

HOT WORK Information Guide

Hot work, such as cutting, welding, and heating, involves hazards related to fire, burn injuries, health risks, electrocution, mechanical, and compressed gas hazards. To ensure the safety of personnel, staff, and students, and to prevent accidents, it is crucial to develop and implement a “Hot Work” safety program. In this article, we will discuss the hazards of hot work and provide guidelines for maintaining a safe work environment.

A “Hot Work” Program is required by OSHA 29 CFR 1910.106, 119, and 252 whenever hot work, such as welding, cutting, using spark-producing power tools or conducting chipping operations is performed in an area where combustibles, flammables, or gasses may be ignited. Before any Hot Work begins, an authorized person must inspect the area to assess the following:

- 1) The need and feasibility of performing hot work
- 2) The presence of fire or explosive hazards
- 3) Control measures to mitigate these risks
- 4) A written permit should be issued identifying:
 - a. the scope of work performed
 - b. precautions to be taken
 - c. any follow-up upon completion of the work.

Risks Associated with Hot Work

- **Fire and Burn Injuries** – hot work generates intense heat, sparks and flames greatly increasing the risk of fire and burn injuries to workers.
- **Health Hazards** – Exposure to welding fumes, gases and airborne contaminants, causing respiratory problems, eye irritation and other health problems.
- **Compressed Gas Hazards**– improper handling of compressed gas cylinders can result in explosion, gas leaks and other hazards.
- **Electrocution**- hot work can increase the risk of electric shock and electrical fires
- **Mechanical Hazards** – moving parts, sharp edges, or improper handling of heavy machinery or tools can cause injuries if safety measures are not followed

Hot Work Program and Permit

A Hot Work Program is required whenever hot work is conducted in areas not specifically designed for this type of activity.

When is a hot work permit needed?

All Hot Work operations should be conducted in **designated** safeguard areas, such as a maintenance shop or outside where designated safeguards have been taken to control environmental impacts such as wind and people. When hot work can't be moved to the maintenance shop, the permit process should be used. This process should be applied to outside contractors and internal maintenance personnel conducting work within your facility.

Safety Precautions and Controls

When performing Hot Work, it is essential to the safety of the personnel and facility to minimize the risks. Here are some alternative considerations:

Alternative to Hot Work Permit: Hot work hazards can be avoided if there is an alternative method to complete the job. Evaluate if there are alternatives to hot work to avoid the hazards. Some options include:

- Screwed, flanged, or clamped pipe connections
- Manual hydraulic shears
- Mechanical bolting or pipe cutting
- Compressed air-actuated fasteners

Hot Work Permit: Before you begin any hot work activity, determine if a permit is required by following the Hot Work Program established by your school.

Fire Prevention Tools: If you can't take the work to a dedicated hot work area, create one at the location of the hot work. This will contain any sparks and flames and also minimize the risk of fire, using welding pads, blankets, or curtains to contain the area.

Elevated Work Areas: If you are working in an elevated position where fire splatter may drop, protect the lower area with fire blankets and make sure that the area is protected from people walking.

Atmospheric Testing: Test the area for Lower Explosive Limits (LEL) prior to starting any hot work. This is completed with a gas meter. Ensure that the gas meter has been calibrated and tested.

Housekeeping: Make sure that the area is clear of any combustible materials. It is recommended that you maintain a 6-10 meter radius of the hot work clear of flammable substances.

Proper Equipment Placement: Ensure that the location of the welding, cutting or gas cylinders minimizes the risks to personnel. Do not block access to passageway, stairs or ladders.

Fire Extinguisher: Have a dry chemical fire extinguisher that has been inspected and is in good working order within arm's reach of your hot work location.

Fire Watch: Assign a trained fire watcher to oversee hot work areas. The fire watcher should remain in the designated location for 60 minutes after the hot work has ceased, monitoring the hazardous area identified in the permit to work.

Compressed Gas Cylinder Safety: Adhere to proper guidelines for handling, storage, and transportation of compressed gas cylinders to prevent accidents and gas leaks.

Personal Protective Equipment (PPE)

Personnel involved in hot work or in the immediate vicinity should wear appropriate protective equipment to minimize risks. The following PPE is recommended:

- **Flame-resistant gloves** for welders and cutters to protect hands from burns and sparks.
- **Flame-resistant aprons** for welders to safeguard the front of the body from sparks and radiant energy.
- **Flame-resistant leggings** for heavy-duty work to shield the legs.
- **Eye and Face Protection:** Suitable eye and face protection, including welding helmets and face shields. The type of shielding shall be determined by the type of operation and the SDS sheets.
- **Ear protection**, like earmuffs or earplugs, to reduce noise exposure during hot work operations.
- **Respiratory protective equipment (RPE):** RPE is needed when ventilation measures are inadequate to control airborne contaminants. Review SDS sheets for the chemicals that you will be exposed to while doing the Hot Work.
 - *Note: Respiratory protection may require that the school has a respiratory protection program and that employees doing the hot work have been medically cleared and fit tested with the appropriate respiratory protection. If you need to use a N95 or half mask respirator you will need to have a respiratory protection program in place.*