

W M PAINTING INC

**INJURY AND ILLNESS
PREVENTION PROGRAM**

FOR THE STATE OF MASSACHUSETTS

INTRODUCTION

This section of your manual provides you with information specific to Massachusetts. The chapters that follow this foreword contain information that is aligned, at a minimum, to federal Occupational Safety and Health Administration (OSHA) standards. If an applicable OSHA standard does not exist, or is superseded by another regulatory agency or state-specific requirement, the most stringent standard available will be provided.

FEDERAL AND STATE REGULATIONS

OSHA governs Massachusetts' safety and health regulations. However, this section of your manual contains reporting and other regulatory information that is specific to Massachusetts.

LABOR POSTERS

In addition to the posters required by federal agencies, Massachusetts requires the following posters to be prominently displayed in the workplace.

- Wage and Hour Laws
- Fair Employment Law
- Maternity Leave Act
- Sexual Harassment
- Unemployment Insurance Information
- Notice to Employees
- Smoke Free Workplace

Information on obtaining individual posters can be found on the Massachusetts state website at: <http://www.mass.gov/lwd/labor-standards/dls/massachusetts-workplace-poster-requirements.html>

Your business may be required to post additional mandatory federal postings. To determine additional requirements, go to www.dol.gov/elaws/posters.htm.

REPORTING

Companies and employees should use the following contacts when:

- Reporting unsafe workplaces – Federal OSHA
- Reporting injuries or accidents – Federal OSHA
- Filing for workers' compensation – Massachusetts Department of Industrial Accidents
- Reporting acts of discrimination – The Massachusetts Commission Against Discrimination, or the Equal Employment Opportunity Commission

INJURIES OR ACCIDENTS

Massachusetts private employers must report any work-related amputation, loss of an eye, or in-patient hospitalization of any employee, within 24 hours of the incident, and any fatal accident or catastrophe (one that results in the hospitalization of three or more employees) to the nearest federal OSHA Area Office within 8 hours.

To report a private sector fatality or catastrophe to federal OSHA during normal business hours (8:30 a.m. – 4:30 p.m.), call the nearest OSHA office. At all other times contact the federal OSHA Hotline:

- 1-800-321-OSHA (6742)
- TTY 1-877-889-5627

When reporting a health or safety hazard in the workplace, you will need to have as much information as possible regarding the nature of the accident, equipment involved, affected workers, and time.

DISCRIMINATION PROTECTION

In the state of Massachusetts, it is against the law for an employer to refuse to hire, to discharge, to promote or demote, or to discriminate in matters of compensation or the terms, conditions, or privileges of employment against a qualified disabled person or any person otherwise qualified because of:

- Race
- Color
- National Origin
- Religion
- Sex (including pregnancy, childbirth, and related medical conditions)
- Disability
- Age (40 and older)
- Genetic information
- Citizenship status
- Marital status
- Sexual orientation
- Military service
- Arrest record
- Gender identity

Employees who believe that have been subjected to discriminatory practices based on any status in the list above can file a complaint with the **Massachusetts Commission against Discrimination** at: (617) 994-6000

Workers can also contact the Equal Employment Opportunity Commission (EEOC), which is the federal agency that regulates workplace discrimination.

EEOC: 1(800) 669-4000

UNSAFE WORKPLACE

If you are an employee or employee representative, and believe you or another employee are/is exposed to a condition that is immediately dangerous to life or health, you should first attempt to resolve the matter with the employer. If that is not possible, you may file a complaint with OSHA by mail, phone, fax, or online.

For Health Hazards

- Do any employees have injuries or symptoms that they believe are caused by the hazardous condition or substance?
- Have any employees been treated by a doctor for an injury, illness, or disease related to the hazardous condition or substance? What was it?

For Safety Hazards

- How many employees work at the site and how many are exposed to the hazard?
- How and when are workers exposed?
- What work is performed in the unsafe or unhealthful area?
- What type of equipment is used? Is it in good condition?
- What materials and/or chemicals are used?
- Have employees been informed or trained regarding hazardous conditions?
- What processes and/or operations are involved?
- What kinds of work are done nearby?
- How often and for how long do employees work at the task that leads to their exposure?
- How long (to your knowledge) has the condition existed?
- Have any attempts been made to correct the problem?
- On what shifts does the hazard exist?
- Has anyone been injured or made ill because of this problem?
- Have there been any "near-miss" incidents?

Filing by Fax or Mail

To file a complaint by fax or mail, complete the form near the end of this foreword, and send it to the nearest OSHA office. Written complaints that are signed by a worker or representative and submitted to the closest OSHA Area Office are more likely to result in onsite OSHA inspections. Please include your name, address, and telephone number so that OSHA can contact you to follow up. The information you provide is confidential.

Filing by Phone

Contact the nearest OSHA Regional or Area office, or call 1-800-321-OSHA.

Filing Online

To file an online complaint, go to www.OSHA.gov and complete the OSHA 7 form.

MASSACHUSETTS FOREWORD

DISCRIMINATION

Workers who believe they have been punished or discriminated against for exercising their rights under the OSH Act have the right to file a complaint against their employer. However, employees must file a complaint with OSHA **within 30 days of the alleged reprisal**.

No particular form is required to report the discrimination. You may call or send a letter to the OSHA Area Office nearest you, use the Whistleblower Complaint form attached near the end of this foreword, or file online at www.OSHA.gov using the Online Whistleblower Complaint Form.

REFUSAL TO PERFORM UNSAFE WORK

Massachusetts employees who refuse to perform work in conditions where there is an imminent danger to life or health may be protected under state and federal laws. OSHA recommends that employees first address the issue with their employer before taking action.

Refusing to perform work is recognized favorably for the employee only when it is done in good faith, in an imminently dangerous workplace where there is not enough time to contact OSHA, and when the employee remains readily available to perform other assigned tasks. Employees who simply walk off the job will not be protected.

OSHA Offices

OSHA offices are established in 10 geographical regions, with area offices located in most states. The addresses and phone numbers of the offices for Massachusetts are listed below.

North Boston	South Boston	Springfield	Boston (Regional Office)
Shattuck Office Center 138 River Rd. Ste. 102 Andover, MA 01810 Phone: (978) 837-4460 Fax: (978) 837-4455	639 Granite St., 4 th Floor Braintree, MA 02184 Phone: (617) 565-6924 Fax: (617) 565-6923	1441 Main St., Room 550 Springfield, IL 01103 Phone: (419) 785-0123 Fax: (413) 785-0136	JFK Federal Building Room E340 Boston, MA 02203 Phone: (617) 565-9860 Fax: (617) 565-9827

WORKERS' COMPENSATION

Employees in Massachusetts can file for workers' compensation if they suffer a work-related injury or illness. In order to file a claim, workers need to notify W M Painting Inc of the injury or illness as soon as possible (in order to receive benefits quickly. Massachusetts allows workers to file claims up to four (4) years from the date the worker becomes aware of the connection between their disability and their employment).

MASSACHUSETTS FOREWORD

W M Painting Inc in turn must notify the state and their insurance carrier within seven (7) days of the fifth (5th) day the employee has been unable to work by filing a First Notice of Injury report (FROI) – Form 101. A copy of this form must be filed with the Massachusetts Department of Industrial Accidents. A copy of this form is attached at the end of this foreword.

As of January 2014, the Department of Industrial Accidents no longer accepts paper submissions of Form 101. Employers must file electronically. Instructions on accessing and filing this form can be found at:

<http://www.mass.gov/lwd/workers-compensation/wc-pubs/forms/form-list-numbered/form-101.html>

Massachusetts Department of Industrial Accidents – Department 110
1 Congress St., Ste. 101
Boston, MA 02114-2017

TRAINING

OSHA requires employers to train employees before they perform any task that may endanger their health or safety. Employees must be deemed competent to perform all work tasks, or they will work under the supervision of a competent worker.

Employers must perform a job site hazard analysis to establish the presence and degree of onsite safety hazards, and to effectively mitigate or handle them. This investigation will include:

- The tasks to be performed
- The equipment to be used and/or operated
- The work environment and atmosphere
- The health and safety risks involved with the work

An onsite, competent professional may conduct training, or the company may choose to hire trainers from an approved third-party source.

The training must at least:

- Determine the level of competence required by workers who perform hazardous tasks, and evaluate the competence of workers who perform them
- Ensure employees who are not competent to complete a hazardous task are reassigned or trained appropriately
- Ensure training is updated to reflect changes in equipment, processes, environment, and employee responsibilities

ATTACHMENTS

- OSHA Safety and Health Complaint form (OSHA7)
- OSHA Whistleblower/Discrimination form

NOTE: These forms are also available online, either as downloadable or fillable forms, at the website listed below.

- <https://www.osha.gov/workers/index.html>

MASSACHUSETTS FOREWORD

U. S. Department of Labor
Occupational Safety and Health Administration
Notice of Alleged Safety or Health Hazards

For the General Public:

This form is provided for the assistance of any complainant and is not intended to constitute the exclusive means by which a complaint may be registered with the U.S. Department of Labor.

See 8(d)(1) of the Williams-Steiger Occupational Safety and Health Act, 29 U.S.C. 651, provides as follows: Any employees or representative of employees who believe that a violation of a safety or health standard exists that threatens physical harm, or that an imminent danger exists, may request an inspection by giving notice to the Secretary or his authorized representative of such violation or danger. Any such notice shall be reduced to writing, shall set forth with reasonable particularity the grounds for the notice, and shall be signed by the employee or representative of employees, and a copy shall be provided the employer or his agent no later than at the time of inspection, except that, upon request of the person giving such notice, his name and the names of individual employees referred to therein shall not appear in such copy or on any record published, released, or made available pursuant to subsection (g) of this section. If upon receipt of such notification the Secretary determines there are reasonable grounds to believe that such violation or danger exists, he shall make a special inspection in accordance with the provisions of this section as soon as practicable to determine if such violation or danger exists. If the Secretary determines there are no reasonable grounds to believe that a violation or danger exists, he shall notify the employees or representative of the employees in writing of such determination.

NOTE: Section 11(c) of the Act provides explicit protection for employees exercising their rights, including making safety and health complaints.

For Federal Employees:

This report format is provided to assist Federal employees or authorized representatives in registering a report of unsafe or unhealthful working conditions with the U.S. Department of Labor.

The Secretary of Labor may conduct unannounced inspection of agency workplaces when deemed necessary if an agency does not have occupational safety and health committees established in accordance with Subpart F, 29 CFR 1960; or in response to the reports of unsafe or unhealthful working conditions upon request of such agency committees under Sec. 1-3, Executive Order 12196; or in the case of a report of imminent danger when such a committee has not responded to the report as required in Sec. 1-201(h).

INSTRUCTIONS:

Open the form and complete the front page as accurately and completely as possible. Describe each hazard you think exists in as much detail as you can. If the hazards described in your complaint are not all in the same area, please identify where each hazard can be found at the worksite. If there is any particular evidence that supports your suspicion that a hazard exists (for instance, a recent accident or physical symptoms of employees at your site) include the information in your description. If you need more space than is provided on the form, continue on any other sheet of paper.

After you have completed the form, return it to your local OSHA office.

NOTE: It is unlawful to make any false statement, representation or certification in any document filed pursuant to the Occupational Safety and Health Act of 1970. Violations can be punished by a fine of not more than \$10,000, or by imprisonment of not more than six months, or by both. (Section 17(g))

Public reporting burden for this voluntary collection of information is estimated to vary from 15 to 25 minutes per response with an average of 17 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An Agency may not conduct or sponsor, and persons are not required to respond to the collection of information unless it displays a valid OMB Control Number. Send comment regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to the Directorate of Enforcement Programs, Department of Labor, Room N-3119, 200 Constitution Ave., NW, Washington, DC, 20210.

OMB Approval# 1215-0064; Expires: 05-31-2017

Do not send the completed form to this Office.

OSHA-7(Rev. 9/93)

U. S. Department of Labor
Occupational Safety and Health Administration
Notice of Alleged Safety or Health Hazards

		Complaint Number		
Establishment Name				
Site Address				
	Site Phone		Site FAX	
Mailing Address				
	Mail Phone		Mail FAX	
Management Official			Telephone	
Type of Business				
HAZARD DESCRIPTION/LOCATION. Describe briefly the hazard(s) which you believe exist. Include the approximate number of employees exposed to or threatened by each hazard. Specify the particular building or worksite where the alleged violation exists.				
Has this condition been brought to the attention of:	<input type="checkbox"/> Employer	<input type="checkbox"/> Other Government Agency(specify)		
Please Indicate Your Desire:	<input type="checkbox"/> Do NOT reveal my name to my Employer			
	<input type="checkbox"/> My name may be revealed to the Employer			
The Undersigned believes that a violation of an Occupational Safety or Health standard exists which is a job safety or health hazard at the establishment named on this form.	(Mark "X" in ONE box)			
	<input type="checkbox"/> Former Employee	<input type="checkbox"/> Federal Safety and Health Committee		
	<input type="checkbox"/> Current Employee	<input type="checkbox"/> Other (specify) _____		
	<input type="checkbox"/> Representative of Employees			
Complainant Name			Telephone	
Address(Street, City, State, Zip)				
Signature			Date	
If you are an authorized representative of employees affected by this complaint, please state the name of the organization that you represent and your title:				
Organization Name:	Your Title:			



INFORMATION ABOUT FILING A WHISTLEBLOWER OR RETALIATION COMPLAINT WITH OSHA

FOR ALL EMPLOYEES:

OSHA administers the whistleblower protection provisions of more than twenty whistleblower protection statutes, including Section 11(c) of the Occupational Safety and Health (OSH) Act, which prohibits any person from discharging or in any manner retaliating against any employee because the employee has complained about unsafe or unhealthful conditions or exercised other rights under the Act. Whistleblower protection provisions administered by OSHA also protect employees from retaliation for reporting violations of various airline, commercial motor carrier, motor vehicle safety, consumer product, environmental, consumer finance, food safety, health insurance reform, nuclear, pipeline, public transportation agency, railroad, maritime and securities laws.

Each law requires that complaints be filed within a certain number of days after the alleged retaliatory action; the time periods vary from 30 days to 180 days. For example, Section 11(c) of the OSH Act requires that a complaint be filed within 30 days of the alleged retaliatory action and the International Safe Container Act requires that a complaint be filed within 60 days of the action. Visit the Whistleblower Protection Programs' website at www.whistleblowers.gov, or call 1-800-321-OSHA (6742), for more information about these time limits.

A complaint of retaliation filed with OSHA must allege that the complainant engaged in activity protected by the whistleblower provisions (such as reporting a violation of law), the employer knew about or suspected that activity, the employer subjected the complainant to an adverse action or threatened such action, and the protected activity motivated or contributed to the adverse action. Adverse actions include discharge, demotion, blacklisting, denial of promotion, harassment and generally any other action that would dissuade a reasonable employee from engaging in protected activity.

Upon receipt of a complaint, OSHA will contact the complainant to determine whether to conduct an investigation. It is very important that a complainant respond to such contact; if a complainant is unresponsive, OSHA cannot proceed with an investigation and the complaint will be dismissed. If OSHA proceeds with an investigation, the complainant will have an opportunity to offer documents and other evidence in support of the complaint, and the employer will be notified of the allegation and permitted to submit a response.

BY LAW, A COMPLAINANT'S INFORMATION, INCLUDING HIS/HER IDENTITY, MUST BE PROVIDED TO THE EMPLOYER. A WHISTLEBLOWER COMPLAINT FILED WITH OSHA CANNOT BE FILED ANONYMOUSLY.



If, after an investigation, the evidence supports the complainant's allegations and a settlement cannot be reached, OSHA will generally issue an order requiring that the complainant be reinstated and paid back pay and damages, if appropriate, which the employer may contest. In cases under the Occupational Safety and Health Act, Asbestos Hazard Emergency Response Act, and the International Safe Container Act, the Secretary of Labor may file suit in federal district court to obtain relief. Under other statutes, the Secretary may order relief for the complainant, but the employer may contest that decision before an administrative law judge.

FOR PUBLIC-SECTOR EMPLOYEES:

Coverage of public-sector employees varies by statute. If you are a public-sector employee and you are unsure whether you are covered under one or more of the whistleblower protection statutes that OSHA administers, call 1-800-321-OSHA (6742) for assistance, or visit www.whistleblowers.gov.

With the exception of employees of the U.S. Postal Service, public-sector employees (those employed as municipal, county, state, territorial or federal workers) are not covered by the

Occupational Safety and Health Act. Non-federal public-sector employees may be covered in states which operate their own occupational safety and health programs approved by Federal OSHA. For information on the 27 federally approved State Plan States, call 1-800-321-OSHA (6742) or visit www.osha.gov/dcsp/osp/index.html.

All Federal agencies are required to establish procedures to assure that no employee is subject to retaliation or reprisal for the types of activities protected by Section 11(c). A federal employee who wishes to file a complaint alleging retaliation due to disclosure of a substantial and specific danger to public health or safety or involving occupational safety or health should contact the Office of Special Counsel - visit www.osc.gov.

Federal employees should also contact their agency's Designated Agency Safety and Health Officer (DASHO). See 29 C.F.R. 1960.6 for more information regarding DASHOs.

For assistance filing a complaint with a DASHO, federal employees may contact OSHA's Office of Federal Agency Programs. For contact information, visit www.osha.gov/dep/enforcement/dep_offices.html.



PART 1 – EMPLOYEE INFORMATION

1. Name (last, first, middle initial) (*required*):

2. Present Address (Street, City, State, Zip) (*required*):

3. Telephone Numbers (include area code) (*at least one required*):

Home: ()

Work: ()

Cell: ()

4. Email Address:

5. Preferred Method of Contact:

6. Best time to be contacted (include time zone):

7. Work Site Address at Place of Employment where Alleged Retaliation Occurred (Street, City, State, Zip):

8. Date of Hire at Place of Employment where Alleged Retaliation Occurred:



9. Job Title at Place of Employment where Alleged Retaliation Occurred:

10. Exclusive bargaining (union) representative (if any):

- Yes No I don't know

11. The person filing this complaint is (check one box):

- Employee Representative of Employee
 Other (specify)

If you are an authorized representative of the complainant, please complete Part 4 – Identification of Representative.

PART 2 – EMPLOYER CONTACT INFORMATION

12. Employer Name (*required*):

13. Name and Title of Management Person (for contact purposes only):

Name:

Title:

Phone:



14. Name and Title of Supervisor:

Name:

Title:

15. Employer Mailing Address (if different from worksite address in #7):

16. Employer Phone:

()

17. Employer Fax:

()

18. Employer Email:

19. Type of Business:

PART 3 – ALLEGATION OF DISCRIMINATION

Please answer the questions below in the space provided. If you need additional space, use the attached "Continuation Sheet."

20. What management person is responsible for the retaliation that you are reporting?

Name:

Position/Title:



21. What are the actions or events that you are reporting to OSHA? *You may check one or more of the boxes below, and/or describe the action(s) in the space provided. (required)*

- Termination Discipline Demotion/Reduced Hours
- Denial of Benefits Failure to Promote Negative Performance Evaluation
- Failure to Hire/Re-Hire Harassment Suspension
- Threat to Take any of the Above Actions Other (please describe):

22. When did the employer take these actions against you? *Please list all relevant date(s) to the best of your recollection. If you cannot remember the exact date(s), please put the approximate date(s).*

23. When did you first learn that the action(s) would be taken against you? *Please list all relevant dates(s) to the best of your recollection. If you cannot remember the exact date(s), please put the approximate date(s).*

24. What reason(s) did the employer give you for each of these actions?



25. Why do you believe the employer took these actions against you? *You may check one or more of the boxes below, and/or describe the reason in the space provided.*

- Called/Filed with OSHA
- Called/Filed with Another Agency
- Complained to Management
- Reported an Accident or Injury
- Participated in Safety and Health Activities
- Refused to Perform Task (please specify reason for refusal)
- Testified or provided statement in investigation or other proceedings (please specify)
- Other (please describe)

26. For any of the actions you listed in #25, please provide the relevant date(s) you engaged in that activity.

27. Do you believe the employer knew you engaged in the activity described in #25? If so, how do you think they learned of it?



28. Have you filed any previous complaints against this employer with OSHA regarding these or similar retaliatory actions?

Yes No

If yes, please provide the complaint number and date filed.

Complaint Number:

Date filed:

29. Have you taken any other action(s) to appeal, grieve, or report this matter under any other procedure?

Yes No

If yes, please list the agency/organization(s) with whom you have appealed/grieved/reported this matter, the date filed, the current status of the procedure, and any outcome:

30. How did you first become aware that you could file a complaint with OSHA?

OSHA Website OSHA Poster News story OSHA Representative
 Union Other (please describe):



PART 4 – IDENTIFICATION OF REPRESENTATIVE

Complete this part if you are an authorized representative of the complainant. If an investigation is opened, you will be asked to submit a signed Designation of Representative Form that will be sent to you.

If you are filing this complaint on your own behalf, do NOT complete this part.

Name:

Title:

Organization Name (if any):

Union Affiliation (if any):

Address (Street, City, State, Zip Code):

Phone (day): ()

Phone (cell): ()

Email:

By checking this box, I certify that the named employee has authorized me to act as their representative for purposes of this complaint.

PART 5 – CERTIFICATION

NOTE: It is unlawful to make any materially false, fictitious, or fraudulent statement to an agency of the United States. Violations can be punished by a fine or by imprisonment of not more than five years, or by both. See 18 U.S.C. 1001(a); 29 U.S.C. 666(g).

By checking this box, I certify that the information in this complaint is true and correct to the best of my knowledge and belief.

Date:

TABLE OF CONTENTS

1. HEALTH & SAFETY PROGRAM	1-1
2. SAFETY COMMITTEE POLICY	2-1
3. GENERAL SAFETY RULES	3-1
4. JOB HAZARD ANALYSIS	4-1
5. EMERGENCY RESPONSE PLANNING	5-1
6. ACCIDENT INVESTIGATION	6-1
7. FIRST AID & MEDICAL SERVICES	7-1
8. BLOODBORNE PATHOGENS	8-1
9. WORKPLACE VIOLENCE PREVENTION	9-1
10. FIRE PROTECTION & PREVENTION	10-1
11. PERSONAL PROTECTIVE EQUIPMENT	11-1
12. HAZARD COMMUNICATION	12-1
13. GENERAL ELECTRICAL SAFETY	13-1

POLICY STATEMENT

The safety and health of employees is the first consideration in operating any business. Without question, it is the responsibility of every employee at all levels in the hierarchy.

W M Painting Inc will comply with all laws and prevent workplace injuries and illnesses. To do this, we must be aware of conditions that can result in injury or illness in every work area. No employees will be required to work at a job they know is unsafe or unhealthy. Companywide cooperation in detecting hazards and controlling them is a condition of employment. Employees will inform their supervisor immediately of any hazardous situation beyond their ability or authority to correct.

Preventing workplace injuries and illnesses takes precedence over operating productivity when necessary. To the greatest degree possible, management will provide safeguards for personal safety and health, in keeping with the highest standards.

We strive to maintain an occupational injury and illness prevention program (IIPP) that conforms to industry best practices for organizations of this type. To be successful, such a program must embody proper attitudes toward injury and illness prevention on the part of both supervisors and employees. It also requires cooperation in all safety and health matters, not only between supervisor and employee, but also among coworkers.

Our objective is an (IIPP) that reduces the number of work place incidences to an absolute minimum, not merely in keeping with, but surpassing the best experience of operations similar to ours. Our goal is zero accidents and injuries.

SAFETY & HEALTH PROGRAM COMPONENTS

Our (IIPP) includes the following:

- Communicating with employees about safety issues and workplace hazards through a range of avenues including a safety training program, safety committee, and meetings to exchange ideas about workplace safety and health among employees;
- Providing and maintaining mechanical, physical and administrative safeguards to control risks presented by workplace hazards to the maximum possible extent;
- Conducting a program of safety and health inspections to find and eliminate unsafe working conditions or practices, to control health hazards, and to comply with safety and health regulations and standards;

SAFETY & HEALTH PROGRAM

- Providing necessary personal protective equipment (PPE) and instructions for proper use and care;
- Developing and enforcing safety and health rules and requiring employees to cooperate with these rules as a condition of employment;
- Investigating promptly and thoroughly every accident, safety incident, and near miss to determine root causes and make appropriate changes to remedy those causes;
- Creating a culture of safety that encourages employees to identify workplace hazards, recommend changes to reduce the risks they pose, and otherwise work proactively for a safer workplace; and
- Periodic review of all elements of the injury (IIPP) to ensure continuous improvement.

We recognize the responsibilities for occupational safety and health are shared: W M Painting Inc will see that all employees are properly instructed and supervised in safe operation of machinery, tools, equipment, processes, and practices while at work.

W M Painting Inc accepts responsibility for the leadership, effectiveness, and improvement of the injury and illness prevention program and for providing the required safeguards to ensure safe work conditions.

Supervisors are responsible for encouraging proper attitudes toward safety and health and for ensuring that workers perform operations with the utmost regard for the safety and health of all personnel.

Employees are responsible for wholehearted, genuine implementation of all aspects of the (IIPP), including compliance with all rules and regulations, and for continuously following best safety and health practices while performing their duties.

Requirements in multiple chapters may apply to the same job, and some health and safety procedures will be addressed at different levels of focus. Where a circumstance is addressed by different requirements throughout this manual, then all requirements apply and when a conflict occurs, the more specific one must be followed.

SAFETY & HEALTH PROGRAM

PROGRAM GOALS

The goal of W M Painting Inc is to continue operating a profitable business while protecting employees from injuries or illness. This can be achieved by delegating responsibility and accountability to all involved in this company's operation.

Responsibility: Having to answer for activities and results.

Accountability: The actions taken by management to ensure the performance of responsibilities.

To reach our goal of a safe workplace, everyone needs to take responsibility and be accountable.

Owner Name

Owner Signature

Date

Wayne Mello is responsible for the implementation and enforcement of safety rules.

SAFETY & HEALTH PROGRAM

INTRODUCTION

All businesses are encouraged to establish safety committees as part of their IIPP. There are currently ten states that require companies to form safety committees. The conditions for this requirement vary by state, and companies should consult the appropriate state agency to determine if the requirements apply.

POLICY STATEMENT

W M Painting Inc maintains its commitment to protect the safety and health of all employees. To support a workplace culture that prioritizes the prevention of illness and injury, a committee of stakeholders representing management and workers will plan and implement safety policies and ensure best safety practices are followed throughout the workplace.

W M Painting Inc Safety Committee members at the time this manual was created are:

Wayne Mello and as designated by Wayne Mello.

The safety committee will meet a minimum of 4 times per year.

RESPONSIBILITIES

The safety committee is a collaborative, consensus-focused organization within the workplace. Its success depends not only on the ability of the committee to work toward a culture of safety, but also on the efforts of other employees and the support of managers and supervisors.

W M Painting Inc supports the safety committee and its efforts to strengthen safety in the workplace. Managers and supervisors will encourage employee involvement and support a workplace culture where honest communication about safety issues is encouraged. Employees should feel confident when sharing suggestions or concerns that their views will be handled seriously and with respect.

EMPLOYER RESPONSIBILITIES

It is the responsibility of W M Painting Inc to:

- Ensure every employee receives training on their roles regarding the safety committee;
- Support and encourage active employee involvement in creating and supporting a culture of safety;
- Establish the authority of the W M Painting Inc safety committee;
- Support the safety committee and respond to its recommendations promptly;
- Establish the size of the safety committee;
- Accurately communicate the time and effort commitment level expected of safety committee members; and
- Fund and allow time for safety committee activities.

SAFETY COMMITTEE POLICY

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the W M Painting Inc safety committee to:

- Meet 4 times a year;
- Identify hazards and unsafe work practices, remove obstacles to incident prevention, and help the company evaluate the injury and illness prevention program (IIPP);
- Write bylaws to document the committee's purpose, activities, and processes;
- Report employee safety and health concerns to the committee;
- Suggest items to include in the monthly meeting agenda;
- Encourage other employees to report workplace hazards and suggest how to control them;
- Deliver safety training when appropriate;
- Establish procedures for conducting regular workplace inspections and for making recommendations to management to eliminate or control hazards;
- Make or assist in safety inspections and accident investigations;
- Work safely and encourage others to do likewise;
- Help management evaluate safety programs and recommend improvements;
- Establish procedures for investigating the causes of accidents and near-miss incidents;
- Plan and document every official meeting;
- Establish committee offices and elect officers;
- Communicate and build consensus over safety and health issues in meetings;
- Follow a written agenda at every meeting;
- Record minutes at every safety committee meeting and post them for employees;
- Plan for emergencies;
- Create and maintain documents related to W M Painting Inc's safety and health program;
- Follow bylaws established by the committee; and
- Review the W M Painting Inc injury and illness prevention program annually.

EMPLOYEE RESPONSIBILITIES

W M Painting Inc employees are expected to recommend safety solutions to the safety committee; Participate in the selection of members and consider volunteering to join the committee; Cooperate and provide input during workplace inspection, job hazard analysis and accident investigation; and Attend all required safety meetings.

TRAINING

W M Painting Inc will ensure employees are provided training on their roles regarding the safety committee. This training will be provided at no cost to the employee and completed during working hours.

W M Painting Inc will use only training material appropriate in content and vocabulary to the educational level, literacy and language of employees.

TRAINING COMPONENTS

- Wayne Mello will ensure that all employees at W M Painting Inc are informed and trained in the following minimum elements for safety committees; the role of the safety committee in ensuring companywide safety and health; and how to participate in the safety committee.
- Safety committee members will complete training in the following minimum elements:
 - The purpose of the safety committee;
 - How to apply safety rules;
 - How to conduct safety committee meetings;
 - Hazard identification;
 - The principles of accident investigation;
 - Contact information for help on workplace safety and health matters; and
 - Company safety policy and occupational safety and health principles.
- All safety committee officers will be trained to fulfill their responsibilities as officers.

TRAINING RECORDS

- Training records will include the following information: dates of the training sessions, contents or a summary of the training sessions, names and qualifications of persons conducting the training, names, and job titles of all persons attending the training sessions.
- Employee training records will be maintained for 3 years from the date on which the training occurred.

SAFETY COMMITTEE POLICY

BYLAWS

The W M Painting Inc Safety Committee will define its purpose, activities, and processes in its bylaws. The document will define the scope and nature of the committee's activities, and serve as a guide to new committee members. The complexity of the document depends on the safety and health needs of W M Painting Inc and the decisions of the committee. However, topics in the bylaws should include the following.

NAME, PURPOSE AND CONSTITUENCY

In its bylaws, the safety committee will identify the worksite from where committee members are selected, why the committee has been formed, and the committee's goals and objectives.

COMMITTEE COMPOSITION, OFFICERS AND TERMS

Bylaws will establish the size of the committee as well as what proportion of the committee will be reserved for members of management and labor. Bylaws also need to establish the officers the committee will appoint and how they will be appointed. The length of terms also needs to be determined for officers and members of the committee.

DUTIES, RESPONSIBILITIES AND TRAINING

The safety committee will outline the duties of each officer and members, both in terms of their obligations to the safety committee and in terms of fulfilling their role in the workplace. Safety committee members will need additional training, not only in how the committee functions, but also in how to competently perform their responsibilities of emergency response, inspections, etc.

MEETINGS, ELECTIONS AND ATTENDANCE

The safety committee bylaws should specify the frequency of meetings, as well as how an absence should be handled. A portion of the document should address the number of representatives needed to form a voting quorum as well as how the committee will resolve issues it cannot resolve with a vote.

AGENDAS, MINUTES AND RECORDKEEPING

Safety committee will plan and document every official meeting. Each meeting will have a predetermined order of business, and a system in place to record what happened in the meeting and document recommendations and findings brought to the committee during meetings.

