

CAL POLY

SAFETY PROCEDURE

WELDING, CUTTING, AND HOT WORK OPERATIONS

I. REFERENCES:

- California Code of Regulations, Title 19, Section 1.09(b), Standard Prevention Practices.
- California Code of Regulations, Title 8, Section 4848, Fire Prevention and Suppression Procedure.

II. SCOPE AND APPLICATION:

This procedure applies to all campus operations performed both by campus personnel and contractor personnel working on the campus.

III. DEFINITIONS:

Hot Work: Work which may generate heat, flames, or sparks. This may include, but is not limited to, welding, torch cutting, brazing, soldering, grinding, and the use of flares or other incendiary devices.

IV. PROCEDURE:

A. Welding, Cutting or Hot Work Permit:

1. A written permit (Attachment A) must be obtained from one of the following individuals prior to starting any welding, cutting or hot work operations:
 - Any Environmental Health & Safety staff member.
 - Any Facility Services Manager
 - Any Facility Services Shop Supervisor
 - Farm Operations Supervisors and Managers

Exceptions to written permit requirement: The following activities do not require a written permit, but all other procedures described below shall be followed:

- a. Welding, cutting, and hot work operations carried out in designated maintenance shop areas or academic department shop areas.
 - b. Soldering operations carried out by campus personnel while performing plumbing maintenance activities.
2. The individual taking out the permit must personally examine the location where the work is to be done and insure that all safety precautions have been taken. These specific fire safety requirements are outlined on the Hot Work Permit. The permit will be issued to one person responsible for work to be accomplished. Contractor permits may be issued for the duration of a contract or specific job from the applicable individual, as stated above. Periodic inspections may be made. This requirement applies to all contract work, no matter what department the work is

performed in. The Hot Work Permit must be displayed at the job site, preferably attached to or near the welding or cutting equipment.

3. After completion of the job, a copy of the Hot Work Permit shall be sent to the campus Environmental Health & Safety Office.

B. General Safety Rules for Welding, Cutting and Hot Work

1. No device or attachment facilitating or permitting mixture of air or oxygen with combustible gases prior to consumption, except at the burner or in a standard torch or blowpipe, shall be allowed unless approved for the purpose.
2. The user shall not transfer gases from one cylinder to another to mix gases in a cylinder.
3. Acetylene gas shall not be brought in contact with unalloyed copper except in blowpipe or torch.
4. Oxygen shall never be used from cylinders through torches or other devices equipped with shutoff valves, without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.
5. Fuel gas shall never be used from cylinders through torches or other devices equipped with shutoff valves, without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold. **Exception:** low pressure containers of propane or MAPP gas.
6. Cylinders, valve regulators, hose and other apparatus and fittings containing or using oxygen shall be kept free from oil and grease. Oxygen cylinders and apparatus and fittings shall not be handled with oily hands, gloves or greasy materials.
7. When moving compressed gas cylinders by crane, suitable cradles shall be used in order to reduce the possibility of dropping. Ordinary rope slings or electro-magnets shall not be used.
8. Oxygen and fuel gas cylinders shall be placed far enough away from the welding position that they will not be unduly heated by radiation from heated materials, by sparks or slag, or by misdirection of the torch flame.
9. No gas welding or cutting shall be done in or near rooms or locations where flammable liquids or vapors, lint, dust or loose combustible stocks are so located or arranged that sparks or hot metal from the welding or cutting operations may cause ignition or explosion of such materials.
10. When such welding or cutting must be done above or within ten feet of combustible construction or material, or above a place where workers are employed, or where persons are likely to pass, noncombustible shields shall be interposed to protect such materials and persons from sparks and hot metal or oxide.
11. One or more portable fire extinguishers of a suitable type shall be kept at the location where welding or cutting is being done.
12. When welding or cutting is done above or within ten feet of combustible construction or material, a fire watch shall be kept to make use of fire-extinguishing equipment, if needed.
13. A fire watch shall be maintained for at least a one half hour after completion of cutting or welding operations to detect and extinguish possible smoldering fires.

This time may be increased in extremely flammable areas or wood frame buildings.

14. ALL FIRES MUST BE REPORTED TO UNIVERSITY POLICE IMMEDIATELY, EVEN IF EXTINGUISHED.

V. III. ATTACHMENTS:

A. Hot Work Permit

Cal Poly, San Luis Obispo

Welding, Cutting, or Hot Work Permit

**Before starting hot work, review all safety precautions.
Can this job be avoided or is there a safer way?**

This permit is required for temporary operations involving open flame or producing heat and/or sparks: welding, cutting, brazing, grinding, soldering, or using a torch to thaw piping or heat material. The permit applies only to this job, in the area specified, during the time and date noted.

NOTE: ALL FIRES MUST BE REPORTED TO UNIVERSITY POLICE EVEN IF EXTINGUISHED.

Instructions			Precaution & safeguard checklist		
Supervisor:			<input type="checkbox"/> Fire extinguisher available. <input checked="" type="checkbox"/> Hot work equipment in good repair. <input type="checkbox"/> Hazardous energy locked out. Requirements within 35 ft. of work: <input type="checkbox"/> Flammable liquids and combustible material removed from area. <input checked="" type="checkbox"/> Floors swept and overhead structure cleaned of dust, lint and debris. <input type="checkbox"/> Fire-resistive covers and metal shields provided as needed. <input type="checkbox"/> All floor and wall openings covered and or protected. <input type="checkbox"/> Walls/ceilings: remove combustibles away from opposite side or adjacent structures. Work on enclosed/confined equip: <input type="checkbox"/> Adequate ventilation is provided. <input type="checkbox"/> Atmosphere checked with gas detector. <input type="checkbox"/> Purge any flammable vapors. <input type="checkbox"/> Confined Space Permit obtained, if required.		
1. Complete precaution & safeguard checklist at right. 2. Complete this permit form and issue to person performing hot work procedure. 3. Verify fire watch.					
Hot work performed by:			Fire watch: <input type="checkbox"/> Trained and equipped Fire Watch provided during operations and at least 30 minutes after. Special instructions:		
<input type="checkbox"/> University Employee <input type="checkbox"/> Contractor					
Work order no.:			Final check Date: Time:		
Location/bldg./room/floor:					
Work to be performed:			Employee signature:		
Person performing work/dept.:					
Supervisor signature: (obtain prior to job)			Supervisor signature:		
I have verified that the above location has been inspected and the required precautions & safeguards have been taken. Permission is authorized only for the work described above.					
Permit Expires	Date:	Time:			
Work Complete	Date:	Time:			