders (NAHB) Energy Subcommittee** is a branch of the NAHB Construction, Codes, and Standards standing committee and addresses energy-related issues among that group.



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**Broan-NuTone®** is committed to making the indoor environment of our nation's homes more comfortable and healthy by developing technologically advanced products that improve environmental performance and overall air quality. Broan-NuTone is the world's leading manufacturer of residential ventilation and build-in convenience products—designing and engineering over 75 years of award-winning experience and technology into every product before it earns the Broan®, NuTone®, or Best by Broan® brand.

**BuildingGreen, LLC** is committed to advancing environmentally responsible design and construction in buildings of all types. BuildingGreen provides industry professionals - architects, engineers, contractors and builders - with well-researched, comprehensive information on sustainable building strategies and green products. Online and print resources support these professionals in their design and construction practices. The Energy Value Housing Awards provide a superb vehicle for increasing awareness about green design. We applaud the NAHB Research Center for sponsoring this awards program. [www.BuildingGreen.com](http://www.BuildingGreen.com)

**SEISCO International** is the manufacturer of the Seisco tankless water heater, the only tankless water heater specifically designed for use in hard water applications. Seisco's patented PowerShare control technology utilizes a computer chip that fully modulates power equally to each of the heating elements ensuring that all elements operate at the lowest possible temperature. This virtually eliminates mineral build-up on the heating elements and prolongs element life. PowerShare technology also prevents disturbances (flicker) in lighting circuits. SEISCO has been associated with the National Association of Home Builders for many years and is dedicated to promoting efficient electric water heating.

**The Vinyl Institute**, a trade association representing PVC resin and additive manufacturers and manufacturers of vinyl products, is dedicated to promoting the versatility, durability, and energy efficiency of vinyl products in the building and construction market. The Vinyl in Design education and outreach program and [www.vinylindesign.com](http://www.vinylindesign.com) provide comprehensive resources for building design professionals on the attributes of PVC-based products in the built environment. As a long-time supporter of the NAHB EnergyValue Housing Award, the Vinyl Institute invites you to learn how today's vinyl building products can help you achieve your sustainable goal in high performance homes.

For more than 30 years, **Whirlpool Corporation** has been committed to effectively utilizing and preserving natural resources. In 2003, the company became the world's first appliance manufacturer to announce a greenhouse gas reduction strategy. An Energy Star Partner since 1998, Whirlpool has received the Partners in Energy Conscious Innovation ENERGY STAR® Sustained Excellence Award from the U.S. Department of Energy and the U.S. Environmental Protection Agency the past three years.

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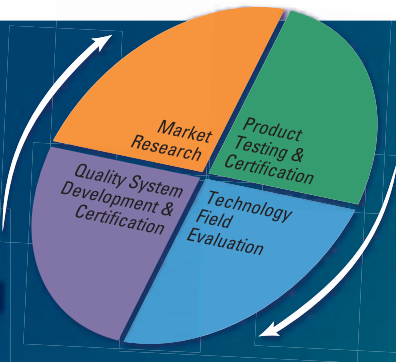
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# GLOSSARY

**Air Changes per Hour (ACH)** Measurement of the air leakage rate of a building, specifically, the number of times each hour the total volume of air in a building is replaced by outdoor air. Typically expressed as a rate experienced under normal, atmospheric pressures or under some higher test pressure.

**Annual Fuel Utilization Efficiency (AFUE)** Seasonal efficiency of a gas-fired furnace or boiler. Takes into account cyclic operation. The higher the number, the more efficient the heating equipment.

**Backdrafting** Potentially hazardous condition in which the exhaust from combustion appliances does not properly exit the building. This can be due to a number of factors including a blocked flue or a pressure difference within the home.

**Blower Door** A large fan placed in an exterior doorway to pressurize or depressurize a building to determine its air leakage rate expressed in air changes per hour or cubic feet per minute.

**Building America Program** Building America Program is a private/public partnership sponsored by the U.S. Department of Energy that conducts research to find energy-efficient solutions for new and existing housing that can be implemented on a production basis. The program uses a systems engineering approach to home building and unites segments of the building industry that traditionally work independently of one another.

