



Title: Fire Prevention During Welding, Cutting and Other Hot Work Plan

(formerly the Cutting & Welding Policy)

Applies to:

Indiana University Northwest

Issue Date:

1995

Latest Review/Revision:

December 29, 2005

Indiana University Northwest recognizes its responsibility for the safe use of hot work equipment on its campus and has established the following procedures for approving all hot work operations within its facilities.

Regulatory Reference

The Indiana University Northwest *Fire Prevention During Welding, Cutting and Other Hot Work Plan* was developed as a result of the NFPA's Standard 51B for the guidance for all persons, including outside contractors, who manage, supervise, and perform hot work. Implementation of this plan will prevent the loss of life and property from fire or explosion as a result of hot work operations on the IUN campus.

Related OSHA Regulations

[29 CFR 1910.252 General requirements: Welding, Cutting, and Brazing](#)

Plan Administration & Responsibilities

The Manager of Environmental Health & Safety, or his/her designee, shall be responsible for the issuance of all hot work permits and shall ensure that all hot work operations are performed safely. Designated personnel have been authorized by the Manager of Environmental Health & Safety to issue hot work permits. Those additional personnel that have been authorized to issue hot work permits and implement all the procedures outlined in this plan are the Physical Plant Director and officers of the IUN Police Department.

This plan is authorized by the Office of the Vice Chancellor of Administrative and Fiscal Affairs and is administered by the Department of Environmental Health & Safety. IUN personnel and outside contractors shall comply with guidelines and requirements of the written *Fire Prevention During Welding, Cutting and Other Hot Work Plan* which include obtaining a hot work permit and ensuring the proper training of employees (see Section B for additional clarification on responsibilities).

For assistance, contact the Department of Environmental Health & Safety (DEHS) at 981-4230, Tamarack Hall, Room F02, Gary, Indiana 46408 or check out the DEHS website at <http://www.iun.edu/~ehs/>.

Scope of the Fire Prevention During Welding, Cutting and Other Hot Work Plan

The Indiana University Northwest *Fire Prevention During Welding, Cutting and Other Hot Work Plan*, based on NFPA Standard 51B, establishes procedures and serves as IUN's written program.

Section (A) discusses the requirements of the employee/user of the hot work permit. This section is designed to establish a "written" plan of the standard. Copies of this plan are provided to all affected IUN departments.

Section (B) presents the responsibilities of the IUN employees as they relate to the implementation of the plan. It will take the combined efforts of IUN personnel and IUN-hired contractors to manage the various aspects of the plan.

Section (C) summarizes generally accepted good work practices (related to hot work at IUN) and provides guidance to all cutters, welders, firewatchers, and supervisors.

SECTION A WRITTEN PLAN

1. HOT WORK PERMIT

A hot work permit is required for any temporary 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 AND WELDING.

- a) Before hot work can be initiated, a hot work permit **must** be obtained from the Manager of Environmental Health & Safety or his/her authorized delegate.
- b) The hot work permit is to be completed and signed by the Manager of Environmental Health & Safety or his/her authorized delegate.
- c) Part 1 of the permit is to be retained by the issuer. Part 2 is to be posted by the job.
- d) Upon completion of the job and 30-minute fire watch, the fire watch representative must sign off on Part 2 of the permit and a final checkup must be performed four hours later, signed and returned to the issuer. All completed hot work permits must be forwarded to the Department of Environmental Health & Safety.

2. EMPLOYEE TRAINING

- a) To ensure the successful implementation of the *Fire Prevention During Welding, Cutting and Other Hot Work Plan*, IUN personnel will receive training and information from the Department of Environmental Health & Safety on the following:

- i. The existence and contents of the *Fire Prevention During Welding, Cutting and Other Hot Work Plan*,
- ii. How to read and understand the hot work permit, and
- iii. Proper use of the portable fire extinguisher.
- b) Each session will include a verbal presentation and the opportunity for questions and answers.
- c) The Department of Environmental Health & Safety will maintain an updated list of the training completed by all employees.

3. CONTRACTOR WORK

- a) Any outside contractor hired by the university shall be informed of the *Fire Prevention During Welding, Cutting and Other Hot Work Plan* and will be required to adhere to all established safe work practices and university procedures.
- b) The contractor must inform the Department of Environmental Health & Safety, the Physical Plant, and the University Police in advance of any hot work that will occur during a project.

