

**HOT WORK/OPEN FLAME SAFETY PROGRAM
UMD Facilities Management Department**

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1.0 PURPOSE

The purpose of this procedure is to establish formal controls over open flame activity (welding, soldering, torching, grinding, etc.) within the jurisdiction of UMD Facilities Management and University of Minnesota Duluth property, excluding academic research and classroom instructional areas. The intention is to create a self-policing system of safe work practice verification, particularly as it relates to the fire detection system. This will also establish a record of work performed for insurance purposes.

2.0 SCOPE

2.1 This procedure applies to any FM employee who will be performing open flame or hot work. This includes but is not limited to campus maintenance, departmental construction, or outside contractor personnel. It covers all open flame or hot work conducted on any part of the UMD property.

2.2 Contractors working on new construction or new additions are not required to use these procedures before certificate of occupancy is given, but must comply with all applicable standards regarding hot work/open flame work.

3.0 STANDARDS

- 3.1 NFPA 51B
- 3.2 29CFR 1910 Subpart Q
- 3.3 Applicable MN Fire Code
- 3.4 UMD Impairments Program

4.0 DEFINITIONS

Hot Work/Open Flame: Any process that will introduce intense heat, sparks, or open flame to a work area. Hot work activity includes, but is not limited to; welding, cutting, burning, brazing, pipe thawing, soldering, or grinding. Any type of hot work activity not conducted in an approved Facilities Management shop area requires a permit.

Fire Watch Observer: A worker whose sole purpose during a hot works/open flame task is to stand by with a fire extinguisher, be alert to any fire or smoldering as a result of the hot works, and to know the location of the nearest building fire alarm pull station. The Fire Watch Observer will sign the "Hot Work Permit" verifying that there is no object still hot to the touch at the job site.

Fire Safety Coordinator: A worker who is in charge of ensuring that the requirements for safely conducting hot work/open flame tasks outside of designated shop areas are followed, and who is

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responsible for filling out and signing the "Hot Work Permit".

Impairment Coordinator: The person who manages the impairment while system work is being performed.

5.0 RESPONSIBILITIES

5.1 Management Team

- ◆ Assure an adequate Hot Work/Open Flame Program is established and implemented for UMD Facilities Management employees and contracted vendors under their area of responsibility.

5.2 Owner's Representative

- ◆ When coordinating construction work, inform all contractors of this program.
- ◆ Review contractor's Hot Work Program and assure that their Hot Work/Open Flame policies and procedures will be followed on the construction site.
- ◆ Require all affected personnel to comply with Hot Work/Open Flame standards. Inform campus administrators who might hire outside contractors that these contractors are required to abide by the requirements of this program.

5.3 Project Managers

- ◆ When coordinating construction work, inform all contractors of this program.
- ◆ Ensure all contractors and subcontractors must comply with Standards listed in section 3.0 for hot work/open flame, and those sections of this program requiring additional precautions, i.e. posting of hot work permit at FM Darland Front Desk.
- ◆ Work with operations Supervisors in enforcing this policy.
- ◆ Stop hot work activities that do not have a proper permit on display and/or are not complying with all requirements of this program.

5.4 Supervisors

- ◆ Provide hot work permits only to workers who have been properly trained as to the requirements of this program.
- ◆ Assure that the hot work/open flame area is properly protected. Assess the area for

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possible fire hazards (including hazardous and/or combustible materials). Insure a fire watch is assigned to hot works projects, where required.

- ◆ Authorize permits only when fire protection systems are not disabled.
- ◆ Schedule hot work jobs at times when it is less likely to impact combustible materials.
- ◆ Ensure that only approved equipment is designated for hot work activities.
- ◆ Stop hot work activities that do not have a proper permit on display and/or have not complied with all requirements of this program.

5.5 Employees

- ◆ Attend training on Hot Works procedures/policy.
- ◆ Obtain Hot Work permit before initiating hot work.
- ◆ Understand all fire prevention precautions, and how to use fire extinguishers, hoses, etc.
- ◆ Properly prepare area before performing hot work.
- ◆ Ensure that an impairment form is filled out if it is required.
- ◆ Contact electrician for disabling of smoke detector if needed. ENSURE UMD BSAC or SIMPLEX IS NOTIFIED.
- ◆ Be prepared to serve as a Fire Watch Observer or Fire Safety Coordinator during the period of the work
- ◆ Use only approved equipment for hot work/open flame tasks. Report any equipment problems to your supervisor.
- ◆ Immediately inform supervisor of hot work activities with no permit posted

5.6 Special note on responsibility (for all groups listed)

- ◆ This type of work has the potential for serious ramifications if the policy is not followed or enforced. Failure to comply with this procedure is a violation of work rules and may result in disciplinary actions.

6.0 WORK LOCATION AND EQUIPMENT

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- ◆ Whenever possible, hot work/open flame activities should be limited to controlled environments, such as a welding room or shop area, where the likelihood of fire is minimized. Areas like a welding room will not require a permit, but all personnel performing the work are to be trained and are expected to follow all applicable procedures
- ◆ Hot work activity will be allowed only in areas approved by supervisors.
- ◆ A safe area radius of 35 feet (11 meters) will be established prior to initiating hot work if possible. All readily combustible materials shall be removed or covered with a protective blanket, floors shall be swept clean of wood shavings, paper clippings, textile materials, etc., and all cracks in walls, floors, or ducts covered to prevent sparks from passing through.
- ◆ Each FM division that may conduct hot work outside of its designated shop, will be supplied with a fire extinguisher to be brought to the hot work site for use by the fire watch observer.

7.0 HOT WORK PROCEDURES

7.1 Obtain Hot Work Permit

- ◆ No hot work or open flame activity outside of specifically designated hot work areas is allowed without first obtaining a hot work permit.
- ◆ All units must fill out a permit. This includes, but is not limited to FM maintenance workers and outside contractors.
- ◆ Fill out the date, location, work order number, and description of hot work. Post the white copy at the jobsite, a copy goes to the FM front office @ 241 DAdB and a copy goes to the Lund 2nd floor for the Impairment board.
- ◆ Permits are good for one shift only, and are limited to one job site.

7.2 Gain Authorization

- ◆ The fire safety coordinator assigned by the supervisor will review the hot work to be done and check off all items under "Required Precautions Checklist" at the hot work site. If it is safe, filling in the date and time that the permit expires and signing under "Fire Safety Coordinator" will authorize the work.
- ◆ In some instances, fire-monitoring devices such as local smoke detectors must be

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deactivated in the immediate vicinity to prevent general alarms from sounding throughout the building. The number or location of the smoke detector must be noted on the Hot Work permit, Impairment Coordinator notified, and permit checked off when it is reactivated.

- ◆ The Electrical Supervisor must be contacted when any smoke detector is under impairment.
- ◆ If more than one smoke detector is deactivated an impairment condition must be reported. Contact Facilities Management Impairment Coordinator (Electrical Supervisor) to report the impairment condition. The backup Impairment coordinator is the FM mechanical planner. Sprinkler systems must not be deactivated without special approval.

7.3 Posting the Permit and Notifying FM

- ◆ Before hot work commences, the original permit must be posted at the jobsite, a copy must be posted at the FM Front office (241 DadB) and a 3rd copy must be posted at the Lund 2nd floor Impairment board. FM employees will contact the FM service desk (x8262) with information regarding location & permit expiration time. Contractors will ensure permit copies are faxed to both the FM Front office (218 726 8127), and to the Lund Building 2nd floor (218 726 6231) for posting.
- ◆ The white original permit is hung or posted in a conspicuous location at the job site. It is to remain posted for the duration of the work. If the work extends into another shift, a new permit must be authorized and filled out.