SAFETY COMMITTEE POLICY

INVESTIGATIONS, INSPECTIONS AND EVALUATIONS

Bylaws describe the role of the committee in investigating near misses and accidents, as well as how the committee will conduct workplace inspections. In the bylaws, the committee needs to establish how the committee and management will communicate regarding safety concerns and recommendations*. It also needs to describe how it will assess the overall injury and illness prevention program (IIPP) and its own activities to establish a means of ongoing evaluation and improvement.

See the example of safety committee bylaws at the end of this chapter.

COMMITMENT

During planning for the safety committee, the support of both management and labor is critical. Management will consistently support and encourage active employee involvement in creating and supporting a culture of safety at W M Painting Inc. Management is responsible for establishing the authority of the W M Painting Inc safety committee and after its creation will support the committee and respond to its recommendations promptly.

MEMBERSHIP

Only W M Painting Inc employees may serve on the safety committee. Members of the committee should be volunteers and the number of managers and non-managers on the committee should be approximately equal. If possible, the safety committee should include representatives from a range of departments, work operations, and shifts. This helps ensure all groups of workers feel represented and contributes to effective communication between the safety committee and the rest of the workforce. Elections for members can be a helpful way to encourage involvement in the committee's activities.

NUMBER OF COMMITTEE MEMBERS

Wayne Mello will establish the size of the safety committee. The number of members who will serve on the safety committee depends on the number of employees W M Painting Inc has at the time. A workplace with up to 20 employees may only need two safety committee members. Beyond that, however, having more members encourages wide participation and helps fill all the committee's roles. Somewhere between five and ten members is sufficient for almost any safety committee.

Membership terms of one to three years' work well for safety committee members and officers. The committee will determine term length when it establishes the bylaws.

Regardless of length, terms should be staggered so at least one experienced committee member remains on the committee at any given time.

SAFETY COMMITTEE POLICY

OFFICERS

A safety committee can have a number of officers, depending on its size. The most important two are the chairperson, who is “in charge” of safety meetings, and a recorder who takes minutes. A vice-chairperson can serve in case the chairperson is unable to perform his or her duties.

CHAIRPERSON

It is beneficial to allow the committee to elect its chairperson, though the role may be appointed by Wayne Mello. The chairperson has the responsibility to ensure meetings occur and are productive. The safety committee chairperson’s duties need to include, but are not limited to:

- Scheduling monthly meetings;
- Developing agendas for meetings;
- Coordinating and conducting meetings;
- Establishing timeframes and deadlines for safety committee projects;
- Following up on recommendations of committee;
- Acting as liaison between committee and management; and
- Promoting safety by personal example.

RECORDER OR SECRETARY

The recorder’s role is to ensure accurate and thorough recordkeeping for the committee’s activities. The safety committee recorder’s duties include, but are not limited to:

- Taking minutes at meetings;
- Distributing minutes to committee members;
- Posting minutes for other employees to review;
- Maintaining safety committee file;
- Keeping minutes and agendas on file for at least three years; and
- Promote safety by personal example and communication between and among employees and supervisors.

VICE-CHAIRPERSON

The vice-chairperson assumes the chairperson’s responsibilities when he or she isn’t available. This officer should take an active role in the committee’s activities and assist in the coordination and direction of the committee. In some safety committees, this role is filled by the recorder.

SAFETY COMMITTEE POLICY

MEMBERS

The duties of all members of the safety committee include, but are not limited to:

- Reporting employee safety and health concerns to the committee;
- Attending all safety meetings;
- Reporting accidents, near miss incidents and unsafe workplace conditions
- Suggesting items to include in the monthly meeting agenda;
- Encouraging other employees to report workplace hazards and suggest how to control them;
- Delivering safety training when appropriate;
- Establishing procedures for conducting workplace inspections and for making recommendations to management to eliminate or control hazards;
- Making or assisting in safety inspections and accident investigations;
- Working safely and encouraging others to do likewise;
- Helping management evaluate safety programs and recommending improvements; and
- Investigating causes of accidents and near-miss incidents.

MEETINGS

Regular, productive meetings are essential to success for the W M Painting Inc safety and health committee. Safety committee meetings will be a time to communicate and build consensus over safety and health issues.

Meetings will begin on time, and safety committee members will be paid for time spent on safety committee business, including meetings and meeting preparation. The chairperson is responsible for moving the meeting along according to the established agenda. Meetings do not have to follow strict parliamentary procedures; however, they do require order to be successful. The committee will set its own ground rules for meetings.

FREQUENCY

- Safety committee meetings should occur regularly and frequently. The frequency of meetings should be established in the committee bylaws. Most committees find monthly meetings or quarterly meetings are sufficient, depending on the size of the organization and the severity of risk in the workplace.
- W M Painting Inc safety committee meetings occur 4 times a year.
- Subcommittees and working groups can meet more frequently as needed.

SAFETY COMMITTEE POLICY

AGENDA

The committee will follow a written agenda at every meeting. This agenda will outline the topics of discussion and needs to be distributed to members well in advance of the meeting for review. A committee member who requests to add an item to the agenda should give the chairperson ample notice. The agenda will include the date, time, and location of the meeting, and any special group or individual who is expected to attend. A safety committee meeting may only extend beyond the time established in the agenda with committee approval. The needs of the committee at a given meeting will shape the agenda, but a standard order of business helps.

OPENING

The chairperson will bring the meeting to order before a roll call of members. The opening of the meeting is when introductions of new representatives or guests occur. This is also when the committee should review minutes from the previous meeting for additions or corrections as needed.

UNFINISHED BUSINESS

If there was discussion about issues not resolved or for which no activity was planned from previous meetings, the committee should address them toward the beginning of the meeting.

The committee needs to review recommendations it has already made and report on actions being taken. If recommendations are not acted upon, management will provide the committee with an explanation of the status of the issue, including whether corrections are to be delayed and when they will be carried out.

NEW BUSINESS

If new business items are on the agenda, discussion about them should happen after unfinished business has been resolved. Discuss new inspections and reports or discuss safety concerns that have emerged in the time since the last meeting.

SUGGESTIONS

The W M Painting Inc safety committee will solicit input in the form of feedback or suggestions from employees. Every meeting will include time to discuss suggestions from employees or to allow employees to address the committee about safety concerns.

SAFETY COMMITTEE POLICY

GOALS/PLANNING/TRAINING

The best practice is to take some time in each meeting to address progress on safety goals and celebrate successes. If there is action to be taken before the next meeting, the committee will assign these steps to responsible parties or create subcommittees as necessary.

If time allows, provide additional safety training to safety committee members. This training can be specific to running an effective safety committee or it can be general training for committee members to share with coworkers later. This element of the safety committee meeting does not need to be lengthy and may open the platform to guest speakers.

ESTABLISH NEXT MEETING

The chairperson will thank those in attendance and the committee will establish when the next meeting will occur before adjourning.

MINUTES

Minutes serve as the official record of a safety committee meeting. Minutes need to be concise, clear, and thorough. The recorder or secretary is responsible for writing minutes for each meeting and posting them where they will be easily accessible to all employees. Minutes remain on file for at least three years and must include the following:

- Date, time and place of meeting;
- Names of attendees and a list of committee members who were unable to attend;
- Summary of agenda items discussed during the meeting;
- Suggestions from employees and any hazards reported during the meeting;
- Recommendations from the committee to management; and
- Management's response to committee recommendations.

WORKPLACE INSPECTIONS

A comprehensive injury and illness prevention program (IIPP) demands a hazard assessment for most jobs and regular inspections of all work areas. The safety committee's role in performing these assessments and inspections is integral to a safe workplace. Walkthroughs and inspections should be documented and performed along with employees and supervisors who work in the area being inspected. Thorough workplace inspections occur Daily, and hazard assessments will be as frequent as changes to the workplace or safety situations demand.

SAFETY COMMITTEE POLICY

The safety committee shares responsibility for W M Painting Inc's hazard assessment and control system. The safety committee is responsible for monitoring the workplace for hazards; encouraging employees to report hazards implementing appropriate controls; and ensuring corrective action is taken promptly.

Tasks that present a higher degree of risk to an employee demand special planning and inspections that are more frequent. Please see the "Job Hazard Analysis" chapter for more detail.

RECOMMENDATIONS

The safety committee should include at least one member of high-level management who can authorize next steps for action items of the committee; however, not every issue can be dealt with immediately. When additional authority is needed for the committee to fulfill its other responsibilities, the committee will make a formal recommendation in writing to W M Painting Inc management.

The safety committee will draft recommendations to W M Painting Inc when a management representative on the committee can't sufficiently respond to an issue; the safety committee determines needs attention.

An effective recommendation to management should include:

- Statement describing the issue;
- Background information;
- All available options; and
- Suggested timeline for action.

ACCIDENTS

Accidents and near misses point to weaknesses in the safety and health program. Investigations serve an important role in preventing accidents in the future by determining how and why the incident occurred.

The safety committee should determine the safety committee's role in accident investigations, however, the committee is responsible for ensuring how an accident investigation is conducted, and that it does occur. Investigations gather information about the incident, but may require thoughtful analysis to determine the root causes, and how to control them. Investigations will focus on correcting problems, not placing blame. Please see the "Accident Investigation" chapter for more detail.

SAFETY COMMITTEE POLICY

EMERGENCIES

The safety committee plays a vital role in planning for emergencies. Members of the safety committee may need to assume additional responsibilities during emergencies. Depending on the Emergency Action Plan, safety committee members may serve as evacuation wardens, be designated to fight incipient-stage fires with a fire extinguisher, and/or provide first aid. Training will reflect the job requirements assigned to safety committee members. Please see the “Fire Protection and Emergency Planning” chapter for more detail.

TRAINING

The safety committee can play an important role in training workers about safety and supporting a general culture of safety. Because of this, members of the safety committee will need additional training to support their activities.

Training will be built into safety committee meetings, safety committee members and officers will receive training for any task they are asked to perform above their regular duties.

Representatives must understand:

- The purpose of the safety committee
- How to apply OSHA safety rules, and
- How to conduct safety committee meetings.

They also must have training in hazard identification and the principles of accident investigation.

Committee members should know whom to contact for information or for help on workplace safety and health matters.

The safety committee will establish and implement training programs for safety topics and hazard awareness in the workplace. The committee will need to establish procedures to deliver necessary training, coordinate safety meetings, and keep track of training verification documents.

RECORDKEEPING

The safety committee is responsible for creating and maintaining documents that are related to W M Painting Inc’s safety and health program. This includes but is not limited to:

- Log of work-related injuries and illnesses (OSHA’s Form 300);
- Injury and illness incident reports (OSHA’s Form 301);
- Yearly summary of work-related injuries and illnesses (OSHA’s Form 300A);
- Safety training records
- Committee recommendations;
- Workplace hazard assessments; and
- Any required safety log.

SAFETY COMMITTEE POLICY

EVALUATION

A crucial aspect of the safety committee's activities is an annual review of the W M Painting Inc safety and health program. This review can be accomplished over a number of weeks or throughout the year, depending on how the committee decides to handle the evaluation. This evaluation should be recorded and provided to management along with recommendations as appropriate.

In addition to a review of the overall safety and health program, the W M Painting Inc safety committee will evaluate its own activities on a yearly basis to determine changes to procedures that may be needed.

FORMS & ATTACHMENTS

On the following pages, please find the following documents:

- Safety Committee Bylaws
- Safety Committee Checklist
- Safety Committee Agenda
- Safety Committee Meeting Minutes
- Safety Committee Training Record Sheet

These forms may be reproduced freely by W M Painting Inc for the purposes of implementing and maintaining a safety and health program.

SAFETY COMMITTEE POLICY

SAFETY COMMITTEE BYLAWS FORM

Name

The name of the committee is the _____ Safety Committee.

Purpose

The purpose of the _____ Safety Committee is to bring all _____ employees together to achieve and maintain a safe, healthful workplace.

Goal

The goal of the _____ Safety Committee is to eliminate workplace injuries and illnesses by involving employees and managers in identifying hazards and suggesting how to prevent them.

Objectives

The Safety Committee has four objectives:

- Involve employees in achieving a safe, healthful workplace.
- Promptly review all safety-related incidents, injuries, accidents, illnesses, and deaths.
- Conduct quarterly workplace inspections, identify hazards, and recommend methods for eliminating or controlling the hazards.
- Annually evaluate the _____ workplace safety-and-health program and recommend to management how to improve the program.

Representatives

The _____ Safety Committee will have _____ voting representatives. _____ of the representatives will represent employees and _____ will represent management. Employee representatives can volunteer or their peers can elect them. Management will select management representatives.

Each representative will serve a continuous term of at least one year. Terms will be staggered so that at least one experienced representative always serves on the committee.

Chairperson and Vice-chairperson

The _____ Safety Committee will have two officers: chairperson and vice-chairperson. One officer will represent labor and one officer will represent management.

Terms of Service

Chairperson and vice-chairperson will each serve a one-year term.

SAFETY COMMITTEE POLICY

Duties of the Chairperson

- Schedule regular committee meetings.
- Approve committee correspondence and reports.
- Develop written agenda for conducting meeting.
- Supervise preparation of meeting minutes.
- Conduct the committee meeting.

Duties of the Vice-chairperson

- In the absence of the chairperson, assume the duties of the chairperson.
- Perform other duties as directed by the chairperson.

Election of Chairperson and Vice-chairperson

The election of a new chairperson or vice-chairperson will be held during the monthly committee meeting, one month prior to when their term expires.

If the chairperson or vice-chairperson leaves office before their term expires, an election will be held during the next scheduled safety-committee meeting; the elected officer will serve for the remainder of the term.

Training

New representatives will receive training in safety-committee functions, hazard identification, and accident-investigation procedures.

Meetings

Monthly schedule: The _____ Safety Committee will meet the _____ of each month, except when the committee conducts quarterly workplace safety inspections.

Attendance and Alternates

Each representative will attend regularly scheduled safety committee meetings and participate in quarterly workplace inspections and other committee activities. Any representative unable to attend a meeting will appoint an alternate and inform the chairperson before the meeting. An alternate attending a meeting on behalf of a regular representative will be a voting representative for that meeting.

Agenda

The agenda will prescribe the order in which the _____ Safety Committee conducts its business.

The agenda will also include the following when applicable:

- Review of new safety and health concerns
- Status report of employee safety and health concerns under review
- Review of near misses, accidents, illness, or deaths occurring since the last committee meeting.

SAFETY COMMITTEE POLICY

Minutes

Minutes will be recorded at each committee meeting and posted & distributed to all employees.

The committee will submit a copy of the minutes to the _____ personnel office; the office will retain the copy for three years. All reports, evaluations, and recommendations of the committee will be included in the minutes. The minutes will also identify representatives who attended monthly meeting, and representatives who were absent.

Voting Quorum

_____ voting representatives constitute a quorum. A majority vote of attending representatives is required to approve all safety-committee decisions. Issues not resolved by majority vote will be forwarded to management for resolution.

Employee Involvement

The _____ Safety Committee will encourage employees to identify workplace-safety and health hazards. Concerns raised by employees will be presented to the committee in writing; the committee will review new concerns at the next regularly scheduled monthly meeting.

Safety Log

The committee will maintain a log of all employee concerns, including the date received, recommendations to management, and the date the concern was resolved.

Response

The committee will respond to employee concerns in writing and work with management to resolve them. The committee will present written recommendations for resolving concerns to management. Within 60 days of receipt of the written recommendations, management will respond in writing to the committee indicating acceptance, rejection, or modification of the recommendations.

Incident and Accident Investigation

The _____ Safety Committee will review new safety- or health-related incidents at its next regularly scheduled meeting. Safety-related incidents include work-related near misses, injuries, illnesses, and deaths. When necessary, the committee will provide written recommendations to management for eliminating or controlling hazards.

Workplace Inspections

The _____ Safety Committee will conduct quarterly workplace inspections of all company facilities in March, June, September, and December.

SAFETY COMMITTEE POLICY

Written Report

The committee will prepare a written report for management that documents the location of all health or safety hazards found during inspection. The report will recommend options for eliminating or controlling the hazards.

Within 60 days of receipt of the written report, management will respond in writing to the committee, indicating acceptance, rejection, or proposed modification of the recommendations.

Evaluation

The _____ Safety Committee will evaluate the company's workplace-safety-and-health program annually and provide a written evaluation of the program to management. The committee will also evaluate its own activities each December and use the evaluation to develop an action plan for the next calendar year.

SAFETY COMMITTEE POLICY

SAFETY COMMITTEE CHECKLIST

Done	To Do	
		Our safety committee is composed of an equal number of management and employee representatives.
		Employee representatives are volunteers or are elected by their peers.
		There are at least four representatives on the committee if the workplace has more than 20 employees – at least two representatives if the workplace has 20 or fewer employees.
		The representatives elect the committee chairperson.
		Representatives are paid their regular wages during safety committee training and meetings.
		Employee representatives serve on the committee for at least one year.
		Representatives' terms of service are staggered so that at least one experienced representative is always on the committee.
		Reasonable efforts are made to ensure committee representatives represent the firm's major work activities.
		The committee meets monthly except when representatives schedule quarterly workplace inspections.
		Committee meetings follow a written agenda.
		The minutes for each meeting are maintained for at least three years.
		Minutes are available to all employees to read.
		All reports, evaluations, and recommendations are included in the minutes.
		Management has a reasonable time to respond, in writing, to the committee's recommendations.
		The committee has a method for collecting and reviewing employees' safety-related suggestions and reports of hazards.
		The committee assists management in evaluating and improving the workplace safety and health program.
		The inspection team conducts workplace inspections at least quarterly.
		The committee's quarterly inspection team follows a standard procedure for identifying safety-and-health hazards during its inspections.
		The inspection team includes management and employee representatives.
		The inspection team documents, in writing, the location and identity of workplace hazards.
		The inspection team – or other persons designated by the committee – does quarterly inspections of satellite locations.
		The committee has a procedure for reviewing the team's quarterly inspection reports.
		The committee recommends to management ways to control hazards and unsafe work practices.
		The committee makes recommendations to ensure all employees are accountable for following safe work practices.
		The committee has a procedure for investigating workplace accidents, illnesses, and deaths.
		Representatives understand the purpose of their safety committee and know how it functions.
		Representatives have access to applicable OSHA safety and health rules.
		Representatives have received safety training for identifying workplace hazards and investigating accidents.

SAFETY COMMITTEE POLICY

SAFETY COMMITTEE POLICY

SAFETY COMMITTEE AGENDA FORM

Date: _____ To: All committee members, alternates, bulletin board

Meeting Date and Time: _____

Place: _____

Agenda Items	Person Responsible
---------------------	---------------------------

1. Old Business

a. Review last month's recommendations _____

b. Follow-up on last quarterly inspection _____

2. New Business

a. Hazard reports All

b. Accident investigation reviews _____

c. Recommendations review _____

d. _____

e. _____

f. _____

3. Safety Committee Member Training

a. _____

b. _____

Notes:

Chairperson Signature

Date

SAFETY COMMITTEE POLICY

SAFETY COMMITTEE POLICY

SAFETY COMMITTEE MEETING MINUTES FORM

Chairperson: _____ Date: _____

Department: _____ Time Meeting Started: _____

PRESENT

ABSENT

Previous meeting minutes from _____ were read.

Date

Old Business

Review of last month's recommendations

Recommendation	Description	Completed	Incomplete	Date
R- _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
R- _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
R- _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
R- _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

Follow-up on last quarterly inspection: _____

New Business

Hazard (inspection) reports reviewed: _____

Hazard	Description	Recommendation
H- _____	_____	R- _____
H- _____	_____	R- _____
H- _____	_____	R- _____
H- _____	_____	R- _____

SAFETY COMMITTEE POLICY

Accident/incident investigation reviews:

Accident Number	Near Miss	Recommendation Description	Number
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____
A-_____	<input type="checkbox"/>	_____	R-_____

Safety Committee Member Training Report: _____

Miscellaneous New Business: _____

Activity/Assignment Report:

Description	Person Assigned
_____	_____
_____	_____
_____	_____
_____	_____

Committee Remarks: _____

Meeting adjourned: _____ **Next meeting:** _____

Time/date Time/date

Chairperson's Signature

Secretary's Signature

SAFETY COMMITTEE POLICY

FOLLOWING SAFETY RULES

W M Painting Inc employees will follow these rules and all elements of the Safety and Health Program, render every possible aid to safe operations, and report unsafe conditions or practices that cannot be immediately remedied to a supervisor as soon as safely possible. The compliance of all employees with W M Painting Inc's IIPP is a condition of employment. The failure of an employee to adhere to safety policies and procedures can have a serious impact on coworkers and the public, and may result in disciplinary action up to and including termination.

Supervisors will insist employees observe and obey rules, regulations, processes, and procedures necessary to complete work safely. If employees are unsure of the safe method to do a job, they must STOP and ask a supervisor.

If any employee sees an unsafe workplace situation, he or she has the authority to stop work to address the hazard. There is always time for safety. Ensuring safe and healthy work practices is every employee's first priority.

DISCIPLINARY ACTION

Employees will be disciplined for infractions of safety rules and unsafe work practices that are observed, not just those that result in an injury. Care will be taken to ensure discipline does not discriminate. Consistency in the enforcement of safety rules will be exercised at all times. While safety rules will be enforced rigorously, no one will be punished for reporting unsafe work practices or for reporting illness or injury. In any disciplinary action, discipline is given to the employee only for violation of safe work policy, not because the employee was injured or filed a workers' compensation claim.

Discipline for safety violations will be administered in a manner consistent with W M Painting Inc's system of progressive discipline.

As in all disciplinary actions, each situation is to be carefully evaluated and investigated. The steps taken in the disciplinary process, up to and including termination, will depend on the severity of the violation, employee history, and overall consideration for the well-being of the company, its employees, and its customers.

Each department or supervisor may have additional safety rules and policies specific to operations. In following these rules, employees are expected to exercise sound judgment and work in a manner to ensure the safety of themselves and coworkers.

SAFETY INCENTIVE PROGRAMS

Although strict adherence to safety policies and procedures is required of all employees, W M Painting Inc may periodically provide recognition of safety-conscious employees and acknowledge safety-conscious work habits through a safety incentive program. Safety incentive programs must not discourage reporting of injuries and illnesses.

TRAINING & SAFETY COMMUNICATION

OSHA requires employers to train employees in the safe methods of performing their job. W M Painting Inc is committed to instructing all employees in safe, healthy work practices. Awareness of potential hazards and knowledge of how to control them is critical to maintaining a safe, healthy work environment and preventing injuries. W M Painting Inc will provide training to each employee on general safety issues and safety procedures specific to that employee's work assignment.

Training provides the following benefits:

- Makes employees aware of job hazards;
- Teaches employees to perform jobs safely;
- Promotes two way communication;
- Fulfills legal requirements;
- Encourages safety suggestions; and
- Creates additional interest in the safety program.

W M Painting Inc will only use training material appropriate in content and vocabulary to the educational level, literacy, and language of employees, and will offer retraining as needed to ensure safe practices.

TRAINING PROGRAM

Actual demonstration of proper task performance will be used whenever possible to instruct new workers. Workers must provide evidence of topic mastery before training is complete. Trainers will rely on the following safe training techniques: tell them how, show them how, have them tell you how, and have them show you how.

Training topics will reflect the hazards of the workplace and may include the following: employee's safety responsibilities; general safety rules; IIPP contents; safe job procedures; mandatory and optional PPE.

GENERAL SAFETY PRACTICES

NEW EMPLOYEES

Every new employee will be given instruction by their supervisor or appropriate member of management in the general safety requirements of their job. New employees will not begin a job until they have demonstrated or otherwise confirmed awareness of safe practices for their tasks and general workplace safety rules and guidelines. A copy of the general safety rules will be provided to each new employee, and each new employee will be given access to any element of the safety program that pertains to the work he or she will be expected to do.

DOCUMENTATION OF TRAINING

- All employee safety training will be documented. Training records will include the following information:
- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the date on which the training occurred.

RETRAINING

Employees observed performing unsafe acts or not following safe work procedures will be retrained by their supervisor or an appropriate safety trainer. A safety contact report may be completed by the supervisor to document the training. If multiple employees are involved, additional safety meetings will be held.

SAFETY COMMUNICATION

W M Painting Inc will advise employees of changes relating to the safety program. Employee safety communication procedures are designed to develop and maintain employee involvement and interest in workplace safety and health. These activities help ensure effective communication between management and employees on safety-related issues and nurture a culture of safety.

The following are some of the safety communication methods that may be used:

- Frequent accident prevention instructions and periodic practice drills;
- Distribution of articles, memos, payroll stuffers and other communication concerning workplace safety and health;
- Regular safety meetings with employees that encourage participation and open, two-way communication;
- Employee bulletin boards or other displays discussing safety issues, accidents, and general safety suggestions; and
- New employee safety orientation and training.

GENERAL SAFETY PRACTICES

SAFETY SUGGESTION PROGRAM

W M Painting Inc encourages all employees to become involved in the development and implementation of the safety and health program. Management will request opinions and comments from workers at all levels and respond to them respectfully and appropriately.

All employee-initiated safety related suggestions will be channeled to the appropriate authority by the safety committee or a supervisor, either verbally or in writing. Unresolved issues may be relayed to Wayne Mello, the safety coordinator.

W M Painting Inc will not discriminate against any employee that raises a safety concern, files a complaint, causes a regulatory action to be brought, or testifies against the employer. There will be a system where employees may share safety or health concerns anonymously.

RULES

The following rules are a selection of safety practices to help prevent work-related injury and illness. It is not comprehensive; employees are expected to adhere to any safe work practice necessary to complete their job safely.

DRUG- AND ALCOHOL-IMPAIRED WORKERS

W M Painting Inc encourages employees to discuss personal and interpersonal problems with their supervisor. Supervisors will handle all such contacts with appropriate confidentiality and refer employees who may benefit from outside assistance to appropriate resources.

No employee may work while fatigue, illness, prescription drugs, or over-the-counter drugs impair his or her ability or alertness.

No one known to be under the influence of alcohol or drugs will be allowed on the job while in that condition.

Notify a supervisor of any coworker demonstrating signs of impairment that may present a safety or health hazard.

GENERAL SAFETY PRACTICES

GENERAL SAFETY

- Take time to do every job safely.
- Refrain from horseplay, scuffling, pranks, and similar acts that may have an adverse influence on the safety and well-being of employees.
- Walk - don't run - in the workplace.
- Smoke, eat, and store personal items only in designated areas. Smoking is not allowed in any indoor place of employment.
- Maintain awareness of potential hazards when walking about the workplace.
- Use tools only for their intended purpose, and always use the right tool for the job.
- Listen to instructions. If you don't understand them, ask before starting work.
- Inspect all safeguards before beginning work. Ensure proper functioning of protective devices and report any known deficiencies immediately.
- Only operate equipment you can operate safely. Hazardous equipment should only be operated after training for that equipment
- Refrain from handling or tampering with equipment, machinery, or lines outside the scope of your duties.
- Report all injuries to the appropriate supervisor so arrangements can be made for medical or first-aid treatment and appropriate reporting may be completed.
- Ensure clothing and footwear are appropriate to the hazards of the job. If you are unsure, ask your supervisor.
- Wear approved protective equipment in work areas that demand such equipment.
- Heed signs, posters, hazard bulletins, and tags posted on company premises.
- Only enter hazardous areas after they are made safe to enter.

W M Painting Inc strictly prohibits possession of firearms, weapons, illegal drugs, or alcoholic beverages on W M Painting Inc property, customer property or other locations while on the job.

HOUSEKEEPING

- Keep all exits, fire doors, aisles, and areas around fire extinguishers, first aid kits, emergency equipment, electrical panels, and traffic lanes clear.
- Keep tools, materials or other objects off the floor to prevent trips and falls. Remove waste from the work area promptly.
- Keep work areas clean and free of debris, electrical cords, and other hazards; immediately clean spilled liquids.
- Keep stairways, passageways, exits, and sidewalks clean and clear of obstructions.
- Bend or cap sharp wires or protruding nails must be bent or capped
- Place tools and equipment so they will not fall from elevated areas.
- Only use approved cleaning agents.

GENERAL SAFETY PRACTICES

FIRE PREVENTION

- Firefighting equipment will be inspected on a regular basis.
- Discharged, damaged, or missing equipment must be reported immediately to a supervisor. Tampering with fire equipment is prohibited.
- Take precautions to prevent fires, particularly from oily waste, rags, gasoline, flammable liquids, acetylene torches, improperly installed electrical equipment and trash.
- Access to fire extinguishers must be kept clear at all times. Make note of the location of firefighting equipment in your work area.
- In case of fire, employees will consider the safety of themselves and other individuals before saving property.
- Never use gasoline or flammable solvents to clean.
- Smoking is prohibited within 20 feet of flammable substances.

LIFTING AND MATERIAL HANDLING

- Think before lifting.
- Find a better way. If at all possible, use mechanical help from a pushcart or hand truck.
- If the load is heavy or awkward to lift alone, get help. Team lifting cuts the load in half and reduces likelihood of injury.
- Break the load down into smaller lifts if possible. It is better to make two or more light trips than one heavy trip.
- If possible, bring the load up between the knees and waist before lifting.
- Do not lift on slippery surfaces.
- Test the load before doing the lift; determine how heavy it is by giving it a shove.
- Ensure a good handhold on the load before attempting to lift.
- Keep the load close. Walk as closely as possible to the load.
- Do not jerk the load or speed up. Lift the load in a smooth and controlled manner.
- Do not lift in an awkward position or twist while lifting (especially with a heavy load). Turn and take a step.
- Avoid long forward reaches and bending your back. Use a step stool or platform if necessary.
- Make sure you have plenty of room to lift and to set down the object.
- If you are lifting an object above your head, get a ladder or step stool.

GENERAL SAFETY PRACTICES

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Use the correct PPE for any job assignment that requires it. If you do not know, ask.
- PPE will be maintained in good condition and cleaned regularly.
- PPE will be stored properly when not in use to protect it from damage.
- Damaged or broken PPE must be returned for replacement.
- PPE may not hamper or restrict freedom of movement due to improper fit.
- Eye protection must be worn when working with hazardous materials or chemicals.

LADDER SAFETY

- Keep portable stairways, ladders, and step stools in good condition and use them only in a safe manner.
- Inspect the ladder before using it. If it is broken, remove it from service.
- Use the proper ladder for the job.
- Do not use “A” frame self-supporting ladders as straight ladders.
- Make sure the ladder is tall enough to reach the work area.
- Do not use metal ladders for electrical work.
- Avoid temporary ladders. Always use a commercially made ladder of the proper length and strength for the work being performed.
- Keep ladder rungs must be kept free of grease, oil, mud, or other slippery substances.
- Do not place ladders in passageways, doorways, or any location where they might be hit or jarred, unless protected by barricades or guards.
- Place ladders only on hard, level surfaces. Make sure ladder feet are not placed on sandy, slippery, or sloping surfaces. Clean or sweep the area where the ladder feet will be and make sure the rubber feet are in good shape.
- Arrange work so you can face the ladder and use both hands while climbing. Do not carry tools or equipment in your hands while climbing. If tools or equipment cannot be safely stored on your person, as with a belt or vest, climb the ladder, and then hoist them with a line or hoisting device.
- Secure portable ladders in place and at a pitch so the leveling indicator is in alignment or the distance from the wall to the base of the ladder is at least 1' away from the wall for every 4' of ladder height.
- Tie-off straight ladders at the top of the ladder to prevent slipping.
- Be aware of objects below you; move or cover sharp objects in case you fall.
- Do not stand on or work from the second rung from the top or above.
- Do not reach too far from the ladder, and keep your center of gravity as close to the center of the ladder as possible.
- Ensure extension ladders extend at least 36" above the level being accessed.
- On all ladders, do not step on cross bracing not intended to be used for climbing.
- Do not use a ladder as a brace, workbench or for any other purpose than climbing.

