

Fire Safety/Preparing the Area Before Welding, Cutting and Other Hot Work

Permit Authorizing Individuals (PAI) – A PAI is suggested at each site where hot work procedures are conducted in permit-suggested areas.

What is the role of the PAI?

The PAI is permitted to be, among others, the supervisor, foreperson, property owner or representative, or health and safety administrator. The PAI cannot be the hot work operator.

The PAI is the person responsible for issuing a hot work permit for hot work procedures conducted in a permit-suggested area. The PAI should ensure that all precautions have been taken to ensure that fire hazards and ignition sources have been removed or protected.

The hot work operator should consult the PAI and obtain a hot work permit before beginning any hot work procedures in areas outside of a designated area.

The PAI should inspect the permit-suggested area at least once per day each day the permit is valid to ensure the area is fire-safe.

Work Area Fire Safety Preparation

The permit-suggested work area and equipment should be prepped before requesting a Hot Work Permit.

What is the procedure for preparing the permit-suggested area?

Before seeking a hot work permit to conduct hot work procedures, the hot work operator should do the following to ensure a fire safe work area:

1. Consider moving the work out of the permit-suggested area to a designated area.
2. Ensure that hot work equipment to be used is in satisfactory condition and is in good working order.
3. If combustible materials, such as paper clippings (dust), wood shavings or textile fibers, are on the floor, the floor should be swept clean for a radius of 35 feet as well as:
 - a. Combustible floors should be kept wet, covered with damp sand, or protected by noncombustible or fire-retardant shields.
 - b. If the floors are wet, hot work operators using arc welding equipment should be protected from electric shock.
4. Any materials that could catch fire should be relocated no less than 35 feet in all directions from the worksite.
 - a. If relocation of the materials cannot be done, then those materials should be protected with fire-retardant covers or shielded with metal or fire-retardant guards or curtains.
 - b. The edges of covers should be tight on the floor to prevent the entrance of sparks, including where the edges of multiple covers overlap.
5. Openings or cracks in walls, floors or ducts within 35 feet of the site should be tightly covered with fire-retardant or noncombustible material to prevent the passage of sparks to adjacent areas.

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6. Ducts and conveyor systems that might carry sparks to distant combustibles should be shielded, shut down or both.
7. If hot work procedures are conducted near walls, partitions, ceilings or roofs of combustible construction, fire-retardant shields or guards should be installed to prevent ignition.
8. If hot work procedures are to be conducted on one side of a wall, partition, ceiling or roof, one of the following should be done:
 - a. If combustibles are located on the opposite side, then those combustibles should be relocated.
 - b. If the combustibles cannot be relocated, then a fire watch should be established located on the opposite side from where the work is being performed.
9. If hot work procedures are to be conducted on pipes or other metal that is in contact with combustible walls, partitions, ceilings, roofs or other combustible materials, then hot work procedures should do be conducted if those combustibles are close enough to be ignited by heat traveling through the metal (conduction).
10. Fully charged and operable fire extinguishers that are appropriate for the type of possible fire should be available immediately at the work area.
11. The following should be done if hot work procedures are to be conducted near a sprinkler head:
 - a. A wet rag should be laid over the sprinkler head and then removed at the conclusion of the hot work procedures.
 - b. During hot work procedures, special precautions should be taken to prevent accidental operation of the sprinkler system.
 - c. Steps should be taken to protect nearby personnel from dangers such as heat, sparks, and slag, especially when hot work operations are conducted overhead. This sign should be posted in conspicuous places outside of the permit-suggested area to alert other personnel near the work area. Red DANGER tape should be used to create a barrier around the work area to prevent passersby from wandering into the work area.

Hot Work Permits

Hot Work Permits are issued by the PAI for work in permit-suggested areas.

Who can issue a hot work permit?

Only the PAI can issue a hot work permit to the hot work operator.

When is a hot work permit suggested?

A hot work permit is suggested whenever hot work procedures are conducted in any area outside of a designated area. Designated areas are exempt from the permit because they are designed and regularly inspected to be fire safe.

How long is a hot work permit good for?

