HOT WORK PERMIT PROGRAM

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1. PURPOSE

Environment Health & Safety (EHS) at the University of Wisconsin – Madison campus has established a Hot Work Program to promote a safe campus environment for students, staff and visitors. Hot Work is normally associated with an activity that introduces sparks or open flames to a work area.

2. SCOPE

Hazards associated with hot work can be reduced through the implementation of an effective Hot Work program. This program has been developed for UW personnel, contractors, building maintenance personnel, equipment repair personnel, firewatchers, supervisors (including outside contractors), building managers, and safety personnel as a guide to ensure Hot Work activity is performed in a safe manor.

The Hot Work program is intended to:

- Preserve the safety of the worker performing the hot work
- Ensure safety to all building occupants during hot work operations
- Prevent accidental activation of the building fire detection system
- Limit losses from accidental ignition of property

3. RELATED DOCUMENTS

3.1. Regulatory Standard

- OSHA 1910.252 – General Requirements – Welding, Cutting and Brazing
- OSHA 1926.352 – Fire Prevention – Welding and Cutting Construction Standard
- NFPA 51B (2014) – Fire Prevention During Welding, Cutting and other Hot Work
- IFC (2009) Chapter 26 Welding and other Hot Work
- NFPA 1 (2012) – Welding, cutting and Other Hot Work

3.2. Hot Work Permit Program

- Hot Work Permit **(GS-FRM-002)**
- Hot Work Permit Warning Sign **(GS-DWG-001)**
- Hot Work Permit Schedule Form **(GS-FRM-001)**

4. DEFINITIONS

Authority Having Jurisdiction (AHJ) is an organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation or a procedure. (Ex. DSPS, MFD, EHS).

Arc welding is a welding process where similar materials are joined with a heating process caused by an electric arc. In the most common use, this process includes the use of a filler metal.

Brazing is a process intended to permanently join two or more metals/materials together to form a single assembly by heating them in the presence of a filler metal that begins to melt above 450° C (840° F).

Cutting is to separate metals by using any gas, electric arc or flammable, or combination thereof.

Grinding is to crush, pulverize, or reduce to powder by friction, especially by rubbing between two hard surfaces.

Hot work is welding, cutting, soldering, brazing, grinding, and other forms of torch operations that will introduce sparks or open flame to a work area.

Non-fire causing work is work which may interfere with fire protection systems but does not have the potential to start a fire. Some examples include dust-generating work (e.g., sanding) or steam-generating work.

Non-torch operation is all other hot work operations other than defined Torch Operations.

Normal business hours are Monday through Friday from 7:45 A.M. to 4:30 P.M., excluding University approved holidays.

Off business hours are all other times not defined as Normal Business Hours.

Permit Authorizing Individual (PAI) is an individual designated to authorize hot work.

Soldering is to unite (metallic surfaces or edges) by the intervention of a more fusible metal or metallic alloy applied when melted; to join by means of metallic cement.

Torch operation is a hot work operation where flammable gases are mixed with an oxidizer to create a flame (e.g., oxy-acetylene.)

Welding is a process that joins metals by heating them to a melting point and allowing them to fuse or flow together, sometimes with an intermediate or filler metal having a high melting point.

5. ROLE(S) RESPONSIBILITIES

Environment Health & Safety (EHS) is responsible for the following roles:

- Issues Hot Work Permits for Hot Work performed within Campus buildings
- Inspection of Hot Work areas; or by approved designee (before/after)

- Coordinating with impairment procedures (GS-PRM-002 policy) if a fire protection system could be affected by Hot Work

Trade Professional

Trade professional includes any contractor working within a Campus buildings OR any UW employee (i.e. Physical Plant, Housing, Athletics, Student Unions, etc.)

