



ENERGY STAR® LABELED MANUFACTURED HOMES

DESIGN, MANUFACTURING, INSTALLATION, AND
CERTIFICATION PROCEDURES

QUALIFYING THE PLANT

PRODUCING ENERGY STAR
LABELED HOMES

MAINTAINING ENERGY STAR
PARTNER STATUS

AN ENERGY STAR®
QUALIFIED HOME

ENERGY STAR Label Number: _____

Quantity Range: _____

Plant Name/Location: _____

Manufacturer's Design #: _____

City/Manufacturing: _____

This home has been independently certified to meet ENERGY STAR's design guidelines for energy efficiency. Each ENERGY STAR Qualified home can help a family of four save up to \$100 a year.

www.energystar.gov





ENERGY STAR[®] LABELED MANUFACTURED HOMES

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CERTIFICATION PROCEDURES

Effective September 2003

HIGHLIGHTS

Table I.1 highlights some of the more significant elements of the Manufactured Home ENERGY STAR® Guidelines and where they may be found within this document.

Table I.1. Highlighted Features

ENERGY STAR Provision	Details	Location
Homes tested in the plant for duct leakage	<ul style="list-style-type: none"> Homes tested in plant need not ultimately be labeled with the ENERGY STAR. 	Page 2.2
Placing ENERGY STAR labels on homes	<ul style="list-style-type: none"> Plant has three options for affixing labels: <ol style="list-style-type: none"> In the plant (if proper home installation is ensured). In the field by plant representative who completes the Site Installation Checklist. By issuing the label to the homeowner once plant receives completed Site Installation Checklist. 	Page 3.1
Random (2 percent) testing procedures	<ul style="list-style-type: none"> Procedures described for 2 percent testing and what to do if there is a failure. 	Pages 4.1 and B.3
Retaining an ENERGY STAR Certifier	<ul style="list-style-type: none"> Manufacturer must have ENERGY STAR Certifier listed with EPA at all times. 	Page B.1
Basement criteria	<ul style="list-style-type: none"> Criteria for basements defined. 	Page C.4
Air leakage testing	<ul style="list-style-type: none"> Procedures for the Certifier to determine maximum air leakage rate. 	Page C.4
ENERGY STAR Design Packages	<ul style="list-style-type: none"> 111 Packages, with all Packages to be listed on the ENERGY STAR and MHRA Web sites. 	Page C.8

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This guide provides the manufactured housing industry with the knowledge necessary to design, manufacture, and install energy-efficient manufactured homes under the ENERGY STAR® program. ENERGY STAR affords the manufactured housing industry a unique opportunity to extend the advantages of controlled-environment factory production to include exemplary energy performance. For the purposes of this guide, a manufactured home is defined as a home built in a factory meeting the federal Manufactured Home Construction and Safety Standards, commonly referred to as the HUD Code. An ENERGY STAR labeled manufactured home is a manufactured home that has successfully met all technical and quality control requirements set forth by the U.S. Environmental Protection Agency (EPA) in this guide. Manufacturers are encouraged to take advantage of co-marketing opportunities available with ENERGY STAR—the symbol for energy efficiency.

EPA wishes to acknowledge the assistance, advice, and technical guidance of the Manufactured Housing Research Alliance (MHRA). Under a grant from EPA, MHRA conducted technical work to develop climate-specific construction specifications for producing energy-efficient manufactured homes. MHRA has granted ENERGY STAR permission to use its technical work for this guide. ENERGY STAR has applied MHRA's research in the preparation of this guide after determining that the specifications developed closely align with the ENERGY STAR threshold for new homes. Also, because MHRA has a long history of working directly with manufactured housing stakeholders, many of the resources in this guide are available on MHRA's Web site (www.mhrahome.org) as well as ENERGY STAR's Web site (www.energystar.gov/homes).

WHAT IS ENERGY STAR?

ENERGY STAR is a nationally recognized, voluntary program designed to identify and promote energy-efficient products, new homes, and buildings to consumers and businesses across the United States. Initiated by EPA in 1992, ENERGY STAR is now a joint effort of EPA and the U.S. Department of Energy, with each agency taking responsibility for promoting the ENERGY STAR label in particular product categories. EPA is responsible for labeling homes as ENERGY STAR.



WHAT IS AN ENERGY STAR LABELED HOME?

An ENERGY STAR labeled home is at least 30 percent more energy efficient in its heating, cooling, and water heating than a comparable home built to the 1993 Model Energy Code (MEC). This increased level of energy efficiency can be met using standard technologies and manufacturing practices by successfully integrating three key home components:

- An energy-efficient building envelope (e.g., effective insulation, tight construction, and high-performance windows).
- Energy-efficient air distribution (e.g., air-tight, well-insulated ducts).
- Energy-efficient equipment (e.g., space heating, space cooling, and hot water heating).

WHY SHOULD A PLANT PARTICIPATE IN ENERGY STAR?

There are at least four good reasons why a plant should consider making the commitment to produce ENERGY STAR labeled homes.

1. The ENERGY STAR label can be a powerful sales tool. ENERGY STAR is nationally recognized, backed and promoted by two federal agencies. Affiliating with ENERGY STAR can differentiate a manufacturer from its peers within the industry and from site-built homes in the same market. Only ENERGY STAR partners have access to ENERGY STAR logos and adhesive labels for qualified homes.

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2. ENERGY STAR labeled homes, because they are highly energy efficient, have lower monthly operating costs, thereby reducing a homeowner's monthly out-of-pocket expenses and potentially increasing the resale value of the home.
 3. The efficiency measures built into an ENERGY STAR labeled home have associated benefits that increase customer satisfaction. These homes are typically more comfortable, durable, quiet, and environmentally friendly than non-ENERGY STAR labeled homes.
 4. ENERGY STAR offers another opportunity for a manufactured housing producer to demonstrate parity with or superiority to site-built competitors because the program covers all types of housing and ties performance directly to a single standard, the Model Energy Code.

HOW CAN A PLANT PARTICIPATE IN ENERGY STAR?

Becoming an ENERGY STAR partner is a three-part process:

1. Qualify the Plant (see Chapter 2)

First the plant must be qualified to produce ENERGY STAR labeled homes on an ongoing basis. This process usually requires a few weeks to complete, beginning with submission of the ENERGY STAR Partnership Agreement to EPA.

2. Produce ENERGY STAR Labeled Homes (see Chapter 3)

Once a plant has been qualified, it can proceed to manufacture ENERGY STAR labeled homes on an ongoing basis. This involves implementing and maintaining manufacturing, inspection, and quality control procedures developed during the qualification process in the plant and in the field.

3. Maintain ENERGY STAR Partner Status (see Chapter 4)

To continue manufacturing ENERGY STAR labeled homes, a plant must maintain its status as an ENERGY STAR partner. This is a three-part inspection, reporting, and field verification process that requires:

- Implementing ongoing quality control procedures specific to ENERGY STAR in the plant.
- Checking the performance of a representative sample of ENERGY STAR labeled homes in the field.
- Providing quarterly updates to EPA on the number of ENERGY STAR labeled homes that a plant produces.

All three parts are straightforward, but require a commitment of time and resources, backed by a commitment to marketing and selling ENERGY STAR.

ACCESS TO RESOURCES

Additional information about ENERGY STAR for Homes—including marketing materials, the ENERGY STAR Partnership Agreement, copies of forms, ENERGY STAR logos, and the ENERGY STAR label—is available on the Web from ENERGY STAR (www.energystar.gov/homes) and MHRA (www.mhrahome.org). Only EPA is authorized to supply the ENERGY STAR adhesive labels for qualified homes and logos to the plant.

Producing ENERGY STAR labeled manufactured homes starts with qualifying the plant. Plant qualification is done once and usually requires a few weeks to complete. The qualification steps are described below.

Step 1. Submit ENERGY STAR Partnership Agreement

Who is responsible: **Plant Representative**

Qualifying a plant to manufacture ENERGY STAR labeled homes begins with submitting an ENERGY STAR Partnership Agreement to EPA. This form asks for basic contact information for the plant. Each plant must submit its own Partnership Agreement. The plant representative will receive information from EPA regarding the partnership via e-mail, including access to ENERGY STAR logos. Partners' names and contact information are displayed on the ENERGY STAR Web site (www.energystar.gov/homes). A copy of the agreement can be found in *Appendix A*. Successful completion of Steps 2 through 9 qualifies the plant as a partner with the authorization to produce ENERGY STAR labeled homes pending plant certification.

Step 2. Hire a Manufactured Housing ENERGY STAR Certifier

Who is responsible: **Plant Representative**

The next step in the qualification process is for the plant to hire an independent, third-party Certifier who will:

- Certify that the plant meets the ENERGY STAR requirements.
- Certify that the plant's ENERGY STAR labeled home designs meet ENERGY STAR requirements.
- Certify the in-plant and in-field performance of at least three homes produced by the plant.

Further information on Manufactured Housing ENERGY STAR Certifiers can be found in *Appendix B*.

Step 3. Design Homes To Meet ENERGY STAR Requirements

Who is responsible: **Plant Design/Engineering Staff, Manufactured Housing ENERGY STAR Certifier**

The next step is for the plant to create home designs that meet ENERGY STAR requirements and to ensure that these designs and the methods used to create them are verified by the ENERGY STAR Certifier. The Certifier must review and approve each of the qualifying home configurations and designs.

Appendix C provides options and more detailed guidance for designing homes that meet ENERGY STAR requirements.

Because a duct leakage value is needed as part of the design process, EPA recommends that the ducts be tested during this step to determine their level of leakage and their potential for improvement. The duct leakage measured in the plant can be used only to estimate whether the ducts will meet required leakage levels when homes are set up in the field. Field tests will be valuable aids in verifying this estimate. (See *Manufactured Housing Duct Systems: Guide to Best Practices*, published by MHR (www.mhrahome.org), for guidance on constructing efficient duct systems.)

Step 4. Incorporate ENERGY STAR Design Features into Quality Control and Inspection Procedures

Who is responsible: **Plant Engineering/Quality Control Staff**

Information about the ENERGY STAR features in the new home designs must now be incorporated into the Design Approval Primary Inspection Agency (DAPIA)-approved packages, the plant Quality Control Manual, and the Manufacturers' Installation Manual.