**California Corner** An Optimum Value Engineering technique that uses two studs (instead of the usual three or four) to make an exterior corner. The result is better insulation and use of fewer resources, in addition to cost savings. Several variations are possible.

**Coefficient of Performance (COP)** Measurement of the steady-state performance of electrically operated systems, including ground-source heat pumps. It is the ratio of useful energy output to purchased-energy input. Can also refer to gas-fired systems.

**Combination System** Heating system that uses the domestic water heater for both water and space heating. Hot water is typically piped to a heat exchanger (coil), where a fan blows air over the coil to produce heated air.

**Condensing Furnace or Boiler** High-efficiency systems that extract such a high percentage of the available energy from gas combustion that the water vapor in the burned gas (combustion products) condenses to liquid water before leaving the furnace.

**Conditioned Space** Area within a house that is heated and/or cooled. Conditioned space is separated from unconditioned space by a thermal envelope.

**Desuperheater** Device that takes waste heat extracted by heat pumps or air conditioners and uses it to heat domestic hot water.

**Energy Efficiency Mortgage (EEM)** EEMs recognize that the monthly energy bill savings from improved energy efficiency can more than offset the increased monthly mortgage cost attributed to energy-efficiency upgrades. Some products allow a higher loan-to-income or debt-to-income ratio while other newer, more innovative products finance 100 percent of all cost-effective, energy-efficiency upgrades in the mortgage, thereby eliminating any increased downpayment and requalification requirements.

**Energy Efficiency Ratio (EER)** Instantaneous efficiency of air conditioners measured at standard test conditions. The amount of cooling provided per unit of electricity purchased. The higher the EER, the more efficient the air conditioner.

**Energy Factor (EF)** Overall efficiency of a water heater or other appliance. The amount of hot water produced per unit of gas or electricity purchased. The higher the energy factor number, the more efficient the water heater.

**ENERGY STAR Home** ENERGY STAR qualified homes must achieve a minimum HERS Index score of 85 in climate zones 1–5, and 80 in climate zones 6–8. The ENERGY STAR Home Program is a program of the U.S. Environmental Protection Agency and the U.S. Department of Energy.

**Envelope (Thermal or Building Envelope)** The protective shell of a building that separates the inside environment from the outside environment; includes both an insulation layer and an air infiltration layer.

**Flex-Duct** Flexible ductwork made with an inner liner, a layer of insulation, and an outer covering of plastic.

**Frost-Protected Shallow Foundation (FPSF)** Foundation system in which foam insulation is placed around the perimeter of a foundation to reduce heat loss through the slab and/or below-grade walls, subsequently raising the frost depth of a building and allowing foundations to be as shallow as 16 inches below grade.

**Geothermal System** A heat pump that uses the ground or water as a heat source or sink. Efficiency is improved over air source heat pumps as the temperature of the ground or water is more constant and moderate than that of the air. Geothermal systems typically incorporate some method to contribute heat to the domestic hot water system.

**Heat Pump** Similar to an air conditioner but can operate in reverse to heat as well as cool. Transfers heat (usually from the air) from one location to another.

**Heating Seasonal Performance Factor (HSPF)** Efficiency of a heat pump in the heating mode, taking cycling into account; the amount of heating provided per unit of electricity purchased. The higher the HSPF number, the more efficient the heat pump.

**High Efficiency Particle Accumulator (HEPA)** An air filter that captures a high percent of all particles, including very small particles not captured by other types of filters.

**Home Energy Rating System (HERS) Index** HERS Index is a scoring system established by the Residential Energy Services Network (RESNET) in which a home built to the specifications of the HERS Reference Home (based on the 2006 International Energy Conservation Code) scores a HERS Index of 100, while a net zero energy home scores a HERS Index of 0. The lower a home's HERS Index, the more energy efficient it is in comparison to the HERS Reference Home. Each 1 point decrease in the HERS Index corresponds to a 1% reduction in energy consumption compared to the HERS Reference Home.

