

# Green Home Building

## Frequently Asked Questions

### **What is a Green Home?**

A green home uses less energy, water and natural resources; creates less waste and is healthier for people living inside. There are many shades of green building; which refers to the various levels of achievement in adopting resource efficiency in a home. Homes with one or two green measures are considered light green, while homes with several green measures are called dark green. There are several programs that attempt to quantify the level of greenness such as U.S. Green Building Council and NAHB. The LEED rating program has four levels of green: Certified, Silver, Gold and Platinum. The NAHB's Green Building program has three tiers Bronze, Silver and Gold.

### **Why build Green?**

There are many reasons to change the way we build and operate homes in 2007. Building a new home will always affect the environment, so when we build a Green Home we work towards minimizing the environmental impact. In the United States buildings account for the following percentage:

- a. 39% of energy use
- b. 12% of water consumption
- c. 68 % of total electricity consumption
- d. 38% of the carbon dioxide emissions

It is clear that if we can build Green and reduce those numbers we can have a very positive affect on the environment.

### **What are the benefits of a Green Home?**

Green homes are safer, healthier, more comfortable, and more durable than conventional homes and will greatly improve the overall quality of life for the homeowners. There are many other benefits to building a green home, starting with the environmental benefits such as improved air and water quality, reduced exposure to mold, mildew and other indoor toxins, reduce waste streams, conservation and restoration of natural resources along with enhancing and protecting ecosystems. In addition there are the economical benefits like lower operating cost, enhanced durability, less maintenance and optimized life cycle economic performance. The last large benefit comes from the social side of green building, increased occupant comfort and health; heightened aesthetic qualities and reducing the strain on local infrastructure.

## **How Green Are Epoch Homes Today?:**

There are many ways that Epoch Homes is already a green company. The Leadership in Energy and Environmental Design (LEED) organization has created a rating system to define and measure “Green Buildings” based on existing and already proven technology. In addition the National Association of Home Builders (NAHB) has created the Green Home Building Guidelines for use by homebuilders. Here at Epoch, we have already instituted many of these practices and there are many more that can be accomplished over time.

Epoch makes it a standard practice to control waste and our employees works together as a team to make the best and most efficient use of materials. By doing all of the rough framing in a controlled environment allows us to keep all materials dry and away from the elements, this helps to reduce the chance of mold and other toxins from later contaminating the indoor air quality.

Local communities are looking for ways to minimize the impact of construction on local infrastructure at the building site. By building with modular construction you can reduce the traffic to a building site by delivering a house that is 80% complete house in one day as opposed to trucks delivering materials day after day.

## **What is LEED for Homes?**

LEED for Homes is a green home rating system for ensuring that homes are designed and built to be energy and resource efficient and healthy for occupants. LEED can be applied to single and multi-family homes and is intended for both market-rate and affordable housing. The U.S. Green Building Council (USGBC) originally developed the LEED green building rating system in 2000 for new commercial construction. Following LEED’s success in the commercial sector, USGBC began the pilot test of LEED for homes in August 2005. There are currently over 5,800 homes across the U.S. involved in the LEED for Homes pilot program and more than 150 that have already been LEED certified as a green home. The LEED for Homes pilot test will conclude in spring 2007 and USGBC will publicly launch the LEED for homes rating system in June 2007.

## **What is Energy Star?**

ENERGY STAR qualified homes are at least 15 percent more energy efficient than homes built to the 2004 International Residential Code (IRC). Any home three stories or less can earn the ENERGY STAR label if it has been verified to meet EPA's guidelines for energy efficiency. This includes site-constructed homes, attached or detached homes, single or low-rise multi-family residential buildings, manufactured homes, systems-built (e.g., SIP or modular) and log homes, existing homes, or retrofitted homes. ENERGY STAR qualified homes achieve energy savings through established, reliable building technologies. Builders work with Home Energy Raters to select from a number of features when planning and building homes.

### ***1. Effective Insulation***

Properly installed, climate-appropriate insulation in floors, walls, and attics ensures even temperatures throughout the house, less energy consumption, and increased comfort.

### ***2. High-Performance Windows***

Energy-efficient windows employ advanced technologies, such as protective coatings and improved frame assemblies, to help keep heat in during winter and out during summer. These windows also block damaging ultraviolet sunlight that can discolor carpets and furnishings.

### ***3. Tight Construction and Ducts***

Sealing holes and cracks in the home's "envelope" and in duct systems helps reduce drafts, moisture, dust, pollen, and noise. A tightly sealed home improves comfort and indoor air quality while reducing utility bills.

