

Hot Work Program

Scope

is aware of the hazards associated with hot work operations (cutting, welding, brazing and soldering, grinding, etc.) is committed to keeping our employees safe and to control hazards in the work place associated with hot work. A Hot Work Program has been established by to ensure proper hot work procedures are being followed when work is being done by employees or contractors. All employees (permanent, temporary or contractors) are required to follow the procedures outlined in this program when completing hot work.

To properly control hazards of hot work, the following elements are included in the hot work program:

- Assign responsibility for the program
- Establish and implement a permit system
- Provide the necessary safety equipment
- Provide the personnel necessary to implement safety regulations

Roles and Responsibilities

Several responsibilities need to be carried out by management and employees in order to complete hot work safely. Management must appoint a PAI (Permit Authorizing Individual) to enforce hot work procedures. No hot work should be allowed without a signed hot work permit. Also proper training must be provided to individuals involved in the Hot Work Program.

Management

management should recognize its responsibility for the safe usage of cutting and welding equipment on its property.

- Designate a Hot Work PAI (Permit Authorizing Individual)
- Ensure that all employees of are trained in safe use of equipment.
- Ensure that all employees of understand emergency procedures.
- Employees and Management should be familiar with NFPA 51B

PAI Responsibilities

An assigned employee of who has been trained to approve hot work. Duties of PAI are as follows:

- Ensure that only authorized torches, manifolds, regulators or pressure reducing valves are used.
- Inspect all equipment, torches, grinders, gas rigs, etc., for safe operating conditions.
- Tag any unsafe equipment "Out of Service".
- Ensure all contractors are familiar with the hot work program.
- Ensure that all hot work operators are trained in operating the equipment and how to perform safe hot work.

Before issuing a Hot Work Permit, the PAI should examine the job site and hazards present.

- Move the work to a designated hot work area if possible.
- If the work cannot be moved then, clear combustible material in area within a 35' radius of the work area in all directions.
- If not all material can be moved then protect the material with welding blankets, curtains or pads listed or approved by ANSI/FM 4950.
- Verify there are no explosive atmospheres that are present and could be ignited. A combustible gas detector can be used to determine if there are any flammables in the area.



- Check walls for holes or cracks that need to be covered or filled with fire resistive material.
- Protect all combustible floors, walls and ceilings if applicable. Wetting or covering of combustible floors and walls should occur prior to hot work.
- Vacuum away combustible materials from ventilation or other service ducts. Seal off ducts that could transport sparks to other areas.
- Properly inspect hot work equipment prior to use.
- Make sure all fire suppression or extinguishing systems are available and in working order.
- Identify the nearest pull station (if available) and have phone readily available for emergencies.
- Close all doors, making sure to look for gaps on the sides or underneath where sparks or molten metal could escape.
- Determine if a fire watch is needed. See **Appendix A** flow chart to determine if fire watch is required.
- Post necessary fire watch personnel for 30 minutes after hot work is completed. Personnel should periodically monitor the area for at least another 4 hours.
- If fire watch is not needed, perform final check of work area 30 minutes after completion.
- Determine period of time for the hot work permit, limited to 24 hours.
- Issue the permit, check all safeguards have been taken, sign the permit and attach it to the equipment to signify job approval. **(Appendix B)**.
- Check the jobsite periodically to ensure work is being done safely.
- When the job is finished, reexamine the work area before releasing the operators.
- Place the permit on file for future reference.
- Do not allow hot work to proceed if conditions are not being met.

Hot Work Operator

Employees of _____ or contractor performing hot work on site must follow the following procedures.

- Obtain PAI approval before starting.
- Ensure equipment is in good working order.
- Cease hot work if conditions become unsafe and notify management or PAI.

Fire Watch Responsibilities

A fire watch is a designated employee of _____ who monitors the hot work area for fires while work is being done and 30 minutes after it is completed. Below is a list of duties of assigned fire watch.

- Thoroughly understand the inherent hazards of the work site and how employees are affected by the hot work.
- Ensure safe conditions are being maintained during hot work operations.
- Stop the hot work operations if unsafe conditions develop.
- Maintain fire-extinguishing equipment, make sure it is readily available and be trained in its use.
- Watch for fires in all exposed areas and attempt to extinguish them only when the fires are obviously within the capacity of the equipment available.
- Fire watch personnel will not be given any additional tasks while on fire watch duty.
- Know the procedures for sounding an alarm in the event of a fire.
- Maintain the fire watch for at least 30 minutes after completion of hot work operations in order to detect and extinguish smoldering fires.
- Provide additional fire watch for up to 4 hours after the completion of hot work operations where the ignition of combustibles cannot be directly observed.

