



**CITY OF BLAINE
SAFETY SERVICES
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Hot Work Area Requirements

Businesses conducting hot work operations including welding, cutting, open torches and other hot work operations shall comply with Chapter 26 of the Minnesota State Fire Code (MSFC) and the National Fire Protection Association (NFPA) Standard 51, 2002 edition.

Permits:

An operational permit is required for hot work including, but not limited to:

1. Public exhibitions and demonstrations where hot work is conducted.
2. Use of portable hot work equipment within a structure.
Exception: Work that is conducted under a construction permit.
3. Fixed-site hot work equipment such as welding booths.
4. Hot work conducted within a hazardous fire area.
5. Application of roof coverings with the use of an open flame device.
6. When approved, the code official shall issue a permit to carry out a Hot Work Program. This program allows approved personnel to regulate their facility's hot work operations. The approved personnel shall be trained in the fire safety aspects listed below and shall be responsible for issuing permits requiring compliance with the requirements listed below. These permits shall be issued only to their employees or hot work operations under their supervision.

General Requirements:

Restricted areas. Hot work shall only be conducted in areas designed or authorized for that purpose by the personnel responsible for a Hot Work Program. Hot work shall not be conducted in the following areas unless approval has been obtained from the code official:

1. Areas where the sprinkler system is impaired.
2. Areas where there exists the potential of an explosive atmosphere, such as locations where flammable gases, liquids, or vapors are present.
3. Areas with readily ignitable materials, such as storage of large quantities of bulk sulfur, baled paper, cotton, lint, dust, or loose combustible materials.
4. At other locations as specified by the code official.

Hot work program permit. Hot work permits, issued by an approved responsible person under a Hot Work Program, shall be available for review by the code official at the time the work is conducted and for 48 hours after work is complete.

Qualifications of operators. A permit for hot work operations shall not be issued unless the individuals in charge of performing such operations are capable of performing such operations safely. Demonstration of a working knowledge of the provisions of this chapter shall constitute acceptable evidence of compliance with this requirement.

Records. The individual responsible for the hot work area shall maintain “pre-work check” reports in accordance with Section 2603.1. These reports shall be maintained on the premises for a minimum of 48 hours after work is complete.

Signage. Visible hazard identification signs shall be provided where required. Where the hot work area is accessible to persons other than the operator of the hot work equipment, conspicuous signs shall be posted to warn others before they enter the hot work area. Such signs shall display the following warning: CAUTION—HOT WORK IN PROGRESS—STAY CLEAR.

Fire safety Requirements:

Combustibles. Hot work areas shall not contain combustibles or shall be provided with appropriate shielding to prevent sparks, slag or heat from igniting exposed combustibles.

Openings. Openings or cracks in walls, floors, ducts or shafts within the hot work area shall be tightly covered to prevent the passage of sparks to adjacent combustible areas, or shielded by metal fire-resistant guards, or curtains shall be provided to prevent passage of sparks or slag.

Housekeeping. Floors shall be kept clean within the hot work area.

Conveyor systems. Conveyor systems that are capable of carrying sparks to distant combustibles shall be shielded or shut down.

Partitions. Partitions segregating hot work areas from other areas of the building shall be noncombustible. In fixed hot work areas, the partitions shall be securely connected to the floor such that no gap exists between the floor and the partition. Partitions shall prevent the passage of sparks, slag, and heat from the hot work area.

Floors. Fixed hot work areas shall have floors with noncombustible surfaces.

Precautions in hot work. Hot work shall not be performed on containers or equipment that contains or has contained flammable liquids, gases or solids until the containers and equipment have been thoroughly cleaned, inerted or purged; except that “hot tapping” shall be permitted on tanks and pipe lines when such work is to be conducted by approved personnel.

Sprinkler protection. Automatic sprinkler protection shall not be shut off while hot work is performed. Where hot work is performed close to automatic sprinklers, noncombustible barriers or damp cloth guards shall shield the individual sprinkler heads and shall be removed when the work is completed. If the work extends over several days, the shields shall be removed at the end of each workday. The code official shall approve hot work where sprinkler protection is impaired.

Fire detection systems. Approved special precautions shall be taken to avoid accidental operation of automatic fire detection systems.

Fire watch. A fire watch shall be provided during hot work activities and shall continue for a minimum of 30 minutes after the conclusion of the work. The code official, or the responsible manager under a Hot Work Program, is authorized to extend the fire watch based on the hazards or work being performed.

