



Hurricane Preparedness



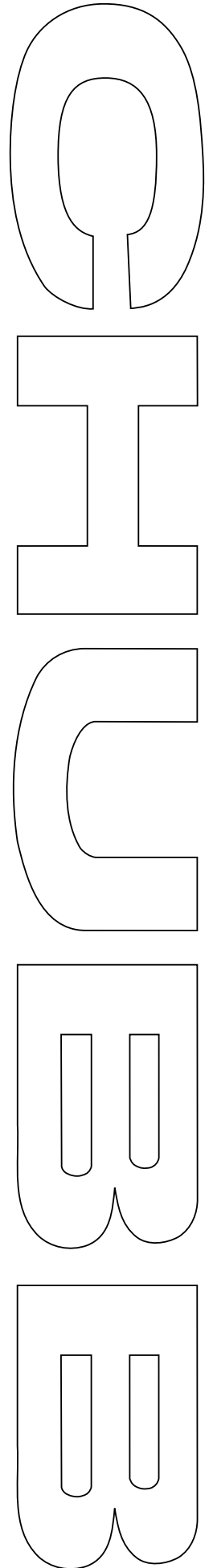
Hurricane Isabel, September 17, 2003; Photo courtesy of NOAA

In 1992, the United States experienced the costliest hurricane in history. Hurricane Andrew caused approximately \$26.5 billion in damage. The National Oceanic Atmospheric Administration (NOAA) reports that the top 10 hurricanes in the United States each caused more than \$9 billion in damage.*

Hurricanes can cause severe flooding and extensive damage from heavy rainfall, storm surge and sustained winds. A storm surge occurs just before a hurricane touches land when the low pressure of the hurricane eye draws in the surface of the ocean. This effect creates a wall of water up to 20 feet higher than the normal high tide that can extend 50 to 100 miles. Hurricanes may spawn tornadoes that can also cause extensive damage.

Hurricane season runs from June 1 to November 30. Don't get caught off guard. Advances in technology and weather tracking have made it easier to detect these storms before they make landfall. Hurricanes are dangerous and can result in devastating losses. Proper preparation and action steps can help reduce damage dramatically.

* Adjusted for inflation.



Steps to take before hurricane season

- Establish or review an Emergency Action Plan that considers prevention, emergency response, evacuation criterion, disaster recovery and key personnel.
- Designate an Emergency Coordinator and Emergency Action Team. Schedule meetings and drills to ensure members know their roles and responsibilities.
- Review your Emergency Action Plan with the local authorities and know your community safety plan.
- Confirm that you can receive the local NOAA radio frequency. The National Weather Service uses NOAA Weather Radio to deliver critical information and storm updates.
- Detail communication procedures for staff, vendors and clients. Maintain a current list of key contacts with telephone numbers and addresses. Keep a copy accessible offsite.
- Ensure provisions for alternate remote data transmissions.
- Provide cellular or satellite phones to essential personnel.
- Review your insurance policies to determine if you have flood and wind insurance.
- Inspect roofs and flashing to ensure they are properly secure.
- Safely trim trees and shrubbery. Avoid electrical lines and excessive heights.
- Clear loose and clogged rain gutters and downspouts. Check drain pumps.
- Secure or brace outside storage tanks, sheds and other structures.
- Maintain a supply of plastic or tarpaulin to cover water-sensitive equipment.
- Buy plywood (min. 1/2 inch) or shutters to protect doors and windows.
- Ensure proper working condition for emergency equipment, such as flashlights and battery-powered radios, drills and saws.
- Stock non-perishable food, first-aid supplies and drinking water.
- Purchase N-95, NIOSH-approved disposable respirators for working with moldy or damp materials.
- Create an emergency evacuation kit for employees and their families including: first-aid kit, baby food and diapers, cards, games, books, toiletries, battery-powered radio, flashlights, extra batteries, blankets or sleeping bags, identification and valuable papers.

Steps to take when a watch is issued

- Initiate your facility's Emergency Action Plan and ensure that copies are accessible off site.
- Listen frequently to radio, TV or NOAA Weather Radio for official bulletins on the storm's progress.
- Move fuel and service emergency vehicles and generators inside the building or to a safe location.
- Inspect storm, roof and floor drains to ensure they are free of debris and fully functional.
- Prepare to cover all windows and doors with shutters or other shielding materials.
- Anchor all equipment stored outside.
- Brace all signs, tanks and roof equipment.
- Remove all awnings and lightweight outdoor coverings.
- Protect vital records against flooding and wind. Elevate all possible valuables off the floor onto furniture and shelving.
- Secure back-up records off site, away from the targeted hurricane area.
- Ensure an adequate stock of non-perishable food, first-aid supplies, drinking water and other supplies for staff and emergency crews.
- Check batteries in flashlights and radios.
- Evacuate non-essential personnel.

