



# Department of Facilities POLICY AND PROCEDURE

POLICY NUMBER: 531  
VERSION: 1

## **SUBJECT: HOT WORK PROGRAM**

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### **POLICY:**

All Facilities Division workforce members who perform Hot Work will do so in accordance with the procedures outlined below. This program was developed in accordance with, Title 8, California Code of Regulations standards and all regulatory compliance.

### **PURPOSE:**

This program is designed to:

1. Prevent ignition of combustible and flammable materials.
2. Define responsibilities and require the use of a hot work permit when hot work is performed in non-designated areas.
3. Preserve safety of employees performing hot work.
4. Ensure safety of all building occupants during hot work operations.
5. Prevent accidental activation of the building fire detection system.
6. Limit losses from accidental ignition of combustibles.

### **DEFINITIONS:**

Hot work is any construction, alteration, repair, or demolition, involving riveting, welding, burning, or any similar fire-producing operations. Grinding, drilling, sand or shot-blasting or similar spark-producing operations should be considered hot work except when circumstances do not necessitate such classification.

Hot work applies to any activity or procedure that releases sparks, fire, molten slag or hot material, which has the potential to cause fires or explosions in areas other than designated hot work areas (i.e. Facilities shops). This program applies, but is not limited to, open flame, welding, burning, grinding, use of non-intrinsically safe electrical tools and instruments or use of spark producing devices.

### **PROCEDURE:**

#### **I. RESPONSIBILITIES:**

##### **A. Facilities Division Management**

1. Provide support, leadership and direction for the Hot Work Program.
2. Provide necessary equipment to control hazards generated by hot work.
3. Ensure workforce members comply with the policies and procedures established in the Hot Work Program.
4. Ensure the Hot Work Program has been implemented and is followed in their area(s) of responsibility.
5. Inform contractors of the hot work permit procedure.
6. Ensure each affected workforce member is trained in hot work as required by this program.

**B. Qualified Person (Responsible for Hot Work)**

1. Physically examine locations where hot work is to be performed and ensure that all safety precautions have been met.
2. Conduct a risk assessment to determine if hot work can be performed in a designated hot work area.
3. Ensure the atmosphere is free of flammable or combustible vapor.

**C. Fire Watch**

1. Ensure the required fire protection equipment is available in the hot work area.
2. Be trained in the use of fire extinguishing equipment provided.
3. Inspect an area of at least 35 feet around the hot work site including the other side of walls or barriers, and maintain the area free of combustibles.
4. Guard against fire in hot work area.
5. Remain on site at least one hour after the completion of hot work operations to detect and extinguish possible smoldering fires.

**D. Workforce Members**

1. Follow all guidelines and procedures related to the Hot Work Program.
2. Wear appropriate Personal Protective Equipment (PPE).
3. Immediately report all exposures, injuries and known safety deficiencies or potentially hazardous conditions to management.
4. Refrain from performing tasks they are not trained to perform.
5. Advise other workforce members of any precautions or conditions pertaining to the hot work activity.
6. Survey the work area to confirm safe work conditions.

**II. FIRE WATCH REQUIREMENTS**

Hot work activities utilizing torch operation require that a Fire Watch be present during the activities. Torch operation is defined as hot work operation where flammable gases are mixed with an oxidizer to create a flame. Examples of torch work activities include welding and cutting operations. A Fire Watch will also be required when any of the following conditions exist:

1. Combustible material in building construction or contents is closer than 35 feet to the point of operation.
2. Combustibles are more than 35 feet away (but easily ignitable).
3. Wall or floor openings within a 35-foot radius expose combustible material, including concealed spaces, in walls or floors.
4. Combustible materials are adjacent to the opposite side of metal partitions, walls, or roofs, and are likely to be ignited by conduction or radiation.

**III. FIRE PREVENTION**

Fully charged and operable fire extinguishers, appropriate for the type of possible fire, must be available at the hot work area. The individual performing the hot work is responsible for furnishing appropriate fire extinguishers during the project.

- A. Compressed Gas Cylinders and Other Equipment Cylinders and other equipment should be managed as follows:

1. Cylinders that are in use should be properly supported and placed a safe distance from torch operations. Cylinder carts should be equipped with a cylinder restraint such as a chain or strap.
2. All equipment must be in proper operating condition.
3. DO NOT attempt to use the equipment unless you are trained in its proper use or are under competent supervision.
4. If at any time the apparatus you are using does not perform in its usual manner, or you have any difficulty in the use of the apparatus, STOP using it immediately. DO NOT use the apparatus until the problem is corrected.
5. Industrial welding, cutting and heating operations must conform to the applicable regulations for installation, operation, ventilation, fire prevention and protection of personnel.
6. Oxygen and fuel gas cylinders should be stored separately with the protective valve caps in place. Except when in use, oxygen and fuel gas cylinders should be stored at least 20 feet apart or separated by a noncombustible wall at least five feet high.
7. Oxygen and fuel gas cylinders and hoses should not be immediately exposed to welding, sparks, hot slag or hot metal.
8. Remove all electrodes from holders during long breaks. Place the holders well apart from each other and disconnect power.
9. Welding cables and other equipment must be placed so they are clear of Passage ways, walkways, etc.

#### IMPORTANT SAFETY NOTES

- Always keep cylinders secured properly in a vertical position.
- Do not strike, drop or apply heat to any cylinder or valve.
- Always keep valve protection caps in place whenever cylinders are moved or are in storage (full or empty).
- Mark empty cylinders “empty” .
- Close valves completely on empty cylinders.
- Do not use a cylinder that does not have a gas identification label attached to it.

