

Hurricane Preparedness: Wind and Flood

Lines of Business: Property, General Liability

Risk Control Strategy/Key Issues: Implemented controls to protect property from wind and high water resulting from a hurricane.

Suggested Program Elements:

HIGH WIND PREPAREDNESS: BUILDINGS AND GROUNDS

1. **Window Covering** - The 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 be protected with substantial hurricane shutters or covered with 5/8 inch plywood panels. Install hurricane shutters or purchase pre-cut 1/2" outdoor plywood boards for each window of your property. Install anchors for the plywood and pre-drill holes in the plywood so that you can put it up quickly.
2. **Jalousie Louvers** - Insert newspaper between louvers to prevent rain seepage.
3. **Screen Enclosures** - Remove panels as well as the aluminum door and panels.
4. **Sliding Glass Doors** - Brace by tapping wedges in the top track.
5. **French Doors** - Brace with 2 x 4s
6. **Ornamental Shutters** - Remove.
7. **Attic** - Remove valuable items and close the attic door.
8. **Roof Turbines** - Remove and install covers with screws, otherwise cover the turbines with plastic and tie down securely.
9. **Chimneys** - cover with caps.
10. **Plumbing Vent Stacks** - Plumbing vent stacks on the roof should not be closed. They allow sewer gases to escape.
11. **Gutters and Downspouts** - Gutters and downspouts should be cleaned out. Loose ones from outside should be gathered and brought inside.
12. **Dead Tree Branches and Coconuts** - Prune trees so the wind can blow through the branches without snapping them. Remove dead branches and coconuts. Make sure you securely store the debris. Make trees more wind resistant by removing diseased and damaged limbs, then strategically removing branches so that wind can blow through.
13. **Lock** - Lock all windows, exterior doors and gates.
14. **Water** - Turn off water at the meter to prevent contaminated water from entering the property.
15. **Outside Antenna** - Remove after disconnecting the television and the power source.
16. **Storage Shed** - Tie down with straps or thick rope using ground anchors. Lock door.
17. **Air Conditioning Units** - Wrap with plastic.
18. **Ponds / Swimming Pools** - Drain approximately one foot of water from the pool/pond (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 furniture in the pool (it can damage pool surfaces). Pool Pump / Fountain Motor should be wrapped with plastic.

19. **Fragile Objects** - Remove fragile objects from wall shelves. Store them in closets to safeguard them from the storm's vibrations.
20. **Faucets** - Check and close all faucets.
21. **Electrical Apparatuses** - Unplug all electrical appliances from wall outlets. Disconnect television antennas from the sets.
22. **Windows** - Close and lock all windows. Draw blinds, shades, and draperies. Place folded towels on the window sills to absorb leaking water.
23. **Patio Doors** - Wedge patio doors (at top if possible) so they cannot be torn off.
24. **Outdoor Furnishings** - Remove outdoor furniture, container plants and decorative objects from patios, terraces, verandahs, and porches. Store them inside so they will not become flying missiles.
25. **Generator** - Test the generator regularly, so it will be available for emergencies.
26. **Check all equipment for readiness** - fire extinguishers, first aid kits, tools, etc.
27. **Shutters** - Install shutters (commercial type, plywood or Masonite). Check fasteners to make sure they fit snugly against the wall.
28. **Garbage Can** - Scrubbed clean and dry out. Use for waterproofing items such as charcoal, cat litter, etc.

SUPPLEMENTAL PROPERTY PROTECTION INFORMATION FOR HURRICANE PREPAREDNESS
(also see *Flood Preparedness* document on Trident's Web site.)

Property Protection

The following steps should be taken to prepare an office or other type of building prior to the arrival of a hurricane.

1. Cover all glass windows and doors on at least the first floor, with shutters, paneling or other protective material such as plywood or Masonite. Tape windows to help prevent flying shattered glass. Draw curtains/shades to act as a barrier to broken glass. Do NOT open windows ever. Do not seek shelter in a room with windows.
2. Safeguard company records or make duplicates, and secure in a bank. Move important documents away from windows. Those on the first floor should be placed on tables or otherwise raised off the floor in the event the first floor becomes flooded by either increased tidal action or excessive rainfall. Use of large plastic bags will help protect items from water damage. It is advisable to have a supply of heavy sheeting, air conditioning duct tape and some sandbags set aside for securing first floor doorways against flood water.
3. Take before and after pictures of building to aid insurance or tax credit claims after storm.
4. Advise local law enforcement if the building will be empty of people or if security guards will be on site. If guards are to remain on site, their safety should be provided for. They should have adequate shelter, communications, food and water.
5. Shut down all incoming power, electric, gas and water lines. Before restoring service, check all utilities. If there is a question about the condition of the utilities, call the appropriate company.

