Flood action plan

Property risk management guide

from Liberty Mutual Insurance

Survey facilities for damage. If damage has occurred, take photographs of the damage and contact the Liberty Mutual Claims Service Center as soon as possible.

- **Small business customers:** 1-844-325-2467 (1-844-3-CLAIMS)
- **Mid/large business customers:** 1-800-362-0000

Flooding can occur almost anywhere due to elements such as heavy, continuous rainfall, blocked storm drains, excessive amounts of melting snow, or saturated ground.

Developing a flood emergency response plan can help minimize your flood loss potential.

Types of flooding include:

- Rivers and coastal flooding caused by overflow of inland or tidal waters
- Surface water flooding due to temporary oversaturation of land

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Riverine and coastal flood-prone areas are likely to be adjacent to a body of water that may overflow under adverse conditions. The Federal Emergency Management Agency (FEMA) defines flood zones given the varying levels of flood risk in a geographical area by issuing Flood Insurance Rate Maps (FIRMs). These maps indicate areas that may be subject to 100- or 500-year events.

- The 100-year event areas are defined as having a one percent annual chance of flooding each year and will likely have a base flood elevation (BFE) determined.
- The 500–year event areas are defined as having 0.2 percent chance of flooding each year.

It is important to note that if your facility is within a 100- or 500-year flood area, it does *not* mean that your facility will experience flooding once every 100 or 500 years (respectively). For example, Hurricane Matthew (a 1,000-year event) and Hurricane Floyd (a 500-year event) occurred within 20 years of each other causing extensive damage to the state of North Carolina.

As climate continues to change, flooding events are anticipated to increase in frequency and intensity. Therefore, it is important to properly evaluate your flooding risk on a periodic basis because flooding elevations and frequencies change over time.

Unlike riverine and coastal flood zones, areas subject to surface water flooding are not defined. It is important to be aware of topographic features surrounding your facility that may allow water to accumulate and potentially enter your building.

Develop a plan

The most effective approach to minimizing your flood loss potential is to develop a Flood Emergency Response Plan to protect your business. Evaluate how a flood will affect your operations, equipment, and materials, and determine how long your business could potentially be shut down.

Start by determining the following:

- Whether your facility is located within or adjacent to a flood zone or subject to surface water flooding
- Your expected Base Flood Elevation (refer to FIRMs or Flood Insurance Studies from FEMA or another accurate source)
- The elevation of your lowest level floor, also known as your finished floor elevation
- Whether there are basements or below-grade spaces and any critical equipment or supplies in this area

Pre-flood preparation

Identify where and to what extent your facility is vulnerable, and develop action plans accordingly.

Identify which outside vendors and repair services you will need to restore your operation after a flood. You may need to go outside your local area to find services that will not be affected by the same flood as your facility.

Flood emergency kit

- First aid kit: Include prescription medications, over-the-counter painkillers, rubbing alcohol, eye wash kit, and vomit-inducing medicine in case of accidental poisoning.
- Nonperishable food and water for those who remain on site: three-day supply
- Hand and power tools
- Low pressure, high volume, gasoline-fueled pumps to remove flood water
- Two-way radios or cell phones (with spare batteries)
- Flashlights, lanterns, and batteries
- Fuel supplies for generators, pumps and vehicles
- Emergency medical supplies
- Blankets and extra clothing
- Lumber, plywood, and hardware for emergency repairs
- Sand, sandbags, mops, brooms, squeegees, and other water absorbents.
- Whistles: Can be used to signal and direct attention during and after a flood
- Have all employee, vendor, and client contact information on hand
- Protect or relocate vital records offsite. Include business and customer records, utility plans, etc.

Inspect and fortify your facility

- Install manually-operated valves on sewage disposal lines and drainage lines to prevent reverse flow from entering the facility.
- Consult with local flood management authorities to determine what factors in the area are likely to produce flooding and how much warning you are likely to have.

- Appoint one or more employees to monitor the weather forecast and flood stages on nearby sources of flooding.
- Identify personnel who are willing to remain on site to prepare the facility for an expected flood.
- Identify and become familiar with local and facility-specific emergency evacuation plans if flooding leads to unsafe conditions.
- Consider providing flood barriers or shields for openings lower than or within two feet above the expected flood depth.
- Protect vital equipment that is located on the ground floor with low, watertight walls.
- Reinforce anchorage of all tanks so they will not float or be carried away by flood currents.
- Permanently move to a safe location any water-reactive chemicals that are stored below expected flood depths.
- Ensure the contingency plan is up to date in case might disrupt production or other business operations.
- Perform annual training, using a table-top exercise approach.

During the flood warning period

- Move vital business records, equipment, and materials that might become hazardous when wet to a safe place — either to another location or to floors above the expected flood level.
- Coat stationary equipment that may be exposed to flood waters with a rust preventative to limit corrosion.
- Seal the building to keep water out if that is part of the pre-flood plan.
- Install flood barriers or place sandbags as indicated in the preplan. Sandbags, as opposed to permanent flood protection, should be considered as last resort solution, and must be installed properly to be effective. (More information can be found in the U.S. Army Corps of Engineers document: https://www.nws.usace.army.mil/Portals/27/docs/emergency/NWD_Sandbag_Pamphlet.pdf)

- Close the main gas valve to prevent gas leakage.
- Close valves in piping carrying flammable or hazardous materials.
- Move mobile equipment to high ground.
- Anchor or weigh down buoyant materials that cannot be moved to prevent them from floating and battering the building.

- Shut down boilers and furnaces in enough time for the fireboxes to cool. Water entering a hot firebox can cause damage to the refractory or other parts of the equipment that have elevated temperatures.
- Shut off electricity
- Close valves in sewage disposal and drainage piping.
- Ensure pumps are in working condition.
- Maintain power to fire protection equipment, DO NOT impair.

Post-flood procedures

- Assess damage and notify all critical people (management, contractors, etc.) of next steps.
- Ensure the building is structurally sound.
- Refrain from using open flames until the gas service is restored.
- If gas is detected, evacuate the building and let professionals find and repair leaks.
- Ensure fire protection is active before beginning salvage operations.
- Remove mud and silt from the building and equipment to minimize further damage.
- Remove standing water so it will not add moisture to the building.
- Start fans and ventilation systems to begin the drying process.
- Remove debris, which is often combustible, from within and around the building.
- Direct salvage efforts toward the equipment identified in your Preplan.
- Replace any building wiring that was submerged.
- Salvage potential for computers, electronic, and mechanical equipment is high if they are cleaned promptly with fresh water and then carefully dried. This should be done by a professional salvage company.
- Inspect boilers, furnaces, and ovens.

Additional resources

FEMA.gov. www.fema.gov/emergency-planning-exercises

National Severe Storms Laboratory (NSSL/NOAA.gov).

UL 2218, *Impact resistance of prepared roof covering material.*

U.S. Army Corps of Engineers. www.nws.usace.army.mil/Portals/27/docs/emergency/NWD_Sandbag_Pamphlet.pdf

Emergency Contacts

Insurance Agent/Broker	*Building Owner*
HVAC Contractor	*Electrician*
Plumber	*Other*

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