

# Biological Hazards

## Flood Clean-up

### On this page

[Are floods harmful?](#)

[Why is it important to clean up after an area has been flooded?](#)

[What are more safety measures to follow when cleaning up after a flood?](#)

[What types of personal protective equipment are needed?](#)

[What are some hazards associated with cleaning flood damage?](#)

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## Are floods harmful?

Floodwater can be a drowning hazard. When possible, wait until the flood has receded. Always follow warnings about flooded areas and roads. Do not walk, swim, or drive in flooded areas.

Do not enter a flooded area if:

- the authorities have closed the area
- the building has collapsed or its foundation is damaged
- the main electrical switch is on

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## Why is it important to clean up after an area has been flooded?

After a flood, it is important to restore the area to protect your health and prevent further damage. If standing water or water-damaged materials are not cleaned and dried (or removed), they can present serious long-term health risks and allow viruses, bacteria, and mould to grow, which can cause disease, trigger allergic reactions, and continue to damage materials and health long after the flood.

What are some steps to take after a flood has occurred? Rapid drying is important to prevent mould growth. Please see the OSH Answers document "[Indoor Air Quality - Moulds and Fungi](#)" for more information.

As soon as it is safe to do so:

1) Prepare for the clean-up and assemble the following equipment and supplies

- Personal protective equipment (e.g., disposable gloves, suit, respirator, goggles).
- Pails, mops, sponges.
- Garbage bags.
- Soap or detergent.
- Extension cords, pumps, wet/dry vacuums, and dehumidifiers.

2) Removal of water, mud, and other debris

- Always assume the flood water is contaminated with sewage and chemicals.
- Wear gloves to protect your hands. Floodwater may also contain sharp items like glass, wood, or metal.
- Remove standing water with pumps or pails.
- Use a wet/dry vacuum to remove the remaining water.
- Remove all soaked and dirty materials, debris, mud, and soil.
- Clean any dirt on walls and furnishings with a soap solution, removing the remaining water again with a wet/dry vacuum.

3) Dispose of contaminated items that cannot be dried

- Flooring that has been soaked by flood water should be removed and discarded.
- Dispose of all insulation materials, drywall (plaster/gypsum/Sheetrock®), carpets, wood, particleboard and fabric-based furniture, mattresses, box springs, stuffed toys, pillows, cushions, and furniture coverings that have been exposed to flood water and cannot be thoroughly cleaned and dried, especially if the items were wet or humid for 48 hours or more.
- Identify the materials that may be cleaned thoroughly and kept (e.g., items with hard surfaces).
- Important items (documents or textiles) can be frozen until there is the opportunity to clean them properly.
- Do not eat any food that has been exposed to water or debris.

4) Clean and dry affected areas and salvageable items

- Surfaces that are dry or have not been directly affected by the flood water should be vacuumed with a High-Efficiency Particulate Air (HEPA) vacuum cleaner.

- After cleaning the surfaces with a soap solution, ventilate or dehumidify the item and building until it is dry.
  - Flush all water lines thoroughly.
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## What are more safety measures to follow when cleaning up after a flood?

- Do not enter a flooded area if you do not have to. If you do:
    - Shut the electricity off to the flooded area at the breaker box. Call an electrician if you must stand in water to access the breaker box.
    - Wear rubber boots when standing in water.
    - Keep extension cords out of the water.
  - Make sure other utilities to the area, including natural gas and propane tanks, are shut off.
  - If using fuel-powered equipment (such as a generator), use the equipment outdoors. Carbon monoxide can build up quickly in poorly ventilated areas.
  - Discard items according to local regulations.
  - Open windows and doors to provide fresh air, if possible.
  - Use safe [lifting](#) and [shovelling](#) techniques.
  - If you have an open wound or rash, these injuries can become infected when exposed to floodwater. Avoid floodwater, or make sure that your wound is clean and covered with a waterproof bandage. Clean wounds with soap and clean water, alcohol, or sanitizer. Seek medical care if your wound becomes infected.
  - Have appliances, electrical systems, natural or propane gas systems, and the heating, ventilating, and air-conditioning systems serviced by a qualified professional before use.
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## What types of personal protective equipment are needed?

For most work in flooded areas, the following personal protective equipment are recommended:

- [Hard hat](#)
  - [Goggles](#)
  - [Gloves](#) - disposable or rubber
  - [Boots](#)
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- [Hearing protective devices](#)
- [Respirator](#) - N95 or more protective.

If cleaning after a flood is part of your work, your workplace should develop and implement a [personal protective equipment program](#). A good comprehensive strategy considers the hazards, conducts a [risk assessment](#), evaluates all possible control methods, integrates various approaches, and re-examines the controls frequently to make sure that the hazard continues to be controlled.

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## What are some hazards associated with cleaning flood damage?

**Flood Water:** Flood water may have high levels of raw sewage, infectious agents, chemicals, or other hazardous substances. Early symptoms from exposure to contaminated flood water may include upset stomach, intestinal problems, headache and other flu-like discomfort. Avoid or limit direct contact with contaminated flood water by wearing the appropriate personal protective equipment, [washing hands](#) frequently with soap and clean water, reporting and keeping dry any cuts or open wounds, and reporting any symptoms of illness.

**Cleaning Products:** The clean-up process involves thorough washing and disinfecting of the walls, floors, closets, shelves, and contents of the house. In most cases, common household cleaning products and disinfectants are appropriate for this task. Some disinfectants and sanitizers may contain toxic substances. It is important to read and follow label instructions carefully to check for mixing. Mixing certain types of products can produce toxic fumes. Some resources will recommend cleaning with bleach. While bleach is an effective disinfectant, it must be used with care. See the OSH Answers document "[Working with Household/Chlorine Bleach](#)" for more information.

**Carbon Monoxide Poisoning:** [Carbon monoxide](#) levels can build up rapidly if certain types of combustion devices (for example, gasoline-powered generators, camp stoves and lanterns, or charcoal-burning devices) are used indoors. Do not use combustion devices designed for outdoor use indoors.

**Asbestos:** Elevated concentrations of airborne [asbestos](#) can occur if asbestos-containing materials present in the building are disturbed.

**Lead:** Disturbance or removal of materials containing lead-based paint may result in elevated concentrations of [lead](#) dust in the air.

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