

# TECHNOLOGIES

## Manufactured Housing Embraces ENERGY STAR

Since **TECHNOLOGIES** last reported on ENERGY STAR®, US EPA's flagship energy efficiency program, it has emerged as a potent marketing force sweeping through manufactured housing. This article explores what is behind all of the excitement and how and why ENERGY STAR may define homebuyer's perception of energy efficient construction in the future.

In an era when energy efficiency is becoming more and more attractive, the manufactured housing industry is embarking on a program that can bring that efficiency to the affordable housing market—the customers who can most benefit.

The industry is embracing ENERGY STAR, a voluntary labeling program begun by the US

Environmental Protection Agency in 1992 to reduce greenhouse gas emissions through more energy-efficient products and appliances.

Computers and monitors were first on the long list of ENERGY STAR appliances, and heating and cooling equipment was added by 1995. The EPA partnered with the Department of Energy, and a broad range of

products can now earn the ENERGY STAR label—major appliances, lighting, electronics and building materials.

One of the more recent additions to that list is homes, site-built and manufactured, and MHRA has worked with both government agencies to develop a process by which housing manufacturers can become qualified to produce ENERGY STAR labeled

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homes. These homes, by definition, must be at least 30 percent more energy efficient than those built to the Model Energy Code in the areas of heating, cooling and water heating.

MHRA took the EPA's established program and recast it to make it more meaningful for the manufactured housing industry by designing procedures

**Embraces** continued on page 4

MHRA Chair Rick Boyd and ENERGY STAR Labeled Homes director Sam Rashkin discuss how plants qualify to produce ENERGY STAR homes.

## Setting the Standard for Energy Efficiency

MANUFACTURED HOUSING  
**TECHNOLOGIES**

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**M**arketing "energy efficient" homes has never been easy. Every manufacturer or retailer believes that their homes are energy efficient—particularly since 1994 when HUD changed the mandatory thermal standards for the industry.

Companies that build beyond the standard requirements often face an uphill battle in helping customers distinguish between their very efficient designs and the competition's highly efficient homes.

Difficulties notwithstanding, the industry must continue to try to educate homeowners on the value of truly energy efficient homes. Increasingly, buyers recognize the intrinsic value of energy efficient homes. Most homeowners receive mortgage and utility bills. Few recognize the significance of paying more for their home to save on energy costs. If we hope to effectively market energy efficient features, we must be able to clearly articulate the net benefits of their higher initial investment.

In the past, the driving forces in the energy efficiency business were the power companies. Electric utilities in particular offered financial incentives to partially or entirely offset the higher costs associated with building energy efficient homes. Before deregulation brought many of these programs to an abrupt halt, there may have been as many as one hundred different programs nationwide designed to promote energy conserving construction. Unfortunately, this created a multitude of definitions as to what constitutes an "energy efficient" home and hurt the ability of the industry to market these types of programs.

About the time the private sector began de-emphasizing their energy efficiency initiatives, the federal government embarked on a national program to establish national standards of energy efficiency under the ENERGY STAR® brand. At first, ENERGY STAR was limited to a few consumer products, such as computers. The now ubiquitous ENERGY STAR label appears on products that are generally the most energy efficient of all available models. Eventually the program was expanded to building products and subsequently to entire homes.

MHRA's interest in energy efficiency programs dates back to 1995 when the organization was founded, primarily through the efforts of electric power companies operating in the Southeast. Companies like Carolina Power & Light and the electric cooperatives foresaw the need to have uniformity in the design of such programs, partly in response to consumer confusion and the industry's reluctance to build multiple homes to meet the standards of different programs. MHRA developed an energy efficiency standard for the southeastern region, but the program's major advocates, the electric utilities, as mentioned earlier, had begun reducing their emphasis on energy incentives and the program never took off.

