TITLE: 4760 CREATING SAFETY IN WELDING OPERATIONS (Concise)

LENGTH: 10 MINUTES **PRODUCTION YEAR: 2015**

PROGRAM SYNOPSIS:
Welders take pride in their work; after all, their welds are visible for all to see. To avoid injury, welders must also take pride in their safety and make sure safety is also visible for all to see. Every day, welders are confronted with many hazards that can cause serious injury and property damage. Hot metal, intense light, noxious fumes and heavy equipment are only a few potential dangers these employees can encounter. It is imperative that workers who weld be able to recognize all the hazards of their jobs and know how to control or eliminate them. In this program, welders are provided an overview of safety issues related to welding operations and what actions they must take to avoid injury to themselves and their co-workers.

Topics include safe work practices, fire prevention, permits, housekeeping, ventilation and working in close proximity to other welders.

PROGRAM OBJECTIVES: After watching the program, the participant should be able to explain the following
- How to prevent fires when conducting welding operations;
- What personal protective equipment and protective clothing should be worn by welders;
- How ventilation is used to help welders avoid breathing in unhealthy fumes and gases;
- How to protect co-workers from injury while welding.

PROGRAM OUTLINE

PREVENTING FIRES DURING HOT WORK OPERATIONS

- Many facilities have a permanent location known as a designated hot work area where welding can be safely conducted without any special precautions; however, many maintenance and other welding jobs must be performed on objects that must be left in place outside the designated area.
- If this is the case, a hot work permit will be required. The permit will outline the special precautions that must be taken to ensure the operation is conducted safely.
- The person issuing the permit must verify the conditions listed on it have been achieved before allowing work to begin.
- Some of the precautions that must be taken prior to a hot work operation include sweeping up ignitable debris within a 35-foot radius of the worksite, wetting down the floor or covering it in sand or with fire-resistant blankets if the floor is made of ignitable material, removing all materials within a 35 foot-radius that could ignite and shielding or covering ignitable items that cannot be moved with approved welding curtains, pads or blankets.
- Fully charged and operable fire extinguishers rated for the class of any potential fire must also be readily available.
- If anything more than a minor fire could develop or there is an abundance of combustible material in the 35-foot zone, a fire watch is required. This person is responsible for making sure the work area is maintained in a fire safe condition throughout and after the operation and may stop the hot work if unsafe conditions are observed.
- The fire watch should remain for 30 minutes after the hot work is completed.

PERSONAL PROTECTIVE EQUIPMENT & CLOTHING

Clothing

- Another category of precautions that must be taken before welding is donning your personal protective equipment and appropriate clothing.
- This is perhaps the most important measure you must take prior to beginning work because your personal protective equipment and clothing is your last line of defense against injury. At a bare minimum, welders should wear 100 percent cotton shirts and denim jeans that can be protected with fire-resistant welding jackets, aprons and leggings.

Footwear

- High-top leather safety boots offer the best foot protection while welding. Pants should be pulled over the top of the boot.
- For welders who have to place their bodies in positions where the tops of their boot may catch sparks, spatter guards, commonly called spats, may be worn to protect the instep and the ankle.

Gloves

- There are many types of welding gloves available.
- Be sure to choose a glove that is suitable for your type of welding, fits comfortably and allows ample movement of your hands and fingers.
- Keep in mind that extremely hot materials will burn through welding gloves no matter which ones you choose. These items should be handled with specially designed holders or clamps.

Head & Eye Protection

- Protecting your head and eyes is of utmost importance while welding.
- First, always wear safety glasses with side shields, even under your welding helmet. Safety glasses which protect against infrared radiation or "IR glasses" are recommended because they will help shield your eyes from the radiant light from other welding operations when your welding hood is up. IR glasses come in a variety of shades.
- Before welding, long hair should be secured and jewelry should be removed.
- Putting on a welding bandana or cap under your helmet can help protect the top of your head from sparks. This is especially important when welding overhead.
- Keep in mind that your welding helmet must be worn anytime your eyes are exposed to a welding arc to prevent arc eye, also known as a flash burn. Repeatedly staring at an ultraviolet light with unshielded eyes has a cumulative effect.
- Do not look directly at a welding arc, even from across the room.
- If you use a standard fixed shade helmet, choose one that has a lens shade appropriate for your welding application.
- A good rule of thumb is to select the darkest shade that still allows you to view the work clearly while welding.
- Many workers are now choosing to use auto-darkening helmets.
- Most models have adjustable sensitivity and delays for adjusting responsiveness. It's a good practice to turn on your shield and hold it up to a light before each use to make sure it is working properly.
- Make sure you read, understand and follow all of the manufacturer's instructions for your welding helmet and auto darkening lens.

GOOD HOUSEKEEPING

- Another critical safe work practice for welders is good housekeeping. Good housekeeping not only helps prevent injury, but also makes the work easier and more efficient.
- Make sure you only have the number of cables and hoses you need in the work area and arrange them so that they aren't a tripping hazard. Neatly wind up excess hose to prevent kinks and tangles.
- Clear excess materials and debris from the work area as soon as possible.
- Keep in mind that part of good housekeeping is returning supplies and equipment to their proper storage area when the job is complete.

VENTILATION

- In addition to fire prevention, proper personal protection and housekeeping, there is another concern that welders must address before they begin their work and that is ventilation. You must make sure you have adequate ventilation for every welding task.
- Ventilation refers to the altering of the air in the room when necessary to prevent welders from breathing unhealthy levels of airborne contaminants in the form of fumes and gases.
- Proper ventilation is generally achieved either through natural ventilation or mechanical ventilation.
- Should any of these requirements not be met, mechanical ventilation must be used.
- When air sampling indicates that levels of air contaminants cannot be lowered through ventilation below the exposure limits set by OSHA and other safety authorities, your organization must establish and maintain a respiratory protection program.

WORKING IN CLOSE PROXIMITY TO OTHERS

- While welders face many hazards that can cause severe injuries, their co-workers are often the victims of these hazards.
- Welding screens and curtains should be used to shield co-workers who must work close by from harmful light and sparks.
- Before cutting and grinding, look around and make sure no one is in the area where your sparks will fly.
- When working in tight quarters, work and move a little slower than normal. Allow an extra moment to look before making a sudden movement, extending the welder or pulling a hose.
- When an abnormal condition develops, be sure to alert nearby co-workers, especially if it means you will have to deviate from the normal routine.
- Always maintain awareness and control of the welding handle and trigger. After welding, place the welding handle in a place it won't be contacted by others.

GENERAL WELDING SAFETY TIPS

- Before using the welding machine, make sure it is properly grounded and in good working order.
- Check for damaged insulation or bare conductors on all electric cables. Should you find any defective cables, replace them.
- The compressed gas cylinders used with welding and cutting operations also present hazards. Always follow your organization's policies for transporting, securing and storing fuel cylinders. For example, cylinders should have the safety caps in place and be securely chained during transport.