Contractor Management

This involves any contractor on site to perform hot work. Management and PAI of _____ must ensure that the following procedures are followed by all on-site contractors.

- A contract or statement of work should define the work to be completed and should be kept on file.
- All contractors must follow hot work policies and procedures noted in this program.
- Certificates of insurance should be obtained from all contractors on premise and kept on file.
- All contractors are required to obtain a hot work permit (Appendix A) from the PAI.

Hot Work Designated Areas

The following areas have been designated as approved hot work areas. In the below mentioned area's hot work may be performed without a hot work permit. Even though a hot work permit is not required, it is important to inspect the area of any combustibles or other hazards prior to beginning any hot work.

- Maintenance welding area
- Welding Stations

Non-Permissible Areas for Hot Work

Hot Work is not authorized in the following areas:

- Any area not authorized by the PAI.
- Sprinkled buildings where the sprinklers are impaired.
- In the presence of explosive atmosphere. Including drums, tanks and vessels containing such materials or unclean vessels that previously contained materials.
- In areas of accumulated combustible dust.
- On pipes or other metals that are in contact with combustible walls, ceilings or partitions.

General Requirements

Basic Precautions

See Standard for Fire Prevention in Use of Cutting and Welding Processes, NFPA Standard 51B for additional information in regards to fire prevention. The basic precautions for fire prevention in welding or cutting work area:

- **Fire Hazards:** If the object to be welded or cut cannot be moved, all movable fire hazards in the vicinity should be taken to a safe place away from the area (at least 35 ft.).
- **Guards/Welding Blankets:** If the object to be welded or cut cannot be moved, and all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards. Approved welding blankets should be used to cover combustible materials.
- **Automatic Sprinkler Protection:** If hot work operations are to be conducted in a building protected by automatic sprinklers, it should be verified the sprinkler system is in service prior to conducting any hot work operations.
- **Combustible Material:** Whenever there are floor openings or cracks in the flooring that cannot be closed, precautions shall be taken so that no combustible materials on the floor below will be exposed to sparks which might drop through the floor. The same precautions shall be observed with regard to cracks or holes in walls, open door ways and open or broken windows.
- **Fire Extinguishers:** Suitable fire extinguishing equipment shall be maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hose or portable extinguishers depending upon the nature and quantity of combustible material exposed.
- **Restrictions:** If the requirements listed above cannot be followed then welding and cutting should not be performed.

PPE

All employees of _____ performing or assisting in hot work must wear the appropriate personal protective equipment (PPE). The appropriate PPE equipment is outlined below. Do not begin any hot work without having the proper equipment in place.

Welding, Cutting, Heating and Brazing the following PPE is required.

Eye and Face Protection

- Helmet with filter lens and cover plate.
- Safety glasses with side shield under helmet.

Head and Ear Protection

- Fire resistant welder's cap under helmet.
- Approved ear plugs or muffs.

Foot Protection

- Leather, steel toed, high top boots in good condition .
- Do not wear pants with cuffs. The bottoms of pants should be worn over the top of boots.

Hand Protection

- Dry, hole-free, insulated and flame resistant welding gloves.

Body Protection

- Oil free protective clothing made of wool or heavy cotton.
- Clothing should allow for freedom of movement and should prevent skin exposure.
- Leather aprons, leggings, capes and sleeves as needed.

Fire Prevention Precautions

The following are considered best practices:

- Do not conduct hot work within 50' of a flammable liquids storage area.
- Only allow experienced welders to use equipment.
- Ventilate confined areas.
- Do not cut or weld on a drum that housed flammable liquids.
- Cutting or welding shall be permitted only in areas that are or have been made fire safe.

Permit System

A hot work permit should be issued any time hot work is completed to ensure adequate controls and safety precautions are being implemented.

