Emergency Showers & Eyewash Stations Compliance Game Plan

- *It doesn't work.*
- *It doesn't fit right.*
- *It looks ridiculous.*
- *It just gets in the way.*
- *I already wear glasses.*

These are some common excuses workers use for not wearing safety glasses and other eye and face protection at work. The combination of resistance to PPE plus presence of corrosive chemicals, flying objects, dust, debris, radiation, and other eye hazards add up to an average 200 Canadian workers suffer an eye injury on the job each day, according to the Canadian Association of Optometrists. In addition to lost work time, workplace eye injuries often result in partial and full blindness.

But it's also what happens afterward that determines the severity of a workplace injury, especially one caused by chemical splashes and burns. The first 10 to 15 seconds after exposure are critical. Delaying treatment, even for a few seconds, may contribute to serious injury. That's why OHS laws require employers to maintain emergency showers and eyewash stations providing for on-the-spot flushing and decontamination for workers exposed to hazardous products that can injure the eyes. Here's an 11-step Game Plan to prevent eye injury and ensure compliance with OHS emergency showers

and eyewash requirements (which we'll refer to collectively as "emergency eyewash facilities" except where the context requires otherwise).

Step 1. Perform Emergency Eyewash Facilities Hazard Assessment

The starting point is to have a competent person perform a hazardous assessment to determine whether workers or other workplace occupants are exposed to hazardous, irritating, or corrosive substances in the workplace that can cause injury to the eyes and skin. In Manitoba, the hazard assessment must be performed in consultation with the JHSC, safety rep, or the workers themselves if there is no JHSC or safety rep at the workplace. **Compliance Strategy:** One approach, which is required in BC, is to characterize your workplace as high, moderate, or low risk using the following guidelines and criteria:

Table 1: Emergency Eyewash Facilities Risk Assessment Guidelines*

Risk Level	Description of Workplace	Examples
High Risk	Workplaces at which corrosive chemicals or other materials are used in a manner, concentration, and quantity which pose a risk of irreversible tissue damage to the eyes or skin, or of serious illness resulting from rapid absorption of a toxic substance through the eyes or skin, or where the work activity presents a risk of ignition of the clothing.	Maintenance of ammonia refrigeration equipment or chlorine bleaching or disinfection equipment, handling corrosive materials such as corrosive cleaning products or chemical reagents where there is a high risk of skin or eye contact, filling chemical storage batteries. The following Health Hazard Classes and Categories in the HPR are included: (a) skin corrosion (1A), (1B), (1C); (b) serious eye damage (1).

Risk Level	Description of Workplace	Examples
Moderate Risk	Workplaces at which chemicals or other materials are used in a manner, concentration, and quantity which present a risk of irritation or other reversible harm to the eyes or skin, or of illness resulting from absorption of a toxic substance through the eyes or skin.	Spraying automotive paints and finishes, operating solvent degreasing equipment, handling irritant materials such as cleaning products or chemical reagents where there is a moderate risk of skin or eye contact, and handling dry-cleaning solvents and spotting agents. The following Health Hazard Classes and Categories in the HPR are included: (a) eye irritation (2A), (2B); (b) skin irritation (2).
Low Risk	Workplaces at which chemicals or other materials are used in a manner and quantity which present a risk of mild eye or skin irritation.	Using detergents, silicone-based mold-release agents, some hair-dressing solutions, rosin-cored solders, welding and grinding, and working in dusty areas.

* **Source:** WorkSafeBC

Step 2. Furnish Adequate Number & Type of Emergency Eyewash Facilities

If the hazard assessment determines that workers are exposed to hazardous, irritating, or corrosive substances, the employer must provide the number and type of emergency eyewash facilities sufficient to address the hazards identified. The balance of this Game Plan will show you how to do that.

Step 3. Ensure Emergency Eyewash Facilities Meet ANSI Standards

Most jurisdictions require employers to ensure that the design, installation, maintenance, and testing of emergency eyewash facilities provided at the workplace meet the equipment manufacturer's specifications. Four provinces also require the equipment to meet some version of ANSI Standard ANSI/ISEA Z358.1, *American National Standard for Emergency Eyewash and Shower Equipment*:

- ANSI/ISEA Z358.1-2014: Manitoba and Prince Edward Island;
- ANSI/ISEA Z358.1-2009: New Brunswick;
- Most recent version of ANSI/ISEA Z358.1: Nova Scotia.

Step 4. Ensure Emergency Eyewash Facilities Are Immediately Accessible to Workers

Required emergency eyewash facilities must be installed in the

work area where the exposure may occur in a conspicuous location that's easily and immediately accessible, i.e., reachable within 10 seconds or less, to exposed workers without obstruction from materials or equipment. Ontario specifies that emergency eyewash facilities must be installed in places where the hazardous material is stored or used. Areas where facilities may be necessary include:

- Battery charging areas;
- Spraying operations;
- Laboratories;
- High dust areas; and
- Dipping operations.

Step 5. Use Signs to Identify Emergency Eyewash Facilities

Several jurisdictions require emergency eyewash facilities to be clearly identified by signs indicating their location and providing clear directions for use. Such requirements are also incorporated into ANSI/ISEA Z358.1.

Step 6. Select the Right Type(s) of Emergency Eyewash Facilities

There are 2 basic types of emergency eyewash facilities that may be used:

- **Emergency showers**, which are designed to flush the head and body and should **not** be used to flush the eyes because they deliver water at relatively high levels of pressure or flow that could damage the eyes in some cases; and
- **Emergency eyewash stations,** which are designed to flush the eye and face area only.