GENERAL SAFETY PRACTICES

ELECTRICAL SAFETY

- Only trained, qualified, and authorized employees may work on or repair electrical equipment.
- Report exposed wires and damaged electrical equipment or wires immediately.
- Extension and temporary power cords must be appropriate to the task and grounded, but should be used only as a last resort. Frayed or defective cords will not be used.
- Never overload an outlet or circuit. Use approved power strips and extension cords in accordance with company policy and best safety practices.
- All energized equipment and installations will be de-energized before work. If the equipment or installation must be energized, special precautions will be taken to protect against the hazards of electric shock.
- All equipment will be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device bearing a lock.
- Safety grounds will always be used where there is a danger of shock from backfeeding or other hazards.
- Suitable attire and personal protective equipment (PPE) must be worn at all times while working on electrical equipment.
- Always exercise caution when energizing electrical equipment or installations. Take steps to protect against arc flash and exploding equipment in the event of a fault.
- All power tools will be grounded or double insulated. Tools with defective cords or wiring will not be used.
- Metal jewelry should not be worn around energized circuits.
- Suitable temporary barriers or barricades will be installed when access to opened enclosures containing exposed energized equipment is not under the control of an authorized person.
- Enclosures or tight fitting covers must protect electrical installations from accidental contact.
- Metal measuring tapes, fish tapes, ropes or other metal devices are prohibited where they may contact energized parts of equipment or circuits.

GENERAL SAFETY PRACTICES

COMPANY VEHICLES

- Only authorized employees are permitted to operate W M Painting Inc vehicles.
- Company vehicles are to be used for W M Painting Inc business only. Personal, off duty and family use is prohibited.
- Drive defensively and obey all traffic and highway laws.
- Always wear a seat belt, whether driver or passenger.
- Report accidents to a supervisor as soon as possible, and obtain a police report.
- Lock vehicles and remove keys from unattended vehicles.
- Inspect the vehicle before operation and report any defects or operating problems to the appropriate supervisor so repairs can be made.
- Smoking is prohibited while inside the vehicle and during vehicle refueling.
- If your driver's license is revoked or expired, immediately notify your supervisor and do not drive. If you receive a moving violation or any citation that may affect your eligibility to drive a company vehicle, inform your supervisor immediately.

HAZARDOUS MATERIALS AND CHEMICALS

- Ask a supervisor about any unfamiliar material, chemical or substance.
- Read GHS warning labels and pay close attention to the pictographs and signs.
- Read the Safety Data Sheets (SDSs) before using any chemicals. SDSs contain a wealth of safety information and are available to employees at their request.
- Hazardous materials will be handled in accordance with the SDS and label. If protective equipment is required, use it.
- Store all hazardous materials in suitable containers that are properly labeled
- Use chemicals that produce fumes or vapors only in well-ventilated areas.
- Wear eye protection when working with hazardous materials or chemicals.
- Mixing of chemicals is prohibited at all times, unless required by the label. Before you mix, review all SDSs.
- Practice appropriate hygiene after handling hazardous substances and follow special instructions from authorized sources. Wash hands thoroughly after handling chemicals and before eating or smoking, even if wearing protective gloves. Never use solvents for hand cleaning.
- Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body must be provided within the work area for immediate emergency use.
- Air under Pressure (Compressed Air)
- Air pressure at the discharge end of a portable air blow gun or portable air hose must be less than 30 pounds per square inch gauge when dead-ended.
- When air under pressure is used to remove chips and dust, a chip guard, such as a fixed or removable shield, safely located, shall be provided to protect an employee in an adjacent area.

GENERAL SAFETY PRACTICES

- The employee using air under pressure shall be provided with and use appropriate personal protective to the extent necessary to protect against hazards created by the operation.
- Air under pressure, used in a manner that could cause injury, must not be used for cleaning clothes while being worn.
- Air under pressure must not be directly applied to any part of the body. This could cause a serious or fatal injury (embolism) if air penetrates the skin/enters the body.
- Air under pressure must not be used to move flammable dust in an area containing open flames or spark-producing equipment.
- Air under pressure must not be used to remove toxic dusts in an employee environment.
- Polyvinyl chloride (PVC) piping must not be used for the transportation and distribution of compressed air or other compressed gases in an above-ground installation.
- An employee shall be protected by guards or location when pressure tests are being performed on materials or equipment where rupture or failure would create a hazard.

ACCIDENT PREVENTION SIGNAGE AND TAGS

An employer must provide, install, and maintain signs and tags where an employee might be, or would likely be, injured or harmed if not alerted to an existing or potential hazard.

Signage must be unobscured, displayed in a well-lit area, and legible from a distance that provides sufficient time or warning for an employee to take appropriate action.

Similarly, accident prevention tags will be used as a temporary means of warning an employee of an existing hazard on certain items, such as defective tools or equipment. Tags should not be used in place of accident prevention signs or considered a complete warning. Tags must be attached to prevent accidental disengagement, and they must be large enough to attract attention to the hazard. “Do Not Start,” “Out of Order,” and “Out of Service” tags are examples of tags that should be used in appropriate situations.

Specifically, signage should adhere to OSHA standard 1926.200 and ANSI Z35.1-1968.

See the “Lockout/Tagout” chapter for information that is specific to that safety procedure.

SANITATION

Potable water must be provided and placed in locations readily accessible to all employees. The water must be suitably cool and available continuously in sufficient amounts to keep all workers hydrated, taking into account the air temperature, humidity, and nature of the work performed. The water will be dispensed in sanitary single-use drinking cups, or by fountains. Common drinking cups are prohibited.

Portable containers used to dispense drinking water must be tightly covered, regularly cleaned, and refilled at least daily. Containers must have a tap, and water must not be dipped from containers. The containers must be clearly marked as to the nature of their contents, made of a material that maintains water quality, and not used for any other purpose.

GENERAL SAFETY PRACTICES

Potable drinking water, as well as toilet and hand-washing facilities, must be maintained in accordance with appropriate public health sanitation practices.

Outlets for non-potable water, such as water for industrial or firefighting purposes only, will be identified by signs that clearly indicate the water is unsafe and is not to be used for drinking, washing, or cooking purposes. There will be no cross-connection, open or potential, between a system that furnishes potable water and a system that furnishes non-potable water.

Employers must provide onsite general washing facilities (one per 20 employees) for construction projects, must keep them in sanitary condition, and must provide suitable cleaning agents/single-use towels for the removal of hazardous and other substances.

Toilet facilities must be adequately ventilated, readily accessible, and maintained in a clean and sanitary condition. Mobile crews may be provided transportation to nearby toilet facilities.

Every enclosed workplace must be constructed, equipped, and maintained, as reasonably practicable, to prevent the entrance and presence of rodents, insects, and other vermin. A continuing and effective extermination program must be instituted where their presence is detected.

COLOR CODING

- Green is used for general safety or accident-prevention signs; yellow is the basic color for designating caution on signage, and for marking physical hazards—solid yellow, yellow and black stripes, or yellow with a suitable contrasting background may be used interchangeably; red is used to indicate a warning/danger on signage, and to indicate “stop” when used with buttons.
- A stop bar, stop button, electrical switch, or other mechanical device for the emergency stopping of machinery, excluding cables, will be red in color.
- A safety can will be red in color.

FORMS AND ATTACHMENTS

Please find the following document on the next page:

- General Safety Rules Receipt and Attestation

This form may be reproduced freely by W M Painting Inc for the purposes of implementing and maintaining a safety and health program.

GENERAL SAFETY PRACTICES

GENERAL SAFETY PRACTICES

GENERAL SAFETY RULES RECEIPT AND ATTESTATION

This is to certify that I have received a copy of the general safety rules.

- I have read these instructions, understand them, and will comply with them while working for *W M Painting Inc.*
- I understand that failure to follow the company injury and illness prevention program may result in disciplinary action and possible termination of my employment with this company.
- I understand that I am to report any injury to my supervisor and report all safety hazards as soon as safely possible.
- I further understand that I have the following safety rights:
 - I am not required to work in any area I feel is not safe.
 - I am entitled to receive information about all hazards I am exposed to while working.
 - I am entitled to see a copy of the company safety and health manual.
 - I will not be discriminated against for reporting safety concerns.

Employee Name

Signature

Date

Supervisor Name

Signature

Date

cc: Employee File

GENERAL SAFETY PRACTICES

POLICY STATEMENT

W M Painting Inc is committed to providing a safe, healthy workplace by eliminating or controlling all workplace hazards. A Job Hazard Analysis (JHA) systematically investigates a job process, equipment, and the workplace environment to identify hazards and reduce risk. Wayne Mello is responsible for ensuring facilities and workplaces are inspected regularly for hazards, and will do so with support and assistance from employees.

RESPONSIBILITIES

Job hazard analysis is a responsibility shared between the Company and its employees.

EMPLOYER RESPONSIBILITIES

W M Painting Inc is responsible for:

- Ensuring that safety inspections of the facility occur on regular basis
- Training personnel in how to perform a job hazard analysis;
- Responding quickly to eliminate workplace hazards;
- Ensuring all equipment is kept in good repair;
- Ensuring employees follow safe job procedures; and
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the safety committee to:

- Assist in job hazard analyses as necessary;
- Assist in training employees to recognize and control workplace hazards;
- Monitor the workplace for hazards;
- Encourage employees to report hazards;
- Implement appropriate controls; and
- Ensure corrective action is taken promptly.

EMPLOYEE RESPONSIBILITIES

All employees are expected to:

- Assist in job hazard analyses
- Follow safe job procedures; and
- Report hazards to a supervisor immediately.

TRAINING

W M Painting Inc will ensure every manager, supervisor and safety team member participates in a JHA training program. This training will be provided at no cost to the employee during working hours.

The Company will use only training material appropriate in content and vocabulary to educational level, literacy, and language of employees.

TRAINING COMPONENTS

Wayne Mello will ensure that every employee will be trained in the following minimum elements:

- Importance of involving employees in job safety analyses;
- How to review safety records to identify areas that present hazards;
- How to analyze a job to determine the level of risk it presents;
- How to prioritize job hazard analysis and hazard control activities;
- Basic steps of a job hazard analysis, including: breaking the job into steps, analyzing risks, and determining controls;
- How much detail to include when listing the steps of a job for a JHA;
- What kinds of workplace hazards might exist and what types of risk they pose;
- H Process of hazard controls and advantages of certain types of controls;
- How to review a job hazard analysis and how to write a safe job procedure; and
- When to reanalyze a job for hazards.

The person conducting the training will be knowledgeable in the subject matter of the training program as it relates to the workplace.

All employees will be trained in basic hazard identification and will be trained in their jobs according to safe job procedures, as directed by the job safety analysis.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions and attached documents;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions
- Attendance and attestation forms of all persons trained.

Employee training records will be maintained for 3 years from the date on which the training occurred.

POLICY

EMPLOYEE INVOLVEMENT

No one knows how to do a job better than the person currently doing that job does. Employees who are included in a JHA) provide valuable insight and knowledge into work procedures that is valuable in identifying hazards and controlling them. This insight can help prevent potentially dangerous oversights.

Further, soliciting employee input demonstrates that management values everyone's involvement in creating a safer workplace and provides an opportunity for employees' active involvement in the JHA process.

PRELIMINARY REVIEW

Reviewing the worksite's accident history with employees draws attention to failures in hazard controls and deficiencies in work processes, which in turn suggests opportunities for safety program growth. A thorough review of recorded accidents, illnesses, and near misses points to jobs, processes, and tasks that require closer examination. It also indicates the immediate actions necessary to control all existing risks.

A discussion with employees about hazards they already know to exist also provides an opportunity to discuss ideas to control them.

If there is a hazard that poses an immediate danger, do not wait until after the JHA is complete to establish controls. Problems need to be corrected quickly. This demonstrates a commitment to safety and permits more time and thought for more complicated work safety issues.

PRIORITIZE HAZARDOUS JOBS

Understanding the risk posed by a job requires consideration of two main factors: the likely severity or impact of the injury or illness caused by a hazard and the likelihood injury or illness will actually occur (see Table 1). It is important, when assessing the overall risk of a job to determine the number of people exposed to a hazard who could be affected by an incident. Hazards that affect the whole worksite present much more risk than hazards that affect only one worker.

Jobs that present unacceptable risk should take priority. Place priority on jobs:

- With exceptionally high injury or illness rates;
- Where there already have been close calls;
- Where violations of standards already have occurred;
- With potential to cause serious harm; and

JOB HAZARD ANALYSIS

SEVERITY

Factors that increase risk because they increase the severity of an injury or illness often rely on chance. However, certain job elements and behaviors intensify the severity of possible incidents:

- Using high-powered machinery and heavy equipment;
- Working at elevation;
- Working around hazardous chemicals;
- Moving heavy or cumbersome loads;
- Working around or with electrically energized equipment; and
- Working in a confined space.

PROBABILITY

Risk Assessment Matrix		Probability of Harm		
		Not Likely	Likely	Very Likely
Severity of Harm	Serious Harm	Moderate Risk	High Risk	Very High Risk
	Significant Harm	Low Risk	Moderate Risk	High Risk
	Minor or no harm	Low Risk	Low Risk	Moderate Risk

Table 1

Factors that increase risk because they increase the likelihood of an injury or illness include the number of employees exposed to a hazard, frequency of exposure, duration of exposure, proximity to “point of danger”, unreasonable workload, working under stress, and environment.

ANALYSIS

When analyzing a job’s hazards and determining how best to control them, it’s important to identify all significant hazards accurately, and understand each within the context of the entire job.

BREAK JOB INTO STEPS

Every job requires several steps. Each has its share of hazards that puts workers at risk.

To complete a job hazard analysis, first there must be a clear understanding of the steps required to complete the job. The observer will watch the worker perform the job and list the steps the worker takes to complete it.

When breaking a job into its individual steps, it's important to balance between too much and too little detail. Too much detail will make the analysis needlessly long, and too little will not cover the basic steps.

Each step is one action. Some actions may not be observable, and some steps may involve specifically not doing things.

The observation stage of the JHA should not focus on either the employee's performance, or individual unsafe acts, it should focus on the task itself. All phases of the analysis benefit from employee insight and feedback, and extensive employee involvement is strongly encouraged.

OSHA recommends video recording or photographing the worker performing the job, having them explain each step, and why they did it that way. These visual records can be handy references when doing a more detailed assessment of the work.

When all the steps are documented, the observer will review them with the employee to ensure nothing is missed.

IDENTIFY HAZARDS

The JHA requires answers to the following:

- What can go wrong?
- What are the consequences?
- How could the hazard arise?
- What are the other contributing factors?
- How likely is it that the hazard will result in an incident?

A good description of a possible hazard scenario will reveal the answers to those questions by describing the hazard in terms of the environment in which it occurs, the trigger that would precipitate an incident, how a worker faces exposure to the hazard, and the worst-case consequences.

Again, workers provide excellent insight into the hazards they work with as well as suggestions for how to control risks presented by hazards where they work.

The JHA should not only include actual hazards, but also potential hazards that could arise while performing the job:

- Is there danger of striking against, being struck by, or otherwise making harmful contact with an object?
- Can the worker be caught in, by, or between objects?
- Is there potential for a slip or trip?
- Can the employee fall from one level to another or even on the same level?
- Can pushing, pulling, lifting, lowering, bending, or twisting cause strain?
- Is the work environment hazardous to safety or health?
- Are there concentrations of toxic gas, vapor, fumes, or dust?
- Are there potential exposures to heat, cold, noise, or ionizing radiation?
- Are there flammable, explosive, or electrical hazards?

Please see the table of Workplace Hazards at the end of this chapter for reference.

A list of hazards must accompany each step of the job. This provides a framework pointing to controls already in place and controls needed to prevent hazards from causing injuries or illnesses.

CONTROL

Though awareness and thoughtfulness are excellent ways to reduce risk in the workplace, it is not enough simply to identify workplace hazards. Hazards in the workplace that are identified must be controlled if possible to minimize their risk. The JHA provides a systematic way to approach hazards and their controls. To control a hazard, it is important to remember two very basic principles. First, either eliminate the hazard itself or control worker exposure to the hazard. Second, eliminating a hazard is more effective than controlling exposure to a hazard.

These two principles shape a hierarchy of hazard control strategies (see Figure 1). When considering how to address the hazards in each step of a given job, controls at the top of the hierarchy need to be considered before controls toward the bottom of the hierarchy. The more reliable and less likely a hazard control can be circumvented, the better.

A good hazard control plan often includes a mixture of different things, such as the following:

- Priority given to high-risk hazards;
- Inexpensive, easy improvements and temporary solutions until more reliable controls are in place;
- Long-term solutions to risks most likely to cause accidents or ill health;
- Long-term solutions to risks with the worst potential consequences;
- Arrangements for training workers on the main risks that remain and how they are to be controlled; and
- Regular checks to make sure the control measures stay in place, and clear responsibilities. Who will lead on what action, and by when?

CONTROLLING THE HAZARD

The most effective strategy is to "engineer the hazard out" by using control methods that physically remove or change a hazardous machine, work environment condition or other hazard. If, during the JHA, you discover a hazard that can be engineered out, do it. Turn the dangerous step into a safe step that doesn't require safety precautions.

HIERARCHY OF HAZARD CONTROLS

ELIMINATION

If there are hazards that can be removed from the worksite, do this first. Good housekeeping procedures keep many hazards under control. Removing redundant or unnecessary equipment, materials, or processes also rids the workplace of any risks associated with them.

SUBSTITUTION

There may be alternative chemicals, machines, or processes to accomplish the job but pose fewer hazards to workers. Explore ways to incorporate these alternatives into the job.

ISOLATION AND OTHER ENGINEERING APPROACHES

Creating a boundary between a hazard and workers can reduce risk almost as effectively as removing the hazard from the workplace altogether. Limit access to hazards with enclosures, machine guards, and physical barriers that reduce the likelihood of exposure to a hazard before turning to controls that rely on a person.

Redesigning equipment and installing new guards (within manufacturer specifications) can remove or redirect hazards away from workers to prevent exposure.

CONTROLLING EXPOSURE

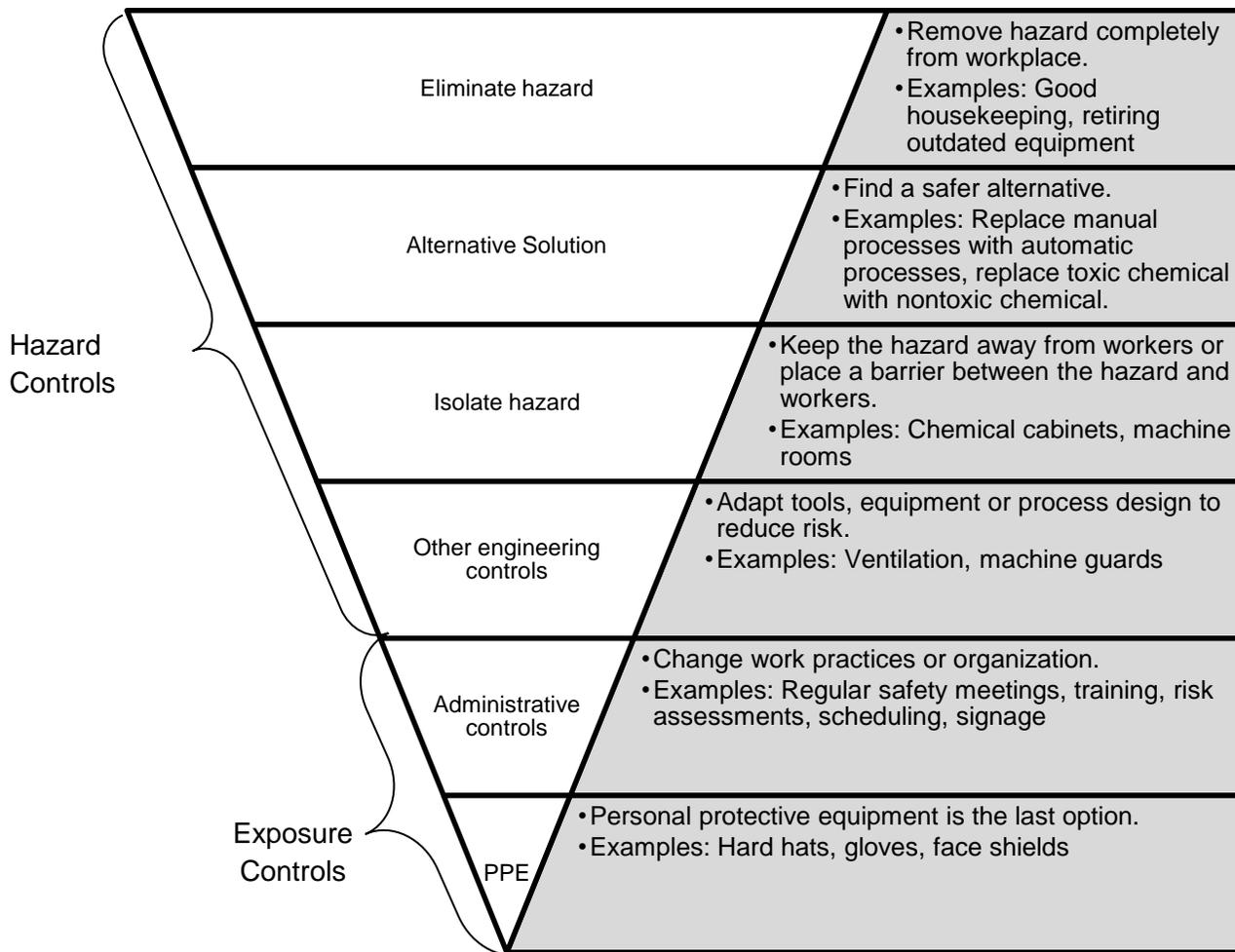
Some jobs and processes demand a level of exposure to some workplace hazards. If this is the case, controlling risk means controlling or eliminating the exposure and the negative effects of exposure.

ADMINISTRATIVE OR MANAGEMENT CONTROLS

Administrative hazard controls are far-reaching and varied when implemented. These controls rely on appropriate human behavior, which is why they are lower on the hazard control hierarchy than engineering controls. Administrative controls include:

- Policies, procedures and practices to reduce exposure;
- Modifying work schedules to reduce exposure;
- Monitoring the use of hazardous
- Alarms, signs and warnings;
- The buddy system; and
- Training.

JOB HAZARD ANALYSIS



PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) is the least effective way to control hazards, but is necessary for some hazardous jobs. The following are examples of when PPE is acceptable:

- When engineering controls are not feasible or do not totally eliminate the hazard;
- While engineering controls are being developed;
- When safe work practices do not provide sufficient additional protection; and
- During emergencies when engineering controls may not be feasible.

PPE needs to be chosen carefully to address the hazard, and fitted to the person using it.

DOCUMENT AND EVALUATE

By the end of the JHA, there will be a document that clearly outlines the steps to perform the job, the hazards encountered in each step, and appropriate controls that need to be in place to reduce the risk posed by those hazards. This will paint a picture of a process that considers safety from the start to end of the job.

However, unsafe habits have a way of introducing themselves into a process as workers find their “own way” of performing tasks — ways that may not take into account the safety measures identified in the JHA. Further, there may be risks that were not identified or were left insufficiently controlled that may only become evident after the JHA is complete. Monitoring and periodic reviews help ensure the JHA remains current to prevent accidents and injuries.

DOCUMENT THE SAFE JOB PROCEDURE

Once the analysis is complete, communicate the results to all workers who are, or will be, performing that job. The side-by-side format used in JHA worksheets is not an ideal one for instructional purposes. Use a narrative-style communication format to create a safe job procedure that is easy to understand:

Write in step-by-step format. Each step needs its own paragraph that describes the step as one action.

Point out the hazard: If the step involves exposure to a hazard, point out the hazard in the step. Include the possible injury or illness that could result from unprotected exposure to the hazard.

Identify safety precautions: If the step involves exposure to a hazard, also point out the safety precautions to stay safe and healthy.

Paint a ‘word picture’: Write the procedure in a way that someone unfamiliar with the task could perform it safely. The safe job procedure can serve as a training document as well as a safety document. Avoid jargon and technical terms so new employees can easily understand the process.

Write in the second person, present tense. Treat the safe job procedure as a set of instructions. Tell the person who is doing the job exactly how to do it.

Write clearly. While it is important to be concise, it is more important to be clear and accurate. Keep sentences short. Clear writing helps make sure all workers can understand the instructions and follow them. If employees speak a language other than English, translate the job procedure into the language they speak so there is as little confusion as possible.

MONITOR AND REVIEW

Periodically reviewing your JHA ensures it is current and continues to prevent workplace accidents and injuries. Even if the job does not change, unnoticed hazards may become apparent. It is particularly important to review job hazard analyses if an illness or injury occurs.

Based on the circumstances, the job procedure may need to change to prevent similar incidents in the future. If an employee's failure to follow proper job procedures results in a "close call or near miss," discuss the situation with all employees who perform the job and remind them of proper procedures. Any time you revise a job hazard analysis, it is important to train all employees affected by the changes in the new job, procedures, or protective measures.

Hazard identification, and risk assessment and control are ongoing processes. Make sure to undertake a hazard identification and risk control analysis whenever there is a change to the workplace, including when work systems, tools, machinery or equipment change, or when the existing process is otherwise potentially out of date or no longer valid.

FORMS & ATTACHMENTS

On the following pages, please find the following documents:

- Workplace Hazards
- Job Hazard Analysis Worksheet
- Safe Job Procedure Form
- Job Hazard Analysis Training Documentation
- HCS Pictograms and Hazards

JOB HAZARD ANALYSIS

Workplace Hazards		
Hazard	Description	
Slips/Trips/Falls	Conditions that result in falls (impacts) from height or walking surfaces (such as slippery floors, poor housekeeping, uneven walking surfaces, exposed ledges, etc.)	
Mechanical	Failure	Self-explanatory; typically occurs when devices exceed designed capacity or are inadequately maintained.
	Caught-in/ Caught-on/ Crush	Skin, muscle, or body part exposed to crushing, caught-between, cutting, tearing, shearing items, or equipment.
Impact	Struck By	Accelerated mass that strikes the body causing injury or death. (Examples are falling objects and projectiles.)
	Struck Against	Injury to a body part due to coming into contact with a surface in where the action was initiated by the person. (An example is when a screwdriver slips.)
Chemical	Toxic	A chemical that exposes a person by absorption through the skin, inhalation, or through the blood stream that causes illness, disease, or death. The amount of chemical exposure is critical in determining hazardous effects. Check Safety Data Sheets (SDS), and/or OSHA 1910.1200 for chemical hazard information.
	Flammable	A chemical that, when exposed to a heat ignition source, results in combustion. Typically, the lower a chemical's flash point and boiling point, the more flammable the chemical. Check SDS for flammability information.
	Corrosive	A chemical that, when it comes into contact with skin, metal, or other materials, causes damage. Acids and bases are examples of corrosives.
Explosion	Chemical Reaction	Self-explanatory.
	Pressurization	Sudden and violent release of a large amount of powder blast/gas/energy due to ignition or a significant pressure difference such as rupture in a boiler or compressed gas cylinder.
	Temperature Extreme	Temperatures that result in heat stress, exhaustion, or metabolic slow down such as hypothermia or hyperthermia.

JOB HAZARD ANALYSIS

Electrical	Shock/ Short Circuit	Contact with exposed conductors or a device that is incorrectly or inadvertently grounded, such as when a metal ladder comes into contact with power lines. 60Hz alternating current (common house current) is very dangerous because it can stop the heart.
	Fire	Use of electrical power that results in electrical overheating or arcing to the point of combustion or ignition of flammables, or electrical component damage.
	Static / ESD	The moving or rubbing of wool, nylon, other synthetic fibers, and even flowing liquids can generate static electricity. This creates an excess or deficiency of electrons on the surface of material that discharges (spark) to the ground resulting in the ignition of flammables or damage to electronics.
	Loss of Power	Safety-critical equipment failure due to a loss of power.
Ergonomics	Strain	Damage of tissue due to overexertion (sprains and strains), work positioning or repetitive motion.
	Human Error	A system design, procedure, or equipment that is likely to cause error. (A switch goes up to turn something off).
	Vibration	Vibration that can cause damage to nerve endings, or material fatigue that results in a safety-critical failure.
Radiation	Ionizing	Alpha, Beta, Gamma X-rays, and neutral particles that cause injury (tissue damage) by ionization of cellular components.
	Non-Ionizing	Ultraviolet, visible light, infrared, and microwaves that cause injury to tissue by thermal or photochemical means.
	Noise	Noise levels that result in hearing damage (an 8-hour time-weighted average greater than 85 decibels) or inability to communicate safety-critical information.
	Visibility	Lack of lighting or obstructed vision that results in an error or other hazard.
	Weather Phenomena	Self-explanatory.

JOB HAZARD ANALYSIS

Job Hazard Analysis Worksheet		
Department/Project:	Date:	
Job/Activity:	Created By:	
Step	Hazard(s)	Controls
1)		
2)		
3)		
4)		
5)		
6)		
7)		

JOB HAZARD ANALYSIS

Job Hazard Analysis Worksheet (pg. 2)	
Step	
8)	
9)	
10)	
11)	
12)	
Required Training:	
Required Personal Protective Equipment:	
Special Inspection Requirements:	

Please attach any diagrams, flowcharts, or photographs that may be helpful in hazard assessment.

JOB HAZARD ANALYSIS

Safe Job Procedure

***DO NOT** undertake this job unless a supervisor has instructed you in the safe use of all equipment and appropriate safety precautions for work processes associated with the job. Any employee who undertakes this job must have explicit supervisor permission to do so.*

Job Performed

Potential Hazards:

Personal Protective Equipment

						
Hand Protection	Respiratory Protection	Eye Protection	Face Protection	Special Footwear	Hearing Protection	Special Clothing

Other (Specify):

Safe Work Procedures

(Attach additional sheets if necessary)

Pre-Operation

Operation

Post-Operation

Competent Personnel

These individuals are permitted to perform the job and supervise others learning to do this job

Name:	Title:	Contact:

JOB HAZARD ANALYSIS

HCS Pictograms and Hazards

Health Hazard 	Flame 	Exclamation Mark 
<ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	<ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder 	Corrosion 	Exploding Bomb 
<ul style="list-style-type: none"> • Gases under Pressure 	<ul style="list-style-type: none"> • Skin Corrosion/ burns • Eye Damage • Corrosive to Metals 	<ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
Flame over Circle 	Environment (Non Mandatory) 	Skull and Crossbones 
<ul style="list-style-type: none"> • Oxidizers 	<ul style="list-style-type: none"> • Aquatic Toxicity 	<ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

JOB HAZARD ANALYSIS

POLICY STATEMENT

W M Painting Inc has implemented this policy for the protection of our employees during emergencies in the workplace. Wayne Mello will supervise the Emergency Action Plan.

The Company will have a written Emergency Action Plan (EAP). The EAP will be posted in the workplace and remain available to employees for review, along with the names and job titles of every person in the chain of command during emergencies.

RESPONSIBILITIES

Emergency planning is a responsibility shared between the Company and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of W M Painting Inc to:

- Ensure adequate workplace safeguards against hazards, including appropriate exit routes, fire alarms, and fire protection systems.
- Ensure development and implementation of the EAP.
- Ensure training of employees in accordance with this policy.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the safety committee to:

- Develop and implement the EAP.
- Train new employees in emergency action planning and provide continued employee safety training according to Company policy.

EMPLOYEE RESPONSIBILITIES

Every employee is expected to:

- Report fires or other emergencies.
- Follow the EAP.

EMERGENCY RESPONSE PLANNING

TRAINING

W M Painting Inc will ensure every employee is provided training on emergency planning. This training will be provided at no cost to the employee and held during their working hours.