Procedures

- Authorization should not be given for hot work operations until all safety precautions and requirements listed on the permit are met. Under no circumstances is a permit to be issued sight unseen. An inspection of the work site must be conducted by an authorizing agent prior to authorization.
- Authorized PAI or management will complete and submit hot work permit. **(Appendix B)**
- Permits should be issued to the individual performing the actual cutting or welding operation only.
- Permits should not be approved for any length of time exceeding the normal shift hours of the welder or cutting except:
 - When welding or cutting operations are planned to be continued into the next shift when the same welder or cutter is operating.
 - When emergency repair work warrants the continued operation of cutting and or welding into the next shift.
- No permit shall be authorized to be in effect for any length over twenty-four continuous hours.
- Permits should be issued and logged on a job to job basis. No permits should be issued for general work in any location. Each specific job shall be issued a separate permit.
- Logs will be maintained to record the issue and retraction of hot work permits. The log should be kept in such a manner as to identify each permit issued, the time of issue, time of completion, work area and other necessary information as required.
- Once issued, the permit shall be posted in a conspicuous location near the work site so that it may be observed during welding or cutting operations.

Voiding Permits

Hot work permits will be voided and all work must stop or not begin if any of the following occurs. If a hot work permit is voided, a new permit must be issued to begin or continue hot work operations.

- Fire alarm sounds.
- Work has been suspended for more than 60 minutes.
- Work has not begun within 60 minutes of approved time.
- At any time the authorized PAI, supervisor, employee detects a danger or uncontrolled hazard.
- A work shift ends or there is a change in authorized or approval personnel.

Employee Training

Before any employees designated as hot work PAI's, authorized personnel are allowed to perform any hot work operations, they first must receive training. Periodic retraining will occur if an employee has a lack of knowledge, uses equipment improperly or if work tasks change. The training will include the following subjects:

- Fire prevention and protection
 - Basic Precautions
 - Fire Prevention Precautions

- Employee classifications and responsibilities
 - PAI
 - Management
 - Authorized Personnel
 - Fire Watch Personnel
- Designated hot work areas
- Non-designated hot work procedures
- Proper PPE equipment
- Hot Work Permit System
- Handling and Storage of hot work materials

