

# **HOT WORK PROGRAM**

## **\*(Insert Site Name Here)\***



## **Introduction**

The University of Kentucky recognizes a potential for fire from hot work operations. For that reason this program should be implemented in all departments at the University to protect employees and property from fire resulting from hot work operations.

This program applies to hot work activities in each department that meet the criteria set forth by the written program. The program will also apply to outside contractors that provide a service to the facility by performing hot work operations.

This program does not apply to designated areas that have been equipped for such operations, i.e. maintenance shop's designated welding areas. The designated areas will be defined by department supervisors in correlation with Occupational Safety and Health. Hot work operations conducted outside the designated areas should only occur when all other means to perform the task have been exhausted.

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## 1.0 Purpose

The purpose of this program is to provide guidance for persons, including outside contractors and property managers, who manage, supervise, and perform hot work operations. The program will establish written procedures and a permit system to prevent fires resulting from hot work operations involving open flames or operations that may produce heat or sparks set forth by the following standards NFPA 51B, OSHA 1910.252, OSHA 1926.352.

## 2.0 Definitions

**Hot Work** - Hot work is defined as any temporary maintenance, renovation or construction activity using gas or electrically powered equipment, which produces flames, sparks, or heat that is sufficient to start a fire or ignite flammable/combustible materials.

Some examples of ignition sources are: open flame, torch, welders, molten slag or metal, or sparks from such work.

**Designated Area** – An area that has been designated to perform hot work operations such as welding, torching, grinding, cutting, etc.

A hot work permit is not needed in a designated area if it meets the following requirements:

- Ensure that combustible materials such as paper clippings, wood shavings or textile fibers are swept clean for a radius of 35 feet in the welding shop. 29 CFR 1910.252(a)(2)(v)
- Provide welding screens/curtains and place around the area where hot work operations will be performed. The screen/curtain shall completely enclose the area.
- Develop a checklist, similar to the hot work permit checklist, and have employees complete before hot work operations begin. The checklist should at least include the date/time of the hot work operations.

**Permit** - A HOT WORK PERMIT is a document that will be required when the task requires the use of a flame, sufficient heat or sparks to generate or serve as a source of ignition.

**Permit administrator** - The shop superintendent or their designee (ie shop supervisor), is responsible for all hot work operations, program compliance, and for issuing the Hot Work Permit.

**Fire watch** - A person who maintains awareness for the presence of fire or hazardous conditions within the hot work area before and at least 30 minutes after the hot work.

The fire watch personnel shall be trained in the following items:

- Hazards of the work site in correlation with the hot work
- Use of an appropriate fire extinguisher
- Procedures for initiating the fire alarm and calling 911

- Practices to safely extinguish any small fire using the extinguisher or welding blankets at the job site

### 3.0 Hot Work Operations

The following operations have been identified as hot work operations: These are activities that occur away from the designated workshop.

- Welding
- Acetylene/oxygenmetalcutting
- Soldering
- Electricsoldering
- Metalgrinding
- Thawingpipes

### 4.0 Hot Work Procedures

#### 4.1 Supervisor/Permit Administrators' Responsibilities

1. Perform site-specific inspections of the hot work area to identify flammable materials, hazardous processes, or other potential fire hazards that could be present
2. Ensure the protection of combustibles from the ignition by meeting the following criteria:
  - Moving hot work to a location free of combustible materials
  - If work cannot be moved, sweeping combustible to a safe distance from the operation or shielding from ignition source
3. Provide appropriate PPE based upon a hazard assessment for employees performing the task
4. Notify Delta Room and UK Fire Marshal before disconnecting any fire alarm system. Sprinkler heads or fire alarm systems shall not be covered or manipulated during hot work operations.
5. Provide appropriate fire extinguishing equipment in the hot work area or locate one in the building that is reasonably accessible for the duration of the hot work and for 30 minutes following the task
6. Define if fire watch is required

7. Administer hot work permit for all operations in which it is required
8. Provide OHS with copies of hot work permits at the conclusion of projects for review.

