

Section 5.2. Hot Works

5.2.1. General

5.2.1.1. Application

1) This Section applies to hot works involving open flames or producing heat or sparks, including but not limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, roofing operations, thermal spraying and thawing pipes.

2) Except as provided in this Section, hot works described in Sentence (1) shall conform to CSA W117.2, “Safety in Welding, Cutting and Allied Processes.”

5.2.1.2. Training

1) Hot works shall be performed only by personnel trained in the safe use of equipment in conformance with this Section.

5.2.2. Hot Work Equipment

5.2.2.1. Maintenance

1) Hot work equipment shall be maintained in good operating condition.

5.2.2.2. Inspection

1) Hot work equipment shall be examined for leakage or defects prior to each use.

2) Leaks or defects found in hot work equipment shall be repaired prior to use.

5.2.2.3. Equipment Not in Use

1) All valves shall be closed and gas lines bled when hot work equipment using *dangerous goods* classified as compressed gases is not in use.

2) Electric hot work equipment shall be de-energized when not in use.

5.2.2.4. Compressed Gas Equipment

1) The design and installation of oxygen-fuel gas equipment shall conform to NFPA 51, “Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes.”

2) Unalloyed copper piping shall not be used for acetylene gas.

3) Oil or grease shall not be used with equipment for oxygen.

4) *Cylinders of dangerous goods* classified as compressed gases shall conform to Part 3.

5.2.3. Prevention of Fires

5.2.3.1. Location of Operations

1) Except as provided in Sentence (2), hot work shall be carried out in an area free of combustible and flammable contents, with walls, ceilings and floors of *noncombustible construction* or lined with noncombustible materials.

2) When it is not practicable to undertake hot work in an area described in Sentence (1),

a) combustible and flammable materials within a 15 m distance from the hot work shall be protected against ignition in conformance with Article 5.2.3.2.,

b) a continuous fire watch shall be provided during the hot work and for a period of not less than 60 min after its completion in conformance with Article 5.2.3.3., and

- c) a final inspection of the hot work area and adjacent exposed areas shall be conducted
 - i) 4 h after completion of the work, or
 - ii) after completion of the fire watch required in Clause (b), in which case, a more comprehensive inspection shall be conducted (see Note A-5.2.3.1.(2)(c)(ii)).
- 3) When there is a possibility of sparks or open flames reaching combustible materials in areas adjacent to the area where hot work is carried out,
 - a) openings in walls, floors or ceilings shall be covered or closed to prevent the passage of sparks or open flames to such adjacent areas, or
 - b) Sentence (2) shall apply to such adjacent areas.

5.2.3.2. Protection of Combustible and Flammable Materials

- 1) Any combustible and flammable material, dust or residue shall be
 - a) removed from the area where hot work is carried out, or
 - b) *except as provided in Sentence (2)*, protected against ignition by the use of noncombustible materials.
- 2) Combustible materials or *building* surfaces that cannot be removed or protected against ignition as required in *Clause (1)(b)* shall be thoroughly wetted where hot work is carried out.
- 3) The fire watch described in Clauses 5.2.3.1.(2)(b) and (c) shall be carried out by more than one person if combustible materials are exposed to the hot work operations but cannot be directly observed by the initial person performing the fire watch.
- 4) Any process or activity that produces flammable gases or vapours, *combustible dusts* or *combustible fibres* in quantities sufficient to create a fire or explosion hazard shall be interrupted and the hazardous conditions shall be removed before any hot work is carried out.

5.2.3.3. Fire Watch

- 1) The exposed areas described in Sentences 5.2.3.1.(2) and (3) shall be continuously examined for ignition of combustible materials by personnel equipped with and trained in the use of fire extinguishing equipment. (See Note A-5.2.3.3.(1).)

5.2.3.4. Work on Containers, Equipment or Piping

- 1) Hot work shall not be performed on containers, equipment, or piping containing *flammable liquids*, *combustible liquids* or *dangerous goods* classified as flammable gases unless
 - a) they have been cleaned and tested with a gas detector to ascertain that they are free of explosive vapours, or
 - b) safety measures are taken in conformance with good engineering practice (see Note A-5.2.3.4.(1)(b)).
- 2) Hot work shall not be performed on a totally enclosed container.
- 3) Hot work shall not be performed on metal objects that are in contact with combustible materials unless safety precautions are taken to prevent their ignition by conduction.

5.2.3.5. Work Adjacent to Piping

- 1) When hot work is to be carried out near piping containing *dangerous goods* classified as flammable gases, the piping shall
 - a) conform to Sentence 5.2.3.4.(1), or
 - b) be protected by a thermal barrier against the passage of heat.

5.2.3.6. Fire Extinguishing Equipment

- 1) At least one portable fire extinguisher shall be provided in the hot work area.

5.2.3.7. Fire Safety Plan

- 1) In *buildings* or areas described in Article 2.8.1.1., the required fire safety plan shall include the safety measures described in this Subsection for the safe conducting of hot works.