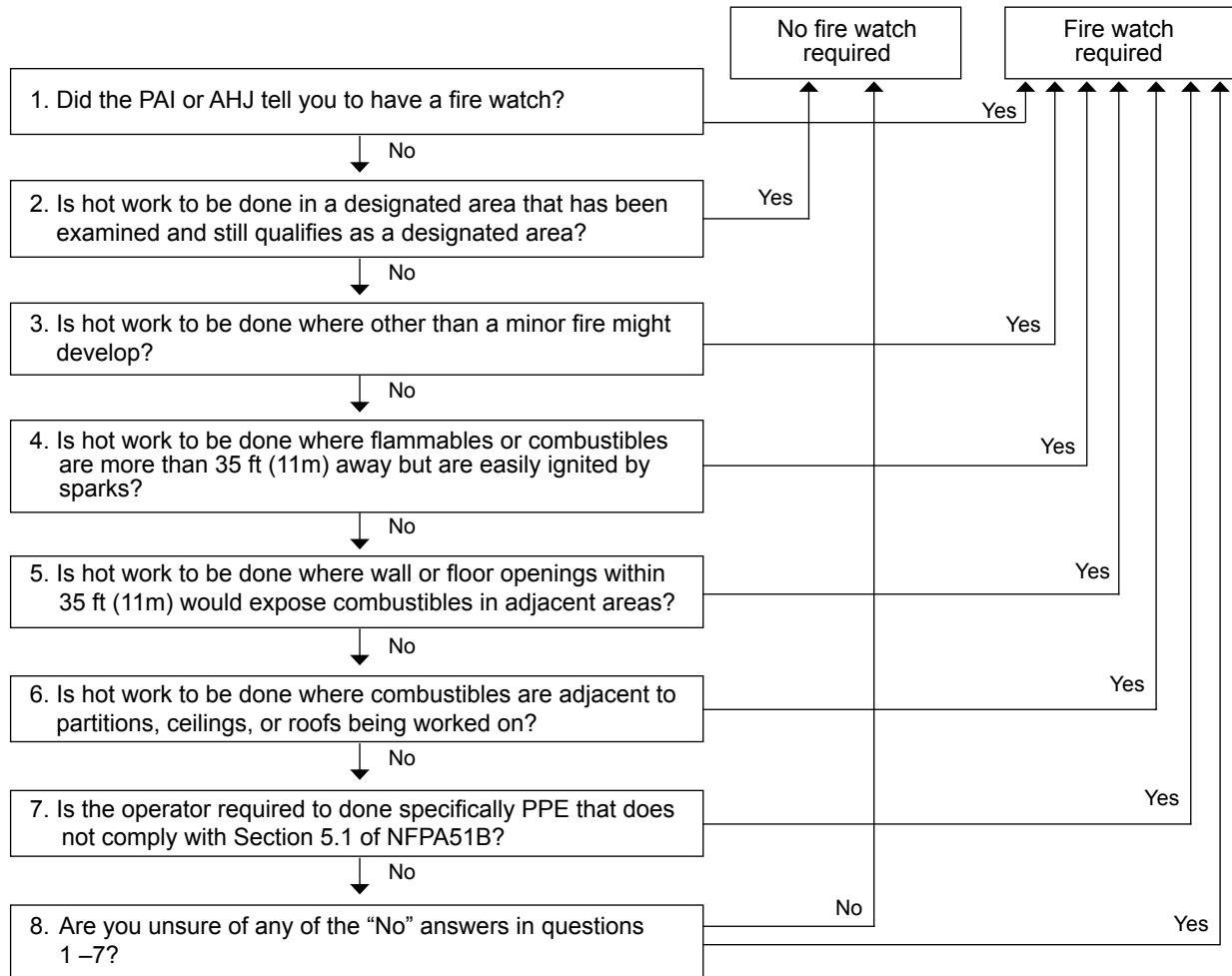
Periodic Program Review

All hot work procedures will be reviewed at least annually by management. If any inadequacies are identified an update should be done to the procedures. The annual review will include a discussion with the reviewer, management, PAI and authorized employees to discuss recommendations. Annual inspections should be documented using the attached form. **(Appendix C)**

Record Retention

Written training records completed by employees of Hot Work Program should be kept by the program administrator for at least . **(Appendix D)** Hot work permits should be kept for and the annual program review documents should be kept indefinitely.

Appendix A



NFPA 51B-A.5.5.1 – When to require a Fire Watch

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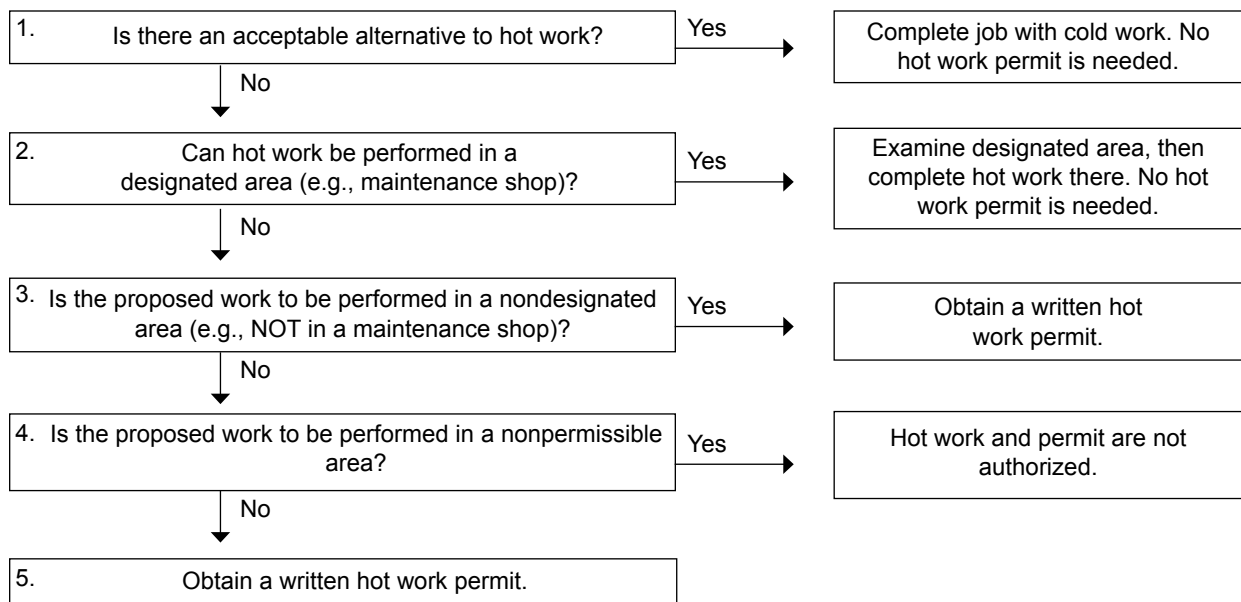


FIGURE A.5.4 – Hot Work Permit Decision Tree

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Appendix B - Hot Work Permit

Before issuing this permit ask yourself “can this job be completed a safer way?” “Can this job be avoided?”

