Tailgate Safety Talks

ARC Welding

This Tailgate Safety Meeting will discuss the hazards that welders encounter on our projects. This hazard also applies to inspectors, construction workers and the public.

Arc Welding

Flash Burns

The most common injuries due to welding are flash burns, caused by the ultraviolet light produced by the arc. A flash burn is like sunburn of the outer surface of the eye. You do NOT have to be looking at the arc to get flash burns. If the UV light can reach your eye, even from the side, you will get burned; it often happens to people working near the welder. You do NOT need dark glasses to prevent flash burns! Clear polycarbonate safety glasses with side shields will stop all ultraviolet light. Anyone within 20 feet of a welding arc should be wearing safety glasses or shielded by an opaque barrier. Remember, it's not whether you can see the arc - it's whether the arc can see you!

Retinal Burns

The arc also produces intense visible light and heat, which is focused on the back of the eye by the lens and can cause blindness in someone staring directly at the arc. That's why the welder needs a hood with a dark lens. Unfortunately that can make it hard to see what you're doing, so people tend to "cheat", lifting up the hood while striking the arc, resulting in flash burns and occasionally pieces of slag in their eyes. The best solution is the electrically tinted hood lens, but if you don't have one available use a lens dark enough to reduce the arc to a comfortable brightness and use a bright light to illuminate the work area so you can see it through the lens. If you cheat, you'll eventually get burned!

Dangers Associated with Arc Welding Equipment

Do you know the dangers associated with arc welding equipment and how to identify hazards related to your operation?

Arc welding equipment may not be designed to operate safely in damp, rainy and windy weather, or in the presence of flammable vapors or gasses, corrosive fumes, dirt, or dust.

Wet equipment or wet welders can spell disaster. Wet equipment should be dried off, but only AFTER the power source has been disconnected. Before using welding cables, check the insulation and lead cables for exposed conductors.
Replace all welding leads spliced within 10 feet of the holder. To reduce the chance of shock, check the electrode holders for loose or exposed connections. If metal-inert-gas welding is used, examine the gas hose for leaks. Never coil or loop electrode cable around any part of your body.

Be sure the welding machine frame is properly grounded, and double-check the grounding connections. Never use pipelines carrying gases or flammable liquids or conduits carrying electrical conductors as grounds. Don’t ground to a building structure that is a great distance from the weld. NEVER weld on a load suspended from a crane or hoist if the wire rope or hoist chain can become a path for even part of the current flowing from the arc back to the welder; the current will heat the rope or chain and seriously weaken it without leaving visible damage. It may break under load years later, perhaps with fatal results. If you must weld a suspended work piece run grounding cables from the work pieces on both sides of the weld to the same ground as the welder and use a nonconductive sling rated for the load.

Wet floors are dangerous and can cause electrical shock. Make sure the insulation is sufficient on higher open-circuit voltage. If you are AC welding under wet conditions, including perspiration, be sure to have an automatic control to reduce the no-load voltage; this prevents electrical shock.

Do not change the polarity switch when your machine is under load. Arcing because of high current can burn the switch contact surface and can seriously burn you. Make sure there is a power disconnect switch on the welding machine; this switch shuts down the machine immediately in an emergency.

Electrode holders should be stored where they cannot make contact with personnel, conductors, fuels or compressed gas tanks. If you are not going to be welding for a few minutes, disconnect the power source and remove the electrodes.

Sources of ignition, such as arc welding, must be greater than 50 feet from flammable liquids, unless conditions warrant greater clearance. Never strike an arc on a gas cylinder. Always keep electrodes and their holders and any other live parts away from gas cylinders.