PURPOSE

The purpose of this Program is to protect people and property from a fire caused by hot work by defining responsibilities, establishing fire prevention precautions, and using a Hot Work Permit System.

Hot work includes welding, brazing, grinding, open flame use or any action that could produce sparks or fire.

EXCEPTIONS

These procedures do not apply to areas that are specifically designed and equipped for such operations. A Hot Work Permit is not required for the following areas:

- Any work space designed for welding, brazing or any open flame use.
- Open flames used for instruction and research in laboratories.

RESPONSIBILITIES

Environmental Health and Safety
The Environmental Health and Safety (EHS) department is responsible for the development, implementation and review of the Hot Work procedures at Portland State University. The Fire and Life Safety Officer (FLSO) will supervise hot work operations, verify the required precautions have been taken and authorize all Hot Work Permits.

Supervisors of Employees or Contractors Performing Hot Work
Supervisors are responsible for ensuring this Hot Work Permit System (or contractor's equivalent) is followed on all hot work performed.

Contractors Performing Hot Work
Contractors are responsible for obtaining a hot work permit from EHS. For major projects with hot work, contractor must submit their hot work plan for review by the FLSO and FM Global prior to commencing hot work. Contractor plan must be at least equal to requirements of PSU's hot work program.
RESPONSIBILITIES (continued)

Employees Performing Hot Work

Employees performing hot work are responsible for:

- Obtaining a Hot Work Permit when required prior to the start of any such operations.
- Ensuring the area where the hot work is to be done is fire safe and that the required safety precautions per the Hot Work Permit are followed.
- Utilize appropriate personal protective equipment.
- Follow all hot work policy guidelines and procedures and maintain familiarity with the fire alarm system, including how to sound an alarm in the event of a fire.

Fire Watch

- The fire watch shall be on continuous duty during the hot work and for at least 1 hour following the hot work.
- Stay near the person performing the hot work, close all fire doors, ensure the work area remains free of combustibles or that combustibles remain properly shielded/covered, and stop the hot work if improper conditions develop.
- Pay close attention to hot work operations on elevated locations, on the building roof, on walls or inside buildings with multiple floors.
- Never leave the area while work is in progress, unless relieved by a qualified replacement.
- Remain ready to sound the alarm, call emergency services and/or use an extinguisher or fire hose if a fire starts.
- Signs the Fire Watch Signoff section on the Hot Work Permit.

TRAINING

Employees and/or contractors who will be performing or supervising hot work operations shall take the online training available from FM Global at http://training.fmglobal.com.

1) All university employees conducting or supervising hot work shall complete the training on the FM Global Hot Work Permit System available through FM Global’s Client Resource Center, or equivalent training.
2) All contractors must have proof of hot work training and utilize Hot Work Permits that meet our policy, or undergo the Hot Work Permit System training offered through FM Global’s Client Resource Center and utilize the FM Global Hot Work Permit System, or equivalent permit system.

PROCEDURE

This procedure outlines specific measures to manage hot work operations. The standard for authorizing hot work is the FM Global Hot Work Permit System.
**Before Hot Work**

1) Consider alternatives to hot work, utilizing hot work as a last resort.

2) When practical, move any objects to be welded, cut or heated to a designated area.

3) If there is no alternative, the area should be prepared for hot work. The employee performing the hot work may utilize the Required Precautions Checklist (below) on the Hot Work Permit to ensure the hot work area is fire safe. See below for an example of a Hot Work Permit.

4) Flammable and ignitable materials shall be moved at least 35 feet from the hot work area or properly shielded/covered with noncombustible, fire resistive hot work blanket material.

5) Control valves to water supply for sprinkler systems must be open and appropriate fire extinguishers and a fire hose, where practical, must be readily available.

6) Hazardous processes shall be shut down, especially any process that can create a fire hazard, in the surrounding areas.

7) Sufficient ventilation must also be provided.

8) The Fire and Life Safety Officer shall be made aware of exactly what the work will involve and verify that all precautions listed on the Hot Work Permit have been taken in addition to the following:
   a. ensuring only qualified employees or contractors perform the hot work, and
   b. ensuring the appropriate personnel has been notified of the hot work activity.

9) The FLSO shall complete Part 1 of the Hot Work Permit and sign to authorize the hot work for the specified time, indicating when the Hot Work Permit expires.
   a. The Hot Work Permit shall be valid for the day and the operation for which it is issued.
   b. A job requiring hot work for more than one day shall require a separate permit for each day’s work.

10) Part 1 is filed in the lower pocket of Wall Hanger and Part 1A may be kept by the job supervisor or may be used for expanded hot work awareness.

