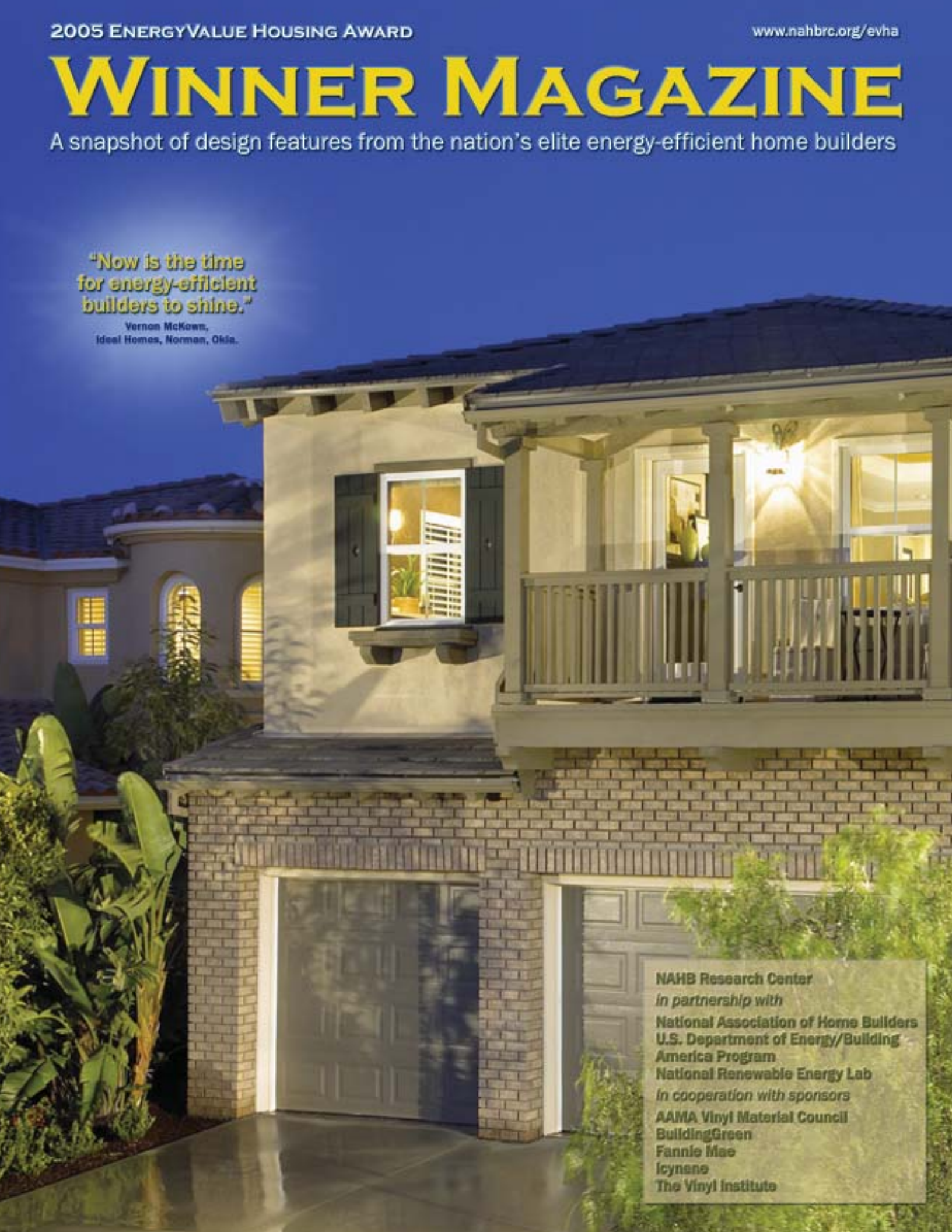
2005 EnergyValue Housing Award

www.nahbrc.org/evha

Winner Magazine

A snapshot of design features from the nation's elite energy-efficient home builders



NAHB Research Center
in partnership with
National Association of Home Builders
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The *EVHA Winner Magazine* is a snapshot of the best practices from the 2005 EnergyValue Housing Award (EVHA) winners. Now in its eleventh 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/Demonstration, Factory-Built, Multifamily, 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 Energy Programs.

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 on the winners building practices, addresses from key industry leaders, and networking with EVHA judges, winners, and sponsors. EVHA winners also participate in EVHA educational outreach held during the IBS.

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

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NOTICES

The EnergyValue Housing Award program is managed and coordinated by Karin Victorio, as part of the Building America Program. Building America is funded by the U.S. Department of Energy. The following NAHB Research Center staff made significant contributions to the success of the 2005 EVHA program: Eryn Belt, Edy Crane, Deborah Dean, Marie Del Bianco, Jacquita Ellis, Lisa Gibson, Anne Holtz, Tom Kenney, Sally McGee, Ruthie Safford, Jeannie Sikora, Mark Wagner, and Joe Wiehagen.

On the cover: Pardee Homes' winning EVHA entry

Table of Contents

2005 EnergyValue Housing Award Dinner Ceremony

Thursday, January 13, 2005; 7:00-10:00 p.m.
Rosen Centre Hotel, Ballroom D, Orlando, Fla.

Keynote

Sanford "Sandy" Smith, Corporate Manager of Real Estate and Facilities, Toyota Motor Sales USA, will cite examples of how Toyota has incorporated energy-efficient building practices into its facilities and automobiles, and discuss lessons learned on the way to becoming a business model for energy-conscious firms across a variety of industries.

Special Guests

David Garman	Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy, will focus on the automobile industry's success in creating energy-efficient business practices and products, and how the EVHA winners are helping to blaze a trail for the next frontier—the home building industry.
Mark Gingsberg	EVHA Master of Ceremonies, Senior Executive Board Member, U.S. Department of Energy, Washington, D.C.
Michael Luzier	President, NAHB Research Center, Upper Marlboro, Md.

Educational Session

Energy Efficiency Trade-offs by Climate

Saturday, January 15, 2005; 1:30-3:00 p.m.; Orange County Convention Center W, Room 330 E-G

2005 EVHA award winners will share their most effective energy efficiency strategies.

Moderator, Mike Lubliner	EVHA Judge for the past 8 years; Building Science Specialist, Washington State University, Olympia, Wash.
Vernon McKown	Co-owner and President of Sales and Marketing, Ideal Homes, Norman, Okla.
Peter Pfeiffer	Principal with Barley + Pfeiffer Architects, Austin, Texas
Jammie Sabin	President of Aspen Homes of Colorado, Loveland, Colo.

Introduction

Ten years ago, the EnergyValue Housing Award (EVHA) program was launched to promote and improve the energy efficiency of new homes. Thanks to energy-minded companies and consumers, the program has been a huge success! So successful, in fact, that the collective caliber of the 2005 EVHA applications was the best the program has ever witnessed. By standing on the shoulders of all the EVHA applicants before them, the 2005 EVHA winners were able to focus on well-integrated systems design. Not only did the winners use high-efficiency equipment and construction techniques, they also selected each component wisely for its effect on overall energy consumption and its relative cost. Features that were once relatively obscure in energy-efficient homes are now becoming differentiating factors for EVHA winners, such as high-efficiency lighting and independent energy testing. This year's winners met or exceeded the benchmarks that have been set by previous EVHA winners, and set themselves apart in ways that added value to their businesses, their customers, and the environment.

Read on to learn how this year's EVHA winning builders designed energy and value into their award-winning homes and for ideas on how you, too, might incorporate energy value into your next home.

EVHA Builder of the Year

John Wesley Miller Companies

Put succinctly in the builder's words, "Energy efficiency in home building is our business." With over 50 years' experience, it is hard to distinguish the company from the man who runs it, John Wesley Miller.

