



HOT WORK PROGRAM

1910.252 OSHA

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Purpose

To provide written procedures which protect employees from hazards associated with hot work operations and to comply with all regulatory requirements for the safe operation of such equipment. This program establishes guidelines to guard against fires from heat-producing operations performed by using portable equipment away from the shop area. Employees must be aware of procedures to follow when welding, grinding, cutting or conducting other hot work operations.

Definitions

Brazing and Soldering: Soldering and brazing use molten metal to join two pieces of metal. The metal added during both processes has a melting point lower than that of the work piece, so only the added metal is melted, not the work piece. 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.

Cutting/Grinding: Any process which produces sparks capable of igniting combustible or flammable materials and transmits heat to the work material from a hot gas.

Designated Area: A permanent location designed for or approved for hot work operations to be performed regularly.

Fire Watch: Trained personnel who are in attendance during the entire hot work operation and are immediately available to extinguish a fire or take other effective action if needed.

Hot Work: Any process that can be a source of ignition when flammable material is present or can be a fire hazard regardless of the presence of flammable material in the workplace. Common hot work processes are welding, soldering, cutting and brazing.

Hot Work Permit: A document issued for the purpose of authorizing a specified activity.

Welding: Joining together (metal pieces or parts) by heating the surfaces to the point of melting using a blowtorch, electric arc, or other means, and uniting them by pressing, hammering, etc.

Responsibilities

Safety and Risk Management

Safety and Risk Management has the primary responsibility for the implementation and enforcement of the Hot Work Program and is responsible for the following:

- Developing, implementing, and evaluating the Hot Work Program to ensure compliance.
- Issuing hot work permits for work areas.
- Reviewing hazards and incidents associated with hot work on campus.
- Periodically reviewing and monitoring the work areas to ensure compliance and equipment safety.
- Developing training programs for hot work operations.

Supervisor

Supervisors in support and administrative areas are responsible for providing the necessary direction and support to ensure the effective implementation of the Hot Work Program for their work areas.

Supervisors are responsible for the following:

- Making sure that employees who will be performing Hot Work operations are properly trained on work procedures before performing work on campus.
- Selecting suitable employees that are trained in the safe operations of their equipment, safe use of the process, and in emergency procedures.
- Coordinating hot work activities with the Safety and Risk Management Office so a hot work permit can be issued.
- Having trained employees to monitor the hot work area for changing conditions, watching for fires, and extinguishing fires, if possible.
- Returning all permits to Safety and Risk Management Office.

Employee

Affected employees are responsible for the following:

- Before use of welding equipment, the employee must read and understand all safety practices outlined in the manufacture instruction manual for the specific type(s) of welding equipment used for the work process. Read and understand Safety Data Sheets (SDS) and safety requirements of this Policy.
- Attend and complete all required hot work training.
- Inspect all welding equipment daily prior to use.
- Perform a hazard assessment before work or during non-welding operations.
- Follow all required safety requirements as stated in the program.
- Use all required personal protective equipment.
- Report any unsafe working conditions to the supervisor.

Fire Watch Employee

A fire watch shall be required whenever hot work is performed on campus unless otherwise stated. The fire watch employees are responsible for the following:

- Shall be trained to understand the inherent hazards of the work site and the hot work being performed.
- Be aware of inherent hazards of the work site or of any hot work taking place.
- Have the ability to stop all work should work conditions become unsafe.
- Have a fire extinguisher readily available and be trained on how to use it.
- Ability to sound the building's fire alarm system should a fire occur which is out of control.
- Shall remain in the work area and monitor for fires 30 minutes following completion of work.
- Shall not perform other additional tasks that would cause a distraction from their fire watch responsibilities.

Contractors

Affected contractors are responsible for the following:

- Before starting any hot work contractors shall discuss the planned project with the WCU Project Manager and the Safety and Risk Management Office.
- Obtain a hot work permit from the Safety and Risk Management Office.
- Follow all guidelines as stated on the hot work permit. Return completed hot work permits to the WCU Project Manager. A copy of the hot work permit should be submitted to the Safety and Risk Management Office.

