

It may surprise you to learn that welding impacts an estimated 50 percent of the U.S. gross national product. It is used to produce many products and structures, including skyscrapers, cars, rockets and cruise ships. No matter the task, simple or complex, welders need only three things to do their job: a welding rig, material to weld and safety equipment.

Safety precautions are extremely important because of the risks and hazards associated with welding. By heeding precautions, welders can greatly reduce their chances of injury.

Before Welding Begins

Inspect all welding equipment before each use. Cables should be in good condition. To avoid electrical shock, cables should not be used if they are bare, damaged or cracked. Ideally, you should move combustible materials at least 35 feet away from the work area. If that's not possible, combustibles should be protected with flameproof covers or guards. An appropriately sized ABC fire extinguisher should be easily accessible, and a hot work permit should be obtained if welding is not being done in a previously-approved area, such as a welding station. If a hot work permit is necessary, the welding area should be under a fire watch for at least 30 minutes after the completion of the hot work.

Personal Protection

- **Fume Inhalation** – Use local exhaust ventilation whenever possible. If good ventilation is available, respiratory protective equipment may not be needed. A welder can also help control his/her exposure to welding fumes by working in an approved welding area and by controlling the positioning and rate of the weld.
- **Eye Injuries** – Protect eyes from flying debris, optical radiation (ultraviolet and infrared), hot metal slag burns, and fume, vapor and chemical exposures by wearing ANSI-approved safety glasses and a welding helmet with a tinted lens rated at least #6 (the higher the number, the darker the lens).



- **Bodily Injuries** – Protect the entire body from flying molten metal/sparks by wearing heavy-duty leather gloves, hats, aprons and long-sleeved jackets and pants over cotton clothing. Synthetic or synthetic-blend clothing should not be worn because it can melt and burn skin when it comes into contact with hot sparks. Wear protective leather shoes or boots with steel toes and metatarsal supports, which help protect the foot from dropped items.
- **Noise** – Some welding equipment can emit high-frequency noise or use high-frequency AC current, which may affect pacemakers. Bystanders should stay at least three feet away from the welding operation. Wearing hearing protection is also strongly advised.

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- **Ergonomic Risks** – Welding can involve precise work in awkward, confined or tight locations. This poses the risk of musculoskeletal disorders, mainly to the back, neck and shoulders. Your workplace should focus on reducing or eliminating forceful exertion and awkward postures while welding.

Other Safety Measures

- **Jewelry** – Do not wear rings or other jewelry while welding.
- **Tanks** – If inert gas is being used in the welding process, be sure to store cylinders in a vertical position and secure them from tipping.

Welding requires strict adherence to safety measures to reduce the likelihood of accidents and injuries, and

can be performed safely if workers are careful and vigilant about safeguards.

For Additional Information

American Welding Society: www.aws.org

Occupational Safety & Health Administration:
www.osha.gov

- 1910.254: Welding, Cutting, and Brazing – Arc Welding and Cutting

Canadian Centre for Occupational Health and Safety: www.ccohs.ca

- OSH Answers – Welding

EMC Insurance Companies: www.emcins.com

- Tech Sheets – Hot Work Permits, Personal Protective Equipment for Welding, Protecting Against Cutting and Welding Fires