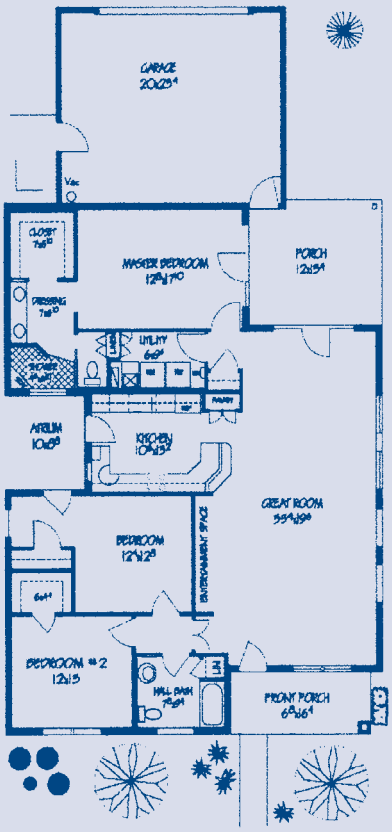
Mr. Miller has been a leader in energy efficiency for over 30 years. He is described by EVHA judges as "a visionary," "fantastic," and "a great man," and his practices as, "forging new ground in the home building industry." He doesn't compromise when it comes to home building: the Armory Park del Sol subdivision has well-built, highly energy-efficient homes with renewable energy systems that tend to cost more than the competition—efficiency is not optional. Yet the homes are in high demand.

Armory Park del Sol is the latest project for John Wesley Miller Companies. The result of this highly successful urban infill project in downtown Tucson, Ariz., is a new community, not just a new subdivision. Homes face a common sidewalk rather than a street and are designed for universal accessibility. The homes, with their historic character, fit in architecturally with the surrounding area. Cultural, entertainment, and shopping districts are within walking distance. The company's newsletter, *The Sunbeam*, keeps neighbors

apprised of new residents and community events, and offers tips for saving energy. “Thanks to John Wesley Miller, we now have a great community in Armory Park del Sol,” said one homeowner.

The same homeowner eloquently summarized, “What makes my home truly wonderful is a combination of facts. What most people see is purely aesthetic, my home is praised for its aesthetics ... [but] it does not end with my house, the entire community fosters pride of ownership and pride of community. These qualities are priceless.”

Floor Plan



Gold Winners

Affordable Home, Cold Climate

Aspen Homes of Colorado, Inc.

Years in business: 3
Average homes built per year: 147

House Description

Size: 1,258 s.f.
Location: Denver, Colo.
Construction cost: $41 per s.f.

Although a young company, Aspen Homes is confident in the performance of its homes. To boost consumer confidence, the company guarantees the heating bills of every new home for one year.

To help consumers understand the importance of energy efficiency in new construction, Aspen co-sponsors a "High Performance Home Seminar" three times each year, featuring a renowned building scientist and offering dinner and transportation for all who attend. Due to the company's participation in numerous energy and green building programs, it has been featured in several trade and consumer publications.

Energy Features

Wall construction: 2x4 at 16 inches on center wood frame
Wall insulation: R-15 blown-in-batts with R-5 insulating sheathing
Ceiling insulation: R-38 blown cellulose
Windows: U-0.35; SHGC 0.32
HVAC: Manual J calculation for design; AirCycler ventilation; 92.6 AFUE furnace; 10 SEER air conditioner
Ducts: Planned for short, straight runs; sealed with mastic; 100% in conditioned space
Water heating: 82% efficient tankless gas
Lighting: 5% fluorescent; tubular skylight
Appliances: ENERGY STAR refrigerator and dishwasher
Blower door test: 3.5 ACH50
HERS rating: 91

Aspen Homes of Colorado would like to thank:

- Jim Sabin, founder of Aspen Homes, who provided the vision for our company to be an energy-efficient builder
- Robbie Schwarz with Built Wright, Inc., our independent energy raters who inspect 100% of our homes and help maintain our standard of quality
- E-Star Colorado and Built Green Colorado for their technical support and efforts to educate the local marketplace on the value and importance of energy-efficient, systems-built homes

McStain Neighborhoods would like to thank the following partners for their extraordinary contributions to the Discovery House:

- Andersen Ankmar Door
- AJI Fence
- AK Sales Associates
- Aqua Craft
- BMCE
- Moudy Construction Enterprises
- Don Champion
- Building Science Corporation
- Certainteed
- Colorado State University Construction Management Program
- Crystal Electric
- Designer Art Glass, LLC
- Eco Products
- Front Range Lighting
- Gaiam
- Industrial Solar Technology
- Lafayette Lumber
- Lennox Industries
- Lind's Plumbing and Heating
- Merrillat Industries
- Metal Mechanics
- Mike Perkins Stained Glass
- Natural Home Magazine
- Seagull Lighting
- Specialty Supply Co.
- U.S. Department of Energy Building America Program
- Weyerhaeuser
- Wild Birds Unlimited

Custom Home, Cold Climate

McStain Neighborhoods

Years in business: 38
Average homes built per year: 400

House Description

Size: 3,148 s.f.
Location: Loveland, Colo.
Construction cost: $166 per s.f.

McStain's Discovery House, a Building America demonstration home, was designed and built with a "very well balanced system engineering approach with both a very good shell and high efficiency equipment ... [that] pushed the limit," according to the EVHA judges. The judges were impressed with McStain's use of a solar assisted space and water heating system and the marketability of the home. In fact, a lottery was needed to select a buyer due to the high demand for the home.

McStain Neighborhoods participates in ENERGY STAR, Building America, Built Green Colorado, and ALA Health House.

Energy Features

Foundation: R-11 conditioned crawlspace walls
Wall and roof construction: 2x6 wood-framed
Wall insulation: R-19 cellulose insulation with R-4 insulating sheathing
Ceiling insulation: R-44 blown cellulose
Windows: Low-e windows; U-0.35; SHGC 0.34
HVAC: Combined heating and water heating system supplemented by solar thermal energy; heat recovery ventilation
Ducts: Sealed with mastic and located in conditioned space
Water heating: see HVAC
Lighting: 100% fluorescent; tubular skylight for natural daylighting.
Appliances: ENERGY STAR refrigerator, dishwasher, and washer
Blower door test: 1.82 ACH50
HERS rating: 93.8

Production Home, Cold Climate

Holton Homes

Years in business: 10
Average homes built per year: 100

House Description

Size: 2,186 s.f.
Location: Boise, Idaho
Construction cost: $62 per s.f.
Homes built to same specs: 30

Holton Homes provides an "excellent example of systems engineering," according to the EVHA judges. From building its first ENERGY STAR home three years ago, the company has come a long way. Although that first home did not sell quickly because of the cost premium, the company was committed to building a better home at a price that was acceptable to the marketplace. This led to first offering Gemstar (Idaho's ENERGY STAR) as an option, to building more Gemstar homes than any other builder in the state, to finally becoming an all-ENERGY STAR builder and starting Idaho's first all-ENERGY STAR subdivision.

Holton Homes wishes to thank the following:

- Ron Oltman, Energy Solutions
- Celeste Becia, Idaho Power
- Anne Brink & Roger Spring, Northwest Energy Efficiency Alliance
- Everyone at Idaho Energy Division
- Joe Lstiburek, Building Science Corporation

Energy Features

Foundation: Unvented crawlspace with 2 inches of rigid foam insulation
Wall construction: Advanced framing with 2x6 studs spaced 24 inches on center
Wall insulation: R-21 high density fiberglass batts
Ceilings: R-38 blown fiberglass
Windows: U-0.33; SHGC-0.42
HVAC: 91 AFUE furnace; 12 SEER air conditioner; continuous ventilation with ducted exhaust fan located in crawlspace and passive inlet from house
Ducts: All ductwork sealed with mastic; all supply ducts in conditioned space
Lighting: 50% fluorescent
Appliances: ENERGY STAR dishwasher
Blower door test: 3.1 ACH50
HERS rating: 90.2

local seminars on energy-efficiency mortgages. According to one EVHA judge, "[Ideal] has forced market transformation ... everybody in the market is doing something with energy efficiency."

The builder participates in ENERGY STAR, Engineered for Life, Building America, and ALA Health House programs.

Affordable Home, Moderate Climate

Ideal Homes

Years in business: 13
Average homes built per year: 450

House Description

Size: 1,542 s.f.
Location: Oklahoma City, Okla.
Construction cost: $43 per s.f.