Hot Work Permitted Locations

Hot work shall be permitted in the following locations:

- In areas that are designated for hot work operations (example: welding shop)

Hot work shall not be permitted in the following locations:

- In areas not authorized by the hot work permit.
- In sprinkler buildings where the sprinkler system is impaired.
- In the presence of an explosive atmosphere (examples: flammable gasses, vapors, liquids, or dust).
- In the presence of stored combustible materials or uncleaned (cluttered) areas which could develop a fire.
- In close proximity to drums, tanks, containers, or any vessel that contains or may have contained a flammable, explosive, or toxic chemical.

Fire Prevention Precautions

Fire Hazard Prevention Guidelines

- Whenever possible, relocate the work from the work site to the welding/maintenance shop area. Welding and cutting operations shall ideally be conducted in a separate, well-ventilated room with a fire-retardant floor.
- When not possible to relocate work to the welding shop: remove combustible materials for a minimum radius of 35 feet around the work area or move the work to a location well away from combustible materials.
- Protect combustibles with covers made of fire-resistant materials.
- If possible, enclose the work area with portable, fire-resistant screens.
- Cover or block all openings, such as doorways, windows, cracks, or other openings with fire resistant material.
- When needed, have a qualified firewatcher in the work area during and for at least 30 minutes after hot work is finished.
- Do not dispose of hot slag in containers holding combustible material.
- Fire extinguishers shall be maintained in a state of readiness for instant use.

- Welding or cutting is not permitted in or near rooms containing flammable or combustible liquids, vapors, or combustible dusts. Do not weld or cut in atmospheres containing reactive, toxic, or flammable gases, vapors, liquids, or dust.
- Do not apply heat to a work piece covered by an unknown substance or coating that can produce flammable, toxic, or reactive vapors when heated.
- Provide safety supervision for outside contractors conducting hot work. Inform contractors about site-specific hazards including the presence of flammable materials.
- Cylinders must be secured to prevent tipping; valves are closed with protection caps in place.
- Oxygen and fuel cylinders are separated and away from combustible fuel, flammable fuels, and heat sources.

Personal Protective Equipment

All employees must wear required personal protective clothing and equipment as prescribed while performing any hot work operations. Personal protective equipment must protect against hazards such as burns, sparks, spatter, electric shock, and optical radiation.

Training

Employees will be trained to perform hot work activities as outlined in this program and according to the requirements contained in 29. CFR. 1910.252.

Hot Work Permit Procedure

A hot work permit must be completed prior to the commencement of any hot work operations.

1. Obtain or request a hot work permit form from the Safety and Risk Management Office ([Appendix A](#)).
2. Complete the required hot work permit sections.
3. The hot work permit must be signed by the supervisor, project manager, or contractor performing the hot work operations. Safety and Risk Management will sign off on the permit if approved.
4. The required precautions checklist on the hot work permit must be in affect prior to starting the hot work. The hot work permit must be kept on site or close proximity.
5. Completed hot work permits must be sent to the Safety and Risk Management Office.

Hot Work Permit Valid

The duration of a hot work permit depends upon the type of project and the type of hot work being performed. Normally hot work permits are only issued for an 8-hour period unless otherwise stated on the hot work permit.

Appendix A: Hot Work Permit

Hot Work Permit

Issuing Organization: Western Carolina University Permit no.

A. Proposal *(to be completed by the person responsible for carrying out the work)*

Building Click here to enter text.

Exact location of proposed work Click here to enter text.

Nature of hot work to be undertaken Click here to enter text.

The above location has been examined and the precautions listed on the reverse side of this form have been complied with as indicated.

Signed Name (Print)

Date Position Click here to enter text.

Contractor (where applicable) Click here to enter text.

B. Agreement *(to be completed by the safety department)*

This hot work permit is issued subject to the following conditions:

Time of issue of permit Click here to enter text. **Time of expiry of permit*** Click here to enter text.

Additional conditions required: Click here to enter text.

Signed Name (Print)

Date Position Click here to enter text.

