

National LISC

Guide to ENERGY STAR Qualified Homes

Welcome to Your Printable Guide to ENERGY STAR Qualified Homes!

This guide is a joint project of the Local Initiatives Support Corporation's (LISC) Green Development Center (GDC) and the Environmental Protection Agency's (EPA) ENERGY STAR Qualified Homes program. Key to the GDC's goals is a focus on high-performance building, healthy neighborhoods, green jobs, and environmentally-friendly economic development. The GDC encourages a holistic approach to greening communities where green is not seen as an add-on or luxury, but as a sound strategy that needs to be fully integrated into programmatic goals. The Triple Bottom Line – financial, social, and environmental wellbeing – is central to the GDC's program position.

Among green development's benefits are:

- Preserve family income and wealth by lowering utility bills and increasing home values
- Connect neighborhoods to green-related job opportunities
- Provide schools with better learning environments, and stronger operating margins
- Support healthier lifestyles by exposing residents to fewer toxic substances, lessening respiratory problems, and encouraging physical activities such as walking and biking

We hope that this guide will provide a useful starting point for your local LISC Office and your partner organizations. The ENERGY STAR guide has been designed primarily for on-line use, but this version of the guide has also been designed to be entirely printer-friendly. There are several individual pages which have been designed to be useful to take along to meetings with your architects, contractors or Home Energy Rating System (HERS) Raters, and are identified with this icon:



Also, please keep in mind that this document will serve you best if it is regularly updated with new energy efficiency programs and ENERGY STAR Qualified Homes Standards. One of the reasons for making this an online guide with links to webpages was to make sure your office has the most up-to-date information available. The Green Development Center will try to keep the local offices apprised of new developments, but there should be a two-way flow of information, and local offices should be responsible for keeping track of local programs. If you need ideas on where to look, please just ask us!

Why ENERGY STAR?

There are many reasons to build ENERGY STAR qualified homes. LISC assists in creating affordable housing by providing funding to non-profit organizations, and should make a commitment to funding energy efficient projects. These projects are not only more affordable for the residents, but better for the planet. The following are the reasons listed on the ENERGY STAR for Qualified Homes website (please see http://www.energystar.gov/index.cfm?c=new_homes.nh_benefits):

ADDED CONFIDENCE

- ENERGY STAR qualified homes are built to meet strict energy efficiency guidelines, so that is one less thing to worry about when purchasing a new home.

LOWER OWNERSHIP COST

- ENERGY STAR qualified homes use substantially less energy than standard homes. It is estimated that an ENERGY STAR qualified home can deliver \$200 to \$400 in annual savings.
- Additional savings on maintenance can also be substantial.
- Financing your home purchase using an **energy efficient mortgage** (please see http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.energy_efficient_mortgage) can also lead to savings.

BETTER PERFORMANCE

- Energy efficient homes are more comfortable because they deliver better protection against cold, heat, drafts, moisture, pollution, and noise.
- An energy-efficient home helps ensure consistent temperatures between and across rooms, improved indoor air quality, and greater durability.

SMART INVESTMENT

- ENERGY STAR qualified homes will have an increasingly valued feature when the time comes to sell.

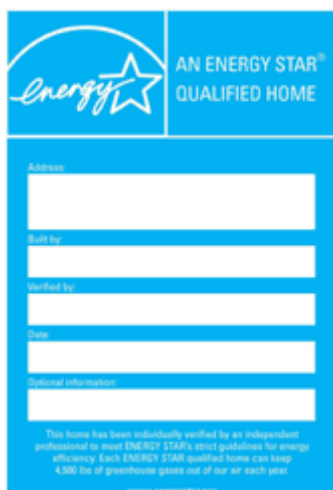
ENVIRONMENTAL PROTECTION

- 16 percent of U.S. greenhouse gas emissions are generated from the energy used in houses nationwide.
- Energy used in our homes often comes from the burning of fossil fuels at power plants, which contributes to smog, acid rain, and global warming.
- The less energy we use in our homes, the less air pollution we generate.

What Makes an ENERGY STAR Qualified Home?

According to the **ENERGY STAR Qualified Homes website** (http://www.energy-star.gov/index.cfm?c=new_homes.nh_features), to earn the ENERGY STAR, a home must meet guidelines for energy efficiency set by the U.S. Environmental Protection Agency. These homes are at least 15% more energy efficient than homes built to the **2004 International Residential Code (IRC)** (see http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh), and include additional energy-saving features that typically make them *20–30% more efficient than standard homes*.

And with homebuyers increasingly interested in green building, energy efficiency is the place to start. The easy way to make sure a new home is energy efficient is to look for the blue ENERGY STAR mark, the government-backed symbol for energy efficiency. Learn more about how **Green Begins with ENERGY STAR Blue** (please see http://www.energystar.gov/ia/new_homes/Green_Begins_with_ENERGYSTAR_Blue.pdf).



This label identifies a home as having earned the ENERGY STAR.

