ENERGY STAR Qualified Homes Codes & Standards Information

Insulation Requirements for the National Builder Option Package

The National Builder Option Package requires that the insulation levels of a home meet or exceed Sections N1102.1 and N1102.2 of the 2004 IRC. For example, compliance may be determined by meeting the prescriptive insulation requirements listed by component below. Compliance may also be determined using U-factor alternatives or a total UA alternative as defined in Section N1102.1.2 and Section N1102.1.3. In all cases, insulation shall be inspected to Grade I installation as defined in the RESNET Standards by a RESNET-certified rater. Note that the fenestration requirements of the 2004 IRC do not apply to the fenestration requirements of the National Builder Option Package.

Climate Zone	Ceiling R-Value	Wood Frame Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value & Depth	Crawl Space R-Value
1	30	13	13	0	0	0
2	30	13	13	0	0	0
3	30	13	19	0	0	5/13
4 except Marine	38	13	19	10/13	10, 2 ft.	10/13
5 and Marine 4	38	19 or 13+5	30	10/13	10, 2 ft.	10/13
6	49	19 or 13+5	30	10/13	10, 4 ft.	10/13
7 and 8	49	21	30	10/13	10, 4 ft.	10/13

Reference: 2004 International Supplement to the International Codes. Copyright 2004. Falls Church, Virginia: International Code Council, Inc. Reproduced with permission. All rights reserved. (Excerpted from 2004 IRC Table N1102.1)

Best Practices for Sizing Air Conditioners and Heat Pumps

Best practices for sizing air conditioners and heat pumps include:

- Sizing to the manufacturers' performance data;
- Sizing the equipment for the total and latent load capacities;
- Determining the auxiliary heat balance point when sizing heat pumps; and
- Considering both the cooling and heating loads in different climates when sizing heat pumps.

ENERGY STAR Products – Average Energy Savings & Key Product Criteria

Product	Average Energy Savings	Key Product Criteria
Air Conditioner	25%	SEER ≥ 14 ; EER ≥ 11.5
Heat Pump	20%	SEER ≥ 14 ; EER ≥ 11.5; HSPF ≥ 8.2
Furnace	15%	AFUE ≥ 90% (About 15% more efficient than the minimum federal efficiency standards)
Dish Washers	25%	Energy Factor ≥ 0.58: At least 25% more energy efficient than minimum Federal government standards
Clothes Washers	50%	Minimum Modified Energy Factor (MEF) of 1.42
Refrigerator	15%	At least 15% more energy efficient than the minimum Federal government standard (NAECA)

ENERGY STAR Qualified Homes Codes & Standards Information

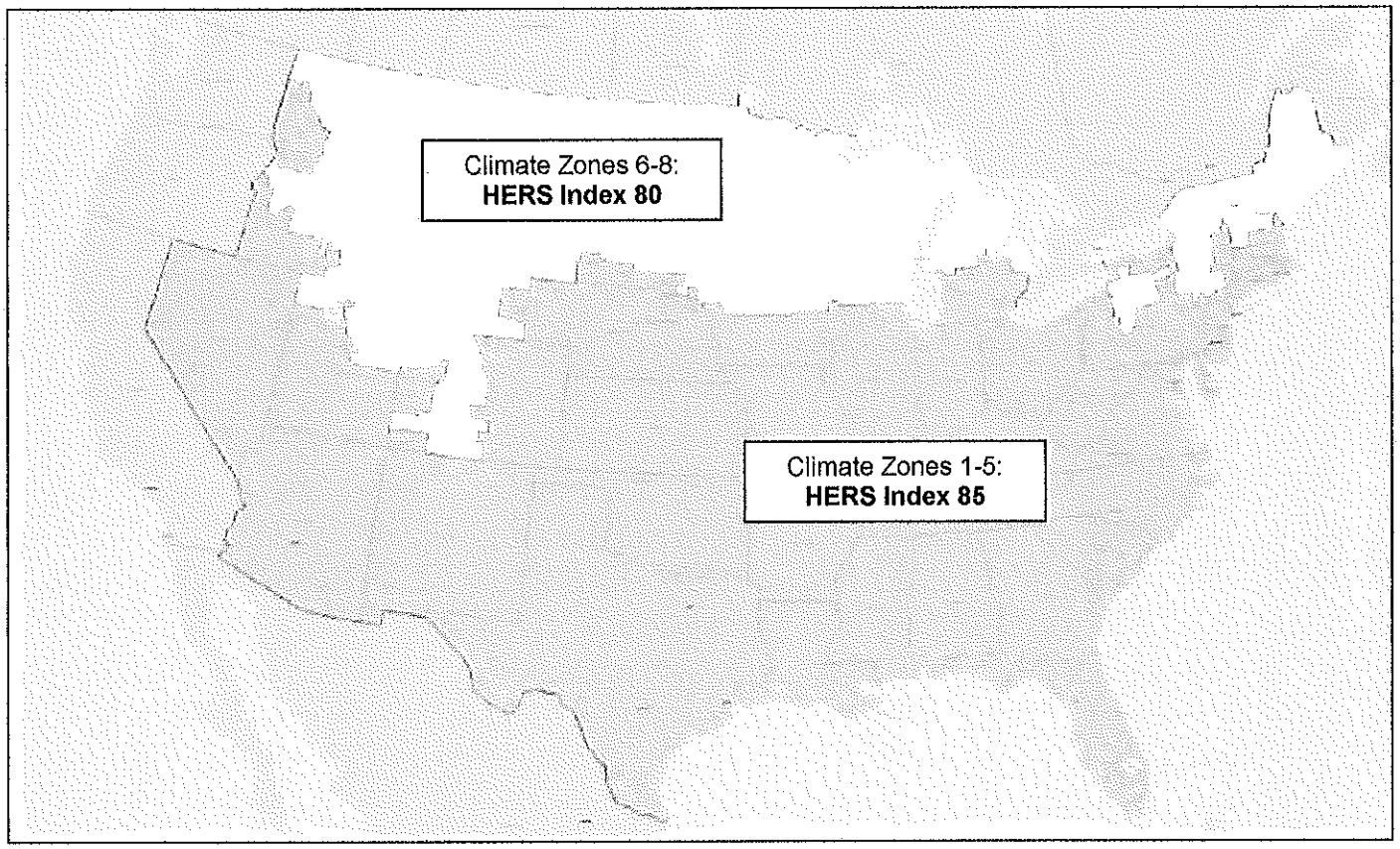
Product	Average Energy Savings	Key Product Criteria
Windows	ENERGY STAR Home Windows for IRC Climate Zones If IRC Climate Zone is not 2 or 4, then refer to the ENERGY STAR Window Climate Zones below	**IRC Climate Zone 4:** U-Factor ≤ 0.40; SHGC ≤ 0.45 **IRC Climate Zone 2:** U-Factor ≤ 0.55; SHGC ≤ 0.35; or U-Factor ≤ 0.56; SHGC ≤ 0.33 U-Factor ≤ 0.57; SHGC ≤ 0.32 U-Factor ≤ 0.58; SHGC ≤ 0.31 U-Factor ≤ 0.59; SHGC ≤ 0.30 U-Factor ≤ 0.60; SHGC ≤ 0.29 U-Factor ≤ 0.61; SHGC ≤ 0.28 U-Factor ≤ 0.62; SHGC ≤ 0.27 U-Factor ≤ 0.63; SHGC ≤ 0.26 U-Factor ≤ 0.64; SHGC ≤ 0.25
	Savings vary by climate region (as defined by the ENERGY STAR windows program) and home characteristics See web-site for correct selection of ENERGY STAR windows for building site	**Northern Climate Zone:** U-Factor ≤ 0.35; SHGC ≤ Any **North/Central Climate Zone:** U-Factor ≤ 0.40; SHGC ≤ 0.55 **South/Central Climate Zone:** U-Factor ≤ 0.40; SHGC ≤ 0.40; or U-Factor≤ 0.41; SHGC ≤ 0.36 U-Factor≤ 0.42; SHGC ≤ 0.31 U-Factor≤ 0.43; SHGC ≤ 0.24 **Southern Climate Zone:** U-Factor ≤ 0.65; SHGC ≤ 0.40; or U-Factor≤ 0.66; SHGC ≤ 0.39 U-Factor≤ 0.67; SHGC ≤ 0.39 U-Factor≤ 0.68; SHGC ≤ 0.38 U-Factor≤ 0.69; SHGC ≤ 0.37 U-Factor≤ 0.70; SHGC ≤ 0.37 U-Factor≤ 0.71; SHGC ≤ 0.36 U-Factor≤ 0.72; SHGC ≤ 0.35 U-Factor≤ 0.73; SHGC ≤ 0.35 U-Factor≤ 0.74; SHGC ≤ 0.34 U-Factor≤ 0.75; SHGC ≤ 0.33 http://www.energystar.gov/index.cfm?c=windows_doors.pr_crit_windows
Thermostat	Savings depend on homeowner use	Shipped with a default energy saving program that is capable of maintaining two separate programs and four temperature settings or more for each day
Ventilating Fans	65%	**Range hoods (up to 500 cfm):** maximum allowable sound level of 2.0 sones; minimum efficacy level of 2.8 cfm/Watt **Bathroom fans (10 to 80 cfm):** maximum allowable sound level of 2.0 sones; minimum efficacy level of 1.4 cfm/Watt; minimum rated airflow at 0.25 static w.g. 60% of 0.1 static w.g. airflow **Bathroom fans (90 to 130 cfm):** maximum allowable sound level of 2.0 sones; minimum efficacy level of 2.8 cfm/Watt; minimum rated airflow at 0.25 w.g. 70% of 0.1 static w.g. airflow **Bathroom fans (140 to 500 cfm):** maximum allowable sound level of 3.0 sones; minimum efficacy level of 2.8 cfm/Watt; minimum rated airflow at 0.25 w.g. 70% of 0.1 static w.g. airflow Light sources must use pin-based fluorescent technology Warranty provided must be a minimum of 1 year
Lighting	66%	http://www.energystar.gov/index.cfm?c=lighting.pr_lighting
Ceiling Fans	Savings depend on homeowner use	http://www.energystar.gov/index.cfm?c=ceiling_fans.pr_ceiling_fans

