



**H**urricanes Katrina and Rita damaged or destroyed more structures than any other natural disaster in history. Hundreds of thousands of homes, small businesses and offices in New Orleans and along the Gulf Coast suffered unprecedented storm and flood damage. There is no doubt this region will build back. Or that this recovery is an opportunity to build back greener, cleaner and safer.

The goal is to build new buildings and renovate damaged buildings that are energy and water efficient, stronger and safer and pollute less. Constructing energy efficient buildings, adopting renewable energy systems and using recycled and storm-resistant materials will save money, minimize waste, cut pollution, curb global warming and keep our homes and businesses safer.

That's why the Louisiana, Mississippi, Alabama and Texas Chapters of the Sierra Club have created this blueprint and resource guide to affordable and practical green building practices and materials for our families, friends and neighbors.

## SOURCES AND INFORMATION ABOUT GREEN BUILDING

### Hurricane Strong Building Codes

<http://www.louisianahouse.org/>

### Building Technologies

<http://www.eere.energy.gov/buildings/>  
[http://www.southface.org/web/resources&services/publications/factsheets/sf\\_factsheet-menu.htm](http://www.southface.org/web/resources&services/publications/factsheets/sf_factsheet-menu.htm)

### Health and Safety

[http://www.louisianahouse.org/en/family\\_home/hazards\\_and\\_threats/recovery\\_assistance/cleaning\\_up/](http://www.louisianahouse.org/en/family_home/hazards_and_threats/recovery_assistance/cleaning_up/)

### Read about the LEED (Leadership in Energy and Environmental Design standards)

<http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>

### Green Building Links

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=76&#3>

<http://www.sierraclub.org/globalwarming/>

### Information about the relationship of Global Warming to conserving Energy

<http://www.all4energy.org/>

<http://www.healthybuilding.net/>

### Find Available Energy Star Products

[http://www.energystar.gov/index.cfm?fuseaction=find\\_a\\_product](http://www.energystar.gov/index.cfm?fuseaction=find_a_product)

### Use Recycled and Sustainable Products

<http://www.greenbuilder.com/sourcebook/contents.html>

### Tax Incentives

<http://www.energytaxincentives.org>

<http://www.dnr.state.la.us/SEC/EXECDIV/TECHASMT/programs/residential/hero/>

*The Sierra Club is not responsible for the content of these links. Please consult a licensed professional before starting any major construction project.*

**FOR MORE INFORMATION CONTACT THE SIERRA CLUB AT:  
225-925-8650 OR WWW.SIERRACLUB.ORG**



Explore, enjoy and protect the planet

# Build Back Green, Clean and Safe

**A SIERRA CLUB GUIDE TO GREEN BUILDING  
PRINCIPLES, PRACTICES AND MATERIALS**





## PRINCIPLES OF GREEN REBUILDING

**The purpose of green building is to shelter people AND protect the earth. There are five common principles in green building:**

**Site Evaluation** — designing a building based on the location. Our homes are being rebuilt under a thinner tree canopy so the green or sustainable way to plan is to take the increased solar heat into consideration as we rebuild. We need to create shade yet strive to take advantage of winter daylight.

**Energy Efficiency** — reducing energy use will save money, conserve resources and cut pollution while curbing global warming. We are able to achieve this goal by using energy efficient construction materials such as double glazed windows and recycled cotton insulation. Just the simple installation of Energy Star rated products can reduce a household's energy usage overnight.

**Water Conservation** — reducing water waste conserves the resource and cuts pollution.. Recycling the rainwater into our gardens, and using low flow faucets, showerheads, washing machines and toilets lowers the amount of water going into waste treatment plants.

**Indoor Air Quality** — building green works to reduce the allergens, pesticides and strong smells from chemicals in our homes. A well sealed house keeps dust and insects out.

**Recycled, Renewable and Non-Toxic Materials** — durable and affordable recycled and non-toxic construction materials such as cement made from fly ash and natural linoleum will last for a long time, make your home healthier and reduce the amount of waste in our landfills.