**Insulating Concrete Form (ICF)** Concrete form-wall constructed of foam insulation that remains in place after the concrete cures.

**International Energy Conservation Code (IECC)** A building code that addresses the minimum

requirements of an energy-efficient building design including efficiency details for building envelopes, mechanical equipment, lighting, and appliances. Minimum requirements may be met using prescriptive and performance-related compliance paths. Provisions of the IECC are generally adopted, sometimes with modifications, by a local jurisdiction or on a state level.

**Low-Emittance (Low-E) Glass** Low-e glass has a thin, invisible coating that reduces the flow of radiant heat through windows. The most common coating reduces solar heat gain and increases resistance to radiant heat loss through windows.

**Low-E2 Glass** Also called solar control glass, is a good glass for hot climates because, in addition to improving the insulating ability of windows, it also limits solar heat gain by blocking passage of infrared and some ultraviolet rays. Solar control glass allows a higher level of visible light to pass through a window with less solar heat gain reduction than tinted window coatings.

**Manual D** Method developed by the Air Conditioning Contractors of America to design residential duct systems.

**Manual J** Method developed by the Air Conditioning Contractors of America to calculate residential heating and cooling loads.

**Manual S** Method developed by the Air Conditioning Contractors of America to select and size heating and cooling equipment to meet Manual J loads based on local climate and ambient conditions at the building site.

**Mass Effect** Describes the effect of a high-mass material on heating or cooling requirements. High mass materials such as concrete, used in floors and/or walls, can absorb and store significant amounts of thermal energy, which is later released. In some climates (those with lots of sunshine, low humidity, and large daily temperature fluctuations), high-mass materials can mean a reduction in cooling and heating requirements by delaying the time at which the energy is released into the house.

**Mastic** Strong, flexible material, which has a thick, creamy consistency when applied, used to seal ductwork. Also used to describe a type of ceramic tile adhesive.

**Model Green Home Building Guidelines** Released by the NAHB with the assistance of the NAHB Research Center, the Model Green Home Building Guidelines provides a practical, nationally-recognized baseline for determining minimum thresholds for resource-efficient, cost-effective home building. The guidelines are created for mainstream homebuilders and highlight the ways a mainstream home builder can effectively weave environmental solutions holistically into a new home. Local associations can use the guidelines to create their own green home building programs.

**Optimum Value Engineering (OVE)** Sometimes referred to as Advanced Framing, OVE framing techniques use less lumber and therefore improve a structure's level of insulation. Techniques include 24-inch on center stud layout, single top plates, engineered header sizes, and special corner and wall intersection configurations.

**R-Value** Measure of the resistance of a material to heat flow. The higher the number, the greater is the resistance to heat flow.

**Radiant Barrier** A material that reflects radiant heat, typically a foil-faced or foil-like material used in roof systems. Used properly in some climates, it can reduce cooling requirements but has no positive effect on heating requirements.

**Sealed Combustion Furnace** Furnaces or boilers that draw air for combustion from outside the home directly into the burner compartment and vent exhaust gases directly to the outside. The systems eliminate the risk of backdrafting.

**Seasonal Energy Efficiency Ratio (SEER)** The amount of cooling provided by a central air conditioner per unit of electricity purchased; SEER is tested over the entire cooling season, taking cycling into account.

The higher the SEER number, the more efficient the air conditioner. SEER, in contrast to EER and COP, takes into account the efficiency losses resulting from system cycling.

**Sizing** Calculation of the heat loss and heat gain for a building at “design temperatures” (those close to the maximum and minimum temperatures anticipated for a given location) in order to select heating and cooling equipment of sufficient capacity. Installing excess equipment capacity, or oversizing, is common but leads to inefficient operation and, for air conditioners, decreases the dehumidification. Calculations are most often done according to the ACCA Manual-J (or similar) procedure.

**Solar Heat Gain Coefficient (SHGC)** An indicator of the amount of solar radiation admitted through and absorbed by a window and subsequently released

as heat indoors. SHGC is expressed as a number between 0 and 1—the higher the number, the more solar heat the window transmits.