**SECTION B
RESPONSIBILITIES**

The following summary outlines the responsibilities of the various personnel directly involved with the successful implementation of this plan.

1. MANAGER OF ENVIRONMENTAL HEALTH & SAFETY (OR AUTHORIZED DELEGATE)

- a) Observe locations of combustible materials and/or hazardous areas present, or likely to be present, in the immediate work area.
- b) Determine if conditions are safe before issuing hot work permits authorizing hot work.
- c) Determine if all necessary fire protection and/or extinguishing equipment is properly located at the operations site.
- d) Ensure that fire watch personnel is available and in place at the operations site.
- e) Issue hot work permits authorizing hot work operations in all areas not specifically designed or approved for such operations. It is advisable that permits should be issued for a maximum period of 24 hours. If the permit is in effect for an extended period, the issuer must inspect the area at least once per day to ensure that it is a fire-safe area.

2. IUN PERSONNEL

- a) Contact the Manager of Environmental Health & Safety (or authorized delegate) to receive authorization for hot work operations prior to the start of any such operations.
- b) Ensure that fire watch personnel is available and in place at the operation site.
 - i. Have fire-extinguishing equipment readily available and be trained in its use.
 - ii. Be familiar with facilities and procedures for sounding an alarm in the event of a fire.

- iii. Watch for fires in all exposed areas, and try to extinguish them first only when obviously within the capacity of the equipment available, or otherwise sound the alarm immediately.
- c) Maintain a fire watch for 30 minutes after the completion of the hot work operations to detect and extinguish any possible smoldering fires and perform a final checkup four hours after cutting and/or welding has been completed.
- d) Use only approved apparatus (e.g. torches, manifolds, regulators or pressure reducing valves and acetylene generators).
- e) Protect combustibles from ignition by utilizing any of the following methods:
 - i. Have work moved to a location free from dangerous combustible materials.
 - ii. Have combustible materials moved to a safe distance from the work area or properly shield the combustible materials against ignition.
 - iii. Schedule hot work operations to ensure that they do not interfere with operations utilizing combustibles located within the immediate area.

SECTION C SUMMARY OF WORK PRACTICES

Hot work operations shall be permitted only in areas that are, or have been, designated fire safe within the structure where the hot work operation is to take place, or during the initial erection of structure steel by outside contractors at a new construction project site.

Hot work shall not be permitted in the following situations:

1. In any areas not authorized and/or approved by the Manager of Environmental Health & Safety (or authorized delegate).
2. In sprinklered buildings while such protection is impaired, unless an alternative and appropriate means of fire protection is provided.
3. In the presence of explosive atmospheres (mixtures of flammable gases, vapors liquids or dusts with air) or explosive atmospheres that may develop inside uncleaned or improperly prepared drums, tanks, or other containers and equipment that has previously contained such materials or that may develop in areas with an accumulation of combustible dusts.
4. In areas near the storage of large quantities of exposed combustible materials, unless an appropriate fire protection system is readily available.

Before hot work is permitted, the area shall be physically inspected by the Manager of Environmental Health & Safety (or authorized delegate) to ensure that it is a fire-safe area.

He/She shall verify any required precautions to be followed by granting authorization in the form of a written hot work permit. The issuer shall sign the hot work permit to authorize the work and shall verify the following:

1. Hot work equipment to be used is in satisfactory operation and in good repair.
2. Where combustible materials such as paper, cardboard, scrap lumber and wood shavings are on the floor, the floor shall be swept for a radius of 35 feet in all directions. Combustible floors (except wood on concrete) shall be kept wet, covered with damp sand, or protected by fire resistant shields. Where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock.
3. Where practical, all combustibles shall be relocated at least 35 feet horizontally from the work site. Where relocation is impractical, combustibles shall be protected with fire-

retardant covers or otherwise shielded with metal or fire-retardant guards or curtains. Edges of covers at the floor shall be tight to prevent sparks from going under them. This precaution is also important at overlaps where several covers are used to protect a large pile of combustible materials.