As the EVHA judges put it, Ideal Homes offers a "remarkable product." And not only does the company make a good home, it has an "incredible" marketing program that includes energy-efficiency displays in open houses, 3-D displays showing cut-aways of their walls, in-house sales representative training on demonstrating and explaining energy-efficiency features, and hosting

Energy Features

Foundation: Slab on grade with edge insulation
Wall construction: 2x4 framed wall with two-stud corners and ladder blocking
Wall insulation: R-13 blown-in-batt fiberglass insulation with R-3.5 insulating sheathing
Windows: Low-e, U-0.3; SHGC 0.36
Ducts: Sealed with mastic
HVAC: 90 AFUE furnace; 14 SEER air conditioner; AirCycler fresh air ventilation
Lighting: Fluorescent option package
Appliances: Not supplied
Blower door test: 4.2 ACH50
HERS rating: 89.3

Ideal Homes would like to thank the following:

- Building Science Corporation
- The Energy and Environmental Building Association
- Smart House Consultants
- The Department of Energy

Yavapai College wishes to thank the following people and companies:

- Michael Uniacke, Advanced Insulation
- Energy and Environmental Building Association
- Building Science Corporation
- Advanced Energy Corporation
- Building Knowledge Inc.
- Yavapai College Residential Building Technology Students, Class of 2004
- Kurt Holmes, Instructional Specialist
- Carrie Venz, Teacher Assistant
- Charlie Gohman, Arizona Dept. of Energy
- Anthony Floyed, Scottsdale, Ariz. Green Building Program
- Justin Erickson, Master Student
- American Lung Association Health House

Custom Home, Moderate Climate

Yavapai College Construction Technology Program

Years in business: 8
Average homes built per year: 1

House Description

Size: 2,008 s.f.
Location: Phoenix, Ariz.
Construction cost: $82 per s.f.

The students at Yavapai College gain valuable experience designing and building a home using state-of-the art building science principles while homeowners benefit from an extremely well-designed and built home. The results, according to the EVHA judges, are “incredible.” The judges were “very impressed with the fact that ... they are passing on to the community and the next generation,” by holding open houses, marketing the homes, advertising, receiving media attention, and having student-led home tours. Local builders are invited to the open houses as part of the outreach and education effort.

Energy Features

Foundation: R-16 insulating concrete form conditioned crawlspace
Wall construction: 2x6 wood frame with advanced framing details
Wall insulation: R-21 cellulose cavity insulation with R-5 insulating sheathing
Ceiling insulation: R-38 blown cellulose
Windows: Low-e, gas-filled; U-0.32; SHGC 0.29
HVAC: 86% efficient heat recovery ventilator; 94 AFUE furnace, 12 SEER air conditioner
Ducts: Sealed with mastic; 100% in conditioned crawlspace
Water heating: Active solar water heating with electric back-up
Lighting: 70% fluorescent; tubular skylight
Appliances: ENERGY STAR dishwasher supplied
Blower door test: 1.2 ACH50
HERS rating: 92.9
Innovative features: Direct vent gas fireplace

Pardee Homes would like to thank:

- Addison Marks at GE Energy
- Rob Hammon at Consol/ ComfortWise
- Allan Zukor Design
- Bassenian/Lagoni Architects
- Color Design Art
- Open Line
- Smith Photography
- ThermaTru
- Atrium Windows
- GE
- Lennox
- Rinnai
- Westinghouse
- Johns Manville Energy

Production Home, Moderate Climate

Pardee Homes

Years in business: 83
Average units per year: 2,340

House Description

Size: 2,673 square feet
Location: San Diego, Calif.
Construction cost: $66 per s.f.
Homes built to same specs: 129

Pardee Homes' dedication to energy efficiency is evident in its commitment to building all homes to ComfortWise (California ENERGY STAR) standards. The winning home is in a "near-Zero Energy Home" subdivision in which all the homes have 2.4 kW photovoltaic systems. The company's dedication is also apparent in its participation in numerous energy programs—including ComfortWise, ENERGY STAR, and Zero Energy Homes. Following the protocols of the ComfortWise program, the builder ensures that design and construction are implemented and inspected so that the house performs as intended. Pardee's extensive marketing materials emphasize the energy efficiency of the company's homes.

Energy Features

Foundation: Slab on grade
Wall and roof construction: 2x4 wood framed
Wall insulation: R-13 fiberglass batt
Ceiling insulation: R-30 cellulose
Windows: Low-e, tinted
HVAC: 92 AFUE furnace; 14 SEER air conditioning system; ACCA Manual J, D, and S design
Ducts: Sealed with mastic to leakage less than 6%
Air sealing: According to ComfortWise program protocols
Water heating: 82% efficient tankless gas water heater
Lighting: 100% fluorescent
Appliances: ENERGY STAR refrigerator, washer, and dryer
Blower door test: 3.3 ACH50
HERS rating: 90.1
Innovative energy features: 2.6 kW photovoltaic system; electric car-charging outlet in garage; programmable thermostat

Affordable Home, Hot Climate

Casa Verde Builders

Years in business: 11
Average homes built per year: 7

House Description

Size: 1,100 s.f.
Location: Austin, Texas
Construction cost: $50 per s.f.

As a non-profit builder, cost is the primary driving factor for energy-efficiency design decisions. Therefore, Casa Verde carefully designs each home to provide the highest efficiency for a minimal first cost. And according to the EVHA judges, the company goes "way beyond the norm [which is] so good to see in affordable housing." The judges also noted the innovative AmeriCorps program, involving at-risk youth, which provides valuable job training and keeps labor costs low.

To keep mechanical heating and cooling costs low for the homeowner, the house features overhangs sized for passive solar heat gain in winter and shading in summer. Ceiling fans in all living areas delay the need for compressor cooling, and reflective roofing reduces heat gain.

Energy Features

Foundation: Slab on grade
Wall construction: Structural insulated panels (wheat straw)
Wall insulation: R-21
Ceiling insulation: R-30 blown cellulose
Windows: Low-e; U-0.56; SHGC 0.36
HVAC: 80 AFUE furnace; SEER 13 air conditioner; programmable thermostat
Ducts: Sealed with mastic; 100% in conditioned space
Water heating: Clustering of hot water uses
Lighting: 100% fluorescent
Appliances: Owner-supplied
Blower door test: 6.1 ACH50
Innovative features: Reflective roofing

Casa Verde wishes to thank the following:

- City of Austin's Green Builder Program
- One Star Foundation (AmeriCorps)
- HUD Youth Build
- Home Depot

Custom Home, Hot Climate

Ferrier Builders, Inc.

Years in business: 20
Average homes built per year: 3

House Description

Size: 5,125 s.f.
Location: Fort Worth, Texas
Construction cost: $87 per s.f.

Ferrier Builders, according to the EVHA judges, "really understands the big picture." They noted that Ferrier "didn't just place a bunch of energy-efficient building components into a house ... they first came up with a design that responded well to its site."

The company's use of passive solar features includes orientation of the home to minimize eastern and western exposure, overhangs to provide shading, a west-facing garage to buffer solar gains, stairwells designed to act as thermal chimneys, an open floor plan to encourage air circulation, concrete floors to provide thermal mass, and a sunroom for passive solar heat gain in winter.

Energy Features

Foundation: Slab on grade
Wall and roof construction: Structural insulated panels (SIPs)
Wall insulation: R-35 SIPs
Ceiling insulation: R-29 SIPs
Windows: Oriented for passive solar control; U-0.32; SHGC 0.32
HVAC: Four-zone system controlled by separate programmable thermostats;
Ducts: Sealed with mastic; 100% in conditioned space
Water heating: Electric tank
Lighting: 50% fluorescent
Appliances: ENERGY STAR dishwasher and front loading washer
Blower door test: 2.9 ACH50
HERS rating: 91
Innovative systems: Thermostatic shower valve that delivers a precise hot water temperature at the shower

Ferrier Builders, Inc., would like to thank the following individuals and organizations for their help. It truly took a team effort for this home to materialize.