Much of the industry has been slow to embrace the ENERGY STAR program as a viable substitute for other programs for several reasons, but primarily because the program was configured around site building practices and was an awkward fit for HUD-code and modular construction. As explained by the lead article in this issue of **TECHNOLOGIES**, that all changed starting about two years ago when MHRA and the US Environmental Protection Agency agreed to cooperate in developing a set of procedures for qualifying manufactured homes under the ENERGY STAR banner.

Our industry has been claiming for some time now that manufactured homes are equal or superior to site built homes in almost every respect. The challenge has been to back such assertions with independently verified, incontrovertible proof. And herein lies one of the main attractions of the ENERGY STAR program for this industry.

All ENERGY STAR homes meet the same energy target. They must be 30% more efficient than the same home built to the Model Energy Code. It makes no difference if the home is built from logs, sticks, panels or manufactured under the HUD standards, the target is the same. An ENERGY STAR HUD-code home is more energy efficient than a similar site built home that does not qualify for ENERGY STAR status. The ENERGY STAR program helps establish a level playing field for all homes with a federal agency setting the bar for participation.

In the months since MHRA launched the manufactured home ENERGY STAR program, over 50 plants have declared their intent to qualify their facilities under the program. It is early in the process, but assuming that a representative proportion of new shipments from these plants (and others that join the program in the future) are ENERGY STAR labeled homes, the national figures for ENERGY STAR will be dominated by HUD-code homes within a few short years. This is one public relations bonanza we must not overlook or undersell.

The bottom line is, of course, providing our customers with energy efficient features that lower their home ownership costs and provide value that they recognize as worth the additional cost. Higher energy efficiency reduces monthly utility costs, increases home resale value and lowers home maintenance costs. These are all themes that resonate with homeowners and with which we are all quite familiar. What's new is our ability to move the market toward energy efficiency by taking advantage of a federally sponsored program. This is a program familiar to anyone who has walked into a Lowe's, Sears, Circuit City or any of hundreds of other stores that feature appliances and other products that carry the ENERGY STAR label. 🏠



A handwritten signature in blue ink that reads "Rick Boyd".

Rick Boyd, Chair

that would make the process of qualifying to produce ENERGY STAR labeled homes easier.

Sam Rashkin, the EPA's national director of ENERGY STAR for homes, said that was an important advance in the program. "The program started as just any home that could demonstrate that it's 30 percent above the Model Energy Code, and clearly it was geared more toward the site built homes," Rashkin said.

"But with manufactured housing being a large and affordable market segment, it was very important that we find a solution that would build quality control methods into their products—it was incumbent upon us to develop a different pro-

gram that took advantage of their quality control systems that are already in place."

### Shaping ENERGY STAR to fit manufactured housing

The first manufacturer to fully embrace the ENERGY STAR program was Palm Harbor Homes Inc., based in Addison, Texas. Their early efforts exposed the limitations of applying a program, developed with site building in mind, to the HUD-code industry. For example, inspecting and testing each home during and after construction—an ENERGY STAR requirement—is expensive but feasible when qualifying site built homes under the program, but impractical for manufactured homes.

Palm Harbor produced the first two ENERGY STAR-compliant homes in 1997, but with little demand and facing significant technical hurdles, found it difficult to grow their participation in the program. "Palm Harbor's experience in attempting to bring the ENERGY STAR program to market clearly demonstrated that the program, as structured, was a poor fit for manufactured housing," recalled MHRA director Emanuel Levy. "Their efforts were the impetus for us to work with EPA in rethinking the way industry complied with the program."

"A lot of the (MHRA) guidelines are a direct result of what Palm Harbor was doing early on," said Bert Kessler, vice president of engineering for Palm Harbor.



### Money Isn't All You're Saving

The Energy Star logo appears on a broad range of products including major appliances, lighting, electronics, and building materials.

"When we got involved, they didn't exist.

Funded by the Manufactured Housing Institute, US EPA and the US Department of Energy (DOE), MHRA convened a committee under the leadership of Tom Blesch (Reliant Windows) and subsequently, Harold Woodside (R-Anell Housing Group) responsible for formulating new ENERGY STAR guidelines for HUD-code homes. The energy efficiency bar was set at 30 percent above the Model Energy Code—equivalent to the site built target—but the procedures for demonstrating compliance were extensively overhauled. In April 2001, MHRA rolled out the new procedures with the publication of **ENERGY STAR Labeled Manufactured Homes: Design, Manufacturing, Installation and Certification Procedures** (see page 11 of this issue).

