



# Personal Hurricane Survival Guide

2005



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# IMPORTANT PHONE NUMBERS

In an emergency always call 9-1-1

## EMERGENCY SERVICES

American Red Cross 287-2002  
Emergency Information 287-1652  
Salvation Army 288-1471

## SPECIAL NEEDS

Council on Aging 283-2242  
Transportation-Community Coach 283-1814  
Martin Memorial Hospital North 287-5200  
Martin Emergency Room North 223-5995  
Martin Memorial Hospital South 223-2300  
Martin Emergency Room South 223-5721  
Martin TDD Services for the Deaf 223-5708  
Children & Family Services 223-2500

## SOCIAL SERVICES

American Red Cross 287-2002  
Crisis Line 211  
New Horizons 221-4088  
Salvation Army 288-1471  
United Way 283-4800

## UTILITIES

Florida Power & Light 287-5400  
1-800-OUTAGE  
BellSouth Repair 611  
Indiantown Water 597-2121  
Florida Water Services (Leilani) 1-800-432-4501  
Sailfish Point Utilities 225-1615  
Gas Consult Your Local Phone Book  
Martin County Utilities 221-1434  
City of Stuart 288-5343  
South Martin Regional Utilities 546-2511

## ANIMALS

Humane Society/Animal Rescue(Lg) 287-5753  
FL Fish&Wildlife Cons. Comm. 1-800-432-2046  
Martin County Animal Control 287-1656

## TELEVISION

WPTV Channel 5 930-9788  
WPEC Channel 12 561-881-0737  
WTCN Channel 16 595-1501  
WPBF Channel 25 561-624-6398  
694-2525  
WLFX Channel 29 561-845-2929  
W.P.B.

## RADIO

WAVW (101.7FM) 1-800-562-9289  
WPSL (1590 AM) 340-1590  
WQCS (88.9 FM) 1-888-286-8936  
WZZR (92.7 FM) 1-877-927-6969  
WCNO (89.9 FM) 221-1100  
WSTU (1450 AM) 220-9788

## NEWSPAPER

Palm Beach Post 223-3550  
Stuart News 287-1550

## CITY OF STUART

Building Dept. 288-5326  
Emergency Medical/Fire Services 911  
Fire Dept. 288-5360  
Police Dept. 287-1122

Public Works 288-5332  
Sanitation – Trash 288-5337  
Street Dept. 288-5341

## MARTIN COUNTY

Army Corps of Engineers -  
St. Lucie Lock & Dam 287-2665  
Fire Rescue 288-5710  
Fire Marshal 288-5633  
Land Fill 288-5773  
Building Dept. 288-5916  
Public Health 221-4090 or  
221-4000  
Road Maintenance 288-5657  
Health & Human Services 288-5642  
Hazardous Waste 288-5700  
Martin Co. Administration Info. 288-5400  
Univ. of FL – Martin Co. Cooperative Extension Service:  
Agriculture 288-5654  
Home Economist 288-5656  
M.C. Sheriff's Office 911 or  
(non emergency) 220-7000  
Environmental Services 221-1442  
South Florida Water Management District 223-2600  
M.C. Internet website: [www.martin.fl.us](http://www.martin.fl.us)

## INSURANCE

Florida Dept. of Insurance 1-800-342-2762  
Storm Help Line 1-800-227-8676  
Consumer Help Line 1-800-342-2762

## STATE OF FLORIDA

National Response Center Oil & Toxic  
Chemicals 1-800-424-8802  
Poison Info Center 1-800-282-3171  
Dept. Ag./Consumer Serv. 1-800-435-7352  
Florida Fish & Game 1-800-432-2046  
Marine Patrol 561-624-6935  
After 5:00 1-800-342-5367  
Insurance Commissioner 1-800-342-2762

## UNITED STATES

Bureau of Alcohol, Tobacco & Firearms 1-561-835-8878  
Coast Guard 772-464-6100  
Federal Bureau of Investigation 772-461-6142  
Nat. Flood Insurance Program 1-800-638-6620  
Fed. Emergency Management Agency 1-800-621-3362

## WEBSITES OF INTEREST

[www.martin.fl.us](http://www.martin.fl.us)  
[www.floridadisaster.org](http://www.floridadisaster.org)  
[www.myflorida.com](http://www.myflorida.com)  
[www.cityofstuart.com](http://www.cityofstuart.com)  
[www.nhc.noaa.gov](http://www.nhc.noaa.gov) (National Hurricane Center)  
[www.redcross.org](http://www.redcross.org)

Hide from the wind and run from the water!

# SAFFIR/SIMPSON HURRICANE SCALE

The Saffir/Simpson Hurricane Scale is used by the National Weather Service to give public safety officials an assessment of the potential wind and storm surge damage from a hurricane. Scale assessments are revised regularly as new observations are made. Public safety organizations are kept informed of new estimates of the hurricane's disaster potential. Scale numbers range from 1 to 5. Category No. 1 begins with hurricanes in which the maximum sustained winds are at least 74 miles per hour, while Category No. 5 applies to hurricanes with maximum sustained winds of 155 mph or more.

The scale was developed by Herbert Saffir, Dade County Florida, Consulting Engineer, and Dr. Robert H. Simpson, a former National Hurricane Center Director. Scale assessment categories are as follows:

SCALE NUMBER	CENTRAL MILLIBARS	PRESSURES/INCHES	WINDS	DAMAGE
1	>=980	>=28.94	74-95	Minimal
2	965-979	28.5-28.91	96-110	Moderate
3	945-964	27.91-28.47	111-130	Extensive
4	920-944	27.17-27.88	131-155	Extreme
5	< 920	<27.17	155+	Catastrophic

**Category No. 1** – Winds of 74 to 95 mph. Damage primarily to shrub and tree foliage, and unanchored mobile homes. No major damage to other structures. Some damage to poorly constructed signs. Low-lying coastal roads inundated, minor pier damage, some small craft in exposed anchorage torn from moorings.

**Category No. 2** – Winds of 96 to 100 mph. Considerable damage to shrub and tree foliage; some trees blown down. Major damage to exposed mobile homes. Extensive damage to poorly constructed signs. Some damage to roofing materials of buildings; some window and door damage. No major damage to buildings. Coastal roads and low-lying inland escape routes cut by rising water two to four hours before arrival of the hurricane center. Considerable damage to piers. Marinas flooded. Small craft in unprotected anchorages torn from moorings.

**Category No. 3** – Winds of 111 to 130 mph. Foliage torn from trees; large trees blown down. Practically all poorly constructed signs blown down. Some damage to roofing materials of buildings; some window and door damage. Some structural damage to small buildings. Mobile homes destroyed. Serious flooding at coast and many small structures near coast destroyed; large

structures near coast damaged by battering waves and floating debris. Low-lying inland escape routes cut by rising water three to five hours before hurricane center arrives.

**Category No. 4** – Winds of 131 to 155 mph. Shrubs and trees blown down; all signs down. Extensive damage to roofing materials, windows, and doors. Complete failure of roofs on many small residences. Complete destruction of mobile homes. Major damage to lower floors of structures near shore due to flooding and battering by waves and floating debris. Low lying inland escape routes cut by rising water three to five hours before hurricane center arrives. Major beach erosion.

**Category No. 5** – Winds greater than 155 mph. Shrubs and trees blown down; considerable damage to roofs of buildings; all signs down. Very severe damage to windows and doors. Complete failure of roofs on many residence and industrial buildings. Extensive shattering of glass in windows and doors. Some complete building failures. Small buildings overturned or blown away. Complete destruction of mobile homes. Storm surge greater than 18 feet above normal tide. Low-lying inland escape routes cut by rising water three to five hours before hurricane center arrives.

# HURRICANE PREPAREDNESS

There are many things you can do before hurricane season, which lasts from June 1 - November 30. Remember to keep this guide with your hurricane supplies kit!

- √ Each individual is responsible for preparing for their needs in response to a hurricane threat. If the emergency warrants evacuation because of life threatening hazards, County officials will advise or order evacuation of vulnerable areas. Your cooperation in preparedness efforts is essential to you and your neighbors' protection. Please be prepared.
  
- √ If you live in a mobile home, recreational vehicle, boat or on a barrier island, pre-arrange for safe refuge away from the threat. Do not plan to remain in your home during a hurricane. Elevations of 10 feet or less are likely to flood. Higher elevations may be subject to storm surge. Motor homes and RVs will be required to evacuate at a Hurricane Watch. If you have no transportation, it is strongly recommended that you make arrangements with a relative, close friend, neighbor, or through your civic association for transportation help. Have them pick you up and take you to the nearest designated emergency public shelter or other safe location.
  
- √ Make sure your home is in good condition. If repairs are needed, do them as soon as possible:
  - o Check soundness of roofs.
  - o Clean gutters and downspouts.
  - o Remove dead branches from trees and trim shrubs.
  - o Acquire storm shutters or boards to protect glass windows and doorways.
  - o Know the first floor elevation of your home or place of business.
  
- √ Make necessary arrangements for the safety of your pets and your boat.

# GLOSSARY OF COMMON TERMS

## **CLOSEST POINT OF APPROACH (CPA)**

Point where hurricane eye makes closest contact to shore without actually making landfall.

