



**Environmental, Health and Safety**

**UNC Charlotte – Hot Work Program  
(Welding, Cutting, and Brazing)**

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## **Purpose:**

To establish hot work requirements that ensure all hazards are evaluated and the appropriate safety measures and controls are administered prior to and during any process that involves cutting, welding, thermite welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar activity that has open flames or spark producing work.

## **Scope:**

This program applies to all university personnel. Refer to Appendix A for definitions.

## **Hot Work Responsibilities**

Persons initiating the hot work process (i.e. Project Managers, Contract Managers, Facilities Management Supervisors, etc.) are responsible for ensuring that the requirements of this program are understood and followed by their employees. Also, persons initiating the hot work process are responsible for contractors who will be performing hot work activities, as defined, must comply with the requirements of the Contractor Safety Program.

### **Hot Work Authorizer (i.e. Project Manager, Maintenance Supervisor):**

- A. Selecting suitable personnel that are trained in the safe operation of their equipment, the safe use of the process, and emergency procedures in the event of a fire.
- B. Contact Building Liaison and appropriate personnel responsible for area in which hot work operations are to take place, inform them of the scope of work to be performed and determine if they have any specific concerns about the operations.
- C. Coordinating hot work activities to minimize fire hazards, authorizing hot work and ensuring EH&S receives a copy of the hot work permit.
- D. Return completed hot work permits to the Environmental Health and Safety Office at [ehsoffice@uncc.edu](mailto:ehsoffice@uncc.edu) or Fax 704-687-5302

### **Hot Work Supervisor Responsibilities:**

The Hot Work Supervisor is responsible for the safe operations of hot work activity under their supervision. These duties include:

- A. Establish permissible areas for hot work.
- B. Ensure that Hot Work tools and equipment are in good condition.
- C. Ensure that all individuals involved in the hot work operations are familiar with Hot Work requirements.
- D. Ensure that all individuals involved in the hot work operations are trained in the safe operation of their equipment and the safe use of the process. These individuals must have an awareness of the risks involved and understand the emergency procedures in the event of a fire.

- E. Determine site-specific flammable materials, hazardous processes, or other potential fire hazards present or likely to be present in the work location.
- F. Ensure combustibles are protected from ignition
- G. Determine that fire protection and extinguishing equipment are properly located and readily available.
- H. Ensure sufficient local exhaust ventilation is provided to prevent accumulation of any smoke and fume.
- I. Ensure that a fire watch is posted on the work site and / or where hot work hazards exist.

**Environmental Health and Safety Responsibilities (EH&S):**

- A. Responsible for developing and maintaining this program to ensure compliance.
- B. Periodic and annual audits of hot work activities.
- C. Maintain completed hot work permits

**Fire Watch Responsibilities:**

Fire watch shall be required whenever hot work or fire detection system impairment is performed on campus. The fire watch shall be conducted by trained personnel, but shall not be the actual employee who is performing the hot work operation.

**Specific Responsibilities:**

- A. Have a fire extinguisher readily available and be trained in its use and limitations.
- B. Be familiar with facilities and procedures for sounding an alarm in the event of a fire.
- C. Aware of inherent hazards of the work site and of any hot work taking place.
- D. Watch for fires in all exposed areas and try to extinguish them only when within the capacity of the equipment available.
- E. Remain at the work area to monitor for smoldering fires while work is in progress and for at least 30 minutes following job completion. If fire watch must leave the work site, all hot work activities must stop.

A fire watch may also be designated to constantly patrol a building area, searching for fire hazards when other means of fire detection are not operational (mechanical fire alarm system not operational, absence of fire alarm system etc.).

If so, all the above responsibilities apply with the exception of responsibility E. and the establishment of responsibility F.

- F. A fire watch plan (See Appendix C) must be developed outlining specific requirements and forwarded to the EH&S Office.

### **Hot Work Operator Responsibilities:**

- A. The Operator shall be responsible for obtaining, completing, and returning the hot work permit (See Appendix B).
- B. The operator shall be fully qualified to perform required hot work.
- C. The operator shall be responsible for using appropriate safety equipment (eye and face protection, hand protection, etc.) and verifying their equipment and tools are in good working condition.
- D. The operator shall be responsible for stopping hot work activities when condition change from those established when the permit was issued.

