HOIST LIFTRUCK
MANUFACTURING, INCORPORATED

SAFETY MANUAL

TAKING SAFETY

TO GREATER

HEIGHTS

Preface

Hoist Liftruck Manufacturing recognizes that our people drive the business. As the most critical resource, employees will be safeguarded through training, provision of appropriate work surroundings and procedures that foster protection of health and safety. All work conducted by Hoist Liftruck manufacturing employees will take into account the intent of this policy. No duty, no matter what its perceived result, will be deemed more important than employee health and safety.

Hoist Liftruck Manufacturing is firmly committed to the safety of our employees. We will do everything possible to prevent workplace accidents and we are committed to providing a safe work environment for all employees.

We value our employees not only as employees but also as human beings critical to the success of their family, the loyal community, and Hoist Liftruck.

Employees are encouraged to report any unsafe work practices or safety hazards encountered on the job. All accidents/injuries no matter how slight, are to be immediately reported to the supervisor on duty.

A key factor in implementing this policy will be the strict compliance to all applicable federal, state, local, and company policies and procedures. Failure to comply with these policies may result in disciplinary actions.

Respecting this, Hoist Liftruck will make every reasonable effort to provide a safe and healthful workplace that is free from any recognized or known potential hazards. Additionally, Hoist Liftruck subscribes to these principles:

1. **All accidents are preventable through implementation of effective safety and health control policies and programs.**
2. **Safety and Health controls are a major part of our everyday activity.**
3. **Accident prevention is good business. It minimizes human suffering, promotes better working conditions for everyone, holds Hoist Liftruck in higher regard with customers, and increases productivity. This is why Hoist Liftruck will comply with all safety and health regulations which apply to the course and scope of operations.**
4. **Management is responsible for providing the safest possible workplace for employees. Consequently, management of Hoist Liftruck is**

committed to allocating and providing all of the resources needed to promote and effectively implement this safety policy.

5. **Employees are responsible for following safe work practices and company rules, and for preventing accidents and injuries. Management will establish lines of communication to solicit and receive comments, information, suggestions and assistance from employees where safety and health are concerned.**
6. **Management and supervisors of Hoist Liftruck will set an exemplary example with good attitudes and strong commitment to safety and health in the workplace. Toward this end, management must monitor company safe and health performance, working environment and conditions to ensure that program objectives are achieved.**
7. **Our safety program applies to all employees and persons affected or associated in any way by the scope of this business. Everyone's goal must be to constantly improve safety awareness and to prevent accidents and injuries.**

Everyone at Hoist Liftruck Manufacturing must be involved and committed to safety. This must be a team effort. Together, we can keep each other safe and healthy in the work that provides our livelihood.

Martin Flaska

President

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HOIST LIFT TRUCK
2015
WORKING with OSHA:
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POLICY GUIDE

The Occupational Safety and Health Administration may decide to inspect your workplace for various reasons:

- OSHA may have received a report of an imminent danger situation such as deep, unshored trenches, a fatal accident, or a catastrophe.
- An employee may have made a complaint about the safety and health conditions at the workplace.
- The inspection may be a follow-up inspection to determine if you have corrected a previously cited violation. In high-hazard industries, OSHA uses lost workday injury rates to determine which firms warrant programmed safety inspections. This applies only to general industry.

Normally, no advance notice is given that an inspection will be conducted.

Contacting OSHA for information will not trigger an inspection under normal circumstances.

The National Institute for Occupational Safety and Health (NIOSH) also may investigate your workplace in connection with research or to gather information for various scientific studies. Other federal agencies such as the Environmental Protection Agency or the Department of Agriculture also may inspect your workplace, but only OSHA inspections are concerned with compliance with safety and health standards and regulations within your workplace. State personnel may conduct inspections in those states with approved job safety and health plans.

GROUND RULES: The inspection you receive may fall into two categories:

- Comprehensive — A "substantially complete" inspection of potentially high hazard areas. An OSHA officer does not need to inspect each and every potentially hazardous area for the inspection to be considered comprehensive.
- Partial — An inspection that is limited to certain potentially hazardous areas, operations, or conditions. An inspection begins when the OSHA compliance officer arrives at your establishment. The inspector will show you official credentials and ask to meet an appropriate employer representative.

If you refuse to consent to the inspection, OSHA is required to obtain a search warrant from a court, except in circumstances that constitute a recognized exception to (JOSH Page 761:102) the warrant requirement (for example, where there has been consent or third-party consent to the inspection, where a violation is in plain view, or when circumstances require immediate action or attention).

An inspection warrant may be sought in advance "ex parte" (without the employer's participation) if, in OSHA's judgment, circumstances exist which make the compulsory process desirable and necessary. When an ex parte warrant is sought, it will normally be limited to the specific working conditions or practices that are the basis of the un-programmed inspection. A broad scope warrant may be issued when the evidence suggests that there are pervasive violations or if the establishment to be inspected is on a current list of targeted establishments.

Examples of desirable or necessary circumstances in which an *ex parte* warrant is appropriate are:

- When the employer's past practice indicates that the employer will probably not consent to a warrantless inspection.
- When the inspection is scheduled far from the local OSHA office and a refusal of entry would mean spending significant time and resources to return there to obtain a warrant and then return to the work site.
- When the inspection includes use of special equipment or the need for special experts, and refusal of entry would disrupt their coordination (29 CFR 1903.4).The regional administrator also may subpoena any records, documents or testimony that may be necessary for completion of the inspection.

You (or your representative) have the right to accompany the OSHA inspector during the inspection. An authorized employee representative also has the right to accompany the OSHA inspector during the inspection.

The inspector must comply with all safety and health rules of your firm; the inspector must wear a hard-hat or use the safety clothing and equipment required by OSHA standards and required by you for your own employees.

POINTERS

- You should always insist on seeing the compliance officer's credentials. An OSHA compliance officer carries U.S. Department of Labor credentials bearing a photograph and a serial number that can be verified by phoning the nearest OSHA office. Anyone who tries to collect a penalty or to promote the sale of a product or service is not an OSHA compliance officer.
- You may require OSHA to obtain a search warrant from a court prior to inspecting your firm. You may not permit OSHA to inspect your business and then later contest the constitutionality of the warrantless inspection. The courts will find that you consented to the inspection and waived your right to challenge the inspection.

OSHA's INSPECTION TARGETING POLICY

OSHA gives top priority to investigating imminent danger situations, fatalities, catastrophes, and employee complaints. Next, OSHA area offices will select individual firms for programmed safety inspections.

In scheduling general industry health inspections, OSHA looks at the previous inspection experience of the industry. The agency assumes that industries for which OSHA has found a high number of serious, willful and repeat health violations in establishments that have been inspected in the past also have the greatest potential for health problems in establishments not inspected. Specifically, industries are selected by 4-digit Standard Industrial Classification (SIC) code on the basis of the average number of serious health violations found during the previous 5 1999s of OSHA health inspections of that industry (OSHA Instruction CPL 2.25I, Jan. 4, 1995). The agency uses violations data from all inspection types except follow-up inspections.

The planning of general industry safety inspections is based on the most recent Lost Workday Injury and Illness rates provided by the Bureau of Labor Statistics. All industries with an LWDC rate of 3.9 or greater per 100 full-time employees are considered high rate industries. OSHA targets for programmed (planned) inspections those establishments whose industries fall in the top 200 industries with the highest LWDC rates. Firms with 10 or fewer employees within an industry classified in a SIC code with a lost workday injury rate lower than the national average rate for the private industry sector, as measured by the Bureau of Labor Statistics (3.9 for 1992), will not be inspected unless OSHA is contacted because of a complaint, alleged imminent danger situation, or other such information. Consultation, technical assistance, and educational and training services may be provided, and surveys and studies may be conducted in workplaces not subject to inspection.

An establishment will be deleted from OSHA's investigation lists for health inspections if a substantially complete or focused health inspection was conducted within the previous five 1999s with no serious violations cited. Likewise, an establishment will be deleted if a comprehensive programmed or focused safety inspection, or substantially complete un-programmed safety inspection, has been made within the previous five 1999s.

At the opening conference, OSHA will ask to see copies of injury and illness data, which employers are required to maintain. These records will be verified by the inspector. Using this information along with employment figures and/or employee hours worked, the inspector will calculate the firm's lost workday injury rate (LWDI).

Inspectors will conduct comprehensive safety inspections in firms with a lost workday injury rate at or above the national lost workday rate for manufacturing and in companies that have failed to maintain the required injury and illness records or whose records cannot be verified as accurate.

If a firm's lost workday injury rate is low enough to exclude it from comprehensive inspection, this will be explained to the employer and employee representatives at the opening conference. If there is no employee representative present, the OSHA inspector will leave a letter to the employees explaining the exclusion and request the employer to post it. The letter will include the area office address and telephone number for employees to call if they have any questions about the inspection targeting policy.

EMPLOYEE COMPLAINTS

Inspections of the employer's workplace may be the result of an employee complaint. An employee complaint should be submitted to OSHA in writing either on OSHA Form 7 or in a signed letter. If an inspection is conducted by OSHA as a result of the complaint, the employer must be given a copy of the complaint at the time of inspection. However, the employee making the complaint may request that his or her name be deleted from the complaint when it is shown to the employer.

As of June 1, 1995, OSHA instituted a informal complaint process that may be used by employees. This alternative process allows OSHA to telephone employers to notify them that a complaint has been filed and to notify them of the specific allegation. After the telephone call, OSHA will fax to the employer a follow-up letter advising the employer of the allegations against it and requiring that within five days the employer provide in writing evidence that the alleged hazard has been abated. Failure to present evidence of abatement within the five-day period will result in an OSHA inspection.

OSHA should also advise the employer of what kind of evidence is needed to show that the necessary abatement was done. Invoices, screening/sampling results, photos, and videos are all possible ways of documenting hazard abatement.

The letter faxed by OSHA must be posted. OSHA will send the employer a Certificate of Posting which should be signed by an employee representative certifying that a copy of OSHA's complaint letter was posted in a conspicuous place. The employer must also post its response to the complaint letter. Failure to do this may result in an inspection.

Whether the employee uses the "phone and fax" method or the formal inspection process, the employee retains the right to request an inspection. If OSHA does not find reasonable grounds for the complaint and does not conduct an inspection, OSHA must inform the employee in writing of the reasons for its determination that an inspection is not warranted. The employee may obtain an informal review of this determination.

EFFECT OF CONTESTING PREVIOUS CITATIONS

If a company is scheduled for inspection but has a case pending before the Review Commission as a result of a citation or penalty received after a previous inspection, the inspection will be scheduled as if there were no contest when it is only the penalty that is being contested.

If the employer has contested the citation or any items included in it, programmed inspections of the establishment may be postponed until the case has been resolved.

In the event the workplace is inspected in response to specific evidence of hazardous conditions, the inspection normally will be partial and limited to an investigation of the alleged hazards, and will exclude areas related to contested items unless a potential imminent danger is involved.

ADVANCE NOTICE

Advance notice of an inspection is prohibited under the law except in specific situations. These are:

- In cases of apparent imminent danger to enable the employer to abate the danger as quickly as possible.
- When the inspection can be conducted most effectively after business hours or when special preparations are necessary.
- To assure the presence of representatives of the employer and employees or the appropriate personnel needed to aid in the inspection.
- When the area director determines that giving advance notice would enhance the probability of an effective and thorough inspection (for example, in complex fatality investigations). When advance notice is given, it is the employer's responsibility to notify the authorized employee representatives promptly of the inspection.

REPRESENTATIVES DURING THE INSPECTION

You will be asked to select an employer representative to accompany the compliance officer during the inspection. Of course, you may go along on the inspection yourself.

An authorized representative of the employees also is given the opportunity to accompany the compliance officer. If there is a union, the union ordinarily would designate the employee representative to accompany the compliance officer on the inspection. Similarly, if there is a plant safety committee, the employee members of that committee would designate the employee representative. Where neither employee group exists, the employee representative may be selected by the employees themselves or by the compliance officer or the employer. A non-employee, such as a union official or an industrial hygienist, may be the designated employee representative. There may be more than one employee representative.

There need not be an employee representative for each inspection. Where there is no authorized employee representative, the inspector will talk to a number of employees about safety and health matters in the workplace. The inspector will consult with employees whether or not he is accompanied by an employee representative.

DELAYS

After the inspector arrives at the work site, a delay may be necessary before the inspection may begin, perhaps to await the arrival of a company official. If the employer's request for a delay appears reasonable, the inspector may delay or interrupt the inspection for up to an hour. If the compliance officer cannot determine who the person in charge of the workplace is, the physical inspection will continue nonetheless.

If the employer refuses to allow an inspection, the compliance officer will report the refusal to the Assistant Area Director, who will notify the Regional Solicitor. If the employer doesn't object to the inspection of some of the workplace but does object to inspection of other parts, the compliance officer will make a note of this and will continue to conduct the inspection only in those areas where the employer has no objections. When the employer objects to any part of an inspection, OSHA may take legal action to compel inspection.

OPENING CONFERENCE

The opening conference is a brief meeting to inform the employer about the reason for the inspection and scope of the inspection. Both the employer and employee representatives attend the opening conference unless either party objects, in which case the compliance officer may conduct separate conferences for each party.

If the employer is participating in voluntary compliance programs, it may be exempted from programmed inspections. The compliance officer is the person who, during the opening conference, determines whether the employer falls under this exemption.

The inspector will explain that employee interviews, physical inspection of the workplace, a review of records, and the closing conference will be conducted. The compliance officer will give the employer a copy of any employee complaint as well as copies of the standards, and other applicable laws and regulations, the OSHA poster and blank OSHA-300 forms. At multiemployer sites, copies of the complaint will be given to all employers affected by the hazards, and to the general contractor.

During the course of the opening conference, employer and employee representatives will be informed of their opportunity to accompany the inspector during the physical inspection of the workplace. An employee representative is defined as a collective bargaining representative, an employee member of a safety and health committee representing employees, or an individual employee who has been selected as the walk-around representative.

During the inspection, the compliance officer will review the employer's injury and illness records in order to determine whether the employer is complying with relevant standard and to identify any trends of noncompliance. The officer may calculate the employer's lost workday injury rate to determine trends in injuries and illnesses. The officer will also check whether OSHA's posting requirements are being met.

If a consultative visit was conducted prior to the inspection, the employer has no obligation to inform the inspector of that visit. However, if a copy of the consultant's report is provided and the inspector finds serious hazards during the walk-around inspection previously identified by the consultant, a citation will be issued for the violations. If the employer is complying with the consultant's recommendations in good faith, a minimum penalty must be proposed.

Before the inspection begins, the employer should identify areas in the establishment which contain or might reveal a trade secret. The employer should also decide whether the employee representative chosen to participate in the walk-around inspection is authorized to enter any trade secret areas. If the representative is not authorized, the compliance officer will consult with employees who work in the area. Information obtained in these areas, including all negatives, photographs, and OSHA documentation forms must be labeled "ADMINISTRATIVELY CONTROLLED INFORMATION" "RESTRICTED TRADE INFORMATION" and normally will not be disclosed. Trade secret materials must not be labeled as "Top Secret," "Secret," or "Confidential" unless the trade secrets are also classified by an agency of the U.S. Government in the interest of national security.

OSHA defines a trade secret as any confidential formula, pattern, process, list, blueprint, device, or compilation of information used in the employer's business which gives him an advantage over competitors who do not know or use it. It is known only to the employer and those employees to whom it is necessary.
The following have been held by the courts to be trade secrets:

- Internal configuration of operating part of a machine which is novel in design and unique in its field.
- A chemical company's unique process for manufacturing a stabilizer-emulsifier product.
- A strip-type blower wheel manufacturer's prints and drawings showing complete details of the wheel, including angles, tolerances, and dimensions.
- A garbage-compression mechanism enabling the employer's trucks to carry substantially larger loads.
- Specification and processes for achieving a high degree of accuracy and fine technical finish on dials and panels.

AVAILABILITY OF RECORDS

Before the walk-around inspection begins, the inspector will ask to see all pertinent safety and health records.

You must show the inspector:

- OSHA Form 300 or its equivalent, Log and Summary of Occupational Injuries and Illnesses. This form must be completed and posted even if no injuries and illnesses have occurred requiring the maintenance of OSHA Form 101.
- OSHA Form 101 or its equivalent, Supplementary Record.
- OSHA Form 103, Occupational Injuries and Illnesses Survey, if you were selected by the Bureau of Labor Statistics to participate.
- Records and data required to be kept under the Hazard Communication Standard.
- Records of medical examinations and exposure of employees that are required under medical surveillance and recordkeeping requirements or written evidence that the medical examination was offered to all employees exposed. These requirements are included in air contaminant standards and in the standards regulating carcinogens. The inspector also will ask to see all medical and exposure records which have been preserved by the employer, as well as general and statistical studies based on information collected from exposure records.

You may make available if you wish:

- Safety committee minutes.
- Checklists.
- Safety program plans.

POSTING

The inspector will check compliance with posting requirements. These regulations require posting of:

- A notice informing employees of their rights and obligations under the Act (the OSHA poster).
- The OSHA 300 form, the Annual Summary, posted no later than February 1, to remain in place until March 1.
- Current citations.
- Petitions for Modification of Abatement Date (PMAs).

THE WALKAROUND

After the opening conference and inspection of records, the inspector and the representatives of the employer and employees then proceed through the establishment. The purpose of the walk-around inspection is to identify potential safety and health hazards in the workplace. The route and duration of the inspection are determined by the inspector. During the walk-around the inspector may talk with individual employees as well as employee representatives concerning working conditions. Part or all of the establishment may be inspected, even if the inspection resulted from a specific complaint, fatality, or catastrophe.

During the inspection the compliance officer will record all pertinent information concerning apparent violations and hazards. At a minimum the compliance officer will record the following:

- The identify of the exposed employee;
- The hazard the employee was exposed to;
- The employee's distance from the hazard;
- The employer's knowledge of the condition; and
- The manner in which important measures were obtained. If the compliance officer does not actually observe exposure to either safety or health hazards, the officer will document the facts that are the basis for determining whether an employee either has been or could be exposed.

The compliance officer will bring apparent violations to the attention of both the employer and the employee representatives at the time the violations are documented.

When apparent violations are corrected immediately, as is often the case, the inspector records the corrections in order to help in judging an employer's good faith in compliance. Even though corrected, the apparent violations may be the basis for a citation and/or proposed penalty.

If the compliance officer determines that samples, such as air or surface samples, need to be taken, the employer and the employee representative may request the sampling results, which must be provided as soon as possible.

EVALUATING THE COMPANY'S SAFETY AND HEALTH PROGRAM

The inspector will evaluate the employer's safety and health program, written or not, by ascertaining how aware you as the employer are of potential hazards and what methods are in use to control them, including engineering and administrative controls and work practices.

The inspector also will determine how much knowledge employees have of existing hazards; the extent to which the employer's program covers precautions to be taken by employees; emergency procedures and inspection schedules for emergency protective equipment; the employer's program for selecting, using and maintaining routine personal protective equipment; and the overall quality and extent of the education and training program and the degree of employee participation.

PHOTOGRAPHS

Photographs may be taken to record apparent violations or other hazardous conditions observed during the walk-around inspection. Photographs are used to support apparent violations, and will normally be taken in alleged imminent danger situations and accident investigations.

EMPLOYEE INTERVIEWS

The inspector may interview employees at any time during the inspection provided there is a minimum disruption of employee duties. In some cases, the interviews may be held away from work, especially when an employee requests the interview and desires privacy. An employee interview may be held even when there is an employee representative present.

The employer will be informed when an employee interview is to be in private. If the employer objects to a private interview with an employee, OSHA will construe the refusal as a refusal of entry, with the legal consequences that a refusal entails.

The compliance officer will ask the employee who is interviewed to sign a statement. The signed statement will be held confidential, but may be used in a court or hearing. A transcription of a recorded statement will be made if necessary.

EMPLOYER ABATEMENT ASSISTANCE

During the walk-around inspection, the compliance officer will offer abatement assistance on how to eliminate workplace hazards. The information is intended as guidance to the employer for either developing acceptable abatement methods or for seeking professional abatement assistance.

The employer is not limited to the abatement methods suggested by OSHA and the abatement methods explained are general and may not be effective in all cases. It is the employer's responsibility to select and carry out an effective abatement method.

CLOSING CONFERENCE

At the conclusion of the inspection, a joint conference or separate closing conferences will be held, whichever is more practical. The closing conference may be conducted on site or by telephone, depending on the compliance officer's decision.

When the officer conducts separate closing conferences for employers and labor representatives, the officer will normally hold the conference with employee representatives first, unless the employee representative requests otherwise.

At the closing conference, the compliance officer will describe the violations found during the inspection. Both the employer and the employee representative will be advised to their rights to participate in any subsequent meetings or conferences that may take place. A second closing conference may be held by telephone or in person to inform the parties whether the establishment is in compliance.

The compliance officer will advise the employee representatives that:

- Employees have a right to elect "party status" before the Review Commission if the employer contests OSHA's finding of violations.
- The representatives must be notified by the employer if a notice of contest or a petition for modification of abatement date is filed.
- They have Section 11(c) rights not to be discriminated against because an employee has filed a complaint or instituted a proceeding, or has testified in a proceeding.
- They have a right to contest the abatement date. This kind of contest must be in writing and must be filed with 15 working days after receiving the citation. The compliance officer will encourage the employer to eliminate all hazards as soon as possible.

The inspector will tell the employer that in the event that a citation(s) is issued, the employer will be required to abate the alleged violations by a certain date indicated in the citation(s) unless the employer chooses to exercise the right to contest the citation or requests a modification of abatement and it is granted. The inspector also will give the employer a copy of Employer Rights and Responsibilities Following an OSHA Inspection.

The employer may want to give the inspector copies of correspondence and orders with equipment manufacturers for the purpose of complying with a standard. Although these records are not required, they may be in the best interests of the employer as an aid to the inspector and the area director in evaluating a particular violation, if the correspondence contains projected delivery dates.

Employees or their representative may hold a discussion with the compliance officer. The inspector is required to advise the employee representatives that, in case the employer contests a citation, they have a right to elect "party status" under Review Commission rules and will be notified by the employer if a notice of contest is filed, and that employees have the right to contest an abatement date within 15 days after the citation is received. They also must be informed that employers are prohibited from discharging or discriminating against employees for exercising their rights under the OSH Act.

CONSTRUCTION INSPECTIONS

Inspections of employers in the construction industry are not easily separable into distinct establishments. The establishment would be the site at the construction job, the building site, or the dam site, for example. Where the construction site extends over a large geographical area (road building for example) the entire job will be considered a single establishment.

The agency usually concentrates on relatively larger construction sites where a greater number of employees may be exposed to hazards. Some examples of selection criteria are dollar value of the contract, the project's square footage, the nature of the project and the length of time it will take and the stage of construction.

Generally OSHA selects sites for inspection to include a range of construction jobs such as light and heavy building construction, highways, bridges, dams, airports, docks and piers, and alteration and repair work.

When the inspector arrives at the site, the general contractor's representative in charge of the job will be contacted and advised of the purpose of the visit. Normally, there will be several subcontractors at the site. In such cases, the individual in charge will be asked to identify them and to provide the name of the person in charge of each subcontractor's operations at the site. This person also will be asked to notify immediately these individuals of the inspection and to ask them to assemble in the general contractor's office or some other suitable place in order to discuss the inspection by the compliance officer. The unavailability of one or more representatives of the subcontractors will not delay the inspection.

At the opening conference or at some other suitable time during the inspection, the inspector will ask who is responsible for providing such special services as common sanitation, eating facilities, and first aid, which are available to all employees. OSHA makes clear that even though one subcontractor or the general contractor is responsible for providing common services, each employer is responsible for his own employees in this regard. In other words, any or all employers can be cited for lack of such services.

The walk-around inspection may create special inspection problems if there are a large number of subcontractors. If the number of representatives accompanying the inspector is so large that work is disrupted, the inspector may discontinue the walk-around and interview a number of employees. If the participants then agree to a limited number of representatives for accompaniment purposes, the inspector may resume the inspection.

IMMINENT DANGER

Imminent danger situations are given top priority for OSHA inspections. Section 13(a) of the law describes an imminent danger as any condition where there is reasonable certainty that a danger exists that can be expected to cause death or serious physical harm immediately or before the danger can be eliminated through normal enforcement such as programmed inspections or complaint procedures.

For a health hazard to be considered an imminent danger, it must be reasonably likely that a serious accident will occur immediately or, if not immediately, then before abatement would take place. If the employer contests a citation, abatement will not be required until there is a final order of the Review Commission.

The harm threatened must be death or serious physical harm. For a health hazard, exposure to the hazard must be able to shorten life or cause a substantial reduction in physical or mental efficiency even though the harm may not be immediately noticeable.

FOLLOW-UP AND MONITORING INSPECTIONS

The purpose of a follow-up inspection is to see if previously cited violations have been corrected. The purpose of monitoring inspections is to make sure that hazards are being corrected and employees are being protected. Monitoring inspections are used particularly whenever a long period of time is needed for a company to come into compliance or when OSHA needs to verify compliance with the terms of a granted variance.

OSHA normally will conduct follow-up and monitoring inspections in the following situations:

- Willful, repeated, or gravely serious violations.
- Failure to abate notifications.
- Citations related to an imminent danger situation. Follow-up and monitoring inspections will not normally be conducted when the employer or employee representatives show evidence of abatement of the hazard. Usually there will be no further inspections unless the compliance officer thinks there have been significant changes in the workplace which warrant additional inspection.

HOIST LIFT TRUCK

Respirator Protection Program

2015
CHAPTER TWO

Contents:

Policy

1. The Management of HOIST LIFT TRUCK, has made a commitment to establish and maintain a respiratory protection program.

2. The HOIST LIFT TRUCK respirator policy is as follows; employees are required to wear a respirator:

    1. When tasks are performed which may generate potentially harmful level of dusts or vapors?

    2. When working in an IDLH atmosphere

Introduction

HOIST LIFT TRUCK makes every attempt to provide for a hazard free workplace. This includes managing the quality of air in the workplace. HOIST LIFT TRUCK engages in some activities that may present a potential hazard. The purpose of this program is to establish guidelines as set forth by 29 CFR 1910.134 for the selection, use, and maintenance of respirators for employee protection.
This program shall be administered and evaluated annually by the Program Administrator, Cary Darnell, who is the EHS Director. He has knowledge of the complexity of the respiratory program, conducts evaluations, is properly trained, and properly trains all HOIST LIFT TRUCK employees.

Purpose

1. To set forth policies, procedure, and work practice to control injury and illness caused by breathing contaminated air.

2. To make workers aware of hazards that make the use of respirators pertinent to their activities and the limitations involved with their equipment.

    3. To provide employees with the knowledge to select, use, and maintain respirators.
    4. To make sure and verify that the employee understands proper fit, maintenance, selection, proper use and donning and doffing of respirator(s).

Hazard Identification

1. The effectiveness of personal respiratory protection rests with the proper matching of the respirator to the hazard. Analyzing the respiratory hazards involved in certain industrial processes is an important prelude to even considering usage of respiratory protection. Respirators are designed to protect against specific conditions. Using the wrong type of respirator for the conditions in which you are working is the same as not using any protection

at all. It is important that you understand this because serious injuries can occur when you think you are protected, when you are not.

2. A discussion which explains the type of respirator which is required, and how this type of equipment was chosen for your use is as follows:
    - Hazard
    - Type of respirator
    - When needed
    - PEL's

3. The main types of respirators used at HOIST LIFT TRUCK include:
    - SAR's used for IDLH atmosphere
    - APR's used for dust and particulate/organic vapors and acid gas
    - PAPR's for higher concentration of contaminants (based on PEL's)
3. When working in IDLH atmospheres; immediately dangerous to life and health; this is where the importance of standby, outside the "point of entry" persons are of the upmost importance. Whenever a possibility of an IDLH atmosphere exists, stand by personnel must be working side by side with employees, and perform many functions, including maintaining communication with workers inside entry point, being properly trained and have equipment at the point of entry, be aware of notification procedures, and any necessary action that may need to be done. Mandatory equipment at the point of entry would be SCBA or supplied air, using grade D air or better, auxiliary air supply with air being from a compressor that is located in a clean atmosphere, and appropriate retrieval equipment or equivalent rescue means.
4. Grade D air will be used for all inline, SCBA, or supplied air units with inline purification and tagged to indicate date or change out. Carbon monoxide monitor in place and set to alarm at 10PPM or monitored frequently. Fittings are incompatible for non-respirable gases and containers.
5. In the written program, addressing the employee about fit, selection, use, and maintenance is required.

6. **Work-site conditions may change. Follow site procedures for evaluating the hazards and making a determination as to which type of respiratory protection is required. Respiratory protection is required:**
    1. **When so directed by a supervisor**
    2. **When there is a identified particulate or contaminate**
    3. **When performing certain functions such as welding, grinding, chipping or painting**
    4. **When the host employer so directs**
    5. **When a contaminate exceeds the PEL**
    6. **If the oxygen level is below 19.5%*****
    7. **Any other time they are needed!**

    ***Only SAR shall be used with an escape pack**

Medical Surveillance

1. All employees required to use a respirator must have a physician determine the health and physical conditions that are pertinent for employee ability to carry out the work operations. The factors that may effect ability to perform while wearing a respirator are, but not limited to, Emphysema, Chronic Obstructive Pulmonary Disease, Bronchial Asthma, pneumoconiosis, severe or progressive hypertension, Epilepsy, Diabetes, punctured ear drum, difficulty breathing when wearing a respirator, and Claustrophobia or anxiety when wearing a respirator.

2. Employees shall not be assigned to tasks requiring use of respirator unless it has been determined that the employee is physically able to perform the work and use of equipment.

3. Medical Surveillance shall be administered prior to assignment of respirator use to determine physiological and psychological conditions of user, and to establish a baseline. **This evaluation shall be completed by a Certified Occupational Health Care Professional. Each employee shall have the opportunity to discuss their physical. All information shall remain confidential.**

3. Medical Surveillance shall be administered annually throughout employee employment or when an event occurs to cause a new physical such as loss of teeth, facial injury or serious illnesses. The employee shall bear no cost for these medical evaluations.

4. The employer is required to establish and retain written information regarding medical evaluations, fit testing, and the respirator program. Records of medical evaluations required must be retained and made available in accordance with 29 CFR 1910.1020 and all records are kept filed in safety director's office.

Respirator Selection

1**. Selection of the proper respirator (s) to be used in any location or operation is made only after a determination has been made as to the real and/or potential exposure to harmful concentrations of contaminants in the workplace. These shall be supplied at no charge to the employee**.

2**. Respirators are selected on the basis of the hazards to which the employees are exposed, as determined by periodic evaluation of the workplace environmental conditions.**

3. Respirator protection must be required in certain areas or during certain operations when engineering controls are not available to reduce airborne concentrations of contaminants to a safe level. Engineering controls might not be present because they are technically unfeasible or the operation, which is hazardous, might be done only infrequently, making those controls

impractical. Respirators are also needed while engineering controls are being implemented. In all of the cases the correct respirator must be chosen to protect the health of the employee.

4. **All respirators in use at HOIST LIFT TRUCK are NIOSH approved and are MSA Supplied Air** Respirators, PAPR or Air purifying. Some may be for dust/mist/fume disposable variety or are half mask cartridge respirators supplied with an Organic Vapor Filter Cartridge or Acid Gas. This protection will be selected for the employee based on the chemical properties of the materials with which they are working. **Both MSA full face and half face** respirators are available based on the hazard analysis. All of these respirators are intended for use in an atmosphere containing at least 19.5% oxygen except the SAR and where the concentration of organic fumes is equal to or less than .05 milligrams per cubic meter on a time weighted average. **(3M and other brands area available if the MSA will not fit properly)**

5. The cartridge respirator is constructed with a molded face piece, which fits over the nose and mouth. The neoprene construction of the mask is designed to form a gas tight seal against the face. The filtering of the vapors, fumes, or dusts is accomplished with specially selected filter cartridges set into the face piece. These filter cartridges remove hazards from the air as the individual breathes. This type of respirator is used for protection when working in atmospheres with ammonia, or hydrogen sulfide below the IDLH level. The disposable dust/mist/fume respirators are used mostly to protect against nuisance dust and organic pathogens. Both respirators have specific limitations that the employee must be aware of and at what concentrations of gases the respirators are no longer effective protection.

6. ***You should be aware that facial hair such as beards is prohibited; wearing dentures, weight gain and loss, and facial surgery can affect the tight seal of a mask.*** Make your supervisor aware of any special circumstances that may affect the proper fit and use of these respirators. ***Do not wear contact lenses while using a respirator.***

****If an employee wishes to wear a respirator when it is not required, the guidelines of Appendix "C", CFR 1910.134 shall be followed.

Operating Procedures

The organic vapor and acid gas respirators are issued by your supervisor or may be obtained at no charge. These masks are reusable and this program includes instructions for the cleaning and inspection of equipment. Once you receive a mask complete the following:

1. It should be stored in an airtight sealed plastic bag.
2. Look the mask over for any visible defects such as cuts or tears in the face piece.
3. Once you have inspected the mask, place it over your nose and mouth and take a few practice breaths. The only air you breathe into the mask should come through the filter openings.

4. It should be clean and should have filters attached at the fitting openings located near the nose area of the mask, and have a pesticide pre-filter on the cartridge, if needed.
5. Stretch the securing straps over your head and adjust so they hold the face piece in a tight and secure position over your nose and mouth.
6. The face piece should form a comfortable but tight seal against your face.
7. If the mask does not fit, try another or request the supervisor to supply you with another type of mask.
8. Once you have fitted the mask to your face and secured the straps, take a deep breath to insure that there is sufficient airflow through the filters.
9. Place the palms of your hands over the filter cartridges and attempt to inhale deeply. This should be difficult to do. Pay particular attention to the seal of the mask against your face.
10. As you attempt to breathe in, there should be no air entering from the sides of the mask. If there is, adjust the mask so that it seals tightly against your face. If this does not prevent air from entering the area of the mask against your face, ask your supervisor for another mask.
11. Do not attempt to use a mask that does not fit properly or will not form a tight seal against your face.
12. The mask and its cartridge can be reused and still maintain its filtering effectiveness. Once you have finished your work task complete the following:

    - Clean and disinfect the face piece and inspect the filter cartridges pre-filter.
    - Reseal the mask in a plastic bag and return it to the storage cabinet for future use.
    - *Do not discard these masks and do not attempt to adjust the filter cartridges*.

    If a level of exposure cannot be determined in a specific area, it must be treated as IDLH until further testing is completed. You must work with the Host to determine the hazard and the exposure limits. Use the MSDS, NIOSH pocket guide, or call office for information.

If you want to stop a task and plan to continue in a short amount of time, simply remove the respirator from your face and place it in a sealed plastic bag. The filter cartridges will continue to absorb vapors whether you are wearing it or not, so it is very important to reseal the mask in a plastic bag, if you wish to wear it again.

NOTICE:

- *All filters must be disposed of according to NIOSH requirements*.
- *Follow the end of life indicator for disposal or replace daily*
- *When it becomes difficult to breath you should stop your task and immediately leave the area. This means the pre-filter and filters in the cartridge are full and they must be replaced*.
- *It is also important to check the cartridge expiration dates before each use to prevent injury and illness*.

Respirator Maintenance

1. A great deal of responsibility and care is assigned to the use and maintenance of respirators as personal protection equipment, so that you can be assured that the mask will perform its function every time you use it. In addition to your personal responsibility to use this equipment in a correct manner, **each individual is responsible for the cleaning, maintenance and storage of their respirator.**

2. All respirators should be inspected each time they are used, both before and after use, and if only used periodically should be inspected on a regular basis.
   - Respirators should be inspected before and after each use.
   - Inspect for tightness of connection, condition of face piece, headbands, valves, and canisters.

3. Ensures that the respirators are clean and disinfected.

   Clean
   - Routinely and emergency used respirators shall be cleaned after each use.
   - Remove canisters, filters, valves, straps, and speaking diaphragms from the facepiece.
   - Wash facepiece and accessories in warm soapy water, gently scrub with a brush.
   - Rinse parts thoroughly in clean water.
   - Air dry in a clean place or wipe dry with a lintless cloth.

   Disinfect
   - First use steps above to clean.
   - Immerse the respirator body for two minutes in 50ppm chlorine solution (about 2ml bleach to 1 liter of water).
   - Rinse thoroughly in clean water.
   - Air dry in clean place.

5. Replace damaged parts, when needed, with manufacture-approved parts.

Storage of Respirators

1. For a respirator to perform effectively, it must be stored in a clean and sanitary location; protected against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals.

2. To eliminate any contamination, respirators should be stored in a re-sealable plastic bag.

3. The location of the respirator storage will be adequately marked and quickly accessible.

4. The facepiece and exhalation valve must rest in a normal position.

Training:

Training is provided to all HOIST LIFT TRUCK employees who must wear a respirator according to 29 CFR 1910. Training, pulmonary function tests and fit testing are conducted annually or whenever conditions require. All training is documented and is consistent with manufacturer requirements. All training needed by employee will be at no cost to employee. Employees are trained on the following:

1. Explanation of the respiratory hazards at HOIST LIFT TRUCK.
2. Discussion of what engineering controls and administrative controls are being used.
3. Explanation of respirator selection and limitations.
4. Respirator maintenance
   a. Storage
   b. Cleaning
   c. Replacing parts
5. Understanding respirator function, capabilities, and limitations (conditions that prevent a seal; beard, sideburns, rims on glasses, and absence of dentures).
6. Proper Techniques of Wearing a Respirator
   a. How to put on
   b. How to take off
   c. Making adjustments
7. Descriptions of Different Respirators
   a. Dust mask
   b. Self contained breathing units
   c. 1/4, 1/2, and full masks

Fit Testing

1. After the training process, the employee shall be shown how to put on a respirator, the assessment shall include:
    - Chin properly positioned,
    - Positioning of mask on nose,
    - Strap tension,
    - Fit across bridge of the nose, and
    - Use with safety glasses,

2. After adjusting the respirator, the employee shall conduct the standard positive and negative pressure fit checks.

Positive Pressure Test

- Block exhalation valve,
- Gently exhale, and
- If no air leaks out there is a proper fit.

Negative Pressure Test

- Block inhalation valve,
- Gently inhale, and
- If mask gently collapses towards the face there is a proper fit.

3. After passing the standard positive and negative pressure tests, then the employee will be required to pass a fit test (Bittrex, Irritant Smoke, or Saccharin Solution).

After the employee passes the fit test, records of the results shall be kept by the Program Administrator.

Qualitative and Quantitative Fit Testing

After these tests, the employee then is required by employer to get qualitative and quantitative fit testing. This test will be administered for every respirator used, including the SCBA and supplied air respirators (SAR). The preferred supplied air used at HOIST LIFT TRUCK will be the SAR units. All fit testing for all employees using all respirators used at HOIST LIFT TRUCK will be done annually. If any other respirator(s) are used other than the normal ones used by our employees, OSHA accepted fit testing on respirators will be done on all employees, and results documented and filed on employee. The (QNFT) and (QLFT) is the preferred method of fit testing, is computerized, and gives a multi dimensional test where employee is put into several positions as testing is done, positions that are similar to how employee engages when working.

ATMOSPHERES REQUIREMENTS:

The following information is designed to assist the employee in selecting the proper respirator.

Hazard	TLV	PEL	STEL	IDLH	Information
Dust	Vision obscured beyond 5 feet is potential IDLH In specific areas where dust is excessive, workers may wish to wear dust mask or respirators during periods of high activity.				
Ammonia	25 ppm	35 ppm	50 ppm	300 ppm	
Hydrogen Sulfide	20 ppm	50 ppm	100 ppm	100 ppm	
Chlorine	0.5 ppm	0.5 ppm	1.0 ppm	30 ppm	
Sulfur Dioxide	2 ppm	2 ppm	5 ppm	100 ppm	full face Respirator

Note: All of these substances are irritating or corrosive to the skin and eyes and other personal protective equipment will be required when working with these gases.

RESPIRATOR MAINTENANCE RECORD

Respirator ID #: _____

Date in Service: _____

INSPECTION CHECKLIST	**OK**	**REPAIR/DATE**
Face Piece	_____	_____
Inhalation Valve	_____	_____
Cartridge Seals	_____	_____
Head strap	_____	_____
Filter Cartridges	_____	_____
Storage Bag	_____	_____

_____ _____

Inspector's Signature Date

FIT TEST RECORD

Employee Name: _____

Employee Number: _____

Job Title: _____

Respirator Application: _____

Respirator Type: _____

Respirator Make, Model, Size: _____

___ Pass Fit Check **___ Fail Fit Check (*indicate reason*)**

Limitations: _____ **Beard** _____ **Dentures** _____ **Glasses** _____ **None**

Explain: _____

_____

Fit Test Type: _____

Sensitivity Result: _____ Satisfactory _____ Non - satisfactory

Test Result: _____ **Satisfactory** _____ **Non-satisfactory** _____ **Other**

Explain: _____

_____

Fit Test By: _____ **Date**: _____

Employee Signature: _____ **Date**: _____

RESPIRATOR TRAINING CERTIFICATION

True/False:

1. _____ A respirator is used to prevent the breathing of contaminated air.

2. _____ The proper maintenance of a respirator includes storage, cleaning, and replacing parts.

3. _____ After using a respirator store it in a paper sack.

4. _____ To use a respirator an annual fit test and pulmonary function test must be completed.

5. _____ Facial hair growth can present a problem when wearing a respirator.

6. _____ It is OK to wear contact lenses when using a respirator.

7. _____ My respirator is working correctly when I can smell or taste odors in a respirator zone.

I, _____(print) acknowledge that I have completed the respirator training and can demonstrate an understanding of a respirator. The training I received gave me an understanding of respirators, the purpose, use, limitations, and correct care for a respirator. I understand the importance of this regulation and the material presented to me and will abide by the company rules, policies, and procedures. I will ask questions if I do not understand any instructions.

Trainer: _____ Date: _____

Employee: _____ Date: _____
(Signature)

RESPIRATOR QUESTIONNAIRE AND FITNESS DETERMINATION

Employee Name: _____ Employee Number: _____

Department: _____ Date of Birth: _____ Job: _____

PLEASE ANSWER THE FOLLOWING QUESTIONS.

Do you now or have you ever had:

Asthma	____ Yes	____ No
Chronic Bronchitis or Emphysema	____ Yes	____ No
Ruptured Ear Drum or Ear disorders	____ Yes	____ No
Diabetes	____ Yes	____ No
Epilepsy of seizures	____ Yes	____ No
Pneumothorax (or air leaking from lungs)	____ Yes	____ No
Other Lung Disease	____ Yes	____ No

If yes, explain: _____

Heart Disease ____ Yes ____ No

If yes, explain: _____

Do you wear:

Glasses	____ Yes	____ No
Contact Lenses	____ Yes	____ No
Dentures	____ Yes	____ No

Do you smoke? ____ Yes ____ No

Have smoked in the past? ____ Yes ____ No

How long ago did you quit? _____

Do you have allergies? ____ Yes ____ No

If yes, explain: _____

Are you taking any medications? ____ Yes ____ No

If yes, explain: _____

Have you ever worn a respirator? ____ Yes ____ No

Employee Signature _____ Date _____

Physician to complete: BP: _____ Respirator category: __ Full Use __ Limited Use __ No use permitted __ Limitations

Recommended re - evaluation date: _____

Physician Comments: _____

Physician signature: _____ Date : _____

CERTIFICATE FOR RESPIRATOR USE

This employee has been approved to use the following respirator (s) in the size listed below. No other respirators are hereby authorized.

Exp. Date ____ / ____ / ____

Name: _____SSN: _____

AUTHORIZED RESPIRATORS

Brand	***Model Number***	***Size***
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Medical Surveillance Date: ____ / ____ / ____

Fit Test Date: ____ / ____ / ____

Training Date: ____ / ____ / ____

HOIST LIFT TRUCK

HOIST, CRANES AND SLINGS MANUAL

2015
CHAPTER THREE

CONTENTS:

Hoist and Crane Operator Safety

Inspection:
All hoists and cranes must be inspected by the operator prior to the start of each use or each shift. See Daily Inspection Check List and individual items to be inspected under slings. All hooks on overhead ball assemblies, lower load blocks, or any other attachment assemblies shall be of a types that can be closed and locked, checked before each use, eliminating the hook throat opening. An alloy anchor type shackle with a bolt, nut and retaining pin may be used.

Attaching the Load:
The hoist rope shall not be wrapped around the load. The load shall be attached to the hook by means of slings or other approved devices.

Handling the Load:
One of the most significant hazards associated with cranes is overloading. A crane shall not be loaded beyond its rated load capacity for any reason except test purposes. ***Rated load*** means the maximum load for which a crane or individual hoist is designed and built. A common misconception is that a safety factor is built in that an employer may exceed the rated load up to this safety factor. ***This is not true!*** A load means the total weight on the load block or hook, including any lifting devices such as magnets, spreader bars, chains and slings.

Requirements for Moving the Load:
Before starting to hoist, the following conditions shall be noted:

1. Hoist rope shall not be kinked.
2. Multiple part lines shall not be twisted around each other.
3. The hook should be brought over the load in such a manner to prevent swinging.
4. The crane is level and where necessary, blocked properly.
5. The load is secured and properly balanced in the sling before it is lifted a few inches.

During movement of a load:

1. No employee is permitted on the load or hook while hoisting, lowering or traveling.
2. During hoisting, there should be no sudden acceleration/deceleration of the moving load.
3. Care should be taken to prevent the load from coming in contact with obstructions.
4. Cranes shall not be used for dragging loads sideways.
5. Before traveling with a load, a designated person shall ensure it can be done safely.
6. When rotating the crane or hoist, sudden starts and stops shall be avoided.
7. Tag lines shall be used unless their use creates an unsafe condition. Tag lines used are to be long enough as to worker(s) can use far enough away from the load.

After movement of the load:

1. All rigging, lifting, and movement equipment shall be moved away from the immediate work area as to not present a tripping, or any other hazard.

Holding the Load:

1. Operators shall not be permitted to leave the controls while the load is suspended.
2. No person shall be permitted to pass under a load on the hook.
3. The operator of a crane shall avoid carrying loads over other personnel.
4. If the load must remain suspended for considerable time, the operator shall hold the drum from rotating in the lowering direction by activating the raise control at the operator's station or pendant.

Operating Clearance Near Electric Power Lines:
Except where power lines have been deenergized, visibly grounded at the point of work or when insulating barriers have been erected to prevent physical contact with the lines. The minimum clearance between the lines and any part of the crane or load shall be as shown below:

1. For lines rated 50 kV or below, 10 feet.
2. For lines rated over 50 kV, 10 feet plus 0.4 inches for every kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet.
3. In transit with no load and boom lowered, the clearance shall be a minimum of 4 feet.

<u>Overhead Wires</u>:
All overhead wire shall be considered energized lines, unless electrical utility authorities indicate that it is not an energized line.

Daily Inspection Check List

The following are items that must be visually inspected:

1. Inspect hoisting ropes to make sure that they do not run near parts causing fouling or chafing. If they do, guards shall be installed to prevent this condition.
2. All moving parts must be guarded to prevent operator or load handler exposure.
3. The brake for the trolley must work properly and not be permitted to coast.
4. All pendants should be inspected to ensure they are supported to protect the electrical conductor against strain, and the controls are maintained in a safe working condition.
5. The pendant control box must be clearly marked for identification of functions.
6. The operator should verify the over-travel limit switch works in the hoisting direction. Raising the hoist block and hook without a load will verify if the limit switch is working properly. If working properly, it should disconnect the power to the drive motor and stop the load if that load is raised above a certain point. CAUTION: Do not stand directly under or near the hoist block when checking. If the limit switch does not work the cable may be severed and the hoist block will fall to the floor below.
7. The operator should observe the hoisting ropes to ensure they are riding through the sheaves grooves smoothly. The sheaves in the bottom blocks shall be fitted with close-fitting guards that will prevent ropes from becoming fouled when the block is lying on the ground with the rope loose. If the rope comes off the sheave grove, they can become entangled on the shaft, creating binding or shaving of the hoist rope. Rope fouling will usually occur when there is a slack cable condition.
8. All rope must have at least two wraps remaining on the hoist drum when the hook is in its extreme low position

Slings 29 CFR 1910.184

The mishandling of materials is the single largest cause of accidents and injuries in the workplace. Most of these accidents and injuries, as well as the pain and loss of salary and productivity that often result, can be readily avoided. Whenever possible, mechanical means should be used to move materials in order to avoid employee injures such as muscle pulls, strains, and pains. The operator must exercise intelligence, care, and common sense in the selection and use of slings. Slings must be selected in accordance with their intended use, based upon the size and type of load and the environmental conditions. All slings must be visually inspected before use to ensure that there is no obvious damage.

Sling Types:
The dominant characteristics of a sling are determined by the components of that sling. Slings are generally one of six types: Chain, wire rope, metal mesh, natural fiber rope, synthetic fiber rope, or synthetic web. Factors that should be taken into consideration when choosing the best sling for the job include the size, weight, shape, temperature, and sensitivity of the material to be moved, as well as the environmental conditions under which the sling will be used.

Safe Operation Practices:

1. Slings that are damaged or defective shall not be used.
2. Slings shall not be shortened with knots, bolts or other makeshift devices.
3. Sling legs shall not be kinked.
4. Slings shall not be loaded in excess of their rated capacities.
5. Slings used in a basket hitch shall have the loads balanced to prevent slippage.
6. Slings shall be securely attached to their loads.
7. Slings shall be padded or protected from the sharp edges of their loads.
8. Suspended loads shall be kept clear of all obstructions.
9. All employees shall be kept clear of loads about to be lifted and of suspended loads.
10. Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
11. Shock loading is prohibited.
12. A sling shall not be pulled from under a load when the load is resting on the sling.

Inspections:

Each day before being used, the sling, fastenings, and attachments shall be inspected for damage or defects by a competent person. Damaged or defective slings shall be immediately removed from service if they have any of the following conditions:

1. Ten broken wires in one rope lay, or five broken wires in one strand in one rope lay.
2. Wear or scraping of 1/3 the original diameter of outside individual wires.
3. Kinking, crushing, bird caging or any other damage.
4. Evidence of heat damage.
5. End attachments that are cracked, deformed or worn.
6. Hooks that have been opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook.
7. Corrosion of the rope or end attachments is observed.

Metal mesh slings shall be immediately removed from service for any of the following conditions:

8. A broken weld or brazed joint along the sling edge.
9. Reduction in wire diameter of 25 percent due to abrasion or 15 percent due to corrosion.
10. Lack of flexibility due to distortion of the fabric.
11. Distortion of the female handle so that the depth of the slot is increased more than 10 percent.
12. Distortion of either handle so that the width of the eye is decreased more than 10 percent.
13. A 15% reduction of the original cross sectional area of metal at any point around the handle eye.
14. Distortions of either handle out of its plane.

Natural and synthetic fiber rope slings shall be immediately removed from service for:

1. Abnormal wear.
2. Powdered fiber between strands.
3. Variations in the size or roundness of strands.
4. Discoloration or rotting.
5. Distortion of hardware in the sling.

When **synthetic web slings** are used, the following precautions shall be taken:

1. Nylon web slings shall not be used where fumes, vapors, sprays, mists, liquids of acids or phenolics are present.
2. Polyester and polypropylene web slings shall not be used where fumes, vapors, sprays, mists or liquids of caustics are present.
3. Web slings with aluminum fittings shall not be used where fumes, vapors, sprays, mists or liquids of caustics are present.

Synthetic web slings shall be immediately removed from service if any of the following conditions are present:

1. Acid or caustic burns.
2. Melting or charring of any part of the sling surface.
3. Snags, punctures, tears, or cuts.
4. Broken or worn stitches.
5. Distortion of fittings.

