

ENERGY STAR HVAC Design Report: 1. Design Overview

When certifying a home to [ENERGY STAR Certified Homes, Version 3.0/3.1 \(Rev. 08\)](#) [1], the HVAC Designer completes the HVAC [Design Report Checklist](#) [1] and provides it to the Rater to document the types of mechanical ventilation, heating, and cooling equipment specified for the home, and the heating and cooling calculation inputs and loads.

This page shows the checklist requirement for Section 1. Design Overview and applicable footnotes.

For information on installing HVAC equipment, see installation guides linked to the HVAC section of the [Rater Field Checklist](#) [1].



HVAC Design Report ¹ ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 08)

HVAC Designer Responsibilities:

- Complete one HVAC Design Report for each system design for a house plan, created for either the specific plan configuration (i.e., elevation, option, orientation, & county) of the home to be certified or for a plan that is intended to be built with potentially different configurations (i.e., different elevations, options, and/or orientations). Visit www.energystar.gov/newhomeshvacdesign and see Footnote 2 for more information. ²
- Obtain efficiency features (e.g., window performance, insulation levels, and infiltration rate) from the builder or Home Energy Rater.
- Provide the completed HVAC Design Report to the builder or credentialed HVAC contractor and to the Home Energy Rater.

1. Design Overview

1.1 Designer name: _____ Designer company: _____ Date: _____

1.2 Select which party you are providing these design services to: Builder or Credentialed HVAC contractor

1.3 Name of company you are providing these design services to (if different than Item 1.1): _____

1.4 Area that system serves: Whole-house Upper-level Lower-level Other _____

1.5 Is cooling system for a temporary occupant load? ³ Yes No

1.6 House plan: _____ Check box to indicate whether the system design is site-specific or part of a group: ²

Site-specific design. Option(s) & elevation(s) modeled: _____

Group design. Group #: _____ out of _____ total groups for this house plan. Configuration modeled: _____

Checklist revised 09/15/2015. Required for homes permitted starting 07/01/2016.¹⁸

Footnotes

1. This report is designed to meet [ASHRAE 62.2-2010 / 2013](#) [2] and [ANSI / ACCA's 5 QI-2015](#) [3] protocol, thereby improving the performance of HVAC equipment in new homes when compared to homes built to minimum code. However, these features alone cannot prevent all ventilation, indoor air quality, and HVAC problems (e.g., those caused by a lack of maintenance by occupants). Therefore, system designs documented through the use of this report are not a guarantee of proper ventilation, indoor air quality, or HVAC performance.

2. The report shall represent a single system design for a house plan. Check the box for "site-specific design" if the design was created for the specific plan configuration (i.e., elevation, option, orientation, and county) of the home to be certified. Check the box for "group design" if the design was created for a plan that is intended to be built with potentially different configurations (i.e., different elevations, options, and/or orientations). Regardless of the box checked, the system design as documented on this HVAC Design Report must fall within the following tolerances for the home to be certified:

- - Item 3.3: The outdoor design temperature used in loads are within the limits defined at energystar.gov/hvacdesigntemps [4].
 - Item 3.4: The number of occupants used in loads is within ± 2 of the home to be certified.
 - Item 3.5: The conditioned floor area used in loads is between zero and 300 sq. ft. larger than the home to be certified.
 - Item 3.6: The window area used in loads is between zero and 60 sq. ft. larger than the home to be certified.
 - Item 3.7: The predominant window SHGC is within 0.1 of the predominant value in the home to be certified.
 - Items 3.10 - 3.12: The sensible, latent, & total heat gain are documented for the orientation of the home to be certified.
 - Item 3.13: The variation in total heat gain across orientations is ≤ 6 kBtuh.
 - Item 4.16: The cooling sizing % is within the cooling sizing limit selected.

Provide the HVAC Design Report to the party you are providing these design services to (i.e., a builder or credentialed HVAC contractor) and to the Home Energy Rater. The report is only required to be provided once per system design, even if multiple homes are built using this design (e.g., in a production environment where the same plan is built multiple times, only one report is required). As long as a report has been provided that falls within these tolerances for the home to be certified, no additional work is required. However, if no report falls within these tolerances or if any aspect of the system design changes, then an additional report will need to be generated prior to certification.

Visit energystar.gov/newhomeshvacdesign [5] for a tool to assist with group designs and for more information.

3. Check “Yes” if this system is to handle temporary occupant loads. Such a system may be required to accommodate a significant number of guests on a regular or sporadic basis and shall be handled by a supplemental cooling system (e.g., a small, single-package unit or split-coil unit) or by a system that can shift capacity from zone to zone (e.g., a variable volume system).

18. This Revision of the HVAC Design Report is required to certify all homes permitted after 07/01/2016, but is allowed to be used for any home permitted or completed prior to this date. The Home Energy Rater certifying the home may define the ‘permit date’ as either the date that the permit was issued or the date of the contract on the home. In cases where permit or contract dates are not available, Providers have discretion to estimate permit dates based on other construction schedule factors.

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More Info.

Access to some references may require purchase from the publisher. While we continually update our database, links may have changed since posting. Please contact our [webmaster](#) if you find broken links.

None Available

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