C. Fire Watch *(To be completed by a member of staff or contractor responsible for the work before returning this permit to the issuer.)*

The work area and all adjacent areas to which sparks and heat may have spread (such as floors below and above and areas on other sides of walls) have been inspected and found to be free of fire following completion of the work.

Time Inspection completed

(must be filled in 30 minutes after hot works have been completed)

Signed Name (Print)

Date / Time Position Click here to enter text.

Contractor (where applicable) Click here to enter text.

Procedure for Hot work permits

This hot work permit is required for any temporary operation involving open flames or sparks. This involves but is not limited to: brazing, cutting, grinding, soldering, thawing pipes, torch-applied roofing, and welding.

1. The person nominated to authorize hot work (the safety department) must have experience or training in the problems associated with hot work and be of suitable status to ensure compliance with the procedures.
2. Prior to the commencement of work, a hot work permit should be obtained from the authorized person. This should be done on every occasion that hot work of any type is undertaken within or upon the fabric of established buildings or any structures in the open. This procedure should also apply to construction sites' once fitting out has commenced, and to all buildings which are being refurbished.
3. A Hot work permit should not be issued without considering the significance of any other permits to work in the vicinity, or adjacent manufacturing processes which may involve the use of flammable liquids or gases.
4. A Hot work permit should also be issued for a specific task that is undertaken in a clearly identified area. Hot work permits should not be issued for protracted periods. Separate Hot work permits should be issued for work which extends from morning to afternoon periods.
5. Before completing the first part of the hot work permit, the person responsible for carrying out the work should complete the checklist shown below to indicate that fire protection measures are adequate, suitable precautions have been taken, and the equipment to be used is safe.
6. If the person authorized to issue the hot work permit is not satisfied with the arrangements, further measures may be requested and any additional conditions should be entered in the space provided in section B. The time within which a final fire check should be made is also specified in section B. This will normally be 30 minutes after the time of expiry of the hot work permit, when work must be complete. If trained personnel will not be available to make this check (for example in the case of a permit issued late in the day) work must not be commenced.
7. The Hot work permit should be completed in duplicate, with the top copy kept with the person responsible for carrying out the work and the second copy retained by the safety office, who may wish to inspect the site of work or instigate spot checks to ensure that conditions have been met and that work is complete before the Hot work permit expires.
8. The completed form should be returned to the safety office and retained for future reference.

Hot work permit checklist

Can this job be avoided? Is there a safer way?

Fire Protection

1. Sprinklers and smoke detectors have been covered/disabled.
2. A trained person not directly involved with the work will provide a continuous fire watch during the period of hot work and for at least one hour after it ceases, in the work area and those adjoining areas to which sparks and heat may spread.
3. At least two suitable extinguishers are immediately available. Both the personnel undertaking the work and providing the fire watch are trained in their use
4. Personnel involved with the work and providing the fire watch are familiar with the means of escape and method of initiating an alarm/calling the Fire Department (911 or Campus Police 828-227-8911)

Precautions within 35 feet (minimum) of the work

5. Combustible materials have been cleaned from the area. Where materials cannot be removed, protection has been provided by fire retardant tarps or metal shields.
6. Flammable liquids have been removed from the area
7. Floors and surfaces have been swept clean of combustible dust or debris.
8. Combustible floors have been covered with overlapping sheets of non-combustible material or wetted and liberally covered with sand. All openings and gaps (combustible floors or otherwise) are adequately covered.

9. Protection (metal shields or fire retardant tarps) has been provided for:
 - Walls, partitions, and ceilings of combustible construction or surface finish
 - All holes and other openings in walls, partitions, and ceilings through which sparks could pass.
10. Combustible materials have been moved away from the far side of walls or partitions where heat could be conducted, especially where these incorporate metal.
11. Enclosed equipment (tanks, containers, dust collectors, etc.) has been emptied and tested, or is known to be free of flammable concentration of vapor or dust

Equipment

12. Equipment for hot work has been checked and found to be in good repair.
13. Gas cylinders are kept at least 10 feet from the burner and have been secured in a vertical position and fitted with a regulator and flashback arrester.
14. Hazardous materials will be removed from the hot work location as soon as work is completed.
15. Any lit tar boilers will not be left unattended.