Chains:

Chains are used for their strength and ability to adapt to the shape of the load. Alloy chain slings can be damaged by sudden shocks.

Chain slings are your best choice for lifting materials that are very hot. They can be heated to temperatures of up to 1000°F; however, when alloy chain slings are consistently exposed to service temperatures in excess of 600°F, operators must reduce the working load limits in accordance with the manufacturer's recommendations.

When inspecting alloy steel chain slings, pay special attention to:

1. Stretching, wear in excess of the allowances made by the manufacturer, and nicks and gouges.
2. Chain slings must be cleaned prior to each inspection, as dirt or oil may hide damage.
3. The operator must be certain to inspect the total length of the sling periodically, looking for stretching, binding, wear, or nicks and gouges.
4. If a sling has stretched so that it is now more than three percent longer than it was when new, it is unsafe and must be discarded.
5. Binding is when a sling has become deformed and its individual links cannot move within each other freely. It is also an indication that the sling is unsafe.
6. Generally, wear occurs on the load-bearing inside ends of the links. Pushing links together so that the inside surface becomes clearly visible is the best way to check for this type of wear. Wear may also occur on the outside of links when the chain is dragged along abrasive surfaces or pulled out from under heavy loads.
7. Heavy nicks and/or gouges must be filed smooth, measured with calipers, then compared with manufacturer's minimum allowable safe dimensions.
8. When in doubt, or in borderline situations, do not use the sling.
9. Never attempt to repair the welded components on a sling.

Wire Rope:

A second type of sling is made of wire rope. Wire rope is composed of individual wires that have been twisted to form strands. The strands are then twisted to form a wire rope. When wire rope has a fiber core, it is usually more flexible but is less resistant to environmental damage. Conversely, a core that is made of a wire rope strand tends to have greater strength and is more resistant to heat damage.

Wire Rope Sling Selection:

When selecting a wire rope sling, there are four characteristics to consider: strength, ability to bend without distortion, ability to withstand abrasive wear, and ability to withstand abuse.

1. **Strength** - The strength of a wire rope is a function of its size, grade, and construction. A wire rope sling with a strength of 10,000 pounds and a total working load of 2,000 pounds has a design factor (multiplier) of 5. If a sling is loaded beyond its ultimate strength, it will fail. For this reason, older slings must be more rigorously inspected.
2. **Fatigue** - A wire rope must have the ability to withstand repeated bending without the failure of the wires from fatigue. Fatigue failure occurs when ropes make small radius bends. The best means of preventing fatigue failure of wire rope slings is to use blocking or padding to increase the radius of the bend.
3. **Abrasive Wear** - The ability of wire rope to withstand abrasion is determined by the size, number of wires, and construction of the rope. Smaller wires bend more readily and therefore offer greater flexibility but are less able to withstand abrasive wear. Conversely, the lager wires of less flexible ropes are better able to withstand abrasion than smaller wires of the more flexible ropes.
4. **Abuse** - Abusing a wire rope sling can cause serious structural damage to the wire rope, such as kinking or bird caging which reduces the strength of the wire rope. (In bird caging, the wire rope strands are forcibly untwisted and become spread outward.)

Wire Rope Sling Inspection: Wire rope slings must be visually inspected before each use. The operator should check the twists or lay of the sling. If ten randomly distributed wires in one lay are broken, or five wires in one strand of a rope lay are damaged, the sling must not be used. End fittings and other components should also be inspected for damage also.

Field Lubrication: Although every rope sling is lubricated during manufacturing, to lengthen its useful service life it must also be lubricated "in the field". There is no set rule on how much or how often this should be done. The heavier the loads, the greater the number of bends, or the more adverse the conditions under which the sling operates, determines the lubrication times.

Storage: Wire rope slings should be stored in a well ventilated, dry building or shed. Never store them on the ground or allow them to be continuously exposed to the elements because this will make them vulnerable to corrosion and rust. If it is necessary to store wire rope slings outside, make sure that they are set off the ground and protected.
Factors requiring that a wire sling be discarded include the following:

1. Severe corrosion,
2. Localized wear (shiny worn spots) on the outside,
3. A one-third reduction in outer wire diameter,
4. Damage or displacement of end fittings - hooks, rings, links, or collars,
5. Distortion, kinking, bird caging, or other evidence of damage to the wire rope structure, or
6. Excessive broken wires.

Fiber Rope and Synthetic Web:
Fiber rope and synthetic web slings are used primarily for temporary work, such as construction and painting jobs, and in marine operations. They are also the best choice for use on expensive loads, highly finished parts, fragile parts, and delicate equipment.

Fiber Rope:
Fiber rope slings are pliant, they grip the load well and they do not mar the surface of the load. They should be used only on light loads, and must not be used on objects that have sharp edges or in applications where the sling will be exposed to high temperatures, severe abrasion or acids. The choice of rope type and size will depend upon the application, the weight to be lifted, and the sling angle. Before lifting any load with a fiber rope sling, be sure to inspect the sling carefully because they deteriorate far more rapidly than wire rope slings and their actual strength is very difficult to estimate.

When inspecting a fiber rope sling prior to using it, look first at its surface for dry, brittle, scorched, or discolored fibers. Next, check the interior of the sling. It should be as clean as when the rope was new. A build-up of powder-like sawdust on the inside of the fiber rope indicates excessive internal wear and is an indication that the sling is unsafe. Finally, scratch the fibers with a fingernail. If the fibers come apart easily, the fiber sling has suffered some kind of chemical damage and must be discarded.

Synthetic Web Slings:
The most commonly used synthetic web slings are made of nylon, dacron, and polyester. They offer: strength (up to 300,000 pounds); adjust to the load contour and hold it with a tight, non-slip grip; will not mar, or scratch highly polished or delicate surfaces; are unaffected by mildew, rot, or bacteria; resist some chemical action, and have excellent abrasion resistance; have low initial cost plus long service life; and can absorb heavy shocks without damage.

Synthetic material properties: Nylon must be used wherever alkaline or greasy conditions exist. Dacron must be used where high concentrations of acid solutions - such as sulfuric, hydrochloric, nitric, and formic acids - and where high-temperature bleach solutions are prevalent. (Nylon will deteriorate under these conditions.) Do not use dacron in alkaline conditions because it will deteriorate; use nylon or polypropylene instead. Polyester must be used where acids or bleaching agents are present and is also ideal for applications where a minimum of stretching is important.

Synthetic web slings must be removed from service if any of the following defects exist:
1. Acid or caustic burns,
2. Melting or charring of any part of the surface,
3. Snags, punctures, tears, or cuts,
4. Broken or worn stitches,
5. Wear or elongation exceeding the amount recommended by the manufacturer, or
6. Distortion of fittings.

Safe Lifting Practices:
There are four primary factors to take into consideration when safely lifting a load. They are:
1. The size, weight, and center of gravity of the load;
2. The number of legs and the angle the sling makes with the horizontal line;
3. The rated capacity of the sling; and
4. The history of the care and usage of the sling.

Size, Weight, and Center of Gravity of the Load:
The center of gravity of an object is that point at which the entire weight is concentrated. In order to make a level lift, the crane hook must be directly above this point. While slight variations are usually permissible, if the crane hook is too far to one side of the center of gravity, dangerous tilting will result causing unequal stresses in the different sling legs

Number of Legs and Angle with the Horizontal:
As the angle formed by the sling leg and the horizontal line decreases, the rated capacity of the sling also decreases. In other words, the smaller the angle between the sling leg and the horizontal, the greater the stress on the sling leg and the smaller (lighter) the load the sling can safely support. Larger (heavier) loads can be safely moved if the weight of the load is distributed among more sling legs.

Summary:
There are good practices to follow to protect yourself while using slings to move materials. First, learn as much as you can about the materials with which you will be working. Slings come in many different types, one of which is right for your purpose. Second, analyze the load to be moved - in terms of size, weight, shape, temperature, and sensitivity - then choose the sling which best meets those needs. Third, always inspect all the equipment before and after a move. Always be sure to give equipment whatever "in service" maintenance it may need. Fourth, use safe lifting practices. Use the proper lifting technique for the type of sling and type of load.

HOIST LIFT TRUCK MFG.

Hearing Conservation Program

2015
CHAPTER FOUR

Contents:

SCOPE

This Hearing Conservation Program includes the policies HOIST LIFT TRUCK will utilize to effectively manage noise exposure. This program outlines the procedures for all HOIST LIFT TRUCK job sites, and includes provisions for the monitoring of employee exposure to noise, recordkeeping, hearing protection devices, care and maintenance of hearing protection, and training.

COMPANY POLICY

HOIST LIFT TRUCK strives for a safe work environment for all employees. This Hearing Conservation Program is designed to inform employees of the hazards of noise, the effective means for reducing noise exposure through the use of personal protection, and the requirements of the HOIST LIFT TRUCK policy. Whenever possible HOIST LIFT TRUCK will attempt to reduce noise levels through administrative or engineering controls. If these controls are unsuccessful, then hearing protection will be required. Due to the types of tasks performed, i.e., grinding, sand blasting and hammering metal, it is impractical to reduce the noise exposure during these tasks. It is for these reasons all employees performing grinding, sand blasting or hammering of metal, and those employees in the same area that are exposed to this noise, are required to wear hearing protection. HOIST LIFT TRUCK keeps three types of hearing protection in stock for all employees and visitors to select from. In the situation where the provided hearing protection does not fit properly or create undue pain or hardship, the employee should notify their supervisor and the Safety Department to assist them in obtaining appropriate hearing protection.

SUPERVISOR RESPONSIBILITIES

All Supervisors are responsible to **follow and enforce** the provisions of this Hearing Conservation Program. It will be necessary to evaluate each job site for the possibility of hearing conservation methods that will reduce employee exposure to noise.

EMPLOYEE RESPONSIBILITIES

Employees of HOISTLIFT TRUCK will adhere to the provisions of this program. All employees performing grinding, sand blasting or hammering of metal, and those employees in the same area that are exposed to this noise, are required to wear hearing protection. Employees are also responsible for the care, use, and maintenance of hearing protection devices. All employees are encouraged to use proper hygiene when caring for and inserting ear plugs. If extra protection (more than earplugs) is necessary or the employee is sensitive to earplugs, HOIST LIFT TRUCK offers ear muffs for hearing protection. Employees needing ear muffs should contact their supervisor or safety representative to obtain them.

NOISE MONITORING

HOISTLIFT TRUCK will conduct a noise survey of the work site at least annually. The survey will be conducted using noise dosimeters in order to establish an 8-hour time weighted average (TWA). All employees who are exposed to noise levels above 85 decibels (dB) on the A scale (slow response) as an 8-hour TWA will be included in the Hearing Conservation Program. In areas where the noise levels reach or exceed 90 dBA as an 8-hour TWA hearing protection will be **required**. Additionally, in areas where noise levels reach or exceed 90 dBA, every attempt will be made to incorporate engineering controls in order to reduce noise levels.

The results of noise monitoring will be posted in a conspicuous location so that all HOIST LIFT TRUCK employees may be aware of the noise levels. Each employee who is exposed to noise levels at or above 85 dBA will be notified of his/her exposure in writing. Additionally, all areas where hearing protection is required will be posted as such.

AUDIOMETRIC TESTING

All HOIST LIFT TRUCK employees that are exposed to noise above TWA of 85 dBA over an 8-hour shift, will receive audiometric testing at no cost as part of an initial employment physical. This audiogram will be used as the reference baseline audiogram to which future audiograms will be compared. Employees will receive audiograms annually thereafter. Each audiogram shall be pure tone, air conduction, hearing threshold examinations with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests at each frequency will be taken separately for each ear. HOISTLIFT TRUCK will obtain a valid baseline audiogram within 1 year of the employee's first exposure at or above the action level. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise.

Within six months of an employee's first exposure at or above the action limit, the employer shall establish a valid baseline audiogram against which future audiograms can be compared. When and if a mobile van is used, the baseline shall be established within one year.

If the annual audiogram reveals that an employee has suffered a standard threshold shift, HOIST LIFT TRUCK may obtain a retest within 30 days, and consider the results of the retest as the annual audiogram.

A loss in hearing ability is determined by comparing the annual audiogram with the baseline audiogram. The degree of loss requiring action is referred to as a **standard threshold shift** (STS) in which an average shift in either ear of 10 decibels or more at 2000, 3000, and 4000 hertz has occurred. Any employee who experiences a STS will be notified in writing within 21 days of determination.

An audiologist, otolaryngologist, or physician shall review problem audiograms and all STS that have more than a 10 decibel shift at 2000, 3000 and 400 hertz. The physician shall determine whether there is a need for further evaluation. If the STS is identified and determined to be work related, the employee will be fitted or refitted with adequate hearing protection, shown how to use the hearing protection properly, and will be required to wear hearing protection. Some employees may be referred for further testing if the results are questionable or if they have an ear

problem of a medical nature that is thought to be caused or aggravated by wearing hearing protection.

HEARING PROTECTION

Hearing protection is mandatory under three conditions:

1. Where exposures are at or above 90 dBA.

2. If an employee has experienced a STS of 10 dB at 2000, 3000, and 4000 Hz.

3. If an employee works in an area where exposure levels are at or above 85 dBA, and the employee has worked in the area at least 6 months, and has not had a baseline audiogram.

Hearing protection is ***recommended*** when the eight-hour TWA exposure levels are between 85 dBA and 89 dBA, or whenever an employee becomes irritated or annoyed by noise levels. HOISTLIFT TRUCK employees will utilize hearing protection, as a precautionary measure, to prevent hearing loss during all operations involving the following equipment, if their use is **more than 2 hours consecutively**:

- Portable Circular Saw
- Grinders
- Welding & Cutting Tools
- Sand Blasting
- Pneumatic Tools
- Hammering Metal

Any other equipment that creates enough noise that you cannot understand conversation at normal tones of someone standing at arms distance from you (2 - 3 feet), will probably need hearing protection.

HOIST LIFT TRUCK will offer its employees a variety of hearing protectors at no cost to the employees. OSHA interprets "variety" to mean at least one type of earplug and one type of ear muff. If an employee is not comfortable with the options, a suitable hearing protector for the employee will be acquired. The employees will receive training regarding the use and care of hearing protectors, and the trainer will ensure the initial fit of hearing protectors. Supervisors will ensure the correct use of hearing protectors.

Hearing protectors will be capable of reducing noise levels to at least 90 dBA (or 85 dBA for those employees who experience a STS).

Warning signs will be posted to alert all personnel and visitors of areas requiring hearing protection.

TRAINING

Training will be provided to all employees exposed to noise levels of 85 dBA or greater. The training will include:

- The effects of noise.
- The purpose, advantages, and disadvantages of various types of hearing protectors.
- The selection, fitting, and care of hearing protectors.
- The purpose and procedures of audiometric testing.

It is important that all employees understand the reasons for the Hearing Conservation Program and the need to protect their hearing.

Training will be repeated annually. Any changes in hearing protectors or work practices will be discussed.

RECORDKEEPING

Noise monitoring data will be kept indefinitely. Records of audiometric testing will be maintained for the duration of the employees' employment.

ACCESS TO INFORMATION

A copy of the Hearing Conservation Standard is posted in the workplace. Records will be available to all affected employees, their representatives, or OSHA upon request. Any employee who would like to review this program must inform their Supervisor. The Supervisor will make a copy of this program available for review. Any employee wishing his or her own copy may be charged a reasonable fee to cover copy charges, at the discretion of management.

APPENDIX A

TYPES OF HEARING PROTECTION DEVICES

The three types of hearing protection devices are:

1. Earplugs (molded/formable)
2. Canal Caps
3. Earmuffs

Earplugs/Aural Insert Protectors: These hearing protection devices are normally referred to as inserts or earplugs. The earplugs are made of materials such as:

- Rubber
- Plastic
- Acoustical Fibers
- Foam
- Wax Impregnated Cotton

A. Molded Inserts

These usually have a (NRR) within the range of 25-26 dB. They are usually made of materials such as:

- Soft Silicone
- Rubber
- Plastic

ADVANTAGES	DISADVANTAGES
Little danger of inserting too far into ear canal.	Hard to fit because of variety of canal sizes.
Generally inexpensive.	Molded inserts will eventually harden/shrink.
Can wash and reuse.	Must maintain a variety of sizes.
	Possible allergic reaction due to material.

B. Formable Inserts:

Due to the design of formable inserts they have a (NRR) that ranges from 27-33 dB. The materials used are often fine glass fiber, expandable plastic, foam, or wax.

Canal Caps/Superaural: This type of protection is made to rest against the outer edge of the ear canal. They are made of a soft rubber and are held in place with a headband. The (NRR) on this type of protector ranges from 17-25 dB.

ADVANTAGES	DISADVANTAGES
Reusable.	Does not provide as high (NRR).
One size fits all with adjustable headband.	Requires regular cleaning.
Best for work that is frequently in and out high noise areas.	Can interfere with eye protective devices.

Earmuffs/Circumaural: Earmuffs are designed to fit over the entire external ear including the lobe and seal against the side of the head with suitable cushion or pad. They generally have a (NRR) that ranges from 22-29 dB when properly used.

ADVANTAGES	DISADVANTAGES
Alternative for those people allergic to inserts.	Perspiration eventually stiffens seal.
Easy to replace the protective seal.	Not practical for confined spaces.
Many are adjustable for better fit.	Electricians need non-conductive muffs.
Can be used in conjunction with insert devices.	Effectiveness reduced when worn over eye protection frames.

APPENDIX B

FIT AND CARE OF HEARING PROTECTION

I. EAR PLUGS

A. FIT

1. Wash
2. Slowly roll and compress foam plugs into a very thin cylinder.
3. Reach around the head and pull the ear outward and upward during insertion.
4. While compressed, insert plug well into the ear canal.
5. Hold in place for a moment until it begins to expand.

B. CARE

1. Keep plugs as clean as possible.
2. Inspect them before reinsertion.
3. If damaged or dirty, dispose of them.
4. Periodically check that the fit is still snug.
5. Do not share earplugs with other employees.

II. EAR MUFFS

A. FIT

1. Earmuffs must fully enclose the ears to seal against the head.
2. Adjust the headbands so cushion exerts even pressure around the ears.
3. Keep hair from underneath the cushions.
4. Do not store pencils under the cushion.

B. CARE

1. Clean with warm water and mild soap.
2. Do not use alcohol or solvents to clean cushions.
3. Replace the cushions if stiff, worn, cut, or torn.

HOIST LIFT TRUCK
EMERGENCY FIRST AID/CPR

2015
CHAPTER FIVE

CONTENTS:

TRAINING OBJECTIVES

Designate employees will be train in accordance with the American Red Cross First Aid and CPR programs by a designated regional training facility. Each employee shall have and carry their certification cards on the job site. BASIC TRAINING OUTLINE

1. What is emergency first aid?

2. Legal issues of applying first aid (Good Samaritan Laws).

3. Basic anatomy.

4. Victim assessment and first aid for the following:

    - Respiratory Arrest
    - Cardiac Arrest
    - Choking
    - Hemorrhage
    - Amputations
    - Shock
    - Loss of Consciousness
    - Paralysis
    - Musculoskeletal Injuries
    - Lacerations and Abrasions
    - Eye Injuries
    - Burns
    - Extreme Temperature Exposure (Hypothermia & Hyperthermia)
    - Poisoning
    - Loss of Mental Functioning (Psychosis, Hallucinations, etc.)
    - Drug Overdose

5. CPR.

6. Application of dressing and slings.

7. Treatment of strains sprains and fractures.

8. Immobilization of injured persons.

9. Handling and transporting injured persons.

10. Treatment of bites, stings, or contact with poisonous plants or animals.

EMERGENCIES

DEFINITION

An emergency is an unexpected occurrence that demands immediate action. Staying calm is the key, and knowing what to do ahead of time is your best defense against panic.

BE PREPARED

Prepare a list of emergency phone numbers and keep them readily accessible near all telephones and in the EAP on site.

Emergency phone numbers you should have available:

- The nearest emergency facility
  - ♦ Hospital
  - ♦ Emergent Care Center
- Emergency Ambulance
- Poison Center
- Fire Department
- Police
- Crisis Intervention Center
- * Physicians (company physician, ophthalmologist, dentist, orthopedist)
- * 24 Hour Pharmacy

First Aid equipment is available in the shop, the office and on each crew vehicle. FA equipment is taken to the work site. They are stored in 10 or 25 unit boxes as supplied by the manufacturer and meet 1910.151 Appendix "A" requirements. At minimum, the kits contain the following:

Band aids	triangle bandage
2X2 dressing	eye patch
4X4 dressing	tweezers
Ice pack	iodine or equivalent
1 inch bandage	Steri strips
2 inch bandage	first aid cream
Antiseptic	water gel
BBP supplies	gloves, nitrile and latex
Anti itch cream	1 inch adhesive tape
Roller gauze	stretch bandage

The Safety Coordinator is to insure kits are complete before leaving the shop and are to be inspected and refilled weekly when on a job site.

On worksites, the nearest eyewash and shower should be identified and discussed in the pre-job safety briefing.

HOIST LIFT TRUCK employees will not take seriously injured employees to the hospital. The EAP for the host employer should be activated and EMS called to access and transport to the nearest hospital or care facility.

If the use of corrosives is part of the job, eyewash and drenching should be provided at the worksite.

In those countries not having EMS or the wait would be to long, the victim should be supported and transported to the nearest facility which can give the required aid. Do not overlook embassies, clinics, military facilities or veterinarians.

This training course is provided as a basic review of emergency first aid principles and is not intended to be a certification course.

IDENTIFYING AN EMERGENCY

If there is doubt whether a condition is an emergency, seek evaluation in an emergency room.

The following conditions should always be evaluated by a physician without delay:

- Serious wounds, i.e., crush injuries, severe burns, etc.
- Active bleeding that will not stop after 5 minutes of direct pressure.
- Broken bones.
- Unconsciousness.
- Trauma resulting in dizziness or blurred vision.
- Signs of a heart attack (severe chest, neck, or arm pain; shortness of breath; sweating.)
- Disorientation in someone who has previously been alert.
- Difficulty breathing (especially if in relation to smoke, chemical inhalation, or trauma.)
- Vehicular accidents with complaints of numbness, tingling, severe pain, bleeding, etc.

LEGAL ISSUES AND FIRST AID
THE GOOD SAMARITAN LAWS

Legally, a victim must give consent to an offer of help before first aid is rendered. If a victim is conscious, ask permission before helping him or her. The law assumes that an unconscious person would give consent. Consent is implied for a person who is unconscious, badly injured, or so ill that he or she cannot respond.

State Good Samaritan Laws provide legal protection to rescuers who **act in good faith and are not guilty of gross negligence or willful misconduct**. The purpose of these laws is to minimize fear of legal consequences for providing first aid and CPR, and to eliminate this prohibitive fear in implementing a Emergency Care Program.

There has been no instance known to CSS in which a layperson who has performed CPR or rendered first aid reasonably has been sued successfully. There are a number of reasons why such a legal action is extremely unlikely in the future. These include: (1) the provision of statutory immunity to layperson as well as medical professionals in many jurisdictions for performance of CPR and first aid in the form of Good Samaritan laws; and (2) the fact that successful prosecution of a layperson performing CPR or rendering first aid in good faith would discourage, if not terminate, the future layperson CPR and first aid and thus run counter to established public policy and interest. Laypersons are protected under most Good Samaritan Laws if they perform CPR or first aid, even if they have had no formal training.

VICTIM ASSESSMENT

The first thing every first aid responder must take into consideration is their own safety, and then the victim's safety.

Don't Rush In! Before approaching any victim, first evaluate the environment. The reason the person is injured or unconscious may still pose a threat to emergency responders.

Stand back and evaluate the environment! What caused the accident? Has the victim been electrocuted? Are there toxic gases in the atmosphere posing a threat to all who come in contact? Is there machinery running that could harm the rescuer? Has the victim fallen from a height or been struck by a vehicle or a part off a machine?

Once you have established it is safe to approach the victim, do so quickly and safely. **Without moving the victim, assess them in the position you found them.**

First, think ABC - Airway, Breathing, and Circulation.

Airway: Establish an open airway.
Breathing: Reestablish breathing.
Circulation: Begin external compressions if the heart has stopped.

Once breathing and circulation has been established or verified you should move quickly to stop any hemorrhaging. After hemorrhaging has been stopped always treat for shock.

SYMPTOMS OF SHOCK:

- Altered level of consciousness.
- Faintness.
- Paleness and occasionally blue lips.
- Rapid, shallow breathing.
- Rapid, weak pulse.
- Cool, clammy skin.

TREATMENT FOR SHOCK:

- Call 911.
- Have the victim remain lying down.
- Move them only if their safety is in jeopardy or are in need of CPR.
- Keep them warm, cover with a blanket.
- Elevate their feet above chest level.

THE SECONDARY ASSESSMENT

INTERVIEW THE VICTIM:

- Introduce yourself.
- Get permission to give care.
- Ask the victim's name, what happened, about pain or discomfort, any allergies, and are they taking any medications?
- Always tell the victim of anything you are going to do before doing it.

CHECK VITAL SIGNS:

- Determine radial or carotid pulse.
- Radial pulse can be checked by placing your index and middle fingers on the palm side of the victim's wrist. Slide your fingertips toward the thumb side of the wrist. Apply moderate pressure.
- Count the number of beats in 30 seconds and multiply by 2. This is the number of heartbeats per minute.
- Determine the breathing rate by counting the number of rise and fall of the victim's chest or abdomen.
- Count the number of breaths in 30 seconds and multiply by 2 for the number per minute.

DETERMINE SKIN APPEARANCE:

- Feel the victim's forehead with the back of your hand.
- Look at the victim's face and lips.
- Record skin appearance: temperature, moisture, and color.

HEAD TO TOE EXAM:

- Start with the head. Look and feel for cuts, bruises, and other signs of injury.
- Check and compare pupils of both eyes. [You are checking for symmetry (equal size). Note: it is perfectly normal for some people to have 1-2 mm asymmetry unequal pupil size.]
- Check for fluid or blood in ears, nose, and mouth.
- Gently feel the sides of the neck to check for pain and signs of injury. Look for cuts and bruises.
- Check and compare both collarbones and both shoulders for signs of injury and pain.

- Check the rib cage for pain or signs of injury by pressing firmly along sides of chest.
- Check victim's abdomen for tenderness by pressing lightly with the flat part of your fingers. Check for bruises, if possible.
- Check one arm at a time. Begin at the shoulder and move toward the fingers. Ask the victim to wiggle his or her fingers, if not painful.
- Press firmly on the hips. Look for signs of injury.
- Check one leg at a time. Begin at the top of the leg and move toward the foot. Ask the victim to wiggle their toes or feet, if not painful.

CARDIOPULMONARY RESUSCITATION (CPR)

STEP ONE: CHECK FOR CONSCIOUSNESS/CALL FOR HELP.

- Ask the victim if they are OK?
- If unconscious, roll the victim to their back, making sure you support their head and neck. If you suspect a spinal injury, be careful not to move the victim's neck.
- If the victim does not respond, call 911.

STEP TWO: CHECK FOR BREATHING/OPEN AIRWAY

- Place your cheek next to their nose and mouth to check for breathing, and at the same time look for movement of their chest and abdomen. If they are not breathing, you will need to open their airway.
- If there is vomit or liquid in their mouth remove it. (Protect your fingers with a clean cloth if available.)
- Push down and back on the forehead and lift the chin by placing you fingers under the jaw bone. (Be very careful with this maneuver if you suspect a spine or neck injury.)
- Check the mouth, chest, and abdomen again for movement. Sometimes just opening the airway is enough to get the breathing started again.
- If the person does not begin breathing immediately, begin rescue breathing

STEP THREE: BEGINNING RESCUE BREATHING

- Pinch the victim's nostrils shut with the same hand you have on their forehead.
- Place your mouth over the victim's mouth, making a tight seal.
- Slowly blow in air until the victim's chest rises. Remove your mouth between breaths and allow time for the victim to exhale passively before giving the next breath.

STEP FOUR: CHECK FOR PULSE

- Locate the main (carotid) artery in the neck by placing the tips of your index and middle finger on the Adam's apple and sliding them toward the side of their neck until you reach the groove between the Trachea (windpipe) and the muscles at the side of the neck.
- Hold your fingers in place for five to ten seconds.

- IF THERE IS A PULSE -

- Continue rescue breathing. **Do not do chest compressions on a victim who has a pulse.** Severe injury can occur if you perform chest compressions on someone whose heart is beating.
- Blow air into the lungs 12 times per minute (once every five seconds) for an adult, 15 times per minute for a small child, and 20 times per minute for an infant.
- Check the pulse once per minute to ensure the heart is still beating.

- IF THERE IS NO PULSE -

STEP FIVE: BEGIN CHEST COMPRESSIONS

- Find the lower rib cage and move your fingers up the rib cage to the notch where the ribs meet the lower breastbone in the center of the lower part of the chest.
- Place the heel of one hand down on the breastbone at least three fingers up from the bottom of the breast bone and your other hand on top of the one that is in position.
- Do not compress the chest with your fingers as this can cause rib fractures.
- Lock your elbows into position with your arms straight. Place your shoulders directly over your hands so the thrust of each compression goes straight down on the chest.
- Push down with a steady, firm thrust, compressing the chest one to two inches for an adult.
- Lift your weight from the victim and repeat. Do not lift your hands from the victim's chest between thrusts.
- Do 15 chest compressions in about 10 seconds.
- After 15 compressions, quickly tilt the head and lift the chin of the victim, pinch the nose and breathe two slow breaths to fill the lungs. The chest must be deflated after each breath.

- Continue this cycle (15 compressions and two breaths) at the rate of 100 compressions per minute. Check the victim's pulse after one minute. **Continue the compressions and breathing until help arrives if there is still no pulse.**

- For children 1 to 8 years old, compress the chest one to one-half inches and give five chest compressions to one breath.

EXTRA CARE MUST BE TAKEN WHEN PERFORMING CPR ON AN INFANT:

- If chest compression is necessary, position your index and middle fingers on the baby's breastbone.

- Gently compress the chest no more than one inch. Count out loud as you pump in a rapid rhythm - roughly one and a half times a second or about 100 times a minute.

- Gently give one breath (with your mouth covering the baby's mouth and nose) after every fifth compression.

CHOKING

PREVENTION:

- Take small bites and chew food thoroughly. Cut meat into small pieces.
- Don't eat too fast, or eat and talk or laugh at the same time.
- Don't drink too much alcohol before eating.
- If you smoke, wait until after you are finished eating to light up.

PREVENTION WITH CHILDREN:

- Keep small objects that children might choke on out of reach.

- Check all stuffed animals/dolls to ensure the eyes, buttons, etc. will not be removed if a small child chews on them.

- Check all toys for small removable parts.

- Do not allow children to run or jump with food or any other object in their mouth.

WHAT TO DO IF SOMEONE IS CHOKING:

- A conscious child or adult who is choking may have complete or partial obstruction of the airway. If in doubt if they are choking asks, "Can you speak" -or- "Are you choking?" They will be unable to speak and will hopefully be able to nod or use the universal signal for choking by grasping at their throat.

- If they can still speak they are getting some air and should be encouraged to cough vigorously. If they can speak, do not administer a Heimlich maneuver.

CHOKING RESCUE (HEIMLICH MANEUVER) FOR A CONSCIOUS PERSON:

- Ask "Are you choking?"-or- "Can you speak?"

- Stand behind the person.

- Wrap your arms around their waist.
- Grasp one of your fists with the other hand and place the thumb-side of the fist just above the naval, but below the rib cage.

- Thrust your fist upward in five quick, sharp jabs.

- Repeat until the object is dislodged or the person becomes unconscious.

CHOKING RESCUE FOR AN UNCONSCIOUS PERSON:

- Call 911.

- Check for object in the mouth visually. Sweep out only if seen.

- Use tongue-jaw lift and sweep finger to remove object.

- Open airway (described in CPR). Attempt rescue breathing by positioning the head and neck and give two breaths. If needed, open the airway and try again.

- If the object is still obstructing the airway, kneel down give 15 chest compressions as in CPR

- Repeat sequence of rescue breathing attempt, visualizing for object finger sweep if seen and chest compressions until successful or until help arrives.

IF YOU ARE CHOKING AND CAN'T GET HELP:

- Try not to panic.

- Cough vigorously.

- If unsuccessful, stand behind a chair or beside or over some other object that puts pressure on your abdomen just above your navel and below your ribs.

- Thrust yourself upon the object in strong, sharp bursts.
- Repeat until item is dislodged.

FOR A PREGNANT OR OBESE PERSON:

- Stand behind the person and place your arms under their armpits.
- Place fist on the middle of the breastbone in the chest, but not over the ribs.
- Place other hand on top of it.
- Give five quick, forceful movements. Do no squeeze with arms, but use your fist.
- If you cannot reach their breastbone with both hands, recline the person and work from the front.
- Use the same procedure you would for cardiac massage, but give five quick thrusts.

Those who have just had the choking rescue performed on them should see a doctor. The maneuver can cause trauma to the chest or abdomen, and the object may have damaged the throat.

HEMORRHAGE

The most serious types of bleeding are those that involve damage to large veins or arteries. In these instances bleeding is profuse and can be difficult to control even with direct pressure on the wound. If an artery is damaged, the blood is bright red and many times will spurt from the wound.

CONTROL OF SEVERE BLEEDING:

- Call 911 and while waiting for their arrival:
    - Have the injured person lie down with their head slightly lower than their body. Elevate their legs and the site of the bleeding.
    - Keep the victim warm to lessen the possibility of shock.
    - Remove large pieces of dirt and debris form the wound, but only if it can be done easily. **DO NOT remove any impaled objects or try to clean the wound.**
    - Place a clean cloth over the wound and apply direct, steady pressure for 15 minutes. To avoid transmission of blood-borne infections, use your bare hands only if necessary.
    - **DO NOT** apply direct pressure if there is an object in the wound or a bone is protruding or visible. Apply pressure around the wound instead.
    - If the first cloth becomes soaked with blood, apply a fresh one over it while continuing steady pressure. Do not remove used bandages.
    - If bleeding does not slow or stop after 15 minutes, apply firm, continuous pressure on a pressure point between the wound and the heart to restrict blood flow through

the major arteries. Pressure points are located on the inside upper arms and on the upper thighs in the groin area.

LACERATIONS, ABRASIONS, & PUNCTURE WOUNDS

Rarely do superficial, minor cuts, or lacerations result in permanent damage. Usually only skin and the fatty tissue beneath it are affected, and many times can be successfully treated without medical intervention. Most minor cuts bleed slowly and stop on their own after a few minutes. Slightly deeper cuts involving superficial veins may result in a steady flow of blood that is slow and dark red. Pressure on the wound usually stops the bleeding after a short period.

Abrasions are the result of external tissue being scraped away, leaving areas of tissue underneath exposed. Abrasions may be as minor as to only allow for seepage of serous fluid, or may injure superficial capillaries resulting in bleeding. The bleeding from multiple superficial capillaries can be persistent and requires direct pressure on a sterile dressing or clean cloth to stop the bleeding.

Puncture wounds are many times deceptive in appearance. What may seem like a small wound can penetrate deep into tissue and be more serious than what it appears on the surface. Care should be taken to prevent excessive bleeding under the skin. Some of the complications with puncture wounds include: the object causing the puncture breaks off in the wound or carries foreign material deep into tissue resulting in infections or causing further injury to tissue.

WOUND TREATMENT:

- Clean the wound thoroughly with mild soap and warm water.
- Remove foreign objects and large particles of dirt with tweezers, if necessary.
- Avoid using antiseptics, which can damage skin tissue.
- Keep your Tetanus immunization up-to-date. You should get a routine Tetanus Booster every ten years. However, if you have a dirty wound and have not had a booster within the last five years, your doctor may recommend a booster injection.

WOUND INFECTION:

Care should be taken in all three types of wounds to prevent secondary infection. Signs of infection include:

- Redness around the wound or red streaks leading away from it toward the upper body.
- Swelling.

- Warmth or tenderness around the wound.
- Pus.
- A fever of 101°F or higher.
- Tender or swollen Lymph Nodes.

WITH YOUR DOCTOR'S APPROVAL:

- Expose the wound to air unless it is necessary to bandage it.
- Use a sterile bandage and change it daily or if it becomes wet.
- Remove bandage and soak the wound in warm water several times daily.
- Apply an antibiotic ointment such as Bacitracin or Neosporin.

AMPUTATIONS

One of the most severe of the traumatic injuries involves partial or complete amputations. Traumatic amputation, particularly of the fingers, can be very scary, yet require immediate action on the part of the rescuers. Fingers, especially the tips, are the most common form of amputation.
A pressure dressing should be applied to the stump and direct pressure associated with compression of the pressure points will help stop the hemorrhaging. If the amputation involves an arm or leg, a pressure dressing is applied, and in this instance the only time a tourniquet may be used to control bleeding. If a tourniquet is used it should be placed as close to the wound edge as possible.

All amputations should be treated for possible shock, either hemorrhagic or psychogenic. If possible the amputated parts should be wrapped in moist sterile dressings or a moist clean cloth and kept at a low temperature (slightly above freezing). **DO NOT** freeze the tissue by emercing the part directly in ice. It may be wrapped and placed in a baggie and put on ice, but should be checked frequently to prevent tissue freezing. The amputated part should, if possible, be transported to the hospital with the victim or as soon as possible afterwards.

MUSCULOSKELETAL INJURIES

STRAINS AND SPRAINS:

A *strain is an injury to a muscle caused by over-stretching*. Also called a "pulled muscle", the elastic fibers that make up the muscle are overextended and may tear, bleed, and contract.

A *sprain is an injury to a ligament and other soft tissue around a joint*. *Ligaments are bands of fiber that connect the bones at a joint*. They can be stretched or torn when a joint is twisted, jammed, or overextended. With a sprain, slight bleeding may produce skin discoloration which resolves slowly.

TREATMENT:

The basic treatment for strains and sprains is a two-part process: **RICE** (Rest, Ice, Compression, and Elevation) to treat the immediate injury, and **MSA** (Movement, Strength, and Alternate Activity) to help the injury heal and prevent further problems.

Begin the **RICE** process **immediately** following the injury:

- **Rest:** Do not put weight on injured joints or muscles, and limit movement in the area of the injury. Use crutches, splints, or a sling as needed.

- **Ice:** Apply an ice pack for at least 15 minutes every hour for two hours then leave the ice off for two hours. Repeat this cycle for 48 hours or until swelling is gone. Do not use heat as long as there is swelling.

- **Compress:** Wrap the injured area in an elastic bandage for support and protection. Check the elastic bandage frequently to assure it is not restricting blood flow due to swelling after application.

- **Elevate:** Place the injured part on pillows while you apply ice and anytime you are seated or lying down. Raise the injured area above the level of your heart whenever possible.

Aspirin and Ibuprofen may ease pain and inflammation. Acetaminophen (Tylenol) eases discomfort, but does not decrease inflammation. **DO NOT** use other drugs to mask pain in order to continue using the injured part.

The **MSA** process can be started only if the initial swelling is gone:

- **Movement:** Begin gently moving the joint to resume full range of motion.

- **Strength:** After the swelling is gone and a full range of motion is reached, gradually begin to strengthen the injured part. Slow, gentle stretching during the healing process will make scar tissue flexible and prevent limited movement later.

- **Alternate Activities:** Resume regular exercise through activities and sports that do not place a strain on the injured area. Go slowly and stop any activity that causes discomfort.

Any increase in pain or return of swelling is a sign to stop **MSA** and resume **RICE.**

PREVENTION:

- Use correct form in all work and play activities.
- Adjust equipment and furniture to fit your needs.
- Go slowly when starting a new activity or sport.
- Use warm-up and cool-down exercises to help your body prepare and recover safely.
- Take frequent breaks when performing any continuous activity.
- Do not push beyond your strength or ability; advance your skill level gradually.

BROKEN BONES:

Unless a fracture is obvious after an injury, an x-ray may be needed to be sure.

TYPES OF FRACTURES:

- *Stress Fracture:* A small crack in the bone usually due to overuse.
- *Greenstick Fracture:* Usually found in kids.
- *Simple Fracture:* A through and through fracture with both ends separated, but in alignment.
- *Compound Fracture:* Where the soft tissue in the area is torn and the bone protrudes through the skin.

The treatment is similar for all fractures. The seriousness varies depending on which bone is broken, the type of break, and if there are other associated injuries.

SUSPECT A FRACTURE IF:

- Injured part is bent or deformed.
- Bone is poking through the skin.
- There is a bump or irregularity along the bone.
- A cracking or snapping sound was heard at the time of the injury.
- There is rapid swelling or bruising immediately after the injury.

TREATMENT:

- Assume there may be a fracture.
- Immobilize and support the injured area with a splint. To splint, attach a stiff object (such as a rolled-up magazine, newspaper, or a stick) to the injured limb with a rope or bandage. Position the splint so the injured limb cannot bend. This means immobilizing the joint above and below the injury.
- Do not attempt to move an abnormally bent or displaced bone back into place. Splint it as it is.
- Apply an ice pack for 15 minutes every hour for two hours, and then leave ice off for two hours. Repeat this cycle for 48 hours or until swelling is gone. Do not use heat as long as there is swelling.
- Wrap the injury with an elastic bandage to immobilize and compress the area. Loosen the bandage if it becomes too tight.
- Elevate the injured area.
- Avoid any unnecessary movement. Rest the injury for at least 24 to 48 hours.
- Seek medical evaluation.

EYE INJURIES

PREVENTION:

Nearly all eye injuries reported each year could have been prevented by wearing goggles or safety glasses during sports activities or while using tools and machinery. Many injuries could have been prevented by using common sense when handling potential hazards.

Any time you are working around machines that emit high speed particles or when handling chemicals that can splash, everyone should wear eye and face protection. Tears and blinking are your natural defenses against sand, dust, and other particles that enter the eye.

FOREIGN BODIES IN THE EYE:

- If an accident results in a foreign body in the eye, avoid rubbing your eye.
- Wash your hands before attempting to remove anything from your own or someone else's eye.
- First, attempt to flush the particle out with flushing the eye. Use cool water.
- Flush from the nose to the ear so if you do flush out the particle you won't flush it into the other eye.
- If the object cannot be removed by flushing, wet a cotton tip applicator and very lightly touch the particle. If it does not come off on the applicator seek medical attention.
- Do not try to remove anything embedded in the eye.
- If medical assistance is necessary to remove a foreign body, both eyes should be patched without causing pressure on the foreign body, and then the victim should be transported to the doctor.

CHEMICAL EXPOSURES TO THE EYE:

- Immediately flush the eye for at least 15 minutes (timed with a clock).
- Flush from the nose toward the ear to prevent contaminating the other eye.
- Do not irrigate your eyes with anything other than water or eye irrigation solution.
- Do not pry the eye open, try to blink while running fluid over the eye.

- If the symptoms persist continue flushing until irritation is resolved.
- If irritation persists more than 15-30 minutes after flushing, seek medical attention.
- **DO NOT** drive yourself to the doctor.
- Eyes should be closed and covered with a loose, moist dressing before proceeding to the doctor's office.

BURNS

Skin is the body's largest organ protecting us against infection and helping to regulate the balance of water and temperature.

Burns can be caused by fire, hot objects or fluids, electricity, chemicals, radiation, or other sources, and are classified by degree or thickness of the burn.

- **First Degree** burns involve only the outer layer of skin. The skin turns bright red and becomes sensitive and painful. The skin may be dry, but it does not blister.
- **Second Degree** burns are deeper and are very painful, red, and mottled. The burned area may blister and/or be swollen and puffy.
- **Third Degree** burns are deeper still and can involve muscle, internal organs, and bone. The skin will look charred, dry, and may break open. Underlying muscle or tendons may be visible. Pain may be severe. If nerves have been damaged, there may be no pain except around the edges of the burn.

IF SOMEONE IS ON FIRE:

- Try not to panic.
- Help the victim drop down and roll in a blanket, rug, coat, or some type of covering to smother the flames. Do not let the victim run increasing the fire injury. If necessary, trip them.
- Completely extinguish the fire and stop skin and clothes from smoldering by soaking with water (remember the victim will be experiencing a lot of pain). **DO NOT** remove burned clothing.
- Cover the burns with a cool, damp, sterile bandage or a clean, non-fibrous cloth such as a sheet.
- Seek emergency care.

TREATMENT OF SEVERE BURNS:

- Ensure the victim is breathing. If not, call for emergency help and start CPR immediately.
- Stop any bleeding.
- Treat the patient for shock if they display symptoms of altered consciousness, faintness, paleness, rapid and shallow breathing, rapid and weak pulse, or cool and clammy skin.

- Check to make sure there are no signs of charring in the mouth or nasal passages. Check for sooty residue on the face, shortness of breath, a cough or hoarseness. If present, these signs indicate an emergency the respiratory tract may be damaged.

TREATMENT FOR ELECTRIC AND CHEMICAL BURNS:

Electrical Burns

- Turn off the power before touching someone who is in contact with an electrical wire or appliance.
- Watch out that they are not in contact with pooled water supporting current.
- Always assume a downed power line is live.
- Try not to move the victim unless they are in imminent danger.
- If a power line has fallen across a car, passengers remain safest if they stay inside the vehicle. If they have to leave because of fire or some other reason, they should jump clear of the car without touching any metallic portion of the car.
- An electrical burn can appear minor even when it has caused major injuries. There many times are wounds at the places of entry and exit of the electrical current which should always be evaluated by a doctor. The full extent of tissue damage resulting from an electrical burn may not be totally realized for weeks, even under medical care.

Chemical Burns

- Flush the skin with large amounts of cool, running water for 20 minutes or until pain has stopped.
- If the chemical is a dry solid, brush it off first.
- If an eye has been burned, flush it immediately with cool water. (See Eye Flushing.)
- Remove any contaminated clothing, jewelry, and other items.
- Cover the area with a cool, damp, sterile dressing or clean cloth, and seek medical attention.

TREATMENT

First Degree Burns:

Run cool water over the area or soak it in a cool water bath for 2-5 minutes. If this is not possible, apply a cold compress. (If the burn has occurred in a cold environment, **DO NOT** apply water.) Cover the area with a cool, moist, clean bandage or clean cloth. Pain relievers, such as Aspirin, Ibuprofen and Acetaminophen, may help reduce pain and swelling.

Sunburn pain may be relieved with oatmeal powder baths or by adding baking soda to the bath water (1/2 cup into cool or lukewarm water). A broken Aloe Vera leaf applied to the burned area may soothe the pain.

While caring for your burn at home, be aware of signs of infection which can develop in 24 to 48 hours.

Second Degree Burns:

Treat like first degree burns - if no bigger than two or three inches in diameter and not on the face, hands, feet, groin, buttocks, or a major joint, in which case you should seek emergency care. Remember, **never** rupture the blister. The skin is a barrier against infection, and if you rupture the blister that barrier has been breached and the serous fluid makes great median for infection.

Third Degree Burns:

Cover the burned area with a sterile dressing, or clean cloth and seek emergency care immediately.

Fire Prevention for Home and Work:

- Conduct fire drills at home and work. Know the location of fire escapes when sleeping away from home.
- Install smoke detectors in every bedroom and on every floor and test them periodically.
- Keep emergency numbers by the telephone.
- Place a fire extinguisher in the kitchen and check the expiration date on a routine basis.
- Keep a large box of baking soda within easy reach of the stove.
- Keep a potted Aloe Vera plant in the kitchen (where most burns occur).
- Never use lighter fluid or gasoline to light a fire.
- Only use Kerosene or other space heaters that have the UL (Underwriter's Laboratory) Seal of Approval.
- Always follow safety instructions when using chemicals, and note any warnings or precautions on the container.
- Learn how to deal with an overheated engine, car fire, or live wire on a car.
- Never touch a downed electrical wire.
- Know where all electrical wiring is located before starting construction or renovation. This also applies to any kind of outdoor digging.
- Check with your utility company if you are unsure about the location of power lines in your area.

LOSS OF CONSCIOUSNESS

There are many causes of unconsciousness, including stroke, epilepsy, diabetic coma, head injury, alcohol or drug intoxication, poisoning, heart attack, bleeding, electrocution, and shock.

TREATMENT FOR THE UNCONSCIOUS VICTIM:

- First perform the ABC's. Check for breathing, open the airway, and check for a pulse.
- Call for emergency medical assistance.
- Keep the person warm unless you suspect heat stroke.
- After assessment, lay the person face up, taking care to keep the head and neck aligned with the shoulders in case of spinal injury.
- Treat for shock.
- Move them as little as possible, and only to provide life support or safety. Do not move the victim if you suspect a head or neck injury.
- If there is vomit in their mouth, turn the victim on their side (supporting their head and neck) to allow fluids to drain out.
- Look for medical identification or possible cause of the unconsciousness.
- Do not give anything to eat or drink.

EXTREME TEMPERATURE EXPOSURE - HYPOTHERMIA

HYPOTHERMIA AND FROSTBITE:

In *hypothermia* your body temperature drops below normal when body heat is lost faster than it can be produced. *Frostbite* is the freezing of the skin or tissue near the skin surface. These conditions can actually occur when the weather is windy or wet, yet still above freezing.

SYMPTOMS OF HYPOTHERMIA:

- Early symptoms include shivering, apathy, impaired judgment, and cold, pale skin.
- As the body temperature drops, the shivering may stop, the abdomen and chest become cold, and there is slowing of the pulse and breathing.
- Weakness, drowsiness, and confusion may quickly lead to unconsciousness.

SYMPTOMS OF FROSTBITE:

- Initially the skin feels soft to the touch, but numb and tingly, and may turn white.
- As the skin freezes and becomes hard, blisters may develop.
- In third degree frostbite the skin may look blue or blotchy and the underlying tissue is hard and very cold.

TREATMENT FOR HYPOTHERMIA BEFORE FROSTBITE:

- Get to warm, dry shelter.
- Re-warm slowly. Keep the victim awake.
- Apply body heat from another person or warm, dry clothing, or both. Sheets or blankets may be heated in a microwave oven to help with warming.
- Give warm liquids and high calorie food. **DO NOT give alcohol**.

TREATMENT FOR FROSTBITE:

- Re-warm only if refreezing will not occur.
- Re-warm as quickly as possible.
- Warm small areas with breath or by placing them inside clothing next to bare skin.
- Immerse body parts in warm (not hot) water of 104° F to 108° F for 15 to 20 minutes.
- Elevate and protect warmed parts.
- Do not rub or massage frozen area. Rubbing may cause further damage.
- Protect blisters. **DO NOT** break them.
- Aspirin or Acetaminophen may ease painful burning.
- Watch for signs of infection.

PREVENTION:

- Dress for the weather with wool and polypropylene for insulation and an outer layer that is windproof and waterproof.
- Wear a warm hat with ear protection. Wear mittens rather than gloves.
- Pace activities. Do not become exhausted or sweaty.
- Never touch cold metal with bare skin.
- Avoid alcohol and smoking before spending time in the cold.
- Eat well and carry extra food.
- Plan ahead and carry provisions in case of emergency or sudden weather changes.

EXTREME TEMPERATURE EXPOSURE - HYPERTHERMIA

Heat exhaustion occurs when your body is not able to cool off and maintain a comfortable body temperature. Hot environments, excessive exercise, and dehydration can cause the body to overheat.

SYMPTOMS:

- Headache
- Nausea
- Weakness
- Shallow Breathing
- Fatigue
- Muscle Cramps
- Dizziness

TREATMENT:

- Move to a cooler place and remain quiet.
- Loosen clothing.
- If dizzy, lie down with head lower than feet.
- Drink small amounts of liquid frequently.
- Place a cool, wet cloth on your forehead.
- Watch for signs of shock and heat stroke.
- Do not consume alcohol or apply it to the skin.

