

# Hurricane and Tropical Storm Action Plan

## Disaster Preparedness from Liberty Mutual Insurance



Organizations and individuals will likely face unexpected emergencies — both natural and manmade.

It is vital to have a plan in place well in advance of possible catastrophic events in order to protect you, your employees, your customers, and your business.

According to the National Weather Service, the hurricane and tropical storm season begins on May 15 in the Pacific region, and June 1 in the Atlantic region of the United States. It runs through the end of November, and during this season there is potential for significant wind, water, and flood damage, with the most destructive storms occurring in August and September.

Ensure emergency supplies and equipment are on hand and ready for the on-site emergency action team. Obtain cash for post-hurricane needs such as buying food and supplies, or paying employees and contractors.

### Hurricane Emergency Kit

- Three-day supply of drinking water and nonperishable food
- Medical supplies/first-aid kits
- Two-way radios or cell phones (with spare batteries)
- Emergency lighting; flashlights and spare batteries
- Emergency radio (battery, solar, or crank-powered)
- Portable pumps and hose
- Lumber, plywood, nails
- Hand and power tools
- Plastic covers and tarpaulins
- Whistles to signal and direct attention during and after a hurricane
- Blankets and extra clothing
- Have all employee, vendor, and client contact information collected and backed up at an off-site location
- Maintain copies of vital records off site; including business and customer records, utility plans, etc.

### Emergency Contacts

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*Fire Department*

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*Police Department*

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*Insurance Agent/Broker*

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*Building Owner*

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*HVAC Contractor*

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*Electrician*

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*Plumber*

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*Other*

## Important Terms

It is important to remain informed and understand the terminology. By international agreement, all cyclone circulation originating over tropical waters are referred to as “tropical cyclones” and classified by form and intensity as follows:

- **Tropical Disturbance:** A moving area of thunderstorms in the tropics that maintains its identity for 24 hours or more.
- **Tropical Depression:** Rotary circulation at the surface, highest constant wind speed 38 miles per hour (33 knots).
- **Tropical Storm:** Distinct rotary circulation, constant wind speed ranges from 39-73 miles per hour (34-63 knots).
- **Hurricane:** A tropical cyclone with winds of 74 miles per hour or greater that is usually accompanied by heavy rain, thunder, lightning, coastal tidal surges and possible tornadoes. These storms are also known as typhoons in the Western Pacific and cyclones in the Indian Ocean and South Pacific Ocean around Australia.
- **Hurricane Watch:** Issued for a coastal area where there is a threat of hurricane conditions within 24-36 hours.
- **Hurricane Warning:** Issued when hurricane conditions are expected in a specified coastal area in 24 hours or less. Actions for protection of life and property should begin immediately.
- **Flash Flood Watch:** A flash flood is possible in the area. Stay alert.
- **Flash Flood Warning:** A flash flood is imminent. Take immediate action.

