Improve Your Home and Profit

Make it Stronger, Safer, Smarter

M O N E Y
Isn't All You're Saving

When you save energy and prevent damages to your home, you're not just saving money. **You're helping the environment and our nation.** While making a wise investment, you can also feel good about reducing America's need for foreign energy resources, conserving nonrenewable natural resources for future generations and reducing pollution.

Much of the energy used in homes is produced by power plants that burn fossil fuels such as coal, oil or natural gas. They produce air pollution that can contribute to smog, acid rain and respiratory illnesses. In fact, the energy used by the average home accounts for more air pollution than the average car!

A durable home that withstands natural hazards saves money, time, the ordeal of making repairs and, potentially, your health. Hidden water damage can lead to the growth of unhealthy molds. Durable buildings help communities and the nation by reducing disaster costs. They help the environment, too, by reducing waste.

Floods, hurricanes and soaring energy prices happen, but they don't have to bust your budget, damage your home, rob your time or deny your comfort. **You can make your home stronger, safer and smarter by including both energy-saving and hazard-resistant improvements when you remodel or restore your home.** In the big picture, energy efficiency and durability don't cost you; you profit every day you own the home – in several ways.

The right home improvement investments can return:

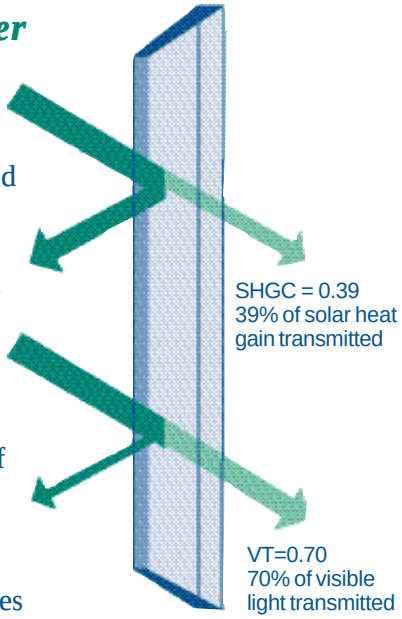
- Lower energy bills
- Greater comfort
- Higher quality
- Less damage expense and ordeal after storms and floods
- Environmental benefits

Here are some smart investments to improve your Louisiana home and profit:

Be Wise With Windows

The numbers that matter

When you add or replace windows, choose **insulated glass** (two glazings with a dead air space) with a **low solar heat gain coefficient** (SHGC of 0.40 or lower for areas that receive direct sun or reflected heat from pavement, and especially for west and east-facing glass). The SHGC, which measures the amount of solar heat that a window will admit, is more important in this climate than the U-value or R-value, which are two types of measures of the resistance to heat flow through it.



Southern climate low-e glass

LSU AgCenter Research & Extension

NFRC label

Sun control is the first goal in this climate. Also important is a tight window; look for an **air infiltration rating** of .30 cfm / sq.ft. or less. A U-value of .60-.75 is sufficient (the lower the better).

To retain the benefits of daylighting, look for a **visible light transmittance** (VT) of .5 or higher. The lower the SHGC and the higher the VT, the better. Today's "spectrally selective" southern climate low-e windows make it possible to have it all – plenty of light without the usual heat.

Similar sun control benefits can be achieved with existing windows by installing spectrally selective **solar film** (look for the same SHGC and VT ratings). An inexpensive alternative suitable for do-it-yourselfers is to install full window **solar screens**. They block about 70% of the solar heat (and light), but not the view, and they can be removed in winter. They also serve as insect screens and increase privacy.

An easy way to identify good window options for Louisiana is to look for the **EnergyStar southern climate label**. Windows with that label have been certified to meet the recommended standards that will perform best in this climate zone. Windows rated for other climate zones will not be as good an investment.


EnergyStar southern climate label

Did you know?

The greatest damage to non-coastal homes from hurricanes is typically caused by water entry and uneven air pressure loads when windows break. Hurricane winds, often over 100 miles per hour, can turn unanchored items into missiles – and that can be just the beginning. Most homes destroyed during recent hurricanes had no window protection. When wind enters a home through broken windows, the pressure can build inside, lift roofs and collapse walls.

