



# ILLINOIS STATE UNIVERSITY HOT WORK PROCEDURE

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## 1. PURPOSE AND SCOPE

The purpose of this procedure is to establish minimum guidelines to ensure the safety and health of personnel and prevent fires resulting from temporary operations involving hot work. This includes, but is not limited to welding, torch-cutting, soldering, and brazing. This program will require the issuance of a “Hot Work Permit” before beginning hot work. This procedure applies to Illinois State University employees who perform or supervise hot work activities in existing buildings, new construction in existing buildings, and new construction attached to existing buildings. It also applies to new construction, once the building has been “enclosed”.

This procedure does not apply to areas that are specifically designed and equipped for such operations, e.g. welding stations and trade shops. Questions regarding applicability of this procedure should be directed to the Environmental Health and Safety Department

Contractors must have a hot work procedure that conforms to all OSHA regulatory requirements, including a fire watch while performing hot work on ISU property.

## 2. RESPONSIBILITIES

Everyone involved with hot work has certain responsibilities. It is very important that every individual is familiar with his/her responsibilities.

### a. ENVIRONMENTAL HEALTH AND SAFETY

- Review and update the Illinois State University Hot Work Procedure to conform to current CFR standards.
- Monitor compliance with standards set forth in the program through periodic worksite inspections.
- Assist supervisors by providing training as set forth in procedure.

### b. PROJECT MANAGERS

- Oversee contractor work activities.

### c. SUPERVISORS

- Ensure that all employees comply with requirements established within this procedure.
- Approve hot work activities via issuing the Hot Work Permit.
- Identify “designated shop areas” where physical fire prevention measures are in place to prevent inadvertent fire, and therefore a hot work permit process is not warranted.

- Ensure that personnel are appropriately trained to fulfill their assigned duties during hot work operations

### c. EMPLOYEES

- Complete adherence to the requirements of this program and successful completion of all required training.
- All personnel required to conduct hot work will be trained to be a fire watch.
- Obtain a hot work permit prior to starting work.
- Ensure that all cutting and welding equipment is in satisfactory condition and in good repair.
- Ensure that work being performed is within the scope of the permit and that all precautionary measures listed on the permit are in effect.

### d. FIRE WATCH

- Inspect the worksite for potential fire hazards and designate precautions to be followed before granting authorization to proceed with hot work.
- The fire watch shall have the authority to stop the hot work operations if unsafe conditions develop.
- Inspect the area where hot work is planned to take place, ensuring that all necessary precautions have been taken to prevent the possibility of fire.
- Observe hot work-in-progress to ensure that all fire protection measures are in place.
- Ensure fire extinguishing equipment is at the location where hot work is being performed.
- Understand the alarm procedures in the facility in case of an uncontrolled fire.
- Inspect the area for 30 minutes after hot work to ensure that no potential for fire exists.
- Close out the hot work permit and return it to the supervisor/foreman for filing.

## 3. DEFINITIONS

**Arc welding** -is a welding process where similar materials are joined with a heating process caused by an electric arc.

**Brazing** - is a process intended to permanently join two or more metals/materials together to form a single assembly by heating them in the presence of a filler metal that begins to melt above 450° C (840° F).

**Cutting** -is to separate metals by using any gas, electric arc or flammable, or combination thereof.

**Grinding** -is to crush, pulverize, or reduce to powder by friction, especially by rubbing between two hard surfaces.

**Fire watch** -A person assigned to watch for fires resulting from hot work.

**Hot Work** -Spark/fire producing activities to include welding, torch cutting, brazing, torch soldering that are not performed within the parameters of a controlled environment, e.g. shop area that is designed / equipped for these types of activities.

**Non-fire causing work** -is work which may interfere with fire protection systems but does not have the potential to start a fire. Some examples include dust generating work (e.g., sanding) or steam generating work.

**Non-torch operation** -is all other hot work operations other than defined Torch Operations.

**Soldering**-is to unite (metallic surfaces or edges) by the intervention of a more fusible metal or metallic alloy applied when melted; to join by means of metallic cement.

