# Purpose

The objective of this program is to prevent personal injury as well as property damage at CURI by providing specific protocol regarding Hot Work and to ensure that each employee is adequately trained and fully aware of safety procedures associated with Hot Work. CURI is dedicated to the protection of our employees and property from loss. It is our responsibility to provide a safe working environment, and the employees share the responsibility of working safely. *Listen*

# Scope

Any task that creates an ignition source has potential to create a fire. This may result in damage and loss. This program is applicable to hot work that is conducted **outside** of designated hot work areas which requires authorization and a permit to perform. It covers any ignition source including: welding, brazing, torch soldering, grinding, powder-actuated tools, hot riveting and all other similar applications producing a spark, flame, or heat.

## Reference Standard

Occupational Safety and Health Administration: 1910.252

# Responsibilities

Refer to the definitions of the Hot Work Leader, Hot Work Operator and Fire Watch for specific responsibilities of each individual.

# Definitions

## Hot Work Leader (HWL)

To be competent and be a Hot Work Leader (HWL) the employee must be trained in the Hot Work procedure. The HWL is responsible for the safe operations of hot work activity under their supervision.

These duties include:

* Establish permissible areas for hot work.
* Ensure that only approved apparatus, such as torches, manifolds, regulators and pressure reducing valves, are used.
* Ensure that all individuals involved in the hot work operations are familiar with CURI Hot Work requirements.
* Ensure that all individuals involved in the hot work operations are trained in the safe operation of their equipment and the safe use of the process. These individuals must have an awareness of the risks involved and understand the emergency procedures in the event of a fire.
* Determine site-specific flammable materials, hazardous processes, or other potential fire hazards present or likely to be present in the work location.
* Make periodic inspections of any work using a “blanket permit” to assure fire prevention practices are taking place.
* Ensure combustibles are protected from ignition by the following means:
	+ Move the work to a location free from combustibles.
	+ If the work cannot be moved, ensure the combustibles are moved to a safe distance or have the combustibles properly shielded against ignition.
	+ Ensure hot work is scheduled such that operations that could expose flammables or combustibles to ignition do not occur during hot work operations.
	+ If any of these conditions cannot be met, then hot work must not be performed.
* Determine that fire protection and extinguishing equipment are properly located and readily available.
* Ensure sufficient local exhaust ventilation is provided to prevent accumulation of any smoke and fume.
* Ensure that a fire watch is posted at the site when:
	+ Hot work is performed in a location where other than a minor fire might develop, or where the following conditions exist.
		- Combustible materials in building or contents are closer than 25 ft. to the point of hot work.
		- Combustible materials are more than 25 ft. away but are easily ignited by sparks.
		- Wall or floor openings are within 25 feet and expose combustible materials in adjacent areas. This includes combustible materials concealed in walls or floors.
		- Combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited.

Where a fire watch is not required, the HWL shall make a final inspection 1/2 hour after the completion of hot work operations to detect and extinguish possible smoldering fires.

## Hot Work Operator (HWO)

The hot work operator shall handle the equipment safely and perform work so as not to endanger lives and property. Specific duties include:

* No hot work shall be conducted without specific written authorization from the HWL via completion of the Hot Work Permit. (See appendix A)
* The operator must cease hot work operations if unsafe conditions develop.
* The operator must notify the HWL for reassessment of the situation in the event of suspected unsafe conditions or concerns expressed by affected persons.

## Fire Watch

The fire watch is an individual posted in specific circumstances, as described below. The function of the fire watch is to observe the hot work and monitor conditions to ensure that a fire or explosion does not occur as a result of the work performed. The fire watch is authorized to stop any unsafe operation or activity. Specific duties and responsibilities include:

* No hot work shall be conducted without specific written authorization from the HWL via completion of the Hot Work Permit. (See appendix A)
* The operator must cease hot work operations if unsafe conditions develop.
* The operator must notify the HWL for reassessment of the situation in the event of suspected unsafe conditions or concerns expressed by affected persons.

# Procedure

## Hotwork General Requirements

Hot work is allowed only in areas that are or have been made fire-safe. Hot work may only be performed in either designated areas or permit-required areas.

* Where possible, all combustibles will be relocated at least 25 feet from the work site.
* Where relocation is impractical, combustibles must be protected with a flameproof cover, shielded with metal, guards, curtains, or wet down to help prevent ignition of material.
* Where cutting or welding is done near walls, partitions, ceilings, or roof of combustible construction, fire-resistant shields or guards must be utilized to prevent ignition.
* If welding is to be done on a metal wall, partition, ceiling, or roof, precautions must be taken to prevent ignition of combustibles on the other side, due to conduction or radiation of heat.
* Where combustibles cannot be relocated on the opposite side of the work, a fire watch person will be provided on the opposite side of the separation.
* Welding will not be attempted on a metal partition, wall, ceiling or roof having a covering nor on walls having combustible sandwich panel construction.
* Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs will not be undertaken if the work is close enough to cause ignition by combustion.
* In areas where there is dust accumulation of greater than 1/16 inch within 25 feet of the area where welding/hot works will be conducted, all dust accumulation will be cleaned up before welding/hot works are permitted.
* Suitable fire extinguishers must be provided and maintained ready for instant use.
* Ducts that might carry sparks to distant combustibles must be protected or shut down.
* A cutting/welding permit shall be issued on all welding or cutting outside of designated welding areas.
* If hot work is done in proximity to a sprinkler head, a wet rag shall be laid over the head and then removed at the conclusion of the welding or cutting operation. During hot work, special precautions shall be taken to avoid accidental operation of automatic fire detection or suppression systems (for example, special extinguishing systems or sprinklers).