HEAT STROKE:

Heat stroke is the critical stage of heat exhaustion and is a medical emergency. All of the body's cooling systems are overloaded when the body temperatures reaches 104° F and continues to rise.

SYMPTOMS OF HEAT STROKE:

- Hot, dry skin
- Bright red or flushed skin
- Body temperature of 105° F or greater
- Progressive disorientation or unconsciousness

WHILE WAITING FOR HELP:

The goal is to cool the victim. Sponging with cool water, or placing ice bags in the armpits and groin. Monitor the victim's temperature every ten minutes. If the body temperature suddenly begins to drop, stop cooling and treat for shock.

PREVENTION:

- Keep well hydrated. 80 ounces of water a day if exercising or working in a hot environment.
- Stay in the shade or air conditioned areas. Avoid sudden changes of temperature.
- Wear loose fitting, light colored clothing of natural fibers such as cotton or linen.

- Limit your activity and exercise during the hottest time of the day.

POISONING

Poisonings can be accidental or intentional, yet no matter what the reason, the more quickly you react to this emergency usually the better the outcome. Everyone should have the Illinois Poison Center Emergency telephone number readily available in case of an emergency. If not you can usually find this number in the front cover of the phone book, (800)382-9097. When you call you should be prepared to answer the following questions:

- What substance is involved?
- How much was ingested or exposed to?
- When did it occur?
- The victim's age, weight, and health status?
- Has the victim vomited or are they displaying symptoms?
- How far away are you from emergency help?

TREATMENT PROTOCOLS:

*In the case of an **ingestion of other than corrosives or petroleum products:***

- Dilute with water. Have the person drink a glass of water slowly. Do not give milk or formula, the Poison Center may wish to have you induce vomiting and this will delay the action of the ipecac. **DO NOT give them anything to drink if they are unconscious, lethargic, or convulsing.**

- Keep a bottle of Ipecac in your medicine kit for use if you need to induce vomiting. Never try to gag someone into vomiting; this can result in damage to the throat of the victim.

- Once vomiting begins, make sure the person's head is lower than their chest to prevent aspiration into the lungs.

- If you transport the victim to the hospital take the poison container or MSDS with you.

INGESTION OF CORROSIVE OR PETROLEUM PRODUCTS:

- Do whatever is necessary to prevent vomiting.

- If corrosives are involved, give ice chips to soothe the burning in the mouth and throat.

- If choking occurs, stop giving anything by mouth and be prepared to administer CPR. Remember to protect yourself from products they may vomit up. Corrosives burn going down and also coming up.

- Petroleum products can also pose a problem if vomiting occurs due to the potential to aspirate the vomit. Again, dilute with small quantities of water slowly.

- Keep the victim calm.

OTHER POISONINGS:

Ingestion is the most common cause for poisoning, but inhalation and eye/skin absorption is also a route for poisons to enter the body. In the case of inhalation, remove the victim to fresh air as soon as possible, and treat the symptoms as they appear. Dermal exposure should be cleansed with mild soap and water and all contaminated clothing and jewelry should be removed. Ask the Poison Center if in doubt as to what treatment is required or if there is need for medical intervention. Many times what appears as something minor may have real potential for latent effects or what may be thought to be very serious is really non-hazardous.

BITES AND STINGS

Although bites and stings seem to be part of summer living, few serious injuries occur. The most dangerous of these is the reaction which occurs in some individuals who are allergic to stings of wasps and bees. This reaction, known as *anaphylaxis*, accounts for 40-50 deaths annually in the United States.

TYPES OF INJURIES

Local reactions are the most common response to bites and stings. Many wasps, bees, and ants inject Venom when they sting. A reddened, painful area develops at the site of the injury. Redness may later be accompanied by itching and inflammation at the site requiring 4 to 5 days to resolve. Infections of the bites and stings are rare, but may occur as a result of scratching the wound.

General reactions only occur when there are several bites and stings involved. Symptoms can include vomiting, diarrhea, generalized swelling, and collapse.

Anaphylaxis, a severe allergic response, is the most dangerous reaction to a bite or sting. Symptoms include hives, flushing, itching, nausea, fever, and shortness of breath. Anyone suspected of having an Anaphylactic reaction should be taken to the emergency room immediately.

INSECTS THAT STING

Honeybees are generally less aggressive than their relatives. When a bee stings, the stinger detaches with its poison sac and remains in the skin. Incorrect removal of the stinger will result in the injection of more Venom.

Bumblebees are large, non aggressive yellow and black bees (often mistakenly called "yellow jackets"). They do not lose their stingers when they sting, and can sting multiple times.

Wasps, Hornets, and Yellow Jackets are more aggressive than most stinging insects. In late summer, yellow jackets account for a very high number of stings in Indiana. They are scavengers and are found around garbage and food. Like the bumblebee they can inflict multiple stings.

BITING INSECTS

Biting insects include mosquitoes, fleas, flies, ticks, and chiggers. The pain involved with these insects is usually less than that inflicted by the stinging insects. Local reactions are usually short lived; however, they are capable of transmitting disease.

Mosquitoes are the most frequently encountered biting insects. Other than the nuisance caused by mild local irritation in Indiana, there are occasional reports of mosquito borne encephalitis.
Fleas are tiny bloodsucking predators which prefer to live on a warm blooded host. The bite is similar to that of the mosquito, and is usually found on the ankles and lower legs.

Flies come in several species and many are capable of inflicting bites. These include the horse, deer, stable, sand, and black flies. Most bites are painful, but of short duration. Inflammation and itching similar to that associated with mosquitoes may result, but again are short lived.

Chiggers are not really insects, but are mites which are more closely related to spiders. Because they are extremely small, they may go undetected while the bite is quite apparent. Their bite is similar to that of the mosquito and is usually found under areas protected by clothing.

OTHER BITING ARTHROPODS

Though not really insects; ticks, chiggers and spiders account for a significant number of bites.

Ticks suck blood like mosquitoes and their bite is usually painless with little or no local reaction. The most common diseases spread via tick bites are Rocky Mountain Spotted Fever and Lyme Disease.

Rocky Mountain Spotted Fever (RMSF) symptoms are the result of the bacteria which grows inside the tick. Symptoms include high fever, headaches, and rash, fatigue, and muscle aches. RMSF can be fatal if untreated.

Lyme Disease is also caused by a bacteria and is spread by the deer tick. Early symptoms include a rash at the site of the bite about seven days after the occurrence. A more wide spread rash may then occur along with fatigue. Later symptoms include arthritis, nerve and cardiac disorders. Lyme disease responds well to antibiotic therapy.

SPIDERS

Black Widow Spiders are approximately one inch long overall, and may be identified by her black body and an orange or red hour glass shape on their underbody. Only the female of this species is venomous. Although its bite is usually painless, marked muscle cramping and intense pain often occurs within an hour of the bite. Other symptoms include a burning sensation of the feet, slurred speech, headaches, dizziness,

nausea, vomiting, and fever. Deaths are rare, but recovery may take several days. Immediate medical attention is required for all victims.

Brown Recluse Spiders can be found throughout the Midwest. They prefer to live in dark, dry, quite places. The Brown Recluse is approximately 1¼ inches long overall and dark tan to brown with a violin shaped marking on its back. The bite most frequently causes tissue inflammation and breakdown. The bite is usually painless, but within a few hours a large bruise appears at the site of the wound. Over the next 24-72 hours the center of the wound breaks down. Medical attention is required.

SNAKES

Four poisonous snakes can be found in Illinois, the Timber Rattlesnake, Eastern Massasauga, Northern Copperhead, and the Cottonmouth. These are all pit vipers with triangular heads, elliptical pupils, fangs, and heat sensing pits between the nose and eye. Rattles may or may not be present on the snake. In the United States about 25% of all bites do not result in envenomation. Symptoms include pain, redness, progressive swelling, and many times bleeding. Immediate medical attention should be obtained. Keep the victim at rest and immobilize the limb. Do not cut the skin or apply suction by mouth.

PREVENTION & TREATMENT FOR BITES AND STINGS

PREVENTION

Avoid wearing bright colored clothes, these have a tendency to attract stinging insects.
Check pop and soda cans prior to drinking. Many times wasps, hornets, and yellow jackets will crawl into an open container. Stings to the mouth or throat are by far the most dangerous. When a stinging insect approaches avoid rapid erratic movement. Flailing or attempting to strike the insect may incite the insect to sting. Black Widow Spiders are commonly found where there are an excess of flies. They normally are not aggressive unless their eggs are threatened. Brown Recluse Spiders have been found in clothing stored in attics, so check those sweaters before putting them on. Insect repellents can be used, but those with high concentrations of DEET can cause skin reactions, and are not recommended for children under the age of eight years.

TREATMENT

Inspect for a stinger; if present scrape it out rather than pulling it. Cleanse the wound with soap and water; apply baking soda and meat tenderizer paste, and a cool compress. Antihistamines, calamine or other soothing lotions can be used to treat the itching and swelling. Scratching is discouraged.

<u>FIRST AID SUPPLIES</u>

First aid kits will be stored and located in the plant all first aid kits are to be checked and inspected annually.

HOIST LIFT TRUCK

FIRE PROTECTION AND PREVENTION

2015
CHAPTER SIX

CONTENTS:

Fire Protection

1. The employer is responsible for the development of a Fire Protection Program to be followed throughout all phases of the construction and demolition work, and he shall provide the firefighting equipment.

2. An alarm system, e.g., telephone system, siren, etc., shall be established by the employer whereby employees on the site and the local fire department can be alerted for an emergency.

3. Internal combustion engine powered equipment shall be so located that the exhausts are well away from combustible materials.

4. Smoking shall be prohibited at or in the vicinity of operations that constitute a fire hazard, and shall be conspicuously posted: "No Smoking" or "Open Flames."

5. Portable battery powered lighting equipment, used in a connection with the storage, handling, or use of flammable gases or liquids shall be of the type approved for the hazardous locations.

6. Open yard storage. Combustible materials shall be piled with due regard to the stability of piles and in no case higher than 20 feet.

7. Indoor storage. Storage shall not obstruct or adversely affect means of exit.

8. All materials shall be stored, handled, and piled with due regard to their fire characteristics.

    A. Clearance of at least 36 inches shall be maintained between the top level of the stored material and the sprinkler deflectors.

    B. A clearance of 24 inches shall be maintained around the path of travel of fire doors unless a barricade is provided, in which case, no clearance is needed. Material shall not be stored within 36 inches of a fire door opening.

    C. Firefighting equipment:

        1.) Access to all available firefighting equipment shall be maintained at all times.

        2.) All firefighting equipment shall be periodically inspected and maintained in operating condition. Visual inspections should be documented monthly and all discrepancies corrected as soon as possible. An annual inspection is completed by an outside service and the records are to be kept for 1 year past the life of the extinguisher shell.

3.) A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of the protected building area, or major fraction thereof. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.

4.) One 55-gallon open drum of water with two fire pails may be substituted for a fire extinguisher having a 2A rating.

5.) A ½ inch diameter garden-tube hose line, not to exceed 100 feet in length and equipped with a nozzle may be substituted for a 2A-4 rated fire extinguisher, providing it is capable of discharging a minimum of 5 gallons per minute with a minimum hose stream range of 30 feet horizontally.

6.) Fire extinguishers, rated not less than 2A, shall be provided on each floor.

7.) Extinguishers and water drums, subject to freezing, shall be protected from freezing.

8.) A fire extinguisher shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used does not apply to the integral fuel tanks of motor vehicles.

9.) The employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.

10.) The employer shall assure that portable fire extinguishers are fully charged, in operable condition, and subjected to an annual maintenance check.

Flammable and Combustible Liquids - General Requirements

1. Only approved safety containers and portable tanks may be used for storage and handling of flammable and combustible liquids.

2. Approved metal safety cans shall be used for the handling and use of flammable liquids in quantities greater than one gallon, except if the flammable liquid is highly viscous (extremely hard to pour).

3. Highly viscous flammable liquids may be used and handled in their original shipping containers.

4. For quantities of one gallon or less of a flammable liquid, either the original container or an approved metal safety can shall be used for storage, use, and handling.

Fire Extinguishers and Small Hose Lines

1. A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 sq. ft. of the protected building area or major fraction thereof.

2. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 ft. One or more fire extinguishers, rated not less than 2A, shall be provided on each floor. In multistory buildings at least one fire extinguisher shall be located adjacent to the stairway.

3. Carbon Tetrachloride and other toxic vaporizing liquid fire extinguishers are prohibited.

4. Flammable liquids shall be kept in closed containers when not actually in use.

Work Practice and Worksite Hazards

1. Work Practice

   A. Employees are to report any fire or emergencies that could lead to a fire or explosion to their immediate Supervisor. In the event of a fire or explosion, the emergency fire procedures as outlined will be followed.

   B. Extinguish all cigarettes and smoking materials in their proper place.

   C. Permit no open flame around any type of chemical, paint, solvent, oil, grease, or other flammable substances.

   D. Make sure all hand-held torches are extinguished when not in use.

E. Do not put any type of hot object in trashcans.

F. All flammable and combustible materials will be stored in designated flame resistant storage areas, containers, or approved cage racks.

G. Oxygen and acetylene cylinders must be segregated when stored or have a proper flame resistant barrier or partition.

H. Good housekeeping will be the responsibility of each employee.

1.) Discard waste materials in proper containers.

2.) Pick up or sweep up any debris on or around the work area each shift.

3.) Clear all aisles and exits.

4.) Keep areas around fire extinguishers clear for access.

5.) Know the evacuation routes and exits in each work area. Proceed to these if an emergency situation develops.

6.) All employees must be aware of and instructed in the Emergency Action Plan.

7.) Emergency telephone numbers must be posted or readily available to all employees at any location.

8.) Each Supervisor will be responsible for his or her shift employees' proper handling, storage, and maintenance of hazardous materials.

2. Worksite Hazards

A. Flammable Substances:

1.) Paint and paint solvents
2.) Mineral spirits
3.) Alcohol
4.) Propane tanks for forklifts
5.) Oxygen and acetylene tanks for boom trucks and laboratory use
6.) Hydraulic oil
7.) Grease
8.) Gasoline
9.) Diesel
10.) Kerosene

Welding and Cutting Operations

1. When practical, objects to be welded, cut, or heated shall be moved to a designated safe location or, if these objects cannot be readily moved, all movable fire hazards in the vicinity shall be taken to a safe place, or otherwise protected. If these objects cannot be moved and if all the fire hazards cannot be removed, positive means shall be taken to confine the heat, sparks, and slag, and to protect the immovable fire hazards from them.

2. No welding, cutting or heating shall be done where the application of flammable paints, or the presence of other flammable compounds, or heavy dust concentrations creates a hazard

3. Suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use.

4. When welding, cutting, or heating operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire while the actual welding, cutting, or heating operation is being performed, and for a sufficient period of time after completion of the work to ensure that no possibility of fire exists.

5. When welding, cutting, or heating is performed on walls, floors, and ceilings, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions shall be taken on the opposite side as are taken on the side on which the welding is being performed.

6. For the elimination of possible fire in enclosed spaces as a result of gas escaping through leaking or improperly closed torch valves, the gas supply to the torch shall be positively shut off at some point outside the enclosed space whenever the torch is not to be used or whenever the torch is left unattended for a substantial period of time, such as during the lunch period. Overnight and at the change of shifts, the torch and hose shall be removed from the confined space. Open end fuel gas and oxygen hoses shall be immediately removed from enclosed spaces when they are disconnected from the torch or other gas-consuming device.

Fire Control & Evacuation Procedures

7. **Anyone has the authority to act on controlling a fire providing his or her safety is taken into consideration.**

8. If the employee can control the fire with a fire extinguisher, **act immediately** and extinguish the fire. (Do not use water on incompatible materials, electrical fires, etc.)

9. If the employee is doubtful of controlling the fire (fire cannot be controlled within 30 seconds or with a fire extinguisher) **- do not delay in activating the established alarm system, and evacuate the area.**

10. Emergency exit maps should be posted throughout the building indicating primary and secondary routes to exit closest to your work area. **Do not assume that any door is an exit unless it is marked with an exit sign!!!** This becomes more important when first arriving at a construction site.

11. Once the employee has evacuated the building or is out of the danger zone proceed to the Emergency Muster Area. Give your name to the Emergency Coordinator or individual in charge of the evacuation, and wait for further instruction. When first arriving on any construction site the Supervisor should immediately verify the location of the Emergency Muster Area and inform all employees under his supervision.

12. Any time an event occurs that poses an immediate threat to employee life, health, or safety, employees are required to immediately evacuate the building or move to a safe area. Exiting from the building in an emergency situation is a straightforward matter of walking to the nearest exit door and leaving the building.

13. Prior to evacuating to the Muster Area turn off any electrical equipment you are using, and remove and properly store all tools, cards, hoses, ladders, etc. that may create a trip hazard.

Employee Training

All new employees are trained during the new hire orientation in the use of portable fire extinguishers. All employees are trained at least annually, upon initial assessment of job scope to which additional training is required, and any time a need for additional training is evident.

14. The Fire Triangle - In order for a fire to sustain combustion there must be three components present:

    A. Oxygen

        1.) 16% required.

    B. Heat

        1.) Open flame
        2.) Hot surfaces
        3.) Sparks and arcs
        4.) Friction/static electricity
        5.) Electrical energy
        6.) Compression of gases
        7.) Sun

    C. Fuel

        1.) Wood
        2.) Paper
        3.) Cloth
        4.) Plastic
        5.) Gasoline/Kerosene Diesel
        6.) Paints/Lacquer
        7.) Varnish
        8.) Acetylene/Propane

15. In the event of a fire several things must be accomplished. However it easy to forget, use the acronym R.A.C.E.

    A. **Rescue**

        1.) Protect yourself first.

        2.) Move any victims to a safe area. (Remember do not to endanger yourself - a dead rescuer helps no one.)

        3.) Remember that hot air rises – there is cool, clean air near the floor.

B. **Alarm**

1.) Activate the established alarm system to warn others in danger and notify the fire department.

C. **Contain control**.

1.) Contain the fire by shutting any doors or windows.

2.) Control the fire by smothering it with a lid, blanket, dirt, or fire extinguisher.

D. **Evacuate**

1.) Evacuate the area to the Muster Area.

16. Classes of fires - being able to identify the class of fire helps you select the proper fire extinguisher.

A. Class A Fire: Ordinary Combustibles (wood, paper, fabric, etc.)

B. Class B Fire: Combustible Liquids (gasoline, grease, alcohol, etc.)

C. Class C Fire: Electrically Energized Equipment (any equipment receiving electrical charge).

17. Types of Fire Extinguishers

A. Fire Extinguisher A - is water to be used to extinguish Class A fires.

B. Fire Extinguisher BC - is carbon dioxide used to extinguish Class A and Class B fires.

C. Fire Extinguisher ABC - is dry powder or Halon used to extinguish Class A, Class B, and Class C fires.

18. To remember how to use a fire extinguisher remember the acronym P.A.S.S.:

A. Pull the metal locking pin located at the top of the fire extinguisher.

B. Unclip the hose from the extinguisher. Point the nozzle toward the base of the fire and stand 6 to 10 feet away.

C. Squeeze the nozzle handles together to discharge the agent.

D. Sweep the hose back in forth to spread the extinguishing agent and cover the entire fire area.

HOIST LIFT TRUCK MFG.

FALL PROTECTION PLAN

2015

CHAPTER SEVEN

CONTENTS:

SCOPE

This Fall Protection Plan is comprised of safe practices for use when working at elevated heights. This plan applies to all work at elevated heights including routine work 6' and above and elevated work platforms over six feet high. All employees are expected to follow these very important work procedures.
This plan describes the utilization of procedures to protect personnel from sustaining injuries resulting from a fall from one level to another.

COMPANY POLICY

HOIST LIFT TRUCK is dedicated to the protection of its employees from on-the-job injuries. All employees of HOIST LIFT TRUCK have the responsibility to work safely on all job sites. The purpose of the Fall Protection Plan is to ensure that every employee who works for HOIST LIFT TRUCK recognizes workplace fall hazards and takes the appropriate measures to address those hazards. All equipment purchased for safety at heights shall meet the proper ANSI, OSHA or ASTM guidelines

RESPONSIBLITIES OF SUPERVISORS AND EMPLOYEES

It is the responsibility of all Supervisors to implement this Fall Protection Plan. Continual observational safety checks of work operations and the enforcement of the safety policy and procedures shall be regularly enforced. The Supervisor is responsible for correcting any unsafe work practices or conditions immediately. It is the responsibility of all employees to bring to management's attention any unsafe or hazardous conditions or work practices that may cause injury to either themselves or other employees.

TRAINING

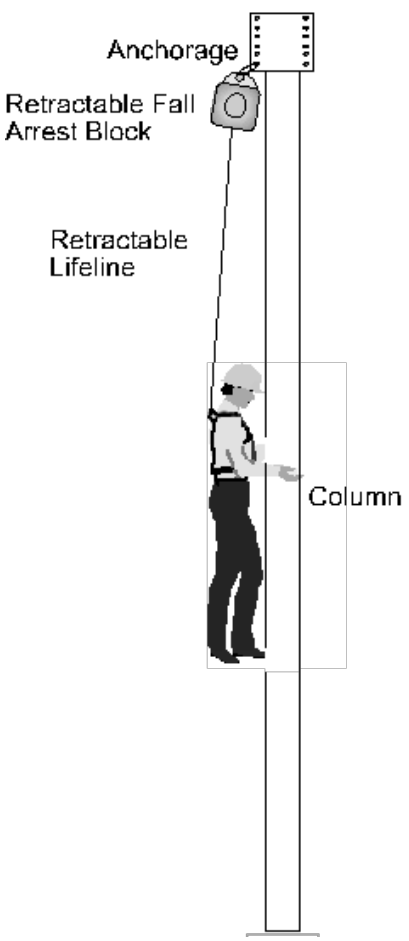
All employees shall be trained in working safely at heights in accordance with 1926.503 (a) (b) (c). HOISTLIFT TRUCK has the policy of pre-rigging systems which prevent falls and the installing of anchorage devices in and around working areas. All training will be certified as completed and the proper records to be kept. Training shall include but not be limited to the following:

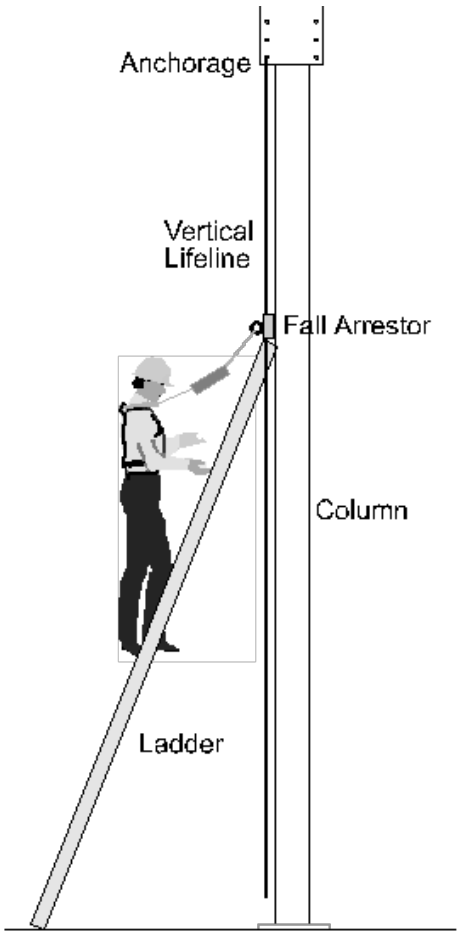
1. Hazard recognition and abatement

2. Types of safety systems
3. Proper use of safety equipment
4. Self rescue from a fall

Re-training shall occur if deficiencies are found or changes in equipment or the workplace occur.

GUIDELINE ON FALL PROTECTION FOR HOIST LIFT TRUCK





Introduction

The requirements of regulations under the Workplace Safety And Health Act stipulate that workers are to be protected from falls when working at heights of 6' feet or greater. HOIST LIFT TRUCK will utilize the 6' foot guideline for a safer workplace when possible.
This guideline has been developed to provide general guidance for working safely at heights

General Principles

There are a number of general principles that apply to protecting workers from falls in the industry:

*All workers shall be protected from falls at heights greater than 4 feet

*Employees shall develop and document a fall protection plan for each project.

*Employees shall provide fall protection systems on all projects, which shall include one or a combination of the following measures:

a) Guardrails / Barriers

b) Scaffolds

c) Elevating Work platforms

d) Crane supported work platforms

e) Fall Arrest Systems

*Workers shall wear and use Personal Protective Equipment provided by HOIST LIFT TRUCK that shall consist of the following:

- Full body harness

- Lanyard

- Shock absorber

- Anchor Point

Fall Protection Plan

Due to the complexity and variation in projects, it is recommended that the supervisor prior to work commencing on the project develop a fall protection plan. This plan also requires a rescue plan in its entirety before work begins, this to provide prompt rescue of employee. As required, the supervisor may be assisted by the Safety Department or other qualified individual. Qualified is defined as through education, training and experience, one who can recognize the associated hazards and complete a system to eliminate the hazards.

The plan should be documented and include;

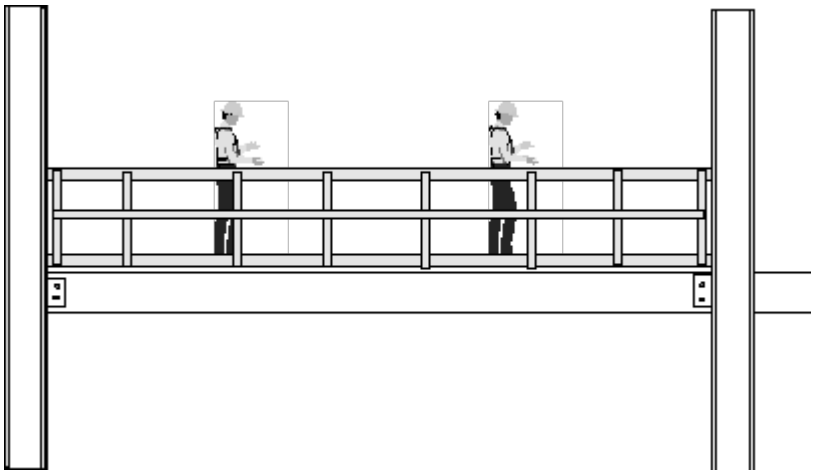
- Responsibilities of supervisors and workers on the project
- Erection plan and sequence of activities
- Fall protection methods to be used
- Engineering design requirements
- Personal protective equipment to be used

The plan should be available at the jobsite for all to review and consult. Any accidents or injuries will be immediately investigated by the Supervisor, Safety Department or his designee. Any necessary change to the plan will be made immediately.

Fall Protection Systems

Guardrails and Barriers

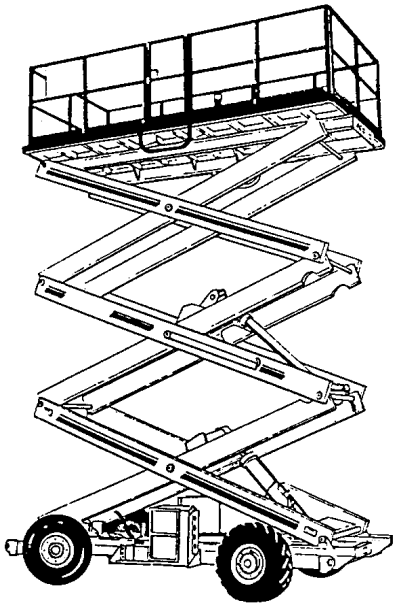
Wherever possible, physical barriers should be provided to protect workers from falling. Generally speaking, a guardrail is a permanent or portable structural system consisting of a top rail; mid-rail and toe board secured to vertical posts intended to stop a worker from inadvertently stepping off a working level and falling to a level below.



Scaffolds

A suitable means of providing fall protection is to build a temporary floor below the working area, which will limit the fall of a worker to less than ~~4~~ feet. A system of scaffolding could be erected as close as possible below the working level and then moved as work proceeds to different areas of the structure.

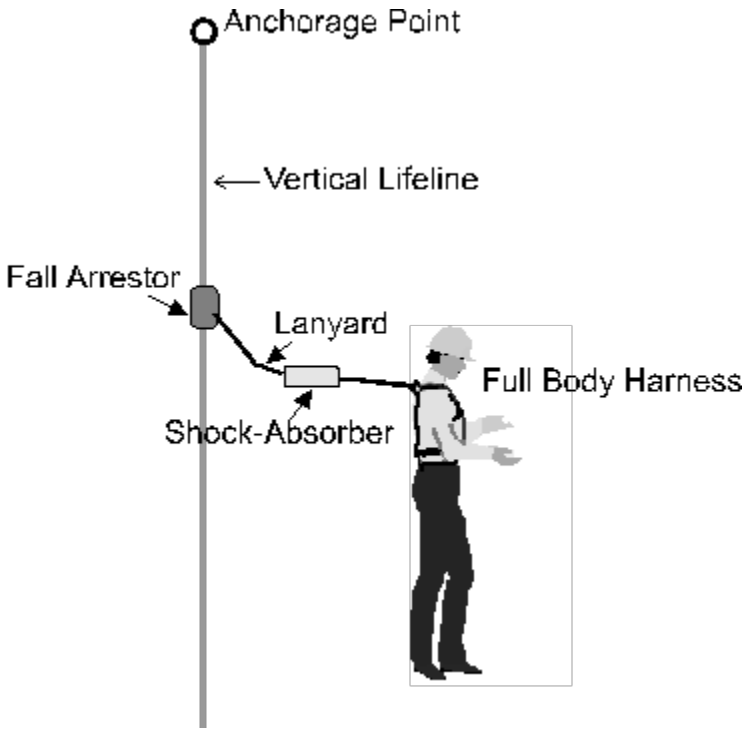
In recent years, the use of elevating work platforms has grown in popularity as a means to provide access to steel frame structures and connecting points in the structure. This includes scissor lifts, articulating booms with workbaskets, and the like. **The use of these devices must be done in accordance with manufacturer's recommendations and workers on the work platforms shall wear fall protection.**



Crane Supported Work Platforms

In some cases, the most practicable way to reach a location is by a crane-supported anchorage point. These anchor points must be designed and approved by a professional engineer and rigged in a manner to provide worker fall protection. The workers should then be tied back to the anchor beam if it is able to withstand a load of 5000 pounds itself, or the hook of the crane that is able to support a minimum of 5000 pounds and the crane is locked out and disabled from moving.

PROCEDURES



A fall arrest system for steel erection shall consist of the following components:

- **Anchorage point**
- **Lifeline**
- **Lanyard**
- **Shock absorber**
- **Full body harness.**

The general principle for a fall arrest system is that a worker shall be connected at all times to the system when undertaking steel erection where no other fall protection system has been provided. This may mean that workers will be equipped with a double lanyard system, to allow security at all times when moving from one system to another.

Fall arrest systems should be designed to restrict a worker's fall to about 2 feet, as well as maintaining suitable clearance in the event of a fall.

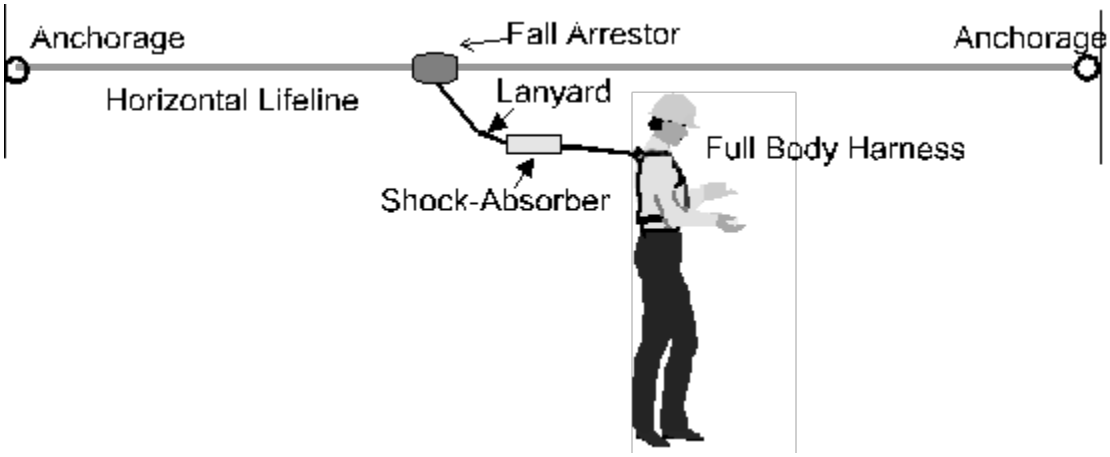
Anchorage Points

This component of the fall arrest system will vary depending on the situation. Anchorage points can be fashioned on site or provided for steel beams and columns prior to delivery of the material to the site. They may consist of rated eyebolts, drilled holes, welded or bolted steel plates, beam clamps, or other devices designed to carry the design load for the fall arrest application. The anchor attachment point should <u>not</u> be the connection boltholes; it should be a separate anchor system. They may be designed for vertical or horizontal lifeline orientation, and must be capable of carrying the design impact load 5000 pounds-force.

If more than one worker is to be secured to the same static horizontal line, this must be approved by the design engineer.

Some considerations when designing a horizontal static lifeline system include;

- Minimum ½" improved plow steel wire rope for static line
- Maximum distance between vertical supports of 30'
- Maximum sag of 15" between supports for a 30' span
- Use an approved energy absorber at the ends of the horizontal line to reduce anchor forces



PERSONAL FALL ARRST SYSTEM

Fall Arrestor (Rope Grab)

This is a device that automatically locks onto the lifeline when a fall occurs. It is fitted between the lifeline and lanyard and normally slides freely on the lifeline until there is a sudden downward motion. When this sudden motion occurs, the fall arrestor "grabs" the lifeline and holds firmly. Fall arresting mechanisms are also built into retractable lifeline devices that play out and retract as necessary, but hold fast in the event of a fall.

Lanyard

A lanyard is an approved device located between the fall arrestor and the worker's safety harness.

Shock Absorber

This is a device that limits the force applied to the user when a fall occurs. It is designed to absorb the kinetic energy of the fall as the worker is stopped. The shock absorber prevents both injury to the worker and the amount of force transferred to the lifeline and anchor. Shocks absorbing mechanisms are available either incorporated into the lanyard or as an add-on. Shock absorbers should be used to lessen the shock to the worker. "

Full Body Harness and Anchorage Point

This is a device designed to contain the torso and pelvic area of a worker and to support the worker during and after a fall. Any point used as an anchorage point should be strong enough to anticipate a load of no less than 5000 pounds.

Weather Conditions

When performing high level work all environmental condition should be considered before proceeding with work. A competent person should clear the area as a safe work area when considering weather conditions. In strong winds work should be stopped or suspended until wind conditions improve. Gusts could be strong enough to blow or make workers loose their balance causing a fall to occur. In strong Thunderstorms where lighting could occur work should also be halted until the lighting or storm has passed. Workers could be struck by lighting when working at high elevation that could lead to the electrocution and a fall.

SAFETY MONITORING SYSTEMS

Safety monitoring system means a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards. Where no other alternate methods have been implemented, a safety monitoring system shall be implemented.

- A competent person shall be designated and comply with the following:
  - The safety monitor shall be competent to recognize fall hazards.
- The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner.
- The safety monitor shall be on the same walking/working surface and within visual sighting distance of the employee being monitored.
  - The safety monitor shall be close enough to communicate orally with the employee.
    - The safety monitor shall not have other responsibilities which could take the monitors attention from the monitoring function.
- Each employee working in a Controlled Access Zone shall be directed to comply promptly with fall hazard warnings from safety monitors.

HOIST LIFT TRUCK

COMPRESSED GAS SAFETY PROGRAM

2015
CHAPTER EIGHT

Contents:

POLICY

The following program outlines the safe handling, use, and storage of compressed gases in use at HOIST LIFT TRUCK. It is important for all employees to follow the guidelines set forth in this program to ensure the safety of all employees.

GENERAL GUIDELINES

1. Never permit oil, grease, or other flammable substances to come in contact with cylinders, valves, regulators, gauges, or fittings.

2. Keep cylinders away from excessive heat, open flame, electrical circuits, conductors, or any object that might contain stray electricity. Do not ground cylinder.

3. Never drop or permit cylinders to strike violently against each other.

4. Close valve and place safety caps on cylinders whenever they are not in use.

5. Never hang objects on cylinders.

6. Do not use compressed "gas" to dust off clothing or body.

7. Do not use a cylinder for any other activity except for containing/dispensing its contents.

8. Do not tamper with safety devices on valves or cylinders.

9. Never attempt to mix gases in cylinders. Use only pre-mixed gases from authorized suppliers.

10. Restrain all cylinders in use or when stored to prevent the cylinder from falling.

IDENTIFICATION

1. All compressed gas cylinders must be labeled with the appropriate name of its contents.

2. Do not use any gas that is not clearly marked.

3. Do not deface or remove cylinder markings which are used for identification of contents of the cylinder.

4. Do not depend only on the color of the tank to identify its contents. Rely primarily on the cylinder label.

5. Empty cylinders must be marked empty.

STORAGE

1. When cylinders are not in use, they should be stored in designated area.

2. All cylinders should be stored 20 feet away from combustible materials.

3. Oxygen cylinders must be separated from fuel-gas cylinders or combustible materials a minimum of 20 feet, or with noncombustible barrier (5ft. high with 1/2 hour fire resistance).

4. Smoking is prohibited within 50 feet of compressed gas cylinder storage.

5. "No Smoking" signs must be posted.

6. Separate full cylinders from empty cylinders.

7. Group cylinders of the same kind of gas together.

8. Cylinders should be stored in an upright position and be secured by chain or other appropriate means. This applies to full as well as empty cylinders.

TRANSPORTING

1. Never lift cylinder by valve or cap.

2. Never drag cylinder.

3. Move cylinder by tilting it sideways and rolling it along its bottom edge or by placing it in cart provided for its movement.

4. All cylinders transported by vehicle must be labeled, segregated from flammable materials, and secured properly.

VALVES/REGULATORS/ATTACHMENTS

1. Never interchange regulators or other appliances used for a gas with similar equipment intended for use with other gases.

2. Ensure threads on regulators or other auxiliary equipment are the same as the cylinder valve outlets. Never force connections that do not fit.

3. Never use a wrench to open valve. If it will not open, contact the manufacturer.

4. Stand to the opposite side of the discharge opening on the regulator when opening cylinder valve.

5. "Crack" cylinder valve prior to attaching regulator by opening slightly and then closing to blow dust and lint out of connection passage. ***EXCEPTION:*** Hydrogen and fuel-gas cylinders (merely wipe with clean, dry, lint-free cloth).

6. Fully open valve **SLOWLY** in order to dissipate heat of compression.

7. Close cylinder valves when gas is not actually being used. (Even when empty.)

8. Removing Regulator:

    a. Close valve.
    b. Bleed remaining gas from hoses away from ignition sources.
    c. Unscrew regulator.
    d. Replace cylinder valve cap.

DEFECTIVE/LEAKING CYLINDERS/EQUIPMENT

1. Faulty equipment should be taken out of service upon first detection. It should be tagged and placed in an outside location. The manufacturer should be contacted immediately.

2. All repair work should be performed by properly qualified/authorized personnel. Contact the manufacturer to verify necessary qualifications.

3. Frozen valves can be thawed with warm water or taken inside to thaw to room temperature. If cylinder is frozen to the ground, thaw only with warm water.

4. Check for gas leaks at the fittings every time equipment is set up. Use only soapy water or specified leak detector fluids and equipment to detect leaks.

BACKFIRES/FLASHBACKS

1. If flashbacks or backfires occur, the following procedures should be used.

    a. Shut off torch fuel-gas valve.
    b. Shut off oxygen valve.
    c. Let torch cool off.
    d. Purge lines.
    e. Re-light torch.

HOT WORK PROVISIONS

1. Obtain a “hot work” permit in locations where there may be a potential for a hazard.

2. In situations where compressed gases are used for cutting/welding, remove all flammables/combustibles to a safe distance.

3. Keep dry chemical/CO2, etc. fire extinguishers within 10 feet of the hot work.

4. Inspect work area for the presence of sparks, exposed electrical wiring, or hot metal parts before storing/using compressed gases.

DEFINITIONS

Fuel Gases - MAPP Gas (methyl-acetylene propadiene, stabilized), propanone, propylene propylene-based mixtures, acetylene, natural gas, liquefied petroleum gases, and hydrogen.

Purge - Purging a gas line means opening valve on torch or depressing trigger on welding gun to allow new gas to enter line.

Backfire - Popping noise occurs when welding or cutting torch flame burns back into torch tip and is extinguished.

Flashback - Shrill sound where flame burns back into torch beyond mixing chamber and flame does not go out. Potential of explosion.

HOIST LIFT TRUCK

Bloodborne Pathogens Program

2015
CHAPTER NINE

Contents

POLICY STATEMENT

A Bloodborne Pathogen Program has been created to protect employees from potential exposure to the illnesses related to bloodborne pathogens. Bloodborne pathogens are a disease causing microorganisms that are present in blood and bodily fluids. The two most prevalent are Hepatitis B and Human Immunodeficiency Virus. The following BloodBorne Pathogen Program outlines the necessary steps to take to prevent employees from potential exposure. This plan is available to all employees.

This program is maintained by the safety department and is responsible for insuring the effectiveness of the BBP program

DEFINITIONS

Blood - Human blood, human blood components, and products made from human blood.

Occupational Exposure - Reasonably anticipated skin, eye, or mucous membrane contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

Contaminated - The presence of reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Decontaminated - The use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use or disposal.

Sharps - Anything that can pierce, puncture, or cut skin. Some examples of sharps include:

1. Needles
2. Knifes
3. Nails
4. Broken Glass

Interaction with Healthcare Professionals - A written opinion shall be obtained when HBV vaccinations are given and following an exposure incident.

Incident Investigation - The designated first responder or supervisor investigates the incident and generates a report of findings to improve procedures.

Training - Training is conducted prior to assignment of tasks where exposure may occur and specific training is given to the first responders or supervisors. **All employees are trained annually as part of their First Aid and CPR update.**

Recordkeeping - All training documents and re-training are kept on file according to all OSHA guidelines.

INTRODUCTION

DISEASES

Hepatitis B Virus (HBV) is a viral infection that invades the liver. HBV is a potentially life threatening bloodborne pathogen which can live on surfaces at room temperature for up to seven days.

Human Immunodeficiency Virus (HIV) is a viral infection that attacks the immune system and causes AIDS. HIV is a life threatening bloodborne pathogen, which is very fragile and can be easily destroyed on an environmental surface.

MODES OF TRANSMISSION

1. Sexual contact involving the sharing of body fluids.
2. Contaminated sharps contact with blood or body fluids.
3. Prenatal (mother to baby).
4. Receiving blood or blood products especially before screening.
5. Organ transplantation.

BODY FLUIDS WHICH TRANSMIT BLOODBORNE DISEASES

1. Blood.
2. Any fluid visibly contaminated with blood.
3. Semen.
4. Vaginal secretions.
5. Saliva in dental procedures.
6. Breast milk.
7. Amniotic (fluid around the baby).
8. Cerebrospinal (fluid of the brain and spinal chord).
9. Pericardial (fluid in the sac around the heart).
10. Peritoneal (fluid in the abdominal cavity).
11. Pleural (lubricant around the lungs).
12. Synovial (lubricant in the joints).

Other potentially infectious materials also include any unaffixed human tissue or organ, and call or tissue culture (living or dead) containing HIV or HBV**. Any time a fluid determination cannot be made, Universal Precautions shall be used.**

PROGRAM ELEMENTS

"*Exposure Control Plan*" - The facility maintains a policy of self-assistance for minor injuries based on the individual's assessment of the injury and responding accordingly, relying on the first aid supplies available in the first aid kits located on all vehicles and in the office are and shop area.

"*Exposure Determination*" - This is a focus on job classifications that have a risk of exposure. There is no method of determining the exact circumstances of any given incident or location of incident. HOIST has no dedicated responders and all receive the same training.

POTENTIAL EXPOSURE ACTIVITIES

1. Providing emergency attention.

2. Any contact with bodily fluids.

"*Control Methods*" - Work Practice Control Methods are a combination of physical facilities and specific procedures to follow when completing a task. Controls consist of personal protective equipment, bleach solutions, and biohazard waste disposal procedures. Designated Provider Control Methods limit employee response to a specific individual trained in Exposure Control Methods.

"Administrative Control Methods" "**Work Practices**"- Hepatitis B Vaccine Control Methods allow all employees the opportunity to be vaccinated to prevent HBV exposure**. If the employee work environment is in the high-risk area, the employer may offer the vaccination at no expense to employees.**

PERSONAL PROTECTION

ALL PPE IS PROVIDED AT NO COST TO THE EMPLOYEE. IT MAY BE FOUND IN THE FIRST AID BOXES LOCATED ON EACH VEHICLE AND IN THE OFFICE AND SHOP AREA. ALL CONTAMINATED MATERIAL (BLOOD SOAKED BANDAGES ETC.) MUST BE PUT IN A RED, LEAK PROOF BAGS WITH THE BIOHAZARD LABEL AS DEMONSTRTED IN TRAINING.

1. Glove Use:

- Should be worn for touching blood or other bodily fluid, mucous membranes, or non-intact skin.

2. Glove Removal:

- When both hands are still gloved, remove one glove by peeling it off from top to bottom (the top being the wrist) and then hold the removed glove in the gloved hand.

- With the exposed hand, peel the second glove off by placing a finger between the glove and the wrist, and tucking the first glove inside the second. The second glove should now be inside out.

- Every time you remove your gloves you must wash your hands.

- Gloves shall be disposed of in a biohazard waste bag/container.

3. Hand washing:

- Hand washing prevents transferring contamination from your hands to other areas of your body, or other surfaces you have contact with later.

- Turn on water; adjust flow to force that does not spray and get clothing wet.

- Wet hands and wrists thoroughly. Rings should be moved up and down and rotated during handwashing to assure proper washing of fingers and rings.

- Scrub each hand with the other creating as much friction as possible by interlacing the fingers and moving the hands back and forth.

- Rinse the hands thoroughly.

- Dry wrists and hands with paper towels.

- **If hand wash area is not available, antiseptic hand cleaner and antiseptic wipes are available along with towels**

4. Eye Protection

- Eye protection is recommended when performing treatment or clean up.

5. Awareness of labels:

- Biohazard warning labels (orange-red) should be affixed to all contaminated containers, unless biohazard bags are used.

"*Post Exposure Evaluation & Follow-Up*" - The procedures to follow when an employee has an exposure incident are:

1. If exposure occurs:

- Wash hands or flush the area immediately. If it is your eye or mucous membrane that is exposed, then rinse with water for 15 minutes.

- Report injury or exposure to the **supervisor** immediately.

- The **supervisor** will provide an Exposure Report Form to be completed.

- The **supervisor** will then refer you to the company physician for an exam.

2. Clean-up of body fluid:

- Wear impermeable gloves.
- Remove visible material with absorbent materials.
- If a hard surface has been contaminated, scrape off and bag gross contaminants, then flood the area with a 1 to 10 solution of household bleach and water.
- If rug or carpet has been contaminated, use a sanitary absorbent agent according to its directions.
- Properly remove gloves and dispose.
- Wash hands as indicated.

3. Disposal of biohazard bags/containers:

- All infectious waste for disposal shall be placed in a leakproof, container or bag that is color-coded and labeled accordingly. It must be securely closed prior to removal to prevent spillage during handling, storage, transport, or shipping.

HEPATITIS B VACCINATION
POST-EXPOSURE EVALUATION AND FOLLOW-UP

VACCINATION PROGRAM

Hepatitis B vaccinations are made available to all employees who have occupational exposure.

The vaccination consists of a series of three inoculations over a six-month period. Vaccinations are performed under the supervision of a licensed physician or other healthcare professional.

Employees who decline the vaccination are required to sign the "Vaccination Declaration Form." Vaccination remains available to all employees who decline the vaccination should they decide at a later date to accept it and are still occupationally exposed.

EXPOSURE INCIDENT INVESTIGATION

An exposure incident investigation will be conducted by the **supervisor** immediately after a report of an exposure incident. The documentation will include at a minimum the following elements:

1. Date and time of exposure incident.
2. Where incident occurred.
3. What potentially infectious material was involved (i.e., bodily fluid).
4. Route(s) of exposure (i.e., skin puncture, splash in eye).
5. Source of infectious material (i.e., needle, razor blade).
6. Circumstances under which exposure occurred.
7. Identification of the source individual.
8. Any failure of engineering or work practice controls at the time of the exposure incident.
9. Description of the exposed employee's duties as they relate to the exposure incident.
10. Recommendations for avoidance of future exposure incidents in similar situations.

POST-EXPOSURE EVALUATION AND FOLLOW-UP

Following report of an exposure incident, confidential medical evaluation and follow-up will be provided to the employee. The medical evaluation and follow-up will be conducted by the company physician. At a minimum the following elements will be included:

1. Review of exposure incident investigation.
2. Collection and testing of exposed employee's blood for HBV and HIV serological status.
3. Post-exposure measures to preserve health, when medically indicated.
4. Counseling.
5. Evaluation of reported illnesses.

As soon as feasible and after consent is obtained, the source individual's blood will be tested to determine if HBV and HIV infections are present. Results of this testing will be made available to the exposed employee. At that time, the employee will be made aware of any applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

INFORMATION PROVIDED TO THE HEALTHCARE PROFESSIONAL

To assist the healthcare professional, the following information will be supplied to him/her:

1. A copy of the Bloodborne Pathogens Standard.
2. A copy of the completed exposure incident investigation.
3. Results of the source individual's blood testing, if available.
4. All relevant medical records, including vaccination status.

HEALTHCARE PROFESSIONAL'S WRITTEN OPINION

The supervisor will be responsible for obtaining and providing the employee with a copy of the healthcare professional's written opinion within 15 days of completion of the evaluation.

In order to maintain confidentiality, the written opinion will only contain the following information:

1. Whether Hepatitis B vaccination is indicated for the employee.
2. Whether the employee has received the Hepatitis B vaccination.
3. Confirmation that the employee has been informed of the results of the evaluation.
4. Confirmation that the employee has been told about any medical conditions resulting from the exposure incident which requires further evaluation or treatment.

All other findings or diagnoses will remain confidential and will not be included in the written opinion.

RECORDKEEPING

MEDICAL RECORDKEEPING

To ensure that adequate medical information is available for our healthcare providers, comprehensive medical records are maintained for our employees. These records include:

1. Name and social security number of the employee.

2. Copy of the employee's Hepatitis B vaccination status, including the dates of all the vaccinations and any medical records relative to the employee's ability to receive vaccination.

3. Documentation of examinations, medical testing, and follow-up procedures which took place as a result of an employee's exposure to bloodborne pathogens.

4. Copy of the healthcare professional's written opinion.

5. Copy of the information provided to the healthcare professional as a result of any exposure to bloodborne pathogens. It is not necessary to include a copy of the Bloodborne Pathogens standard in the medical records.

We recognize that it is important to keep the information in these medical records confidential. We will not disclose or report this information to anyone without our employee's express written consent (except as required by law). The medical records will be provided upon request for examination and copying to the employee, or anyone having written consent of the employee, to OSHA, and to its representatives.

TRANSFER OF RECORDS

Although it is important to keep employee records confidential, the employer shall ensure that all records required by this section shall be made available upon request of employees, Assistant Secretary and the Director for Examination and Copying. Medical records must have written consent of employee before released. The employer shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

These records will be maintained for at least the duration of employment plus thirty years. All records will be maintained under the Access to Medical Records guidelines so employees have access to them.