Step 5. Manufacture, Inspect, and Test Homes in the Plant for Duct Tightness

Who is responsible: **Plant Production/Engineering Staff, Manufactured Housing ENERGY STAR Certifier**

As part of the qualification process, a plant must manufacture a minimum of three consecutive homes that meet ENERGY STAR duct system requirements. As these homes are manufactured, their ducts are tested to determine the level of leakage. The ENERGY STAR Certifier verifies that the ducts do not exceed allowable leakage levels. If one of the qualification homes fails the duct test, three additional homes are tested until three consecutive homes pass the duct leakage test. Even if the ducts are tightened to the point where they meet the ENERGY STAR target, a home that initially fails the duct test cannot be counted as one of the three qualifying in-plant test homes.

“Three consecutive homes” are defined as three homes coming through the production line that are built using the revised duct system design that is designated for the plant’s ENERGY STAR production. As for other energy-saving features, such as the insulation levels, these three consecutive homes do not need to meet all of the requirements to be labeled as ENERGY STAR.

The ENERGY STAR Certifier will determine whether the qualification homes are of like or unlike “type,” and whether more than one set of three homes (one set for each home “type”) must be tested. Homes are of different “types” with respect to ENERGY STAR if their design differences have the potential to impact their energy performance significantly. For example, homes with ducts located in the attic and homes with ducts located in the floor would be different “types,” as would single- and double-section homes.

Assuming the in-plant test homes meet all the program requirements, ENERGY STAR labels may be affixed to the qualification homes after all tests have been successfully completed (see Chapter 3, Step 3). An explanation of how to complete the information on the ENERGY STAR label and how to place the label on the home is provided in *Appendix D*.

Step 6. Develop Site Installation Checklist

Who is responsible: **Plant Engineering Staff, Manufactured Housing ENERGY STAR Certifier**



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 design package, but installed and verified at the time of home installation. The Checklist should also be included in the Manufacturers' Installation Manual or be delivered to the retailer with all other pertinent paperwork that accompanies the home.

A sample Site Installation Checklist is included in *Appendix E*.

Step 7. Install, Inspect, and Test a Minimum of Three Qualification Homes in the Field

Who is responsible: **Installer, Plant Representative, Manufactured Housing ENERGY STAR Certifier**

Three qualification homes are now installed in the field. These homes do not have to be the same homes tested in the plant in Step 5. Also, while EPA does not require manufacturers to test three homes of each type in the field, the homes selected should be representative of the types of homes the plant intends to build and label as ENERGY STAR. Following each installation of a qualification home, the plant's representative verifies that the items on the Site Installation Checklist are completed and signs the Checklist. The ENERGY STAR Certifier reviews the completed, signed Checklist.

The homes are then tested by the ENERGY STAR Certifier in the field for duct and whole-house air leakage. The ENERGY STAR Certifier verifies that duct and whole-house leakage levels are equal to or lower than the ENERGY STAR requirements. If a home fails either test, modifications must be implemented immediately on site and the home re-tested until it passes.

Any design or installation changes resulting from these tests must be recorded and used to update the ENERGY STAR specifications contained in the third-party-approved design package and the Site Installation Checklist. To expedite and streamline a plant's qualification process, EPA permits setting up and testing qualification homes at the plant or a retailer's lot as long as the home is set up as it would be on a homeowner's site. However, when the home is permanently sited, a new Site Installation Checklist must be completed and signed by the manufacturer's plant representative in order to qualify as an ENERGY STAR labeled home.

Step 8. Incorporate ENERGY STAR Practices into Routine Operations

Who is responsible: **Plant Management, Engineering Staff, and Installer**

Once the required number of qualification homes have been installed successfully, the plant must take steps to transfer the lessons learned from the process into its routine production of ENERGY STAR labeled homes, including:

- Instruct key plant personnel on the critical processes and procedures for designing and manufacturing new ENERGY STAR labeled homes, including any corrective actions undertaken during the installation of the three qualification homes.
- Review the unique features contained in the ENERGY STAR third-party-approved design packages with the plant's third-party approval and inspection agencies.
- Instruct set-up crews on the way to correctly install and inspect ENERGY STAR labeled homes in the field and the need to provide the completed Site Installation Checklist to the plant.
- Establish a routine process for collecting, tracking, and archiving documentation on all ENERGY STAR labeled homes to be produced by the plant. Such documentation must include the completed Site Installation Checklists, reports of non-conformance, reports on corrective actions taken, and basic home data (e.g., model number, serial number, owner, retailer, location, date installed, etc.).
- Document these activities so they can be reviewed by EPA or its agent, if required.

Step 9. Inform EPA of Successful Certification

Who is responsible: **Plant Management, Manufactured Housing ENERGY STAR Certifier**

In the last step, the ENERGY STAR Certifier provides EPA with a copy of the completed **ENERGY STAR Manufactured Home Plant Certification: Qualification to Produce ENERGY STAR Labeled Homes** certificate verifying that the plant is ready to produce ENERGY STAR labeled homes. (A copy of this certificate is included in *Appendix F.*) This certificate must be forwarded to EPA (see Certificate for instructions). After receiving the certificate, EPA will e-mail software for generating quarterly updates and printing labels to the plant representative. EPA will also mail the plant representative a supply of ENERGY STAR labels.

The plant makes information gathered during the qualification process available to EPA or its agents upon request. This includes the ENERGY STAR-related parts of third-party-approved design packages and the Site Installation Checklists for the three certification homes, along with lists of all non-conforming items and corrective actions taken.

MANUFACTURED HOME PLANT CERTIFICATION		APPENDIX F
ENERGY STAR Manufactured Home Plant Certification: Qualification to Produce ENERGY STAR Labeled Homes (This form must be sent to EPA before producing ENERGY STAR labeled homes—see Chapter 2, Step 9)		
I, _____ (Name of certifier), hereby certify that _____ (Plant/Manufacturer name), located at _____ (Address, City, State), has demonstrated the capability, consistency to produce ENERGY STAR labeled homes and is therefore authorized to seek the ENERGY STAR label for new homes manufactured under the terms and conditions of the ENERGY STAR program.		
ENERGY STAR Certifier: _____ Signature: _____ Date: _____ Address: _____ City/State/Zip: _____ Telephone: _____ Fax: _____ E-Mail: _____ Plant contact person: _____ Telephone: _____ e-Mail: _____		
Plant Requirements to Qualify for Producing ENERGY STAR Labeled Homes:		
Method of Compliance (Must check one box below)		
<input type="checkbox"/> Home designs comply with ENERGY STAR Package No. _____ Climate Region: _____		
<input type="checkbox"/> Computer Analysis (attached)		
ENERGY STAR Design Features Incorporated in Plant Quality Assurance Procedures (Must check all boxes below)		
<input type="checkbox"/> Information included in third-party-approved package		
<input type="checkbox"/> Information included in plant Quality Control/Quality Home Program		
<input type="checkbox"/> Information included in Manufacturer's Installation Manual		
Homes Tested in Plant (Must check all boxes below)		
<input type="checkbox"/> Three (3) consecutive homes meet ENERGY STAR ducttightness requirements		
Site Installation Checklist Verified (Must check all boxes below)		
<input type="checkbox"/> Site installation checklist identifying ENERGY STAR package items verified during installation		
Homes Tested in Field (Must check all boxes below)		
<input type="checkbox"/> Three (3) consecutive homes meet ENERGY STAR requirements		
<input type="checkbox"/> Any design changes recorded and used to update specifications in the third-party-approved package, Site Installation Checklist, Quality Control Manual, and Installation Manual		
ENERGY STAR Incorporated in Routine Operations (Must check all boxes below)		
<input type="checkbox"/> Corrective actions identified during tests implemented		
<input type="checkbox"/> Key plant personnel trained on critical processes and procedures		
<input type="checkbox"/> Design features in ENERGY STAR design-approved packages are reviewed with plant's third-party design approval and inspection agencies		
<input type="checkbox"/> Safety crews trained to install and inspect ENERGY STAR labeled homes in the field		
<input type="checkbox"/> Process in place for collecting, tracking, and archiving documentation on ENERGY STAR labeled homes		
Submit to EPA/ENERGY STAR		
<input type="checkbox"/> EPA fax number 202-343-2005, or		
<input type="checkbox"/> EPA address: 1200 Pennsylvania Ave., 10th (mail code 8202A), Washington, DC 20005		
A copy of the ENERGY STAR Manufactured Home Plant Certification: Qualification to Produce ENERGY STAR Labeled homes form is available on the ENERGY STAR Web site, www.energystar.gov/homes , and on the MHRSA Web site, www.mhrsa.org		
		
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Once a plant has been qualified, it can proceed to manufacture ENERGY STAR labeled homes based on the designs approved during the qualification process. This is a simple, three-step process that builds directly on the knowledge and expertise created during the qualification process.

Step 1. Manufacture and Inspect Homes in the Plant

Who is responsible: **Plant Production Staff**

The plant manufactures ENERGY STAR labeled homes in accordance with the designs created during the plant qualification process. The homes are inspected by the plant's third-party inspection agency. Plant quality control (QC) personnel use the new information in the plant's quality control manual to check all ENERGY STAR QC issues, particularly duct systems.

Step 2. Install and Inspect Homes in the Field

Who is responsible: **Installer, Plant Representative**

A plant representative (e.g., the factory trim crew or retailer) uses the Site Installation Checklist developed during the plant qualification process to monitor set-up. Non-compliance items are fixed on site. Following installation, the representative reviews and verifies the items on the Site Installation Checklist, signs it, and returns a copy to the plant, where it is kept on file.

A sample checklist is provided in *Appendix E*.

The image shows a blue and white form for an ENERGY STAR Qualified Home label. At the top left is the ENERGY STAR logo. To its right, it says "AN ENERGY STAR® QUALIFIED HOME". Below this, there are five white input fields with blue borders, each with a label: "ENERGY STAR Climate Region:", "Manufacturer:", "Plant Name/Location:", "Manufacturer's Serial #:", and "Date Manufactured:". At the bottom of the form, there is a small text box that reads: "This home has been independently verified to meet ENERGY STAR's strict guidelines for energy efficiency. Each ENERGY STAR qualified home can keep 4,500 lbs of greenhouse gases out of our air each year." Below this text is the website "www.energystar.gov".

