

## Supplemental ENERGY STAR Package for Manufactured Homes with Heat Pumps Certified through SBRA

This appendix provides an optional ENERGY STAR manufactured home compliance path for **electrically heated homes completed after March 16, 2018**. For a plant that has already been certified, this path supercedes the requirements contained in Steps 2, 3, and 5 of Chapter 2, all steps in Chapter 3, and Appendices A and C of the program guide: [ENERGY STAR Qualified Manufactured Homes Design, Manufacturing, Installation, and Certification Procedures](#).

To qualify homes under this path, follow the steps described below.

### Step 1. Design Homes To Meet ENERGY STAR Requirements

Who is responsible: **Plant Design/Engineering Staff**

The plant is required to complete home designs that meet ENERGY STAR requirements and to ensure that these designs are certified to be ENERGY STAR compliant by the ENERGY STAR Certifier. For this optional compliance path, the following minimum requirements for envelope thermal integrity, heating and cooling equipment efficiency, and controls must be met for manufactured homes in all continental U.S. locations:

#### THERMAL ENVELOPE REQUIREMENTS

Component R-values	Envelope U <sub>o</sub> -value
<ul style="list-style-type: none"> <li>Ceiling insulation: <b>R-33<sup>†</sup></b></li> <li>Wall insulation: <b>R-11<sup>†</sup></b></li> <li>Floor insulation: <b>R-22<sup>†</sup></b></li> <li>Window U-value: <b>≤ 0.35</b></li> </ul>	<p><i>or</i></p> <p><b>≤ 0.082 (single-section homes)</b></p> <p><b>≤ 0.076 (multi-section homes)</b></p>

For both Component R-value path and Envelope U<sub>o</sub>-value path, **Window SHGC: ≤ 0.34**

<sup>†</sup> Insulation R-values are the nominal, uncompressed values

#### EQUIPMENT EFFICIENCY & CONTROLS

- Equipment type and efficiency: **Heat Pump ≥ 8.2 HSPF / 14 SEER<sup>1</sup>**
- Thermostat type: **Programmable**

#### OTHER REQUIREMENTS

- Marriage line seal:** The marriage line areas must be filled with a continuous, non-porous insulating gasket creating a permanent air barrier in the ceiling, walls and floor. Acceptable gaskets can be one- or two-part systems, including proprietary gaskets, foams, insulation-wrapped in poly and insulation covered by butyl or other long-life tape on one side. There should be no visible gaps or tears. The marriage line seal shall be installed at the manufacturing facility and protected against damage during shipping.

<sup>1</sup> The heat pump efficiency requirement of 8.2 HSPF / 14 SEER aligns with federal minimum efficiency standards.

## **Step 2. 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 be incorporated into the Design Approval Primary Inspection Agency (DAPIA)-approved packages, the plant Quality Control Manual, and the Manufacturers' Installation Manual. The Installation Manual shall include guidance for completing the crossover duct field installation (multi-section homes only) in a manner that assures that all seams and joints are tightly sealed against leakage and the ducts do not rest on the ground. The recommended duct installation procedure is described in the guide: [ENERGY STAR Qualified Manufactured Homes Guide for Retailers, with Instructions for Installers and HVAC Contractors](#).

## **Step 3. Manufacture and Inspect Homes in the Plant**

Who is responsible: **Plant Production Staff**

The plant manufactures homes in accordance with the requirements indicated in Step 1. The homes are inspected by the plant's third-party in-plant inspection agency (IPIA). Plant quality control (QC) personnel verify that the ENERGY STAR features are installed in accordance with the Quality Control Manual.

## **Step 4. Verify Duct Installation (Multi-Section Homes Only)**

Who is responsible: **Plant Designee**

For multi-section homes only, tightly sealed crossover duct installation must be verified at the site. When crossover ducts are installed, care must be taken to assure that all seams and joints are tightly sealed against leakage and the ducts do not rest on the ground.

Verifying these provisions is the responsibility of the home manufacturer. However, the home manufacturer can designate an agent to act on their behalf, including the retailer or HVAC distributor/installer.

## **Step 5. Verify the Heat Pump Sale and Installation**

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

For homes equipped with electric heat, the heat pump equipment make and model must be recorded in SBRA's **Information Manager** (IM). Verification of the heat pump sale is mandatory and may be accomplished either by:

1. Obtaining a copy of the customer sales invoice containing the heat pump information; or,
2. Obtaining a **Heat Pump Tracking Sheet** from the retailer or equipment seller (distributor or installer). The Heat Pump Tracking Sheet is available on SBRA's web site at: [https://www.research-alliance.org/pages/es\\_2018update.html](https://www.research-alliance.org/pages/es_2018update.html).

The plant must maintain copies of these documents.

### **Step 6. Complete Information Manager Record**

Who is responsible: **Plant Staff**

Following home installation and completion of the ENERGY STAR measures, the manufacturing plant completes the SBRA **Information Manager** (IM) record with home information (homeowner name and address), heat pump data (make and model numbers), and party designated to verify the duct installation. All supporting documentation must be retained by the plant and available for inspection by SBRA. The manufacturer must stipulate, as part of the steps in completing the SBRA IM record, that these items have been completed.

### **Step 7. Complete and Affix the ENERGY STAR and the Quality Assurance Labels**

Who is responsible: **Plant Designee**

Every ENERGY STAR certified home must have affixed to it an EPA ENERGY STAR (blue) label and a SBRA Quality Assurance Provider (gray) label. The ENERGY STAR label functions as a certification mark for compliance with ENERGY STAR's energy efficiency requirements. The Quality Assurance Provider label certifies that the home was built and installed under the manufacturer's quality assurance program.

It is the plant's ultimate responsibility to ensure that all homes receiving these labels meet ENERGY STAR requirements when installed in their final location. Upon completion of the IM record, the plant provides the signed labels to their designee, who affixes the labels to the home.

### **Step 8. Conduct Periodic Field Evaluations to Verify Performance**

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

For multi-section homes only, to ensure that the homes are performing as designed, a plant must at all times retain an accredited ENERGY STAR Certifier responsible for conducting field evaluations on no less than two percent (2%) of its ENERGY STAR qualified homes sold and installed on a homeowner's site, or a minimum of one home, each calendar year, whichever is greater. The plant's certifier is responsible for coordinating the quality control testing. If the plant fails to conduct this field verification, it may be de-certified under ENERGY STAR's policy for plant de-certification.