## **COASTAL FLOOD WARNING**

A warning that significant wind-forced flooding is to be expected along low-lying coastal areas if weather patterns develop as forecast.

## **COASTAL FLOOD WATCH**

An alert that significant wind-forced flooding is to be expected along low-lying coastal areas if weather patterns develop as forecast.

## **COUNTY EMERGENCY MANAGEMENT AGENCY**

Local government organization created in accordance with the provision of Florida Statutes 252.31-252.60 to discharge emergency management responsibilities and functions of the County.

## **COUNTY EMERGENCY OPERATIONS CENTER (EOC)**

The county facility that serves as a central location for the coordination and control of all emergency preparedness and response activities.

## **EMERGENCY ALERT SYSTEM**

A system designed to permit government officials to issue up-to-date and continuous emergency information and instructions to the public in case of a threatened or actual emergency

## **EMERGENCY PUBLIC INFORMATION**

Information which is disseminated primarily, but not unconditionally, at the actual time of an emergency; and in addition to providing information as such, frequently directs actions, instructions, and transmits direct orders.

## **EMERGENCY PUBLIC SHELTER**

Generally a public school or other such structure designated by County officials as a place of shelter.

## **EVACUATION TIME**

The lead time that a populated coastal jurisdiction must have to safely relocate all residents of vulnerable areas from an approaching hurricane. This time can also be perceived as the necessary amount of time between the issuance of the local official evacuation order and the arrival of sustained tropical storm winds (40 mph) and/or flooding.

## **EXTENT OF EVACUATION**

The identification of vulnerable people who must evacuate as a result of various hurricane scenarios, based on estimated inundation of areas and/or dwelling units susceptible to hurricane force winds.

## **FLOOD WARNING**

Indicates the expected severity of flooding (minor, moderate, or major) as well as where and when the flooding will begin.

## **FORWARD SPEED (HURRICANE)**

The rate of movement (propagation) of the hurricane eye in miles per hour or knots.

## **HURRICANE**

The term is used when winds reach constant speed of 74 miles per hour or more. These winds blow in a large spiral around a relatively calm center of extremely low pressure known as the eye of the hurricane. Around the rim of the eye, winds may gust to more than 200 miles per hour. The entire storm dominates the ocean surface and lower atmosphere over tens of thousands of square miles.

A public shelter is a lifeboat, not a luxury liner.

# GLOSSARY OF COMMON TERMS contd.

## **HURRICANE ADVISORIES**

Notices numbered consecutively for each storm, describing the present and forecasted position and intensity of the storm. Advisories are issued at six-hour intervals.

Bulletins provide additional information. Each message gives the name, eye position, intensity, and forecast movement of the storm.

## **HURRICANE EYE**

The relatively calm area near the center of the storm. In this area winds are light and the sky is often partly covered by clouds.

## **HURRICANE EYE LANDFALL**

The point in time when the eye, or physical center of the hurricane reaches the coastline from the hurricane's approach over water.

## **HURRICANE PATH OR TRACK**

Line of movement (propagation) of the eye through an area.

## **HURRICANE SEASON**

The portion of the year having relatively high incidence of hurricanes. In the Atlantic, Caribbean and Gulf of Mexico, it is usually regarded as the period from June 1<sup>st</sup> through November 30<sup>th</sup>.

## **HURRICANE WARNING**

An alert added to a hurricane advisory when hurricane conditions are expected within 24 hours. Hurricane warnings identify coastal areas where winds of at least 74 miles per hour are expected to occur. A warning may also describe coastal areas where dangerously high water or exceptionally high waves are forecast, even though winds may be less than hurricane force.

## **HURRICANE WATCH**

An alert added to a hurricane advisory covering a specified area and duration. A hurricane watch means that hurricane conditions are a real possibility; it does not mean they are imminent. When a hurricane watch is issued, everyone in the area covered by the watch should listen for further advisories and be prepared to act quickly if hurricane warnings are issued.

## **NOAA WEATHER RADIO**

A twenty-four hour continuous broadcast of existing and forecasted weather conditions.

## **PRE-EYE LANDFALL TIME**

The time before actual hurricane eye landfall or CPA within which evacuation cannot be carried out because of earlier effects such as the inundation of evacuation routes from the storm surge or rainfall and the arrival of sustained gale force winds. It is composed of the time of arrival of sustained gale force winds or the time roadway inundation from storm surge/rainfall begins, whichever comes first.

## **PUBLIC INFORMATION OFFICER (PIO)**

An individual appointed by County Emergency Operations Center (EOC) to be responsible for the formulating and coordinating of emergency public information with both the electronic and written media, ensuring that accurate information is being released to the general public.

## **SEVERE THUNDERSTORM WARNING**

Indicates that severe thunderstorms have been sighted or indicated on radar.

## **SEVERE THUNDERSTORM WATCH**

Indicates that conditions are favorable for lightning, damaging winds greater than 58 miles per hour and hail and/or heavy rainfall.

## **GLOSSARY OF COMMON TERMS contd.**

### **SMALL CRAFT ADVISORY**

A warning of winds from 20 to 33 knots inclusive or for sea conditions either forecasted or occurring which are considered potentially hazardous to small boats in coastal waters.

### **SPECIAL MARINE WARNING**

A warning for hazardous weather conditions, usually of short duration, not adequately covered by existing marine warnings. Such weather conditions include sustained winds or gusts of 35 knots or more with a duration of 2 hours or less.

### **SQUALL**

A sudden increase of wind speed by at least 18 miles per hour (16 knots) and rising to 25 miles per hour (22 knots) or more lasting for at least one minute.

### **STORM SURGE**

The high and forceful dome of wind-driven waters sweeping along the coastline near where the eye makes landfall or passes close to the coast.

### **TROPICAL STORM WARNING**

Is defined as sustained winds within the range 39-63 miles an hour either predicted or occurring.

# ADVANCE PREPARATIONS

## EVACUATIONS

Many residents will evacuate from South Florida through our area. If you plan to leave the area, get going EARLY!!! Traffic will be bottle-necked around the Palm Beach/Martin County line because people from four counties will be heading north in an area where there are few north/south roads. It is recommended you stay as close to home as possible, in a safe location. Many evacuees in the 2004 storms drove to areas of the state and the eastern seaboard which were also affected by the strong winds and rains of the hurricanes long after they had passed through Martin County.

You must remember you could be heading into the storm's path anyway, so consider staying closer to home and do not count on driving out as an option. Choose a hurricane shelter as a last resort. Much better to try to stay with friends who do not live in an evacuation zone. Make sure you turn off the water and electricity before you leave and bring along all valuable documents and irreplaceable items (such as photo albums).

## SHELTERS

If you must go to a shelter, bring your own supplies because none will be provided for you. Most shelters are run by the Red Cross and do not supply beds. Food is limited is not provided for special diets. You should go as soon as a shelter announces that it is open because space is limited.

Bring a flashlight, radio, medicines, food for 24 hours, medications, sleeping bags and pillows, a folding chair, toiletries, photocopies of valuable papers, identification, and items to keep you amused. You may not bring guns, alcohol, or pets.

**Make sure you turn off the water and electricity before you leave your home.**

Only guide dogs are allowed in shelters. Leave your pets home alone only as a last resort (be sure to leave a five-day supply of food and leave the animal in your safe place).

### IF YOU GO TO A PUBLIC SHELTER:

Take these items: drinking water in a plastic container, nonperishable food, medicine, blankets, a complete change of clothing, personal hygiene items, flashlight with extra batteries and bulbs, quiet toys or games for children, trash bags, eating and cooking utensils (plastic or paper), manual can opener, and a portable radio with extra batteries. Remember! Alcohol and weapons are not allowed in emergency public shelters.

### WORK REQUIREMENTS

Ask your supervisor now to excuse you from work to tend to children when a storm threatens. If your job requires you to work during the storm, make sure now so that, when the hurricane hits, at least one parent or adult will be with the children.

# ADVANCE PREPARATIONS

## YOUR "SAFE PLACE"

If you are staying in your one-story home, the strongest room is often a bathroom or walk-in closet near the entrance of the house, well away from windows and exterior doors. For a two-story house, the strongest wall is often a closet or cubicle near the stairwell. Stock your safe room with a first aid kit, small supply of food and water, a flashlight, tools to break through the rubble afterwards if necessary, a cellular phone (a cordless phone will not work without power), blankets and pillows, a radio, games and reading material, a strong animal carrier, and a mattress to protect you from falling/flying debris.

You should also have copies of your insurance policies in a waterproof container. You will only be there for a few hours. Wear protective clothing as you may have to push through debris to leave your safe place. If possible, reinforce this room with wooden beams for added protection. With other family members, identify in advance your available escape routes out of the house.

### **SURVIVAL**

is essentially up to you - it is critical to be able to be independently capable of survival. Emergency crews cannot be dispatched to help you during the height of the storm. You are on your own!



# DISASTER PREPARATION FOR FAMILIES WITH SPECIAL NEEDS

People who have family members with special medical needs must take extra measures to ensure preparedness. They must assess their options carefully and should ask themselves:

- ◆ Can we manage the entire needs of our family for 3 days with little or no outside assistance?
- ◆ Can we meet any crisis or emergency on our own for that period of time?
- ◆ Can we make decisions concerning our special needs without consultation or help for 3 days?
- ◆ Do we have enough supplies and equipment to meet our needs for at least 3 days?

