



The Safety Guide

Department of Environmental Health & Safety

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Contact Us:

Department of Environmental Health & Safety
3102 Horsebarn Hill Road, U-4097
Storrs, CT 06269-4097

Phone: 860-486-3613
Fax: 860-486-1106

Web: www.ehs.uconn.edu
Email: ehs@uconn.edu

[Environmental Health & Safety Directions](#)

From the Director's Desk: *Safety Inspections: What to expect when your workplace is being inspected*

Protecting students and employees is a top priority for the University of Connecticut. One way the University ensures safety is through workplace (laboratories, machine shops, etc.) safety inspections. Safety inspections are the basic tool to identify and eliminate hazards before accidents and personal injuries occur. Principle Investigators (PI)/Area Managers (AM) or designees should be informally inspecting their areas and correcting safety issues on a daily basis. Environmental Health & Safety Department (EHS) inspections are performed as a follow up to confirm that workplaces are free of identified hazards and also to comply with UConn policies along with Federal and State requirements.

What should you expect when your workplace is being inspected? Whenever possible, PI/AM's (or designees) are encouraged to participate in the process. The duration of the inspection depends on the size, complexity and hazards in the area. At the conclusion of the inspection, the PI/AM or designee will be advised onsite of any critical safety findings. EHS staff will follow up with a formal inspection report sent to the PI/AM. The following is a list of expectations:

EHS inspector

- Notify the department that upcoming inspections will be performed.
- Introduce themselves (whenever possible) to the PI/AM and other occupants in the area.

- Inspect premises & document concerns/violations with pictures, as needed.
- Discuss any critical findings and concerns with PI/AM or other responsible parties in the area.
- Generate and transmit a written inspection report to PI/AM.
- Track PI/AM responses and verify closure of findings during the next inspection of that area.

PI/AM or designee

- Attend and participate in the inspection, when feasible.
- Relate any area safety concerns or questions to the EHS inspector(s).
- Answer site-specific questions from the inspector(s).
- When present, participate in inspection summary and ask for necessary clarification.
- Respond to inspection report in a timely manner with corrective actions taken or clarification requests.

EHS inspections provide compliance assistance to help prevent injuries to individuals and lowers the risk of citations to departments from regulatory agencies (OSHA, EPA, NRC, DEEP, CT-DPH, etc). The main objective is that corrective action be carried out in a timely manner. We must all do our part to ensure a safe and healthy work environment. At UConn, EHS inspectors are your partners in assessing workplace hazards and helping to maintain a safe campus.

-Terence Monahan

Clean Air Device Certification and Maintenance

Do you have a clean air device? Thinking about getting one? Here are a few things to consider. A clean air device is any equipment that delivers HEPA filtered air to a work surface. Biological safety cabinets (sometimes called tissue culture hoods), clean benches and PCR enclosures are some common devices found in a laboratory. Biosafety wants to help you choose the right device for your needs. Contact Biosafety before you make a purchase. Fill out and submit [Form J](#) which includes space for a brief description of the device's intended use. Some non-standard uses of clean air devices may require Biosafety Committee approval.

Clean air devices must be certified at set up and annually thereafter. (Some PCR enclosures do not require the annual certification. Check the owner's manual under maintenance to find out.) Biosafety coordinates the certification with the University's contracted vendor. An email reminder that a unit is due for recertification will be sent to device owners and/or their designee. Simply respond to the email by providing an FRS number for billing and an appointment will be scheduled for recertification.

Biosafety will also assist with service calls. Call Biosafety first if an alarm is sounding, or there are contamination issues. It may save you the cost of a vendor service call. Biosafety is the point of contact for the vendor, therefore it is important to inform us first of any service issues. For questions about clean air devices, the service contract or to schedule maintenance please contact [David Cavallaro](#), 486-3180 or [Dawn Kemp](#), 486-1105.

Are you moving out of a laboratory?

University of Connecticut laboratories must be left in a state suitable for new occupants or for renovation activities. The vacating Principal Investigator and Department are responsible for the removal of all chemical, biological, and radioactive waste materials prior to vacating the space. The departing Principal Investigator should complete a [Laboratory Clearance Form](#) and submit the form to Environmental Health & Safety. This form outlines the proper procedures for vacating a laboratory and should be completed well before lab operations cease. Abandoned laboratories are a source of unknown and unlabeled laboratory containers which can be expensive to dispose of.

Upon completion of the form, EH&S will arrange to inspect the laboratory space.



Protection from Mosquito and Tick Bites

Spring is coming and with it the mosquitoes and ticks that may spread the viruses or bacteria that cause [West Nile Virus](#) and [Lyme Disease](#). Follow these tips to prevent tick and mosquito bites.



Consider using an insect repellent on exposed skin and clothing (according to label directions). Try this insect repellent [search tool](#) to find the best product for various environmental conditions. Find out more about the active ingredients in insect repellents [here](#). If out in the [sun](#), follow the instructions on the package for proper application of sunscreen and insect repellent. The CDC [recommends](#) applying sunscreen first, followed by insect repellent.