**Torch operation** -is a hot work operation where flammable gases are mixed with an oxidizer to create a flame (e.g., oxy-acetylene.)

**Welding** -is a process that joins metals by heating them to a melting point and allowing them to fuse or flow together, sometimes with an intermediate or filler metal having a high melting point.

## 4. TRAINING

All departmental personnel are to receive “awareness level” training on the general rules associated with this procedure.

- Awareness training consists of:
  - The purpose of the Hot Work Procedure.
  - What activities are considered hot work and when a fire watch is necessary.
  - General precautions related to fire protection for those engaged in hot work.
  - Awareness training is required upon initial hire with additional training requirements for those acting as Fire Watches.
- Fire Watch training consists of:

- Specific responsibilities as outlined in this procedure.
- Training on the use of fire protection equipment.
- General precautions on work locations, safe distances, openings, and cracks in surfaces in hot work area.
- Hands-on training of fire extinguishing equipment is to be conducted every three years and general fire extinguisher (classroom) training every year.
- Personnel engaged in hot work activities are to be trained on the safe work procedures/practices associated with specific hot work activities, e.g. welding, burning, etc.
- Training documentation is to be maintained by each department for a minimum of 5 years.

## 5. PROCEDURES

- General Requirements
  - A Hot Work Permit (Attachment 1) is required for all hot work as defined in section 4.0. (The supervisor/foreman is responsible for issuing and approving all hot work permits.)
  - A Fire Watch is required when the following conditions exist:
    - Appreciable combustible material, in building construction or contents, closer than 35 feet to the point of operation.
    - Appreciable combustible are more than 35 feet away but are easily ignited by sparks.
    - Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
    - Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.
  - The permit must have all informational data on the top of the form and the pre-work checklist completed and signed by the attending fire watch prior to commencement of work.
  - The hot work permit must be posted at the location of the work being performed during the entire time hot work is being conducted.
  - The permit may only be issued for a period not to exceed five business days.
  - The person performing the hot work cannot act as a fire watch at the same time.

- Ventilation systems that might carry sparks to distant combustibles must be protected or shut off.
- Combustible floors (except wood on concrete) must be kept wet, covered with damp sand, or protected by fire-resistant shields.
- If hot work is to be performed on a metal wall, partition, ceiling, or roof, precautions must be taken to prevent ignition of combustibles on the other side.
- Where possible, the work should be moved to a remote location, where there will not be a chance of setting a fire. If the work cannot be moved, combustibles should be taken a safe distance away (at least 35 feet) or the combustibles must be properly shielded from ignition sources.
- A fully charged and operable fire extinguisher, appropriate for the type of possible fire, must be available at the work area.
- All personnel (employees, contractors, building occupants) and facilities must be suitably protected against hazards generated by the work.
- All personnel performing hot work must use the appropriate Personal Protective Equipment.
- After the hot work is complete, the fire watch must remain at the work site for 30 minutes.
- After the Fire Watch performs his post-hot work inspection, he/she is to sign the bottom of the form and return it to the responsible supervisor.
- When hot work is conducted in a confine space, the confine space will be changed to a permit required confined space unless prior approval is given from the Environmental Health and Safety Office.
- All hot work permits are to be maintained on file in the supervisor's office for a period of one year.

▪ Hot Work Permit Instruction

A Hot Work Permit is required whenever welding or cutting is performed outside of designated approved areas [Note: Contractors are not required to utilize a Hot Work permit, but some form of written authorization is recommended.]

- Part 1
  - The foreman will complete and retain Part 1 authorizing the hot work.

**NOTE:** If a hot work permit is required at a job site, the foreman must be notified via radio. The individual performing the hot work must print the foreman's name followed by "Via Radio" in the authorization section. (e.g. John Smith/Via Radio)

- The supervisor is to check (✓) all applicable "REQUIRED PRECAUTIONS" on the right side of the permit.
- Part 2 is given to the person performing the hot work.
- Part 2
  - The employee performing the work will inspect the work area and determine if a fire watch is necessary.