If the answer is “no” to any of these questions families must give serious consideration to evacuating their home. Advance preparation should include knowing how to and where to evacuate to. Martin County has a “Special Needs” shelter which is staffed with nursing and limited medical assistance. To pre-register for this shelter or if you need transportation assistance to a general population American Red Cross shelter, contact Emergency Management at: 287-1652.

## Supply list for Special Needs:

It is a good idea to have at hand several large covered plastic tubs labelled with your name and address to store your smaller emergency supplies and a change of clothing. This will protect them from the elements and make them instantly identifiable if you are in the shelter. A more detailed supply list will be mailed to you when you register for the Special Needs shelter.

- ◆ for respirators, other electricity-dependent medical equipment or for oxygen - make prior arrangements with your physician or check with your supplier about emergency plans and extra supplies.
- ◆ a two-week supply of disposable supplies such as dressings, nasal cannulae, suction catheters etc.
- ◆ a two-week supply of medications, prescription and non-prescription.
- ◆ electrical back-up for medical equipment.
- ◆ copies of prescriptions for medical equipment, supplies and medications - ask your physician or pharmacist about proper storage of prescription medications.
- ◆ contact lenses and supplies
- ◆ extra eyeglasses
- ◆ spare batteries for hearing aids, communication devices.

## Remember:

Preparation is the key to surviving a disaster and managing any chaos that may follow. Families with special needs must take stock of their ability to manage and must plan for extra supplies in their Disaster Supply Kits.

# CHILDREN'S ISSUES

In response to the tragic events of September 11, 2001, the American Academy of Pediatrics (AAP) offered some advice on communicating with children and adolescents during times of crisis.

It is important to communicate to children that the family circle is strong. Children need to be assured by their parents that the family is safe. Adolescents, in particular, can be hard hit by this type of disaster.

Parents may watch for signs such as sleep disturbances, fatigue, lack of pleasure in activities previously enjoyed, and illicit substance abuse.

Over exposure to media can be traumatizing. It is best not to let children or adolescents view repeated footage of traumatic events. Children and adolescents should not view these events alone.

**More information available at: [www.aap.org](http://www.aap.org), the website of the American Academy of Pediatrics.**

## Assemble a kit for your children

Children's fears can stem from imaginative thoughts, and adults should take these feelings seriously. Words and actions can provide reassurance to a child. Be sure to present a realistic picture that is both honest and manageable. Be aware that after a disaster children most fear that:

- They will be separated from family.
- The event will happen again.
- They will be left alone.

Suggested items for a childrens' kit, which your child can help you put together:

- A few favorite books, crayons and paper.
- Puzzles, a board game, deck of cards.
- Two favorite small toys such as an action figure, doll or soft toy.
- Favorite blanket, pillow.



# PRIOR TO THE HURRICANE

When a **Hurricane Watch** is announced, it means hurricane conditions are a real possibility for Florida. It does not mean a hurricane is imminent, but when a Hurricane Watch is issued listen for further advisories on a local radio or television station. Based on the Hurricane's projected path, evacuation orders may be issued during the watch period. **This is the time to begin preliminary precautions:**

- Fill your car with gas. Make sure the battery is in good condition. Review county and state roadway maps.
- Check your battery-powered equipment. Your radio could be your only link to the outside world during and after a hurricane.
- Lower or secure TV and radio antennas (CB or HAM) to prevent antennas coming in contact with electrical wires. Remove all items from the yard and open patios. Board up windows. Close shutters, awnings, windows, and drapes.
- If you plan to stay home, check your supply of emergency food and water. Small families should purchase single serving size containers. Obtain and fill clean containers with drinking water. Do not store drinking water in used milk containers. (SEE Supply LIST)
- Pack your valuables in waterproof containers. Valuables include jewelry, titles, deeds, insurance papers, licenses, stocks, bonds, inventory list, etc., in waterproof containers. Place valuables in a safety deposit box. If you do not have a safety deposit box, keep your valuables with you. Keep important papers with you at all times.
- Refill prescription drugs. Obtain an extra supply of special medication.
- Make arrangements for the safety of your house pets.
- Make arrangements for the safety of your boats. Remember, if the situation warrants a mandatory evacuation, drawbridges will be closed to boat traffic.
- Fill clean plastic containers, cooking pots, or clean bathtubs with drinking water.
- Turn your refrigerator and freezer to the coldest setting. This will preserve food as long as possible in case of a power failure.
- Do not drain your swimming pool. Keep the swimming pool full to approximately 12 inches below the edge, to compensate for expected rainfall.
- Wedge sliding glass doors to prevent them from being lifted from their tracks. Brace your garage door. Protect appliances and furniture. Elevate them above floor level and cover them with plastic.
- Stay tuned to local radio and television stations for official weather statements and emergency instructions for your area.
- If county authorities recommend or order evacuation of your area, **LEAVE IMMEDIATELY.**
- If you leave your home, shut off gas and electric at the main power source. Shut off water lines into your home. Lock all windows and doors before leaving your residence. Call relatives and friends and let them know what you are doing and where you are going.
- If you live inland, away from the beaches and low-lying coastal areas and your home is well constructed, stay home and make emergency preparations. Do not stay if officials recommend evacuation.

# PET SAFETY



American Red Cross shelters cannot accept pets because of health and safety regulations and other considerations. Service Animals are the only pets allowed into the shelter. It may be difficult to find shelter for your animals in the midst of an evacuation so **plan ahead**.

Contact hotels and motels outside your immediate area to check policies for accepting pets and any restrictions on size/species of pet. Ask if "no pets" policies will be waived in an emergency, then keep a list of "pet friendly" establishments for reference.

Ask friends or relatives who live away from your immediate area if they will shelter your pet, or make arrangements with a veterinarian or boarding facilities. Local animal shelters may provide emergency shelter or foster care, but this should be a last resort as they may already be full.

## Assemble a pet disaster supplies kit

Store small items in a sturdy waterproof container that can be carried easily. Your kit should include items appropriate for evacuating / staying in place:

- Medications (heartworm, flea prevention) and medical records. Boarding facilities will require proof of vaccination and a healthy pet has a greater chance of surviving the stress of a storm.
- Registration records, microchip/tattoo information.
- First aid kit (consult your vet).
- Sturdy leashes, harnesses, and a carrier for small animals. The carrier should be large enough for the animal to stand and turn around. It is preferable to have familiarised the pet with the carrier before it is time to evacuate.
- Pet bed and toys, if portable.
- Current photos of the pet - with you if possible, to prove ownership if your pet is lost.
- Food and drinkable water for three days. Non-spill bowls, manual can opener if necessary.
- Cat litter / pan, newspapers, scooper, plastic bags to dispose of wastes.
- Cleansers and disinfectant.
- Grooming equipment.
- Information on feeding schedule, medical conditions, name of veterinarian, in case you have to board your animal.
- Survey your home and determine the best location for your pet(s) if you plan to stay. Consider an easy-to-clean utility room, bathroom or other tiled area away from windows.

*Owners of large animals should prepare an animal safety plan according to specific needs. Talk to your vet or animal handler and check online for additional resources.*

# HURRICANE SUPPLY LIST

## Water and foods

Pack a 7-day supply

- One gallon of water per person per day.....
- comfort / stress food.....
- ready-to-eat canned meat, fruits and vegetables.....
- food for infants.....
- powdered milk.....
- food for individuals with special needs.....
- canned juices.....
- Pedialyte (to restore hydration if necessary).....
- high-energy snacks.....
- mess kits or paper cups, plates.....
- plastic utensils.....

## Important household documents

Keep copies of records in a waterproof, portable container.

- Wills.....
- insurance policies.....
- contracts and deeds.....
- stocks and bonds.....
- Social Security cards.....
- passports.....
- immunization records.....
- bank account numbers.....
- credit card account numbers, company names, telephone numbers.....
- inventory of valuable household goods.....
- family records (birth, marriage, death, certificates).....
- current photographs of family members.....

# HURRICANE SUPPLY LIST contd.

## Tools and emergency supplies

- Cash or travellers' checks, coins.....
- map of the area (to locate shelters, distribution sites.....
- battery operated radio, extra batteries.....
- fire extinguishers - small canister ABC type.....
- pliers.....
- wrench to turn off household water/gas.....
- plastic sheeting.....
- plastic storage containers.....
- plastic bucket with tight lid.....
- plastic garbage bags and ties for sanitation.....
- catlitter for sanitation.....
- tape (duct, masking).....
- matches in waterproof container.....
- paper, pencil.....
- needles, thread.....
- medicine dropper.....
- aluminum foil .....
- toilet paper, towelettes.....
- towels.....
- soap, liquid detergent.....
- disinfectant.....
- unscented household chlorine bleach.....
- feminine supplies.....
- personal hygiene items.....
- infant supplies (bottles, diapers, pacifier).....