**Structural Insulated Panel (SIP)** Load-bearing wall, roof, or floor panel made of foam sandwiched between two sheets of plywood or oriented strand board (OSB).

**Unconditioned Space** Area within the outermost shell of a house that is not heated or cooled—the area outside of the thermal envelope. Such areas typically include crawlspaces, attics, and garages.

**U-Value** Measurement of the thermal conductivity of a material, or inverse of R-value. The lower the U-value, the greater resistance to heat flow (lower U-value = higher R-value).

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The EnergyValue Housing Award (EVHA) recognizes builders who successfully integrate energy efficiency into all aspects of new home production, 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, home buyers, and others within the new-home 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 2010 annual EnergyValue Housing Award competition.



## BENEFITS OF APPLYING

- All applicants receive a professional evaluation of their entries, and two complimentary passes to the 2010 EVHA Dinner Ceremony.
- Winners will be recognized at the fifteenth annual EnergyValue Housing Award Dinner Ceremony during 2010 International Builders' Show in Las Vegas.
- Selected winners will be featured on DOE's Building America website, NAHB's Nation's Building News (NBN), and in other national magazines and publications.
- 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 invited to share their success stories at workshops, educational programs, or conferences.

## ELIGIBILITY

- All professional U.S. home builders and developers whose primary occupation is constructing homes and/or developing real estate are eligible to participate. Applicants need NOT be members of NAHB.
- Previous winning projects are ineligible, however, previous winners may submit new or different homes.
- Submitted homes must have been completed after January 2007 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.

## CATEGORIES

For all categories, builders should demonstrate the integration of energy efficiency into their general design, construction, and marketing practices. The award categories are:

- **Affordable:** home targeted for customers at or below local Metropolitan Statistical Areas (MSA) median income, or first-time homebuyers. Non-profit home builders are encouraged to submit applications.

- **Custom/Demonstration:** home designed and built to owner's specifications or as a "one-off" speculative project, NOT intended to be replicated.
- **Factory-Built:** home built primarily in a factory. Can be HUD-code or modular. Does not include panelized construction.
- **Production:** home design, construction, and marketing practices intended to be replicated in multiple homes. Application information must be submitted for one specific home.
- **Multifamily:** homes built under the International Building Code or equivalent and must be three stories or less.

## CLIMATE REGIONS

Winners in each category will be chosen from within the following climate regions:

- **Cold Climate:** greater than 5,500 heating degree days (HDD).
- **Moderate Climate:** 3,000 - 5,500 HDD, or HDD less than 3,000 and cooling degree days (CDD) less than 2,000.
- **Hot Climate:** HDD less than 3,000 and CDD greater than 2,000.

The HDD for your area can be found by looking at annual data for the nearest city online at [www.nahbrc.org/cvha/HDD.pdf](http://www.nahbrc.org/cvha/HDD.pdf).

## EVHA BUILDER OF THE YEAR

Judges will choose one overall winner from the Gold Winners who best represents energy value and the goals of the award program.

## NEW IN 2010

Throughout its history, the EVHA program has continuously focused on higher levels of residential energy performance by integrating a better understanding of building science, new technologies and construction methods, and approaches to green building into the judging criteria. The U.S. Department of Energy's Builders Challenge, introduced in 2008, became the latest call to the home building industry to increase efficiency in homes by incorporating quality criteria into energy-efficient home designs. The goal of Builders Challenge is to build 220,000 high-performance homes by 2012. Beginning in the 2010 award cycle, the Builders Challenge criterion will be integrated into the EVHA application. Participation in the Builders Challenge program is optional.

For more information on the Builders Challenge and becoming a Builders Challenge Partner visit <http://www1.eere.energy.gov/buildings/challenge>.

## JUDGING

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

Applications are grouped with other applications in the same category and climate region (e.g., homes in the Affordable category and Hot climate region are judged together; homes in the Production category and Cold climate region are judged together; etc.). Awards are available according to **Table 1**.

