

ENERGY STAR[®]

Residential New Construction Programs

Historical Document

This document is provided for reference because it has been superseded by a more recent Version or Revision. Please find current program documents on the [Program Requirements](#) webpage.

Use of older Versions and Revisions, such as this document, are typically limited to homes and buildings with a permit date (or, for manufactured homes, a production date) prior to a specified date. Consult the [Implementation Timeline](#) table to assess whether a home or apartment is still eligible to be certified using this document.

For questions or more information, contact us at energystarhome@energystar.gov.



National Program Requirements

ENERGY STAR Certified Homes, Version 3.1 (Rev. 08)

Eligibility Requirements

The following homes are eligible to earn the ENERGY STAR:

- Detached dwelling units ¹ (e.g. single family homes); OR
- Dwelling units ¹ in any multifamily building with 4 units or fewer; OR
- Dwelling units ¹ in multifamily buildings with 3 stories or fewer above-grade ^{2,3}; OR
- Dwelling units ¹ in multifamily buildings with 4 or 5 stories above-grade ^{2,3} that have their own heating, cooling, and hot water systems ⁴, separate from other units, and where dwelling units occupy 80% or more of the occupiable ³ square footage of the building ⁵. When evaluating mixed-use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met.

Dwelling units ¹ in multifamily buildings that are not eligible to earn the ENERGY STAR through the Certified Homes Program may be eligible through the Multifamily High Rise Program. For more information, visit: www.energystar.gov/mfhr/eligibility

Note that compliance with these requirements is not intended to imply compliance with all local code requirements that may be applicable to the home to be built. ⁶

Partnership, Training, and Credentialing Requirements

Builders, Raters, and HVAC contractors must meet the following requirements prior to certifying homes:

- Builders are required to sign an ENERGY STAR Partnership Agreement and complete the online Version 3 Builder Orientation, which can be found at www.energystar.gov/homesPA.
- HVAC installing contractors are required to be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this process can be found at www.energystar.gov/newhomesHVAC.
- Raters and Field Inspectors are required to complete training, which can be found at www.energystar.gov/newhomestraining.

ENERGY STAR Certification Process ⁷

1. The certification process provides flexibility to select a custom combination of measures for each home that is equivalent in performance to the minimum requirements of the ENERGY STAR Reference Design Home, Exhibit 1, as assessed through energy modeling. Use a RESNET-accredited Home Energy Rating software program to determine the ENERGY STAR HERS Index Target, which is the highest numerical HERS Index value that each rated home may achieve to earn the ENERGY STAR. ⁸
2. Using the same software program, configure the preferred set of efficiency measures for the home to be certified and verify that the resulting HERS Index meets or exceeds the ENERGY STAR HERS Index Target, as determined in Step 1.

Note that, regardless of the measures selected, the Mandatory Requirements for All Certified Homes in Exhibit 2 are also required and impose certain constraints on the efficiency measures selected (e.g., insulation levels, insulation installation quality, window performance, duct leakage). Furthermore, on-site power generation may only be used to meet the ENERGY STAR HERS Index Target for homes that are larger than the Benchmark Home and only for the incremental change in the ENERGY STAR HERS Index Target caused by the Size Adjustment Factor. ⁹

3. Construct the home using the measures selected in Step 2 and the Mandatory Requirements for All Certified Homes, Exhibit 2.
4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. ¹⁰ The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report.

The Rater must review all items on the Rater checklists. Raters are expected to use their experience and discretion to verify that the overall intent of each inspection checklist item has been met (i.e., identifying major defects that undermine the intent of the checklist item versus identifying minor defects that the Rater may deem acceptable).

In the event that a Rater finds an item that is inconsistent with the intent of the checklists, the home cannot earn the ENERGY STAR until the item is corrected. If correction of the item is not possible, the home cannot earn the ENERGY STAR. In the event that an item on a Rater checklist cannot be inspected by the Rater, the home also cannot earn the ENERGY STAR. The only exceptions to this rule are in the Thermal Enclosure System Section of the Rater Field Checklist, where the builder may assume responsibility for verifying a maximum of eight items. This option shall only be used at the discretion of the Rater. When exercised, the builder's responsibility will be formally acknowledged by the builder signing the checklist for the item(s) that they verified.

In the event that a Rater is not able to determine whether an item is consistent with the intent (e.g., an alternative method of meeting a checklist requirement has been proposed), then the Rater shall consult their Provider. If the Provider also cannot make this determination, then the Rater or Provider shall report the issue to EPA prior to project completion at: energystarhomes@energystar.gov and will typically receive an initial response within 5 business days. If EPA believes the current program requirements are sufficiently clear to determine whether the intent has been met, then this guidance will be provided to the partner and enforced beginning with the house in question. In contrast, if EPA believes the program requirements require revisions to make the intent clear, then this guidance will be provided to the partner but only enforced for homes permitted after a specified transition period after the release of the revised program requirements, typically 60 days in length.

