Site-Specific Hazard Communication (OH 102)

Training Module

Purpose:

This module is designed to train new and existing employees on site-specific hazard communication and laboratory safety. It is the Principle Investigator's (PI) responsibility to ensure that all research laboratory personnel are trained (students, employees, visiting researchers, etc). This training must be provided initially and whenever potential for exposure to hazardous material increases. Environmental Health and Safety (EHS) recommends periodic refresher training every two years.

Overview:

The Texas Petawatt laser facility has several lab-specific standard operating procedures (SOPs):

TPW-0011-A Laser Bay
SOP for accessing and working in the Laser Bay.

TPW-0012-A Pulsed Power
SOP for accessing and working in the Pulsed Power area. This does not including work on the Pusled Power system itself.

TPW-0013-C Target Area
SOP for accessing and working in the Target Area.

TPW-0014-B Laser Operators
SOP for Laser operators.

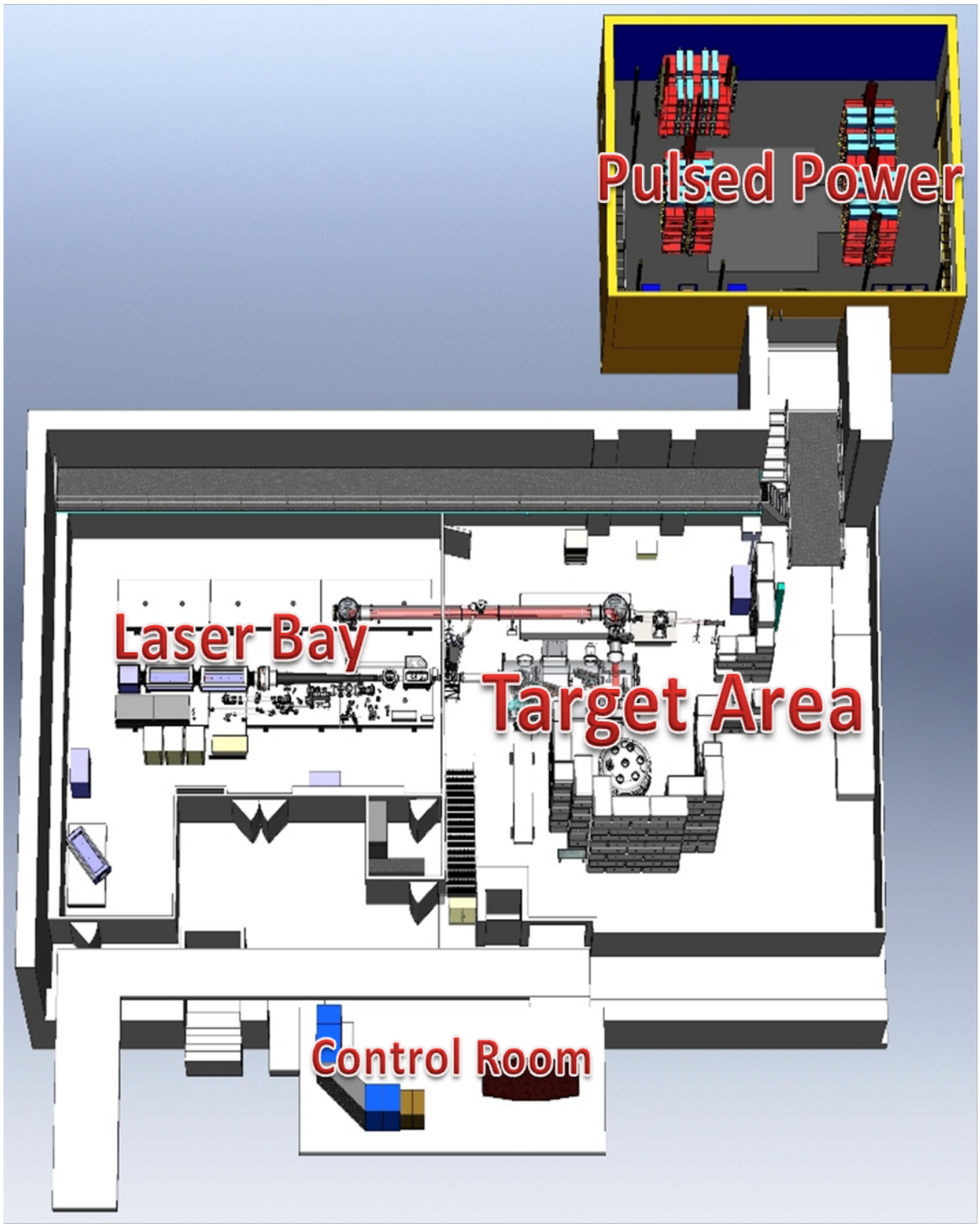
TPW-0015-A Pulsed Power Safe Out
SOP for safing out the Pulsed Power system. This is for authorized personnel only.

