The Wind Mitigation and Resource Conservation Building, a joint effort of St. Johns County and the University of Florida, is one of only four such facilities in the state. It showcases multiple hurricane-resistant and low-impact development products, emphasizing eco-friendly principles and best practices. Its construction demonstrates the latest green technology in areas such as storm shutter systems, impact-resistant windows, dual-flush toilets, Florida Friendly Landscaping, low-volume irrigation, rainwater harvesting and cisterns, permeable pavers, insulated concrete-form systems and much more. This facility, which provides classroom space for up to 50 people, is a valuable community resource for the region’s homeowners, builders, developers, real estate personnel, building inspectors, professional organizations, elected officials, homeowner associations and all members of the public. The three main goals of the facility are to improve public safety, enhance water quality and conservation, and encourage energy efficiency.

3111 Agricultural Center Dr.
St. Augustine, Florida 32092
Phone: 904-209-0430
http://stjohns.ifas.ufl.edu/
Wind Mitigation

Window Protection is utmost important for providing protection against hurricane damage. They are the first line of defense against a hurricane. Window protection not only protects our windows, doors and roof but our possessions and family inside. They are designed to protect against wind and wind-borne debris. Once wind enters inside our home, tremendous pressure is brought to bear on interior walls and upward pressure on the building's roof. This often causes the roof to blow off exposing the contents of the building to the storm leading to catastrophic damage. Much of the damage and building failure in Hurricane Andrew could have been prevented by professionally installed hurricane shutters over windows and doors.

When purchasing window protection consider the following options: price, level of protection, ease of installment and operation. The two types of shutter systems are either permanent or temporary.

The roof covering, and the sheathing beneath it, form a critical shield of protection from hurricane winds and water. Water intrusion can easily infiltrate in a roof system that is exposed to high winds and rain. A polyurethane adhesive spray can be applied to both retrofitted and new construction that strengthens a roof 2 to 4 times over nails alone and can reduce water intrusion by approximately 99% if the roof covering fails.

Important Websites

- University of Florida, Program for Research Efficient Communities: http://buildgreen.ufl.edu
- Solutions for Your Life: http://solutionsforyourlife.ufl.edu
- My Safe Florida Home: http://mysafefloridahome.com
- St. Johns County Department of Emergency Management: http://sjcemergencymanagement.org

Temporary shutters are usually corrugated panels that come in standard widths and can be joined to cover wider openings. Other materials include aluminum, steel, polycarbonate plastic and high tech fabrics. Benefits of temporary shutters include allowing light and visibility while protecting windows from high winds.

Permanent shutter systems are permanently mounted to the structure of your home. Permanent shutter types include Bahamas, roll downs, accordion, awning, and colonial hinged.
Wind Mitigation

Why Protect Your Garage?
Unrecognized by most homeowner is the fact that the garage door is potentially the largest, weakest opening of a residential home’s exterior envelope to a hurricane. The Florida Alliance for Safe Homes has stated that “about 80 percent of residential hurricane wind damage starts with wind entry through the garage door.”
Garage doors are vulnerable to hurricane and wind damage due to its long span of opening and relatively lightweight building material.
One option to secure or retrofit a garage door is with a vertical bracing system made from high quality grade aluminum that attaches to the inside of the garage door. This offers protection which strengthens and provides support for the door in addition to the garage door tracks.

Impact Glass
Impact-resistant windows are made with impact-resistant glass surrounded by a heavy duty frame which is securely fastened to the interior window header and frame. Their construction and anchoring system keeps high hurricane winds and debris from breaching a home’s outer envelope. Impact windows deflect wind by not providing a point of entry for the wind helping to secure your home from hurricane damage.
Other benefits include providing year-round security against home intruders, outdoor sounds, and filters 99% of the UV light that enters your home that causes fading to drapes, carpet and furniture and is energy efficient, reducing both cooling and heating costs.

Additional Important Websites
- The St. Johns County Wind Mitigation and Resource Conservation Building
  http://stjohns.ifas.ufl.edu/hurricane_house.shtml
- Solutions for Your Life
  http://solutionsforyourlife.ufl.edu/disaster_prep/general_info.html
- The Florida Division of Emergency Management
  http://fdemmediacenter.org
- International Hurricane Protection Association:
  http://www.inthpa.com/
- To verify if a system is approved for use in Miami-Dade or Broward counties visit:
  The Miami-Dade Building Code Compliance Office
  http://www.miamidade.gov/buildingcode/online_product_search.asp
- For all other Florida counties visit:
  The Florida Building Code Product Approval
  http://www.floridabuilding.org/pr/pr_app_srch.aspx
Energy Conservation

Insulated Concrete Forms (ICFs)
Insulated concrete forms should be considered by those looking to utilize poured concrete as the material of building choice. ICFs are rigid plastic foam forms that hold concrete in place during curing and remain in place afterwards to serve as thermal insulation for concrete walls. The benefits are substantial as compared to other construction methods such as wood frame homes. ICF offers greater energy efficiency, more peace & quiet, less repair and maintenance, and solid and lasting security (more able to withstand turbulent weather conditions).