HOIST LIFT TRUCK

ACCIDENT INVESTIGATION PROGRAM

2015
CHAPTER TEN

CONTENTS:

DEFINITION

An accident is an unplanned event which caused or could have caused personal injury, property damage, or both. Webster's Dictionary defines accident as (1) ***an unfortunate event resulting from unawareness, ignorance, or a combination of causes;*** (2) ***an unexpected happening***

causing loss or injury which is not due to any fault or misconduct on the part of the person injured, but from the consequence of which he may be entitled to some legal relief.

Accidents do not occur as a result of one single cause but rather as a result of interaction among a number of elements. The key to preventing the recurrence of accidents is with ***better accident investigations*** and tracing the cause of each accident for future prevention. Accurate information gathered during an accident investigation in turn results in more informed decisions being made to prevent accidents from recurring.

REASONS FOR INVESTIGATING ACCIDENTS

- To determine the cause(s) of the accident.
- To identify and eliminate hazards.
- To discover deviations from standard procedures.
- To make recommendations to management.
- To provide technical assistance where it is needed.

Prompt action is important….when an accident occurs, the need to restore normal activity forces responsibility for investigation into the background.

INITIAL DUTIES OF THE ACCIDENT INVESTIGATOR

- Primary importance is to ***care for the injured***.
- Protect the scene i.e., make it safe and preserve evidence at the same time.
- Begin your investigation....makes mental notes of who is there and what is involved.

INVESTIGATOR'S ROLE

You are responsible for the area you manage, whether you are the Foreman or the Supervisor because you know the people and the equipment better than anyone else. Your duties in completing an accident investigation are:

- Get the facts: Who, What, When, Where, How, and Why.
- Record what actually took place.
- Determine what corrective actions are needed.
- Recommend or take action depending upon your authority.
- Follow-up to ensure that the action was effective.

THREE PARTS OF ACCIDENT INVESTIGATION

1. Preparation

2. Investigation

3. Analysis and Report Writing

PREPARATION

- Develop a written policy or guidelines to follow when an accident occurs.
- Respond quickly before the vital signs, witnesses, and evidence disappears.
- Collect equipment, i.e., report forms, pen, tape measure, camera, graph paper, caution tape, flashlight, etc.
- Make a phone list of specialists you may need to consult for information when an accident occurs, i.e., lab tech for air samples, noise surveys, vendor emergency numbers for chemical information, etc.
- In the situation of a large incident, you may wish to have duties assigned to specific individuals to complete.
- Know your equipment and all your processes (welding, machining, assembly, etc.).
- Practice to identify your weaknesses.
- Learn as much as possible about other department accidents to help prevent the same problem from occurring in your department.

THE INVESTIGATION
LOOK AT THE "BIG PICTURE"

CONTROL THE SCENE

- Take care of the injured...survey the scene as you care for the injured.
- Stabilize the situation.
- Notify management.
- Safeguard the area (power, air, lighting, etc.)
- Protect evidence at the same time. Four sources of evidence:

    1. ***People*** - Jot down your initial observations.
    2. ***Positions*** - How many people are there?
    3. ***Parts*** - What area or part is involved?
    4. ***Paper*** - Collect operating logs, charts, and records.

- Take photographs or draw scale pictures of the scene.
- Record model numbers and descriptions of tools, machinery, etc.
- Use coins or rulers when photographing to depict size, and don't forget the "big picture."
- Write descriptions on photos and drawings, mark parts, etc.
- Return the scene to normal production as soon as possible.

INTERVIEWING WITNESSES

- Promote good human relations.
- Interview witnesses alone in a neutral area.
- Observe body language.
- Ask questions about things easily checked.
- Conduct your interview as soon as possible after the accident.
- Put the witness at ease.
- Ask open-ended questions.
- Interview at the scene.
- Take notes or use a tape recorder.
- Repeat the story back to the witness.
- Always stress that you want the "facts."
- That you want to prevent another accident.
- That you're taking time to understand the situation.
- End your interview on a positive note.

KEY FACTS

Every accident has key facts to help narrow the cause of injury and accident. It is necessary to review these facts in every investigation.

1. Type of Injury - The type of physical injury incurred. I.E. burn, scratch, laceration, abrasion.

2. Part of the Body - The part the injured person's body directly affected by the injury. I.E. right arm, left leg.

3. Source of Injury - The object, substance, exposure, or bodily motion which directly produced or inflicted the injury. I.E. cabinet door, twisting, pulling, chlorine.

4. Accident/Injury Type - The event which directly resulted in the injury. I.E. strike against, caught on, caught between, fall, lifting.

5. Hazardous Condition - The physical condition or circumstance which permitted or caused the occurrence of the accident type. I.E: exit light out, mirror missing, defective tool, wet floor, temperature, chemical release, and housekeeping.

6. Unsafe Act - The violation of a commonly accepted safe procedure which directly permitted the occurrence of the accident. I.E. running, disregard lockout-tagout, mis-use of PPE.

ANALYSIS AND REPORT WRITING

- After your have gathered the facts, you can form a theory as to how the accident happened. Fit the facts to your theory and see if the theory holds up.

- Examine the evidence (cracks, bends, stretching, etc.) and list the locations before and after the accident.

REMEMBER - don't include your opinions, hearsay, guesses, or anything that would libel or slander anyone. No hypothetical solutions should be reported as fact. An accurate report of the immediate causes of the accident is your responsibility. Some of the causes may only point the way to a deeper cause, but your job is to point them out. The Accident Report you write is a legal document that can be used in court….will you be able to remember exactly what happened on the witness stand five years from now?

ACCIDENT TREND ANALYSIS

The trend analysis should not only indicate where the problems trends are. But also reflect any past efforts that have been effective in reducing the number of accidents. The analysis format should reflect the total numbers of accidents but also outline department/area locations to show where the bulk of the accidents are taking place. If there are numerous job titles involved, it may be necessary to expand the analysis format to track accident by job title.

Accidents can be group together to analyze trends either by type of injury (laceration, burn, abrasion) or event (falls, repetitive trauma, lifting strain). There is a need to record the time of day or the shift that accidents are occurring. For example, it could be helpful to identify that a significant percentage of accidents are taking place around shift changes.

It is not very meaningful to look at accident trends one month at a time in an isolated fashion. This would be similar to looking at one frame of a film at a time while trying to get the "big picture". To be in a position to trend short and long term accident statistics with past trends.

One of the most important features of an accident analysis is to be able to trend common causes for why the accidents are taking place. In addition a company must be concerned with the severity of injuries and property damage that occurs. Finally companies need to identify those employees who have multiple accidents.

All accidents should be investigated and all trends should be reviewed even less severe or no injury accidents. Remember accident frequencies will eventually equally accident severity. Focus your attention on the hazard in the beginning whether it is an unsafe act or unsafe condition to minimize future loss potential.

ACCIDENT COST

1. Human Aspect - physical suffering (pain, discomfort), psychological (loss of self-worth), (loss in company interest and trust), social (inability to contribute and meet all obligations personally and professionally), decrease in company morale, negative publicity(news reports due to death or injury),

2. Financial Aspect - loss of man hours (downtime due to accident, time allotted to replacement training, light duty training), loss of equipment/materials (cost of repair or replacement), facility property damage, loss of ancillary personnel time (required paper work, investigation, time, policy changes, retraining), workers compensation and medical, increase in insurance rates for next 3 years, decrease in productivity and quality (due to replacement employee training curve).

3. Legal Aspect - Violations, Citations (triggering OSHA, EPA, or other regulatory investigations or inspection), Civil Suits, Criminal Liability, and Attorney Fees.

HOIST LIFT TRUCK

Housekeeping Program

2015
CHAPTER ELEVEN

Contents

Housekeeping Program

One of the easiest ways an employee can prevent accidents from occurring is **keep your work environment free from recognized hazards**. Poor housekeeping is frequently a common cause for accidents, yet it is the one area many employees neglect the most. From the time we are born we have been told by our parents and those in authority to ***clean up after ourselves.*** It seems in many situations we forget that golden rule we learned in preschool. It is too easy to leave it for the other guy or the other shift to clean up. **Poor housekeeping is like a contagious disease; once it gets started it spreads rapidly, until the entire population is effected.**

General

1. During your shift, check for and report all unsafe conditions, such as:

   A. defective equipment
   B. sharp edges
   C. loose floor coverings
   D. loose light fixtures
   E. defective carts
   F. damaged light switch and power outlet covers
   G. unlit exit signs

2. Take personal responsibility for correcting slipping and/or tripping conditions on the floor or stairways.

3. Use rubber gloves when cleaning with strong chemicals.

4. Do not mix or use unauthorized chemicals or chemicals you are unfamiliar with. Ask your supervisor to show you how to safely mix and use them. Mixing of various agents can produce highly irritating and poisonous fumes or cause other adverse chemical reactions

5. The floor of every workroom shall be maintained, so far as capable, in a dry condition.

6. Where wet processes are used, drainage shall be maintained and false floors, platforms, mats, or other dry standing places shall be provided. Appropriate waterproof footgear is also recommended.

7. To facilitate cleaning, every floor, working place, and passageway shall be kept free from protruding nails, splinters, loose boards, and unnecessary holes and openings.

8. Any receptacle used for combustible solid or liquid waste shall be equipped with a tight fitting cover.

Safety

1. DO NOT PICK UP BROKEN GLASS WITH YOUR HANDS. Sweep it up with a brush and dust pan. Pick up small splinters and chips with a wet or damp cloth and then dispose of the cloth.

2. Be sure to unplug electric cords before wiping the cord with a damp or wet cloth.

3. ALWAYS HANDLE ELECTRICAL EQUIPMENT WITH DRY HANDS.

4. ALWAYS unplug electrical cords by holding onto the plug - NEVER pull on the cord. Also, be sure to shut off machines before plugging them in or removing the plug from the wall.

5. Do not stand on the top step of any ladder. Make sure that the ladder's safety lock is in place and that the ladder is secure before putting your weight onto it.

6. Label all containers to indicate what they contain. All unmarked containers must be promptly discarded.

7. Use the proper handling procedure when removing and handling material.

8. When moving heavy items, always use proper equipment and lifting techniques.

9. Be aware that other persons may not have followed proper procedures for disposing of sharp items. All trash should be handled as if hazardous items were present.

10. Slippery areas on floors that are being scrubbed or polished should be identified with signs or should be roped off.

11. Cleaning agents proven to be toxic to human health, highly flammable, or explosive should be replaced with less dangerous materials whenever possible.

Equipment

1. Light bulbs should be changed carefully, not when they are hot or when someone is underneath them.

2. Handle electrical equipment only with dry hands. Switch off equipment before pulling the plug, never jerk plug out of the receptacle or apply jerking pressure on the power cord.

3. Report defective or missing equipment, loose or missing door handles, burned out bulbs, dripping faucets, loose fixtures, missing window screens, etc.

4. All power cords shall be of double insulated type as approved by UL Standards. Do not break off the ground prong of a plug.

5. Training should include the safe use of electrical power equipment, especially electrical scrub machines and other cleaning equipment that will be used with or around water.

6. When using power equipment, alternate the use of receptacles on both sides of the room or hallway, so that cords do not cross hallways or extend for great distances. Keep power cords against the wall when possible.

7. Electrical equipment should be disconnected from the power source before it is cleaned.

8. When not using equipment, keep it out of the way. Never permit it to block exits, fire doors, fire extinguishers, fire hose cabinets, stairwells, or elevators.

9. Unplug electric lamps before wiping with a dry-damp cloth.

10. Power equipment must be switched "off" and disconnected if left unattended.

11. Carry portable equipment, such as a mop or broom, close to the body to avoid injuring anyone.

12. Clean equipment after use. Turn buckets upside down to dry thoroughly. Mops and cleaning cloths should be changed with each shift.

13. Report broken equipment immediately, remove it from service, and label the equipment as defective until repaired.

14. Do not clean ramps with power equipment.

Mopping

1. Mop only one side of a corridor at a time. Use the same procedure with floor finish.

2. Post wet floor signs near the wet areas.

3. Stay in the area until the entire floor is dry. Be sure to ask people to walk on the dry side.

4. Schedule floor care in heavy-traffic areas to correlate with periods of least traffic and clean only a small section at a time.

5. Maintain floors on a schedule to prevent wax buildup, resulting in slippery conditions.

6. After floors have been cleaned, all furniture should be returned to its original position.

7. Wear rubber footwear when stripping and refinishing floors.

8. During wet weather, place rubber mats or runners near entrances.

9. Always wear the appropriate Personal Protective Equipment.

10. All sweeping, solid or liquid wastes refuse and garbage shall be removed in such a manner as to avoid creating a menace to health.

11. Sweeping and mopping should take place as often as necessary to maintain the place of employment in a sanitary condition.

Housekeeping Self Inspection

1. Are all work areas, stairs, storage areas, and thoroughfares free of debris, trip hazards, and in safe condition?

2. Are walking/working surfaces maintained in as dry a condition as possible?

3. In areas where wet processes are located; provided with proper drainage, mats, etc.?

4. Are pedestrian and vehicular passageways free of hazards and adequate for mechanical and material handling equipment?

5. Are pedestrian and vehicular passageways in good repair without obstructions?

6. Are all open pits, ditches, and elevated openings covered with adequate safeguards or provided with guardrails?

7. Are handrails provided on stairs with four or more steps?

8. Are all exits free of all obstruction or other known hazards?

9. Are oily rags, empty flammable/combustible materials containers, etc. disposed of in a manner to prevent possible fires?

10. Is smoking prohibited in areas where flammable/combustible materials are stored?

11. Are oxidizers and flammable gases stored separately and properly secured?

12. Are corrosives and flammable materials stored separately?

13. Are all receptacles for solid or liquid refuse leak proof and maintained in a sanitary condition? Fitted with tight fitting covers?

14. Are outlets for non-potable water clearly posted indicating they are unsafe for drinking and washing purposes?

15. Are separate toilet facilities and adequate numbers provided for each sex?

16. Are toilets maintained in a clean and sanitary condition?

17. Are fire hydrants accessible and protected from mechanical damage?

18. Are scrap collection areas free of recognized hazards or barricades, and signs posted to alert personnel to the hazards?

19. Are electrical extension cords and power leads placed to prevent creating a trip hazard or placed so other materials are not stacked upon?

20. Are electrical cords and outlets protected from moisture and combustible materials?

21. Is personal protective equipment maintained and stored in a clean and sanitary condition?

22. Are all contractors and sub-contractors aware of the housekeeping procedures?

23. Are spills cleaned up immediately and disposed of properly?

24. Are periodic housekeeping inspections and “Tool-box Talks” performed?

25. Are all scraps, nails, and waste removed from work areas at the end of the work day?

HOIST LIFT TRUCK

Lead, Cadmium, Hexavalent Chromium, and Exposure to Metals

2015
CHAPTER TWELVE

Contents:

Policy

1. The Management of HOIST LIFT TRUCK has made a commitment to establish and maintain a protection program against Lead, Cadmium, Hexavalent Chromium, and other metals**. HOIST LIFT TRUCK has instituted a training program for all employees who are potentially exposed to cadmium, lead, and other metals, to assure employee participation and maintain a record of contents. Training must be provided prior to initial assignment ant at least annually. This program will be reviewed and updated every 6 months and certifies the training has been conducted by preparing a record that includes all HOIST LIFT TRUCK employees trained, the signature of the instructor, the date of all training, and documented into file the training records be kept for minimum of 1 year. HOIST LIFT TRUCK employers must provide training on chromium and hexavalent chromium hazards, control methods and medical surveillance, and document all information.**

   ****Although HOIST LIFT TRUCK has stainless steel implemented in their trucks built, there is NO welding of stainless steel at the facility. A chapter on Hex Chrome is built in this manual for possible future reference.**

2. The HOIST LIFT TRUCK policy is as follows; employees are required to wear all protective equipment when completing work which may produce exposure to any metal suspended in air. This work may include but not be limited to the following:

    1. When tasks are performed which may generate potentially harmful level of metals, dusts or vapors?

    2. When working in an IDLH atmosphere at any time or with metals as defined by testing

    3. Chipping, grinding, welding or burning on components exposed to coal fired heat such as inside of a boiler.

    4. When host employee states there may be an issue. It will be treated as a potential exposure until proper testing disproves the exposure. **This process will be discussed in the pre-job safety briefing if necessary.**

    5. All employees will be trained in this standard prior to working and updated annually through training. Training will be in accordance with 1910.1025 (l) Appendices A and B, and 1910.1026(I)(2).

    6. Breathing zone air monitoring will be completed if indicated. If levels are above the action level, the necessary engineering and PPE controls will be instituted and followed. It is when a written compliance program will be implemented when these PEL numbers exceed the minimum limits.

    7. Signs will be posted in and around the regulated work area as required.

Introduction

HOIST LIFT TRUCK makes every attempt to provide for a hazard free workplace. This includes managing the quality of air in the workplace. HOIST LIFT TRUCK engages in some activities that may present a potential hazard. The purpose of this program is to establish guidelines as set forth by 29 CFR 1910.1025, 1026, and 1027 for the selection, use, and maintenance of respirators for employee protection.
This program shall be administered and evaluated annually by the Safety Coordinator.

Purpose

1. To set forth policies, procedure, and work practice to control injury and illness caused by exposure to respirable metals.

2. To make workers aware of hazards that make the use of respirators and other PPE pertinent to their activities and the limitations involved with their equipment.

3. To provide employees with the knowledge to select, use, and maintain respirators and other PPE when faced with a potential metals exposure.

Hazard Identification

1. Work-site conditions may change. Follow site procedures for evaluating the hazards and making a determination as to which type of respiratory protection is required. Respiratory protection is required:
2. When so directed by a supervisor
3. When there is a identified particulate or contaminate
4. When performing certain functions such as welding, grinding, chipping or painting
5. When the host employer so directs
6. When a contaminate exceeds the PEL with hexavalent chromium being 5 micrograms per cubic meter of air as an 8-hour time weighted average
7. If the oxygen level is below 19.5%***
8. Any other time they are needed!

9. HOIST LIFT TRUCK has to ensure their employees are not exposed in excess of the permissible exposure level

Medical Surveillance

1. **All employees required to use a respirator or work in a potential metals exposure area must have a physician determine the health and physical conditions that are pertinent for employee ability to** carry out the work operations. The factors that may effect ability to perform while wearing a respirator are, but not limited to, Emphysema, Chronic Obstructive Pulmonary Disease, Bronchial Asthma, pneumoconiosis, severe or progressive hypertension, Epilepsy, Diabetes, punctured ear drum, difficulty breathing when wearing a respirator, and Claustrophobia or anxiety when wearing a respirator.

2. If additional medical surveillance becomes necessary,(blood sampling) the guidelines for 1910.1025(j)(2)(i)(C)(iv) will be followed include test consecutively until acceptable. Employees will be notified within 5 days if levels are not acceptable. They will be removed from work with benefits.

PPE / Respirator Selection

1. **Selection of the proper respirator (s) to be used in any location or operation is made only after a determination has been made as to the real and/or potential exposure to harmful concentrations of contaminants in the workplace. These shall be supplied at no charge to the employee**.

2. **Respirators are selected on the basis of the hazards to which the employees are exposed, as determined by periodic evaluation of the workplace environmental conditions.**

3. Respirator protection must be required in certain areas or during certain operations when engineering controls are not available to reduce airborne concentrations of contaminants to a safe level. Engineering controls might not be present because they are technically unfeasible or the operation, which is hazardous, might be done only infrequently, making those controls impractical. Respirators are also needed while engineering controls are being implemented. In all of the cases the correct respirator must be chosen to protect the health of the employee.

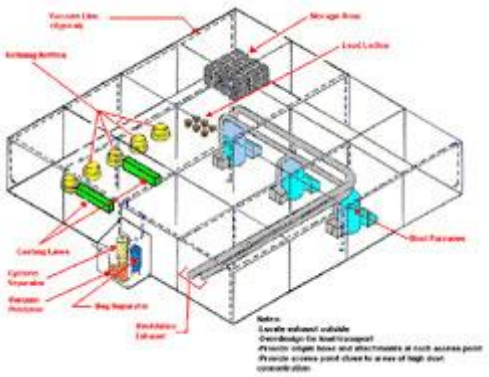
4. **All respirators in use at HOIST LIFT TRUCK are NIOSH approved and are MSA Supplied Air** Respirators, PAPR or Air purifying. Some may be for dust/mist/fume disposable variety or are half mask cartridge respirators supplied with an Organic Vapor Filter Cartridge or Acid Gas. This protection will be selected for the employee based on the chemical properties of the materials with which they are working. **Both MSA full face and half face** respirators are available based on the hazard analysis. All of these respirators are intended for use in an atmosphere containing at least 19.5% oxygen except the SAR and where the concentration of organic fumes is equal to or less than .05 milligrams per cubic meter on a time weighted average. **(3M and other brands area available if the MSA will not fit properly)**

5. Hard hats, gloves, boot covers, coveralls, vented goggles and any other protective clothing will be provided at no cost to the employee. All PPE will be cleaned and or disposed of properly when used. If equipment is broken, it will be replaced before an exposure may occur.

OSHA Lead Requirements for PPE, Housekeeping, and Hygiene Facilities

A rigorous housekeeping program is necessary to keep airborne lead levels as low as feasibly possible. OSHA requires the following regarding general housekeeping:

- OSHA Housekeeping Requirements
- Video Exposure Monitoring: Glove Removal
- Video Exposure Monitoring: Shoveling

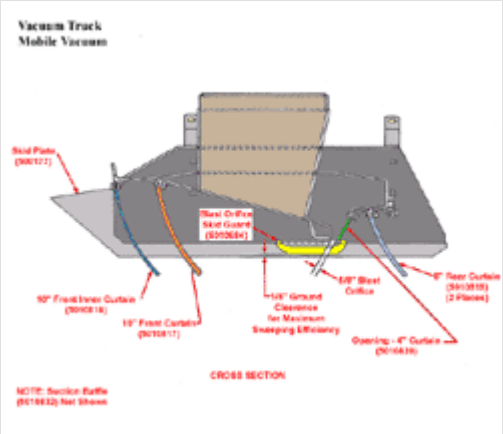


OSHA Housekeeping Requirements

- All surfaces must be maintained as free as practicable of accumulations of lead. [1910.1025(h)(1)]

Fig. 1. Vacuum instead of sweep

- Floors and other surfaces where lead accumulates may not be cleaned by the use of compressed air. [1910.1025(h)(2)(i)]
- Shoveling, dry or wet sweeping and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective **(Fig. 1)**. [1910.1025(h)(2)(ii)]
- Where vacuuming methods are selected, the vacuums shall be used and emptied in a manner which minimizes the reentry of lead into the workplace. [1910.1025(h)(3)]



LEAD

Overexposure to lead is one of the most common overexposures found in industry. Lead overexposure is a leading cause of workplace illness. Therefore, OSHA has established the reduction of lead exposure to be a high strategic priority. OSHA's five year strategic plan sets a performance goal of a 15% reduction in the average severity of lead exposure or employee blood lead levels in selected industries and workplaces.

In general populations lead may be present at hazardous concentrations in food, water, and air. Sources include paint, urban dust, and folk remedies. It is also a major potential public health risk. Lead poisoning is the leading environmentally induced illness in children. At greatest risk are children under the age of six because they are undergoing rapid neurological and physical development.

Hazard Recognition

Lead is commonly added to industrial paints because of its characteristic to resist corrosion. Industries with particularly high potential exposures include: construction work involving welding, cutting, brazing, blasting, etc., on lead paint surfaces; most smelter operations either as a trace contaminant or as a major product; secondary lead smelters where lead is recovered from batteries; radiator repair shops; and firing ranges. Oral ingestion may represent a major route of exposure in contaminated workplaces. Most exposures occur with inorganic lead. Organic (tetraethyl and tetramethyl) lead, which was added to gasoline up until the late 1970s, is not commonly encountered. Organic forms may be absorbed through the skin, while inorganic forms cannot.

Inorganic lead is not metabolized, but is directly absorbed, distributed and excreted. The rate depends on its chemical and physical form and on the physiological characteristics of the exposed person (e.g. nutritional status and age). Once in the blood, lead is distributed primarily among three compartments – blood, soft tissue (kidney, bone marrow, liver, and brain) and

mineralizing tissue (bones and teeth). Absorption via the GI track following ingestion is highly dependent upon presence of levels of calcium, iron, fats and proteins.

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Evaluation

Standard particulate sampling techniques are used to evaluate lead exposures. Potential for lead ingestion can be indicated by wipe sampling.

- OSHA Sampling and Analytical Methods. OSHA. This page provide links to information developed by OSHA including validated methods for use by the Salt Lake Technical Center (SLTC) Laboratory.

- Although when working on site, we at HOIST LIFT TRUCK realize if there is any area we may be working where there is a possible indicator, or possibly lead in the area we are working, to stop all duties and recognize possibility of lead in the working area with host employer.

- No employee should be exposed to lead at concentrations greater than 50 micrograms per cubic meter of air averaged over an 8 hour period. If there is a sign of lead in area, a dedicated trained lead abatement team would be notified and on site to correct measures.

- If the initial determination of monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit, the employer shall repeat monitoring for 6 months. The employer should continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee.

- The employer must within 15 working days after the receipt of the results of any monitoring performed, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to the affected employees.

- Whenever the results indicate that the representative employee exposure, without regard to donning respirators, exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible limit was exceeded and a description of the corrective action taken or to be taken to reduce exposure to below the permissible exposure limit, which again is 50 micrograms per cubic meter of air for 8 hours.

- Blood sampling and monitoring should be conducted every 6 months until two consecutive blood samples and analysis are acceptable. The sample and monitoring should be performed at least monthly during the removal period. Any employee with elevated blood levels should be removed. Employees should be notified in writing within 5 days when the levels are not acceptable. The standard requires temporary medical removal with medical removal protection benefits.

    - Tetraethyl Lead (as Pb) (1993), 1 page.

    - Tetramethyl Lead (as Pb) (1993), 1 page.

    - Lead, Inorganic (as Pb) (1993), 1 page.

- OSHA Sampling and Analysis methods.

    - Metal and Metalloid Particulates in Workplace Atmospheres (Atomic Absorption Analysis), ID-121.

    - Metal and Metalloid Particulates in Workplace Atmospheres (ICP Analysis), ID-125G.
    - Metal/Metalloid Particulates from Solder Operations, ID-206.
- NIOSH Sampling and Analysis methods.
    - Lead by Flame Atomic Absorption Spectroscopy, 7082. WordPerfect 5.1 file in ZIP format.
    - Lead by Heated Graphite Atomizer Atomic Absorption Spectroscopy, 7105. WordPerfect 5.1 file in ZIP format.
    - Elements by ICP, 7300. WordPerfect 5.1 file in ZIP format.
    - Lead in Air by Chemical Spot Test, 7700. 15.6 KB PDF.
    - Lead by Ultrasound/Anodic Stripping Voltammetry (ASV), 7701. 24.6 KB PDF.
    - Lead by Field Portable X-ray Fluorescence (XRF), 7702. 25.5 KB PDF.
    - Lead in Blood and Urine, 8003. WordPerfect 5.1 file in ZIP format.
    - Lead in Surface Wipe Samples, 9100. WordPerfect 5.1 file in ZIP format.
- Employers who are required to perform biological monitoring for blood lead must use an OSHA-approved blood lead laboratory for analysis.
- OSHA Approved Blood Lead Laboratories: OSHA administers a program for approval of laboratories submitting data as required by the OSHA Regulation 1910.1025, and Lead Standards for General Industry.

CADMIUM

- Cadmium is an extremely toxic metal commonly found in industrial workplaces, particularly where any ore is being processed or smelted. Due to its low Permissible Exposure Limit (PEL), overexposures may occur even in situations where trace quantities of cadmium are found in the parent ore or smelter dust. If exposed at PEL levels, all HOIST LIFT TRUCK employees have to abide by the respiratory standards listed in the 29 CFR 1910.134, and the 29 CFR 1926.1127(g)(3) standards relating to PPE and respiratory protection. Cadmium is used extensively in electroplating, although the nature of the operation does not generally lead to overexposures. Several deaths from acute exposure have occurred among welders who have unsuspectingly welded on cadmium-containing alloys or working with silver solders. Cadmium is also found in industrial paints and may represent a hazard when sprayed. Procedures shall be developed and implemented to minimize employee exposure to cadmium when maintenance of ventilation systems and changing of filters in cadmium exposed areas. Operations involving removal of cadmium paints by scraping or blasting may similarly pose a significant hazard. Cadmium is also present in the manufacture of some types of batteries. Cadmium emits a characteristic brown fume (CdO) upon heating, which is relatively non-irritating, and thus does not alarm the exposed individual. A written compliance program shall be implemented when the PEL is exceeded. Also, a medical surveillance program has to be established for all employees who may be exposed at or above the action levels of cadmium.

- IMPORTANT INFORMATION

  Other important information when working in, on, or around cadmium are:

  1. Describe each operation where cadmium is omitted, such as machinery use, material processed, are controls in place, what is the crew size, job responsibilities, and maintenance practices.
  2. What means will be taken to meet compliance including engineering plans.
  3. Reporting all technological information needed in meeting the PEL's.
  4. Documentation of all air monitoring data.
  5. Detailed schedules of implementation.
  6. A work practice program.
  7. Describe a written plan for emergency situations where respiratory protection must be used, working around cadmium above the permissible exposure limits.
  8. Any other important information relevant to working around cadmium.
  9. The written program must be reviewed and updated annually to reflect any changes of employer's compliance status and reviewed and documented to all HOIST LIFT TRUCK employees.
  10. All programs must be available for examination upon the request of affected employees and any HOIST LIFT TRUCK representatives, the Assistant Secretary and Director upon their request of information.

Recognition

- Cadmium and Cadmium Compounds-The Tenth Report on Carcinogens. U.S. Department of Health and Human Services Public Health Service National Toxicology Program (2002, December), 2.07 MB PDF, 7 pages. This is a document that explains the carcinogenicity, properties, use, production, exposure, and regulations regarding cadmium.

- **Toxicology**: Health effects are discussed in the Preamble to the OSHA standard.

    - **Acute** — Metal fume fever may result from acute exposure with flu-like symptoms of weakness, fever, headache, chills, sweating and muscular pain. Acute pulmonary edema usually develops within 24 hours and reaches a maximum by three days. If death from asphyxia does not occur, symptoms may resolve within a week.

- **Chronic** — The most serious consequence of chronic cadmium poisoning is cancer (lung and prostate). The first observed chronic effect is generally kidney damage, manifested by excretion of excessive (low molecular weight) protein in the urine. Cadmium also is believed to cause pulmonary emphysema and bone disease (osteomalcia and osteoporosis). The latter has been observed in Japan ("itai-itai" disease) where residents were exposed to cadmium in rice crops irrigated with cadmium-contaminated water. Cadmium may also cause anemia, teeth discoloration (Cd forms CdS) and loss of smell (anosmia).

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Evaluation

- Exposures should be evaluated with standard total dust sampling techniques (see OSHA Methods) for comparison to the OSHA PEL. Other methods for cadmium may be found in the NIOSH Manual of Analytical Methods (NMAM), and in the NIOSH Cadmium and Compounds as Cd, (1994, August 15), 20 KB PDF, 4 pages.

- Cadmium dust (as Cd) (1978), 317 KB PDF, or Cadmium fume (as Cd) (1978), 246 KB PDF, 6 pages each. These files provide information about exposure limits, health hazards, chemical and physical properties, monitoring and measuring procedures, personal protective equipment, etc. Note that exposure limit information is dated. Consult the current OSHA standard requirements. These are individual sections of the document Occupational Health Guidelines for Chemical Hazards (1981, January), DHHS (NIOSH) Publication No. 81-123 and supplements (1988-1995).

Biological Standards

- OSHA regulates cadmium under 29 CFR 1910.1027 (general industry) and 29 CFR 1926.1127 for construction. The standards include biological monitoring (1910.1027 App F). If Cd in urine exceeds 3 µg/g creatinine, or if Beta-2 microglobulin (indicating excessive protein excretion) exceeds 300 µg/g creatinine, or if CD in whole blood exceeds 5 µg/liter, a reassessment of the employee's exposure and follow up medical surveillance is required. Note: The medical action/removal levels have been reduced as of January 1, 1999. See Appendix A, Table A for the new levels (scroll to find Table A). There are OSHA Separate Engineering Control Airborne Limits (SECALs) for certain processes.

- GOCAD. The original Cadmium Standard Biological Monitoring Advisor (released in 1994) is now obsolete, as a result of the Cadmium standard's built-in, change of requirements as of January 1999. Therefore, the public should not use GOCAD to evaluate biological monitoring data. Instead, use the new GOCAD 2.0 (coming soon) to evaluate laboratory results (of required medical surveillance) under the Cadmium Standard.

Air Standards

- The ACGIH Threshold Limit Values® (TLVs) for cadmium are 10 µg/m^3 (8 hour TWA) and 2 µg/m^3 (8 hour TWA) for respirable fraction.
- OSHA regulates cadmium under 29 CFR 1910.1027 (general industry) and 29 CFR 1926.1127 for construction with an 8 hour PEL of 5 µg/m^3.
- Sample collection and analysis:
  OSHA
  - OSHA Method ID-121, Metal & Metalloid Particulates in Workplace Atmospheres (Atomic Absorption).
  - OSHA Method ID-125g, Metal and Metalloid Particulates in Workplace Atmospheres (ICP Analysis).
  - OSHA Method ID-206, ICP Analysis of Metal/Metalloid Particulates from Solder Operations.
  - OSHA Method ID-189, Cadmium in Workplace Atmospheres.

  NIOSH
  - NIOSH 7300, Elements by ICP (41 KB PDF)
  - NIOSH 8005, Elements in blood or tissue (39 KB PDF)
  - NIOSH 8310, Metals in urine (27 KB PDF)

Control

- Primary control should focus on inhalation. Inhaled cadmium is more readily absorbed into the body than is ingested cadmium. Intake of cadmium by ingestion and skin absorption are considered to be of relatively less importance in occupational settings.

What is Hexavalent Chromium?

- Chromium VI or Cr(VI)
- Toxic form of chromium metal, generally man-made
- Used in many industrial applications, primarily for its anti-corrosive properties
- Can be created during certain "hot" work processes where the original form of chromium was not hexavalent

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	Types of Hexavalent Chromium Chemicals
pigments in paints, inks, and plastics	•lead chromate (chrome yellow, chrome green, molybdenum orange) ($PbCrO_4$) •zinc chromate ($ZnCrO_4$) •barium chromate •calcium chromate •potassium dichromate •sodium chromate
anti-corrosion coatings (chrome plating, spray coatings)	•chromic trioxide (chromic acid) •zinc chromate ($ZnCrO_4$) •barium chromate ($BaCrO_4$) •calcium chromate •sodium chromate •strontium chromate ($SrCrO_4$)
stainless steel	•hexavalent chromium (when cast, welded, or torch cut)
textile dyes	•ammonium dichromate ($(NH_4)2Cr_2O_7$) •potassium chromate •potassium dichromate •sodium chromate
wood preservation	•chromium trioxide
leather tanning	•ammonium dichromate ($(NH_4)2Cr_2O_7$)

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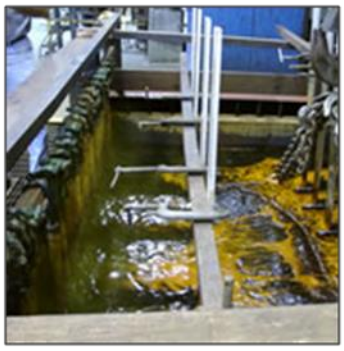
Sources of Occupational Exposure

Major operations/job tasks resulting in potential Cr(VI) exposure:

- Chrome plating/Electroplating
- Welding on stainless steel or Cr(VI) painted surfaces
- Painting
  - Aerospace
  - Auto body repair
- Chromate pigment and chemical production



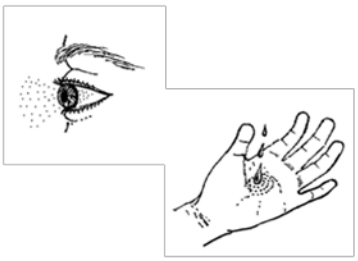
Chrome Plating Bath

10

Routes of Exposure

How Can Hexavalent Chromium Enter the Body?

- Inhalation of dusts, mists, or fumes created during processes involving the use of Cr(VI) compounds or hot processes that cause the formation of Cr(VI)



- Eye or skin contact with powder, dusts, or liquids containing Cr(VI)

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Permissible Exposure Limit

Permissible Exposure Limit (PEL)

8-hour time-weighted average exposure limit (TWA_8)

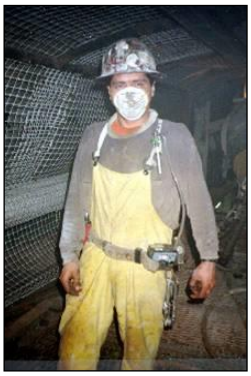
5 µg/m³ TWA_8 in the air

Action Level (AL)

0.5 of PEL

2.5 µg/m³ TWA_8 in the air

Exposure Determination



Two options for determining employee exposures:

- Scheduled monitoring method
- Performance-oriented monitoring method

Exposure Determination

- Scheduled Monitoring

If initial Cr(VI) concentration is:

– Below the AL	➔	Discontinue monitoring
– At or above the AL	➔	Monitor every 6 months Can discontinue monitoring if exposures are below AL and confirmed
– Above the PEL	➔	Monitor every 3 months Can discontinue monitoring if exposures are below AL and confirmed

Exposure Determination

- Performance-oriented Monitoring
  - Exposures determined using any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to Cr(VI)
  - No fixed schedule for performing periodic monitoring

Exposure Determination

General Requirements

- Affected employees must be notified when exposures exceed the PEL
- Methods used for air monitoring and analysis must be sufficiently accurate
- Employees or their representatives must be allowed to observe Cr(VI) monitoring

Respiratory Protection

When will you need a respirator?

- Periods necessary to install or implement feasible engineering and work practice controls
- Maintenance or repair operations where engineering and work practice controls are not feasible
- Operations where all feasible controls have been used and exposures are still above the PEL
- Operations where exposures do not exceed the PEL for 30 or more days per year and the employer has elected not to implement engineering and work practice controls to achieve the PEL
- Emergencies

Respiratory Protection

When respirator use is required, a respirator program will be followed that meets the requirements of another chapter,

Respirators,
Chapter 296-842 WAC

Personal Protective Equipment (PPE)

Protective Work Clothing and Equipment

- Use where a hazard is present or is likely to be present from skin or eye contact with Cr(VI)

- Remove all PPE and equipment when work shift or task is completed

Personal Protective Equipment (PPE)

Protective Work Clothing and Equipment (cont.)

- Do not remove Cr(VI) from PPE by blowing, shaking, or any other means that disperses into the air or onto the body

- Do not remove contaminated PPE from the workplace, except for laundering, disposal, etc. by employees with such job duties

- Clean and replace Cr(VI)-contaminated clothing and equipment as needed

Personal Protective Equipment (PPE)

Laundering and Cleaning of PPE

- Store and transport contaminated PPE in sealed, impermeable bags or closed containers. Make sure they are properly labeled.

- Inform any person who launders/ cleans PPE of the potentially harmful effects of Cr(VI) exposure
- When laundering:
  - Minimize skin or eye contact with Cr(VI)
  - Prevent the release of airborne levels in excess of the PEL

Hygiene Areas and Practices

When employee exposure is at/above the PEL:

- Change rooms
  - separate storage facilities for PPE and street clothes
- Washing facilities

  Wash hands and face:
  - at the end of the work shift
  - prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet

Use these facilities when necessary!

Hygiene Areas and Practices (cont.)

- Eating and Drinking Areas and Surfaces
  - maintained as free as practicable of Cr(VI)

DO NOT:

- Enter eating and drinking areas with PPE
- Eat, drink, smoke, chew tobacco or gum, or apply cosmetics in areas where skin or eye contact with Cr(VI) occurs
- Carry or store the products associated with the above activities in areas where skin or eye contact with Cr(VI) occurs

Housekeeping

- Keep all surfaces as free as practicable of accumulations of Cr(VI)
- Promptly clean up all spills and releases of Cr(VI)-containing materials
- Use HEPA vacuums or other methods that minimize exposure to Cr(VI)
- Dispose of Cr(VI)-contaminated waste in labeled, impermeable bags/containers

Medical Surveillance

Which Employees Must Be Provided Medical Surveillance?

- Exposed at or above the action level (2.5 µg/m^3) for 30 or more days per year
- Experiencing signs or symptoms of Cr(VI) exposure
- Exposed in an emergency

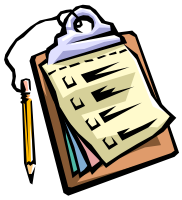
Medical Surveillance (cont.)

- Provided by or under the supervision of a physician or other licensed health care professional (PLHCP)
- Provided at no cost to employee and at a reasonable place and time

Medical Surveillance (cont.)

- Determine if an individual can be exposed to the Cr(VI) present in their workplace without experiencing adverse health effects
- Identify Cr(VI)-related adverse health effects so that appropriate intervention measures can be taken
- Determine the employee's fitness to use PPE, such as respirators

Medical Examinations



- Medical and work history
  - Cr(VI) exposure (past, present, future)
  - History of respiratory system dysfunction
  - History of asthma, dermatitis, skin ulceration or nasal system perforation
  - Smoking status and history
- Physical examination, with emphasis on the respiratory tract and skin
- Any additional tests deemed appropriate by the PLHCP

Medical Examinations

- Within 30 days after initial assignment and annually thereafter
- Within 30 days after a PLCHP recommends additional examinations
- When employees shows signs or symptoms of Cr(VI) exposure
- Within 30 days after exposure during an emergency
- At the termination of employment

Information Provided to PLCHP

- Copy of the standard 296-62-08003 WAC
- Description of employee's former, current, and anticipated duties related to occupational exposure to Cr(VI)
- Employee's former, current, and anticipated levels of occupational exposure to Cr(VI)
- Description of any PPE used or to be used by the employee
- Information from records of previous employment-related medical examinations

OTHER IMPORTANT INFORMATION

When working in, on, or around hexavalent chromium, major considerations need to be followed, to be added or implemented with information above.
Some of these considerations are:

1. EXPOSURE MONITORING

HOIST LIFT TRUCK shall provide for monitoring or measuring of employee exposure when working around hexavalent chromium. Periodic monitoring shall be conducted at least every 6 months if initial monitoring shows employee exposure. Monitoring will be performed at the beginning of each job task. If exposure monitoring results indicate exposure is above the PEL, employer must include in written notification the corrective action being taken to reduce exposure to or below the PEL.

2. WORKING IN REGULATED AREAS

Regulated areas must be established when an employee's exposure is or is expected to be in excess of the PEL. Regulated areas shall be marked with warning signs to alert employees. Access is restricted to authorized persons.

3. EFFECTIVE ENGINEERING AND WORK PRACTICE CONTROLS

Engineering and work practice controls should be provided to reduce exposure to the lowest feasible limit. If HOIST LIFT TRUCK employees can demonstrate that such controls are not feasible, employer shall use engineering/work controls to reduce employee exposure to the lowest levels achievable, and shall supplement by the use of respiratory protection.

4. WHEN RESPIRATORY PROTECTION IS NEEDED

Respirators must be used when engineering controls and work practices cannot reduce employee exposure, during work operations where engineering controls and work practices are not feasible, and emergencies. Respirators shall be provided in accordance with 29 CFR 1910.134 standards on respiratory protection for hexavalent chromium.

5. PERSONAL PROTECTIVE EQUIPMENT

PPE must be provided when there is a hazard from skin or eye contact. Gloves, aprons, coveralls, goggles, foot covers etc. Contaminated PPE will be removed at the end of the work shift. Employer must clean, lauder, repair and replace protective clothing as needed and to no cost to the employee.

6. HOUSEKEEPING

All surfaces shall be maintained as free as practicable of accumulation of chromium. All spills and releases of chromium shall be cleaned promptly. Methods of cleaning include HEPA filtered vacuums, dry or wet sweeping, shoveling or other methods to minimize exposure.

7. MEDICAL SURVIELLANCE

Medical shall be provided when an employee experiences signs or symptoms of the adverse health effects of hexavalent chromium such as dermatitis, asthma, bronchitis. Medical evaluations will be performed by or under the supervision of a physician or other licensed health care professional, all to no cost to the employee.

8. HYGIENE FACILITIES

The employer must provide change rooms for decontamination and ensure facilities prevent cross-contamination. Washing facilities shall be readily accessible for removing chromium from skin. Workers must wash their hands and face or any other potentially exposed skin before eating, drinking, or smoking.

9. RECORDKEEPING

HOIST LIFT TRUCK is required to maintain and make available an accurate record of all employee exposure monitoring, medical surveillance and training records.

HOIST LIFT TRUCK MFR.

CONTROL OF HAZARDOUS ENERGY
LOCKOUT/TAGOUT VERIFY PROGRAM

2015
CHAPTER THIRTEEN

CONTENTS:

POLICY

HOIST LIFT TRUCK is concerned for the safety and well being of all employees. The following Lockout/Tagout Program has been developed to ensure that employees take all necessary precautions when servicing or performing any maintenance activities on machinery. Compliance with this program and other safety policies is mandatory. HOIST LIFT TRUCK only uses lockout with a tag and tagout only. Failure to comply could result in disciplinary action up to and including termination.

This program is monitored by the Safety Department and is audited annually at minimum.

Your effort to make our work environment safe is truly appreciated!

INTRODUCTION

This policy has been established to provide step-by-step instructions for the safe shutdown and isolation of equipment and machinery known as *lockout or tagout*. Lockout/tagout is to be done whenever equipment or machines are serviced or maintenance repairs are performed. The purpose is to prevent unexpected energization, start up of equipment/machinery, or release of stored energy causing injury to the employee. The lockout/tagout procedures will prevent the operation of any machine until **it is safe to do so.**

The equipment/machines in use at HOIST LIFT TRUCK are primarily powered by electrical energy, pneumatics, battery, or gas power. All circuits and equipment to be worked on at any site shall be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, may not be used as the sole means for de-energizing circuits or equipment. Interlocks for electric equipment may not be used as a substitute for lockout and tagging procedures. Several of the machines have secondary hydraulic energy sources. The lockout/tagout procedures will be focused on isolating these sources of energy

Each piece of equipment/machinery will be secured for maintenance by means of a lockout or tagout device. The point of energizing the equipment will be restricted by means of a containment device secured by a padlock, or detailed tag. Only **authorized** employees will perform lockout/tagout procedures. All **affected** employees will not operate or attempt to energize any equipment with a locking device or a ***"Do Not Operate"*** tagout device.

To maintain the proper security and integrity of the Lockout/Tagout Program; the authorized employees will abide by the ***one-lock-one-key rule or one tag rule.*** In other words, for each lockout/tag out performed, there will be one key/tag per person. Each lock will need a separate key in order to maintain the safety of everyone involved in the lockout of the equipment.

All locks and tags used for this program will be of *like kind* and not resemble any locks or tags used for other purposes. This will guarantee all employees will be able to identify each of these devices as those devices specifically used for lockout/tagout only.

LOCKOUT/TAGOUT AUTHORITY

All field employees have the authority to lockout or tagout, and re-energize equipment that has been shutdown for service or repair.

These authorized employees receive training in identification of energy sources, both primary and secondary; step-by-step lockout/tagout procedures; and the hazards of non-compliance to the program. If equipment or a machine fails during normal operation proper lockout/tagout procedures must be in place before maintenance or repairs are made.

If lockout tag out devices have to be temporarily removed for safety testing procedures, the written requirements must be made, including clearing away tools, removing employees, removing the lock out device, energize and proceed with testing, de-energize and reapply control measures. This should all be documented throughout procedure.

If equipment or a machine has been locked out or tagged out for repair and/or servicing, **do not attempt to restart the machine. Any attempt to defeat, disable, or circumvent an energy isolation device will be grounds for disciplinary action up to and including immediate termination.**

LOCKOUT/TAGOUT PROCEDURES

The following steps will be taken to safely secure a listed machine for servicing and/or repair: These are part of the mandatory training program.

A. Notification to employees who use the affected equipment/machine.

The authorized employee is responsible for notifying all affected employees of their intent to lockout any piece of equipment or machinery. The machine operator and all personnel working around the equipment/machine or those who might be scheduled to use the machine in the near future, should be notified of the lockout or tagout. Lockout/tagout will let all potential operators know they should not schedule work with that equipment/machine until the lockout or tagout work has been completed, and they have been notified it is safe to do so.

B. Lockout/tagout sequence for authorized personnel performing maintenance or repairs on equipment:

1. The machine or equipment to be serviced/repaired will be shut off using the standard operator controls, i.e., off switch, trigger release, ignition key, etc.

2. Authorized employee will disconnect the machine from its source of power. This will be accomplished by any one or combination of the following:

    a. If the source of power is through an electrical plug-in device, unplugging the equipment suffices for a complete lockout because the authorized employee has sole control over the energy supply as long as it is in his possession. If he cannot see the end of the plug or needs to leave for any reason, a lockout device must be placed on the cord to prevent plugging it in.

    b. All rotating or moving parts must be evaluated for secondary sources of energy, (i.e., gravity) and if necessary rendered immobile by blocking or other means.

    c. All hydraulic powered equipment or machinery must have the hydraulics isolated and all stored pressure bled off.

    d. When available, interlocking devices must be used to lockout machinery or equipment.

    e. Disconnect battery terminals and place a tagout device on them.

    f. Always service vehicles on a solid level surface and place wheel chocks at two opposite wheels.

    g. Lockout devices are required when there is a means of attachment. If there is no means of attachment it is acceptable to use the tagout procedures.

h. **Only authorized personnel shall perform lockout/tagout. All authorized employees will place a lock on the power disconnect. The name, date and purpose of the lockout must be on the tag. If no attachment is available the power disconnect must be tagged out.**

i. Only authorized personnel who have initiated lockout/tagout shall release a machine from lockout/tagout. All employees must remove their own locks prior to re-energization.

3. **The authorized employee will inspect the equipment/machine for all sources of stored energy. It is important to bleed, discharge or disconnect all secondary sources of energy** to prevent unexpected movement, which may cause injury to personnel servicing the equipment/machine.

4. **A qualified person shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that the circuit elements and equipment parts are deenergized**. The test shall also determine if any energized conditions exists as a result of inadvertently induced voltage or unrelated voltage backfeed energy through specific parts of the circuit have been deenergized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment shall be checked for proper operation immediately before and after this test. **The authorized employee will then attempt to activate the equipment/machine to verify lockout/tagout was successful. If the equipment/machine does not energize the authorized** employee will return the switch to the off position. If the equipment/machine does energize the authorized employee will inspect for secondary sources of energy, and deenergize, block or bleed the energy source as necessary, and then retest and repeat the attempt to reactivate the equipment/machine.

5. Once the operation controls have been returned to the off position and acceptable lockout or tagout devices have been applied to the machine or equipment, maintenance or repairs may be started. It is the responsibility of the authorized employee to properly install locking devices to prevent the equipment or machinery from being operated until the repairs or maintenance is completed.

6. **All employees who are authorized to work on or repair equipment must place a lock/tag on the power disconnect, even though another worker's lock/tag is in place. This will ensure that all employees are protected.**

REMEMBER - ANOTHER PERSON'S LOCK/TAG WILL NOT PROTECT YOU!!

GROUP LOCKOUT:
In those instances where several crafts are involved, the host shall supply a level of protection the same as if each individual used a personal lockout device. Each craft/subcontractor shall participate in the gang lockout with a padlock on the lockout cabinet, box or other device used. Additionally HOIST LIFT TRUCK employees shall verify the gang lock out was successful by the same means as if they did it personally. (Use of multi meter, turning to on position, etc.)

AUTHORIZED RELEASE

The authorized employee will follow these procedures for returning a machine to service.

