

Workplace health and safety after a flood

OHS information for employers, supervisors and workers

This bulletin outlines some of the hazards that can be introduced as a result of a flood and ways to address those hazards.

KEY INFORMATION

- A flood can introduce new hazards into formerly safe work sites.
- Conduct a hazard assessment before entering a building after a flood.
- Workers must have appropriate personal protective equipment (PPE) to do their jobs.

Responsibilities

Employers must protect their workers and other individuals at, or in the vicinity of, the work site from potential hazards. Supervisors must tell workers under their supervision about all known or possible hazards in the work area. And workers must take reasonable care to protect the health and safety of themselves and others in the vicinity of the work site. These responsibilities are all important to bear in mind during a response to a flood.

For more information on work site parties' legal OHS responsibilities, see [Guide to OHS: Employers](#), [Guide to OHS: Supervisors](#), and [Guide to OHS: Workers](#).

A flood may be part of a local emergency and subject to *Public Health Act* orders and directives, as well as *Emergency Management Act* directives and evacuation orders. Employers must follow all such orders and directives, and ensure that remedial work on buildings or work sites does not begin until public officials authorize it.

Protecting workers

Employers must perform a hazard assessment before entering a work site after a flood. Read [Hazard assessment and control: a handbook for Alberta employers and workers](#) for more information.

In addition, employers and supervisors must ensure workers wear the appropriate personal protective equipment. This may include:

- Respiratory equipment to protect from exposure to particulate matter and chemical vapours. Ensure the equipment is appropriate for the job and fitted properly. See [Respiratory Protective Equipment: An Employer's Guide](#) for more information.
- Chemical, cut- and puncture-resistant gloves.
- Steel-toed rubber boots.
- Disposable clothing.
- Protective eyewear.

Employers must ensure workers can decontaminate themselves, their protective equipment, tools and other equipment.

Eating, drinking and smoking in the work area should be prohibited. A separate area for these activities after workers decontaminate should be designated.

Unsafe work

Workers have the right to refuse work if they reasonably believe there is an undue hazard at the work site or that particular work poses an undue hazard to themselves or others. An undue hazard is a serious and immediate threat to health and safety that the refusing worker actually observes or experiences at their work site.

Workers also have a responsibility under section 5(e) of the *OHS Act* to report concerns about unsafe or harmful work site acts or conditions to the employer or supervisor. Under section 5(a) of the *OHS Act*, workers must use reasonable care to protect their own health and safety while they are working, as well as that of anyone else at or near the work site. This obligation may require that the worker does not perform the work. To learn more, see [Right to refuse dangerous work](#).

Building structure

Before entering a building, the building structure must be assessed. Depending on the nature of the damage, this assessment must be completed by a competent person who is trained, qualified and experienced. Consider:

- The integrity of the building envelope.
- Any live energy sources that could become electrical hazards.

- Submerged openings (for example, holes in floors, uncovered manholes, damaged stairways).
- Areas of standing water that could present a drowning hazard.
- Newly formed confined spaces or restricted spaces.
- Debris causing unstable surfaces and tripping or slipping hazards.
- Newly exposed asbestos-containing materials.

If workers are conducting demolition or renovation activities, the employer must ensure these activities themselves don't compromise building integrity.

- The employer should consult a structural engineer to assess the building before allowing anyone to enter.

Electrical hazards

The employer must ensure all electrical hazards are controlled before power is restored to a building after a flood.

- Use ground fault circuit interrupters if there are areas of standing water that cannot be pumped out before beginning work where electrical equipment is required.

Downed power lines are also a potential hazard after a flood.

- Assume all power lines are still energized.
- Remember water and objects in contact with power lines can carry electricity.

Carbon monoxide

During flood response and cleanup, fuel-powered generators and equipment may be used, particularly in structures with no power. Carbon monoxide (CO) is generated from burning fuels such as gasoline and diesel. Because it is a colourless, odourless gas and is not irritating, workers may be unaware they have been exposed. Signs of CO exposure can include impaired judgement, headaches, nausea, dizziness and fainting.

- Only use fuel-powered fans, heaters and electricity generators in well-ventilated spaces.
- Open windows and doors.
- Make sure all workers are trained on the signs and symptoms of CO exposure as well as the controls to prevent exposure.

See [Carbon Monoxide at the Work Site](#) to learn more.

Contaminated water

Flood water often becomes contaminated with a variety of biological contaminants. Some are normal contaminants from bodies of water and some are from sewage. Sewage

can contain microorganisms that can cause diseases like hepatitis, gastroenteritis and tetanus. Assume all flood water is contaminated.