- Responsible for following Hot Work Permit Program
- Responsible for following regulatory standards related to Hot Work
- Responsible for submitting request to perform Hot Work

6. HOT WORK PROGRAM REQUIREMENTS

Prior to starting hot work, a Hot Work Permit must be issued by EHS. Hot work areas must be inspected by EHS (or approved designee) before hot work begins; fire alarm systems/devices may need to be disabled by Physical Plant (as appropriate). The following procedures provide the requirements needed to obtain a Hot Work Permit during normal business hours versus off business hours as defined in Section 6.2. A hot work permit will be issued for a period of time not to exceed twenty four (24) hours. If a project will require multiple days/weeks of Hot Work, special arrangements can be made through EHS to only require one Hot Work permit for the length of the project.

Note: Hot work permits will not be issued on days when the same building's sprinkler / standpipe system is disabled for repair or emergencies, regardless of previous scheduling.

6.1. Hot Work Activities During Normal Business Hours

This hot work permit request procedure applies to hot work activities which will begin and be completed within normal business hours.

6.1.1. Hot Work Permits are issued between the hours of 8:00 AM and Noon Monday through Friday at EHS office located at 30 East Campus Mall in room 292. Hot Work Permit requestors are expected to plan ahead for the day.

- Affiliation to the Campus (e.g., Campus employee or Contractor)
- Location of work area
- Time hot work activity is to begin
- Expected duration of hot work activity
- Type of hot work activity

6.1.2. Emergency requests will be honored at any time by contacting the EHS Hot Work coordinator at (608) 265-5000 during normal business hours.

6.1.3. If necessary, an EHS representative will go with the Requestor to the designated work area and complete an inspection of the area.

6.1.4. Once the work area is deemed safe, EHS will make the necessary arrangements to have the fire alarm system and/or device(s) potentially affected by the hot work activity disabled.

6.1.5. EHS will complete and issue a hot work permit specific to the hot work activity in the area for the designated time frame.

6.1.6. If hot work activities will extend past the original time frame, the Requestor must contact EHS immediately to ensure that the fire alarm system has not be reactivated.

6.1.7. **Upon completion of the hot work activity, the Requestor shall contact EHS (608-265-5000). The requestor must remain in the area of the hot work until an EHS representative (or approved designee) has arrived to close out the hot work permit or EHS releases the requestor.**

6.1.8. EHS will close out the hot work permit by conducting a follow-up inspection to ensure all conditions are safe and then have the fire alarm system and/or device(s) re-instated as active.

6.2. Hot Work Activities During Off Business Hours

This hot work permit request procedure applies to hot work activities which will begin, occur, or be completed during off business hours.

6.2.1. The Requestor must complete the Hot Work Permit Scheduling Form and **submit the form to EHS with a minimum of one week advanced notice**.

6.2.2. EHS will review the Hot Work Scheduling Request Form for approval and notify the requestor. The review process may require a site visit and further discussion into the scope of the hot work activity.

6.2.3. If the Hot Work Permit Scheduling Form is not approved, the Requestor will either:

- Conduct the hot work activity during normal business hours or
- Have the Project Manager (for contractors) contact EHS directly to further discuss the hot work activity.

6.2.4. If the Hot Work Permit Scheduling Form is approved, Section 6.1 of this program applies.

7. TORCH OPERATION AND FIRE WATCH REQUIREMENTS

Torch operation is defined as a hot work operation where flammable gases are mixed with an oxidizer to create a flame (e.g., oxyacetylene.) Examples of torch work activities may include welding and cutting operations. Hot work activities utilizing torch operations require a fire watch during the torch operations.

7.1. Condition Requiring Fire Watch

A fire watch is required whenever torch operations are performed. A fire watch will also be required when any of the following conditions exist:

- Appreciable combustible material in building construction or contents is closer than 35 feet to the point of operation.
- Appreciable combustible are more than 35 feet away but easily ignitable.
- Wall or floor openings within a 35-foot radius expose combustible material including concealed spaces in walls or floors
- Combustible materials are adjacent to the opposite side of partitions, walls, ceilings or roofs and are likely to be ignited

7.2. Procedure for Fire Watch

Fire watcher(s) must do the following

- Provide required fire extinguishing equipment at torch operation location.
- Be trained in the use of portable fire extinguisher.
- Guard against fire in exposed areas.
- Make a complete inspection of the exposed areas for possible fire.
- Remain on site at least one hour after the completion of torch operations to detect and extinguish possible smoldering fires
- Make an initial inspection of all exposed areas one-half hour (30 min.) after completion of torch operations. Such inspection will be followed up by another final inspection one-half hour (30 min.) later for the purpose of detecting fire.

