



Hot Work Permit Program

EOSMS-505

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1. Purpose

This safety program is intended to evaluate and identify the specific hazards where hot work is performed, communicating information concerning these hazards, and establishing appropriate procedures and protective measures for our employees and contractors.

This procedure establishes Kennesaw State University (KSUs) process for managing hot work activities, including conducting risk assessments, providing authorization, and creating awareness in order to prevent injuries or loss from fire or explosion due to hot work activities.

Scope

This program applies to any hot work activities capable of initiating a fire or explosion and covers all KSU employees, students, contractors, and other personnel at workplaces under the management or control of KSU.

The following operations are not covered within this standard: electric or furnace-heated soldering irons and flameless heat guns. These operations should be covered by specific local procedures where these operations take place in areas specifically constructed, protected, and arranged to accommodate safe hot work processes, e.g., welding shops, and that have been adequately assessed for risks and these risks have been controlled. This may include specific operations in laboratories, workshops, and commercial kitchens.

2. Definitions

Hot work – Work involving operations capable of initiating fires or explosions. This includes, but is not limited to, welding, burning, grinding, flame cutting, flame heating, brazing, soldering, and plasma cutting.

Hot work permit (“permit”) – A document issued by KSU for the purpose of authorizing performance of a specified hot work activity.

Permit Authorizing Individual (PAI) – The individual designated by KSU to authorize hot work.

Project Manager – An employee who is responsible for planning, procurement, and execution of a project.

3. Roles and Responsibilities

A. Environmental, Health, and Safety Department

The Environmental, Health, and Safety (EHS) Department roles and responsibilities are as follows:

- Develop, manage, review, and revise the Hot Work Safety Program.
- Communicate requirement of the program to affected member of the campus community
- Issue hot work permit and conduct inspection to ensure compliance.
- Take responsibility for the overall management of the Hot Work Program.
- Establish permissible areas for hot work activities.
- Serve as the Permit Authorizing Individual (PAI).
- Ensure individuals involved in hot work operations, including contractors, are familiar with the provisions of this program.

B. Project Managers

Project managers have the following roles and responsibilities:

- Communicate KSU hotwork requirements to all contractors under their purview.
- Make available and distribute hot work permits to KSU personnel and contractors upon request.
- Coordinate all hot work requests with contractors

C. Permit Authorizing Individual

The permit authorizing individual (PAI) must be aware of the hazards posed by the hot work process and be familiar with applicable regulations. Additional roles and responsibilities include the following:

- Take responsibility for the safe operation of hot work activities.
- Determine the type of hot work operation to be conducted.
- Determine the location of hot work activities.

E. Fire Watch

Fire Watches must be used when any of the following take place or any of the following conditions exist:

- Work activities that involve torching, welding, cutting, brazing, and soldering
- Work activities that could create an ignition source.
- Situations where larger than minor fires may develop.
- Areas where appreciable combustible materials in building construction or contents are closer than 35 feet to the point of operation.
- Areas where appreciable combustible materials are more than 35 feet away but could be easily ignited by sparks
- Instances where wall or floor openings within a 35-foot radius are exposed to combustible material, including concealed spaces in walls, floors, and ceilings.
- When combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.
- Any time or situation as deemed necessary by the Fire and Life Safety Team

Fire Watch responsibilities include the following:

- Be familiar with facilities for sounding an alarm in the event of a fire. Any t5 (ny)2 (ib)6 (e a)]TJ - w

designate precautions to be followed in granting authorization to proceed preferably in the form of a written permit.

The basic precautions for fire prevention during hot work are as follows:

- If the object to be welded or cut cannot readily be moved, the area must be made safe by removing combustibles or protecting combustibles from ignition sources.
 - All combustibles must be relocated at least 35 feet (10.7 m) from the work site. Where relocation is impracticable, combustibles must be protected with flameproof covers or otherwise shielded with metal or welding curtains.
- If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards must be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards, or equivalent precautions taken.
 - Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions must be taken so that no readily combustible materials on the floor below will be exposed to sparks that may drop through the floor. The same precautions must be observed with regard to cracks or holes in walls, open doorways and open or broken windows. If the above requirements cannot be followed, then welding and cutting will not be performed.
 - Where cutting or welding is done near walls, partitions, ceiling or roof of combustible construction, fire-resistant shields or guards must be provided 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, preferably by relocating combustibles. Where combustibles are not relocated, a fire watch on the opposite side from the work must be provided.
 - Welding must not be attempted on a metal partition, wall, ceiling or roof having a combustible covering or on walls or partitions of combustible sandwich type panel construction.
 - Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs must not be undertaken if the work is close enough to cause ignition.

