



# Hazard Awareness for UCSD Trades Employees

**Summary:** UCSD trades employees, be aware of the hazards you may encounter while performing your job duties, the procedures and resources in place to protect you, and how to work in a manner that protects you, your coworkers, and the building occupants your work may affect.

**Click on a topic for more information:**

## Safety Resources & Responsibilities

- Safety training
- Personal protection equipment (PPE)
- Hazard and caution signs
- Building occupants
- Hazardous waste disposal
- Emergencies
- UC vehicle drivers

## Potential Hazards

- Asbestos awareness
- Bloodborne pathogens
- Confined space entry
- Electrical hazards
- Ergonomic risk factors
- Forklift operation
- Hazardous materials
- Heat illness
- Hot work
- Ladders and lifts
- Lockout/blockout
- Machine & tool guards
- Occupied lab spaces
- Vacated lab spaces
- Utilities infrastructure
- Pest management

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- ☑ **Get safety training appropriate for the kind of work you perform.**

**Get required and recommended safety training before** beginning work with hazardous equipment or materials, or in high-hazard conditions. For more information regarding safety training for trades employees, find safety training information on Blink at:

- [Safety Training for Trades Employees](#)
- [Safety Training for Arts, Crafts, and Theater Employees](#)

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- ☑ **Learn how to select, use, and maintain appropriate personal protective equipment (PPE).**

Engineering controls and work practices are the first step in eliminating or minimizing workplace hazards. Personal protective equipment (PPE) provides added individual protection even when a hazard is being controlled by other means.

- **Read [Personal Protective Equipment](#)** to understand the purpose and limitations of PPE, and how to select and use it effectively. Different types of PPE include:

- Eye protection
- Hand protection
- Protective clothing
- Shoes
- Head protection
- Hearing protection
- Respiratory protection

- **Hearing conservation program:** Employees who are routinely exposed to high levels of workplace noise must participate in the Hearing Conservation Program. At UCSD, this level is 85 dB(A) averaged out over an 8-hour workday. Those affected may include, but are not limited to:

- Machine shop employees
- Maintenance and utilities employees
- Groundskeepers
- Carpenters and shop employees
- Housing and dining services employees
- Engineering employees



Employee wearing hearing protection equipment

Read [Noise Exposure Assessment and Control](#) if you suspect your work environment poses a risk for hearing damage.



Full-face respirator

- **Respiratory protection program:** A respirator is any mask or other device used to protect your lungs or respiratory system. Respirators may at times be required to protect the health of employees when the work environment is contaminated with materials that are hazardous to breathe. At UCSD, this may include:
  - Employees who enter confined spaces
  - Paint sprayers
  - Pesticide and fertilizer applicators
  - Hazardous materials handlers
  - Asbestos abatement employees
  - Some art studio employees
  - Employees whose exposure level is at or above the Permissible Exposure Limit (PEL) of the contaminant

**Use of respirators is strictly regulated in California.** Read [UCSD Respiratory Protection Program](#) for more information.

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- ☑ **Be aware of hazard and caution signs, and know what they mean.**



Radiation signs indicate that the room contains certain quantities of radioactive material.

Hazard and caution signs identify facilities where work involves hazardous chemicals, infectious biological agents, radioactive materials, or equipment such as lasers, high voltage systems, or powerful magnets. These materials and equipment are generally controlled and contained, and their hazards minimized.

**Do not enter an area with a sign that warns against unauthorized entry or says *Keep Out*,** unless specifically authorized to do so by the principal investigator (PI) who controls the space or the Department Safety Coordinator (DSC) or Department Safety Officer. Hazardous materials and equipment will be secured or removed from the area before service or construction personnel begin work.

Read [Hazard and Caution Signs](#) to learn about signs you may see at UCSD and what they mean.