8. FIRE PREVENTION

Fully charged and operable fire extinguishers, appropriate for the type of possible fire, must be available at the work area. Contractors are responsible to furnish appropriate fire extinguishers during the project.

8.1. Cylinders and Other Equipment

Cylinders and other equipment must be managed as follows:

- Cylinders that are in use must be properly supported and placed a safe distance from torch operations.
- Cylinders must be labeled with the contractor's name.
- All equipment must be in satisfactory operating condition. Cylinders, when not in use, must be properly supported and stored in a safe location protected from damage or exposure to fire.
- Oxygen and fuel gas cylinders and hoses will be located away from possibly being exposed to welding, cutting sparks hot slag or hot metal.
- Remove all electrodes from holders during long breaks, place the holder well apart from each other, and disconnect power.
- Welding cables and other equipment must be placed so that it is clear of passage ways, ladders and stairways.

8.2. Work Locations and Safe Distances

Where possible, the work should be moved to a remote location, where there will not be a chance of setting a fire. If the work cannot be moved, combustibles should be taken a safe distance away (at least 35 feet) or the combustibles must be properly shielded from ignition sources and the area should be swept clean. Where combustibles are not relocated, a fire watch on the opposite side from the work shall be provided

8.3. Surfaces with Combustible Coverings

Welding is not to be attempted on a metal partition, wall, ceiling, or roof having a combustible covering, or on walls or partitions of combustible sandwich-type panel construction. If welding is to be performed, precautions must be taken to prevent ignition of combustibles on the other side. Where cutting or welding is performed near walls, partitions, ceilings, or roofs of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.

8.4. Combustible Floors

Combustible floors must be kept wet, covered with damp sand, or protected by fire-resistant shields. Personnel operating arc welding or cutting equipment must be protected from possible electrical shock when floors are wetted.

8.5. Openings or Cracks in Surfaces in Hot Work Areas

Openings or cracks in walls, floors, or ducts within 35 feet of the hot work area must be tightly covered to prevent the passage of sparks to adjacent areas. Conveyor systems that might carry sparks to distant combustibles must be protected.

8.6. Hot Work Areas with High Hazards

Cutting or welding torches are not allowed in areas where there would be a high hazard; such as rooms containing flammable gases, vapors, liquids, dust or any other materials, which catch fire easily. Special accommodations will need to be made to work area prior to EHS issuing a Hot Work permit.

8.7. Hot Metal Warning Signs

Always mark hot metal with a warning sign, or use some other means of warning to protect workers after welding operations are complete.

9. WELDING IN CONFINED SPACES

When employees perform welding or cutting in confined spaces the following safety provisions are required:

- Adequate ventilation must be assured
- All welding machines and gas cylinders must be kept outside the work space
- Wheels on portable equipment must be blocked to prevent accidental movement
- Torch values must be closed and gas cylinders must be shut-off whenever the torch is inactive for a substantial period of time.
- Torches and hoses must be removed from the confined space when not in use.

10. TRAINING

All personnel performing hot work must be trained in proper equipment operation, handling and storage of welding materials, portable fire extinguisher use, compressed gas safety, chemical hazards, and the hot work program. Additional training may also be necessary in the proper selection and use of personal protective equipment. Training in confined space entry is necessary before working in such areas.

11. DOCUMENT REVESION

Each time the document is revised, list the revisions in the table below. This will always be the last section of the document.

Revision History		
Revision Number	Revision Date	Description of Revision
1	02/03/2016	Modified section 3.1, section 4, section 5, section 6, 6.1.1, 6.1.7, 6.2.3.
2		

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