- Suitable fire extinguishing equipment must be maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hoses or portable extinguishers depending upon the nature and quantity of the combustible material exposed.

Cutting or welding must not be permitted in the following situations:

- In areas not authorized by management.
- In sprinkler-protected buildings while such protection is impaired.
- In the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dusts with air), or explosive atmospheres that may develop inside unclean or improperly prepared tanks or equipment which have previously contained such materials, or that may develop in areas with an accumulation of combustible dusts.
- In areas near the storage of large quantities of exposed, readily ignitable materials such as bulk sulfur, baled paper, or cotton.

B. Welding and Cutting Containers

No welding, cutting, or other hot work may be performed on used drums, barrels, tanks, or other containers until they have been cleaned so thoroughly as to make certain that there are no flammable materials present or any substances such as greases, tars, acids, or other materials which when subjected to heat, might produce flammable or toxic vapors.

Any pipelines or connections to the drum or vessel must be disconnected or blanked.

All hollow spaces, cavities or containers must be vented to permit the escape of air or gases before preheating, cutting or welding.

When arc welding is to be suspended for any substantial time, such as during lunch or overnight, all electrodes must be removed from the holders and the holders carefully located so that accidental contact cannot occur, and the machine disconnected from the power source.

During gas welding or cutting operations, to eliminate the possibility of gas escaping through leaks of improperly closed valves, the torch valves must be closed and the fuel gas and oxygen supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period such as during lunch hour or overnight. Where practicable the torch and hose must also be removed from the confined space.

After welding operations are completed, the welder must mark the hot metal or provide some other means of warning other workers.

5. Safety Information

A. Health Protection

A welder or helper working on platforms, scaffolds, or runways must be protected against falling. This may be accomplished using railings, safety belts, lifelines, or some other equally effective safeguards.

Welders must place welding cable and other equipment so that it is clear of passageways, ladders, and stairways.

First-aid equipment must always be available. All injuries must be reported as soon as possible for medical attention. First aid must be rendered until medical attention can be provided.

B. Ventilation

The requirements for health protection and ventilation have been established based on the following three factors in arc and gas welding which govern the amount of contamination to which welders may be exposed:

1. Dimension

direction of the hood d

In confined spaces, welding or cutting involving fluxes, coverings

In confined spaces or indoors, welding or cutting operations involving cadmium-bearing or cadmium-coated base metals must be done using local exhaust ventilation or airline respirators.

D. Hot Work Per mit
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2. Eye Protection

Goggles or other suitable eye protection must be used during all gas welding or oxygen cutting operations. Helpers or attendants must be provided with proper eye protection.

Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing or for inspection.

All operators and attendants of resistance welding or resistance brazing equipment must use transparent face shields or goggles, depending on the job to protect their faces or eyes, as required.

Eye protection in the form of suitable goggles must be provided where needed for brazing operations. Goggles must be ventilated to prevent fogging of the lenses as much as practicable.

All glass for lenses must be tempered, substantially free from striae, air bubbles, waves and other flaws. Except when a lens is ground to provide proper optical correction for defective vision, the front and rear surfaces of lenses and windows must be smooth and parallel.

Lenses must bear some permanent distinctive marking by which the source and shade may be readily identified. The following is a guide for the selection of the proper shade numbers. These recommendations may be varied to suit the individual needs.

Welding Operation		Shade #
Shielded metal arc welding	1/16 -, 3/32-, 1/8-, 5/32-inch electrodes	10
Gas shielded arc welding nonferrous	1/16 -, 3/32-, 1/8-, 5/32-inch electrodes	11

Gas shielded arc welding ferrous

All filter lenses and plates must meet the test for transmission of radiant energy prescribed in ANSI/ISEA Z87.1 American National Standard Practice for Occupational and Educational Eye and Face Protection.

For protection from arc welding rays, where the work permits, the welder should be enclosed in an individual booth painted with a finish of low reflectivity such as zinc oxide (an important factor for absorbing ultraviolet radiations) and lamp black, or must be enclosed with noncombustible screens similarly painted.

Booths and screens must permit circulation of air at floor level.

Workers or other persons adjacent to the welding areas must be protected from the rays by noncombustible or flameproof screens or shields or shall be required to wear appropriate goggles.

3. Protective Clothing

Appropriate protective clothing required for any welding operation will vary with the size, nature, and location of the work to be performed.

6. Training

All personnel performing hot work must be trained in proper equipment operation; handling and storage of welding materials; compressed gas safety; chemical hazards; and the Hot Work Program. Additional training may also be necessary in permit required confined space entry, control of hazardous energy, and the proper selection of use and PPE. PPSU does not accept responsibility for the training of contractors. Contractors must be made aware of the hazards related to the tasks being performed.