Emergency eyewash units might also be a combination of shower and eyewash facilities.

Compliance strategy: The employer must select the type of emergency eyewash facilities to provide based on the hazard assessment and properties of hazardous chemicals to which workers are exposed. BC is the only jurisdiction that actually specifies particular kinds of equipment for different operations, based on the hazard assessment classification of the workplace as high, moderate, or low risk:

Table 2: Provision & Location of Emergency Eyewash Facilities & Skin Equipment by Risk Level*

	High Risk	**Moderate Risk**	**Low Risk**
Eye Equipment	Tempered, continuous flow eyewash facility with minimum duration of 15 minutes (or more if required by the nature of the material).	Tempered, continuous flow eyewash facility with minimum duration of 15 minutes.	Effective means to flush the eyes.

	High Risk	Moderate Risk	Low Risk
Location	Within 5 seconds walking distance of the hazard area, but no further than 6 m (20 ft). For high-risk corrosive gases such as ammonia or chlorine, the facilities must not be located in the gas storage or use area, but rather, adjacent to it.	Within 10 seconds walking distance of the hazard area, but no further than 30 m (100 ft). May be located further than 30 m, provided that (a) a supplementary eyewash facility such as a personal eyewash unit or a non-tempered drench hose is located within 10 seconds walking distance of the hazard area but no further than 30 m, and (b) first aid services are maintained to start treatment of an affected worker within 5 minutes of the contact.	Within 10 seconds walking distance of the hazard area but no further than 30 m (100 ft).

	High Risk	**Moderate Risk**	**Low Risk**
Skin Equipment	Tempered, continuous flow emergency shower facility with minimum duration of 15 minutes (or more if required by the nature of the material).	Tempered, continuous flow emergency shower facility with minimum duration of 15 minutes.	Emergency flushing equipment, such as a non-tempered drench hose.

	High Risk	Moderate Risk	Low Risk
Location	Same location criteria as for high risk eyewash facility except that the shower may be located further than 6 m if (a) a supplementary emergency washing facility such as a non-tempered drench hose is located within 5 seconds walking distance of the hazard area but no further than 6 m, and (b) a tempered shower facility is available within the building to start emergency washing within 5 minutes of the contact.	Same location criteria as for moderate risk eyewash facility except that the supplementary emergency washing facility for locations beyond 30m must be a unit such as non-tempered drench hose.	Same location criteria as for low-risk eyewash facility.

Source: WorkSafeBC

Step 7. Ensure Emergency Showers

Meet Required Standards

Under ANSI/ISEA Z358.1—which is mandatory to follow in MB, NB, NS, and PEI and advisable to follow as a best practice in all other jurisdictions, an emergency shower should:

- Have a minimum flow of 75.7 litres/minute (20 gallons/minute) for a minimum of 15 minutes;
- Deliver a pattern of water with a diameter of at least 50.8 cm (20 inches) at 152.4 cm (60 inches) to ensure that the water comes into contact with the entire body and not just the top of the head;
- Have a shower head that’s between 208.3 and 243.8 cm (82-96 inches) above the floor;
- Be designed so that it can be activated in less than 1 second and remain operational without users having to use their hands;
- Have a valve, lever, handle, etc. that’s no higher than 173.3 cm (69 inches).

Step 8. Ensure Emergency Eyewash Stations Meet Required Standards

Emergency eye wash stations should:

- Have a minimum flow of 75.7 litres/minute (20 gallons/minute) for a minimum of 15 minutes;
- Have enough room to allow workers to hold their eyelids open with their hands while their eyes and face are still in the stream;
- Be designed so that it can be activated in less than 1 second and remain operational without using the hands on the valve (or lever, handle, etc.) with the valve being located in an easy-to-reach place.

Step 9. Ensure Fluid of Emergency Eyewash Facilities Meets Required Standards

It’s generally preferable to provide emergency eyewash facilities that are plumbed, but portable facilities are acceptable if plumbed facilities aren’t practicable. The water delivered must be clean and potable and be of a warm, lukewarm, or tepid temperature, i.e., 16 to 38°C (60-100°F). Steps must also be taken to keep it from freezing. A portable facility may deliver either potable water or an approved isotonic saline solution.

Step 10. Ensure Workers Are Trained in Proper Use of Emergency Eyewash Facilities

Employers must ensure that all workers who may be required to use emergency eyewash facilities are trained in how to use the equipment properly and that such training be completed before the worker is required or allowed to carry out the work involving exposure to eye injury. Workers who use contact lenses on the job may require special training. Verify that workers understood and are competent to apply their training by requiring them to demonstrate how to locate and use the equipment. It’s also advisable to stage drills to reinforce training. Last but not least, keep or post use instructions near the equipment in a location that’s easily accessible to workers.

Step 11. Ensure Emergency Eyewash

Facilities Are Properly Inspected & Maintained

Designate a competent worker to be responsible for inspecting the emergency eyewash facilities and drench hoses at least once a week to check the fluid volume, temperature, activation mechanism, and signs of leakages, clogs, or other problems in accordance with manufacturer's instructions. ANSI also recommends a comprehensive inspection of the entire system at least once a year. Keep signed records documenting the dates, times, and results of inspections, as well as repairs or corrective actions taken in response to their findings.