The ENERGY STAR guidelines leveled the ENERGY STAR playing field by taking advantage of the methods used by industry

Manufacturers using the joist duct systems and mastic for duct sealing had a head start toward achieving ENERGY STAR efficiency targets.



## ENERGY STAR Plants



### MHRA provides assistance to plants

To assist plants interested in becoming ENERGY STAR qualified, MHRA has developed a program—funded in part by the US Department of Energy, the US EPA, the US Department of Housing and Urban Development, the Tennessee Valley Authority and Carolina Power & Light—that provides both technical support and financial incentives.

Plants can participate, on a first-come, first-served basis, in one of two ways as follows:

#### Option 1:

MHRA sends an ENERGY STAR Certifier to the plant for two weeks of consulting and evaluation that includes review of current manufacturing methods, recommendations for changes to meet ENERGY STAR requirements, review and qualification of production processes and inspection and qualification of the site installation procedures.

#### Option 2:

The manufacturer seeking plant qualification independently hires an ENERGY STAR Certifier. MHRA then provides technical support to the plant and the Certifier.

For more information about the ENERGY STAR technical assistance program, contact MHRA at: (212) 666-7771.

to produce highly efficient homes and quality control practices already in place. The industry, lead by Champion Enterprises' commitment to take ENERGY STAR company-wide (Champion was the first company to qualify a plant under the MHRA procedures) was quick to seize this unprecedented opportunity for tapping into the growing consumer demand for energy efficiency.

"We've worked to shape the MHRA's process into something that makes it economical, easy and less bureaucratic," said John Sims, director of quality and service for Champion. "We made it consistent with the third-party inspection process. That was critical to get people who already understood the methods we use to build and design homes involved in the ENERGY STAR process.

"We're excited about having this program available to us. It's a wonderful opportunity for Champion and the entire industry. The company's goal is to have all 47 of its manufacturing facilities compliant as quickly as possible,"

Sims said.

"We're going to increase the energy efficiency of our product, we'll be able to market our homes as meeting

*"We'll provide value to our homeowners by giving them a product that goes significantly beyond the minimum standards and can still be cost-justified"*

John Sims,  
Champion Enterprises

high energy standards, and we'll provide value to our homeowners by giving them a product that goes significantly beyond the minimum standards and can still be cost-justified," Sims added. "I think it (ENERGY STAR) gives us credibility, and we can provide that level of quality more efficiently than other kinds of builders."

Sims also noted that rapid and massive embrace of ENERGY STAR by the manufacturers might be followed and leveraged by other key industry groups. "If we

have support from utilities, financial institutions and suppliers, we can more effectively reach our homebuyers, the people who directly benefit from lower energy costs."

Industry analysts foresee positive outcomes, as well.

"I think one thing that has certainly impacted the manufac-

tured housing industry has been the sharp increase in energy prices, particularly for moderate-income buyers," said John Diffendal, an analyst with BB&T Capital Markets based in Nashville, TN. "And to the extent that the industry can provide energy-efficient homes when energy prices have been increasing, that's a positive."

The techniques required to achieve the ENERGY STAR status, in large measure, aren't new. "These technologies are off-the-shelf and tried-

and-true," Rashkin said. "In most cases, slightly higher levels of insulation, greater use of caulking and sealing details that make the homes airtight, better windows that trap the heat in the winter and block it out in the summer, more efficient heating and cooling systems and, most importantly, tight duct system."

"The most important part is incorporating those technologies in plants' everyday production processes," Rashkin added.

Palm Harbor's efforts to incorporate ENERGY STAR practices into routine production in all of their plants have paid dividends. "Their market share has increased over the past several years," Diffendal said, "partly because of their concentration on energy efficiency."