Step 3. Affix the ENERGY STAR Label

Who is responsible: **Plant Representative, Plant Field Representative, or Homeowner**

The plant has three options for affixing the ENERGY STAR label to the home. In all cases, it is the plant's responsibility to ensure that all homes receiving an ENERGY STAR label meet ENERGY STAR requirements when installed in their final location.

- If the plant has a commitment from its retailer or installer to properly install ENERGY STAR labeled homes, then the plant may affix the label in the factory after Step 1 (Manufacture and Inspect Homes in the Plant) above.
- The plant may provide the label to the field representative who completes the Site Installation Checklist. Once the checklist is completed and signed, the field representative affixes the label to the home and returns the completed and signed Checklist to the manufacturer.
- Once the plant receives a completed Site Installation Checklist for an ENERGY STAR labeled home, the plant mails the label to the homeowner along with instructions on where and how to apply it to the home. A plant representative must verify that the Checklist has been properly filled out and that the location of the home recorded on the Checklist corresponds to the location for which the home's ENERGY STAR package was designed.

An explanation of how to complete the information on the ENERGY STAR label and where to place the label on the home is provided in *Appendix D*.

To maintain its status as an active ENERGY STAR partner, a plant must fulfill the specific updating and field verification obligations described in this Chapter. These responsibilities are part of an ongoing process that continues as long as the plant is listed as “qualified” under ENERGY STAR. By ensuring a high level of quality control, these measures also help manufacturers deliver performance consistent with ENERGY STAR guidelines. The process protects the plant’s investment in ENERGY STAR.

1. Maintain Accessible Records

Who is responsible: **Plant Management/Administrative Staff**

Each plant must keep records for every home that earns an ENERGY STAR label. The records include a copy of the information placed on the home’s ENERGY STAR label, the original signed ENERGY STAR Site Installation Checklist, results of periodic field evaluations, reports of non-compliance, and reports of corrective actions taken. These documents must be archived for easy retrieval so that plant personnel can quickly access information on an individual home, a select group of homes, or all the homes in the program.

Appendix G provides an example of the type of information to be included in the record-keeping process.

2. Update EPA and Certifier on Plant Activity

Who is responsible: **Plant Management/Administrative Staff**

A plant must provide quarterly activity updates to EPA and the plant’s Certifier indicating the number of ENERGY STAR labeled manufactured homes. Only homes installed on a homeowner’s site for which the manufacturer has received all completed documentation, including the completed Site Installation Checklist, shall be included in the update to EPA. A sample form for providing this information in a standard format is available on the ENERGY STAR (www.energystar.gov/homes) and MHRA (www.mhrahome.org) Web sites. This information must be sent to EPA via e-mail to **homesinfo@epa.gov** within 30 days of the end of the calendar quarter. The quarterly updates determine the number of ENERGY STAR labels that EPA provides to the plant (see *Appendix D*) and enables EPA to recognize each plant’s accomplishments on the ENERGY STAR Web site.

3. Conduct Periodic Field Evaluations To Verify Performance

Who is responsible: **Manufactured Housing ENERGY STAR Certifier**

To ensure that the homes are performing as designed, a plant must retain a qualified ENERGY STAR Certifier responsible for conducting field evaluations on no less than 2 percent (2%) of its ENERGY STAR labeled homes sold and installed on a homeowner’s site or a minimum of one home each calendar year, whichever is greater. To maintain its qualification to build ENERGY STAR labeled homes, the plant must have a home tested within 120 days of the installation of its first ENERGY STAR home (excluding the three homes built as part of the plant qualification process).

When several homes are to be tested, the third-party ENERGY STAR Certifier shall make every effort to select homes representative of the type of ENERGY STAR homes the plant has built (e.g., if the plant has labeled primarily double-section homes, then the bulk of homes tested should also be double section). The Certifier will select homes that offer a mix of home types, locations, and site crews consistent with this intent.

See *Appendix B* for the procedure to follow in case of failures.

ENERGY STAR® Partnership Agreement

For Home Builders and Verification Organizations



Organization Name¹: _____

Address: _____ City/State¹/Zip: _____

Telephone¹: _____ Fax: _____ Web site¹: _____

Major metro area served¹: _____ ¹To be displayed on the ENERGY STAR Web site

For HOMEBUILDERS: Please Complete the Following Section

Note: A separate Partnership Agreement should be completed for each regional office or division.

- Please specify your partner type (select only one):

- Site-built Home Builder:
- Local Builder/Developer
 - Division/Subsidiary
 - Corporate (National)

- Manufactured Home Builder:
- Plant
 - Retailer/Community
 - Corporate (HQ/Division)

- Parent company, if applicable: _____
- Average number of homes built per year: _____
- **100% Commitment Option.** EPA offers special recognition to builders who commit to building and labeling 100% of their homes as ENERGY STAR. This commitment will be denoted with a special 100% icon on the ENERGY STAR for Homes partner locator when more than one ENERGY STAR qualified home has been reported to EPA. To make this commitment, please initial here: _____

For VERIFICATION ORGANIZATIONS: Please Complete the Following Section

- Please specify your partner type:
 - Accredited HERS/BOP Provider
 - Certified HERS Rater/BOP Inspector
- If you are a Rater or Inspector, please name the Accredited Provider with whom you are affiliated: _____

Marketing / Sales Contact

Name: _____ Title: _____

Phone: _____ E-mail²: _____

²A valid e-mail address is required for online access to the ENERGY STAR marks

Purchasing / Construction Contact

Name: _____ Title: _____

Phone: _____ E-mail²: _____

²A valid e-mail address is required for online access to the ENERGY STAR marks

Authorized Company Representative (printed name): _____

Title: _____ E-mail²: _____

²A valid e-mail address is required for online access to the ENERGY STAR marks

Signature: _____ Date: _____

To be completed by US EPA:

Kathleen Hogan; Director, Climate Protection Partnerships Division, U.S. Environmental Protection Agency

Signature: _____ Date: _____

ENERGY STAR® Partnership Agreement

For Home Builders and Verification Organizations



Mail this form to:

ENERGY STAR for Homes
US EPA (mail code 6202J)
1200 Pennsylvania Ave, NW
Washington, DC 20460

Or

Fax this form to:

202-343-2200

For more information please call the ENERGY STAR Hotline at 1-888-STAR-YES or visit: www.energystar.gov/homes

ENERGY STAR Background Information

EPA's **ENERGY STAR** helps consumers, businesses, and public organizations protect the environment through superior energy efficiency. **ENERGY STAR for Homes** promotes energy-efficient homes that can improve builder profitability, improve home quality and homeowner comfort, lower energy demand, and reduce air pollution. ENERGY STAR qualified homes are third party verified to be at least 30% more energy efficient than homes built to the 1993 national Model Energy Code or 15% more efficient than state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use. Savings are typically achieved through a combination of envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems, and upgraded water-heating equipment. EPA encourages partners to equip ENERGY STAR qualified homes with energy-efficient lighting and appliances and with features that will improve indoor air quality to protect occupant health.

ENERGY STAR's Commitments to Partners

1. Increase awareness of the ENERGY STAR label by distributing key messages on the benefits of ENERGY STAR qualified homes and homes-related products.
2. Provide (via the ENERGY STAR Web site, Hotline, e-mail, or other means) current ENERGY STAR news, information, and reference documents.
3. Provide ENERGY STAR Partners with public recognition through the online ENERGY STAR partner locator tool, special awards, and other media for their involvement in ENERGY STAR and role in protecting the environment.
4. Respond expeditiously to any Partner requests for information or clarification on ENERGY STAR policies.

General Commitments for ENERGY STAR Partners

1. Use the Partnership and the ENERGY STAR label to promote energy efficiency as an easy and desirable option for new homebuyers to prevent pollution, protect the environment, and save on energy bills.
2. Adhere to the *ENERGY STAR Logo Use Guidelines* (available at www.energystar.gov/logos) and ensure that authorized representatives, such as advertising agencies, distributors, and subcontractors, also comply.
3. Adhere to the *ENERGY STAR Web Linking Guidelines* (available at www.energystar.gov/partners). Failure to do so can result in the loss of linking privileges from the ENERGY STAR Web site.
4. Qualify at least one ENERGY STAR labeled home within any ongoing 12-month period. Partners not fulfilling this requirement will be deemed 'inactive,' thereby forfeiting all rights to the ENERGY STAR name and mark, their listing on the online ENERGY STAR partner locator tool, and any inclusion in ENERGY STAR promotional materials.
5. Affix an ENERGY STAR label to all homes that are independently verified to meet the ENERGY STAR performance guidelines.
6. **BUILDER PARTNERS:** Clearly inform homebuyers when their new homes have qualified for the ENERGY STAR label and be able to describe the features and benefits of these ENERGY STAR labeled homes.
7. **BUILDER PARTNERS:** Provide a home energy rating report or relevant Builder Option Package for any labeled home upon EPA's request.
8. **ACCREDITED HERS or BOP PROVIDERS and CERTIFIED MANUFACTURED HOME PLANTS:** Submit quarterly reports to ENERGY STAR specifying the number of homes verified as meeting ENERGY STAR performance guidelines.
9. **MANUFACTURED HOME PARTNERS:** Comply with the terms set forth in *ENERGY STAR Labeled Manufactured Homes: Design, Manufacturing, Installation and Certification Procedures* (available at www.energystar.gov/homes).