Hot work permits are required for any operation involving sparks, open flame or heat producing process. This includes but not limited to cutting, welding, grinding, drilling or brazing. Hot work cannot begin until this form is completed and signed by an authorized PAI of _____ . This form must be posted at hot work site.

General Information

Company:

Responsible Person:

Phone Number:

Date Work to be performed:

Start Time: AM/PM

Building:

Room Number/Area/Equipment:

Type of work to be performed:

- Soldering Welding Cutting Drilling Pipe Thawing
 Grinding Sawing Brazing Torch-Applied Roofing
 Other:

Planned Safety Precautions

- Perform fire watch (name):
 Remove flammable and combustible material within 35' of work area.
 Guard flammable and combustible materials that cannot be removed for work area.
 Maintain appropriate fire extinguishing equipment.
 Sweep floors within 35' area of work zone.
 Protect combustible floor within 35' work area by wetting, covering or using fire-resistant covers.
 Protect walls, partitions, ceilings and roofs with fire-resistant covers.
 Protect or shut down ducts or conveyors.
 Other

Hot Work Permit

Hot work permits are required for any operation involving sparks, open flame or heat producing process. This includes but not limited to cutting, welding, grinding, drilling or brazing. Hot work cannot begin until this form is completed and signed by an authorized PAI of . This form must be posted at hot work site.

Safety Checklist

- Hot work is located in the safest place possible or approved area.
- Precautions are in place to protect floors, walls, doorways, windows within 35' of work area.
- Suitable fire extinguishing equipment or fire suppression system in the hot work site.
- If there is a sprinkler system, is it operational.
- Hot work equipment in good repair.
- Fire watch personnel is trained for proper use of extinguishing equipment and procedures.
- Fire watch is posted and will remain for at least 30 minutes after work is completed and have them periodically monitor the area for at least another 4 hours.
- No flammable gas, dust vapors or liquids present in the area.
- Hot work operators are properly trained.
- Required lock out/tag out in place.
- Combustible material is moved at least 35' around work area.
- Immovable items are properly protected.
- Combustible floors are wet, covered with damp sand or protected by fire resistant material.
- Make sure the nearest pull alarm is noted and confirm cell phone coverage in area to determine how to request assistance if needed.
- Supervisors and employees are notified of nearby hot work.
- Adequate ventilation to remove smoke, vapor or dust from work zone.
- Contractors are advised of all hazardous materials and policies.
- Floors are swept clean at least 35' around work area.
- Ducts and conveyors are protected or shut down.

Hot Work Permit

Authorization

I verify that the above checklist has been explained by an authorized hot work employee/supervisor to the hot work user. I have personally inspected the location where the hot work will be done and have checked for compliance of the precautions listed on this permit and authorize the hot work to be completed.

Name: _____

Title: _____

Signature: _____ Date: _____

Permit #: _____

Authorized Duration: _____ To: _____
Date and Time Date and Time

This permit is only valid as long as the working conditions existing at the time of the permit was issued are maintained. The permit will automatically expire when there is a change in conditions that adversely affects the safety of the hot work area. If a change occurs, a new hot work permit must be issued before work can resume.

This permit and the associated warning sign should be posted near the hot work area during the entire time hot work is done.

WARNING

HOT WORK IN PROGRESS

WATCH FOR FIRE

Stop work immediately if an emergency alarm signals an emergency situation in or near your work area.

If you have any questions about these hot work operations or in case of an emergency:

Contact: _____

Phone Number: _____

WARNING

Fire Watch/Monitor Record

Checked By (Initials)	Date	Time

Appendix C

Annual Evaluation Report

Date of Evaluation:	Evaluated By:
Written Program Reviewed: Yes/No	
Comments on Written Program:	
The following specific procedures have been reviewed:	
The following specific procedures were modified:	
The following specific procedures were added:	
A review of	incident reports were made: Yes/No
The following injuries/fires resulted from failure to use correct hot work procedures:	
Comments:	

Appendix D

Personnel Training Record

This record certifies that the following received training in

Hot Work Program.

Print Name	Hot Work Program Role	Sign Name

Instructor's Name	
Instructor's Signature	
Instructor's Title	
Date of Training	