TPW-0016-A Bringing Light to Target
SOP for Laser operators. This is for authorized personnel only.

(It is the duty of the PI presenting this module to make the SOPs available to the trainees)

Note: We will refer to these SOP's throughout this module.

An overview picture of the Texas Petawatt Laser facility is located below.



Laser Hazards:

The following information can be found in the TPW-0011-A Laser Bay and TPW-0013-C Target Area SOPs:

- Methods and observation techniques to determine the presence of laser hazards
- Procedures for using safety equipment for laser protection
- Location of signage including signs and emergency numbers

Lab's housekeeping rules:

The general housekeeping rule is that ever personnel clean up after themselves; this includes personal and shared work areas. There are many tool shelves located throughout the facility with a wide variety of tools available. All tools need to be stored in their originally designated location after use. Misplacing tools and leaving dirty work areas can be very time costly for other personnel and decreases the overall work efficiency.

EHS safety training classes:

There are several safety classes that are required, by EHS, of all personnel working in the lab environment.

Visit the EH&S website (http://www.utexas.edu/safety/ehs/train/courses.html) for available courses. The following are required for unescorted access to TPW target area or laser bay:

- OH 101 – Hazard Communication (general, available online)
- OH 102 – Hazard Communication (By TPW staff)
- OH 201 – Laboratory Safety (available online)
- OH 202 – Hazardous Waste Management (available online)
- OH 204 – Compressed Gases (available online)
- OH 238 – Laboratory Safety Refresher (available online)[1]
- OH 301 – Basic Radiological Health[2]
- OH 304 – Laser Safety (available online)

[1]Refresher course, as appropriate

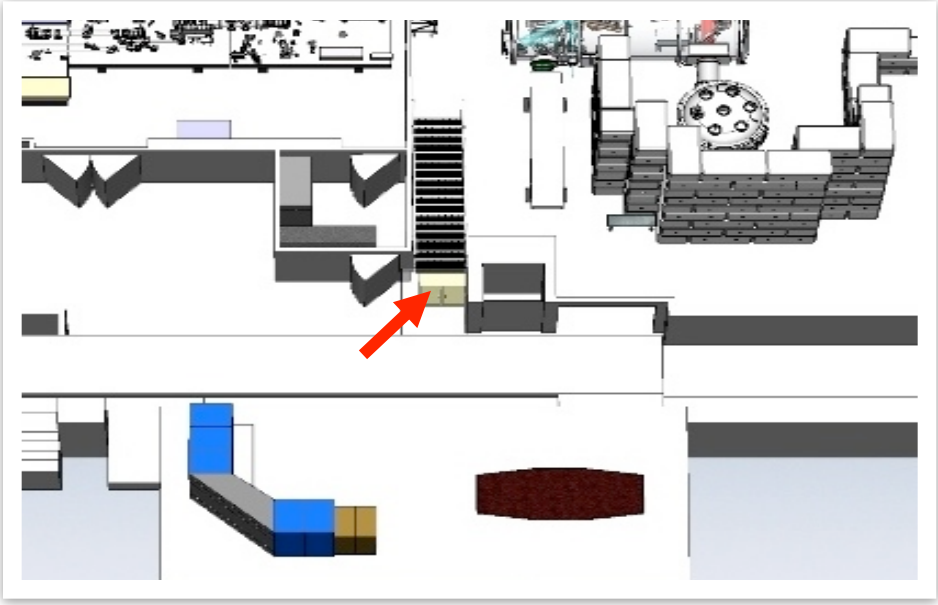
[2]Only required of those who would be handling potentially activated materials

With a valid EID you can verify your training history at: https://utdirect.utexas.edu/txclass/index.WBX

Chemicals:

Liquid Chemicals

The storage location of the primary chemical containers can be seen in the picture below.