- Rob and Valerie Watson invested a tremendous amount of time and energy in researching and planning ways to achieve the home of their dreams. Over the course of several years they called and visited with many organizations and homeowners who had themselves built "green, energy-efficient" homes. Without the Watson's intense efforts and vision, this home would not have achieved the outstanding level of performance that it did. They were the true builders of their fabulous home.
- Korwall Industries for their great service and assistance in supplying the SIPs.
- Guaranteed Watt Savers Systems and Marci McDaniel for their timely assistance in testing the home.
- Rob and Valerie would like to thank Austin Energy's Green Building Program for being such a fantastic resource. They would also like to thank all of the "green" homeowners in various states who were gracious enough to open their homes for them to tour and were willing to share what had worked and had not work for them.
- Thanks to the NAHB Research Center for hosting this contest and event and to Karin Victorio for her tireless assistance.

Production Home, Hot Climate

John Wesley Miller Companies

Years in business: 50
Average homes built per year: 20

House Description

Size: 1,916 s.f.
Location: Tucson, Ariz.
Construction cost: $148 per s.f.
Homes built to same specs: 6

According to the EVHA judges, John Wesley Miller Companies "gets it." The Armory Park del Sol subdivision in downtown Tucson is focused on energy efficiency and renewable energy. Each home includes a solar water heater and photovoltaic system.

Every employee of the company is knowledgeable about energy efficiency and is kept abreast of new information through weekly staff and planning meetings. Inspections are key to ensuring that energy features perform as planned—four separate energy inspections are performed, in conjunction with Tucson Electric Power's Guarantee Program. This home is guaranteed to cost less than $0.76 per day for heating and cooling.

John Wesley Miller Companies wishes to thank the following people and companies:

- The Solar Store, Katharine Kent
- Tucson Electric Power, Linda Douglas
- Amana Heat Pump
- Preston Insulation
- Arizona Glass (Windows and Doors), Gary Pruitt
- Seisco (Demand Water Heater), David Seitz
- Famosa Masonry
- Hardy Concrete
- Al Nichols (Energy Engineer)

Energy Features

Foundation: Engineered slab with R-12 edge insulation
Wall and roof construction: Solid-core filled masonry units
Wall insulation: R-12 rigid foam insulation
Ceiling insulation: R-38 fiberglass batt
Windows: Low-e, gas-filled windows; U-0.32; SHGC 0.30
HVAC: 12 SEER, 8.6 HSPF heat pump
Ducts: All ducts sealed with mastic; 100% in conditioned space
Water heating: Batch-type solar water heater with electric tankless back-up
Appliances: ENERGY STAR refrigerator and dishwasher
Blower door test: 2.9 ACH50
HERS rating: 91.8
Innovative systems: 1.5-kW photovoltaic system; programmable thermostat

APPLICATIONS DUE
POSTMARKED BY AUGUST 8, 2005

Application

HOUSING AWARD 2006

Recognizing the value of energy efficiency in new home design, construction, and marketing

NAHB Research Center
in partnership with
National Association of Home Builders

U.S. Department of Energy/ Building America Program

National Renewable Energy Laboratory

In cooperation with Sponsors

AAMA Vinyl Material Council

BuildingGreen

Fannie Mae

Icynene

The Vinyl Institute

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 Renewable Energy Laboratory, and the U.S. Department of Energy invite you to enter the next annual EnergyValue Housing Award competition.

BENEFITS OF APPLYING

- All applicants receive a professional evaluation of their entries, two complimentary passes to the 2006 EVHA Dinner Ceremony, and a copy of the *EVHA Guide: How to Build and Profit with Energy Efficiency in New Home Construction*.
- Winners can differentiate themselves as award winning builders of energy efficient homes.
- Winners are recognized with an award at the eleventh annual EnergyValue Housing Award Dinner Ceremony.
- Winners are featured on the NAHB Research Center website.
- Winners receive EVHA logos and customized press releases for local promotion and marketing.
- Design details of selected winners may be featured on the Building America website, in magazines, and in other national publications.
- 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 for participation. Applicants need not be members of the NAHB.
- Previous winning projects are ineligible; however, previous winners may submit new or different homes.
- Submitted homes must have been completed after January 2003 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 as follows:

- ***Affordable:*** home targeted for customers at or below local Metropolitan Statistical Area's (MSA) median income, or first-time home buyers. 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.
- ***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 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 to 5,500 HDD.
- ***Hot Climate:*** less than 3,000 HDD.

The HDD for your area can found by looking at annual data for the nearest city on the web at http://www.ncdc.noaa.gov/oa/climate/online/ccd/nrmhdd.html.

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.

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.) Awards are available according to **Table 1**.

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 HERS guidelines.

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 Coordinator at (800) 638-8556 x6277 or evha@nahbrc.org.

JUDGING CRITERIA

Applications will be evaluated 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."

Table 1.

Category	Climate		
	Cold	Moderate	Hot
Affordable	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention
Custom/ Demonstration	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention
Factory-Built	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention
Production	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention
Multifamily (3 stories or less)	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention	Gold winner Silver winner Honorable mention

Table 2.

	Weight of Scores	
	Custom Category	All Other Categories
Energy Value: This criterion examines what makes the home more energy efficient than code requirements or other homes in the local market.	52%	40%
Design: This criterion examines how energy efficiency is considered during the design process.	10%	10%
Construction: This criterion examines management methods and construction processes related to energy and resource efficiency.	10%	10%
Marketing and Customer Relations: This criterion examines how energy efficiency is incorporated into marketing and customer-relations efforts.	23%	35%
Energy Programs: This criterion examines your participation in voluntary energy programs, such as those run by utilities, Energy Star, HERS ratings, etc.	5%	5%

INSTRUCTIONS

This application is available in MS Word and Adobe PDF formats at the NAHB Research Center website at http://www.nahbrc.org/evha or may be requested by e-mail at evha@nahbrc.org or phone (800) 638-8556, x6227.

To enter, complete the 2006 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 short, to the point, and relevant. They should describe practices while demonstrating your understanding of energy efficiency.

When asked to provide narrative answers, limit your response to one page per criterion. When using the printed application form, label each response page with the corresponding section number and include response pages immediately following the application form.

The paperclip symbol indicates supporting documentation is requested or required. Supporting documents should be labeled with the corresponding section number and placed in numerical order after the application form and discussion responses.

- Submit three (3) copies of each entry with the application fee.
- If you are using the electronic (MS Word) version of this application, please submit three (3) hard copies and an electronic copy with your entry.
- Include only one set of complete at-scale floor plans.
- 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, but there is no guarantee that judges will have time to view them.
- Applications and supporting materials should be presented neatly. Some supporting documents are optional.
- Each page and all supporting materials should be labeled with your company name and section number.
- Application materials will not be returned.

FEE AND DEADLINE

Entries must be postmarked by **August 8, 2005**. 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 nonrefundable. Make checks payable to the NAHB Research Center.

Applications received by **July 11, 2005** receive a reduced entry fee of $50 and will be reviewed for completeness by the NAHB Research Center staff. The review process may help identify important areas of the application that need to be included or clarified for the judging process. This is an especially important step for applicants who have not participated in the application process before.

Please address inquiries and submissions to:

EnergyValue Housing Award

NAHB Research Center
400 Prince George's Blvd
Upper Marlboro, MD 20774-8731

(800) 638-8556, ext. 6227
FAX: (301) 430-6180
email: evha@nahbrc.org

For more information: www.nahbrc.org/evha

Application Form

HOUSING AWARD 2006 SM

GENERAL INFORMATION

Company Name			
Contact Person			
Title			
Address			
City/State/Zip			
Telephone			
Fax			
E-mail		Company website	
Number of years in business		Average number of units built per year	

	Number of Units Built in 2004	Average Square Footage	Average Price
Starter			
Move-up			
Luxury			
Total units built in 2004			

How did you hear about the EVHA? _____ Why did you apply for the EVHA? _____

Are you a member of NAHB? ❑ Yes ❑ No If yes, which local? _____ (For statistical purposes only. You do not need to be a member to apply and membership status does not affect your application.)