4. Openings or cracks in walls, floors, or ducts within 35 feet of the work area shall be sealed and tightly covered to prevent the passage of sparks or hot slag to adjacent areas.
5. Conveyer systems, rubbish chutes and vertical openings that might allow sparks or slag to travel to distant combustible material shall be suitably protected.
6. Where hot work is done near walls, partitions, ceilings or roofs of combustible construction, fire-retardant shields or guards shall be provided to prevent ignition.
7. If welding or cutting is to be done on metal walls, partitions, ceilings or roofs, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustible materials. Where combustibles are not relocated, a fire watch on the opposite side of the work shall be provided.
8. Hot work shall not be attempted on metal partitions, walls, ceilings or roofs having a combustible covering, nor on walls or partitions of combustible sandwich-type panel construction.
9. Hot work on pipes or other metal in contact with combustible walls, partitions, ceilings or roofs shall not be undertaken if the work is close enough to cause ignition by conduction.
10. The appropriate type of fully charged and operable fire extinguishers shall be available at the work area. Where hose lines are available, they shall be connected and ready for service.
11. When hot work is done in close proximity to a sprinkler head, a wet rag shall be laid over the head and then removed at the conclusion of the hot work operation. Special precautions shall be taken to avoid the accidental operation of automatic fire/smoke detection or suppression systems.
12. Where hot work operations may cause an accidental alarming of the fire/smoke detection system, the Manager of Environmental Health & Safety may disarm the fire protection system (or portions thereof) until completion of the hot work operation. A red "Fire Protection Is Out Of Service" tag will be posted at the fire/smoke detection system's controls. A log will be kept whenever the fire detection system is disarmed.
13. Nearby personnel working in the immediate area where hot work operations are taking place shall be suitably protected against heat, sparks, slag, etc.
12. Hot Tapping. "Hot tapping" or other hot work on flammable gas or liquid transmission or distribution utility pipelines shall be performed by a crew qualified to make hot taps.

USING A FIRE EXTINGUISHER THE RIGHT WAY

3 **Common** Types of Fire Extinguishers:

Pressurized water (silver tank, 2.5 gal.) lasts about 60 seconds

CO₂ (red tank with large cone nozzle) lasts about 8-20 seconds (depending on size)

Dry Chemical (red tank) lasts about 8-25 seconds (depending on size)

3 **Common** Classes of Hazards

Class A-combustibles (such as paper, wood, and cloth)

Class B-flammable liquids and gasses

Class C-live electrical equipment

Pressurized Water	Range 10-20 feet	Class A Hazards
CO ₂	Range 3-8 feet	Class B & C Hazards
Dry Chemical	Range 12-20 feet	Class A, B, and C Hazards

Read directions on portable fire extinguisher then:

- ❖ Hold in upright position,
- ❖ **P**ull safety pin,
- ❖ **A**im hose at the base of the fire (starting at the front of the fire—closest to you),
- ❖ **S**queeze the handle, and
- ❖ With a steady **s**weeping motion, continue to extinguish the fire from front to back.

Remember the **PASS**-word.

DO

-Familiarize yourself with the locations of fire extinguishers.

-Use fire extinguishers on small fires only.

-Sustain a concentrated supply of the extinguishing agent at the base of the fire.

-Use the entire extinguishing agent available in the fire extinguisher (Continue to extinguish the fire even after the apparent blaze is out!).

DON'T

-Tilt the fire extinguisher.

-Use on fires that are too large or spread out over a large area.

-Use fire extinguishers in enclosed spaces where toxic gasses may be present.

**Record of *Fire Prevention During Welding, Cutting and Other Hot Work Plan*
Review/Revision Changes**

DATE	CHANGES	REVIEWER
4/95	Addition of 29CFR Subpart Q	Manteuffel
3/96	Addition of “Performing Arts” to IV. Overview (Section B)	Manteuffel
4/97	Addition of “IUN hired contractors” to IV. Overview (Section B)	Manteuffel
4/98	No changes to policy. Replacement of 29 CFR Subpart Q (1910.252)	Manteuffel
5/99	Minor wording changes for clarification of policy. New 29 CFR1910.252 included	Manteuffel
6/03	Format change	Manteuffel
12/04	Change cutting and welding references to “hot work.” Changed title from “Cutting & Welding Policy” to “Fire Prevention During Welding, Cutting and Other Hot Work Plan” to better reflect its applicability.	Manteuffel
12/05	No changes to policy— review only.	Manteuffel