



Making sense of risk

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# Flood action plan

Asia Pacific



Organisations and individuals are likely to face natural and manmade catastrophe at some stage. It is therefore crucial to have a plan well in advance of emergencies, in order to protect you, your employees and your customers from personal injury and your business from damage and protracted downtime.

A flood, by definition, is merely water where it is not wanted; specifically, it involves the "partial or complete inundation of normally dry areas from the overflow of inland or tidal waters from the unusual and rapid accumulation or runoff of surface water". Floods can be devastating, and may cause those affected to lose their home, property, pets, or even their lives. Floods and flash floods are among the most common types of natural disasters, so advance preparation is a priority for responsible business managers and owners.

This action plan is intended as a guide to help business owners and managers prepare in advance their business, premises and employees for a flood, in order to minimise the risk of personal injury and damage to property, and to reduce business interruption.

An effective [Flood action plan](#) should include the following:

- Full support of senior management;
- A well-stocked **Flood emergency kit** (as discussed below);
- Readily available emergency contact numbers, *both in the kit and backed up offsite*;
- Copies of all employee, supplier and client contact information backed up offsite;
- Copies of vital records, including business and customer records, blueprints, structural records and utility service plans backed up offsite;
- Preparations to make and precautions to be taken before, during and after a flood (as discussed below);

- A designated onsite **Emergency Action Team**;
- The appointment of an **Action Plan Leader** for the **Emergency Action Team** responsible for ensuring the preparations are carried out and precautions are taken, and for maintaining the **Flood emergency kit**; and
- The appointment of a second person responsible for monitoring the situation (the **Flood/Weather Monitor**) and keeping the **Action Plan Leader** up to date before, during and after the flood.

## Action Plan Leader

Appoint an **Action Plan Leader** with sufficient authority to lead the **Emergency Action Team** and take responsibility for implementing and overseeing the action plan. The **Action Plan Leader** should have a thorough understanding of the operations, critical processes, special hazards and protection systems of the business.

The **Action Plan Leader** should have access to and be responsible for maintaining the **Flood emergency kit**.



## Flood emergency kit

A well-stocked **Flood emergency kit** forms part of the essential advance planning for flooding events. The **Action Plan Leader** is responsible for maintaining the kit, which should contain the following:

- A copy of the [Flood emergency kit checklist](#)
- Contact details for police, fire and emergency services; **Action Plan Leader**; **Emergency Action Team** members, including a **Flood/Weather Monitor**; plumber; electrician; heating/ventilation/air conditioning (HVAC) contractor; building owner; senior management; suppliers; and your insurance broker
- A copy of this document ([Flood action plan](#)), for reference
- Instructions for the safe shut down of vulnerable and/or critical processes
- Emergency supplies, as detailed in the [Flood emergency kit checklist](#).

## Pre-flood procedure

### Secure supplies and information

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Appoint an **Action Plan Leader** and Flood/Weather Monitor

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Establish and maintain a well-stocked **Earthquake emergency kit** (using the Liberty [kit checklist](#) as a guide).

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Contact local flood management authorities to determine what factors in the area are likely to encourage flooding, and how much warning you are likely to have. Plan and coordinate activities before an emergency situation, to ensure that both parties are prepared.

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Review your business continuity plan and update it as necessary, to include current employee contact details. If you do not have a current Business Continuity Plan, consider using the Liberty [Disaster recovery and business continuity plan](#) guide to help you develop one.

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Remind personnel of the key elements of the business continuity plan, including post-flood communications procedures and work/payroll procedures, and ensure that all employees have a hard copy of the plan.

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Identify priority and backup personnel or rotation personnel for critical operations and/or processes. Be aware that employees may also have personal emergencies and may not be able to return to work promptly.

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Determine which company records are vital and make plans to protect or relocate them to an offsite location or floors above expected flood level.

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Maintain an offsite inventory of all equipment and assets in case of damage.

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Identify vulnerable and/or critical equipment and processes. Provide instructions for the safe shut down of these processes and data processing equipment, and ensure the instructions are in the **Flood emergency kit**. Consider disconnecting and relocating critical equipment to a higher elevation.

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Identify a *hot site* (an offsite data processing location for immediate business resumption) or a *cold site* (an offsite location ready for setup of your own data processing equipment). Also, consider an offsite business recovery facility where general business operations can be resumed.

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Evaluate the interdependency of your facilities and develop a contingency plan.

