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# **Tool Box Safety Talk # 38 09-15-2024.**

**Topic:** **Welding, Cutting and Hot Work**

Welding and Hot Work, such as brazing or grinding present a significant opportunity for fire and injury. All precautions of this program must be applied prior to commencing any welding or hot work by company employees or contractors. Hot work presents an increased risk of fire and explosion hazards because it is most often performed in confined and enclosed spaces. Reference: OSHA 29 CFR 1910.252

Hot Work Permits:

Before hot work operations begin in a non-designated location, a completed hot work permit is required. The following conditions must be confirmed before permitting the hot work to commence:

* Equipment to be used (e.g. welding equipment, shields, personal protective equipment, fire extinguishers) must be in satisfactory operating condition and in good repair.
* The floor must be swept clean for a radius of 35 ft if combustible materials, such as paper or wood shavings are on the floor
* Combustible floors (except wood on concrete) must be kept wet or be covered with damp sand (note: where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock)., or be protected by noncombustible or fire-retardant shields.
* All combustible materials must be moved at least 35 ft away from the hot work operation. If relocation is impractical, combustibles must be protected with fire-retardant covers, shields or curtains.
* Edges of covers at the floor must be tight to prevent sparks from going under them, including where several covers overlap when protecting a large pile.

OSHA has very specific regulations covering welding, brazing and cutting operations. Ventilation requirements depend on the metals and compounds used. Welding & cutting operations, conducted outside authorized hot work areas, includes extensive procedures for fire prevention.

Welding Hazards:

* burns & fire
* impact
* penetration
* dust, smoke & fumes
* heat
* light radiation
* asphyxiation

Types of Welding & Cutting:

Arc Welding is the process of using an electric current between a metal electrode and base metal. The generated heat melts the metal of the electrode and base metal which combine and then solidify in the weld joint.

Gas Welding process uses a gas flame to melt the edges of two adjoining surfaces. After removal of the flame, the liquid metal cools to join the surfaces together. Gases used with oxygen or air are acetylene, MAPP gas and hydrogen.

Cutting -- there are two common types of cutting done with welding equipment

* Oxygen cutting heats metal with a gas flame - an oxygen jet increases the heat and blows away the molten metal
* Arc cutting uses the high heat of an electric arc to melt a channel or hole in the metal.

Hot work is allowed

Only in areas that are or have been made fire-safe. Hot work may only be performed in either designated areas or permit-required areas. A designated area is a specific area designed or approved for such work, such as a maintenance shop or a detached outside location that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas. A Permit-Required area is an area made fire-safe by removing or protecting combustibles from ignition sources.

Hot work is not allowed:

* In sprinklered buildings if the fire protection system is impaired
* In the presence of explosive atmospheres or potentially explosive atmospheres (e.g. on drums previously containing solvents)
* In explosive atmospheres that can develop in areas with an accumulation of combustible dusts (e.g. grain silos).

When you weld, cut or grind, the potential for accidents is significant. Eyes and skin can be burned, hearing can be damaged and an electric shock can kill you. Among the hot metal, sparks and flying chips, are compressed gases stored in high-pressure cylinders. Even the fumes and gases produced during the welding process can damage your respiratory system or cause asphyxiation. It's crucial to be cautious. Wear your personal protective equipment (PPE), maintain a safe workplace and follow safety rules.

Safety Recommendations: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Job Specific Topics: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**TRAINING ROSTER**

COMPANY: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ JOBSITE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## SUPERVISOR: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**ADDITIONAL TOPICS COVERED: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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