"This is a great opportunity," Sims added. "Our customers are generally looking for affordable housing, and their housing costs are often a larger portion of their income than for people living in \$500,000 houses.

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## Update on federal tax credits for ENERGY STAR construction

Both houses of Congress are considering legislation that would provide a tax credit for homes that meet exemplary energy levels, like ENERGY STAR. Last summer, the House of Representatives passed a version of a Bill that would provide manufacturers and builders with a credit of \$2,000 for each energy efficient home they produce that exceeds the requirements of the 1998 International Energy Conservation Code by 30 percent. The Senate also has a version of an energy tax credit that is also in the drafting stage. Efforts to move the Bills forward were slowed by recent events, but promise to be high on the legislative agenda for 2002.

# Titan Homes Becomes First ENERGY STAR Qualified Plant

Long before ENERGY STAR, selling energy efficiency was already a priority for Titan Homes, which markets to consumers in the chilly environs of Sangerfield, NY

"Improving the thermal envelopes of our homes is an important marketing factor for us," said Jack Ireton-Hewitt, general manager. "It (ENERGY STAR) was a perfect fit for what we were working to do," Ireton-Hewitt said.

By working closely with the Titan plant, MHRA was able to assess in the field the newly published ENERGY STAR procedures for manufactured homes and tweak the program design.

"It took a lot of preparatory work on our part," Ireton-Hewitt recalled. "You need to take a look at your own unique circumstances and determine what changes you have to make. Then it becomes a matter of implementing those changes across all your homes."

Since Titan already had an excellent energy efficiency package, ramping up to ENERGY STAR was relatively straightforward and required few changes in design or production. The most difficult part of the process was qualifying Titan's single section homes for the coldest ENERGY STAR region. MHRA technical staff assisted Titan in identifying a package of energy features that included high efficiency heating equipment

Meeting ENERGY STAR required Titan to modestly increase insulation levels and install high efficiency heating and cooling equipment.



and wrapping the hot water heater with insulation.

"Meeting the requirements was largely a matter of using different materials," Ireton-Hewitt said.

In addition, the ENERGY STAR specifications call for a foam marriage-wall gasket and use of a programmable thermostat. Titan had already done significant work on tightening its duct systems that technicians measured at an extraordinary low 3% leakage rate.

After they implemented their new practices, Francis Conlin, MHRA project coordinator and ENERGY STAR Certifier, returned to test homes in the plant and after installation.

"We did very well on our first try, so only a few adjustments had to be made in the plant from that point," noted Ireton-Hewitt. "Then we built three ENERGY STAR homes, had them installed in the field and then re-tested them on the sites."

When those homes passed, Titan Homes' Sangerfield plant was the first in the nation to be qualified to produce ENERGY STAR homes. The process took about four months altogether but the lessons learned have helped other Champion plants complete the process in as little as a few weeks.

"It was absolutely worth the effort," Ireton-Hewitt said. "We're doing something more than contributing to our marketing program, we're contributing to the overall ENERGY STAR initiatives being put forward in the United States and I'm proud of that."

Titan, which builds approximately 1,200 homes a year, offers ENERGY STAR efficiency as an option to its customers.

"You have to look past the initial start up cost of the ENERGY STAR program," Ireton-Hewitt advised. "You will ultimately save money, provide buyers with greater value and do a good national service at the same time. It's a win-win all around." 



The ENERGY STAR plaque reminds customers that Titan sells ENERGY STAR homes.

We are able to cut their total shelter cost by reducing in the long term, their costs for energy and keeping the up-front capital costs to a minimum."

That increased efficiency overall is a happy benefit of the ENERGY STAR labeling program, because the changes plants make in their efforts to become qualified under the program will improve every home that comes off their production lines—even if they don't get the ENERGY STAR label.

"MHRA has created a

tremendously effective system for delivering technical guidance and support so that manufacturers can learn this program and incorporate it in their comfort zones," Rashkin said.

