

Affiliate Steps toward Building ENERGY STAR Homes

To certify a home as an Energy Star, a builder works with a RESNET certified home energy rater to evaluate the home with respect to criteria required by the Energy Star program. In Oregon, Washington, Idaho, Montana, and California, the Energy Star program is slightly different from the rest of the country. The following steps will help Habitat affiliates navigate the path toward building Energy Star homes.

○ **Step 1 Review Energy Star information online**

All affiliate leaders and decision makers review general Energy Star information:

- Review general Energy Star information to understand homeowner benefits at [www.Energystar.Gov](http://www.energystar.gov) (select “New Homes”) and for affiliates in Oregon, Washington, Idaho, and Montana, review the Northwest Energy Star program’s general information at: <http://www.northwestenergystar.com/index.php?cID=125>

Construction leaders and staff review above link AND technical information:

- Technical requirements vary – influenced by climate zone and the ENERGY STAR program you are in.
- **In all states except those listed below...**
 - Most affiliates building single family detached houses will be using the national “ENERGY STAR Performance Path” which has a few prescriptive requirements. 2 page description:
 - https://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/PerfPathTRK_060206.pdf
 - Alternate link, click “Performance Path” on this page: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.homes_guidelns
 - Some affiliates building single family detached houses, may have the option of using a prescriptive path to ENERGY STAR certification called the “National Builder Option Package” (BOP) which also has a few performance requirements.
 - http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/Nat_BOP_Final_062807.pdf
 - Alternate link, click “Prescriptive Path” on this page: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.homes_guidelns
 - BOP Listing by County: http://www.energystar.gov/index.cfm?c=bop.pt_bop_index
 - Alternate link, click “County Level BOPs” on this page: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.homes_guidelns
 - *Tip: Habitat houses can usually meet the HERS Index required in the Performance Path with lower efficiency equipment that what is required by the BOP. The BOP path also requires tighter ducts and lower infiltration than is needed for the Performance Path*
 - Affiliates building attached housing review the material on the performance and prescriptive paths here: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_attached_housing

- All of the above paths require that a home pass the Thermal Bypass Inspection.
 - Thermal Bypass Inspection Checklist:
http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/Thermal_Bypass_Inspection_Checklist.pdf
 - Alternate Link, Click “Thermal Bypass Checklist” on this page:
http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.thermal_bypass_checklist
 - Thermal Bypass Inspection Guide Book:
http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/TBC_Guide_062507.pdf
 - Alternate Link, click “Power Point” or “PDF” on this page:
http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.thermal_bypass_checklist
 - **Oregon and Washington** use the Northwest uses Energy Star program, a Builder Option Packages (BOPs): <http://www.northwestenergystar.com/index.php?cID=119>
 - **Idaho and Montana** can choose either the national program or the Northwest Energy Star program
 - **California** uses a performance path with some prescriptive requirements including the combined Quality Insulation Installation and Thermal Bypass Checklist. Description: <http://www.thebii.org/energystar.asp>
Alternate link, click “California” on this page:
http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.homes_guidelns
 - **Hawaii** uses a Builder Option Package approach described here:
http://www.energystar.gov/ia/partners/downloads/BOP_Hawaii.pdf
Alternate link, click “Hawaii” on this page:
http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.homes_guidelns
 - **Florida:** The EPA has developed interim guidelines in response to its recently adopted advanced energy code. The new Florida guidelines apply to all homes built after June 1, 2009.
http://www.energystar.gov/index.cfm?c=bop.pt_bop_florida
- **Step 2 Find a Rater**
 - A rater is like a personal energy analyst.
 - *Tip: If you are interested in the BOP path, discuss this when you are contacting raters as not all raters work with BOPs.*
 - **For states except those below**, look for a rater at these two sites:
 1. **Energy Star Partner Locator:**
http://www.energystar.gov/index.cfm?fuseaction=new_homes_partners.showHomesSearch
 2. **Residential Energy Services Network (RESNET) Online Rater Directory:**
<http://www.natresnet.org/directory/raters.aspx> select your state from the pull down menu, then look for the diamond shaped “Volunteer Rater” emblem that identifies raters that would like to volunteer with Habitat
 - Alternate Link, go to <http://www.resnet.us/> and click “Builder Information” then “Find a Rater”
 - Read more about RESNET’s Habitat partnership here:
<http://natresnet.org/rater/partnership/default.htm>

- **Oregon and Washington** (also Idaho and Montana affiliates that choose the Northwest Energy Star program):
<http://www.northwestenergystar.com/index.php?CID=181>
- **California** has three HERS Providers that each list raters certified to work in CA:
 - 1 CHEERS: http://hersmobile.org/ratersearch/search.asp?RaterType=NC_HVAC
 - 2 CalCERTS: https://www.calcerts.com/Rater_Directory.cfm
 - 3 CBPCA: <http://www.cbPCA.org/HERS/findarater.html>
- **Step 3 Become an ENERGY STAR Partner**
 - **California and all other states except those below**, start here:
https://www.energystar.gov/index.cfm?fuseaction=opa.showPartnerRoles&p_code=H_BUILDER (*In Step 3, select your state from the pull down menu then select your rater. You do not have to stick with this rater.*)
 - **Oregon and Washington (also Idaho and Montana affiliates who choose the Northwest Energy Star program):**
http://www.northwestenergystar.com/files/73632008builder_agreement_web.pdf
- **Step 4 Request a preliminary evaluation and recommendations from your rater.**
 - To do a preliminary evaluation, the rater will use information about your construction process from the following:
 - Design/construction documents for dimensional take-offs
 - Specifications including some that may not be on the plans such as window U-Value and Solar Heat Gain Coefficient, number of fixtures with fluorescent lighting, heating/AC efficiency, etc.
 - Information from mechanical contractor on system sizing procedure
 - Test results and audit information from a completed house (duct and infiltration testing, presence of ENERGY STAR products, etc.)
 - Inspection of energy related details in a house under construction (e.g. insulation installation, air barrier continuity, attic ventilation baffles and dams, air sealing details)
 - After making calculations and conducting audits, inspections, and tests, the rater will be able to tell you how close to ENERGY STAR your standard construction practices are - including any prescriptive requirements you are missing and the rater will be able to make recommendations on how to meet any performance requirements you failed. Let your rater know if you are considering any specific improvements as well as any specific things you do not want to do.
 - Likely stumbling blocks: excessive duct leakage, insulation and air barrier details that do not meet thermal bypass inspection requirements, mechanical system sizing not done with ACCA Manual J.
- **Step 5 Review your rater's findings & recommendations, decide on a course of action**
 - As a rule of thumb, I suggest that all changes you decide to make meet the following criteria:
 - Volunteer friendly
 - Proven to be cost-effective (by a third party such as the Dept. of Energy)
 - Readily available on the current, local market
 - Not place an unreasonable maintenance burden on the home owner

- *It would be wise to discuss these criteria with the rater in advance*
- Solicit the input of any subcontractors and construction staff whose work will be affected by the changes needed to meet Energy Star. Try to identify and resolve conflicts before construction starts.
- *Tip: It may be necessary to do training with subcontractors, construction leaders and volunteers before you are ready to build an ENERGY STAR certified house.*
- *Tip: It can be beneficial to make individual changes in a practice house, especially if success will depend on multiple people working together.*
- *Tip: Write a checklist of all the things that need to happen to build your first Energy Star house – circulate the checklist to all construction leaders to improve coordination.*
- **Step 6 Build an ENERGY STAR house with your rater providing inspections, testing, verification, and certification. Process will likely include...**
 - **Pre-construction:** Preliminary analysis (e.g. HERS Index or Title 24) for that specific design on that specific lot, mechanical system sizing calculated w/Manual J, all other prescriptive specifications verified to be in construction documents
 - **Construction:** Thermal Bypass Inspection – may take more than 1 site visit to verify all criteria including prescriptive requirements. *Depending on the rater, might include duct test after mechanical rough in.*
 - **Post-construction:** Duct testing, and whole house infiltration testing when required. Final calculations and paper work prep for registering the house as an Energy Star
- **Step 7 Rater registers house with HERS Provider and gives ENERGY STAR Certificate to affiliate and applies a blue Energy Star label to the house.**
- *Tip: Write a press release to tell the community you've built an Energy Star house & why!*
- *Tip: To maximize benefit, provide homeowners with guidance on how to operate their new Energy Star home.*

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