- Avoid direct contact with items that have been in contact with floodwater.
- Wear appropriate personal protective equipment: cut- and puncture-resistant gloves that provide protection from chemical hazards, steel-toed rubber boots, protective eyewear and clothing that is easy to clean or disposable.
- Follow good workplace hygiene practices: clean hands and face before eating, drinking, smoking or touching clean surfaces. Properly decontaminate tools and equipment (including personal protective equipment).

Mould

Mould growth can start within 24 to 48 hours of material becoming wet. Exposure to mould can result in irritation to the eyes, skin or respiratory tract. Most healthy people have little or no reaction when exposed to mould.

If mould contamination is suspected, dry and clean the contaminated materials if it is possible to do so, otherwise remove and replace. Guidelines for responding to clean water damage to prevent mould growth are provided at the end of this bulletin.

To learn more about mould at the workplace, see [Mould in the workplace](#) and [Best Practices: Mould at the Work Site](#).

Asbestos

If a structure was built before 1990, asbestos-containing materials could be present. It is not possible to visually confirm if a structure contains asbestos; a proper survey, including an analysis of building material samples, must be completed before renovation or demolition activities begin. This may not be possible for a building that is structurally compromised. When in doubt, assume asbestos is present unless you have information (for example, previous building sampling results) that confirms it is not.

- Remove, enclose or encapsulate any asbestos-containing materials in the renovation area before starting a renovation.
- Remove all asbestos-containing materials prior to starting demolition projects.

Any building materials with the potential to release asbestos fibres must be removed prior to demolition. If the asbestos-containing materials cannot be removed, an acceptance to section 34 of the OHS Code is required.



See the [Alberta Asbestos Abatement Manual](#) for guidance on how to assess and abate asbestos.

Confined or restricted space

The danger of a hazard can be higher in a confined or restricted space.

A restricted space can be seen as an enclosed or partially enclosed space, not designed or intended for continuous human occupancy that has a restricted access or egress. It can be thought of as a work area in which the only hazard is the difficulty of getting into or out of the space – with all other hazards controlled or eliminated in accordance with Part 2 of the OHS Code.

A confined space is a restricted space which may become hazardous to a worker entering it because of (a) an atmosphere that is or may be injurious by reason of oxygen deficiency or enrichment, flammability, explosivity or toxicity, (b) a condition or changing set of circumstances within the space that presents a potential for injury or illness, or (c) the potential or inherent characteristics of an activity that can produce adverse or harmful consequences within the space.

Though all restricted space requirements apply to confined spaces, not all confined space requirements apply to restricted spaces. Common hazards in confined spaces include exposure to toxic or flammable gases and chemicals, low oxygen, structural deficiencies and working alone. Some suggestions to control hazards in confined spaces include:

- Always conduct a hazard assessment and test air quality before entering a confined space.
- Provide adequate ventilation.
- Remove all liquids from the space.

For more information on working in confined spaces, see [Guideline for Developing a Code of Practice for Confined Space Entry](#).

Additional health risks

Fatigue

Workers may work long hours during a flood. Fatigue creates a hazard by reducing physical and mental functioning, and impairing judgement and concentration. To help manage fatigue:

- Schedule safety-sensitive tasks for earlier in the shift.
- Maintain consistency in work schedules.
- Encourage workers to maintain a healthy sleep pattern, generally seven to nine hours of sleep is needed.
- Establish a regular check-in protocol.

Hypothermia

Workers standing in water or working in damp spaces for extended periods may suffer lowered body temperatures. Signs of hypothermia include uncontrollable shivering, stumbling and drowsiness. To help prevent hypothermia:

- Require workers to wear warm, waterproof clothing and footwear when working in cold, wet areas or in standing water and to change out of damp clothing.
- Establish a warm-up schedule to take breaks away from the cold.

Heat stress

Workers working in excessive heat from weather or from fans and heaters may experience elevated body temperatures and may experience heat stress. Signs of heat stress include thirst, headache, nausea and irritability. To help prevent heat stress:

- Have plenty of cool drinking water available.
- Establish a cool-down schedule to take breaks away from the heat.

See [Best Practice: Working Safely in the Heat and Cold](#) and [Fatigue, Extended Work Hours and Workplace Safety](#) to learn more.

Exposure to industrial cleaners

Industrial cleaners can be hazardous chemicals. To protect yourself:

- Know what product is being used and the hazards and follow the recommended work procedures.
- Know appropriate procedures if there is a spill.
- Follow safe use instructions such as ensuring adequate ventilation, using appropriate gloves, wearing protective eyewear, or using respiratory protective equipment.