7.4 Cancellation of the "Hot Works" Permit

- ◆ When hot the work/open flame job is complete, and the fire watch period has expired, the Fire Safety Coordinator will sign off on the "Final Checkup" portion of the permit indicating that no fire hazards remain. (Note: in cases where the work performed lapses into the next shift, the responsibility of the Fire Watch Observer and the Fire Safety Coordinator must be delegated to workers on the next shift who will fill out a new hot work permit).
- ◆ The final check of the area includes reactivating any covered or deactivated smoke detectors
- ◆ Once the final check is completed, all copies of the permit are stapled together and sent to the Lund building 2nd floor for filing.
- ◆ Permits are kept on file for one year after the work is complete

8.0 FIRE WATCH

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- 8.1 When Needed: Per Standards listed in 3.0, a Fire Watch Observer is to be supplied, whenever cutting or welding is performed in areas where other than a minor fire might develop or 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 combustibles are more than 35 feet away but are easily ignited by sparks.
 - ◆ 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 metal partitions, walls, or roofs, and are likely to ignite by conduction or radiation.
- 8.2 Fire Watch Requirements
- ◆ The Fire Watch Observer shall have fire-extinguishing equipment readily available and be trained in its use.
 - ◆ The Fire Watch Observer shall be familiar with facilities and procedures for sounding an alarm in the event of a fire. The nearest fire pull station alarm shall be identified.
 - ◆ The Fire Watch Observer shall look out for fires in all exposed areas and try to extinguish them only when obviously within the capacity of the available equipment and training of the fire watch. In any other instance, sound the alarm immediately, and evacuate.
 - ◆ Extra hot work precaution shall be exercised in the location of a sprinkler impairment.
 - ◆ The Fire Watch is to last for 30 minutes after the hot work has been completed.
- 9.0 CONTRACTOR WORK
- 9.1 Contract employees under the supervision of UMD supervisors shall be required to follow all elements of this program.
- 9.2 All contractors hired to work at any location on UMD property, and are under their own company supervision are required to comply with all standards listed in section 3.0 of this policy. Additional requirements of contractors working on UMD property are listed below.

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- Before conducting any hot work on the UMD property, the contractor's Hot Work/Open Flame policy must be reviewed and approved by the Project Manager.
- Before commencing any hot work/open flame activities, a copy of the hot work permit must be posted at the Job Site, at FM Darland front office, and at the Lund 2nd floor Impairment board.
- Call the FM Electrical Shop if smoke or heat detectors need to be deactivated to prevent a building alarm or sprinkler activation. FM Electricians are the only persons authorized to deactivate smoke or heat detectors. Sprinkler heads and sprinkler systems shall not be deactivated.
- Hot work permits are required for roofing hot tar pots, and construction heating devices such as salamanders.
- Permits are good for one shift only, and are limited to one job site. One job site may include multiple locations within a new construction site, but a fire watch must always be on hand.
- After hot work is completed, the contractor must fax the completed permit to the FM Front office. FM Front office will fax completed permit to the Lund 2nd floor for filing.

9.3 UMD reserves the right to cancel all permits due to an emergency or unplanned impairment

10.0 APPROVED FACILITIES MANAGEMENT SHOP AREAS

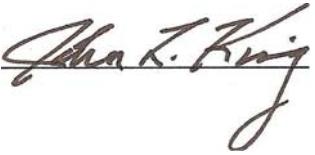
- Designated FM Shop areas on the UMD property, where no permit is required are listed below:
 - Heating Plant basement welding shop
 - Chiller Plant mechanical shop
 - Cina Hall refrigeration shop
 - Cina Hall electrical shop
 - Lund glass shop
 - Heating Plant main floor shop
 - Fleet Service Bay shop

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Approved by:

John L. King, Facilities Management Director

Date: 5-1-2006

A handwritten signature in cursive script, reading "John L. King", written over a horizontal line.