The flammable liquid storage cabinet is located on the first floor of the lab, to the right of the Laser Bay gowning room. This is the storage location of the primary containers of all the chemicals that are used throughout the lab. Smaller secondary containers are distributed throughout the lab work areas. All containers are properly labeled with the chemical's name. Always use gloves when working with chemicals. Use the Chemical Resistance Guide for guidance on what type of gloves to use with chemicals. The Chemical Resistance Guide and Material Safety Data Sheets (MSDS) are posted in a tray attached to the cabinet. Always refer to these documents for risk assessment before working with a chemical. MSDSs are also posted in trays that are at the entry doors to the Laser Bay and Target Area.

Liquid Chemicals commonly found in the Lab:

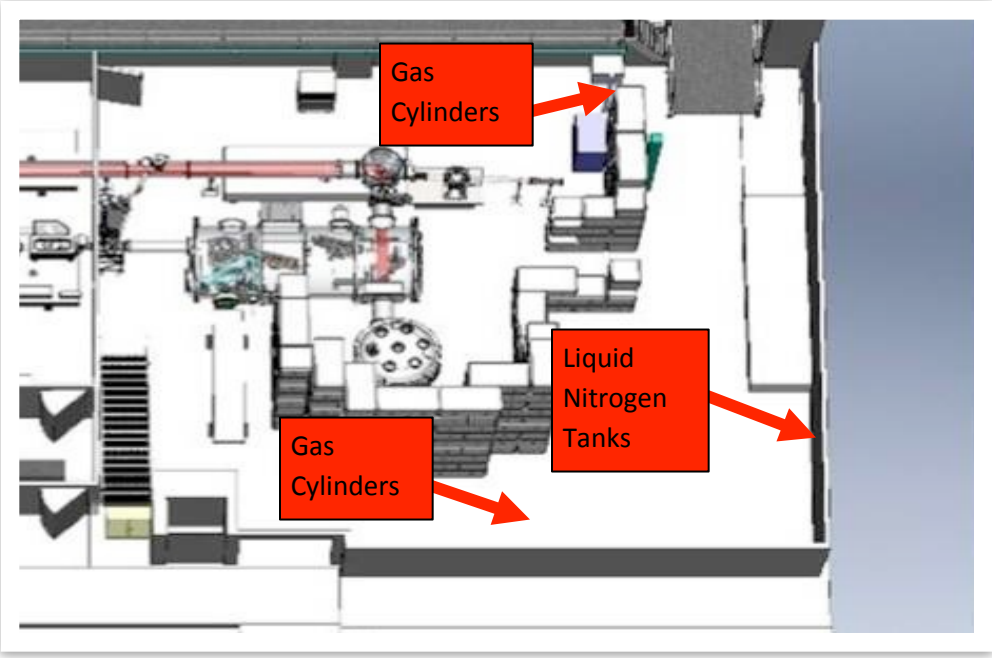
- Acetone
- Chloroform
- Ethanol
- Isopropanol
- Methanol
- Hydrochloric Acid
- Chloramine-t
- Rust Dissolver (Phosphoric Acid, Phosphate ester, etc…)

Always use properly labeled container when transporting chemicals into the lab.

Chemicals in gas cylinders and tanks

Gas cylinders are stored on the north-east wall of the Target Area and liquid nitrogen tanks are stored on the north-west wall of the Target area.

Locations of gas cylinders and liquid-nitrogen tanks.



Gas cylinders have to be safely secured to the wall using provided straps and wall braces. When transporting any gas cylinders always use a provided cylinder transport dolly with a working chain strap. Liquid nitrogen tanks are transported via 4-wheel dollies due to their physical size. When stored in a designated area, wheel locks need to be set on the 4-wheel dollies.

Chemicals in gas cylinder and tanks commonly found in the lab:

- Nitrogen
- Nitrogen, refrigerated liquid
- Deuterated Methane
- Deuterium
- Hydrogen
- Helium

All the Materials Safety Data Sheets (MSDS) for the above mentioned chemicals are located in the tray on the Target Area entry doors. Refer to these documents for risk assessments before working with gas cylinders or storage tanks.

