



# ENERGY STAR Qualified Homes Builder Option Package for Homes with Solar Hot Water In Hawaii

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. Note that compliance with these guidelines is not intended to imply compliance with all local code requirements that may be applicable to the home to be built.<sup>1</sup>

<b>Location</b>	Hawaii
<b>Building Type</b>	For use with all home types
<b>Water Heater</b> <sup>2</sup>	HECO's "Energy\$olutions <sup>SM</sup> for the Home"-approved Solar Hot Water System with 100 point inspection by utility-approved inspector
<b>If whole house or room air conditioning is installed, a home must meet the following additional requirements and be verified and field-tested by a utility-approved inspector:</b>	
<b>Cooling Equipment</b> <sup>3</sup>	ENERGY STAR qualified and right-sized $\geq 14$ SEER / 11.5 EER Air Conditioner or Heat Pump; <u>OR</u> , ENERGY STAR qualified and right-sized Room Air Conditioner
<b>Heating Equipment</b>	Any heating system is allowed
<b>Thermostat</b>	ENERGY STAR Qualified Thermostat is recommended but not required
<b>Ductwork</b> <sup>4</sup>	Tightly sealed ducts. Recommended, but not required, to locate ducts within conditioned space
<b>Envelope</b> <sup>5, 6</sup>	Any building envelope that meets local code is allowed
<b>Windows</b> <sup>7</sup>	U-Value $\leq 0.65$ If Window to Floor Area (WFA) $\leq 25\%$ , then SHGC must be $\leq 0.40$ ; <u>OR</u> If WFA $> 25\%$ , then SHGC must be $\leq (8.4\% \times \text{Floor Area}) / \text{Window Area}$ ,  where WFA = (Total Floor Area)/(Total Window Area). If a home has room air conditioners, the floor and window areas of all rooms must be included, not only rooms with room AC units
<b>Lighting and Appliances</b> <sup>8, 9</sup>	Install at least five ENERGY STAR qualified products:  ENERGY STAR Qualified Refrigerator; <u>AND / OR</u> , ENERGY STAR Qualified Dishwasher; <u>AND / OR</u> , ENERGY STAR Qualified Clothes washer; <u>AND / OR</u> , ENERGY STAR light fixtures, ceiling fans equipped with lighting fixtures, and/or ventilation fans  It is also recommended, but not required, that all light fixtures be ENERGY STAR qualified or include ENERGY STAR qualified CFLs



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1. 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. In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;
  - b. In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Furthermore, qualification shall still be allowed if the rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation).
2. For more information on HECO's "Energy\$olutions<sup>SM</sup> for the Home" Solar Hot Water program, please visit: <http://www.heco.com/portal/site/heco/menuitem.508576f78baa14340b4c0610c510b1ca/?vgnextoid=e3d95e658e0fc010VgnVCM1000008119fea9RCRD&vgnnextfmt=default>.
3. Cooling equipment shall be sized according to the latest editions of ACCA Manuals J and S, ASHRAE Handbook of Fundamentals, or an equivalent procedure. Maximum oversizing limit for air conditioners and heat pumps is 15%. The following operating conditions shall be used in the sizing calculations and verified where reviewed by the utility-approved inspector:

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.
4. To prevent condensation, using a minimum of R-4 insulation for ducts inside conditioned space is recommended, but not required.
5. To ensure consistent exchange of indoor air, whole-house mechanical ventilation is recommended, but not required.
6. It is recommended, but not required, that insulation be inspected to Grade I installation as defined in the RESNET Standards.
7. The window performance levels match ENERGY STAR Program Requirements for Residential Windows, Doors, and Skylights— version 4.0, with additional requirements for climate zones 2 and 4. Additional information about version 5.0 of the program requirements for windows, which is more stringent and offers additional savings, can be found at [www.energystar.gov/windows](http://www.energystar.gov/windows).
8. 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.
9. 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. To learn more about EPA's Advanced Lighting Package (ALP), refer to [www.energystar.gov/homes](http://www.energystar.gov/homes).