Laser Awareness (Non-User)

What is a laser?

Laser is an acronym for Light Amplification by Stimulated Emission of Radiation.

Why are Laser beams so much of a concern?

- A Laser amplifies light and produces coherent light beams, ranging from infrared to ultraviolet.
- Laser light can be made extremely intense, highly directional, and very pure in color.
- A one watt laser beam when focused down to a small spot can produce temperatures higher than the surface temperature of the sun!
- Additionally, the beam emitted by ultraviolet and infrared lasers can not be seen by the naked eye and are therefore require more stringent controls.

Is laser light harmful?

- The degree to which exposure to laser beams are harmful is dependent upon several things:
  - Type of laser
  - Strength of the laser
  - If personal protective devices are used
  - Is the laser being operated in accordance with approved instructions
  - Are the laser safety interlocks functional
- All of these factors and others combined will determine the degree of danger associated with a certain type of laser radiation.

What is the difference between laser radiation and radiation from radioactive material?

- Laser radiation is non-ionizing, which means that it does not damage the cells of the body by ionization or excitation of individual atoms as does ionizing radiation (gamma & x-rays) given off by radioactive material.
- Radiation from a laser and radioactive material are both part of the electromagnetic spectrum.

What part of the human body is most sensitive?

- Although the skin can be affected by exposure to laser radiation, the part of the human body that is most sensitive to light and can most easily be damaged by lasers is the human eye.
- Common sense precautions such as not shining a laser into your own, or anyone else's eyes, will help prevent vision loss from laser exposure.

Will I be exposed to laser radiation?

- The use of lasers is only allowed in restricted, carefully controlled areas at Texas State University.
- Even people entering these areas should have little or no exposure to laser radiation as laboratory workers are careful to employ the proper protective measures and operate the equipment properly.
- These work areas are regularly inspected to insure that they pose no harm to members of the general public.

How can I tell if I am entering a laser work area?

- Work areas that pose any significant laser hazard to anyone who is careless must be posted with appropriate warnings.
- Rooms have a sign on the door.
- Work areas and machines are individually posted.

Warning Signs

What should I do in a room with lasers?

- Do not enter work areas unless you have permission to do so by someone that is knowledgeable in what is occurring.
- Don’t touch objects or controls of the equipment.
- Do not stare at or into the laser beam.
- Don’t assume that the laser is not in operation just because you cannot see a laser beam.
- Lab personnel should explain what is safe and what is not.

- When in doubt, ask!

What are my rights with regards to lasers?

- The use of lasers is governed by the Texas Department of State Health Services.
- Every area of laser use must be posted with hazard warning signs.
- You have the right to learn about:
  - The regulations
  - Proper operating procedures
  - Any past safety violations
  - Other aspects of safe operation in any work place at Texas State University.

Where can I find out more about lasers?

- Generic information is available on laser use is provided through the Risk Management & Safety Office, ext. 5-3616.
- Information specific to a certain laser is available from the Principle Investigator for that area.
- If you are going to work with lasers yourself, you must receive advance training on proper operating procedures and possible hazards.
- Your supervisor will see that you take the laser user's course or are properly instructed on the safe use of a laser.