Name of current owner and/or address of home entered			
Model/Name			
Nearest major city			
Date completed			
Date sold or occupied			
Total conditioned space (ft^2)		Volume of conditioned space (ft^3)	
Cost per ft^2 to build excluding land (conditioned space only)	$ /s.f.		

Category

Please select one category for your entry. If you wish to enter the home under more than one category, you must submit a separate application and entry fee for each category.

❑ **Affordable** ❑ **Custom/Demonstration** ❑ **Factory-Built** ❑ **Production** ❑ **Multifamily** (3 stories or less)

If you have selected the **Production** category, please indicate the number of homes built with the same specifications as the entry: _____

If you have selected the **Factory-Built** category, please indicate subcategory: ❑ **HUD Code** ❑ **Modular** ❑ **Other**

Climate Region

Please select one climate region for your entry.

❑ **Cold > 5,500 HDD** ❑ **Moderate 3,000-5,500 HDD** ❑ **Hot < 3,000 HDD**

Energy Value

The energy value criterion examines what makes the home more energy efficient than code requirements or other homes in the local market and how energy efficiency focus adds value to the company's homes.

1.1 Energy Value Statement

Describe why energy efficiency is important to your business. Include your mission statement or other evidence of your commitment to energy efficiency.

1.2 Energy Performance

Complete the following tables as thoroughly as possible. Judges and NAHB Research Center staff will use this information to evaluate your home's energy performance.

House Size	Area (ft^2)		Average Ceiling Height
	conditioned	unconditioned	
Basement/crawlspace			
First floor			
Second floor			
Additional floors			

Exterior Doors			
Manufacturer/Model		Model	
U-value or R-value	U- *or* R-		

Windows			
Manufacturer		Model	
Frame material			
Glazing (# of layers)	❑ Single pane ❑ Double pane ❑ Triple pane		
Low-e	❑ Yes ❑ No		
Gas-filled	❑ Yes ❑ No		
Tinted	❑ Yes ❑ No		
NFRC label	U-factor = 0.	Solar Heat Gain Coefficient = 0.	

One of the following is required. Place a check mark next to what you have included.

❑ Four elevations showing window orientation and exterior door location

or

❑ Window and door schedule with sizes, types, location, and orientation

Below-Grade Walls and Floor	Manufacturer	Material	Thickness	R-value
Wall type (e.g., concrete block, ICFs)				
Wall insulation				
Interior finish				
Floor type (e.g., slab)				
Slab insulation	Location			
	Average depth below grade			
Floor insulation	Location (e.g., between crawl space and first floor)			

Section drawings for each type of below-grade wall are suggested.

❑ Place a check mark in the box if you are including below-grade wall section drawings.

Above-Grade Walls	Manufacturer	Material	Thickness	R-value
Type (i.e., 2x4 @ 16″ o.c. SIPs, etc.)				
Exterior finish/siding				
Infiltration barrier (e.g., house wrap)				
Sheathing				
Other wall insulation				
Cavity insulation				N/A
Interior finish				
Vapor retarder	Describe type & location			

Section drawings for each different type of exterior wall are suggested.

❑ Place a check mark in the box if you are including exterior-wall section drawings.

Flat Ceiling	Manufacturer	Material	Thickness	R-value
Type (e.g., trusses @ 24″ o.c.)			N/A	N/A
Insulation				
Interior finish				

Cathedral or Vaulted Ceiling	Manufacturer	Material	Thickness	R-value
Type (e.g., I-joists)			N/A	N/A
Insulation				
Interior finish				

Ducts	Manufacturer	Material	Thickness	R-value
Duct insulation				
Sealing method				
Duct area	ft^2			
Percentage of ducts within **conditioned** space	%			
Duct air leakage test results. Be sure to report in the most appropriate of the two formats.	cfm to **exterior** @ Pascals			
	cfm **total** @ Pascals			

Include **duct air leakage** test results with your application if you are reporting duct air leakage in the table above.

❑ Place a check mark in the box if you are including **duct air leakage** test results.

Discuss how the ductwork is incorporated into the building design for energy efficiency, if applicable.

Air Infiltration	
Air filtration (blower door) test results. Report blower door test results only at 50 Pascals pressure, in either format.	_____ cfm @ 50 Pascals **or** _____ ACH @ 50 Pascals

Include **air infiltration (blower door)** test results with your application if you are reporting air infiltration in the table above.

❑ Place a check mark in the box if you are including **air infiltration (blower door)** test results with your application.

Describe any special air sealing detailing.

Lighting	Manufacturer	Model or Description	Number
Incandescent fixtures			
Fluorescent fixtures (i.e., 2- or 4-pin lamps)			
Fluorescent fixtures (i.e., screw-in CFLs)			
Skylights (specify traditional, roof windows, or tubular)			
Other (may include daylighting)			

HVAC and Water Heating	Manufacturer/Model	Type (furnace, heat pump, etc.)	Fuel	Efficiency (AFUE, SEER, etc.)	Capacity
Heating				AFUE	Btuh or ton
Cooling				SEER	Btuh or ton
Water heating	❑ Check if desuperheater used			EF	gallon
Mechanical ventilation			Rate (cfm)		
Solar panels-hot water	Type	Orientation		Panel Area	
Solar panels-photovoltaic	Type	Orientation		Panel Area	kW

✎ It is recommended that you include manufacturer specifications for the products listed above. **Do not include generic literature.**

❑ Place a check mark in the box if you are including manufacturer specifications with your application.

Appliances	Manufacturer	Model	Fuel	Energy Use from EnergyGuide Label	EnergyStar Rated? (check if yes)
Refrigerator				kWh/yr.	❑
Washer				kWh/yr.	❑
Dishwasher				kWh/yr.	❑
Dryer					
Oven					
Other (list type):				kWh/yr.	❑

Additional Energy Features

✎ List any special innovative or advanced energy technologies not included in the application above (e.g., radiant barriers, programmable thermostat). Drawings, photographs, and product literature are encouraged.

Energy Impact		
Utility bills (This information must be included if the home has been occupied for more than one year.)	Average of $_____/month (Electric) Average of $_____/month (Fuel)	OR Average of _____ kWh/month Average of _____ Therms/month
Home energy rating score	HERS	
Home energy rating program or procedure		

✎ Include home energy rating test results and utility bills with your application if you are reporting that information in the table above.

❑ Copies or summary of **utility bills**

❑ **Home Energy Rating** analysis

❑ Briefly discuss if and why you have included any other attachments to demonstrate the home's energy impact.

Design

The design criterion examines how energy efficiency is considered during the design process.

2.1 Building Design

Describe how energy efficiency is considered during the design process. Include criteria for selection of materials and products, proper functioning of the building and/or indoor air quality considerations, and any pre-construction energy analysis conducted on the home. If cost-effectiveness is a criterion for material selection, please include your definition of cost-effectiveness.

2.2 Building-to-Site Relationship

Enclosed are (check all that apply):

❑ Site plan that indicates orientation of home ❑ Landscape plan ❑ Solar site survey

Describe how your design addresses climatic and site conditions. Include a discussion of solar orientation, site planning, and landscaping practices related to solar access, seasonal shading, and windbreaks.

Construction

The construction criterion examines management methods and construction processes.

3.1 Methods

Describe how your management methods and construction processes systematize the implementation of energy features into the home. Include information on inspections to check energy-efficiency details, training of construction supervisors, crews, and/or subcontractors in the principles and construction of energy-efficient homes, and the use of diagnostic testing.

Marketing and Customer Relations

The marketing and customer relations criterion examines how energy efficiency is incorprated into marketing and customer relations efforts.

4.1 Marketing

Enclosed are (check all that apply):

❑ Brochures ❑ Advertisements and publicity

❑ Photographs of energy displays, cutaways demonstrating energy features, or site signs

❑ Other: _____

Describe how you present and communicate energy-related benefits to potential customers and other interested parties. Include sales staff and real estate agent training and methods of communicating energy-efficiency benefits.