The right clothing can help prevent mosquito and tick bites. Wear light-colored clothing to make ticks easier to spot. Wear close-toed shoes and tuck pant legs into socks and shirts into pants to prevent ticks and mosquitoes from biting exposed skin. Take extra care to use repellents and protective clothing from dusk to dawn when mosquitoes are most active. To prevent mosquitoes from getting in the house, make sure window and door screens are in good repair.

Mosquitoes lay their eggs in standing water. Remove mosquito habitat in the yard by eliminating standing water in buckets, old tires, on tarps, in gutters, toys or any other containers. Change water in bird baths, wading pools, fountains and rain barrels weekly to prevent mosquito breeding. Follow [this link](#) to find out about reducing tick habitat in the back yard.

Ticks can't jump or fly, but do climb grasses and shrubs in order to catch a ride on people or pets. Reduce the amount of time spent in overgrown grassy areas and walk in the middle of trails to avoid contact with shrubs and trees.



Tick bites may be painless at first so a person may not realize they've been bitten. Most tick-borne diseases require the tick to be attached and feeding for several hours before the person gets infected so it is important to perform a check for ticks immediately after being in a tick-prone area. If a tick is found, [remove it](#) promptly. Remember to check coats, backpacks and other gear. Talk to a veterinarian about options for controlling ticks on pets.

Safe Use of Compressed Gas Cylinders

Compressed gas cylinders can pose serious hazards if mishandled. Damage to the valve or integrity of a cylinder can result in a large release of potential energy, transforming the cylinder into a rocket or fragmentation bomb. Safe management of cylinders requires an understanding of the chemical hazards associated with each gas (e.g. toxic, flammable, corrosive, explosive, oxidizing, inert or a combination of hazards) as well as awareness of the hazards resulting from the high pressures contained in each cylinder (e.g. asphyxiation, decompression, etc.). Material safety data sheets (MSDSs) should be reviewed prior to the handling, use, storage, or transport of any compressed gas. In addition, training should be provided by faculty or staff when new gases, or new equipment that uses compressed gases, are brought into laboratories. The following guidelines concerning compressed gas cylinders should be followed at all times:

Handling & Use

- The contents of each cylinder should be clearly labeled. Do not accept cylinders from manufacturers without proper labels.
- A cylinder cap or regulator valve should be in place at all times.
- Each cylinder should be secured with a chain, strap or cable to a wall or lab bench that can fully support its weight.
- Cylinders should be secured individually (i.e. one restraint per cylinder.)
- Use only the regulator designed for the specific gas being used. The regulator and cylinder should be accessible at all times.
- Cylinder valves should be closed when equipment is not in use, even when cylinders are empty.
- Instrument connective tubing hoses and fittings should be rated for the gases being used.
- Hoses connected to compressed gas cylinders should not be laid across floors or aisles where they could be damaged or create a trip or fall hazard.
- Regulators, valves, hoses and distribution lines should be free of oil or grease and examined for leaks or other damage before each use.
- Appropriate personal protective equipment must be provided to employees for the specific gases being used. Eye protection must always be worn regardless of the compressed gas.

Storage & Disposal

- Cylinders must be stored upright.
- Store in well-ventilated areas (i.e. no cold rooms) away from direct sunlight and sources of heat and ignition.
- All cylinders should be stored based on hazard class.
- Do not store cylinders where heavy-moving objects may strike or fall on them.
- Cylinder storage areas should be protected from access by unauthorized personnel.
- Oxidizing gases must be stored at least 20 feet away from flammable gas cylinders or the storage area must be separated by a fire-wall at least 5 feet high with a 30 minute fire resistance rating.
- Cylinders containing toxic gases (e.g. arsine, carbon monoxide, phosgene, etc.) should be stored in locations with suitable ventilation/exhaust (e.g. fume hood, ventilated gas cabinet, etc.).

- Separate and secure full and empty cylinders.
- When returning an empty cylinder, close the valve leaving 25 psig of residual pressure in the cylinder, secure the cover cap, label the cylinder with the letters "MT" and contact the vendor to remove the cylinder from the lab.

Transport

- At a minimum, protective eyewear should be worn during transport of gas cylinders.
- Cylinder caps should be in place at all times (i.e. never transport a cylinder with a regulator in place).
- Cylinders should be moved on an approved cart and secured with a strap or chain.
- Cylinders should never be rolled or dragged.
- Depending on the weight of the compressed gas, two individuals may be needed to safely transport the cylinder.

By following these guidelines, the risks and hazards associated with the use of compressed gases can be minimized. However, in addition to these guidelines provided by EHS, adequate instruction and oversight by principal investigators or other qualified individuals is imperative to ensure the safe use and maintenance of compressed gas cylinders by all employees.



