

Use of Lasers in Construction

Lasers can be a very useful tool in construction work. They are used in a variety of jobs where levelling, grading or precise measurement tasks are required. Low powered lasers such as laser levels are used to accurately mark the installation location for items such as tiles, railings or receptacles, or for projects such as installing sewer pipe or handling a site grading plan for a new building. More powerful lasers used for welding or cutting metal are increasingly being used for construction projects.

When laser devices are used in and around construction projects, it is important to know the risks and control the hazards.

Know the Risks

Laser light is a form of non-ionizing radiation and is capable of injuring those who come in contact with the laser beam. The severity of injury from laser light is dependent on the power and wavelength of the laser beam, the duration of exposure, and the distance from the beam source. The most common injuries caused by lasers are burns to the eye and skin. The eyes are especially vulnerable to laser exposure, with the potential for retinal burns and in severe cases, a loss of vision.



Lasers are classified into categories to differentiate the levels of risk. As the classification level increases, so does the risk level. For visible-beam consumer lasers, there are four main classes: Class 2, Class 3R, Class 3B and Class 4 (see diagram below). Most laser levels used in construction are Class 2 or 3R lasers which are low powered. These are generally considered safe if accidentally viewed because the normal blinking reflex that protects the eyes helps prevent injury. However, the closer a worker is to the laser and the longer the beam is in the eye, the greater the chance of injury.



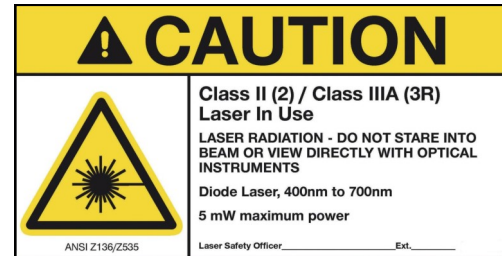
Reduce the Risk

Section 10.1 of the *Occupational Health and Safety General Regulations* states that employers must ensure that a laser or laser device is installed, operated, labelled and maintained in accordance with the *ANSI Standard Z136.1-2014, American National Standard For Safe Use of Lasers*.

Warning Labels and Signs

Ensure that laser devices have warning labels affixed by the manufacturer.

Signs must be posted in the laser use area warning workers of the laser hazard. Sign information and signal words must meet the requirements in *ANSI Standard Z136.1-2014*.



Education and Training

Training on safe use of lasers is important. The level of training shall be consistent with the degree of potential laser hazards.

Laser Safety Program

A Laser Safety Program must be implemented and overseen by a Laser Safety Officer (LSO) where Class 3B or 4 lasers are used.

Personal Protective Equipment

For workplaces using Class 3B or Class 4 lasers, appropriate laser safety eyewear must be provided and worn while lasers are in use.

Safe Work Practices

- Avoid looking directly into a laser beam.
- Read the instruction manual before using a laser level.
- Avoid pointing a laser level at vehicles, drivers, or people.
- Always turn the laser level off when not in use.
- Report or repair any laser warning labels that have been removed or defaced.
- Avoid operating a laser level near flammable liquids, gases, or dust.
- Avoid aiming laser beam at shiny or reflective surfaces; they're not suitable for laser use.