4.2 Financing

Enclosed are: ❑ Brochures ❑ Qualification worksheet ❑ Other: _____

Describe how you present energy-efficiency financing opportunities to potential customers. Include information on the number and type of Energy Efficient Mortgages (EEMs) that your buyers have taken advantage of.

4.3 Customer Relations

Describe how you educate, inform, and follow-up with customers on the energy features and operation and maintenance of the home. Include maintenance and operations homeowner's manual, if applicable. Include information on customer satisfaction.

Enclosed are: ❑ Customer testimonials ❑ Homeowner's manual ❑ Other: _____

Energy Programs

5.1 Participation in Energy Programs

The Energy Programs criterion examines your participation in voluntary energy programs, such as those run by utilities, Home Builder Associations, Energy Star, manufacturers, Home Energy Rating Systems, etc.

List the energy programs in which the company participates in the table below.

Energy Program	# Homes Built Under Program

IMPORTANT DATES

July 11, 2005

Early bird deadline. Applications received by this date receive a reduced entry fee of $50. NAHB Research Center staff will also review early applications for completeness. Especially useful for first-time applicants.

August 8, 2005

Applications due with $100 entry fee.

Include documentation verifying participation in any energy programs listed above.

❑ Place a check mark in the box if you are including documentation to verify participation in energy programs.

CHECKLIST

❑ Three copies of complete package including:
- ❑ Completed application form
- ❑ Photographs
- ❑ Supporting attachments
- ❑ Elevations

❑ One set of complete at-scale floor plans

❑ Application fee

STATEMENT

I understand that NAHB Research Center staff and a panel of judges will review this application. I also understand that this award is not to be viewed as an endorsement or certification of any product or as an endorsement by any program sponsor.

_____

Signature of Authorizing Official

_____

Print Name **Date**

value

comfort

aesthetics

award-winning vision

Congratulations
to tonight's 2005 EnergyValue Housing Award winners from the vinyl window and door manufacturers – your partners in saving energy.

from your friends at

AAMA Vinyl Material Council
www.aamanet.org/vmc.htm

The Vinyl Institute
www.vinylbydesign.com

Green building can help you grow your business.

Fannie Mae's Housing and Environment Initiative includes an array of environmentally friendly mortgage products that expand homeownership opportunities while promoting the design, construction, and purchase of energy- and resource-efficient homes. We look forward to continuing our work with builders, developers, lenders, real estate professionals, and other residential energy-efficient professionals to help you help more home buyers benefit from the advantages of owning an energy-efficient home. Visit us at www.efanniemae.com for more information on how we can work together to help grow your business.

FannieMae
www.efanniemae.com

Fannie Mae is proud to be a sponsor of the Energy Value Housing Award. Congratulations to this year's honorees.

Silver Winners

Affordable Home, Cold Climate

Wonderland Hill Development Company

Years in business: 35
Average homes built per year: 35

House Description

Size: 640 s.f.
Location: Boulder, Colo.
Construction cost: $75 per s.f.

The home, built for the affordable market in a co-housing development, has numerous efficiency features not often found in affordable housing. The company's focus on community is an added benefit to customers.

The company hosts bi-monthly meetings with buyers in order to understand what is important to its customers. Wonderland Hill works with its design and project management teams to get the features its customers want.

Energy Features

Foundation: R-20 mineral wood batt floor insulation
Wall and roof construction: 2x6 wood frame spaced 16 inches on center
Wall insulation: R-21 dense-pack cellulose
Ceiling insulation: R-38 blown cellulose
Windows: Low-e, gas-filled; U-0.3; SHGC 0.38
HVAC: Whole-house fan with R-38 insulating housing for cooling; combined space and water heating provided by 82 AFUE power vented water heater
Ducts: None
Water heating: See HVAC
Lighting: 80% fluorescent
Appliances: ENERGY STAR dishwasher supplied
Blower door test: 9.3 ACH50
HERS rating: 87
Innovative features: Rough-in for future solar water heating system

Wonderland Hill Development would like to thank:

- Drahota Construction Company
- Jim Logan & Bryan Bowen – Architects

Production Home, Cold Climate

Aspen Homes of Colorado, Inc.

Years in business: 3
Average homes built per year: 147

House Description

Size: 2,673 s.f.
Location: Denver, Colo.
Construction cost: $133 per s.f.

According to the EVHA judges, Aspen Homes is a well-rounded builder that demonstrates a good mix of building science, cost effectiveness, management to ensure energy features are installed as designed, marketing that informs the public about efficiency features, and a well-trained staff to build and sell the product. One example of their exemplary customer relations is their housewarming gift to each new homeowner: the company purchases a 100-kWh block of wind power each month for a year.

The company participates in ENERGY STAR, E-Star Colorado, Built Green Colorado and is in the process of designing a Zero Energy Home.

Energy Features

Foundation: Conditioned crawlspace with R-19 foundation wall
Wall construction: 2x4 at 16 inches on center wood frame
Wall insulation: R-15 blown-in-batts with R-5 insulating sheathing
Ceiling insulation: R-38 blown cellulose
Windows: U-0.35; SHGC 0.32
HVAC: Manual-J calculation for design; AirCycler ventilation; 92.6 AFUE furnace; 10 SEER air conditioner
Ducts: Planned for short, straight runs; sealed with mastic; 100% in conditioned space
Water heating: 82% efficient tankless gas
Lighting: 5% fluorescent; tubular skylight
Appliances: ENERGY STAR refrigerator, dishwasher, and front-loading washer
Blower door test: 2.1 ACH50
HERS rating: 90

Custom Home, Cold Climate

Montgomery and Rust, Inc.

Years in business: 32
Average homes built per year: 20

House Description

Size: 3,500 s.f.
Location: Pittsburgh, Pa.
Construction cost: $177 per s.f.

Montgomery and Rust, according to the EVHA judges, was "strong across the board in every category." Including a "very good balanced system approach with both a good shell and high efficiency equipment, [and] excellent lighting design."

The company also excels at marketing energy efficiency. The model home features informational signs posted near efficiency features which describe the features and their purpose. The development is on a former industrial property in the City of Pittsburgh that was abandoned for 50 years.

Energy Features

Foundation: R-18 insulating concrete forms with conditioned crawlspace
Wall and roof construction: 2x6 and 2x4 wood frame spaced 24 inches on center; advanced framing techniques
Wall insulation: R-13 to R-20 soy-based spray foam insulation and R-3 to R-5 insulating sheathing
Ceiling insulation: R-30 soy-based spray foam insulation at roofline (unvented attic)
Windows: Low-e, gas-filled; U-0.32; SHGC 0.34
HVAC: Three-zone control; 94 AFUE furnace; 15 SEER two-speed air conditioner; 84% efficient energy recovery ventilator
Ducts: Design according to ACCA Manual D; Sealed with mastic and 100% in conditioned space; supply diffusers located on interior walls
Water heating: Tankless gas water heater serving a manifold PEX distribution system
Lighting: 65% fluorescent lighting; LED lighting for shelving in foyer
Appliances: ENERGY STAR refrigerator
Blower door test: 2.3 ACH50
HERS rating: 93.9

Montgomery and Rust thanks the following people and organizations:

- Builder and architect: Montgomery and Rust, Inc.
- Developer: Summerset Land Development Associates, The Rubinoff Co. (Managing Partner), and The Urban Redevelopment Authority of Pittsburgh
- Consultant on energy efficiency matters: IBACOS
- Site and schematic design architect: Looney, Ricks, Kiss Architects, Inc.
- Interior design architect: Mary Cerrone, AIA
- Landscape architect: Laquatra-Bonci Associates, Inc.

Critical suppliers of energy efficient materials and equipment:

- Spray insulation: Bio Based Systems
- Insulated forms and exterior sheathing: Owens Corning
- HVAC equipment: Carrier Corp.
- Tankless water heater: Rinnai
- Fireplace: Heat-N-Glo
- Appliances: General Electric
- Windows: Andersen

Affordable Home, Moderate Climate

Blue Sea Construction Company

Years in business: 5
Average homes built per year: 175

House Description

Size: 4,400 s.f. (3 units)
Location: South Bronx, N.Y.
Construction cost: $67 per s.f.

