

## WELDING, CUTTING, AND HEATING

### A. General

1. Welding and cutting will be performed only by experienced and properly trained persons.
2. Before beginning work, the work area must be inspected for fire hazards.
  - a. Make sure area is free of flammable paint fumes (i.e. paint operations) any other flammable dusts or compounds that could create a fire hazard.
  - b. Sweep floor of any flammable/combustible materials for a radius of 35 feet from welding/cutting operations.
  - c. Any combustible materials that cannot be removed from the area shall be shielded with shields made from non combustible materials.
  - d. Screens, shields or other safeguards should be such that other employees in the area are protected from sparks and arc rays.
  - e. A fire watch person must be posted whenever combustible materials cannot be adequately shielded. Fire watch must continue at least ½ hour after work ceases.
  - f. Make sure appropriate fire protection is in place. Make sure the ABC fire extinguisher is nearby and fully charged.

**Note: When working inside IBM buildings a CO2 extinguisher will be used.**

3. Protective clothing and equipment varies with the size, nature, and location of the work.
  - a. Flame resistant gauntlet gloves should be worn except where the welder is engaged in light work.
  - b. Clothing should be free of oil and grease.
  - c. Flame resistant aprons of leather or other suitable material should be used as protection against heat and sparks.
  - d. Collars and shirt cuffs should be buttoned. Pant cuffs should be turned inside. Pockets should be eliminated from welders vest and shirts and aprons.
  - e. Full length pants will be worn.
  - f. Low cut shoes with unprotected tops will not be permitted.
  - g. Fire resistant capes or should covers should be used for overhead work. Use ear protection and head protection whenever working overhead.
  - h. Welders helmets and face shields with appropriately shaded lenses will be used for all welding operations.
  - i. Safety glasses/goggles will be worn during all chipping, grinding, and cleaning operations.
  - j. Adequate ventilation or approved respiratory equipment must be used while welding in confined spaces or while brazing, cutting or welding zinc, brass, bronze, stainless steel, or galvanized or lead coated material.
  - k. Proper respiratory protection will be used whenever welding or cutting cadmium bearing metals. For indoors or confined spaces use local exhaust ventilation or an airline respirator, for outdoor use and approved fume respirator.

B. Arc Welding

1. Make sure electric welding machines are properly grounded.
2. All arc welding cable shall be fully insulated.
3. There shall be no repairs or splices in the cables within 10 feet of the electrode holder, except where splices are insulated equal to the insulation of the cable.
4. When electrode holders are left unattended electrodes will be removed and holder will be placed or protected so they cannot make electrical contact.
5. Place shields appropriately so other persons are protected from looking at arc rays.
6. Never look at arc's without proper shaded lenses. Avoid flash while striking the electrode to get started.

C. Gas Welding and Cutting

1. Inspect all equipment before beginning gas operations.
  - a. Inspect hoses to ensure they are in good condition. Welding hoses will not be repaired with tape. Faulty/leaking hoses must be replaced before work begins.
  - b. Make sure approved anti back-flow valves are present in both gas and oxygen lines.
  - c. Fuel gas and oxygen hoses must be easily distinguishable and not interchangeable.
  - d. If portable tanks are used, make sure they are adequately secured in the upright position. (Refer to compressed gas cylinders section for further information.)
  - e. Follow all rules set forth in the General Section A. before beginning.
  - f. Be careful what you are heating. Any lines or flammable storage tanks must be adequately purged and ventilated before work begins.