## STEPS ONE, TWO & THREE

### 1 TAKE PRECAUTIONS FOR HEALTH AND SAFETY

The first stage in rebuilding is to take precautions while rebuilding your house. Use protective clothing, gloves and ventilators. Avoid contact with any known toxins or molds. Consult your physician before taking health risks if you have chronic respiratory problems or a compromised immune system. Keep informed about possible toxins in your area. Use common sense safety measures when using power tools, climbing on roofs and performing any other construction activities.



### 2 DETERMINE STRUCTURAL INTEGRITY OF YOUR BUILDING

Many of our homes sustained major wind and water damage. In order to protect your family and save you money in the long term, have your house evaluated by a professional to determine if all of your structural elements are sound. Verify with local authorities if your house is required to be elevated.



### 3 DEVELOP A SUSTAINABLE PLAN FOR REBUILDING.

Look at your house and landscape as a whole system working together. Looking at your house as a system takes into consideration the fact that all aspects of the building and site are working together. Making changes to one part of your house influences the needs of another part. For example, if you put in energy efficient windows where you didn't have them before, you may be able to use a smaller heating and cooling system than you had before the hurricane. Take time to make a rebuilding plan that looks at all of the house as a system working together and take advantage of new technologies and energy efficient building methods.



# HOW TO REBUILD GREEN, CLEAN AND SAFE

## 1. Is your house hurricane ready?

Here are some basic tips. For more detailed construction information contact your local Home Builder's Association or [www.lslugacenter.com](http://www.lslugacenter.com)

**Entry Doors:** Doors should have at least three hinges and a deadbolt security lock with a one-inch bolt. Doors should open out to prevent them blowing in and letting storm debris in.

**Patio Doors:** Replace your sliding glass doors with impact-resistant door systems made of laminated glass, plastic glazing or a combination of plastic and glass.

**Garage Doors:** Replace your garage door with a stronger wind and debris resistant product

**Roofs:** Have your roofing contractor install metal straps anchoring the walls to the roof

**Windows:** Replace with impact resistant plastic coated insulated windows.

## 2. Are you rebuilding past problems or creating a new better home?

**Energy Efficient:** Use Energy Efficient Construction from the foundation to the roof. Create an effective air barrier. Use cellulose insulation in the walls. Control Moisture. Use energy star rated products. Create a HVAC closet. Wrap your Hot Water Heater. Design your rooms to get the maximum natural light from north or shaded southern windows. Install a Solar light tube in a dark room. Use high color fluorescent bulbs in all of your rooms. Use solar lighting or outdoor fluorescent for exterior lighting.

**Water Saving:** Purchase low water use appliances and bathroom fixtures. Collect rainwater in a cistern connected to your garden's drip sprinkler system. Select native plants for your landscape. Mulch your garden with local pine products or rubber mulch made from recycled tires.

**Landscape and Exterior:** Take into consideration any drainage or standing water issues. Plant hurricane resistant shade trees or build structures to shade your house (taking this out because it's redundant form paragraph above). Use stepping stones versus solid concrete in order to facilitate drainage.

**Indoor Air Quality:** Control humidity and circulate fresh air with a new dehumidifying air supply system. Install a central vacuum system with a Hepa Filter. Use low VOC paints. Purchase low emission carpets. Use natural fabrics for window coverings and furniture.

**Use recycled and renewable products in construction:** Reuse salvageable materials from your house. Visit your local non-profit salvage yard. You can find construction materials, unique architectural items, recycled paint, light fixtures and miscellaneous hardware items for a reduced price.

There are many options in rebuilding with recycled and renewable products. Ask at your local home improvement store or look on the Internet for products such as bamboo and cork flooring; paperstone or concrete counter tops; recycled plastic decking and fencing; glass tiles made out of auto windows and even furniture made of recycled paper.

## 3. What are you doing with your construction debris?

Reduce the amount of construction debris by having a comprehensive plan when you start your rebuild. If possible, use manufactured components such as Structured Insulated Panels or Steel structured foam blocks to rebuild your home. Plan to reuse salvageable materials. Donate excess materials. Sort the debris for recycling. Tree debris and stumps can be ground for mulch to use in your landscape.