1. The authorized employee will inspect the machine to make sure that no tools, product, or other parts have been left in or on the machine, which may create a hazard when the equipment/machine is re-energized.

2. The authorized employee will inspect the equipment or machinery to guarantee all access panels, machine covers, and safety guards removed during the servicing/repair process are replaced prior to re-energizing the machine or equipment.

3. The authorized employee will inform all affected employees to stand clear of the equipment or machinery during the re-energization and initial start-up.

4. The authorized employee will check to make sure the operator controls are in the off position prior to re-energization.

5. The authorized employee will remove the lockout/tagout device and re-energize the machine. Re-energization is the most hazardous step of the lockout process. Potential hazards to be aware of are electrical over load of circuits, improper grounding, loose parts becoming airborne, hydraulic, or pneumatic hoses rupturing during re-pressurization.

6. All other authorized employees must remove their locks from the lockout device before re-energization is initiated.

7. The authorized employee will activate the equipment/machine by moving the operator switch to the “ON” position and observe the equipment/machine in operation.

8. The authorized employee will switch off the equipment/machine and ensure that it ceases operation.

9. The authorized employee will notify all affected employees the equipment/machine is available for use.

SPECIAL NOTICE TO AUTHORIZED EMPLOYEES

No employee will be permitted to work under the protection of another employee's lock. All employees will be authorized to attach a lock and tag to prevent the accidental start-up of equipment during any maintenance or repair activity.

Lockout/Tagout Device Removal and Responsibilities

1. In the event that a lock is left on a piece of equipment by an authorized employee and access to the equipment is necessary, the Supervisor must be contacted. The employee which left the lock on shall be contacted, if this is not possible the employee and the Supervisor shall investigate the situation to determine if it is safe to remove the lock. Once they have determined it is safe to remove the lock, they will employ whatever means necessary to do so**. The employee who applied the lockout shall be notified prior to starting work on his/her next shift.**

NOTE: The above rule applies whether the lock is removed with a key, bolt cutter, or burned off with a torch, if a tag is not used.

2. Any authorized employee leaving the work site with his or her lock and tag attached to the equipment, **may be** called back to the work site to remove his or her lock without incurring any expense to the company. If the employee cannot be contacted, the employee removing the lock must ensure that the equipment is prepared for re-energization. **The Supervisor must inform the employee that their lock has been removed prior to the employee's return to the job site.**

3. When equipment is locked out for prolonged periods of time, (i.e., one hour, lunch break, etc.) the employee must verify the equipment is locked out upon their return to the job site.

4. Any **unauthorized person** obtaining a key and removing another person's lock will be subject to disciplinary action up to and including termination.

5. It will be the responsibility of all employees to enforce these instructions and make certain that each employee follows these procedures.

6. Completion of each authorized employees segment of the assigned work will require them to remove their lockout or tagout device. Each employee must personally remove his or her own lock/tag.

7. All equipment that must be left locked/tagged out for prolonged periods of time will require the Supervisor to affix his Supervisor lock/tag on the equipment or machinery until the completion of the job. He will then ensure all safe practices have been followed prior to restart.

INSPECTION AND TRAINING

1. **All employees will be informed as to the procedures of the Lockout/Tagout Program at HOIST LIFT TRUCK at the onset of employment and will be updated at least once annually during the term of their employment. Instruction will include the purpose of lockout/tagout and** employee responsibilities for mandatory compliance. All employees will be informed whenever new equipment is brought into the production process.

2. **All authorized employees will be trained in lockout/tagout procedures and identification of energy sources to include electrical, steam, mechanical, pneumatic, tension, gravity and chemical.**

3. All training will be documented with records maintained. All field employees will receive authorized employee training which includes awareness level training provided to all other employees.

4. The Lockout/Tagout Program will be evaluated for revisions at least annually and whenever there is introduction of new equipment or process changes.

5. **The Safety Department or its designate will periodically audit the performance of employees performing lockout/tagout procedures. See Appendix C: Lockout/Tagout Inspection Form. Supervisors may not audit their crews or their own lock out. A certified review of the inspection including date, equipment, employees and the inspector should be documented.**

6. **Retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced. All this training and retraining must be documented, signed, and certified.**

7. **The training should also include that a tag is not to be removed without authorization. The tag is never to be ignored or defeated in any way.**

8. **There should be training provisions included for any other employee whose work operations are or may be in an area where energy control procedures may be utilized.**

APPENDIX B

EQUIPMENT SHUTDOWN PROCEDURE FORMS

Procedure must be developed on work site based on the equipment to be worked on.

HOIST LIFT TRUCK employees must work with the host and counter lock and verify their procedures.

APPENDIX C

LOCKOUT/TAGOUT INSPECTION FORM

LOCKOUT/TAGOUT INSPECTION FORM

_____ _____ ____/____/____

Inspector's Name (print) Inspector's Signature Date of the Inspection

_____

Equipment or Process Inspected

_____

Name of Authorized Employee Performing Lockout

RESULTS OF THE INSPECTION

_____

_____

_____

_____

_____

RECOMMENDED CHANGES:

_____

_____

_____

_____

_____

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_____

_____

HOIST LIFT TRUCK

MACHINE AND POWER TOOL SAFETY
Safety Guides
2015
CHAPTER FOURTEEN

CONTENTS

PROGRAM OBJECTIVES

HOIST LIFT TRUCK supervisors are responsible for operators ensuring machines and power tools are in good operating condition. Upon completion of this program, "Machine and Power Tool Safety", machine operators will be able to:

- Identify hazards produced by the environment and those connected with the job procedure.
- How to evaluate those hazards and potential accidents that may occur.
- Identify key components and describe the function of power tool and machine operation safety procedures.
- Understand factors affecting machine and power tool operations.
- Implement safety procedures for safe machine and power tool operations.
- Take appropriate action in case of an emergency.
- Identify the safety features of machinery and power tools.
- Implement safe handling procedures of power sources and chemicals involved with the operation of machinery and tools.

HAZARD ASSESSMENT CHECKLIST

Each step of the job process must be evaluated for identification of hazards and potential accidents that may occur. The following are some questions to help identify the hazards:

1. Is there a danger of striking against or being struck by or otherwise making harmful contact with an object?
2. Can the employee be caught in, by, or between moving parts, stock, or scrap?
3. Is there a potential for a slip or trip?
4. Can the employee fall on the same level or to another level while using tools?
5. Can strain be caused by pushing, pulling, lifting, bending, or twisting?
6. Is the environment hazardous to safety and health? For example: The concentrations of toxic gases, vapors, mist, fumes, dust, heat, or radiation?

7. When inspecting a particular machine or operation, ask the question, "Can an accident occur here?" More specific questions include:

    - Is it possible for a person to come in contact with any moving piece of machinery or equipment?

    - Are rotating equipment, set screws, projecting keys, bolt heads, burrs, or other projections exposed where they can strike out or snag workers clothing, jewelry, or hair? If so, is it possible for the operator to be drawn into the end running point, between two moving parts, such as a belt and sheeve, chain and sprocket, pressure rolls, rack and gear, or gear train?

    - Do machines or tools have reciprocating movement or any motion where workers can be caught in or between any moving parts in a fixed object?

    - Is it possible for a worker's hands or arms to make contact with moving parts in the point of operation where milling, shaving, punching, shearing, bending, grinding, or where other work is being done?

    - Is it possible for material (including chips or dust) to be kicked back or ejected from the point of operation, injuring the operator or someone nearby?

    - Are machine controls safeguarded to prevent unintended or inadvertent operation?

    - Are machine controls located to provide immediate access in the event of an emergency?

    - Do machines vibrate, move, or walk while in operation?

    - Is it possible for parts to become loose during operation, injuring operators or others?

    - Are guards positioned or adjusted to correspond with the permissible openings?

    - Is it possible for workers to bypass the guard, thereby making it ineffective?

    - Do machines, equipment, tools, and attachments receive regular maintenance?

    - Are machines placed so that operators have sufficient room to safely work with no exposure to aisle traffic?

    - Is there sufficient room for maintenance or repairs?

    - Is there sufficient room to accommodate incoming and unfinished work as well as scrap that may be generated?

    - Are the materials handling methods and the tooling associated with it adequate for the work in progress?

- If tools, jigs, and other work fixtures are required, are they stored conveniently where they will not interfere with the work?

- Is the work area well illuminated with specific point-of-operation lighting where necessary?

- Is ventilation adequate, particularly for those operations that create dust, mist, vapors, and gases or when working around flammable oxidizers?

- Do operators use proper personal protective equipment for the work being performed? Do the requirements for PPE change with each job?

- Is the housekeeping satisfactory with no debris, trip hazards, or spills on the floor?

- Are there places where employees have access to machine hazard zones, for example, the backside?

- Are energy sources heat controlled for protection?

- Are hot machine or tool parts guarded or labeled to prevent operator contact?

- Are ground fault circuit interrupters (GFCI) used with proper tools or lights when working in confined spaces, metal landings, or tanks and areas that have moisture or standing water?

- Using a checklist is a good way to make sure nothing is overlooked.

GOOD PRACTICE SAFETY RULES

1. Know the application, limitation, and potential hazards of the tool used.

2. Select the proper tool for the job.

3. Remove adjusting keys and wrenches before turning on tools.

4. Do not use tools with frayed cords or loose/broken switches.

5. Keep guards in place and in working order.

6. Have ground prongs in place or use tools marked “double insulated.”

7. Routinely use GFCI with power tools.

8. Maintain working areas free of clutter.

9. Stay alert for potential hazards in the environment, i.e., dampness, combustible materials, leaks, spills, etc.

10. Dress properly to prevent loose clothing from being caught in moving parts.

11. Use proper personal protective equipment when necessary.

12. Do not surprise or distract anyone using a power tool.

13. Absolutely no horseplay.

14. Never use tools or equipment for other than their designated purpose.

15. Stop machinery and isolate all energy sources before attempting to un-jam it. Evaluate the hazards involved first. Relieve and lockout all sources of energy first.

16. If there is a power failure, shut the machine or power tool off and remove the work piece in progress. This will prevent possible injury if the power is restored and the machine or power tool has an automatic restart.

17. Have maintenance inspect personal radios, fans, heaters, etc. to ensure they are properly grounded and do not pose any hazards in the work space.

18. Avoid eating, drinking, or smoking at your work station if it poses any health risk for accidental ingestion of hazardous materials or interfere with the job being performed?

19. Always be alert for vehicular traffic! It is unlawful for a forklift to approach a work station to deliver materials where the machine operator could possibly become trapped between the load being delivered and a fixed machine or structure. Either a barrier must be erected to prevent an accident, or the machine operator must step out of the hazard zone until the material has been delivered.

20. Inspect tools for deterioration and repair or replace as needed.

21. Store tools properly.

22. Identify all unsafe tools by locking or tagging the controls to render them inoperable and shall be removed from its place of operation and returned to the tool room for repair before being used on site.

PORTABLE POWERED HAND TOOLS

- Use and maintain power tools in the strict accordance with manufacturers instructions.
- Most hand-held electrical tools must be equipped with a “dead-man” or “quick-release” control, so that power is shut off automatically when the operator releases control. Immediately repair any quick release switch that stays on when released.
- Portable circular saws must be equipped with guards above and below the base plate or shoe.
- The lower guard must retract when the blade is in use and automatically return to the guarding position when the tool is withdrawn from the work.
- All hand-held portable electric equipment must have its frame grounded with a grounding plug or be double-insulated and identified as such.
- High pressure air should not be used to clean up chips, shavings, or blow-off of personnel.
- Care should be taken to prevent injury to the non-dominant hand when using single hand power tools. If the tool slips, will either hand be struck?
- Check power cords and pneumatic hoses for loose connections or damage before use.
- All electrical splices in power cords must have the same rated protection as the insulator on the cord.
- Blades, bits, etc. should be double checked to ensure they are secured tightly before operating hand tools.
- Before changing blades, bits, or when loading nailers, all hand power tools should be disconnected from their power source.
- Do not raise, lower, or carry hand power tools by their power cord or air hose.
- When sawing, allow the blade to reach full speed before contacting the work piece or material.
- Always be alert to the chance that the blade may bind and cause kickback to occur.
- Never reach under the saw or work piece.
- Keep all blades and bits sharp.

- Avoid cutting wet wood. It produces higher friction against the blade and increases the chance of kickback.

- Be cautious of stock that is pitchy, knotty, or warped. They are more likely to create pinching conditions and possible kickback.

- Never use a bent, broken, or warped blade or bit.

- Avoid overheating blades or bits. This increases warping.

- Eye/face protection and other PPE as required should be used when sawing, drilling, sanding, and grinding.

- Disconnect power from the tool when changing accessories or making adjustments.

- Always use a GFCI with hand held power tools when standing on metal surfaces, working in confined spaces, or around any moisture.

- Familiarize yourself with the location and use of all safety devices, power shut-offs, and fire extinguishing equipment.

CHECKLIST

A checklist of questions to survey for hand equipment problems should be tailored to each of your operations. Some of the items may include:

1. Are tools and equipment (both company and employee owned) in good safe condition and operated safely?

2. Have deteriorated air hoses been replaced?

3. Do all hoses and hose connections used with compressed air equipment have appropriate psi rating for the pressure and service to which they are subjected?

4. Have employees been made aware of the hazards caused by faulty or improperly used hand tools?

5. Are all portable power tools equipped with proper point of operation guards?

6. Are all electric, hydraulic, or pneumatic chain saws and percussion tools without positive accessory holding means, equipped with a constant pressure switch or control that will shut off the power when the pressure is released?

7. A lock-on control may be provided if the power trigger disconnect can be accomplished by a single motion of the same finger(s) that turned it on.

8. Are the operating controls on hand-held power tools located to minimize the possibility of its accidental operation, if such accidental operation?

9. Do guards effectively prevent the operator from coming in contact with the point of operation or other hazards?

10. Are damaged tools immediately removed from service and tagged out until repairs can be made?

11. Are portable electric power tools properly grounded, and are cords properly grounded?

12. Do power cords or pneumatic hoses create a trip hazard?

13. Are power tools and cords inspected daily prior to operation to ensure they are in safe running order?

14. Do the power tools meet the specific OSHA 29 CFR 1910.243 and NIOSH standards for each specific tool or class of tool?

15. Are operators instructed to immediately cease using a tool if it develops a defect during use?

16. Are precautions taken to ensure that neither loaded nor empty nailers are to be pointed at anyone?

17. Are precautions taken to ensure that nailers will not be loaded unless being prepared for immediate use, and that unattended nailers are not to be left loaded?

18. Are precautions taken to ensure that tools will never be left unattended in a place where they would be available to unauthorized personnel or create a hazard where they are stored?

MACHINE GUARDING

The following hazards must be guarded to prevent injury to machine operators:

- ◊ Point of operation;
- ◊ In-running nip points;
- ◊ Rotating parts;
- ◊ Flying chips;
- ◊ Sparks; and
- ◊ Hazards located within 7 feet of the floor.

Guards must not create a hazard themselves. All employees are encouraged to report guarding hazards immediately.

- Guards should be durable, resistant to heat and corrosion, and easily removable for repair or replacement. They should not interfere with efficient machine operation or inconvenience the operator.

- Ensure all protective devices are in place and adequate before placing equipment into operation.

- Report any missing or damaged guards to the supervisor.

HOIST LIFT TRUCK

Personal Protective Equipment
CHAPTER FIFTEEN

2015

Contents

INTRODUCTION

Thousands of preventable injuries occur every year because workers were not utilizing, improperly selected, or using incorrect Personal Protective Equipment (PPE) while performing hazardous duties that have been recognized as requiring PPE. The Occupational Safety and Health Administration (OSHA), within the U.S. Department of Labor, is a regulatory agency that promotes safe work environments to protect employees. In March of 1994, OSHA issued final standards amending the previous standards on Personal Protective Equipment, which are 29 CFR 1910.132, .133, .136, .138 and 29 CFR 1926.28, .100, .102, .951. With the completion of these standards, OSHA estimates coverage of 1.1 million work establishments, 11.7 million employees, and prevention of 4 fatalities and 712,000 injuries each year.

Policy Statement

Personal Protective Equipment (PPE) shall be provided by HOIST LIFT TRUCK to any employee who is involved with any activity where there is reasonable probability of preventing injury or illness when engineering controls fail to alleviate the hazard (s) and PPE is used correctly. HOIST LIFT TRUCK will provide suitable protection for the work to be performed and employees must use the protectors. If employee owned equipment is permitted, the employer must be responsible for the assurances of its adequacy, maintenance and sanitation. These stipulations also apply to supervisors, management, contractors and visitors while they are in hazardous areas.

Personal Protective Equipment shall not be used as a substitute for engineering, work practice, and/or administrative controls. PPE should be used in conjunction with these controls to provide for employee safety and health in the workplace. Any questions regarding proper PPE or applicability of engineering or work practice controls should be directed To

the Safety Coordinator. Employees shall provide feed back on the appropriateness of the PPE for the job.

All PPE will be of correct size for the employee based on actual fit and wear ability. A review (Job Hazard Analysis) of each job and job site is conducted by the supervisor and each employee on that job to determine the proper PPE and is documented. Each employee will be instructed in the proper use, maintenance, cleaning and storage of any equipment provided to them.

The following is a partial list of PPE provided to each employee as needed:

Safety Glasses	hard hat	lanyard
Harness	hearing protection	gloves
Safety hooks	face shields	welding equip.
Leathers	weld jackets	GFCI's

If any other PPE is needed, a simple request to the supervisor will get it.

Employees are required to wear steel toe, leather work boots on the job.

Requirements/ Management

The Safety Coordinator shall manage the PPE program and audit each year through the JHA's.

The requirements of the Personal Protective Equipment Program are:

1. To conduct an all inclusive hazard assessment of the workplace to determine if hazards are present that necessitates the use of PPE.

2. To provide a written certification verifying that the workplace assessment has been performed.

3. To train and educate employees on aspects of wearing PPE.

4. To provide appropriate PPE to employees and ensure proper fit of the equipment.

5. To enforce the utilization of PPE in those areas or procedures where it has been determined that it is required.

WHO IS COVERED BY THE REQUIREMENTS

The Personal Protective Equipment Standards cover employees that use Personal Protective Equipment in the workplace. The revised standards do not include coverage of any PPE use for abrasive blasting, asbestos exposure, bloodborne pathogens, confined space entry, electrical protective equipment, fall protection, hazardous waste operations, noise exposure, open surface tanks, pulp and paper mills, pulpwood logging, respiratory protection, sawmills, telecommunications equipment, textiles, or welding. To determine these requirements refer to:

Item	**29 CFR 1910**	**29 CFR 1926**
Abrasive Blasting	.94	
Asbestos Exposure	.1001	.1101
Bloodborne Pathogens	.1030	
Confined Space Entry	.146	.21
Electrical Protective Equipment	.137, .268, .269, .333	.400 - .449
Fall Protection		.501 - .503, .556, .951, .959, .651
Hazardous Waste Operations	.120	.65
Noise Exposure	.95	.101
Respiratory Protection	.134	.103, .651, .800, .353
Welding	.252 - .257	.102, .153, .406, .556, .350 - .354

Hazard Assessment

It is the responsibility of HOIST LIFT TRUCK to conduct surveys and hazard assessment of each affected department to determine if Personal Protective Equipment (PPE) is needed and when it should be used. Employees and department supervisors are encouraged to bring to the attention of the Safety Coordinator.

TRAINING

All employees shall be trained during departmental orientation (See Form) and at any time the hazards of their job task vary or a new hazard is introduced, such as workplace changes, making earlier training obsolete. All training of employees shall be documented and filed in safety director's office. Training shall include:

1. When PPE is necessary.

2. What PPE is necessary?

3. How to properly don, doff, adjust and wear PPE.

4. The limitations of PPE.

5. Proper care, maintenance, useful life, storage and disposal of PPE.

6. The employee has to understand that damaged or defective equipment cannot be used and should be deemed unsafe to use and discarded from use by anyone.

All employees will be checked off for the above skills and understanding during department orientation.

Employees shall be required to demonstrate an understanding of the training and ability to utilize the PPE before being allowed to perform work requiring the use of PPE. Retraining of the employee is required when the workplace changes, when the type of PPE changes, or when employee demonstrates lack of use of equipment, or insufficient skill or understanding. Their Foreman shall not permit the check off of such skills, until the employee demonstrates understanding. Employees shall be retrained in situations where:

1. Changes in the workplace render previous training obsolete.

2. Changes in the type of PPE to be used render previous training obsolete.

3. Inadequacies in an affected employees knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

PPE Types And Training Information

The following sections provide some specific information and general guidelines on different categories of PPE that are or might be used. Employees should read and review the sections that address the PPE that they will be utilizing. Employees will obtain any required Department specific information from their Supervisor. Due to the varying nature and features of PPE, employees should always follow the specific manufacturer's instructions for the equipment in conjunction with the PPE policy to provide the best protection available. Any questions regarding the utilization of PPE should be directed to the Supervisor of your department or Plant Manager.

Eye And Face Protection: (Shall meet requirements of ANSI Z87.1)

Eye and Face Protection shall be used by each affected employee when exposed to eye or face hazards from flying particles, liquid chemicals, acids or caustic liquids, chemical gasses or vapors, body fluids, or potentially injurious light radiation. Specific operations requiring eye protection include but are not limited to: hammering, drilling, sanding, sawing, grinding, torch cutting, welding and brazing. Each affected employee shall use eye protection that provides side protection when there is a hazard from flying objects. Employees involved in procedures that expose them to possible chemical splashes shall wear chemical protective goggles with an appropriate face shield.

Each affected employee who wears prescription glasses while engaged in operations that involve eye hazards may have the option of wearing eye protection that incorporates the prescription in the design, or shall wear eye

protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

All eye protectors used must meet the following minimum requirements:

1. Bear the name of manufacturer and the symbol "Z-87" * on the side-bar or template.

2. Provide adequately protect against the particular hazards for which they are utilized.

3. Must fit snugly without interfering with the movements or vision of the wearer.

4. Be easily cleanable and capable of being disinfected.

5. Be durable and kept in good repair.

> **NOTE:** Shaded eyewear that is used with Lasers or Welding is required to meet appropriate ANSI standards Z-87.1 1989 and Z - 49.1 1983.

TABLE A. GUIDE FOR SELECTION OF LENS SHADE

Protective Shade			Minimum Suggested	
Operation	**Electrode Size 1/32 in. (mm)**	**Arc Current (A)**	**Shade**	**Comfort**
Shielded metal arc welding	Less than 3 (2.5)	Less than 60	7	--
	3-5 (2.5-4)	60-160	8	10
	5-8 (4-6.4)	160-250	10	12
	More than 8 (6.4)	250-550	11	14
Gas metal arc welding and flux cored arc welding		Less than 60	7	--
		60-160	10	11
		160-250	10	12
		250-500	10	14
Gas tungsten arc welding		Less than 50	8	10
		50-150	8	12
		150-500	10	14
Air carbon	(Light)	Less than 500	10	12
Arc cutting	(Heavy)	500-1000	11	14
Plasma arc welding		Less than 20	6	6 to 8

		20-100	8	10
		100-400	10	12
		400-800	11	14
Plasma arc cutting	(Light) **	Less than 300	8	9
	(Medium) **	300-400	9	12
	(Heavy) **	400-800	10	14
Torch brazing		--	--	3 or 4
Torch soldering		--	--	2
Carbon arc welding		--	--	14

	Plate thickness		
	inches	***millimeters***	
Gas welding			
Light	Under 1/8	Under 3.2	4 or 5
Medium	1/8 to ½	3.2 to 12.7	5 or 6
Heavy	Over ½	Over 12.7	6 or 8
Oxygen cutting			
Light	Under 1	Under 25	3 or 4
Medium	1 to 6	25 to 150	4 or 5
Heavy	Over 6	Over 150	5 or 6

* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade that gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

** These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the work piece.

Inspection and Maintenance

It is essential that the lenses of eye protectors be kept clean. Continuous vision through dirty lenses can cause eyestrain, which is often an excuse for not wearing eye protectors. Daily inspection and cleaning of the eye protector with soap and hot water, or with a cleaning solution and a tissue, is recommended.

Pitted or deeply scratched lenses, like dirty lenses, can be a source of reduced vision and should be replaced. When using goggles for eye

protection, slack, twisted, or worn-out headbands do not hold the goggles in the proper position. Visual inspection can determine when the headband elasticity is reduced to a point beyond proper function. Goggles should be stored in a protective covering when not in use. Protective glasses should stored in protective cases to prevent damage when stored.

Cleaning

PPE previously issued to another employee shall be disinfected before being issued to the next employee. If each employee is assigned his or her own PPE, it is recommended that such equipment be cleaned and disinfected regularly. Employees can clean and disinfect eye and face protection by disassembling the goggles or glasses (if possible) and thoroughly clean all parts with soap and warm water. Carefully rinse all traces of soap, and replace defective parts with new ones.

Head Protection: (Shall Meet Requirements of ANSI Z89.1)

Each affected employee shall wear protective hard hats when working in areas where there is a potential for injury to the head from falling objects or potential to bump their head on low ceilings or fixtures. Protective hard hats designed to reduce electrical shock hazard shall be worn by each affected employee when near exposed electrical conductors which could contact the head. Bump caps are not considered a suitable replacement for hard hats.

Head injuries are caused by falling or flying objects or bumping the head against an object. Head protection, in the form of hard hats, must do two things:

1. Resist penetration and

2. Absorb shock from a blow.

This is accomplished by making the shell of a hat of a material hard enough to resist the blow, and by utilizing a shock-absorbing lining composed of headband and crown straps to keep the shell away from the wearer's skull. Protective hard hats are also used to protect against electrical shock.

Selection

Each type and class of head protectors is intended to provide protection against specific hazardous conditions. An understanding of these conditions will help in selecting the right hat for the particular situation.

Protective hats are made in the following types and classes:

1. Type 1 - helmets with full brim, not less than 1 and 1/4 inches wide; and Type 2 - brimless helmets with a peak extending forward from the crown.

For industrial purposes, three classes are recognized:

1. Class A - general service, limited voltage protection, proof tested to 2,200 volts;

2. Class B - utility service, high-voltage helmets, proof tested to 20,000 volts; and

3. Class C - special service, no voltage protection.

For most purposes, a class A hat will be sufficient, but if workers are exposed to high-voltage electrical hazards a class B hat must be used. Most A, B, and C class hats are impact resistant to 850 lbs average up to 1000 lbs. maximum.

Materials used in hard hats should be water-resistant and slow burning. Each helmet consists of essentially a shell and suspension. Ventilation is provided by a space between the headband and the shell. Each helmet should be accompanied by instructions explaining the proper method of adjusting and replacing the suspension and headband. The wearer should be able to identify the type of helmet by looking inside the shell for the manufacturer, ANSI designation and class.

Fit

Headbands are adjustable manually or via a ratchet adjustment in 1/8-inch size increments. When the headband is adjusted to the right size, it provides sufficient clearance between the shell and the headband. The wearer should don the hat and adjust it so that the headband is snug enough to keep the

hard hat from falling off. The wearer should be cautious not to over tighten the headband as this could cause failure of the internal gear and prevent the hard hat from protecting the wearer.

Maintenance

Manufacturers should be consulted with regard to paint or cleaning materials for their hard hats because some paints and thinners may damage the shell. This results in reduced protection by physically weakening the hardhat material or negating the electrical resistance. A common method for cleaning hardhat shells is dipping them in hot water (approximately 140 F) containing a detergent for at least a minute. The shells should then be scrubbed and rinsed in clear hot water. After rinsing, the shell should be carefully inspected for any signs of damage.

All components, shells, suspensions, headbands, sweatbands, and any accessories should be visually inspected daily for signs of deformities, cracks, holes, or any other damage that might reduce the degree of protection originally provided. If damage is suspected, hardhat should be replaced.

Torso Protection

Many hazards can threaten the torso: heat, splashes from hot metals and liquids, impacts, cuts, hazardous chemicals, and radiation. A variety of protective clothing is available: vests, jackets, aprons, coveralls, and full body suits. Appropriate protective clothing shall be worn by if a hazardous condition exists that dictates the use of such clothing. Because of the wide range of protective clothing available, employees should ensure that the right clothing is being used to protect against the hazard. The following is a categorical description of protective clothing that could be used by all employees.

Selection

1. Wool and cotton are two natural fibers that are fire resistant and comfortable since they adapt well to changing workplace temperatures. Duck, a closely woven cotton fabric, is good for light-duty protective clothing. It can protect against cuts and bruises on jobs where employees handle heavy, sharp or rough material.

2. Heat resistant material, such as leather, nomex or kevlar, is often used in protective clothing against heat or flame.

3. Rubber and rubberized fabrics, neoprene, and plastics give protection against some acids and chemicals. It is important to refer to the manufacturers' selection guides for the effectiveness against specific chemicals.

4. Tyvek disposable suits of lined paper like material are particularly useful protection against hazardous dusty materials or materials that can splash.

5. Employees that work in areas of radiation hazards might use protective lead aprons or vests depending on the nature of the procedure.

6. All clothing should be inspected to ensure proper fit and function. Clothing should be cleaned and disposed of in accordance with the specific manufacturers and IDEM (if contaminated) instructions. If employees have questions about the use or suitability of protective clothing for their specific job duties, they should contact their Superintendent or Foreman.

Arm And Hand Protection

Employees shall use appropriate hand protection when exposed to hazards such as those from skin absorption of harmful substances; lacerations; abrasions; punctures; chemical burns; harmful temperature extremes; and body fluid exposures. Injuries to arms and hands include: burns, cuts, electrical shock, amputation, and contact with chemicals.

There is a wide assortment of gloves, hand pads, and sleeves available for protection against various hazardous situations. These protective devices should be selected to fit the job and hazard involved. For example, some gloves are designed to protect against specific chemical hazards. Gloves that protect against one chemical might be totally ineffective against another.

Selection

Employees should become acquainted with the use and limitations of gloves or clothing. When selecting gloves, proof of protection against the chemical or hazard in question should be requested from the manufacturer.

No type of glove can protect a worker from all hazards, so gloves must be selected for a particular job. Glove selection should be based on the following:

1. The hazard(s) present.

2. Frequency of exposure to the hazard.

3. Duration of exposure to the hazard.

4. Dexterity-how much hand and finger movement is needed.

5. Grip pattern needed for the job or extra padding needed.

6. Length-determined by how much of the arm is exposed to chemical splashes;

7. Gauge (thickness) of the glove material.

8. Material necessary to protect against the hazard(s).

When gloves are used to protect against chemical hazards, the following must be considered in the selection process:

1. The toxic properties of the chemical including:

    A. Local effects on the skin and or systemic effects.

2. As a general rule, any chemical resistant glove can be used when working with powders or liquids.

3. Mixtures: select the glove based on the combined hazard breakthrough time, or if unavailable, on the chemical component with the shortest breakthrough time.

4. Select gloves that can be removed without contaminating the skin.

Type of Glove	**Protects Against**
Rubber	Acids, bases, caustics, solvents, diluted-water solutions of chemicals, alcohol: high resistance to cuts.
Canvas, Cloth & Leather	Dirt, wood slivers, sharp edges.
Metal Mesh	High resistance to cuts and scratches.
Rubber Insulated	Electrical shock.
Heat-resistant	Heat and flames.
Hypoallergenic and powder free	Protects against some liquids for sensitive skin
Cuffed	Protects against liquids or solids flowing into the glove.

Special materials for gloves

Nitrile (synthetic rubber)	oils, many solvents, esters, grease and animal fat: high resistance to cuts and abrasions.
Neoprene	broad range of chemicals, oils, acids, caustics and solvents: less resistant to cuts, punctures and abrasions than nitrile.
Polyvinyl chlorine (PVC)	acids, caustics, alkalis, bases and alcohol: good abrasion and cut resistance.
Polyvinyl alcohol	aromatics, chlorinated solvents, esters and most ketones: resists cuts, punctures and abrasions.
Ethylene vinyl alcohol	highly resistant to chemicals and hazardous materials; little resistance to cuts and tears (usually worn as a liner under PVC or nitrile gloves.
Butyl	acetone and dimethyl formanide; not useful against cuts, punctures and abrasions.
Vitron	benzene, methylene chloride and carbon disulfide; little resistance to cuts, punctures and abrasions.
Kevlar, Nomex and Aluminized Fabric	Used in high heat operations to protect from excessive heat.

Proper Fit, Care and Maintenance of Hand Protection

1. Check gloves for cracks, cuts and holes, especially at the tips and between the fingers.

2. Replace worn or damaged gloves promptly.

3. Keep gloves clean and dry.

4. Ensure gloves fit properly - a glove that is too small tires the hand and restricts circulation. A glove that is too large decreases dexterity, requires increased grip strength and creates potential snag hazards.

5. When handling chemicals, check the material safety data sheet (MSDS) for specific glove recommendations.

6. Cover all skin cuts before putting on gloves.

7. Rings should not be worn with gloves.

Employees should follow the manufacturer's recommendations as to the recommended use, maintenance and disposal of gloves.

Foot Protection: (Shall meet ANSI Z41)

Each affected employee shall wear protective footwear when working in areas where there is danger of foot injuries due to:

1. Falling and rolling objects that could cause compression injuries.

2. Objects piercing the sole or top of the footwear.

3. Where employee's feet are exposed to electrical hazards.

4. Where there is any potential chemical hazard.

5. Where the employee is working in liquids that could penetrate their footwear.

Safety shoes or boots with impact protection are required for carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and, for other activities where objects might fall onto the feet. Safety shoes or boots with compression protection are required for work activities involving skid trucks (manual material handling carts), heavy pipes, or other material which could potentially roll over an employees feet. Steel or reinforced toes and/or metatarsal guards are recommended where impact protection is needed. Safety shoes with puncture protection are required where sharp objects such as nails, wire, screws, etc., could be stepped on by employees resulting in a foot injury.

Fit Tips

Correct fit and comfort are one of the most important considerations.

1. Provide toes with enough room to move and provide proper support for ankles. Note: steel and reinforced toed footwear will not stretch.

2. Buy shoes at day's end, to allow for any swelling that has occurred.

3. Walk in shoes to ensure the heels do not slip.

4. Select footwear that fits your dominant foot the best.

5. Stand when fitting. Allow 3/8 inch to 1/2 inch room beyond your longest toe.

6. Make sure the ball of your foot fits well in the widest part of the shoe.

7. Don't expect shoes to stretch to fit your foot.

8. Judge shoes by fit, not by the marked size.

Enforcement Of Policy

HOIST LIFT TRUCK is first and foremost concerned about the safety and well being of our employees. Employees are expected to be concerned for their own safety and the safety of their coworkers. The Personal Protective Equipment selected by HOIST LIFT TRUCK is to be used by all employees needing protection from specific hazards.

The use of Personal Protective Equipment is not an option, but is a condition of employment where required. It is the responsibility of each Foreman to ensure that employees use the proper PPE when required.

HOIST LIFT TRUCK

Welding and Cutting Safety Program

2015

CHAPTER SIXTEEN

Contents:

WELDING AND CUTTING SAFETY PROGRAM

SCOPE

This program is comprised of safe practices for welding and cutting operations. All employees are expected to follow these guidelines on all work sites.

COMPANY POLICY

HOIST LIFT TRUCK is dedicated to the protection of its employees from on-the-job injuries. All employees have the responsibility to work safely on all job sites. The purpose of programs, such as the Welding and Cutting Safety Program, is to ensure that every employee who works for HOISTLIFT TRUCK, Inc. recognizes the hazards associated with welding and cutting operations and equipment and takes appropriate measures to prevent employee injuries. The employees of HOIST LIFT TRUCK also have to be familiar with the 29 CFR 1910.254 standards on arc welding and cutting, and the 29 CFR 1910.252 standards, which cover fire prevention protections when welding and cutting, protecting personnel when welding and cutting, and health protection and ventilation when cutting and welding. The Safety Director shall review program annually and update as needed.

SUPERVISOR RESPONSIBILITIES

All Supervisors have the responsibility to enforce and follow all HOIST LIFT TRUCK safety policies and procedures including the Welding and Cutting Safety Program. All supervisors assigned must make sure employees are familiar with sections 29 CFR 1910.254, and 29 CFR 1910.252 on protection of employees when cutting and welding. Supervisors will be responsible for ensuring that employees are informed of the provisions of this program. Supervisors must be trained in the proper use and maintenance of the welding and cutting equipment. Supervisors in charge of oxygen or fuel-gas supply equipment; including distribution piping systems and generators; must be instructed and judged competent for such work. Supervisors must inspect the area to be welded and authorize the work to be done through issuing a “Hot Work Permit”.

EMPLOYEE RESPONSIBILITIES

Employees are required to adhere to the provisions of this Welding and Cutting Safety Program and all other HOIST LIFT TRUCK safety policies and procedures. Only employees certified as cutters, welders or arc welders may utilize the equipment. Employees in charge of oxygen or fuel-gas supply equipment; including distribution piping systems and generators; must be instructed and judged competent for such work. They must be trained in the safe use of the equipment and the proper maintenance of the equipment. AWSS A6-1-1966 must be followed.

Welders and cutters have the responsibility to clear all combustibles a minimum of 35 feet from

the work area.

GENERAL SAFETY HAZARDS

FIRE PROTECTION

Portable welding and cutting equipment creates special fire hazards, it should be used in a permanent welding and cutting location that can be designed to provide maximum safety and fire protection. A "hot work" permit may be issued by the Supervisor in locations where welding and cutting must take place and that contain or have the potential to contain hazardous materials or products. See fire watch**. If material to be cut or welded cannot be moved to a safe area the appropriate guards and curtains shall be used to protect equipment and employees**

FLOORS AND COMBUSTIBLE MATERIALS

If the work itself cannot be moved, the exposed combustible material should, if possible, be moved a safe distance away. Before welding or cutting is started, wood floors should be swept clean and preferably covered with metal or other noncombustible material and where sparks or hot metal may fall. In some cases, it is advisable to wet down the floor, though the wet floor increases the shock hazard to electric (arc and resistance) welders and necessitates special protection for them.

For gas welding or oxygen cutting, the gas cylinders will be placed in an upright and secured in a position away from sparks to prevent contact with the flame or heat. When it is necessary to weld or cut close to wood construction or near combustible material that cannot be removed or protected, a fire hose, water pump tank extinguisher, or fire pails should be conveniently located. It is good practice to provide a fire extinguisher, either dry chemical, multipurpose chemical, or carbon dioxide, for each welder.

HAZARDOUS LOCATIONS / CONFINED SPACE

Welding and cutting operations will not be permitted in or near rooms containing flammable or combustible vapors, liquids, dusts or other hazard which cannot be controlled. If the hazard cannot be controlled, then hot work will not be permitted.

When welding or cutting in a confined space all hazards must be addressed on the permit and signed off by permit supervisor prior to beginning work. The space must be ventilated, all cylinders are shut off and secured outside of the space, warning signs posted, area restricted to all but required traffic, electrodes removed and all Permit Required Confined Space procedures followed.

DRUMS, TANKS, AND CLOSED CONTAINERS

Closed containers that have held flammable liquids or other combustibles will be thoroughly cleaned before welding or cutting. Closed tanks, drums, or containers will not be used for work platforms.

EXPOSURE AND STANDARDS

Many of the products contained in welding rods and materials being superheated are toxic and employees should be protected from inhaling over the permissible exposure level of these fumes. Among these materials are:

♦ Antimony	♦ Chromium	♦ Mercury	♦ Arsenic	♦ Cobalt
♦ Nickel	♦ Barium	♦ Copper	♦ Selenium	♦ Beryllium
♦ Lead	♦ Silver	♦ Cadmium	♦ Manganese	♦ Vanadium

Refer to Material Safety Data Sheets provided by the manufacturer to identify any of the materials listed above that may be contained in the consumable. Ventilation precautions must be taken to assure the level of contaminants in the atmosphere is below the limits allowed for human exposure.

VENTILATION

- Natural ventilation is acceptable for welding, cutting, and related processes where the necessary precautions are taken to keep the welder's breathing zone away from the plume, and where sampling of the atmosphere shows that concentrations of contaminants are below the levels given above.

- Mechanical ventilation may be necessary in areas where there is little or no natural ventilation, such as confined spaces. The two types of mechanical ventilation are:

    - ♦ Local forced ventilation (takes the plume away from the face of the employee at point close to the operation).

    - ♦ General area mechanical ventilation (provides fresh air or pulls out fumes in order to maintain "clean" air for the employee).

FUME AVOIDANCE

Welders and cutters must take precautions to avoid breathing the fume plume directly. This can be done by positioning plume away from the face.

NON-IONIZING RADIATION

Electric arcs and gas flames provide ultraviolet and infra-red radiation that has a harmful effect on the eyes and skin upon continued or repeated exposure. However, the effects of visible and near infrared radiation may cause permanent eye injury if the employees look directly into a very powerful arc without eye protection. Arc welding operations should be isolated so that other workers will not be exposed to either direct or reflected radiation.

Portable flameproof screens similarly painted or flameproof curtains should also be provided.

NOISE

Hearing protective devices will be used.

CHIPPING

Since slag can be sharp, welders should always wear safety glasses whenever they chip.

PERSONAL PROTECTIVE EQUIPMENT

(See Personal Protective Equipment Program for further information.)

EYE PROTECTION

Goggles, helmets, and shields that give maximum eye protection for each welding and cutting process should be worn by operators, welders, and their helpers. **Table A is a guide for selecting the correct filter lens for various welding and cutting operations.**

CAUTION: Welders should never wear synthetic clothing and/or synthetic blends, including synthetic insulated underwear.

Outer clothing should be reasonably free from oil and grease. Aprons and overalls should have no front pockets where sparks could be caught.

TRAINING IN SAFE PRACTICES

Training should particularly emphasize that a welder or cutter should observe the following safe practices:

- When possible, work at an optimal height to avoid back strain or shoulder fatigue.
- For work at more than 4 feet above the floor or ground, use a platform with railings or with fall protection equipment.
- Wear respiratory protection as needed and a safety harness with attached lifeline for work in confined spaces, such as tanks and pressure vessels. The lifeline should be intended by a similarly equipped helper whose duty is to observe the welder or cutting units and remove the electrode from the holder. Turn "off" the torch valves of gas welding or cutting units. Shut "off" the gas supply at a point outside the confined area. If possible, remove the torch and hose from the area.
- After welding or cutting is completed, mark hot metal surfaces.
- Follow safe housekeeping principles. Don't throw electrode or rod stubs on the floor; discard them in the proper waste containers. Keep tools and other tripping hazards off the floor - put them in a safe storage area.
- Use equipment as directed by the manufacturer's instructions and practices.

- **Operators should report any defect or safety hazard and discontinue the use of unsafe equipment until repaired. Repairs to be made only by a qualified person and the records to be kept for a minimum of 5 years.**

NOTE:
Only approved welding equipment shall be used and the manufacturer's instructions ***must*** be followed. Supervisors shall be responsible for the safe operation of welding equipment and **operators. Tenders shall be well trained in the operation of the fuel gas equipment and be competent to assist. HOIST LIFT TRUCK no longer generates acetylene or uses piped in gas.**

COMPRESSED GAS CYLINDERS

These cylinders should be constructed and maintained in accordance with regulations of the U.S. Department of Transportation (DOT). The purchaser should make sure that all cylinders bear DOT, ICC (Interstate Commerce Commission), or CTC (Canadian Transport Commission) specification markings. The contents should be legibly marked on each cylinder in large letters. Oxygen is supplied in steel cylinders; oxygen under pressure of 2,200 psi. A cap should be provided to protect the outlet valve when the cylinder is not connected for use.

- ♦ Acetylene for welding and cutting is usually supplied in cylinders having a capacity up to about 300 feet of dissolved acetylene under pressure of 250 psi.

HANDLING CYLINDERS

Serious accidents may result from the misuse, abuse, or mishandling of compressed gas cylinders. Observance of the following rules will help control hazards in the handling of compressed gas cylinders.

- Accept only cylinders approved for use in interstate commerce for transportation of compressed gases.
- Do not remove or change the marks and numbers stamped on the cylinders.
- Cylinders that are heavy or difficult to carry by hand may be rolled on their bottom edge, but never drag them.
- Transport cylinders weighing more than a total of 40 lbs. on a hand or motorized truck securing them from falling.

- Keep the cylinders clean and protect them from cuts or abrasions.

- Do not lift compressed gas cylinders with an electromagnet. Where cylinders must be handled by a crane or derrick, as on construction jobs, carry them in a cradle or suitable platform and take extreme care that they are not dropped or bumped. Do not use slings.

- Do not drop cylinders or allow them to strike each other violently.

- Do not use cylinders for rollers, supports, or any purpose other than to contain gas.

- Do not tamper with safety devices in valves or on cylinders.

- Consult the supplier of the gas when in doubt about the proper handling of a compressed gas cylinder or its contents.

- Clearly write **EMPTY or MT** in chalk on empty cylinders that are to be returned to the vendor.

- Close cylinder valves and replace valve protection caps, if the cylinder is designed to accept a cap.

- Load cylinders to be transported to allow as little movement as possible. Secure them to prevent violent contact or upsetting.

- Always consider cylinders as being full and handle then with corresponding care. Accidents have resulted when containers under partial pressure were thought to be empty. The fusible safety plugs on acetylene cylinders melt at about the boiling point of water. If an outlet valve becomes clogged with ice or frozen, it should be thawed with warm (not boiling) water, applied only to the valve. A flame should never be used.

STORING CYLINDERS

Cylinders need to be secured in the upright position in a safe, dry, well-ventilated place prepared and reserved for the purpose. Flammable substances, such as oil and volatile liquids, should not be stored in the same area. Cylinders should not be stored near elevators, gangways, stairwells, or other places where they can be knocked down or damaged.

Oxygen cylinders should not be stored within 20 feet of highly combustible materials or cylinders containing flammable gases. If closer than 20 feet, cylinders should be separated by a fire-resistive partition at least 5 feet high with a fire-resistive rating of at least 30 min.

Acetylene and liquefied fuel gas cylinders should be stored with the valve end up. To prevent rusting, cylinders stored in the open should be protected from contact with the ground and

against extremes of weather - accumulations of ice and snow in winter and continuous direct rays of the sun in summer.

Cylinders are not designed for temperatures in excess of 130 F. Empty and full cylinders should be stored separately, with empty cylinders being plainly identified as such to avoid confusion. No source of ignition should be permitted. Smoking should be prohibited. Wiring should be in conduit. Electric lights should be in fixed position and enclosed in glass or other transparent material to prevent gas from contacting lighted sockets or lamps.

USING CYLINDERS

Safe procedures for the use of compressed gas cylinder include:

- Use cylinders, particularly those containing liquefied gases and acetylene, in an upright position and secure them against being accidentally knocked over.

- Keep the metal cap in place to protect the valve when the cylinder is not connected for use, unless the cylinder valve is protected by a recess in the head. A blow on an unprotected valve might cause gas under high pressure to escape.
- Make sure the threads on a regulator or union correspond to those on the cylinder valve outlet. Do not force connections that do not fit.

- Open cylinder valves slowly. A cylinder not provided with a hand wheel valve should be opened with a spindle key or a special wrench or other tool provided or approved by the gas supplier.

- Do not use a cylinder of compressed gas without a pressure-reducing regulator attached to the cylinder valve, except where cylinders are attached to a manifold, in which case the regulator will be attached to the manifold header.

- Before making a connection to a cylinder valve outlet, “crack” the valve for an instant to clear the opening of particles of dust or dirt. Always point the valve and opening away from the body and not toward anyone else. Never crack a fuel gas cylinder valve near other welding work or near sparks, open flames, or other possible sources of ignition.

- Small fires at the cylinder should be extinguished, if possible, by closing the cylinder valve. In case of a larger fire or if extinguishment is not possible, evacuate and use a heavy stream of water to fight the fire.

- Use regulators and pressure gages only with gases for which they are designed and intended. Do not attempt to repair or alter cylinders, valves, or attachments. This work should be done only by the manufacturer.

- Unless the cylinder valve has first been closed tightly, do not attempt to stop a leak between the cylinder and the regulator by tightening the union nut.

- Leaking fuel gas cylinders should be taken out of use immediately and handled as follows:

    1. Close the valve and take the cylinder outdoors, well away from any source of ignition.

    2. Properly tag the cylinder and notify the supplier. (A regulator attached to the valve may be used temporarily to stop a leak through the valve seat.)

    3. If the leak occurs at a fuse plug or other safety device, take the cylinder outdoors, well away from any source of ignition, open the cylinder valve slightly and permit the fuel gas to escape slowly. Tag the cylinder plainly.

    4. Post warnings against approaching with lighted cigarettes or other sources of ignition.

    5. Promptly notify the supplier and follow instructions for returning the cylinder.

        - Do not permit sparks, molten metal, electric currents, excessive heat, or flames to come in contact with the cylinder or attachments.

        - Never use oil or grease as a lubricant on valves or attachments of oxygen cylinders. Keep oxygen cylinders and fittings away from oil and grease, and do not handle such cylinders or apparatus with oily hands, gloves, or clothing.

        - Never use oxygen as a substitute for compressed air in combustion engines or to dust clothing. Use it only for the purpose that it is intended.

        - Never bring cylinders into tanks or unventilated rooms or other closed quarters.

        - Do not refill cylinders, except with the consent of the owner and then only in accordance with DOT (or other applicable) regulations. Do not attempt to mix gases in compressed gas cylinder or to use it for purposes other than those intended by the supplier.

        - Before a regulator is removed from a cylinder valve, close the cylinder valve and release the gas from the regulator.

- Cylinder valves shall be closed when work is finished.

HOSE AND HOSE CONNECTIONS

Oxygen and acetylene hoses should be different colors or otherwise identified and distinguished from each other. Red is the generally recognized color for the fuel gas hose and green for the oxygen hose. All equipment is to be inspected before each use.

The following are suggestions for the safe use of hose in welding and cutting operations:

- Do not use an unnecessarily long hose - it takes too long to purge. When a long hose must be used, see that it does not become kinked or tangled and that it is protected from being run over by trucks or otherwise damaged. Where a long hose must be used in areas exposed to vehicular or pedestrian traffic, suspend it high enough overhead to permit unobstructed passage.

- Repair leaks at once. Besides being a waste, escaping fuel gas may become ignited resulting in a serious fire. Escaping oxygen may also pose a threat from an improper hose splice. Do not repair leaking hoses by taping.

- Examine hoses periodically and frequently for leaks and worn places, and check hose connections. Test for leaks by immersing the hose under normal working pressure in water.

- Protect hoses from flying sparks, hot slag, other hot objects, and grease and oil. Store hose in a cool place.

- A single hose having more than one gas passage shall not be used. When oxygen and acetylene hoses are taped together for convenience and to prevent tangling, not more than 4 inches of each 12 inches of hose should be taped.

- The use of hoses with an external metallic covering is not recommended. In some machine processes and in certain types of operations, hoses with an inner metallic reinforcement that is exposed neither to the gas passage nor to the outside atmosphere acceptable.

- Flashback devices between the torch and hose can prevent burn back into hoses and regulators. If a flashback occurs and burns the hose, discard the burned section.

- A hose that has been subject to flashback, or that shows evidence of severe wear or damage, shall be tested to twice the normal pressure, but in no case less than 300 psi. A defective hose, or a hose in doubtful condition, shall not be used.

TORCHES

In the operation of torches, several precautions should be observed:

- Select the proper welding head or mixer and top or cutting nozzle (according to charts supplied by the manufacturer), and screw it firmly into the torch.

- Before changing torches, shut off the gas at the pressure-reducing regulators and not by crimping the hose.

- To discontinue welding or cutting for a few minutes, closing only the torch valves is permissible. If the welding or cutting is to be stopped for a longer period (during lunch or overnight) proceed as follows:

    1. Close oxygen and acetylene cylinder valves.
    2. Open torch valves to relieve all gas pressure from hose and regulator.
    3. Close torch valves and release regulator pressure adjusting screws.