General Terms and Disclaimers

1. Partner will not construe, claim, or imply that its participation in ENERGY STAR constitutes federal government approval, acceptance, or endorsement of anything other than the Partner's commitment to ENERGY STAR. Partnership does not constitute federal government endorsement of the Partner or its homes or services.
 2. Partner understands that the activities it undertakes in connection with ENERGY STAR are voluntary and not intended to provide services to the federal government. As such, the Partner will not submit a claim for compensation to any federal agency.
 3. Partner and ENERGY STAR will assume good faith as a general principle for resolving conflict and will seek to resolve all matters informally, so as to preserve maximum public confidence in ENERGY STAR.
 4. This agreement is voluntary and can be terminated by either party at any time for any reason, with no penalty.
 5. Failure to comply with any of the terms of this Partnership Agreement can result in its termination and cessation of access to the benefits of ENERGY STAR, including use of the marks.
 6. ENERGY STAR will actively pursue resolution of noncompliance related to the use of the ENERGY STAR marks.
-

In qualifying to produce ENERGY STAR labeled homes, plants are required to retain an independent, third-party energy expert, referred to as the Manufactured Housing ENERGY STAR Certifier. The plant must have a Certifier of record at all times. The plant may change certifiers, but must notify EPA upon doing so and provide the name of the new Certifier to EPA.

This Appendix provides information on:

- The capabilities and qualifications required of the Certifier.
- The Certifier’s responsibilities during the plant qualification process.
- The Certifier’s role in helping a plant maintain ENERGY STAR partner status.
- Locating a Manufactured Housing ENERGY STAR Certifier.

CAPABILITIES AND QUALIFICATIONS

The Manufactured Housing ENERGY STAR Certifier must demonstrate competency in the following areas:

- Manufactured housing design, construction, and installation methods.
- Building science and diagnostics (e.g., is certified as a Home Energy Rating System (HERS) rater; is licensed as an engineer or architect; or is experienced as an energy consultant).
- Duct leakage and building shell leakage testing—specifically, duct pressurization and blower door tests.
- Energy efficiency training.
- Document preparation and record keeping.

The Certifier must submit an **ENERGY STAR Manufactured Home Plant Certifier: Capabilities and Qualifications Affidavit** to the plant and to EPA, verifying that the Certifier possesses the necessary skills to perform the certification functions. A copy of this document is included in *Appendix F*.

The *Affidavit* also contains a provision prohibiting conflicts of interest. U.S. Department of Housing and Urban Development (HUD)-certified DAPIAs and Production Inspection Primary Inspection Agencies (IPIAs) are eligible to serve as Manufactured Housing ENERGY STAR Certifiers.

Based on monitoring reports or other reliable information, EPA may determine that a third-party Certifier is not adequately carrying out the Certifier’s responsibilities and reserves the right to disqualify any third-party Certifier.

RESPONSIBILITIES DURING THE PLANT QUALIFICATION PROCESS

Initially, the bulk of the Certifier’s activities will occur during the plant qualification process. In addition to providing general verification of performance, the Certifier will provide specific services in the following areas:

Initial In-Plant Review

- Verify that all proposed ENERGY STAR labeled home designs comply with ENERGY STAR requirements.

- Verify that the methods used to create and document the proposed ENERGY STAR labeled home designs comply with ENERGY STAR requirements.
- Verify the Site Installation Checklist.
- Verify the accuracy and completeness of the third-party-approved packages with regard to the ENERGY STAR guidelines for the homes.
- Verify the accuracy and completeness of the Quality Control Manual with regard to the ENERGY STAR guidelines.
- Verify that duct pressurization tests in the plant—measuring total air leakage—meet the ENERGY STAR requirements. If the estimated levels do not meet design specifications, certify that modifications have been made and that the home’s duct system has been retested and will comply with ENERGY STAR requirements.

Field Review

- Inspect the installation of the qualification homes and certify that the items on the Site Installation Checklist have been completed successfully.
- Certify that the duct pressurization tests on the qualification homes—measuring air leakage to the outside—comply with ENERGY STAR requirements. If levels do not meet design specifications, certify that modifications have been made, that the homes have been retested, and that they comply.
- Certify the shell leakage tests on the qualification homes. If levels do not meet design specifications, certify that modifications have been made, that the homes have been retested, and that they comply.

Final In-Plant Review

- Certify that any design changes identified through testing and visual inspection in the field are incorporated into the plant’s third-party-approved packages, the Quality Control Manual, and the Site Installation Checklist.
- Certify that the plant’s proposed process for collecting, tracking, and archiving documentation is consistent with the goals of the ENERGY STAR program.
- Submit the plant qualification form (see *Appendix F*) to EPA as proof that the plant has been qualified and is authorized to produce ENERGY STAR labeled homes.

ROLE IN HELPING PLANT MAINTAIN ENERGY STAR LABELED HOME PARTNER STATUS

After a plant has been qualified and has begun producing ENERGY STAR labeled homes, the Manufactured Housing ENERGY STAR Certifier has an additional role to play: spot checking performance by certifying the testing of randomly selected homes in the field. To maintain its initial qualification, each plant must manufacture, ship, site, and have tested 2 percent (2%) of all ENERGY STAR homes sold and installed on homeowners’ sites, or a minimum of one home each calendar year, whichever is greater (see Chapter 4). Quarterly, the plant is responsible for updating EPA on the ENERGY STAR homes labeled (see *Appendix G*). It is the responsibility of the Certifier to notify the plant when it is time to conduct the 2% testing.

An ENERGY STAR Certifier verifies the tests and carries out the following tasks:

- Selects a representative sample of homes for testing. The manufacturer shall provide the Certifier with a list of all homes labeled. Homes selected for testing should represent as wide a cross-section as possible of the following:
 - Housing types (single and multi-section homes)

- Duct system types—overhead versus under floor
 - Production dates
 - Retailers
 - Installers; heating, ventilating, and air conditioning (HVAC) contractors; and trim-out crews
 - Geographical regions
 - Climate regions
 - ENERGY STAR features
- Visually inspects each sample home.
 - Certifies compliance with the Site Installation Checklist.
 - Certifies duct pressurization tests on the sample homes to measure leakage to the outside. If levels do not meet design specifications, identifies the root cause for each non-compliance and determines whether the problem is isolated or systemic in nature.
 - Certifies shell leakage tests on the sample homes. If levels do not meet design specifications, identifies the root cause for each non-compliance and determines whether the problem is isolated or systemic in nature.
 - Documents all findings and submits them to the manufacturer for inclusion with its ENERGY STAR labeled home documentation.

If the home has been modified by its owner in such a way that it no longer complies with ENERGY STAR requirements, then that home shall not be used as one of the 2% test homes and another home shall be selected.

In the event of non-compliance of any 2% test home, the following protocol shall apply:

- Step 1. Repair and re-test the failed home until it passes. Determine whether the failure is due to a systemic failure at the plant, or is an isolated case. If systemic, inform the plant and/or retailer as to corrective actions required.
- Step 2. Within 30 days of the failure, select and test two additional homes of a similar type to the one that failed, preferably installed by the same site-crew. If both homes pass, then resume remainder of 2% testing.
- Step 3. If one of the additional homes fails, then repeat Steps 1 and 2 on a second pair of homes. If one of the new homes fails, repeat Steps 1 and 2 again. If a failure is found in one or more of the third pair of homes, then cease testing and inform EPA immediately.

LOCATING A MANUFACTURED HOUSING ENERGY STAR CERTIFIER

ENERGY STAR (www.energystar.gov/homes) and MHRA (www.mhrahome.org) maintain a list of experts who are qualified to provide the Manufactured Housing ENERGY STAR Certifier services.

DESIGNING ENERGY STAR LABELED HOMES

The information in this section is used to select the energy features for ENERGY STAR labeled manufactured homes.

To qualify as ENERGY STAR, a home is required to be at least 30 percent more efficient than a comparable home built to the 1993 Model Energy Code (MEC) published by the International Code Council. The 30 percent refers not only to the thermal envelope, but also to the estimate of total energy use for space heating, space cooling, and water heating.

A home designed to qualify for an ENERGY STAR label may achieve this level of performance in one of two ways:

- By incorporating pre-approved “packages”¹ of ENERGY STAR features [or]
- By using computer analyses to create designs that meet ENERGY STAR requirements.

The ENERGY STAR Certifier shall review the manufacturer’s documentation to verify that each design meets or exceeds ENERGY STAR requirements. The goal is to ensure that every home that leaves the plant with an ENERGY STAR label has been designed to meet or exceed EPA’s requirements.

Each design is a unique combination of building elements, including building thermal envelope, specific duct arrangement (overhead or under floor) and maximum leakage level, space heating and cooling equipment efficiency, and hot water heater efficiency. These elements taken together will produce predictable energy use characteristics for which the manufacturer develops an ENERGY STAR-specific third-party-approved design package.

INCORPORATING PRE-APPROVED ENERGY STAR DESIGN PACKAGES

Normally, estimating total energy use requires performing a computer analysis of each home design. However, to simplify the process, this Appendix contains several pre-approved design packages of energy features that meet or exceed the ENERGY STAR requirements.

Finding the right design package of energy measures for homes built to satisfy the HUD Standards² is a two-step process, as follows:

- Select the climate region where the home will be installed. Climate region information is provided on the map in **Figure C-1**. Detailed, county-by-county climate region information is provided in **Table C-1**.
- Using the information in **Table C-2**, select from the packages of energy options provided for the chosen climate region.

The notes below will aid in navigating through and interpreting the information provided on the map and in the tables in this section.

1. Select the climate region where the ENERGY STAR labeled homes will be sited (Figure C-1 and Table C-1)

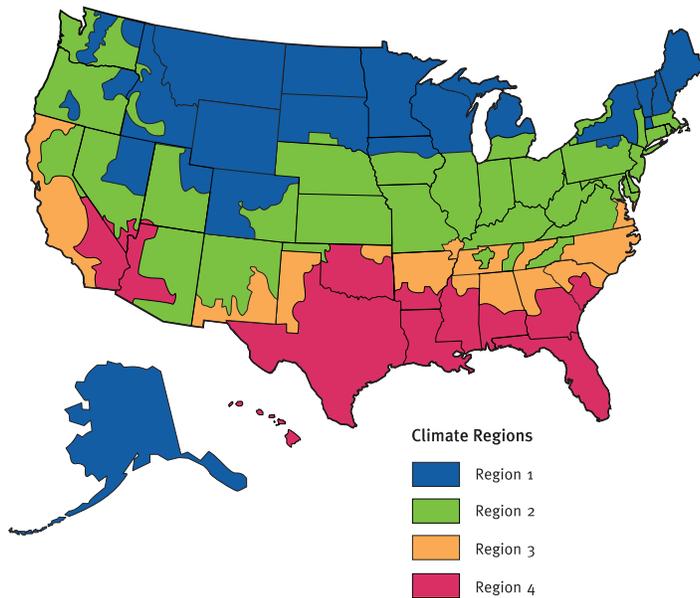
There are different requirements for each of the the four climate regions used by ENERGY STAR. These regions are NOT the same as the thermal zones contained in the HUD Standards for manufactured homes, nor do the ENERGY STAR region boundaries coincide with state boundaries. A state may include more than one ENERGY STAR climate region.

