

ENERGY STAR Rater-Design Review Checklist: 4. Review of HVAC Design Report

When certifying a home to ENERGY STAR [Certified Homes, Version 3.0/3.1 \(Rev. 08\)](#) [1], the Rater completes and retains the [Rater Design Review Checklist](#) [1] to document partnership status, that windows and insulation meet 2009 IECC requirements, that the HVAC Design Report was completely filled out, and that specified equipment falls within the required parameters. The Rater collects from the HVAC Designer one HVAC Design Report for each system design.

This page shows the checklist requirement for Section 4. Review of HVAC Design Report and applicable footnotes.

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

To complete Section 4, collect the [HVAC Design Report](#) [1] from the HVAC Designer.



Rater Design Review Checklist ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 08)

4. Review of HVAC Design Report ⁷			
4.1 HVAC Design Report collected for records, with no Items left blank		<input type="checkbox"/>	<input type="checkbox"/>
4.2 HVAC Design Report reviewed by Rater for the following parameters (HVAC Design Report Item # indicated in parenthesis):			
4.2.1 Cooling season and heating season outdoor design temperatures used in loads (3.3) are within the limits defined at energystar.gov/hvacdesigntemps for the State and County where the home will be built, or the designer has provided an allowance from EPA to use alternative values ⁸		<input type="checkbox"/>	<input type="checkbox"/>
4.2.2 Number of occupants used in loads (3.4) is within ± 2 of the home to be certified ⁹		<input type="checkbox"/>	<input type="checkbox"/>
4.2.3 Conditioned floor area used in loads (3.5) is between zero and 300 sq. ft. larger than the home to be certified		<input type="checkbox"/>	<input type="checkbox"/>
4.2.4 Window area used in loads (3.6) is between zero and 60 sq. ft. larger than the home to be certified		<input type="checkbox"/>	<input type="checkbox"/>
4.2.5 Predominant window SHGC used in loads (3.7) is within 0.1 of predominant value in the home to be certified ¹⁰		<input type="checkbox"/>	<input type="checkbox"/>
4.2.6 Sensible, latent, & total heat gain are documented (3.10 - 3.12) for the orientation of the home to be certified ¹¹		<input type="checkbox"/>	<input type="checkbox"/>
4.2.7 The variation in total heat gain across orientations (3.13) is ≤ 6 kBtuh ¹¹		<input type="checkbox"/>	<input type="checkbox"/>
4.2.8 Cooling sizing % (4.13) is within the cooling sizing limit (4.15) selected by the HVAC designer		<input type="checkbox"/>	<input type="checkbox"/>
Rater Name: _____ Date of Review: _____			
Rater Signature: _____ Rater Company Name: _____			

Checklist revised 09/15/2015. Required for homes permitted starting 07/01/2016.¹²

Footnote

1. The term 'Rater' refers to the person completing the third-party inspections required for certification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See energystar.gov/newhomestraining [2]

7. The Rater shall collect one HVAC Design Report per system design per plan. Regardless of whether the "site-specific design" or "group design" box has been checked in Item 1.6 of the HVAC Design Report, the system design as documented on the HVAC Design Report must fall within the tolerances in Item 4.2 for the home to be certified. The report is only required to be collected 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 no aspect of the system design changes between homes). The Rater is only responsible for verifying that the designer has not left any items blank on the HVAC Design Report and for verifying the discrete objective parameters in Item 4.2 of this Checklist, not for verifying the accuracy of every input on the HVAC Design Report.

8. Visit energystar.gov/hvacdesigntemps [3] for the maximum cooling season design temperature and minimum heating season design temperature permitted for ENERGY STAR certified homes and the process for a designer to obtain an allowance from EPA. The same design report is permitted to be used in other counties, as long as the design temperature limits in those other counties meet or exceed the cooling and heating season temperature limits for the county selected. For example, if Fauquier County, VA, is used for the load calculations, with a 1% cooling temperature limit of 93 F, then the same report could be used in Fairfax County (which has a higher limit of 94 F) but not in Arlington County (which has a lower limit of 92 F).

9. To determine the number of occupants among all HVAC systems in the home, calculate the number of bedrooms, as defined below, and add one. The number of occupants used in loads must be within ± 2 of the home to be certified, unless Item 1.5 of the HVAC Design Report indicates that the system is a cooling system for temporary occupant loads. A bedroom is defined by

RESNET as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping. A "den", "library", or "home office" with a closet, egress window, and 70 sq. ft. or greater size or other similar rooms shall count as a bedroom, but living rooms and foyers shall not. An egress window, as defined in 2009 IRC section R310, shall refer to any operable window that provides for a means of escape and access for rescue in the event of an emergency. The egress window definition has been summarized for convenience. The egress window shall:

- - have a sill height of not more than 44 inches above the floor; AND
 - have a minimum net clear opening of 5.7 sq. ft.; AND
 - have a minimum net clear opening height of 24 in.; AND
 - have a minimum net clear opening width of 20 in.; AND
 - be operational from the inside of the room without the use of keys, tools or special knowledge.

10. "Predominant" is defined as the SHGC value used in the greatest amount of window area in the home.

11. Orientation represents the direction that the front door of the house is facing. The designer is only required to document the loads for the orientation(s) that the house might be built in. For example, if a house plan will only be built one time in a specific orientation (e.g., a sitespecific design), then the designer only needs to document the loads for this one orientation.

12. This Revision of the Rater Design Review Checklist 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 Rater 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. These assumptions should be both defensible and documented.

Contributors to this Guide: ENERGY STAR Certified Homes, Pacific Northwest National Laboratory

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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