**Helping homebuyers to recognize quality**

As a program developed by a federal agency, ENERGY STAR does for the manufactured housing industry what it could never do on its own: objectively demonstrate that in energy efficiency

terms, manufactured homes are equivalent or superior to other types of housing. Consumers recognize the ENERGY STAR label as an independent-verified, and therefore a credible assurance of performance.

"One of the things that manufactured housing has been fighting for years is image, but the reality is that consistency in construction quality is largely higher for manufactured homes than site-built," Diffendal said. "Where you can demonstrate energy efficiency, it does send the message that these houses are better constructed."

Kessler of Palm Harbor agrees: "To me, energy efficiency goes hand-in-hand with quality. You can't have one without the other."

"A lot of builders claim their homes are energy efficient, but relatively few actually meet ENERGY STAR," said Levy. "It's important for consumers to realize that manufactured homes are high quality and offer value for the dollar, and the ENERGY STAR label on a home is a deal closer."

Roger Huddleston, owner of Roger Huddleston Homes in Mahomet, Illinois, is confident it will work.

"Energy efficiency will

sell," he said. "People are keenly aware of energy consumption, and if we've got an objective,

*"To me, energy efficiency goes hand-in-hand with quality. You can't have one without the other."*

Bert Kessler,  
Palm Harbor Homes, Inc.

measurable way to show people that this house is what we say it is—the ENERGY STAR label—it'll be like selling a car you can say will get 50 miles per gallon."

MHRA has been pleasantly astounded at the amount of early interest in the ENERGY STAR plant qualification process. Palm Harbor and Champion have continued its push to qualify plants system wide. In addition, another 35 companies have embraced the program (see page 5). Within six months of the publication of the MHRA guide, nearly one-quarter of all manufacturing plants have entered the program.

A recent company press release reveals Champion's excitement about the program.

"We're proud to be the first manufacturer to qualify a plant, as it is such an important benchmark for Champion, the manufactured housing industry

The ENERGY STAR label is placed in the home, usually next to the HUD label.

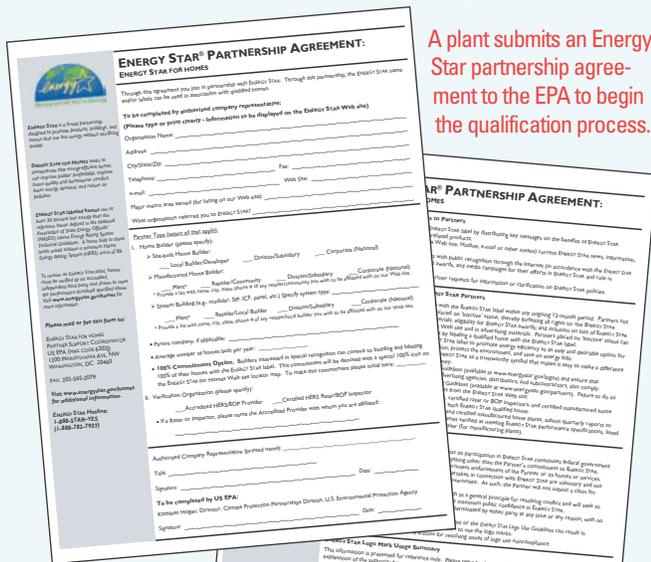


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# Becoming an ENERGY STAR Manufacturer

All ENERGY STAR homes, whether manufactured or site built, must meet the same energy efficiency target: 30 percent more efficient than a home of identical dimensions built to the Model Energy Code. However, the method by which HUD-code manufacturers demonstrate that homes meet ENERGY STAR is quite different from the procedures followed by site builders.

The main difference can be summed up as follows: home manufacturers must demonstrate to a third-party "Certifier" that they are capable of routinely producing ENERGY STAR homes while site builders must demonstrate to the third party that each, individual ENERGY STAR home meets the program standards. That is, for HUD-code producers the manufacturing process is



A plant submits an Energy Star partnership agreement to the EPA to begin the qualification process.

qualified while for site builders the product (the home itself) is qualified. Once a HUD-code manufacturer plant is qualified to produce ENERGY STAR homes, each home built under the ENERGY STAR program is self-certified by the manufacturer and verified through the normal IPHA and DAPIA review.