6. Disconnect all electrical appliances and equipment, such as typewriters, copiers, coffee makers, electric clocks, calculators, etc., to prevent their being damaged due to blown transformers or excessive surge when electric power is restored.
7. Secure all vent hoods, exhaust louvers, etc., from wind and rain.
8. Service and test the building's emergency power generator under load to make sure it is operating. Check out all equipment, utilities, fire equipment and first aid materials and repair or replace faulty items as necessary.
9. Check drains on the roof of the building to ensure that they are clear and able to drain off the heavy rain which usually accompanies a hurricane. Clogged roof drains could cause the roof to collapse from weight of accumulated water, or cause damage to the interior of the building if water on the roof becomes deep enough to cover vent pipes and run down inside the building.
10. Secure or bring inside any potted plants or other decorative objects which could be blown about by the hurricane force winds.
11. Check storage yard for materials that might be blown around. Secure items that cannot be brought inside.
12. Dumpsters (large trash containers) can be secured by lashing two or more together with rope or chains and chocking the wheels. They might also be secured to a tree or telephone pole, if available.

ELEVATOR SAFETY PRECAUTIONS

The following steps should be taken prior to, during and after a hurricane emergency.

1. Clear out gutters, drains and downspouts to prevent an accumulation of rain water which may cascade to the floors below and find its way into the elevator shafts.
2. Elevators should not function during a hurricane emergency. Water may damage the machinery and passengers can become trapped in the cars. Telephones may be inoperative and elevator mechanics may be unable to handle emergencies due to flooded and unsafe roads.
3. When a hurricane approaches, park the elevator car at the top floor so that if an upper floor is flooded, the water will not fall on top of the car and damage its operating panel, door operator, electrical devices and wiring.
4. Pull the disconnect switches in the machine room and close and lock the door to prevent the elevator from operating during a hurricane. Water that may run down, or rising ground water may fill the elevator pit, causing electrical shortages and a shutdown if the elevator is left running.
5. Once the hurricane is over, check the elevator machine room, all electrical equipment, hoist ways and pits before starting the elevators. If water has affected any of these areas, have the equipment inspected before placing the elevators back in service.

Taking these precautions may prevent long elevator shutdowns, unnecessary repair expenses, inconvenience and personal injury.

VEHICLE PREPARATION

1. The best place for an automobile or a truck is in a garage or a carport. If a garage or carport is not available, the vehicle should be parked close to the building on the side away from the wind. Vans and semi-trailers are capable of being blown over if they are exposed to the full force of the winds.

2. Vehicles should not be parked near a tree that might fall or where power lines might fall. Vehicles should be kept from between houses located very close to one another since wind will probably funnel through this area.
3. Vehicles should be filled with a sufficient amount of fuel, preferably a full tank. Fuel might not be available for days after the hurricane strikes. Batteries should be fully charged, since dampness after the storm might make the vehicle harder to start. It is good to have the radio working since, in an extreme emergency, it may be the only source of information.
4. If a vehicle is located in the beach area, a covering should be placed over the windows to prevent blowing sand from pitting them. Use old blankets or double sheets and tape fully into place. Remember that any opening, no matter how small, will allow wind to get under covering and could be blown away. Remove tape immediately after the storm to avoid leaving marks on the vehicle.

HURRICANE CATEGORIES

Category 1: Winds of 74-95 miles per hour.

Damage primarily to shrubbery, trees, and unanchored mobile homes. No real 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 2: Winds of 96-110 miles per hour.

Considerable damage to shrubbery 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; and some window and door damage. No major damage to buildings. Coastal roads and low-lying escape routes inland cut by rising water two-four hours before arrival of the hurricane's center. Considerable damage to piers. Marinas flooded and small craft in unprotected anchorages torn from moorings.

Category 3: Winds of 111-130 miles per hour.

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; and some structural damage to small buildings. Mobile homes destroyed. Serious flooding at coast and many smaller structures near coast destroyed; low-lying escape routes inland cut by rising water three-five hours before the hurricane's center arrives.

Category 4: Winds of 131-155 miles per hour.

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.

Category 5: Winds greater than 155 miles per hour.

Shrubs and trees blown down; considerable damage to roofs of buildings; all signs down; very severe and extensive damage to windows and doors; complete failure of roofs on many residences and industrial buildings; extensive shattering of glass in windows and doors; some complete building failures; small buildings overturned or blown away and complete destruction of mobile homes. Low-lying escape routes inland cut by rising water three-five hours before the hurricane's center arrives.

Program Activities Calendar:

- Annual program review
- Annual training for response personnel
- Quarterly exposure evaluation

Web Site Links:

- Federal Emergency Management Agency
<http://www.fema.gov>
- Disaster Resource Guide
<http://www.disaster-resource.com>
- Disaster Recovery Journal
<http://drj.com>
- Public Risk Management Association
<http://www.primacentral.org/>

References:

See other Trident Operational Policies & Procedures:

- Emergency Preparedness Procedures
- Flood Preparedness
- Building Utilization
- Weather Catastrophes
- Self Inspection Program

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