¹ Additional ENERGY STAR design packages can be developed by an ENERGY STAR Certifier. Visit the ENERGY STAR (www.energystar.gov/homes) or MHRA (www.mhrahomes.org) Web site for details.

² MHCSS Part 3280. For packages that can be used for modular homes, see the ENERGY STAR Web site.

The map in **Figure C-1** provides a general idea of the area covered by each climate region, and **Table C-1** provides a more precise state-by-state index (see page C.5). In cases where a state has more than one climate region, **Table C-1** provides the “primary” climate region and lists counties in the other regions as “exceptions.”

Figure C-1 Four Climate Regions Used by EPA’s ENERGY STAR



Select the region(s) that correspond to the home sites. Where the destination of a home is not known prior to manufacture, and the plant’s typical shipping radius covers more than one region, it is advisable to select an ENERGY STAR package from the region with the more stringent thermal envelope requirements (Climate Region 1 is the most stringent, Climate Region 4 the least).

2. Select an ENERGY STAR design package (Table C-2)

For each climate region, several ENERGY STAR design packages are provided. This variety gives the plant fairly wide latitude in deciding how to design an ENERGY STAR labeled home.³

A package contains requirements for several features that must be used together to qualify as an ENERGY STAR labeled home.

Table C-2 is divided into four sub-tables, one for each climate region. Each sub-table is divided into two or three sections according to expected maximum duct loss percentages (e.g., 3%, 5%, or 7%). Each of these sections is further divided into two or three sections, one for each heating system type: gas/oil, heat pump, and electric resistance, if applicable. To use the table: (1) First select the climate region where the home will be sited. (2) Next, select the duct leakage level that the plant expects can be consistently reached and has been identified by testing. (3) Then select the heating source, either the gas/oil heat, heat pump, or the electric resistance section followed by the heating efficiency. (4) Finally, select the rows containing appropriate U_o and, for Regions 3 and 4, the solar heat gain coefficient (SHGC) values.



In **Table C-2** the column “High Efficiency WH” indicates requirements for water heater efficiency, and the column “Programmable Thermostat” indicates if a programmable thermostat is required.

All the packages are roughly equivalent in energy terms. That is, applied to the same home, all packages will result in approximately the same total energy use. Therefore, saving energy in one area (e.g., by using tighter ducts or installing a programmable thermostat) will result in offsets elsewhere (e.g., by allowing a higher U_o -value).

A more detailed description of the features on **Table C-2** follows:

- **Maximum Duct Loss:** This refers to the amount of leakage from the air distribution ducts as measured with a “Duct Blaster” or similar diagnostic device. During plant qualification, the manufacturer will determine the target leakage rate and steps required to achieve that rate (e.g., duct sealing strategies).⁴ The midrange leakage rate of 5% should be readily achievable with currently available duct design and sealing techniques. The duct leakage values on **Table C-2** are measurements of air leakage to the outside when the ducts are depressurized to negative 25 pascals.

³ Additional ENERGY STAR design packages are periodically posted on the ENERGY STAR (www.energystar.gov/homes) and MHRA (www.mhrahome.org) Web sites.

⁴ See *Manufactured Housing Duct Systems: Guide to Best Practices*, published by MHRA, for guidance on constructing efficient duct systems.

The values are based on air handler airflow rates and correlate approximately to cubic feet per minute of leakage divided by the floor area of the home. When measured in the plant, only total duct leakage can be determined. The Certifier should assume that 50 percent of total measured duct leakage will leak to the outside after the home is set. The Certifier should then confirm this assumption when field tests are conducted and actual duct leakage to the outside can be measured.

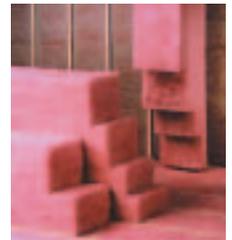


- **Minimum Heating Equipment Efficiency:** This refers to the equipment performance rating as certified by the Air-Conditioning and Refrigeration Institute (ARI) for electric heat pumps and by the Gas Appliance Manufacturers Association (GAMA) for fossil fuel-burning furnaces (i.e., furnaces that burn natural gas, liquefied petroleum (LP) gas, or fuel oil). Heat pump certifications are published in the ARI Directory of Certified Unitary Products and referenced by manufacturer and equipment model number as it appears on the rating label on the equipment. The heating mode of heat pumps is rated in terms of Heating Seasonal Performance Factor (HSPF). Fossil fuel-burning furnace certifications are published by GAMA in the Consumers' Directory of Certified Efficiency Ratings for Heating and Water Heating Equipment and referenced by manufacturer and equipment model number as it appears on the rating label on the equipment. Fossil fuel-burning furnaces are rated in terms of Annual Fuel Utilization Efficiency (AFUE).

- **Maximum U_o -value:** This refers to the ability of the home's envelope to resist heat flow and is calculated in the same manner as the U_o -value referred to in the HUD standards. U_o -value is an engineering concept that combines all types of interior and exterior thermal energy transfers into an overall thermal efficiency number that is used in combination with the overall area of the entire home's envelope. This value should be calculated in a manner that includes the walls, ceiling, floor, windows, doors, glass in doors, skylights, bay windows, ducts, or any other envelope components that impact energy use.



- **Solar Heat Gain Coefficient (SHGC)⁵:** This refers to the ability of the window to block solar heat from entering the home. The higher the SHGC, the more solar heat is transmitted through the window. The SHGC requirement can be met in one of two ways:
 - All windows in the home meet the requirement based on the rated value.⁶
 - The area weighted average SHGC for all the windows meets the requirement (multiply each window area by its whole window SHGC, add the results together, and divide by the total window area for the home).



Center of glass and whole window SHGC values are available from window suppliers.

- **Minimum Hot Water Equipment Efficiency:** This refers to the efficiency rating of the hot water heater (WH). Hot water heaters are rated in terms of Energy Factor (EF). Different EF levels are provided for gas and for electric equipment. In some packages a high efficiency water heater is required. This is indicated by a check mark in the "High Efficiency WH" column in **Table C-2**. The high efficiency WH requirement may be met in one of two ways:
 - An EF of at least 0.59 for gas or at least 0.91 for electric heaters.
 - A lower rated heater wrapped with a minimum of R-5 insulation.⁷

⁵ ENERGY STAR qualified homes do not require the use of ENERGY STAR qualified windows, nor does the use of ENERGY STAR qualified windows make a home qualify as ENERGY STAR.

⁶ Analysis is based on the whole window value, but the center of glass value may also be used, as it will result in a more conservative package. For an explanation of whole window SHGC rating, see National Fenestration Rating Council Incorporated, *NFRC 200-2001: Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence* (Silver Spring, MD, November 2002).

⁷ Check with the water heater manufacturer about restrictions on wrapping a specific water heater.

The minimum WH EF for all other packages is 0.56 for gas heaters and 0.88 for electric heaters.

- **Thermostat Type:** Programmable thermostats that can be automatically set back to lower temperatures in the heating season or set up to higher temperatures in the cooling season can generate significant energy savings. Refer to the column labeled Programmable Thermostat to see whether a programmable thermostat is needed for the home (as indicated by a check mark) or a manually operated thermostat is to be used (no check mark).
- **Minimum Cooling Equipment Efficiency:** This refers to the equipment rating as certified by ARI and published in the ARI Directory of Certified Unitary Products. Air conditioners and heat pumps in the cooling mode are rated in terms of Seasonal Energy Efficiency Ratio (SEER). All ENERGY STAR labeled homes must be equipped with cooling equipment rated not less than 12 SEER, except those electric resistance packages in Climate Regions 1 and 4 noted as 13 SEER. Homes without air conditioning are automatically considered to have the SEER level required for the ENERGY STAR package selected. While not an ENERGY STAR requirement, cooling equipment should be correctly sized. With correct sizing, a credit can be taken on the ENERGY STAR package U_O-value. Visit the ENERGY STAR and MHRA Web sites for air conditioner and heat pump sizing guidelines and information on the sizing credit.
- **Heat Recovery Ventilator:** The electric resistance heating packages for Climate Region 1 require a heat recovery ventilator (HRV) to maintain a minimum of 0.35 air changes per hour (ACH), as these homes are required to have an extremely tight shell to retain the heat imparted to the indoor air by the furnace. A heat recovery ventilator (also called an air-to-air heat exchanger) is a ventilation system that consists of two separate air-handling systems—one collects and exhausts stale indoor air and the other draws in fresh outdoor air and distributes it throughout the home. At the core of an HRV is a heat transfer module. Both the exhaust and fresh air streams pass through this module, and the heat from the exhaust air is used to pre-heat the fresh air stream. Only the heat is transferred; the two air streams remain physically separate. Typically, an HRV is able to recover 70-80 percent of the heat from the exhaust air and transfer it to the incoming air. This dramatically reduces the energy needed to heat fresh air to a comfortable temperature.

All ENERGY STAR labeled homes must also meet the following requirements:

- **Minimum External Duct Insulation:** This refers to the rated insulation value (R-value) of materials used for insulating the exterior crossover duct.
 - Climate Regions 1 and 2: a minimum of **R-8** is required
 - Climate Regions 3 and 4: a minimum of **R-6** is required

- **Whole-house leakage:** All ENERGY STAR labeled homes shall have whole-house leakage rates, calculated based on blower door measurements, that do not exceed **7.0 ACH₅₀**.⁸

Whole-house leakage rates are determined by the ENERGY STAR Certifier during plant qualification and as part of random-sample field evaluations described in Chapter 4.

- **Basements:** All ENERGY STAR labeled homes placed over basements must also meet the following requirements:

Unconditioned basement: The basement is not intentionally heated, is not considered part of the living space, and is separated from the living area.

