



Proof of Training

Print name: _____ Signature: _____ Date: _____

Fume Control for Welding Operations (Welding, Brazing, Cut Torch)

Purpose

Unger Construction does not self-perform welding operations but will manage under contract with a subcontractor welding operations. This policy is to ensure subcontractors have established appropriate safe work practices for fume control during welding operations that will protect the welders, other workers in the area, the clients employees and members of the public.

Scope

This policy will apply to all work performed by employees and subcontractors including, but not limited to the following activities: construction, installation, demolition, remodeling, relocation, refurbishment, testing, and servicing or maintenance of equipment or machines and at other times when welding is required.

Responsibilities

Management (Board of Directors and Project Managers)

Management is responsible for ensuring that the materials (e.g., tools, equipment, personal protective equipment) and other resources (i.e., worker training materials) required to fully implement and maintain this program are readily available where and when they are required. Additionally, management will monitor the effectiveness of the program, provide technical assistance as needed, and review the program bi-annually.

Program Manager

Dave Simpson is responsible for the development, documentation, training and administration of the program. This position carries the responsibility of insuring this program is adhered to and that proper reporting is executed.

Supervisors (Superintendents and Foreman)

Supervisors are responsible for ensuring that a task specific job hazard analysis (JHA), also known as a safe work plan, is developed. The JHA will select, implement and document the appropriate site-specific control measures as defined within this policy. Supervisors will direct the work in a manner that ensures the risk to workers is minimized, adequately controlled and that practices defined by this policy will be followed. Supervisors are responsible for ensuring Unger Construction employees and subcontractors are following expectations. Supervisors will be held accountable for enforcing the requirements of this program. Undesirable behavior will not resolve itself, therefore supervisors must be directly involved with modifying behaviors inconsistent with program expectations. Supervisors will be held accountable for enforcing Unger Construction's disciplinary program.

Workers (Employees and Subcontractors)

Unger Construction has high expectations and requires safety excellence for each employee, crew, project and for our entire company. Workers are required to follow the minimum procedures outlined in this program. Workers are responsible for knowing the hazards and the control measures established in the JHA. Workers are responsible for using the assigned PPE in an effective and safe manner. Workers are responsible for stopping unsafe acts and correcting unsafe conditions on the spot as soon as they are discovered. Any deviations from this program must be immediately brought to the attention of your supervisor. Workers that choose to conduct themselves in a manner that is inconsistent with these expectations will be held accountable for those decisions and may incur disciplinary actions.

Hazardous Material Survey

Unger Construction requires hazardous materials surveys before demolition or renovation work begins. The survey shall include all of the following: A visual inspection of a facility or a portion thereof for suspect materials, sampling and laboratory analysis of any suspect materials found for the presence of asbestos. The hazardous materials survey will also furnish a written report that includes: a description of the area(s) visually inspected, a detailed description of any suspect material sampled, the results of any laboratory analysis of suspect materials, the method of analysis, and the total amount of asbestos containing material. Typically a floor or roof plan is included with the report to reference the written information visually.

The person conducting the survey must be certified pursuant to OSHA and/or EPA regulations. The survey may be performed by a certified Site Surveillance Technician (SST) under the supervision of a licensed consultant. Note: The survey may be performed by a certified Site Surveillance Technician (SST) under the supervision of a licensed consultant. Note: The survey needs to be kept in a project file so that it can be accessed when working on future projects.

If lead or asbestos have been confirmed to be present employees and subcontractors must follow Unger Construction's Lead and/or Asbestos program. If hazards such as asbestos or lead will be disturbed during remediation, a properly licensed professional must perform the work and follow appropriate regulations.

Job Hazard Assessment (Safe Work Plan)

Unger Construction utilizes JHA's as our means of hazard assessment and establishing a safe work plan. JHA's are performed by supervisors and/or workers. Our library of hazard assessments is maintained on the "S" drive. Before beginning a new task refer to the JHA library, generally speaking all scopes of our work are covered. For situations that have not yet been covered select one that is substantially similar and use it as a baseline. JHA's on the "S" drive are organized by work area and job description. JHA's include strategies for elimination, substitution, engineering and administrative controls. After applying all appropriate reduction and elimination technique, the remaining hazards will be analyzed and the proper PPE to reduce the hazards will be selected. PPE will be identified for hazards that are in the process of being reduced or eliminated and/or when hazard-reduction efforts are not 100% effective in eliminating the hazards.

For complex or moderate to high hazard tasks, tasks where an additional level of safety planning is needed, the safety director will perform the JHA with the supervisor and workers.

Training

Before any employee is allowed to perform work in areas requiring welding operations, they must first receive training. Each employee must demonstrate an understanding of the required training, and the ability to use welding tools properly, before being allowed to perform work.

For Unger Construction employees' proof of training is available on the "S" drive. The training data base can be sorted by employee name or by subject. This ensures supervisors and employees are able to confirm they have the necessary training and if they don't which employees do. Employees that need training should contact their project manager or superintendent to make arrangements for them to be trained.