Refilling Liquid Nitrogen

When filling a secondary container with liquid nitrogen make sure to observe theses point:

- Wear a lab coat
- Wear a pair of heavy duty gloves
- Wear protective goggles
- Make sure to use a liquid nitrogen safe container

Further information and safety training can be found by taking the appropriate EHS safety course at https://utdirect.utexas.edu/txclass/index.WBX.

Radioactive safety:

Procedure for use of the radiation logbook can be obtained from radiation safety PI, Gilliss Dyer, Email: gilliss@physics.utexas.edu , phone: (512) 471-6121.

Heavy machinery:

There are three heavy duty transport machines in the lab:

- 10 Ton facility overhead crane
- Manual Forklift
- Small 800lb crane in Target Area

Operation of cranes and forklift is for authorized personnel only.

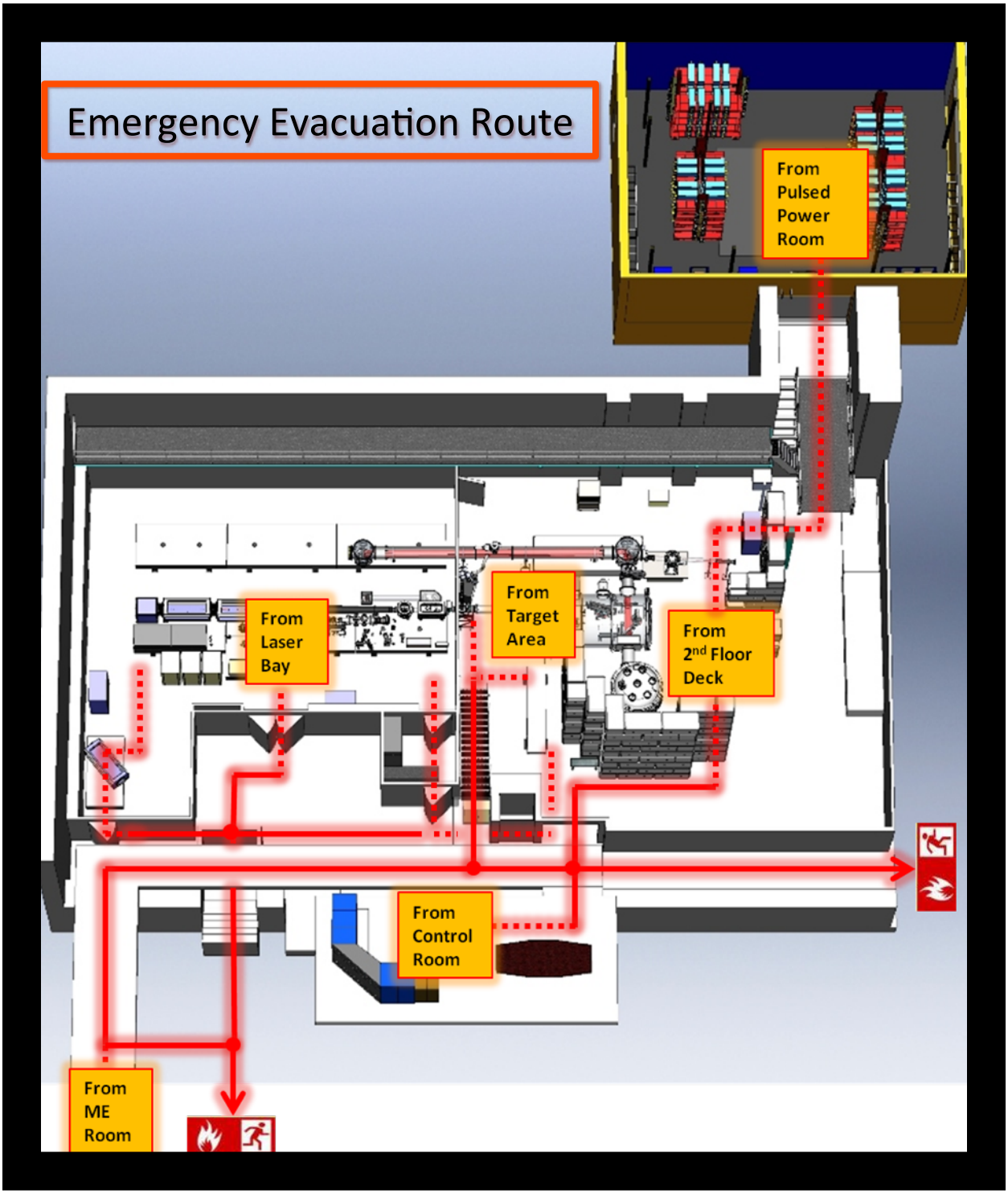
Authorized personnel:
Erhard Gaul: (512) 471-1803, gaul@physics.utexas.edu
Keith Carter: (512) 471-1765, krc@mail.utexas.edu
Contact one of above mentioned personnel if operation of heavy machinery is required.