Training will be provided:

- At the time of assignment.
- At least annually thereafter, annual training for all employees will be provided within one year of their previous training.

The Company will provide additional training when tasks or procedures are added or changed that may affect the employee's work. It is acceptable for additional training to be limited to addressing only the changes or additions to the employees' exposure.

W M Painting Inc will use only training material that is appropriate in content and vocabulary to the educational level, literacy, and language of employees.

TRAINING COMPONENTS

Wayne Mello will ensure all employees are informed and trained in the following minimum elements for the Emergency Action Plan and Fire Protection Program:

- Fire hazards at the worksite
- Means of controlling or removing fire hazards at the worksite
- Procedures for reporting a fire or other emergency.
- Procedures for emergency evacuation for all areas of work, including type of evacuation and exit route assignments.
- Safe assembly areas designated for all work areas in the event of evacuation.
- Procedures to be followed by employees who are requested to remain to operate critical plant operations before they evacuate, if applicable.
- Procedures to account for all employees after evacuation.
- Procedures to be followed by employees performing rescue or medical duties.
- The members in the chain of command who may be contacted by employees for information about the plans or for an explanation of their duties under the plans.
- Proper operation of fire extinguishers provided by the company if the EAP allows employees to fight incipient stage fires rather than evacuate.
- The hazards involved in incipient stage firefighting. Employees are instructed to ensure the local emergency response service (Fire Department) is notified before attempting to extinguish any fire, and that if a fire is not immediately extinguished, or the fire recurs to evacuate immediately.

EMERGENCY RESPONSE PLANNING

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the training.

EMERGENCY ACTION PLAN

W M Painting Inc is committed to providing a safe workplace and ensuring procedures are in place to protect employees in the event of any emergency. Accordingly, W M Painting Inc will ensure there is an Emergency Action Plan, written and available to employees, that includes:

- Procedures for reporting a fire or other emergency;
- Procedures for emergency evacuation, including type of evacuation and exit route assignments;
- Procedures to account for all employees after evacuation;
- Procedures to be followed by employees performing rescue / medical duties and operating critical plant operations; and
- The name or job title of every employee from whom other employees can find out more about the plan.

EMPLOYEE INVOLVEMENT

The continued development and thorough implementation of the EAP is a company-wide effort that demands concerted effort of management, the safety committee, and all employees. Accordingly, employees will be involved in every step of the EAP from planning to training to implementation in an emergency.

Wayne Mello, or an approved designate, will review the EAP with all employees to ensure they understand procedures that should be followed in an emergency.

Employees should report or remedy workplace hazards and unsafe work practices as soon as they may do so safely.

POSSIBLE WORKPLACE EMERGENCIES

In the planning and implementation of the company's EAP, employees will consider the range of emergencies that may require response and develop contingencies that respond to the unique workplace impact of these emergencies.

EMERGENCY RESPONSE PLANNING

WEATHER

Weather-related events include hurricanes, tornadoes, blizzards, floods, and severe storms. Supervisors must communicate unexpected schedule changes because of severe weather to employees as quickly as possible. Such events may result in a loss of power or communication and may limit the ability of first-responders to respond quickly.

MEDICAL

Medical emergencies are the most likely workplace emergency. Response time is critical to a positive outcome during a severe medical emergency. Onsite medical first responders will know first aid and CPR, but no employee will perform first aid beyond their training or capability. If first aid trained, personnel are not available, stop any bleeding with firm pressure (avoiding contact with body fluid) and in case of choking, clear the air passages. In the event of a medical emergency, it is imperative to call 911 promptly.

THREAT OF VIOLENCE

Threats of violence can come through a range of modes of communication, directed at a single employee, a group of employees or the entire workplace. Every threat is serious. If you receive or are aware of a threat of violence, contact a member of the safety committee or a supervisor immediately, if you are able to do so safely. Please see the chapter on “Workplace Violence Prevention” for more information about how to prevent and respond to threats of violence and violence in the workplace.

FIRE

The fire prevention plan requires involvement of all employees to prevent fire emergencies. Response to a fire emergency depends on whether your workplace has decided to allow all employees or some employees to fight incipient-stage fires. Members of the safety committee and supervisors may have to serve as evacuation wardens, and if the emergency action plan demands it, an employee may need to shut down critical operations before evacuation. A quick, orderly evacuation accompanied by a call to 911 is the acceptable response to an out-of-control fire.

EXPLOSION

If there are flammable substances at your worksite, take extra care during planning to address the hazards they present. Explosions do not offer any warnings, and often, panic presents the biggest obstacle to safety in the wake of such a disaster. Further, explosions often accompany fires, adding complexity to fire response planning.

EMERGENCY RESPONSE PLANNING

EARTHQUAKE

When an earthquake strikes, the greatest risks come from above. Collapsing ceilings and falling objects can severely injured workers. If the workplace is in an earthquake-prone location, consider earthquake drills and make sure you and your coworkers know to protect their head and neck under sturdy furniture or against an inside wall. A severe earthquake will occupy emergency workers, and onsite rescue and triage may be a task that falls into the hands of the safety committee. No employee should perform first aid or attempt rescue beyond training or capacity to do so safely.

CHAIN OF COMMAND

During an emergency, it is critical that employees understand the chain of command in the emergency action plan. In consideration of chain of command, it is also important to recognize that the authority of local emergency response officials, like members of the fire department, supersedes the authority of any W M Painting Inc employee.

EMERGENCY SCENE COMMANDER

Unless the involvement is precluded by unforeseen contingencies, Wayne Mello acts as the scene commander in the event of a workplace emergency. W M Painting Inc will determine whether an emergency exists, oversee procedures during an emergency, and notify and coordinate with outside emergency services.

EMERGENCY SCENE COORDINATORS

The emergency action plan requires the worksite to have enough people trained to assist in the safe and orderly evacuation of employees and assist the safety coordinator/emergency scene commander in emergency procedures. The number of scene responders depends on the number of employees, the size and complexity of the worksite and the hazards posed by likely emergencies. Table 3 provides a good guideline when considering how many coordinators will be necessary to implement the EAP. Scene coordinators should know CPR and first aid and would benefit from additional safety training, including workplace violence response. Their duties in an emergency include, but are not limited to the following:

- Checking for employees who may be unable to evacuate;
- Knowing who may need assistance during evacuation and how to assist them;
- Coordinating emergency activities;
- Using their knowledge of workplace layout, escape routes, and hazards to ensure a swift, safe evacuation; and
- Verifying all employees are in designated safe areas following an evacuation

Number of Emergency Scene Responders for Typical Workplaces		
Employees in Workplace	Emergency Scene Commander	Emergency Scene Coordinator
11-19	1	1
20-49		1-2
50-99		2-5
100-249		5-12
250+		12+

Table 3

EMERGENCY RESPONSE PLANNING

EMERGENCY REPORTING PROCEDURES

Employees should report emergencies as quickly as they may do so safely. Emergencies may be reported through manual pull stations or other alarm systems. If the EAP requires employees to call Wayne Mello or other assigned staff, those numbers will be posted at every phone. Major emergencies demand an immediate call to 911 to prevent damage, injury, or death. After the report of an emergency, the alarm system will notify employees about the emergency.

WORKPLACE EVACUATION

ROUTES AND EXITS

The EAP will include a floor diagram with arrows to designate exit route assignments based on location within the building. There should be secondary routes and exits whenever possible. It is important every employee knows the building's exit routes and keeps them free of obstacles and debris at all times. For more information about exit routes, please see the floor diagram and consult "Exit Routes" in this chapter.

EVACUATION ASSISTANCE

Scene coordinators or other assigned personnel will act as evacuation wardens to ensure employees move from danger to safety during an emergency. An employee designated to assist in evacuations will need to know which employees need extra assistance and be trained and prepared to offer this assistance. Further, any visitors on premises may need assistance during evacuations. It is useful to implement a system to account for visitors, like a sign-in sheet, to promote facility security and account for everyone in case of an emergency.

Services during Evacuation

Workplaces with equipment and processes that take time to shut down or with systems that may pose a hazard if not shut down may include, as part of the EAP, a partial evacuation procedure. The roles of those performing critical operations during evacuation should be clear, and anyone left behind must be able to recognize when to abandon the task and evacuate. The same goes for workplaces that plan for employees to fight incipient-stage fires.

ACCOUNTING FOR EMPLOYEES

The emergency action plan requires W M Painting Inc to account for employees after an evacuation. Employees will gather in an established assembly area (or areas) after an evacuation. After the evacuation is complete, Wayne Mello or an approved designate, will perform a headcount, and note the names and last known whereabouts of anyone missing. Accuracy in accounting for employees during an evacuation is vital to prevent a dangerous search-and-rescue operation if one is not needed. Procedures should include a way to account for visitors, customers, and suppliers who are onsite as well.

ADDITIONAL EAP PRACTICES

SHELTERING IN PLACE

Not every emergency requires evacuation. Certain contaminants and disasters present greater hazards outside than inside. If an emergency does not require evacuation, it may demand employers instead “shelter-in-place.” Wayne Mello will determine the extent of evacuation, and whether employees need to shelter in place. Sheltering in place means taking refuge in an interior room with no or few windows until the emergency has passed. In many cases, local authorities will issue advice to shelter-in-place via TV or radio. In case of chemical release, special precautions to protect against toxic atmospheres may be necessary. Including shelter-in-place preparations in the EAP demands a means of alerting employees in distinguishable ways and additional training on shelter-in-place procedures.

FIRST AID AND RESCUE

W M Painting Inc will ensure the availability of medical personnel for advice and consultation. In the absence of an onsite clinic, at least one person on staff will be trained to render first aid. An amount and dispersal of first aid supplies appropriate to the size of the facility, number of employees and hazards present will remain readily available. First aid supplies will be added or replaced as frequently as necessary to ensure availability. Facilities for rinsing or drenching eyes or body will be provided as hazards demand. First Aid kits will include or will be accompanied by appropriate personal protective equipment for anticipated hazards, including exposure to blood borne pathogens for personnel while performing first aid. More information is available in the chapters titled “Medical Services and First Aid” and “Bloodborne Pathogens.”

CRITICAL INFORMATION

As part of the personnel file, there will be a record of emergency contact information for employees, in case an employee is unable to contact someone for themselves. The confidential record should include physician information and any other medical information the employee shares for use in case of an emergency.

MULTI-EMPLOYER WORKPLACES

If the company shares a building or worksite with other employers, consider working with them to develop a building-wide emergency plan. If a building-wide plan is not feasible, take all necessary steps to ensure the EAP does not conflict with the plans of other employers in the building.

EMERGENCY RESPONSE PLANNING

PERSONAL PROTECTIVE EQUIPMENT

During some emergencies, it is necessary for an employee to encounter hazards that require personal protective equipment. A medical emergency involving blood, for instance, will call for gloves as indicated in the bloodborne pathogen exposure control plan. Training, preparation, and procedures will include consideration for any necessary PPE.

TRAINING AND REVIEW

W M Painting Inc and the safety committee will review the plan with employees covered by the plan as it is being developed. The plan will also be communicated to employees when they are first assigned to their job, when the plan changes, or when there is a change to an employee's responsibilities under the plan. The plan is subject to annual review and update to reflect changes in the workplace and respond to new or changed hazards.

EXIT ROUTES

During an emergency, swift evacuation can ensure the safety and well-being of employees. To facilitate evacuation and to protect employees should an emergency require employees to evacuate, W M Painting Inc will adhere to all applicable regulations to ensure safe exit routes remain available to employees in case fire or other emergency demands evacuation of the workplace.

BASIC REQUIREMENTS

An exit route must be established and separated by fire resistant materials as quickly as possible during construction, and a safe means of egress must be maintained during renovation and demolition.

If the route connects three or fewer floor levels, construction materials separating the exit from other parts of the workplace must have a one-hour of fire resistance rating. (More stories call for a two-hour resistance rating.) An opening to an exit will only have self-closing, laboratory-tested fire doors as necessary to allow passage of individuals through the established route.

Enclosure and protection of openings for means of passage must occur as soon as possible after exterior walls/windows are in place.

EMERGENCY RESPONSE PLANNING

ADEQUATE EXIT ROUTES

W M Painting Inc will ensure sufficient exit routes for the workplace. While a single exit route is permissible in small workplaces with possible safe evacuation, two exit routes, located as far as practical from each other helps employees evacuate safely should one exit route be blocked. There will be enough exit routes to ensure safe evacuation of all employees.

Consult local codes to ensure safe means of passage in any construction. Exit stairways and means of egress in multi-level buildings must be provided immediately after floor decking is installed. In new multi-level buildings, one of the exit stairs may be obstructed for construction, but do not obstruct exit stairs for more than two contiguous floor levels.

EXIT DISCHARGE

Exits must discharge outside or to a space with access to the outside that is large enough to accommodate the number of people taking that route. For stairs that continue past the evacuation level, there will be indication of proper direction to discharge area.

UNLOCKED, SIDE-HINGED

Under no circumstances will an exit door be locked from the inside. Nothing can restrict the use of an exit door or any means of egress established in the fire protection plan in an emergency.

All exit doors will be side-hinged, with doors that swing out in the direction of exit travel, and rooms designed to hold more than 50 people or in a high-hazard area.

CAPACITY AND SIZE REQUIREMENTS

Exit routes must be able to handle the maximum occupant load for that floor. The capacity may not decrease as the route approaches the exit discharge.

The ceiling of an exit route must be at least seven feet six inches high. Any projection from the ceiling must not reach a point less than six feet eight inches from the floor.

An exit access must be at least 28 inches wide at all points. Where there is only one exit access leading to an exit or exit discharge, the width of the exit and exit discharge must be at least equal to the width of the exit access. The width of an exit route must be sufficient to accommodate the maximum permitted occupant load of each floor served by the exit route.

Objects that project into the exit route must not reduce the width of the exit route to less than the minimum width requirements for exit routes.

EMERGENCY RESPONSE PLANNING

OUTDOOR EXIT ROUTES

An outdoor exit route must be protected by guardrails if a fall hazard is present; covered or protected from slipping hazards; reasonably straight, smooth, solid and level; and free of dead ends longer than 20 ft.

MINIMIZE DANGERS

Exit routes will be unobstructed and clear of hazardous materials or flammable furnishings. An exit route that goes toward a high hazard area requires barriers or partitions to provide a suitable shield from the hazard for workers.

LIGHTING AND MARKING

Exit routes should be adequately lit, clearly visible and marked by a sign reading "EXIT." Decorations and signs must not obstruct or obscure the visibility of the exit door. If a doorway could be mistaken for an exit, it must be marked "Not an Exit" or a sign that identifies its use. If the direction to the exit is not apparent, signs must be posted to indicate the direction for evacuation.

Exit signs must be illuminated to a surface value of five foot-candles or greater. A self-luminous or electroluminescent sign is required to have a luminance surface value of at least .06 foot-lamberts. The letters on an exit sign should be at least 6" high with a stroke width of $\frac{3}{4}$ ".

CONSTRUCTION, REPAIRS, ALTERATIONS

Employees may not occupy any workplace during construction, repairs, or alterations unless all exit routes and required safety standards are maintained. The Company will ensure removal of or appropriately minimize hazards beyond normal conditions during construction activities.

FORMS

On the following pages, please find the Emergency Action Plan form, which may be reproduced freely by the Company W M Painting Inc for the purposes of implementing and maintaining a safety and health program.

EMERGENCY RESPONSE PLANNING

EMERGENCY ACTION PLANS

Company Name:		
Job Location:		
Street Address:		
City:	State:	ZIP Code:
Prepared By:		
Title:	Phone Number:	
Signature:	Date:	
PURPOSE		
This plan is for the safety and well-being of company employees. It identifies necessary management and employee actions during fires and other emergencies. Education and training are provided so that all employees know and understand the Emergency Action Plan.		
LOCATION OF PLAN		
The Emergency Action Plan can be found at the station or office of:		
Upon request, an OSHA representative may obtain a copy of the plan from:		
EXIT ROUTES		
Draw a diagram of jobsite or facility exit routes in space below. Locate meeting place or "Roll-Call" area on diagram		

EMERGENCY RESPONSE PLANNING

ACCOUNTING FOR EMPLOYEES

After exiting jobsite or facility, all employees are to assemble for "Roll-Call" at this location:

Note location on above diagram

The following are responsible for ensuring that employees comply with this requirement:

Name and Title:

Name and Title:

CRITICAL OPERATIONS

To minimize damage from the emergency, the following personnel are responsible for shutting down the listed critical operations:

Personnel Names	Critical Operations

As soon as shutdowns are completed, the employees who performed critical operations must take the nearest exit route in accordance with general emergency procedures.

RESCUE AND MEDICAL DUTIES

The following personnel are certified and trained in both CPR and general first aid.

Name and Title	Phone Number

REPORTING EMERGENCIES

The following personnel have the duty of contacting public responders to come to the emergency scene. The personnel are listed in descending order of availability:

Name and Title	Phone Number

EMERGENCY RESPONSE PLANNING

ALARM SYSTEMS AND NOTIFICATION OF EMERGENCIES

In the event of a workplace or facility emergency, employees will be notified as follows:

TYPES OF EVACUATION

OSHA requires this Company to have an established system of types of evacuation to follow for different emergency circumstances. The following listing represents Company policy for various emergency situations:

PARTIAL EVACUATION: Code Yellow – 3 rings or horn blasts

RESPONDERS (trained extinguisher personnel and trained rescue and medical personnel)

FULL EVACUATION: Code Red – 4 rings or horn blasts: RESPONDERS (n/a)

NOTE: If there is more than one evacuation type, the alarm signal for each must be distinctive.

OTHER: (describe)

PUBLIC EMERGENCY RESPONSE INFORMATION

911 emergency services **DO / DO NOT** cover the area this Emergency Action Plan covers.
(circle one)

Local Police Department:

Local Fire Department:

Local Ambulance/EMS:

Local Hospital:

FURTHER INFORMATION

For further information or explanation about any duties under this Plan, contact:

Name and Title:

Name and Title:

This Emergency Action Plan is authorized and approved by (Name and Title):

Name (print): _____ Title: _____

Signature: _____

EMERGENCY RESPONSE PLANNING

POLICY STATEMENT

Safety incidents indicate the failure of safety control systems and demand changes to prevent future harm. In order to implement necessary changes and prevent future harm, W M Painting Inc will investigate accidents and near misses to identify causes and make safety recommendations.

The primary purpose of workplace accident investigations performed by W M Painting Inc is to find facts to guide future actions, not to find fault or assign blame.

Fatalities and catastrophes, defined as events that require inpatient hospitalization of three or more employees, must be reported to OSHA within eight hours. Serious accidents where an employee is admitted to a hospital for treatment or observation because of injuries suffered from a workplace accident must be reported to OSHA within 24 hours.

If an employee with an occupational injury or illness receives a medical emergency procedure, Wayne Mello or designate will document the incident on OSHA's Form 301, "Injury and Illness Incident Report," and record the injury or illness on OSHA's Form 300, "Log of Work Related Injuries and Illnesses". See "29 CFR 1904.7 — Recordkeeping Forms and Recording Criteria" for more information.

RESPONSIBILITIES

Accident investigations are a responsibility shared between W M Painting Inc and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of W M Painting Inc to:

- Provide accident investigation training
- Ensure that every accident is investigated to find and remedy the root causes
- Respond promptly to any recommendation following an accident
- Take corrective actions to prevent the recurrence of an accident
- Avoid blaming individuals in incident investigations for safety purposes
- Report to the appropriate authority, as required by law, any catastrophe, fatality, injury or work-related illness
- Share with employees the findings of accident investigations

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the W M Painting Inc safety committee to:

- Help establish and maintain an accident investigation procedure that encourages employee involvement, management support, and company-wide accountability
- Provide support to respond to recommendations and implement changes to prevent future incidents
- Review workplace safety incidents to identify areas of concern and recommend necessary actions

ACCIDENT INVESTIGATION

EMPLOYEE RESPONSIBILITIES

Every W M Painting Inc employee is expected to:

- Immediately report any work-related accident, injury, or near miss
- Actively cooperate with investigators during accident investigations
- Participate in recommending changes to processes, systems, and the workplace, and in helping to implement changes as necessary to prevent future accidents

TRAINING

W M Painting Inc will ensure all employees are provided training on their role in the accident investigation process. This training will be provided at no cost to the employee during working hours.

W M Painting Inc will use only training material that is appropriate in content and vocabulary to the educational level, literacy, and language of employees.

TRAINING COMPONENTS

Wayne Mello will ensure that all employees at W M Painting Inc are informed and trained in the following minimum elements for accident investigation:

- What an accident is and why accidents occur
- What a near-miss is
- How to report an accident
- A general overview of the accident investigation process
- Why accident investigations are important, and the purpose of them
- Different levels of causes for accidents

Managers, Supervisors and Safety Committee Members will complete training in the following minimum elements for accident investigation:

- Learning the legal requirements of accident reporting
- Securing an accident scene
- Planning an accident investigation
- Collecting information from an accident scene
- Conducting interviews as part of an accident investigation
- Photographing and sketching an accident
- Creating a timeline of an accident
- Learning root-cause analysis techniques
- Compiling accident investigation reports
- Recommending change to prevent accidents

TRAINING RECORDS

The company will maintain training records for three years from the date on which the training occurred.

The following information must be included:

- Dates of the training
- Contents or a summary of the training
- Names and qualifications of persons conducting the training
- Names and job titles of all persons attending the training

POLICY

BACKGROUND

It is easy to think of an accident simply as a single event that results in injury or illness to an employee, or in property damage. In reality, an accident is the culmination of a series of events. Accidents are the end of an unplanned, unintended, and undesired process. They are complex, and in some industries exceedingly rare, often with several events that can be identified as causes.

It is also easy to think of accidents as being the result of poor chance or fate. However, a competent person can examine workplace conditions, behaviors, and underlying systems to predict what kind of accidents will occur. There is certainly an element of chance in every incident. However, most accidents can be prevented by eliminating and controlling workplace hazards.

A serious accident may result in disability, severe property damage, or even death; a minor accident may only cause an inconvenience; near misses may not harm anyone or anything. However, nearly all accidents and near misses point to failures in safety systems that demand a closer look to prevent more harm in the future.

INVESTIGATIONS

An accident investigation may have different purposes, including:

- Identifying and describing the actual course of events
- Identifying the direct and root causes / contributing factors of the accident
- Identifying risk-reducing measures to prevent future, comparable accidents
- Investigating and evaluating the basis for potential criminal prosecution
- Fulfilling legal requirements or processing workers' compensation claims
- Evaluating the question of guilt in order to assess the liability for compensation

Police, insurance investigators, and safety regulators may investigate an accident for other reasons, but W M Painting Inc accident investigations emphasize finding the root causes of the accident to prevent future accidents from happening again.

ACCIDENT INVESTIGATION

Investigators are interested in not only individual harmful events, but also the events, systems, and processes that led to the accident. Accident investigations need to determine exactly what happened, but more importantly, must look for deeper causes — the how and why.

Incidents that involve no injury or property damage should still be investigated to determine which hazards should be corrected. The same principles apply to a quick inquiry of a minor incident, and to the more formal investigation of a serious event.

PROCEDURES FOR ACCIDENT INVESTIGATIONS

The best time to develop accident investigation procedures is before the accident occurs.

The plan should include procedures that determine:

- Who to notify when an accident occurs
- Who may notify outside agencies (fire, police, etc.)
- Who will conduct investigations
- Who will maintain recordkeeping documents
- What training is required for accident investigators
- Who receives and acts on investigation reports
- Timetables for conducting hazard correction

At W M Painting Inc, pre-accident investigation planning is a team effort between the safety committee and Wayne Mello. Nevertheless, there are some key steps to help ensure an accident investigation will accomplish its goal of preventing future incidents. See Figure 1 for an outline of the general steps of an accident investigation.

REPORTING ACCIDENTS

W M Painting Inc will investigate all lost-time injuries. Any fatality, or the hospitalization of three or more employees, must be reported to OSHA within eight hours.

Effective January 1, 2015 any accidents resulting in hospitalization, amputation, and eye loss must be reported within 24 hours (amputations do not include avulsions, enucleations, degloving, scalping, severed ears, or broken/chipped teeth.)

Employees will report all accidents and near-miss incidents that result in personal injury, property damage, chemical spills, or other emergencies to the assigned supervisor at the time of the event. In addition, emergency medical services, the fire department, and hazmat services will be immediately summoned as needed.

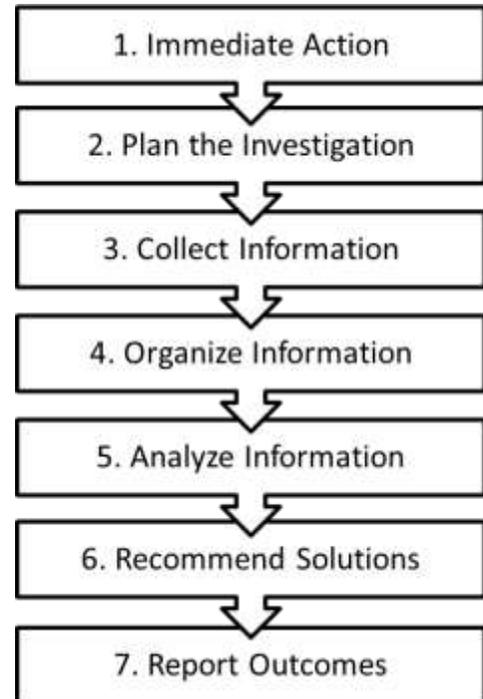


Figure 1

IMMEDIATE ACTION

SECURE ACCIDENT SCENE

The first action to take at an accident scene is to prevent further injuries and make the area safe. Administer first aid (or ensure it is administered) or summon appropriate emergency responders as necessary.

Sometimes, an investigation can begin while the victim is being assisted by emergency responders. However, the priority is always taking care of the victim, and usually investigations don't begin until emergency response is completed. Material evidence will most likely not be in its original location, but effective interviews can shed light on the scene at the time of the accident.

At this point, gathering as much pertinent information as possible for later analysis takes priority over determining the cause of the accident, but the top priority should always be the safety and well-being of workers and the public.

PRELIMINARY INVESTIGATION

It is important to start the investigation as soon as possible. Significant elapsed time between the accident and the investigation can lead to a deterioration of evidence and undermine the accuracy of the investigation.

MATERIAL EVIDENCE

There is a temptation to clean up the accident scene immediately so people can get back to work, but an effective procedure will protect material evidence for the investigation.

It is important to secure the scene of an accident quickly and effectively. Tape, rope, cones, or even personnel, can secure the accident scene.

PLAN INVESTIGATION

Most investigation planning should happen well in advance of an accident. However, some details of the investigation can only be seen after the fact. The nature of the accident will determine the extent of the investigation, the resources that will be needed, what types of investigative processes will be required, who will need to be interviewed, etc.

BUILD TEAM

Ideally, someone experienced in accident causation and investigative techniques will conduct accident investigations. An investigator who is also fully knowledgeable of the work processes, procedures, peoples, and general work environment of a particular situation will be able to shed some light on the causes of the accident.

In most cases, the supervisor should help investigate, together with at least one employee representative from the safety committee, the safety coordinator and/or whoever is in charge of worksite inspections.

Other members of the team can include:

- Employees with knowledge of the work
- A union representative, if applicable
- Employees with experience in investigations
- An impartial expert from outside the company

It is important the team represent a variety of expert perspectives on workplace safety and the job being performed when the accident happened. However, everyone on the team should be trained in appropriate investigative techniques and not be involved in any disciplinary proceedings that might emerge out of the incident, if possible.

It is important to keep the safety-related aspect of the investigation separate from any possible disciplinary action. Accident investigations will always focus on identifying safety failures and remedying them promptly.

COLLECT INFORMATION

The next step is to gather useful information about what directly and indirectly contributed to the accident. When collecting information to understand an incident or accident, consider all possible sources.

PHOTOGRAPH AND VIDEO

Photographs and video recording can help in the preparation of a report, as well as in analyzing conditions at the site of the incident. Photographic evidence should be taken as soon as safely possible.

ACCIDENT INVESTIGATION

Following are some techniques useful in taking photographs at incident scenes:

- Photograph the overall area before moving to detail the precise incident site.
- Take photos from different perspectives and angles—close-up and from a distance.
- Use witnesses to help you decide what to shoot, and note their comments.
- Record what photos you take in a log that includes details like when the shot was taken, by whom, where, what the shot contains, identifying number on a sketch of the area, and a brief description of what the photograph is trying to identify.
- Keep the photos in a safe place along with notes, evidence, and sketches from the accident investigation.
- Narrate video with details like those above.

SKETCH SCENE

Sketches complement information in photos or video, indicating distances among elements of the accident scene. It is important to be as precise as possible when making sketches.

Following are some things to remember:

- Make sketches large and clear.
- Include basic facts (date, time, location, identity of objects, victims, etc.).
- Define spatial relationships with identifiable points of reference and compass directions.
- Include important measurements, and note key concepts.
- Indicate what has been included in photographs.
- Mark where people were standing.

Eventually, a precise diagram can reflect the information in a sketch, but it is important to get as much information as possible immediately after the accident.

INTERVIEW WITNESSES

Interviewing witnesses is the easiest way to gain an understanding of how the accident occurred, and the conditions that led to it. Witnesses include people who saw the incident, such as any injured people, and others whose behavior, actions and/or inactions— either intentionally or unintentionally—contributed to the incident. This can include supervisors and trainers, maintenance personnel, and anyone else tied to the investigation.

When interviewing, it is important to remember emotions can run high in the wake of an accident, especially a catastrophic one. The accident investigation is a cooperative effort to create a safer workplace by gathering and understanding information. Keep an open mind and listen with a calm, relaxed, unhurried demeanor.

- Use a voice recorder only with permission; if possible, offer a copy of the recorded conversation, or a transcription, to the interviewee.
- Express to the individual that the information given is important, but put the person at ease. Explain the purpose of the interview and your role. Express sincere concern regarding the accident and your desire to prevent a similar occurrence.
- Interview witnesses separately, and ensure witnesses can discuss the incident with you in relative privacy where possible. Don't promise confidentiality though.

ACCIDENT INVESTIGATION

- Take the witness to the scene if they are comfortable. If you can't conduct a private interview at the location, find an office or meeting room that the interviewee considers a "neutral" location.
- Allow witnesses to have a support person present, but ensure the support person is not directly linked to the incident and is not a witness. If there is a collective bargaining agreement, and a worker requests union representation, do not continue the interview until representation has been secured.
- Direct an eyewitness to "explain what happened" in their own words. If you don't ask them to explain, you may be left with a simple "Yes" or "No" response, which is not as helpful. Open-ended questions elicit much more information than closed-ended questions. "Why" questions can put an interviewee on guard. Look for facts and observations; ignore speculation.
- Take notes casually, but with care. Allow the interviewee to review notes of the interview to ensure accuracy and help bring details to mind. Give the interviewee a copy of the notes you take to help reduce any thought that you're trying to conceal information.
- Repeat the facts and sequence of events back to the person to avoid misunderstanding, and to establish the correct version of events.
- Request interviewees to offer their own suggestions as to how the incident could have been avoided.
- Conclude interviews by thanking interviewees for their contribution. Ask them to contact you if they think of anything else. If possible, tell witnesses personally of the outcome of the investigation before it becomes public knowledge.

CONSULT RECORDS

When searching for information, investigations should continue after evaluating the scene of the accident, collecting physical evidence, and interviewing the people involved. Documents related to the incident can provide incredible insight into the causes of an accident; especially root causes.