#### 4.2 Employee/Hot Work Operators' Responsibilities

1. Remove all flammable or combustible materials within a thirty-five foot radius of the hot work area
2. Remove all combustible debris (ie paper clippings, wood shaving, or textile fibers) from hot work area
3. Shield combustibles in the hot work area that cannot be removed with non-combustible blankets or other non-combustible materials.
4. Use noncombustible spray such as No-Char or Char-Guard on combustible floors, walls, or ceiling areas around hot work operations, if possible.
5. Seal all cracks and openings through which hot sparks or slag may enter. A fire resistant shield may be used to block openings.
6. Place non-combustible or flame resistant screens to protect personnel in adjacent work areas from heat, flames, UV, radiant energy and weld splatter.
7. Ensure all cutting and welding equipment is in satisfactory condition and good repair.
8. Ensure employees are suitably trained in the safe operation of equipment and understand the hot work process.

## 5.0 Employee Training

### 5.1 Initial Training

Initial training will be provided within 30 days of assignment. The supervisor must ensure that all employees meet the requirements before assignment. The names of each employee shall be documented on the list provided in Appendix A and documented as record for completion of the training.

The supervisor will ensure that all new employees receive training before conducting a task that meets the criteria of hot work operations in the written program. An employee can be utilized as a helper, prior to receiving the initial training, as long as they work directly under a trained employee.

The initial training should include the following topics:

- Written program
- Hot work procedures, including how to obtain a permit
- Proper equipment operation
- Handling and storage of welding materials
- Compressed gas cylinder safety
- Fire watch
- Fire precautions
- Fire extinguisher training
- Physical and chemical hazards
- Hazard control
- PPE selection and use

## 5.2 Refresher Training

Employees will receive refresher training in hot work at least three years after the initial training. The refresher training will include the topics set forth by the initial training. It will also provide updates or new requirements, if applicable.

## 6.0 Hot Work Permit System

A hot work permit (See Appendix B) shall be utilized before hot work operations begin in a non-designated location.

The procedures for the permits are:

1. The supervisor/permit administrator will inspect the area before authorizing a hot work permit
2. The employee/hot work operator will complete the hot work permit at the job site and post until completion of the job or the duration of the permit (not to exceed the work shift)
3. The employee/hot work operator will return the hot work permit to the supervisor after the task is complete or at the end of the work shift
4. The supervisor will retain the hot work permit for a period of time not to exceed one year
5. Permits will then be maintained by the Safety Officer, as needed

## 7.0 Program Evaluation

The hot work programs shall be evaluated on an annual basis utilizing the protocols set forth in Appendix C. The evaluation team will consist of the department safety officer and a designee from Occupational Health and Safety. Occupational Health and Safety will define the scope of the evaluation. The safety officer and OHS will coordinate the schedule for the audit utilizing



Microsoft Project. The final report will be developed the safety officer and OHS utilizing the information received during the evaluation. The deficiencies determined in the report will be documented and corrective action plans will be developed.

The evaluation should at least include the following:

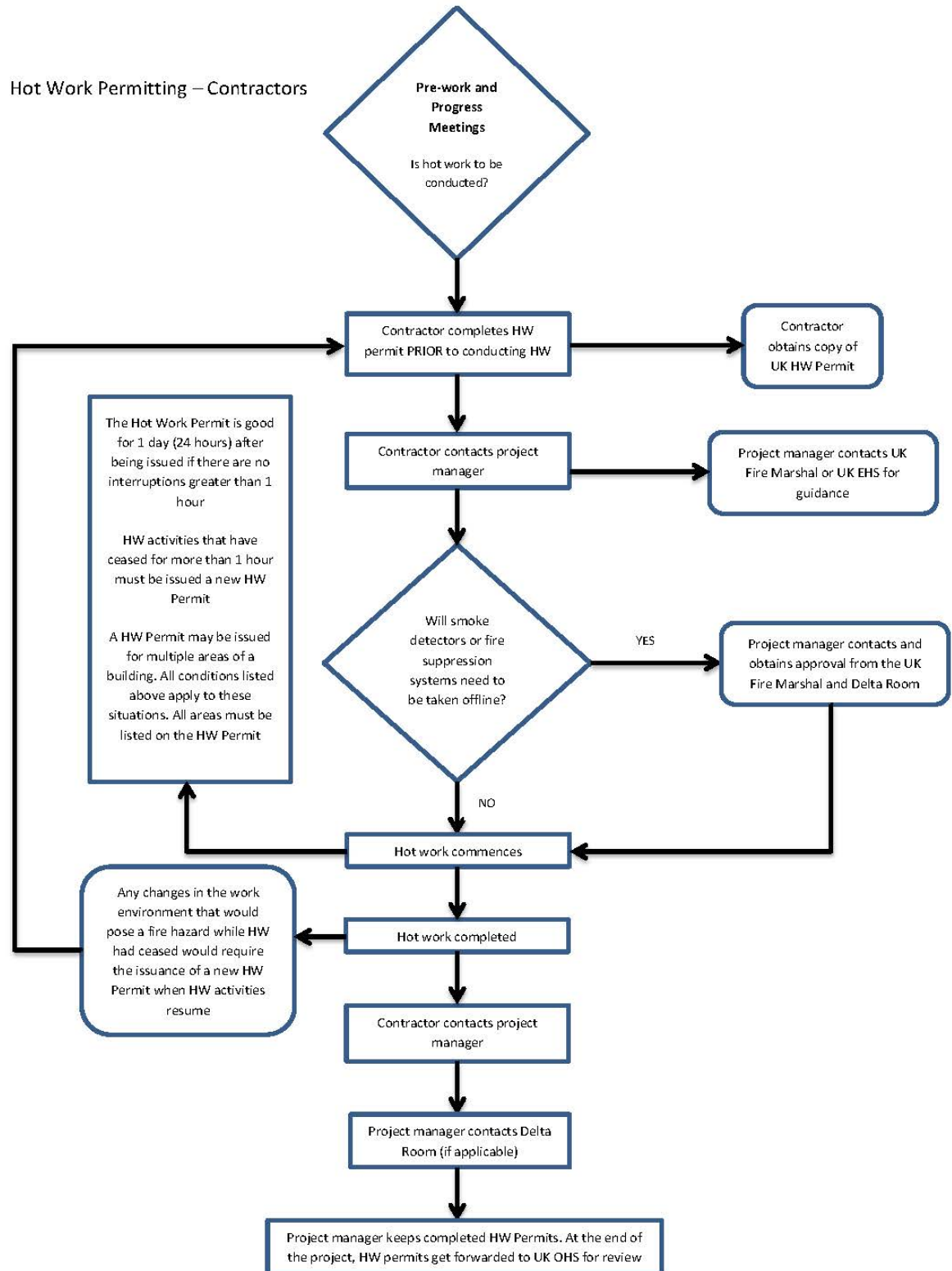
- Written Program
- Permit System
- Designated Areas
- Individual Shops
- Training/Retraining