Energy Features

Foundation: R-10 underslab
Wall construction: Concrete
Wall insulation: R-11 batt insulation with R-2.5 rigid foam
Ceiling insulation: R-21 rigid foam
Windows: Low-e; U-0.34; SHGC 0.72
HVAC: 87.2 AFUE combination space and water heating system; No compressor cooling
Ducts: None
Water heating: see HVAC
Lighting: 100% fluorescent
Appliances: ENERGY STAR kitchen appliances
Blower door test: 1.6 ACH50
HERS rating: 89
Innovative features: 2.2 kW PV system

According to the EVHA judges, Blue Sea Construction has "taken on an incredible challenge – energy efficient and affordable housing in New York City. And they have done it effectively and attractively ... [the project is] an excellent response to the urban need for affordable housing."

The project was built on lots where buildings were abandoned or destroyed during the 1970s. The homes are predicted to use 75 percent less energy for heating than the average affordable home in New York City.

Blue Sea Construction wishes to thank the following:

- New York City Housing Partnership
- New York City Department of Housing Preservation and Development
- New York State Affordable Housing Corporation
- Office of the Bronx Borough President
- David Danois Architects
- Steven Winter Associates

Custom Home, Moderate Climate

Carolina Country Builders

Years in business: 18
Average homes built per year: 2

House Description

Size: 2,720 s.f.
Location: Chapel Hill, N.C.
Construction cost: $161 per s.f.

According to the EVHA judges, Carolina Country Builders is a primary influence in their market. The company is "setting the trend and other builders are now following ... [the company is] very, very informed." They remarked that the company "does best practices, without a doubt, plus they go the extra mile with the solar application." To achieve the house performance, the company uses Energy-10 computer simulation in designing the passive solar home. The company participates in ENERGY STAR and Healthy Built Homes (N.C. Solar Center) programs.

Energy Features

Foundation: Semi-conditioned basement having precast concrete walls with R-19 batt + R-5 rigid foam; slab foundation with edge insulation
Wall and roof construction: 2x6 at 24 inches on center
Wall insulation: R-19
Ceiling insulation: R-38 blown cellulose
Windows: Low-e, gas-filled windows; U-0.33; SHGC 0.33; south-facing windows have SHGC 0.63 for passive solar gain
HVAC: Heat pump 8.35 HSPF; 12 SEER; AirCycler ventilation; programmable thermostat; high efficiency wood fireplace with ducted combustion air intake
Ducts: Sealed with mastic, R-6; 65% in conditioned space
Water heating: Solar water heating system with PV-powered pump and electric tank back-up
Lighting: 12% fluorescent; airtight cans
Appliances: Owner-supplied
Blower door test: 5.5 ACH50
HERS rating: 91.5
Innovative features: Radiant barrier roof decking; insulated airtight attic ladder; colored concrete floors for thermal mass

Carolina Country Builders wishes to thank the following:

- Alicia Ravetto, Architect, Alicia Ravetto, AIA
- Eric Smith, Carolina Country Builders
- Keith Bartholomew, Carolina Country Builders
- Jeff Reynolds, Comfort Consultants of N.C.
- Jeff Bodnarik, Eastern Insulation Company
- Jim Osborne, Superior Walls of N.C.
- Tom Wills, Solar Consultants, Inc.
- Peter Theye, Theye Electric
- Joe Kenlan, Joseph Kenlan Stone Masonry
- David Hillman, Raleigh Specialty Products
- Dan Morava, Morava Plumbing Inc.
- Ed Fahrbach, Cassedy & Fahrbach Cabinet Design
- Mike Holt, Mike Holt Concrete

Production Home, Moderate Climate

Ideal Homes

Years in business: 13
Average homes built per year: 450

House Description

Size: 1,542 s.f.
Location: Oklahoma City, Okla.
Construction cost: $43 per s.f.

The company's dedication to energy efficiency and environmental best practices in home building is evident by its participation in numerous builder programs, including ENERGY STAR, Engineered for Life, American Lung Association's Health House, and Building America. In fact, they so firmly believe in the efficiency of their product that they stand behind every home with an energy cost guarantee.

Energy Features

Foundation: Slab on grade with edge insulation
Wall construction: 2x4 framed wall with two-stud corners and ladder blocking
Wall insulation: R-13 blown-in-batt fiberglass insulation with R-3.5 insulating sheathing
Windows: Low-e, U-0.3; SHGC 0.36
Ducts: Sealed with mastic
HVAC: 90 AFUE furnace; 14 SEER air conditioner; AirCycler fresh air ventilation
Lighting: Fluorescent option package
Appliances: Not supplied
Blower door test: 4.2 ACH50
HERS rating: 89.3

Since introducing the guarantee in 2002, they have never had a claim.

Extensive training ensures that employees understand the company's commitment to energy efficiency, the key features that affect home performance, and the necessary steps to implement efficiency on the job site. In addition, Ideal Homes is educating the community by sponsoring events such as EEBA's Houses the Work™ and ENERGY STAR mortgage seminars.

Ideal Homes would like to thank the following:

- Building Science Corporation
- The Energy and Environmental Building Association
- Smart House Consultants
- The Department of Energy

continually strive to build better homes. From moving the air conditioning equipment from the garage into the conditioned space six years ago, to their newest project—building a near-Zero Energy Home (which uses 60 percent less energy than a code-compliant home) in an all-ENERGY STAR subdivision.

All America Homes' sales brochures feature the ENERGY STAR logo and discuss the energy features of the homes, along with highlighting the more saleable features such as the floorplan and durability.

Custom Home, Hot Climate

All America Homes of Gainesville, Inc.

Years in business: 14
Average homes built per year: 10

House Description

Size: 2,885 s.f.
Location: Gainesville, Fla.
Construction cost: $115 per s.f.

All America Homes of Gainesville is proud of the energy value they provide to their new homebuyers—with good reason—yet they

Energy Features

Wall and roof construction: Structural insulated panels
Wall insulation: R-15 blown-in-batt
Ceilings: R-30 spray foam insulation at roofline (unvented roof)
Windows: Orientation-specific window placement; low-e window film applied on unshaded windows; insulative window coverings.
HVAC: 85 AFUE furnace with hydronic distribution; 17 SEER air conditioner; fresh air inlet; programmable thermostat
Ducts: Sealed with mastic over UL-listed foil tape; 100% in conditioned space
Water heating: Tankless gas water heater backup; solar preheat
Lighting: 100% fluorescent
Appliances: ENERGY STAR
Blower Door Testing: 2.0 ACH50
HERS rating: 90.6
Innovative energy features: 2.4 kW photovoltaic system; radiant barrier roof decking; low-voltage solar patio lighting

All America Homes would like to acknowledge the contributions of the following team members:

- Ken Fonorow (1999 National Energy Ally of the Year), president, Florida HERO—building science consultant
- Jeff Beiter, Seagull Lighting (2004 ENERGY STAR Associate of the Year)—high-efficiency ENERGY STAR lighting products supplier
- Mike O'Conner, Carrier of Florida—technical assistance using new Carrier high-SEER equipment with Puron refrigerant and programmable humidistat controllers
- Pat Bowen, Suncoast Insulation—assisted in determining best application values for Icynene and blown-in-place fiberglass blanket insulation in production use
- John Snyder, Takagi—technical assistance with innovative hybrid and advanced-efficiency heating systems
- Steve Burroughs, Sears Commercial Contract Sales—assisted in selecting new technology and advanced energy-efficient appliances and equipment
- Linda Tumlinson, Hunter-Douglas—assisted in finding most energy-efficient window treatment solutions
- Tom Lane, president, Energy Conservation Services (ECS)—assistance with solar for hot water, pool heating, and photovoltaic systems
- David Beal, physicist, Florida Solar Energy Center—contributed to analysis, design, and testing of systems on this home; helped to implement real-time online energy-usage analysis
- Mark Spiller, Gainesville Regional Utilities (GRU)—helped to obtain special solar photovoltaic approvals, lighting efficiency advice, and utility grid connection agreements
- The Gainesville Sun—supported project through complimentary publicity of public energy awareness seminars

Production Home, Hot Climate

Premier Homes Properties, Inc.