### **Hot Work Requirements:**

#### **Permissible Hot Work Areas:**

Routine hot work operations shall be allowed without the requirement of a permit only in areas that have been designated as a Safe Hot Work Area. The following list of university locations have been designated as Safe Hot Work Areas:

- A. Outside 35 feet away from flammables or combustibles
- B. Smith Building Maintenance Shop
- C. Facilities Management Grounds Maintenance Shop
- D. Cameron Applied Research Center Maintenance Shop
- E. Facilities Management Automotive Shop
- F. Engineering Research Automotive Shop
- G. Motor Sports Building Shop
- H. Rowe Welding Shop
- I. COA Welding Shop
- J. RUP 1 Shop Area
- K. RUP 2 Shop Area
- L. EPIC High Bay Area

#### **Permit Required Areas:**

Any areas where it is not practical to relocate work to a designated Safe Hot Work Area shall only be permitted once the area is made fire safe by removing or protecting combustibles from the ignition source.

Hot work is prohibited under the following conditions:

- A. Any area outside of a Safe Hot Work Area where a hot work permit has not been obtained.
- B. Near areas where large quantities of flammable or combustible materials can ignite.
- C. In close proximity to an explosive atmospheres.
- D. On any drums, tanks, containers or any vessel that may have contained chemical materials that when heated may produce flammable, explosive, or toxic atmosphere.

## Hot Work Permit Procedure:

UNC Charlotte personnel engaged in hot work must be authorized to do so by the Qualified UNC Charlotte Supervisor or Project Manager who understands hot work hazards and what automatic fire detection devices may be affected by the hot work. In the absence of the above contacts, the Environmental Health (EH&S) Office can authorize the planned hot work.

1. Obtain or request a current UNC Charlotte Hot Work Permit by printing the permit from the Environmental Health and Safety website listed under the Welding, Cutting and Brazing program, **Appendix B**.
2. Complete the Hot Work Permit.
3. The HOT WORK PERMIT must be signed by a Qualified UNC Charlotte Supervisor or Project Manager authorizing the work. In the absence of both, the EH&S Office can be authorized to sign off on the permit.
4. The Required Precautions Checklist noted on the Hot Work Permit must be in affect prior to starting the hot work and the permit must be posted in the work area.
5. The completed Hot Work Permit must be forward to EH&S by emailing to ehsoffice@uncc.edu or Fax 704-687-5302.

# Appendices

## Appendix A - Definitions

- A. Fire Watch – (1) Any trained employee or contractor who is in attendance during the entire hot work operation and are available to extinguish a fire and follow emergency procedures; (2) A fire watch may also be designated to constantly patrol a building area, searching for fire hazards when other means of fire detection are not applicable (mechanical fire alarm system not operations, absence of fire alarm system etc.).
- B. Hot Work – Operations including cutting, welding, thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar activity.
- C. Hot Work Area – The area exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work.
- D. Hot Work Equipment – Electric or gas welding or cutting equipment use for hot work.
- E. Hot Work Operator - An individual designated to perform hot work.
- F. Hot Work Permit – Permits issued by the responsible person at the facility under the hot work permit program permitting welding or other hot work to be completed in specific locations.
- G. Hot Work Program – A permitted program, carried out by approved facilities-designated personnel, allowing them to oversee and issue permits for hot work conducted by their personnel or at their facility.
- H. Hot Work Supervisor – Person that is responsible for the safe operations of hot work activity under their supervision.
- I. Responsible Person – A person trained in the safety and fire safety consideration concerned with hot work. Responsible for reviewing the sites prior to issuing permits as part of the hot work permit program and following up as the job progresses.
- J. Torch –Applied Roof System – Bituminous roofing systems using membranes that are adhered by heating with a torch and melting asphalt back coating instead of mopping hot asphalt for adhesion. Operator - Any employee or contractor who operators and open-flame or spark producing apparatus.