## Appendix A – Hot Work Training Record

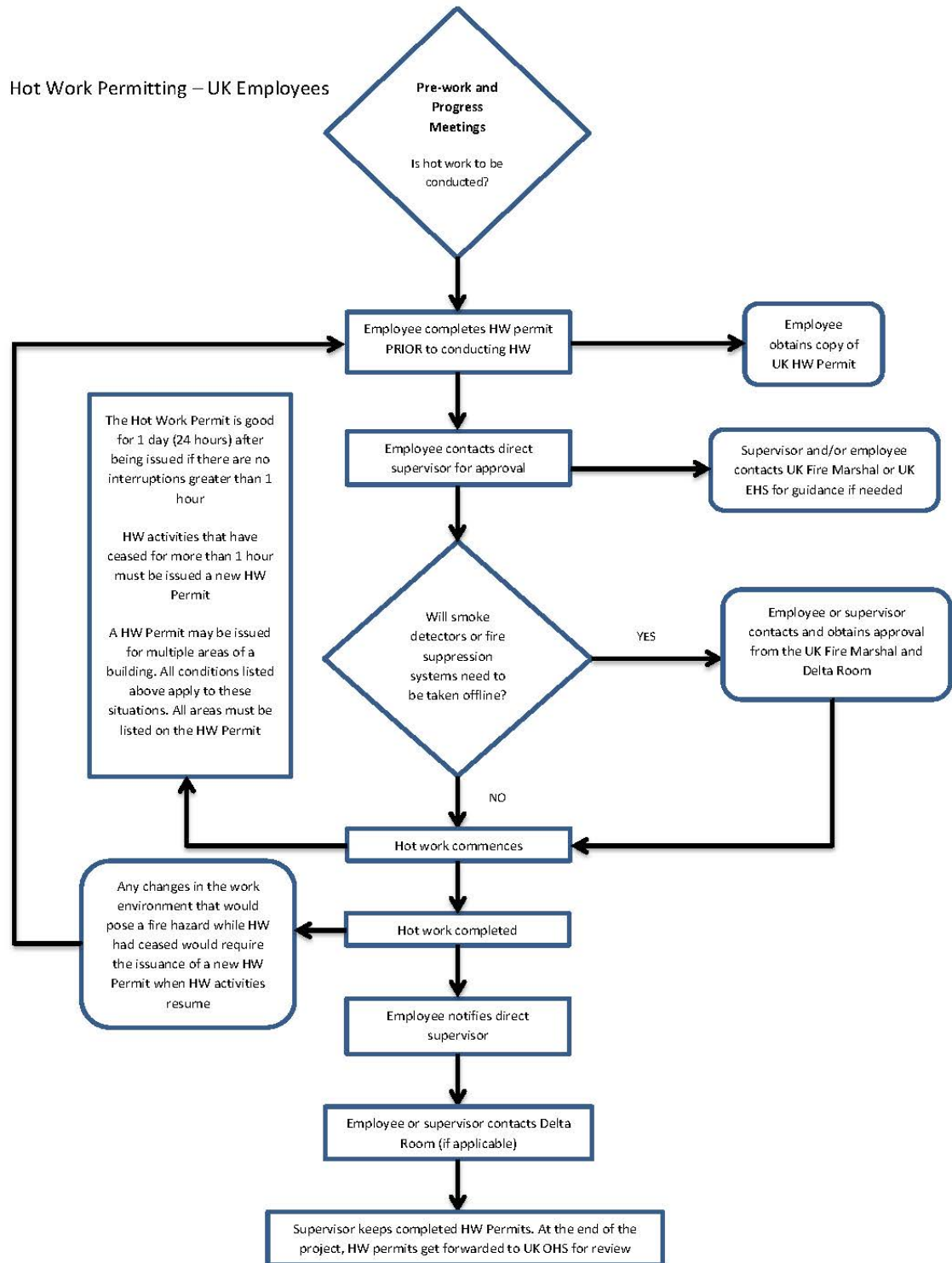
The following employees have received Hot Work Training

[illegible]

## Hot Work Permitting – Contractors



## Hot Work Permitting – UK Employees





## HOT WORK PERMIT

BEFORE INITIATING HOT WORK, ENSURE ALL PRECAUTIONS ARE IN PLACE!  
MAKE SURE AN APPROPRIATE FIRE EXTINGUISHER IS READILY AVAILABLE!