This process will allow EPA to make formal policy decisions as partner questions arise and to disseminate these policy decisions through the periodic release of revised program documents to ensure consistent application of the program requirements.



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Exhibit 1: ENERGY STAR Reference Design Home

The ENERGY STAR Reference Design Home is the set of efficiency features modeled to determine the ENERGY STAR HERS Index Target for each home pursuing certification. Therefore, while the features below are not mandatory, if they are not used then other measures will be needed to achieve the ENERGY STAR HERS Index Target. In addition, note that the Mandatory Requirements for All Certified Homes, Exhibit 2, contain additional requirements such as total duct leakage limits, minimum allowed insulation levels, and minimum allowed fenestration performance. Therefore, EPA recommends that partners review the documents in Exhibit 2 prior to selecting measures.

Hot Climates (2009 IECC Zones 1,2,3) ¹²	Mixed and Cold Climates (2009 IECC Zones 4,5,6,7,8) ¹²																							
Cooling Equipment (Where Provided)																								
<ul style="list-style-type: none"> Cooling equipment modeled at the applicable efficiency levels below: 																								
<ul style="list-style-type: none"> 15 SEER / 12 EER AC, Heat pump (See Heating Equipment) 	<ul style="list-style-type: none"> 13 SEER AC, Heat pump (See Heating Equipment) 																							
Heating Equipment																								
<ul style="list-style-type: none"> Heating equipment modeled at the applicable efficiency levels below, dependent on fuel and system type: 																								
<ul style="list-style-type: none"> Gas furnace, efficiency as follows: <ul style="list-style-type: none"> CZ 1 & 2: 80 AFUE, CZ 3: 90 AFUE, ENERGY STAR certified, 80 AFUE oil furnace, 80 AFUE boiler, 8.2 HSPF / 15 SEER / 12 EER air-source heat pump with electric or dual-fuel backup 	<ul style="list-style-type: none"> 95 AFUE ENERGY STAR gas furnace, 85 AFUE ENERGY STAR oil furnace, 90 AFUE ENERGY STAR gas boiler, 86 AFUE ENERGY STAR oil boiler, Heat pump, with efficiency as follows: <ul style="list-style-type: none"> CZ 4: 8.5 HSPF / 15 SEER / 12 EER air-source w/ electric or dual-fuel backup, CZ 5: 9.25 HSPF / 15 SEER / 12 EER air-source w/ electric or dual-fuel backup, CZ 6: 9.5 HSPF / 15 SEER / 12 EER air-source w/ electric or dual-fuel backup, CZ 7-8: 3.6 COP / 17.1 EER ground-source w/ electric or dual-fuel backup 																							
Envelope, Windows, & Doors																								
<ul style="list-style-type: none"> Insulation levels modeled to 2012 IECC levels and Grade I installation per RESNET standards. Infiltration rates modeled as follows: <table border="1" style="margin-left: 40px; margin-right: 40px;"> <tr> <td style="text-align: center;">4 ACH50 in CZs 1,2</td> <td style="text-align: center;">3 ACH50 in CZs 3,4,5,6,7,8</td> </tr> </table> ENERGY STAR windows and doors modeled, as illustrated below: <table border="1" style="margin-left: 40px; margin-right: 40px;"> <tr> <td style="padding: 2px;">Window U-Value:</td> <td style="padding: 2px;">0.40 in CZs 1,2</td> <td style="padding: 2px;">0.30 in CZ 3</td> <td style="padding: 2px;">0.30 in CZ 4</td> <td style="padding: 2px;">0.27 in CZs 5,6,7,8</td> </tr> <tr> <td style="padding: 2px;">Window SHGC:</td> <td style="padding: 2px;">0.25 in CZs 1,2</td> <td style="padding: 2px;">0.25 in CZ 3</td> <td style="padding: 2px;">0.40 in CZ 4</td> <td style="padding: 2px;">Any in CZs 5,6,7,8</td> </tr> </table> <table border="1" style="margin-left: 40px; margin-right: 40px;"> <tr> <td style="padding: 2px;">Door U-Value:</td> <td style="padding: 2px;">Opaque: 0.17</td> <td style="padding: 2px;">≤½ lite: 0.25</td> <td style="padding: 2px;">>½ lite: 0.30</td> </tr> <tr> <td style="padding: 2px;">Door SHGC:</td> <td style="padding: 2px;">Opaque: Any</td> <td style="padding: 2px;">≤½ lite: 0.25</td> <td style="padding: 2px;">>½ lite: 0.25 in CZs 1,2,3; 0.40 in CZs 4,5,6,7,8</td> </tr> </table> 				4 ACH50 in CZs 1,2	3 ACH50 in CZs 3,4,5,6,7,8	Window U-Value:	0.40 in CZs 1,2	0.30 in CZ 3	0.30 in CZ 4	0.27 in CZs 5,6,7,8	Window SHGC:	0.25 in CZs 1,2	0.25 in CZ 3	0.40 in CZ 4	Any in CZs 5,6,7,8	Door U-Value:	Opaque: 0.17	≤½ lite: 0.25	>½ lite: 0.30	Door SHGC:	Opaque: Any	≤½ lite: 0.25	>½ lite: 0.25 in CZs 1,2,3; 0.40 in CZs 4,5,6,7,8	
