

it and the pressure reducer. There shall be no means of cutting off or bypassing this safety valve. Inspection and adequate maintenance of the vessel, including regular testing of the safety valve, are mandatory.

§ 50-204.122 Unfired pressure vessels.

(a) Air receivers shall be so installed that all drains, handholes, and manholes therein are easily accessible.

(b) Air receivers shall be supported with sufficient clearance to permit a complete external inspection and to avoid corrosion of external surfaces.

(c) Under no circumstances shall air receivers be buried underground or located in an inaccessible place.

(d) The receiver shall be located as close to the compressor or aftercooler as is possible to keep the discharge short.

(e) The receiver shall be located in a cool place to facilitate the condensation of moisture and oil vapors.

TOOLS AND EQUIPMENT

§ 50-204.127 Maintenance.

Each employer shall be responsible for the safe condition of the tools used by his employees, whether furnished by him or by them, and be sure that such tools are suited by safe design and construction for the work to be done.

§ 50-204.128 Portable electric power tools.

(a) Electric power tools showing worn, deteriorated or inadequate insulation, split or chipped plugs, worn or bent plugs, terminals, defective switch, shall be repaired.

(b) Portable electric power tools shall be effectively grounded to maintain at all times an effective ground on the non-current carrying parts of the tools.

§ 50-204.129 Portable pneumatic tools.

(a) The operating trigger on portable hand-operated pneumatic equipment shall be so located as to minimize the possibility of accidental operation and shall be arranged to close the air inlet valve automatically when the pressure of the operator's hand is removed.

(b) A tool retainer shall be installed on each piece of pneumatic equipment which, without such a retainer, may eject the tool.

(c) No tool change or work other than regular operations shall be made or done on any piece of portable hand-operated pneumatic equipment unless the stop valve in the air line supplying that equipment is closed.

§ 50-204.130 Cables, ropes, and chains.

(a) Chains, ropes, cables, hooks, rings, slings, and other devices and accessories used for hoisting and lifting shall not be subjected to greater working loads than recommended by their manufacturers. They shall be frequently inspected and shall be renewed when inspection reveals unsafe conditions.

(b) Bolts or nails shall not be used to connect, splice, or shorten chains. Knots shall not be tied in the chain.

(c) A hoist cable shall be considered unsafe and shall be replaced when upon inspection 10 percent or more of the total number of wires are broken in a length

equal to eight diameters of the cable, or when the wires on the crown of the strand are worn down to less than 80 percent of their original diameter.

(d) Crane hoist cable shall be lubricated and inspected at frequent intervals.

VENTILATION AND PROTECTION IN WELDING AND CUTTING

§ 50-204.135 Welding and cutting in confined spaces.

For the purpose of this section a confined space shall mean:

(a) A space of less than 10,000 cubic feet per welder, or

(b) A space having an overhead height of less than 18 feet, or

(c) A space in which there are structural barriers to the extent that they significantly obstruct cross ventilation.

§ 50-204.136 Ventilation in confined spaces.

All welding and cutting operations carried on in confined spaces shall be adequately mechanically ventilated to prevent the accumulation of toxic gases or possible oxygen deficiency or air supplied respirators approved by the U.S. Bureau of Mines shall be provided to the welder and all other personnel in the immediate vicinity.

§ 50-204.137 Mechanical ventilation.

Mechanical ventilation shall consist of either general ventilation systems or local exhaust systems.

(a) General ventilation shall be at the minimum rate of 2,000 cubic feet per minute per welder.

(b) Local exhaust shall consist of freely movable hoods intended to be placed by the welder as near as practicable to the work being welded and provided with a rate of air flow sufficient to maintain a velocity in the direction of the hood of 100 linear feet per minute in the zone of welding when the hood is at its most remote distance from the point of welding.

§ 50-204.138 Welding and cutting involving metals of toxic significance.

(a) Welding and cutting involving the following metals whether or not in confined spaces or in other enclosed spaces shall be done in accordance with the provisions of sections 204.136 and 204.137.

(1) Zinc-bearing base of filler metals or metals coated with zinc-bearing materials.

(2) Lead base metals.

(3) Cadmium-bearing filler materials.

(b) Welding or cutting involving the following metals in confined spaces shall be done using local exhaust ventilation or air-line respirators approved by the U.S. Bureau of Mines.

(1) Metals containing lead, other than as an impurity, or metals coated with lead-bearing materials, including paint.

(2) Cadmium-bearing or cadmium-coated base metals.

(3) Metals coated with mercury-bearing metals, including paint.

(4) Beryllium-containing base or filler metals. Because of its high toxicity, work involving beryllium shall be done with both local exhaust ventilation and air-line respirators.

§ 50-204.139 Protection to other employees.

In all cases employees in the immediate vicinity of welding operations shall be protected in accordance with sections 50-204.269 and 50-204.298.

§ 50-204.140 Inert-gas metal-arc welding.

Since the inert-gas metal-arc welding process involves the production of ultraviolet radiation of intensities five to thirty times that produced during shielded metal-arc welding, the decomposition of chlorinated solvents by ultraviolet rays, and the liberation of toxic fumes and gases, employees shall not be permitted to engage in, or be exposed to the process unless:

(a) The use of chlorinated solvents is kept at least 200 feet from the exposed arc; surfaces prepared with chlorinated solvents are thoroughly dry before welding is permitted on such surface.

(b) Shaded goggles with side shields are worn by helpers and others in the area not protected from the arc by screening.

(c) Protective clothing is worn by welders and others within the area exposed to radiation so that the skin is covered completely to prevent burns and other damage by ultraviolet rays; shirts worn are dark in color to reduce reflection to the face from underneath the helmet; exposed cotton clothing is covered since it disintegrates rapidly when exposed to high intensities of ultraviolet rays; welding helmets and hand shields are free of leaks and openings, and free of highly reflective surfaces.

(d) Local exhaust ventilation or supplied air respirators are provided in all cases when doing inert-gas metal-arc welding of stainless steel to protect against dangerous concentrations of nitrogen dioxide.

§ 50-204.141 General welding and cutting.

Welding and cutting not involving conditions or materials described in sections 50-204.135 and 50-204.138 may normally be done without special precautions, but where, because of unusual physical or atmospheric conditions, a harmful accumulation of contaminants would exist, mechanical ventilation or suitable respiratory protective equipment shall be provided.

ELECTRICAL INSTALLATION AND EQUIPMENT

§ 50-204.148 Electrical installation and equipment.

Electrical conductors and equipment installed within or on buildings and other premises and the conductors that connect the installation to a supply of electricity and other outside conductors adjacent to the premises shall conform to the minimum requirements of the National Electrical Code, 1959 Edition, National Fire Protection Association.

MECHANICAL POWER TRANSMISSION APPARATUS

§ 50-204.153 Flywheels.

Flywheels located so that any part is 7 feet or less above floor or platform shall be guarded in one of the following ways: