

University of Central Florida

**STARS**

---

FSEC Energy Research Center®

---

9-28-2010

## Affiliate Steps Toward Building Energy Star Homes

Florida Solar Energy Center

Janet McIlvaine

*Florida Solar Energy Center, janet@fsec.ucf.edu*



Part of the [Energy Systems Commons](#)

Find similar works at: <https://stars.library.ucf.edu/fsec>

University of Central Florida Libraries <http://library.ucf.edu>

This Fact Sheets is brought to you for free and open access by STARS. It has been accepted for inclusion in FSEC Energy Research Center® by an authorized administrator of STARS. For more information, please contact [STARS@ucf.edu](mailto:STARS@ucf.edu).

---

### STARS Citation

Florida Solar Energy Center and McIlvaine, Janet, "Affiliate Steps Toward Building Energy Star Homes" (2010). *FSEC Energy Research Center®*. 300.

<https://stars.library.ucf.edu/fsec/300>



FLORIDA SOLAR ENERGY CENTER®

*Creating Energy Independence*

# **Affiliate Steps toward Building ENERGY STAR Homes**

FSEC-FS-47-10

August 2010

## **Authors**

Janet McIlvaine  
David Beal

Copyright ©2009 Florida Solar Energy Center/University of Central Florida  
All Rights Reserved.

1679 Clearlake Road  
Cocoa, Florida 32922, USA  
(321) 638-1000

**[www.floridaenergycenter.org](http://www.floridaenergycenter.org)**



A Research Institute of the University of Central Florida

## **Disclaimer**

The Florida Solar Energy Center/University of Central Florida nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the Florida Solar Energy Center/University of Central Florida or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the Florida Solar Energy Center/University of Central Florida or any agency thereof.

## 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. The following steps will help Habitat affiliates navigate the path toward building Energy Star homes.

- **Step 1 Review ENERGY STAR information online:** ENERGY STAR Version 3 (January 2011) is significantly different, and more stringent, than the current ENERGY STAR 2 Program. There are many more mandatory requirements, including two HVAC and water efficiency checklists. For more information regarding these checklists, please visit [http://www.energystar.gov/ia/partners/bldrs\\_lenders\\_raters/downloads/InspectionChecklists.pdf](http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/InspectionChecklists.pdf)

**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/partner-resources/overview/index.html>

**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.
- **As standards evolve, states and regions may have alternate specifications**
- Builders may choose one of the following paths:
  - Performance Path
    - Most affiliates building single family detached houses will be using the national “ENERGY STAR Performance Path” which has a few prescriptive requirements.
    - In addition to the mandatory requirements for all qualified homes, the ENERGY STAR HERS Index target must be determined.  
For detailed instructions: [http://www.energystar.gov/ia/partners/bldrs\\_lenders\\_raters/downloads/V3HERS\\_IndexTargetProcedure.pdf](http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/V3HERS_IndexTargetProcedure.pdf)
  - Prescriptive Path
    - Some affiliates building single family detached houses, may have the option of using a prescriptive path to ENERGY STAR certification which also has a few performance requirements.
  - **National program requirements - performance and prescriptive paths:**  
[http://www.energystar.gov/ia/partners/bldrs\\_lenders\\_raters/downloads/NationalProgramRequirements.pdf](http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/NationalProgramRequirements.pdf)
  - Both of the above paths require the following checklists:

- Thermal Enclosure System Rater Checklist
- HVAC System Quality Installation Contractor Checklist
- HVAC System Quality Installation Rater Checklist
- Water Management System Builder Checklist (or Indoor airPLUS Verification Checklist)
- For more information regarding these checklists, please visit [http://www.energystar.gov/ia/partners/bldrs\\_lenders\\_raters/downloads/InspectionChecklists.pdf](http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/InspectionChecklists.pdf)

## ○ Step 2 Find a Rater

- A rater is like a personal energy analyst.
- **For states except those below**, look for a rater at these three sites:
  1. **Energy Star Partner Locator:**  
[http://www.energystar.gov/index.cfm?fuseaction=new\\_homes\\_partner\\_s.showHomesSearch](http://www.energystar.gov/index.cfm?fuseaction=new_homes_partner_s.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/> - click “Find Raters & Auditors and enter your zip code for a list of volunteer raters in your area
    - Read more about RESNET’s Habitat partnership here: <http://natresnet.org/rater/partnership/default.htm>
  3. **RESNET accredited home energy rating PROVIDERS in each state may have additional lists of certified raters:** HERS providers are organizations that oversee activity for a group of raters. None of these HERS Providers have formed "Volunteer Rater" programs, however, some of them are interested in working with Habitat affiliates in some capacity. The rater contacts that HERS Providers make available may not be members of RESNET, however, they are still beholden to the RESNET requirements for certification.
    - Listing of RESNET accredited HERS Providers: [http://resnet.us/programs/search\\_directory](http://resnet.us/programs/search_directory)
- **Oregon and Washington** (also Idaho and Montana affiliates that choose the Northwest Energy Star program):  
<http://www.northwestenergystar.com/partner-resources/partner/index.php?selector=verifier>
- **California** has three HERS Providers that each list raters certified to work in CA:
  - 1 CHEERS: <http://www.cheers.org/Raters/FindARater/tabid/179/Default.aspx>
  - 2 CalCERTS: [https://www.calcerts.com/Rater\\_Directory.cfm](https://www.calcerts.com/Rater_Directory.cfm)
  - 3 CBPCA: <http://www.cbPCA.org/homeowners/contractors.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=HBUILDER](https://www.energystar.gov/index.cfm?fuseaction=opa.showPartnerRoles&p_code=HBUILDER) *(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/downloads/2008BuilderAgreement01.pdf>
  - **All Builders and HVAC Contractors wanting to build or install EENERGY STAR homes or equipment:** Take EPA required online training for builders (available by Jan 1,2011) via [www.energystar.gov/homes](http://www.energystar.gov/homes) Builders will have one year to complete the online training. If they don't they are placed on probationary status where they are removed from our website Partner Locator and cannot use our logos. They can be reinstated as a full partner by taking the training. The HVAC training for contractors is being prepared by ACCA (Air Conditioning Contractors of America). The plan is to have that training available online as well. EPA has no current deadline for HVAC contractors to take their required training.
- **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.*

**Guidelines developed by:**

Janet McIlvaine  
 Building America Liaison to Habitat for Humanity  
 (321) 638-1434 fax (321) 638-1439  
[www.baihp.org/habitat](http://www.baihp.org/habitat)  
[janet@fsec.ucf.edu](mailto:janet@fsec.ucf.edu) (Include "Habitat" in your subject)

David Beal  
 Research Analyst  
 (321) 638-1433 fax (321) 638-1439  
[www.baihp.org/habitat](http://www.baihp.org/habitat)  
[david@fsec.ucf.edu](mailto:david@fsec.ucf.edu) (Include Habitat in your subject line)