# Appendix B - Hot Work Permit

## HOT WORK PERMIT

### Environmental Health and Safety Office (EH&S)

**Instructions:** These guidelines are recommendations when welding, cutting, brazing, and/or soldering work is being performed. The hot work operator or their authorized representative **must complete all Sections and submit to the EH&S by either emailing to [ehsoffice@uncc.edu](mailto:ehsoffice@uncc.edu) or Fax: (704) 687-5302.** A copy must be posted at the job site during hot work activities.

#### General Information

Type of Work:     Welding     Soldering     Brazing     Cutting

Other (Please specify): \_\_\_\_\_

UNC Charlotte Department: \_\_\_\_\_

Name of UNC Charlotte Hot Work Operator: \_\_\_\_\_

Contact Information: \_\_\_\_\_

Date Work to Begin: \_\_\_\_\_      Date Work to End: \_\_\_\_\_

*(Maximum 2 weeks from start date)*

#### Building Information

Building Name: \_\_\_\_\_      Building Number: \_\_\_\_\_

Floor: \_\_\_\_\_      Specific Location: \_\_\_\_\_

Does building fire alarm system devices have to deactivated:       Yes       No

Device Number(s) Requiring Deactivation: \_\_\_\_\_

Date(s) device(s) will be deactivated: \_\_\_\_\_

*If yes, please contact Facilities Management to request Fire Protection System Impairment 24 hours prior to work beginning.*

#### Special Precautions

- |   |                              |                             |
|---|------------------------------|-----------------------------|
| 1. Hot Work Operator verifies proper training?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. Can hot work be moved outside or to a safe location?                               | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. Is hot work area swept and clear of combustible materials within a 35 foot radius? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. Has all tools, equipment and PPE been inspected?                                   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 5. Is ventilation adequate?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 6. Fire watch has fire extinguisher and has completed fire extinguisher training?     | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 7. Have you contacted Facilities Management for evaluation?                           | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 8. Operator understands he/she must stop work if unsafe?                              | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 9. Confined space entry permit required?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 10. Lockout/Tagout required?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 11. Will hot work area be monitored for 30 minutes after work?                        | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

#### Signatures

Hot Work Operator Signature: \_\_\_\_\_      Date: \_\_\_\_\_  
*Print & Signature of Qualified Hot Work Operator*

Permit Approved by: \_\_\_\_\_      Date: \_\_\_\_\_  
*Print & Signature of Qualified UNC Charlotte Representative*

## Appendix C - Fire Watch Plan

### FIRE WATCH PLAN

While working to complete the \_\_\_\_\_, the UNC Charlotte Fire Alarm Technicians have proposed a Fire Alarm Shutdown or Modification during the date(s) of \_\_\_\_\_ to \_\_\_\_\_. Typical working hours will be \_\_\_\_\_ to \_\_\_\_\_. During these hours the following procedure will be conducted:

#### REQUIREMENTS:

1. Patrol the entire facility a minimum of once per hour for the duration of the shift.
2. Have fire extinguisher, ABC Type, and be trained in its use.
3. Be familiar with facilities for sounding an alarm in the event of a fire.
4. Be aware of the inherent hazards of the work site and of any hot work taking place.
5. Watch for fires in all exposed areas and try to extinguish them only when obviously within the capacity of the equipment available.
6. Provide observation during in accordance with OSHA standard 1910.252 for cutting and welding operations.
- 7. Sound the alarm (air powered horn), and contact Campus Police (704-687-2200) immediately for any size fire or smoke.**

#### END OF SHIFT ACTIVITIES:

1. \_\_\_\_\_ (Fire Alarm Technician) will enable the Fire Alarm System prior to securing the building.
2. Ensure that all corridors and means of egress are free and clear of construction material and debris.

Prior to each shutdown and power-up of the fire alarm panel \_\_\_\_\_ (supervisor) will contact the UNC Charlotte Police Department.

#### ONSITE FIRE WATCH PERSONNEL IS AS FOLLOWS:

<i>Name</i>	<i>Company</i>	<i>Contact Number</i>	<i>Location</i>