ENERGY STAR Qualified Homes
National Performance Path Requirements

ENERGY STAR Performance Requirements:

To qualify as ENERGY STAR, a home must meet the minimum requirements specified below, be verified and field-tested in accordance with the RESNET Standards by a RESNET-accredited Provider, and meet all applicable codes.

Maximum HERS Index Required to Earn the ENERGY STAR[1]



Note: Due to the unique nature of some state codes and/or climates, EPA has agreed to allow regionally-developed definitions of ENERGY STAR in California, Hawaii, and the Pacific Northwest to continue to define program requirements. The States of Montana and Idaho may use either the requirements of the national program or the regionally-developed program in the Pacific Northwest.

ENERGY STAR Mandatory Requirements:

Envelope [2,3,4]	Completed Thermal Bypass Inspection Checklist
Ductwork [5,6]	Leakage ≤ 6 cfm to outdoors / 100 sq. ft.
ENERGY STAR Products [13,14]	Include at least one ENERGY STAR qualified product category: ▪ Heating or cooling equipment [7]; OR ▪ Windows [8]; OR ▪ Five or more ENERGY STAR qualified light fixtures [9,10], appliances [11], ceiling fans equipped with lighting fixtures, and/or ventilation fans [12]
ENERGY STAR Scoring Exceptions	▪ On-site power generation may not be used to decrease the HERS Index to qualify for ENERGY STAR. ▪ A maximum of 20% of all screw-in light bulb sockets in the home may use compact fluorescent lamps (CFLs) to decrease the HERS Index for ENERGY STAR compliance. CFLs used for this purpose must be ENERGY STAR qualified.

ENERGY STAR Qualified Homes
National Performance Path Notes

1. The appropriate climate zone for each building site shall be determined by the 2004 International Residential Code (IRC), Table N1101.2. The HERS Index must be calculated in accordance with the RESNET Mortgage Industry National Home Energy Rating Standards.
2. The Thermal Bypass Inspection Checklist must be completed for homes to earn the ENERGY STAR label. The Checklist requires visual inspection of framing areas where air barriers are commonly missed and inspection of insulation to ensure proper alignment with air barriers, thus serving as an extra check that the air and thermal barriers are continuous and complete.
3. Envelope leakage must be determined by a RESNET-certified rater using a RESNET-approved testing protocol.
4. To ensure consistent exchange of indoor air, whole-house mechanical ventilation is recommended, but not required.
5. Ducts must be sealed and tested to be ≤ 6 cfm to outdoors / 100 sq. ft. of conditioned floor area, as determined and documented by a RESNET-certified rater using a RESNET-approved testing protocol. If total duct leakage is ≤ 6 cfm to outdoors / 100 sq.ft. of conditioned floor area, then leakage to outdoors does not need to be tested. Duct leakage testing can be waived if all ducts and air handling equipment are located in conditioned space (i.e., within the home's air and thermal barriers) AND the envelope leakage has been tested to be ≤ 3 ACH50 OR ≤ 0.25 CFM 50 per sq. ft. of the building envelope. Note that mechanical ventilation will be required in this situation.
6. EPA recommends, but does not require, locating ducts within conditioned space (i.e., inside the air and thermal barriers), and using a minimum of R-4 insulation for ducts inside conditioned space to prevent condensation.
7. All cooling equipment, regardless of whether it is used to satisfy the ENERGY STAR products requirement, must be sized according to the latest editions of ACCA Manuals J and S, ASHRAE 2001 Handbook of Fundamentals, or an equivalent computation procedure. Maximum oversizing limit for air conditioners and heat pumps is 15% (with the exception of heat pumps in Climate Zones 5 - 8, where the maximum oversizing limit is 25%). This can be accomplished either by the rater performing the calculations or reviewing documentation provided by the professional contractor or engineer who calculated the sizing (e.g., HVAC contractor). The following operating conditions shall be used in the sizing calculations and verified where reviewed by the rater:

   Outdoor temperatures shall be the 99.0% design temperatures as published in the ASHRAE Handbook of Fundamentals for the home's location or most representative city for which design temperature data are available. Note that a higher outdoor air design temperature may be used if it represents prevailing local practice by the HVAC industry and reflects extreme climate conditions that can be documented with recorded weather data; Indoor temperatures shall be 75^0 F for cooling; Infiltration rate shall be selected as "tight", or the equivalent term.

