

FIRE MARSHAL'S OFFICE

Hot Work (Welding, Brazing, Soldering, Cutting & Grinding) Guidelines

Hot Work is any work activity that generates a flame, heat or sparks such as welding, brazing, soldering, torch cutting or grinding. The California Fire Code requires a fire permit to perform hot work operations. The fire permit is issued by the UCDH Fire Marshal's Office and is required to perform any hot work activity at UCDH.



Facilities, Design and Construction (FD&C) and Plant Operations and Maintenance PO&M) employees managing contracted projects that include any hot work activity shall coordinate accordingly with Auxiliary Services and/or the Fire Marshal's Office. These guidelines shall be followed for any projects that include any hot work activity inside or within 100 feet of hospital/campus buildings.

Non-Emergency Hot Work

- All non-emergency hot work must be scheduled at least 3 business days in advance with the UCDH Fire Marshal's Office and a hazardous conditions permit must be obtained (see UCDMC Policies and Procedures 1651, Hazardous Conditions Permits)
- Advanced coordination and approval is needed with the UCDH Fire Marshal's Office to have any fire protection system remain de-activated past normal working hours – Monday thru Friday, 8:00am – 5:00pm, excluding holidays.

Requirements

- ✓ A fire watch must be conducted by the person performing the hot work or qualified designee for 1 hour following the completion of any hot work under this procedure on campus.
- ✓ Persons performing painting, demolition, ceiling tile removal/installation or any other activity that could negatively affect a fire protection system or device must consult and coordinate with UCDH Fire Marshal's Office, to obtain a hazardous conditions permit, and Auxiliary Services prior to starting the activity.
- ✓ Only a trained and authorized PO&M employee can install/remove the protective cover(s) or bag(s) from smoke detectors.
- ✓ Soldering activities don't generally require coordination. A hot work permit for soldering activities will be issued to each PO&M shop annually, as requested. Prior to renewal, refresher training on the Hot Work Procedures must be conducted by the UCDH Fire Marshal's Office.
- ✓ PO&M employees will coordinate with Auxiliary Services and have a valid Hot Work Permit from the UCDH Fire Marshal's Office prior to starting any welding, torch cutting or grinding activity.



- ✓ All Hot Work in confined spaces are considered Permit Required Confined Space entries; they shall have a Hot Work Permit issued by the UCDH Fire Marshal's Office plus inform the UCDH Environment Health and Safety (EH&S) Department of the hot work activity.

Contract Work

- For contract work in UCDMC/UCDH, PO&M and FD&C Project Managers are responsible to ensure that they or their designees coordinate with Auxiliary Services to identify the fire protection system in operation and coordinate with UCDH Fire Marshal's Office to request a Hot Work Permit. The work order number will be printed on the Fire Marshal's Office issued permit.
- It is critical that as soon as any hot work is complete (including a fire watch for 1 hour) the UCDH Fire Marshal's Office shall be notified and the fire protection system shall be reactivated or if "bag" method is used the bag(s) must be removed by a PO&M employee.
- Contractors are prohibited from altering, disabling or modifying any fire protection system, device or related fire protection equipment on campus unless specifically permitted in writing by the Fire Marshal's Office. Only trained and authorized PO&M employees may disable (for hot work purposes) a fire protection device, deactivate a zone or use the bag method.

Other Contracted Activities That Could Affect Fire Protection Systems

The project manager overseeing contractors performing painting, demolition, ceiling tile removal/installation or any other activity that could negatively affect a fire protection system or device shall consult and coordinate with Auxiliary Services prior to starting the activity.

Welding Safety Guidelines

- Only approved devices shall be used for pre-mixed air or oxygen and combustible gases.
- Transferring gases between cylinders or mixing gases in cylinders is not permitted.
- The use of liquid acetylene is prohibited.
- Do not allow acetylene gas to be brought in to contact with unalloyed copper except in a blowpipe torch.
- Acetylene gas shall be stored, transported and used in the vertical, upright position.
- Approved and marked oxygen and fuel gas pressure regulators must be used at all times. Fuel gas must never be used from the cylinder through torches or other devices equipped with shut off valves without reducing the pressure through a suitable regulator attached to the cylinder valve manifold.
- All equipment, including cylinders, hoses, valves etc., shall be kept free from oil and grease.
- Do not handle oxygen cylinders with oily and/or greasy hands or materials.
- Use suitable cradles when moving cylinders. Do not use rope slings and/or electromagnets.
- Place cylinders away from the welding operation so that they will not be unduly heated by radiation from heated materials.