# HURRICANE SUPPLY LIST contd.

## Tools and emergency supplies

- Cash or travellers' checks, coins.....
- map of the area (to locate shelters, distribution sites) .....
- battery operated radio, extra batteries.....
- fire extinguishers - small canister ABC type.....
- pliers.....
- wrench to turn off household water/gas.....
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- plastic storage containers.....
- plastic bucket with tight lid.....
- plastic garbage bags and ties for sanitation.....
- catlitter for sanitation.....
- tape (duct, masking).....
- matches in waterproof container.....
- paper, pencil.....
- needles, thread.....
- medicine dropper.....
- aluminum foil .....
- toilet paper, towelettes.....
- towels.....
- soap, liquid detergent.....
- disinfectant.....
- unscented household chlorine bleach.....
- feminine supplies.....
- personal hygiene items.....
- infant supplies (bottles, diapers, pacifier).....
- sunscreen.....
- mosquito repellent.....

# HURRICANE SUPPLY LIST contd.

## Clothing and bedding

Include at least one complete change of clothing and footwear per person.

- Sturdy shoes, work boots, hats, gloves.....
- rain gear .....
- blankets or sleeping bags .....
- extra prescription glasses, sunglasses.....

## First aid kit

Assemble a first aid kit containing these items for your home and one for each car. Keep ready a three-day supply of each person's vital medications to include in the kit.

- Prescription drugs.....
- sterile adhesive bandages in assorted sizes.....
- 4 - 6 of each: 2" and 4" sterile gauze pads.....
- 3 rolls each: 2" and 3" sterile roller bandages.....
- triangular bandages.....
- latex gloves (at least 2 pairs).....
- cleansing agent, soap and moistened towelettes.....
- antiseptic.....
- petroleum jelly or other lubricant.....
- assorted sizes safety pins.....
- scissors .....
- tweezers .....
- needle .....
- thermometer .....
- tongue depressors (2) .....
- non-prescription drugs:..... 
  - aspirin or other pain reliever
  - anti-diarrhea medication
  - antacid
  - laxative
  - antibiotic ointment
- syrup of ipecac (use to induce vomiting if advised by Poison Control Center)....
- activated charcoal (use if advised by Poison Control Center) .....



# INSURANCE MATTERS

Understand that all insurance policies are not created equal. Some policies offer **guaranteed replacement cost coverage**. These policies promise that if your home is completely destroyed (no matter its age) the insurer will cover the cost of building a new one just like it.

Standard homeowners policies usually cover the contents of a home up to a specified limit. Some policies protect contents on a replacement cost basis. An actual cash value policy would entitle you to only the original cost of your possessions. There are special endorsements or riders, if you can get them, that could provide replacement cost coverage for contents under the terms of an actual cash value homeowners policy. Additional riders are available to enable you to buy more coverage for expensive items such as jewelry, furs and computer equipment.

There are some "catches" to homeowners coverage. A good agent will alert you to them and offer you options. Your house, for example, may have aluminum wiring, which was installed before your local government ordered that all new homes must contain copper wiring.

If your home is partially damaged but must be rebuilt to meet local building codes, some insurers may say they are not responsible for anything more than what is provided for in the policy. You can protect yourself by buying a **code endorsement rider**. That kind of coverage is especially important if your home pre-dates recent building codes.

There is no such thing as "hurricane insurance." Standard homeowners policies protect you from virtually all types of damage a hurricane can inflict except one — flood, or "rising water" damage. Flood insurance is underwritten only by the federal **National Flood Insurance Program** and must be purchased separately.

Although standard homeowners policies will not cover damage from rising water, such as from storm surge, they will cover water damage from rain driven by winds through damaged roofs or blown-out windows. The part of a policy that offers such protection is called **windstorm coverage**. Insurers' vulnerability to future losses because of windstorm coverage was a major factor in cut-backs in writing new policies and for residents of "high risk" coastal areas and the barrier islands this type of coverage may only be available through Citizens Insurance, which was created by the State of Florida to cover those who could not find coverage elsewhere.

Be sure to ask your agent whether you should buy additional coverage to protect you from the **50 Percent Rule**. This rule states that if a structure in a flood zone is 50 percent or more destroyed - by a hurricane or any other hazard - it must be rebuilt so that its ground floor meets minimum elevation requirements.

If the front door of your home now stands at 4 feet above sea level, you could be required to raise your floor elevation to ten feet or more above sea level. Insurers have argued that they shouldn't have to pay for raising the first floor of a structure unless this is specifically provided for in a policy. Ask about this. Special endorsements are available to cover elevation costs.

Comprehensive auto and boat coverages should protect your car or boat from any damage caused by a hurricane, including flood damage. Ask your agent to make sure you are adequately covered. Raising the deductible may save you money.

**Protect yourself, your home, your family, and your financial future!**

# INSURANCE MATTERS contd.

## FLOOD INSURANCE

People who live near water are not the only ones who experience flooding. Floods move, and can spread for miles. They can have strong currents that in a few moments can sweep away everything that took a lifetime to accumulate, leaving a thick residue of mud and debris behind.

It's not just high risk areas that are flooded. Between 25-30% of flood insurance claims come from medium or low flood-risk areas.

Fortunately you can protect yourself and your future from the crippling financial losses often caused by flooding through a program administered by the Federal Emergency Management Agency (FEMA). Under FEMA's National Flood Insurance Program (NFIP), Federally backed flood insurance is available in communities that adopt and enforce regulations to reduce flood losses. Flood insurance provides coverage that your homeowners insurance doesn't, for damage caused by floods.

**The good news** is that Martin County and its municipalities participate in the NFIP, so flood insurance is available to you. If you have a flood insurance policy, you can be reimbursed for all of your covered losses, even if a disaster is not federally declared. In contrast, federal disaster assistance is often a loan—repayable in full—with interest!

With a flood insurance policy all you have to pay is one annual premium. Then, if you suffer losses due to flooding, you will be reimbursed for your covered losses, and you'll never have to pay a nickel back. Of course, if you are not insured, and a Federal disaster is not declared, your home and belongings may be ruined with no hope for recovery.

Flood insurance is affordable. The average flood insurance premium costs

about \$300 a year for \$98,000 of coverage. However, paying back a \$50,000 disaster loan, for example, will cost an average of \$300 a month—for an average repayment period of 18.5 years!

Call your insurance company or agent to ask for details about how to buy flood insurance. Do it today. Policies go into effect 30 days after a policy is purchased. For more information about the NFIP and flood insurance, contact your insurance company or agent, or call the **NFIP at 1-888-CALL-FLOOD, ext. 314.**

### ***Points to remember if you have a National Flood Insurance Policy:***

1. Often you may be reimbursed for preventive measures taken to reduce flood damage to an insured building.
2. Policy holders may also be reimbursed for the cost of removing insured contents from a building that has been declared by community officials to be in imminent danger of flooding.
3. NFIP insures buildings and contents. This includes almost every type of walled and roofed building that is mostly above ground.
4. All direct losses by flood are covered in the policy. Flood is defined as "inundation of normally dry areas by overflow of inland or tidal waters or runoff surface waters or mudflows."
5. Also covered are losses resulting from land collapse caused by water activity exceeding established levels.
6. Property not insurable under this program are livestock, motor vehicles, land growing crops, shrubbery, roads, etc.

More information at: [www.fema.gov](http://www.fema.gov)

# INSURANCE MATTERS contd.

## STEPS IN MAKING AN INSURANCE CLAIM

1. **Contact your insurance agent** or company immediately and report the damage. Give your name, address, policy number, and the date and time of loss.

2. **Take pictures of the damage**, if possible, before beginning repairs. If you repair small items such as TV antennas, window coverings, or fences before the adjustor arrives, it may be difficult to prove the damage. Pictures can also be used as evidence for tax deductions.

3. **Protect your property** from further damage or theft. Patch roofs temporarily. Cover broken windows with boards or plastic. If household furnishings are exposed to weather, move them to a safe location for storage. Save receipts for what you spend and submit them to your insurance company for reimbursement.

4. **Dry out water-damaged furnishings** and clothing as soon as possible, to prevent further fading and deterioration. You may wish to take some items to a reliable dry cleaner.

5. **Keep accurate records:**

- A list of cleaning and repair bills, including materials, cost of rental equipment and depreciation of purchased equipment.
- A list of any additional living expense you incur if your home is so severely damaged that you have to find other accommodations while repairs are being made, including motel and restaurant bills, home rental, or car rental.
- A list of all actual losses, including furniture, appliances, clothing, paintings, artifacts, foods and equipment, regardless of your intent to replace the objects. Photographs of ruined homes or objects are

excellent evidence for later documentation.

- Try to document the value of each object lost. Bills of sale, canceled checks, charge account records and insurance evaluations are good evidence. If you have no such records, estimate the value, and give purchase place and date of purchase. Include this information with your list.

6. **Contact a reputable firm** to have your damage repaired. Beware of door-to-door salesmen. Sometimes undependable workers enter a damaged area, make cheap repairs, and leave before the residents discover that the repairs are inadequate. If your local contractor cannot do the work, ask him to recommend someone.

7. **Don't be in a hurry to settle your claim.** Although you may want to have your damage claim settled as quickly as possible, it is sometimes advisable to wait until all damage is discovered. Damages which have been overlooked in an early estimate may become apparent later. If you are dissatisfied with the settlement offered, talk things over with your agent and adjustor. Check your policy to see what settlement steps it outlines.



