Welding, Brazing & Cutting Guidelines

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

Facilities, Design and Construction and Plant Operations and Maintenance employees managing contracted projects that include any hot work activity shall follow the Non-Emergency Hot Work: Hot Work Procedure for UCDHS Plant Operations and Maintenance.

Non-Emergency Hot Work:
- All non-emergency hot work must be scheduled at least 48 hours in advance with the UCDHS Fire Prevention Department and a hazardous conditions permit must be obtained (see Hazardous Conditions Permit Firenet).
- Advanced coordination and approval is needed with the UCDHS Fire Prevention Department to have any fire protection system remain de-activated past normal working hours – Monday thru Friday, 8:00a.m. – 5:00p.m. excluding holidays.

General Requirements:
- A fire watch must be conducted by the person performing the hot work or qualified designee for 30 minutes 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 the UCDHS Fire Prevention Department 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.

Contract Work

- For contract work on campus, 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 the UCDHS Fire Prevention Department to request a Hot Work Permit. The work order number will be printed on the Fire Prevention Department issued permit.

- It is critical that as soon as any Hot Work is complete (including a fire watch for 30 minutes) the UCDHS Fire Prevention Department 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 Prevention Department. 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.

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 (30 minutes).

- Call UC Davis Fire Dispatch (530-752-6317) when Hot Work and Fire Watch are completed.
Welding Safety Rules

- 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 30 minutes after a completed welding or cutting operation to detect and extinguish possible smoldering fires.
Hot Work Procedure for PO&M Sponsored Projects That Affect Building Fire Protection Systems

Effective Date: January 15, 2011

Definitions:
Hot Work is any work activity that generates a flame, heat or sparks such as soldering, brazing, welding, torch cutting or grinding.

An authorized PO&M employee is an employee that can perform assigned specific hot work tasks safely and be able to coordinate with Auxiliary Services. The authorized employee shall obtain necessary Hot Work permits from the UCDHS Fire Prevention Department, conduct fire watches and, for interior work, is knowledgeable in the installation and removal of smoke detector covers.

Scope:
This hot work procedure shall be followed by PO&M employees and on PO&M and FD&C contracted projects that include any hot work activity inside or within 100 feet of campus buildings.

Non emergency hot work:
All non-emergency hot work requiring coordination with Auxiliary Services and/or the UCDHS Fire Prevention Department must be scheduled at least 48 hours in advance.

Advanced coordination and approval is needed with Auxiliary Services and the UCDHS Fire Prevention Department to have any fire protection system remain de-activated overnight for any welding or cutting activities. 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.

Fire Watch:
A fire watch must be conducted by the person performing the hot work or qualified designee for 30 minutes following the completion of any hot work under this procedure on campus.

Hot Work being performed by Authorized PO&M Employees:
- Responsibilities for Welding, Torch Cutting, Grinding
  PO&M employees will coordinate with Auxiliary Services and have a valid Hot Work Permit from the UCDHS Fire Prevention Department prior to starting any welding, torch cutting or grinding activity.

  Auxiliary Services is responsible to determine the type of fire protection system present and whether an alarm technician is needed for zone de-activation. In the case of a smoke detector type system, a trained PO&M employee may be authorized to use the “bag” method on smoke detector(s). If the “bag” method is used, it is critical to remove the bag from the smoke detector(s) as soon as the hot work activity is complete.

  The UCDHS Fire Prevention Department shall be notified at the completion of hot work and fire watch activities.
• **Responsibilities for Soldering and Brazing Activities:**
  PO&M employees performing soldering and brazing activities will follow the hot work procedure but an individual Hot Work Permit from the UCDHS Fire Prevention Department is not required.

• **Hot Work in Confined Spaces:**
  All Hot Work in confined spaces are considered Permit Required Confined Space entries; they shall have a Hot Work Permit issued by the UCDHS Fire Prevention Department plus inform the UCDHS Environment Health and Safety Department of the hot work activity.

• **Other PO&M Activities That Could Affect Fire Protection Systems:**
  PO&M employees 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 Auxiliary Services prior to starting the activity.

  **Smoke detectors systems:** Only after review and proper approval, a trained and authorized PO&M employee can install/remove the protective cover(s) or bag(s) from smoke detectors.

**Contract Work:**

• **Responsibilities**
  For contract work on campus, 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 to coordinate with the UCDHS Fire Prevention Department to request a Hot Work Permit.

  Contractors are prohibited from altering, disabling or modifying any fire protection system, device or related fire protection equipment on campus. 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.

  It is critical that as soon as any Hot Work is complete (including a fire watch for 30 minutes) the UCDHS Dispatch Center shall be notified and the fire protection system shall be reactivated or if “bag” method is used the bag(s) must be removed by the PO&M employee.

• **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.

  Only after review and proper approval can a trained and authorized PO&M employee install/remove the protective cover(s) or bag(s) from smoke detectors.
Hot Work Safety Check-List
Non-Emergency PO&M Employees

I. Welding, Torch, Cutting and Other Spark Producing Activities Within 100 feet of/or Inside a Building

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 can not alter, disable or modify any fire protection system, device or related fire protection equipment on campus).

☐ Request a Hot Work Permit from UC Davis Fire Prevention 4-3036 (48 hour 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 can not 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 (30 minutes).

☐ Call UC Davis Fire Dispatch (only if a fire protection system was impaired) when Hot Work and Fire Watch are completed.

REMINDER: Contact your supervisor or UCDHS Fire Prevention Department (916-734-3036) if there are any questions about Hot Work.
II. Brazing/Soldering Activities Within 100 Feet of or Inside a Building.

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 can not alter, disable or modify any fire protection system, device or related fire protection equipment at the Medical Center. Contractor must obtain a Hot Work permit from the UCDHS Fire Prevention Department.

Setting up the work area:

☐ Erect signs, barricades and/or 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 can not 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 (30 minutes).

REMINDER: Contact your supervisor or UCDHS Fire Prevention Department (916-734-3036) if there are any questions about Hot Work.
Welding Safety Rules

- 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 30 minutes after a completed welding or cutting operation to detect and extinguish possible smoldering fires.