- Do not use matches to light torches. Use a friction lighter, stationary pilot flame, or other suitable source of ignition. When lighting, point the torch tip so no one will be burned when the gas ignites.

- Never put down a torch until the gases have been completely shut "off". Do not hang torches from a regulator or other equipment so that they come in contact with the sides of gas cylinders. If the flame has not been completely extinguished or if a leaking torch ignites, it may heat the cylinder or even burn a hole through it.

- When extinguishing the flame, close the acetylene and oxygen valves in the order recommended by the torch manufacturer. If the oxygen valve is closed first, carbon soot will be deposited in the air. However, this ensures that the acetylene valve is closed tight when the flame is extinguished. If the acetylene valve is turned off first, no soot is formed, but there is no assurance that the fuel gas valve is closed and that it is not leaking.

PROTECTION AGAINST ELECTRIC SHOCK

Some specific precautions for prevention of electric shock are:

- In confined places, cover or arrange cables to prevent contact with falling sparks.

- Never change electrodes with bare hands or wet gloves, or when standing on wet floors or grounded surfaces.

- Ground the frames of welding units, portable or stationary, in accordance with the ***National Electrical Code, NFPA 70***. A primary cable containing an extra conductor, one end that is attached to the frame of the welding unit can be used with a small welding unit. This ground connection can be carried back to the permanently grounded connection in the receptacle of the power supply by means of the proper polarized plug.

- Arrange receptacles of power cables for portable welding units so that it is impossible to remove the plug without opening the power supply switch, or use plugs and receptacles that have been approved to break full load circuits of the unit.

- Keep welding cables dry and free of grease and oil to prevent premature breakdown of the insulation.

- Suspend cables of substantial overhead supports if the cables must be run some distance from the welding unit. Protect cables that must be laid on the floor or ground so that they will not interfere with safe passage or become damaged or entangled.

- Take special care to keep welding cables away from power supply cables or high-tension wires.

- Never coil or loop welding cable around the body.

FIRE WATCH

All fire watches shall be trained in the use of portable fire extinguishers as outlined in the Fire Protection Policy and be able to sound the alarm regardless of the facility they are in, and familiar with the facilities for sounding an alarm in the event of a fire, and for notifying the proper representatives of the host employer's facility.

Employees assigned to fire watch shall have a fire extinguisher of the size and type necessary for the job available and maintain the scene for at least 30 minutes after the job is completed so far as is feasible, or after welding or cutting operation was completed.

Fire watch shall remove all combustibles from the area for safety.

Conditions which require a fire watch:

a. any time a major fire could be ignited
b. combustibles closer than 35 feet to the point of operation
c. combustibles over 35 feet away but easily ignited
d. wall or floor openings within a 35 feet radius that expose combustible materials
e. locations where other than a minor fire might develop

f. combustible materials are adjacent to the opposite side of metal partitions, ceilings or roofs.

• TABLE A. GUIDE FOR SELECTION OF LENS SHADE

Operation	Electrode Size 1/32 in. (mm)	Arc Current (A)	Minimum Protective Shade	Suggested * Shade No. (Comfort)
Shielded metal arc welding	Less than 3 (2.5)	Less than 60	7	--
	3-5 (2.5-4)	60-160	8	10
	5-8 (4-6.4)	160-250	10	12
	More than 8 (6.4)	250-550	11	14
Gas metal arc welding and flux cored arc welding		Less than 60	7	--
		60-160	10	11
		160-250	10	12
		250-500	10	14
Gas tungsten arc welding		Less than 50	8	10
		50-150	8	12
		150-500	10	14
Air carbon	(Light)	Less than 500	10	12
Arc cutting	(Heavy)	500-1000	11	14
Plasma arc welding		Less than 20	6	6 to 8
		20-100	8	10
		100-400	10	12
		400-800	11	14
Plasma arc cutting	(Light) **	Less than 300	8	9
	(Medium) **	300-400	9	12
	(Heavy) **	400-800	10	14
Torch brazing		--	--	3 or 4
Torch soldering		--	--	2
Carbon arc welding		--	--	14
	Plate thickness in.	mm		
Gas welding				
Light	Under 1/8	Under 3.2		4 or 5
Medium	1/8 to ½	3.2 to 12.7		5 or 6
Heavy	Over ½	Over 12.7		6 or 8
Oxygen cutting				
Light	Under 1	Under 25		3 or 4
Medium	1 to 6	25 to 150		4 or 5
Heavy	Over 6	Over 150		5 or 6

* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

** These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the work piece. ANSI Z49.1-1983.

HOIST LIFT TRUCK

EMPLOYEE TRAINING RECORD

Topic: Welding & Cutting Safety **Date: _____**

Name:	**Name:**
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Instructor **Date**

HOIST LIFT TRUCK

ELECTRICAL SAFETY

NON-QUALIFIED

2015

CHAPTER SEVENTEEN

CONTENTS:

Introduction

The danger of injury through electrical shock is possible whenever electrical power is present. When a person's body completes a circuit and thus connects a power source with the ground, an electrical burn or injury is imminent. Most fatal injuries result from high-voltage exposure; however, people can sustain severe injuries from low voltage power if it has a high current flow.

Electricity is used in many different ways at HOIST. Each application has its own combination of risks, which includes the potential of electric shock, fire, and burns. Thus, it is essential for all employees, including supplemental labor and subcontractor employees, to be aware of the hazards associated with electrical work and know how to use the appropriate protective methods to minimize the risk of an injury or accident.

Applicability

The policies and guidance in this program apply to all operations involving operational and programmatic electrical work at HOIST and to all managers, designers, users, installers, and others who service or operate electrical equipment and systems.

Requirements/Regulatory Summary

All electrical work performed at HOIST shall conform to applicable codes and standards. Where conflicts arise, the standard or code providing the greatest degree of safety shall be used.

Facilities must comply with the rules and regulations established by the Occupational Safety and Health Administration (OSHA), the American National Standards Institute (ANSI), and the National Fire Protection Association (NFPA).

Methods for Reducing Risks

Only qualified and authorized individuals are permitted to perform electrical work at HOIST. A qualified person is one who has the required skills and knowledge to perform electrical work safely. Such individuals must be aware of the hazards associated with electrical work and the methods for reducing the risk of electrical accidents that can result from unsafe equipment, adverse environmental conditions, and unsafe acts.

Whenever possible, all circuits or equipment shall be de-energized before beginning any work.

Work on energized circuits shall only be performed by authorized persons. In addition, employees shall use

- Proper design, fabrication, installation, and documentation techniques.
- Proper operational and maintenance procedures.
- Electrical equipment approved by a nationally recognized testing laboratory (NRTL).
- Proper personnel protective equipment (PPE).
- In support of electrical safety, management shall take a proactive approach when dealing with the root causes of employees' concerns, near-misses, and incidents or accidents involving electrical hazards.

Electrical Equipment Conditions of Approval and Use

All electrical equipment, components, and conductors should be listed, labeled, and approved by an NRTL for their intended purpose. Custom-made and installed equipment can be approved for use if built according to specific standards (e.g., Underwriters Laboratories [UL] 508 or one of the ANSI C series standards). Appropriate documentation for such equipment shall be maintained on file.

When building, repairing, or modifying electrical systems, NRTL-approved equipment must be used if available. Non-NRTL-approved equipment (e.g., shop-made extension cords) shall be built in accordance with an approved design.

Circuit Breaker Loads

Most office locations have 20 amp circuit breakers that serve two or more outlets. These breakers can handle most office equipment; however, the widespread use of personal computers and associated hardware can create an electrical overload. To determine your current electrical load, follow these steps:

1. Check office/laboratory equipment for a manufacturer's rating label that indicates total watts or amps. Take special care to check appliances that use electricity to generate heat.
2. Convert the watts rating to amps:
    - Amps = Watts ÷ 120 Volts
3. Total the amps for each circuit.
4. If the total equals more than 15 amps per 20 amp circuit, you may be overloading the circuit. Move enough equipment to a different circuit to reduce the circuit load.

Electrical Panels

Electrical panels or breaker boxes require special safety considerations, including the following:

- Know where your panel box is located.
- Do not tape circuit switches to keep a breaker from tripping.
- Ensure that breaker circuits are accurately labeled within panel boxes.
- Ensure that panel box doors are securely attached.
- Do not block panel boxes. There should be at least 30 inches of clear space in front of a panel box.
- Report tripped breakers.

Work on Electrical Components and Systems

Any live electrical parts should be positively de-energized when working on or near electrical circuits, equipment, or systems. Circuits and equipment must be considered energized until opened, locked or tagged out, and verified as de-energized using an approved testing device in accordance with general lockout/tagout procedure. Where it is possible for the circuits to be energized by another source, or where capacitor devices (including cables) may retain or build up a charge, circuits should be grounded and shorted. In addition, the following precautions shall be observed to improve safety in the workplace:

- Identify and report to supervision potential electrical hazards or unexpected occurrences or incidents (i.e., discharges or arcs when applying grounds to circuits thought to be de-energized), including near misses.
- Anticipate potential electrical problems and hazards.
- Do not rush to finish a job. Never bypass approved policies and procedures.
- Plan and analyze for safety during each step of any electrical work.
- Keep accurate records of all pertinent work performed on a project.
- Have significant safety related work independently verified.
- Uses properly rated test equipment and verify its condition and operation before and after use.
- Treat all conductors and parts of electrical equipment that have been de-engineered but not locked or tagged as live parts.

- Know applicable emergency procedures.

- Examples of increased or additional hazards include the following:

    - Interruption of life support equipment.
    - Deactivation of emergency alarm systems.
    - Shutdown of hazardous location ventilation equipment.
    - Removal of illumination for an area.

- Examples of work that may be performed on or near energized circuit parts because of unfeasibility due to equipment design or operation limitations include:

    - Testing of electrical circuits that can only be performed with the circuit energized (trouble shooting).

    - Work on circuits that form an integral part of a continuous process.

Conductive Materials and Equipment

Handling metal ladders and other conductive materials in the vicinity of overhead lines is a leading cause of occupational electrocutions. An example of a prevention technique could require employees to handle metal objects, such as irrigation pipes, so that the pipes are always in a horizontal plane. If employees are subject to handle long dimensional conductor objects, such as ducts or piping, steps for safe work practices shall be listed. This practice would prevent the material from contacting overhead power lines.

Portable Ladders

Ladders used by employees in areas where the employee or the ladders could contact the exposed energized parts should have nonconductive side rails.

Conductive Apparel

Conductive articles of jewelry and clothing may not be worn if they might contact exposed energized parts.

Overhead Lines

If work is to be performed in the vicinity of overhead lines, before this work can take place, these lines must be de-energized and grounded, or other protective measures shall be used before the work is started. Qualified individual must install protective measures.
If protective measures are to be used, these measures shall include:

- Guarding
- Isolating
- Insulating

Clearances and Illumination for Electrical Enclosures

A clear working space shall be maintained in the front, back, and on each side of all electrical enclosures and around electrical equipment for safe operation and to permit access for maintenance and alteration. The documents listed below shall be referred to, as required (note: The National Electric Code (NEC)): **All work areas must be adequately illuminated.**

- NEC Article 110-16, "Clearance and entrance requirements on electrical equipment rated at 600 V nominal or less"

- NEC Article 110-32, "Work space requirements for electrical equipment rated at 600 V nominal or above"

- NEC Article 110-33, "Entrance and access to work space"

- NEC Article 110-34, "Work space and guarding requirements"

Temporary Wiring

Temporary wiring for electric power and lighting is permitted during periods of construction, remodeling, maintenance, repair, or demolition of equipment or structures; and during emergencies. Temporary wiring does not mean a "reduced" level of safety or quality, because the wiring must still conform to certain criteria for electrical work. Temporary wiring shall have a temporary wiring tag attached with the following information:

- Review/approval and signature of the facility manager and area supervisor.

- The reason for the temporary wiring (i.e., emergency, construction, test).

- Installation date.

- Name, phone number, and pager number (if applicable) of the person installing the temporary wiring tag.

In addition, the temporary wiring

- Shall be approved or identified as suitable for installation and installed in accordance with the rules prescribed in the current edition of the NEC and 29 CFR 1910 and 1926.

- Shall be protected from accidental damage.

- Shall be removed as soon as the prescribed activity is completed. **It shall not be used as a substitute for permanent wiring.**

- May be used during an "off-shift working hour" emergency. On the day of installation, a temporary wiring tag shall be completed and attached to the wiring so that it is readily visible. Approvals for the wiring tag must be obtained on the first regular work day after the emergency.

Switches or other means shall be installed to permit the disconnection of all ungrounded conductors of each temporary circuit. All lamps used for temporary illumination shall have a suitable fixture or a lamp holder with a guard to prevent damage or accidental contact with energized parts.

Extension Cords/Multiple Outlet Boxes/Flexible Cords and Cables

Extension Cords. Observe the following precautions when using extension cords. Note that extension cords for normal office use do not require a temporary wiring tag.

- Use only three-wire extension cords and cables that conform to the rating, grounding, and non-interchangeability stated in NEC Article 210-7, "Receptacles and Cord Connectors."

- Check extension cords before use to ensure they are adequate for the intended purpose. Plug high-current equipment (e.g., space heaters, hot plates, and coffee pots) directly into a wall receptacle whenever possible.

- Use only one extension cord for lamps, appliances, or other equipment in conjunction with the power supply cord. Policy is to prohibit the use of multiple extension cords (daisy chaining) that will increase the resistance in an electrical circuit, which in turn will increase the heating of conductors, receptacles, and plugs.

- Inspect extension cords for damage before placing them in service and daily during use. Only qualified and authorized persons can repair extension cords; this must be done in a manner approved by the manufacturer. Replace damaged cords with ones listed by an NRTL.

- For receptacles connected to circuits with different voltages, frequencies, or current (ac or dc) on the same premises, use a design such that the attachment plugs on the circuits are not interchangeable.

- Only high-visibility orange or yellow extension cords shall be used outdoors and with portable or integral ground-fault circuit interrupters (GFCIs)

Multiple Outlet Boxes. Observe the following precautions when using multiple outlet boxes:

- Each multiple outlet box shall be plugged into a wall receptacle. Use of one outlet box to provide power to one or more outlet boxes is not permitted.

- Outlet boxes shall not be used to provide power to space heaters, hot plates, coffee pots, or other high-current loads. These types of appliances have caused outlet boxes to burn up.

Note that multiple outlet boxes used in offices, including those with surge protection for computers, do not require a temporary wiring tag.

Flexible Cords and Cables. Flexible cords and cables shall comply with the requirements in NEC Article 400 (Flexible Cords and Cables). They shall not be

- Used as a substitute for fixed wiring of a structure.

- Attached to building surfaces.

- Routed through holes in walls, ceilings, or floors; or through doorways, windows, or similar openings.

- Concealed behind building walls, ceilings, or floors.

- Wired with a plug or connector that does not have dead-front construction or strain relief. "Dead-front construction" is defined as electrical equipment built so that it is "without live parts exposed to a person on the operations side of the equipment."

- Placed where they could present a trip or fall hazard.

- Used when the cord insulation is damaged, cracked, or spliced; or when the ground pin is missing from the end of the male cord plug.

Individual conductors of a flexible cord or cable shall not be smaller than those listed in Table 440-4 of NEC Article 400.

Article 240-4 of the NEC (Protection of Flexible Cords and Fixture Wires) states that flexible cords, including extension cords, shall be protected against overcurrent in accordance with their amperage ratings (see Tables 400-5(A) and 400-5(B)). NEC Article 400-14 states that flexible cords and cables inserted through holes in covers, outlet boxes, or similar enclosures shall be protected by bushings or fittings.

Ground Fault Circuit Interrupters (GFCI)

Ground fault circuit interrupters, either circuit breakers or portable ground-fault interrupting receptacles, shall be used for all 125-V, single-phase, 15-A and 20-A receptacles, for temporary wiring outdoors, and wherever employees will be using electrical equipment around water or in damp environments. Unlike fuses or standard circuit breakers, which are designed to protect equipment from overcurrent, GFCIs are designed to protect personnel from serious injury or death.

Article 305-6 of the NEC (Ground-Fault Protection for Personnel) requires GFCI protection for personnel and for temporary wiring where 125-V, single-phase, 15-A and 20-A receptacle outlets are in use and are not part of the permanent wiring for the structure.

Company policy is to provide its employees and subcontractors with at least the same level of protection from electric shock as they would have in their own homes. NEC Article 210-8 (Ground-Fault Circuit-Interrupter Protection for Personnel) specifies that GFCIs must be installed in dwellings where 125-V, single-phase, 15-A and 20-A receptacles are installed outdoors; in bathrooms, garages, and crawl spaces at or below grade; in unfinished basements; and where receptacles on countertop surfaces are within 6 ft of a sink. Thus, all the aforementioned areas within HOIST shall have receptacles with GFCI protection.

Portable Electrical Tools, Equipment, and Instruments

Portable electrical equipment or tools shall always be inspected to identify defects; defective equipment shall be removed from service immediately. Portable electrical equipment shall be connected to a portable GFCI (or a circuit that contains a GFCI) when used outdoors, in damp locations, in any unsafe environment, or for indoor or outdoor construction. Ordinarily, the casings for portable electrical equipment are grounded. If it is necessary to operate this type of equipment with other than grounded equipment casing, suitable barriers, guards, or shields shall be installed to protect personnel while working on or near the equipment. In addition, a safety procedure shall be written describing the controls for safe operation of the equipment. (Powered Hand Tool Safety Program)

Receptacles and flexible cords can be used to connect electrical appliances and equipment (e.g., fans, machine tools, pumps) to power sources.

Equipment Grounding

Tools that are faulty or damaged can become a source of electric shock to the user. All electrical power tools should be listed by a Nationally Recognized Testing Laboratory (NRTL) such as U.L. Tools and their cords must be inspected before use.

All electrical apparatus, equipment, and systems shall be grounded in accordance with NEC Article 250 (Grounding) and ANSI standards. The conductor used for grounding shall meet the following criteria:

- Be permanent and continuous.
- Facilitate operation of the circuit's protective devices.
- Have sufficiently low impedance to limit the voltage to ground to a safe level at all frequencies and fault current conditions anticipated.
- Have the capacity (size and rating) to safely conduct any fault current that may be imposed on it for the time required for protective device operation.
- The assured grounding program shall be administered by HOIST safety program.

Double Insulated Tools

Protection from shock depends upon the dielectric properties of the internal protective insulation and the external housing to insulate the user from the electrical parts. There are some precautions in using double insulated power tools that all users should be aware of. These include:

- Double insulated tools are designed so that the inner electrical parts are isolated physically and electrically from the outer housing. The housing is nonconductive. Particles of dirt and other foreign matter from the drilling and grinding operations may enter the housing through the cooling vents and become lodged between the two shells, thereby voiding the required insulation properties.
- Double insulation does not protect against defects in the cord, plug, and receptacle. Continuous inspection and maintenance are required.

A product with a dielectric housing, for example plastic, protects the user from shock if interior wiring contacts the housing. Immersion in water, however, can allow a leakage path that may be either high or low resistance.

Double insulated tools and equipment should not be used in highly conductive, wet, or damp locations without also using a GFCI.

Static Electricity

A static charge is an imbalance of electrons on objects (matter) that can build up on all matter and transfer from one object to another by conduction or induction. The discharge of static electricity can cause shock, fire, or explosion. Although this type of shock is painful, it is not normally physically hazardous, and therefore is not considered reportable as an electric shock. It should be noted, however, that injuries may result from the reaction to the shock (i.e., by a person rapidly pulling his/her hand away from a metal object and hitting an elbow against a wall or cabinet).

Equipment and Personnel Guidelines. When working with electrical equipment, employees shall follow the guidelines below for their own protection and that of the equipment:

- Grounding of the metal parts or enclosures will continuously discharge static. Therefore, wrist straps and other connections used to ground employees shall be solidly grounded where static safe workstations are used for semiconductor, electronic, or explosive work. Grounding prevents the wrist strap from becoming a shock hazard in the event of a short circuit from a voltage to the wrist-strap conductor.

- Bonding will equalize the potential between two adjacent non-current carrying metal parts or enclosures. Thus, only approved or listed grounding clamps are acceptable for static bonding and grounding. Alligator clamps are not acceptable.

- Dust is attracted to the face of the video display terminal because of a static charge of approximately 25,000 V. Never clean the glass face of a computer monitor while the computer is on. When a person touches the screen with a finger, the charge in the portion of the screen touched discharges through the finger with a tiny spark. Electric current does not normally flow through glass, so only the part of the screen that the finger touches is discharged. When cleaning a monitor, however, the entire glass is wet and the charge on the entire screen will discharge to a finger or hand causing a much more painful shock.

- Never allow any electrical powered office equipment to become wet while it is turned on, and never turn on any electronic equipment when it is wet. Even when a computer is turned off for a few minutes, it is best not to touch the monitor's CRT while handling or using other electronic equipment, including the telephone. Wet or dry, a person may receive an electric shock similar to one that can be received by touching a metallic object when vacuuming or walking across carpeting in leather shoes.

Flammable Vapor. A flammable vapor source can be ignited by static electricity if the following conditions exist simultaneously:

- Generation of a static charge imbalance.
- Static charge accumulation.
- Flammable atmosphere.
- A spark with significant ignition energy or temperature.

Electrostatic charges can be generated by the movement of liquid through pipes, funnels, pumps, filters, or by free flowing through air. Static charges generated by flowing liquids can be reduced or eliminated by bonding and grounding, by lowering the flow rate, or by reducing the amount of misting, spraying, free-fall, and splashing of the liquid. Pay particular attention to situations where the liquid stream may impinge on a connection to a capacitor, high-voltage bushing, or cable terminal. Static charge from the liquid can store hazardous quantities of electrical energy in a capacitor over time.

Unqualified Persons

When an unqualified person is working near overhead lines, in an elevated position, such as from an aerial device, the person and the longest conductive object that he or she may be able to contact the line with, must not be able to come within the following distances.

- **For voltages to ground 50Kv or below - 10 feet.**
- **For voltages to ground over 50Kv - 10 feet plus 4 inches for every 10Kv over 50Kv.**

Qualified Persons

Voltage range (phase to phase)	Minimum approach distance
300V and less	Avoid contact
Over 300V not over 750V	1 foot 0 inches (30.5cm)
Over 750V not over 2kV	1 Foot 6 inches (46cm)
Over 2kV not over 15kV	2 Feet 0 inches (61cm)
Over 15kV not over 37kV	3 Feet 0 inches (91cm)
Over 37kV not over 87.5kv	3 Feet 6 inches (107cm)
Over 87.5kV not over 121kV	4 Feet 0 inches (122cm)
Over 121kv not over 140kv	4 Feet 6 inches (137cm)

Vehicular and Mechanical Equipment

Any vehicle that is capable of contacting overhead lines must be operated so that at no time it comes closer than 10 feet to the overhead lines. However, under any of the following conditions, the clearance may be reduced:

- If the vehicle is in transit with its structure lowered, it may come within 4 feet of energized lines. However, if the voltage is above 50Kv, the distance must be increased 4 inches for each 10Kv over 50Kv.

If insulating barriers are installed that will prevent contact with the lines.

High Voltage Procedures

In addition to the guidelines associated with general electrical safety and lockout/tagout procedures, there are more stringent safety requirements for high voltage procedures. The following list provides high-voltage safety tips. For more information, please refer to Title 29 Section 1910.269 of the Code of Federal Regulations or NFPA 70 (National Electric Code).

- Ensure that only authorized employees work around high voltage equipment.
- Label entrances with a High Voltage Sign.
- Ensure that terminal voltage ratings can withstand surges caused by electrical faults or switching transients.
- Be careful around output circuits, even when the input power is off. Parallel power sources and energy storage devices can still be dangerous.
- Be careful when working with power supplies that serve more than one area.
- Before working in a high voltage area, inspect the power supply and check all protective devices.
- Do not work alone near high voltage.
- Label equipment to identify power sources. Label input power sources to identify connected power supply loads.
- Attach emergency shutdown instructions and phone numbers to equipment that is remotely controlled or unattended while energized.

Before entering a power supply or associated equipment enclosure to work on hazardous energy sources, complete the following:

- De-energize the equipment.
- Open and lockout the main input power circuit breaker.
- Check for auxiliary power circuits that could still be energized.
- Inspect automatic shorting devices for proper operation.
- Short the power supply with grounding hooks.

Personal Protective Equipment

Those qualified persons shall wear clothing as provided in NFPA 70E-2004

Personal protective equipment is required when installing, examining, adjusting, servicing, fabricating, testing, or maintaining electrical equipment. Management shall provide employees with the appropriate PPE, and the employee's supervisor shall ensure that the equipment is used properly. Alternatively, employees may contact the area supervisor for assistance in selecting the appropriate PPE for the operation. Protective footwear; hard hats; and insulated, nonmetallic-framed safety glasses shall meet the requirements of ANSI Z41, ANSI Z87.1, and ANSI Z89.2.

Rubber insulated (nonconductive) protective equipment shall be visually inspected at the beginning of each work day before use and after performing work that can cause damage to PPE. This inspection shall include an air test of the gloves used, hot sticks, grounds, aerial-lift equipment, and booms.

One of the most important articles of protection for electrical workers is insulated rubber gloves with the proper voltage rating for the circuits or equipment that is being worked on.
Before rubber protective equipment can be worn by personnel in the field, all equipment must have a current test date stenciled on the equipment and they must be inspected by the user.

If there is a possibility of injury due to exposure to arc flash burns, flash-flame resistant clothing must be used. Various weight fabrics of 4 oz., 6 oz., or 10 oz. are available.

Protective shields, protective barriers, or insulating materials must be used to prevent injury from shock, burns, or other electrically related injuries while employees are working near exposed energized parts which might be accidentally contacted, or where dangerous electric heating or arcing might occur.

Emergency Assistance and Rescue

The following instructions provide guidelines for handling three types of electrical emergencies:

1. Electric Shock:

When someone suffers serious electrical shock, he or she may be knocked unconscious.

If the victim is still in contact with the electrical current, immediately turn off the electrical power source. If you cannot disconnect the power source, try to separate the victim from the power source with a nonconductive object, such as a wood-handled broom.

IMPORTANT:
Do not touch a victim that is still in contact with a power source, you could electrocute yourself.

Have someone call for emergency medical assistance immediately. Administer first aid as appropriate.

2. Electrical Fire:
If an electrical fire occurs, try to disconnect the electrical power source if possible. If the fire is small, you are not in immediate danger, and you have been trained in fighting fires, use any type of fire extinguisher except water to extinguish the fire.

IMPORTANT:
Do not use water on an electrical fire.

3. Power Lines:
Stay away from live power lines and downed power lines. Be particularly careful if a live power line is touching a body of water. The water could conduct electricity.

If a power line falls on your car while you are inside, remain in the vehicle until help arrives.

Anyone who experiences or witnesses an electric shock that involves any of the four circumstances below shall immediately report the incident to the Fire Department Emergency Rescue.

- Obvious serious injury (e.g., loss of consciousness, significant trauma).
- Altered mental status (e.g., confusion, slow/slurred speech).
- Other obvious injury (e.g., laceration, muscle strain, burn).
- At the discretion of the first responder making a judgment of the situation.

In addition, this individual shall

- Initiate cardiopulmonary resuscitation (CPR), if appropriate. (Only trained personnel should perform this task.)
- Ensure that all potential sources of energy are safe and in a neutral state.
- Notify the victim's supervisor and the appropriate rescue team as soon as possible. (The victim's supervisor and the rescue team will want to determine what caused the electric shock.)
- Properly secure the area once the victim is under care, leaving items and equipment in the same position as much as possible. Try to remember the original position of items that may have been moved during response to the accident.
- Record the time, date, and location of the accident; the names of the victim and witnesses; who was notified; the voltage and current; the contact parts of the body; what equipment or system was being serviced; and the shock reaction and duration of the shock.

All HOIST employees, supplemental labor employees, and contract personnel who work with electrical equipment or systems, should be trained in basic life support, including CPR. In the event of an obviously serious electric shock, properly trained first-response personnel should provide CPR to victims in cardiac and/or respiratory arrest until a paramedic arrives. This may reduce the risk of morbidity and mortality following a serious electric shock. The paramedic will then provide advanced cardiac life support until the victim arrives at the receiving hospital.

Responsibilities

Employees

Individuals assigned to electrical work shall only perform the tasks for which they are qualified. They shall

- Understand the basic principles of electricity and electrical safety.
- Follow applicable OSHA requirements.
- Use the proper tools and required PPE.
- Request additional training so that they do not work beyond their level of qualification or comfort.

Supervisors

Supervisors shall ensure that PPE is available and employees use them appropriately; and that all employees are adequately qualified. They shall also determine the work each employee is qualified to perform and make work assignments accordingly.

Training

Electrical Workers

Employees who perform electrical work shall be trained to recognize the hazards associated with their work environment and know how to minimize the risk of an accident or injury using appropriate procedures and protective equipment. Supervisors shall verify the qualifications and training of all electrical workers before they are permitted to perform electrical work.

Employee training shall be documented with respect to the specific equipment and tasks for which the employee is qualified. Much of the experience required for an employee to be considered qualified is specific to the equipment and tasks involved. On-the-job training is always a necessary component of a qualification program. Classroom training is a useful way to ensure that employees share a common level of basic knowledge on which to build specific on-the-job training.

Additionally, employees can gain knowledge and experience on how to perform their jobs safely and properly by taking courses offered by universities and trade schools or through apprenticeships, on-the-job training (OJT), or other formalized training. The depth of training and how training is provided shall be determined by the risks associated with the employee's respective tasks. The responsibility for ensuring that employees are qualified to perform their job rests with their supervisors.

Electrical workers shall be trained in and be familiar with the following, as appropriate:

- The safety-related work practices required by 29 CFR 1910, Subpart J and Subpart S; and 29 CFR 1926, Subpart K and Subpart V.

- The skills and techniques necessary to de-energize electrical systems, identify live parts of equipment, and determine the nominal voltage of exposed live parts.

- How to lockout/tagout energized electrical circuits and equipment safely.

- Other subjects, including
  - Electrical Safety Requirements for Employee Workplaces (NFPA 70E)
  - National Electrical Code (NFPA 70)
  - National Electrical Safety Code (ANSI/IEEE C2)
  - Use of personal protective grounds (29 CFR 1926.954(e))
  - Use of testing and measuring equipment (29 CFR 1910.334(c))
  - Use and care of personal protective equipment (29 CFR 1910.335(a))
  - Electrical safety in the work place (NFPA 70E)

Refresher training for electrical workers is recommended at intervals not to exceed three years. This training shall include a formal review of current regulations and safety practices.

Non-Electrical Workers

- The Occupational Safety and Health Administration requires training for individuals, other than qualified electrical workers, if their job assignments allow them to be close to exposed parts of electrical circuits operating at 50 V or more.

Supplementary Training

Both electrical workers and non-electrical workers whose job assignment requires them to work close to exposed electrical circuits operating at 50 V or more to ground (in accordance 29 CFR 1910.332) should receive training in the following areas as appropriate:

- The proper handling of portable tools and appliance cords.
- How to reset overcurrent protective devices.
- The meaning of electrical safety warnings and barriers.
- Electrical hazards associated with water.
- The proper response to electric shock.

Terms and Definitions

Affected employee: Any employee (including subcontractors) whose job requires him/her to operate or use a machine, or work in an area where service or maintenance of equipment is being performed.

AC: Alternating current.

Amps: The standard unit for measuring electrical current.

ANSI: American National Standards Institute.

Authority Having Jurisdiction (AHJ): Interprets the requirements of all electrical codes and standards such as the National Electrical Code (NFPA 70); the National Electrical Safety Code (ANSI/IEEE C2); 29 CFR 1910, Subpart S; 29 CFR 1926, Subpart K and Subpart V; and DOE Order 6430.1A, "General Design Criteria." Approves electrical equipment, wiring methods, electrical installations, and utilization of equipment for compliance.

Authorized person: Any employee (including subcontractors) with acquired skills and training who has been approved or assigned by the supervisor to perform specific work or tasks.

Bonding: The permanent joining of metallic parts to form an electrically conductive path that will ensure electrical continuity and the capacity to conduct safely any current likely to be imposed.

Breaker Box: An insulated box on which interconnected circuits are mounted.

Circuit Breaker: A device that automatically interrupts the flow of an electrical current.

CFR: Code of Federal Regulations.

Competent person: A person who is (1) capable of identifying existing and predictable hazards in work places; and (2) authorized and qualified by management to take prompt corrective measures to eliminate hazards, provide first aid, and notify the appropriate personnel when an accident or incident occurs.

CPR: Cardiopulmonary resuscitation.

Current Flow: The rate of flow of an electrical charge, generally expressed in amps.

Dead-front construction: Electrical equipment built so that, in NEC 70 Article 100's definition, it is "without live parts exposed to a person on the operating side of the Equipment." Article 384 (Switchboards and Panel Boards), in paragraph 384-3 (a), requires that: "Barriers shall be placed in all service switchboards that will isolate the service bussbars and terminals from the remainder of the switchboard."

DC: Direct current.

Electrical equipment: A general term for material, fittings, devices, appliances, fixtures, apparatus, and the like that are used as a part of or in connection with an electrical installation. The term applies to both power generation equipment and electronics equipment.

Electrical hazard: Any situation in which an employee or any conductive tool or object in contact with the employee could contact or approach closer than the safe clearance distance of any live part or other energized conductor. Any situation in which electrical equipment is likely to cause a fire, because of defective components or design. Examples of electrical hazards include inadequate working clearance while working on energized circuits, exposed energized parts, electrical equipment inadequately guarded or enclosed, electrical equipment in an unsafe environment, and unsafe electrical equipment. Generally, electrical equipment that is not in compliance with OSHA regulations or NEC standards presents a potential hazard.

Electrical Load: The amount of power delivered by a generator or carried by a circuit. A device to which the power is delivered.

Electrical Panel: An insulated panel on which electrical wires are mounted.

Hazardous Energy Sources: This term applies to stored or residual energy such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure.

Facility power: Main disconnects, panel boards, switches, and associated wiring are considered facility/building power and are typically less than 600 V ac. These systems are designed and installed to operate facilities in these buildings (i.e., lighting, heating, air conditioning, or standby power supply and circuitry).

General supervisor: The person responsible for supervising and directing the work, and for ensuring the health and safety of workers. Specific responsibilities include:

- Understanding potential hazards of the work.
- Ensuring that an employee is qualified by knowledge, training, and experience; that he/she has successfully demonstrated the ability to safely complete the work; and that the employee is authorized to perform the work.
- Having a complete understanding and the ability to reach agreement with the qualified person about the work to be performed, the sequence in which it should be done, and the potential and present hazards involved-having outlined those hazards and/or limitations of tasks to the extent considered necessary to ensure the worker's health and safety.

GFCI: Ground fault circuit interrupter.

Grounded: Connected to earth or to some conducting body that serves in place of the earth. Physically and intentionally connected to the earth, through a ground connection of sufficient low impedance and with sufficient current-carrying capacity to prevent the buildup of voltages that may result in undue hazard to connected equipment or persons. (See ungrounded.)

Hazardous Energy Sources: This term applies to stored or residual energy such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure.

Joule (J): Watt second (power ¥ time); a unit of energy.

Labeled: Equipment or materials to which a label, symbol, or other identifying mark has been applied by a NRTL.

Listed: Equipment or materials included in a list published by a NRTL.

Live/Energized parts: The current edition of 29 CFR 1910 defines a "live part" as an electrically conducting part carrying more that 50 V ac or dc. A part may be designated as "not live" if the current from the part to ground through 1500 non-inductive resistance shunted by a capacitance of 0.15 m cannot exceed 0.5 mA, even though the part carries voltage equal to or greater than that specified for a live part.

Lockout/tagout procedure: General procedure for affixing appropriate locks and tags to energy-isolating devices to prevent inadvertent energizing or start-up of machines or equipment while service and maintenance is being performed. Lockout devices prevent the release of energy that could cause injury or death.

Minimum work distance or clearance: A minimum separation distance between a qualified electrical worker (or any conducting object touching the worker) and any energized component. Also, a mandatory separation distance between any energized component and vehicles or machinery. See 29 CFR 1910.303 and 1910.304.

NEC: National Electrical Code.

NEMA: National Electrical Manufacturers Association.

NFPA: National Fire Protection Association.

Nationally Recognized Testing Laboratory (NRLT): An organization that is concerned with product evaluation and maintains periodic inspection of listed equipment and materials. The NRTL ensures that the equipment or materials meet appropriate designated standards and that they have been tested and found to be suitable for use in a specified manner. (Refer to 29 CFR 1910.7, "Definition and Requirements for a Nationally Recognized Testing Laboratory.")

Nominal system voltage: A nominal value assigned to a circuit or system to conveniently designate its voltage class (e.g., 120/240 V, 480Y/277 V, 600 V). The actual voltage at which a circuit operates can vary from the nominal within a range that permits satisfactory operation of the equipment. (Refer to ANSI C84.1, "Electric Power Systems and Equipment-Voltage Ratings [60 Hz]".)

OJT: On the job training.

OSHA: Occupational Safety and Health Administration.

PPE: Personnel protective equipment.

Qualified person: A person who has been determined by his/her supervisor to have the skills, knowledge, and abilities to safely perform the work to which he/she is assigned. Qualifications may include a recognized degree, certificate, or professional standing through extensive knowledge, training, and experience; or that one has successfully demonstrated the ability to resolve problems relating to the subject matter or work to the satisfaction of his/her supervisor.

Safety watch: A person specifically assigned to stand by (within visible and audible range of workers) and continually monitor equipment and personnel for safety.

Strain relief: A mechanical device that prevents force from being transmitted to the connections or terminals of a cable.

Temporary wiring: Electrical wiring that is temporarily installed for a limited time to complete a specific task (e.g., construction of a new facility). Temporary wiring methods must apply sound engineering practices to ensure adequate electrical safety of temporary wiring installations. Temporary wiring shall conform to the requirements in Article 305 of the NEC, and the respective subparts of 29 CFR 1910 and 1926.

Ungrounded: A condition having no physical connection or continuity with earth ground. A condition of insulation or isolation. (See grounded.)

Utility power: Utility, transmission, and distribution of electrical power systems typically above 600 V ac (i.e., substations, vaults, transformers, and switch gear) prior to the final point of transformation and distribution. These electrical systems and equipment then furnish electrical power to buildings and facilities through an electric service entrance.

Voltage: Electromotive force expressed in volts.

Watt: A unit of electrical power, equal to the power developed in a circuit by a current of amp flowing through a potential difference of one volt.

Types of Electrical Hazards

The hazards associated with electricity are broken down into three types:

1. Shock
2. Arc
3. Blast

SHOCK: Shock occurs when the body becomes a part of the electric circuit. The current must enter the body at one point and leave at another. Shock normally occurs in one of three ways. The person must come in contact with: both wires of the electric circuit, one wire of the electric circuit and the ground, or a metallic part that has become "hot" by being in contact with an energized wire while the person is also in contact with the ground.

The Severity of Shock

- The severity of shock is affected by three primary factors: the amount of current flowing through the body (measured in amperes); the path of the current through the body; and the length of time the body is in the circuit.

ARC

- Responsible for 75% of all injuries.
- Up to 35,000 degrees F.
- Electric arcs can occur due to poor electrical contact or failed insulation.

BLAST

- Pictures (nomex)

- Molten metal; 3 times the temperature of the sun.

Effects of Electrical Energy on Humans

Physiological Effects

Electricity flowing through the human body can shock, cause involuntary muscle reaction, paralyze muscles, burn tissues and organs, or kill.

Burns. Although a current may not pass through vital organs or nerve centers, internal electrical burns can still occur. These burns, which are a result of heat generated by current flowing in tissues, can be either at the skin surface or in deeper layers (muscles, bones, etc.), or both. Typically, tissues damaged from this type of electrical burn heal slowly.

Burns caused by electric arcs are similar to burns from high temperature sources. The temperature of an electric arc, which is in the range of 4,000-35,000°F, can melt all known materials, vaporize metal in close proximity, and burn flesh and ignite clothing at distances up to 10 ft from the arc.

Delayed Effects. Damage to internal tissues may not be apparent immediately after contact with the current. Internal tissue swelling and edema are also possible.

Critical Path. The critical path of electricity through the body is through the chest cavity. Current flowing from one hand to the other, from a hand to the opposite foot, or from the head to either foot, will pass through the chest cavity paralyzing the respiratory or heart muscles, initiating ventricular fibrillation, and/or burning vital organs.

Biological Effects of Electrical Hazards

Influential Variables. The effects of electric current on the human body can vary depending on the following:

- Source characteristics (current, frequency, and voltage of all electric energy sources).
- Body impedance and the current's pathway through the body.
- How environmental conditions affect the body's contact resistance.
- Duration of the contact.

Source Characteristics. An alternating current (ac) with a voltage potential greater than 550 V can puncture the skin and result in immediate contact with the inner body resistance. A 110 V shock may or may not result in a dangerous current, depending on the circuit path which may include the skin resistance. A shock greater than 600 V will always result in very dangerous current levels. The most severe result of an electrical shock is death.

Conditions for a serious (potentially lethal) shock across a critical path, such as the heart, are:

- More than 30 V root mean square (rms), 42.4 V peak, or 60 V dc at a total impedance of less than 5000.
- 10 to 75 mA.
- More than 10 J.

Conditions for a potentially lethal shock across the heart are:

- More than 375 V at a total body impedance of less than 5000;
- More than 75 mA; and
- More than 50 J.

The worst possible frequency for humans is 60 Hz, which is commonly used in utility power systems. Humans are about five times more sensitive to 60 Hz alternating current than to direct current. At 60 Hz, humans six times more sensitive to alternating current than at 5000 Hz, and the sensitivity appears to decrease still further as the frequency increases. Above 100-200 kHz, sensations change from tingling to warmth, although serious burns can occur from higher radio frequency energy.

At much higher frequencies (e.g., above 1 MHz), the body again becomes sensitive to the effects of an alternating electric current, and contact with a conductor is no longer necessary; energy is transferred to the body by means of electromagnetic radiation (EMR).

Body Impedance. Three components constitute body impedance: internal body resistance, two skin resistances at the contact points with two surfaces of different voltage potential, and one hand (or single-point) body contact with electrical circuits or equipment. These will prevent a person from completing a circuit between two surfaces of different voltage potential.

Life Threatening Effects. The following are criteria for the lethal effects of electric shock:

- Currents in excess of a human's "let-go" current (>16 mA at 60 Hz) passing through the chest can produce collapse, unconsciousness, asphyxia, and even death.

- Currents (>30 mA at 60 Hz) flowing through the nerve centers that control breathing can produce respiratory inhibition, which could last long after interruption of the current.

- Cardiac arrest can be caused by a current greater than or equal to 1 A at 60 Hz flowing in the region of the heart.

- Relatively high currents (0.25-p1 A) can produce fatal damage to the central nervous system.

- Currents greater than 5 A can produce deep body and organ burns, substantially raise body temperature, and cause immediate death.

- Delayed reactions and even death can be caused by serious burns or other complications.

The most dangerous current flow via the chest cavity is through the heart when the shock occurs in the time relative to the normal heart rhythm. This current may cause ventricular fibrillation, which is defined as repeated, rapid, uncoordinated contractions of the heart ventricles. Ventricular fibrillation that alters the heart's normal rhythmic pumping action can be initiated by a current flow of 75 mA or greater for 5 s or more through the chest cavity.

Probability of Ventricular Fibrillation. To determine the current flow (in mA) necessary to cause a 0.5% probability of ventricular-fibrillation, multiply a person's weight (in lb) by 0.49. To determine the current flow (in mA) necessary to cause a 99.5% probability of ventricular fibrillation, multiply a person's weight (in lb) by 1.47.

HOIST LIFT TRUCK

ELECTRICAL SAFETY
ASSURED GROUNDING PROGRAM
2015
CHAPTER EIGHTEEN

CONTENTS:

Introduction:

The danger of injury through electrical shock is possible whenever electrical power is present. When a person's body completes a circuit and thus connects a power source with the ground, an electrical burn or injury is imminent. Most fatal injuries result from high-voltage exposure; however, people can sustain severe injuries from low voltage power if it has a high current flow.

This assured grounding and conductor program is designed to cover all flexible cord sets, receptacles and power tools which are not part of the building or structure. All HOIST employees are responsible for inspecting their equipment prior to use to be sure it is color coded for the proper quarter and in good condition. Each employee will receive training in the inspection of these devices.

Applicability:

The policies and guidance in this program apply where HOIST employees work and at the home office in Bedford Park, Illinois and East Chicago, Indiana.

Availability:

This written program shall be available to all employees at all times at the job site and may be copied as needed.

Competent Person/Qualified Person:

The competent person for this program shall be the maintenance department. They will inspect the equipment on a quarterly basis.

The qualified person is one who through experience, training and education is familiar with the construction and operation of the equipment and the hazards involved. (1926.449)

Periodic Inspections:

The competent person shall each quarter, inspect and test all cord sets, corded tools, plugs and receptacles, and other equipment as required insuring the following:

1. continuity
2. electrically continuous
3. correct attachment
4. grounding terminal intact
5. connected to correct terminal
6. no internal damage suspected

The same inspection shall occur when returning to service after repair or suspected damage such as run over by a fork truck. Color coding shall use “RED, GREEN YELLOW and ORANGE”

Daily Visual Inspection by User:

All equipment shall be inspected prior to use by the employees using the equipment and verified by the supervisor. All hand tools with electrical cords shall be inspected for breaks in the insulation, insulation pulling from the terminal point, mashed conditions or odd bends which could indicate an internal injury to the cord. All flexible cords shall be inspected prior to use for all forms of damage, cuts to the insulation, insulation pulling from the terminal points, mashed or odd bends. Deformed cords shall be tagged with "DO NOT USE TAGS" RED in color. Damaged plugs shall be removed to prevent use until the cord or tool can be repaired by a qualified person and inspected/tested by the competent person.

Failure to Comply:

No equipment shall be allowed to be used on a job site unless approved by the competent person. If the equipment has not met the r3equirements of this program, it is to be left in the shop until released.

Any employee found violating this policy shall enter into the disciplinary process at the severe level.

Ground Fault Circuit Interrupters (GFCI):

Ground fault circuit interrupters, either circuit breakers or portable ground-fault interrupting receptacles, shall be used for all 125-V, single-phase, 15-A and 20-A receptacles, for temporary wiring outdoors, and wherever employees will be using electrical equipment around water or in damp environments. Unlike fuses or standard circuit breakers, which are designed to protect equipment from overcurrent, GFCIs are designed to protect personnel from serious injury or death.

Article 305-6 of the NEC (Ground-Fault Protection for Personnel) requires GFCI protection for personnel and for temporary wiring where 125-V, single-phase, 15-A and 20-A receptacle outlets are in use and are not part of the permanent wiring for the structure.

Company policy is to provide its employees and subcontractors with at least the same level of protection from electric shock as they would have in their own homes. NEC Article 210-8 (Ground-Fault Circuit-Interrupter Protection for Personnel) specifies that GFCIs must be installed in dwellings where 125-V, single-phase, 15-A and 20-A receptacles are installed outdoors; in bathrooms, garages, and crawl spaces at or below grade; in unfinished basements; and where receptacles on countertop surfaces are within 6 ft of a sink. Thus, all the aforementioned areas within HOIST shall have receptacles with GFCI protection.

Portable Electrical Tools, Equipment, and Instruments:

Portable electrical equipment or tools shall always be inspected to identify defects; defective equipment shall be removed from service immediately. Portable electrical equipment shall be connected to a portable GFCI (or a circuit that contains a GFCI) when used outdoors, in damp locations, in any unsafe environment, or for indoor or outdoor construction. Ordinarily, the

casings for portable electrical equipment are grounded. If it is necessary to operate this type of equipment with other than grounded equipment casing, suitable barriers, guards, or shields shall be installed to protect personnel while working on or near the equipment. In addition, a safety procedure shall be written describing the controls for safe operation of the equipment.

Receptacles and flexible cords can be used to connect electrical appliances and equipment (e.g., fans, machine tools, pumps) to power sources.

HOIST LIFT TRUCK

Process Safety Management Program

2015
CHAPTER NINETEEN

Contents

Introduction

The Occupational Safety and Health Administration (OSHA) issued a standard addressing the risks involved with storing, handling and processing highly hazardous materials. The standard is comprised of two sections: 1) Process Safety Management of Highly Hazardous Chemicals; and 2) Explosives and Blasting Agents. This document will not address the second section of the PSM standard.

The purpose of process safety management (PSM) of highly hazardous chemicals (HHC) is to prevent the unintended and unwanted releases of HHC into the environment, especially into locations that could expose employees and others to serious hazards. PSM is the proactive identification, evaluation and mitigation or prevention of chemical releases that could occur as a result of failures in process, procedures or equipment. An effective PSM Program requires a systematic approach to evaluating the whole process, including:

- Design, technology, and mechanical integrity status of the process(s);
- Operational and maintenance activities and procedures;
- Emergency preparedness plans, procedures, and various lines of defense to prevent or mitigate a HHC release;
- Communication, education and training of all workers about the fourteen elements of the PSM standard; and
- Other elements which impact the process.

The scope of this PSM Program applies only to the process operations and its associated workers at the work sites where HOIST may be performing work. It is intended to be an overview of the way work should be done and will be impacted by the host employer.

Regulatory Summary

The PSM standard is published in United States Code of Federal Regulation Title 29 Part 1910.119 (29CFR1910.119), and requires businesses to analyze potential hazards in each step of their chemical processes and take any necessary action to avoid and prevent chemical releases or explosions. A hazard analysis for each chemical process must be completed within a five year period, with at least 25 percent of the initial analysis to be done by May 1994; 50 percent by May 1995; 75 percent by May 1996; and completion by May 1997.

Definitions

OSHA has established and published the definitions in 29 CFR 1910.199 (a)(1), and some of the major definitions are presented below.

Catastrophic release – a major uncontrolled emission, fire, or explosion, involving one or more HHCs, that present serious danger to employees in the workplace.

Facility – buildings, containers or equipment which contain a process.

Highly hazardous chemical – a substance possessing toxic, reactive, flammable, or explosive properties at or above specified threshold quantities. Table 1 in Appendix A presents the list of 130 HHCs

showing the chemical name, Chemical Abstract System (CAS) number, and threshold planning quantity (TQ).

Hot work – work involving electric or gas welding, cutting, brazing or similar flame or spark-producing operations.

Process – any activity involving a highly hazardous chemical, including any use, storage, manufacturing, handling, or the on-site movement of such chemicals, or a combination of these activities. For purposes of this definition, any group of vessels that are interconnected and separate vessels which are located such that a HHC could be involved in a potential release shall be considered a single process.

Replacement in kind – a replacement which satisfies the design specification.

Process Safety Management Policy

HOIST and its employees are committed to in a safe and responsible manner to protect the community, workforce, and environment. This goal will be accomplished by promoting good process operation technology and related structures, follow established standard operating procedures, utilizing trained employees, and providing leadership at all levels of the organization. To accomplish this, we will integrate the items below into our business practices and procedures:

- We will promote participation and commitment at all levels of the organization for continuous safety improvement.
- We will perform safety reviews, audit safety performance, **investigate incidents, and implement corrective action in a timely manner in order to reduce risks associated with the operation of our facility.**
- We will design, construct, operate, and maintain our facility according to sound engineering practices and applicable government regulations.
- **We will provide training for employees to achieve and maintain the skill level and knowledge to safely perform their jobs according to our Health, Safety, and Environmental Policy.**
- **We will have programs in place, including drug and alcohol testing that require employees are fit for duty.**

Employee Participation

OSHA believes that PSM will have a positive effect on the safety of employees in workplaces, and may provide alternate avenues of decreasing the risks associated with HHC at their workplaces.