Some examples of useful documents include:

- Technical data sheets
- Health and safety committee minutes
- Inspection reports
- Company policies
- Maintenance reports
- Past accident reports
- Job hazard analyses and safe-work procedures
- Training records and reports
- Work schedules
- Injury and illness logs
- Any other document that may shed light on the safety-related systems in place where the accident took place

Determining the causes of the accident based on available information may be difficult because events must be analyzed not only to identify direct causes for the accident, but also related root causes. “Surface” causes can be obvious. However, it may take a great deal of additional time to unearth weaknesses in management systems, or other root causes that contributed to the conditions and practices associated with the accident.

ORGANIZE AND ANALYZE THE FACTS

DEVELOP SEQUENCE OF EVENTS

When all of the evidence is collected, and all the interviews are complete, a timeline of the accident should emerge. Each event on the timeline describes an actor and an action. The actor effects change through action or inaction. Actors do not have to be personnel. Equipment or processes can affect the system to precipitate an accident.

When developing the sequence of events, do not hesitate to stretch the timeline further back as deeper causes begin to emerge. Accidents often result from long-term oversights and failures that have taken some time to have a negative impact.

If gaps in the timeline are apparent, they need to be filled in. If re-interviewing witnesses or investigating the evidence fails to fill the gaps, develop an “educated guess” supported by the rest of the timeline and available evidence.

The sequence of events should describe what happened in such a way that someone unfamiliar can understand what likely happened.

DETERMINE THE CAUSES

When the timeline is established, the next step is to determine the causes of the accident. The key question for an investigator to establish cause is “Why?” Why did an unsafe condition emerge in the workplace? Why did the worker end up exposed to the unsafe condition? Determining the root causes of an accident requires asking “Why?” over and over again.

IMPLEMENT SOLUTIONS

Although an accident investigation can be a reactive safety process, it typically ends in recommendations for effective control strategies and system improvements that will help prevent similar accidents in the future.

WRITE THE REPORT

An accident or incident investigation aims to create systemic change and ensure everyday safeguards remain in place to reduce risk and promote safety in the workplace. However, the information uncovered in the investigation, and recommendations that come from the investigation, need to be available to people with authority. A report that includes the pertinent information about the causes of an incident, as well as concrete recommendations, helps the investigation to positively impact the safety culture of W M Painting Inc.

Please see the “Accident/Incident Report” at the end of this chapter for an example template for an incident report.

Background: This section of the report covers the basic information about the accident: when and where the accident occurred, who was involved, etc.

Description: The description of the incident should be a timeline of the incident—a step-by-step narrative of what occurred. The incident and the findings of the investigation will determine how far before and after the incident itself, the narrative should stretch. Include enough information to give a person who was not there a clear understanding of the accident. Be specific. Include a diagram of the event.

Findings: Report results of the root-cause analysis with complete thoughts, not short notes. Remember to describe both hazardous conditions and unsafe actions. Findings need to include direct and indirect surface causes. Findings should also clearly outline the root causes of the accident and frame recommendations. Remember, the point of the investigation is not to assign blame. Findings will describe unsafe actions of individuals, but any lack of hazard controls, or deficient safety systems, at the organizational level is what the report aims to remedy.

Recommendations: Recommendations can only be as effective as the findings on which they are based. In the report, recommendations need to be specific and help those in authority take the first steps to implement the recommendations. Include who will be responsible to implement the recommendations, a timeline, and estimated cost—if that can be determined.

Summary: Review the causes of the accident and the corrective steps that are recommended.

Review and Follow-up: This can be included as part of the recommendations. Necessary changes require a system of accountability. Suggesting a specific timeframe and specific individuals with appropriate authority to enact recommendations will drive the needed changes. Incorporating accident follow-up and accountability into safety committee activities is a useful way to build widespread accountability for the types of safety system changes workplace accidents often demand.

Attachments: Be sure to include with the report the notes from interviews, as well as photographs and any other pertinent information and evidence from the investigation.

ACCIDENT INVESTIGATION

POLICY EVALUATION AND RECORDKEEPING

Accident investigation procedures and this policy will be evaluated annually and revised as necessary.

REPORTING CATASTROPHES AND FATALITIES

Fatalities and catastrophes—defined as events that require inpatient hospitalization of three or more employees—must be reported to OSHA within eight hours. Serious accidents, in which an employee is admitted to a hospital for treatment because of injuries suffered from a workplace accident, must be reported to OSHA within 24 hours. Call 1-800-321-OSHA (1-800-321-6742) to report these events.

OSHA'S FORM 300, 300A AND 301

Unless a company is in a low-hazard industry (see list at right) or employs 10 or fewer individuals, all recordable injuries and illnesses must be recorded appropriately. See "1904.7 — Recordkeeping Forms and Recording Criteria."

If an employee with an occupational injury or illness receives a medical emergency procedure, Wayne Mello or designate will document the incident on OSHA's Form 301 "Injury and Illness Incident Report" and record the injury or illness on OSHA's Form 300 "Log of Work Related Injuries and Illnesses".

Yearly, OSHA's form 300A "Summary of Work-Related Injuries and Illnesses," will be completed based on the information in form 300 and posted between February 1 and April 30 of the year following the year covered by the form.

FORMS & ATTACHMENTS

Please find the documents listed below on the following pages:

- Accident/Incident Report
- Accident Investigation Training Documentation

These forms may be reproduced freely by W M Painting Inc for the purpose of implementing and maintaining a safety and health program.

OSHA reporting forms and work-related injury and illness logs are available at:

<http://www.osha.gov/recordkeeping/new-osha300form1-1-04.pdf>

SICs of recordkeeping-exempt industries

525	Hardware Stores
542	Meat and Fish Markets
544	Candy, Nut, and Confectionary Stores
545	Dairy Products Stores
546	Retail Bakeries
549	Miscellaneous Food Stores
551	New and Used Car Dealers
552	Used Car Dealers
554	Gasoline Service Stations
557	Motorcycle Dealers
56	Apparel and Accessory Stores
573	Radio, Television, and Computer Stores
58	Eating and Drinking Places
591	Drug Stores and Proprietary Stores
592	Liquor Stores
594	Miscellaneous Shopping Goods Stores
599	Retail Stores, Not Elsewhere Classified
60	Depository Institutions (Banks and Savings Institutions)
61	Non-depository Institutions (Credit Institutions)
62	Security and Commodity Brokers
63	Insurance Carriers
64	Insurance Agents, Brokers, and Services
653	Real Estate Agents and Managers
654	Title Abstract Offices
67	Holding and Other Investment Offices
722	Photographic Studios, Portrait
723	Beauty Shops
724	Barber Shops
725	Shoe Repair and Shoeshine Parlors
726	Funeral Service and Crematories
729	Miscellaneous Personal Services
731	Advertising Services
732	Credit Reporting and Collection Services
733	Mailing, Reproduction, and Stenographic Services
737	Computer and Data Processing Services
738	Miscellaneous Business Services
764	Re-upholstery and Furniture Repair
78	Motion Picture
791	Dance Studios, Schools, and Halls
792	Producers, Orchestras, Entertainers
793	Bowling Centers
801	Offices and Clinics of Medical Doctors
802	Offices and Clinics of Dentists
803	Offices of Osteopathic Physicians
804	Offices of Other Health Practitioners
807	Medical and Dental Laboratories
809	Health and Allied Services, Not Elsewhere Classified
81	Legal Services
82	Educational Services (Schools, Colleges, Universities, and Libraries)
832	Individual and Family Services
835	Child Day Care Centers
839	Social Services, Not Elsewhere Classified
841	Museums and Art Galleries
86	Membership Organizations
87	Engineering, Accounting, Research, Management, and Related Services
899	Services, Not Elsewhere Classified

ACCIDENT INVESTIGATION

ACCIDENT INVESTIGATION

ACCIDENT/INCIDENT REPORT FORM

Date of Accident	Time	Day of Week <input type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> T <input type="checkbox"/> W <input type="checkbox"/> T <input type="checkbox"/> F <input type="checkbox"/> S	Shift <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	Department
INJURED PERSON				
Name:		Address:		
Age:	Phone:			
Job Title:		Supervisor Name:		
Length of Employment at Company:		Length of Employment at Job:		
Employee Classification: <input type="checkbox"/> Full Time <input type="checkbox"/> Part Time <input type="checkbox"/> Contract <input type="checkbox"/> Temporary				
NATURE OF INJURY	<input type="checkbox"/> Bruising	<input type="checkbox"/> Dislocation	<input type="checkbox"/> Other (specify)	Injured Body Part :
<input type="checkbox"/> Strain/Sprain	<input type="checkbox"/> Scratch/ Abrasion	<input type="checkbox"/> Internal		
<input type="checkbox"/> Fracture	<input type="checkbox"/> Amputation	<input type="checkbox"/> Foreign Body	Remarks:	
<input type="checkbox"/> Laceration/Cut	<input type="checkbox"/> Burn/Scald	<input type="checkbox"/> Chemical Reaction		
TREATMENT	Name and Address of Treating Physician or Facility:			
<input type="checkbox"/> First Aid				
<input type="checkbox"/> Emergency Room				
<input type="checkbox"/> Dr.'s Office				
<input type="checkbox"/> Hospitalization				
DAMAGED PROPERTY				
Property, Equipment, or Material Damaged		Describe Damage:		
Object or Substance Inflicting Damage:				

ACCIDENT INVESTIGATION

INCIDENT DESCRIPTION

Describe what happened (attach photographs or diagrams if necessary):

Make sketches or illustrations to help describe incident:

--

ACCIDENT INVESTIGATION

ROOT CAUSE ANALYSIS (Check All that Apply)		
Unsafe Acts	Unsafe Conditions	Management Deficiencies
<input type="checkbox"/> Improper work technique <input type="checkbox"/> Safety rule violation <input type="checkbox"/> Improper PPE or PPE not used <input type="checkbox"/> Operating without authority <input type="checkbox"/> Failure to warn or secure <input type="checkbox"/> Operating at improper speeds <input type="checkbox"/> Bypassing safety devices <input type="checkbox"/> Guards not used <input type="checkbox"/> Improper loading or placement <input type="checkbox"/> Improper lifting <input type="checkbox"/> Servicing machinery in motion <input type="checkbox"/> Horseplay <input type="checkbox"/> Drug or alcohol use <input type="checkbox"/> Unnecessary haste <input type="checkbox"/> Unsafe act of others <input type="checkbox"/> Other:	<input type="checkbox"/> Poor workstation design/layout <input type="checkbox"/> Congested work area <input type="checkbox"/> Hazardous substances <input type="checkbox"/> Fire or explosion hazard <input type="checkbox"/> Inadequate ventilation <input type="checkbox"/> Improper material storage <input type="checkbox"/> Improper tool or equipment <input type="checkbox"/> Insufficient knowledge of job <input type="checkbox"/> Slippery conditions <input type="checkbox"/> Poor housekeeping <input type="checkbox"/> Excessive noise <input type="checkbox"/> Inadequate hazard guards <input type="checkbox"/> Defective tools/equipment <input type="checkbox"/> Insufficient lighting <input type="checkbox"/> Inadequate fall protection <input type="checkbox"/> Other:	<input type="checkbox"/> Lack of written policies & procedures <input type="checkbox"/> Safety rules not enforced <input type="checkbox"/> Hazards not identified <input type="checkbox"/> PPE unavailable <input type="checkbox"/> Insufficient worker training <input type="checkbox"/> Insufficient supervisor training <input type="checkbox"/> Improper maintenance <input type="checkbox"/> Inadequate supervision <input type="checkbox"/> Inadequate job planning <input type="checkbox"/> Inadequate hiring practices <input type="checkbox"/> Inadequate workplace inspection <input type="checkbox"/> Inadequate equipment <input type="checkbox"/> Unsafe design or construction <input type="checkbox"/> Unrealistic scheduling <input type="checkbox"/> Poor process design <input type="checkbox"/> Other:
ACCIDENT / INCIDENT ANALYSIS		
Using the root-cause analysis list, explain the cause(s) of the incident in as much detail as possible. Attach a sheet if there is not enough room.		
How bad could the accident have been? <input type="checkbox"/> Very Serious <input type="checkbox"/> Serious <input type="checkbox"/> Minor		What is the chance of the accident happening again? <input type="checkbox"/> Frequent <input type="checkbox"/> Occasional <input type="checkbox"/> Rare

ACCIDENT INVESTIGATION

ACCIDENT/INCIDENT REPORT FORM

RECOMMENDATIONS AND FOLLOW-UP			
Describe actions that will be taken to prevent recurrence: <i>(attach another sheet if necessary)</i>	Deadline	By Whom	Complete
SUMMARY			
INVESTIGATION TEAM			
Name	Signature	Position	

POLICY STATEMENT

W M Painting Inc is committed to the safety and health of our employees and to ensuring prompt medical attention for any injury that occurs at work.

Part of that commitment includes having readily available medical personnel. Where there is no medical facility close to the worksite, Wayne Mello and other personnel as needed will be trained to provide first aid. First-aid kits are located at: the office, company vehicles and all job sites

W M Painting Inc will provide, at no cost, medical services for employee evaluations, employment requirements, and special conditions of work.

RESPONSIBILITIES

The availability of medical attention in the event of a medical emergency is a responsibility shared between W M Painting Inc and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of W M Painting Inc to:

- Ensure every employee receives training that explains the first-aid response plan.
- Determine who must be trained to render first aid and ensure every employee expected to render first aid will be trained in appropriate practices and techniques, including response to site-specific hazards.
- Ensure the first-aid response plan, amount of first-aid-trained personnel, first-aid equipment and all other hazard controls reflect workplace hazards as determined in job hazard analyses and worksite inspections.
- Ensure first-aid kits remain fully stocked and any emergency response equipment is in good repair.
- Respond to recommendations and concerns from W M Painting Inc employees and the safety committee.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the W M Painting Inc safety committee to:

- Participate in the creation of a first-aid response plan.
- Participate in all job hazard analyses and recommend changes to the first-aid policy and first aid response plan to increase workplace safety.
- Recommend changes to first-aid policy and procedures.

FIRST AID & MEDICAL SERVICES

EMPLOYEE RESPONSIBILITIES

Every W M Painting Inc employee is expected to:

- Follow the first-aid policy and the first-aid response plan
- Understand the hazards presented by “Good Samaritan” first aid response

TRAINING

W M Painting Inc will ensure every employee receives training that covers the W M Painting Inc first-aid response plan. All personnel expected to render first aid will be certified by an approved first-aid training organization. All training for workplace safety will be provided at no cost to the employee during working hours.

W M Painting Inc will provide training:

- At the time of assignment to tasks where occupational exposure may take place.
- At least annually thereafter, annual training will be provided within one year of previous training.

W M Painting Inc will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees.

TRAINING COMPONENTS

The training program for medical services and first aid will contain at a minimum the following elements:

- Location and contents of workplace first-aid kits
- “Good Samaritan” hazards and bloodborne pathogens
- Self-care and incident reporting

The person conducting the training will be knowledgeable in the subject matter of the training program as it relates to the workplace.

Any W M Painting Inc employee who is expected to render first aid as part of his or her job duties, will receive additional training from an external organization (e.g. American Heart Association, American Red Cross, and the National Safety Council) including, but not limited to:

- Recommended first-aid practices, especially those that may be necessary for hazards specific to the W M Painting Inc workplace
- Bloodborne pathogen exposure control
- Cardiopulmonary resuscitation incorporating use of automated external defibrillators (if present at worksite)

If a third-party first aid training provider is unable to provide first aid training specific to hazards at W M Painting Inc, first aid responders require supplementary training over the appropriate response to injuries that may result from worksite-specific hazards.

FIRST AID & MEDICAL SERVICES

POTENTIAL FIRST AID TRAINING ELEMENTS

OSHA suggests a number of elements to include when planning first-aid training programs.

TEACHING METHODS

Training programs should incorporate the following principles:

- Basing the curriculum on a consensus of scientific evidence where available
- Having trainees develop “hands-on” skills through the use of mannequins and partner practice
- Having appropriate first-aid supplies and equipment available
- Exposing trainees to acute injury and illness settings as well as to the appropriate response through the use of visual aids
- Including a course information resource for reference both during and after training
- Allowing enough time for emphasis on commonly occurring situations
- Emphasizing skills training and confidence-building over classroom lectures
- Emphasizing quick response to first-aid situations

FIRST AID TRAINING ELEMENTS

The training program should include instruction in the following:

- Repositioning ill/injured victims to prevent further injury

PREPARING TO RESPOND TO A HEALTH EMERGENCY

The training program should include instruction or discussion in the following:

- Prevention as a strategy in reducing fatalities, illnesses and injuries
- Interacting with the local EMS system
- Maintaining a current list of emergency telephone numbers (police, fire, ambulance, poison control) accessible to all employees
- Understanding the legal aspects of providing first-aid care, including Good Samaritan legislation, consent, abandonment, negligence, assault and battery, State laws and regulations
- Understanding the effects of stress, fear of infection, panic; how they interfere with performance; and what to do to overcome these barriers to action
- The importance of universal precautions and body substance isolation to provide protection from bloodborne pathogens and other potentially infectious materials
- Learning about personal protective equipment — gloves, eye protection, masks, and respiratory barrier devices
- Appropriate management and disposal of blood-contaminated sharps and surfaces; and awareness of OSHA’s Bloodborne Pathogens standard 29 CFR 1910.1030.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

W M Painting Inc will maintain employee-training records for 3 years from the date on which the training occurred.

First aid training courses provided to W M Painting Inc employees will include instruction in general and workplace hazard-specific knowledge and skills.

First-aid trained employees should repeat training periodically to maintain and update knowledge and skills.

PLANNING

As with any element of the W M Painting Inc Safety and Health Program, the first-aid response plan demands leadership from management and the active involvement of employees. The goal is a first-aid response plan based on hazards in the workplace and training for employees according to the risks they face while performing their job duties.

FIRST AID RESPONSE PLANNING

Wayne Mello, working with members of the safety committee, will determine a first-aid response plan appropriate to the worksite.

The first-aid response plan can be incorporated into the emergency action plan and will:

- Fit the work location, type of work, and environmental conditions
- Identify available EMS, their numbers and where they are posted
- Describe the type of first-aid training employees receive, if applicable
- Identify the location(s) of first-aid supplies and/or first-aid station
- Identify the contents of first-aid kits
- Describe how first-aid supplies, kits and equipment will be inspected and maintained and by whom
- List all first-aid trained employees

EMERGENCY MEDICAL SERVICES

Knowledge of available emergency medical services and their estimated response times to the worksite throughout the day can be useful when planning the first-aid response plan.

SHARING FIRST AID RESPONSE PLAN INFORMATION

First-aid policies and procedures are most effective when they are in writing. Whether in writing or not, the first-aid response plan needs to be communicated in such a way that every worker, can understand and follow the plan.

IMPLEMENTATION

HAZARD ASSESSMENT

A job hazard analysis (see chapter on “Job Hazard Analysis”) will define the extent and nature of first-aid training for a given job and determine the first-aid supplies that need to be available.

FIRST AID KITS

First-aid supplies will remain available in adequate quantities and be readily accessible at the office, company vehicles and all job sites. The contents of the kit listed in The American National Standard (ANSI) Z308.1-1998 "Minimum Requirements for Workplace First-aid Kits" (table 1) should be adequate for most small worksites. Wayne Mello or the appropriate safety committee member(s) will determine the need for additional first-aid kits at the worksite, additional types of first-aid equipment and supplies, and additional quantities and types of supplies in first-aid kits to accommodate larger operations or multiple operations conducted at the same location

ANSI Z308.1-1998 <u>Minimum</u> Requirements for Workplace First-aid Kits	
Quantity	Description
1 ea.	absorbent compress (at least 4" X 8")
16 ea.	adhesive bandages (1" X 3")
5 yd.	adhesive tape
10 ea.	antiseptic applications (.5g)
6 ea.	burn treatment applications (.5g)
4 ea.	sterile pads (at least 3" X 3")
2 pr.	medical exam gloves
1 ea.	Triangular bandage (at least 40" X 40" X 56")

Table 1

MEDICAL RESPONSE

RESPONDING TO MEDICAL EMERGENCIES

A wide variety of medical emergencies can occur in the workplace; however, they can be divided into two categories, life threatening, and non-life threatening. It's important for W M Painting Inc first aid providers to be trained to deal with situations as they arise, and to be able to recognize the severity of the emergency. Medical emergencies can include, but are not limited to:

- Chest pain
- Stroke
- Impalements
- Crushing
- Electrocution
- Severe bleeding
- Breathing problems
- Anaphylactic reaction
- Hypoglycemia in diabetics taking insulin
- Seizures
- Pregnancy complications
- Abdominal injury
- Reduced level of consciousness

ASSESSING THE SCENE AND THE VICTIM(S)

The top priorities of first aid providers when responding to a medical emergency are”

- Assessing the scene for safety, number of injured, and nature of the event
- Assessing the toxic potential of the environment and the need for respiratory protection
- Establishing the presence of a confined space and the need for respiratory protection and specialized training to perform a rescue
- Prioritizing care when there are several injured
- Assessing each victim for responsiveness, airway patency (blockage), breathing, circulation, and medical alert tags
- Taking a victim's history at the scene, including determining the mechanism of injury
- Performing a logical head-to-toe check for injuries
- Continuous monitoring of the victim
- Early activation of EMS
- Safely moving and rescuing victims

RESPONDING TO LIFE-THREATENING EMERGENCIES

First aid training should be designed for the specific worksite and include first-aid instruction for the management of the following:

BREATHING PROBLEMS

The training program should be designed or adapted for the specific worksite and may include first-aid instruction in the following:

- Establishing responsiveness;
- Establishing and maintaining an open and clear airway
- Performing rescue breathing
- Treating airway obstruction in a conscious victim

Recognizing asphyxiation and the danger of entering a confined space without appropriate respiratory protection. Additional training is required if first-aid personnel will assist in the rescue from the confined space.

POISONING

- Ingested poisons: alkali, acid, and systemic poisons. Role of the Poison Control Center (1-800-222-1222)
- Inhaled poisons: carbon monoxide; hydrogen sulfide; smoke; and other chemical fumes, vapors, and gases. Assessing the toxic potential of the environment and the need for respirators
- Knowledge of the chemicals at the worksite and of first aid and treatment for inhalation or ingestion
- Effects of alcohol and illicit drugs so that the first-aid provider can recognize the physiologic and behavioral effects of these substances

PHYSICAL INJURIES

W M Painting Inc first aid providers will be able to:

- Recognize the signs and symptoms of shock and provide first aid for shock due to illness or injury
- Assess and treat a victim who has an unexplained change in level of consciousness or sudden illness
- Control bleeding with direct pressure

SUDDEN CARDIAC ARREST

Cardiopulmonary Resuscitation

OSHA standards require training in cardiopulmonary resuscitation (CPR) in some employment situations where sudden cardiac arrest from asphyxiation, electrocution, or exertion may occur: permit-required confined spaces; logging operations; electric power generation, transmission, and distribution; dive teams; and power transmission and distribution construction. However, sudden cardiac arrest is a potential risk at all worksites and those trained in first aid benefit greatly from learning CPR regardless of work hazards.

Automated External Defibrillators

W M Painting Inc will determine the need for an automated external defibrillator (AED) program as part of the first-aid response plan. Training will reflect whether an AED is included.

If an AED is available at the worksite, CPR training will incorporate AED training.

CORROSIVE MATERIALS, STRONG IRRITANTS OR TOXIC CHEMICALS

If a job hazard analysis determines hazards from corrosive materials, strong irritants, or toxic chemicals, the W M Painting Inc first-aid plan will include appropriate hazard controls. These controls include eye irrigation equipment, eyewash stations, and emergency showers.

Even worksites without high-risk levels from corrosives, irritants, and toxic chemicals may find eye-irrigation equipment and eyewash equipment appropriate to address workplace hazards. Be aware that some state requirements and specific chemical safety procedures require such equipment on worksites. Where such requirements exist, W M Painting Inc will adhere to applicable workplace safety and health regulations, and industry best practices.

At construction jobsites, employers must provide a sanitary washing facility for every 20 employees. At jobsites where employees work with paint, coatings, or any substance that may be harmful, the facilities must include suitable cleaning agents/towels for the removal of hazardous and other substances.

BLOODBORNE PATHOGENS

If an employee is designated to render first aid as part of his or her job duties, or if they may otherwise be subject to the hazard of exposure to bloodborne pathogens, the employee must meet the requirements of 29 CFR 1910.1030, Bloodborne Pathogens, and must be trained accordingly. Additional requirements may also apply. Please see the chapter on "Bloodborne Pathogens" for more information.

Employees who have not received first-aid training need to understand the hazards presented by delivering first aid to a coworker. While W M Painting Inc discourages the administration of first aid by any employee who has not been trained in first aid, "Good Samaritan" first-aid delivery is a possibility if necessary.

RESPONDING TO NON-LIFE-THREATENING EMERGENCIES

First aid training should be designed for the specific worksite and include first-aid instruction for the management of the following:

WOUNDS

- Assessment and first aid for wounds including abrasions, cuts, lacerations, punctures, avulsions, amputations and crush injuries
- Principles of wound care, including infection precautions
- Principles of body substance isolation, universal precautions and use of personal protective equipment

BURNS

- Assessing the severity of a burn
- Recognizing whether a burn is thermal, electrical, or chemical and the appropriate first aid
- Reviewing corrosive chemicals at a specific worksite, along with appropriate first aid

TEMPERATURE EXTREMES

- Exposure to cold, including frostbite and hypothermia
- Exposure to heat, including heat cramps, heat exhaustion and heat stroke

MUSCULOSKELETAL INJURIES

- Fractures
- Sprains, strains, contusions and cramps
- Head, neck, back and spinal injuries
- Appropriate handling of amputated body parts

EYE INJURIES

- First aid for eye injuries
- First aid for chemical burns

MOUTH AND TEETH INJURIES

- Oral injuries; lip and tongue injuries; broken and missing teeth
- The importance of preventing aspiration of blood and/or teeth

BITES AND STINGS

- Human and animal bites
- Bites and stings from insects; instruction in first-aid treatment of anaphylactic shock

RECORD KEEPING

All safety and health incidents and near misses will be documented and investigated according to the policy on "Accident Investigation." This includes prompt notification to OSHA of catastrophic or deadly incidents and may include other reporting requirements.

PROGRAM REVIEW

Wayne Mello will review the first-aid response plan and all elements at least annually to ensure all elements sufficiently address the safety needs of W M Painting Inc and its employees. Recommended first-aid techniques and knowledge change over time, and W M Painting Inc policy will reflect those changes.

FORMS & ATTACHMENTS

On the following page, please find a First-Aid Response Plan form that you can use to create your companies plan

FIRST AID & MEDICAL SERVICES

FIRST AID RESPONSE PLAN FORM

Company:		Date:	
This plan was written for: (site or location this plan covers)			
The following person/position is responsible for managing our first-aid response plan:			
The emergency medical service to be called:			
Summon the emergency medical service by doing the following: (In most cases, it will be to call 911 or some other phone number, but a direct alarm or some other method may be the preferred way.)			
Emergency phone numbers are posted at the following location(s):			
Other means to summon aid are at the following location:			
When employees need first aid they must do the following:			
Employees on site who are first-aid trained:			
First-aid kits (or a first aid station) are located at:			
The following person/position is responsible for inspecting the first-aid kits:			
The Company's Designated Medical Provider is:			
Person Preparing Plan:			
Signature:		Date:	
Supervisor's Name:			
Signature:		Date:	

FIRST AID & MEDICAL SERVICES

POLICY STATEMENT

W M Painting Inc is committed to the safety and health of our employees and to preventing the spread of bloodborne pathogens. Therefore, W M Painting Inc adheres to the following bloodborne pathogen policy and Exposure Control Plan (ECP).

Bloodborne pathogens are diseases caused by microorganisms that live in the bloodstream and are spread through blood and other body fluids. Bloodborne pathogens include the human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV). HIV compromises the body's immune functions and can lead to acquired immunodeficiency syndrome. While the virus does not live out of the body for long, it can enter the bloodstream through cuts, abrasions, small tears in mucous membranes, etc. Hepatitis affects the health of the liver.

Bloodborne pathogens can be transmitted through any body fluid, and employees must take care when they are near, or come into contact with possible contaminants, in order to prevent the spread of bloodborne infections.

If employees — such as those designated as responsible for first aid and medical assistance, or those doing work in certain medical or sanitation facilities — are exposed to bloodborne pathogens, all measures within this program will be taken to prevent the spread of disease.

RESPONSIBILITIES

Preventing the spread of bloodborne illnesses is a responsibility shared between W M Painting Inc and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of W M Painting Inc to:

- Enact and enforce an exposure control plan to prevent occupational exposure to potentially infectious materials
- Identify employees who may reasonably be anticipated to come into contact with blood and other potentially infectious materials
- Provide for post-exposure evaluation and follow-up should an employee be exposed to potentially infectious materials
- Ensure employees receive appropriate bloodborne pathogens training
- Ensure an adequate supply of Personal Protective Equipment

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the safety committee to:

- Develop and implement a site-specific exposure control plan
- Identify employees who may reasonably be anticipated to come into contact with blood and other potentially infectious materials
- Develop, conduct, and document training for bloodborne pathogens safety
- Investigate exposure incidents and recommend work-practice changes
- Recommend personal protective equipment (PPE), if necessary

EMPLOYEE RESPONSIBILITIES

Every employee is expected to:

- Offer input on ECP as appropriate, including identification, evaluation, and selection of new control methods
- Follow all elements of the bloodborne pathogens policy and training
- Notify a supervisor if they encounter any problems or concerns related to this policy

TRAINING

W M Painting Inc will ensure every employee who may reasonably anticipate coming into occupational exposure to potentially infectious materials, participate in a bloodborne pathogen training program. This training will be provided at no cost to the employee during working hours.

Training will be provided:

- At the time of assignment to/prior to working on tasks where occupational exposure may take place
- At least annually thereafter (annual training for all employees will be provided within one year of their previous training).

W M Painting Inc will provide additional training when tasks or procedures are added or changed that affect the employee's occupational exposure. It is acceptable for additional training to be limited to addressing only the changes or additions to the employees' exposure.

The Company will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees.

TRAINING COMPONENTS

- The training program will contain, at a minimum, the following elements:
- An accessible copy of the regulatory text of CFR 1910.1030, this bloodborne pathogen policy and exposure control plan, and an explanation of its contents
- A general explanation of the epidemiology and symptoms of bloodborne diseases
- An explanation of the modes of transmission of bloodborne pathogens
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials
- An explanation of the use and limitations of methods to prevent or reduce exposure, including engineering controls, work practices, and personal protective equipment
- Information on the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment
- An explanation of the basis for selection of personal protective equipment (PPE)
- Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge to employees who face occupational exposure
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials
- An explanation of the procedures to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available
- Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident
- An explanation of the applicable signs, labels, and/or color coding
- An opportunity for interactive questions and answers with the person conducting the training session
- The person conducting the training will be knowledgeable in the subject matter of the training program as it relates to the workplace.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions
- Contents or a summary of the training sessions
- Names and qualifications of persons conducting the training
- Names and job titles of all persons attending the training sessions
- Employee training records will be maintained for three years from the date on which the training occurred.

PROCEDURES

EXPOSURE DETERMINATION

It is crucial to determine which jobs expose an employee to blood and other potentially infectious material, as well as the means by which that exposure might occur. Accordingly, the safety committee or management will determine which job classifications can reasonably expect occupational exposure to potentially infectious material.

The following will be determined and documented:

- Job classifications in which all employees have occupational exposure
- Job classifications in which some employees have occupational exposure
- Tasks and procedures in which occupational exposure occurs

Further, input from non-managerial employees exposed to contaminated sharps and infectious material is vital to the success of this exposure control plan, and every employee is encouraged to offer suggestions that will help the effectiveness of the exposure control plan.

METHODS OF COMPLIANCE

Employees will take precautions to prevent contact with potentially infectious material. If an employee cannot easily determine the nature of a body fluid, he or she should treat it as infectious.