   In specifying equipment, the next available size may be used. In addition, indoor and outdoor coils shall be matched in accordance with ARI standards.
8. Where windows are used to meet the ENERGY STAR qualified product requirement, they shall be ENERGY STAR qualified or meet all specifications for ENERGY STAR qualified windows. Additional information can be found at www.energystar.gov/windows.
9. For the purposes of meeting the ENERGY STAR requirement, qualified lighting fixtures in the following locations cannot be counted: storage rooms (e.g., closets, pantries, sheds), or garages.
10. Efficient lighting fixtures represent a significant opportunity for persistent energy savings and a meaningful way to differentiate ENERGY STAR qualified homes from those meeting minimum code requirements. In 2008, EPA intends to propose and solicit industry comments on adding the ENERGY STAR Advanced Lighting Package (ALP) as an additional requirement for ENERGY STAR qualified homes in 2009. To learn more about the ALP, refer to www.energystar.gov/homes.
11. Eligible appliances include ENERGY STAR qualified refrigerators, dish washers, and washing machines.
12. ENERGY STAR qualified ventilation fans include range hood, bathroom, and inline fans.
13. Further efficiency and savings can be achieved by installing ENERGY STAR qualified products, in addition to those required (e.g., additional lighting, appliances, etc.). For more information, visit www.energystar.gov.
14. In homes with heat pumps that have programmable thermostats, the thermostat must have "Adaptive Recovery" technology to prevent the excessive use of electric back-up heating.

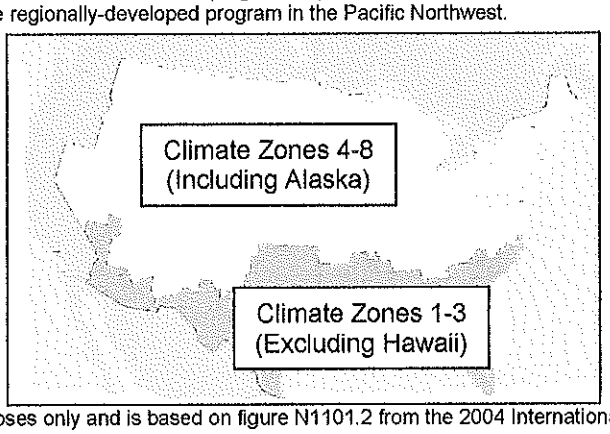
ENERGY STAR Qualified Homes
National Builder Option Package

The requirements for the ENERGY STAR Builder Option Package (BOP) are specified in the table below.

To qualify as ENERGY STAR using this BOP, a home must meet the requirements specified, be verified and field-tested in accordance with the HERS Standards by a RESNET-accredited Provider, and meet all applicable codes.

	Hot Climates [1] (2004 IRC Climate Zones 1,2,3)	**Mixed and Cold Climates** [1] (2004 IRC Climate Zones 4,5,6,7,8)
Cooling Equipment (Where Provided)	Right-Sized [2]: • ENERGY STAR qualified A/C *(14 SEER / 11.5 EER)*; OR • ENERGY STAR qualified heat pump [3] *(14 SEER / 11.5 EER / 8.2 HSPF)*	Right-Sized [2]: • 13 SEER A/C; OR • ENERGY STAR qualified heat pump [3] *(14 SEER / 11.5 EER / 8.5 HSPF)*
Heating Equipment	• 80 AFUE gas furnace; OR • ENERGY STAR qualified heat pump [2, 3] *(14 SEER / 11.5 EER / 8.2 HSPF)*; OR • 80 AFUE boiler; OR • 80 AFUE oil furnace	• ENERGY STAR qualified gas furnace *(90 AFUE)*; OR • ENERGY STAR qualified heat pump [2, 3] *(See Note 3 for specifications)*; OR • ENERGY STAR qualified boiler *(85 AFUE)*; OR • ENERGY STAR qualified oil furnace *(85 AFUE)*
Thermostat [3]	ENERGY STAR qualified thermostat (except for zones with radiant heat)	
Ductwork	Leakage [4]: ≤ 4 cfm to outdoors / 100 sq. ft.; AND R-6 min. insulation on ducts in unconditioned spaces [5]	
Envelope	• Infiltration [6,7] (ACH50): 7 in CZ's 1-2 | 6 in CZ's 3-4 | 5 in CZ's 5-7 | 4 in CZ 8; AND • Insulation levels that meet or exceed the 2004 IRC [8]; AND • Completed Thermal Bypass Inspection Checklist [9]	
Windows	ENERGY STAR qualified windows or better (additional requirements for CZ2 and CZ4) [10, 11, 12]	
Water Heater [13]	Gas (EF): 40 Gal = 0.61 | 60 Gal = 0.57 | 80 Gal = 0.53 Electric (EF): 40 Gal = 0.93 | 50 Gal = 0.92 | 80 Gal = 0.89 Oil or Gas [14]: Integrated with space heating boiler	
Lighting and Appliances [15,16]	Five or more ENERGY STAR qualified appliances, light fixtures, ceiling fans equipped with lighting fixtures, and/or ventilation fans	

Note: Due to the unique nature of some state codes and/or climates, EPA has agreed to allow regionally-developed definitions of ENERGY STAR in California, Hawaii, and the Pacific Northwest to continue to define program requirements. The States of Montana and Idaho may use either the requirements of the national program or the regionally-developed program in the Pacific Northwest.



Map is for illustrative purposes only and is based on figure N1101.2 from the 2004 International Residential Code (IRC).

ENERGY STAR Qualified Homes
National Builder Option Package Notes

1. The appropriate climate zone shall be determined by the 2004 International Residential Code (IRC), Figure N1101.2.
2. Cooling equipment shall be sized according to the latest editions of ACCA Manuals J and S, ASHRAE 2001 Handbook of Fundamentals, or an equivalent procedure. Maximum oversizing limit for air conditioners and heat pumps is 15% (with the exception of heat pumps in Climate Zones 5 - 8, where the maximum oversizing limit is 25%). The following operating conditions shall be used in the sizing calculations and verified where reviewed by the rater:

   Outdoor temperatures shall be the 99.0% and 1.0% design temperatures as published in the ASHRAE Handbook of Fundamentals for the home's location or most representative city for which design temperature data are available; Indoor temperatures shall be 75 F for cooling and 70 F for heating; Infiltration rate shall be selected as "tight", or the equivalent term.