Operable **hurricane shutters** can protect glass from flying debris while providing an appealing, authentic design element to your home. Louvered **Bahama shutters** (hinged above the window) offer the triple benefit of storm protection, decoration and the energy savings of an awning-like shade (most advantageous for south-facing clear glass) while preserving the view. There are also **roll-down storm shutters** that hide in a cornice until needed.

Laminated **impact-resistant glass** is a good alternative to storm shutters. It offers the added advantages of being storm-ready at all times (such as when no one is home) and home security benefits.


Bahama shutters

For windows in flood hazard locations

Consider vinyl or metal-framed units. Good quality vinyl and metal window frames with a thermal break are relatively inexpensive, low maintenance, energy efficient and may suffer less damage in a flood than wooden frames.

Lighten Up

On the outside

When repainting, re-siding or re-roofing your home, **choose white or light colors**. Among roofing options, a white metal or tile roof can make a real difference in your cooling costs.

An emerging technology to look for is metal roofing coated with high-tech "cool colors" – special coatings that reflect heat like lighter colors. Light-colored composition shingles provide a much smaller benefit, if any. Light-colored siding may not make a large difference, but color choice is a no-cost way to reflect some heat.

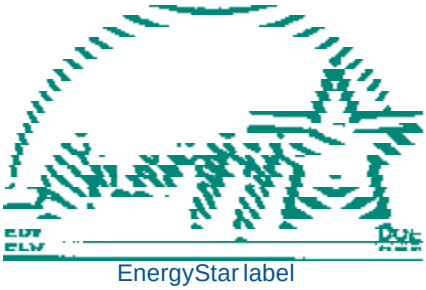
On the inside

Light-colored interiors (another no-cost choice) reflect light, minimizing the amount of artificial light needed. Dark colors absorb light, so you'll need to use more lighting. That costs you not only the direct wattage of the lights, but also the extra air conditioning needed to remove the heat they produce.

Buy Appliances and Lighting that Pay

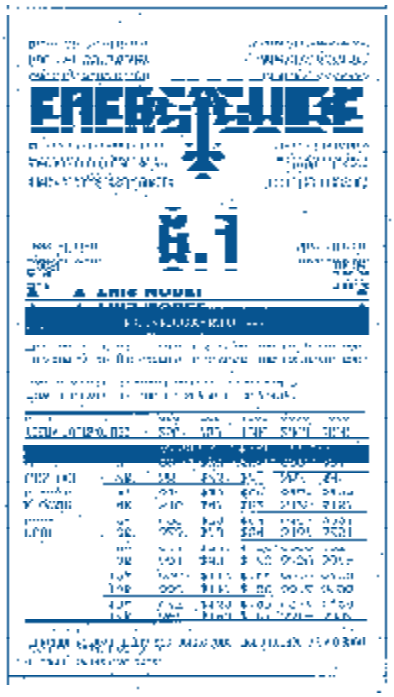
In general, when air conditioning, each three kwh of energy saved in the home can reduce the energy need for cooling by an additional kwh. So when you buy energy-efficient appliances and lighting, you save energy and money two ways.

Labels that make it easy



EnergyStar label

When replacing appliances, electronics and other products, look for models with the **EnergyStar label**, a verification of high energy-efficiency. Also, compare the big yellow **EnergyGuide labels** to reveal the hidden cost (operating cost). Even though the purchase price may be a little



EnergyGuide label

higher, investing in higher efficiency will pay off over the life of the equipment – usually several times over.

Water heating is typically the second biggest energy user, after cooling and heating, so invest in the best water heater and choose water-efficient appliances. High-efficiency refrigerators and freezers are especially important, too, since they run all day, every day of the year.

For flood hazard areas

Try to choose appliances that can be installed above the likely flood level. A **front loading washer** on a platform, or over a built-in drawer, has multiple advantages: energy and water conserving, a more convenient height, protection from low-level flooding, storage space and usable from a wheelchair. A separate wall oven and cooktop are convenient and high above the floor.