ENGINEERING AND WORK PRACTICE CONTROLS

As part of this exposure control plan, W M Painting Inc will seek methods by which to eliminate occupational exposure to the greatest extent possible. This plan encourages work task changes to reduce exposure, as well as for isolating or removing materials that might pose a hazard. The exposure control plan requires the Company to examine regularly, and maintain or replace, engineering controls to ensure their effectiveness.

HANDWASHING

- W M Painting Inc will provide readily accessible handwashing facilities to every employee. If providing handwashing facilities is not feasible, the Company will provide antiseptic towelettes or an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels.
- For construction projects, employers must provide onsite general washing facilities (one per 20 employees), keep them in sanitary condition, and provide suitable cleaning agents/towels for the removal of hazardous and other substances.
- In addition to basic workplace hygiene requirements, employees will wash their hands as soon as possible after removing gloves or other PPE.
- Should an employee's skin or mucous membrane be exposed to potentially infectious materials, the employee will immediately wash their skin with soap and water or flush their mucous membranes with water.

SHARPS

- Employees will handle and dispose of contaminated sharps in a way that prevents unnecessary exposure to hazards. Employees will not bend, recap, or remove contaminated sharps unless no alternative is feasible and the employee can accomplish any bending, recapping or needle removal using a mechanical device or one-handed technique.
- As soon as possible after use, contaminated reusable sharps will be placed in a container that is puncture resistant, labeled or color-coded appropriately, leak-proof on the sides and bottom, constructed in a manner that does not require employees to reach into it to use it.

OTHER ENGINEERING AND WORK-PRACTICE CONTROLS

- Employees may not eat, drink, smoke, apply cosmetics, or handle contact lenses where occupational exposure may occur.
- No food or drink is to be stored where potentially infectious materials are present.
- Employees may not use their mouths to pipette or suction potentially infectious materials.
- Containers used to store or transport potentially infectious materials should be closable, prevent leaks, and be appropriately labeled or color-coded. They should also be puncture resistant, if necessary.
- Employees will examine any equipment that may be contaminated before servicing or shipping, and will decontaminate it as necessary and feasible. If decontamination is impossible, the employee will attach a label to the equipment, and inform all appropriate personnel of the contamination to ensure they take proper precautions.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Where the possibility of occupational exposure exists, W M Painting Inc will provide personal protective equipment appropriate to the hazards and the work being performed. Appropriate personal protective equipment is impermeable to blood or other potentially infectious material under normal conditions and durations of use.
- PPE will be provided and maintained free to employees in appropriate sizes, and provisions will be made should an employee be allergic to gloves normally provided.
- An employee may decline using appropriate PPE under “rare and extraordinary circumstances” when PPE use might prevent the delivery of health care or public safety services. These exceptions will be investigated and documented to prevent future occurrences.
- PPE will be removed as soon as feasible before leaving the general work area. After removal, the employee will place contaminated PPE in an appropriate area or container to be stored, washed, decontaminated, or disposed of.

GLOVES

Employees must wear gloves if they anticipate hand contact with potentially infectious materials. Do not reuse single-use gloves, and replace as quickly as possible if torn, punctured, or otherwise compromised.

MASKS, EYE PROTECTION, AND FACE SHIELDS

Employees will wear masks, together with proper eye-protection devices whenever splashes, spray, spatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

GOWNS, APRONS, ETC.

Employees will wear appropriate protective clothing like gowns or clinic jackets when appropriate; the type of protective clothing is determined by the nature of exposure, and will be sufficient to protect against occupational exposure.

HOUSEKEEPING

- Employees will keep the workplace clean and sanitary. W M Painting Inc will implement a written schedule for cleaning and decontamination based on the demands of the site.
- Employees will use an appropriate disinfectant to clean and decontaminate contaminated or potentially contaminated work surfaces after any spill of infectious materials, and at the end of the work shift. W M Painting Inc will replace protective surface coverings as soon as possible if they are contaminated. Bins, cans, pails or other receptacles that may become contaminated should be inspected and decontaminated regularly, in addition to being decontaminated as soon as feasible after visible contamination. Employees must not pick up, by hand, any broken glassware that may be contaminated. Use a brush/dustpan or tongs.

LAUNDRY

Employees will handle any contaminated laundry as little as possible. They must put such laundry into a color-coded or labeled container at the site where it was used. Wet laundry should be placed into a leak-proof container. Employees handling contaminated laundry must use appropriate PPE. Employees must never take or wear contaminated clothing outside of the work site.

HEPATITIS B VACCINATION

W M Painting Inc will make available the hepatitis B vaccination series at no cost to any employee who faces occupational exposure. If not vaccinated, employees will be informed of the opportunity to be vaccinated within 24 hours of an exposure incident.

An employee occupationally exposed to potentially infectious material may decline the hepatitis B vaccine, but must sign a declination statement to be kept on file. Anyone who declines vaccination may request and receive the vaccination later at no cost.

Medical records relating to employees' hepatitis B vaccination status and post-exposure evaluation and follow-up must be kept for 30 years plus the duration of employment.

POST-EXPOSURE EVALUATION AND FOLLOW UP

Should an exposure incident occur, the employee should contact Wayne Mello (or designate) immediately.

IN CASE OF EXPOSURE

A licensed health care professional will conduct a confidential medical evaluation and follow-up, and will provide a medical opinion on diagnosis/course of action, as soon as possible following an exposure incident. After administering initial first aid (cleaning the wound, flushing the eyes or other mucous membranes, etc.), follow the procedure below:

1. Document the routes of exposure and how the exposure occurred.
2. Identify and document the source individual (unless the employer can establish that identification is infeasible or prohibited by state or local law).
3. Obtain consent, and arrange to have the source individual tested as soon as possible, to determine HIV, HCV, and HBV infectivity, document and notify the employee's health care provider of the source individual's test results. If the source individual is known to be HIV, HCV, and/or HBV positive, new testing is not necessary.
4. Provide the exposed employee with the source individual's test results and with information about applicable disclosure laws and regulations concerning the identity and infectious status of the source individual (e.g., laws protecting confidentiality).
5. After obtaining consent, collect the exposed employee's blood as soon as feasible after an exposure incident, and test the blood for HBV and HIV serological status. This will establish a baseline for periodic testing over the next six months. Depending upon the circumstances of the exposure, post-exposure prophylaxis may be recommended to reduce the risk of infection from HIV or HBV.
6. If the employee does not give consent for HIV serological testing during collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days; if the exposed employee elects to have the baseline sample tested during this waiting period, perform testing as soon as feasible.

ADMINISTRATIVE RESPONSIBILITIES FOLLOWING EXPOSURE

The Company will ensure that the health care professional responsible for post-exposure evaluation and follow-up receives the following:

- A copy of OSHA's bloodborne pathogens standard
- A description of the employee's job duties relevant to the exposure incident
- Route(s) of exposure
- Circumstances of exposure
- Results of the source individual's blood test if possible
- Relevant employee medical records, including vaccination status
- The Company will provide the employee with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation

COUNSELING

The Company will ensure that post-exposure counseling will be given to employees following an exposure incident. Counseling should include Centers for Disease Control & Prevention (CDC) recommendations for prevention and transmission of bloodborne infections including HIV, HBV, and HCV. Counseling must be made available regardless of the employee's decision to accept serological testing.



Figure 1

RECORDKEEPING

MEDICAL RECORDS

The Company will maintain a confidential medical record for every employee with occupational exposure that will include at least the following:

- Name and social security number of the employee;
- Copy of the employee's HBV status (with dates of all Hep B vaccinations);
- Copy of all post-exposure documentation and healthcare professional's written opinion; and
- Copy of the information provided to the healthcare professional.

Do not share or report this record unless the employee provides written consent.

SHARPS INJURY/EXPOSURE INCIDENT LOG

A Sharps Injury Log is a record of each exposure incident involving a sharp. The purpose of the Sharps Injury Log is to generate a record of exposure incidents that will include enough information about the cause of the incidents to allow the company to analyze them and take preventive action.

The Sharps Injury Log must include:

- The date and time of the sharps-related exposure incident
- The type and brand of the sharp involved in the incident
- A description of the incident including:
 - The job classification of the exposed employee
 - The department or work area where the incident occurred
 - The procedure being performed
 - How the incident occurred
 - The body part injured
 - For sharps with engineered sharps injury protection (ESIP), if the safety mechanism was activated
 - If the incident occurred before action, during activation or after activation of the mechanism. For sharps without ESIP, the employee's opinion if ESIP could have prevented the injury.

Sharps injuries/exposures must be recorded on the log within 14 working days of when the incident was reported to the employer.

The Sharps Injury Log must be maintained for five years from the date of the occurrence of the exposure incident.

HAZARD COMMUNICATION

Label containers of regulated biological waste, any container used to store or transport potentially infectious material, as well as contaminated equipment, to prevent exposure. Labels for such containers will include the legend depicted in Figure 1.

All such labels will be fluorescent orange or orange-red and be attached on, or as close as feasible to, the container.

REVIEW AND UPDATE OF EXPOSURE CONTROL PLAN (ECP)

The Company safety committee will review this ECP and update it at least annually, and whenever necessary, to reflect new or changed tasks and procedures that affect occupational exposure.

Reviews and updates will:

- Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens
- Document the annual consideration and implementation of effective medical, and commercially available, devices and services designed to eliminate or minimize occupational exposure

The Company will seek the input of non-managerial employees to identify, evaluate, and select controls to reduce occupational exposure. This input will be documented as part of this ECP.

FORMS AND ATTACHMENTS

Please find the following documents on the pages below:

- Exposure Control Plan Documentation
- Declination Statement
- Exposure Incident Report
- Evaluating Physician's Written Opinion
- Sharps Injury Log

These forms may be reproduced freely for the purposes of implementing and maintaining a safety and health program.

BLOODBORNE PATHOGENS

EXPOSURE CONTROL PLAN DOCUMENTATION FORM

<u>Exposure Determination</u>	
<i>Jobs in which all employees have occupational exposure to potentially infectious materials</i>	<i>Task or procedure where exposure occurs</i>
<i>Jobs in which some employees have occupational exposure to potentially infectious materials</i>	<i>Task or procedure where exposure occurs</i>

Engineering controls and work practice controls:

The following types of PPE are available in the following locations:	
Personal Protective Equipment	Location

BLOODBORNE PATHOGENS

BLOODBORNE PATHOGENS

HEPATITIS B DECLINATION STATEMENT FORM

DECLINATION STATEMENT

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature: _____ Date: _____

DECLINATION STATEMENT

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature: _____ Date: _____

DECLINATION STATEMENT

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature: _____ Date: _____

BLOODBORNE PATHOGENS

BLOODBORNE PATHOGENS

EXPOSURE INCIDENT REPORT FORM

(Routes and Circumstances of Exposure Incident) – **Please Print**

Employee's Name _____ Date _____

Date of Birth _____ SS# _____

Telephone (Business) _____ (Home) _____

Job Title _____

Date of Exposure _____ Time of Exposure _____ AM _____ PM _____

Hepatitis B Vaccination Status: _____

Location of Incident: _____

Describe job duties you were performing when the exposure incident occurred:

Describe the circumstances under which the exposure incident occurred:
(What happened that resulted in the incident?)

What body fluid(s) were you exposed to? _____

What was the route of exposure? *(e.g., mucosal contact, contact with non-intact skin, percutaneous)*

Describe any personal protective equipment in use at time of exposure incident:

Did PPE fail? _____ If yes, how? _____

Identification of source individual(s) (names): _____

Other pertinent information: _____

BLOODBORNE PATHOGENS

BLOODBORNE PATHOGENS

EVALUATING PHYSICIAN'S WRITTEN OPINION FORM

To the Evaluating Physician:

This employee may have suffered an exposure incident to a Bloodborne Pathogen. In accordance with OSHA standards covering post-exposure evaluation and follow up, the following documents are provided for you:

- A copy of OSHA regulations covering Occupational Exposure to Bloodborne Pathogens
- A description of the exposed employee's duties as they relate to the exposure incident
- Documentation of the routes of exposure and circumstances under which exposure occurred
- Results of the source individual's blood testing, if available
- All medical records relevant to this employee's appropriate treatment, including vaccination status.

After you have determined whether there are contra-indications to vaccination of this employee with Hepatitis B vaccine, please state in the space below if:

Vaccine was indicated

Vaccine was received

(All other findings are to remain confidential and are not to be included on this page)

Please return this sheet to this employee:

Thank you for your evaluation of this employee.

Physician's name (printed)

Date

Physician's signature _____

BLOODBORNE PATHOGENS

BLOODBORNE PATHOGENS

SHARPS INJURY LOG

Facility/Location: _____ Year: _____

Address: _____

City: _____ State: _____ ZIP: _____

Date	Time	Type, Brand, Model of Sharp Device	Department / Work Area	Description of How Incident Occurred

(Retain at least 5 years)

BLOODBORNE PATHOGENS

WORKPLACE VIOLENCE PREVENTION

POLICY STATEMENT

W M Painting Inc encourages a safe and healthy work environment. Verbal or physical intimidation, harassment, threats of violence, or any violent act are expressly forbidden. A person who makes threats of violence, exhibits threatening behavior, or engages in violent acts on W M Painting Inc property will be removed from the premises as quickly as safety permits and will be kept off premises pending the outcome of an investigation.

W M Painting Inc is committed to preventing acts of violence and intimidation. W M Painting Inc has adopted a system of controls to prevent workplace violence, mitigate the harm caused by it, and otherwise address violence and harassment in the workplace.

Wayne Mello is responsible for implementing and enforcing this policy and will do so with the assistance of management, the safety committee members, and all employees.

RESPONSIBILITIES

Preventing workplace violence is a cooperative effort between W M Painting Inc and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of W M Painting Inc to:

- Ensure managers remain committed to preventing aggression and violence;
- Document plan to control aggressive or violent behavior in the workplace;
- Evaluate reports of workplace violence at least yearly to determine necessary changes to violence prevention policy;
- Ensure job hazard analyses include workplace violence hazards;
- Exhibit commitment to the safety and health of workers and customers;
- Ensure employees understand and fulfill obligations under the violence prevention program;
- Establish a program to address medical and psychological repercussions of workplace violence; and
- Support and implement appropriate recommendations of the Safety Committee.
- Enforce prohibition on sexual harassment.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the W M Painting Inc safety committee to:

- Help create policy, evaluate risks, and develop procedures to respond to hostile acts;
- Assist in or lead training for workplace violence prevention; and
- Participate in job hazard analyses that identify potential for workplace violence.

WORKPLACE VIOLENCE PREVENTION

EMPLOYEE RESPONSIBILITIES

W M Painting Inc employees are expected to:

- Contribute to developing procedures to address concerns over safety and security;
- Understand and comply with the workplace violence prevention program, and safety and security measures;
- Report violent incidents promptly and accurately;
- Refrain from hostile and violent acts;
- Participate in safety and health committees or teams that receive reports of violent incidents or security problems, make facility inspections and respond with recommendations for corrective strategies; and
- Participate actively in training programs and share on-the-job experiences that cover techniques to recognize escalating agitation, aggressive behavior, or criminal intent.

TRAINING

W M Painting Inc will provide training to employees regarding their roles in workplace violence prevention. This training will come at no cost to the employee during working hours.

W M Painting Inc will use only training material that is appropriate in content and vocabulary to the educational level, literacy and language of employees.

TRAINING COMPONENTS

Wayne Mello will ensure that every employee is trained in the following elements:

- The workplace violence prevention policy
- Risk factors that cause or contribute to assaults
- Early recognition of escalating behavior or recognition of warning signs or situations that may lead to assaults
- Ways to prevent or diffuse volatile situations, manage anger and appropriately
- A standard response action plan for violent situations, including the availability of assistance, response to alarm systems and communication procedures
- Ways to deal with hostile people in the workplace
- Relaxation, stress management and anger control
- Basic self-protection measures
- The location and operation of safety devices such as alarm systems, along with the required maintenance schedules and procedures
- Ways to protect oneself and coworkers, including use of the “buddy system”
- Policies and procedures for reporting and recordkeeping
- Information on multicultural diversity to increase staff sensitivity to racial and ethnic issues and differences
- Policies and procedures for obtaining medical care, counseling, workers’ compensation or legal assistance after a violent episode or injury
- The sexual harassment policy

WORKPLACE VIOLENCE PREVENTION

Managers and Supervisors at W M Painting Inc will be trained in:

- The Company's Workplace Violence Prevention Program
- Communication skills
- Recognition of aggressive behavior
- Dealing with employee layoffs, job terminations, and discipline; how to assess violence potential of individuals; and take appropriate measures
- Violence prevention, W M Painting Inc security and response procedures
- Addressing problems and conflict promptly

Any employee engaged in a task that faces a high risk of workplace violence (e.g. working alone, especially late at night) will be trained for workplace safety practices specific to the worksite that reduce the risk of workplace violence.

Where W M Painting Inc operations require security personnel, such personnel will receive training specific to the worksite, including the psychological components of handling aggressive and abusive customers, types of disorders and ways to handle aggression and defuse hostile situations.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the date the training occurred.

POLICY

WORKPLACE VIOLENCE

Workplace violence includes violence or the threat of violence against workers. It can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide. For this policy, workplace violence also includes aggressive behavior, workplace harassment, bullying, and intimidation.

W M Painting Inc permits no workplace violence. No negative action will be taken against an employee for reporting any hazardous situation, and appropriate confidentiality considerations will be taken in every instance of such a report.

WORKPLACE VIOLENCE PREVENTION

HIGH-RISK OCCUPATIONS

Workplace violence is a hazard at any worksite for every worker. Some workers, however, are at significantly increased risk, including workers who:

- Exchange money with the public
- Deliver passengers, goods, or services
- Work alone or in small groups, during late night or early morning hours, in high-crime areas, or in community settings and homes with extensive contact with the public

Any W M Painting Inc employee who faces an increased risk of workplace violence, will be informed of the increased risk, and trained in appropriate practices based on a job hazard analysis of the job. Please see “Workplace Risk Factors” later in this chapter.

TYPES OF WORKPLACE VIOLENCE

Type I Criminal Intent: The perpetrator has no legitimate relationship to the business or its employees and is usually committing a crime in conjunction with the violence. These crimes can include robbery, shoplifting, trespassing, and terrorism

Type II Customer Client: The perpetrator has a legitimate relationship with the business and becomes violent while being served by the business. This category includes customers, clients, patients, students, inmates, and any other group for which the business provides services

Type III Worker on Worker: The perpetrator is an employee or past employee of the business who attacks or threatens another employee(s) or past employee(s) in the workplace

Type IV Personal Relationship: The perpetrator usually does not have a relationship with the business but has a personal relationship with the intended victim. This category includes victims of domestic violence assaulted or threatened while at work.

HORSEPLAY

Horseplay includes playing tricks on coworkers; distracting coworkers; wrestling; showing off; playing punching, kicking, or slapping games; and otherwise drawing focus away from the task to engage in a playful way that disregards safety precautions. Horseplay creates unnecessary hazards in the workplace and presents needless distractions. While horseplay is not necessarily violent, it can have a harmful impact on the safety of W M Painting Inc employees, and is therefore forbidden and will be treated as a workplace violence issue for the sake of this company’s safety and health program.

WORKPLACE VIOLENCE PREVENTION

PROGRAM PLANNING

PLANNING PRINCIPLES

As with any element of the W M Painting Inc safety and health program, workplace violence prevention requires site-specific and job-specific planning.

Wayne Mello will work with management, the safety committee, and appropriate employees to evaluate the ability of W M Painting Inc to prevent workplace violence and handle incidents involving violence to enforce effective protections from workplace violence.

Plans to prevent workplace violence should be evaluated regularly, and will be evaluated when changes are made that impact the risk of workplace violence and when a workplace incident involving violence occurs.

JOB HAZARD ANALYSES

Workplace violence risks will be considered in every job hazard analysis performed at W M Painting Inc. If a job or task presents hazards, steps will be taken to control those hazards as soon as safely possible to prevent injury. (See the chapter on "Job Hazard Analysis." In this manual for more information).

OTHER PLANNING CONSIDERATIONS

As part of the organization-wide violence prevention program, W M Painting Inc may conduct a screening survey to get employee ideas on the potential for violent incidents and to identify opportunities for improved security measures. These surveys may be repeated as part of the periodic review of this policy.

Independent reviewers such as safety and health professionals, security consultants or law enforcement professionals can provide expert opinions on workplace safety and provide a fresh perspective on preventing workplace violence.

HAZARDS

Violent behavior, like any safety and health risk factor, occurs within a context. Controlling workplace violence hazards first requires identifying them.

WARNING SIGNS OF VIOLENCE

There is no way to predict all acts of violence; however, the FBI suggests the following indicators of escalating violence risk in an individual:

- Increasing belligerence;
- Ominous, specific threats;
- Hypersensitivity to criticism;
- Recent acquisition/fascination with weapons;
- Apparent obsession with another person;
- Preoccupation with violent themes;
- Interest in recently publicized violent events;
- Outbursts of anger;
- Extreme disorganization;
- Noticeable changes in behavior; and
- Homicidal/suicidal comments or threats

WORKPLACE VIOLENCE PREVENTION

WORKPLACE RISK FACTORS

A variety of workplace factors can contribute to violence risk as well, including the following:

- Understaffing;
- Frustrations arising from poorly defined job tasks and responsibilities;
- Downsizing or reorganization;
- Labor disputes and poor labor-management relations;
- Inadequate security or a poorly trained, poorly motivated security force;
- A lack of employee counseling;
- Poor management styles (for example, arbitrary or unexplained orders; over-monitoring; corrections or reprimands in front of other employees, inconsistent discipline); and
- A high injury rate or frequent grievances may be clues to problem situations in a workplace.

Research indicates that in addition to management oversights, certain job elements increase risk and may indicate the need for greater care when performing job hazard analysis and violence prevention planning.

These factors include the following:

- Contact with the public
- Exchange of money
- Delivery of passengers, goods, or services
- Having a mobile workplace
- Working with unstable or volatile people
- Working alone or in small numbers
- Working late at night or during early morning hours
- Working in high-crime areas
- Guarding valuable property
- Working in community-based settings

CONTROLS

W M Painting Inc will identify and implement effective controls to protect workers against violence hazards. These controls will be determined based on the work, the environment, and the organizational context of the work. Controls may include a variety of engineering and administrative approaches to control the hazards associated with violence in the workplace.

Please see the section on “Control” in the chapter covering “Job Hazard Analysis”.

WORKPLACE VIOLENCE PREVENTION

ENGINEERING

- Develop emergency signaling, alarms and monitoring systems.
- Increase visibility, especially in high-risk areas. Use cameras and curved mirrors in hallways, and ensure good lighting in the workplace and in parking lots.
- Restrict movement of the public and employees with appropriate barriers and card- or key-controlled access.
- Design public areas to minimize assault risk:
- Provide staff restrooms and emergency exits.
- Install enclosed stations, deep service counters, or bullet resistant and shatterproof glass enclosures in reception areas if appropriate.
- Arrange furniture and other objects with safety in mind. Be mindful of objects or furniture that can easily be turned into weapons

ADMINISTRATIVE AND WORK PRACTICE CONTROLS

- Demonstrate concern for workers' emotional and physical health and safety, communicating that violence is not permitted.
- Design staffing patterns to prevent personnel from working alone and to minimize waiting time for customers.
- Provide security escorts to the parking lots at night if appropriate.
- Develop a system for alerting security personnel or management to threats of violence and recording incidents to determine need for additional controls.
- Encourage employees to use the "buddy system" when personal safety threatened.
- Limit the amount of accessible cash and valuables in the workplace.
- Consider an employee assistance program to help employees handle their personal problems that may affect job performance and workplace safety.
- Consider potential for violence in human resources operations. Areas where appropriate procedures and policies to prevent violence should be in place include the following:
 - Pre-employment screening;
 - Employee assistance;
 - Employment transition or outplacement services during layoffs;
 - Substance abuse prevention programs; and
 - Detailed post-termination security protocol.

WORKPLACE VIOLENCE PREVENTION

RESPONSE

W M Painting Inc understands violence can best be prevented through appropriate workplace security measures and caring for the people who work for our company through communication, adequate training, and a system for reporting and following up on incidents. However, regardless of the level of hazard control, W M Painting Inc may experience a safety incident involving violence. Response to violence in the workplace will depend on the nature of the incident, but will focus on reducing the negative impacts of the incident and discovering ways to prevent similar incidents in the future.

Workplace violence will be considered during the development of the Emergency Action Plan. Please see the chapter entitled "Fire Prevention and Emergency Action Plans" for more information.

NOTIFICATION

Employees will notify a supervisor as soon as safely possible if an incident involving violence occurs. However, if there is an immediate danger of harm and the situation demands the presence of emergency responders, an employee should contact the appropriate authorities or see that a supervisor contacts them. Employees should report any criminal act immediately to police if safely possible and keep a line of communication with the authorities until police arrive.

Management will handle all reports of violence and threats of violence in a manner that respects the sensitive nature of such reports and maintains confidentiality.

It is a good idea for every worksite to have a means to alert others to an emerging incident. Such means include alarms, codes, and signals. These alerts need to be in place, and shared, before an incident occurs to ensure their effectiveness.

WORKPLACE VIOLENCE PREVENTION

De-escalation Strategies	
DO: Be calm. Move and speak slowly, quietly, and confidently. Encourage the person to talk; listen closely and patiently. Maintain a relaxed, attentive posture. Position yourself at an angle. Arrange yourself so your access to emergency exits is not blocked. Acknowledge the person's feelings. Ask for small, specific favors such as asking the person to move outside. Use delaying tactics to give the person time to calm down, such as offering a drink of water. Point out choices, break big problems into smaller ones. Avoid sudden movements and maintain a 3-6 foot distance. If necessary, call the police when safe. A fitness-for-duty evaluation may be appropriate for employees exhibiting dysfunctional behaviors. Potential victims will be informed of any threat made to them and permitted access to legal assistance and psychological counseling as warranted.	DON'T: Make sudden movements. Speak rapidly, raise your volume, or use an accusatory tone. Reject all demands. Make physical contact, jab your finger at the other person, or use long periods of eye contact. Pose in challenging stances — directly opposite someone, hands on hips or with arms crossed. Challenge, threaten, or dare the individual. Belittle the other person. Criticize or act impatient. Attempt to bargain with a threatening individual. Try to make the situation seem less serious than it is. Make false statements or promises you cannot keep. Try to impart a lot of technical or complicated information when emotions are high. Take sides or agree with distortions. Invade individual's personal space.

INCIDENT RESPONSE TEAM

Wayne Mello and the safety committee, as part of hazard control planning may determine the need for an incident response team responsible for violence response. Training for this team should include identifying hazard escalation, techniques for de-escalating conflict and other appropriate incident response.

EVACUATION AND SHELTER IN PLACE

All employees will be made aware of appropriate evacuation and "Shelter-In-Place" procedures and follow them as necessary in response to a violent workplace incident. Training and preparation may include drills and simulations for a violent incident.

WORKPLACE VIOLENCE PREVENTION

POST-INCIDENT RESPONSE

In the event of workplace violence, W M Painting Inc will ensure victims and witnesses are provided appropriate treatment, regardless of the severity of the incident. In addition to physical injuries, victims of workplace violence may suffer other consequences such as the following:

- Psychological trauma;
- Fear of returning to work;
- Changes to relationships;
- Feelings of guilt, powerlessness and incompetence; and
- Fear of criticism by supervisors.

Further, to address opportunities to remedy oversights in the violence prevention program, any incident that demands managerial response under this violence prevention program will be followed by an incident investigation.

Please see the chapter on “Accident Investigation” for more information.

RECORDKEEPING AND PROGRAM EVALUATION

W M Painting Inc will record and communicate injuries and illnesses to workers according to applicable regulations.

This policy will be reviewed, and these reviews documented, at least once a year or under the following circumstances:

- Following a workplace violence incident or report;
- Change in management;
- Change of contact person;
- To make needed changes or improvements to the policy; and
- To identify new training or refresher training needs.

SEXUAL HARASSMENT

It is W M Painting Inc’s policy that sexual discrimination, unwelcome sexual advances, requests for sexual favors, and any other conduct of a sexual nature is strictly prohibited.

Requiring coworkers, subordinate employees, or prospective employees to submit to conduct of this nature, explicitly or implicitly, as a term or condition of employment, or used as a basis for any employment decisions is forbidden.

Any behavior that has the purpose or effect of unreasonably interfering with an individual’s work performance, or creating an intimidating, hostile, or offensive work environment is banned.

WORKPLACE VIOLENCE PREVENTION

Sexual harassment can occur in a variety of circumstances:

- The victim as well as the harasser may be a woman or a man. The victim does not have to be of the opposite sex.
- The harasser can be the victim's supervisor, an agent of the employer, a supervisor in another area, a co-worker, or a non-employee.
- The victim does not have to be the person harassed but could be anyone affected by the offensive conduct.
- Sexual harassment may occur without economic injury to or discharge of the victim.
- The harasser's conduct must be unwelcome.

Prevention is the best tool to eliminate sexual harassment in the workplace. W M Painting Inc has designated appropriate managers (rather than a direct supervisor) and other alternative routes by which an employee can issue formal complaints of sexual harassment. If possible, any victimized employee should attempt to resolve a sexual harassment issue informally by directly informing the harasser that the conduct is unwelcome and must stop. If informal resolution is unsuccessful, the victim should use the formal complaint form and submit it to an appropriate supervisor.

W M Painting Inc will take immediate appropriate action when an employee files a complaint.

W M Painting Inc recognizes that the question of whether a particular course of conduct constitutes sexual harassment requires a factual determination. W M Painting Inc also recognizes that false accusations of sexual harassment can have serious effects on innocent persons. If an investigation results in a finding that a person who has accused another of sexual harassment has maliciously or recklessly made false accusations, the accuser will be subject to appropriate sanctions, including discharge.

When investigating allegations of sexual harassment, this company will look at the whole record, the circumstances, and the context in which the alleged incidents occurred. W M Painting Inc will make a determination on the allegations from available facts on a case-by-case basis. Outside avenues of resolution are available to employees who feel their rights have not been protected. W M Painting Inc tolerates no sexual harassment.

FORMS & ATTACHMENTS

Please find the below documents on the following pages:

- Assault/Threat Report
- Sexual Harassment Complaint Form

WORKPLACE VIOLENCE PREVENTION

WORKPLACE VIOLENCE PREVENTION

Assault/Threat Report Form <i>(Attach additional sheets as necessary)</i>		
EMPLOYEE INFORMATION		
Name:	Telephone:	
Address:	Employee Classification:	
Manager's Name:	Telephone:	
INCIDENT INFORMATION		
Name of Assailant:	Is he/she an employee? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Date of Incident:	Location of Incident	
This incident occurred: <input type="checkbox"/> Over the phone <input type="checkbox"/> In person <input type="checkbox"/> Over the Internet <input type="checkbox"/> other		
Please explain:		
Were there any witnesses? <input type="checkbox"/> Yes <input type="checkbox"/> No (Please provide relevant information below and attach statements)		
WITNESSES		
	Name:	Telephone:
	Address:	Witness Roll (e.g. employee, customer):
	Name:	Telephone:
	Address:	Witness Roll (e.g. employee, customer):
THREAT INFORMATION		
As closely as possible, what were the exact words used?		
Was the assailant in a position to carry out the threat immediately?		
How serious do you believe the threat was and why?		

