



# ENERGY STAR® Qualified Homes Codes and Standards Information

## Insulation Requirements for National Builder Option Package (BOP)

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.

<u>Climate Zone</u>	<u>Ceiling R-Value</u>	<u>Wood Frame Wall<sup>1</sup> R-Value</u>	<u>Floor<sup>2</sup> R-Value</u>	<u>Basement Wall<sup>3</sup> R-Value</u>	<u>Slab<sup>4</sup> R-Value &amp; Depth</u>	<u>Crawl Space<sup>2</sup> R-Value</u>
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

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<sup>1</sup> "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. <sup>2</sup> For CZ Marine 4 and CZ 5 through 8, R-30 required or insulation sufficient to fill the framing cavity, R-19 minimum. <sup>3</sup> The first R-value applies to continuous insulation, the second to framing cavity insulation; either insulation meets the requirement. <sup>4</sup> R-5 shall be added to the required slab edge R-values for heated slabs.

## 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 Savings & Key Product Criteria

<b>Product</b>	<b>Average Energy Savings</b>	<b>Key Product Criteria</b>
<b>Central Air Conditioners or Heat Pumps</b>	14%	Split systems: ≥ 14.5 SEER / ≥ 12 EER / ≥ 8.2 HSPF Single package equipment: ≥ 14 SEER / ≥ 11 EER / ≥ 8.0 HSPF <a href="http://www.energystar.gov/index.cfm?c=airsrc_heat_pr_crit_as_heat_pumps">http://www.energystar.gov/index.cfm?c=airsrc_heat_pr_crit_as_heat_pumps</a>
<b>Furnaces</b>	15%	Gas furnace: AFUE ≥ 90% ; Oil furnace: AFUE ≥ 85% <a href="http://www.energystar.gov/index.cfm?c=furnaces_pr_crit_furnaces">http://www.energystar.gov/index.cfm?c=furnaces_pr_crit_furnaces</a>
<b>Dishwashers</b>	10%	<a href="http://www.energystar.gov/index.cfm?c=dishwash_pr_crit_dishwashers">http://www.energystar.gov/index.cfm?c=dishwash_pr_crit_dishwashers</a>
<b>Clothes Washers</b>	30%	Minimum Modified Energy Factor (MEF) of 1.8 and Maximum Water Factor (WF) of 7.5 <a href="http://www.energystar.gov/index.cfm?c=clotheswash_pr_crit_clothes_washers">http://www.energystar.gov/index.cfm?c=clotheswash_pr_crit_clothes_washers</a>
<b>Refrigerators</b>	20%	At least 20% more energy efficient than the minimum Federal government standard (NAECA) <a href="http://www.energystar.gov/index.cfm?c=refrig_pr_crit_refrigerators">http://www.energystar.gov/index.cfm?c=refrig_pr_crit_refrigerators</a>



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Product	Average Energy Savings	Key Product Criteria		
<b>Windows</b>	ENERGY STAR Home Windows for IRC Climate Zones	IRC Climate Zone 4:	<b>U-Factor</b> ≤ 0.40	<b>SHGC</b> ≤ 0.45
		If IRC Climate Zone is not 2 or 4, then refer to the ENERGY STAR Window Climate Zones below	IRC Climate Zone 2:	≤ 0.55
	≤ 0.56			≤ 0.33
	≤ 0.57			≤ 0.32
	≤ 0.58			≤ 0.31
	≤ 0.59			≤ 0.30
	≤ 0.60			≤ 0.29
	≤ 0.61			≤ 0.28
	≤ 0.62			≤ 0.27
	Savings vary by ENERGY STAR Window Climate Zone and home characteristics	Northern Climate Zone:	<b>U-Factor</b> ≤ 0.35	<b>SHGC</b> Any
North/Central Climate Zone:		≤ 0.40	≤ 0.55	
South/Central Climate Zone:		≤ 0.40	≤ 0.40; or	
		≤ 0.41	≤ 0.36	
Southern Climate Zone:	≤ 0.42	≤ 0.31		
	≤ 0.43	≤ 0.24		
	≤ 0.65	≤ 0.40; or		
	≤ 0.66	≤ 0.39		
	≤ 0.67	≤ 0.39		
	≤ 0.68	≤ 0.38		
	≤ 0.69	≤ 0.37		
	≤ 0.70	≤ 0.37		
≤ 0.71	≤ 0.36			
≤ 0.72	≤ 0.35			
≤ 0.73	≤ 0.35			
≤ 0.74	≤ 0.34			
≤ 0.75	≤ 0.33			
<p><b>Note:</b> More stringent specifications for ENERGY STAR qualified windows went into effect on January 1, 2010. However, ENERGY STAR New Homes will not be required to include windows meeting the new requirements until January 1, 2011. For more information, visit the ENERGY STAR website <a href="http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_windows">http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_windows</a>.</p>				
<b>Thermostats</b>	<p><b>Note:</b> As of December 31, 2009, the ENERGY STAR label is no longer available for programmable thermostats. Therefore, ENERGY STAR New Homes may use non-ENERGY STAR programmable thermostats. For more information, see the ENERGY STAR website <a href="http://www.energystar.gov/index.cfm?c=archives.thermostats_spec">http://www.energystar.gov/index.cfm?c=archives.thermostats_spec</a>.</p>			
<b>Ventilating Fans</b>	70%	<a href="http://www.energystar.gov/index.cfm?c=vent_fans.pr_crit_vent_fans">http://www.energystar.gov/index.cfm?c=vent_fans.pr_crit_vent_fans</a>		
<b>Lighting</b>	75%	<a href="http://www.energystar.gov/index.cfm?c=fixtures.pr_crit_light_fixtures">http://www.energystar.gov/index.cfm?c=fixtures.pr_crit_light_fixtures</a>		
<b>Ceiling Fans with lights</b>	50%	<a href="http://www.energystar.gov/index.cfm?c=ceiling_fans.pr_crit_ceiling_fans">http://www.energystar.gov/index.cfm?c=ceiling_fans.pr_crit_ceiling_fans</a>		