The steps for qualifying a plant, and each facility must be separately qualified under the ENERGY STAR program, are explained in the MHRA guide **ENERGY STAR Labeled Manufactured Homes: Design, Manufacturing, Installation and Certification Procedures**. The path to plant qualification consists of the following nine steps:

## Step 1: Submit an ENERGY STAR partnership agreement

Qualifying a plant to manufacture ENERGY STAR labeled homes begins with submitting an ENERGY STAR partnership agreement to the US EPA. EPA maintains a list of partners on its web site for homebuyers interested in buying ENERGY STAR homes.

## Step 2: Retain a manufactured housing ENERGY STAR certifier

The plant hires an independent, third party certifier who will verify the plant's ability to design and manufacture homes that meet the ENERGY STAR requirements.

## Step 3: Design homes to meet ENERGY STAR requirements

The plant designs homes that meet the requirements of the ENERGY STAR program. The ENERGY STAR certifier reviews these designs. Each unique home configuration (for example, single section and multisection) must be reviewed and qualified.

## Step 4: ENERGY STAR design features are included into the plant documentation

The manufacturer includes the ENERGY STAR features into the DAPIA-approved plans and specifications, quality control manual and manufacturers installation manual.

## Step 5: Manufacture, inspect and test ENERGY STAR compliant homes in the plant and attach ENERGY STAR labels

The plant manufactures and the Certifier checks three homes to verify that they meet the ENERGY STAR program requirements. This includes a visual inspection of the home, review of the DAPIA package and testing the duct system. After all tests are successfully completed, ENERGY STAR labels are affixed to the homes.



As they are manufactured, the homes are inspected by the plant's IPHA in the normal manner.

## Step 6: Develop site installation checklist

Every ENERGY STAR labeled home that leaves a manufacturing plant must have a site installation checklist identifying items that are part of the ENERGY STAR package but installed and verified at the

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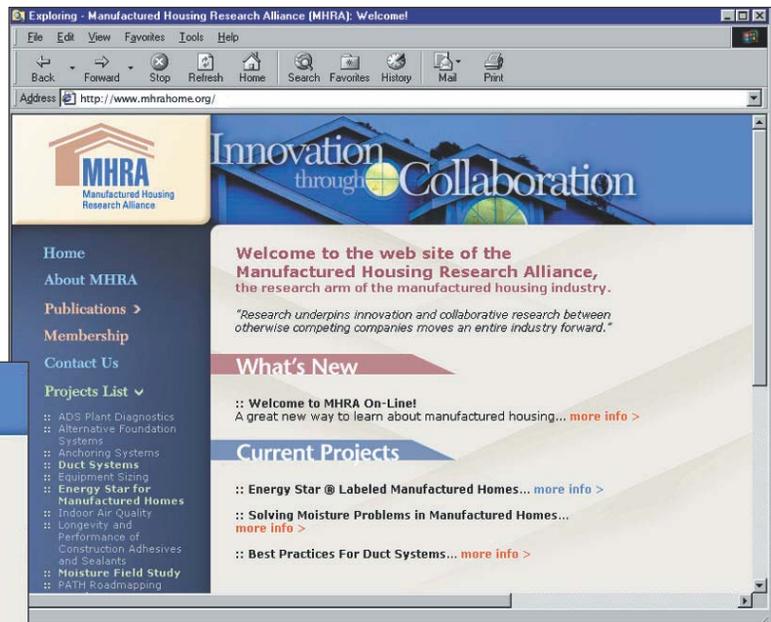
# MHRA Online

Don't forget to visit MHRA on the web at [www.mhrahome.org](http://www.mhrahome.org).