**NOTE:** A Fire Watch is required in hot work locations where appreciable combustible material is closer than 35 feet to the point of operation.

- If a fire watch is deemed **not** necessary, the individual performing the work will fill out Part 2 of the Hot Work Permit and check "No" for required fire watch.
- Once work is completed, the Hot Work Permit is returned to the foreman.
- If a fire watch **is** necessary, the foreman must be notified, and a fire watch assigned to the work area.
- The fire watch will fill out the REQUIRED PRECAUTIONS CHECKLIST and sign the FIRE WATCH SIGNOFF section authorizing the hot work.
- Thirty minutes after the hot work is completed, the fire watch will conduct a final check of the area and sign the FINAL CHECK-UP section.
- After the Hot Work Permit is completed, it is to be returned to the supervisor for filing.



# ISU HOT WORK PERMIT

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

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This **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, Torch Applied Roofing; and Welding.

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### Part 1

#### INSTRUCTIONS

1. Supervisor:
  - A. Complete and retain Part 1.
  - B. Issue Part 2 to person doing job.

DATE	JOB NUMBER
------	------------

LOCATION/BUILDING AND FLOOR \_\_\_\_\_

NATURE OF JOB \_\_\_\_\_

NAME OF PERSON DOING HOT WORK \_\_\_\_\_  
 I authorize hot work to be conducted pending the completion of Precautions checklist.

SIGNED (Operations Supervisor)			
PERMIT EXPIRES	DATE	TIME	AM PM

**NOTE: EMERGENCY NOTIFICATION ON BACK OF FORM. USE AS APPROPRIATE FOR YOUR FACILITY.**

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#### REQUIRED PRECAUTIONS CHECKLIST

- Available sprinklers, hose streams and extinguishers are in service/operable.
- Hot Work equipment in good repair.
- If fire protection system is to be temporarily disabled, Electrical department has been notified.

#### Requirements within 35 ft (11 m) of work

- Flammable liquids, dust, lint and oily deposits removed.
- Explosive atmosphere in area eliminated.
- Floor swept clean.
- Combustible floors wet down, covered with damp sand or fire-resistive sheets as necessary.
- Remove other combustibles where possible. Otherwise protect with fire-resistive sheets.
- All wall and floor openings covered.
- Protect or shut down ducts and conveyors that might carry sparks to distant combustibles.

#### Work on walls, ceiling or roofs

- Construction is noncombustible and without combustible covering or insulation.
- Combustibles on other side of walls, ceilings or roofs are moved away.

#### 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, a charged small hose.
- Fire watch is trained in use of equipment and in sounding alarm.
- Fire watch may be required in adjoining areas, above and below.
- If Fire Protection System was temporarily disabled, Electrical department is to be notified to enable service.

#### Other Precautions Taken:

\_\_\_\_\_

\_\_\_\_\_

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## HOT WORK IN PROGRESS WATCH FOR FIRE!

### Part 2

#### INSTRUCTIONS

- Person doing Hot Work: Indicate time started and post permit at Hot Work location. After Hot Work, indicate time completed and leave permit posted for Fire Watch.
- Fire Watch: Prior to leaving area, do final inspection, and return form to Supervisor.

DATE	JOB NUMBER
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LOCATION/BUILDING AND FLOOR \_\_\_\_\_

NATURE OF JOB \_\_\_\_\_

NAME OF PERSON DOING HOT WORK \_\_\_\_\_

**I authorize hot work to be conducted pending the completion of Part 2 checklist.**

SIGNED (Operations Supervisor)

<b>PERMIT EXPIRES</b>	DATE	TIME	AM PM
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TIME STARTED	AM PM	TIME FINISHED	AM PM
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#### FIRE WATCH SIGNOFF:

Work area and all adjacent areas to which sparks and heat might have spread were inspected and were found fire safe.

Signed: \_\_\_\_\_

#### FINAL CHECK UP:

Work area was monitored for 30 minutes following Hot Work and found fire safe.

Signed: \_\_\_\_\_

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Permit # 1320-0