WORKPLACE VIOLENCE PREVENTION

Assault/Threat Report (pg. 2)		
ASSAULT INFORMATION		
What (if anything) happened to set off the assault?		
Did the assailant say anything during the assault? What?		
How did the assailant attack? (e.g. punching, kicking, knife, words)		
What injuries, if any, did you sustain? Did injuries require medical treatment?		
What ended the assault?		
How did you leave the site of the assault?		
EMPLOYEE ACTIONS		
What actions did you take later? (e.g. worker's comp claim, medical treatment, sick leave)		
Do you request <i>W M Painting Inc</i> action at this time related to the assault? What? (If none, please specify "None.")		
LAW ENFORCEMENT INFORMATION (attach police report when possible)		
Law Enforcement Agency Contacted/Name of Official	Date Contacted:	Telephone Number:
Was a written report completed? <input type="checkbox"/> Yes <input type="checkbox"/> No Indicate any action promised.		
MANAGER ACTIONS		
Directions given to employee:		
Manager Recommendation: <input type="checkbox"/> Prosecution <input type="checkbox"/> Restraining Order <input type="checkbox"/> Letter to Threatener <input type="checkbox"/> Other (please specify)		
LEGAL COUNSEL ACTIONS		

WORKPLACE VIOLENCE PREVENTION

Sexual Harassment Complaint Form	
Please write legibly and fill out form completely. Attach additional sheets if necessary. Submit completed form to appropriate manager.	
Complainant:	Alleged Harasser:
Department:	Department:
Job Title:	Job Title:
Mailing Address:	Other relevant information about Alleged Harasser:
Home Phone:	
Work Phone:	
Details of Incident	
What exactly occurred or was said?	
When did it occur and is it ongoing?	
Where did it occur?	
How often did it occur?	
How did it affect you?	
What response did you make when the incident(s) occurred or afterwards, and how did you react?	
Has your job been affected in any way?	
Was anyone present when the alleged harassment occurred? List any third party witnesses:	

WORKPLACE VIOLENCE PREVENTION

Sexual Harassment Complaint Form (pg. 2)

Please write legibly and fill out form completely. Attach additional sheets if necessary. Submit completed form to appropriate manager.

Are there any persons who have relevant information?

Did you tell anyone about it?

Did anyone see you immediately after episodes of alleged harassment?

Did the person who harassed you harass anyone else?

Do you know whether anyone complained about harassment by that person?

Are there any notes, physical evidence, or other documentation regarding the incident(s)?

Do you know of any other relevant information?

How would you like to see the situation resolved?

I am aware that false accusations of sexual harassment can have serious effects on innocent persons. I further understand that if it is determined, after investigation, that I have maliciously or recklessly made false accusations, I will be subject to appropriate sanctions, including discharge.

Complainant's printed name: _____

Complainant's signature: _____

Date: _____

Received by: _____ Signature: _____

Date: _____

FIRE PROTECTION & PREVENTION

POLICY

W M Painting Inc has implemented this policy for the protection of our employees against the fire and other emergencies in the workplace. Wayne Mello will supervise the Fire Protection Program.

W M Painting Inc will have a written Fire Protection Program (FPP). The FPP will be posted in the workplace and remain available to employees for review along with the names and job titles of every person in the chain of command during emergencies.

RESPONSIBILITIES

Fire prevention and protection planning is a responsibility shared between W M Painting Inc and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of W M Painting Inc to:

- Ensure adequate workplace safeguards against hazards, including appropriate exit routes, fire alarms, and fire protection systems.
- Ensure development and implementation of FPP and EAP.
- Ensure training of employees in accordance with this policy.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the W M Painting Inc safety committee to:

- Develop and implement fire prevention plan and emergency action plan.
- Train new employees in fire prevention and emergency action plans and provide continued employee safety training according to W M Painting Inc policy.
- Inform employees about fire hazards in the workplace specific to their task.

EMPLOYEE RESPONSIBILITIES

Every W M Painting Inc employee is expected to:

- Report a fire or other emergency.
- Follow fire prevention plan and emergency action plan.
- Report any suspected problem with fire control systems to Wayne Mello, a supervisor or a member of the safety committee.
- Assist in fire hazard assessment.

TRAINING

W M Painting Inc will ensure every employee is provided training on fire protection and emergency planning. This training will be provided at no cost to the employee and held during their working hours.

FIRE PROTECTION & PREVENTION

Training will be provided:

- At the time of assignment
- At least annually thereafter; annual training for all employees will be provided within one year of their previous training

W M Painting Inc will provide additional training when tasks or procedures are added or change, that may affect the employee's work. It is acceptable for additional training to be limited to addressing only the changes or additions to the employees' exposure.

W M Painting Inc will use only training material that is appropriate in content and vocabulary to the educational level, literacy, and language of employees.

TRAINING COMPONENTS

W M Painting Inc is committed to informing employees about all fire hazards with which they may come into contact. Wayne Mello or a designate from the safety committee will review the FPP with all employees and inform them of any fire hazards a new assignment might present.

Wayne Mello will ensure all employees at W M Painting Inc are informed and trained in the following minimum elements for the Emergency Action Plan and Fire Protection Program:

- Fire hazards at the worksite
- Means of controlling or removing fire hazards at the worksite
- Procedures for reporting a fire or other emergency.
- Procedures for emergency evacuation for all areas of work, including type of evacuation and exit route assignments.
- Safe assembly areas designated for all work areas in the event of evacuation.
- Procedures to be followed by employees who are requested to remain to operate critical plant operations before they evacuate, if applicable.
- Procedures to account for all employees after evacuation.
- Procedures employees are to follow when performing rescue or medical duties.
- The members in the chain of command that employees can contact for information about the plans or for an explanation of their duties under the plans.
- Proper operation of fire extinguishers provided by the company if the EAP allows employees to fight incipient stage fires rather than evacuate.
- The hazards involved in incipient stage firefighting. Employees are instructed to ensure the local emergency response service (Fire Department) is notified before attempting to extinguish any fire, and that if a fire is not immediately extinguished, or the fire recurs to evacuate immediately.
- Where employees have been provided portable fire extinguishers, *W M Painting Inc* will provide training on the general principles of fire extinguisher use and the hazards involved with incipient-stage firefighting. This training will occur upon hire and repeated annually.

FIRE PROTECTION & PREVENTION

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the training.

FIRE PREVENTION PLAN

W M Painting Inc is committed to providing a safe workplace and, will ensure procedures are in place to protect employees in the event of any emergency, including fire emergencies. Accordingly, W M Painting Inc will ensure there is a Fire Protection Program written and available to employees as required by OSHA regulations.

This plan will include the following:

- A list of all major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard;
- Procedures to control accumulations of flammable and combustible waste materials;
- Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials;
- The name or job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires; and the name or job title of employees responsible for the control of fuel source hazards.

DETERMINING FIRE HAZARDS

A fire is essentially the rapid oxidation of a chemical. It requires heat, oxygen, and fuel in the right proportion. Different types of fuel react in different ways and require different levels of heat and oxygen to ignite; however, once the chemical reaction begins, fire provides a source of heat for continued ignition until one of the essential aspects of combustion — fuel, heat or oxygen — is removed and the reactions end. See figure 1.



Figure 1

The W M Painting Inc safety committee will perform an area-by-area assessment of fire hazards and record them by location on the “Major Fire Hazards” list. The assessment will ascertain and document whether the hazard is a fuel or ignition source, control systems in place to protect against fire, and the name or job title of the individual who is responsible for removing or minimizing the listed hazard.

FIRE PROTECTION & PREVENTION

The goal is to systematically eliminate fire hazards wherever possible; ensure a means to prevent a fire if the hazard cannot be removed; inform employees about fire hazards in their workspace; and identify the party responsible for controlling any given fire hazard. Fire hazard identification plays a central role in the FPP, and all employees are expected to contribute their efforts to identify and mitigate fire hazards in the workplace.

Employees will familiarize themselves with the safety data sheet of any hazardous chemicals with which they work and know proper handling and storage procedures to reduce hazards. Flammable and combustible material will be stored and staged in amounts as small as possible for operations and away from sources of ignition. It is important for employees to monitor the workplace for changes that might pose additional fire hazards.

FIRE PROTECTION EQUIPMENT AND SAFEGUARDS

LOCAL FIRE ALARM SYSTEMS

An alarm system to alert employees and the local fire department will provide a distinctive signal in case of fire or other emergency. The alarm needs to be audible above ambient noise levels and/or seen over ambient light levels.

W M Painting Inc will establish how the alarm will be sounded and maintain the alarm system. Employee training will include an explanation of the system and the preferred means of reporting an emergency. (A verbal alert is sufficient for employers with fewer than 10 employees, provided all employees can hear it.)

If the protected premises has an emergency power supply, the local fire alarm system must have a secondary source of power.

The alarm system/boxes must be mounted in a location where the system will not be activated by vibration or jarring. It must be mounted permanently to a wall or post and protected against physical damage.

The alarm system/boxes must be located on each floor so that the maximum distance to a box is 200 feet. The box must be unobstructed, readily accessible, and in the regular path of travel to an exit. The box must be identified by a sign or light that is visible from a distance of at least 200 feet.

If applicable, the alarm code and reporting instructions must be posted conspicuously at phones and at employee entrances. If the alarm system is used to alert fire brigade members, or for any other purpose, it must use a distinctive signal for each purpose.

After the alarm is sounded during an emergency or a test, the alarm system will be reset as quickly as possible. If the system has components that wear out quickly — or are consumed or destroyed when the alarm is activated — spare components will be readily available to reset the system with as little delay as possible.

FIRE PROTECTION & PREVENTION

INSPECTION, MAINTENANCE AND TESTING

W M Painting Inc will provide for the frequent testing of all alarm systems and make sure they remain in operating condition. A local, unsupervised fire alarm system must be tested by a qualified, trained, and authorized employee or an outside service not less than once a week to insure operability by the activation of not less than 1 box, not using the same box in consecutive tests, and replacing power supplies as necessary.

Tests for systems that are capable of being supervised will occur at least annually.

PORTABLE FIRE EXTINGUISHERS

Any portable fire extinguisher provided will:

- Be fully charged and operable
- Be kept in a conspicuous place when not in use
- Not use carbon tetrachloride, chlorobromomethane, or other toxic vaporizing extinguishing agents
- Not be operated by inverting the extinguisher to rupture a cartridge or initiate an uncontrollable pressure-generating chemical reaction to expel the extinguishing agent
- Be protected from freezing (if subject to freezing)

Fire extinguishers are composed of a variety of materials depending on the type of fire they are designed to eliminate. All extinguishers will contain contents under high pressure:

Dry Chemicals: These types of extinguishers contain dry chemicals, ordinarily a bicarbonate derivative (such as sodium bicarbonate (baking soda)), in foam or powder form. The purpose is to smother the fire source with a chemical that breaks down into carbon dioxide. CO² removes and/or displaces oxygen, which is the active fuel behind a fire. Dry chemical extinguishers are generally red in color and have a pressure gauge at the top near the lever.

Water: Water-type extinguishers contain water under air pressure. They are not always the most desirable option, such as in the event of an electrical fire where water would escalate the situation. The cylinder of the extinguisher is often recognizable by being silver in color.

Carbon Dioxide: This highly pressurized carbon dioxide is released at a very low temperature, addressing the fire by not only displacing the oxygen, but also freezing temperatures. You may typically recognize a CO² extinguisher by a horn at the end of the hose and a lack of pressure gauge.

All portable fire extinguishers will be selected based on the fire hazards present and distributed to minimize travel distances for employees to use.

FIRE PROTECTION & PREVENTION

Below is a table that describes the uses for which individually rated fire extinguishers are designed. Fire extinguishers are required by law to display clear rating labels on the cylinder, as well as inspection tags that must reflect a maintenance inspection date on an annual (at minimum) basis.

A	B	C	D	K
Ordinary solid combustibles	Flammable liquids and gases	Energized electrical equipment	Combustible metals	Oils and fats

Table 1

The numbers used for the classification of fire extinguishers indicate different things. For Type A fires, a 1 would have the equivalent of 1¼ gallons of water, a 2 would be equivalent to 2½ gallons, 3 would be 3¾ gallons of water, and so forth. For Type B and Type C fires, the number represents the square footage that the extinguishing agent would cover. For example, a number 2 would cover two square feet and a 5 would extinguish an area five square feet, and so forth.

Not all fire extinguishers are manufactured exactly alike. Variations may include operating instructions or distance the user should stand from the fire when dispersing contents. See the required cylinder labeling for specific information.

Each 3,000 square feet of protected buildings during construction requires a fire extinguisher rated at least 2A, spaced within 100 feet of any point of the protected area. In multi-story construction, each floor needs its own extinguisher rated at least 2A, adjacent to the stairwell

W M Painting Inc will provide a fire extinguisher rated not less than 10B within 50 feet of anywhere there is more than 5 gallons of flammable or combustible liquids being used on the jobsite (aside from vehicle fuel tanks)

INSPECTION, MAINTENANCE AND TESTING

W M Painting Inc is responsible for the inspection, maintenance and testing of all portable fire extinguishers in the workplace. Maintenance checks of portable fire extinguishing equipment will occur at least annually. The dates of fire extinguisher checks will be recorded; the record of these checks will be retained for at least a year after the last check or the life of the shell (whichever is less). An individual trained to perform hydrostatic testing will test each portable fire extinguisher with suitable equipment. Such testing is also called for when portable fire extinguishers show new evidence of corrosion or mechanical wear.

Each extinguisher in the workplace will be accompanied by a record securely fixed to the extinguisher that indicates:

- Name of the person or agency who performed the last test, and the test date;
- Signature of the person who performed the test; and
- Serial number or other identifier of the fire extinguisher that was tested.

FIRE PROTECTION & PREVENTION

ALTERNATIVES TO PORTABLE FIRE EXTINGUISHERS

During construction activities, a 55-gallon drum with two fire pails may substitute for a fire extinguisher with a 2A rating.

A ½-inch diameter garden-type hose no longer than 100 feet can substitute for the same, as long as it can discharge at least 5 gallons per minute and the stream ranges at least 30 feet horizontally.

Further, 100 feet or fewer of 1½-inch hose with a nozzle capable of discharging water at 25 gallons or more per minute may be substituted, if the hose line can reach all points in the area. (Make sure the hose connections are compatible with local firefighting equipment.)

OTHER FIRE PROTECTION SYSTEMS

W M Painting Inc will meet or exceed all legal requirements for any fire protection system in the workplace and keep in good working order all safeguards designed to protect employees during emergencies, including fire retardant paints and solutions. Any other fire protection systems in use will also meet applicable regulatory requirements and may include the following:

- Temperature limit switches
- Flashback arresters
- Fixed extinguishing systems
- Automatic sprinkler systems
- Fire detection systems
- Fire brigades
- Standpipe and hose systems

During demolition activities involving combustible materials, charged hose lines that are supplied by hydrants, water tank trucks with pumps, or equivalent, must be available.

WATER SUPPLY

A water supply adequate for the operation of firefighting equipment must be available as soon as there is an accumulation of combustible materials. Underground water mains must be made available as soon as practicable where they are to be provided.

FIRE PROTECTION & PREVENTION

SPRINKLERS

If there will be an automatic sprinkler fire protection system, install, and place it in service as soon as permitted following completion of each story.

Ensure that sprinklers are spaced to provide a maximum protection area per sprinkler, a minimum of interference to the discharge pattern by building or structural members or building contents and suitable sensitivity to possible fire hazards.

Maintain a 36" clearance between the top of stored material and sprinkler heads.

A stock of extra sprinklers must be on hand or readily available for each temperature rating and type so that the system can be returned to readiness as soon as possible.

An automatic sprinkler system having 20 or more sprinklers must have at least one automatic water supply capable of providing design water flow for at least 30 minutes.

During demolition or alterations, keep automatic sprinkler installations in service as long as reasonable. Only authorized personnel may operate sprinkler control valves. Expedite sprinkler system modifications made to permit alterations or additional demolition so that the automatic protection may be returned to service as quickly as possible. Check sprinkler control valves daily at close of work to ensure service.

No one may occupy a portion of a structure (except as permitted under law) that must be protected by automatic sprinklers until the sprinkler system is operable and has been approved.

STANDPIPES

If standpipes are required, or exist in structures being altered, they must be brought up as soon as applicable laws permit and will be maintained as construction progresses in such a manner that they are always ready for fire protection use. Standpipes will be provided with Siamese fire department connections on the outside of the structure, at the street level, and conspicuously marked. Local codes may specify lighting or painting requirements. There must be at least one standard hose outlet at each floor.

During demolition, maintain a standpipe as long as possible in operable condition for firefighting use. Do not demolish the standpipe further than one floor below the floor being demolished.

FIRE PROTECTION

Controlling fire hazards (e.g. accumulations of flammable and combustible materials) and ensuring safe storage of building materials is a priority of the highest order for W M Painting Inc and its employees. Controlling fuel sources demands all workers maintain a tidy work area and dispose of refuse in the appropriate receptacle; it also calls for due consideration of piles and stacks or materials at the worksite. Controlling means of ignition requires following appropriate safety guidelines especially around electricity, open flame, or any work that may produce arc, sparks, excessive heat, etc.

FIRE PROTECTION & PREVENTION

No SMOKING, No OPEN FLAME

Smoking is prohibited at the jobsite at all times. Signs must be posted according to local requirements alerting employees and the public to this prohibition. Open fires may not be ignited or maintained at the worksite. Only approved heaters may be used in designated locations in such a way to prevent fires.

IGNITION HAZARDS

Electrical wiring onsite must be installed safely by qualified personnel and in compliance with applicable regulations. If equipment is powered by an internal combustion engine, make sure it is located so that the exhausts are well away from combustible materials. If the exhausts are piped outside, verify there is a 6 in. clearance between piping and combustible materials. If portable battery powered lighting equipment is used in connection with flammable gases or liquids, ensure it is approved for hazardous locations.

During the cleaning or ventilation of tanks and vessels that contain hazardous concentrations of flammable gases or vapors nozzles, lines, or hoses for air, inert gas, or steam must be bonded to the tank or vessel shell and neither attached nor detached in hazardous concentrations of flammable gases or vapors.

All debris and refuse must be disposed of promptly (at the end of each shift or more frequently as required), especially if it is combustible. If material is to be disposed of by burning onsite, such disposal must be approved and must comply with all relevant safety controls. Ensure materials susceptible to spontaneous ignition (oily rags) are stored only in a listed disposal container.

Hotwork must be completed according to appropriate guidelines, and appropriate fire watch must be established and maintained to ensure safety of any operation that presents a fire hazard.

TEMPORARY BUILDINGS

- No temporary building may adversely affect a means of exit.
- Temporary buildings erected within another building must be of noncombustible construction or of combustible construction with a fire resistance rating of at least 1 hour.
- Temporary buildings, not inside another building and not used for the storage, handling, or use of flammable or combustible liquids, flammable gases, explosives, or blasting agents, or similar hazardous occupancies, must be located at least 10 feet from another building or structure.
- Groups of temporary buildings, not exceeding 2,000 square feet in size total, will be considered a single temporary building.

FIRE PROTECTION & PREVENTION

OPEN YARD STORAGE

Combustible materials may not be piled higher than 20 feet and must be piled in such a way to ensure the stability of the pile.

Where driveways go between or around combustible storage piles, they must be at least 15 feet wide and free from any obstruction. A driveway grid formed by such driveways may not exceed 50 ft. by 150 ft.

Make sure the storage area is clean and any plant life is controlled to prevent additional fire hazards. Piles of combustible material must be organized, orderly and 10 feet or more from buildings. Ensure appropriate fire extinguishers (at least 2A) are easily accessible.

INDOOR STORAGE

Make sure materials stored indoors do not block exits or impede exit in any way and are piled to maintain a 36" clearance between the top of the stored material and sprinkler heads.

Maintain safe clearance between material piles and lights or heating elements. Also, provide a barricade or ensure at least 24" around the path of travel to fire doors. Never store material within 36" of a fire door.

ACCESS FOR FIREFIGHTING

Vehicle access to a construction, remodel, or demolition site must be maintained at all times within 100 feet (consult local codes) of available fire department connections. Temporary vehicle access must be maintained until permanent access is established. Such roads may need to be inspected by local authorities to comply with local laws. Horizontal and vertical clearance for such access routes must be sufficient for emergency vehicle approach and meet applicable local codes.

FLAMMABLE AND COMBUSTIBLE LIQUIDS

Flammable and combustible liquids must be stored and handled in approved containers and tanks. Handling and use of flammable liquid materials in quantities of 5 gallons or less requires approved safety cans or DOT-approved containers. Flammable liquids that are hard to pour may be stored, handled and used in quantities of one gallon or less in their original container.

Ensure flammable or combustible liquids are kept clear of areas used for exits or safe passage of people.

This section applies to the handling, storage, and use of flammable and combustible liquids with a flashpoint below 200°F but not to:

- Bulk transportation of flammable and combustible liquids
- Storage, handling, and use of fuel oil tanks and containers connected with oil burning equipment.

FIRE PROTECTION & PREVENTION

INDOOR STORAGE

Outside of an approved storage cabinet, limit storage of flammable or combustible liquids to 25 gallons. An approved storage cabinet must adhere to the following specifications:

- The bottom, sides, and top will be constructed of an exterior grade of plywood at least 1 in. thick, which will not break down or delaminate under standard fire test conditions.
- All joints must be rabbeted and fastened in two directions with flathead wood screws.
- When more than one door is used, there will be a rabbeted overlap of not less than 1 inch.
- Steel hinges will be mounted in such a manner as to not lose their holding capacity due to loosening or burning out of the screws when subjected to fire.
- These cabinets will be painted inside and out with fire retardant paint.
- Approved metal storage cabinets are acceptable.
- Cabinets must be labeled in conspicuous lettering, "Flammable-Keep Fire Away."

Any one storage cabinet is limited to 60 gallons of flammable liquids, and 120 gallons of combustible liquids. Any one storage area is limited to three storage cabinets. Higher quantities must be stored inside a storage room.

INDOOR STORAGE ROOMS

Storage rooms inside must be sufficiently fire-resistive for their use and comply with test specifications outlined in "Standard Methods of Fire Test of Building Construction and Material, NFPA 251-1969" and table 2.

Fire Protection Provided*	Fire Resistance	Maximum size	Total allowable quantities gals. / sq. ft. / floor area
Yes	2 hrs.	500 sq. ft.	10
No	2 hrs.	500 sq. ft.	4
Yes	1 hr.	150 sq. ft.	5
No	1 hr.	150 sq. ft.	2

Table 2

** Fire protection system will be sprinkler, water, spray, carbon dioxide or other system approved by a nationally recognized testing laboratory for this purpose.*

FIRE PROTECTION & PREVENTION

Automatic extinguishing systems will be designed and installed to meet the following requirements:

- Openings to other rooms or buildings require noncombustible liquid-tight raised sills or ramps at least 4 inches in height, or the floor in the storage area must be at least 4 inches below the surrounding floor;
- Openings will be equipped with approved self-closing fire doors;
- The room will be liquid-tight where the walls join the floor;
- A permissible alternate to the sill or ramp is an open-grated trench, inside of the room, which drains to a safe location;
- Where other portions of the building or other buildings are exposed, windows will be protected as set forth in the Standard for Fire Doors and Windows, NFPA No. 80-1970, for Class E or F openings;
- Wood of at least 1-inch nominal thickness may be used for shelving, racks, dunnage, scuff boards, floor overlay, and similar installations;
- Materials that will react with water and create a fire hazard may not be stored in the same room with flammable or combustible liquids;
- Wiring and equipment in such rooms must be approved for Class I, Division 1, Hazardous Locations as outlined in CFR 1926.449;
- Every storage room must have one clear three-foot wide aisle
- Containers over 30 gallons capacity cannot be stacked on top of each other.

Each indoor storage room must be equipped with either a gravity or a mechanical exhausting system. Such a system must adhere to the following specifications:

- It must commence not more than 12 inches above the floor;
- It must be designed to provide for a complete change of air within the room at least 6 times per hour;
- If a mechanical exhausting system is used, it must be controlled by a switch located outside of the door;
- Ventilating equipment and any lighting fixtures operated by the same switch
- An electric pilot light will be installed adjacent to the switch if flammable liquids are dispensed within the room;
- Where gravity ventilation is provided, the fresh air intake, as well as the exhausting outlet from the room, must be on the exterior of the building where the room is located;

Limit the quantity of flammable or combustible liquids near any spraying operations to the minimum required for operations. This should not exceed a supply for 1 day or one shift. Bulk storage of portable containers of flammable or combustible liquids will be in a separate, constructed building detached from other important buildings or cut off in a standard manner.

FIRE PROTECTION & PREVENTION

STORAGE OUTSIDE BUILDINGS

Flammable and combustible liquids in excess of the amount permitted in inside storage rooms will be stored outside of buildings.

Limit groupings of containers (not more than 60 gallons each) to 1,100 gallons in any one pile or area. Piles or groups must be separated by a 5-foot clearance and placed 20 feet or further away from a building.

Within 200 feet of such piles, ensure a 12-foot-wide access for fire control approach.

The area reserved for storing flammable and combustible liquids must be graded to divert spills away from building. Alternatively, the area may be surrounded by a curb or dike at least 12 inches high if provisions are made for draining off accumulations of ground or rain water, or spills of the stored liquids. Drains must terminate at a safe location and be accessible to operation under fire conditions.

OUTDOOR PORTABLE TANK STORAGE

- Portable tanks must be at least 20 feet from any building.
- Two or more portable tanks, grouped together, having a combined capacity in excess of 2,200 gallons, must be separated by a 5-foot-clear area.
- Individual portable tanks exceeding 1,100 gallons must be separated by a 5-foot-clear area.
- There must be a 12-foot-wide access way within 200 feet of each portable tank, to permit approach of fire control equipment.
- Storage areas will be kept free of weeds, debris, and other combustible material not necessary to the storage.
- Portable tanks, not exceeding 660 gallons, must have emergency venting and other devices, as required by chapters III and IV of NFPA 30-1969, The Flammable and Combustible Liquids Code.
- Portable tanks, in excess of 660 gallons, must have emergency venting and other devices, as required by chapters II and III of "The Flammable and Combustible Liquids Code, NFPA 30-1969".

FIRE PROTECTION & PREVENTION

FIRE CONTROL FOR FLAMMABLE OR COMBUSTIBLE LIQUID

- At least one portable fire extinguisher, with a rating of at least 20-B units, must be located outside of, but not more than 10 feet from, the door opening into any room used for storage of more than 60 gallons of flammable or combustible liquids.
- At least one portable fire extinguisher having a rating of at least 20-B units must be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.
- When sprinklers are provided, they will be installed in accordance with the “Standard for the Installation of Sprinkler Systems, NFPA 13-1969”.
- At least one portable fire extinguisher having a rating of not less than 20-B:C units will be provided on all tank trucks or other vehicles used for transporting and/or dispensing flammable or combustible liquids.

DISPENSING LIQUIDS

- Areas where combustible liquids are transferred more than 5 gallons at a time must be separated from other activity by 25 ft. or construction with a fire resistance rating of 1 hour. Drainage in such areas to control spills is required as is ventilation sufficient to maintain flammable vapor concentrations below 10 percent of the lower flammable limit.
- Flammable liquid transfer between two containers requires the containers to be electrically bonded.
- Draw or transfer flammable or combustible liquids from vessels, containers, or tanks within a building or outside only through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container, or portable tanks, by gravity or pump, through an approved self-closing valve. Transferring by means of air pressure on the container or portable tanks is prohibited.
- Protect dispensing units against collision damage.
- Dispensing devices and nozzles for flammable liquids must be of an approved type.

HANDLING LIQUIDS AT POINT OF FINAL USE

- Keep Flammable liquids in closed containers when not in use.
- Dispose of leakage or spillage of flammable or combustible liquids promptly and safely.
- Flammable liquids may be used only where there are no open flames or other sources of ignition within 50 feet of the operation, unless conditions warrant greater clearance.

FIRE PROTECTION & PREVENTION

SERVICE AND REFUELING AREAS

- Flammable or combustible liquids must be stored in approved closed containers, in tanks located underground, or in above-ground portable tanks
- Tank trucks must comply with the requirements covered in the “Standard for Tank Vehicles for Flammable and Combustible Liquids, NFPA No. 385-1966”
- Only approved types of dispensing hoses may be used
- The dispensing nozzle will be an approved automatic-closing type without a latch-open device
- Do not abandon underground tanks
- Provide clearly identified and easily accessible switch(es) at a location remote from dispensing devices to shut off the power to all dispensing devices in the event of an emergency
- Heating equipment of an approved type may be installed in the lubrication or service area where there is no dispensing or transferring of flammable liquids, provided the bottom of the heating unit is at least 18 inches above the floor and is protected from physical damage
- Heating equipment installed in lubrication or service areas, where flammable liquids are dispensed, must be of an approved type for garages, and will be installed at least 8 feet above the floor
- No smoking or open flames will be permitted in the areas used for fueling, servicing fuel systems for internal combustion engines, receiving or dispensing of flammable or combustible liquids
- Post conspicuous and legible signs prohibiting smoking
- Shut off motors of equipment being fueled during the fueling operation; and provide each service or fueling area with at least one fire extinguisher having a rating of not less than 20-B:C located so that an extinguisher will be within 75 feet of each pump, dispenser, underground fill pipe opening, and lubrication or service area.

FORMS & ATTACHMENTS

Please find on the following page the Major Fire Hazards Form, which may be reproduced freely by W M Painting Inc for the purposes of implementing and maintaining a safety and health program.

FIRE PROTECTION & PREVENTION

FIRE PROTECTION & PREVENTION

PERSONAL PROTECTIVE EQUIPMENT

POLICY

W M Painting Inc will manage or eliminate hazards in the workplace to the greatest extent possible with engineering controls and work practice controls. However, if such controls fail to provide employees sufficient protection, Wayne Mello or designate will provide employees with personal protective equipment (PPE) and ensure proper use thereof. PPE minimizes exposure to a range of hazards. All protective devices must meet the following minimum requirements:

- Provide adequate protection against the hazards for which they are designed
- Be of safe design and construction for the work to be performed
- Be reasonably comfortable when worn under the designated condition
- Fit snugly and not unduly interfere with the movements of the wearer
- Be durable
- Be capable of being disinfected
- Easily cleaned
- Be distinctly marked to facilitate identification of the manufacturer

HAZARD ASSESSMENT

As explained in the chapter on Job Hazard Analysis, hazard assessment is the backbone of the W M Painting Inc safety and health program. Recognizing and documenting hazards is the first step to protecting employees from them. An initial walk-through to develop a list of potential hazards should be followed by a review of records and an analysis of the facility layout to determine what controls would best protect workers. If engineering and administrative controls are unable to protect employees from hazards they face, Wayne Mello and the safety committee will determine what personal protective equipment is necessary

W M Painting Inc job hazard analysis is an ongoing process. Daily inspections and periodic reassessments will look for changes that may affect occupational hazards for workers and will determine if PPE remains viable (in terms of condition, age and appropriateness) to protect a worker from hazards on the job.

W M Painting Inc must certify and document the required workplace hazard assessment in a way that identifies the following:

- Workplace evaluated
- Person certifying the evaluation has been performed
- Date of the hazard assessment
- Document as a certification of hazard assessment

PERSONAL PROTECTIVE EQUIPMENT

RESPONSIBILITIES

Ensuring the effective use of personal protective equipment is a cooperative effort between W M Painting Inc and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of W M Painting Inc to:

- Identify in the hazard assessment where PPE is appropriate and what type is necessary
- Identify and provide properly fitting PPE for employees
- Inform employees how and when to use identified PPE
- Enforce PPE use
- Train employees in the use and care of PPE
- Ensure employees maintain PPE
- Replace worn or damaged PPE
- Ensure employee provided PPE is adequate
- Periodically review, update and evaluate the effectiveness of the PPE program

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the W M Painting Inc safety committee to:

- Develop, conduct, and document training for PPE
- Assist in hazard assessments
- Make recommendations to management concerning elements of the PPE program

EMPLOYEE RESPONSIBILITIES

W M Painting Inc employees are expected to:

- Attend PPE training sessions provided by management
- Use, and properly wear, all PPE provided by the employer

W M Painting Inc requires employees use personal protective equipment (PPE) appropriate to the hazards of their job. This equipment may include protection for the following: eyes, face, feet, hands, head, and body.