   In specifying equipment, the next available size may be used. In addition, indoor and outdoor coils shall be matched in accordance with ARI standards.
3. Homes with heat pumps in Climate Zones 4 and 5 must have an HSPF ≥ 8.5, which exceeds the ENERGY STAR minimum of 8.2 HSPF. Homes with heat pumps in Climate Zones 6, 7, and 8 cannot be qualified using this BOP, but can earn the label using the ENERGY STAR Performance Path requirements. In homes with heat pumps that have programmable thermostats, the thermostat must have "Adaptive Recovery" technology to prevent the excessive use of electric back-up heating.
4. Ducts must be sealed and tested to be ≤ 4 cfm to outdoors / 100 sq. ft. of conditioned floor area, as determined and documented by a RESNET-certified rater using a RESNET-approved or equivalent ASTM-approved testing protocol. Duct leakage testing can be waived if all ducts and air handling equipment are located in conditioned space (i.e., within the home's air and thermal barriers) AND the envelope leakage has been tested to be ≤ 3 ACH50 OR ≤ 0.25 CFM 50 per sq. ft. of the building envelope.
5. EPA recommends, but does not require, locating ducts within the home's conditioned space (i.e., inside the air and thermal barriers), and using a minimum of R-4 insulation for ducts inside the conditioned space to prevent condensation.
6. Envelope leakage must be determined by a RESNET-certified rater using a RESNET-approved testing protocol.
7. To ensure consistent exchange of indoor air, whole-house mechanical ventilation is recommended, but not required.
8. Insulation levels of a home must meet or exceed Sections N1102.1 and N1102.2 of the 2004 IRC. These sections allow for compliance to be determined by meeting prescriptive insulation requirements, by using U-factor alternatives, or by using a total UA alternative. In all cases, insulation shall be inspected to Grade I installation as defined in the RESNET Standards by a RESNET-certified rater. Note that the fenestration requirements of the 2004 IRC do not apply to the fenestration requirements of the National Builder Option Package.. For more information, refer to the "Codes and Standards Information" document.
9. The Thermal Bypass Inspection Checklist must be completed for homes to earn the ENERGY STAR label. The Checklist requires visual inspection of framing areas where air barriers are commonly missed and inspection of insulation to ensure proper alignment with air barriers, thus serving as an extra check that the air and thermal barriers are continuous and complete.
10. All windows and skylights must be ENERGY STAR qualified or meet all specifications for ENERGY STAR qualified windows. Windows in Climate Zones 2 and 4 must exceed ENERGY STAR specifications (CZ 2: U-value ≤ 0.55 and SHGC ≤ 0.35; CZ 4: U-value ≤ 0.40 and SHGC ≤ 0.45). Visit www.energystar.gov/windows for more information on ENERGY STAR qualified windows.
11. All decorative glass and skylight window area counts toward the total window area to above-grade conditioned floor area (WFA) ratio. For homes with a WFA ratio >18%, the following additional requirements apply:
    a. In IRC Climate Zones 1, 2, and 3, an improved window SHGC is required, and is determined by:

       Required SHGC = [0.18 / WFA] x [ENERGY STAR SHGC]

       Where the ENERGY STAR SHGC is the minimum required SHGC of the climate-appropriate window specified in this BOP.
    b. In IRC Climate Zones 4, 5, 6, 7, and 8, an improved window U-Value is required, and is determined by:

       Required U-Value = [0.18 / WFA] x [ENERGY STAR U-Value]

       Where the ENERGY STAR U-Value is the minimum required U-Value of the climate-appropriate window specified in this BOP.
12. Up to 0.75% WFA may be used for decorative glass that does not meet ENERGY STAR requirements. For example, a home with total above-grade conditioned floor area of 2,000 sq. ft. may have up to 15 sq. ft. (0.75% of 2,000) of decorative glass.
13. To determine domestic hot water (DHW) EF requirements for additional tank sizes, use the following equations:

    Gas DHW EF ≥ 0.69 - (0.002 x Tank Gallon Capacity); Electric DHW EF ≥ 0.97 - (0.001 x Tank Gallon Capacity).
14. In homes with gas or oil hydronic space heating, water heating systems must have an efficiency ≥ 0.78 EF. This may be met through the use of an instantaneous water heating system or an indirect storage system with a boiler that has a system efficiency ≥ 85 AFUE. Homes with tankless coil hot water heating systems cannot be qualified using this BOP, but can earn the label using the ENERGY STAR Performance Path requirements.
15. Any combination of ENERGY STAR qualified products listed may be installed to meet this requirement. ENERGY STAR qualified ventilation fans include range hood, bathroom, and inline fans. ENERGY STAR qualified lighting fixtures installed in the following locations shall not be counted: storage rooms (e.g., closets, pantries, sheds), or garages. Eligible appliances include ENERGY STAR qualified refrigerators, dish washers, and washing machines. Further efficiency and savings can be achieved by installing ENERGY STAR qualified products, in addition to those required (e.g., additional lighting, appliances, etc.).
16. Efficient lighting fixtures represent a significant opportunity for persistent energy savings and a meaningful way to differentiate ENERGY STAR qualified homes from those meeting minimum code requirements. In 2008, EPA intends to propose and solicit industry comments on adding the ENERGY STAR Advanced Lighting Package (ALP) as an additional requirement for ENERGY STAR qualified homes in 2009. To learn more about the ALP, refer to www.energystar.gov/homes.

ENERGY STAR Qualified Homes
Builder Option Package Notes

2004/2006 IECC Climate Zone[1] – 4	ENERGY STAR Window Zone[10] – All

The requirements for the ENERGY STAR Builder Option Package (BOP) are specified in the table below.
To qualify as ENERGY STAR using this BOP, a home must meet the requirements specified, be verified and field-tested in accordance with the HERS Standards by a RESNET-accredited Provider, and meet all applicable codes.

Cooling Equipment (Where Provided)	Right-sized[2] ≥13 SEER/ 11.5 EER ENERGY STAR qualified A/C; OR Right-sized[2] ≥13 SEER/ 11.5 EER/ 8.5 HSPF ENERGY STAR qualified heat pump [3]
Heating Equipment	≥90 AFUE ENERGY STAR qualified gas furnace; OR ≥13 SEER/ 11.5 EER/ 8.5 HSPF ENERGY STAR qualified heat pump [2, 3]; OR ≥90 AFUE ENERGY STAR qualified boiler; OR ≥85 AFUE ENERGY STAR qualified oil furnace
Thermostat [3]	ENERGY STAR qualified thermostat (except for zones with mass radiant heat)
Ductwork	Leakage [4]: ≤ 4 cfm to outdoors / 100 sq. ft.; AND Insulation [5]: ≥ R-6 insulation on ducts in unconditioned spaces
Envelope	≤ 6 ACH50 — Infiltration [6,7]
	≤ Reference UA — UA Alternative Approach [8], OR ≥ 38 R-Value — Ceiling Insulation [8]; AND (if applicable) ≥ 30 R-Value — Cathedral Ceiling Insulation [8]; AND (if applicable) ≥ 13 R-Value — Wood Frame Wall Insulation [8]; AND (if applicable) ≥ 19 R-Value — Floor Over Unconditioned Space Insulation [8]; AND (if applicable) ≥ 10 R-Value — Crawlspace Wall Insulation Continuous [8]; OR (if applicable) ≥ 13 R-Value — Crawlspace Wall Insulation Framed [8]; AND (if applicable) ≥ 10 R-Value — Basement Wall Insulation Continuous [8]; OR (if applicable) ≥ 13 R-Value — Basement Wall Insulation Framed [8]; AND (if applicable) ≥ 10 R-Value — Slab Insulation at 2 feet Depth [8]; AND
	Completed Thermal Bypass Inspection Checklist [9]
Windows [10,11,12]	≤ 0.40 U-Value ≤ 0.45 SHGC
Water Heater [13]	Gas (EF): 40 Gal = 0.61 | 60 Gal = 0.57 | 80 Gal = 0.53 Electric (EF): 40 Gal = 0.93 | 50 Gal = 0.92 | 80 Gal = 0.89 Oil or Gas [14]: Integrated with space heating boiler
Lighting and Appliances [15,16]	Five or more ENERGY STAR qualified appliances, light fixtures, ceiling fans equipped with lighting fixtures, and/or ventilation fans

