

INTRODUCTION

The Office of Safety and Risk Management (SRM) has developed, implemented, and is responsible for oversight of the [Hot Works Program](#) for Montana State University (MSU) workers.

Welding, oxyacetylene cutting, hot riveting, grinding, chipping, soldering, and other activities that produce sparks or open flames are important tools of modern industry. The portability of the equipment and its careless use outside maintenance areas specifically designed for its safe use can increase the likelihood of fires which can destroy facilities and interrupt operations. To make sure portable cutting, welding, and other hot work for maintenance, construction, or modification is done safely, a notification system shall be implemented.

Statement of the Problem

While industrial cutting, welding, and other hot work are common and useful production, construction, modification, and maintenance methods, they introduce hazards which must be controlled.

The principal hazards associated with portable hot work equipment are that it introduces ignition sources into random areas of the facility. Heat sufficient to start fires or ignite combustible materials may come from a number of sources including:

1. The open flame of a torch
2. Metals being welded or cut
3. Molten slag or metal that flows from the work
4. An improperly handled soldering iron
5. Sparks that fly from work
6. Dropped hot rivets
7. Improperly applied grounding clamps during electric arc welding
8. Torch applied roofing

The following procedures shall be followed at MSU-by-MSU employees. The procedures shall apply to all hot work operations except for those areas specifically designated for work such as a welding shop located in a maintenance area (Control Area). As part of their contract, outside contractors agree to abide by all applicable Federal, State, mu/ Local Regulations and Standards (including but not limited to OSHA, NFPA, IFC, ANSI) while working on MSU property. Included are hot works precautions. Outside Contractors shall be responsible for all hot works precautions as required by all applicable Federal, State, and Local Regulations and Standards (including but not limited to OSHA, NFPA, IFC, ANSI).

MSU Workers - When hot works must be performed outside a control area or shop, it is the worker's responsibility to confirm all precautions have been met. It is the workers responsibility to notify the work control office as to who will be doing the work, where the work will be done, when the work will begin, and again when the work is finished. The worker will also notify the work control office if he or she will need a fire watch. A worker may act as his or her own fire watch if he or she will remain in the area for a minimum of 30 minutes after completion of hot work. The Office of Work Control will log in

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start and stop times, and location of work. The Office of Work Control will notify the Office of Safety and Risk Management whether a fire watch is required. The Office of Safety and Risk Management will be responsible for providing the fire watch. The Office of Safety and Risk Management reserves the right to inspect all Hot Works areas, and revoke authorizations, if necessary, due to non-compliance.

The hot works program at MSU shall apply to all existing structures, and structures under renovation.

GENERAL REQUIREMENTS

All personnel directly involved in the use of and supervision of equipment that is utilized in hot work shall be familiar with the equipment, the hazards of working with the equipment, and the actions required for preventing or extinguishing fires if they occur.

Fire Prevention and Protection:

The basic precautions for fire prevention in welding or cutting work are:

1. **Notifications.** All Notifications in the subsequent section must be followed.
2. **Fire Hazards.** If the object to be welded or cut cannot be moved, all movable fire hazards in the vicinity should be taken to a safe place away from the area (at least 35 feet).
3. **Guards/Welding Blankets.** If the object to be welded or cut cannot be moved, and all fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards. Approved welding blankets should be used to cover combustible materials.
4. **Automatic Sprinkler Protection.** If hot work operations are to be conducted in a building protected by automatic sprinklers, it should be verified that the sprinkler system is in service prior to conducting any hot work operations.
5. **Smoke Detectors.** If smoke is going to be generated during the Hot Work Process, a fire alarm technician must be notified prior to the onset of hot work.
6. **A Fire Watch shall be continuously present during the entire hot work activity and continue for 30 minutes after completion.**
7. **Restrictions.** If the requirements listed above cannot be followed, welding and cutting should not be performed.

Length of work and notification

1. **Notification of hot works outside a control area will be provided.** The notification will be logged and kept on file through the Office of Work Control. After notification has been provide, a sign indicating "Hot Works In Progress" should be posted at the jobsite in a conspicuous location and maintained visibly throughout the duration of the work.
2. **Notifications shall not be approved for any length of time exceeding the normal hours of the welder or cutter except:**
 - a. When welding or cutting operations are planned to be continued into the next shift when the same welder or cutter is operating.

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- b. When emergency repair work warrants the continued operation of cutting and/or welding into the next shift.
- c. No hot works notification shall be authorized to be in effect for any length over twenty-four continuous hours.
- d. Notifications will be logged on a job-to-job basis. Each specific job shall require a separate notification.
- e. Logs will be maintained to record hot works. The log shall be kept in such a manner as to identify each job, the time of work, time of completion, work area, and other necessary information as required.

SIGNAGE

The following information is designed as a part of the procedural reminder and signage procedures.

Hang Tag

Although the definition of hot works can be very broad, hot work operations are generally considered to be work or operations that produce an open flame, or sparks, or high temperatures.

I have taken the following precautions prior to the start of any hot work operation taking place outside of the normal work area (welding shop etc.):

- Remove all combustible within 35' of work area.**
- If combustibles could not be removed, they should be covered with some type of noncombustible covering (e.g., Tarp, metal cover, weld curtain, etc.).**
- Remove any flammable liquids.**
- All floor and wall openings covered or protected.**
- Purge any containers of combustibles.**
- Verify that sprinkler system is in service**
- Maintain a fire watch during the work and 30 minutes after the work.**
- Provide for portable fire extinguishing equipment in the immediate work area.**
- Work Control shall be notified prior to beginning any hot works operation, and again at the completion of the job.**

(Hang Card - Back)

Hot Works In Progress

(Hang Card - Front)

Wallet Card

This information is designed to be distributed in a wallet card format to individuals performing hot work.

The following precautions have been taken:

- Removed all combustibles within 35' of work area.
- If combustibles could not be removed, they have been covered with some type of noncombustible covering (e.g., Tarp, metal cover, weld curtain, etc.).
- Removed any flammable liquids.
- All floor and wall openings covered or protected.
- Purged any containers of combustibles.
- Verified that sprinkler system is in service
- Maintaining a fire watch during the work and 30 minutes after the work.
- Provided for portable fire extinguishing equipment in the immediate work area.
- Work Control has been notified prior to beginning any hot works operation, and again at the completion of the job.