Many of these products are covered by Workplace Hazardous Materials Information System (WHMIS) requirements. For more information on the product, refer to its safety data sheet (SDS) and label. To learn about WHMIS requirements, see [WHMIS 2015: Information for Employers](#) and [WHMIS 2015: Information for Workers](#).

For chemicals that do not have an SDS, including consumer products, employers must still provide training on product hazard information, health effects, safe work procedures, safe use, recommended protective equipment and storage.

Mental health

Traumatic events like emergencies and natural disasters can have an impact on workers' mental health. To cope with the

stress and emotions during the disaster, and in the days and weeks that follow, offer workers support:

- Ensure staff are aware of, and have access to, the organization's employee assistance program, if there is one.
- Direct workers to Alberta Health Services' [Help in Tough Times](#) web page for a list of resources.
- Encourage workers to call Alberta Health Services' [Mental Health Help Line](#) at 1-877-303-2642.

Contact us

OHS Contact Centre

Anywhere in Alberta

- 1-866-415-8690

Edmonton and surrounding area

- 780-415-8690

Deaf or hard of hearing (TTY)

- 1-800-232-7215 (Alberta)
- 780-427-9999 (Edmonton)

Notify OHS of health and safety concerns

alberta.ca/file-complaint-online.aspx

Call the OHS Contact Centre if you have concerns that involve immediate danger to a person on a work site.

Report a workplace incident to OHS

alberta.ca/ohs-complaints-incidents.aspx

Website

alberta.ca/ohs

Get copies of the OHS Act, Regulation and Code

Alberta Queen's Printer

qp.gov.ab.ca

OHS

alberta.ca/ohs-act-regulation-code.aspx

For more information

Alberta Asbestos Abatement Manual (ASB001)

ohs-pubstore.labour.alberta.ca/asb001

Best Practice: Working Safely in the Heat and Cold (GS006)

ohs-pubstore.labour.alberta.ca/gs006

Best Practices: Mould at the Work Site (BH019)

ohs-pubstore.labour.alberta.ca/bh019

Carbon Monoxide at the Work Site (CH031)

ohs-pubstore.labour.alberta.ca/ch031

Mould in the Workplace (BH018)

ohs-pubstore.labour.alberta.ca/bh018

Fatigue, Extended Work Hours and Workplace Safety (ERG015)

ohs-pubstore.labour.alberta.ca/erg015

Guide to OHS: Employers (LI009)

ohs-pubstore.labour.alberta.ca/li009

Guide to OHS: Supervisors (LI010)

ohs-pubstore.labour.alberta.ca/li010

Guide to OHS: Workers (LI008)

ohs-pubstore.labour.alberta.ca/li008

Guideline for Developing a Code of Practice for Confined Space Entry (CS001)

ohs-pubstore.labour.alberta.ca/cs001

Hazard assessment and control: a handbook for Alberta employers and workers (BP018)

ohs-pubstore.labour.alberta.ca/bp018

Respiratory Protective Equipment: An Employer's Guide (PPE001)

ohs-pubstore.labour.alberta.ca/ppe001

WHMIS 2015: Information for Employers (CH008)

ohs-pubstore.labour.alberta.ca/ch008

WHMIS 2015 Information for Workers (CH007)

ohs-pubstore.labour.alberta.ca/ch007

© 2022 Government of Alberta

This material is for information only. The information provided in this material is solely for the user's information and convenience and, while thought to be accurate and functional, it is provided without warranty of any kind. The Crown, its agents, employees or contractors will not be liable to you for any damages, direct or indirect, arising out of your use of the information contained in this material. If in doubt with respect to any information contained within this material, or for confirmation of legal requirements, please refer to the current edition of the *Occupational Health and Safety Act* and its regulations or other applicable legislation. Further, if there is any inconsistency or conflict between any of the information contained in this material and the applicable legislative requirement, the legislative requirement shall prevail. This material is current to May 2022. The law is constantly changing with new legislation, amendments to existing legislation, and decisions from the courts. It is important that you keep yourself informed of the current law. This material may be used, reproduced, stored or transmitted for non-commercial purposes. The source of this material must be acknowledged when publishing or issuing it to others. This material is not to be used, reproduced, stored or transmitted for commercial purposes without written permission from the Government of Alberta.

Workplace health and safety after a flood

©2022 Government of Alberta | Updated May 2022 | GH021

Classification: Public