Years in business: 18
Average homes built per year: 80

House Description

Size: 1,503 s.f.
Location: Sacramento, Calif.
Construction cost: $66 per s.f.
Homes built to same specs: 21

Premier Homes' winning home includes "a lot of gadgets in a production home." The home, which is part of a subdivision of near-Zero Energy Homes (homes which will save 60 percent on energy bills), is part of several programs including DOE's Building America, ENERGY STAR, ComfortWise, and SMUD Solar Advantage programs. As part of the ComfortWise program, the builder follows protocols for HVAC design, window selection, duct sealing, and third-party inspection and diagnostics.

The company has received a lot of coverage in the local media, helping to increase buyer awareness of energy efficiency in their market.

Energy Features

Foundation: Slab on grade
Wall and roof construction: 2x4 at 16 inches on center (per seismic code)
Wall insulation: R-13 fiberglass batts with R-4 insulating sheathing
Ceiling insulation: R-38
Windows: Low-e, tinted windows; U-0.37; SHGC 0.32
HVAC: HVAC design per ACCA Manuals J and S; 92 AFUE furnace; 14 SEER air conditioner with integral TXV
Ducts: Design per ACCA Manual D; buried in attic insulation; meets California tight duct criteria
Water heating: 82% efficient gas tankless water heater
Lighting: 30% fluorescent
Appliances: ENERGY STAR refrigerator and dishwasher
Blower door test: 6.2 ACH50
HERS rating: 90
Innovative features: 2.6 kW PV system, roof integrated into tile roof

Premier Homes would like to thank:

- Mike Keesee and SMUD for all their help and support in making our Zero Energy Subdivision a reality
- Dave Nyberg with GE Energy, Shery, and Consol

ENERGY VALUE℠ HOUSING AWARD
Honorable Mention

Honorable Mentions

Custom Home, Cold Climate

Chuck Miller Construction, Inc.

Custom Home, Cold Climate

Tierra Concrete Homes, Inc.

Affordable Home, Moderate Climate

Habitat for Humanity of Catawba Valley

Affordable Home, Moderate Climate

Neighbor for Neighbor, Inc.

Production Home, Moderate Climate

Chisholm Creek Development, LLC

Custom Home, Hot Climate

Carter Construction

Judges

EVHA applications are reviewed by a six-member judging panel, which includes a mix of new and returning judges in the fields of engineering, construction, design, and marketing. The feedback that applicants receive from the EVHA judges is the most beneficial part of the application review process. Simply applying for the EVHA provides companies with unequalled access to the judges' expertise.

Being an EVHA judge is a great commitment. It takes about 20 to 40 hours for judges to conduct an independent preliminary evaluation on 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 educational sessions and workshops.

A special thank you is extended to this year's judges for sharing their expertise and for their dedication to advancing energy efficiency through the EVHA.

Steve Baden, Executive Director of RESNET, has worked in the residential energy-efficiency field for over 25 years, including 18 years with home energy ratings and energy mortgages on both the state and national levels, and 10 years administering a state energy office. Baden initiated the "Warm Homes for Alaskans Initiative" which received the "1993 National Award for the Most Outstanding State Housing Program" from the National Council of State Housing Agencies. Baden was also awarded "Lifetime Achievement Awards" from the U.S. Department of Energy and RESNET.

Michael Lubliner has provided technical review and continuity to the EVHA program for the past eight years. Lubliner is the senior building science specialist at the Washington State University Energy Program. He has 25 years of HVAC, building science, and renewable energy systems expertise in site-built and manufactured housing sectors. Lubliner currently works with the U.S. Department of Energy's Building America and ENERGY STAR programs.

Paul Norton is a senior engineer in the Center for Buildings and Thermal Systems at the National Renewable Energy Laboratory (NREL) in Golden, Colo. He specializes in performance analysis of energy-efficient homes. As a past judge, Norton brings continuity and experience to the EVHA program and his extensive engineering background and knowledge of building energy performance significantly enhances the judging process.

Peter Pfeiffer is founding principal of Barley + Pfeiffer Architects, the firm recognized as designing Fine Homebuilding's "Greenest Home in America" in 2003. Pfeiffer, a building scientist and architect for over 20 years, was voted NAHB's 2003 Green Advocate of the Year and in 2004 was named Fellow of the American Institute of Architects for his lifelong achievements in mainstreaming environmentally responsible home building.

David H. Richmond has over 30 years of experience in the construction industry including the last 13 years exclusively involved in the field of energy-efficient residential design and construction. As president of Environmental Community Consultants, Inc. (ECCI), Richmond has applied his experience as past president of Energy and Environmental Building Association (EEBA), a recognized Building America builder and an ENERGY STAR New Homes consultant who provided support to builders interested in incorporating the latest building science methods in their construction efforts.

W. Orlo Stitt, President of Stitt Energy Systems, has won 15 EnergyValue Housing Awards and subsequently served as a judge several times. His intimate knowledge of the EVHA process and criteria gives him a unique perspective. Stitt is a member of the American Solar Energy Society, and the Energy and Environmental Building Association, and is past president of the Northwest Arkansas Home Builders Association.

Partners

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.

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 homeowners 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.

Sponsors

The **AAMA Vinyl Material Council (VMC)** is a membership group comprised of manufacturers of windows, doors, skylights and related building products and their component and material suppliers. Collectively, the VMC advocates the development of voluntary technical standards, extrusion certification, marketing, environmental stewardship, and educational programs.

BuildingGreen, Inc. is committed to advancing environmentally responsible design and construction in buildings of all types; the EnergyValue Housing Awards provide a superb vehicle for increasing awareness about green design. We applaud the NAHB Research Center for sponsoring this awards program.

Fannie Mae is a shareholder-owned company that works to make sure mortgage money is available for people in communities all across America. Its mission is to tear down barriers, lower costs, and increase the opportunities for homeownership and affordable rental housing for all Americans. Because having a safe place to call home strengthens families, communities, and the nation as a whole.

Guided by the same principles as the EVHA program, **Icynene Inc.** helps builders incorporate energy efficiency into the homes they build. Much like the EVHA program, Icynene's Builder Advantage Program equips builders with sales tools that demonstrate energy savings, helping them show potential buyers the cost benefits that are achieved when selecting energy-efficient features, such as The Icynene Insulation System®. Together, Icynene and EVHA offer the tools and strategies to help builders practice energy-efficient construction and profit. This relationship is evident through the numerous EVHA winners who have insulated their award-winning homes with Icynene® in order to achieve the benefits of a Healthier, Quieter, More Energy Efficient® living environment.

The Vinyl Institute, a trade association of vinyl resin manufacturers and member of the American Plastics Council (APC), sponsors one of the many outreach programs supported by APC, the Vinyl By Design® education and outreach program. Vinyl By Design is a comprehensive information resource for building design professionals on the attributes of vinyl in numerous applications in the built environment. APC's programs promote the versatility, durability, and energy efficiency of vinyl and other plastics as building materials.

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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.

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
An ENERGY STAR Home is predicted to use 30 percent less energy than houses built to the Model Energy Code (MEC) while maintaining or improving indoor air quality. 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)
A collection of programs throughout the country that assign energy ratings based on predicted energy use of the house. Ratings are either on a scale of 1 to 100 points or 1 to 5-plus stars. Most houses built today without any special attention to energy efficiency, typically earn an 80-point or three-star rating.

Heat Recovery or Energy Recovery Ventilator (HRV/ERV)
Engineered venting systems recover useful energy from exhaust air.

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

Low-Emittance (Low-E) Windows
Windows with a thin, invisible, metallic coating on one or more glazing surfaces that reduces the radiation of heat from windows. 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.

Manual-J
Method developed by the Air Conditioning Contractors of America to size heating and cooling equipment.

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 heat, 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 heat 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 Energy Code (MEC)
A building code that requires houses to meet certain energy efficiency-related minimums such as insulation levels or energy consumption. Like most building codes, it is adopted on either a state or local basis, if at all, and may be amended.

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 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 possibility 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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