

Welding Permits & PPE

- **JHA** - completed and signed by all workers
- **Hot Work Permit** - completed and signed by workers and contractors & states the persons responsible for fire watch
- **Fire Watch** - must understand the job, have fire extinguisher present & know the location of the nearest fire alarm pull handle
- **Welding Hood** - minimum level 10 shade per ANSI
- **Full Length Sleeves**
- **Appropriate Gloves**
- **NO** High Visibility Vest or any materials that could easily catch fire
- **REMOVE** all combustibles

DID YOU KNOW ?

Everyone knows that electricity and water can be a deadly combination. Human skin, when dry, offers a resistance level of approximately 100K ohms. However, skin that is wet or broken, offers as little as 500 ohms of resistance. That's a decrease of 99.5%!

The reason normal water conducts electricity so well is due to all of the dissolved minerals, and therefore charged ions in the water. These particles are allow electricity to flow so freely. Pure water is actually a very poor conductor.

9-30 mA

Amps at which the body can't let go (involuntary contraction)



Short Circuited

The How & Why of Welding Related Shocks.

Most anyone that has been around welding has a story about getting shocked. Mine involves an enclosed chute that had water puddling in it. The guy welding dropped his stinger and zapped all four of us.

However, other than knowing that water conducts electricity very well, and that electricity isn't good for the human body, do you know what is actually happening in the event of a shock?

Electricity will always follow the path of least resistance back to its source, or to ground.

So, the current comes out of the welder, goes to your electrode, crosses the air gap (don't look at the arc!), through the metal being welded, through the ground clamp and back to the welder. If you have everything set up correctly, your ground clamp near your work, and are dry, there is an almost negligible amount of shock hazard. The danger in welding occurs when your body becomes part of the path of least resistance for the current to get back to ground.

This happens easily when you are wet, or make contact without proper insulation between you and the work piece.

When you're shocked, the electrons in your body move in ways they weren't meant to, creating a current. As this current travels through your body, it creates heat which can cause damage to your tissues (burns). But, our bodies also produce their own electrical signals in order to function. For instance, the signals that tell your heart to beat (your brain runs entirely on electrical impulses). When shocked, a current can travel through your heart, essentially throwing off the electrical signals that tell your heart when to beat. This is often why cardiac arrest is associated with electrical shock. Electricity changes the rhythm of the heart; either for good, such as an AED, or bad, shorting out the heart's own electrical impulses.

Always follow the safety procedures for welding. Stay dry, and stay out of the path of least resistance.

Remember, a welding electrode is always "electrically hot" when the welder is on – treat it with respect. If you do experience a shock, think of it as a warning – check your equipment, work habits and work area to see what is wrong before continuing to weld.

**Contact Safe Workforce today
for your safety and training needs!**