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- ☑ **Consider how your actions affect the building occupants.**

In many areas, maintenance and service actions can significantly impact the work and safety of people elsewhere in the building. Take these steps to protect building occupants:

- **Never turn off building fire or hazardous atmosphere alarms** without first coordinating with your supervisor and EH&S, (858) 534-3660.
- **Notify EH&S, (858) 534-3660, in advance** if you are concerned your work may cause a hazardous condition.
- **Avoid using** hazardous materials, strong-smelling

materials, or combustion-driven equipment inside the building or near air intakes. Air intakes may be located near loading docks.

- **Keep hallways and stairways clear** to allow fast escape from a building during an emergency.
- Do not block extinguishers, fire alarm pull stations, electrical panels, or emergency eyewashes or showers.
- **Expect extra precautions** for work in hazard containment areas such as biosafety level 3 laboratories, animal facilities, tissue culture rooms, and “clean areas.” Clean areas are special facilities where animals or equipment are highly susceptible to everyday germs, dust, and dirt.
- **Expect to be asked to wear** coveralls, a gown, a mask, or other protective gear to protect patients or research from possible contamination.
- **Expect to be asked to use** extra precautions to contain dusts and dirt that may be generated by your work.

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- ☑ **Properly dispose of hazardous waste.**



Latex paint must be disposed of as hazardous waste.

Learn how to identify and properly dispose of hazardous waste at UCSD.

- **Attend** [Hazardous Waste Training](#) if you generate any chemical waste from a shop or studio.
- **Read:**
  - [How to Identify Hazardous Chemical Waste](#)
  - [Sewer Disposal: What Can Go Down the Drain?](#)
  - [Latex Paint Disposal](#)
  - [Battery Disposal at UCSD](#)

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- ☑ **Be prepared for emergencies.**



**An “A-B-C” fire extinguisher can be used on all types of fires.** Other types of extinguishers work only on certain types of fires.

Anticipating and planning for emergency response minimizes possible injuries and property damage.

- **Learn the standard emergency response procedures** described in the [UCSD Emergency Guide](#).
- **Locate the nearest emergency equipment** for your work area:
  - Telephones
  - UCSD’s Emergency Guide and first aid kit
  - Eye wash and douse shower
  - Fire extinguishers and fire alarm pull stations
- Read [Fire Extinguisher Overview](#) to learn about different types of extinguishers and how to have them serviced or replaced.
  - Read [How to Use a Fire Extinguisher](#).
- **Notify your supervisor immediately** when a work-related accident or injury occurs.
- Read [What to Do if a Work-Related Injury or Illness Occurs](#).

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☑ **Follow UC vehicle safety guidelines when you drive a UCSD vehicle.**

Drivers are responsible for the safe and legal operation of UCSD vehicles.

- **Read** [UCSD Vehicle Driver Responsibilities](#) to learn about your responsibilities, what to do when an accident happens, and what happens after an accident.
- **Attend** [UCSD Vehicles Driver Responsibility Training](#) if you drive a UCSD-owned vehicle as part of your job duties.

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☑ **Learn about asbestos awareness training for employees who may encounter asbestos in their work.**



Asbestos abatement technician monitoring demolition

**Important:** Only the following departments are allowed to conduct and manage asbestos abatement projects at UCSD:

- Facilities Design & Construction
- Facilities Management
- Housing & Dining Services
- Medical Center Facilities Engineering

**Read** [Asbestos Awareness for Trades Employees](#) on Blink if it's possible you may encounter asbestos while performing your job. UCSD employees who should receive Asbestos Awareness training include:

- Facilities Management maintenance, trades, and custodial personnel
- Housing & Dining Services maintenance employees
- Science departments' technical shop personnel
- Telecommunications technicians

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☑ **Learn about UCSD's Bloodborne Pathogens Program.**

UCSD has a [Bloodborne Pathogens Program](#) (BPP) in place to help prevent job-related exposure to human blood and other potentially infectious materials and to protect employees who may reasonably be expected to be exposed to BBPs as part of their normal duties. Trades employees typically are not included in this category.