**Table 1.**

CATEGORY	CLIMATE		
	COLD	MODERATE	HOT
<b>Affordable</b>	Gold winner Silver winner	Gold winner Silver winner	Gold winner Silver winner
<b>Custom/ Demonstration</b>	Gold winner Silver winner	Gold winner Silver winner	Gold winner Silver winner
<b>Factory-Built</b>	Gold winner Silver winner	Gold winner Silver winner	Gold winner Silver winner
<b>Production</b>	Gold winner Silver winner	Gold winner Silver winner	Gold winner Silver winner
<b>Multifamily</b> (3 stories or less)	Gold winner Silver winner	Gold winner Silver winner	Gold winner Silver winner

Applicants with the highest total scores will be considered finalists. Finalists may also be judged on their relative energy performance as indicated by an energy analysis conducted by the NAHB Research Center. The energy analysis is consistent with the Building America benchmark.

A panel of energy-efficiency experts representing the disciplines of engineering, construction, 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 categories or climate regions, please contact the EVHA Program Coordinator, Debra Sagan, CGP, at (800) 638-8556 ext. 6210 or dsagan@nahbrc.org.

## JUDGING CRITERIA

Applications will be evaluated based on the criteria in **Table 2**. Note that homes in the "Custom" category are weighted differently than homes in other categories; less emphasis is placed on "Marketing" and "Customer Relations," and more on "Energy Performance."

## INSTRUCTIONS

To apply, please download the latest application form at the NAHB Research Center website at [www.nahbrc.org/evha](http://www.nahbrc.org/evha) or request by email, dsagan@nahbrc.org, or by phone, (800) 638-8556, ext. 6210.

Complete the 2010 EVHA Application Form by responding to each judging criteria. Please write or type your answers on the application form where space is provided.

Responses to judging criteria should be brief, to the point, and relevant. They should describe practices while demonstrating your understanding of energy efficiency.

- Submit three (3) hard copies of each entry with the application fee.
- Email one (1) digital copy of application form to [evha@nahbrc.org](mailto:evha@nahbrc.org). Subject: EVHA Application.

- Applications and supporting materials should be presented neatly. REQUIRED documents are necessary for judgment. Applicants should decide if they want to submit OPTIONAL materials.
- Use photographs, drawings, product literature, and other supporting material to describe features and details when possible. Please use original materials whenever possible.
- Videos and CDs may be included.
- Each page and all supporting materials should be labeled with your company name and section number.
- Please visit the EVHA website frequently for news, event notice, and updates at [www.nahbrc.org/evha](http://www.nahbrc.org/evha).

## FEE AND DEADLINE

Entries must be postmarked by **June 30, 2009**. The entry fee for the EnergyValue Housing Award is \$100 per entry. A company may submit only one application in each category, for a maximum of five applications. 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: [dsagan@nahbrc.org](mailto:dsagan@nahbrc.org)

For more information: [www.nahbrc.org/evha](http://www.nahbrc.org/evha)

**Table 2.**

	WEIGHT OF SCORES	
	CUSTOM CATEGORY	ALL OTHER CATEGORIES
<b>Application Completeness</b>	5%	5%
<b>Energy Value:</b> This criterion examines what makes the home more energy efficient than code requirements or other homes in the local market.	48%	33%
<b>Design:</b> This criterion examines how energy efficiency is considered during the design process.	20%	20%
<b>Construction:</b> This criterion examines management methods and construction processes related to energy and resource efficiency.	13%	20%
<b>Marketing and Customer Relations:</b> This criterion examines how energy efficiency is incorporated into marketing and customer-relations efforts.	12%	20%
<b>Energy Programs:</b> This criterion examines participation in voluntary energy programs, such as those run by utilities, Builder's Challenge, ENERGY STAR, HERS ratings, etc.	2%	2%



## Home, sweet hybrid home.

If cars are being built to be more energy efficient, why shouldn't homes? At BASF, we've put our energies into building an affordable house in Paterson, New Jersey, to demonstrate how truly energy efficient a home can be. Our Near-Zero Energy Home utilizes BASF's high-performance products in insulating foam sealants, panels and concrete forms, and is 80% more energy efficient than the average American home. Who says a hybrid should only come on wheels? Learn more at [basf.com/stories](http://basf.com/stories)

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