



Hot Work Procedures

I. Policy

The Hot Work reviewing process is established to prevent ignition of combustible and flammable materials from occurring. These guidelines follow the prescribed method outlined in ANSI Z49.1-1973 and fulfill the requirements of Cal/OSHA Title 8 §4848 and 6777.

II. Authority

CCR Title 8, Section 4848 and 6777

III. Scope

These guidelines apply to all CSUF departments and vendors/contractors who perform welding and cutting or similar activities involving spark, flame, or heat. These procedures shall not apply to cutting and welding operations that may be or become part of routine and normal operating purposes. They are not applicable to construction sites under contractor control.

IV. Definitions

Brazing and Soldering - Soldering and brazing uses molten metal to join two pieces of metal. The metal added during both processes has a melting point lower than that of the workpiece, so only the added metal is melted, not the workpiece. Brazing produces a stronger joint than does soldering, and often is used to join metals other than steel, such as brass. Brazing can also be used to apply coatings to parts to reduce wear and protect against corrosion.

Combustible Materials - Solid materials that are capable of burning and igniting.

Cutting - Any process, including grinding, which produces sparks capable of igniting combustible or flammable materials and transmits heat to the work material from a hot gas.

Fire Watch - At least one individual dedicated solely to extinguishing small spot fires and communicating an alarm.

Flammable Compressed Gas - Flammable compressed gases have dangers besides high pressure. These gases can easily catch fire and burn rapidly. These include acetylene, hydrogen, natural gas and propane.

Flammable Materials - Solid or liquid materials that are capable of igniting at a low temperature and continuing to burn.

Grinding - See the definition for Cutting.

Hot Work - Operations such as welding, cutting, burning, heating, grinding, slag, or intense heat producing activities that are capable of igniting combustible materials or flammable atmospheres by providing a source of ignition for a fire.

New Construction - New work that is comprised of structural and mechanical work creating new buildings.

Nonflammable Compressed Gas – Gas containers under pressure may explode if heated. Hazard pictograms, signal words and Safety Data Sheet (SDS) will describe the toxic properties and physical hazards posed by specific nonflammable compressed gases. These include: ammonia, argon, carbon dioxide, nitrogen, oxygen, chlorine, and nitrous oxide. Inhalation exposure may include dizziness, loss consciousness, and suffocation under certain circumstances. Irritation, burns and frost bite may occur if skin comes in contact with rapidly expanding gas.

Renovations and Remodels - New work that takes place in an existing building.

Shielding - Non-combustible welding drapes, used in hot work areas. Visible signs should be displayed on shielding while hot work is being performed.

Smoldering - A slow combustion of material without visible light and generally evidenced by smoke and an increase in temperature.

Soldering - Soldering uses metals with a melting point below 800 degrees Fahrenheit. Soldering is commonly used to join electrical, electronic, and other small metal parts.

Torch Operations - A plasma torch is used as an advanced tool for welding and cutting operations. Intense ultraviolet radiation, high noise levels, and gases are generated during this process.

Welding - Welding is the most common way of permanently joining metal parts. In this process, heat is applied to metal pieces, melting and fusing them to form a permanent bond.

V. Responsibilities

The hot work review process shall be conducted by the representative of Physical Plant performing welding/cutting tasks. Project coordinators shall review welding/cutting work and locations proposed by vendors and contractors for applicability and shall be responsible for reviewing the Hot Work process for any safety discrepancies. The Hot Work Permit must be sent or delivered to EHS at least 72 hours before the beginning of the job.

VI. Program

A. Precautions

The following are general safety precautions required regardless of welding locations:

1. Check valves, regulators, hoses, and torches regularly.
2. Prohibit welding or cutting on vessels which contain combustible or flammable material unless completely purged and residue removed.
3. Secure gas cutting and welding equipment to avoid damage and disturbance.
4. Ensure that the atmosphere is free of flammable or combustible vapor, and should doubt arise, consult EHS to determine if work should continue.

B. Approved Welding Areas

Areas which are not subject to a Hot Work review:

1. Auto Shop (T 1000, Rm. 1001)
2. Central Plant
3. Outdoor areas free of combustible material (i.e., dry brush, grass, leaves)

C. Non-Approved Welding Areas

All areas not listed above are subject to Hot Work review.

The individual performing welding or cutting shall ensure precautions have been taken as prescribed in Hot Work review process prior to commencing any work. The Hot Work review shall be completed by a Facilities Maintenance representative, EHS, or a Project Manager prior to commencing any work in the non-approved areas. Only Facilities Maintenance personnel are allowed to review the process.

Precautions include but are not limited to:

1. Building systems:
 - a. Protect building ventilation from smoke and fumes.
 - b. Disable fire alarms when necessary. Refer to EHS Fire Watch Procedures whenever fire alarms are disabled.
2. Personnel/occupant protection:

- a. Use exhaust ventilation or other approved methods to protect occupants and workers from smoke, fumes, and toxic materials.
 - b. Install vision screens/barriers (applicable for outdoor approved locations also).
 - c. Follow Confined Space program requirements when applicable.
 - d. Follow Lockout/Tagout program requirements when applicable:
3. Within 35 feet of work:
- a. Remove combustible/flammable materials, dust, lint, and oily deposits.
 - b. Cover combustible floors with spark/heat shields (consider metal or damp sand).
 - c. Eliminate explosive atmosphere.
 - d. Cover fixed combustibles with fire resistive covers, guards, or shields.
 - e. Cover wall and floor openings with non-combustible covers.
 - f. Suspend fire-resistive covers beneath work to collect sparks.
4. Fire watch personnel must:
- a. Post a fire watch during hot work and for 30 minutes thereafter.
 - b. Search for and extinguish any smoldering or flaming ignition.
 - c. Be trained to use a 10 lb. ABC fire extinguisher.
 - d. Receive training in emergency procedures and contact numbers and locate the nearest fire alarm pull station before hot work begins.

D. Contracts and Vendors

Hot work activities conducted by the contractor or vendor shall be evaluated by a Facilities representative for adherence to the Hot Work policy.

Responsible Executive: Vice President for Administration and Finance

Responsible Office: Environmental Health and Safety

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