Northwestern
Hot Work Permit Program
Risk Management
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I. Program Goals and Objectives

This program establishes the minimum safe working procedures and guidelines for the operation of cutting, welding, brazing, grinding and soldering or any other similar operation throughout Northwestern. It also covers the control of ignition sources such as spark-producing tools and devices in hazardous areas.

II. Scope and Application

These procedures are intended to protect life, health and property from fire and the products of combustion, which might result from the use of welding and cutting equipment, open flames and ignition sources. All employees of Northwestern and outside contractors/sellers/service companies involved in the use of flame or spark-producing equipment on Northwestern premises are required to conform to these guidelines. These procedures do not apply to Northwestern University Chemistry or Research Labs related to teaching or research activities.

III. Definitions

Hot Work: Any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: brazing, cutting, grinding, soldering, torch-applied roofing and welding.

Fire Watch: Is a worker whose job it is to watch for fires during hot work, and try to extinguish them if possible or sound the fire alarm. The fire watch must have immediate access to appropriate fire extinguishers and be trained on the use of the equipment. The fire watch must be kept in place for at least one hour after completion of the hot work to detect and extinguish any smoldering fires.

Areas having a "standing" Hot Work Permit: Designated areas where hot work is performed routinely. These areas should be controlled by the Facilities Operations, and may include mechanical spaces, metal shops, and heating plants.
IV. Responsibilities

Risk Management:

1. Oversee the development and implementation of the Hot Work Permit Program.
2. Provides Hot Work Permits to Facilities Operations.
3. Review and revise this program to reflect changes in regulatory requirements as necessary.
5. Provide guidance and consultation for any questions about the Hot Work Program.

Facilities Operations:

1. Issue Hot Work Permits.
2. Designate areas where a "standing" Hot Work Permit shall be in effect.
3. Inspect Hot Work Areas after completion of the hot work.

Hot Work Permit Holders:

1. All contractors and employees involved in the use of flame or spark producing equipment must have a copy of the Hot Work Permit and the signage posted when working. Before starting work they must ensure to Facilities Operations that they have trained personnel and qualified Fire Watch Person on premises.
2. Follow all Fire Safety Procedures and Limitations listed in VI. Procedures.

V. Record Keeping

Completed forms, including hot work designated area inspections and hot work permits shall be maintained by Facilities Operations for an annual audit or one year.
VI. Procedures

A. GENERAL REQUIREMENTS

1. When means other than gas or electric arc cutting or welding could provide equal or superior work quality, the least hazardous means of performing the job should be used.

2. Facilities Operations shall be notified in writing by the Project Manager or Contractor Supervisor at least 48 hours in advance of intended Hot Work operation.

3. The Hot Work Permit shall be valid for the day and the operation for which it is issued. Jobs requiring more than one day shall require a separate permit for each day's work.

4. A Hot Work Permit shall be issued by Facilities Operations before any operation involving welding or cutting, or use of flame or spark-producing equipment in the areas not specifically designated for such use.

5. Whenever a question arises pertaining to the advisability of issuing a permit to any party involved, work shall NOT begin until the Facilities Operations Supervisor has completed an on-site inspection and has concluded it is safe to proceed.

B. FIRE SAFETY REQUIREMENTS

1 Separation from combustibles
   Hot work areas shall not be less than 35 feet from combustible materials and combustible waste or shall be provided with appropriate shielding to prevent sparks, slag or heat from igniting exposed combustibles.

2 Openings
   Openings or cracks in walls, floors, ducts or shafts within 35 feet of the hot work area shall be tightly covered (with non-combustible materials or sealed) to prevent the passage of sparks to adjacent combustible areas, or shielded by metal fire-resistant guards, or provided with curtains to prevent passage of sparks or slag.

3 Housekeeping
   Combustible waste shall not be allowed to accumulate on floors and other surfaces within the hot work area. Contractors working in hot work permitted areas must regularly clean and lawfully dispose of combustible waste.

4 Partitions
   Partitions segregating hot work areas from other areas of the building shall be of
noncombustible construction. Partitions shall prevent the passage of sparks, slag, and heat from the hot work area.

