The Best Ways to Build Green
by Roselind Hejl

Green building is a design process that grows out of a connection with the natural landscape. It is a set of informed decisions that considers the site and materials to reduce the cost, maintenance, and energy usage of the home. Conservation is central to the green building approach. Green homes are healthier, safer, more comfortable, and cost less to operate. They connect people to the land and community around them. Here are seven green building ideas:

Build a passive solar design.

Passive solar design for natural heating and cooling is practiced throughout the world under all climate conditions. As energy costs rise, it is critical to use building orientation, window placements, stone floors, roof overhangs, reflective barriers and other techniques to control natural solar energy.

In warm climates, face the broad side of the house to the north or south, to avoid excessive heat gain as the sun rises and drops in the horizon. Use deep overhangs or solar screens to shield glass areas from direct sun. Avoid skylights or greenhouse rooms, because they allow too much heat gain.

In colder climates, solar heat can be captured and stored in materials such as concrete or stone to be slowly released during the evening.

An open floor plan optimizes the effect of passive solar heating or cooling.

Doors and windows should be placed to catch the prevailing breeze and allow cross ventilation. Lower inflow windows and higher outflow windows keeps air moving, as hot air rises.

A thermal chimney uses a hot zone, such as a glass cupola with windows or vents, to create rising air currents to pull air through the building.

Double glass panes provide an insulating air space between the panes, reducing heat transfer.

The metal oxide coating on Low-E (emissive) glass helps to keep solar heat out, and interior heat in.

Ventilate attic spaces.

In hot climates, attic spaces can accumulate heat, transferring it to living areas below. AC ducts located in the attic will absorb this heat.

In cold climates, moisture can accumulate in unventilated attic spaces, causing wood rot or mold.

Continuous eave and roof ridge vents will create natural air flow through the attic. Air enters through the eave vents, and moves out through the ridge vents. As heated air rises, it ventilates the attic.

Lighter colored roof materials absorb less heat.

Reflective heat barriers on the underside of the roof deck help to reduce heat gain.

High levels of insulation in attics and exterior walls is crucial for comfortable indoor temperature in all climates.

Some research is being done on building sealed, highly insulated attics.

Optimize your heat and AC systems.

An oversized system will cool too quickly, and leave the room clammy. Smaller systems run long enough reach the desired temperature, and, at the same time, clear the air of humidity.

A smaller system lasts longer, does not cycle on and off frequently, and costs less to purchase.

Check for leaks in duct work joints, and around windows, doors, attic stairs, exhaust pipes, recessed lights, and electric outlets. Ongoing maintenance of central air systems is necessary to prevent air loss.

Use programmable thermostats to regulate your energy usage.

Use Pleated-Media Filters in AC return-air grills. This filter removes particles as small as mold spores from the air that is drawn back into the AC blower, keeping coils cleaner and improving the air quality in your home.

Heat pumps on electric furnaces reduce energy use by drawing heat from outside air, using the same technology that air conditioners use to remove heat from indoor air.

Check with your utility provider for free diagnostic testing and rebates for high efficiency AC systems, insulation, solar screens, and weather-stripping.

Reduce water needs.

Native landscaping that is suited to the rainfall in your area is fundamental to building green.

Keep as much native growth on your lot as possible.

Water pervious materials such as crushed granite or open paving blocks allow water to percolate into the ground.

Rainwater catchment systems use gutters and barrels to catch and store water that falls on roofs.

Front loading washing machines use less energy and water. Some dishwashers use less water and have no-heat drying. Check water and energy usage before buying appliances.

Low flow toilets and shower heads reduce water usage.

Reduce water and fertilizer needs by re-cycling yard waste and leaves for use as mulch.

Use renewable or recycled materials.

Consider decks made of waste wood and plastic, such as Trex or other brands.

Medium density fiberboard (MDF), a wood product used for interior trim and doors, does not contain formaldehyde.

Fiber-Cement siding, trim, and pipe materials (Hardie Board) are very durable, rot resistant, and fire retardant.

Use locally produced, and easily renewed, materials when possible.

Consider alternative building materials, such as rammed earth, straw bale or insulated concrete panels.

Concrete floors utilize the foundation material as finish floor, saving materials and labor.

Recycled wood floors are a very attractive re-use of materials.

Bamboo floors are made from a rapidly renewable source - bamboo is a grass that can grow several feet per day.

Hard surface floors do not hold dust, molds, and allergens, and are very durable.

Use materials with recycled content when possible, such as cellulose insulation, Thermo-ply, and lumber composites.

Plan for a place to re-cycle household trash, such as a storage bin in the kitchen, and holding bin in the garage.

Safeguard your site.

Trees, vegetation and bird habitat on the site should be protected during the construction.

Native trees, grasses, rock outcroppings and natural drainage can be made a part of your building and landscaping design.

Reduce the impact to the building site as much as possible.

Make sure construction waste is properly disposed of, especially paints and solvents. Do not allow them to be buried on the site.

Use safe materials.

Use products that are biodegradable, non toxic, water based, and cold water compatible.

Avoid products that contain dyes, ozone depleting chemicals, heavy metals, formaldehyde, or known carcinogens.

Avoid solvent based finishes, particleboard, adhesives, some carpets, and other products that release volatile chemicals into the air.

Look for green rated labels on carpets and other products.

Remove old-style pressure treated wood when possible, especially in play structures.

Green building is an approach to design and construction that respects the environment and conserves resources. It is a common sense approach that is available to all home owners. Green building techniques create a more cost effective, enjoyable and sustainable home to live in.

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