# IMPORTANT NUMBERS

## Home Insurance Company

Policy # \_\_\_\_\_  
Name \_\_\_\_\_ Phone \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Automobile Insurance Company

Policy # \_\_\_\_\_  
Name \_\_\_\_\_ Phone \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Life Insurance Company

Policy # \_\_\_\_\_  
Name \_\_\_\_\_ Phone \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Health Insurance Company

Policy # \_\_\_\_\_  
Name \_\_\_\_\_ Phone \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Executor of Estate

Name \_\_\_\_\_ Hm. Phone \_\_\_\_\_  
Work \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Lawyer

Name \_\_\_\_\_ Hm. Phone \_\_\_\_\_  
Work \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Religious Affiliation

Name \_\_\_\_\_ Phone \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Business/Work

Name \_\_\_\_\_ Hm. Phone \_\_\_\_\_  
Work \_\_\_\_\_

# IMPORTANT NUMBERS contd.

## Family Member

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Family Member

Name \_\_\_\_\_ Hm. Phone \_\_\_\_\_ Work \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Family Member

Name \_\_\_\_\_ Hm. Phone \_\_\_\_\_ Work \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

## Close Friend

Name \_\_\_\_\_ Hm. Phone \_\_\_\_\_ Work \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

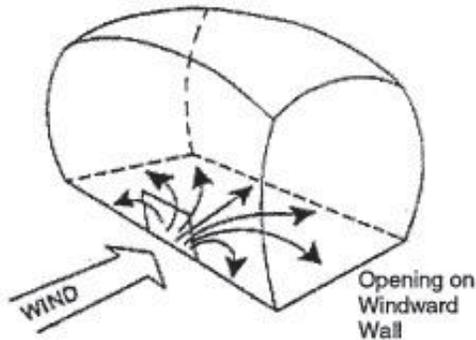
## Close Friend

Name \_\_\_\_\_ Hm. Phone \_\_\_\_\_ Work \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
Zip \_\_\_\_\_

# WIND EFFECTS ON BUILDINGS

Recent major hurricanes in Florida and along the Eastern Seaboard have taught us many lessons on construction techniques. After Hurricane Andrew, building codes and their enforcement were strengthened throughout south Florida to take advantage of these "lessons learned." The major changes were to dramatically improve the survivability of structures by ensuring the integrity of roofs and their support system, including anchoring to the walls and through to the foundation, and protection of the openings in the structure. Window, door and garage door breaches from wind and debris are the common precursors to major damage.

The physics of wind are force and mass. Once the envelope of a structure is breached, whether from being blown in or from being broken by flying objects, wind penetrates the structure. Its force will continue with its mass enlarging until it finds a way out, either through collapsing walls, breaking out other windows or lifting the roof. Often times, it will exit in a combination of ways.

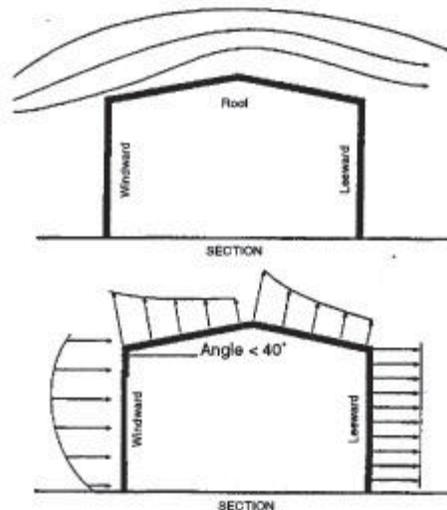


Roofing systems and their design type create unique problems. Our desire to build homes that are pleasing to the eye is a natural part of our culture and is representative of our chosen life-styles. Not many families would choose to live on a street of bunkers if given the choice.

Our life-style choices therefore lead us to homes with roofs that are ill designed and not built to withstand hurricane force winds. Gable ends present a direct vertical surface to the full force of the wind, extended eaves create lifting areas for the wind, and roofs without adequate pitch, generally 4x12, create lifting foils that simulate the wind surfaces of an airplane. As winds increase across gently sloping roofs, areas of negative or reduce pressure form, creating lift.

Building codes have been revised and inspections have become more rigorous for homes built after 1994. Major strides have been taken to tie the foundation, walls and trusses together to reduce susceptibility to lift. At the same time, the roof sheathing requirements and nail patterns have been defined to help keep the roofing materials on the house. In 1998, Martin County began requiring, for any new construction, roof shingles that have been tested to withstand 110 MPH winds.

Residential and commercial window units use glass that has been load tested to 100 MPH. However, the testing does not reflect the cyclical nature of hurricane winds and the glass is not required to be impact resistant to stop flying debris.

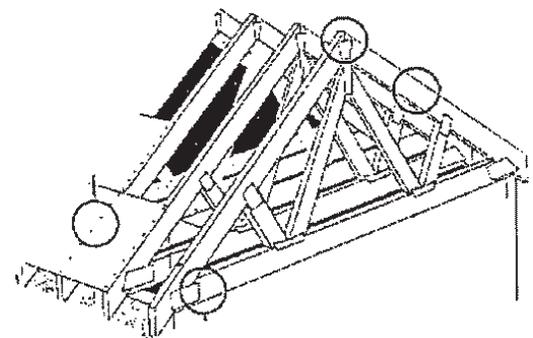
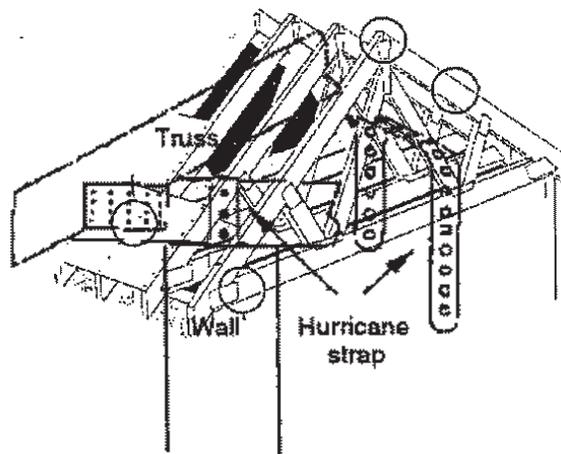


*Wind effects on structures*

# ASSESSMENT AND MITIGATIVE MEASURES FOR THE HOMEOWNER

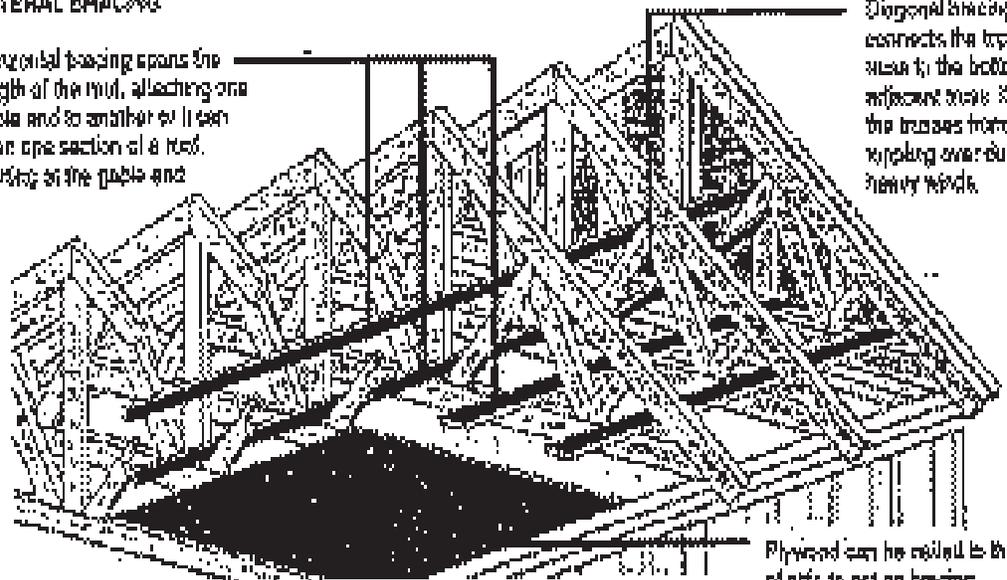
Structural evaluation of your home should be made by an experience inspector from the construction field who belongs to associations such as the American Society of Home Inspectors or the Florida Association of Building Inspectors, Architects and Engineers.

Check with the Better Business Bureau for any complaints against him. The cost of this service begins at \$200. Anyone considering buying an existing home should have a professional inspection in addition to checking out the builder's previous projects.



## LATERAL BRACING

Horizontal bracing spans the length of the roof, attaching one gable end to another or across span one section of a roof, starting at the gable end



Diagonal bracing connects the top of truss to the bottom and across truss. It is the trusses from ryppling over during heavy winds.

plywood can be nailed to the 1 of attic to act as bracing.

# THE ROOF

In general, the streamlined aerodynamics of a four-sided hip roof provide much more protection than the two-sided gabled roof, and flat cement tiles offer greater protection than barrel tiles or shingles. You should not be able to see plywood seams on the gable ends (if the gable wall framing is wood). The gabled ends should preferably be constructed on CBC instead of wood frame.

Current research indicates that many roof failures (roof truss and shingle failure) could be prevented if the building inspections during construction were properly performed. One weak link opens the door to disaster: if shingles fly off, the underlying roofing materials become soaked and weaken. Or, once you allow movement, then cracks and fatigue occur. Roof leaks can be caused by poor workmanship in the installation of tiles, tar paper or plywood or simply by the age of the roof.