Advancements in fluorescents

When replacing or adding new lighting fixtures (both indoor and outdoors), choose fluorescents. **High-color lamps** are available that produce a natural, appealing light and special outdoor fixtures can now withstand the weather. You can even get dimmable fluorescents.

Likewise, replace your high-use incandescent light bulbs with **compact fluorescent lamps** (CFLs). The newer electronic types do not flicker or hum and produce a nice warm-colored light. Fluorescents have a higher price tag, but use about 1 / 3 the electricity, produce 1 / 3 the heat and last about 10 times longer — so you end up paying much less during the life of the lamp and stay cooler, too.

Compact fluorescent lamps

Increase A/C SEER, Not Size

When it's time to replace your air conditioner (A / C), look for the EnergyStar label. For a central system, invest in a **Seasonal Energy Efficiency Ratio (SEER)** of at least 12 (SEER 13 is recommended). Try to make sure it has a moisture-removing ability (latent capacity) of at least 25% of total capacity, or choose a variable speed unit that will provide good **humidity control** in mild seasons (especially important if choosing a SEER 14 or higher).

Insist that the system (number of tons) **NOT be oversized**. Bigger is not better. An oversized A / C will cool, but not dehumidify adequately, will cost more to operate and will not last as long. Ask for a Manual J calculation of cooling load, rather than a rule-of-thumb estimate based on square footage alone — especially if you are making other energy-saving improvements.

Compressor tips.

Be aware that outside (compressor) and inside (evaporator) units that are not matched will not achieve the rated efficiency. It's also important to maintain plenty of clearance for air flow all around and over the compressor and to keep it clean. **In flood hazard areas**, install the outside unit on a sturdy platform or elevated concrete pad above flood levels.

Go Duct Hunting – for Leaks

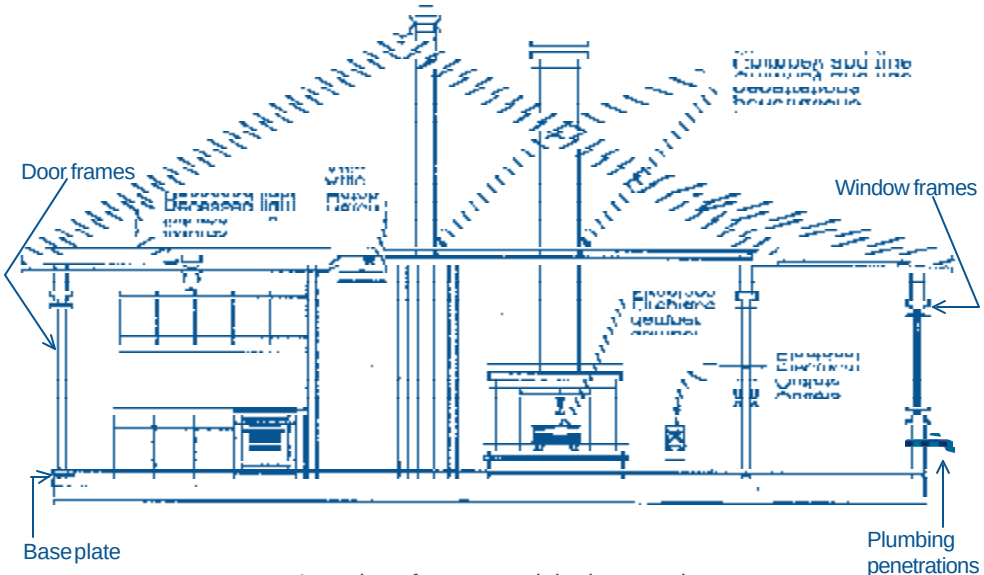
If your home is typical, your ductwork may be losing from 30% to 50% of the cooling and heating you pay for! That's because most duct systems leak quite a bit and the ductwork is located in one of the hottest places on earth (an attic).

All joints and connections in the duct system should be **sealed with mastic and glass fiber mesh** (not duct tape) as well as insulated (if in an unconditioned attic) to at least R-8. Ideally, ductwork should be tested by a trained professional with specialized equipment that can measure and find all leaks.