Subcontractors shall provide proof of training for welders including but not limited to: Welding certifications, Proof of training to the requirements set in 29 CFR 1926.1126 (Chromium), 29 CFR 1926.1127 (Cadmium) 1926.59 (Hazard Communications), Engineering controls, Administrative controls and PPE to be used to minimize their exposure. Medical monitoring and breathing zone sampling.

Retraining

The need for retraining will be indicated when: A welders work habits or knowledge indicates a lack of necessary understanding, motivation or skills required.

Discussion

Welding, cutting and brazing pose a unique combination of safety and health risks. Welding and thermal cutting can generate a variety of potentially hazardous airborne contaminants. Welding "fumes" are a mixture of very fine particles and gases. Welding fumes can come from the base material or filler material, coatings/paints, coatings on the electrode, and shielding gases. Welders may be exposed to a variety of toxic airborne contaminants. The health effects of welding exposure are difficult to list because the fumes may contain many different substances that are known to be harmful. Hexavalent Chromium and Cadmium can be toxic.

Welding in small enclosed spaces increases the risk of exposure to welding fumes due to little or no airflow. Dangerous concentrations of toxic fumes can build up quickly in a small space, ventilation is essential. Roof vents, open doors and windows are not effective means of ventilation. Fans and exhaust systems are required for fume control. See fume control section on page 3.

Personal Breathing Zone Monitoring

If there is a reasonable likelihood that welders and workers will be exposed to Hexavalent Chromium, or Cadmium the subcontractors that perform welding operations will be required to submit evidence of personal breathing zone monitoring to Unger Construction as proof that their engineering controls and administrative controls are indeed effective in limiting worker exposure to toxic fumes. In essence demonstrating the exposures are below the regulatory requirements. The Action levels and Permissible exposure levels (PEL) for both Chromium and Cadmium are the same. Action Levels = 2.5 micrograms per cubic meter. Permissible Exposure Limits = 5.0 micrograms per cubic meter. Historical and objective data are acceptable for like and substantially similar tasks. If the results are not available or indicate that the controls are not effective the welders must wear respirators and be in full compliance with

respiratory regulations. (Annual fit test, annual medical evaluation, no facial hair, trained in the use, inspection and care of the respirator)

Operation, Alteration, Modification, Servicing, Repairing

All welding tools and fume control tools shall be used in accordance to the manufacturers intended design and function and per their written instructions. Safety devices, covers, shields, interlocks and alarms shall be fully functional as the manufacturer intended for them. Welding tools and fume control tools cannot be modified or altered in any way without written approval from the manufacturer or formal approval from a Professional Engineer registered in the State of California. Additionally, approval shall be received from Unger Constructions Director of Safety, Director of Risk Management and the Vice President of Operations. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, warnings and limitations.

Pre-task plan

Pre-task plans must be developed for each welding, brazing or torch cutting operation. Operators and supporting cast members shall read and sign the Pre-task plan before beginning work. The pre-task plan shall list corresponding potential hazards for each task and the methods to eliminate or control hazards. Tasks should be listed sequentially, in the order in which they will be performed. Personnel protective equipment (PPE) requirements for welding operations are task specific; however, typical PPE includes (leather gloves, leather sleeves, leather apron, properly rated welding glasses or face shield, respirator, hearing protection and/or metatarsal covers.)

Set up

The work location must be properly set up. To include proper body positions, work space, footing, clamping, visibility, lighting, clearance, hotwork permits, fire blankets, fire watch, and proper ventilation.

Inspection

All fume control tools must be inspected prior to use to confirm they are in good, safe working condition. Safety guards, shields and protective devices must be properly positioned and functional.

Fume Control Tools

Engineering Control

Mechanical ventilation shall consist of either general mechanical ventilation system or local exhaust systems. They shall be of sufficient capacity and arranged to produce the air changes necessary to maintain welding fumes within safe limits, within the breathing zone of the welder. Other workers exposed to the fume trial shall be protected in the same manner as the welder. The Action Levels and Permissible Exposure Levels (PEL) for both Chromium and Cadmium are the same. Action Levels = 2.5 micrograms per cubic meter. Permissible Exposure Limits = 5.0 micrograms per cubic meter. In essence demonstrating the exposures are below the regulatory requirements.

Mechanical ventilation uses portable fans (air movers, box fans, pedestal fans, floor fans) in combination with heating, ventilation air condition systems to dilute the fume concentration and replace fresh air.

Local exhaust ventilation (smog hog, air scrubbers) removes the fumes before they can mix with the room air. Fumes are removed close to the point of generation and released away from fresh air intakes or other means of cycling the tainted air back into a work space.

Administrative Controls

Welding in construction due to frequent changes in location and welding positions make it more difficult to control fume exposure. Work practices are an important part of achieving successful control over fume exposure. For example positioning the exhaust tool as close to the actual work as possible, checking exhaust flow rates, avoiding the plume. Positioning oneself outside of the welding plume is an important work practice. Positioning where one stands relative to the plume may be difficult however the air machines can be easily moved to achieve the desired result.