Personal Protective Equipment:

All personal protective equipment regarding laser light is described in the TPW-0011-A Laser Bay and TPW-0013-C Target Area SOPs. General safety goggles are available at the second floor work bench shelves near the Pulsed Power entry doors. Latex Gloves are available in all clean room areas; refer to the lab-specific SOPs for locations. Pulsed Power safety equipment information is located in the TPW-0012-A Pulsed Power SOP.

Emergency Response:

The emergency evacuation route is pictured below.



Fire Emergency

All employees are required to have fire extinguisher training. You can sign up for fire extinguisher training (OH205) at https://utdirect.utexas.edu/txclass/index.WBX. If it's a small and manageable fire you may try to extinguish it. If the fire is unmanageable and growing fast, pull the fire alarm and evacuate the facility using the recommended evacuation route on the previous page.

First Aid

For small injuries there are first aid kits on the second floor deck above the Target Area.
For more significant injuries immediately call for medical assistance. Phone number provided below.

Chemical exposure

For small chemical exposure follow the steps outline in the Hazard communication training OH 101.
For sever chemical exposures call EHS emergency line. Phone number provided below.

Aid to unconscious personnel

If you find someone unconscious or motionless, do NOT touch them. First check if they are touching any type of open electrical connection.
If yes:

1. Call help
2. Look for grounding rod and detach them from the electrical connection
3. Administer CPR (if trained to do so) until help arrives

If no:

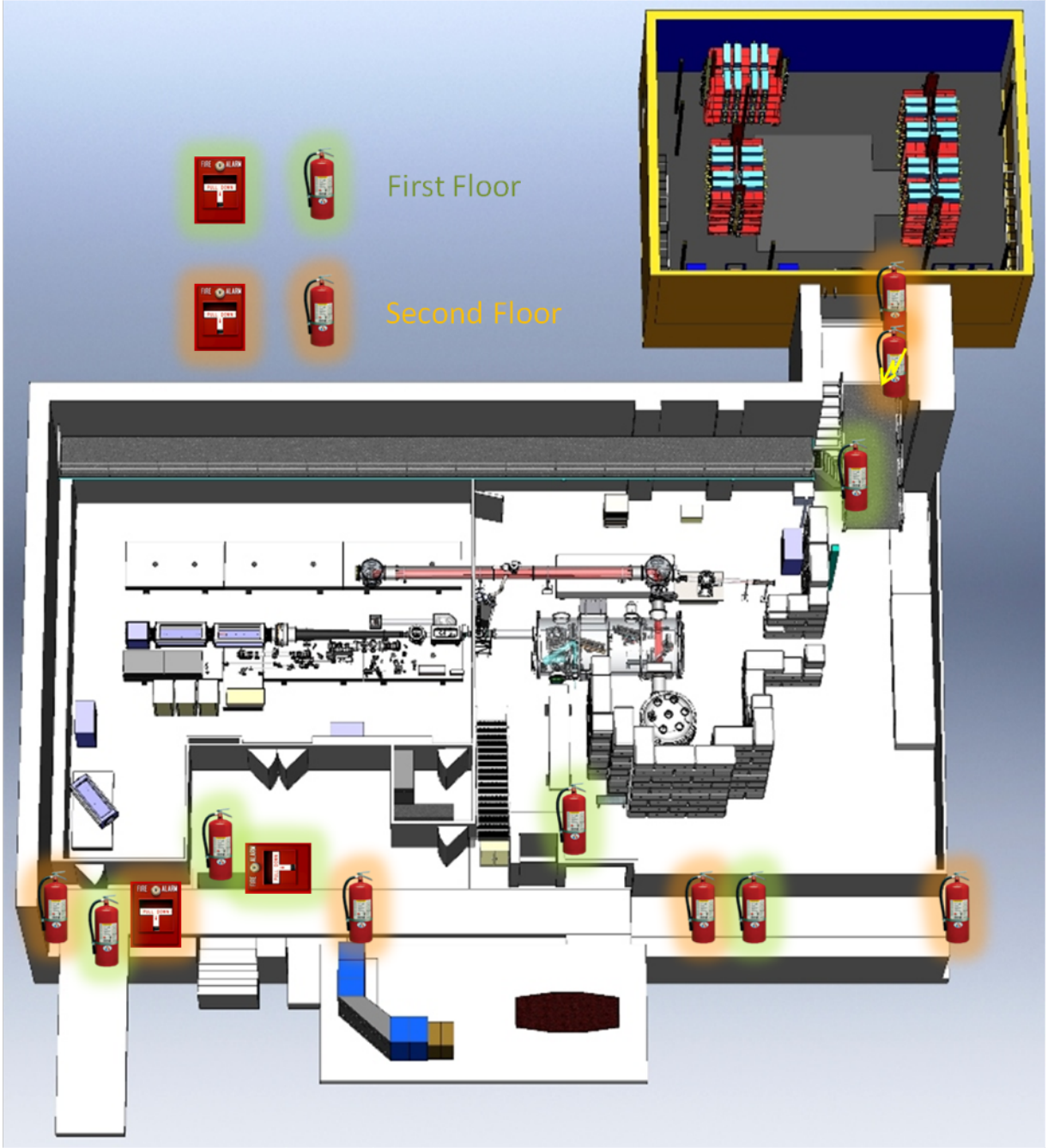
1. Call help
2. Administer CPR (if trained to do so) until help arrives

If unsure or confused:

1. Call help
2. Stay back

Locations of emergency equipment

The picture below shows the locations of fire extinguishers and fire alarms.



We do not have eyewashes or safety showers in our laser facility, therefore all exposed personnel need to evacuate to the second floor hallway of RLM.

Spills

For non toxic spills use a bucket and a mop.

Picture location of the first floor storage area harboring a bucket and a mop.

For Hazardous spills:

1. Evacuate any nearby personnel
2. Call EHS emergency line
3. Make sure no one enter the toxic area until EHS emergency response arrives

The following numbers are also posted on emergency phone cards in trays on entry doors to every hazardous areas of the lab.

Emergency phone numbers:

EHS: (512) 471-3511

Medical: (512) 471-4441

Fire: (512) 471-4441

UTPD: (512) 471-4441

Waste Management:

Protection and safety equipment such as latex gloves, face masks, etc. do not require a special waste disposal procedure. Place these and similar items into the provided waste baskets around the lab. Procedure for disposal of chemical waste has to follow EHS guidelines. All chemical waste containers need to be properly labeled. Chemical waste containers are to be places in the bottom shelf of the flammable liquid storage cabinet mentioned earlier. Chemical waste is picked up by UT EHS only.

To request a chemical waste pick-up by EHS go to the following link:
http://www.utexas.edu/safety/ehs/disposal/
On this website you will find more detailed information on procedures for disposal of hazardous chemical waste and the required forms to fill out.

Occupational Health:

If you suspect possible eye damage due to laser exposure you can visit the occupational health clinic for a medical evaluation.

Location & Hours of Operation:

*Health*Point OHP is located inside the North Office Building A (NOA) in Room 3.214.

Physical address: 101 E. 27th St., on the corner of 27th and Wichita
Mailing address: Occupational Health Program PO Box 8027 Austin, TX 78713
Campus mail code: A9250

Main phone number: 512-471-4OHP (4647) Fax: 512-471-2666
Hours of operation are Mon-Fri, 8 a.m.-5 p.m., closed for lunch noon-1 p.

For more information follow this link:
http://www.utexas.edu/hr/current/services/ohp.html