



**UNIVERSITY OF WISCONSIN-PARKSIDE
HEALTH AND SAFETY MANUAL
SECTION IV**

SAFE WORK PRACTICES (SWP)

HOT WORK PRACTICES

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HOT WORK PRACTICES

This safe work practice (SWP) documents procedures to protect employees and prevent combustible materials from exposure to fire, sparks, hot metal, or any other source of ignition whenever hot work is performed outside of a designated safe hot work area. Definitions, responsibilities, hot work requirements, and hot work in confined spaces are discussed below. This SWP also addresses Occupational Safety and Health Administration (OSHA) requirements specified in Title 29 of the *Code of Federal Regulations* (CFR) 1910.252 for fire prevention and protection during welding, cutting, and brazing.

1.0 DEFINITIONS

Designated Safe Hot Work Area: An area that has been designed and constructed specifically for performing open-flame or spark-producing work (for example, maintenance shops are designated safe hot work areas)

Fire watch: At least one individual dedicated solely to the look out and control of stray fires; the fire watch shall remain in a location that allows immediate communication with the individual(s) performing hot work; the fire watch shall also remain in the work area after work is completed to ensure the risk of fire from hot work has passed (at a minimum, this period will last at least 0.5 hour)

Hot Work: Work using an open-flame or spark-producing apparatus; hot work includes, but is not limited to, welding, cutting, burning, grinding, and related heat-producing jobs that could ignite combustible materials or flammable atmospheres

2.0 RESPONSIBILITIES

Supervisors must complete and issue hot work permits, ensure that employees are trained in hot work requirements, and ensure that contractor personnel meet requirements detailed in this SWP. Hot work shall not begin until the supervisor can ensure and document the following:

- People and combustible materials will not be exposed to fire, sparks, or any other source of ignition.
- Emergency response procedures are in place.

- The work area is safe.

The fire watch shall attend all hot work performed in circumstances where a fire might develop. These circumstances exist when one or more of the following is true:

- An appreciable amount of combustible material that can be easily ignited (including material such as the building structure or other materials) is within 35 feet of the hot work area
- Wall or floor openings exist within a 35-foot-radius of the hot work area that expose combustible materials in adjacent areas; openings include concealed spaces in walls or floors
- Combustible materials likely to be ignited by conduction or radiation are near the other side of hot work areas near the metal partitions, walls, ceilings, or roofs

The fire watch shall also ensure that the appropriate extinguishing equipment is readily available and be trained in its use. The type of hot work procedures performed shall determine equipment required. At a minimum, an extinguisher rated at 2A:40BC shall be provided. Depending on the amount of combustible materials in the area and the location of the hot work, a hose with a stream diameter of up to 1.5 inches may be required. The university risk management officer (URMO) should be consulted for assistance with fire extinguisher selection.

The fire watch shall be familiar with the equipment for sounding an alarm in the event of a fire and watch for fires in all exposed areas. Personnel should not try to extinguish fires unless the fire is extinguishable given the capacity of the equipment available. In the event of fire beyond the extinguisher's capacity, the fire watch shall summon aid.

3.0 HOT WORK REQUIREMENTS

The following minimum requirements apply at locations where hot work will be performed:

- A hot work permit shall be completed to authorize hot work performed outside of designated safe hot work areas. Hot work may not begin until a permit has been obtained. Form HW-1, "Hot Work Permit," is suitable for most work.
- Combustible materials, including ordinary combustible materials, and flammable and combustible liquids should be relocated at least 35 feet from the hot work area. If

relocation is impractical, combustibles shall be protected with flameproof covers or shielded with metal or flameproof curtains.

- The hot work permit should specify the concentrations of vapors and gases in areas as applicable.
- If flammable vapors or gases are present but their levels do not exceed 10 percent of the lower explosive limit (LEL), hot work should not be started until the person approving the permit
 - Knows the source of the flammable gases or vapors and
 - Determines that their concentration will not increase while the hot work is in progress.
- Hot work should not be performed if the concentration of flammable gases or vapors exceeds 10 percent of the LEL.
- Lower areas should be roped off when hot work is performed overhead. Warning signs must then be posted to prevent combustible materials and personnel from entering the lower areas.
- Barriers should be placed around and under hot work areas to confine sparks unless this action is physically impossible.
- Open drains leading to underground systems that may contain flammable or combustible materials should be protected by the following:
 - The atmosphere should be tested for flammable vapors before a permit is issued and
 - The open drain should be covered with a fire blanket or similar protective shield to prevent the entry of sparks, even if a safe atmosphere currently exists.

4.0 HOT WORK IN CONFINED SPACES

When performing hot work in confined spaces, employees shall comply with the Confined Space Entry Program (see Section No. 6-4). In addition, employees shall do the following:

- Keep all gas cylinders and welding machines outside of confined spaces (this may not apply to heating/chilling tunnel activities if gas hoses cannot reach the work area)
- Positively isolate the gas supply outside the confined space when torches are not in use for a substantial period of time (such as during a lunch break); when practical, employees shall also remove torches and hoses from confined spaces

- De-energize electrode holders by electrically disconnecting the power supply when arc welding is to be suspended for an appreciable amount of time or the welder has occasion to leave work
- Use insulating mats or similar insulating equipment to protect welders using alternating current equipment over 50 volts from electrical contact with conductive materials
- Ensure that available ventilation in the confined space meets the ventilation requirements set forth in 29 CFR 1910.252(c).