Instructions			Required Precautions Checklist		
<b>Supervisor:</b> 1. Complete precaution checklist at right 2. Complete this form and retain Part 1 3. Issue Part 2 to competent person performing hot work			<input type="checkbox"/> Sprinkler protection in service. If fire suppression is taken offline, UK Fire Marshal's Office AND UK Delta Room MUST BE NOTIFIED		
<b>Permit Information</b>			<input type="checkbox"/> Hot work equipment is in good working order		
Hot work done by: <input type="checkbox"/> Employee <input type="checkbox"/> Contractor			<b>Requirements within 35 ft. of hot work</b>		
Location/ building and floor:			<input type="checkbox"/> Flammable liquid, dust, lint and oily deposits removed and floor swept clean		
Reason for job:			<input type="checkbox"/> Explosive atmosphere in area eliminated (hot work is not to be conducted in a classified area unless made safe)		
<b>Personal Protective Equipment (if applicable)</b>			<input type="checkbox"/> Nearby activities evaluated for conditions that could be effected by hot work		
<input type="checkbox"/> Welder's hood with appropriate lenses			<input type="checkbox"/> Path of likely sparks evaluated		
<input type="checkbox"/> Welder's gloves			<input type="checkbox"/> Combustible floors wet down, covered with damp sand or fire-resistive sheets		
<input type="checkbox"/> Leather jacket/clothing			<input type="checkbox"/> Remove other combustible material where possible. Otherwise, protect with approved welding pads, blankets and curtains or metal shields		
<input type="checkbox"/> Head Protection			<input type="checkbox"/> All wall and floor openings covered		
<input type="checkbox"/> Hearing Protection			<input type="checkbox"/> Fire resistive covers and metal shields provided as needed		
<input type="checkbox"/> Respirator Type/cartridge: _____			<input type="checkbox"/> Protect or shut down ducts and conveyors that might carry sparks to distant combustible material		
<input type="checkbox"/> Other: _____			<b>Hot work on walls, ceilings or roofs</b>		
<b>Hot Work Performer</b>			<input type="checkbox"/> Construction is noncombustible and without combustible covering or insulation		
Name:			<input type="checkbox"/> Combustible material on other side of walls, ceilings or roofs is moved away		
Signature:			<b>Hot work on enclosed equipment (i.e., welding on tanks)</b>		
<i>I verify the above information has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.</i>			<input type="checkbox"/> Enclosed equipment cleaned of all combustible material		
<b>Hot Work Supervisor Approval</b>			<input type="checkbox"/> Containers purged of flammable liquid/vapor		
Name:			<input type="checkbox"/> Pressurized vessels, piping and equipment removed from service, isolated and vented		
Signature:			<b>Hot work inside of enclosed spaces (i.e., inside of tanks)</b>		
Date:			<input type="checkbox"/> Adequate ventilation provided		
<b>Permit Dates</b>			<input type="checkbox"/> Atmosphere checked with gas detector per confined space permit		
Permit Activated	Date:	Time:	<input type="checkbox"/> Area purged of any flammable or toxic vapors		
Permit Expires	Date:	Time:	<input type="checkbox"/> Other permits completed as required: Lock-out/tag-out, working at heights, live electrical work		
Date and time work completed	Date:	Time:	<b>Hot work/Fire Safety Notifications</b>		
Final Fire Watch Check-up	Date:	Time:	<input type="checkbox"/> Location of nearest fire alarm known		
<b>Fire Watch Inspector Signature (below)</b>			<input type="checkbox"/> If no alarm present, what method will be used to raise the alarm? (List in other precautions area below)		
Signature:			<input type="checkbox"/> Escape routes maintained and known by personnel		
			<b>Fire Watch/Hot work area monitoring</b>		
			<input type="checkbox"/> Fire watch will be provided for a minimum of 30 minutes after work has ceased.		
			<input type="checkbox"/> Fire watch is provided with suitable extinguishers		
			<input type="checkbox"/> Fire watch trained in use of equipment and in sounding alarm		
			<b>Special Instructions:</b>		
			When hot work is complete, submit completed permit to supervisor or project manager for UK EHS review		

## Appendix C: Hot Work Operation Audit Checklist

Building/Shop\_\_\_\_\_

Room\_\_\_\_\_

Supervisor\_\_\_\_\_

Assessment performed by \_\_\_\_\_

Date\_\_\_\_\_

A. General Welding and Cutting Controls	Yes	No	NA	Comments
1. Type of hot work operations performed				
2. Welding and cutting operations restricted to authorized employees				
3. Hot work performed in designated area				
4. Combustible materials moved at least 35 feet from worksite				
5. Floor and wall openings covered at least 35 feet from worksite				
6. Procedures developed to prevent welding and cutting in the presence of explosive or toxic air contaminants				
7. Fire resistant curtains and/or tinted shields provided				
8. Hot work permit obtained				
9. Local or general exhaust ventilation adequately used				
10. Appropriate personal protective equipment provided and used				

11. Appropriate fire extinguisher and/or fire suppression equipment provided in the vicinity of hot work				
12. Building sprinkler system operational during hot work operations				
13. Procedures developed to establish and maintain fire watch in hot work areas				
14. Hot work permit used				
<b>B. Welding or Cutting in Confined Spaces</b>	<b>Yes</b>	<b>No</b>	<b>NA</b>	<b>Comments</b>
1. Procedures developed for confined space entry and rescue				
2. Ventilation and/or respiratory protection provided				
3. Electrodes removed from holders and/or gas supply shut off when operations are suspended for any substantial period				
4. Hot work permit used				
<b>C. Compressed Gas Cylinders</b>	<b>Yes</b>	<b>No</b>	<b>NA</b>	<b>Comments</b>
1. Oxygen and fuel gas cylinders stored separately with protective valve caps in place				
2. Regulators compatible with gas cylinder				
3. Cylinder carts used for transport				
4. Cylinders secured from tipping while in use				
5. Empty or unused gas cylinders returned to supplier				

D. Training	Yes	No	NA	Comments
1. Workers trained in use of welding and cutting equipment, material hazards, and control methods				
2. Personal protective equipment training provided				
3. Confined space entry training provided, where necessary				
4. Workers trained in the written hot work program and/or permit system				
5. Employees trained in the use of fire extinguishers				