Important Websites
- The University of Florida, Program for Resource Efficient Communities
  [http://buildgreen.ufl.edu](http://buildgreen.ufl.edu)
- Solutions for Your Life
  [http://solutionsforyourlife.ufl.edu](http://solutionsforyourlife.ufl.edu)
- The Insulating Concrete Form Association
  [http://forms.org/](http://forms.org/)
- U.S. Environmental Protection Agency
  Low Impact Development Page
- U.S. Environmental Protection Agency
  Energy Star Program
- The Low Impact Development Center, Inc
  [http://lowimpactdevelopment.org/](http://lowimpactdevelopment.org/)

Hurricane protection is just the beginning. Other benefits of hurricane-resistant construction include energy savings, noise reduction, security features, fewer repairs and less maintenance. This not only saves energy, it saves money. Building a concrete home with insulating concrete forms is superior in energy efficiency. Houses built with ICF exterior walls require an estimated 44% less energy to heat and 32% less energy to cool than comparable frame houses. In addition, insulated, impact resistant glass windows are energy savers too and filter out up to 99% of the UV light that enters your home. UV light fades carpets and furniture and creates heat. Look for windows with theses energy-saving features: double panes; low-e (energy) coatings; low-conductivity, gas-fill between panes and wood, vinyl, or fiberglass frames.

Hurricane Armor®
DuPont™
CUSTOM STORM SHUTTERS
Tyvek®
PlyFASTner
ICF Wall Systems & Supplies, Inc.  Secure Steel Safe Room
Resource Conservation

Rainwater Harvesting
In urban areas, at a household level, harvested rainwater can be used for flushing toilets, washing laundry and other, non-potable uses. At the Wind Mitigation and Resource Conservation Training Building we use harvested rainwater to flush the dual-flush toilets and to supply water to the low-volume irrigation system. At the University of Florida and Florida Water Management Districts, research indicates that, on average, up to half of Florida’s domestic water supply is used to water lawns and landscapes. By harvesting rainwater, we can not only conserve water resources, we can save money!

Indoor Water Conservation
Toilets have been replaced with dual-flush toilets which are flushed with harvested rainwater. The standard urinal has been replaced with a waterless unit. The urinal alone saves 1.0 gallon of water per use when compared with the previous unit.

Outdoor Water Conservation
The benefit of micro-irrigation is the low volume water output, which allows for the irrigated area to be concentrated around the root zone. Thus, much of the bedded area does not receive irrigation water since the area in between plants is not watered. This reduces the effective irrigated area and saves irrigation water compared to sprinkler irrigation.

Permeable Pavers
According to the research at the University of Florida and elsewhere, permeable pavement systems:
- Help infiltrate water locally reducing stormwater runoff
- Decrease downstream flooding
- Eliminate problems with standing water
- Eliminate or reduce the requirement for conventional stormwater retention/detention systems

Irrigation Controllers and Soil Moisture Sensors
The low-volume irrigation system is governed by a soil moisture sensor that overrides the timer if soil moisture is adequate. This not only reduces water use, it helps reduce overwatering pressure upon the “Florida Friendly” plants which were selected. According to Dr. Michael Dukes at UF, such systems can reduce irrigation needs by at least 50%.
The nine principles of the Florida Yards and Neighborhoods Program are:

- Right Plant/Right Place
- Watering Efficiently
- Fertilizing Appropriately
- Mulching
- Recycling
- Managing Landscape Pests
- Attracting Wildlife
- Reducing Stormwater Runoff

Choosing plants according to Florida Yards and Neighborhoods (FYN) principles means creating an attractive and functional landscape that requires less water, less fertilizer and less pesticides. This translates into less maintenance, healthier plants and significant money-saving for the homeowner, business owner, developer or any Florida resident. The FYN and UF Extension provide a broad range of educational support for professionals and homeowners who plan to create and maintain Florida-friendly landscapes.

For more information visit: http://fyn.ifas.ufl.edu/

Low Impact Development

Low Impact Development (LID) is a type of smart growth that simultaneously conserves green space and manages stormwater effectively. Unlike traditional land use designs, LID promotes natural stormwater management techniques that minimize runoff and help prevent pollutants from getting into the runoff. In some cases, these practices decrease the size of traditional retention and detention basins and can be less costly than conventional stormwater control mechanisms.