



**University of Massachusetts
Amherst**

Policy and Procedures Manual

PP.9.E.002
September 8, 1997

From: Earl Smith, Director

Subject: Hot Work Procedure

Purpose: To establish a practical, and useful protocol for the safe performance of Hot Work and outline how permits for such work are obtained.

Discussion: The intent of the Hot Work Permit system is to prevent injury and/or loss of property from accidental fires as a result of hot work. In the past, EH&S Fire and Safety Officers would usually make two inspections for a Hot Work Permit. The first to provide direction for work area preparation and the second to inspect for any required changes. Creating a procedure for hot work area preparation, allows Physical Plant personnel to prepare the work area prior to calling EH&S. When called, EH&S can provide one final inspection and issue a permit on the spot, saving time for both Physical Plant and EH&S personnel.

Enclosures: (1)

**The University of Massachusetts
Physical Plant
Hot Work Procedure**

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1.0 PURPOSE

- 1.1 To establish a practical, meaningful, and useful procedure for the safe performance of Hot Work.

2.0 OBJECTIVE

- 2.1 The objective of this procedure is to outline the necessary work area preparation and the administrative steps in obtaining a Hot Work Permit. The intent of the Hot Work Permit system is to prevent injury and/or loss of property from accidental fires as a result of hot work.

3.0 SCOPE

- 3.1 A Hot Work Permit is required for the following activities: brazing, cutting, glass blowing, torch use, welding, heat gun use or other similar hot work. Bench-top soldering of small electrical equipment is **exempt** from this permitting process.

4.0 DEFINITIONS AND ABBREVIATIONS

- 4.1 *Appreciable Amount of Combustibles* - An accumulation of combustibles where more than an incipient stage fire may develop.
- 4.2 *Fire Watcher* - A person designated to watch for incipient stage fires as a result of hot work; to extinguish incipient stage fires; to summon help by calling UMASS Police in the event of a fire beyond incipient stage.
- 4.2 *Hot Work* - Operations using oxygen-fuel gas, electric arc, or fuel gas equipment for the purpose of cutting, welding, brazing, soldering, or other operations in which heat or sparks may be transmitted to nearby combustibles.
- 4.3 *Hot Work Permit (HWP)* - A document, established by the Environmental Health & Safety Department, that details specific requirements for jobs involving hot work for the purpose of preventing injury and/or loss of University property.
- 4.4 *Designated Hot Work Area* - A location that is properly maintained for hot work operations in which blanket Hot Work Permits are issued for up to one year in duration.
- 4.5 *Incipient Stage Fire* - A fire in its beginning stage that is small enough to be extinguished with portable fire extinguishers.

NOTE: Words italicized indicate terms that are defined in section 3.0, Definitions and Abbreviations.

5.0 General Notes And Cautions

- 5.1 A *fire watcher* is required if an *appreciable amount of combustibles* are within 35 feet of the work area.
 - 5.1.1 The *fire watcher* shall be trained in the use of fire extinguishers. They shall also be familiar with the procedures for sounding the building fire alarm in the event of fire and how to contact the Umass Amherst police for reporting a fire.
 - 5.1.2 Fire watches shall be maintained for a minimum of 30 minutes after *hot work* was last performed.
- 5.2 The person(s) responsible for performing the *hot work* shall ensure permit compliance, and to ensure that clean-up work is performed upon job completion or termination.
- 5.3 Direct surveillance by an EH&S Fire and Safety Officer may be used in lieu of a *HWP* in an emergency situation. The Fire and Safety Officer in that situation shall have the authority to direct matters associated with industrial safety, and shall specify any exposure control requirements.

6.0 Obtaining a Hot Work Permit

- 6.1 Prior to calling for a *hot work permit* inspection, ensure that the requirements in section 7.0 of this procedure are met. These requirements are what the EH&S Fire and Safety Officer will be surveying during the inspection. Non-compliance with these requirements will cause delay or denial of the permit.
- 6.2 Call Environmental Health & Safety at 545-2682, ask to have a Fire and Safety Officer meet you at the work site for issuance of a *hot work permit* (Appendix A or B).
- 6.3 When the officer arrives, explain the scope of your work to them. If all fire prevention requirements are met, the permit may be issued on the spot. If additional fire prevention requirements are necessary, a second inspection may be required before the permit may be issued. If after the permit is issued, the scope of work changes, notify EH&S of the change. A re-inspection may be required.