Exception: Where the hot work area has no fire hazards or combustible exposures.

Location. The fire watch shall include the entire hot work area. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to fire watches to ensure that exposed areas are monitored.

Duties. Individuals designated to fire watch duty shall have fire-extinguishing equipment readily available and shall be trained in the use of such equipment. Individuals assigned to fire watch duty shall be responsible for extinguishing spot fires and communicating an alarm.

Fire training. The individuals responsible for performing the hot work and individuals responsible for providing the fire watch shall be trained in the use of portable fire extinguishers.

Fire hoses. Where hose lines are required, they shall be connected, charged and ready for operation.

Fire extinguisher. A minimum of one portable fire extinguisher complying with Section 906 and with a minimum 4-A:20-B:C rating shall be readily accessible within 30 feet (9144 mm) of the location where hot work is performed.

Area reviews. Before hot work is permitted and at least once per day while the permit is in effect, the area shall be inspected by the individual responsible for authorizing hot work operations to ensure that it is a fire safe area. Information shown on the permit shall be verified prior to signing the permit in accordance with Section 105.6.

Pre-hot-work check. A pre-hot-work check shall be conducted prior to work to ensure that all equipment is safe and hazards are recognized and protected. A report of the check shall be kept at the work site during the work and available upon request. The pre-hot-work check shall determine all of the following:

1. Hot work equipment to be used shall be in satisfactory operating condition and in good repair.
2. Hot work site is clear of combustibles or combustibles are protected.
3. Exposed construction is of noncombustible materials or, if combustible, then protected.
4. Openings are protected.
5. Floors are kept clean.
6. No exposed combustibles are located on the opposite side of partitions, walls, ceilings or floors.
7. Fire watches, where required, are assigned.
8. Approved actions have been taken to prevent accidental activation of fire suppression and detection equipment in accordance with Sections 2604.1.8 and 2604.1.9.
9. Fire extinguishers and fire hoses (where provided) are operable and available.

Gas Welding and Cutting:

General. Devices or attachments mixing air or oxygen with combustible gases prior to consumption, except at the burner or in a standard torch or blow pipe, shall not be allowed unless approved.

Cylinder and container storage, handling and use. Storage, handling and use of compressed gas cylinders, containers and tanks shall be in accordance with this section. Compressed gas cylinders shall be secured against falling and shall have protective caps in place when not in use.

Precautions. Cylinders, valves, regulators, hose and other apparatus and fittings for oxygen shall be kept free from oil or grease. Oxygen cylinders, apparatus and fittings shall not be handled with oily hands, oily gloves, or greasy tools or equipment.

Acetylene gas. Acetylene gas shall not be piped except in approved cylinder manifolds and cylinder manifold connections, or utilized at a pressure exceeding 15 pounds per square inch gauge (psig) (103 kPa) unless dissolved in a suitable solvent in cylinders manufactured in accordance with DOTn 49 CFR. Acetylene gas shall not be brought in contact with unalloyed copper, except in a blowpipe or torch.

Remote locations. Oxygen and fuel-gas cylinders and acetylene generators shall be located away from the hot work area to prevent such cylinders or generators from being heated by radiation from heated materials, sparks or slag, or misdirection of the torch flame.

Cylinders shutoff. The torch valve shall be closed and the gas supply to the torch completely shut off when gas welding or cutting operations are discontinued for a period of 1 hour or more.

Prohibited operation. Welding or cutting work shall not be held or supported on compressed gas cylinders or containers.

Tests. Tests for leaks in piping systems and equipment shall be made with soapy water. The use of flames shall be prohibited for leak testing.

Electric Arc and Hot Work:

General. The frame or case of electric hot work machines, except internal-combustion-engine-driven machines, shall be grounded. Ground connections shall be mechanically strong and electrically adequate for the required current.

Return circuits. Welding current return circuits from the work to the machine shall have proper electrical contact at joints. The electrical contact shall be periodically inspected.

Disconnecting. Electrodes shall be removed from the holders when electric arc welding or cutting is discontinued for any period of 1 hour or more. The holders shall be located to prevent accidental contact and the machines shall be disconnected from the power source.

Emergency disconnect. A switch or circuit breaker shall be provided so that fixed electric welders and control equipment can be disconnected from the supply circuit. The disconnect shall be installed in accordance with the ICC *Electrical Code*.

Damaged cable. Damaged cable shall be removed from service until properly repaired or replaced.