ENERGY STAR Qualified Homes
Builder Option Package Notes

2004/2006 IECC Climate Zone[1] – 4	ENERGY STAR Window Zone[10] – All

1. The appropriate climate zone shall be determined by the 2004 International Residential Code (IRC), Figure N1101.2.
2. Cooling equipment shall be sized according to the latest editions of ACCA Manuals J and S, ASHRAE 2001 Handbook of Fundamentals, or an equivalent procedure. Maximum oversizing limit for air conditioners and heat pumps is 15% (with the exception of heat pumps in Climate Zones 5 - 8, where the maximum oversizing limit is 25%). The following operating conditions shall be used in the sizing calculations and verified where reviewed by the rater:

   Outdoor temperatures shall be the 99.0% design temperatures as published in the ASHRAE Handbook of Fundamentals for the home's location or most representative city for which design temperature data are available. Note that a higher outdoor air design temperature may be used if it represents prevailing local practice by the HVAC industry and reflects extreme climate conditions that can be documented with recorded weather data; Indoor temperatures shall be 75 F for cooling; Infiltration rate shall be selected as "tight", or the equivalent term.

   In specifying equipment, the next available size may be used. In addition, indoor and outdoor coils shall be matched in accordance with ARI standards.
3. Homes with heat pumps in Climate Zones 4 and 5 must have an HSPF ≥ 8.5, which exceeds the ENERGY STAR minimum of 8.2 HSPF. Homes with heat pumps in Climate Zones 6, 7, and 8 cannot be qualified using this BOP, but can earn the label using the ENERGY STAR Performance Path requirements. In homes with heat pumps that have programmable thermostats, the thermostat must have "Adaptive Recovery" technology to prevent the excessive use of electric back-up heating.
4. Ducts must be sealed and tested to be ≤ 4 cfm to outdoors / 100 sq. ft. of conditioned floor area, as determined and documented by a RESNET-certified rater using a RESNET-approved testing protocol. If *total* duct leakage is ≤ 4 cfm to outdoors / 100 sq.ft. of conditioned floor area, then leakage to outdoors does not need to be tested. Duct leakage testing can be waived if all ducts and air handling equipment are located in conditioned space (i.e., within the home's air and thermal barriers) AND the envelope leakage has been tested to be ≤ 3 ACH50 OR ≤ 0.25 CFM 50 per sq. ft. of the building envelope. Note that mechanical ventilation will be required in this situation.
5. EPA recommends, but does not require, locating ducts within conditioned space (i.e., inside the air and thermal barriers), and using a minimum of R-4 insulation for ducts inside conditioned space to prevent condensation.
6. Envelope leakage must be determined by a RESNET-certified rater using a RESNET-approved testing protocol.
7. To ensure consistent exchange of indoor air, whole-house mechanical ventilation is recommended, but not required.
8. Insulation levels of a home must meet or exceed Sections N1102.1 and N1102.2 of the 2004 IRC. These sections allow for compliance to be determined by meeting prescriptive insulation requirements, by using U-factor alternatives, or by using a total UA alternative. These sections also provide guidance and exceptions that may be used. However, note that the U-factor for steel-frame envelope assemblies addressed in Section N1102.2.4 shall be calculated using the ASHRAE zone method, or a method providing equivalent results, and not a series-parallel path calculation method as is stated in the code. Additionally, Section N1102.2.2, which allows for the reduction of ceiling insulation in space constrained roof/ceiling assemblies, shall be limited to 500 sq. ft. or 20% of ceiling area, whichever is less. In all cases, insulation shall be inspected to Grade I installation as defined in the RESNET Standards by a RESNET-certified rater. Note that the fenestration requirements of the 2004 IRC do not apply to the fenestration requirements of the National Builder Option Package. Therefore, if UA calculations are performed, they must use the IRC requirements (with the exception of fenestration) plus the fenestration requirements contained in the national BOP. For more information, refer to the "Codes and Standards Information" document.
9. The Thermal Bypass Inspection Checklist must be completed for homes to earn the ENERGY STAR label. The Checklist requires visual inspection of framing areas where air barriers are commonly missed and inspection of insulation to ensure proper alignment with air barriers, thus serving as an extra check that the air and thermal barriers are continuous and complete.
10. All windows and skylights must be ENERGY STAR qualified or meet all specifications for ENERGY STAR qualified windows. Windows in Climate Zones 2 and 4 must exceed ENERGY STAR specifications (CZ 2: U-value ≤ 0.55 and SHGC ≤ 0.35; CZ 4: U-value ≤ 0.40 and SHGC ≤ 0.45). Visit www.energystar.gov/windows for more information on ENERGY STAR qualified windows.

ENERGY STAR Qualified Homes
Builder Option Package Notes

2004/2006 IECC Climate Zone[1] – 4	ENERGY STAR Window Zone[10] – All

11. All decorative glass and skylight window area counts toward the total window area to above-grade conditioned floor area (WFA) ratio. For homes with a WFA ratio >18%, the following additional requirements apply:
    a. In IRC Climate Zones 1, 2, and 3, an improved window SHGC is required, and is determined by:

       Required SHGC = [0.18 / WFA] x [ENERGY STAR SHGC]

       Where the ENERGY STAR SHGC is the minimum required SHGC of the climate-appropriate window specified in this BOP.

    b. In IRC Climate Zones 4, 5, 6, 7, and 8, an improved window U-Value is required, and is determined by:

       Required U-Value = [0.18 / WFA] x [ENERGY STAR U-Value]

       Where the ENERGY STAR U-Value is the minimum required U-Value of the climate-appropriate window specified in this BOP.
12. Up to 0.75% WFA may be used for decorative glass that does not meet ENERGY STAR requirements. For example, a home with total above-grade conditioned floor area of 2,000 sq. ft. may have up to 15 sq. ft. (0.75% of 2,000) of decorative glass.
13. To determine domestic hot water (DHW) EF requirements for additional tank sizes, use the following equations:

    Gas DHW EF ≥ 0.69 - (0.002 x Tank Gallon Capacity); Electric DHW EF ≥ 0.97 - (0.001 x Tank Gallon Capacity).
14. In homes with gas or oil hydronic space heating, water heating systems must have an efficiency ≥ 0.78 EF. This may be met through the use of an instantaneous water heating system or an indirect storage system with a boiler that has a system efficiency ≥ 85 AFUE. Homes with tankless coil hot water heating systems cannot be qualified using this BOP, but can earn the label using the ENERGY STAR Performance Path requirements.
15. Any combination of ENERGY STAR qualified products listed may be installed to meet this requirement. ENERGY STAR qualified ventilation fans include range hood, bathroom, and inline fans. ENERGY STAR qualified lighting fixtures installed in the following locations shall not be counted: storage rooms (e.g., closets, pantries, sheds), or garages. Eligible appliances include ENERGY STAR qualified refrigerators, dish washers, and washing machines. Further efficiency and savings can be achieved by installing ENERGY STAR qualified products, in addition to those required (e.g., additional lighting, appliances, etc.).
16. Efficient lighting fixtures represent a significant opportunity for persistent energy savings and a meaningful way to differentiate ENERGY STAR qualified homes from those meeting minimum code requirements. In 2008, EPA intends to propose and solicit industry comments on adding the ENERGY STAR Advanced Lighting Package (ALP) as an additional requirement for ENERGY STAR qualified homes in 2009. To learn more about the ALP, refer to www.energystar.gov/homes.

ENERGY STAR Qualified Homes
Builder Option Package Notes

2004/2006 IECC Climate Zone[1] – 5	ENERGY STAR Window Zone[10] – Northern

The requirements for the ENERGY STAR Builder Option Package (BOP) are specified in the table below.
To qualify as ENERGY STAR using this BOP, a home must meet the requirements specified, be verified and field-tested in accordance with the HERS Standards by a RESNET-accredited Provider, and meet all applicable codes.

Cooling Equipment (Where Provided)	Right-sized[2] ≥13 SEER/ 11.5 EER ENERGY STAR qualified A/C; OR Right-sized[2] ≥13 SEER/ 11.5 EER/ 8.5 HSPF ENERGY STAR qualified heat pump [3]	
Heating Equipment	≥90 AFUE ENERGY STAR qualified gas furnace; OR ≥13 SEER/ 11.5 EER/ 8.5 HSPF ENERGY STAR qualified heat pump [2, 3] ; OR ≥90 AFUE ENERGY STAR qualified boiler; OR ≥85 AFUE ENERGY STAR qualified oil furnace	
Thermostat [3]	ENERGY STAR qualified thermostat (except for zones with mass radiant heat)	
Ductwork	Leakage [4]: ≤ 4 cfm to outdoors / 100 sq. ft.; AND Insulation [5]: ≥ R-6 insulation on ducts in unconditioned spaces	
Envelope	≤ 5 ACH50	Infiltration [6,7]
	≤ Reference UA	UA Alternative Approach [8]; OR
	≥ 38 R-Value	Ceiling Insulation [8]; AND (if applicable)
	≥ 30 R-Value	Cathedral Ceiling Insulation [8]; AND (if applicable)
	≥ 19 R-Value	Wood Frame Wall Insulation [8]; OR
	≥ 13 + 5 R-Value	Wood Frame Wall Insulation and Sheathing AND (if applicable)
	≥ 30 R-Value	Floor Over Unconditioned Space Insulation [8]; AND (if applicable)
	≥ 10 R-Value	Crawlspace Wall Insulation Continuous [8]; OR (if applicable)
	≥ 13 R-Value	Crawlspace Wall Insulation Framed [8]; AND (if applicable)
	≥ 10 R-Value	Basement Wall Insulation Continuous [8]; OR (if applicable)
	≥ 13 R-Value	Basement Wall Insulation Framed [8]; AND (if applicable)
	≥ 10 R-Value	Slab Insulation at 2 feet Depth [8]; AND
	Completed Thermal Bypass Inspection Checklist [9]	
Windows [10,11,12]	≤ 0.35 U-Value ≤ Any SHGC	
Water Heater [13]	Gas (EF): 40 Gal = 0.61 | 60 Gal = 0.57 | 80 Gal = 0.53 Electric (EF): 40 Gal = 0.93 | 50 Gal = 0.92 | 80 Gal = 0.89 Oil or Gas [14]: Integrated with space heating boiler	
Lighting and Appliances [15,16]	Five or more ENERGY STAR qualified appliances, light fixtures, ceiling fans equipped with lighting fixtures, and/or ventilation fans	

ENERGY STAR Qualified Homes
Builder Option Package Notes

2004/2006 IECC Climate Zone[1] – 5	ENERGY STAR Window Zone[10] – Northern

1. The appropriate climate zone shall be determined by the 2004 International Residential Code (IRC), Figure N1101.2.
2. Cooling equipment shall be sized according to the latest editions of ACCA Manuals J and S, ASHRAE 2001 Handbook of Fundamentals, or an equivalent procedure. Maximum oversizing limit for air conditioners and heat pumps is 15% (with the exception of heat pumps in Climate Zones 5 - 8, where the maximum oversizing limit is 25%). The following operating conditions shall be used in the sizing calculations and verified where reviewed by the rater:

   Outdoor temperatures shall be the 99.0% design temperatures as published in the ASHRAE Handbook of Fundamentals for the home's location or most representative city for which design temperature data are available. Note that a higher outdoor air design temperature may be used if it represents prevailing local practice by the HVAC industry and reflects extreme climate conditions that can be documented with recorded weather data; Indoor temperatures shall be 75 F for cooling; Infiltration rate shall be selected as "tight", or the equivalent term.

