

Note: Energy Inspectors comments in red below.

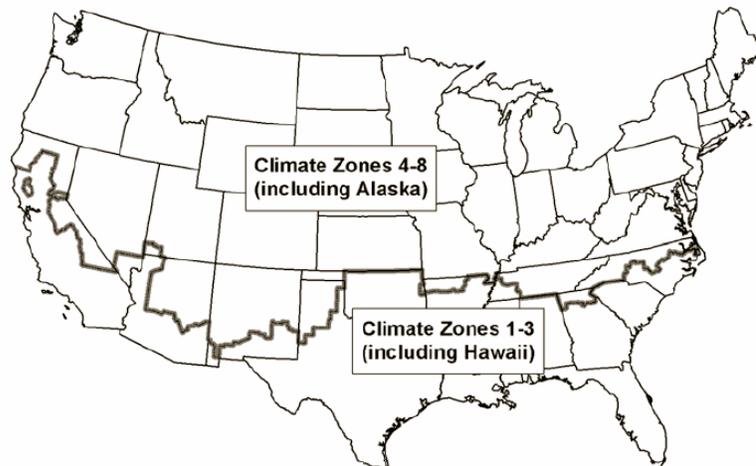
National Specifications  
ENERGY STAR Qualified Homes

General requirements for the ENERGY STAR Reference Home are specified in the table below. For a home to qualify as ENERGY STAR, the following three conditions must be met:

1. A home must Either: a) Meet the reference home requirements, or b) Have an energy performance that is equivalent or better than these requirements, as determined by a RESNET-accredited rating software program. **Need a different reference home requirement.**
2. A home must be verified and field tested according to the HERS Guidelines by a RESNET-accredited Provider.
3. The home must meet all state and local codes.

For county specific information refer to the ENERGY STAR Qualified Homes Verification Checklist at [www.energystar.gov/homes](http://www.energystar.gov/homes).

	Hot Climates <sup>1</sup> (2004 IECC Climate Zones 1,2,3)	Mixed and Cold Climates <sup>1</sup> (2004 IECC Climate Zones 4,5,6,7,8)
Cooling Equipment <sup>2</sup> (Where Provided)	Right-Sized ( <b>Remove "Energy Star Qualified"</b> ) Central A/C or Heat Pump	Right Sized 13 SEER Central A/C or Energy Star Qualified Heat Pump
Heating Equipment <sup>2</sup>	Right-Sized Minimum Standard Furnace, Boiler <sup>4</sup> or Energy Star Qualified Heat Pump <sup>3</sup>	Right-Sized Energy Star Qualified Gas Furnace, Heat Pump <sup>3</sup> , Boiler <sup>4</sup> or 85% AFUE Oil Furnace
Thermostat <sup>3</sup>	<b>Programmable 7 Day Thermostat</b>	
Ductwork	Leakage Sealed and Tested to <b>≤ 6% of the High Speed Fan Flow of the Forced Air Unit (FAU)<sup>5</sup> i.e. 24cfm max leakage per ton</b>	
Envelope	Infiltration Sealed and Tested to <b>3.2 ACH<sub>50</sub> to 6.9 ACH<sub>50</sub> or 0.35 Natural/ACH<sup>8,9</sup></b> ; and 2004 IECC Compliant Insulation Levels; and Compliance with Thermal Bypass Inspection Checklist <sup>10</sup>	
Windows <sup>11</sup>	<b>(0.40 U-Factor <u>or</u> 0.40 SHGC)**</b>	
Water Heater	Gas 0.60 EF / Electric 0.92 EF / Oil Integrated with Space Heating Boiler <sup>4</sup>	
Lighting and Appliances <sup>12,13</sup>	<b>Remove from Energy Star Requirements (allow as a toggle if certified rating software has ability to use this feature)</b>	



Map is for illustrative purposes only and is based on figure 301.1 from the 2004 International Energy Conservation Code.

## Specification Notes

### ENERGY STAR Qualified Homes

1. The appropriate climate zone for each building site is determined by the 2004 IECC.
2. All requirements for ENERGY STAR qualified equipment shall be based on the latest ENERGY STAR specifications. Heating and cooling equipment should be sized according to ACCA Manual S specifications; ducts should be sized to Manual D specifications; both should be based on Manual J load calculations.
3. In homes with heat pumps, programmable thermostats must have “ramp-up” technology to prevent the excessive use of electric back-up heating.
4. In homes with oil or gas hydronic equipment, domestic water heating must be provided by the space heating boiler (tankless)
5. Ducts must be sealed and tested to  $\leq 6\%$  of the High Speed Fan Flow of the Forced Air Unit (FAU). Duct leakage must be determined and documented by a RESNET-certified rater using a RESNET-approved testing protocol.
6. To prevent condensation, a minimum of R-4 insulation is recommended for ducts in conditioned space.
7. Insulation shall meet the prescriptive requirements of the 2004 IECC table 402.1 or the  $U_o$  performance requirements of table 402.1.2.
8. Tested envelope leakage must be determined and documented by a RESNET-certified rater using a RESNET-approved testing protocol.
9. To ensure consistent exchange of indoor air, installation of a mechanical ventilation system that meets the minimum requirements of ASHRAE Standard 62.2 is recommended.
10. All items on the Thermal Bypass Inspection Checklist must be verified. The Checklist includes the following 12 areas:

- |                                 |  |
|---------------------------------|--|
| 1. Shower/Tub at Exterior Wall  | 7. Flue Shaft                                |
| 2. Insulated Floor above Garage | 8. Piping Shaft/Penetrations                 |
| 3. Attic Knee Walls             | 9. Dropped Ceiling/Soffit                    |
| 4. Attic Hatch/Drop-down Stair  | 10. Fireplace Wall                           |
| 5. Cantilevered Floor           | 11. Staircase Framing at Exterior Wall/Attic |
| 6. Duct Shafts                  | 12. Whole-house Fan Attic Penetration        |

11. The specifications for ENERGY STAR qualified windows can be found at [www.energystar.gov](http://www.energystar.gov). For homes with window area exceeding 21% window to floor area (WFA), the following additional requirements apply: **Used for BOP right now, don't make this the standard for ENERGY STAR, let the approved rating programs designate the U-Factor and SHGC.**

- a. In IECC Climate Zones 1, 2 and 3, an improved window Solar Heat Gain Coefficient (SHGC) is required and is determined by:

$$\text{Required SHGC} = [0.18 / \text{WFA}] * [\text{ENERGY STAR SHGC}]$$

*Where the ENERGY STAR SHGC is the minimum required SHGC of a climate appropriate ENERGY STAR qualified window.*

Note: Solar window screens may be used to meet required SHGC beyond the ENERGY STAR SHGC. The overall SHGC for a window unit with solar screen is determined by the following equation:

$$[(\text{window SHGC}) \times (\text{solar screen SHGC}) \times (\% \text{ area covered})] + [\text{window SHGC} \times \% \text{ area not covered}]$$

- b. In IECC Climate Zones 5, 6, 7 and 8, an improved window U-Value is required and is determined by:

$$\text{Required U-Value} = [0.18 / \text{WFA}] * [\text{ENERGY STAR U-Value}]$$

*Where the ENERGY STAR U-Value is the minimum required U-Value of a climate appropriate ENERGY STAR qualified window.*

12. Any combination can be installed to meet this requirement. ENERGY STAR qualified lighting fixtures installed in the following locations can not be counted towards compliance with the ENERGY STAR reference home: storage rooms of any kind (e.g., closets, pantries, sheds), laundry rooms or garages. Additional efficiency and savings can be achieved by installing other ENERGY STAR qualified products throughout the house (e.g., additional lighting, appliances, etc.) For more information, visit [www.energystar.gov](http://www.energystar.gov). **Don't make this a Standard for E\***

13. EPA currently plans to require the ENERGY STAR Advanced Lighting Package (ALP) in 2009.

To learn more, refer to the ALP quick link at [www.energystar.gov/homes](http://www.energystar.gov/homes). Don't make this a Standard for E\*

Thermal Bypass Inspection Checklist  
ENERGY STAR Qualified Homes

Thermal Bypass	What to Inspect	Complies (Y/N)
1. Shower/Tub at Exterior Wall	Exterior walls behind tub or shower have been fully insulated  Exterior walls behind tub or shower have been faced with air barrier material	
2. Insulated Floor above Garage	Floor framing is completely filled with insulation or insulation is snug against sub-floor  Air barrier is installed at any exposed edges of insulation	
3. Attic Knee Walls	Air barrier is installed on attic side of insulated wall  Insulation is in complete alignment with interior wall finish	
4. Attic Hatch/Drop-down Stair	Attic opening is fully gasketed for an air-tight fit  Hatch is covered with insulation that is attached and fits snugly in framed opening	
5. Cantilevered Floor	Floor framing is completely filled with insulation or insulation is snug against sub-floor  Air barrier installed at any exposed edges of insulation	
6. Duct Shafts	Opening is enclosed as required with flashing and any remaining gaps are sealed with caulk or foam	
7. Flue Shaft	Opening is fully enclosed as required with flashing  Combustion clearance between flue and combustible flashing (e.g., OSB panel) are properly closed with metal collars and any remaining gaps are sealed with fire-proof caulk or foam	
8. Piping Shaft/ Penetrations	Opening is fully enclosed as required with flashing and any remaining gaps are sealed with caulk or foam	
9. Dropped Ceiling/Soffit	Air barrier is fully aligned with insulated framing and any gaps are fully sealed with caulk or foam	
10. Fireplace Wall	Air barrier is fully aligned with insulated framing in framed shaft behind fireplace and any gaps are fully sealed with caulk or foam	
11. Staircase Framing at Exterior Wall/Attic	Air barrier is fully aligned with insulated framing and any gaps are fully sealed with caulk or foam	
12. Whole-house Fan Attic Penetration	An insulated cover is provided that is gasketed to the framed opening	

\*\* ENERGY STAR approved windows are at a level of 0.40 U-Factor and 0.40 SHGC. This is shy of mandating Vinyl Windows.