Airport Screening and Radiation Exposure

With air travel regaining popularity and increased security measures, airport security screening has become an area of interest for many people. Travelers are required to go through metal detectors and /or x-ray systems and their personal belongings are x-rayed. Even with all of the screening, radiation exposure, both to the traveler and the screener, is minimal and far below any level that would be of concern.

* **Metal Detectors**

Metal detectors use low-intensity magnetic fields to detect metal objects. When metal passes through these fields, sensors detect a change in the fields and an alarm goes off. Even though magnetic fields are a form of radiation, the radiation the machine emits is non-ionizing. Essentially, this means that exposure to these low-intensity magnetic fields does not cause biological damage. Therefore, even repeated exposure to metal detectors has no associated radiation risk.

* **Luggage Screening**

Self-contained machines are used to screen baggage by using x-rays to analyze the contents. The amount of radiation used is higher than in other technologies but this is contained within the x-ray machine. Passengers and workers are exposed to very little radiation.

* **Backscatter/ Soft X-Ray Systems**

Some of the newest traveler screening systems use x-rays for full-body scanning of travelers. In these systems, low-energy x-rays bounce off of the skin and back to detectors to show an image. That image will show hard objects (such as weapons) as well as soft objects (like a packet of gel or powder, which would not be caught by metal detectors). Unlike metal detectors, these systems use ionizing radiation. Ionizing radiation, like x-rays, has the potential for damaging human DNA. Because the public is being exposed to this radiation, expo-

sure must be limited to a safe level. An American National Standards Institute/ Health Physics Society industry standard states that the maximum



allowable effective radiation dose for an individual from one screening (generally two scans) is limited to 0.025 mrem. Actual doses are on the order of 0.001 to 0.005 mrem per scan. This amount of exposure is well below any level of concern and, in fact, is less than 1 percent of the radiation you receive from natural sources in a single day or less than two minutes of radiation exposure typically received during a commercial airplane flight. This means the risk is very small.

Air travel is a part of modern living and the need for safe travel continues, especially given the ongoing threat of terrorism. The technology used in screening people and their belongings exposes the travelers to minimal amounts of radiation.

NOTE: Individuals who have been issued radiation monitoring badges at UCONN should only wear them to monitor occupational exposure when working with radioactive material at the University. The badges should not be used or stored outside the University for non-occupational activities, such as travel.

Source: Health Physics Society Fact Sheet (Adopted May 2011)

Space Heater Safety



The winter of 2011/2012 has been very mild; however, there may still be the occasional cold snap and heating outage that can challenge our ability to stay warm indoors. At times, building occupants may turn to space

heaters to meet that challenge. However, if not used safely, space heaters can pose serious fire risks. In 2009, over 18,000 residential fires in the U.S. involved space heaters. These fires resulted in 400 deaths, 1,100 injuries and more than half a billion dollars of property damage.¹

Due to these serious safety concerns, the routine use of space heaters is strongly discouraged. UConn's [Space Heater Policy](#) restricts the use of space heaters in university buildings and provides direction on their proper use. They should be reserved for times of heating system failures rather than as a means for supplementing an existing heating system.

UConn building occupants should first contact Facilities Work Order Control (486-3113 or [online](#)) to request assistance in repairing a

heating system or adjusting the temperature of an area. If these repairs or adjustments are not successful, the temporary use of space heaters is permitted. However, space heaters are not permitted in:

- Residential occupancies*
 - Laboratories
 - Inpatient units
 - Storage areas
 - Areas not actively occupied by people
- *except when issued by permit through the UConn Fire Department in emergencies.*

Only [Approved Space Heaters](#), available through Central Stores, are allowed in UConn buildings. To ensure that all space heaters meet current safety guidelines and can be easily tracked in the event of a recall, the UConn Fire Department and EH&S have approved a limited selection of space heaters for use within UConn.

Always read and follow the manufacturer's instructions before using a space heater. In addition, space heaters should be kept away from combustible materials and should never be left unattended. Consult the [Space Heater Policy](#) for the complete list of *Safe Use and Care Procedures* for operating a space heater.

¹National Fire Protection Association (NFPA), <http://www.nfpa.org/assets/files//PDF/>

Training

Visit our website for a complete list of safety training [Course Descriptions and Schedules](#) and to register for upcoming classes. There are also helpful checklists of mandatory training for personnel in [laboratory](#) and [non laboratory](#) settings. EHS HuskyCT on-line safety classes can be completed anytime throughout the semester. [Pre-Register](#) first, then allow up to 2 business days to obtain access to a [HuskyCT](#) class. *Read instructions carefully before starting the HuskyCT on-line class.*

NEW! Training Offerings ONLINE!: [Hazard Communication](#) - required for any University employee working in a non-laboratory setting whose job involves working with chemical products.

[Respiratory Protection—Voluntary Use of Dusk Masks](#) - required for any UConn employee who chooses to wear a dust mask for comfort purposes only. Questions or concerns can be sent to ehs@uconn.edu.