   In specifying equipment, the next available size may be used. In addition, indoor and outdoor coils shall be matched in accordance with ARI standards.
3. Homes with heat pumps in Climate Zones 4 and 5 must have an HSPF ≥ 8.5, which exceeds the ENERGY STAR minimum of 8.2 HSPF. Homes with heat pumps in Climate Zones 6, 7, and 8 cannot be qualified using this BOP, but can earn the label using the ENERGY STAR Performance Path requirements. In homes with heat pumps that have programmable thermostats, the thermostat must have "Adaptive Recovery" technology to prevent the excessive use of electric back-up heating.
4. Ducts must be sealed and tested to be ≤ 4 cfm to outdoors / 100 sq. ft. of conditioned floor area, as determined and documented by a RESNET-certified rater using a RESNET-approved testing protocol. If *total* duct leakage is ≤ 4 cfm to outdoors / 100 sq.ft. of conditioned floor area, then leakage to outdoors does not need to be tested. Duct leakage testing can be waived if all ducts and air handling equipment are located in conditioned space (i.e., within the home's air and thermal barriers) AND the envelope leakage has been tested to be ≤ 3 ACH50 OR ≤ 0.25 CFM 50 per sq. ft. of the building envelope. Note that mechanical ventilation will be required in this situation.
5. EPA recommends, but does not require, locating ducts within conditioned space (i.e., inside the air and thermal barriers), and using a minimum of R-4 insulation for ducts inside conditioned space to prevent condensation.
6. Envelope leakage must be determined by a RESNET-certified rater using a RESNET-approved testing protocol.
7. To ensure consistent exchange of indoor air, whole-house mechanical ventilation is recommended, but not required.
8. Insulation levels of a home must meet or exceed Sections N1102.1 and N1102.2 of the 2004 IRC. These sections allow for compliance to be determined by meeting prescriptive insulation requirements, by using U-factor alternatives, or by using a total UA alternative. These sections also provide guidance and exceptions that may be used. However, note that the U-factor for steel-frame envelope assemblies addressed in Section N1102.2.4 shall be calculated using the ASHRAE zone method, or a method providing equivalent results, and not a series-parallel path calculation method as is stated in the code. Additionally, Section N1102.2.2, which allows for the reduction of ceiling insulation in space constrained roof/ceiling assemblies, shall be limited to 500 sq. ft. or 20% of ceiling area, whichever is less. In all cases, insulation shall be inspected to Grade I installation as defined in the RESNET Standards by a RESNET-certified rater. Note that the fenestration requirements of the 2004 IRC do not apply to the fenestration requirements of the National Builder Option Package. Therefore, if UA calculations are performed, they must use the IRC requirements (with the exception of fenestration) plus the fenestration requirements contained in the national BOP. For more information, refer to the "Codes and Standards Information" document.
9. The Thermal Bypass Inspection Checklist must be completed for homes to earn the ENERGY STAR label. The Checklist requires visual inspection of framing areas where air barriers are commonly missed and inspection of insulation to ensure proper alignment with air barriers, thus serving as an extra check that the air and thermal barriers are continuous and complete.
10. All windows and skylights must be ENERGY STAR qualified or meet all specifications for ENERGY STAR qualified windows. Windows in Climate Zones 2 and 4 must exceed ENERGY STAR specifications (CZ 2: U-value ≤ 0.55 and SHGC ≤ 0.35; CZ 4: U-value ≤ 0.40 and SHGC ≤ 0.45). Visit www.energystar.gov/windows for more information on ENERGY STAR qualified windows.

ENERGY STAR Qualified Homes
Builder Option Package Notes

2004/2006 IECC Climate Zone[1] – 5	ENERGY STAR Window Zone[10] – Northern

11. All decorative glass and skylight window area counts toward the total window area to above-grade conditioned floor area (WFA) ratio. For homes with a WFA ratio >18%, the following additional requirements apply:
    a. In IRC Climate Zones 1, 2, and 3, an improved window SHGC is required, and is determined by:

       Required SHGC = [0.18 / WFA] x [ENERGY STAR SHGC]

       Where the ENERGY STAR SHGC is the minimum required SHGC of the climate-appropriate window specified in this BOP.

    b. In IRC Climate Zones 4, 5, 6, 7, and 8, an improved window U-Value is required, and is determined by:

       Required U-Value = [0.18 / WFA] x [ENERGY STAR U-Value]

       Where the ENERGY STAR U-Value is the minimum required U-Value of the climate-appropriate window specified in this BOP.
12. Up to 0.75% WFA may be used for decorative glass that does not meet ENERGY STAR requirements. For example, a home with total above-grade conditioned floor area of 2,000 sq. ft. may have up to 15 sq. ft. (0.75% of 2,000) of decorative glass.
13. To determine domestic hot water (DHW) EF requirements for additional tank sizes, use the following equations:

    Gas DHW EF ≥ 0.69 - (0.002 x Tank Gallon Capacity); Electric DHW EF ≥ 0.97 - (0.001 x Tank Gallon Capacity).
14. In homes with gas or oil hydronic space heating, water heating systems must have an efficiency ≥ 0.78 EF. This may be met through the use of an instantaneous water heating system or an indirect storage system with a boiler that has a system efficiency ≥ 85 AFUE. Homes with tankless coil hot water heating systems cannot be qualified using this BOP, but can earn the label using the ENERGY STAR Performance Path requirements.
15. Any combination of ENERGY STAR qualified products listed may be installed to meet this requirement. ENERGY STAR qualified ventilation fans include range hood, bathroom, and inline fans. ENERGY STAR qualified lighting fixtures installed in the following locations shall not be counted: storage rooms (e.g., closets, pantries, sheds), or garages. Eligible appliances include ENERGY STAR qualified refrigerators, dish washers, and washing machines. Further efficiency and savings can be achieved by installing ENERGY STAR qualified products, in addition to those required (e.g., additional lighting, appliances, etc.).
16. Efficient lighting fixtures represent a significant opportunity for persistent energy savings and a meaningful way to differentiate ENERGY STAR qualified homes from those meeting minimum code requirements. In 2008, EPA intends to propose and solicit industry comments on adding the ENERGY STAR Advanced Lighting Package (ALP) as an additional requirement for ENERGY STAR qualified homes in 2009. To learn more about the ALP, refer to www.energystar.gov/homes.

Builder Option Packages for Kansas

Find Your County and Click on the Corresponding Climate Zone

County	BOPs by Climate Zone	County	BOPs by Climate Zone
Allen	4	Linn	4
Anderson	4	Logan	5
Atchison	4	Lyon	4
Barber	4	Marion	4
Barton	4	Marshall	4
Bourbon	4	Mcpherson	4
Brown	4	Meade	4
Butler	4	Miami	4
Chase	4	Mitchell	5
Chautauqua	4	Montgomery	4
Cherokee	4	Morris	4
Cheyenne	5	Morton	4
Clark	4	Nemaha	4
Clay	4	Neosho	4
Cloud	5	Ness	5
Coffey	4	Norton	5
Comanche	4	Osage	4
Cowley	4	Osborne	5
Crawford	4	Ottawa	4
Decatur	5	Pawnee	4
Dickinson	4	Phillips	5
Doniphan	4	Pottawatomie	4
Douglas	4	Pratt	4
Edwards	4	Rawlins	5
Elk	4	Reno	4
Ellis	5	Republic	5
Ellsworth	4	Rice	4
Finney	4	Riley	4
Ford	4	Rooks	5
Franklin	4	Rush	4
Geary	4	Russell	4
Gove	5	Saline	4
Graham	5	Scott	5
Grant	4	Sedgwick	4
Gray	4	Seward	4
Greeley	5	Shawnee	4

Greenwood	4	Sheridan	5
Hamilton	5	Sherman	5
Harper	4	Smith	5
Harvey	4	Stafford	4
Haskell	4	Stanton	4
Hodgeman	4	Stevens	4
Jackson	4	Sumner	4
Jefferson	4	Thomas	5
Jewell	5	Trego	5
Johnson	4	Wabaunsee	4
Kearny	4	Wallace	5
Kingman	4	Washington	4
Kiowa	4	Wichita	5
Labette	4	Wilson	4
Lane	5	Woodson	4
Leavenworth	4	Wyandotte	4
Lincoln	4		

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ENERGY STAR Qualified Homes
Thermal Bypass Inspection Checklist

The Thermal Bypass Inspection Checklist must be completed for homes to earn the ENERGY STAR label. The Checklist requires visual inspection of framing areas where air barriers are commonly missed and inspection of insulation to ensure proper alignment with air barriers, thus serving as an extra check that the air and thermal barriers are continuous and complete. State, local, and regional codes, as well as regional ENERGY STAR program requirements, supersede the items specified in this Checklist.

