Welding – Hot Work Fact Sheets



WHAT IS HOT WORK?

Working with ignition sources near flammable materials is referred to as “hot work.” Welding, soldering and cutting are examples of hot work. Fires are often the result of the “quick five minute” job in areas not intended for welding or cutting. Getting a hot work permit before performing hot work is just one of steps involved in a hot work management program that helps to reduce the risk of starting a fire by hot work in areas where there are flammable or combustible materials.

The 2014 version of NFPA (National Fire Protection Association) Standard 51B “Fire Prevention in the Use of Cutting and Welding Processes” serves as the basis for many current fire prevention practices adopted by industry. CSA standard W117.2-12 – Safety in welding, cutting, and allied processes and ANSI (American National Standards Institute) standard Z49.1:2012 Safety in Welding, Cutting and Allied Processes were created to protect persons and property from injury, illness, and damage from fire and explosions that may occur from these processes.

WHAT IS A HOT WORK MANAGEMENT PROGRAM?

Hot work management programs are put in place to control or eliminate hot work hazards and their risks. Programs include the development of policies, procedures, and the assignment of responsibilities and accountabilities for all aspects of hot work. A program includes:

1. Policies
    a. Where hot work is permitted
    b. When hot work is permitted
    c. Who authorizes, performs, and monitors hot work activities
1. Procedures
    a. What must be assessed before permitting/performing hot work in an area or on a process piece of equipment or area
    b. What to do to prepare an area for hot work
    c. What to do if hot work cannot be avoided in a particularly hazardous area
    d. What hot work tools are required
    e. How to obtain a hot work permit, when they are required, and who can administer them
1. Training

    a. Employees, supervisors, maintenance individuals, fire wardens, trained fire watch individuals, and contractors all have different roles, and must be trained accordingly

1. Communications

    a. Posting procedures
    b. Posting policies
    c. Posting signs in areas that are prohibited from having hot work performed in them

CAN HOT WORK BE AVOIDED?

You may be able to substitute hot work with other methods. Below are some examples:

Instead of:	**Use:**
Saw or torch cutting	**Manual hydraulic shears**
Welding	**Mechanical bolting**
Sweat soldering	**Screwed or flanged pipe**
Torch of radial saw cutting	**Mechanical pipe cutter**

But remember, always assess the substitutes or alternate method for any risks or hazards. Do not introduce any new risks or hazards.

BEFORE PERFORMING HOT WORK, WHAT ARE SOME GENERAL GOOD PRACTICES?

Make sure you are following your hot work procedure. Also consider the following items:

- Make sure that all equipment is in good operating order before work starts.
- Make sure that all appropriate personal protective devices are available at the site and each worker has been trained on how to use, clean, and store them properly.
- Inspect the work area thoroughly before starting. Look for combustible materials in structures (partitions, walls, ceilings).
- Move all flammable and combustible materials away from the work area.
- If combustibles cannot be moved, cover them with fire resistant blankets or shields. Protect gas lines and equipment from falling sparks, hot materials, and objects.
- Sweep clean any combustible materials on floors around the work zone. Combustible floors must be kept wet with water or covered with fire resistant blankets or damp sand.
- Use water ONLY if electrical circuits have been de-energized to prevent electrical shock.
- Remove any spilled grease, oil, or other combustible liquid.
- Vacuum away combustible debris from inside ventilation or other service duct

openings to prevent ignition. Seal any cracks in ducts. Prevent sparks from entering into the duct work. Cover duct openings with a fire resistant barrier and inspect the ducts after work has concluded.
- Make sure that appropriate fire extinguishers (e.g., ABC fire extinguishers) are available and easily accessible.
- Make sure that the first-aid boxes are available and easily accessible.
- Block off cracks between floorboards, along baseboards and walls, and under door openings, with a fire resistant material. Close doors and windows.
- Cover wall or ceiling surfaces with a fire resistant and heat insulating material to prevent ignition and accumulation of heat.
- Secure, isolate, and vent pressurized vessels, piping and equipment as needed before beginning hot work.
- Inspect the area following work to ensure that wall surfaces, studs, wires or dirt have not heated up.
- Post a trained fire watcher within the work area, including lower levels if sparks or slag may fall during welding, including during breaks, and for at least 60 minutes after work has stopped. Depending on the work done, the area may need to be monitored for longer (up to 3 or more hours) after the end of the hot work until fire hazards no longer exist.
- Eliminate explosive atmospheres (e.g., vapours or combustible dust) or do not allow hot work. Shut down any process that produces combustible atmospheres, and continuously monitor the area for accumulation of combustible gases before, during, and after hot work.
- If possible, schedule hot work during shutdown periods.
- Comply with the required legislation and standards applicable to your workplace.

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