## 4. How can my building project make my community more sustainable?

If you build more energy efficient, you will use less energy. If you use recycled and renewable resources to rebuild, you are saving the energy to produce these goods. If you live in a healthy environment, your family will be healthier. If you build a walking path at the front of your house or clear an existent sidewalk, you are encouraging neighbors to walk in the neighborhood. Front Porches encourage community interaction. If you donate to or buy from your local recycled building materials store, you help put less garbage in the landfills. You can make your neighborhood sustainable, one rebuilding project at a time.

Building Green will save your household money over the short and long term. The materials and building methods may be more expensive than conventional methods but they will payoff. For example: purchasing Energy Star appliances can save up from 10% to 90% on your utility bills over standard Models. Insulated windows and more efficient heating and cooling are eligible for tax credits and will lower your utility costs. Fiber Cement Siding lasts 30 years more than regular siding and requires less maintenance. Flooring and countertops of natural alternatives are durable and long lasting as well as contemporary and elegant. A home built with low voc paints, non toxic building materials and good air barriers has been shown to reduce allergens. Each home's rebuilding needs are unique. If you want a cost and return on investment analysis over the life of your home, you can hire an Energy Rater to do an analysis or you can download software from this website.

<http://www.bfrl.nist.gov/oa/software/bees.html>

**ROOF:** Fiber cement composite shingles made of cement and wood fiber nailed every six inches across the face or metal roof made of 100% recycled metal

**SOLAR PANELS:** Photovoltaic panels on your roof can be used to power a solar hot water heater and to provide back up power for the household in the event of a power failure.

**GUTTERS:** Direct water away from the house and foundation to prevent future damage.

**CISTERN:** Connect this cistern to your gutters to save on watering your garden during the dry days.

**PLUMBING:** Low flush toilets reduce water usage.

**FLOORING:** Bamboo flooring is made from renewable sources and is very long lasting. You can purchase ceramic and glass tiles with recycled content. Carpeting can be made of recycled soda bottles or natural fibers. Natural linoleum becomes more durable over time and is made of linseed oil not petroleum products.

**COUNTERTOPS:** Paperstone is made of recycled paper yet can stand up to normal kitchen use.

**APPLIANCES:** Purchase low water and energy use appliances. Look for the Energy Star labels. You may qualify for a tax credit.

**SIDING:** Fiber-cement siding is constructed from cement and wood fiber. It is very durable, impact resistant and low maintenance.

**EXTERIOR WALLS:** Choose lumber certified for sustainable forest management or alternatives such as metal framed polystyrene core panels, structural insulated panels or steel framed concrete blocks. Follow the manufacturer's instructions for sheathing. Eliminate air leaks.

**INSULATION:** Cellulose insulation is made from up to 80% recycled newsprint treated with boric acid. Boric acid can prevent insect and termite infestations.

**AIR SEAL YOUR HOUSE:** Seal all of the holes between drywall and sheathing during construction. Air leaks will eliminate exterior forces coming in such as dust, insects, rodents, moisture and street noise. It keeps you from heating and air conditioning the outdoors.

**INTERIOR WALLS:** Bolt floors and walls to the foundation for hurricane protection. Use low VOC paints.

**ATTIC:** Close off all roof vents and use radiant insulation in your attic can save up to 25% of heating and cooling costs. May qualify for Tax credit.

**DECIDUOUS TREES:** Planting trees along the east, southwest and southeast sides of a house will reduce solar heat gain.

**WINDOWS:** Reduce solar heat. Replace your windows with energy efficient windows and receive a tax credit toward the cost. Look for Energy star labels.

**LIGHTING:** Compact Fluorescent lamps last about 10 times longer and put out one third of the heat of regular light bulbs.

**HVAC:** Look for the energy star labels. Consider having a professional energy rater look at your plans so that you don't buy a bigger system than you need. You may qualify for a tax credit.