HOIST will develop a written plan of action regarding the implementation of the employee participation required by the PSM standard found in 29 CFR 1910.119 (c).

Guidelines

A. HOIST Safety Department is responsible for assuring that means and methods, which will be established to keep employees and their representatives, informed as to:

- Activities involved to develop and implement the PSM program;
- Tasks required for performing process hazard assessments (PHAs);
- Communication of the PSM findings and incident investigations; and
- Training and retraining PSM activities to affected employees, contractors and vendors.

B. HOIST will provide to employees and their representatives access to all PSM information required to be developed under the PSM standard.

C. Safety committees will be used as a means and method to communicate with employees and their representatives about developing, implementing and maintaining an effective PSM program, plus communicate relevant safety and health issues.

Process Safety Information

Complete and accurate process safety information is essential to an effective PSM program, and to performing a process hazards analysis.

Guidelines

A. HOIST safety is responsible for assuring that a complete compilation of written process safety information, per 29 CFR 1910.19(d), is accomplished.

B. HOIST will compile the chemical hazard information from the MSDS sheets as follows: chemical composition; toxicity; permissible exposure limits; physical and reactivity data; corrosivity; thermal and chemical stability data; and hazard results of wrongfully mixing incompatible materials**. This information must be supplied by host employer.**

C. HOIST will compile the process technology information from process manufacturers' simplified process flow diagrams, process and instrumentation drawings, and process chemistry descriptions. If applicable, supplemental recorded information will be obtained including the following: intended inventory of stored materials; safe upper and lower limits of temperature, pressures, flowrates, and composition, plus the consequences of said limit deviations on the health and safety of facility employees.

D. HOIST will compile the process equipment information including:

- Design codes and construction standards;
- Process and instrumentation drawings (P&IDs);
- Electrical classification;

- Potential failure points or modes of a process;
- Relief system design and design basis;
- Ventilation system design; and
- Safety systems (e.g. interlocks, detection and/or suppression systems).

E. HOIST will develop operation data sheets for distinct major pieces of process equipment, if the clarity in PSM data is found to be questionable.

F. The compiled information will be a necessary resource to a variety of users including the:

1) Team performing the PHAs, as required under 29 CFR 1910.119 (e);
2) Personnel developing the training programs;
3) Personnel conducting the pre-startup reviews;
4) Local emergency preparedness planners;
5) Insurance companies; and
6) Governmental enforcement officials.

G. All HOIST employees and contract workers must respect the confidentiality of trade secret information when process safety information is released to them.

Documentation

Written PSM documentation will be secured and filed for:

- Identification system for all critical equipment and components associated with each PSM area;
- Chemical hazard information applicable to each unit;
- Process technology information applicable to each unit; and
- Process equipment data for each unit showing compliance with recognized and generally accepted good engineering practices (GEP); and
- Process equipment no longer in general use is designed, maintained, inspected, tested and operating in a safe manner.

Process Hazard Analysis (PHA)

The PHA is one of the most important elements of the PSM Program, and provides an organized and systematic method to identify and analyze the significance of potential hazards associated with the processing or handling of HHCs. PHAs are directed toward analyzing potential causes and consequences of fires, explosions, releases of toxic or flammable chemicals and major spills of hazardous chemicals. Each PHA will focus on equipment, instrumentation, utilities, human actions (routine and non-routine), and external factors that may impact the process.

Guidelines

A. Supervisors are responsible for assuring that initial process hazard analysis was performed on identified processes covered by the PSM standard.

B. Supervisors, along with on site representatives responsible for establishing a priority order for conducting PHA derived from: previous incidents with catastrophic potential; engineering and administrative controls applicable to the hazards; a qualitative evaluation of possible safety and health effects on employees, if failure of controls would occur; facility siting; and human factors**. Must be supplied by host employer.**

C. Each PHA to address the:

- Hazards of the process;
- Identification of any previous incidents which had a likely potential for catastrophic consequences in the work place;
- Engineering and administrative controls applicable to the hazards and their interrelationship (i.e. appropriated application of detection methods to provide early warning of releases, etc.)
- Consequences of failure of engineering and administrative controls;
- Facility siting;
- Human factors; and
- Qualitative evaluation of a range of the possible safety and health effects of failure of controls on employees in the workplace.

D. PHAs will be conducted by facility employees and vendors of the equipment employing a team of people with expertise in engineering, design, process operations, risk management, and safety. The reason for this team approach is some hazard evaluation methods require a team to perform the PHA.

E. HOISTwill rely on utilizing the What-If and/or General Checklist methods to determine and evaluate the hazards posed. The PHA Team may also employ other PHA methods, such as: Hazard and Operability Study (HAZOP); Failure Mode and Effects Analysis (FMEA); and Fault Tree Analysis.

F. HOIST will employ the PHA information in making decisions for improving safety and reducing the consequences of unwanted or unplanned releases of hazardous chemicals in the course of their work.

G. A tracking system to promptly address and document the:

- PSM Team's findings and recommendations;
- Assure recommendations are resolved in a timely manner;
- What actions are/were taken;
- Develop a written schedule to complete actions as soon as possible; and
- Communicate actions to operating, maintenance, auxiliary employees, and contractors whose work assignments are in the process area, and may be affected by the recommendations.

Operating Procedures and Practices

Operating procedures and practices are important for training operating personnel, and are referred to as standard operating procedures (SOPs) for process and maintenance operations. Personnel and operating staff need to have a full understanding of SOPs, and know when there is a change in them.

Guidelines

A. Supervisors are responsible for verifying that proper SOPs are developed and utilized in each PSM area, and annually certify the accuracy of SOPs employed in and around PSM areas.

B. Each Supervisor will review and evaluate the SOPs for completeness in addressing at least those elements presented below, where applicable.

1. Steps for Each Operating Phase
   A proper activity sequence will be denoted where necessary for:

   - Initial startup;
   - Normal operations;
   - Temporary operation;
   - Emergency shutdown;
   - Normal shutdown; and
   - Startup following maintenance or after an emergency shutdown.

2. Operating Limits will be established to document the

   - Consequence of deviation; and
   - Steps required in order to correct and/or avoid a deviation.

3. Safety and Health Considerations

   - Properties of, and hazards presented by, the highly hazardous chemicals listed in Table 1;
   - Precautions necessary to prevent exposure, including administrative and engineering controls, and personal protective equipment;
   - Control measures to be taken if physical contact or airborne exposure occurs;
   - Quality control for raw materials and control of hazardous chemical inventory levels; and
   - Any special and/or unique hazards.

4. Safety Systems and Functions

C. Review deficiencies will be corrected in a timely manner by host employer.

D. Requirements for new operating procedures will be identified and new procedures developed in a timely manner according to criteria listed in the PSM standard.

E. SOPs shall be documented in an organized manner and be readily accessible to employees who work in the PSM areas, maintain the equipment.

F. Operating procedures shall be reviewed as often as necessary (annually at a minimum) to ensure that they reflect current operating practice, including changes resulting from adjustments in process chemicals, operation technology, equipment modifications or upgrades, and building/structure additions or modifications.

G. HOIST will develop and implement, at least the following safe work practices:

- Accident/Incident Investigation Program;
- Compressed Gas Safety Program;
- Confined Space Entry Program;
- Crane and Hoisting Equipment Program (Chains, Hooks and Slings);
- Electrical Safety Program (including High Voltage);
- Emergency Action Plan;
- Fire Prevention and Control Program (including Fire Extinguisher Use and Inspection);
- First Aid and Medical Emergencies Program (including Heat/Cold Stress and Poisoning);
- Hot Work Program; and
- Lockout Tagout Program.

Training

All employees involved with HHCs, including maintenance and outside contractors, need to fully comprehend the safety and health hazards of the chemicals and processes they work with and around. By knowing these hazards, they are better able to protect themselves, their fellow employees and the general public immediately surrounding the plant.

Guidelines

A. HOIST safety is responsible for ensuring that PSM training requirements, per 29 CFR 1910.119 (g), are being met.

B. HOIST safety is responsible for review of training activities to ascertain if PSM objectives are being met, and for providing support as needed to establish compliance with PSM requirements.

C. Initial PSM refresher training will be administered by the Safety Consulting Company, and include verbal, written tests or "one-on-one discussions appropriate to determine their understanding of the process and related items, as listed below.

- An overview of the process involved with or affected by the PSM system(s), including the technological basis for the process and the effects of deviation from normal operating conditions.
- The SOPs associated with the affected system(s).
- Training on items specific to equipment, or equipment types, making up the PSM system(s) will including, but not be limited to:
  Proper startup and shutdown methods;
  Methods for control during both normal and deviation from normal conditions;
  Surveillance techniques used to monitor the equipment for possible impairment or loss of control;
  Special or unusual features associated with a particular piece of equipment; and
  Safety and/or health hazards associated with the system and personal protection procedures.

D. HOIST safety will determine if specific personnel must be certified "as competent" before operating a particular piece of equipment, auxiliary operation, or PSM system, before assuming direct "stand alone" responsibility.

E. HOIST safety will identify areas where refresher training could enhance safety and improve personnel performance. This refresher assessment will be based on general operations, process and equipment changes, accident/incident reports, and selected observations/tests of the employee's knowledge of SOPs. Based on this evaluation, HOIST safety will determine if refresher training every three years is satisfactory or if earlier training at eighteen (18) months is necessary.

F. The PSM refresher training will be administered by a Safety Consulting Company, and address identified areas for improvement. Refresher training will include verbal, written tests or "one-on-one discussions appropriate to determine their understanding of the process and related items.

Contractors

Contractors performing work in and around PSM areas need to be screened and records maintained so that industry will screen and hire only approved contractors to accomplish the desired job tasks without compromising the safety and health of employees.

Guidelines

A. HOIST safety is responsible for ensuring that the Contractor PSM Program requirements are being achieved, per 29CFR 1910.119 (h).

B. HOIST safety is responsible for compiling and updating the following contractor data:

- Information relating to contract employers' safety performance and programs;
- Methods of informing contract employers of known potential hazards;
- Safe work practices to control the entrance, presence and exit of contract employers and contract employees in covered process areas;
- Evaluation of contractor performance in fulfilling responsibilities required by the PSM; and
- Contract employee injury and illness logs related to work in process areas
- List of unique hazards presented by contractors' work or hazards found in the workplace that have been reported to the employer

C. The PSM Contractor (and/or its onsite representative) is responsible for the following activities:

- Records showing employees receiving training in and understanding safe work practices related to the process on or near which they will be working to perform their jobs safely;
- Known potential fire, explosion or toxic release hazards related to job, and applicable provisions of EAP; and
- List of unique hazards presented by contractors' work or hazards found in the workplace that was reported to the employer.

Pre-Startup Safety Review

A Pre-Startup Safety Review will be performed on new facilities and modified facilities when the:

- Modification is significant enough to require a change in the process safety information; and
- Prior to the introduction of HHCs into a PSM area.

HOIST will develop, implement and maintain a Pre-Startup Safety Review.

Guidelines

A. HOIST safety is responsible for assuring that a Pre-Startup Safety Review Program is functional.

B. New processes will be evaluated using a Pre-Startup Safety Review Verification.

C. HOIST safety or on site supervisor will assure that any changes, other than "replacement-in-kind" made to a PSM process, go through the PSM management of change. If changes made to the process are significant, and impact the training program, operating personnel (as well as employees engaged in routine and non-routine work in the process area), may need some refresher or additional training. Any incident investigation, compliance audits or PHA recommendations need to be reviewed to see what impacts they pose on the process before startup.

Documentation

Written PSM documentation will be secured and filed for:

- Copy of the Pre-Startup Safety Review Program;
- Training records; and
- Surveillance information, including the Pre-Startup Safety Review Verification form.

Guidelines

A. Supervisors are responsible for assuring that a Hot Work Program, for those PSM areas achieve compliance with 29 CFR 1910.119 (k)

B. HOIST safety or on site supervisor is responsible for issuing and maintaining the hot work permit documentation that achieves the fire prevention and protection requirements in 29 CFR 1910.252(a).

C. Training will be administered by The Safety director or designated person, and include verbal, written tests or "one-on-one discussions appropriate to determine their understanding of the process and related items, as listed below.

D. Personnel, that are to perform cutting and/or welding, will notify their supervisor of their intent, complete the necessary Hot Work Permit documentation, and submit documentation to appropriate authority.

E. After receiving the signed Hot Work Permit, personnel will follow established cutting and welding procedures.

Documentation

Written PSM documentation will be secured and filed for:

- Copy of the Hot Work Program;
- Training records; and
- Surveillance information.

Management of Change

Employers are to manage all changes through a structured systematic approach to ascertain and appropriately mitigate the effects of those changes on the containment capability of process systems/equipment containing highly hazardous chemicals (HHCs).

Guidelines

A. Prior to implementing any change, detailed information must be provided to facility management for review. The Work Order form can be used to initiate the change and provide initial information. The Facility Superintendent and Maintenance Supervisor will categorize the change into one of three classes for review, procedural, and documentation purposes as follows:

- Minor changes – These activities may be handled with the assistance of the Simplified Management of Change Form (See Form 11 in Appendix A) and documented by means of said form. Such changes would generally be those primarily affecting/involving a single piece of process equipment, process parameter, operating procedure, etc. The name of the change, reason for change, relevant factors considered, affected parties, procedures, equipment, conclusions, recommendations, and approvals will be noted;

- Comprehensive but not complex changes – These activities will be addressed by means of the "What If" analysis method. Changes representative of this classification would include those physically involving multiple pieces of equipment or piping, but not materially changing design or operating limits. Results are to be documented by the Simplified Management of Change form backed up with the "What If" Checklist. Further clarifying data should be used and included, as appropriate, for PSM documentation; and

- Complex changes and/or modifications – These activities will require that a formal comprehensive Process Hazards Analysis to be performed. Changes representative of this classification include those involving multiple pieces of equipment of systems and/or which affect design or operating limits. Documentation will consist of a memorandum (memo), with attached PHA documentation, to the Management of Change file. The memo should state: the originators' name; date; any involved and/or affected parties, a description of the change(s); the basis for the change(s); highlight any unusual features identified during the review; summarize any unusual PHA recommendations implemented or resolved; and approval for implementation of the change.

Incident Investigation

The intent of an incident investigation is for employers to learn from past experiences, through establishing an effective means of determining the preventability of incidents, and thereby avoid or reduce the number, severity of past mistakes.

HOIST will develop, implement and maintain an Incident Investigation Program.

Guidelines

A. HOIST safety is responsible for ensuring that the Incident Investigation Program, for those PSM operations located at all work sites is followed.

B. Supervisors are responsible for implementing the incident investigation activities, after notification of an incident. Must begin within 48 hours of incident, usually immediately and the records of resolution must be documented and retained for a period of no less than 5 years.

C. HOIST safety is responsible for administering the incident investigation tracking system to provide the required documentation to verify that appropriate activities were undertaken to investigate, address and correct identified incidents. The tracking system will include periodic status reports (shared with affected levels of management); completed specific reports (such as an engineering or safety studies); and a final report to provide closure for the incident investigation findings.

Documentation

Written PSM documentation will be secured and filed for:

- Copy of Incident Investigation Program;
- Incident investigation tracking system data;
- Incident investigation reports for lost time incidents will be retained for five (5) years, and near miss reports for two (2) years.

Emergency Preparedness

Each employer must address those actions employees are to take when there is an unwanted release of highly hazardous chemicals (HHCs).

Some examples of emergency preparedness are:

A. Potential fire or explosion
B. Toxic releases of hazardous materials, either known or unknown
C. Other hazards that are or could be related to the employee's job and the process and the applicable provisions of the emergency action plan created with the job scope.

   The contract employer shall assure that each contract employee, including HOIST employees, are instructed to know these hazards and/or dangers.

HOIST has developed, and will maintain an Emergency Action Plan (EAP).

Guidelines

A. HOIST safetyis responsible for assuring that an EAP is implemented.

B. Safety Consultant will review the EAP at least annually, and update (as appropriate)

C. Safety Consultant will administer personnel training concerning the EAP.

Documentation

Written PSM documentation will be secured and filed for:

- A copy of the EAP will be maintained at their respective facility;
- Annual review records;
- Training records; and
- Surveillance information of responder inspections and training drills.

Pre-Startup Safety Review Verification
HOIST

Process Equipment Information

Department Name: _____
Location: _____
Process Name: _____

New Process ☐ Modified Existing Process ☐

Scope of Work

Verification Sign-off

Requirement	Signature	Date
1. All process safety data has been compiled and is complete, current, and accurate. Employees have access to the data.		
2. The process hazard analysis is complete for all new process operations, and the management of change has been completed for all modified processes. The specific requirements of these elements have been completed satisfactorily.		
3. All safety procedures have been developed, or modified, and are implemented.		
4. All operating procedures have been developed, or modified, and are implemented.		
5. All maintenance procedures have been developed, or modified, and are implemented.		
6. All emergency procedures have been developed, or modified, and are implemented.		
7. Construction and equipment is in accordance with the design specifications.		
8. Employee training has been completed for everyone involved in operating the process.		
9. Employee training has been completed for everyone involved in maintaining the equipment of the process.		
10. Employee training has been completed for everyone required to respond to emergencies involved with the process.		

Comments:

MANAGEMENT OF CHANGE

Simplified Documentation Form

I. Facility Name: _____ Date: ___/___/___

II. Department: _____ Change No. __-_____

III. Originator: _____

Description/ Reason for Change

A. Change is to: Procedures _____ Chemicals _____

Equipment _____ Controls _____

Process Parameter _____ Other _____

B. Briefly describe the process change and the reason for said change. Attach a copy of the Work Order, drawings, and other information as required for producing clarity.

_____

_____

_____

_____

_____

_____

IV. Is this a permanent process change? Yes ____ No ____

If yes, identify the date and time the change is to begin Date:___/___/___ Time: ___:___

In no, identify the time period change is to go into effect.

Start _____ End _____

HOIST LIFT TRUCK

LADDER AND SCAFFOLD USERS SAFETY PROGRAM

2015
CHAPTER TWENTY

Contents:

LADDER AND SCAFFOLD SAFETY PROGRAM

SCOPE

This program is comprised of safe practices for work using ladders and scaffolds**. All employees are expected to follow these guidelines on all work sites.**

This plan applies to all employees and sets specific requirements for the use of ladders in the workplace and the design and use of scaffolds on job sites.

COMPANY POLICY

All employees have the responsibility to work safely on all job sites. The purpose of programs, such as the Ladder and Scaffold Safety Program, is to ensure that every employee recognizes the hazards associated with ladders and scaffolds and takes appropriate measures to prevent injury.

SUPERVISOR RESPONSIBILITIES

All Supervisors have the responsibility to enforce and follow all safety policies and procedures including the following Ladder and Scaffold Safety Program. Supervisors will be responsible for ensuring that employees are informed of the provisions of this program.

EMPLOYEE RESPONSIBILITIES

Employees are required to adhere to the provisions of this Ladder and Scaffold Safety Program and all other safety policies and procedures.

INTRODUCTION

The following factors must be considered in your fall protection efforts. One or more are involved in almost every occupational injury triggered by a slip, trip, stumble, or a misstep leading to a fall:

- Working and Walking Surfaces
- Employee Footwear
- Individual Behavior

WORKING AND WALKING SURFACES

The fall potential found on working and walking surfaces are generally slipping or tripping hazards. Analysis reveals that falls resulting from tripping do not occur as often as those caused by slipping.

- Falls from tripping are mainly caused by obstacles or holes in working and walking surfaces.

- Falls resulting from slipping can usually be traced to the inherent slipperiness of the surface itself or to substances such as water, debris, scrap, oil, or grease.

- The general condition of working and walking surfaces, ramps, and stairs all have direct and major influence upon the degree of hazard that exists.

EMPLOYEE FOOTWEAR:

- Consider the coefficient of friction between shoe sole and floor.

- The presence of a foreign substance on shoe sole or heel.

- The type and condition of footwear - high or rundown heels, worn out or slippery shoes, overall condition, need for special footwear.

INDIVIDUAL BEHAVIOR:

- An individual's behavior, habits, physical characteristics, and attributes are important factors in the prevention of falls.

- Make it a habit to look before you step; to watch where you're walking.

- Never hurry and sacrifice balance and stability.

- Keep your eyes open for anything that might cause a stumble, slip, trip; such as:

    - Slippery spots due to grease, oil, water or wax;
    - Something protruding into an aisle;
    - Poor lighting; and
    - Anything that might snag or unbalance someone.

GENERAL CONDITIONS TO CONSIDER:

- Determine the type of area you are in such as: aisles, storage areas, or public areas; and

- Consider all requirements:

    - Traffic: heavy, light, pedestrian, or vehicular.

    - Foreign substances: water, chemicals, or oils that might be present on floors.

- Maintenance: whether this is a major or minor problem depends upon your operations, materials, and other personnel habits.

- Consider slip - resistant surfaces: no material is absolutely skid proof.

- Survey all surfaces prior to walking, working, or driving on them. Test surfaces to ensure they will support the weight you are going to exert on them.

- **SAFETY PRECAUTIONS FOR USE OF PORTABLE LADDERS**

- Straight ladders shall be so positioned so that the distance from the base of the ladder to the wall against which the ladder is placed is 1/4 of the length of the ladder used. (See Figure 1.)

- Extension ladders must be tied off at the top to prevent tipping. Ladders must be held or tied-off at the bottom while being tied-off at the top.

- Whenever a man is working from a ladder, the ladder must be tied-off at the top or held at the bottom.

- Extension ladders must not be taken apart in order to use the two sections separately. Do not splice ladders together.

- Ladders must not be used as skids, braces, scaffold members, or for any other purpose than that for which they are intended.

- In the event it is necessary to place a ladder over a doorway or wall opening, the door must be secured or the opening roped off and danger signs placed to warn persons of the ladder's presence.

- Before ascending a ladder, place danger signs, "Man Working Above", in such positions to afford good protection for person on the ladder and personnel walking through area.

- It is bad practice to carry an object that would interfere with the free use of the hands. In addition, there is the danger of falling objects injuring persons below. Carrying tools in pockets is poor practice; when practical, hand lines, tool belts, or other satisfactory carrying devices should be used.

- Changing the position of the ladder will be performed to prevent overreaching in any direction while working from a ladder.

- Always face the ladder while climbing up or down.

- Ladders should never be tested for strength. Testing would put a severe strain on the side rails and may cause ladder failure when in use.

- Damaged ladders should be removed from service immediately and repaired or destroyed. Ladders should be returned to a specified storage area after each use.

- Ladders constructed of non-conductive material must be used by electricians or others working on or near electric wires or other energized equipment.

- An inspection should be made once every month to ensure that ladders are in good condition, tie-off devices are present, and shoes are attached. (See Appendix A - Monthly Ladder Inspection Form.)

- Check condition of shoes and ladder rungs for grease, oil, or slippery materials before ascending or descending ladders.

- Fall arrest equipment is not required when climbing ladders or accessing a work platform, unless it has an unbroken length of 20 feet or more.

- Ensure a metal spreader or a locking device of sufficient size and strength to hold and lock the sections of a stepladder.

- Only one employee on ladders at a time.

- Do not step on the top step of a stepladder.

- When using two-section extension ladders, the minimum overlap of each section should be as follows:

  - Up to 36 feet in length: 3 Feet
  - 36’ to 48 feet in length: 4 Feet
  - 48’ to 60 feet in length: 5 Feet

- When using ladders to gain access to roofs, ensure the top of the ladder extends at least 36 inches above the upper landing surface.

- Top of step ladder not to be used for step.

- Ladder to extend 3 feet above point of support.

- CFR 1910.25 PORTABLE WOOD LADDERS

  - Wood parts to be free of sharp edges and splinters.
  - Step ladder maximum length is 20 feet.
  - Uniform step spacing is 12 inches.
  - Wooden ladders must never be painted.

- CFR 1910.26 PORTABLE METAL LADDERS

  - No structural defects, sharp edges, or burrs.

- Rungs 12 inches on center.
- Non-skid steps and rungs.
- Maximum length single section - 30 feet, two sections 48 feet, over two sections maximum 60 feet.
- Metal step ladder maximum length 20 feet.
- Bottoms of all four side rails, non-skid material.
- No oil or grease on ladder.
- Do not use metal ladders near electric circuits.

- CFR 1910.27 FIXED LADDERS

- Maximum distance between rungs - 12 inches.
- Minimum rung or cleat length - 16 inches.
- Rungs free of splinters, sharp edges, and burrs.
- All welding on ladders must be done properly.
- Ladder must be painted or treated.
- Clearance in back of ladder - 7 inches for exception, see Figure D-3.
- Maximum step across distance - 12 inches. Minimum step across distance - 2 ½".
- Cages to extend 42 inches above landing.
- Landing platforms (except on chimneys) every 30 feet with cage. Every 20 feet without cage.
- Maximum step over distance - 12 inches without platform. Minimum step over distance - 2 ½ inches.

SAFETY PRECAUTIONS FOR USE OF SCAFFOLDS

- Definition: Scaffolds are temporary elevated platform structures which must be provided for all work that cannot be accomplished safely from permanent construction, ladders, or mechanical personnel lifts.

- **The erection and dismantling of scaffolds should be performed under the direction of or by a qualified person experienced or trained in scaffolding work and knowledgeable about the hazards involved. (See Appendix B - Scaffold Checklist.) All scaffolds will be tagged with the following code:**

  Green…safe to climb and work from
  Yellow…under construction, do not climb or use fall protection
  Red….unsafe, do not climb

- Personnel shall not work off scaffolding during storms or high winds, or on scaffolds which are covered with snow or ice; unless all snow or ice is removed and the planking sanded to prevent slipping. Any slippery conditions on scaffolds shall be eliminated as soon as possible.

- **All scaffolds must be approved by the Supervisor in charge of the job. It is the competent person's responsibility to approve the scaffold for work after erection and daily thereafter. Shall follow tagging procedure.**

- All scaffolds, working platforms, and walkways shall be at least two planks. All work platforms must be fully planked. When sawhorses are used for a work platform, the planking shall extend a minimum of 6-inches, but not more than 18-inches over end support members (bearers) of the sawhorses, and must be secured (e.g., as wire or nails) to prevent tipping.

- **Scaffold training to be completed by Safety Consultant using National Scaffold Program which addresses all standard hazards. Re-training is on an as needed basis based on competency and scaffold erection inspection and use.**

- "Danger - Men Working Overhead," signs or equivalent must be appropriately placed where persons or vehicular traffic are required to work or pass under scaffolds.

- Overhead protection must be provided for persons on a scaffold exposed to overhead hazards.

- Any defect found must be tagged and the "Competent Person" notified immediately

GENERAL SCAFFOLD REQUIREMENTS

- **Prior to use, a safety briefing is required to review all potential hazards such as falls, tripping, use of PPE, electrical hazards, load capacity (4:1), overhead hazards.**

- Inspect the scaffolds before each use. Check for handrails, midrails, toeboards, and decking in place, locked wheels on mobile scaffolds, and that every joint has a locking pin in place.

- Handrails, midrails, and toeboards are required on all scaffolding.

- If any scaffold platform is not equipped with handrails, midrails, toeboards, or a complete deck, safety harnesses must be worn and proper anchor points established.

- Do not change or remove scaffold members unless authorized

- **All employees designated to use or work on a scaffold must receive the appropriate training which must be documented and maintained by HOIST safety.**

- No one is allowed to ride on a rolling scaffold when it is being moved. Remove and/or secure all tools and material on the deck before it is moved.

- Do not climb on or work from a scaffold handrail, midrail, or brace member. Use a ladder to get on the scaffold, unless the braces are specifically designed for use as ladders.

- Erect all scaffolds so they are level and plumb and on firm base.

- When the height is more than three (3) times the base diameter, scaffolds must be either tied-off or stabilized with outriggers:

    - Scaffolds must be tied-off vertically every fifteen (15) feet.
    - Scaffolds must be tied-off horizontally every thirty (30) feet.

- All scaffold platforms must be equipped on all four sides with:

    - Standard 42-inches high handrails rigidly secured (not wired).
    - Standard midrails.
    - Completely decked with manufactured scaffolding decking or safety planking. Rigidly secure toe board (4" high)

- Materials being hoisted onto a scaffold shall have a tag line.

- Overhead protection is required if overhead hazards exists.

- No employees shall be on scaffolds during high winds, ice, and snow. Tools and debris shall not accumulate on scaffolds.

GENERAL SCAFFOLD DESIGN REQUIREMENTS

- The footing or anchorage under all scaffolds must be sound, rigid, and capable of supporting the scaffold and maximum anticipated load without settling or displacement.

- Scaffolds should be erected as near as possible to permanent structures and should be secured to the structure at least every 30-feet horizontally and 15-feet vertically.

- Scaffold decking should not be placed on or in close proximity to hot surfaces which could pose a hazard of igniting the lumber.

- Scaffolds and their components shall be capable of supporting at least four times the maximum intended load. (Wire or fiber rope shall be capable of supporting six times the intended load.)

- Nails used on scaffolding must be driven full length. No form nails may be used on scaffold boards because of tripping hazards.

- Guardrails and Toeboards – Open sides and ends of work levels 10'-0" or more above grade shall be guarded by top rails, midrails, and toeboards (4 inches); with the top rail not less than 36-inches or more than 42-inches above the work platform.

- A screen made of 1/2-inch standard wire No. 18 gauge or the equivalent must be installed between the toeboard and midrail if persons are required to work or pass under the scaffold.

- Access and Egress - A safe means of egress, such as a fixed ladder, stair, or walkway, must be provided to all scaffold platforms. Portable ladders are acceptable if secured to the scaffold.

- All ladders should extend 3-feet minimum above the platform deck or 12-inches above the top rail to provide a handhold during climbing onto the scaffold.

- Intermediate rest platforms should be provided for climbing to levels where the change in elevation is 30-feet or more. Rest and intermediate platforms should be fully decked and equipped with railings and toeboards.

- Fall protection must be used when ascending external scaffold ladders to unbroken heights of 20-feet or more.

- **No modification may be made that is not approved by the manufacturer or the competent person.**

- If the scaffold is to be used to provide a work platform for performing hot work or fresh air jobs, an alternate means of egress should be considered.

- Only treated protected fiber rope shall be used near corrosive chemicals.

SCAFFOLD DECKING REQUIREMENTS

- Load carrying lumber must be scaffold grade as recognized by lumber industry standards. All lumber must be inspected before and during use and defective or damaged pieces replaced.

- The ends of scaffold planks or decking must extend a minimum of 6-inches, but not more than 18-inches over end support members (bearers). The planks or decking must be secured at the ends with cleats to prevent plank movement or slippage.

- Where planking is lapped, each plank shall lap its end supports at least 12-inches. The lapped joint shall be secured, i.e., No. 9 wire or nails.

- Where workers pass underneath, platform planks or decking shall be laid with their edges close together so the platform and decking will be tight with no spaces through which tools or fragments of material can fall.

- If aluminum or steel scaffold decking is used, it must be properly secured and meet the load rating requirements.

- The permissible span for 2”x9” or wider planks range from 6’ to 10’, depending on material. See the Table in 1910.28(a) (9) for specifies.

TUBULAR SCAFFOLDING

- All staging pieces shall be 2-inches nominal O.D. tube steel pipe or material of equal strength.

- All staging pieces should extend at least 1/2-inch through couplings to avoid crimping the ends of the pipe.

- All scaffolds must be braced. Diagonals should be installed at approximately 45 degree angles from the bottom of vertical posts to near the top of the cross members of the scaffold. Braces should be clamped to any intermediate posts.

- All scaffold poles or legs must be plumb.

- Do not allow poles, legs, etc. to obstruct or extend into existing stairways or ladders causing a tripping hazard.

- All runner lengths must be interlocked and connected at posts.

- Spacing of runners for different levels should be maintained at not more than 6feet 6 inch centers.

- Cross-bracing should be installed at least on every third set of posts horizontally and every fourth post vertically.

TUBULAR WELDED FRAME SCAFFOLDS

- Scaffolds shall be properly braced by cross bracing or diagonal braces, or both for securing vertical members together laterally, and the cross braces shall be of such length as will automatically square and align vertical members, so that the erected scaffolds are always plumb, square, and rigid. All brace connections shall be made secure. (See Figure 2.)

- Scaffold legs shall be set on adjustable bases or plain bases placed on mud sills or other foundations adequate to support the maximum intended load.

- The frames shall be placed one on top of the other with coupling or stacking pins to provide proper vertical alignment of the legs.

- Where uplift may occur, panels shall be locked together vertically by pins or other equivalent suitable means.

- Guardrails not less than 2x4-inches or equivalent and not less than 36-inches or more than 42-inches high with a midrail when required of 1x4-inch lumber of equivalent and toeboards, shall be installed at all open sides on all scaffolds more than 10-feet above the ground floor. Toeboards shall be a minimum of 4-inches in height.

- All tubular metal scaffolds shall be constructed and erected to support four times the maximum intended loads.

- To prevent movement, tubular metal scaffolds shall be secured as per Paragraph 2.2.

- Tubular frame scaffolds over 125-feet shall be designed by a registered professional engineer.

- Frames and accessories shall be maintained in good repair and free from all defects. Unsafe conditions shall be immediately corrected before further use of the scaffold.

- Manually propelled mobile scaffolds should be used only on a relatively level surface. Wheels must be locked while employees are on the scaffold. No one is permitted on a mobile scaffold while it is being moved. All tools or materials must be secured prior to moving the scaffold.

The following are specialized types of scaffolds which are not addressed specifically in this program and have special requirements:

1910.28	(e)	Outrigger scaffolds
	(f)	Masons' adjustable, multiple-point suspension scaffolds
	(g)	Two-point suspensions scaffolds (swinging scaffolds)
	(h)	Stone Setters' adjustable, multiple-point suspension scaffolds
	(i)	Single-point, adjustable suspension scaffolds
	(j)	Boatswain's chairs
	(l)	Bricklayers square scaffolds
	(m)	Horse scaffold
	(n)	Needle beam scaffolds
	(o)	Plasterers' decorators', and large area scaffolds
	(p)	Interior hung scaffolds
	(q)	Ladder jack scaffolds
	(r)	Window jack scaffolds
	(s)	Roofing brackets
	(t)	Crawling boards or chicken ladders
	(u)	Float or ship scaffolds

Work shall not be performed by standing on top rails, midrails, or other scaffold members not specifically designed for such use.

REFERENCE:	1926.451	Construction Industry
	1910.28	General Industry

FIGURE 1. **¼ RULE**

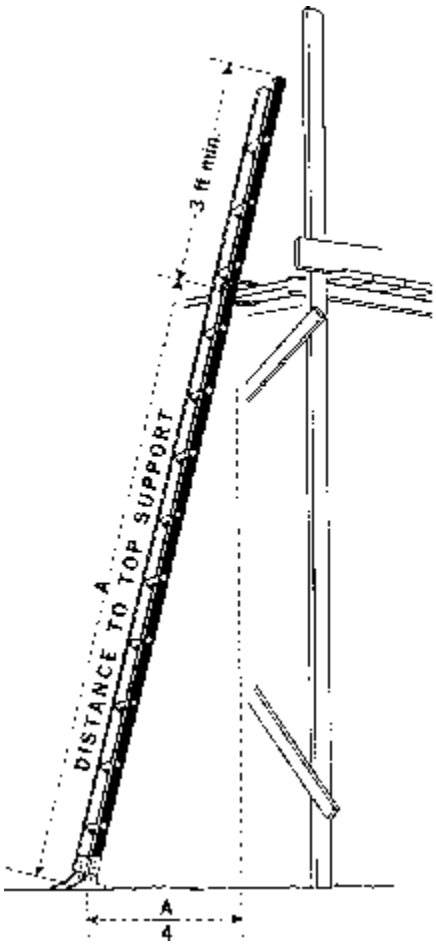
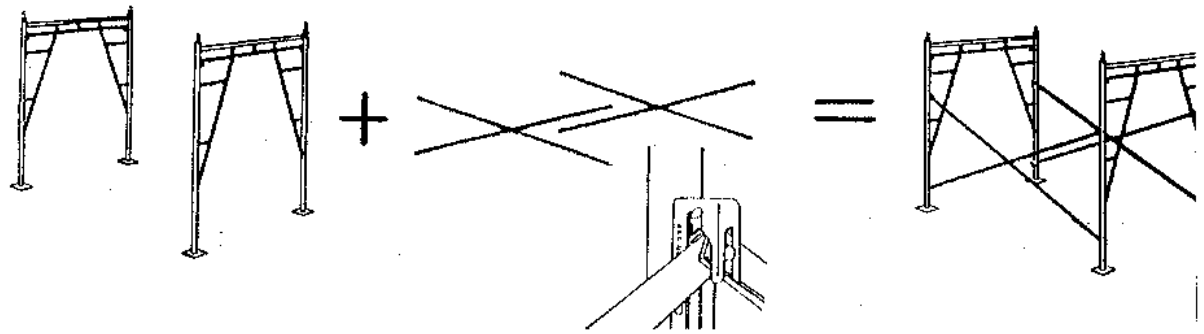


Figure 2 - Tubular Welded Frame Scaffold Example



EMPLOYEE TRAINING RECORD

Topic: Ladder and Scaffold Safety Program **Date: _____**

Name:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
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_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

_____ _____

Instructor **Date**

The following employees have been trained on the Ladder and Scaffold Safety Program and verify by their signatures that they understand the guidelines of the plan and agree to abide by the provisions.

APPENDIX A AND B

LADDER AND SCAFFOLD CHECKLISTS

APPENDIX A

LADDER CHECKLIST

(If "No" is checked, please provide explanation in space provided at end of section.)

PORTABLE STEPLADDERS	**YES**	**NO**
Are stepladders longer than 20 feet not used?	_____	_____
Is uniform step spacing employed which is not more than 12 inches?	_____	_____
Are steps parallel and level when the ladder is in position for use?	_____	_____
Is the minimum width between side rails at the tope, inside to inside, not less than 11 ½ inches?	_____	_____
Are the side rails, from top to bottom, spread at least 1 inch for each foot of length of stepladder?	_____	_____
Is a metal spreader or a locking device of sufficient size and strength to securely hold the front and back sections in open positions a component of each stepladder?	_____	_____
Does the spreader have all sharp points covered or removed to protect the user?	_____	_____
For household ladders, is the pail shelf and spreader combined in one unit (the so-called shelf-lock ladder)?	_____	_____

PORTABLE RUNG LADDERS	**YES**	**NO**
Are single ladders longer than 30 feet not used?	_____	_____
Are two-section extension ladders longer than 60 feet not used?	_____	_____
Do all ladders of this type consist of two sections, one to fit within the side rails of the other, and arranged in such a manner that the upper section can be raised and lowered?	_____	_____
Are assembled combinations of sectional ladders longer than lengths specified in this subdivision not used?	_____	_____
Are trestle ladders or extension sections or base section of extension trestle ladders longer than 20 feet not used?	_____	_____

SPECIAL PURPOSE LADDERS	**YES**	**NO**
Are painter's stepladders longer than 12 feet not used?	_____	_____
Are mason's ladders, (used in heavy construction work) longer than 40 feet not used?	_____	_____
Are trolley and side rolling ladders longer than 20 feet not used?	_____	_____
Are there internal ladder inspection procedures established that will preclude the use of unsafe ladders?	_____	_____
Do these inspections include extension ladders and stepladders?	_____	_____
Are joints between steps and side rails tight?	_____	_____
Are hardware and fittings securely attached?	_____	_____
Are all metal bearings of locks, wheels, pulleys, etc. lubricated?	_____	_____
Is the tope on extension ladders in good condition?	_____	_____
Are ladders equipped with safety feet? Are safety feet securely attached and in good condition?	_____	_____
Are ladders frequently inspected? Are those found defective tagged as "Dangerous, Do Not Use" and withdrawn from service?	_____	_____
Are wood straight ladders used at the proper angle?	_____	_____
Are ladders tied off at the top while work is performed?	_____	_____
Are ladders held at the bottom while being tied off at the top?	_____	_____
Are cleats in place?	_____	_____
Are ladders so placed to prevent slipping? If not, are they lashed or held in position while in use?	_____	_____
Do you prohibit the use of a ladder by more than 1 person at one time?	_____	_____
Do you require that straight ladders have secure footing prior to use?	_____	_____
Do you require that the tope support for the ladder is sufficiently strong and rigid?	_____	_____

	YES	NO
Do you prohibit placing ladders in front of door openings toward the ladder that do not have doors backed open, locked, or attended by another employee?	_____	_____
Do you prohibit the placing of ladders on unstable bases such as boxes?	_____	_____
Are employees prohibited from using ladders that have defective parts, i.e., broken steps, spilt side rails?	_____	_____
Do you prohibit the splicing of short ladders to make one of a longer dimension?	_____	_____
Do you prohibit the use of ladders for other than their intended use, i.e., bracing, skid, etc.?	_____	_____
Do you prohibit employees from standing on the top step of a stepladder?	_____	_____
When two-section extension ladders are used, do you require that the minimum overlap of the section be as follows:		
• Up to 36' in length 3 Feet?	_____	_____
• 36' to 48' 4 Feet?	_____	_____
• 48' to 60' 5 Feet?	_____	_____
When side rails of wood ladders are equipped with metal reinforcing, do you require that the reinforcing material be placed on the side away from the climbing side?	_____	_____
When using ladders to gain access to roofs, do you require that the side rails extend at least 36 inches above the upper landing surface?	_____	_____
Are middle and top sections of sectional ladders ever used as the bottom section? If so, are they equipped with safety shoes?	_____	_____
When using portable straight ladders in slippery areas, are safety shoes provided? Even if safety shoes are provided, do you require that ladders be lashed or held by another employee when the surface is oily or on metal or concrete surfaces?	_____	_____
Do you prohibit the climbing on back support of stepladders by employees?	_____	_____

PORTABLE METAL LADDERS	**YES**	**NO**
Are all ladders free from structural defects of accident hazards such as sharp objects?	_____	_____
Is the metal selected strong enough to meet test requirements?	_____	_____
Is the metal protected from corrosion?	_____	_____
Is the spacing of rungs or steps on 12 inch centers?	_____	_____
Are rungs and steps corrugated or treated with non-skid material so employees won't slip?	_____	_____
Are straight ladders built with at least 12 inches between side rails?	_____	_____
Are single ladders built not to exceed 30 feet in length?	_____	_____
Are two-section ladders built not to exceed 48 feet in length?	_____	_____
Are ladders with over 2 sections built not to exceed 60 feet in length?	_____	_____
When using extension ladders, do you require the following as a minimum overlap between sections?		
• Up to 36 feet length 3 Feet?	_____	_____
• 36 Feet to 48 4 Feet?	_____	_____
• 48 Feet to 60 5 Feet?	_____	_____
Are positive stops provided on extension ladders to insure the overlap as indicated above?	_____	_____
Stepladders do not exceed 20 feet in length?	_____	_____
Do the bottoms of the four rails have insulating, non-skid material to protect employees?	_____	_____
Is there a locking device or metal spreader strong enough to hold the front and back section of a stepladder open?	_____	_____
Trestle or extension ladders are not more than 20 feet in length?	_____	_____

	YES	NO
Platform ladders are not more than 20 feet in length?	_____	_____
Are all ladders maintained in good usable condition?	_____	_____
If a ladder is tipped over, are the sides inspected for dents or bends?	_____	_____
Are ladders cleaned if they are exposed to oil and grease?	_____	_____
Are ladders with defects marked and taken out of service until repaired?	_____	_____
Are portable ladders designed as one-person working ladders based on a 200 pound load?	_____	_____
Unless equipped with a single support attachment, is the top of the ladder supported with two rails?	_____	_____
Are climbers always facing the ladder when ascending or descending?	_____	_____
Ladders are not tied or fastened together to provide longer sections?	_____	_____
Ladders are not used as a brace, skid, guy, gin pole, or gangway, unless specifically recommended by the manufacturer?	_____	_____
Are users cautioned to take proper safety measures when metal ladders are used in areas containing electric circuits to prevent short circuits or electric shock?	_____	_____

For all items checked "No" - Refer to Page 30. Explain deficiency and necessary corrective action.

APPENDIX B

SCAFFOLD SAFETY REQUIREMENTS

If "No" is checked, please provide explanation in space provided at end of section.

	YES	NO
Are all operations that cannot be performed from ground or structural level accomplished from scaffolds or approved ladders?	_____	_____
Are scaffolds erected on sound footings?	_____	_____
Is the use of unstable objects prohibited for footings?	_____	_____
Are guardrails at least equivalent to 2x4 inches?	_____	_____
Are they between 36 to 42 inches in height?	_____	_____
Are posts installed at no more than 10 feet intervals?	_____	_____
Are toeboards a minimum of 4 inches high?	_____	_____
Are scaffolds erected with a safety factor of at least four?	_____	_____
Are scaffolds in use maintained in a safe condition?	_____	_____
Are employees prohibited from altering or moving scaffolds which are occupied?	_____	_____
Are damaged scaffolds or parts thereof removed from service?	_____	_____
Are scaffold loads within the limitation of the intended loads?	_____	_____
Are all load-carrying timbers in framing of 1500f. (Stress Grade) construction grade lumber?	_____	_____
Are nails or bolts used for construction of adequate size?	_____	_____
Are nails driven in their full length?	_____	_____
Are scaffold planks overlapped at least 12 inches or secured?	_____	_____
Is a ladder provided to gain access to scaffold working levels?	_____	_____

	YES	NO
Do planks extend over their supports by at least 6 inches, but not more than 18 inches?	_____	_____
Are scaffold poles or uprights plumb?	_____	_____
Are they rigidly braced?	_____	_____
Do materials being hoisted onto a scaffold have a tag line?	_____	_____
Are employees working on a scaffold protected from overhead hazards?	_____	_____
Is a screen provided between the toeboard and top rail on scaffolds where other employees are working or passing under the scaffold?	_____	_____
Is screen of No. 18 gauge wire with ½ inch openings or equivalent?	_____	_____
Are employees prohibited from using scaffolds covered with ice or snow?	_____	_____
Are tools, material, and debris removed from scaffold to prevent an accumulation of same?	_____	_____
Is treated or protected fiber rope used on scaffolds where exposure to corrosives or chemicals is present?	_____	_____
Does wire or fiber used in scaffold supports have a safety factor of at least 6?	_____	_____
Is wire rope used in supporting scaffolds when using acid solutions in cleaning buildings more than 50 feet high?	_____	_____
Is the use of shore or lean-to scaffolds prohibited?	_____	_____
Are scaffolds built around structures, secured to the structures?	_____	_____
Is the use of window cleaners' anchor bolts prohibited for this purpose?	_____	_____

TUBE AND COUPLER SCAFFOLDS	**YES**	**NO**
Do light-duty tube and coupler scaffolds have metal posts, bearers, runners, and bracing of at least 2 inch O.D. steel tubing or its equivalent?	_____	_____
Are posts on light-duty scaffolds no more than 6 feet apart by 10 feet along the length of the scaffold?	_____	_____
Are medium-duty scaffolds with posts spaced not more than 6 feet apart by 8 feet along the length of the scaffold made of 2 ½ inch O.D. steel tubing or its equivalent?	_____	_____
Are bearers on medium-duty scaffolds with posts spaced not more than 6 feet apart by 8 feet along the length of the scaffold made of 2 ½ inch O.D. steel tubing or its equivalent?	_____	_____
Are bearers on medium-duty scaffolds with posts spaced not more than 5 feet apart by 8 feet along the length of the scaffold made of 2 inch. O.D. steel tubing or its equivalent?	_____	_____
Do heavy-duty tube and coupler scaffolds have posts, runners, and bracing of at least 2 inch steel tubing or its equivalent?	_____	_____
Is the post spacing on heavy-duty tube and coupler scaffolds not more than 6 feet apart by 6 feet 6 inches along the length of the scaffold?	_____	_____
Are all tube and coupler scaffolds erected by competent and experienced personnel?	_____	_____
Are posts accurately spaced, erected on suitable bases, and maintained plumb?	_____	_____
Do runners erected along the length of the scaffold on both inside and outside posts have the same height for each platform level?	_____	_____
Are all runner lengths interlocked?	_____	_____
Are all runners connected to all posts?	_____	_____
Are bottom runners placed as close to the base of posts as possible?	_____	_____
Is the spacing of runners for different levels of platforms maintained at not more than 6 feet 6 inches on centers?	_____	_____

	YES	NO
Are bearers installed transversely at posts only?	_____	_____
Are bearers securely coupled to posts? If so, are they kept as close to posts as practical?	_____	_____
Are bearers at least 4 inches, but not more than 12 inches longer than post spacing?	_____	_____
Is cross bracing installed at least on every third set of posts horizontally?	_____	_____
Is cross bracing installed at least every fourth runner vertically?	_____	_____
Are they securely attached to posts or runners?	_____	_____
Is longitudinal diagonal bracing installed at a 45° angle on the outer face of the scaffolding?	_____	_____
Does the longitudinal bracing extend from the first (right hand) post to the extreme top of the scaffold?	_____	_____
Is longitudinal length of scaffold sufficiently long to duplicate bracing at each fifth post?	_____	_____
If so, is it so provided?	_____	_____
Is longitudinal diagonal bracing secured to posts?	_____	_____
Is entire scaffold tied to and securely braced against building?	_____	_____
Are intervals of securing not more than 30 feet horizontally nor more than 26 feet vertically?	_____	_____
Are guardrails of the strength of a 2x4 at a height of 36 to 42 inches with a 4 inch toeboard installed on all open sides of scaffold?	_____	_____
Are toeboards at least 4 inches high?	_____	_____
Is wire mesh of No. 18 gauge with ½ inch openings provided when employees are passing or working under scaffolds?	_____	_____

TUBULAR WELDED FRAME SCAFFOLDS	**YES**	**NO**
Are all parts of metal tubular frame scaffolds designed and proved to safely support four times their intended maximum load?	_____	_____
Is spacing of panels or frames consistent with anticipated loads?	_____	_____
Are cross bracing or diagonal bracing installed so as to maintain the erected scaffold in a plumb, square, and rigid condition?	_____	_____
Are scaffold legs set on adjustable or plain basis in such a manner that they provide adequate support for the maximum intended load?	_____	_____
Are frames placed one on top of the other with coupling or stacking pins aligned?	_____	_____
Are pins provided and used to lock panels together to prevent dislodgment where uplifting might occur?	_____	_____
Are guardrails installed that have the strength of a 2x4 at a height of 36 to 42 inches?	_____	_____
Are toeboards at least 4 inches high installed?	_____	_____
Is wire mesh of at least No. 18 gauge with ½ inch openings installed where employees walk under the scaffold?	_____	_____
Are scaffolds erected and constructed to support 4 times the maximum intended load?	_____	_____
Are scaffolds secured to the building or structure at intervals not exceeding 30 feet horizontally or 26 feet vertically?	_____	_____
Is scaffolding in excess of 125 feet high designed by a registered professional engineer?	_____	_____
Are drawings available for inspection?	_____	_____
Are scaffolds erected by competent and experienced personnel?	_____	_____
Are scaffolds inspected regularly so that any broken, bent, excessively rusted, altered, or other structural defects can be corrected prior to continued use?	_____	_____
Does inspection include welded areas and for other possible maintenance purposes?	_____	_____

OUTRIGGER SCAFFOLDS

Are outrigger beam extensions beyond the face of a building restricted to less than 6 feet?	_____	_____
Is there at least one and 1 ½ times the length of the outboard beam on the inboard length?	_____	_____
Do all outrigger beams rest on edge?	_____	_____
Are the sides plumb?	_____	_____
Are the edges horizontal?	_____	_____
Is there at least 6 inches of bearing surface at the fulcrum?	_____	_____
Is the beam secured to prevent movement and tipping?	_____	_____
Are inboard ends of beams secured by struts to the overhead beams, or by tension members to floor joists below, or by both, if necessary?	_____	_____
Are the inboard ends of beams secured to prevent tipping?	_____	_____
Is the entire supporting structure braced in both directions to prevent horizontal movement?	_____	_____
Are drawings available for inspection?	_____	_____
Is planking laid tight and extended to within 3 inches of the building?	_____	_____
Are guardrails installed on all open sides?	_____	_____
Is there wire mesh or other enclosure where there is danger of falling material from the scaffold?	_____	_____
Did a registered professional engineer design scaffolds that have more than two levels?	_____	_____
Are plans available for inspection?	_____	_____

For items checked "No" - Refer to Page 31. Explain deficiency and necessary correction action.

