

College of Charleston - Fire &EMS Hot Work Policy

Introduction

Cutting and welding operations (commonly referred to as hot work) are associated with machine shops, maintenance, and construction activities, as well as certain laboratory-related activities, such as glass blowing and torch soldering. Potential health, safety, and property hazards result from the fumes, gases, sparks, hot metal and radiant energy produced during hot work. Hot work equipment, which may produce high voltages or utilize compressed gases, also requires special awareness and training on the part of the worker in order to be used safely. The hazards associated with hot work can be reduced through the implementation of effective control programs.

Scope and Application

The Occupational Safety and Health Administration (OSHA) prohibits cutting and welding operations unless appropriate steps are taken to minimize fire hazards, such as removal or guarding of combustible materials and when possible, restricting hot work to specially designated areas. Departments where hot work is performed are responsible for ensuring that adequate controls and procedures are in place before work begins.

Program Description

Cutting and welding operations often are found in maintenance type operations, but can also occur in research settings. Adequate controls and procedures must be used to minimize the hazard associated with these activities.

General Cutting and Welding Controls

Areas where hot work is done should be properly designated and prepared. Combustible and flammable materials within the work area should be protected against fire hazards and the operation should not pose a hazard to others in nearby areas. To help achieve this, the following controls should be used:

- a. Cutting and welding operations are restricted to authorized, properly trained individuals.
- b. If possible, hot work should be performed in a properly designed shop area, equipped with all necessary controls and adequate ventilation;
- c. Move combustible materials at least 35 feet from the hot work site. If this is not possible, protect combustible materials with metal guards, fire resistant or flameproof curtains or coverings. (other than ordinary tarpaulins)

- d. Cover floor and wall openings within 35 feet of the work site to prevent hot sparks from entering walls, falling beneath floors or to a lower level.
- e. Utilize fire resistant curtains and/or tinted shields to prevent fire, burns, or ultra-violet light exposure to employees.

Ventilation and Atmospheric Testing

Hot work should not be conducted in the presence of explosive mixtures of flammable gases, vapors, liquids, or dusts or where explosive mixtures could develop. Atmospheric testing and monitoring for combustible gases and vapors should be done before work begins and at regular, predetermined intervals thereafter. Ventilation of the work site should be adequate for the work performed.

Fire Protection

A person other than the operator should perform fire watch duties and remain at the work site for at least 30 minutes after hot work operations have ended. Additionally, the following steps should be taken:

- a. A fire extinguisher rated at not less than 3-A:40-B:C must be available where hot work is performed.
- b. Portable cutting and welding carts will be equipped with a fire extinguisher rated at not less than 3-A:40-B:C.
- c. If a building or area is equipped with a sprinkler system, then that system must be operational when hot work is performed.
- d. Cover smoke detectors with plastic bag and tape around base before hot work operation to prevent activation of fire alarm system. Remove covering after work has been completed. *Contact CofC Department of Fire & EMS for instruction if detectors not readily accessible. (Beam detectors, HVAC duct detection, etc.)

Personal Protective Equipment

Personal protective equipment specifically designed for hot work should be provided to and used by workers. The potential for toxic fume emissions from the material being worked on or surface coatings should be considered and steps taken to provide for appropriate respiratory protection.

Cutting and Welding in Confined Spaces

When cutting or welding is to be done in confined spaces, appropriate entry procedures should be followed (see COFC Occupational Health and Safety Manual, Confined Spaces.)

Compressed Gas Cylinder Storage and Handling

Storage and handling of compressed gas cylinders are important parts of many cutting and welding operations. The following should be observed:

- a. 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 5 feet high.
- b. Cylinder carts equipped with a cylinder restraint, such as a chain or strap, should be used for all transporting of compressed gas cylinders.
- c. Cylinders should be secured from tipping, in an upright position.
- d. Regulators must be compatible with the cylinder and its contents. Many regulators are similar in design and construction. Check the regulator's model number and compare that with the cylinder's requirements.

Hot Work Permits

Hot work permits have been developed for use by CofC craftsmen and contractors by the Department of Fire & EMS. Hot work permits can help minimize the risk of fire during cutting and welding activities by serving as a *checklist for operators* and those performing fire watch duties. The person responsible for issuing permits should be qualified to examine the work site and ensure that appropriate protective measures have been taken in order for the hot work to take place. A hot work permit will be issued at the beginning of each specific operation. Hot Work Permits will only be issued for the day the Hot Work is being performed.

Exception: Hot Work Permits for **ROOFING** will be issued for the duration of the scheduled project, renewable on a weekly basis at the beginning of each week. Periodic inspections will be conducted throughout the week to ensure compliance with the Hot Work Permit. The Hot work Permit may be revoked at any time by the issuing authority should non-compliance issues be found.

Training

All persons performing hot work should be trained in proper equipment operation, handling/storage of welding materials, compressed gas safety, personal protective equipment selection and in safe working procedures. Designated individuals will be trained in procedures required to issue a hot work permit. In addition, confined space entry training is required for craftsmen before working in such areas.

Roles and Responsibilities

Physical Plant, Residence Life or Department

Request Hot Work Permit procedure training for designated individuals through the Department of Fire & EMS.

Provide workers with specific training on equipment used and local hot work procedures.

Oversee contractor operations and ensure contract workers comply with the requirements of this policy.

Supervisors/Designated individuals

Issue hot work permits.

Ensure procedures outlined in this policy are followed.

Department of Fire & EMS

Provide general training on Hot Work Permit procedures.

Conduct no notice site visits to ensure safe procedures are followed.

Maintain training records.

Employees

Attend training.

Understand and follow hot work procedures outlined in this policy.

For More Information

Contact the CofC Department of Fire & EMS at 953-5611 or 843-953-5499.

References

Title 29 CFR, 1910 Subpart Q, Occupational Safety and Health Standards, Welding, Cutting, and Brazing.