

Welding and cutting steel

COMPANY

PROJECT / LOCATION

DATE

PREPARED BY

Arc weld and oxy-fuel cut steel on construction sites, from equipment setup and fire prevention to shutdown and storage. Confined space entry procedures are not covered here.

Protective equipment

- Welding helmet with a filter lens suited to the arc welding task.
- Cutting goggles with filter lenses suited to oxy-fuel cutting.
- Safety glasses with side shields under the helmet or goggles.
- Leather welding gloves.
- Flame-resistant long sleeves and pants without exposed cuffs that can catch sparks.
- Leather work boots that keep sparks out.

Before you start

- Confirm that workers have been instructed in safe fuel-gas use and arc welding, including cylinder valves, regulators, and electrical hazards.
- Inspect gas hoses at the start of each shift and remove defective hoses from service. Check welding cable insulation, and check that all ground connections are mechanically strong and electrically adequate.
- Follow the site fire protection program and have firefighting equipment in place before work begins. Provide a fire extinguisher rated at least 10B within 50 feet wherever more than 5 pounds of flammable gas are being used.
- When normal fire precautions are not enough, assign a fire watch and instruct that person on the expected fire hazards and how to use the firefighting equipment.
- Check what the steel or container has held; do not work on containers or hollow structures that held toxic or flammable substances until they are filled with water or thoroughly cleaned, ventilated, and tested.

#	JOB STEP	HAZARDS	CONTROLS
1	Prepare the steel and work area.	Sparks and hot slag can ignite nearby materials or flammable vapors. Steel can shift or fall as a cut separates it, crushing hands or feet.	- Remove combustible materials from the path of sparks and slag. - Do not weld or cut where flammable paints, other flammable compounds, or heavy dust concentrations create a hazard. - Keep the fire extinguisher ready and accessible. - Support and secure the steel and the piece being cut off. - Keep people out of the path of falling cut pieces.

3 Connect the torch and arc welder.

Flame or hot slag can heat cylinders and cause a fire or gas release.

- Before connecting the regulator, crack the valve (open it slightly and close it right away) to clear dirt. Do it only where the gas cannot reach welding work, sparks, flame, or other ignition sources.
- Stand to the side of the valve outlet, not in front of it.
- Use fuel gas through the torch only with a suitable regulator on the cylinder valve to reduce the pressure.
- Use electrode holders made for arc welding and rated for the current, and fully insulated, flexible cables rated for the welding current and duty cycle.
- Use a ground return cable rated for at least the welder's maximum output, and check that connections are mechanically strong and electrically adequate.
- Never use pipelines carrying gas or flammable liquids, or conduit carrying electrical circuits, as the welding ground return.

3 Connect the torch and arc welder.

Sparks can start a hidden fire while the crew concentrates on welding or cutting.

- Before connecting the regulator, crack the valve (open it slightly and close it right away) to clear dirt. Do it only where the gas cannot reach welding work, sparks, flame, or other ignition sources.
- Stand to the side of the valve outlet, not in front of it.
- Use fuel gas through the torch only with a suitable regulator on the cylinder valve to reduce the pressure.
- Use electrode holders made for arc welding and rated for the current, and fully insulated, flexible cables rated for the welding current and duty cycle.
- Use a ground return cable rated for at least the welder's maximum output, and check that connections are mechanically strong and electrically adequate.
- Never use pipelines carrying gas or flammable liquids, or conduit carrying electrical circuits, as the welding ground return.

	Cooling a hot electrode holder in water can cause electric shock.	- Never dip a hot electrode holder in water. - Let a hot holder cool in the air, on a dry surface away from water.
5 Shut down and check for fire.	Gas leaking from torch valves that leak or are not fully closed can build up in an enclosed space and catch fire. Smoldering material can ignite after welding and cutting stop.	- Close cylinder valves when work is finished. - Shut off the torch gas supply at a point outside the enclosed space whenever the torch is not in use or is left unattended for a long time, such as during lunch. - Remove the torch and hoses from the enclosed space overnight and at shift changes. Remove open-ended hoses right away when they are disconnected from the torch. - Check the work area and places reached by sparks for heat, smoke, or smoldering material. - When a fire watch is assigned, keep that person on watch after work until there is no possibility of fire.
6 Clear scrap and store equipment.	Hot steel and sharp cut edges can burn or cut hands during cleanup. Cylinders stored badly can be knocked over, damaged, or feed a fire.	- Let steel cool before moving scrap. - Use suitable handling tools and gloves to keep hands away from sharp edges. - Store cylinders secured upright with valves closed and valve caps in place and secured. - Separate stored oxygen cylinders from fuel-gas cylinders and combustible materials, especially oil or grease, by at least 20 feet or by a noncombustible barrier at least 5 feet high with a fire-resistance rating of at least one-half hour. - Inside buildings, store cylinders in a well-protected, well-ventilated, dry place at least 20 feet from highly combustible materials such as oil. Never keep them in lockers or cupboards. - Pick a storage spot away from elevators, stairs, and walkways, where cylinders cannot be knocked over, hit by falling objects, or tampered with.

Stop work and call the supervisor if

- Stop and call the supervisor if a hose leaks, a cylinder valve is damaged, or welding insulation or ground connections are defective.
- Stop and call the supervisor if flammable vapors, hazardous dust concentrations, or unknown container contents are present.
- Stop and call the supervisor if firefighting equipment or a required fire watch is missing, or sparks reach unprotected combustibles or cylinders.
- Stop and call the supervisor if steel supports shift or cut pieces cannot be kept from falling onto people.

Sources: 29 CFR 1926.350, Gas welding and cutting; 29 CFR 1926.351, Arc welding and cutting; 29 CFR 1926.352, Fire prevention; 29 CFR 1926.150, Fire protection

Drafted with AI for review by a competent person. Clever Rook writes from the official regulation text it cites, but it doesn't know your site. Check it against your conditions and your company's safety program before use.
Not legal advice.

Welding and cutting steel

COMPANY

PROJECT

DATE

REVIEWED BY (COMPETENT PERSON)

REVIEW DATE

#	NAME (PRINT)	SIGNATURE	COMPANY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			