Seal air ducts with mastic

Seek and Seal Leaks

Outlet and switch **gaskets**, expanding **foam sealants**, **weather-stripping**, door **thresholds** and **caulk** are inexpensive, do-it-yourself products that can give you many benefits – energy (and money) savings, increased comfort, lower indoor humidity, fewer pests (insects and mice), less pollen and protection from wind-driven water leaks. Look beyond just window and door leaks. Find and seal gaps around plumbing, pull-down stairs to the attic, ceiling fixtures, the fireplace, at the base plate (where the walls meet the foundation) and any other source of air leakage.



Location of common air leakage paths

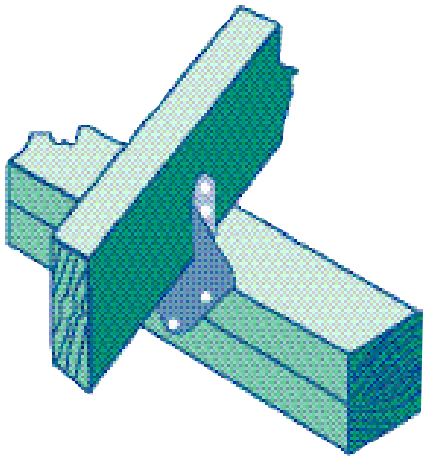
Look Overhead

It's R-value, not inches, that counts

Where space permits**, increase attic insulation to R-38** (in a vented attic, be sure the added insulation does not block the air flow from the soffit vents). In deep south Louisiana and where you can't fit at least R-30, it can suffice to use R-19 attic insulation along with a radiant barrier system or a light-colored metal or tile roof.

Water and wind worries

Exhaust fans should be ducted to the outdoors so they don't dump moist air into the attic space where it could condense and wet the insulation. For a vented attic, a hurricane-rated ridge vent combined with soffit vents is preferred. Never combine a ridge vent with a power vent, turbine or gable vent since that could lead to reverse airflow and water intrusion. Because attic power vents use energy, they may not always result in any energy saving and can increase home air leakage (risking air quality problems) if a negative pressure is created.



Hurricane tie

When reroofing, investigate the **water, wind and hail resistance ratings** of the new roof system; analyze underlayments, fastening methods and roofing material properties. Remove the old roof coverings, inspect roof sheathing and install hurricane clips / straps to connect roof rafters / trusses to side walls (especially for gable end walls). Consider using a double layer of felt paper or a single layer of adhesive backed waterproofing membrane underlayment.

Look Below and Within

When restoring or adding walls and floors, seize the opportunity to upgrade wall (and crawl space) insulation levels up to **R-19** and to choose **more durable materials**. To resist flood damage, consider creating drainable, flushable walls with closed-cell foam board insulation in the lower wall cavities.

When remodeling, choose materials that can resist damage from flooding, termites and other possible hazards. Consider clay tile or brick with water-proof mortar, solid vinyl flooring with chemical-set adhesives, decorative concrete, pressure-treated wood, fiber-cement, and other durable flooring, wall finishes and siding.

HERO

is available to help you save!

The Home Energy Rebate Option (HERO) is a program of the Louisiana Department of Natural Resources, Energy Section. It offers Louisiana homeowners a rebate of up to $2,000 to help cover costs of energy-saving improvements that increase the home's efficiency by at least 30%.

To participate, you'll need to get a home energy rating. Certified Home Energy Raters can perform duct and home leakage testing and provide recommendations — a good investment whether or not you qualify for a HERO.

To find a rater in your area and more information about HERO, call 1-800-836-9589.

Learn More

These are just some of the ways to make your home stronger, safer and smarter. There are many more.

To learn more about getting the most from your housing investment, visit the Web sites:

www.LousianaHouse.org
www.LouisianaFloods.org
www.energystar.gov
www.eren.doe.gov
www.leeric.lsu.edu/energy
www.erha.com/louisiana
www.fema.gov
www.dnr.state.la.us/sec/execdiv/techasmt/programs/index.html

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