Attics guard homes from the sun and wind - they breathe, absorbing heat before it reaches the living area and exhale heat through vents under the eaves and on top of the roof. Turbines and chimneys should be covered with caps when a hurricane threatens. Attached residences should have fire walls and other active dividers in the roof to prevent the roof from acting as a single unit during a hurricane.

## Pitch of the Roof

Flat roofs and roofs that slant only slightly are more vulnerable. Flat tar-and-gravel roofs should have a pitch of at least 3/8" per foot to allow for proper drainage. The pitch on all other roofs should ideally be greater than 20 or 30 degrees but not too steep. The reason for this is that when wind flows over a low-pitched roof, the same aerodynamics

that enable an airplane to fly can help lift a roof from the foundation of the house: the low pressure of the high-speed winds as they pass over the house are offset by the high air pressure contained within the house, resulting in an upward lift force against the roof as the wind tries to equalize the pressures.

The design of the early structures in the Keys with their moderately steeped sloped roofs stood up to from Hurricane Donna in 1960. Lower sloped roofs in the area produced well over 90 percent of all the roof failures.

## Roof Trusses

A small, low attic is not suitable for storage - materials in the attic put an unwanted strain on the trusses. Trusses must be cleanly nailed together at the joints with nails near the center of the truss. If nails miss or are poking out of the side of the truss (not driven in straight), the strength of the nail is reduced. Trusses with large knots, splits/cracks or bark on the wood do not meet building codes. Cracked trusses can be caused by improper installation, poor quality wood or added stress on the truss in addition to faulty manufacture.

You may find pieces of wood shimmed in beside a truss - when the truss was installed, it did not sit evenly on the walls of the house. These pieces of wood should be nailed to the truss to prevent movement if the shimmy pops out. Gable end trusses differ from conventional trusses—instead of diagonal weaving patterns designed to resist upward and downward forces, the members run uninterrupted straight up and down. The flat or weakest side of the wood on the gable ends should not face outward.

To repair trusses the engineer places a 2-by-4 splint on both sides of the truss for additional support around the crack or break (cost \$200 - \$400). The 2-by-4 should be at least 8 ft. long. Periodic maintenance: check for insect damage as well as cracks in the trusses.

**Walers** are 2-by-4 horizontal braces that are attached to the vertical studs on the gabled ends. Both members should be joined with a metal bracket or a tightly wrapped metal strap attached with at least two nails at every point. They should run the length of a gable end because they help distribute wind forces among the wood studs (larger spanning walers should be 2 by 12's). The walers channel the force through the braces which are attached to them and back to the trusses. Braces are only as good as the walers to which they are nailed.

**Diagonal bracing** (or "X" bracing) connects the top of one truss to the bottom of an adjacent truss. Framing of wooden gable ends should be 2-by-4's braced back diagonally to the first four rows of trusses to prevent lateral movement (otherwise, one truss will bear too much pressure). Along the way, that board is nailed to the trusses at locations where diagonal web and vertical or sloped truss members join. The brace keeps the ends from being sucked off during strong winds. Start with the top peak of a gabled end, attach a 2-by-4 and extend it back to the bottom of the fourth truss. Do this at least every six feet across the gabled end and then repeat the process by going from the bottom of the gable end to the top of the fourth truss.

**The floor of the attic** can be reinforced to provide additional bracing by installing four foot-wide, ½ inch plywood with screws along the entire length of the attic along the middle.

**The roof overhang** houses the soffit panels which should be braced back to the walls. In Dade County, this is required only if the overhang is greater than 15 inches.

**Plywood** should be 5/8" thick (all lesser thicknesses as well as all particle boards failed during Andrew). Plywood must be nailed with a minimum of 8-penny rounded resin-coated nails to trusses at 6 inch intervals along the sides and every 12 inches in the middle of the plywood and preferably clipped together with aluminum clips at all joints. If the nail misses, it should be removed. Otherwise, the nails will work their way out of the roof, leaving a hole.

Check the underside of the plywood while in the attic for exposed nails. If an entire row of exposed nails is present, the plywood should be re-nailed. That portion of the roof will have to be removed and re-nailed. (Cost \$450 per 100 square feet.) Check also for gaps in between the sheets of plywood. Gaps greater than 1/8", which is allowed under the Code, can cause wind from the attic vents to blow through the gaps and lift that portion of the roof. With a single roof, the winds can blow through weak asphalt shingles and through the gaps. If you have a leak, look in the attic for gaps in the plywood and/or rotting wood. Particle or pressed board was allowed during the 1980's and has since been outlawed.

## Nails and Staples

Plastic-coated nails must be used to fasten plywood to the trusses to bond the nail to the wood and truss. Roofs that are attached by staples are not as strong because the staple itself may become crimped by the application of the staple gun (banned in Dade County since Andrew). Also, the stapled shingles blow off more easily because the surface of the nail head is greater than that of staples.

**Hand Nailed vs. Nail Guns:**

Nail gun nails are T-shaped and grab less decking than the rounded hand nails, are often driven too deeply into the plywood, and you cannot always tell when they hit wood. Recent tests show that a combination of gluing and nailing of sheathing to the trusses doubles the holding power over nailing alone.

**Tarpaper** should only be attached with roofing nails and tin tabs, not staples. If a roof has a log slope, use double felt under shingles. In 1957, the South Florida Building Code required #30 felt on top of the roof decking. In 1980, this was changed to two layers of #15 felt. Since Andrew, #30 is again mandatory as is an inspection of the trusses, bracing and deck before the felt application.

**Roof Tiles** should be consistently secured with evenly spread mortar and nailed down (nailing is not required by the Code unless the pitch of the roof is steep—otherwise you may use nails or cement or both). The mortar installation is more important than the nails and proper installation is a must. The mortar should be evenly applied in a continuous horizontal strip, not globbed on. The cement must be wet enough and the tile must not be too hot: moisture can be absorbed from the mortar resulting in the surface of the tile not adhering properly to the cement.

During Andrew, the nailed tiles in the most damaged areas were blown off and more than half of the roofs with cemented tiles also blew off (due to improper cement application). Never install tiles on top of old shingles. Flat cement tiles are better than barrel tiles because they are heavier and their shape makes them less likely to catch winds although the porous clay tiles adhere better with mortar than cement tiles.

Use a 90 pound hot mop membrane waterproofing, not a 43 pound as allowed

by Code, and insist on copper flashing and drip edges, not galvanized. Regardless of the type of covering used, installation over a sound and tight roof system (properly nailed and spaced roof sheathing) is the most important factor. Cost to re-roof: \$350-\$400 per 100 square feet for cement shingles (\$450-\$500 for barrel tiles). Add \$500 for installation with nails.

**Shingles**

Shingles should be nailed (not stapled) carefully to the roof: six roofing nails (two in each tab directly above the sealant strip) should be used in each asphalt shingle and should be long enough to pierce 3/4" into the roofing deck. Since Andrew, in Dade County the number of nails required per shingle was raised from four to six. Each shingle has three tabs on one end that are not coated with granules with the adhesive strip approximately center on the shingle. Plastic must be removed from the adhesive strips for the shingle to properly bond to the other shingles. What makes one shingle more wind resistant than another is the sealant used on the shingle. The tougher shingles are darker, less attractive, and more expensive. Asphalt shingles with embedded zinc particles are made to withstand mildew, but minimum 250 pound weight shingles are preferred, and if the roof has a low slope, use double felt under the shingles. Cost to re-roof: \$175 per 100 square feet for fiberglass shingles (add \$500 for installation with nails instead of staples).

## **WALLS AND FOUNDATION**

**Preferred Construction:** Houses should be single-story and constructed with concrete block as opposed to wood framing. The concrete walls should be tied down to the poured concrete slab with iron bars running inside the block. The tie-beam is a reinforced concrete beam that runs horizontally across the top of a concrete block wall. It supports the roof and anchors the hurricane straps that are partially embedded in the concrete at the time of construction. It is usually 8 inches wide and 12 inches deep with two steel reinforcing bars at the top and bottom (ideally the tie beam should have four or more steel reinforced rods and be connected to vertical reinforcing rods going down through the hollow block walls and embedded in the footings).

Tie beams can be strengthened with steel plate strips or by increasing their thickness with wood beams. To determine if you have a tie beam: remove a piece of drywall or plaster about 12 to 14 inches deep from an inside perimeter wall, adjacent to the ceiling. If there is a reinforced concrete tie beam, it should be visible: about 12 inches deep as measured from the top of the ceiling on single-story structures. The concrete looks different from the concrete block below it. The interior walls of the home should be wood frame instead of today's flimsier metal frame. Use plasterboard coated with metal reinforced plaster on interior walls to provide sturdiness. The air conditioning compressor should be anchored to a concrete slab with nails.

### **Periodic Maintenance :**

(1) Periodically check metal and wood support columns on patios for rust and wood decay.

(2) Check the anchoring of the air conditioning compressor to see if it feels loose.

(3) Check tie beam for crumbling concrete and rusted steel rods.