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Maintain ongoing agreements with contractors for supplies and repairs that will be needed after the flood. If possible, use contractors who are based outside the potential flood area, since local contractors may themselves be hampered by flooding or the needs of local authorities may be of higher priority.

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Arrange for post-flood site security.

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Prepare messages for the website, telephone recording and employee intranet ready to be customised when the need arises.

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## Inspection and fortification of the facility

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Inspect all fire protection and safety equipment.

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Identify any chemicals that could react with water and be prepared to permanently relocate them above expected flood levels.

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Identify and relocate key equipment and stock that needs to be protected from water or that may become hazardous when wet to an offsite location or floors above expected flood level.

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Protect vital ground-floor equipment with low, watertight walls.

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Coat stationary equipment that may be exposed to floodwaters with rust preventative to limit corrosion.

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Identify main gas valve and valves of piping carrying flammable or hazardous materials.

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Install manually operated valves on sewage disposal lines and drainage lines to prevent reverse flow from entering the facility.

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## Impending flood procedure

### Secure supplies and information

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Tune to your local radio/TV station to monitor the flood situation and warnings. (Refer to the Liberty [Flood - Background information](#) document.)

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Access the **Flood emergency kit** and, using the Liberty [kit checklist](#) as a guide, ensure it is well stocked and available for the onsite **Emergency Action Team**.

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Obtain cash for post-storm needs, such as buying food and supplies or paying employees and contractors. Credit cards may not work during a power failure.

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Protect and or relocate or backup offsite vital records, including business and customer records, blueprints, structural records and utility service plans.

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Customise previously prepared messages for the website, telephone recording and employee intranet to notify customers, suppliers and partners of office/facility closure and contingency plans during closure. Consider redirecting phone calls to a mobile phone or answering service if evacuation is necessary.

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## Inspection and fortification of the facility

Shut down all noncritical and nonessential electrical equipment and operations that depend on outside power sources in an orderly manner following established procedures.

Seal the building to keep water out if possible.

Install flood barriers or place sandbags if possible.

Close the main gas valve to prevent gas leakage.

Close valves in piping carrying flammable or hazardous materials.

Verify that all fire protection equipment is in service.

Maintain automatic sprinkler protection in idle buildings; promptly restore impaired protection systems and notify the fire and emergency services if there are any issues.

Provide an emergency generator (diesel or petrol) on site. (In a crisis, high demand may make it difficult to obtain a generator.)

Inspect and test all necessary backup equipment, such as emergency generators and communication systems.

Prepare for flooding with sandbags and an ample supply of buckets, brooms, mops, squeegees and other absorbents to help remove the water. Fill extra sandbags for emergency use at openings that may have been overlooked.

Evaluate approaches to your facility for low bridges or other potential impediments to emergency access, and determine safe routes for employees returning to work.

Relocate water-sensitive equipment and materials to safe areas off the floor.

Unplug computers and relocate above expected flood levels.

Verify that any chemicals that could react with water have been relocated above expected flood levels.

Check and clear floor drains, and ensure that pumps are in working condition.

Disconnect the main electrical feeds to the facility, if possible.

Fill the fuel tanks of generators, fire pumps, and all company-owned vehicles.

Reinforce the anchorage of all tanks, so that they will not float or be carried away by floodwaters.

Ensure that heating and heat-producing process equipment is in good condition and operational.

Anchor and weigh down buoyant materials that cannot be relocated to prevent them from floating and damaging the building.

Shut down boilers and furnaces allowing enough time for their fireboxes to cool. (Water entering a hot firebox can cause damage to the refractory or other parts that have elevated temperatures.)

Close and latch exterior doors, windows, roof hatches and skylights.

Close valves in sewage disposal and drainage piping.

Shut off electricity.

Evacuate if necessary and if advised to do so by the local authorities, *allowing sufficient time for employees to prepare their families and homes.*

## Procedures during a flood

### Immediate actions

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Ensure that the **Flood emergency kit** is close at hand.

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Comply with the instructions provided by local authorities. Evacuate the premises immediately if advised to do so by the authorities. Refer to the section **Evacuation procedures**.

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Designate times for key staff members to call into conference calls for situation overviews.

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Turn off electrical switches during power failure, to prevent any equipment powering up before the necessary safety checks have been completed.

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### Ongoing actions

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Monitor and continue to ensure employee and customer safety.

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Be aware of indoor safety. If backup power is needed, do not use an electric generator indoors, inside a garage or near building air intakes, because of the risk of carbon monoxide poisoning.