The walls of the interior stairwell are insulated to the same levels as the exterior walls. Doors to the basement are insulated and weather-stripped.

Semi-conditioned and conditioned basements: Agreement with ENERGY STAR guidelines can be demonstrated by insulating the basement walls to the following levels:

- Climate Region 1: R-13
- Climate Region 2: R-10
- Climate Region 3: R-10
- Climate Region 4: R-0

⁸ Electric resistance packages in Region 1 require a maximum shell leakage rate of 4.0 ACH₅₀.

Table C-1 State-by-State Climate Region Index

State	Primary Region	Exception	Counties
Alabama	3	Region 4:	Baldwin Coffee Escambia Lowndes Perry Barbour Conecuh Geneva Macon Pike Bullock Covington Greene Marengo Russell Butler Crenshaw Hale Mobile Sumter Choctaw Dale Henry Monroe Washington Clarke Dallas Houston Montgomery Wilcox
Alaska	1	None	
Arizona	4	Region 2:	Apache Cochise Coconino Gila Graham Greenlee Navajo Pima Santa Cruz Yavapai
Arkansas	3	Region 4:	Ashley Bradley Cleveland Columbia Howard Miller Sevier Calhoun Dallas Jefferson Montgomery Union Chicot Desha Lafayette Nevada Clark Drew Lincoln Ouachita
California	3	Region 2: Region 4:	Alpine Butte Lassen Placer Sierra Yolo Colusa Modoc Plumas Sutter Tehama Yuba Glenn Mono Shasta Tehama Imperial Inyo Riverside San Bernardino
Colorado	1	Region 2:	Baca Custer Kit Carson Phillips Washington Bent El Paso Lake Prowers Yuma Chaffee Fremont Las Animas Pueblo Cheyenne Huerfano Lincoln Sedgwick Crowley Kiowa Otero Teller
Connecticut	2	None	
Delaware	2	None	
Florida	4	None	
Georgia	4	Region 3:	Banks Dawson Habersham Marion Stephens Barrow DeKalb Hall Meriwether Talbot Bartow Douglas Haralson Murray Taylor Carroll Elbert Harris Muscogee Towns Catoosa Fannin Hart Oconee Troup Chattahoochee Fayette Heard Oglethorpe Union Chattooga Floyd Henry Paulding Upson Cherokee Forsyth Jackson Pickens Walker Clarke Franklin Lamar Pike Walton Clayton Fulton Lincoln Polk White Cobb Gilmer Lumpkin Rabun Whitfield Coweta Gordon Macon Schley Wilkes Dade Gwinnett Madison Spalding
Hawaii	4	None	
Idaho	1	Region 2:	Ada Canyon Gem Gooding Jerome Lemhi Lincoln Minidoka Nez Perce Payette Washington
Illinois	2	None	

State	Primary Region	Exception Counties
Indiana	2	None
Iowa	2	Region 1: Allamakee Cherokee Emmet Kossuth Pocahontas Black Hawk Chickasaw Fayette Lyon Sioux Bremer Clay Floyd Mitchell Winnebago Buchanan Clayton Franklin O'Brien Winneshiek Buena Vista Delaware Hancock Osceola Worth Butler Dickinson Howard Palo Alto Wright Cerro Gordo Dubuque Humboldt Plymouth
Kansas	2	None
Kentucky	2	None
Louisiana	4	None
Maine	1	None
Maryland	2	None
Massachusetts	2	Region 1: Berkshire Franklin Hampden Hampshire
Michigan	2	Region 1: Alcona Clare Huron Marquette Ogemaw Alger Crawford Iosco Mason Ontonagon Alpena Delta Iron Mecosta Osceola Antrim Dickinson Isabella Menominee Oscoda Arenac Emmet Kalkaska Midland Otsego Baraga Gladwin Keweenaw Missaukee Presque Isle Bay Gogebic Lake Montcalm Roscommon Benzie Grand Leelanau Montmorency Saginaw Charlevoix Taverse Luce Muskegon Sanilac Cheboygan Gratiot Mackinac Newaygo Schoolcraft Chippewa Houghton Manistee Oceana Tuscola Wexford
Minnesota	1	None
Mississippi	4	Region 3: Alcorn Grenada Marshall Prentiss Tishomingo Benton Itawamba Panola Tate Union Calhoun Lafayette Pontotoc Tippah Yalobusha DeSoto Lee
Missouri	2	Region 3: Butler Mississippi Pemiscot Scott Stoddard Duncan New Madrid
Montana	1	None
Nebraska	2	
Nevada	4	Region 1: Elko Eureka Lander White Pine Region 2: Carson City Esmeralda Lyon Nye Storey Churchill Humboldt Mineral Pershing Washoe Douglas Lincoln
New Hampshire	1	None
New Jersey	2	None
New Mexico	2	Region 3: Chaves Dona Ana Guadalupe Lea Otero DeBaca Eddy Hidalgo Luna

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State	Primary Region	Exception Counties					
New York	2	Region 1:	Allegheny Broome Cattaraugus Cayuga Chemung Chenango Clinton	Cortland Delaware Essex Franklin Fulton Hamilton Herkimer	Lewis Livingston Madison Montgomery Oneida Onondaga Ontario	Otsego Schoharie Schuyler Seneca St. Lawrence Steuben Sullivan	Tioga Tompkins Warren Wyoming Yates
North Carolina	3	Region 2:	Alleghany Ashe Avery Buncombe Burke	Caldwell Cherokee Clay Graham Haywood	Henderson Jackson McDowell Macon Madison	Mitchell Polk Rutherford Surry Swain	Transylvania Watauga Wilkes Yadkin Yancey
North Dakota	1	None					
Ohio	2	None					
Oklahoma	4	Region 2:	Beaver	Cimarron	Ellis	Harper	Texas
		Region 3:	Craig Delaware Mayes	Nowata Osage	Ottawa Pawnee	Rogers Tulsa	Wagoner Washington
Oregon	2	Region 1:	Baker	Klamath	Union	Wallowa	
Pennsylvania	2	Region 1:	Bradford	Sullivan	Susquehanna	Tioga	Wyoming
Rhode Island	2	None					
South Carolina	3	Region 4:	Allendale Bamberg Barnwell Beaufort	Berkeley Calhoun Charleston Clarendon	Colleton Dorchester Hampton	Jasper Lee Lexington	Orangeburg Richland Sumter
South Dakota	1	Region 2:	Gregory	Mellette	Todd	Tripp	
Tennessee	3	Region 2:	Bledsoe Coffee Cumberland Fentress	Franklin Grundy Marion	Morgan Overton Pickett	Putnum Scott Sequatchie	Van Buren Warren White
Texas	4	Region 3:	Andrews Armstrong Bailey Briscoe Carson Castro Cochran Crosby	Dallam Dawson Deaf Smith Floyd Gaines Glasscock Gray Hale	Hansford Hartley Hemphill Hockley Howard Hutchinson Lamb Lipscomb	Lubbock Lynn Martin Midland Moore Ochiltree Oldham Parmer	Potter Randall Roberts Sherman Swisher Terry Yoakum
Utah	2	Region 1:	Cache Carbon	Daggett Duchesne	Morgan Rich	Summit Uintah	Wasatch
		Region 4:	Washington				
Vermont	1	None					
Virginia	2	Region 3:	Accomack Charles City Essex Gloucester Greensville	Isle of Wight James City King and Queen King George	King William Lancaster Mathews Middlesex New Kent	Northampton Northumberland Prince George Richmond Southampton	Stafford Surry Sussex Westmoreland York

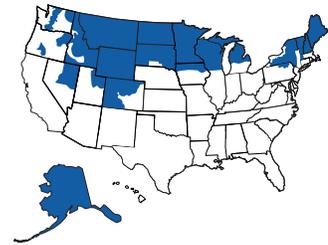
State	Primary Region	Exception Counties
Washington	2	Region 1: Chelan Ferry Kittitas Pend Orielle Spokane Stevens Yakima Okanogan Skamania
West Virginia	2	None
Wisconsin	1	None
Wyoming	1	None

Table C-2 ENERGY STAR Design Packages

CLIMATE REGION 1

Basic Requirements:

- Maximum shell leakage: 7.0 ACH₅₀
- Minimum cooling SEER: 12.0 (Electric resistance packages only: 13.0)
- Window SHGC: any
- Minimum duct insulation: R-8



Packages for homes with maximum 3% duct losses

Heating Type	Minimum Heating Efficiency	Maximum Envelope Heat Resistance U _o -value	High Efficiency WH ⁹	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.054			1-1
		0.056		✓	1-2
		0.058	✓		1-3
	0.90 AFUE	0.060	✓	✓	1-4
		0.063	✓	✓	1-5
Heat Pump	7.6 HSPF	0.052		✓	1-6
		0.053	✓	✓	1-7
Electric Resistance ¹⁰ (Forced Air)	1.0 EF	0.048		✓ ¹¹	1-8
		0.050	✓	✓ ¹¹	1-9

Packages for homes with maximum 5% duct losses

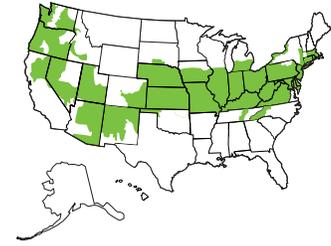
Heating Type	Minimum Heating Efficiency	Maximum U _o -value	High Efficiency WH ⁹	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.052			1-10
		0.054		✓	1-11
		0.056	✓	✓	1-12
	0.90 AFUE	0.058	✓	✓	1-13
		0.061	✓	✓	1-14
Heat Pump	7.6 HSPF	0.050		✓	1-15
		0.051	✓	✓	1-16
	8.0 HSPF	0.052		✓	1-17
		0.053	✓	✓	1-18

⁹ The high efficiency WH requirement may be met by using a 0.59 EF gas WH or a 0.91 EF electric WH or by wrapping a lower-rated WH with a minimum of R-5 insulation.

¹⁰ Electric resistance packages in Region 1 require a maximum shell leakage rate of 4.0 ACH₅₀ and a 70% efficient heat recovery ventilator to ensure that total ventilation rate is maintained at 0.35 ACH at all times. They also require a cooling SEER of 13.0.