Guidance on Completing the Thermal Bypass Inspection Checklist:

1. Accredited HERS Providers and certified home energy raters shall use their experience and discretion in verifying that each Inspection Checklist item is installed per the inspection guidelines (e.g., identifying minor defects that the Provider or rater deems acceptable versus identifying major defects that undermine the intent of the Checklist item).

2. Alternative methods of meeting the Checklist requirements may be used in completing the Checklist, if the Provider deems them to be equivalent, or more stringent, than the Inspection Checklist guidelines.

3. In the event an item on the Checklist cannot be verified by the rater, the home cannot be qualified as ENERGY STAR, unless the builder assumes responsibility for verifying that the item has met the requirements of the Checklist. This option is available at the discretion of the Provider or rater but may not be used to verify more than six (6) items on the Inspection Checklist. This responsibility will be formally acknowledged by the builder signing-off on the Checklist for the item(s) that they verified. The column titled "N/A" should be used when the checklist item is not present in the home or when local code requirements take precedent.

4. The Checklist may be completed for a batch of homes using a RESNET-approved sampling protocol when qualifying homes as ENERGY STAR. For example, if the approved sampling protocol requires rating one in seven homes, then the Checklist will be completed for the one home which was rated.

5. In the event that a Provider or rater finds an item that is inconsistent with the Checklist Inspection guidelines, the home cannot be qualified as ENERGY STAR until the item is corrected in a manner that meets the ENERGY STAR requirements. If correction of the item is not possible, the home cannot earn the ENERGY STAR label.

6. The Provider or rater is required to keep a hard copy record of the completed and signed Checklist. The signature of a builder employee is also required if the builder verified compliance with any item on the Checklist.

7. For purposes of this Checklist, an air barrier is defined as any solid material that blocks air flow between a conditioned space and an unconditioned space, including necessary sealing to block excessive air flow at edges and seams. Additional information on proper air sealing of thermal bypasses can be found on the Building America Web site (www.eere.energy.gov/buildings/building_america) and in the EEBA Builder's Guides (www.eeba.org). These references include guidance on identifying and sealing air barriers, as well as details on many of the items included in the Checklist.

ENERGY STAR Qualified Homes
Thermal Bypass Inspection Checklist

Home Address:_____ City:_____ State:_____

Thermal Bypass	Inspection Guidelines	Corrections Needed	Builder Verified	Rater Verified	N/A
1. Overall Air Barrier and Thermal Barrier Alignment	**Requirements:** Insulation shall be installed in full contact with sealed interior and exterior air barrier except for alternate to interior air barrier under item no. 2 *(Walls Adjoining Exterior Walls or Unconditioned Spaces)*				
	All Climate Zones:				
	1.1 Overall Alignment Throughout Home	☐	☐	☐	☐
	1.2 Garage Band Joist Air Barrier (at bays adjoining conditioned space)	☐	☐	☐	☐
	1.3 Attic Eave Baffles Where Vents/Leakage Exist	☐	☐	☐	☐
	Only at Climate Zones 4 and Higher:				
	1.4 Slab-edge Insulation (A maximum of 25% of the slab edge may be uninsulated in Climate Zones 4 and 5.)	☐	☐	☐	☐
	Best Practices Encouraged, Not Req'd.:				
	1.5 Air Barrier At All Band Joists (Climate Zones 4 and higher)	☐	☐	☐	☐
	1.6 Minimize Thermal Bridging (e.g., OVE framing, SIPs, ICFs)	☐	☐	☐	☐
2. Walls Adjoining Exterior Walls or Unconditioned Spaces	**Requirements:** • Fully insulated wall aligned with air barrier at both interior and exterior, **OR** • Alternate for **Climate Zones 1 thru 3**, sealed exterior air barrier aligned with RESNET Grade 1 insulation fully supported • Continuous top and bottom plates or sealed blocking				
	2.1 Wall Behind Shower/Tub	☐	☐	☐	☐
	2.2 Wall Behind Fireplace	☐	☐	☐	☐
	2.3 Insulated Attic Slopes/Walls	☐	☐	☐	☐
	2.4 Attic Knee Walls	☐	☐	☐	☐
	2.5 Skylight Shaft Walls	☐	☐	☐	☐
	2.6 Wall Adjoining Porch Roof	☐	☐	☐	☐
	2.7 Staircase Walls	☐	☐	☐	☐
	2.8 Double Walls	☐	☐	☐	☐
3. Floors between Conditioned and Exterior Spaces	**Requirements:** • Air barrier is installed at any exposed insulation edges • Insulation is installed to maintain permanent contact w/ sub-floor above • **Optional until July 1, 2008**, insulation is installed to maintain permanent contact with air barrier below				
	3.1 Insulated Floor Above Garage	☐	☐	☐	☐
	3.2 Cantilevered Floor	☐	☐	☐	☐
4. Shafts	**Requirements:** Openings to unconditioned space are fully sealed with solid blocking or flashing and any remaining gaps are sealed with caulk or foam (provide fire-rated collars and caulking where required)				
	4.1 Duct Shaft	☐	☐	☐	☐
	4.2 Piping Shaft/Penetrations	☐	☐	☐	☐
	4.3 Flue Shaft	☐	☐	☐	☐
5. Attic/ Ceiling Interface	**Requirements:** • All attic penetrations and dropped ceilings include a full interior air barrier aligned with insulation with any gaps fully sealed with caulk, foam or tape • Movable insulation fits snugly in opening and air barrier is fully gasketed				
	5.1 Attic Access Panel (fully gasketed and insulated)	☐	☐	☐	☐
	5.2 Attic Drop-down Stair (fully gasketed and insulated)	☐	☐	☐	☐
	5.3 Dropped Ceiling/Soffit (full air barrier aligned with insulation)	☐	☐	☐	☐
	5.4 Recessed Lighting Fixtures (ICAT labeled and sealed to drywall)	☐	☐	☐	☐
	5.5 Whole-house Fan (insulated cover gasketed to the opening)	☐	☐	☐	☐
6. Common Walls Between Dwelling Units	**Requirements:** Gap btwn drywall shaft wall (common wall) and structural framing btwn units is sealed at all exterior boundary conditions				
	6.1 Common Wall Between Dwelling Units	☐	☐	☐	☐

Rater Inspection Date: _____ Builder Inspection Date: _____

Home Energy Rating Provider: _____ Builder Company Name: _____

Home Energy Rater Company Name: _____ Builder Division Name: _____

Home Energy Rater Signature: _____ Builder Employee Signature: _____