#### B. Completion of the Cutting of Welding Operation

1. Close the oxygen preheat valve. Then, close the fuel valve. If this procedure is reversed, a pop may occur. The pop throws carbon soot back into the torch and may, in time, partially clog gas passages.
2. Close both cylinder valves.
3. Open the preheat oxygen valve and/or depress the cutting oxygen lever. Release the pressure in the system. Close the preheat oxygen valve and the torch handle oxygen valve.
4. Turn the adjusting screw on the oxygen regulator counterclockwise to release all spring pressure.
5. Open the torch handle fuel valve. Release the pressure in the system. Close the fuel valve.
6. Turn the adjusting screw on the fuel gas regulator counterclockwise to release all spring pressure.
7. Check the H.P. gauges after a few minutes to be sure the cylinder valves are shut off completely.

8. Remove slag left on the cut edge with a chipping hammer or brush. Never remove slag from the cut edge with torch head or cutting tip.

#### IMPORTANT SAFETY NOTES

- Keep welding hoses clear of any falling metal, slag or sparks.
- Never allow hoses to become coated with oil, grease or dirt. Such coatings could conceal damaged areas.
- Examine the hoses before attaching to welding torch handle or regulators. If cuts, burns, worn areas or damaged fittings are found, replace the hose.
- Completely replace welding hose if it contains multiple splices or when cracks or severe wear is noticed.

#### C. Work Locations and Safe Distances

Where possible, work should be moved to a remote location where the opportunity to ignite a fire is minimized. If the work cannot be moved, combustibles should be relocated to a safe distance (at least 35 feet) or the combustibles should be shielded from the ignition source and the area should be swept clean. Where combustibles are not relocated, a Fire Watch on the opposite side from the work should be provided.

#### D. Surfaces with Combustible Coverings

Welding should not be attempted on a metal partition, wall, ceiling, or roof that has a combustible covering, or on walls or partitions of combustible sandwich-type panel construction. If welding is to be performed on a metal wall, partition, ceiling, or roof, precautions should be taken to prevent the ignition of combustibles on the other side (due to conduction or radiation). Where cutting or welding is performed near walls, partitions, ceilings, or roofs of combustible construction, fire resistant shields or guards should be provided to prevent ignition.

#### E. Combustible Floors

Combustible floors must be kept wet, covered with damp sand, or protected with fire-resistant shields. Personnel operating arc welding or cutting equipment should be protected from possible electrical shock when floors are wet.

#### F. Openings or Cracks in Surfaces in Hot Work Areas

Openings or cracks in walls, floors, or ducts within 35 feet of the hot work area should be tightly covered to prevent the passage of sparks to adjacent areas. Conveyor systems that might carry sparks to distant combustibles must be protected.

#### G. Hot Metal Warning Signs

Always mark hot metal with a warning sign or use some other means of warning to protect workers after welding operations are complete.

### IV. WELDING IN CONFINED SPACES AND HAZARDOUS ATMOSPHERES

Hot work should not be conducted in the presence of flammable gases, vapors, liquids, or dusts (where an explosive concentration can develop).

Atmospheric testing prior to work commencement, and periodically thereafter, should be conducted if the atmosphere in the work area has the potential to become hazardous. Hot work performed in confined spaces, whether permit or non-permit required, should follow confined space entry procedures as established by the department. The following additional safety provisions should be followed when performing work in confined spaces:

1. Ensure adequate ventilation is provided.
2. All welding machines and gas cylinders should be kept outside the work space.
3. Wheels on portable equipment should be blocked to prevent accidental movement.
4. Torch valves should be closed and gas cylinders must be shut-off whenever the torch is inactive for a substantial period of time.
5. Torches and hoses should be removed from the confined space when not in use.

## **V. PERSONAL PROTECTIVE EQUIPMENT**

Personal Protective Equipment (PPE) specifically designed for hot work should be provided to, and utilized by, employees performing hot work. Supervisors should consult the Safety Office if they have a question regarding the exposure and necessary PPE.

- Head Protection - Required where there is a risk of receiving head injuries from flying or falling objects and/or electric shock and burns.
- Face/Eye Protection - Required where there is a risk of suffering eye injuries such as punctures, abrasions, contusions or burns as a result of contact with flying particles, hazardous substances, projections or injurious light rays which are inherent in the work or environment. Screens or shields isolating the hazardous exposure may be considered adequate safeguarding for nearby employees.
- Hand Protection - Required when work involves exposure of hands to cuts, burns, harmful physical or chemical agents.

### **A. Qualified Person**

Individuals designated, as “Qualified Person” should be trained on the following:

1. Identification of atmospheric and fire hazards.
2. Appropriate measures to prevent the ignition of flammable materials.
3. Determination of appropriate fire extinguishing equipment.
4. Determination if the hot work can be performed in a designated hot work area - eliminating the requirement for a hot work permit.

### **B. Fire Watch**

Individuals designated, as “Fire Watch” should be trained on the following:

1. Use of fire extinguishing equipment provided.
2. Operation of notification procedures (fire alarm, etc.).
3. Appropriate measures for guarding against fires in exposed areas.
4. Selection and use of PPE.

### **C. Employees Performing Hot Work**

Employees performing hot work should be trained on the following:

1. Handling and storage of welding materials.
2. Compressed gas safety and chemical hazards.

3. Selection and use of PPE.
4. Use of fire extinguishing equipment.

Approved By: Anthony Corliss (MANAGER I, FACILITIES OPERATIONS AND CRAFTS)	
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