



10 Basic Concepts for Green Homes

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There is no such thing as green architecture or a green aesthetic. Instead there are countless ways design can address and synthesize green issues.

A green building is one whose construction and lifetime of operation assures the healthiest possible environment while representing the most efficient and least disruptive use of land, water, energy, and other resources.

Manufacturers, builders, designers, and consumers are creating an expanding market for housing and home products that pollute less and are more resource efficient.

By using green products and practices, our homes can be healthy and comfortable but also environmentally friendly and cost efficient.

Green Building Basics

While building a green or high-performance home affects many steps in the home-building process, some of the most important advances have taken place in the structure and in finishing materials. Although products and practices will continue to change and improve, the basic concepts in green building remain the same. Here are 10 guidelines with a few examples to consider for each one.

1. Develop design plans for the building itself.

- Consider building orientation, sun shading, and thermal mass properties (ability to hold heat) of materials, as well as the color and reflectivity of walls and roof surfaces.
- Follow recommended practices for insulation and heating and cooling systems.
- Use ENERGY STAR® windows or other high-performance window products.
- Use standard sizes to limit waste of materials.
- Design for flexibility, and consider potential future needs.

2. Orient and design building to site needs, climate, and local conditions.

- Use suitable landscaping and plant materials that are tolerant of the soils, climate, and water availability at the building location.
- Design drainage systems that allow water to drain from site without damaging building.

Material Safety Data Sheets—

Fact sheets that include information on hazardous chemicals and health and physical hazards, including exposure limits and precautions for people who may come into contact with these chemicals. Green design professionals review product MSDS when specifying materials and require their submittal during the planning period. Consumers can request this information through a builder, retailer, or manufacturer.

3. Maximize the use of natural daylight.

- Consider light-colored interiors that will reflect light from windows and skylights throughout the room.
- Use internal shading devices at windows to make the most of daylight and energy-efficiency features.

4. Investigate building materials.

- Compare the environmental impact and energy use of various building materials throughout their life cycle. Include all steps involving raw materials, production process, packaging, shipping, installation, use, and disposal or reuse.
- Read and ask questions about related materials needed for installation, finishing, and maintenance, and select the best options.
- Ask for information on environmental specifications, such as percentage of recycled content, low volatile organic compound (VOC) requirements, and avoidance of toxic materials.
- Choose local and natural materials when possible. This helps the local economy as well as reduces overall energy use. (The need for less transportation of materials reduces the energy that is used in making the product available to consumer.)

5. Reuse existing materials, use fewer materials, and use building materials that are considered to be environmentally friendly.

- Evaluate the life cycle impact of the product on the environment and resources. Select the best option available.
- When possible, select products that come from rapidly renewable sources, such as certified wood or bamboo for flooring.
- Use lumber and wood products from certified forests, where the forest is managed and lumber is harvested using sustainable practices.
- When appropriate, choose resource-efficient engineered wood products instead of lumber that comes from older growth forests.
- Evaluate all products and systems for their ability to be recycled when they reach the end of their useful life. A large, well-known fast-food company plans for the use of recycled materials when building new restaurants.
- Consider such things as using salvage doors and lumber or using refurbished furniture instead of new. For instance, when you use antiques and collectibles, you are recycling. In addition you eliminate steps in the manufacturing process and often use less transportation.

6. Design for healthy indoor air quality.

- Provide for adequate air exchange between inside and outside air. This also removes air pollutants for a healthier living space.
- Plan for correct ventilation and humidity control along with well-maintained air systems throughout the structure to create a comfortable living area free of mold and air pollutant problems.
- Place air intake and air exhaust locations in areas that will avoid contaminating the fresh air supply in the building.
- Select building materials that are nontoxic, limiting the pollutants that are brought into the building.
- Follow current energy codes for new residences – even if your local government does not require (or enforce) them.

7. Set high lighting-efficiency standards.

- Design interior lighting for good energy efficiency. Plan for ENERGY STAR lamps and ballasts, task lighting, and reduced ambient lighting.
- Consider options featuring smart controls, such as occupancy sensors and daylight dimming to reduce energy use.
- Avoid over-illumination of the exterior areas and use low-cutoff exterior lighting fixtures, which direct light downward, not upward and outward.

8. Select appliances that are energy efficient and save on water use.

- Select ENERGY STAR appliances and low-flow plumbing fixtures. Look for energy and water-efficient water heaters, dishwashers, and refrigerators. See Energy Guide for comparison data.
- Use aerators and self-closing or electronic faucets for lavatories to help reduce water usage.

9. Design for ease of maintenance and use of environmentally friendly cleaning products.

- Select materials that are low maintenance and have compatible maintenance requirements.
- Whenever possible, use nontoxic, low VOC cleansers.
- Use biodegradable, environmentally friendly cleaning agents that do not release VOCs or other harmful agents and residue.

10. Maintain structural and building systems for maximum energy and environmental effectiveness.

- Periodically check for any needed repairs, and maintain repairs in a timely manner.
- Check HVAC filters on air and ventilation systems regularly (three to four times a year, some suggest monthly) and correct any moisture problems quickly.

For More Information:

Your County Extension office

Kentucky Division of Energy

Frankfort, KY

www.energy.ky.gov/dnrdoe.html

United States Green Building Council

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www.usgbc.org/

LEED (Leadership in Energy and Environmental Design)

Green Building Rating System™

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www.pathnet.org/

American Society of Interior Design

(Guidelines for designing green)

www.asid.org/green.asp

Homes Across America

(Green resources and houses)

www.homes-across-america.org/

Green Seal

(Product standards, recommendations)

www.greenseal.org/index.html

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