**Contact EH&S Biosafety** if you have questions about potential exposure to BBPs:

- E-mail: [ehsbio@ucsd.edu](mailto:ehsbio@ucsd.edu)
- Phone: (858) 534-5366

**Attend BBP training**, as directed by your supervisor, if job-related exposure to bloodborne pathogens is a possibility for you.

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- ☑ **Follow strict procedures when work involves entering confined spaces.**



Preparing for confined space entry

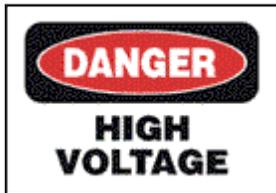
UCSD personnel entering confined spaces on campus for repairs, inspection, and maintenance may encounter extremely hazardous atmospheric conditions or access difficulties, which could become life threatening. Locations may include sewers, tanks, boilers, crawl spaces, vaults, storm drains, pipelines, among others.

**Confined space entry is strictly regulated in California.** If you must enter confined spaces during the course of your job duties, do the following:

- Read [UCSD's Confined Space Program](#) for the characteristics of a confined space as defined by Cal/OSHA, and to learn about the policies and procedures governing confined space entry at UCSD.
- Attend [confined space training](#) before beginning work, and annual refresher training thereafter.

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- ☑ **Evaluate the risks and hazards when planning and performing work on or near electrical systems and equipment.**



High voltage signs signal a sustained voltage of more than 600 volts.

- Use a **trained professional** for electrical work. Obey barriers, signs, and other warnings to stay away from electrical equipment you're not authorized or trained to service.
- Read [Electrical Safety for UCSD Trades Employees](#) for more detailed information.

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- ☑ **Be aware of ergonomic risk factors associated with the kind of work you do, and learn how to work safely and comfortably.**



Bend your knees when lifting

Most work-related muscular and skeletal disorders are preventable when you understand and apply basic ergonomic principles.

- Read about **ergonomic risk factors** and what you can do to alleviate discomfort and reduce your risk of injury:
  - [Ergonomic Awareness: Risk Factors](#)
  - [How to Safely Lift and Carry](#)
  - [Maintaining a Healthy Back](#)
  - [Ergonomics: The Employee's Role](#)

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- ☑ **Obtain required training to operate a forklift.**



Forklift operator

Classified as industrial trucks, operation of forklifts is regulated by the State of California. Supervisors are responsible for ensuring employees are trained and certified before permitting them to operate a forklift at UCSD.

- **Obtain training from a certified instructor** before operating a forklift. Training may be conducted by one of the following:
  - A UCSD employee who is a certified forklift instructor
  - An independent certified instructor
    - **Important:** Training must be specific to the equipment the employee will operate.
- **Post and enforce** operating rules in work areas where forklifts are operated.
  - Print [forklift operating rules](#) (PDF). Set your printer for landscape orientation.

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- ☑ **Learn how to safely work with and store chemicals or hazardous materials.**



Flammables storage container

[UCSD's Hazard Communication Program](#) ensures workers understand the hazards associated with the chemicals they work with, have access to current risk assessment resources, and receive training about how to minimize the risks associated with the hazardous materials they handle.

Follow the steps below to meet these requirements if you work with hazardous materials.

- **Always review the Material Safety Data Sheet (MSDS)** before starting work with a new chemical.
  - Access [Material Safety Data Sheets](#) (MSDSs) and other chemical hazard information from any UCSD Internet-connected computer.
  - Read [Material Safety Data Sheets Explained](#) to learn how to read and understand a MSDS.
- **Learn basic chemical safety practices and procedures** for UCSD shops and studios:
  - [General Chemical Safety Guidelines](#)
  - [Chemical Storage Guidelines](#)
  - [Flammable and Combustible Liquids Storage Guidelines](#)
  - [Compressed Gas Guidelines](#)
- **Take [Annual Shop & Studio Environmental Compliance & Hazards Training](#)** if you work with hazardous materials.

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- ☑ **Recognize and control the risk of heat illness when working outdoors in heat.**



Hot summer temperatures increase the risk of heat-related illness.