- A fire watch shall be maintained for at least 1 hour after a completed welding or cutting operation to detect and extinguish possible smoldering fires.

Soldering/Brazing Safety Guidelines

- Soldering/brazing operations must not take place within three feet of chemical and/or combustible materials.
- Items being soldered/brazed must be free of dust, dirt, oil or any other material which will generate smoke.
- Soldering/Brazing operations must not take place any closer than ten feet horizontally from a smoke detector.
- The area where the soldering/brazing operation is taking place must be confined from adjacent areas (i.e. doors to rooms must be closed).
- Material, including drywall, adjacent to soldering/brazing operations must be protected (use of welding blankets is recommended).
- Personnel performing soldering/brazing operations must have a fire extinguisher, minimum rating 2A 10BC (generally a 5 pound dry chemical extinguisher will suffice) in their immediate possession during all brazing operations. Solders/Brazers must not use extinguishers located in the building/area in which they are brazing to meet the requirements stated in the previous sentence.
- Personnel performing soldering/brazing operations must remain in the immediate vicinity for a minimum of 1 hour after completion of brazing activities.
- In areas/buildings where research activities are performed or where chemical or combustible materials are involved, the person performing soldering/brazing operations must contact the Fire Marshal's Office at 734-3036 to determine if it is necessary to turn off the local fire alarm and/or fire sprinkler system. If the Fire Marshal's Office decides it is necessary to disable the fire alarm and/or sprinkler system, then Auxiliary Services shall be contacted to immediately initiate the shutdown request. If the response will take more than one hour, the supervisor for the area impacted by the "down" equipment (example: refrigerator) will be notified by the Auxiliary Services or the Fire Marshal's Office supervisor on duty. It will be the responsibility of the person performing the soldering/brazing operation to provide Auxiliary Services or the Fire Marshal's Office the name of the supervisor for the area impacted.
- During off hours (nights, weekends, holidays) the personnel performing soldering/brazing operations for the areas indicated above must contact PO&M at 4-2763 to coordinate a fire alarm and/or sprinkler system shutdown. The PO&M Engineer will determine if a shutdown is necessary in accordance with these guidelines for urgent or emergency work. Pre-scheduled work requiring a shutdown must be addressed prior to the day of the shutdown by completing the PO&M Access Authorization Form and submission to PO&M, Suite 1500, 4800 2nd Avenue, Facilities Support Services Building.



Hot Work Safety Checklist

Get the Proper Approvals First:

- Contact Auxiliary Services to identify the fire protection system in operation (i.e. zone, duct or smoke detectors). Make sure system is correctly deactivated by an authorized and trained Auxiliary Services employee prior to starting work.
- If Contract work is involved, provide this checklist to the Contractor. Contractors cannot alter, disable or modify any fire protection system, device or related fire protection equipment on campus).
- Complete a Hazardous Conditions/Hot Work Permit Application, if needed, on UC Davis Health Fire Marshal's Office website; <http://www.ucdmc.ucdavis.edu/fire/permits.html> (3 business days' notice for non-emergency activity)

Setting up the work area

- Erect signs, barricades (Welding shields if applicable) and secure area preventing unauthorized entry.
- Have an appropriate fire extinguisher (20 pound minimum) available or in close proximity (Do not remove fire extinguishers from buildings).
- Work area must be cleared of all combustible materials (minimum 25 feet). Where items cannot be removed, they must be protected by appropriate fire prevention device.
- Have proper PPE (Personal Protective Equipment) for the job (i.e., welding hood, face shields, goggles, clothing & gloves, etc.).
- Area must be properly ventilated.

After Hot Work is Complete

- Conduct Fire Watch (1 hour).
- Call UCDH Fire Marshal's Office when Hot Work and Fire Watch are completed.

**If a fire or other emergency is discovered, the appropriate emergency personnel are immediately notified by dialing 911 or activating the building's fire alarm system. If the building's fire alarm system is not operational and the building is occupied, the use of an air-horn type device for notifying occupants is recommended as long as the occupants have been notified of the change in emergency audibility *in advance*. The individual(s) serving as the Firewatch is/are reminded not to compromise their own safety. Report ALL fires to UCDH Fire Marshal's Office.

Please contact UCDH Fire Marshal's Office if you have any questions 916-734-3036