### ***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. Typically, energy-efficient equipment is also more durable and requires less maintenance than standard models.

### ***5. Lighting and Appliances***

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, dish washers, and washing machines. These ENERGY STAR qualified products provide additional energy savings to the owner.

### ***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. Additionally, raters conduct onsite testing and inspections to verify that the homes qualify as ENERGY STAR.

## **What is NAHB's Voluntary Model Green Home Building Guidelines ?**

The exploding market for sustainable, environmentally friendly and recycled building products, along with the greater availability of educational opportunities for builders, has accelerated green building's acceptance rate. By the end of 2007, more than half of NAHB's members, who build more than 80 percent of the homes in this country, will be incorporating green practices into the development, design and construction of new homes.

NAHB's voluntary Model Green Home Building Guidelines are designed to be a tool kit for the individual builder looking to engage in green building practices and home builder

associations (HBAs) looking to launch their own local green building programs. Since their debut in 2005, the Guidelines have helped move environmentally friendly home building concepts further into the mainstream marketplace.

Currently, there are approximately 50 locally grown green building programs across the country, many of which are run by the local home builders' association (HBA). Eleven of these programs are voluntary, HBA-driven efforts, based on the NAHB Model Green Home Building Guidelines; and approximately ten additional Guidelines-based programs are under development.

The Guidelines contain six primary sections:

- Lot Preparation and Design - Even before the foundation is poured, careful planning can reduce the home's impact on natural features such as vegetation and soil; and enhance the home's long-term performance. Such preparation can provide significant value to the homeowner, the environment, and the community. Included for the end user, especially developers, is a Site Planning Appendix that closely mirrors this section and provides additional guidance.
- Resource Efficiency – Advanced framing techniques and home designs can effectively optimize the use of building materials. This section also details how careful material selection can reduce the amount of time and money needed for home maintenance; and demonstrates equally important construction waste management concepts.
- Energy Efficiency – This is the most quantifiable aspect of green building. The information in this section will help a builder create a better building envelope and incorporate more energy efficient mechanical systems, appliances, and lighting into a home, yielding long-term utility bill savings and increased comfort for the homeowner.
- Water Efficiency/Conservation – Although, the relative importance of water availability and usage varies from region to region, the concern with adequate supply is becoming more widespread geographically. Experience also shows that employing the line items from this section of the Guidelines for indoor and outdoor water use can reduce utility bills, regardless of location.
- Occupancy Comfort and Indoor Environmental Quality – Effective management of moisture, ventilation, and other issues can create a more comfortable and healthier indoor living environment.
- Operation, Maintenance and Education - Given the level of effort that a home builder goes through to create a well thought out home system, it would be a shame not to give the home owner guidance on how to optimally operate and maintain the house. Line items from this section show a builder how best to educate homeowners on the features of their new green home.

In summary, the voluntary Model Green Home Building Guidelines are for the mainstream homebuilder. They will help systematize the green design and construction process and assist the builder toward incorporating more green building features into homes. As NAHB Research Center data indicates that there is a growing number of green homes

built annually, it is expected that these voluntary Guidelines will help builders meet the needs of this growing market.

## **What Are The Levels Of The Green Building Program?**

There are three different levels of green building available for the NAHB program; Bronze, Silver and Gold. All levels have a minimum number of points required for each of the seven guiding principles to assure that all aspects of green building are addressed and that there is a balanced whole systems approach. After reaching the thresholds, an additional 100 points must be achieved by implementing any of the remaining line items.

	Bronze	Silver	Gold
Lot Preparation and Design	8	10	12
Resource Efficiency	44	60	77
Energy Efficiency	37	62	100
For homes without ducted heating and cooling – deduct 15 points from Energy Efficiency section.			
Water Efficiency/Conservation	6	13	19
Occupancy Comfort and Indoor Quality	32	54	72
Operation, Maintenance and Education	7	7	9
Global Impact	3	5	6
Additional points from sections of your choice	<u>100</u>	<u>100</u>	<u>100</u>
Total points for each level	237	311	395

## **How Can Consumers Compare Green Homes?**

One of the many challenges faced by a homebuyer is comparing a green home to another home. Any home can be called "green," but how does the homeowner know that it really is green? LEED certification is something that consumers can look for to readily identify green homes that have been third-party inspected, performance-tested, and certified to perform better than conventional homes. The LEED certification ensures that the home you are purchasing was designed to meet the highest standards and is operating exactly the way it is supposed to.