**Heat illness is a serious medical condition** that results when the body is unable to cool itself by sweating.

Reduce the risk of heat illness by learning how to recognize hazardous conditions and protect yourself when working outside in the heat, or other hot environments.

- **Read [Heat Illness Prevention](#)** for detailed information.

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- ☑ **Take special precautions for work involving heat, sparks, or flames.**

The heat and fire hazards associated with welding, brazing, and soldering require special precautions. Fumes may also be an issue for both the worker and building occupants.

- **Notify EH&S in advance**, (858) 534-3660, if you are concerned your work may cause a hazardous condition.
- **If your work will produce** sparks, flames, heat, fumes, or airborne particles, coordinate with the Department Safety Coordinator or Department Safety Officer to:
  - Protect the respiratory health of occupants
  - Protect research projects
  - Ensure flammable materials in or near the work area are removed or adequately shielded from ignition sources
- **Wear appropriate PPE** for hot work. See [Personal Protective Equipment \(PPE\)](#) for more information.

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- ☑ **Practice fall protection procedures on ladders and lifts.**



UCSD's mobil platform

Trips, slips, and falls are among the most frequent types of accidents. Elevated falls, even from a few feet, can result in more severe injuries such as broken bones, internal injuries, permanent disability, and even death.

- **Get required safety training before beginning work.** Supervisors are required to provide basic operational and safety training at UCSD for work involving:
  - Ladders, mechanical lifts, and mobil platforms ("cherry pickers")
  - High elevations (such as roof tops or scaffolding)
  - Activity adjacent to floor openings or pits (theater scenery pits)
- **Learn how to prevent** the most common hazards involving ladders, mechanical lifts, and elevated platforms.
- **Read [Ladder and Lift Safety](#)** for more information.

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- ☑ **Practice lockout/blockout procedures for work involving energy sources and machinery.**



Local disconnects

Lockout/blockout (LOBO) practices ensure that all energy sources are disengaged or blocked, and that electrical sources are de-energized and locked in the “off” position during work or repair.

Equipment or machinery affected includes, but is not limited to, those with any of the following energy sources:

- Electrical
- Hydraulic
- Pneumatic
- Mechanical
- Thermal
- Chemical
- Radiation-producing machines

Employees who directly operate, repair, or maintain equipment or machinery where unexpected energization could cause injury or death, must receive lockout / block-out training before beginning work.

- **Read [Lockout/Blockout Training](#)** for details.

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- ☑ **Use required machine and tool guards.**



Sander

Most machines and many power tools require guards to protect operators and bystanders from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips, and sparks.

- Make sure guards are properly set up, adjusted, and firmly secured.
- Post warning signs and use reflective tape to outline the potentially hazardous areas around machinery.

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- ☑ **Follow these guidelines for work in occupied laboratory spaces.**

Sensitive experiments can be destroyed by exposure to light, changes in temperature, or contamination from the outside environment.

- **Coordinate your work with the [area safety coordinator](#) or lab manager** by doing the following:
  - **Explain the work that will be performed**, especially any actions that could affect lab operations.
  - **Give advanced warning** for the following possibilities:
    - Utility shut-offs, so experiments and sensitive materials can be protected with alternative power sources
    - Work with equipment that may generate heat or sparks, so flammable materials can be safely stored away from the work area
  - **Wait for lab personnel to clear the work area**



Wait for lab personnel to clear the work area of hazardous materials and contamination before you begin work.

of hazardous materials and contamination **before** beginning work.

- **Do not move lab equipment or chemicals** without direct assistance or approval from lab personnel.
- **Contact your supervisor and wait for instructions** if there is no one in the lab to assist you when laboratory equipment or chemicals need to be moved. Do not start work until specifically cleared to do so.
- **Take these steps to protect yourself** from hazards in laboratories:
  - **Do not eat, drink, or apply cosmetics** in a lab.
  - **Wash your hands** after leaving a lab.
  - **Wear the following personal protection equipment** as necessary:
    - Gloves
    - Single-use surgical type Nitrile gloves are recommended to protect against potential contamination
    - Leather gloves guard against possible puncture or lacerations
    - Eye protection (many labs require safety glasses to be worn at all times)
    - Protective clothing, such as a lab coat or coveralls
- **Do not work near** waste containers or work surfaces labeled with biohazard, radioactive, carcinogen, or other specific [warning signs](#).