11) The FLSO shall complete the back of Part 2 indicating who should be called in the case of an emergency.

12) Part 2 will be issued to the person performing the hot work operations.

13) The person performing the hot work operations will indicate the time started and post Part 2 of the Hot Work Permit in the hot work area.
During Hot Work

1) All hot work shall have an individual designated as fire watch during the hot work.
   a. The fire watch shall not be permitted, while on duty, to perform any other duties.
   b. The employee performing the hot work cannot also be the fire watch.
   c. The fire watch shall keep the hot work area fire safe.
   d. The fire watch shall remain ready to sound the alarm, call emergency services and/or use an extinguisher or fire hose if a fire starts.
   e. The fire watch shall watch for stray sparks, smoldering fires or other fire hazards.
   f. The fire watch shall stop hot work if unsafe conditions exist.

2) Continue to refrain from any hazardous processes in the surrounding areas.

3) The area shall remain free of flammable and ignitable materials and the shields/cover shall not be moved.

4) Stop the hot work if conditions develop that make it unsafe to continue.

After Hot Work

1) The employee performing the hot work shall indicate the time finished on Part 2 of the Hot Work Permit and leave the Hot Work Permit in the area with the fire watch.

2) All hot work shall have an individual designated as fire watch for 1 hour continuously following the hot work.
   a. The fire watch shall not be permitted, while on duty, to perform any other duties.
   b. The fire watch should remain ready to sound the alarm, call emergency services and/or use an extinguisher or fire hose if a fire starts.
   c. The fire watch should carefully inspect the hot work area and adjacent areas for smoldering fires.

3) Before leaving the area, the fire watch shall sign Part 2 and leave it posted.

4) The area shall be monitored for up to an additional 3 hours after the completion of the hot work operation.

5) A final inspection shall be completed and Part 2 of the Hot Work Permit shall be signed after the final checkup.
REQUIRED PRECAUTIONS CHECKLIST

The Required Precautions Checklist on the Hot Work Permit shall be used to prepare a hot work area. The FLSO will verify all precautions listed on the permit have been taken prior to authorizing hot work.

Required Precautions Checklist
1) Control valves to water supply for sprinkler systems are open.
2) Hose streams and extinguishers are in service/operable.
3) Hot work equipment in good working condition.

Requirements within 35 feet of work
1) Flammable liquid, dust, lint and oily deposits removed.
2) Explosive atmosphere in area eliminated.
3) Floors swept clean.
4) Combustible floors wet down, covered with damp sand or fire resistant sheets.
5) Remove other combustible material for where possible. Otherwise protect with FM approved welding pads, blankets and curtains, fire resistant tarpaulins or metal shields.
6) All wall and floor opening covered.
7) FM approved welding pads, blankets and curtains installed under and around work.
8) Protect or shut down ducts and conveyors that might carry sparks to distant combustible materials.

Hot work on walls, ceilings or roofs
1) Construction is noncombustible and without combustible covering or installation.
2) Combustible material on other side of walls, ceiling or roof is moved away.

Hot work on enclosed equipment
1) Enclosed equipment cleaned of all combustible materials.
2) Containers purged of flammable liquid/vapor.
3) Pressurized vessel, piping and equipment removed from service, isolated and vented.

Fire watch/hot work area monitoring
1) Fire watch will be provided during and for 1 hour after work, including any break activity.
2) Fire watch is supplied with suitable extinguishers, and where practical a small charged hose.
3) Fire watch is trained in use of equipment and in sounding the alarm.
4) Fire watch may be required in adjoining areas, above and below.
5) Monitor hot work area for up to an additional (3) hours after the 1 hour fire watch.
EXAMPLE OF HOT WORK PERMIT
REGULATORY STANDARDS

NFPA 51B

REFERENCES
FM Global Loss Prevention Data Sheet 10-3: Hot Work Management.
Available through the FM Global Resource Center at:
https://myrisk.fmglobal.com/portal/server.pt/gateway/PTARGS_0_78309_227_13616_0_43/http%3B/mr-portlets-prod/riskmark/Portlets/DataSheetDisplay.aspx/FMDS1003?FileName=FMDS1003&objectId=090f1aae80321de1

FM Global Understanding the Hazard: Hot Work. Available at:
https://myrisk.fmglobal.com/portal/server.pt/gateway/PTARGS_0_78309_367_13616_0_43/http%3B/mr-portlets-prod%3B80/riskmark/CRG/CRGResourceContent.aspx

Additional Information

Contact EHS for consultation through the campus Work Order system (5-2FIX), or call (503) 725-3738. The Program Administrator for the Hazard Communication Program is Bob Happel (503) 725-4325.