(4) Look for cracks in your exterior walls as well as the foundation. Cracks are caused by shifts in the ground below the house, typically caused by a rotting stump. Cracks less than one inch wide are common in walls and do not mean that the wall is weak (only wide cracks indicate a problem). All cracks in the foundation should be repaired.

*To repair foundation: Pressure grouting company or geotechnical engineer drills hole in slab and pumps cement in to fill the gap (cost \$1000 to \$3000).*

## **WINDOWS, DOORS, GARAGE DOORS, SKYLIGHTS and VENTS:**

Small to medium sized windows instead of large windows, glass doors and/or bay windows are preferable. All windows should be protected by some type of shutter. Check periodically the caulking surrounding windows for cracks which can cause leaking and re-caulk as necessary.

Doors should open out - almost all South Dade doors that opened in were blown in during Andrew. Doors that open in should be protected with a hurricane panel (leave your strongest door un-shuttered). Cracked or decaying wood jambs should be replaced. All exterior doors should be preferably made of thick steel. To give your door extra strength, install a lock that slides into the frame of the door and one that slides into the floor.

Many garage doors failed during Hurricane Andrew: the hardware connecting the door to the adjacent concrete structure failed, or the rolling track bent and failed, or the doors themselves were unprotected

and were penetrated by flying debris. If a garage has two separate one-car doors, 8-by-7 feet, you can board up the outside with plywood but it is not recommended for such a large opening. One double door is more difficult to cover.

**Check your hardware:** Make sure the door panel has the necessary stiffeners; rollers can sometimes be clamped before a hurricane, or replaced with extra-duty heavy rollers. Garage doors that feel flimsy or operate poorly should be repaired or replaced.

**Brace the tracks:** Unless the tracks are properly mounted the whole garage door assembly could fail by shaking loose and collapsing. They should be run from the roof trusses, not a drywall runner. The back of the track is usually secured by only one flimsy brace. Additional bracing is required to keep the door from exerting pressure on the tracks. Attach a piece of 2-by-4 to the garage wall just below the height of the track. Cut another piece that fits tightly between the wall and the track. Nail the 2-by-4 to the top of the piece on the wall and screw two screws through the track into the other side of the wood. Put at least two braces on each side of the track.

**Brace the door:** Vertical bracing to the middle of the garage door keeps it from being sucked off the tracks or pushed in. Most garage doors fail because they flex too much - they bend in the middle, twist in their tracks and their wheels pop out. The middle is the weakest point of the door. This point can be strengthened by installing a brace in the middle that is screwed into a plate on the garage floor and the wall above the door.

You should have more than one brace on the inside if the door is large and a corresponding number on the outside. The

outside braces are necessary because you must have strength in both directions (like a pair of storm bars on a rolling shutter). You can make your own braces by nailing three 2-by-4's together to make a U-shaped beam and attaching it to the floor and wall in a similar fashion as mentioned above or you can back your car up against it so that it is flush against the interior of the garage door. This will give the door the maximum strength you can provide. Don't add framing to the door; the door will blow off the tracks.

**Install exterior shutters:** After you have shuttered the rest of your house, the garage door then becomes your weakest point. It doesn't make any sense not to shutter it, too. Shutters offer protection from flying debris.

**Attic and floor vents** should be protected in the same manner as any window or door opening. Even the dryer vent should be closed off.

## ***HURRICANE SHUTTERS***

The purpose of shutters is neither to seal the house (the windows do that) nor to protect the windows. Rather, the intention of shuttering is to prevent penetration. When a window busts open, the wind that flies in can exert terrible upward pressure on the roof. Properly installed storm shutters are essential to help keep winds out and maintain the integrity of the structure.

Once the envelope of the house is breached, the internal pressures are so high that the house actually explodes. Holes should be drilled and pre-set with lead shields (nails will not suffice). All window coverings should be installed flush to the building at least four inches over and outside the opening, not close to the edges. To attach, use drilled holes, lead shields, and large, deep lag bolts or tapping screws (fasteners should preferably be made of stainless steel).

***Make sure you can lift and install your shutters prior to hurricane season.***

**Aluminum Awnings** are slightly rounded shutters permanently attached to the top of the window with bolts. They swing down over the window and are bolted into place at the bottom. Construction: aluminum.

**Bahama Shutters/Awnings** are flat louvered panels permanently attached to the top on the window with bolts. They swing down over the window and lock into place with a latch. Some models crank down from the inside. They cannot be used on sliding glass, garage or entrance doors. Construction: aluminum. Cost: \$200.

**Colonial Awnings/Shutters** are permanently attached to each side of the window with bolts. They swing over the window like double doors and lock into place with a reinforcement bar. Construction: aluminum.

**Hurricane or Storm Panels** are slipped into permanently attached tracks at the top of the window and clipped into place or bolted to the structure with an additional track on the bottom or a reinforcing bar. Construction: aluminum or steel. Cost: \$5-\$7 per square foot or \$100.

**Accordion Shutters** slide on a permanently attached track inside the window frame and are locked in place with a reinforcement bar. Construction: aluminum or heavy-gauge steel.

**Roll-Down Shutters** roll down via a hand crank along a track from a valance bolted across the top of the window. Construction: aluminum, foam-filled aluminum, PVC or Lexan.

**Plywood Shutters:** If the windows are no more than 3 feet across, 1/2" plywood attached with screws is sufficient to prevent interior damage most of the time. To install plywood, cut 4x8 sheets of 1/2"

CDX exterior plywood slightly larger than the window or door opening and mark each sheet for location. The plywood should overlap the window or door opening by four inches. Pre-drill holes in the concrete on both the left and right sides of the window using a masonry or carbide-tipped drill bit. Hammer three 1/4" or 1/2" machine-screw anchors or lead shields that are two inches long into the pre-drilled holes. Tighten 2" tapping screws through the plywood and a washer until the wood is held flush against the wall. You can join pieces by nailing cross members of 2x4s back and forth. This should be done for large windows and sliding glass doors although plywood is not recommended for such large openings. The most important factor is securing the plywood properly to the exterior wall.

## Remember to....

**Review your property insurance coverage with your insurance agent. Make sure you have enough insurance to fully replace your home and its contents. If your home sustains 40% or greater damage, you will be required to rebuild to current building codes. Also make sure your insurance covers this "cost of compliance." If you live in low lying or flood prone areas, consider flood insurance even if you are not required to purchase it. Homeowners' policies do no cover damage from rising waters or floods.**

## SURROUNDING AREA

**PATIOS:** Best bet - remove screens and doors and reinstall them after the storm. It is less expensive than replacing the screens. There is no foolproof method to minimize damage to patio screens. Leave a little play in the screens (not installing them too tight) and brace with thin pieces of wood where you expect maximum deflection.

**Landscaping:** In terms of Ground Zero landscaping, nothing is going to make it. Prune trees (except pines) in the middle so the wind can blow through the canopy without snapping them ("hatracking"). See trimming instructions on next page. A lacy, open canopy with few limbs internally is best (example: Kapok trees, Poincianna trees, Live Oaks) and you should avoid trees with narrow V crotches that are prone to splitting. Palm trees with open fronds (Queen Ann) will do better than those with a closed, palm-shaped palm frond. Consider removing trees, such as Australian pines, which do not have deep tap roots. Trees in some areas do not have very deep roots due to the high water table or they were grown in containers where the roots spiraled before planting leading to a poor root system. Also consider removing large, top heavy trees that are close to your house (black olives, ficus).

## HURRICANE AWARENESS

A hurricane need not create the fear some people associate with the impending storm. Preparation before the hurricane season and before storms arrive are the key to seeing a hurricane through SAFELY. Remember – a hurricane consists of two factors, WIND AND WATER. You can reduce damage by being prepared. Residents who properly prepare themselves and their homes reduce their discomfort and damage from a hurricane.

Three groups of residents should consider evacuation a **must** if a hurricane threatens to strike our county:

- Residents of the off-shore islands and barrier islands.
- Residents of boats, mobile homes, and recreational vehicles, even when threatened by a minimal hurricane.
- Residents along all rivers and those extremely low lying flood prone areas whose homes, even if well constructed, offer little protection against storm surge or flooding.

# TRIMMING TREES



## Hatracking

A "hatracked" tree is one that has been so heavily pruned that only stubs of branches remain. A hatracked tree's new growth will form a dense canopy, making the tree more vulnerable to winds.

To thin dense new growth, cut off all but the strongest new shoots pointing downward; new growth should point upward, against the pull of gravity.

When trimming trees, create channels through the foliage, working outward from the center of the tree, to allow for air flow. Working from the center of the tree will also help avoid the tendency to cut too much.

If you hire tree trimmers, make sure they're licensed, bonded and insured.

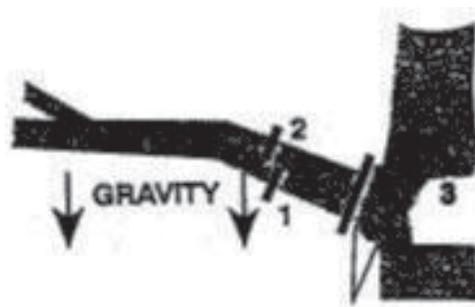


## Cutting limbs

Cut limbs at a point just before the branch collar, which is the raised and thickened area where the limb attaches to the trunk. The branch collar's wound-healing bark will help to cover over and heal the cut.