LADDER DEFICIENCIES

EXPLAIN DEFICIENCY AND ANY CORRECTIVE ACTION NECESSARY.

Inspector: _____Date: ____/____/____

ITEM #_____ _____

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SCAFFOLD DEFICIENCIES

EXPLAIN DEFICIENCY AND ANY CORRECTIVE ACTION NECESSARY.

Inspector: _____Date: ____/____/____

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APPENDIX C

GENERAL REQUIREMENTS FOR GUARDING FLOOR AND WALL OPENINGS

◊ Stairway openings shall be guarded by standard railing.

◊ Ladderway floor openings shall have guardrails.

◊ Hatchway and chute floor openings shall have guardrails.

◊ Skylight floor openings shall be guarded by skylight screen or guardrail.

◊ Pit and trap door openings shall be guarded, constantly attended, or have railings.

◊ Manhole floor openings shall have guardrails.

◊ Temporary floor openings shall be constantly attended or have guardrails.

◊ Floor holes shall have covers and shall be constantly attended or have guardrails.

◊ Floor holes where people ***cannot*** walk into shall be at minimum covered.

◊ Where doors and gates open directly onto a stairway, a platform is required.

◊ Wall openings with a drop of more than 4 feet must be guarded.

◊ Chute wall openings with a drop of more than 4 feet must be guarded.

◊ Window wall openings with a drop of more than 4 feet must be guarded.

◊ Temporary wall openings shall have adequate guards, need not be standard construction.

◊ Every open sided floor or platform 4 feet or more in height shall have a guardrail.

◊ Runways over 4 feet high shall have guardrails and where tools or materials are used on runway, toeboard is required.

◊ Regardless of height, if hazardous condition below, open floor must have railings and toeboard.

◊ Every flight of stairs with four or more risers shall have railings.

◊ Stairways less than 44 inches wide, with both sides enclosed, shall have one handrail.

- ◊ Stairways less than 44 inches wide, with one side open, shall have one railing on open side.
- ◊ Stairways less than 44 inches, with both sides open, shall have one railing on each side.
- ◊ Stairways more than 44 inches, less than 88 inches, shall have a handrail on enclosed side, and stair rail on open side.
- ◊ Stairways more than 88 inches shall have handrail on enclosed side, stair rail on open side, and rail in center.
- ◊ Winding stairs shall have offset handrail to prevent walking on treads less than 6 inches wide.
- ◊ Stair railing shall not be less than 30 inches, and not more than 34 inches high.
- ◊ Railings must withstand 200 lbs. in any direction of top rail.
- ◊ Standard toeboard is 4 inches nominal with maximum ¼ inch clearance above floor level.
- ◊ Use paneling from floor to mid-rail when necessary.
- ◊ There shall be no less than 3 inches between handrail and wall, or other object.
- ◊ Skylight screens, wall opening barriers, and screen shall withstand 200 lbs.

HOIST LIFT TRUCK
2015
CHAPTER TWENTY ONE

COMPANY VEHICLES AND DRIVER SAFETY

A. Only employees authorized by Hoist Liftruck are permitted to operate Hoist Liftruck vehicles.

B. No “side trips” or personal use of company vehicles are permitted.

C. Seat belts/shoulder harnesses must be worn whenever the vehicle is in motion.

D. No unauthorized riders (hitch hikers) are allowed.

E. All local and state traffic regulations and signs mustbe followed.

F. All moving violations resulting in points being assigned to your license must be reported to your supervisor.

G. Driving under the influence of alcohol or other drugs is forbidden. Employees driving their personal vehicles on company business must follow c through g rules listed above.

STAYING SAFE

Report any unsafe conditions or situations to your supervisor. If you have suggestions on improving any aspect of safety in the facility discuss it.

If you are ever unsure of how to operate a piece of equipment, or are not certified to do so, notify safety department. Do not operate any vehicle if you are not certified to do so. That includes any moving vehicle and any overhead crane(s).

These rules have been established to help you stay safe and injury free. Violation of the above rules, or conduct that does not meet minimum accepted work standards, will result in discipline, up to and including discharge.

When working at a customer location, employees are required to follow all the above rules as well as all customer rules and procedures and work in a manner, which reflects positively on the company. Before operating any equipment at a customer location, permission must be secured from the contact person at customer location.

This policy listed below applies to vehicles owned, leased, or rented to Hoist Liftruck and personally owned vehicles driven by employees on behalf, or on Hoist Liftruck property, and to encourage policies to encourage safe operation of vehicles, and clarify insurance issues relating to drivers and Hoist Liftruck:

- All drivers must have a valid driver's license.
- Motor Vehicle Records will be checked periodically. Driving privileges may be suspended or terminated if your record indicates an unacceptable number of accidents or violations. Should your record fall into our insurance carriers guidelines of an unacceptable driver, your employment may be terminated.
- Your supervisor must be notified of any change in your license status or driving record.

When operating your own vehicle for Hoist Liftruck business:

- Your Personal Auto Liability insurance is the primary payer.
- You should carry at least $300,000 per occurrence liability coverage. Evidence of insurance coverage is to be provided to Hoist Liftruck each year, by either a copy of your policies Declaration page or a Certificate of Insurance.

- Hoist Liftruck is not responsible for any physical damage to your vehicle. You must carry your own collision and comprehensive coverage.

HOIST LIFT TRUCK
CHAPTER TWENTY TWO

RETURN TO WORK PROGRAM

2015

It is our goal to prevent work-related injuries from happening. We are always concerned when one of our employees is injured or ill due to a work related condition. We believe that such absences cost both Hoist Liftruck and its employee(s). We want our injured employees to get the best possible medical treatment immediately, to assure the earliest possible recovery and return to work.

Hoist Liftruck has a workers compensation program available for employees who have suffered work-related injuries. The programs administrator will determine, based upon their guidelines, whether you are eligible for wage loss or medical expenses under that program.

Hoist Liftruck wants to provide meaningful work activity for all employees who become unable to perform all, or portions, of their work assignment. Thus we have implemented a Transitional Duty Program (light duty).transitional Duty is a temporary program, not to exceed six months.

EMPLOYEE PROCEDURES

- All work related injuries should always be reported immediately to your supervisor no later than the end of the shift on which the injury occurs.
- If a post-accident drug screen is not performed the same day as the injury, the employee will only be paid up to one hour while taking timeout to have the drug screen sample collected.
- You must complete and sign an Employees Injury Report.
- Each supervisor is required to complete an Accident Investigation Form, which is reviewed and authorized by the Safety Department.
- When treatment is sought, the injured employee must advise their supervisor that they areseeking treatment and obtain a Transitional Duty Evaluation

form that must be completed for each practitioner visit. Hoist Liftruckwill not accepta general note stating that you are only to be off of work.

- Under this program, temporary transitional work is available for up to sixty (60) days with review of your progress every 30 days while you are temporarily unable to work in your regular job capacity. Transitional duty beyond sixty (60) days, up to a maximum of six (6) months, will be evaluated on a case-by-case basis.
- If you are unable to return to your regular job, but are capable of performing transitional duty, you must return to transitional duty. Failure to do so will result in your not being eligible for full disability benefits under the workers compensation program and may result in disqualification for certain employee benefits and in some cases be a basis for termination.
- Employees who are unable to return to your regular job or transitional duty, your absence must be approved under the family Medical Leave Program. For this purpose you need to complete a Family Medical Leave Request form and submit it to the Human resources Department. You must also have your practitioner complete both the Transitional Duty Evaluation and Medical Certification Form.
- Employees who are not eligible for leave under the Family Medical Leave Act (FMLA) must return to transitional duty or regular work, your job position may be filled after a reasonable time. When able to do so, you will be entitled to return to a suitable position, if available and consistent with any limitations. However, you must keep us regularly informed of your status and any changes in your condition.
- Employees must provide a Transitional Duty Evaluation Form indicating they are capable of returning to full-duty. Permanent restrictions will be evaluated on a case-by-case basis and relate to the performance of essential job functions. No permanent light duty positions will be created.
- Cooperate with our third party administrator and provide accurate and complete information as soon as possible so that you receive all benefits to which you are entitled. If you have problems or concerns, please contact the Human resources Department.

HOIST LIFT TRUCK

OFFICE SAFETY AND SECURITY

2015

CHAPTER TWENTY THREE

OFFICE SAFETY:

1. Never leave file drawers opened or open multiple file drawers at once.

2. Do not stack heavy or bulky objects on top of cabinets.

3. Do not store frequently used objects above shoulder height or below knee height.

4. Never reach into office machines without turning them off and unplugging them if possible.

5. Keep your work area free of tripping hazards such as storage in walkways, cords across aisles, and damaged floor coverings.

6. Inspect step stools/ladders before use. Be sure to keep a stationary object in front of you when using a step stool to provide stability.

7. Never use defective or broken equipment. Report these problems to your supervisor.

SECURITY:

1. Always be aware of your surroundings. Keep your head up and hands out of your pockets while walking to and from your car.
2. Immediately report any suspicious activity or a person to your manager. And immediately report any theft to the HR Department.
3. When parking, remove all valuables from sight and lock car doors.
4. Keep all valuables; money, purses, jewelry, etc.; out of site when at your desk.
5. Do not bring large sums of money or other valuables into the building.
6. Secure laptop computers, PDA's, and other small electronic devices before leaving your office or cube for extended periods of time; lunch, going home, going into the plant.
7. If you are working alone and are in the office before or after regular business hours, on weekends, or holidays, observe these additional guidelines:

    - Be sure doors close as you move through the building.
    - Turn on lights as you move through the building.
    - Always be aware of the closest telephone; do not hesitate to call 911 if you feel threatened.
    - Be sure someone at home knows that you are at work and is expecting you to check in by a specified time.
    - As you leave be sure to turn off all equipment and lights that you had used.

8. Weapons including firearms, knives; blade longer than 2 inches; bow and arrow, pepper spray, and clubs are not allowed on Hoist Liftruck Manufacturing site.

HOIST LIFT TRUCK

Hazard Communication Program
HAZCOM

2015

CHAPTER TWENTY FOUR

Contents:

POLICY STATEMENT

It is the policy of HOIST to ensure that all employees are informed about the hazardous substances which may be encountered in the workplace and the appropriate protective measures for working safely with these substances. A written plan must be developed for this purpose in accordance with 1910.1200 (e) This plan describes how forms of warning such as labels, SDS, signs and placards shall be used. NFPA 704 is also discussed.

A copy of this plan is available to all employees and is maintained in the shop, the office and on remote job sites.

This includes but is not limited to the following:

Chemicals in transit
Fuels for Equipment
Cleaning solvents
Compressed gasses
Chemicals which may be a t a work site
Acids / bases
TENORM (see TENORM policy)
Welding fumes

This program is managed by the Safety Department with assistance of several Safety Consulting Companies.

INTRODUCTION

Approximately one out of every four workers in the nation's work force is exposed to one or more chemical hazards in the course of work activity. OSHA officials estimate as many as 575,000 chemical products are used or handled within the overall industrial setting, and hundreds of new ones are introduced every year. This standard attempts to address the many serious health problems posed by the potential exposure of workers to known or suspected chemical hazards.

The goal of the Hazard Communication Standard (HAZCOM) is to reduce the incidence of illnesses and injuries resulting from exposure to chemicals. Chemical exposure may cause or contribute to many serious health effects such as heart ailments, kidney and lung damage, sterility, cancer, burns, and rashes. Some chemicals many have the potential to cause fires and explosions and to contribute to other serious accidents.

The purpose of the Federal OSHA 1910.1200 and Subpart Z, 1926.1100 Standard are to establish uniform requirements in all states and jurisdictions to ensure that the hazards of all chemicals produced, imported, or used within the United States manufacturing sector are evaluated, and that this hazard information is transmitted to affected employers and employees.

All covered employers are required to have a Hazard Communication Program to provide the information to their employees. It is the responsibility of the employer to make certain that containers have required labels and other needed warnings; and that SDS's are obtained and made readily available to employees.

The chemical manufacturers and importers are required to provide the labels and SDS's to ensure that all employers receive the information necessary to inform and train their employees; and to design and implement employee protection programs.

RIGHT-TO-KNOW

The Occupational Safety and Health Administration (OSHA) have issued a rule entitled the Hazard Communication Standard that will help HOIST keep their employees safe and healthy. Employees have a **"Right-To-Know,"** what hazards they face on the job, and how to protect themselves from those hazards. All HOIST employees have the right-to-know:

1. The characteristics of the listed hazardous substances in your work place;

2. How to access copies of the Safety Data Sheets (SDS) covering all the chemicals at your facility; and

3. Within the first 30 days of employment and at least annually thereafter, what adverse health effects correspond to chemicals you use in the work place, how to use these chemicals safely, and what to do in an emergency.

WRITTEN PLAN

HOIST provides the following information in their written plan:

1. **HOIST must maintain a list of the hazardous chemicals in each work area and job site (Chemical Inventory); this list will change from location to location.**

2. HOIST will use all available information to inform employees of the hazards of non-routine tasks;

3. Hazards associated with chemicals in unlabeled pipes;

4. Procedures for informing General Contractors and Sub-contractors;

5. SDS's on all hazardous chemicals used;

6. Labeling and placard requirements for containers; and

7. Safe work practices and use of personal protective equipment (PPE).

Every employee is required to abide by the standard operating practices established by HOIST for the safe handling of hazardous materials and processes. ***It's up to each employee to follow safe work practices and use the correct PPE properly.***

A copy of this program is available to an employee upon hiring, and upon request. Copies will be kept in the main office with Safety Department and with the Supervisors located in the Project Trailer. Employees should notify their supervisor when a copy of the program is needed. The program will be updated when new chemicals of hazards are introduced into the work environment and at least annually. The Supervisor, under the direction of the Safety Department, will ensure all chemical purchases include a request for a Safety Data Sheet (SDS) prior to processing. All HOIST employees may have access to this program and all SDS sheets in a timely manner for review upon request. HOIST reserves the right to charge reasonable fee for all copies of the material requested by employees.

LABELING

Warning labels are designed to alert you that materials are dangerous. They must identify all the hazards of a material, but they might not tell you everything you need to know about controlling those hazards or protecting the handler. Labels should contain the following information: Identity of chemicals, appropriate hazard warnings and name and address of chemical manufacturer, importer or other responsible party. Do not deface or remove labels on any containers holding hazardous chemicals, or mix one container into another to use container for any other purpose. Labels are required on:

1. All containers of hazardous material in the workplace; and
2. All containers of hazardous material being shipped to another location.
3. All labels must be in English but be provided in an employees language if not able to read English

Exceptions:

Multiple containers stored in the same location may be identified by an area sign.

Stationary process containers may post the SOP or other warnings.

Pipes need not be labeled if personnel can easily identify the contents.

Transfer containers need not be labeled if all contents are used only by a single person, are completely used in an eight hour period and not stored in the unlabeled container.

Caution should always be used with chemical containers whether labeled or not.

Warning labels must give the following information:

The name of the hazardous material(s);

All physical and health hazards; and

Any special hazards, incompatibility or special PPE required by the user.

The Supervisor will be responsible for all containers of hazardous chemicals entering the workplace. Each container label must have the following:

1. The identity of the hazardous chemical(s);

2. Appropriate hazard warnings; and

3. Name and address of the chemical manufacturer, importer, or other responsible party.

HMIS (Hazardous Material Identification System) and NFPA 704M used in bulk storage uses the same numbering system 0-4 to identify the seriousness of hazards and by color.

0. no hazard
1. minimum hazard
2. moderate hazard
3. sever hazard
4. extreme hazard

Red……. Flammability
Blue…… Health
Yellow….Reactivity

All employees will be responsible for the maintenance of containers in order to ensure labels remain legible. If the chemical is going to be transferred to a separate container, the employee will ensure that the new container is properly labeled. This can be performed with the use of NFPA 704 placards, Hazardous Material Identification System labels, and information listed previously. Contact the Supervisor for assistance with the labeling requirements when necessary.

SAFETY DATA SHEETS

The SDS gives detailed information about the hazards of a specific material and how to control their hazards. SDS's are available to workers in the area where each hazardous material is used. Each SDS should contain the following information:

1. The common name and/or the chemical name of the material;
2. The name, address, and 24-hour emergency telephone number of the manufacturer;
3. The date the SDS was written and the last revision date;
4. All hazardous ingredients, unless they are trade secrets;
5. The hazards associated with those ingredients in regards to their:
    A. Physical and chemical characteristics;
    B. Fire and explosion hazard data;
    C. Reactivity data; and
    D. Health hazards.
6. Precautions for safe handling and use; and
7. Control measures.

The information contained in an SDS can keep all employees in the workplace safe. Every Employee should:

1. Take the time to know where the SDS's are located and read them!
2. Become familiar with the most important points for each hazardous material you use.
3. Check the SDS whenever they need more information.
4. Know the location of emergency information should an emergency arise.
5. Follow the information and SOP's to prevent injuries or illnesses.

An explanation of the necessary information required on all Safety Data Sheets is located in Appendix I of this program. **New chemicals will not be used unless a copy of the current SDS for that chemical has been received, reviewed and approved by management.**

ACCESS TO SDS's

All employees should review the SDS sheet for the chemicals they are exposed to **prior to performing their work**. If the SDS's are not immediately available, employees should contact the Supervisor to obtain copies to review.

SDS shall be kept in the shop, in work trailers, main office and any other location employees may be working.

The supervisor shall request and the host employer shall provide the appropriate SDS to the Supervisor and they shall be added to the site safety book for every location as work is begun. All employees involved in the site work shall review and discuss the SDS in their pre-work safety meeting.

EMPLOYEE TRAINING

Hazard Communication training will be provided on the first day of employment as part **of our employee orientation. Training shall be provided in a language which is understood by the employee. A written test will be given and a score of 70% is required, if that score is not achieved retraining is necessary. Test may be given orally for those employees who may have a** difficulty reading. The Supervisor will be responsible for ensuring all employees are aware of the requirements of this Hazard Communication Program prior to handling hazardous chemicals. Likewise, the employee must review the Safety Data Sheets applicable to the task or job they are performing.

Hazard Communication training will consist of all aspects of this written program and include:

1. The location of the hazardous substances on site.

2. The location of the Safety Data Sheets, the hazardous substance lists, and this Hazard Communication Program.

3. Methods and observations used to detect the release of hazardous substances:

    A. Industrial Hygiene monitoring methods.

    B. Odor recognition

    C. Symptoms of overexposure.

5. Detailed description of the physical and health hazards of materials in the workplace.

6. Measures employees are to take to protect themselves from exposure to chemicals.

    A. Protective equipment required.

    B. Good hygiene practices.

5. How to interpret a Safety Data Sheet.

   After attending the new hire orientation training class, each new employee will sign the training certification form. Signing this form will verify that the employee attended the training, understood the training, and agrees to comply with the Hazard Communication Program. All employees are encouraged to ask their Supervisor about selecting and using appropriate PPE when handling chemicals.

HAZARD COMMUNICATION PROGRAM

CERTIFICATE OF TRAINING

I, _____, acknowledge that I have received training on the Hazard Communication Program developed for use at HOIST. By signing this certificate of training I acknowledge that I have received a copy of the Employee Hazard Communications Manual and that I have read and understand all of the material included in the manual and agree to abide by the guidelines and responsibilities included in the program.

_____ ____/____/____

Employee Signature Date

_____ ____/____/____

Instructor Signature Date

HAZARDOUS SUBSTANCE INVENTORY

HOIST maintains a list of hazardous substances used on site. All Hazardous Materials are listed by the name which appears on the container and the Safety Data Sheet. A list of these chemicals appears in Appendix III. The originals are kept on file.

HAZARD DETERMINATION

There are two types of hazards: Physical Hazards and Health Hazards.

1. ***Physical Hazards*** can produce a dangerous situation outside your body, i.e., explosions, fires, or polymerization.

2. ***Health Hazards*** can cause injury or illness both internally and externally.

    A. Acute injuries are injuries that are immediate or occur from short-term exposures. (i.e., burns from exposure to acid.)

    B. Chronic illnesses are health effects that occur over time through long-term exposures. (i.e., cancer due to smoke inhalation.)

3. ***Combined Hazards:*** Many chemicals have the potential to cause both physical and health problems.

An acronym to help remember the major chemical hazard classifications is "***FACTOR"*:**

1. **F**lammable: If a substance is flammable it means that the substance will ignite and burn at 100° Fahrenheit or less. Flammable chemicals can be solids, liquids, or gases.

    A. **Combustible** substances are those that will ignite and burn between 101 and 200° Fahrenheit.

    B. The chemicals **flash point** is the temperature a chemical produces vapors that will burn.

    C. Most injuries from flammable chemicals result from:

        1) Absorption (skin contact burn or dermatitis secondary to defatting the skin),
        2) Inhalation (breathing the vapors, or smoke from the product when it burns),
        3) Ingestion (swallowing gasoline while siphoning).
        4) The most common complication of thermal and chemical burns are infections.
        5) First Aid: Burns should be cleansed carefully and kept as clean and dry as possible. Any second or third degree burn more than 3 inches in diameter, or any burn on the face, genitals, and feet should be evaluated by a physician.

    D. Flammable chemicals should be stored in proper containers and cabinets and kept away from open flames, sparks, or other sources of ignition.

E. In the even of a fire remember **RACE.**

1) **R**escue: any employee in imminent danger should be rescued if their is no danger to the employee performing the rescue.
2) **A**ctivate the alarm system.
3) **C**ontain the fire to prevent it from spreading.
4) **E**xtinguish the fire if it can be done without endangering personnel.

F. Flammable or combustible chemicals that are spilled should be cleaned up immediately.

1) If it is a large spill, all ignition sources should be eliminated as soon as possible.
2) Materials used to absorb these chemicals need to be disposed of properly in a sealed container, until proper disposable can be implemented. Clays and other absorbent materials will release flammable vapors and should not be put in an open trash container or dumpster.

G. Note: Most flammable chemicals are irritating to the skin and are toxic if absorbed, inhaled or ingested.

2. **A**nd

3. **C**orrosive: These chemicals destroy or eat away everything they come in contact with. Contact with these chemicals can result in severe burns to the skin, eyes, or respiratory system.

A. Exposure to corrosives can be through:

1) Direct contact (chemical erosion of external tissues),
2) Ingestion (getting the chemical into your mouth or nose), or
3) Inhalation (from breathing the fumes).

B. Extreme care should be exercised when handling these chemicals to prevent contact with any surface where they are not intended.

C. They should only be handled if the employee is wearing the proper protective equipment such as rubber gloves, eye protection, an acid resistant apron, and possibly a respirator.

D. Release of corrosive chemicals can be detected by the sour odor of the vapors that cause a burning sensation to the eyes, mouth, nose, and throat.

E. If you suspect that a corrosive chemical has spilled, move out of the immediate area and notify your Superintendent or Foreman immediately.

F. Should you come into contact with a corrosive chemical, quick action is necessary to prevent potentially serious injury. Prompt response is critical to the outcome.

1) Any contact with corrosives should be flushed for 15-20 minutes while in route to seek medical attention.
2) Don't forget to remove contaminated clothing, jewelry, or contact lenses that may trap contaminant under them.
3) All corrosive eye exposures should be treated as a medical emergency and irrigation should be implemented immediately.
4) Medical evaluation should always follow any corrosive chemical exposure to the eye as soon as possible after the initial irrigation.

G. Corrosives should be stored inn proper containers and segregated from oxidizer flammable and toxic chemicals.

4. **T**oxic: Toxic chemicals may be poisonous and cause illness or death secondary to the adverse effects on the body. Some toxic chemicals displace oxygen in the bloodstream or destroy the hemoglobin.

A. Toxic chemicals can be solid, liquid, or gaseous.

B. Exposure to toxic chemicals can be through:

1) Absorption (direct skin contact),
2) Inhalation (breathing the toxic gas),
3) Ingestion (accidental ingesting directly, from hand to mouth or contaminated food or drinks), or
4) Injection (piercing your skin with something that has a toxic chemical on it).

C. Poisons should only be used under controlled conditions, and in areas where there is adequate ventilation.

D. The use of rubber gloves, eye protection, a chemical apron, and a respirator (either cartridge filter or even a self-contained breathing apparatus) may be needed depending on the toxic chemical involved. The Safety Data Sheet will list what personal protective equipment you need to use.

E. Detecting the presence of toxic chemicals can be both difficult and deadly. With some toxic chemicals, if you can smell them you are already over exposed. Some clues to help you recognize the presence of toxic chemicals are:

1) Feeling of light-headedness, headache, bitter smell or taste,
2) Seeing people, birds, or animals falling or laying on the ground.

F. If you are exposed to a toxic chemical, leave the area at once and seek medical treatment. If you suspect that a toxic chemical is present or has spilled, contact your Supervisor immediately. If you have been exposed, seek medical attention at once.

5. **O**xidizer: Oxidizers are chemicals that release oxygen which may support combustion (fire). One prime example of an oxidizer is oxygen. Although oxygen itself will not burn, it will support fire by enriching the oxygen content in an area. Some oxidizers can explode if subjected to an ignition source. Many oxidizers are poisonous if inhaled or corrosive when handled.

    A. Most oxidizer chemicals are compressed gasses.

        1) Compressed gas hazards include potential for freeze injuries if the container leaks.
        2) The container has a potential for explosion if handled improperly.

    A. Exposure to oxidizers can be through:

        1) Absorption (skin contact),
        2) Inhalation (breathing the chemical), and
        3) Ingestion (swallowing it).

    C. The handling of oxidizers should be done with the knowledge that they can support fire and potentially explode.

    D. Keep oxidizing chemicals away from open flames, sparks, and ignition sources.

    E. Read the SDS for personal protective equipment requirements.

    F. Oxidizers have yellow colored diamond shaped labels on containers.

6. **R**eactive: Reactives are chemicals which react with other substances violently. Some reactives will react when exposed to air or to water. The results of these reactions can be devastating.

    A. Exposure to reactives can be through:

        1) Absorption (secondary to skin contact),
        2) Inhalation (poisonous vapors released either directly or when they react) and
        3) Injection (debris from explosion).

    B. Reactives should be kept away from substances they react with.

    C. Always consult the SDS for exact handling information and personal protective equipment requirements.

    D. Further hazard determination criteria can be found in Appendix II.

ROUTES OF ENTRY

There are 4 primary routes of exposure through one or more of which chemicals can enter the body and cause harm. They are:

1. ***ABSORPTION***

- Through your skin; and eyes.

Chemicals absorbed through the skin can enter the bloodstream and damage the entire body. Very toxic chemicals absorbed through the eyes can directly affect the central nervous system.

2. ***INGESTION***

Chemicals that enter through the mouth or nose may be absorbed through the mucous membranes or swallowed and absorbed through the digestive tract. Although you would probably not intentionally ingest a dangerous chemical, ingestion can occur when chemicals enter the nose or mouth while suspended in the air, when splashed or can be carried in on food, drink, or when smoking.

3. ***INHALATION***

Is when you breathe a chemical and it is absorbed through the mucous membranes lining the respiratory tract or it enters the lungs and is absorbed. Since the lungs provide all of the oxygen and removes the carbon dioxide in the bloodstream, this allows the chemical to enter the bloodstream very quickly.

4. ***INJECTION***

Chemicals can enter the body when they are in or on objects which pierce your skin or they can be injected through compressed air of gases with enough pressure to force it though the skin.

HAZARDOUS NON-ROUTINE TASKS

Prior to the start of any hazardous non-routine task, employees shall be advised of the specific hazards related to any chemicals used in performance of the task. In the event such tasks become necessary, the Supervisor will be available to provide the following information about the specific chemicals encountered during the task. That information will include, but is not limited to the following:

1. Specific chemical name(s) and hazard(s) they pose;

2. Any personal protective equipment needed to perform the task and verification that the employee understands the limitations, proper use and maintenance of the PPE; and

3. Necessary measures that either have been taken to lessen the hazard or measures that must performed in order to prevent exposure.

CONTRACTORS & SUBCONTRACTORS

It is the responsibility of the Supervisor to provide all general contractors, subcontractors, and other personnel with the following information prior to the start of work on any job site:

1. Hazardous chemicals to which they may be exposed to while on the job site;

2. Measures the employees may take to lessen or prevent the possibility of exposure;

3. Procedures to follow if they are exposed; and

4. The location of SDS's for all hazardous chemicals.

It will be the responsibility of the Supervisor to contact each contractor/subcontractor to gather information concerning chemical hazards the contractor may introduce into the workplace.

It will be the responsibility of the contractor/subcontractor to supply a copy of their written Hazard Communication Program (HCP) and all necessary Safety Data Sheets applicable to the job to the HOIST Supervisor. If the contractor/subcontractor does not maintain a HCP they must agree in writing to the provisions of this program. A copy of this program will be provided to the contractor/subcontractor including the list of hazardous substances located on site.

APPENDIX I

SAFETY DATA SHEETS

Each Safety Data Sheet (SDS) should contain at least the following information:

1. Hazardous substance(s) identity as it appears on the label.

2. Chemical and common name(s) of hazardous substances, as follows:

    A. If the hazardous chemical is a single substance, its chemical and common name(s) must be included.

    B. If the hazardous chemical is a mixture which has been tested as a whole to determine its hazards. The chemical and common name(s) of the ingredients which contribute to these known hazards and the common name(s) of the mixture itself.

    C. The SDS must also indicate if the ingredient(s) could be released from the mixture in concentrations which would exceed an established OSHA permissible exposure, and could present a health hazard to employees; or if the ingredients could present a physical hazard.

3. Date of preparation or revision.

4. Name, address, and telephone number of manufacturer or distributor. (If no relevant information is available for a category use "not applicable". No blank spaces are allowed on an SDS.)

5. Physical Hazards, including:

    A. Fire potential;

    B. Reactivity;

    C. Explosion potential;

    D. Stability; and

    E. Hazardous decomposition.

4. Physical and Chemical Characteristics:
    A. Vapor pressure;
    B. Initial boiling point;
    C. Vapor density;
    D. Percent volatiles;
    E. Flash point;
    F. Lower explosive limit; and
    G. Specific gravity.
5. The health hazards of the hazardous chemical including:
    A. Signs and symptoms of exposure.
    B. Medical conditions aggravated by the chemical.
6. Primary route of entry.
7. OSHA PEL, ACGIH TLV, and any other recommended exposure limit.
8. Whether material is listed in NTP, OSHA, or LARC as a potential carcinogen.
9. Precautions for safe handling including:
    A. Hygienic practices;
    B. Protective measures during repair/maintenance of containers; and
    C. Personal protective equipment.
10. Emergency and first aid treatment.
11. Recommend extinguishing agents where potential fire hazards exist.
12. Recommended method of disposal.

APPENDIX II

HAZARD DETERMINATION

The following criteria shall be used in making hazard determinations:

1. Carcinogenicity - conclusive evidence.

2. Human data:

   A. Available Epidemiology studies.

   B. Available case reports.

3. Animal data:

   A. Available toxicological test results.

The results of any study which is designed and conducted according to established scientific protocols and which reports statistically significant results must be reported on any applicable Safety Data Sheet (SDS).

HEALTH HAZARDS

Health hazards may be acute (has immediate consequences) or chronic (occurs over time).

1. Sensitizer - A substances that causes a reversible inflammatory effect on living tissue.

2. Irritant - A substance (not corrosive) which causes a reversible inflammatory effect on living tissue.

3. Corrosive - A substance that causes an irreversible alteration in or visible destruction of living tissue.

4. Toxic - A substance meeting certain criteria in animal tests per mandatory Appendix A in the OSHA Standard.

5. Highly Toxic - A substance meeting certain criteria more potent than toxic in animal tests per mandatory Appendix A in the OSHA Standard.

6. Substances with Target Organ Effects - A substance which adversely affects one or more body organs.
7. Carcinogen - A substance capable or suspected of causing cancer in humans or animals.

Many workplace substances which may be encountered are sensitizers, irritants, corrosives, toxic, or highly toxic. Some affect target organs and a few are carcinogens.
Chemicals which meet any of the following criteria are health hazards.

1. **Carcinogen:**

   A. It's found to be carcinogenic or *potentially* carcinogenic by the International Agency for Research on Cancer (IARC) or the National Toxicology Program (NTP).

   B. It's regulated by OSHA as a carcinogen.

2. **Corrosive:**

   A. A chemical that causes visible destruction of or irreversible damage to living tissue.

   B. As defined by the Department of Transportation 49 CFR or Consumer Product Safety Commission.

3. **Highly Toxic - A chemical falling within any of the following categories:**

   A. Has an LD 50 $\leq$ 50 mg/kg (oral rat)

   B. Has an LD 50 $\leq$ 200 mg/kg (skin rabbit)

   C. Has an LC 50 $\leq$ 200 ppm or $\leq$ 2 mg\1 (1 hour rat inhalation)

4. **Toxic - A chemical falling within any of the following categories:**

   A. Has an LD 50 50-500 mg/kg (oral rat)

   B. Has an LD 50 200-1000 mg/kg (skin rabbit)

   C. Has an LD 50 200-2000 ppm or 2-20 mg/1 (1 hour rat inhalation)

5. **Irritant:**

   A. Is not corrosive, but causes a reversible inflammatory effect on living tissues.

   B. If when tested by methods of 16 CFR 1500.41 results in empirical score of $\leq$5.

   C. An eye irritant results are positive when tested under the procedure listed in 16 CFR 1500.42.

6. **Sensitizer:**

   A. Causes a substantial portion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

7. **Target organ effect** will include the following. These examples are not all inclusive.

   A. **Hepatotoxins:** Chemicals which produce liver damage.

      1) Signs and Symptoms: Jaundice, liver enlargement, abdominal pain, weight loss etc.
      2) Chemicals: Carbon tetrachloride, alcohols, etc.

   B. **Nephrotoxins:** Chemicals which produce kidney damage.

      1) Signs and Symptoms: Edema, reduced urine output, weight gain, high blood pressure, and flank pain.
      2) Chemicals: Halogenated hydrocarbons, acids, radioactive materials, etc.

   C. **Neurotoxins:** Chemicals which produce their primary toxic effects on the nervous system.

      1) Signs and Symptoms: Decreased level of consciousness, hallucinations, euphoria, confusion and coma.
      2) Chemicals: Solvents, petroleum hydrocarbons, etc.

   D. **Agents which act on the blood or hematopoietic system:** Decrease hemoglobin function which carries oxygen to body tissues.

      1) Signs and Symptoms: Cyanosis; loss of consciousness, bright red skin (30% of victims).
      2) Chemicals: Carbon monoxide, cyanides etc..

   E. **Agents which damage the lung:** Chemicals which irritate or damage the pulmonary tissue.

      1) Signs and Symptoms: Chronic cough possibly blood tinged; tightness in chest; shortness of breath.
      2) Chemicals: Silica; asbestos, corrosives, fumes from burning materials, etc.

   F. **Reproductive toxins:** Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on the unborn fetus (teratogenesis).

      1) Signs and Symptoms: Birth defects; sterility.
      2) Chemicals: Lead, radioactive material, alcohols, halogenated hydrocarbons, etc.

G. **Cutaneous hazards:** Chemicals which affect the dermal layer (skin and fat) of the body.

1) Signs and Symptoms: Defatting of the skin; rashes; irritation.
2) Chemicals: Ketones; chlorinated compounds, solvents, corrosives, etc.

H. **Eye hazards: C**hemicals which affect the eye or visual capacity.

1) Signs and Symptoms: Conjunctivitis; corneal damage, irritation blurred, or double vision.
2) Chemicals: Organic solvents; corrosives, ionizing radiation, metal fumes.

PHYSICAL HAZARDS

Physical injury can result from substances which are combustible (flammable), reactives or oxidizer chemicals under high pressure or temperature extremes, explosive, unstable, or reactive. These common properties among substances encountered in petroleum and chemical industry workplaces. The general assumption is that some or all of these physical hazards may be present in any work area.

APPENDIX III

HAZARDOUS SUBSTANCE INVENTORY

COMPRESSED GASSES:

PROPYLENE
LPG
NITROGEN
ARGON

MISCELLANEOUS

WD-40
AMMONIA
MOTOR OIL
GASOLINE
DIESEL FUEL
WINDSHIELD CLEANER
BRAKE FLUID
WHITE GREASE
SPRAY PAINT
ENAMEL PAINT
POWDER COAT
HAND CLEANER
WELDING RODS
SPATTER CLEANER
ANTI-SPATTER

SAFETY AUDIT INSPECTION CHECKLIST CHAPTER 25

HOIST LIFTRUCK: _____

Area(s) Inspected: _____Inspected by: _____Date:_____

	ITEM	YES	NO	CORRECTIVE ACTION – DATE
1.	Is there litter or spilled liquid on the floor?			
2.	Are floor surfaces chipped and uneven?			
3.	Are warning signs posted near cleaning areas, repair work or painting areas where painting is done?			
4.	Are aisles free of boxes, wastebaskets, chairs, and other obstacles that impede traffic?			
5.	Are electrical cords kept clean and dry?			
6.	Do cords present a tripping hazard?			
7.	Do cords look frayed?			
8.	Are cords draped over hot pipes and/or appliances?			
9.	Are flimsy extension cords in use?			
10.	Are all appliances connected with three-pronged plugs?			
11.	Are electrical outlet boxes kept closed so that they do not present a hazard?			
12.	Are cover plates for electrical switches or receptacles cracked or broken?			
13.	Do employees use fall protection over 4 foot in work area(s)?			
14.	Do employees where proper PPE when working in their area(s)?			
15.	Do employees handle hazardous materials properly while carrying them or storing them?			
16.	Does employee wear proper hand protection?			
17.	Are stairwells well lit?			
18.	Are stairway handrails, treads and/or risers in good condition in all stairwells?			
19.	Is employee wearing hearing protection, if in area where noise levels could exceed 85 db's?			
20.	Are oxygen/propylene cylinders chained in workers area?			
21.	Are weld shields used properly where welder is working?			
22.	Are machine guards used properly and are on tool(s) securely?			
23.	Is employee wearing the right foot protection in his/her work area(s)?			
24.	Are safety glasses being properly worn by employee?			
25.	Must employees step up or down to go through a doorway? If so, is a warning sign posted?			
26.	Does employee have the right fire extinguisher near him/her while working?			

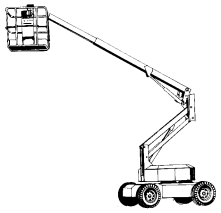
	ITEM	YES	NO	CORRECTIVE ACTION – DATE
27.	Is machinery turned off when not in use?			
28.	Do employees wear dangling jewelry or clothing, such as a necklace, around machinery that could possibly injure worker?			
29.	Are welders using proper PPE while welding including the proper eye protection?			
30.	Are spray painters wearing proper respiratory protection?			
31.	Are parts and equipment cleared from the pedestrian aisles that are clearly marked with yellow paint, in the divisional areas?			
32.	Have chain slings been properly checked before employee used them?			
33.	Are fire exits clearly marked?			
34.	Are fire extinguisher locations marked in such a way that they are visible from a distance?			
35.	Are fire extinguisher tags current?			
36.	Are fire extinguishers readily available?			
37.	Do all employees know the locations of the exits, alarms, and extinguishers?			
38.	Are nonflammable fluids used whenever possible?			
39.	Are flammable liquids/fluids stored in approved containers?			
40.	Are emergency numbers for medical, fire, law enforcement/security and ambulance posted?			
41.	Are fire drills conducted frequently?			
42.	Do designated smoking areas have ashtrays?			
43.	Are combustible materials stored near machinery or heat sources?			
44.	Are features of fire protection, such as sprinklers, fire alarms and hoses, kept clean and in good working order?			
45.	Are the tags on the features of fire protection current?			
46.	Are doors to enclosed stairwells kept closed at all times?			
47.	Are company parking lots well lit and clearly marked?			
48.	Is medical help readily available?			
49.	Are adequate first-aid supplies available?			
50.	Are all incidents/accidents properly reported, investigated and documented?			
MISCELLANEOUS:				
51.	Are Safety Inspections conducted in accordance with the time frame specified in the agency's loss prevention manual?			
52.	Are Safety Meetings conducted in accordance with the time frame specified in the agency's loss prevention manual?			

ITEM	YES	NO	CORRECTIVE ACTION – DATE
53. Are Hazard Control Logs posted throughout the workplace?			
54. Is the Worker's Compensation Notice of Compliance posted?			
55. Is the safety bulletin board current?			
56. Do fork lift drivers use safety belts?			
57. Are cranes checked daily before use?			

OVERALL EVALUATION:

EXCELLENT		
SATISFACTORY		
UNSATISFACTORY		

Aerial Lift
Operator Authorization Record



Purpose & Scope of this Document:

This document is to serve as proof of compliance for the following OSHA requirements:

- Only authorized persons shall operate an aerial lift.
- Employees are instructed in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment.

Contractor Information:

Name: _____
Address: _____
_____
_____
Contact Person: _____
Phone _____

Job Site Description:

Name: _____
Address: _____
_____
_____
Controlling Contractor:
_____

Make & Model of Aerial Lift:

_____

Note: This authorization record is job-site and equipment specific and is subject to cancellation whenever the job-site conditions change and/or equipment is modified or substituted.

Familiarization Upon Delivery:

Upon delivery of an aerial lift, the owner must review with the receiving entity the following (check off items once completed):

☐ Identify the weather resistant compartment (for manual storage).

☐ Confirm that the manuals, as specified by the manufacturer, are on the aerial lift.

☐ Review control functions with the operator or person(s) designated by the user.

☐ Review safety devices specific to the model aerial lift being delivered.

Name of Person(s) Providing Familiarization Upon Delivery:

_____

Date of Delivery: _____

Training Program Content:

Persons listed in the *Operator List* of this document have successfully completed a training program that consisted of at least the following items:

1. The purpose and use of manuals.
2. That operating manuals are an integral part of the aerial lift and must be stored properly in the weather resistant compartment when not in use.
3. A pre-start inspection.
4. Responsibilities associated with problems or malfunctions affecting the operation of the aerial lift.
5. Factors affecting stability.
6. The purpose of placards and decals.
7. Workplace inspection.
8. Safety rules and regulations.
9. Authorization to operate.
10. Operator warnings and instructions.
11. Actual operation of the aerial lift

Operator List:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Before Operation:

Before operation, the operator shall:

1. Read and understand the manufacturer's operating instruction(s) and user's safety rules or have them explained.
2. Understand all labels, warning and instruction displayed on the aerial lift or have them explained.
3. Ensure all occupants of the aerial lift wear appropriate personal safety equipment for the conditions, including the environment in which the aerial lift will be operated.

Proof of Training:

Only qualified persons who by extensive knowledge, training, and experience are authorized to operate an aerial lift.

The persons listed in the *Operator List* of this record are to be considered qualified and authorized within the scope of this document.

Name of Entity Who Provided Training:

_____

Name of Trainer(s):

_____

Date of Training: _____

HOIST LIFT TRUCK

2015

CHAPTER TWENTY SEVEN

Substance Abuse Awareness Policy

HOIST LIFT TRUCK has a strong commitment to the health, safety and welfare of its employees, their families, and its customers. Widely available statistics and information establish that the incidence of Drug and alcohol abuse is increasing and that the effect is devastating to lives, business and the community at large. HOIST LIFT TRUCK is concerned because of the potential for abuse among some of Our employees. The safety of our employees and the general public could be endangered. Our commitment to maintaining a safe and secure workplace requires a clear policy and supportive programs relating to the detection, treatment and prevention of substance abuse by employees.

Goal

It is the goal of HOIST LIFT TRUCK to provide a safe workplace by eliminating the hazards to health and job safety created by alcohol and other drug abuse. We believe this goal to be in the best interest of our Employees and our stockholders.

Scope

This policy applies to all employees of the company while on the job and to situations where an employee's off-the-job or off-premises conduct impairs work performance or undermines public

Confidence in or harms the reputation of HOIST LIFT TRUCK. It is also intended to apply to employees of firms doing business with the company while on our premises. Although HOIST LIFT TRUCK has no intention of intruding into the private lives of its employees, we Recognize that involvement with alcohol or other drugs off the job eventually takes its toll on job
Performance. Our concern is to ensure that employees report to work in a condition to perform their duties safely and efficiently in the interest of their fellow workers and customers as well as themselves.

Policy Statement

HOIST LIFT TRUCK will not tolerate or condone substance abuse. It is our policy to maintain a workplace free from alcohol and other drug abuse and its effects. It is the policy of HOIST LIFT TRUCK that employees who engage in the sale, use, possession or transfer of illegal drugs or controlled substances, or who offer to buy or sell such substances; the use of alcohol during working hours; or the abuse of prescribed drugs will be subject to disciplinary action up to and including termination. It is the policy of HOIST LIFT TRUCK to commit the resources necessary to achieve and maintain a drug- free and alcohol-free environment. HOIST LIFT TRUCK expects the full support of this policy by all employees and all persons doing
Business with the company.

Procedure

To provide a safe drug-free and alcohol-free working environment, HOIST LIFT TRUCK will: Establish definitive rules and regulations. Provide increased awareness through training, education and communication on the subject of alcohol and other drug abuse. Recognize that there may be employees who have an alcohol or other drug problem and stand willing to assist in the resolution of that problem by encouraging employees to seek help through employee assistance programs.

In addition, HOIST LIFT TRUCK may take any or all of the following actions: Conduct alcohol and other drug screen test both prospective to and during employment. Inspect persons and their property in our employ or doing business with ADP Safety LLC. Cooperate with outside law enforcement agencies. Take any other actions deemed necessary and appropriate by ADP Safety LLC.

Company Responsibility

As a responsible employer and member of the community HOIST LIFT TRUCK will: Create awareness in employees and their families of the impact of substance abuse. Administer programs that consider employee rights, are positive in their intent and are within legal boundaries. Support the establishment of programs to assist employees with alcohol and other drug abuse or dependency problems.
Utilize all channels and resources available to it to educate and increase the awareness of employees and the general public. Support local and national efforts to combat alcohol and other drug abuse and its effects.

Employee Responsibility

HOIST LIFT TRUCK believes that each employee has the responsibility to Report to work at all times free of alcohol or other drugs and their effects. Participate in and support company-sponsored drug and alcohol education programs. Seek and accept assistance for alcohol and other drug-abuse-related problems before job performance is affected. Support company efforts to eliminate alcohol and other drug abuse among employees where it exists.

Implementation

Each division of HOIST LIFT TRUCK will be responsible for establishing and implementing detailed policies and procedures, specific to its needs, in support of this policy. Each of these policies is subject to central review for consistency with HOIST LIFT TRUCK policy.

Responsibility for interpretation of this policy falls to the HOIST LIFT TRUCK human resource Department.

Powered Industrial Truck Operator Evaluation Worksheet

(Separate Sheet to be completed for Each Employee and Make/Model of Vehicle)

EMPLOYEE _____ DATE _____

MAKE/MODEL OF VEHICLE: _____

To Instructor: Check the box for each item only after trainee has shown that skill or knowledge has been learned; repeat lesson as many times necessary.

- ☐ Able to explain the differences between a powered industrial truck and an automobile.
- ☐ Shows familiarity with all controls and understands the purpose of all instrumentation.
- ☐ Able to explain the type of engine or motor operation for the equipment (i.e. battery, fuel, etc.).
- ☐ Shows proficient use of steering and maneuvering abilities of equipment.
- ☐ Demonstrates proper use of equipment when visibility is obstructed.
- ☐ Able to demonstrate and explain proper fork and/or attachment adaptation, operation, and limitations of their use.
- ☐ Able identify the vehicle capacity plate and load charts (if applicable) and shows proficient use of information.
- ☐ Able to explain how vehicle stability is affected.
- ☐ Able to perform vehicle inspection and maintenance per manufacturer’s requirements.
- ☐ Demonstrates proper refueling/recharging of machine.
- ☐ Can explain any operating limitations.
- ☐ Has reviewed and can explain other operating instruction, warning, or precaution listed in the operator's manual for the type of vehicle the employee is being trained to operate.
- ☐ Identifies and explains hazards associated with jobsite surface conditions.

Continued on Back

- ❑ Demonstrates the proper placement of loads on the fork and/or attachment and can explain how load stability is affected.
- ❑ Shows proper load manipulation, stacking and un-stacking.
- ❑ Understands special jobsite consideration towards pedestrian traffic.
- ❑ Can identify narrow aisles and restricted places of operation on jobsite.
- ❑ Can identify jobsite classified hazardous locations.
- ❑ Demonstrates proper operation on ramps and other sloped surfaces that would affect the stability of the vehicle.
- ❑ Shows familiarity with and can explain other unique or potentially hazardous environmental conditions that exist or may exist in the workplace.
- ❑ Explains how operating the vehicle in closed environments and other areas where insufficient ventilation and/or poor vehicle maintenance could cause a build-up of carbon monoxide or diesel exhaust.
- ❑ Is able to identify OSHA's Powered Industrial Truck Training Standard, 29 CFR 1926.602(d) and explain the purpose and scope of this standard.

Trained by/Date: _____ *(Date)* _____

Evaluated by/Date: _____ *(Date)* _____

Note: Persons with the necessary knowledge, training, and experience to train powered industrial truck operators and evaluate their competence must conduct all training and evaluation.

HOIST LIFT TRUCK

EMPLOYEE ACKNOWLEDGEMENT FORM

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CHAPTER TWENTY NINE

Hoist Liftruck Manufacturing is firmly committed to your safety. We will do everything possible to prevent workplace accidents and are committed to providing a safe working environment for you and all employees.

We value you not only as an employee but also as a human being critical to the success of your family, the local community and Hoist.

You are encouraged to report any unsafe work practices or safety hazards encountered on the job. All accidents/incidents are to be immediately reported to your supervisor on duty.

A key factor in implementing this policy will be strict compliance to all applicable federal, state, local, and Hoist Liftruck policies and procedures. Failure to comply with these policies may result in disciplinary actions.

Respecting this, Hoist Liftruck will make every reasonably effort to provide a safe and healthful workplace that is free from any recognized or known potential hazards. Additionally, Hoist Liftruck subscribes to these principles:

1. All accidents are preventable through implementation of effective Safety and Health Control Policies and Programs.
2. Safety and Health controls are a major part of our work day.
3. Accident prevention is good business. It minimizes human suffering, promotes better working conditions for everyone, holds Hoist in higher regard with customers, and increases productivity. This is why Hoist will comply with all safety and health regulations which apply to the course and scope of operations.
4. Management is responsible for providing the safest possible workplace for employees. Consequently, Management of Hoist is committed to allocating

and providing all of the resources needed to promote and effectively implement this safety policy.

5. Employees are responsible for following safe work practices, company rules, and for preventing accidents and injuries. Management will establish lines of communication to solicit and receive comments, information, suggestions, and assistance from employees where safety and health are concerned.
6. Management and supervisors of Hoist Liftruck will set an exemplary example with good attitudes and strong commitment to safety and health in the workplace.

By signing this document, I confirm the receipt of Hoist Liftruck's employee safety handbook. I have read and understood all policies, and actions as described and agree to comply with these set policies.

_____ _____

Employee Signature Date