

Section 13

WELDING, CUTTING AND SOLDERING

13.1 General Precautions

- (a) Local regulations or contract requirements may require a permit or license before using portable cutting or welding equipment.
- (b) Move combustible material to a safe area. If combustible material can't be moved, cover completely with fire-retardant material.
- (c) Provide a fire watch to make sure fires do not start. Have a fire extinguisher readily accessible where employees are working. Extinguishers shall be of ABC type, minimum 2A:20BC rating.
- (d) Never burn or weld over other workers.
- (e) After completing a burning or welding operation, monitor the scene of work for fires. Inspect adjacent areas as well.
- (f) Use only non-flammable PVC glue to bond in-ground PVC hydraulic jack liners to prevent explosion hazard resulting from welding or burning operations. **NEVER WELD OR BURN IN OR OVER AREAS WHERE FLAMMABLE AGENTS ARE PRESENT.**
- (g) Do not use cutting or welding equipment near flammable liquids. Do not cut or weld on closed tanks which have held flammable liquids or other combustibles.
- (h) Ensure there is sufficient ventilation to remove potentially toxic fumes in areas of concern.

- (i) Never use empty containers such as drums as a work station. They may contain potentially hazardous fumes. Consideration should be given for air monitoring by qualified personnel.
- (j) Keep cutting and welding equipment in good operating condition at all times. Equipment found to be defective shall be tagged immediately and returned to the shop for repair.
- (k) Operators shall never wear oil-stained clothing.
- (l) Always hold lighted acetylene and propane torches – do not lay them down or hang them on beams or planks. A safe area shall be selected for resting a live electrode holder before striking an arc.
- (m) Do not burn or weld in hoistways, where rails or other equipment are covered with oil or lint.
- (n) Assure proper ventilation is provided for gas welders.
- (o) Torch valves should be opened to vent pressure from the line and shut again.
- (p) Use proper eye protection when welding, cutting and chipping. Reference Personal Protection Equipment – see Section 3.
- (q) Wear a leather jacket or equivalent material to protect your skin from burns due to metal splatter and UV radiation.
- (r) Use welding gloves to protect your hands
- (s) Leather chaps are recommended to protect your legs and vital parts.
- (t) When welding and cutting be aware of other people in the area. Advise them to look away when welding.
- (u) Be aware of falling splatter, hot slag and sparks.

13.2 Acetylene, Oxygen and Other Pressurized Fuel Cylinders

Acetylene and oxygen cylinders are under high pressure and shall be handled with extreme care. Cylinders shall be kept in an upright position, either on a tank cart or tied to a vertical building member, such as a building column. Never lay cylinders down.

- (a) Valve handles or valve wrenches shall be retained in place while cylinders are in use.
- (b) Check all connections for leaks.
- (c) Keep hose in the clear so that it cannot be damaged.
- (d) Protect gauges and torches from damage.
- (e) Keep cylinders away from work areas so that sparks cannot reach them.
- (f) Oil and grease shall never be used on or around welding and cutting equipment.
- (g) The use of regulators and flash arrestors are mandatory.
- (h) Do not use oxygen to blow out or clean equipment.
- (i) Do not take cylinders into elevator pits; keep them in a well-ventilated area.
- (j) Do not lift cylinders by their protective caps.
- (k) Propane and butane are heavier than air, and highly explosive. Guard against leaks when using this equipment. Use only in well-ventilated areas. Unburned gas from even a small leak will settle in pockets such as elevator pits, stairwells or other areas.
- (l) Shut off valves and purge all hoses immediately after each use.
- (m) Cylinder caps shall be in place whenever cylinders are not in use, being moved, or while they are in storage.
- (n) Acetylene and oxygen cylinders can be temporarily kept in a hand cart if they were used in the current 24 hour period.

- (o) When not in use, oxygen and acetylene cylinders shall be stored at least 20 ft (6.1 m) apart, or separated by a one-half-hour (30-minute) rated fire-resistive wall or partition at least 5 ft (1.5 m) high, and shall be secured to prevent tipping.
- (p) Empty cylinders shall be marked "MT."
- (q) Cylinders shall never be stored in gang boxes.

13.3 Soldering

- (a) Solder containing lead shall not be used.
- (b) Be careful of splatter.
- (c) Burns from hot solder are painful and may lead to infection. Treat all burns immediately.
- (d) Wear a face shield, especially if you are soldering overhead. See Section 3.2.
- (e) Keep shirt collar buttoned.
- (f) Wear a long sleeve shirt and button the cuffs.