Large limbs may require three cuts to remove them safely and cleanly. Do not stand under branch when making cut #2.

Long branch stubs invite rot. So does thick wound "paint", which does not work well in Florida's high humidity.



## INSIDE PREPARATION BEFORE THE STORM

**Leave a message with neighbors** if you will be leaving your home. Also, inform at least two family members who live outside your area what your hurricane plans are.

**Children should be advised** of what is going on. The more they know, the more confident they will be. Let them help you in your preparations. Make sure you are calm enough not to frighten them. Make sure they understand how important it is for them to listen to adults during the storm.

**Take pictures and videotape** the house inside and out. Include individual pictures of valuable items. Make a detailed inventory listing (price, date purchased). Keep original in your safe deposit box and a copy with you in your "safe place."

**Important papers** should be stored in waterproof containers: copy of insurance policies, income tax records, picture albums, home inventory, and home videos. Bring with you to your "safe place."

**Medication** should be stored in a waterproof container.

**Furniture** should be moved away from all windows, cover with plastic and draw all drapes.

**Pictures/paintings** - wrap in plastic garbage bags.

**Computer, TV and stereo** - Unplug and wrap these items in plastic garbage bags.

**Video batteries** - Recharge for filming after the storm.

**Cards, games and books** - Gather for entertainment without electricity.

**Bathtub and sinks** - Clean, sponge with bleach and let dry. Caulk the drains with a silicone caulk and let dry. Fill with water to be used for sanitary purposes only.

**Refrigerator and freezer** set to coldest setting. Freeze water filled containers to help keep foods frozen longer. Fill refrigerator with containers of water for storage and to keep the refrigerator cooler longer. Correct temperature can be maintained for 48 hours in the freezer and 2 hours in the refrigerator if left unopened.

**Ice chest** - Fill with ice to put coldcuts, condiments and drinks in after the storm. This will keep the refrigerator and freezer colder longer by not frequently opening the door.

## OUTSIDE PREPARATION

**Garbage can** - scrub clean and dry out. Use for waterproofing items such as charcoal, cat litter, etc.

**Tape windows** - This past practice of taping windows is no longer recommended. All tape does is prevent windows from breaking into small pieces. What you need to do is prevent windows from breaking at all. The Federal Emergency Management Agency (FEMA), National Hurricane Center and the American Red Cross jointly recommend that all windows must be protected with substantial hurricane shutters or covered with 5/8 inch plywood panels.

**Jalousie louvers** - insert newspaper between louvers to prevent rain seepage.

**Screen enclosures** - Remove panels as well as the aluminum door and panels.

**Sliding glass doors** - Brace by tapping wedges in the top track.

**French doors** - Brace with 2 x 4's

**Ornamental shutters** - Remove.

**Attic:** Remove valuable items and close the attic door.

**Roof turbines** - Remove and install covers with screws, Otherwise cover the turbines with plastic and tie down securely.

**Chimneys** - cover with caps.

**Plumbing vent stacks** on the roof should not be closed. They allow sewer gases to escape.

**Gutters and downspouts** should be cleaned out. Loose ones from outside should be gathered and brought inside.

**Dead tree branches and coconuts** - Prune trees so the wind can blow through the branches without snapping them. Remove dead branches and coconuts. Do these items only if you have a place to store the debris.

**Lock** all windows, exterior doors and gates.

**Turn off water** at the meter to prevent contaminated water from entering the home.

**Outside antenna** - Remove after disconnecting the television and the power source.

**Storage shed** - Tie down with straps or thick rope using ground anchors. Lock door.

**Air conditioning unit** should be wrapped with plastic.

**Pool pump motor** should be wrapped with plastic.

**Swimming pools** - Drain approximately one foot of water from the pool (saturated grounds or changes in pressure can force a drained pool out of the ground). Add at least three gallons of chlorine for each 5,000 gallons of water (a 15 x 30 pool contains 15,000 gallons of water). Cut off the electricity to the filter motor, then remove it or wrap it in plastic. Cut off electricity to the pool lights. Do not put the patio furniture in the pool (it can damage pool surfaces).

## PROTECTING A MOBILE HOME

Of the 1,167 mobile homes in Homestead before Hurricane Andrew, 99% were leveled—only nine remained standing after Hurricane Andrew. Never stay in a mobile home during a hurricane. Its flat sides and ends, along with its light weight literally make it a pushover.

### To tie down a mobile home:

- Over-the-top straps keep the homes from tipping over. The straps are secured with anchors on each side.
- Frame ties made of wire rope or rust-resistant steel strapping prevent the home from tipping over. They may secure the frame, but if the home itself is not strapped down properly, it can be blown off its tied-down frame.
- Use both over-the-top straps and frame ties to secure mobile homes 10, 12, and 14 feet wide. (Double-wides, because their width makes them more stable, usually require only frame ties.)

# PROTECTING YOUR BOAT IN A HURRICANE

Whatever preparations you must make for your boat, make them early. If the boat cannot be removed from the water, it should be sailed to a safe refuge and secured there to ride out the storm. Many marinas must be evacuated during a hurricane alert. Check your dockage lease and consult the dockmaster.

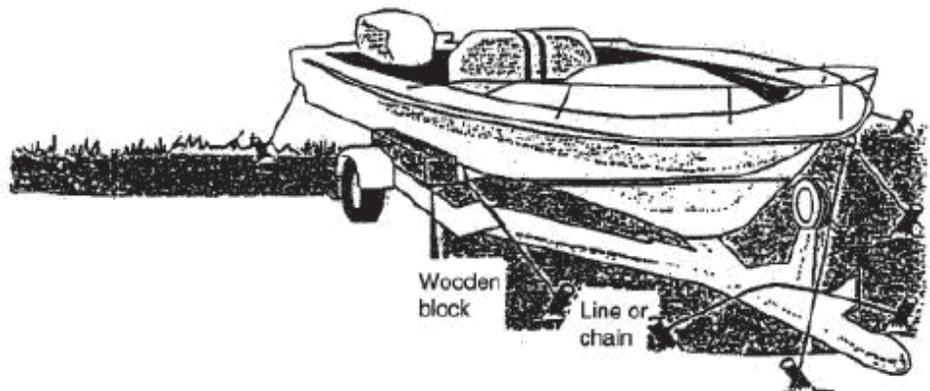
- Consult the dockmaster and fellow boaters for suggestions.
- Drawbridges limit movement of large vessels, and ground traffic will get priority in an evacuation. Boat owners should act ahead of an evacuation order.
- If you decide to move your boat inland make a test run to ensure the water is deep enough and overhead clearances are high enough.

## Tying down your boat at a marina or dock:

- Double all ties.
- Make ties high on pilings to allow for rising water.
- Cover all the lines at contact points with rubber or other material to prevent chafing.
- Install fenders to protect the boat from rubbing against the dock.
- Be sure the batteries are sufficient to run the bilge pumps throughout the storm.
- Put duct tape around windows and hatches.
- Insert plugs in engine ports.
- Strip Bimini tops, sails, life rings - anything that could blow away.
- Disconnect shore power.
- Close fuel valves and cockpit seacocks.

## Tying down your boat at home:

- If you can, put the boat in a garage.
- If you must leave the boat outside, remove small outboard motors.
- Lash down the boat.
- Fill the boat one-third to halfway with water (Filling all the way could break the trailer springs or axle).
- Support the axle with blocks inside each wheel. Remove any items that could blow off the boat.
- Place the boat away from trees or objects that could fall on it.





Disaster Services

## 2005 Hurricane Shelters Martin County

Bessey Creek Elementary	2201 S.W. Matheson Avenue, Palm City
Felix Williams Elementary	401 N.W. Baker Road, Jensen Beach
Hidden Oaks Middle	2801 S.W. Martin Highway, Palm City
Indiantown Middle	16303 S.W. Farms Road, Indiantown
Jensen Beach High	2875 NW Goldenrod Road, Jensen Beach
Jensen Beach Elementary	2525 N.E. Savanna Road, Jensen Beach
Port Salerno Elementary	4890 SE Jack Avenue, Stuart
Seawind Elementary	3700 S.E. Seabbranch Boulevard, Hobe Sound
Warfield Elementary	15261 SW 150 <sup>th</sup> Street, Indiantown

**PLEASE LISTEN TO 1450 A.M WSTU ON THE RADIO  
ALL SHELTERS MAY NOT BE OPENED AT THE SAME TIME**

For more information, to arrange a speaker for your group, or to volunteer, please call:

American Red Cross, Martin County Chapter  
2750 S. Kanner Highway; Stuart, Fl 34994  
772-287-2002

E-mail: [mcrcdross@martinredcross.org](mailto:mcrcdross@martinredcross.org)

**Warning!**  
**Shelters are a last resort!**

Determine your plan:

- Plan A: Stay home - if safe
- Plan B: Stay with local friends
- Plan C: Relocate outside the area
- Plan D: Go to a Red Cross shelter

**Supplies to bring to the shelter:**

- Medicine / prescriptions
- Flashlight / batteries, battery powered radio
- Drinking water / snacks
- Cot & blanket or sleeping bag and pillow
- Special diet food
- Toiletries / baby items if needed.

*The programs and services of the American Red Cross are made possible by the voluntary contributions of the American people.*