

## Hot Work Management

### OVERVIEW OF ISSUE

Hot work is any operation that involves open flames or produces heat and/or sparks. Grinding, torch-applied roofing, brazing, cutting, welding and soldering are considered hot works and can be part of a regular maintenance program, operation, expansion/new facility projects and emergency repairs.

HIROC claims history suggest that fire is the second leading cause of property damage. Welding done outside a specially designed hot work area could allow sparks to reach areas not easily seen and if unnoticed, can cause nearby combustibles to smolder. Smoldering can progress undetected for several hours before developing into a fire, long after the welding is completed and potentially after occupants have left the area.

Proper hot work management is critical when contractors are performing hot works at your site because more often than not, they are not familiar with your facility and this could lead to unintentional oversight of some necessary precautions. Proper management/supervision of hot work operations will ensure associated fire hazards are controlled and greatly minimized.

#### KEY POINTS

- Avoid hot work activity whenever possible or conduct it outside, safely away from buildings.
- With proper precautions, hot work fires are completely preventable.

### THINGS TO CONSIDER

#### Alternative Cold Work Methods

- Mechanically remove/relocate frozen piping to a heated area rather than thawing piping in place with any form of hot work. Use manual hydraulic or pneumatic shears rather than cutting with a saw or torch.
- Use a mechanical pipe cutter or reciprocating saw rather than a radial saw/torch.
- Use mechanical bolting rather than welding and screwed or flanged pipe rather than sweat soldering.
- Use a standard mechanically attached/fully adhered roof system rather than a torch-applied roof system.
- Use approved self-drilling or compressed air-actuated steel roof deck fasteners rather than puddle welding.

#### Supervision and Permit System

- Establish a designated hot work area or station to carry out all hot work activities whenever possible. This specially designed hot work area should be:

- In a noncombustible building or combustible building lined (ceiling, floor and walls) with one-hour fire rated noncombustible material or FM Approved welding blankets/curtains.
- Free of any combustible materials and/or ignitable liquids.
- At least 15 meters away from combustible areas.
- Provided with appropriate portable fire extinguishers throughout.
- If hot work is to be done outside the designated area mentioned above, utilize a hot work permit system.
- Maintain and ensure existing automatic sprinkler protection and other fixed fire protection systems in hot work areas are in service and fully operational.
- Maintain a file (in accordance with legislative and regulatory retention periods, at least for one year) of the used hot work permits for future management review/audits.
- Include the following information in

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the formal hot work permit system:

- Permit duration (maximum of one shift, another permit should be applied for the next shift).
- Fire watch signoff and fire monitoring signoff (see Clearance and Precautions section below).
- Name of persons/contractor completing the job and name of authorizing person (for audit and compliance reasons).

### Regulations

- Many governing bodies require the use of a hot work permit form. Hot work should be performed only by personnel or contractors trained in the safe use of hot work equipment in conformance with provincial and municipal regulations.

### Clearance and Precautions (Outside the Hot Work Designated Area)

- Maintain at least an 11 metre fire safe clearance area and ensure good housekeeping in the area. The National Fire Code of Canada (NFCC), adopted by several provinces (such as Manitoba and Saskatchewan), mandates a 15 m clearance hot work area while Ontario Fire Code requires an 11 m clearance.
- Cover all non-mobile combustible materials with approved welding blankets, pads and curtains

- and all wall/floor openings with approved fire stop materials (at least 1 hour fire rated type).
- Prohibit hot work on partitions, walls, ceilings or roofs with combustible layers or cores.
- Utilize only a qualified contractor for hot work on vessels, boilers or confined spaces. Ensure a confined space entry permit system is used, including for thorough purging of the vessels, where necessary.
- Maintain **continuous** fire watch during the hot work operation and one hour after the hot work has been completed. Sixty percent of hot work fires start in this period (according to FM Global claims files).
- **Monitor** the hot work area for an additional three hours after the fire watch activity noted above. This involves checking the area at 15 to 30 minute intervals. Fire monitoring may include security video cameras, routing security/maintenance rounds and staff stationed in or near the area. Thirty-six percent of hot work fires start in this period (according to FM Global claims files).



## REFERENCES

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