

# HOT WORK FIRE PROTECTION AND PERMIT SYSTEM

Loss Control Services Publication – Technical Bulletin



Everything Insurance Should Be®

Cutting, welding and other temporary “hot work” result in a significant number of major fires each year, many of them serious.

While all hot work requires close attention, our claims data shows that the largest and most significant hot work fires are caused by general contractors and subcontractors who fail to adhere to proper procedures and appropriate fire watch protocols.

Developing and implementing a written hot work permit program is an essential component of proper construction site risk management and a builder’s risk best practice. A hot work program should include measures to require permission to bring hot work equipment – torches, welding equipment and the like – onto the construction site and to be in full compliance with the hot work permit program when hot work is to be performed. Management should periodically verify that the hot work program is in use for both their employees and all subcontractors. The Cincinnati Insurance Company can provide hot work permits and programs in support of the recommended hot work program described within this document.

## Scope

All contractors on a construction site should consider the procedures outlined in this document as they:

- perform any hot work including cutting, welding, brazing, soldering, grinding, pipe thawing and torch-applied roofing operations
- use portable power tools, air hammers and other power-actuated tools in potentially hazardous flammable/explosive atmospheres

## Hot Work Permit System

Hot work permits should be:

- issued to and required of anyone performing hot work in or around any active construction project site
- provided only after the precautions outlined in this technical bulletin are implemented, and that implementation is verified by a supervisory employee responsible for issuing the permit on the construction site
- conducted under the supervision of site management, who authorize only designated supervisory personnel with appropriate training to issue permits
- issued after management-required task hazard analysis, work site inspection and fire protection evaluations are completed

## Task Hazard Analysis – Hot Work

The person conducting the analysis must ask the following questions before issuing a hot work permit. The proposed hot work may need to be canceled if

the answers indicate inadequate safety conditions or a safer alternative course.

- Can this job be avoided?
- Is there a safer way to get the job done?
- Can the hot work be performed outside in an area designed for such work?
- Should the proposed work area be off limits to hot work, due to flammable storage nearby or other hazards?
- Are hot work personnel properly trained and authorized to perform such work?
- Are fixed or temporary fire protection systems in service, and will they remain in service during and after the hot work?

### Work Site Inspection

Make sure the person conducting the work site inspection asks these questions and verifies the correction of unsatisfactory conditions before issuing a hot work permit:

- Are the tools and equipment provided for the hot work acceptable? Is the equipment well maintained and in good working condition?
- Is gas cutting and welding equipment properly secured?
- Are any combustible materials located within 35 feet of the work area? If yes, have they been removed or adequately protected by metal shields or fire-resistive tarps?
- Are combustible dusts, fibers and other easily ignitable materials or deposits and combustible/flammable liquids within 50 feet of the hot work area? If yes, and if the hot work cannot be eliminated, these materials or liquids must be removed as they present a serious hazard.
- Does the atmosphere normally contain flammable/explosive vapors? If so, have adequate cleaning and purging been performed?
- Has the air been sampled using approved combustible gas detection equipment? Record the readings and perform ongoing testing when the work area has been vacated for breaks or lunch. There should be no flammable vapors or gases in the area where hot work will be performed, including within equipment where hot work will be performed.
- Are combustible floors, walls or roofs present? Have they been wet down and/or covered with non-combustible materials?

- Have all wall or floor openings been properly covered?
- Has a person or team been designated as the dedicated fire watch? Has the fire watch been equipped with portable fire extinguishers? Have all immediate work areas been equipped with portable fire extinguishers? Make sure the fire watch:
  - is present during hot work and during any breaks. Multiple personnel may be needed to form a complete fire watch.
  - monitors adjoining areas or floors below the work area as hot sparks or slag can spread into these areas. The fire watch is to be maintained for at least 30 minutes following the completion of the hot work. In the case of torch-applied roofing work, the fire watch is to be maintained for 60 minutes following the completion of hot work.

### Fire Protection Evaluation

Make sure the person conducting the fire protection evaluation asks these questions and verifies satisfactory answers before issuing a hot work permit:

- Are control valves for fixed protection systems fully open?
- Are adequate portable fire extinguishers and/or charged fire hoses provided?
- Are fire-resistive tarps suspended beneath the work area, if needed?
- Is constant mechanical ventilation and/or combustible gas monitoring equipment provided, if needed?
- Is a trained fire watch provided at the work site, including adjoining areas and lower floors?

### Permit Issuance

A hot work permit should only be issued to the authorized person performing the hot work if the applicable precautions and procedures outlined above have been met. Permits should be posted at the work site and should expire no later than the end of the work shift. The permit should be filed for documentation. The work area should continue to be periodically inspected for at least four hours after work is completed to check for smoldering fires.

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