

Important Things For You to Remember About ...

Welding, Cutting and Brazing

- Only trained and authorized personnel are allowed to weld, cut or braze in areas designated for hot work
- When welding and cutting are performed outside of designated locations, a Hot Work Permit must be issued
- The welder is responsible for the safety of other personnel and material in the area



Fire protection considerations

- Perform welding, cutting and brazing only in designated areas designed for hot work
- Take note of the dry chemical fire extinguisher mounted in your work area
- Keep combustible materials at least 35 feet from hot work areas, or erect a fire-proof barrier
- Hot work is not allowed in any area where there is any detectable flammable vapor or gas; a reading of 0% lower explosive limit (LEL) on the meter is required
- Hot work is not permitted on drums, tanks or other closed and semi-closed containers until the container is emptied, cleaned and purged of all possible flammable residue, vapor or gas; closed containers (pipes, tanks, etc.) must be vented prior to welding or cutting
- Areas where hot work has taken place must have a fire watch in attendance during and for at least 30 minutes after the conclusion of the hot work, except in designated welding areas

Ventilation considerations

- Mechanical ventilation is provided if cadmium, lead, beryllium or other acutely toxic metals or fluxes are used
- When performing welding in temporary areas that have limited natural ventilation, mechanical ventilation may be needed
- Oxygen should never be used to provide ventilation

Oxygen-fuel gas safety

- All gas cylinders must be labeled with the contents and hazards of the gas contained
- Never allow cylinders to stand unsupported; they must be secured by chain, held in a cradle or cylinder cart, etc.

Transporting cylinders

- Use a cradle, hand truck or other device designed for cylinders; never use slings or electromagnets to move cylinders
- Never lift a cylinder by its valve cap
- The valve cap must always be installed unless cylinders are transported on a torch cart

Storage considerations

Cylinders:

- Store cylinders away from heat sources
- In buildings, stored cylinders in well protected, well ventilated and dry locations at least 20 feet from highly-combustible material, such as paper, cardboard, or flammable/combustible liquids
- Do not store cylinders in unventilated areas
- Empty cylinders must have valves closed tightly
- Fuel gas cylinders stored in buildings are limited to a total of 2,000 cubic feet (gas) or 300 lbs (liquid) unless a special storage room is provided
- Store acetylene cylinders with the valve end up at all times

Oxygen Cylinders:

- Will not be stored near highly combustible materials including oil and grease

- Oxygen cylinders in storage must be separated from fuel gas cylinders by a minimum distance of 20 feet
- Gages used in oxygen service will be marked as "Use No Oil"

Fuel Gas Cylinders:

- Always place cylinder with the valve end up
- Never position LPG cylinders upside down on the protective ring
- Open Acetylene valves ¾ to 1½ turn only

Torches, Regulators and Hoses:

- Inspect prior to each use; defective or damaged equipment will not be used in our facility.
- Equipment must be approved for the gas service in which it is used
- Store equipment where it is protected from damage
- Always use backflow prevention to prevent accidental mixing of gas

Operation

- Route hoses to prevent the potential for trip and fall accidents to the extent possible
- Keep cylinder valves and fittings clear of accumulations of dirt, oil, grease and other contaminants
- Cylinders not equipped with a permanent valve hand wheel must have the valve wrench or key on the valve when in use
- Open and close valves slowly
- Handle cylinders carefully to prevent damage
- Cylinder valves will be cracked and immediately closed while the operator stands to the side. Conduct this procedure well away from ignition sources.
- Cylinders will not be used as rollers
- If a cylinder valve can not be opened by hand, do not use a tool to beat on or force the valve
- Position cylinders far enough away from the work so that they are not exposed to radiant heat, flames, sparks or slag
- Never mix gasses in cylinders or tamper with cylinder safety devices
- If a cylinder is found leaking, remove it to a safe outside location and notify your supervisor
- Hoses must be bled, and torch and cylinder valves closed whenever cutting or welding operations are suspended for a significant period of time, such as during lunch or over night
- Air or oxygen will not be mixed with fuel gas prior to the torch or burner

Arc welding

- Follow manufacturer's installation and use requirements for all equipment
- Voltage Limits:
- Alternating current manual arc welding and cutting: 80 volts
- Alternating current automatic arc welding and cutting: 100 volts
- Direct current manual and automatic welding and cutting: 100 volts
- When processes require high voltages, take precautions to prevent accidental contact by personnel
- All energized parts of welders must be enclosed or insulated
- Watch out for excess moisture, which can contribute to shocks
- Do not use electrical conduit as a ground; use a known earth ground path, as close as possible to the welding location

Operation:

- Route cables to reduce the potential for trip and fall accidents to the extent possible
- Prior to use, inspect all equipment including all connections on the welding machine; do not use damaged or defective equipment
- Do not use cables with damaged insulation or bare conductors; cable splices are not allowed within 10 feet of the electrode holder
- The cable will not be coiled or looped the cable around any part of her/his body
- Spread cables out prior to welding to prevent them from overheating
- When not in use, remove the electrode from the holder and place it where it will not make accidental contact with people or equipment

Personnel protective equipment

- Follow our company policy regarding the use of flame retardant garments
- You are encouraged to wear natural fiber clothing with long sleeved shirts to protect against the harmful effects of weld rays
- Helmets or hand shields will be used for all arc welding
- Goggles, with or without a face shield, or other suitable eye protection are required for gas welding or cutting, and for brazing operations