Hot Work Program

Department of Environmental
Northern Illinois University

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Northern Illinois University

Hot Work Safe Operating Program

Purpose

The purpose of the Hot Work Program is to establish safety procedures for employees, contractors, and subcontractors engaging in any temporary operation involving open flame or producing heat and/or sparks capable of initiating fires or explosions on campus property outside designated Physical Plant shop areas. Such operations include, but are not limited to: torch cutting, brazing, grinding, open-flame soldering, oxygen cutting, arc welding/cutting, oxy-fuel gas welding, hot taps, thawing pipes, hot riveting, heat treating, powder-driven fasteners, torch-applied roofing and cadwelding. Hot work operations shall be conducted in accordance with the following standards and University safety and health procedures:

- Occupational Safety and Health Administration (OSHA) 1910 Subpart Q-Welding, Cutting and Brazing and 1926 Subpart J-Welding and Cutting.
- National Fire Protection Association (NFPA) 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work.
- Applicable sections outlined in the NIU Contractor Safety Handbook

Authority and Responsibility

Campus departments, contractors and their respective subcontractors are responsible to comply with this program and the procedures within.

Supervisors/Project Managers are responsible for:

- Informing contractors of the program requirements by incorporation into contracts and bid specifications;
- Fielding inquires on program requirements during pre-construction meetings;
- Notifying employees to the purpose and intent of the hot work program;
- Issuing hot work permits;
- Making periodic inspections of areas where hot work is being performed;
- Contacting Environmental Health and Safety (EH&S) for consultation and assistance when necessary.
- Notifying the Department of Police and Public Safety of the scheduled hot work activity and requesting an after-hours fire watch as deemed necessary.

Employees are responsible for:

- Fully understanding the elements of the hot work program; and
- Complying with the procedures outlined in the program.

Contractors and sub-contractors are responsible for:

- Fully understanding the elements of the hot work program;
- Complying with the procedures outlined in the program;
- Informing the project manager/site superintendent of changes in the scope of work that may require a permit.

EH&S is responsible for:

- Distribution of the written hot work program to affected parties;
- Reviewing the procedures periodically to ensure compliance;
- Coordinating job site hot work procedures with contractors by request.

Job Site Inspection

Prior to the issuance of the permit, the project manager/supervisor shall inspect the job site to determine if the hot work can be avoided. If the hot work involves open flame cutting, an alternative method of conducting the work shall be considered (e.g., hand saw, pipe cutter, pipe crimping). If an alternative method is not feasible, the project manager/supervisor shall further ensure the hot work site is safe by verifying that provisions listed on the permit have been implemented. Items included in the job site review include, but are not limited to, the following:

- Hot work operator(s) are trained in the safe operation of their equipment;
- Apparatus used for the hot work is in good condition;
- Those employees designated to perform the fire watch understand how to initiate emergency evacuation procedures in the event of a fire or general emergency;
- Fire protection and extinguishing equipment is on-site and operable;
- Hot work operator(s) are trained in the safe operation of fire extinguishers;
- Hot work operator(s) are utilizing personal protective equipment;
- The proposed work does not jeopardize the health and safety of the operator or others;
- All flammable and combustible materials within 35 feet of the hot work have been removed or covered using fire resistant tarps;
- Please refer to the attached permit form to review additional requirements.

If the aforementioned criteria are not met, a permit shall not be issued until all concerns are corrected.

If automatic fire detection devices are present in the immediate area that need to be deactivated to prevent actuation of the fire alarm, contact the Physical Plant Electrical Shop at 753-6264 to request assistance with service to the fire alarm panel. In addition, please contact EH&S at 753-3905 to request an impairment procedure if the fire alarm system is scheduled to be impaired for four hours or longer.

Fire Watch

Applicable codes and standards require a fire watch when hot work is performed in a location where the following condition(s) exist:

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

The fire watch shall:

- Be aware and understand the inherent hazards of the work site,
- Understand the basic hazards in combustible construction associated with hot work;
- Ensure safe conditions are maintained during and after the hot work operation;
- Have the authority to stop the hot work operations if unsafe conditions develop;
- Have fire extinguishing equipment immediately available; and
- Activate emergency response in the event of a fire.

The fire watch shall be maintained during all breaks and 30 minutes after completion of the hot work operation in order to detect and extinguish smoldering fires on the floors above, below and adjacent to the hot work site.

Permit Posting

The hot work permit shall be posted in a visible location within the hot work site or on the hot work equipment. Once the hot work is complete, copies shall be maintained by the project manager/supervisor with a second copy sent to the EH&S Department.

Prohibitions

Hot work shall not be permitted in the following areas until the conditions prohibiting hot work have been modified:

- In the presence of explosive atmospheres, or in situations where explosive atmospheres may develop inside contaminated or improperly prepared tanks or equipment which previously contained flammable liquids;
- In areas with an accumulation of combustible debris, dust, lint and oily deposits;
- In areas near the storage of exposed, readily ignitable materials;
- On a container such as a barrel, drum or tank that contained materials that will emit toxic gases or vapors when heated; and
- In a confined space, until the space has been inspected and determined to be safe. Refer to the University's Confined Space Entry Program.
- During impairment of building fire protection equipment (e.g. fire sprinkler systems, standpipe systems, other suppression systems).

