



UNIVERSITY  
OF MANITOBA

Environmental Health and Safety

Updated October, 2019

# Laser Pointers

(Adapted from Health Canada's website)

## Background

Laser technology was first developed in the 1960s, and today the technology is used in medical equipment, office printers and construction tools. A laser has a narrow beam of tightly-columnated, high-intensity light. The beam that comes out of a simple hand-held laser pointer is at least a million times brighter than the average light bulb in your home.

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The letters in "laser" stand for Light Amplification by Stimulated Emission of Radiation

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## Are Laser Pointers a Concern?

Pointers containing class 1, class 2 or class 3R lasers are not dangerous when used with care, but the brightness of laser light can damage the eyes of anyone who looks directly into the beam for more than a minute and a half.

***Never point a laser beam at anyone!  
Never look directly into the beam yourself.***

If a laser pointer contains a Class 3B and Class 4 laser, then this is a high powered laser. These lasers can pose a significant health hazard to people and must be registered with EHS.

## What are the Regulations regarding lasers in the workplace?

Since the use of this technology constitutes a potential hazard to health, the possession and use of lasers is governed in the workplace by Manitoba Workplace Safety and Health Regulation 217/2006. As per section 18.4, the University of Manitoba has the duty to inform anyone that may be exposed to radiation from lasers in use at the University. Additionally, lasers must be installed, used and maintained in accordance with ANSI Z136.1-2014 American National Standard for Safe Use of Lasers (Section 16.28).

## How are lasers controlled at the University?

Environmental Health and Safety (EHS) provides staff and resources for the day to day operations of the Laser Safety Program including registering the high powered lasers (Class 3B or Class 4) used or stored at locations controlled by the University of Manitoba.

A Laser Committee advises on the Laser Safety Program. A web page with resources to assist owners of high powered lasers to be compliant with the legal requirements.

Details on the Laser Safety Program are found at <http://umanitoba.ca/radsafety>



For more Information or safety training

Talk to your supervisor and contact EHS, email: [EHSO@umanitoba.ca](mailto:EHSO@umanitoba.ca)



Environmental Health and Safety

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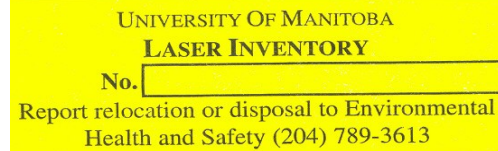
After Hour Emergencies Call 911 or **555** from all U of M phones or

Please do your part by following the instructions in this pamphlet.

## Registered laser pointers

High powered (Class 3B or 4) lasers must be registered with Environmental Health and Safety to be used in areas controlled by the University of Manitoba.

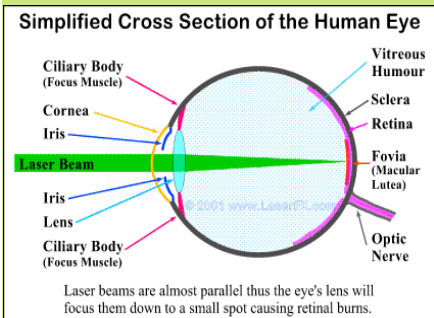
Registered lasers have this label:



### What are the eye hazards of lasers?

A split-second look at Class 1, 2 or 3R laser radiation can result in a condition called *flashblindness*. This is similar to the effect you get during flash photography, where the image of the flash remains in your eyes for a few seconds, and then fades away. *Flashblindness* is temporary. Your vision returns to normal after a few moments, and there are no long-term effects.

However, a longer look can cause serious damage to your eyes. It's worse if the laser beam is being projected through a piece of optical equipment, such as a telescope or a pair of binoculars. In these situations, the laser beam could actually burn a tiny spot, or cut open a blood vessel, on the retina at the back of your eye. In a worst-case scenario, you could go blind.



### SKIN HAZARDS?

- Thermal injury (BURN)
- Erythema (sun burn)
- Accelerated aging and pigmentation



Some people may be more at risk of photosensitive reactions from genetics or induced by medicines

## How can I tell the class of a laser?

All lasers are labelled to identify the class and have hazard statements. Read the label, know the hazard class. Class 3B and 4 lasers may cause:

- Acute (immediate) effects such as burns/blindness. or
- Delayed (accumulative) effects such as cataracts or cancer!



Class 3B laser label →

← Class 2 laser label



All Lasers are potentially hazardous if misused!

## How can I stay safe when using a hand held laser pointer?

Hand-held laser pointers are popular in Canada. Unfortunately, users may not be aware about the intensity of the light and the effect it may have on the eye. If you look directly into the beam from a laser pointer for more than a minute and a half in a very steady manner, or shine the beam into your eyes with binoculars, you could end up with permanent eye damage.

Laser pointers are not toys. Use them with caution, and only for their intended purpose. So far, there have been no reports of permanent eye damage caused by the use of laser pointers in Canada. Lets keep it that way. Follow a few guidelines to make sure no one gets hurt by a laser pointer.

- When you buy a laser pointer, choose one with a Class 1, 2 or 3R laser.
- Choose one that has a clear warning on the label about the potential to cause eye damage. Read the instructions carefully, and follow them closely.
- Choose a laser pointer that stays on only when you apply pressure with your fingers. That way you can never leave the beam on by accident.
- Never point a laser beam at anyone, and never look directly into the beam yourself.
- Never aim a laser pointer at surfaces that would reflect the light back, such as mirrors or mirrored surfaces.
- Never leave a laser pointer where children might get their hands on it.