This easy-to-navigate site allows users to read about current research projects, such as the ENERGY STAR® Labeled Manufactured Homes

program (see Feature Article in this issue of **TECHNOLOGIES**), steel framing, moisture problems, and air duct systems. Also available directly from our web site: MHRA

membership information, a list of publications with publication ordering information, and a sample copy of **TECHNOLOGIES** newsletter. 



The MHRA website keeps industry abreast of trends in manufactured housing and the latest technology developments.

Becoming continued from page 9

time of home installation. The checklist is incorporated into the manufacturers installation manual.

### Step 7: Install, inspect and test three certification homes in the field

The three certification homes are installed in the field. Following each installation, the plant's representative reviews the items on and signs the site installation checklist. The ENERGY STAR Certifier monitors this process and conducts additional diagnostic tests. Any design or installation changes resulting from these tests must be recorded and used to update the ENERGY STAR specifications contained in the DAPIA-approved package and the site installation checklist.

### Step 8: Incorporate ENERGY STAR practices into routine operations

Once the three certification homes have been successfully

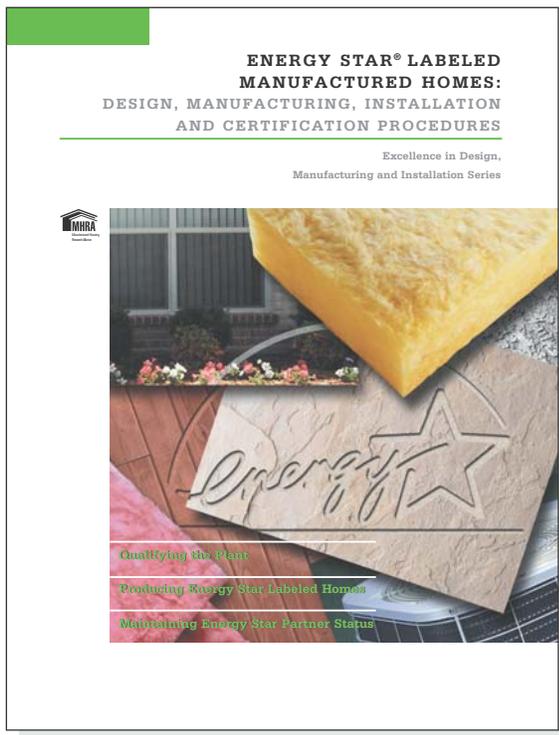
installed, the plant must take steps to transfer the lessons learned from the process into its routine ENERGY STAR production, including the following: instructing key plant personnel on the critical processes and procedures for creating and manufacturing new ENERGY STAR labeled homes; reviewing with the plant's DAPIA and IPIA the unique features contained in the ENERGY STAR DAPIA-approved packages; instructing set-up crews on how to correctly install and inspect ENERGY STAR labeled homes in the field; and establishing a routine process for collecting, tracking and archiving documentation on all ENERGY STAR labeled homes to be produced by the plant.

### Step 9: Inform EPA of successful certification

The plant notifies that it is qualified to produce ENERGY STAR labeled homes. EPA in turn provides the plant with ENERGY STAR labels that are affixed to every qualified home. 

## Featured publication

- **ENERGY STAR Labeled Manufactured Homes: Manufacturing, Installation, and Certification Procedures**, “The definitive guide to ENERGY STAR manufactured homes.” This guide is MHRA’s most recent addition to its *Excellence in Design, Manufacturing and Installation Series*. It features all of the information you will need to design, manufacture, label, and install homes under the ENERGY STAR program. (Members, \$35 plus shipping; non-members, \$50 plus shipping.)