Note: Areas protected by fire detection and/or suppression systems may need to be modified to avoid accidental alarms.

7.0 HOT WORK AREA CONDITIONS

- 7.1 Appropriate personal protective clothing and equipment shall be used.
- 7.2 An appropriate portable fire extinguisher shall be available, charged, and ready for use.
- 7.3 The equipment has been at least visually inspected and is in good operating condition.
- 7.4 The area shall be well ventilated. If power ventilators are necessary, contact the Physical Plant Safety Officer (545-6043) or Campus Safety Officer (545-2682) for guidance on their use.
- 7.5 Hot work shall not be performed in high hazard areas (e.g. flammable storage areas).
- 7.6 Survey the work area and ensure the following requirements are met:
 - 7.6.1 *Appreciable amounts of combustibles* are not located within 35 feet of the work area.
 - 7.6.2 The work cannot be moved to a safer area.
 - 7.6.3 *Appreciable amounts of combustibles* that cannot be removed from within the 35 foot radius have been covered or shielded with fire-proof materials.
 - 7.6.4 Combustible floors, walls, and openings or cracks within 35 feet are protected using fire-proof materials such as water, moist sand, or shields.
 - 7.6.5 Flash screens or other precautions are used to protect employees from arc flash.
- 7.7 The following safety requirements shall be employed when performing *Hot Work* on vessels, containers, pipes and ducts that have contained material other than water, air or steam.
 - 7.7.1 The history of a vessel, container, pipe or ductwork's contents must be determined before a *HWP* can be issued for work on such items.
 - 7.7.2 *Hot Work* on vessels, piping, tanks or ducts containing materials other than water, air or steam shall not be cut with a torch or otherwise exposed to high heat without first consulting the Physical Plant Safety Officer (545-6043) or the Campus Safety Officer (545-2682).

- 7.7.3 The vessel, container, pipe, or duct work containing materials other than water, steam or air shall be purged only with the guidance of the Physical Plant Safety Officer (545-6043) or Campus Safety Officer (545-2682).
- 7.7.4 The gas cylinders or welding power source shall be kept out of confined spaces.
- 7.7.5 Requirements of the Physical Plant Confined Space Program shall be met when the *hot work* is to be performed in confined spaces.
- 7.8 *Designated Hot Work Areas* shall also meet the following conditions:
 - 7.8.1 Construction shall be of non-combustible or fire-resistive material
 - 7.8.2 Openings or cracks in the area floor or walls shall be sealed or covered so that sparks, slag, or heat cannot travel to adjacent areas.
 - 7.8.3 *Appreciable amounts of combustible material* or materials easily ignited by sparks shall not be introduced to the area.

8.0 Gas Cylinder Safety

- 8.1 The following safety requirements shall be employed when using compressed gas:
 - 8.1.1 Each cylinder must have a label identifying its contents. Make sure you know the characteristics of the gas before use.
 - 8.1.2 Use gases in areas with adequate ventilation.
 - 8.1.3 Cylinders should be moved with a suitable hand truck and never rolled or dragged.
 - 8.1.4 Cylinders should not be subject to temperatures over 120^o F or direct flame.
 - 8.1.5 Cylinders containing oxygen should be kept away from large quantities of flammable liquids.
 - 8.1.6 Use proper tools to tighten the regulator and to open the cylinder main valve. Check for leakage of all joints after completion of connection.
 - 8.1.7 Never tamper with safety devices in cylinder, regulator or valves.
 - 8.1.8 Cylinder main valves should be shut off when not in use.
 - 8.1.9 Do not empty cylinders completely. Always leave 50-100 psi remaining to prevent contents from being contaminated if the main valve is opened.