## Pre-Hurricane Preparation

### Step 1: Secure Supplies and Information

	Maintain a current list of telephone numbers and contacts for emergency action team members, emergency management (civil defense), local police and fire departments, medical facilities, utilities, contractors, vendors, insurance agent/broker, building owner, HVAC contractor, electrician, plumber, etc.
	Contact local authorities to plan and coordinate activities before the need for emergency action. That way you will both be better prepared.
	Designate a person to monitor weather conditions and keep the action plan leader up to date on weather conditions before, during, and after a hurricane.
	Arrange backup communications, such as two-way radios or cellular phones.
	Arrange an off-site emergency communications control center, such as a hotel meeting room just outside the hurricane area, in case it becomes too dangerous to remain on site.
	Review your business continuity plan and update as needed, including employee contact information. If you do not have a business continuity plan, consider utilizing the Liberty Mutual Disaster Recovery and Business Continuity Plan Property Risk Management Guide to assist in developing one.
	Remind employees of key elements of your business continuity plan, including post-event communications procedures and work/payroll procedures. Make sure all employees have a paper copy of the plan.
	Ensure that post-event communications procedures discuss how employees will be notified when to return to work. (Local radio or TV station public service announcement, telephone call, employee intranet, etc.)
	Inspect all fire protection and life safety equipment.
	Provide diesel or gasoline-driven emergency generator on site with full tank of fuel and reserve fuel on hand. (High demand may make it difficult to obtain a generator. Advance arrangements and/or retainers may ensure availability.)
	Determine which company records are vital and make plans to protect/relocate them.
	Identify vulnerable and/or critical equipment and processes. Provide instructions for safely shutting down processes, data processing equipment, etc. Consider disconnecting and relocating critical equipment to higher elevations.
	Identify key equipment and stock that will need to be protected with tarpaulins or waterproof covers.
	Identify a hot site (an off-site data processing location for immediate business resumption) or a cold site (an off-site location ready for setup of your own data processing equipment). Also, consider an off-site business recovery facility where you can resume general business operations.
	Identify actions to take in the event of live electrical wires, leaking gas, flammable liquids, corrosive/toxic materials, and damage to foundations or underground piping.
	Evaluate the interdependency of your facilities and develop a contingency plan.
	Maintain ongoing agreements with contractors for supplies and repairs needed after a hurricane. When possible, use contractors who are outside potential hurricane areas, as local contractors may also have storm damage or local authorities' needs may be given a higher priority.

	Maintain emergency supplies throughout hurricane season. (Drinking water, nonperishable food, medical supplies, flashlights, batteries, walkie-talkies, portable pumps, hose, emergency lighting, lumber, plywood, nails, hand and power tools, plastic covers and tarpaulins, etc.)
	Maintain straps or other means on hand to brace/anchor yard storage, signs, cranes, and roof-mounted equipment.
	Inspect and repair roof flashings, coverings, drains, gutters, and edge strips. Remove debris and unrestrained materials from roofs.
	Inspect and maintain signs, stacks and tower supports, guy wires, and anchor points.
	Repair or replace loose or worn door and window latches, hardware, and seals.
	Provide prefitted hurricane shutters and/or plywood for windows and doorways where practical. If possible, install them in advance and leave them in place for the hurricane season.
	Prepare for hurricane-related flooding with sandbags and an ample supply of brooms, mops, squeegees, and other absorbents to help remove water.
	Trim or remove any large trees that could fall and damage buildings or impair fire protection or electrical power and communication lines, etc.
	Arrange for site security after a hurricane.
	Prepare space for inside storage of dumpsters, yard equipment, and yard stock.
	Evaluate approaches to your facility for bridges or other low-lying areas for emergency access and employee safe routes to return to work.
	Establish priority/backup personnel or rotation personnel for critical operations and/or processes. Employees may also have personal emergencies and may or may not be available to return to work promptly.

## Impending Hurricane Preparation

### Step 1: Inspection and Fortification of Facility

	Monitor and map the hurricane to keep current on the storm's progress.
	Implement the hurricane emergency action plan. Take specific actions at the predetermined times as outlined in the plan.
	Shut down operations that depend on outside power sources in an orderly manner, following established procedures.
	Ensure emergency supplies and equipment are on hand and ready for the on-site emergency action team.
	<ul style="list-style-type: none"> <li>■ Three-day supply of drinking water and nonperishable food</li> </ul>
	<ul style="list-style-type: none"> <li>■ Medical supplies/first-aid kits</li> </ul>
	<ul style="list-style-type: none"> <li>■ Flashlights and batteries</li> </ul>
	<ul style="list-style-type: none"> <li>■ Walkie-talkies and/or cell phones (with spare batteries)</li> </ul>
	<ul style="list-style-type: none"> <li>■ Portable pumps and hose</li> </ul>
	<ul style="list-style-type: none"> <li>■ Emergency lighting</li> </ul>
	<ul style="list-style-type: none"> <li>■ Lumber, plywood, nails</li> </ul>
	<ul style="list-style-type: none"> <li>■ Hand and power tools</li> </ul>
	<ul style="list-style-type: none"> <li>■ Plastic covers and tarpaulins</li> </ul>