Protective Equipment

The hot work operator shall be equipped with protective devices and/or apparel as indicated on the permit or as listed below:

- Portable and/or mechanical ventilation capable of keeping the levels of fumes, dust and gases below the thresholds established in OSHA's Permissible Exposure Limits (PELs). If portable or mechanical ventilation is not available and fume, dust and gas generation is high, respirators shall be used;
- Respiratory protection (NOTE: No employee shall be issued or be required to use a respirator until that employee has satisfied the criteria set forth in the University's Respiratory Protection Program;
- Gloves, apron and/or jacket that are made of a material that is an insulator from heat and electricity;
- Welders helmets equipped with proper filter plate and cover lenses;
- Visual screens to protect persons not properly protected from the visual effects of viewing arc welding or cutting and during gas or oxygen cutting or welding; and
- Lifelines, harnesses, and lanyards for work in confined spaces as set forth in the University's Confined Space Entry Program.

Storage of Equipment

Equipment and supplies shall be stored in a manner that will prevent the creation of hazardous conditions. Refer to the University's Compressed Gas Cylinder Program for information regarding the storage of compressed gas cylinders.

Injuries/Exposures

If during the performance of assigned duties the hot work operator becomes injured or suspects an occupational exposure occurred, such situations shall be immediately reported to the employee's supervisor in accordance with the University's injury and incident reporting protocol.

Training:

Contractors, subcontractors and employees shall be trained on all aspects of this policy when the following conditions exist:

- Upon initial hire or arrival to the job-site;
- When the project manager/supervisor or EH&S deems the employee needs to be re-trained;
- When a change in duties or responsibilities occurs for the employee.

HOT WORK PERMIT

Northern Illinois University

BEFORE INITIATING HOT WORK, CAN THIS JOB BE AVOIDED?
IS THERE A SAFER WAY?

This Hot Work Permit is required for any operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: brazing, cutting, grinding, soldering, thawing pipe, torch applied roofing, welding, hot riveting, heat treating, powder-driven fasteners, and cadwelding.

INSTRUCTIONS

A. Verify precautions listed at right (or do not proceed with the work).
B. Complete and retain on-site

HOT WORK BEING DONE BY:

- ☐ NIU DEPT:_____
- ☐ CONTRACTOR: _____
- ☐ SUBCONTRACTOR:_____

DATE:	JOB NO.	
LOCATION/BUILDING & FLOOR:		
NATURE OF JOB:		
NAME OF PERSON PERFORMING HOT WORK:		
I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.		
SIGNED (PROJECT MANAGER/OPERATIONS SUPERVISOR):		
PERMIT EXPIRES	DATE	TIME A.M. P.M.

Emergency Contacts

In case of fire call 911

NIU Police: 753-1212
EH&S Department: 753-0404

REQUIRED PRECAUTIONS CHECKLIST

- ☐ Available sprinklers, extinguishers and other fire protection equipment are in service/operable.
- ☐ Hot work equipment in good repair.

Requirements within 35 feet of work

- ☐ Flammable liquids, dust, lint and oily deposits removed.
- ☐ Explosive atmosphere in area eliminated.
- ☐ Floors swept clean.
- ☐ Combustible floors wet down, covered with damp sand or fire-resistive sheets.
- ☐ Remove other combustibles where possible. Otherwise protect with fire-resistant tarpaulins or metal shields.
- ☐ All wall and floor openings covered.
- ☐ Fire resistant tarpaulins suspended beneath work.

Work on walls or ceilings

- ☐ Construction is noncombustible and without combustible covering or insulation.
- ☐ Combustibles on other side of walls, ceilings, and roof moved away.
- ☐ Prevent conduction of heat onto to adjacent areas.

Work on enclosed equipment

- ☐ Enclosed equipment cleaned of all combustibles.
- ☐ Containers purged of flammable liquids/vapors.
- ☐ Pressurized vessels, piping and equipment removed from service, isolated and vented.

Fire watch/hot work area monitoring

- ☐ Fire watch will be provided during and for 30 minutes after work, including any coffee or lunch breaks.
- ☐ Fire watch is supplied with suitable extinguishers, and where practical, charged small hose.
- ☐ Fire watch is trained in use of this equipment and in sounding alarm.
- ☐ Fire watch may be required for adjoining areas above, and below.
- ☐ Monitor hot work area for 30 minutes after job is completed.
- ☐ Means to contact fire or police department.

Other precautions taken

- ☐ Confined space entry permit completed.
- ☐ Area protected with smoke or heat detection.
- ☐ Lockout/tagout procedure completed.
- ☐ Ample ventilation to remove smoke from work area.
- ☐ Appropriate personal protective equipment available