Based on local conditions, the PAI determines the length of the period for which the hot work permit is valid.

What should I do with the hot work permit after I get it?

The hot work permit should be posted in a conspicuous place in the permit-suggested area during the entire time the permit is valid.

What happens if my hot work permit is no longer valid?

That hot work permit can no longer be used and a new hot work permit should be obtained from the PAI before work can resume in the permit-suggested area.

What does a hot work permit look like?

Please refer to the sample Hot Work Permit included in this guide.



Fire Watch

When is a fire watch suggested?

A fire watch is suggested any time hot work procedures are conducted outside of a designated area.

What are the roles and requirements of a fire watch?

The fire watch should be trained to understand the inherent hazards of the worksite and the hot work. The fire watch should ensure that safe conditions are maintained during hot work procedures. The fire watch should also watch for fires in all exposed areas and try to extinguish them only when the fires are obviously within the capacity of the equipment available. If the fire watch determines that the fire is not within the capacity of the equipment available, then the fire watch will sound the alarm immediately. The fire watch should be familiar with the facilities and procedures for sounding an alarm in the event of a fire.

What authority should the fire watch have?

The fire watch should have the authority to stop the hot work procedures if an unsafe condition develops.

How long does a fire watch last?

The fire watch should be maintained during hot work procedures and then for at least a half hour after completion of hot work procedures to detect and extinguish smoldering fires.

How many fire watches are suggested at a hot work permit-suggested work area?

More than one fire watch is suggested if combustible materials that could be ignited by hot work procedures cannot be directly observed by the initial fire watch. If hot work procedures are being performed above multiple levels, then a fire watch will be suggested on every level under the hot work. Fire watchers should take precautions to protect themselves from heat, sparks and slag.

Is a fire watch allowed to fulfill other job duties while serving as a fire watch?

No, the fire watch is allowed only to stand at the permit-suggested area and watch for potential fires. The fire watch is not permitted to engage in any activities other than fire watching.

Fire Safety General Requirements

How many fire extinguishers should be in the permit-suggested area?

The number of fire extinguishers should match the type of work and the number of combustible materials in the area. If there is a considerable number of combustible materials in or around the area, then more than one extinguisher will be needed. If more than one fire watch is suggested for the work, then each fire watch will have an extinguisher.

Are there any areas where hot work procedures are not allowed?

Yes, hot work procedures are not allowed to be conducted in the following applications:

1. In areas not authorized by management.
2. In sprinklered buildings where sprinklers are impaired.
3. In the presence of explosive atmospheres (i.e., where mixtures of flammable gases, vapors, liquids or dusts with air exist).
4. In the presence of unclean or improperly prepared drums, tanks or other containers and equipment that have previously contained materials that could develop explosive atmospheres.
5. In areas where there is dust accumulation of greater than 1/16 inch within 35 feet of the area where hot work procedures will be conducted. All dust accumulation should be cleaned up.



Fire Safety in designated areas

What are the fire safety requirements for a designated area?

1. Floors should be regularly swept and cleaned of combustibles within 35 feet of the work area.
2. Flammable and combustible liquids and material should be kept 35 feet from the designated work area.
3. At least one 10lb dry chemical fire extinguisher should be within access of the 35-foot work area.
4. Protective dividers such as welding curtains or noncombustible walls should be provided to contain sparks and slag to the combustible free area.

Fire Safety for hot work on drums, containers, tanks or hollow structures.

What are the requirements for hot work on drums, containers, tanks or hollow structures?

1. Before welding, cutting or heating is conducted on drums, containers, tanks or hollow structures that have contained toxic or flammable substances, they should be filled with water or thoroughly cleaned of such substances, ventilated and tested. Pipelines that contain flammable gases should be purged and locked out before conducting hot work procedures on them.
2. Before heat is applied to a drum, container, tank or hollow structure, a vent or opening should be provided for the release of any built-up pressure during the application of heat.
3. Except when contents are being removed or transferred, drums pails, tanks and other containers that contain or have contained flammable liquids should be kept closed. Empty containers should be removed to a safe area apart from hot work procedures or open flames.

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