	Obtain cash for post-hurricane needs such as buying food and supplies or paying employees and contractors.
	Protect and/or relocate vital records off site. Include blueprints, structural records, utility plans.
	Relocate water-sensitive equipment and materials to safe areas away from exterior doors and windows and off the floor.
	De-energize and cover computers, machinery, and stock with tarpaulins and waterproof covers.
	Check and clear floor drains.
	Isolate or remove any chemicals that can react violently with each other.
	Shut down gas-fired equipment and shut off main gas valves.
	Shut down all noncritical and nonessential electrical equipment.
	Disconnect the main electrical feeds to the facility, if possible.
	Inspect and make repairs to roof drains, gutters, and flashing.
	Secure roof-mounted equipment such as HVAC units and exhaust vents.
	Check guy wires on antennas, stacks, and towers.
	Remove TV and radio antennas and satellite dishes from the roof.
	Remove unrestrained materials from the roof.
	Close and latch exterior doors, windows, and roof hatches.
	Install hurricane shutters/plywood over doors and all windows. Where shutters cannot be installed, tape both sides of the glass to minimize damage from wind-driven rain and flying glass.
	Clean out storm drains, culverts, and catch basins.
	Fill all aboveground and underground tanks with product or water.
	Verify that all fire protection equipment is in service.
	Check/maintain all necessary backup equipment, such as emergency generators and communication systems/devices.
	Fill the fuel tanks of generators, fire pumps, and all company-owned vehicles.
	Conduct a yard inspection for unrestrained materials, specifically:
	<ul style="list-style-type: none"> <li>■ Remove loose yard debris.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Relocate nonessential yard equipment to a safe indoor location (furniture, trash receptacles, portable planters, portable signs, dumpsters, etc.).</li> </ul>
	<ul style="list-style-type: none"> <li>■ Relocate yard storage of raw and finished goods indoors or secure.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Secure yard storage of flammable liquids drums or move them to a safe location away from important buildings.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Anchor all portable buildings and trailers to the ground.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Secure scaffolds and cranes. Secure scaffolds to the building.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Fasten rail crane chassis to track with bolts and clamps.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Brace outdoor signs.</li> </ul>

	Notify key customers, suppliers, and partners of office/facility closing and contingency plans.
	Make decisions on when to excuse employees so that they have sufficient time to prepare their homes and families.
	Customize messages for business' website, telephone recording, employee intranet, etc.

## Procedures During a Hurricane

### Step 1: Immediate Actions

	Emergency personnel should stay at the facility only if safe to do so. Notify local authorities if personnel are staying on site.
	Keep names and phone numbers of your electrician, heating contractor, plumber, fire department, and building owner easily accessible.
	In an emergency situation, comply with all directions provided by authorities. Keep your first-aid kit available at all times.
	<ul style="list-style-type: none"> <li>■ Designate times for key staff members to call into conference calls for situation overviews.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Update employee emergency hotline and/or company intranet and website with posting on the status of the facility.</li> </ul>
	<ul style="list-style-type: none"> <li>■ When safe to do so, patrol the property continuously. Watch for roof leaks, pipe breakage, fire, or structural damage.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Constantly monitor any boilers that must remain online.</li> </ul>
	<ul style="list-style-type: none"> <li>■ During power failure, turn off electrical switches to prevent re-energizing of equipment until necessary checks are completed.</li> </ul>

## Post-Hurricane Procedures

### Step 1: Immediate Actions

	The devastation a hurricane leaves in its wake depends on the location, population density, and hurricane size. In the immediate aftermath of a hurricane, it is important to quickly and calmly assess the situation.
	Do not move seriously injured individuals. If high-rise buildings are in the general area, falling debris may make open areas more dangerous than remaining inside the buildings. Watch out for fallen power lines and broken gas lines.
	<ul style="list-style-type: none"> <li>■ Provide search and rescue personnel with last known location of any missing victim(s).</li> </ul>
	<ul style="list-style-type: none"> <li>■ Stay away from power lines, buildings, and any object that might fall.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Secure the site and provide watch service if necessary.</li> </ul>
	<ul style="list-style-type: none"> <li>■ Visually check for open bus bars, conductors, and exposed insulators before re-energizing electrical systems.</li> </ul>

## Step 2: Recovery Actions

Survey facilities for damage. If damage has occurred, contact the Liberty Mutual Claims Service Center at 800-362-0000 as soon as possible. Take photographs of the damage.