Any home three stories or less can earn the ENERGY STAR label if it has been verified to meet EPA's guidelines, including: single family, attached, and low-rise multi-family homes; manufactured homes; systems-built homes (e.g., SIP, ICF, or modular construction); log homes, concrete homes; and even existing retrofitted homes. Note: A building with first floor retail and 3 stories of residential can qualify for the ENERGY STAR label. ENERGY STAR qualified homes can include a variety of 'tried-and-true' energy-efficient features that contribute to improved home quality and homeowner comfort, and to lower energy demand and reduced air pollution.

1. Effective Insulation

- Properly installed and inspected insulation in floors, walls, and attics ensures even temperatures throughout the house, reduced energy use, and increased comfort.
- Learn more about **Properly Installed Insulation** (please see http://www.energystar.gov/ia/new_homes/features/Insulation_062906.pdf)

2. High-Performance Windows

- Energy-efficient windows employ advanced technologies, such as protective coatings and improved frames, to help keep heat in during winter and out during summer.
- These windows also block damaging ultraviolet sunlight that can discolor carpets and furnishings.
- Learn more about **Qualified Windows** (see http://www.energystar.gov/ia/new_homes/features/Windows_062906.pdf).

3. Tight Construction and Ducts

- Sealing holes and cracks in the home's "envelope" and in heating and cooling duct systems helps reduce drafts, moisture, dust, pollen, and noise.
- A tightly sealed home improves comfort and indoor air quality while reducing utility and maintenance.
- Learn more about **Efficient Duct Systems** (see http://www.energystar.gov/ia/new_homes/features/DuctSystems_062906.pdf).

4. Efficient Heating and Cooling Equipment

- In addition to using less energy to operate, energy-efficient heating and cooling systems can be quieter, reduce indoor humidity, and improve the overall comfort of the home.
- When properly installed into a tightly sealed home, this equipment won't have to work so hard to heat and cool the home.
- Learn more about: **Qualified Heating Equipment** (see http://www.energystar.gov/ia/new_homes/features/Heating_062906.pdf), **Qualified Cooling Equipment** (see http://www.energystar.gov/ia/new_homes/features/Cooling_062906.pdf) and **Mechanical Ventilation** (see http://www.energystar.gov/ia/new_homes/features/MechVent_062906.pdf)

5. Efficient Products

- ENERGY STAR qualified homes may also be equipped with ENERGY STAR qualified products — lighting fixtures, compact fluorescent bulbs, ventilation fans, and appliances, such as refrigerators, dishwashers, and washing machines.
- Learn more about **ENERGY STAR qualified products** (see http://www.energystar.gov/index.cfm?fuseaction=find_a_product): **Qualified Appliances** (see http://www.energystar.gov/ia/new_homes/features/Appliances_062906.pdf), **Qualified Lighting** (see http://www.energystar.gov/ia/new_homes/features/Lighting_062906.pdf), **Advanced Lighting Package** (see http://www.energystar.gov/ia/new_homes/features/AdvancedLighting_062906.pdf), **High Efficiency Water Heaters** (http://www.energystar.gov/ia/new_homes/features/WaterHtrs_062906.pdf)

6. Third-Party Verification

- With the help of independent Home Energy Raters, ENERGY STAR builder partners choose the most appropriate energy-saving features for their homes.
- Raters conduct onsite testing and inspections to verify the energy efficiency measures, as well as insulation, air tightness, and duct sealing details.
- Learn more about **Independent Inspection and Testing** (see http://www.energystar.gov/ia/new_homes/features/HERSrater_062906.pdf).

Other Resources to become more familiar with ENERGY STAR Qualified Homes:



Take a tour behind the walls of an ENERGY STAR qualified home at http://www.energystar.gov/index.cfm?c=behind_the_walls.btw_landing

- See the Builder Option Packages for technical specifications:

Energy Star Builder Option Packages

(see http://www.energystar.gov/index.cfm?c=bop.pt_bop_index)

- Check out these presentations to become more confident in your ENERGY STAR Qualified Homes knowledge when talking with your architects, contractors and HERS raters:

http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.ResESMktgSalesPresentation

Existing Homes

ENERGY STAR is not just for new homes! There is a program for retrofitting existing homes through the *Home Performance with ENERGY STAR Program*. You can see their website with details on the program at http://www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_hpwes. For existing homes, you may also want to consider making use of the many weatherization programs available. Be sure to verify the quality of the program before you commit to it.

How to Get an ENERGY STAR Qualified Homes Project Done Right

1. **"This project will be an ENERGY STAR Qualified project."** Determine that your project will be an ENERGY STAR Qualified Homes Project, *communicate* this to everyone who is or may be involved in the project. Set firm and realistic project team goals. Ask all team members to read through the ENERGY STAR Standard.

2. **Interview and choose a HERs Rater.** To learn more about HERS ratings, see http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_HERS.