5 Precautions in hot work
Hot work shall not be performed on a container or equipment that contains or has contained flammable liquids, gases or solids until the container or equipment has been thoroughly cleaned, inerted or purged.

6 Sprinkler protection
Sprinkler system protection shall not be shut off or impaired while hot work is performed. Where hot work is performed close to sprinklers, noncombustible barriers or damp cloth guards shall shield the individual sprinkler heads and shall be removed when the work is completed. If the work extends over several days, the shields shall be removed at the end of each workday.

7 Construction sites and torch-applied roof systems
A Fire Watch shall be provided for each torch operation at a construction site and in connection with torch applied roofing system operations. A Fire Watch shall be provided for each torch in operation when the hot work area and person performing the hot work are not visible from a single vantage point. An additional Fire Watch shall be provided on the floor or level below the torch operation.

8 Fire detection systems
Approved special precautions shall be taken to avoid accidental operation of automatic fire detection systems.

C. DESIGNATED HOT WORK AREA

Designated Hot Work Areas should be controlled by Facilities Operations and consultation with Risk Management. Designated Hot Work Areas may include mechanical spaces, metal shops, and heating plants. Designated areas should be free of combustible materials, including stored materials and construction material components. A standing permit shall not be in effect in any areas where gaseous fuels, hazardous vapors and fumes from liquid fuels or other flammable/combustible liquids and gases may be present or there is a potential for accumulation.

“Standing Hot Work Permit Areas”:
2145 Sheridan Road – Technological Institute:
   NB02 Plumbing Cage and Engineers Cage
   NG36 Electronics Design Shop
   NG40 Instrument Shop
   NG46 – 57 Research Shop – Design and Engineering Shop – Graduate Student Shop – Professional Shop
2026 Campus Drive – Central Utility Plant

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D. HAZARDS

When welding and cutting is to be done in a location not designated for such purpose, e.g., stairwell, inspection and authorization by the Facilities Operations Supervisor shall be required before such an operation begins. When necessary, EH&S should be consulted. In confined spaces or other such hazardous areas, use of gas and electric arc welding or cutting equipment shall not be permitted until the Facilities Operations Supervisor has inspected the area. EH&S shall be consulted, if necessary. A separate confined space entry permit may be needed, when necessary.

E. LIMITATIONS

A Hot Work Permit will be issued with the understanding that the contractor shall NOT perform such activities when:

- Facilities has not authorized to perform torch work in a given area.
- A qualified Fire Watch person is not assigned during operation.
- Sprinkler protection is impaired.
- Appropriate fire extinguisher equipment is not readily available.
- Explosive, flammable or other hazardous vapors, gases or dusts may be present in the area.
- There is a potential for heat transfer along or through walls, pipes, tanks or other metal surfaces that may cause ignition or decomposition of ignitable or toxic substances in contact with the metal.
- There is potential for production of sparks, slag or molten metal by welding or cutting within 35 feet of unprotected combustible or flammable substances that may cause fire.
- The area is a confined space area without proper ventilation and if the operation could result in the accumulation of smoke and hazardous gases in that space.
- The person issuing the permit or the employee performing the work believes that the issuing of a permit would or could result in undue hazards of any nature.
- Proper signs and placards are not placed to inform people in the area.
- Proper engineering controls are not in place to prevent exposure to fumes of adjacent area occupants.
- Proper barriers are not in place to prevent people inadvertently entering into the area.
VII. Hot Work Permit Form

The below Hot Work Permit form must be obtained from Facilities, 2415 Sheridan, Technological Institute, Rm NBO2. It must be completed and signed by the Facilities Operations Supervisor and the contractor. A signed copy shall be posted near the work site. Hot Work Permits will be maintained by Facilities until the permits are audited.
VIII. Regulatory Authority and Related Information

OSHA Occupational Safety and Health Administration 29 CFR 1910.252.
National Fire Protection Association (NFPA), Standard for Fire Prevention During Welding, Cutting, and Other Hot Work. NFPA 51B.
FM Global Property Prevention Data Sheets 10-3 Hot Work Management.

IX. Contact

For questions contact the following:
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