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Do not store petrol inside, where fumes could ignite.

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Use individual, heavy-duty outdoor-rated electrical cords to plug in other appliances.

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## Post-flood procedures

### Immediate actions

The damage left in the wake of a flood depends on its location, the population density, and the level reached by the floodwaters. In the immediate aftermath of the flood, it is important to make a quick and calm assessment of the situation.

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Contact emergency services if necessary, but avoid making unnecessary phone calls.

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If you evacuated earlier, do not return until advised to do so, and then use a recommended route and do not rush.

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Do not move seriously injured individuals.

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Determine how best to aid those with special needs, such as the disabled, elderly or pregnant women.

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Beware of falling debris from high-rise buildings which may make open areas more dangerous than remaining indoors.

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Watch out for fallen power lines and broken gas lines.

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Once outside, stay away from power lines, buildings and any object that may fall.

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Check for open busbars, conductors and exposed insulators before powering up electrical systems.

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Provide search and rescue services with the last known location of any missing people.

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Secure the site and provide a security watch if necessary.

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## Recovery actions

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Survey the facility for damage. If damage has occurred, contact your broker as soon as possible, and they will liaise with Liberty on your behalf. Take photographs of the damage.

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Look for safety hazards, such as live electrical wires, leaking gas, flammable liquids, corrosive or toxic materials, and damage to foundations or underground piping.

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Restore impaired automatic sprinkler protection and/or water supplies as soon as possible and conduct main drain and alarm tests to verify water supply. (Refer to the Liberty [Fire protection impairment programme](#) guide.)

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Contact your insurance broker, who will liaise with Liberty on your behalf, to keep them abreast of the fire protection impairment and repair status.

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Assess the damage and contact key personnel and contractors to notify them of the next steps.

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Maintain fire safe procedures at all times, control smoking and use hot work permits where applicable. (Refer to the Liberty [Minimising hot work fire risks](#) guide and [Hot work permit](#).)

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Begin salvage operations as soon as possible to prevent further damage as follows:

- Remove standing water so it will not add moisture to the building.
  - Start fans and ventilation systems to begin the drying process.
  - Replace any wiring that was submerged.
  - Remove mud and silt from the building and from equipment to minimise further damage.
  - Clean mechanical equipment promptly with fresh water and dry carefully to maximise the salvage potential. Cleaning of delicate equipment, particularly electronics, is best done by a professional salvage company.
  - Cover broken windows and damaged roof coverings.
  - Separate damaged goods.
  - Clean gutters and remove debris from roofs.
  - Check refrigerators/refrigerated areas after a power failure and discard spoiled items.
  - Limit access to freezers and refrigerated areas during periods of interrupted power to maintain temperatures as long as possible.
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Notify key customers, suppliers and partners of the office/facility reopening and any property or operational changes resulting from flood damage.

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Update the message on the website, telephone recording and employee intranet with the current status of the facility.

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Debrief key personnel on the successes and shortcomings of the emergency action plan, compile a log of actions to be taken, and incorporate improvements for next time.

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<http://www.ga.gov.au/scientific-topics/hazards/flood>

## Evacuation procedures after a flood

**If instructed by the authorities to evacuate, take the Flood emergency kit, lock the premises and choose a route away from the flood area.**

### On foot

- Do not walk through moving water – 15cm of water can make you fall. If you have to walk in water, walk where water is not moving, and use a stick to check the firmness of the ground ahead of you.
- Do not camp along streams, rivers or creeks, particularly during threatening conditions.

### In a vehicle

- Do not drive into flooded areas. If floodwaters rise round your car, you and your car could be swept away. Abandon the car and move to higher ground if you can do so safely.
- 15cm of water will reach the bottom of most passenger vehicles, causing loss of control and possible stalling of the engine.
- 30cm of water will float many vehicles.
- 60cm of rushing water can carry away most vehicles, including sport utility vehicles (SUVs) and utility vehicles.
- Do not attempt to drive through a flooded road: the depth of the water is not always obvious; the roadbed may be washed out under the water; and you could be stranded or trapped.
- Do not drive around a barricade – they are there for your protection.
- Do not try to take shortcuts, as they may be blocked. Stay on designated evacuation routes.
- Be especially cautious driving at night, when it is harder to recognise and assess flood dangers.
- Do not park your vehicle along streams, rivers or creeks, particularly during threatening conditions.