Know the Difference

WATCH vs. WARNING

A **Hurricane Watch** indicates the possibility of hurricane conditions within 36 hours. This watch should trigger your facility's Emergency Action Plan and initiate protective measures.

A **Hurricane Warning** indicates that sustained winds of at least 74 mph are expected in 24 hours or less. By the time a warning is issued, your protective actions should be nearly complete and personnel moved to a safe location.

Step to take when a warning is issued

- Listen closely to radio, TV or NOAA Weather Radio for official bulletins.
- Complete preparation activities, such as putting up storm shutters and storing loose objects.
- Patrol the facility, as long as it is safe to do so.
- Check for leaks and fire protection system impairment.
- Shut off valves when pipes have broken.
- Complete emergency repairs that are safe to perform.
- Move to a safe area before you are cut off by floodwater. Use sandbags if necessary.
- Follow instructions issued by local officials. Leave immediately if told to do so!
- In strong winds:
 - Close all interior doors. Secure and brace external doors.
 - Stay away from windows and doors even if they are covered. Take refuge in a small interior room, such as a bathroom, closet or hallway.
 - In a multiple-story building, go to the first or second floors. Lay on the floor under a table or other sturdy object.

Steps to take after a storm

- Account for all employees who stayed at the facility during the emergency. If someone needs to be rescued, call professionals with the right equipment to help.
- Use caution in flooded areas. Floodwaters may be contaminated by agricultural or industrial chemicals, or hazardous agents.
- Do not attempt to drive across flowing water. As little as six inches of water may cause you to lose control of your vehicle. Two feet of water will carry away most cars.
- Stay away from standing water. It may be electrically charged from underground or downed power lines.
- Conduct a preliminary inspection to verify stability before entering a flooded, formerly flooded or wind-damaged building. If there is extensive damage, have a professional engineer or architect certify that the building is safe for work.
- Have professionals check gas, water and electrical lines and appliances for damage.
- Assess damage to buildings and equipment. Photograph and document all damage. Notify your insurance agent as soon as possible.
- Make temporary repairs to protect the building and contents. Remove and discard porous organic materials that have become wet or visibly contaminated.
- Use a flashlight for emergency lighting. Never use candles and other open flames indoors. Only use tap water for drinking and cooking after local officials have reported that it is safe to do so.
- When using a generator, be sure that the main circuit breaker is off and locked out prior to starting the generator. This will prevent inadvertent energizing of power lines and help protect utility line workers from possible electrocution.
- Avoid breathing dust (potential fungal spores) generated by wet building materials.
- Use the telephone only for emergency calls.

Know the Difference

CATEGORIES

The intensity of a hurricane is measured by the Saffir-Simpson Scale.

The scale is based on sustained wind speeds, storm surge and potential property damage. Hurricanes reaching Category 3 and above are classified as major hurricanes because of their potential for loss of life and property damage. See last page for category descriptions.

Saffir-Simpson Scale

CATEGORY	WIND SPEED (mph)	STORM SURGE (feet)	ESTIMATED DAMAGE
1	74 – 95	4 – 5	<ul style="list-style-type: none"> No real damage to buildings Damage to unanchored mobile homes Some damage to poorly constructed signs Some coastal road flooding and minor pier damage
2	96 – 110	6 – 8	<ul style="list-style-type: none"> Some damage to building roofs, doors and windows Considerable damage to mobile homes Damage to piers and unprotected small craft Some trees blown down Coastal flooding
3	111 – 130	9 – 12	<ul style="list-style-type: none"> Some structural damage to small residences and utility buildings Large trees blown down Mobile homes and poorly constructed signs destroyed Flooding near the coast destroys smaller structures with larger structures damaged by floating debris
4	131 – 155	13 – 18	<ul style="list-style-type: none"> More extensive curtainwall failures with some complete roof structure failure on small residences Extensive damage to windows and doors Major damage to lower floors of structures near shore Major erosion of beach areas Terrain may be flooded well inland
5	> 155	> 18	<ul style="list-style-type: none"> Complete roof failure on many residences and industrial buildings Severe and extensive damage to windows and doors Some complete building failures with small utility buildings blown away Flooding causes major damage to lower floors of structures near coast Massive evacuation of residential areas may be required



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