#### **Follow these guidelines for work inside a fume hood:**

- **Do not remove or disturb** equipment or materials yourself.
- **Wait for laboratory staff to remove equipment and supplies** from the fume hood, and decontaminate the inside surface.
  - Obvious chemical residues must be removed by laboratory staff before your work begins.
  - The Safety Coordinator or Department Safety Officer will determine whether the fume hood has been used for work with perchloric acid **before** ANY work can be done.
- **Wear heavy rubber gloves (or other impervious material) and safety goggles** for work inside a fume hood. Disposable coveralls are recommended. Immediately wash or dispose of the gloves and coveralls after use.
- **Be alert for the possibility of asbestos-containing materials.**
  - The hard gray panels on the inside of many older hoods are made of transite, which contains asbestos. Removal of transite or other asbestos must be coordinated with Environment, Health & Safety (EH&S).
  - Read about [asbestos awareness](#) above for more information.



Do not disturb or remove equipment or materials from a fume hood

#### **Be aware of these possible research facility hazards:**



Large liquid nitrogen dewar

- Hot equipment that can cause burns, such as hot plates and autoclaves
- Cryogenics (super cold), such as liquid nitrogen dewars (see image at left)
- Research animals that may bite, scratch, or cause allergic reactions
- Sharp objects and instruments

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☑ **Follow these guidelines for work in a vacated laboratory space.**



Red clearance card indicates decontamination and clearance procedures are in progress



Green clearance card is posted by EH&S when a facility is cleared of known hazards

When a research group leaves a laboratory, a clearance survey is performed to ensure hazards are not left behind.

- **EH&S posts a red tag** when researchers vacate a lab, to indicate decontamination and clearance procedures have begun in the facility. A red tag means it is safe for custodians to enter and empty regular trash, but **not** for trades employees to begin work.
- **EH&S posts a green clearance tag** after hazards are removed, indicating the facility is safe for trades employees to enter and begin work.
- **Report hidden hazards** (such as broken glass, needles, or small amounts of mercury metal in drain traps) discovered after work begins to your supervisor or the responsible Area Safety Coordinator. Do not resume work until the hazard has been corrected.

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☑ **Be aware of hazards associated with utilities infrastructure.**

Hazards associated with utilities include (but are not limited to):

- Electrical shock from high voltage sources
- Temperature extremes from hot water lines
- Sewage from plumbing conduits
- Sudden release of pressurized materials and shrapnel from ruptured pipes
- Scalding from pressurized steam lines

**Practice standard operating procedures that include the following:**

- Wear appropriate personal protective equipment for work on or adjacent to utility lines and high voltage sources.



Employee operating valves

- Be alert for overhead power lines when using ladders or a mobil platform.
- Verify the location of all buried or embedded utilities before digging or cutting.
- Practice [lock out/block out](#) procedures, for both energized equipment and other interruptions of a utility service if unexpected resumption could be harmful. Know the emergency shut-off procedures.
- Work with a partner. Never enter utility tunnels, enclosures, or vaults without telling someone where you are.

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**Report pests to EH&S.**

Request [pest management service](#) to control insects, spiders, or rodents that interfere with your ability to perform your work.

- **Contact EH&S Pest Management** for assistance:

E-mail: [ehspest@ucsd.edu](mailto:ehspest@ucsd.edu)

Phone: (858) 534-7513 or (858) 534-4534

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Find more [safety resources for trades employees](#) on Blink.

**Questions?** Contact Kris Morris: [krmorris@ucsd.edu](mailto:krmorris@ucsd.edu), (858) 534-6027 or 534-3660.

**UC San Diego**  
Environment, Health and Safety