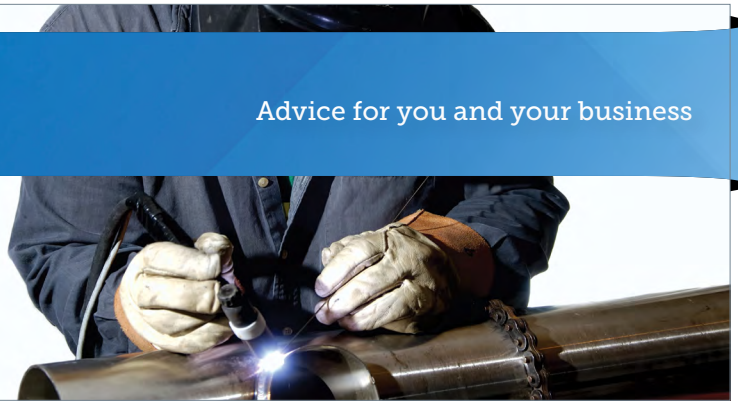
Risk Insights

Advice for you and your business

Hot Work



Hot work poses a high fire risk as it has the potential to cause major losses on your facilities and on job sites where hot work is carried out by contractors.

Hot work is any process that uses or generates open flames, sparks or heat, such as welding, cutting or brazing. Hot work is one of the most common causes of fires and material losses on insured properties. Fires and explosions caused by uncontrolled hot work have costly impact on companies. Losses occur due to negligence, improper or lack of training and absence or non-adherence of strict hot work safety guidelines and protocols. All of these are linked to human error and are therefore preventable.

It's essential for your organization to recognize these mistakes and to enforce necessary controls and loss prevention practices to minimize the risk of loss.

On-site vs. off-site fabrication/maintenance welding

On-site operations are generally considered safer, whether hot work is performed during normal operations or during equipment maintenance and repair. On-site environments are familiar to employees, designed for the type of work that is done and contains fire safety equipment. Regardless, it's crucial to have a hot work management program in place to manage risks.

Off-site operations have more challenges and risks because job sites vary in layout and the type of work performed. A comprehensive hot work safety management program can properly train and prepare contractors for various hot work environments, such as construction sites, plant maintenance, machinery repair, welding and more.

Risks associated with hot work

Potential fire scenarios include welding and cutting metal in open areas or in proximity to pits, combustible parts, materials or construction elements. Sparks and hot slag can fly, roll, bounce and shower onto floors, ceilings, walls and other elevated surfaces or get lodged into hidden cracks and crevices. Sparks and hot slag can travel great distances and have the potential to ignite any combustible material in its radius (horizontally and vertically). Be cautious within a minimum radius distance of 15 m (50 ft). Other operations associated with hot work include grinding, thermal spraying, membrane roofing installation and frozen pipe thawing.

This Risk Insight can guide you to mitigate risks and to establish a proper hot work management program. In Canada, most provinces and territories substantially adopt and model their fire codes around the National Fire Code of Canada (NFC). Section 5.2 of NFC deals with the safety regulation of hot work activities and calls for compliance with the CSA Standard W117.2 "Safety in welding, cutting and allied processes."

Hot work is one of the **most common causes of fires and material losses** on insured properties.

Hot Work *(continued)*

What is a hot work management program?

A hot work management program establishes controls and safety protocols aimed at identifying hot work hazards and controlling their associated risks. The program includes developing policies, procedures and assigning responsibilities and accountabilities for all aspects of hot work.

Policies

- Where and when hot work is permitted
- Who hot work is authorized by

Procedures

- What to assess before permitting or performing hot work in an area or on a piece of equipment
- When a hot work permit is required, who can administer a permit and how to obtain one
- Which hot work tools are approved for use
- What to prepare in a hot work area
- What to do if hot work cannot be avoided in a hazardous area

Training

- Determine which employees are to be trained, including supervisors, maintenance personnel, fire wardens, fire watchers and contractors.

Communications

- Post policies and procedures in visible locations.
- Post signs in areas that prohibit hot work activities.

Fire extinguishing equipment

- Train workers on the proper use of fire extinguishing equipment.
- Maintain an adequate supply of approved fire extinguishing equipment, such as portable fire extinguishers, fire hoses, pails of water, buckets of sand and other means, depending on the nature and quantity of exposed combustible material.
- Keep equipment within immediate reach of workers.

Key points for your hot work management program

On-site

- Obtain a hot work permit before working.
- Stop any process or activity that produces flammable gases and vapours, as well as combustible dusts and fibers. Remove these hazardous conditions before carrying out hot work.
- Place combustibles 15 m (50 ft) away from the hot work area or shield with flameproof covers or curtains extending to the ground.
- Cover floors and wall openings that are within 15 m (50 ft) of non-combustible material to prevent the passage of sparks or hot slag.
- Sweep surrounding areas and keep combustible floors wet.
- Ensure fire extinguishing equipment are accessible, including multi-purpose fire extinguishers and fire hoses.
- Don't perform hot work if a continuous fire watch cannot be performed.
- Designate trained personnel to watch for fire in hot work areas, as well as the floors above or below the areas, as necessary. As specified in the NFC, continue a fire watch after hot work is completed for a minimum of 60 minutes to several hours, as deemed appropriate, to eliminate the risk. Consider the circumstances of hot work at your particular building, area or site.
- Conduct a final inspection of the hot work area 4 hours after the completion of hot work.
- Hot work shouldn't be performed within the last 60 minutes of a work day or 60 minutes prior to breaks.

Hot Work *(continued)*

Off-site

- If you're performing hot work at a client's site, always check if they have their own hot work management program, including a permit system, and strictly adhere to it. Obtain your client's approval and sign-off, and then document all of your procedures and actions.
- Survey the hot work area and remove combustible material.
- If combustible material cannot be removed, use thermal barriers over them for protection.
- Conduct a fire watch for at least 60 minutes after finishing hot work.
- Check with your insurance broker for any limitations in your liability coverage pertaining to hot work.

Hot work is a dangerous fire risk that can be controlled as property losses are usually linked to human error. Enforce strict guidelines, procedures and controls so that operations are performed safely. This includes proper site assessment and preparation, employee training, adequate controls and safety equipment.

While the intent of this Risk Insight is to provide you with highlights on managing the risk of hot work within your organization, it's not meant as a treatise on the subject. We invite you to consult the CSA Standard W117.2-12 "Safety in welding, cutting, and allied processes" to set up your own hot work management program.

Hot work permits are available from Federated Insurance. Contact your Risk Services consultant.