¹¹ A programmable thermostat is required for a forced air all-electric heating system. Zone controls are required for baseboard electric resistance heating systems.

CLIMATE REGION 2



Basic Requirements:

- Maximum shell leakage: 7.0 ACH₅₀
- Minimum cooling SEER: 12.0
- Maximum window SHGC: 0.55
- Minimum duct insulation: R-8

Packages for homes with maximum 3% duct losses

Heating Type	Minimum Heating Efficiency	Maximum U _o -value	High Efficiency WH ¹²	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.061			2-1
		0.065		✓	2-2
		0.067	✓	✓	2-3
Heat Pump	7.2 HSPF	0.058			2-4
		0.059		✓	2-5
		0.061		✓	2-6
		0.063	✓	✓	2-7

Packages for homes with maximum 5% duct losses

Heating Type	Minimum Heating Efficiency	Maximum U _o -value	High Efficiency WH ¹²	Programmable Thermostat	Package Number	
Gas/Oil Furnace	0.80 AFUE	0.057			2-8	
		0.061		✓	2-9	
		0.063	✓	✓	2-10	
	0.90 AFUE	0.063		✓	✓	2-11
		0.065	✓	✓	✓	2-12
Heat Pump	7.2 HSPF	0.056			2-13	
		0.057		✓	2-14	
		0.061	✓	✓	2-15	
	7.6 HSPF	0.059		✓	✓	2-16
		0.062	✓	✓	✓	2-17
	8.0 HSPF	0.062			✓	2-18
		0.064	✓	✓	✓	2-19

Packages for homes with maximum 7% duct losses

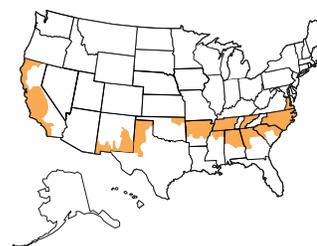
Heating Type	Minimum Heating Efficiency	Maximum U _o -value	High Efficiency WH ¹²	Programmable Thermostat	Package Number	
Gas/Oil Furnace	0.80 AFUE	0.056			2-20	
		0.060		✓	2-21	
		0.062	✓	✓	2-22	
	0.90 AFUE	0.062		✓	✓	2-23
		0.064	✓	✓	✓	2-24
Heat Pump	7.2 HSPF	0.054			2-25	
		0.055		✓	2-26	
		0.059	✓	✓	2-27	

¹² The high efficiency WH requirement may be met by using a 0.59 EF gas WH or a 0.91 EF electric WH or by wrapping a lower-rated WH with a minimum of R-5 insulation.

CLIMATE REGION 3

Basic Requirements:

- Maximum shell leakage: 7.0 ACH₅₀
- Minimum cooling SEER: 12.0
- Minimum duct insulation: R-6



Packages for homes with maximum 3% duct losses

Heating Type	Minimum Heating Efficiency	Maximum U _o -value	Maximum Window SHGC	High Efficiency WH ¹³	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.075	0.50			3-1
		0.082	0.50		✓	3-2
		0.084	0.50	✓	✓	3-3
		0.084	0.40		✓	3-4
		0.086	0.40	✓	✓	3-5
Heat Pump	7.2 HSPF	0.071	0.50			3-6
		0.072	0.50		✓	3-7
		0.073	0.50	✓	✓	3-8
		0.074	0.40		✓	3-9
		0.075	0.40	✓	✓	3-10

Packages for homes with maximum 5% duct losses

Heating Type	Minimum Heating Efficiency	Maximum U _o -value	Maximum Window SHGC	High Efficiency WH ¹³	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.073	0.50			3-11
		0.080	0.50		✓	3-12
		0.082	0.50	✓	✓	3-13
		0.082	0.40		✓	3-14
		0.084	0.40	✓	✓	3-15
Heat Pump	7.2 HSPF	0.070	0.50			3-16
		0.071	0.50		✓	3-17
		0.072	0.50	✓	✓	3-18
		0.072	0.40		✓	3-19
		0.073	0.40	✓	✓	3-20
	7.6 HSPF	0.074	0.50		✓	3-21
		0.075	0.50	✓	✓	3-22
		0.076	0.40	✓	✓	3-23
	8.0 HSPF	0.077	0.50		✓	3-24
		0.078	0.50	✓	✓	3-25
		0.079	0.40	✓	✓	3-26

Packages for homes with maximum 7% duct losses

Heating Type	Minimum Heating Efficiency	Maximum U _o -value	Maximum Window SHGC	High Efficiency WH ¹³	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.068	0.50			3-27
		0.075	0.50		✓	3-28
		0.077	0.50	✓	✓	3-29
		0.078	0.40		✓	3-30
		0.080	0.40	✓	✓	3-31
Heat Pump	7.2 HSPF	0.066	0.50			3-32
		0.067	0.50		✓	3-33
		0.068	0.50	✓	✓	3-34
		0.070	0.40		✓	3-35
		0.071	0.40	✓	✓	3-36

¹³ The high efficiency WH requirement may be met by using a 0.59 EF gas WH or a 0.91 EF electric WH or by wrapping a lower-rated WH with a minimum of R-5 insulation.

CLIMATE REGION 4

Basic Requirements:

- Maximum shell leakage: 7.0 ACH₅₀
- Minimum cooling SEER: 12.0 (Electric resistance packages with maximum 5% duct loss: 13.0)
- Minimum duct insulation: R-6



Packages for homes with maximum 3% duct losses

Heating Type	Minimum Heating Efficiency	Maximum Uo-value	Maximum Window SHGC	High Efficiency WH ¹⁴	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.111	0.50			4-1
Heat Pump	7.2 HSPF	0.097	0.50			4-2
		0.104	0.50		✓	4-3
		0.108	0.50	✓	✓	4-4
Electric Resistance ¹⁵	1.0 EF	0.074	0.40		✓ ¹⁶	4-5
		0.075	0.40	✓	✓ ¹⁶	4-6
Electric Resistance (Florida Only) ¹⁵	1.0 EF	0.111	0.40		✓ ¹⁶	4-7
		0.114	0.40	✓	✓ ¹⁶	4-8

Packages for homes with maximum 5% duct losses

Heating Type	Minimum Heating Efficiency	Maximum Uo-value	Maximum Window SHGC	High Efficiency WH ¹⁴	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.102	0.50			4-9
		0.116	0.50		✓	4-10
Heat Pump	7.2 HSPF	0.093	0.50			4-11
		0.100	0.50		✓	4-12
		0.105	0.50	✓	✓	4-13
	7.6 HSPF	0.102	0.50	✓	✓	4-14
		0.106	0.50	✓	✓	4-15
	8.0 HSPF	0.104	0.50		✓	4-16
		0.108	0.50	✓	✓	4-17
Electric Resistance ¹⁵	1.0 EF	0.070	0.40		✓ ¹⁶	4-18
		0.071	0.40	✓	✓ ¹⁶	4-19
Electric Resistance (Florida Only) ¹⁵	1.0 EF	0.116	0.40		✓ ¹⁶	4-20

Packages for homes with maximum 7% duct losses

Heating Type	Minimum Heating Efficiency	Maximum Uo-value	Maximum Window SHGC	High Efficiency WH ¹⁴	Programmable Thermostat	Package Number
Gas/Oil Furnace	0.80 AFUE	0.092	0.50			4-21
		0.106	0.50		✓	4-22
		0.109	0.40		✓	4-23
		0.111	0.50	✓	✓	4-24
		0.115	0.40	✓	✓	4-25
Heat Pump	7.2 HSPF	0.086	0.50			4-26
		0.093	0.50		✓	4-27
		0.095	0.40		✓	4-28
		0.099	0.50	✓	✓	4-29
		0.101	0.40	✓	✓	4-30

¹⁴ The high efficiency WH requirement may be met by using a 0.59 EF gas WH or a 0.91 EF electric WH or by wrapping a lower-rated WH with a minimum of R-5 insulation.

¹⁵ These packages require a cooling SEER of 13.0.

¹⁶ A programmable thermostat is required for a forced air all-electric heating system. Zone controls are required for baseboard electric resistance heating systems.

To find information about additional packages that may have been prequalified under the ENERGY STAR program, visit the ENERGY STAR (www.energystar.gov/homes) or MHRA (www.mhrahome.org) Web site.

USING COMPUTER ANALYSIS TO CREATE OTHER ENERGY STAR DESIGNS

As an alternative to the packages of energy features contained in this Appendix, manufacturers have the option of developing designs using computer software or procedures from the list of software available on the ENERGY STAR (www.energystar.gov/homes) and MHRA (www.mhrahome.org) Web sites. Designs generated through the use of these procedures and/or software must be approved by the plant's ENERGY STAR Certifier.

The major advantage of the computer analysis option is the ability to tailor the design to a specific location and design considerations. For example, lower equipment efficiencies than those provided on **Table C-2** can be combined with a lower home U_o -value using this approach. The principal disadvantage of this alternative is the cost and time associated with conducting the analysis.

COMPLETING THE ENERGY STAR LABEL

The instructions below explain how to complete the ENERGY STAR label.

The completed ENERGY STAR label for a qualified home (in the form of a sticker) should be placed adjacent to the HUD Data Plate or inside the electric panel cover. Alternatively, this information can be included on the home's HUD Data Plate, along with the ENERGY STAR logo and verification statement shown at the bottom of the label.

EPA will provide each plant partner with software for printing labels and an initial supply of blank label stock upon EPA's receipt of a copy of the plant's Manufactured Housing Plant Certification form (*Appendix F*) from the Certifier. EPA will send subsequent shipments of labels to the plant based on the number of homes the plant has labeled as indicated in the previous quarterly update.

Additional blank label stock is available at no charge by calling EPA's Hotline at 1-888-782-7937. Only EPA can supply ENERGY STAR labels to the plants.