3. **If possible, have a pre-bid meeting with all contractors who may work on the project.** Clearly state your project goals, and state that no bids will be accepted that do not meet the standards and requirements put forth. Incorporate the following language into your RFPs or procurement process for housing: "All new and gut rehab residential buildings up to three stories shall be designed to meet the standard for ENERGY STAR Qualified Homes. All procedures used for this rating shall comply with National Home Energy Rating System guidelines."¹

4. **Evaluate Design Team Candidates.** One of the factors to be considered when picking your team should be their willingness to work on an ENERGY STAR Qualified Homes project. Eager professionals are always better to work with in the long run than resistant professionals. Problems with willingness to do the work required to meet ENERGY STAR standards (often not more than paying attention to detail) can cost a project time and money.

5. **Be an ACTIVE project manager.** Check in with your HERS rater and design team, make suggestions, ask questions, ask for help if you need it, get educated! This sends the message that you are on top of progress towards meeting the standard.

What Do HERs Raters Do?

HERS raters are an integral part of the Energy Star Homes program.

Their responsibilities include:

- reviewing builders plans for Energy Star performance
- Evaluating and rating the energy efficiency of buildings
- Providing independent, 3rd Party inspection and testing



¹ From HUD Power Point Presentation by Bob Paquin

Top Three Things to Make Sure Your Design Team is On Top Of:

1. **Ventilation:** Have the design team put together a Ventilation System Strategy *before* you hire them. Make sure they give you detailed plans, don't accept "It's just 15% better than code." The system should be 1.5 sones (a sone is a unit of perceived loudness) or less and be rated for constant duty. Panasonic is generally considered to be the best, but NuTone and AirKing also make acceptable models. The ducting should be 4 inch rigid duct (to avoid duct collapse during the course of construction), and there should be an appropriate controller and termination kit. Please note that this type of ventilation is not required in every area of the country, however, we recommend it.

2. **Mechanical Equipment:** Right-size your mechanical equipment. Don't let the engineers push a larger system than you need. Use both their estimates and the HERS rater's to find the right size equipment for the space you have. The size is important because of cost issues, making room for equipment in the building plans, too-large equipment can cause "short-cycling" which counteracts other efficiency measures and wears out the equipment. Your HVAC contractors should be submitting load calculations as part of their bid submission.

3. **Air Sealing:** Know the Thermal Bypass checklist! Look at the ENERGY STAR Qualified Homes guide to the Thermal Bypass checklist, and do a walk-through with your design team to make sure the insulation is being installed correctly. Make sure the insulation being installed is rated higher than code. You can see the **Thermal Bypass Checklist** here: http://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/Thermal_Bypass_Inspection_Checklist.pdf; and a **presentation of how to perform a Thermal Bypass checklist** here: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.ResESMktgSalesPresentation.



Incentives for Energy Efficiency:

There are many opportunities for rebates and incentives for participation in the ENERGY STAR Program. Please see your local LISC Office Supplement for incentive information specific to your area (http://www.lisc.org/section/goals/healthy/green_dev/energy_star/eg_resources/local_res/). While the ENERGY STAR Qualified Homes program is focused on new construction, there are also many programs for existing homes. If you are working in a community which is not covered by any local LISC Office supplement, check the local utility's website or call a representative to see if they have rebate or incentive programs. A good place to start is the **Database of State Incentives for Renewables and Efficiency** at <http://www.dsireusa.org/>.

Also, keep in mind that energy efficiency costs can be paid for with HOME or CDBG funds!

Local Vendors:

You can find local ENERGY STAR partner vendors through the ENERGY STAR website by selecting the type of vendor you are looking for, and the state that you are working in. This information is contained in your local supplement, and you can also find them here: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.pt_bldr.

LISC Contact:

Madeline Fraser Cook, LEED AP
Program Director, Green Development Center
Phone: 617.338.0411 x223
Fax: 617.338.2209
Email: mfcook@lisc.org
Address:
Local Initiatives Support Corporation
95 Berkeley Street, Suite 202
Boston, MA 02116

Energy Star Affordable Housing Contact:

Brian Ng
Phone: (202) 343-9162
Fax: (202) 343-2200
Email: Ng.Brian@epamail.epa.gov
Address:
Office and Overnight Mail Location:

U.S. EPA
1310 L St, NW
9th Fl. - 947C
Washington, DC 20005

USPS Mail Only:

US EPA
Ariel Rios Bldg
MC 6202-J
1200 Pennsylvania Ave, NW
Washington, DC 20460

Other Resources:

HUD

HUD has Regional Energy Coordinators who are part of their Energy Task Force. If you are working on a HUD related project, find your coordinator here:
<http://www.hud.gov/energy/taskforce.cfm>

ENERGY STAR Qualified Homes Checklist

Habitat for Humanity has a checklist which they use for going through the Qualifying process. We have modified it to be more useful for LISC and their partner organizations. You may find it helpful for completing your own project, and can access the document here: http://www.lisc.org/section/goals/healthy/green_dev/energy_star/eg_resources

Notes:

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