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Water Heater																								
<ul style="list-style-type: none"> DHW equipment modeled with the following efficiency levels as applicable: <table border="1" style="margin-left: 40px; margin-right: 40px;"> <tr> <td style="padding: 2px;">Gas:</td> <td style="padding: 2px;">30 Gal = 0.63 EF</td> <td style="padding: 2px;">40 Gal = 0.61 EF</td> <td style="padding: 2px;">50 Gal = 0.59 EF</td> <td style="padding: 2px;">60 Gal = 0.57 EF</td> <td style="padding: 2px;">70 Gal = 0.55 EF</td> <td style="padding: 2px;">80 Gal = 0.53 EF</td> </tr> <tr> <td style="padding: 2px;">Electric:</td> <td style="padding: 2px;">30 Gal = 0.94 EF</td> <td style="padding: 2px;">40 Gal = 0.93 EF</td> <td style="padding: 2px;">50 Gal = 0.92 EF</td> <td style="padding: 2px;">60 Gal = 0.91 EF</td> <td style="padding: 2px;">70 Gal = 0.90 EF</td> <td style="padding: 2px;">80 Gal = 0.89 EF</td> </tr> <tr> <td style="padding: 2px;">Oil:</td> <td style="padding: 2px;">30 Gal = 0.55 EF</td> <td style="padding: 2px;">40 Gal = 0.53 EF</td> <td style="padding: 2px;">50 Gal = 0.51 EF</td> <td style="padding: 2px;">60 Gal = 0.49 EF</td> <td style="padding: 2px;">70 Gal = 0.47 EF</td> <td style="padding: 2px;">80 Gal = 0.45 EF</td> </tr> </table>				Gas:	30 Gal = 0.63 EF	40 Gal = 0.61 EF	50 Gal = 0.59 EF	60 Gal = 0.57 EF	70 Gal = 0.55 EF	80 Gal = 0.53 EF	Electric:	30 Gal = 0.94 EF	40 Gal = 0.93 EF	50 Gal = 0.92 EF	60 Gal = 0.91 EF	70 Gal = 0.90 EF	80 Gal = 0.89 EF	Oil:	30 Gal = 0.55 EF	40 Gal = 0.53 EF	50 Gal = 0.51 EF	60 Gal = 0.49 EF	70 Gal = 0.47 EF	80 Gal = 0.45 EF
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Thermostat & Ductwork																								
<ul style="list-style-type: none"> Programmable thermostat modeled. All ducts and air handlers modeled within conditioned space. 																								
Lighting & Appliances																								
<ul style="list-style-type: none"> ENERGY STAR refrigerators, dishwashers, and ceiling fans modeled. ENERGY STAR light bulbs modeled in 90% of RESNET-defined Qualifying Light Fixture Locations. 																								



National Program Requirements ENERGY STAR Certified Homes, Version 3.1 (Rev. 08)

Exhibit 2: Mandatory Requirements for All Certified Homes

Party Responsible	Mandatory Requirements
Rater	<ul style="list-style-type: none"> • Completion of Rater Design Review Checklist • Completion of Rater Field Checklist
HVAC System Designer	<ul style="list-style-type: none"> • Completion of HVAC Design Report
HVAC Installing Contractor	<ul style="list-style-type: none"> • Completion of HVAC Commissioning Checklist
Builder	<ul style="list-style-type: none"> • Completion of Water Management System Builder Requirements

Exhibit 3: Benchmark Home⁹

Bedrooms in Home to be Built	0	1	2	3	4	5	6	7	8
Conditioned Floor Area Benchmark Home	1,000	1,000	1,600	2,200	2,800	3,400	4,000	4,600	5,200

Effective Date

EPA intends to implement the Version 3.1 program requirements for homes permitted starting one year after state-level implementation of the 2012 IECC or an equivalent code. However, EPA will make a final determination of the implementation timeline on a state-by-state basis. Exhibit 4 defines the Version 3.1 implementation timeline for states where EPA has made this determination. Homes permitted prior to the implementation timeline are eligible to earn the ENERGY STAR under Version 3 of the program requirements.