	<p>AN ENERGY STAR[®] QUALIFIED HOME</p>
<p>ENERGY STAR Climate Region: <input type="text"/></p> <p>Manufacturer: <input type="text"/></p> <p>Plant Name/Location: <input type="text"/></p> <p>Manufacturer's Serial #: <input type="text"/></p> <p>Date Manufactured: <input type="text"/></p>	
<p>This home has been independently verified to meet ENERGY STAR's strict guidelines for energy efficiency. Each ENERGY STAR qualified home can keep 4,500 lbs of greenhouse gases out of our air each year.</p> <p>www.energystar.gov</p>	

SAMPLE ENERGY STAR MANUFACTURED HOME SITE INSTALLATION CHECKLIST

Home manufacturer: _____ Plant location: _____

Home Serial Number: _____ Model number: _____

Home address: _____ City: _____ State: _____ County: _____

This home was manufactured in conformance with the U.S. Environmental Protection Agency's ENERGY STAR program. The items below are required to ensure that the home is installed in compliance with the manufacturer's ENERGY STAR labeled home design.

The items on this checklist are to be completed by a representative of the home manufacturer. After completing the checklist, the manufacturer's representative shall sign the checklist and return the original copy to the manufacturer.

MARRIAGE LINE SEAL

The marriage line areas must be filled with a non-porous insulating gasket creating a permanent air barrier. Verify that the following marriage line joints are gasketed:

- Ceiling
- End walls
- Floor

Acceptable gaskets can be one or two-part systems: "center-seal," "soft chink," "soft seal," foams, insulation wrapped in polyethylene, insulation covered by butyl, or other long-life tape on one side.

TEARS IN BOTTOM BOARD MATERIAL REPAIRED

All tears in the bottom board material, including penetrations for utility lines and other hook-ups, are covered and sealed with a durable patch to prevent air leakage. (Foam sealant can be used to seal bolt and other small holes.) Verify that the following item is completed:

- Bottom board is intact

CROSSOVER DUCT INSTALLATION

For multi-section homes, the crossover ducts must be sealed with a permanent connection as per the manufacturer's Installation Manual. Identify that the following items are completed:

- All crossover ducts have been installed and wrapped with insulation.
- Crossover collar is secured with at least three screws and cannot rotate or move.
- All crossover duct insulation is R-_____.
- Nylon or metal straps and saddles are used to support the crossover duct; duct does not touch the ground.
- Three or more screws are placed below the straps through the flexible duct and into the crossover collar.
- Crossover duct insulation is pushed into the floor cavity and sealed with tape or foam sealant at all bottom board penetrations.

FIELD INSTALLED HVAC EQUIPMENT

- Cooling equipment efficiency meets or exceeds the following performance rating: SEER-_____.
- Heating equipment efficiency meets or exceeds the following specification: HSPF-_____.

FOR HOMES INSTALLED OVER BASEMENTS (ONE OF THE FOLLOWING MUST BE CHECKED)

- This home has an UNHEATED BASEMENT. All interior stairwells from the heated space into the basement are constructed in the same manner as an exterior wall with full insulation and a weatherstripped, insulated exterior door is installed.
- This home has a HEATED BASEMENT. The basement wall insulation level is a minimum of R-_____.

Description of deficient installation and steps taken to correct the deficiency: _____

(Continue on back)

I have inspected this home and find that all site work complies with the above and all other relevant ENERGY STAR labeled home requirements.

Signature (Manufacturer's field representative)

Print Name

Date

I have checked this home's records against the address provided on this form and find that the home is located in the appropriate ENERGY STAR climate region.

Signature (Manufacturer's field representative)

Print Name

Date

A copy of the Sample ENERGY STAR Manufactured Home Site Installation Checklist is available on the ENERGY STAR Web site, www.energystar.gov/homes, and the MHRA Web site, www.mhrahomes.org.

(Continued from front)

Description of deficient installation and steps taken to correct the deficiency: _____

ENERGY STAR Manufactured Home Plant Certification: Qualification to Produce ENERGY STAR Labeled Homes

(This form must be sent to EPA before producing ENERGY STAR labeled homes—see Chapter 2, Step 9)

_____ (Name of Certifier) hereby certifies that _____ (Plant and Manufacturer name), located at _____ (Address, City, State), has demonstrated the capability consistently to produce ENERGY STAR labeled homes and is therefore authorized to apply the ENERGY STAR label to new homes manufactured under the terms and conditions of the ENERGY STAR program.

ENERGY STAR Certifier: _____

Signature: _____ Date: _____

Address: _____

City/State/Zip: _____

Telephone: _____ Fax: _____ E-Mail: _____

Plant contact person: _____ Telephone: _____ E-Mail: _____

Plant Requirements to Qualify for Producing ENERGY STAR Labeled Homes:

Method of Compliance

(Must check one box below)

- Home designs comply with ENERGY STAR Package:
ENERGY STAR Package No.: _____ Climate Region: _____
- Computer Analysis (attached)

ENERGY STAR Design Features Incorporated in Plant Quality Assurance Procedures

(Must check all boxes below)

- Information included in third-party-approved package
- Information included in plant Quality Control Manual
- Information included in Manufacturer's Installation Manual

Homes Tested in Plant

(Must check all boxes below)

- Three (3) consecutive homes meet ENERGY STAR duct tightness requirements

Site Installation Checklist Verified

(Must check all boxes below)

- Site installation checklist identifying ENERGY STAR package items verified during installation

Homes Tested in Field

(Must check all boxes below)

- Three (3) consecutive homes meet ENERGY STAR requirements
- Any design changes recorded and used to update specifications in the third-party-approved package, Site Installation Checklists, Quality Control Manual, and Installation Manual

ENERGY STAR Incorporated in Routine Operations

(Must check all boxes below)

- Corrective actions identified during tests implemented
- Key plant personnel trained on critical processes and procedures
- Unique features in ENERGY STAR third-party-approved packages are reviewed with plant's third-party design approval and inspection agencies
- Set-up crews trained to install and inspect ENERGY STAR labeled homes in the field
- Process in place for collecting, tracking, and archiving documentation on ENERGY STAR labeled homes

Submit to EPA's ENERGY STAR for New Homes Program

- EPA fax number: 202-343-2200, or
- EPA address: 1200 Pennsylvania Ave., NW, (mail code 6202J), Washington, DC 20460

A copy of the ENERGY STAR Manufactured Home Plant Certification: Qualification to Produce ENERGY STAR labeled homes form is available on the ENERGY STAR Web site, www.energystar.gov/homes, and on the MHRA Web site, www.mhrahomes.org.



ENERGY STAR Manufactured Home Plant Certifier: Capabilities and Qualifications Affidavit

_____(Name of Certifier)_____ hereby asserts that s/he meets or exceeds all required capabilities and qualifications to provide ENERGY STAR Certification services as indicated by completing the information on this form. In addition, _____(Name of Certifier)_____ hereby states that s/he does not have financial interests in or maintain any affiliation with a home manufacturer, retailer or installer, nor does s/he provide services that might affect her or his capacity to evaluate compliance with the ENERGY STAR program and render reports of findings objectively and without bias.

Authorized Company Representative: _____

Signature: _____ Date: _____

Address: _____

City/State/Zip: _____

Telephone: _____ Fax: _____ E-Mail: _____

Capabilities and Qualifications

Manufactured Housing Design, Construction and Installation Methods

(Must check all boxes below)

- Familiarity with Federal Manufactured Home Construction, and Safety Standards
- Familiarity with plant production processes
- Familiarity with DAPIA/IPIA oversight processes

Building Science Experience

(Must check all boxes below)

- Certified Home Energy Rating System (HERS) rater or provider
- Licensed Engineer or Architect
- Minimum 5 years of energy consultant experience

Manufactured Housing Practices and Diagnostics and Performance Assessment Experience

(Must check all boxes below)

- Hands-on experience conducting duct and whole-house air leakage measurements
- Knowledge of manufactured home design, construction, installation, material use, and fabrication techniques

Energy Efficiency Training

(Must check all boxes below)

- Experience and training in the principles of building science
- Experience and training in energy efficiency construction practices

Document Preparation and Record Keeping

(Must check all boxes below)

- Familiarity with HUD-required documentation for manufactured housing
- Capability to maintain computer records

Submit to the Plant and EPA's ENERGY STAR for New Homes Program

- EPA fax number: 202-343-2200, or
- EPA address: 1200 Pennsylvania Ave., NW, (mail code 6202J), Washington, DC 20460

This Appendix describes the information on ENERGY STAR labeled homes that must be maintained by the manufacturer.

A plant must keep records on all homes that receive an ENERGY STAR label. The records must be kept on file for easy retrieval, so that plant personnel can quickly access on request information on an individual home, a select group of homes, or all the homes in the program. The records must be retained by the manufacturer for the same length of time specified in the HUD Regulations and Standards for Manufactured Housing for general home documentation.

GENERAL IDENTIFYING INFORMATION

The following documentation must be maintained for every ENERGY STAR labeled home:

- Manufacturer's serial number of the home.
- Manufacturer's model number of the home.
- Name and address of retailer and site installer.
- ENERGY STAR package number used for the home, or summary of computer analysis.
- Date of manufacture.
- Insulation package.
- Window specifications.
- HVAC equipment manufacturer, model number, and efficiency rating.
- Duct system type—overhead, under floor, etc.
- Signed Site Installation Checklist.

QUARTERLY UPDATE AND INFORMATION REQUESTS

The plant should submit quarterly updates to EPA via e-mail to homesinfo@epa.gov. A copy should be kept by the plant's ENERGY STAR Certifier. The updates shall contain the following information:

- Manufacturer's name, plant name and address, and the name, e-mail, and phone number of plant contact person.
- Number of ENERGY STAR qualified homes produced in the previous calendar quarter, including homes used for plant qualification (only homes receiving an ENERGY STAR label and for which completed Site Installation Checklists are in the possession of the plant shall be reported as ENERGY STAR labeled homes to EPA).
- Retailer or local builder (optional).
- City and state where the homes were installed.
- Sponsoring program/utility (if applicable).

The Quarterly Reporting form is available on the ENERGY STAR (www.energystar.gov/homes) and MHRA (www.mhrahome.org) Web sites. A copy of this form will be e-mailed to the plant representative upon EPA's receipt of the plant qualification form (*Appendix F*).

To ensure that the Quality Assurance Program is operating as intended, EPA or its agent reserves the right to:

1. Request that all records and documentation pertaining to ENERGY STAR labeled homes be made available, and
2. Periodically observe the testing and quality control procedures.



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