## Design and construction guidelines

- **Ground Anchor Selection and Installation Chart**, This chart, presented on a durable, laminated card, indicates the maximum spacing for use in different wind zones and for different home designs. Installers simply need to know the HUD wind zone and a few features of the home, including section width, main I-beam spacing, and pier height. The chart then indicates the proper anchor spacing, depending on the desired anchor length, and whether the home is a single or double section. Instructions on using the chart are found on the back of the card along with a helpful example. Also included are guidelines for the installation process. Available in English and Spanish. (Members, \$2.00 per chart plus shipping; non-members, \$3.75 per chart plus shipping. Volume discounts apply.)
- **Manufactured Housing Duct Systems: Guide to Best Practices**, The first volume in the MHRA *Excellence in Design, Manufacturing and Installation Series*. This guide provides information for improving air distribution system performance in manufactured housing and includes design, installation, and material selection recommendations. This guide will help manufacturers evaluate their current design and construction practices and identify options for increasing system efficiency. (Members, \$35 plus shipping; non-members, \$50 plus shipping.)
- **Moisture Problems in Manufactured Homes: Understanding Their Causes and Finding Solutions**, This 60-page guide is designed to assist manufacturers, retailers, setup crews, and homeowners in recognizing and solving moisture problems in manufactured homes. This user-friendly guide provides information on how to determine moisture sources, movement, and accumulation, whereby solving current moisture problems and preventing new ones. (Members, \$35 plus shipping; non-members, \$50 plus shipping.)
- **Cooling Equipment Sizing Charts**, Manufactured Housing Research Alliance, New York. States currently available: AL, AR, AZ, CO, FL, GA, IL, IN, KY, LA, MS, NC, NM, NY, OH, OK, OR, PA, SC, TN, TX, and VA. (For prices, request sizing chart order form.)
- **Structural Insulated Panels in a Manufactured Home Roof System: Engineering Guidelines**, Manufactured Housing Research Alliance, New York, 2000. (Members, \$95 plus shipping; non-members, \$250 plus shipping.)

## Technical reports

The technical reports provide a summary of the engineering analysis supporting MHRA projects.

- **Guidelines for Anchor System Design: Technical Support Document**, Manufactured Housing Research Alliance, New York, 2000. (Members, \$15 plus shipping; non-members, \$95 plus shipping.)
- **Manufactured Housing Fuel Switching: Field Test Study**, Manufactured Housing Research Alliance, New York, 1999. (Members, \$15 plus shipping; non-members, \$95 plus shipping.) 🏠

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and the ENERGY STAR for Homes program. Our commitment to energy efficiency and to this program will continue as we qualify more plants and build affordable ENERGY STAR labeled homes," said President and Chief Executive Officer, Walt Young.

MHRA expects that within a year of the program's inception, as many as a third of the nation's manufacturing plants will either be ENERGY STAR qualified or in the process of becoming qualified.

"This is a phenomenal, nearly unprecedented level of participation for such a far reaching, voluntary program," Levy said. "The fact that all these plants are prepared to invest the time and resources to participate in this program suggests that ENERGY STAR is a clear winner for our industry and the American homebuyer."

Kessler concurred: "I'm really encouraged by the number of manufacturers who are ready to join this program."

"It's good for this country," Huddleston said. "As this country depends on foreign sources for energy, every person who invests in an ENERGY STAR home is fighting the war of economic independence for the United States.

"I think it's to a point now where the American flag, apple pie and ENERGY STAR homes are going to be things that are good for America." 

### **Errata: Volume 2 Issue 4, Article: Emerging Trends in Foundation Designs: Part II**

The following details were not addressed in the article:

- The Lindsay Unified Floor® systems are patented and the "three minute hitch" (pictured on page 6) is patent pending by Lindsay Industries, Inc.
- The name "Unified Floor®" is a registered trademark of Lindsay Industries, Inc.
- Wick Building Systems and New Era Building Systems both have License Agreements with Lindsay Industries to build and use Lindsay Unified Floors.
- The pictures featured on pages 1, 4, and 7 are all Lindsay Unified Floor® systems. (Pictures on pages 1 and 7 are 53000 Series Unified Floor®.)

**TECHNOLOGIES** welcomes letters from our readers. If you have comments or questions, or if there are topics you'd like to see covered in future issues, please contact MHRA.

Requests for any of our publications should be directed to MHRA at 2109 Broadway, Suite 203, New York, NY 10023; (212) 666-5389 (fax); info@research-alliance.org (email).



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