Hot work is not allowed:

* In sprinklered buildings if the fire protection system is impaired
* In the presence of explosive atmospheres or potentially explosive atmospheres ( e.g. on drums previously containing solvents)
* In explosive atmospheres that can develop in areas with an accumulation of combustible dusts (e.g. grain silos).

## Hot work Permit

Before hot work operations begin in a non-designated location, a completed hot work permit prepared by the Hot Work Operator is required. Based on local conditions, the HWL must determine the length of the period, not to exceed one shift, for which the hot work permit is valid. If work is to be performed over a long period of time with the same ignition sources, a “blanket” permit may be issued for the length of job. “Blanket permits should show the word “blanket” on the permit. The HWL is responsible for documented periodic inspections to assure the work has not changed in scope and hazard. If any change in hazard or scope is discovered, then the permit shall be issued on a daily basis.

Both CURI Operations Manager and/or outside contractor requesting the permit are responsible for safety of the particular task ensuring that the required precaution checklist is completed.

The following conditions must be confirmed by the HWL before permitting the hot work to commence:

* Equipment to be used (e.g. welding equipment, shields, personal protective equipment, fire extinguishers) must be in satisfactory operating condition and in good repair.
* The floor must be swept clean for a radius of 25 ft. if combustible materials, such as paper or wood shavings are on the floor,
* Combustible floors must be:
* kept wet ( note: where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock)., or
* protected by noncombustible or fire-retardant shields.
* All combustible materials must be moved at least 25 ft. away from the hot work operation. If relocation is impractical, combustibles must be protected with fire-retardant covers, shields or blankets. Edges of covers at the floor must be tight to prevent sparks from going under them, including where several covers overlap when protecting a large pile.
* Openings or cracks in walls, floors, or ducts within 25 ft. of the site must be tightly covered with fire-retardant or noncombustible material to prevent the passage of sparks to adjacent areas.
* If hot work is done near walls, partitions, ceilings, or roofs of combustible construction, fire-retardant shields or guards must be provided to prevent ignition.
* Fully charged and operable fire extinguishers that are appropriate for the type of possible fire shall be available immediately at the work area.  (The fire extinguishers normally located in a building may not fulfill this requirement.)
* Nearby personnel must be suitably protected against heat, sparks, and slag.
* Barricades and/or signs shall be posted “Caution Hot Work Area Do Not Enter” using red tape and pylons.

Once all the required conditions have been met, The Hot Work Leader (HWL) will grant a Hot Work Permit. CURI Person(s) authorizing and issuing permits shall:

* Inspect and assess the work site prior to issuing the permit;
* Require that necessary actions and precautions are taken before, during and after the job (e.g. fire watch provided, combustible materials removed, etc.);
* Plan the work so fire hazards are eliminated;
* Ensure all needed fire safety items are at the work area and a signed permit has been obtained before starting the job;
* Supervise the job to ensure it is done in a safe manner as prescribed by the permit;
* Ensure that the job is observed for at least 30 minutes after the hot work is completed to determine there is no smoldering or burning material;
* Certify that no conditions exist in the immediate vicinity that might present a possible fire hazard; and
* Have the responsibility for insuring that departmental conditions do not change while the permit is in effect.

The hard copy of the “Hot Work Permit” shall be conspicuously posted at the work location.

**Work Closeout:**

* A fire watch shall be maintained for at least 30 minutes after completion of hot work operations in order to detect and extinguish smoldering fires.
* The Hot Work Leader (HWL) shall inspect the job site 30 minutes following completion of hot work and close out the permit with the time and date of the final check.
* The completed Hot Work Permit shall be retained for 1 year following completion of the project by the HWL or Manager of the HWL.

# TRAINING AND EDUCATION

Training and education is an annual program requirement for all affected employees and their supervisors. Employees shall be trained to ensure understanding and acceptance of program benefits. All employees, supervisors, and managers involved in performing or authorizing hot work are trained in the hazards of hot work and the requirements of this program. Training programs shall be designed to meet the facility needs. Training for fire watch and hot work personnel shall address the following:

1. Hazards that can be created by hot work.
2. How to avoid hot work using alternate methods.
3. Hot work permitting process and use of hot work permit system.
4. Documentation requirements
5. Responsibilities
6. Operation of fire extinguishers.
7. Recognition of fire characteristics, when fire extinguishers can be effective, and when the fire has gone beyond the incipient stage.
8. Emergency notification procedures for the location.

The date, content of training, trainer, and trainees for all training shall be documented and shall be retained for 3 years by the Safety Manager.

# Revision History

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| --- | --- | --- | --- | --- |
| Revision | Date | Summary of change | Author | Approver |
| A | 9/22/2020 | Initial issue | Kurt RayburgJ. Curtiss Fox | Kurt RayburgRandy CollinsJ. Curtiss FoxTom SalemJesse LeonardJim TutenNancy LaFlairKonstantin Bulgakov |
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