	Look for safety hazards such as live electrical wires, leaking gas, flammable liquids, corrosive/toxic materials, and damage to foundations or underground piping.
	Repair automatic sprinkler protection and/or water supplies to get protection back in service as soon as possible. Use Liberty Mutual Property Fire Protection Impairment Procedures whenever sprinkler protection and/or water supplies are impaired. Contact Liberty Mutual Property at 800-541-5224 to report impairments to fire protection systems or for assistance in restoring systems.
	Restore fire protection systems if necessary.
	Conduct two-inch main drain and alarm tests on automatic fire protection sprinkler systems to verify public water supply availability.
	Contact key personnel and notify contractors to start repairs. Control smoking and use hot work permits where applicable. Maintain fire-safe conditions at all times.
	Begin salvage as soon as possible to prevent further damage:
	<ul style="list-style-type: none"><li>■ Cover broken windows and torn roof coverings immediately.</li><li>■ Separate damaged goods.</li></ul>
	Clean roof drains and remove debris from roofs.
	Check refrigerated items for spoilage if there has been a power failure.
	Limit access to freezers and refrigerated areas during periods of interrupted electrical service to maintain the temperatures as long as possible.
	Notify key customers, suppliers, and partners of office/facility reopening and any necessary property or operational changes resulting from storm damage.
	Debrief on the successes and shortcomings of your emergency plan, compile a log of actions to be taken, and incorporate improvements.

## Hurricane Information

### What to Expect

The Saffir-Simpson Hurricane Scale is a measurement scale of hurricane wind and ocean surge intensity ranging from 1 to 5. Category 1 is a weak hurricane and Category 5 is the most intense.

**Category 1 Hurricane:** Very dangerous winds will produce some damage. Well-constructed frame homes could have damage to roof, shingles, vinyl siding, and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.

**Category 2 Hurricane:** Extremely dangerous winds will cause extensive damage. Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.

**Category 3 Hurricane:** Devastating damage will occur. Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.

**Category 4 Hurricane:** Catastrophic damage will occur. Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

**Category 5 Hurricane:** Catastrophic damage will occur. A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

	Damage	Wind Speeds	Pressures	Storm Surge
<b>Category</b>	<b>1. Light</b>	74–95 mph (119–153 km/hr)	>28.3 in (>980 mb)	4–5 ft (1.2–1.5 m)
	<b>2. Moderate</b>	96–110 mph (154–177 km/hr)	28.5–28.91 in (965–979 mb)	6–8 ft (1.8–2.4 m)
	<b>3. Extensive</b>	111–129 mph (178–208 km/hr)	27.91–28/49 in (945–964 mb)	9–12 ft (2.7–3.6 m)
	<b>4. Extreme</b>	130–156 mph (209–251 km/hr)	27.17–27.9 in (920-944mb)	13–18 ft (4–5.5 m)
	<b>5. Catastrophic</b>	>157 mph (>252 km/hr)	<27.17 in (<920 mb)	>18 (>5.5 m)

The Saffir-Simpson Classification System for Hurricanes

For More Information on Hurricanes

- National Weather Service: [www.weather.gov](http://www.weather.gov)
- FEMA: [www.fema.gov](http://www.fema.gov)
- Centers for Disease Control Hurricanes and Other Tropical Storms: <http://emergency.cdc.gov/disasters/hurricanes/index.asp>
- National Hurricane Center: <http://www.nhc.noaa.gov>