Note that regional program requirements and associated implementation schedules have been developed for homes in CA, FL, GU, HI, the Northern Mariana Islands, and PR.

Exhibit 4: ENERGY STAR Certified Homes Version 3.1 Implementation Timeline

State	Applicable to Homes with the Following Permit Date
MA	On or after 01/01/2015
DC, IL, MD, RI	On or after 04/01/2015 (except for Calvert County and St. Mary's County in MD, for which the applicable permit date is on or after 07/01/2015)
IA	On or after 06/01/2015
DE	On or after 12/01/2015
MT,OR, WA	On or after 01/01/2016
MN, VT	On or after 04/01/2016
NV	On or after 07/01/2016
NJ	On or after 04/01/2017
TX	On or after 10/01/2017

Notes:

1. A dwelling unit, as defined by the 2012 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.
2. Any above-grade story with 20% or more occupiable space, including commercial space, shall be counted towards the total number of stories for the purpose of determining eligibility to participate in the program. The definition of an 'above-grade story' is one for which more than half of the gross surface area of the exterior walls is above-grade. All below-grade stories, regardless of type, shall not be included when evaluating eligibility.
3. Per ASHRAE 62.2-2010, occupiable space is any enclosed space inside the pressure boundary and intended for human activities or continual human occupancy, including, but not limited to, areas used for living, sleeping, dining, and cooking, toilets, closets, halls, storage and utility areas, and laundry areas.
4. Central domestic hot water systems are allowed if solar energy provides $\geq 50\%$ of the domestic hot water for the residential units.
5. Units in multifamily buildings with 4 or 5 stories above-grade, including mixed-use buildings, that have their own heating, cooling, & hot water systems, separate from other units, *but where dwelling units occupy < 80%* of the residential (i.e., excluding commercial / retail space for mixed-use buildings) occupiable square footage of the building may earn the ENERGY STAR through either the



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Certified Homes Program or the Multifamily High Rise (MFHR) Program if permitted prior to July 1, 2012. Units in buildings of this type that are permitted after this date shall only be eligible to earn the ENERGY STAR through the MFHR Program.

6. Where requirements of the local codes, manufacturers' installation instructions, engineering documents, or regional ENERGY STAR programs overlap with the requirements of these guidelines, EPA offers the following guidance:
 - a. Where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;
 - b. Where overlapping requirements conflict with a requirement of the ENERGY STAR program (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these program requirements shall not be met. Certification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement (e.g., switching from exterior to interior slab edge insulation). Note that a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement.
7. Prior to Rev. 06, homes were permitted to be certified using either a Prescriptive Path or a Performance Path. Homes with a permit date on or after 09/01/2015 shall only use the Performance Path, which has been renamed the ENERGY STAR Certification Process. To minimize disruption to projects that are in process, homes with a permit date before 09/01/2015 are permitted to use a modified version of the Prescriptive Path in lieu of the Performance Path. For more information about this compliance option, visit: www.energystar.gov/v31prescriptivepath.
8. The software program shall automatically determine (i.e., without relying on a user-configured ENERGY STAR Reference Design) this target for each rated home by following the ENERGY STAR HERS Index Target Procedure, Version 3.1, available on EPA's website.
9. The average-size home with a specific number of bedrooms is termed the "Benchmark Home". The conditioned floor area of a Benchmark Home (CFA_{Benchmark Home}) is determined by selecting the appropriate value from Exhibit 3. For homes with more than 8 bedrooms, the CFA_{Benchmark Home} shall be determined by multiplying 600 sq. ft. by the total number of bedrooms & adding 400 sq. ft. 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 2012 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 in. 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. 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 www.energystar.gov/newhomestraining. Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home and to verify any Checklist Item designated "Rater Verified" using the RESNET-approved sampling protocol for homes outside California, and the CEC-approved sampling protocol for homes in CA. No parties other than Raters are permitted to use sampling. All other items shall be verified for each certified home. For example, no items on the HVAC Commissioning Checklist are permitted to be verified using a sampling protocol.
11. In States that have a v3.1 implementation timeline, per Exhibit 4, this Revision of the National Program Requirements 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.
12. The following map illustrates the Climate Zone boundaries as defined by the 2012 IECC Figure R301.1.