Employees required to use such equipment will be trained in all aspects of its use, maintenance, and applicability.

The following list of PPE is available to employees and will be used as required: AS NEEDED

- Properly care for, clean, and maintain all PPE
- Inform a supervisor of the need to repair or replace PPE

PERSONAL PROTECTIVE EQUIPMENT

TRAINING

W M Painting Inc will ensure every employee is provided training on personal protective equipment. This training will be provided at no cost to the employee during working hours.

W M Painting Inc will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees.

TRAINING COMPONENTS

W M Painting Inc will ensure training for every employee in the following minimum elements:

- When PPE is necessary
- What specific PPE is necessary
- How to properly put on, take off, adjust and wear PPE
- Limitations of PPE
- Proper care, maintenance, useful life and disposal of the PPE

Affected employees must demonstrate an understanding of all training and the ability to use PPE properly before they will be permitted to perform work requiring PPE.

W M Painting Inc will provide retraining for any affected employee who is unable to demonstrate the understanding or skills to use PPE properly. Circumstances that require retraining include, but are not limited to the following:

- When there have been changes in the workplace that have rendered previous training obsolete
- When there have been changes to PPE used that render previous training obsolete
- When an employee demonstrates or expresses inadequacies in understanding or skill needed to use assigned PPE properly

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions.
- Contents or a summary of the training sessions.
- Names and qualifications of persons conducting the training.
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the date on which the training occurred.

PERSONAL PROTECTIVE EQUIPMENT

PPE SELECTION

W M Painting Inc will select only PPE of safe design and construction and will work with employees to ensure PPE remains clean and reliable. In selecting PPE used to control hazards in the workplace, W M Painting Inc will consider comfortable fit, providing sizes appropriate to the affected employees, and ensure any PPE used will be compatible to provide sufficient protection. Comfort and ease of use is an important consideration because workers are more likely to wear comfortable PPE.

All PPE at W M Painting Inc, including any employee-owned PPE, will meet at least the minimum standards and requirements to provide sufficient protection for workers. Following are the standards referenced by OSHA for select groups of PPE:

- Eye and Face: ANSI Z87.1-1989 (or 1989(R-1998), or 2003)
- Head: ANSI Z89.1-1986 (or 1997, or 2003)
- Foot: ANSI Z41.1-1991

However, alternative protective equipment is acceptable if W M Painting Inc demonstrates it is at least as effective as equipment constructed according to the above standards.

NON-PROVIDED PPE

W M Painting Inc will provide all PPE and replacement PPE at no cost to employees except for the following:

- Non-specialty safety-toe protective footwear, non-specialty prescription eyewear, provided they may be worn away from work
- Shoes or boots with metatarsal protection if W M Painting Inc provides separate metatarsal guards
- Logging boots
- Everyday clothing
- Clothing worn only for protection from weather
- Replacement PPE the employee has intentionally damaged or lost
- Where the employee provides his or her own adequate PPE.

WORK CLOTHING

W M Painting Inc requires employees to wear clothing appropriate to the work and conditions. Examples of this stipulation include clothing that provides protection against high temperature hazards that can cause burns, and not wearing loose clothing like ties or loose fitting clothing near moving machinery. Employees will not wearing jewelry that might contact or electric circuitry.

Also any clothing contaminated with a hazardous material (e.g. flammable liquids, toxic substances, irritants or oxidizers) must be removed immediately and properly cleaned before it can be worn again.

PERSONAL PROTECTIVE EQUIPMENT

EYE AND FACE PROTECTION

W M Painting Inc will ensure adequate protection against the following:

- Flying particles
- Molten metal
- Liquid chemicals
- Acids or caustic liquids
- Chemical gases or vapors
- Potentially infected material
- Potentially harmful light radiation

When there is a hazard from flying particles, eye protection will provide side protection, or W M Painting Inc will provide effected employees with detachable side protectors.

- Employees will ensure that face and eye protectors are used by only the person to whom the items are issued.
- Eye and face PPE must have the manufacturer's identification distinctly marked.

PRESCRIPTION LENSES

Everyday glasses will not provide sufficient protection against the types of hazards that require eye protection. Employees who wear prescription lenses to correct their vision must wear either eye protection that incorporates their prescription or that can be worn over glasses without compromising the glasses' ability to correct the wearer's vision.

If W M Painting Inc requires more than one worker to wear the same piece of eyewear, employees must disinfect the protective eyewear after each use.

TYPES OF EYE PROTECTION

Safety Spectacles: These protective eyeglasses have safety frames constructed of metal or plastic and impact-resistant lenses. Side shields are available on some models.

Goggles: These tight-fitting eye protectors completely cover the eyes, eye sockets and the facial area immediately surrounding the eyes and provide protection from impact, dust, and splashes. Some goggles will fit over corrective lenses.

Welding Shields: Constructed of vulcanized fiber or fiberglass and fitted with a filtered lens, welding shields protect eyes from burns caused by infrared or intense radiant light; they also protect both the eyes and face from flying sparks, metal spatter, and slag chips produced during welding, brazing, soldering, and cutting operations. OSHA requires filter lenses to have a shade number appropriate to protect against the specific hazards of the work being performed in order to protect against harmful light radiation.

Laser Safety Goggles: These specialty goggles protect against intense concentrations of light produced by lasers. The type of laser safety goggles an employer chooses will depend upon the equipment and operating conditions in the workplace.

PERSONAL PROTECTIVE EQUIPMENT

Face Shields: These transparent sheets of plastic extend from the eyebrows to below the chin and across the entire width of the employee's head. Some are polarized for glare protection. Face shields protect against nuisance dusts, potential splashes, or sprays of hazardous liquids, and smaller particles, but will not provide adequate protection against larger impact hazards. Face shields must be worn over the top of basic eye protection devices such as goggles or safety spectacles.

Typical uses for face shields include, but are not limited to, the following situations: woodworking operations where chips and particles fly; metal machining that causes flying particles; buffing, polishing, wire brushing, and grinding; operations that cause flying particles or objects; spot welding; and handling of hot or corrosive materials.

LASER OPERATIONS

Laser light radiation can be extremely dangerous to the unprotected eye, and direct or reflected beams can cause permanent eye damage.

Laser retinal burns can be painless, so it is essential that all personnel in or around laser operations wear appropriate eye protection.

Laser safety goggles should protect for the specific wavelength of the laser and must be of sufficient optical density for the energy involved. Safety goggles intended for use with laser beams must be labeled with the laser wavelengths for which they are intended to be used, the optical density of those wavelengths and the visible light transmission.

Laser Safety Glass		
Intensity, CW maximum power density (watts/cm ²)	Attenuation	
	Optical density (O.D.)	Attenuation factor
10 ⁻²	5	10 ⁵
10 ⁻¹	6	10 ⁶
1.0	7	10 ⁷
10.0	8	10 ⁸

Table 1

When a face shield is used in atmospheres or working areas requiring special conditions of non-conductivity or non-sparking, the equipment and materials used must meet those requirements. A face shield must be plainly and permanently labeled, identifying it as a "non-conductive face shield" or "non-sparking face shield."

PERSONAL PROTECTIVE EQUIPMENT

WELDING OPERATIONS

The intense light associated with welding operations can cause serious and sometimes permanent eye damage if operators do not wear proper eye protection. The intensity of light or radiant energy produced by welding, cutting, or brazing operations varies according to a number of factors including the task producing the light, the electrode size, and the arc current. Table 2 shows the minimum protective shades for a variety of welding, cutting, and brazing operations in general industry and in the shipbuilding industry.

Helmets or hand shields must be used during all arc welding or arc cutting operations, excluding submerged arc welding. Helpers or attendants must be provided with proper eye protection. A hand shield must be constructed of materials similar to those used for a helmet, in a like manner, to protect the body from direct radiant energy.

<i>Table 2 -- Filter Lenses for Protection Against Radiant Energy</i>			
Operations	Electrode Size 1/32 in.	Arc Current	Minimum (*) Protective Shade
Shielded metal arc welding	Less than 3	Less than 60	7
	3-5	60-160	8
	5-8	160-250	10
	More than 8	250-550	11
Gas metal arc welding and flux cored arc welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Gas tungsten arc welding		Less than 50	8
		50-150	8
		150-500	10
Air carbon arc cutting	(Light)	Less than 500	10
	(Heavy)	500-1000	11
Plasma arc welding		Less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting	(light)(**)	Less than 300	8
	(medium)(**)	300-400	9
	(heavy)(**)	400-800	10
Torch brazing			3
Torch soldering			2
Carbon arc welding			14

PERSONAL PROTECTIVE EQUIPMENT

Filter Lenses for Protection Against Radiant Energy				
Operations		Plate Thickness – inches	Plate Thickness – mm	Minimum (*) Protective Shade
Gas Welding	Light	Under 1/8	Under 3.2	4
	Medium	1/8 to 1/2	3.2 to 12.7	5
	Heavy	Over 1/2	Over 12.7	6
Oxygen Cutting	Light	Under 1	Under 25	3
	Medium	1 to 6	25-150	4
	Heavy	Over 6	Over 150	5

Footnote (*) 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.

Footnote (**) 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 workpiece.

HEAD PROTECTION

W M Painting Inc will protect employees from potential head injuries by providing proper head protection and accessories, and ensuring that employees wear these items to protect themselves from injury. Hard hats and helmets can protect employees from impact and penetration hazards, as well as from electrical shock and burn hazards.

W M Painting Inc will ensure employees wear head protection if any of the following apply:

- Objects might fall from above and strike them on the head;
- They might bump their heads against fixed objects, such as exposed pipes or beams
- There is a possibility of accidental head contact with electrical hazards or any other harmful contacts or exposures
- There is a risk of injury from any of the following:
 - Electric shock
 - Hair entanglement
 - Chemicals
 - Temperature extremes

PERSONAL PROTECTIVE EQUIPMENT

Some examples of occupations in which employees should be required to wear head protection include construction workers, carpenters, electricians, linemen, plumbers and pipefitters, timber and log cutters, welders, among many others. Whenever there is a danger of objects falling from above, such as working below others who are using tools or working under a conveyor belt, head protection must be worn. Hard hats must be worn with the bill forward to protect employees properly.

In general, protective helmets or hard hats should do the following:

- Resist penetration by objects
- Absorb the shock of a blow
- Be water-resistant and slow burning
- Have clear instructions explaining proper adjustment and replacement of the suspension and headband, which should be replaced if slack, twisted, worn out, sweat-soaked, etc.

Hard hats must have a hard outer shell and a shock-absorbing lining that incorporates a headband and straps that suspend the shell from 1 to 1¼ inches (2.54 cm to 3.18 cm) away from the head. This type of design provides shock absorption during an impact and ventilation during normal wear.

A metallic head device must not be furnished by an employer or used by an employee for head protection, except where it has been determined that the use of other types of protective helmets or safety hats or caps is impractical, such as where chemical reaction will cause the deterioration of other types of head protection.

TYPES OF HARD HATS/HELMETS

W M Painting Inc will select protective headgear that meets ANSI standard requirements and will ensure employees wear hard hats/helmets to provide appropriate protection against potential workplace hazards. Hard hat selection must consider all hazards on the worksite, including electrical hazards. This can be done through a comprehensive hazard analysis and an awareness of the different types of protective headgear available.

Hard hats are divided into three industrial classes:

- **Class G** (formerly Class A) hard hats (General) provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts).
- **Class E** (formerly class B) hard hats (Electrical) provide the highest level of protection against electrical hazards, with high-voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration hazards by flying/falling objects.
- **Class C** hard hats (Conductive) provide lightweight comfort and impact protection but offer no protection from electrical hazards.

PERSONAL PROTECTIVE EQUIPMENT

In addition, hard hats/helmets that protect against impacts are classified as either:

Type I – Helmets that are intended to reduce the force of impact resulting from a blow only to the top of the head.

Type II – Helmets that are intended to reduce the force of impact resulting from a blow to the top or sides of the head.

Another class of protective headgear on the market is called a “bump hat,” designed for use in areas with low head clearance. They are recommended for areas where protection is needed from head bumps and lacerations. These are not designed to protect against falling or flying objects and are not ANSI approved. It is essential to check the type of hard hat employees are using to ensure that the equipment provides appropriate protection. Each hat should have a label inside the shell that lists the manufacturer, the ANSI designation, and the class of the hat.

SIZE AND CARE CONSIDERATIONS

Head protection that is too large or too small is inappropriate for use, even if it meets all other requirements. Protective headgear must fit appropriately on the body and for the head size of each individual. Most protective headgear comes in a variety of sizes with adjustable headbands to ensure a proper fit (many adjust in 1/8-inch increments). A proper fit should allow sufficient clearance between the shell and the suspension system for ventilation and distribution of an impact. The hat should not bind, slip, fall off, or irritate the skin.

Some protective headgear allows for the use of various accessories to help employees deal with changing environmental conditions, such as slots for earmuffs, safety glasses, face shields, and mounted lights. Optional rims may provide additional protection from the sun and some hats have channels that guide rainwater away from the face. Protective headgear accessories must not compromise the safety elements of the equipment.

Periodic cleaning and inspection will extend the useful life of protective headgear. A daily inspection of the hard hat shell, suspension system, and other accessories for holes, cracks, tears or other damage that might compromise the protective value of the hat is essential. Paints, paint thinners and some cleaning agents can weaken shells of hard hats and may eliminate electrical resistance. Consult the helmet manufacturer for information on the effects of paint and cleaning materials on their hard hats. Never drill holes, paint, or apply labels to protective headgear as this may reduce the integrity of the protection. Do not store protective headgear in direct sunlight, such as on the rear window shelf of a car, since sunlight and heat can damage them.

PERSONAL PROTECTIVE EQUIPMENT

Hard hats with any of the following defects should be removed from service and replaced:

- Perforation, cracking, or deformity of the brim or shell;
- Indication of exposure of the brim or shell to heat, chemicals or ultraviolet light and other radiation (in addition to a loss of surface gloss, such signs include chalking or flaking).

Always replace a hard hat if it sustains an impact, even if damage is not noticeable.

Suspension systems are available as replacement parts, and should be replaced when damaged, or when excessive wear is noticed. It is not necessary to replace the entire hard hat when deterioration or tears of the suspension systems are noticed.

HOODS

A hood must be made of materials that combine all of the following:

- Have mechanical strength and lightness of weight to a high degree
- Be non-irritating to the skin when subjected to perspiration
- Be capable of withstanding frequent cleaning and disinfection
- Materials used in the manufacture of hoods must be suitable to withstand the hazards to which the user may be exposed.
- A hood must be designed to provide adequate ventilation for the wearer.

A protective helmet must be used in conjunction with a hood where there is a head injury hazard and the hood must be designed to accommodate helmets.

ACCESSORIES

Faceshield Protection: Faceshield devices can be attached to the helmet without changing the helmet strength and electrical protection. A metal faceshield bracket system can be used on a Class G helmet; however, if a Class E helmet is to be used in an area where Class E protection is required, a type of bracket and shield system that will not conduct electricity (has a dielectric rating) should be used.

Ear Muffs: The required degree of hearing protection should be considered prior to selecting ear muff attachments. If ear muffs are to be attached to helmets, metal attachments are acceptable for Class G helmets. Attachments with a dielectric rating must be used for Class E helmets.

Sweat Bands: If sweat bands are necessary, they must not interfere with the effectiveness of the helmet headband system. Some sweatband devices are made to fit on the headband. For electrical work, metal components must not be used to attach sweat bands to helmets.

PERSONAL PROTECTIVE EQUIPMENT

Winter Liners: There are many varieties of winter liners. One type fits over the hard hat assembly. It must be flame retardant and elasticized to give the user a snug, warm fit. Other styles fit under the helmet. If the liner is to be used with a Class E helmet, it must have a dielectric rating. Regardless of the warmth characteristics, the liner and helmet combination should be compatible. The liner and helmet must fit properly to give the employee proper impact and penetration protection.

Chin Straps: When wind or other conditions present the possibility of the hard hat being accidentally removed from the head, chin straps can be used. If chin straps are used, they should be the type that fastens to the shell of the hard hat. If the chin straps fasten to the headband and suspension system, the shell may blow off and strike another employee.

Hair Enclosures: employees must wear a hat, cap, or net if there is a danger of hair entanglement in moving machinery or equipment, or where there is exposure to means of ignition. Hair enclosures must completely enclose all loose hair; be adjustable to accommodate all head sizes; be designed to be reasonably comfortable to the wearer.

FOOT & LEG PROTECTION

Employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials must wear protective footwear. In addition, employees whose work involves exposure to hot substances or corrosive or poisonous materials must have protective gear to cover exposed body parts, including legs and feet. If an employee's feet may be exposed to electrical hazards, nonconductive footwear must be worn. On the other hand, workplace exposure to static electricity may necessitate the use of conductive footwear.

An employer must ensure that employees wear protective footwear when working in areas where any of the following occur:

- Employees' feet are exposed to electrical hazards.
- There is a danger of foot injuries due to falling or rolling objects, such as barrels or tools.
- There is a danger of sharp objects, such as nails or spikes, piercing the soles of shoes.
- There is exposure to molten metal that might splash on feet or legs.
- There is possible exposure to chemical spills

Employees must also wear proper footwear (including protective footwear when necessary) when working on or around hot, wet, or slippery surfaces.

PERSONAL PROTECTIVE EQUIPMENT

Foot and leg protection choices include the following:

- Leggings or high boots made of a suitable material (e.g. leather, rubber) for workers exposed to dangerous chemical spill and heat hazards such as molten metal or welding sparks.
- When an employee uses a chain saw, he must wear chaps or leg protectors, made from material designed to resist cuts, covering from at least upper thigh to mid-calf.
- Metatarsal guards protect the instep area from impact and compression. Made of aluminum, steel, fiber, or plastic, these guards may be strapped to the outside of shoes. Footwear designed to newer versions of ANSI Z41 and the ASTM standards require metatarsal protection to be built into the footwear.
- Toe guards fit over the toes of regular shoes to protect the toes from impact and compression hazards. They may be made of steel, aluminum, or plastic.

An employer who chooses to provide employees with toe guards must demonstrate that they are as protective as an incorporated toebox used in safety-toe footwear.

- Combination foot and shin guards protect the lower legs and feet, and may be used in combination with toe guards when greater protection is needed.
- Safety shoes have impact-resistant toes and heat-resistant soles that protect the feet against hot work surfaces common in roofing, paving, and hot metal industries. The metal insoles of some safety shoes protect against puncture wounds. Safety shoes may also be designed to be electrically conductive to prevent the buildup of static electricity in areas with the potential for explosive atmospheres or nonconductive to protect workers from workplace electrical hazards.
- If a hazard is created from a process, environment, chemical, or mechanical irritant that could cause an injury or impairment to the feet by absorption or physical contact, other than from impact, the employer must provide any of the following to the employee:
 - Boots
 - Overshoes
 - Rubbers
 - Wooden-soled shoes
 - An equivalent of the above

SPECIAL PURPOSE SHOES

Electrically conductive shoes provide protection against the buildup of static electricity. Employees working in explosive and hazardous locations such as explosives manufacturing facilities or grain elevators must wear conductive shoes to reduce the risk of static electricity buildup on the body that could produce a spark and cause an explosion or fire.

Foot powder should not be used when wearing protective conductive footwear because it provides insulation, reducing the conductive ability of the shoes. Silk, wool, and nylon socks can produce static electricity and should not be worn with conductive footwear. Conductive shoes must be removed when the task requiring their use is completed.

PERSONAL PROTECTIVE EQUIPMENT

Employees exposed to electrical hazards must never wear conductive shoes. Electrical hazard, safety-toe shoes are nonconductive and will prevent the wearers' feet from completing an electrical circuit to the ground. These shoes can protect against open circuits of up to 600 volts in dry conditions, and should be used in conjunction with other insulating equipment and additional precautions to reduce the risk of a worker becoming a path for hazardous electrical energy.

The insulating protection of electrical hazard, safety-toe shoes may be compromised if the shoes become wet, the soles are worn through, metal particles become embedded in the sole or heel, or workers touch conductive grounded items. Note: Nonconductive footwear must not be used in explosive or hazardous locations.

Foundry shoes insulate the feet from the extreme heat of molten metal. They keep hot metal from lodging in shoe eyelets, tongues or other shoe parts. These snug-fitting leather or leather-substitute shoes have leather or rubber soles and rubber heels. All foundry shoes must have built-in safety toes.

CARE OF PROTECTIVE FOOTWEAR

As with all protective equipment, safety footwear should be inspected prior to each use. Shoes and leggings should be checked for wear and tear at reasonable intervals. This includes looking for cracks or holes, separation of materials, broken buckles, or laces. The soles of shoes should be checked for pieces of metal or other embedded items that could present electrical or tripping hazards. Employees should follow the manufacturers' recommendations for cleaning and maintenance of protective footwear.

HAND & ARM PROTECTION

If a workplace hazard assessment reveals employees face potential injury to hands and arms that cannot be eliminated through engineering and work practice controls, W M Painting Inc will ensure employees wear appropriate protection. Potential hazards that require protection include skin absorption of harmful substances, chemical or thermal burns, electrical dangers, bruises, abrasions, cuts, punctures, fractures, amputations, and harmful temperature extremes.

Protective equipment includes gloves, finger guards, and arm coverings. In addition, items such as machine guards and barriers are examples of engineering controls that may eliminate hazards to the hands and arms.

TYPES OF PROTECTIVE GLOVES

There are many types of gloves available today to protect against a wide variety of hazards. The nature of the hazard and the operation involved will affect the selection of gloves. The variety of potential occupational hand injuries makes selecting the right pair of gloves challenging. No gloves can provide protection against all potential hand hazards. Employees must use gloves specifically designed for the hazards and tasks found in their workplace. Gloves designed for one function may not protect against a different function even though they may appear to be an appropriate protective device.

PERSONAL PROTECTIVE EQUIPMENT

The following are examples of some factors that may influence the selection of protective gloves for a workplace:

- Type of chemicals handled (toxic properties of the chemical(s)).
- Chemical concentration and temperature (the higher the concentration and temperature, the shorter the breakthrough time).
- Nature of contact (total immersion, continual contact, splash, etc.)
- Duration of contact.
- Area requiring protection (hand only, forearm, arm).
- Degree of dexterity (fine motor work).
- Grip requirements (dry, wet, oily).
- Thermal protection.
- Size and comfort.
- Abrasion/cut resistance requirements.
- Other job hazards (such as biological, electrical, and radiation hazards).

Gloves are made from a wide variety of materials and are designed for many types of workplace hazards. In general, gloves fall into four groups:

- Gloves made of leather, synthetic fibers, or metal mesh.
- Fabric and coated fabric gloves.
- Chemical protective gloves.
- Insulating rubber gloves (See 29 CFR 1910.137, Electrical Protective Equipment, for detailed requirements on the selection, use and care of insulating rubber gloves).

LEATHER, CANVAS OR METAL MESH GLOVES

- Sturdy gloves made from metal mesh, leather or canvas provide protection against cuts and burns. Leather or canvas gloves also protect against sustained heat.
- Leather gloves protect against sparks, moderate heat, blows, chips, and rough objects. These gloves can be used for tasks such as welding.
- Aluminized gloves provide radiant heat protection by reflection and insulate/reduce heat conduction with a liner or insert. Employees working with molten materials would benefit from this type of glove.
- Aramid fiber gloves such as Kevlar, protect against heat, are cut- and abrasion-resistant, and wear well. Employees working in jobs such as firefighting, automotive work, metal fabrication, glass and ceramic handling would benefit from this type of glove.
- Synthetic gloves of various materials offer protection against heat and cold, are cut- and abrasion-resistant and may withstand some diluted acids. These materials do not stand up against alkalis and solvents.
- Metal mesh hand, wrist, arm, and finger protective wear protects against knife cuts; however, it offers very little, if any, protection against punctures. Plastic dots can be adhered to the metal mesh to facilitate gripping.

PERSONAL PROTECTIVE EQUIPMENT

FABRIC AND COATED FABRIC GLOVES

Fabric and coated fabric gloves are made of cotton or other fabric to provide varying degrees of protection.

- Fabric gloves protect against dirt, slivers, chafing and abrasions. They do not provide sufficient protection for use with rough, sharp, or heavy materials. Adding a plastic coating will strengthen some fabric gloves.
- Coated fabric gloves normally are made from cotton flannel with napping on one side. By coating the un-napped side with plastic, fabric gloves are transformed into general-purpose hand protection offering slip-resistant qualities. These gloves are used for tasks ranging from handling bricks and wire to chemical laboratory containers. When selecting gloves to protect against chemical exposure hazards, always check with the manufacturer or review the manufacturer's product literature to determine the gloves' effectiveness against specific workplace chemicals and conditions.

CHEMICAL- AND LIQUID-RESISTANT GLOVES

Chemical-resistant gloves are made with different kinds of rubber: natural, butyl, neoprene, nitrile and fluorocarbon (viton); or various kinds of plastic: polyvinyl chloride (PVC), polyvinyl alcohol, and polyethylene. These materials can be blended or laminated for better performance. As a general rule, the thicker the glove material, the greater the chemical resistance but thick gloves may impair grip and dexterity, having a negative impact on safety

Some examples of chemical-resistant gloves include:

- Butyl gloves are made of a synthetic rubber and protect against a wide variety of chemicals, such as peroxide, rocket fuels, highly corrosive acids (nitric acid, sulfuric acid, hydrofluoric acid, and red-fuming nitric acid), strong bases, alcohols, aldehydes, ketones, esters, and nitro-compounds. Butyl gloves also resist oxidation, ozone corrosion, and abrasion, and remain flexible at low temperatures. Butyl rubber does not perform well with aliphatic and aromatic hydrocarbons and halogenated solvents.
- Natural (latex) rubber gloves are comfortable to wear, which makes them a popular general-purpose glove. They feature outstanding tensile strength, elasticity, and temperature resistance. In addition to resisting abrasions caused by grinding and polishing, these gloves protect workers' hands from most water solutions of acids, alkalis, salts and ketones. Latex gloves have caused allergic reactions in some individuals and may not be appropriate for all employees. Hypoallergenic gloves, glove liners and powderless gloves are possible alternatives for workers who are allergic to latex gloves.

PERSONAL PROTECTIVE EQUIPMENT

- Neoprene gloves are made of synthetic rubber and offer good pliability, finger dexterity, high density, and tear resistance. They protect against hydraulic fluids, gasoline, alcohols, organic acids, and alkalis. They generally have chemical and wear resistance properties superior to those made of natural rubber.
- Nitrile gloves are made of a copolymer and provide protection from chlorinated solvents such as trichloroethylene and perchloroethylene. Although intended for jobs requiring dexterity and sensitivity, nitrile gloves stand up to heavy use even after prolonged exposure to substances that cause other gloves to deteriorate. They offer protection when working with oils, greases, acids, caustics, and alcohols but are generally not recommended for use with strong oxidizing agents, aromatic solvents, ketones, and acetates.

CARE OF PROTECTIVE GLOVES

Protective gloves should be inspected before each use to ensure they are not torn, punctured, or made ineffective in any way. A visual inspection will help detect cuts or tears but a more thorough inspection by filling the gloves with water and tightly rolling the cuff towards the fingers will help reveal any pinhole leaks. Gloves that are discolored or stiff may also indicate deficiencies caused by excessive use or degradation from chemical exposure. Interiors of gloves must be kept free of corrosive or irritating contaminants.

Any gloves with impaired protective ability should be discarded and replaced. Reuse of chemical-resistant gloves should be evaluated carefully, taking into consideration the absorptive qualities of the gloves. A decision to reuse chemically exposed gloves should take into consideration the toxicity of the chemicals involved and factors such as duration of exposure, storage, and temperature. All gloves must be sanitized and clean before reissue.

BODY PROTECTION

Employees who face possible bodily injury of any kind that cannot be eliminated through engineering, work practice, or administrative controls must wear appropriate body protection while performing their jobs. In addition to radiation, the following are workplace hazards that could cause bodily injury, and require protection:

- Temperature extremes
- Hot splashes from molten metals and other hot liquids
- Potential impacts from tools, machinery, and materials
- Hazardous chemicals
- Wetness

There are many varieties of protective clothing available for specific hazards. Employers are required to ensure that their employees wear personal protective equipment only for the parts of the body exposed to possible injury. Examples of body protection include laboratory coats, coveralls, vests, jackets, aprons, surgical gowns, and full body suits.

PERSONAL PROTECTIVE EQUIPMENT

If a hazard assessment indicates a need for full body protection against toxic substances or harmful physical agents, the clothing should be carefully inspected before each use, it must fit each worker properly, and it must function properly and for the purpose for which it is intended.

Protective clothing comes in a variety of materials, each effective against particular hazards, such as:

- Paper-like fiber, which is used for disposable suits provide protection against dust and splashes.
- Treated wool and cotton, which adapts well to changing temperatures, is comfortable and fire-resistant, and protects against dust, abrasions and rough, irritating surfaces.
- Duck, which is a closely woven cotton fabric that protects against cuts and bruises when handling heavy, sharp, or rough materials.
- Leather, which is often used to protect against dry heat and flames.
- Rubber, rubberized fabrics, neoprene, and plastics, which protect against certain chemicals and physical hazards. When chemical or physical hazards are present, check with the clothing manufacturer to ensure that the material selected will provide protection against the specific hazard.

HEARING PROTECTION

Determining the need to provide hearing protection for employees can be challenging. Employee exposure to excessive noise depends upon a number of factors, including:

- The loudness of the noise as measured in decibels (dB).
- The duration of each employee's exposure to the noise.
- Whether employees move between work areas with different noise levels.
- Whether noise is generated from one or multiple sources.

Generally, the louder the noise, the shorter the exposure time before hearing protection is required. For instance, employees may be exposed to a noise level of 90 dB for 8 hours per day (unless they experience a Standard Threshold Shift) before hearing protection is required. On the other hand, if the noise level reaches 115 dB hearing protection is required if the anticipated exposure exceeds 15 minutes. For a more detailed discussion of the requirements for a comprehensive hearing conservation program, see the chapter on hearing protection.

If engineering and work practice controls do not lower employee exposure to workplace noise to acceptable levels, employees must wear appropriate hearing protection. It is important to understand that hearing protectors reduce only the amount of noise that gets through to the ears. The amount of this reduction is referred to as attenuation, which differs according to the type of hearing protection used and how well it fits. Hearing protectors worn by employees must reduce an employee's noise exposure to within the acceptable limits.

PERSONAL PROTECTIVE EQUIPMENT

Types of hearing protection include the following:

- Single-use earplugs are made of waxed cotton, foam, silicone rubber, or fiberglass wool. They are self-forming and, when properly inserted, they work as well as most molded earplugs.
- Pre-formed or molded earplugs must be individually fitted by a professional and can be disposable or reusable. Reusable plugs should be cleaned after each use.
- Earmuffs require a perfect seal around the ear. Glasses, facial hair, long hair, or facial movements such as chewing may reduce the protective value of earmuffs.

SAFETY BELTS, LIFELINES, AND LANYARDS

The only acceptable use of lifelines, safety belts, and lanyards is to safeguard employees. If a lifeline, safety belt or lanyard is subjected to in-service loading; it must be removed from service and not used again.

- Lifelines must be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,400 pounds.
- If a lifeline is subject to cutting or abrasion, as may be the case on rock scaling operations, it must be at least $\frac{7}{8}$ -inch wire core manila rope. Otherwise, it may be a $\frac{3}{4}$ -inch manila or equivalent, with a nominal breaking strength of at least 5,400 pounds.
- Safety belt lanyards will be at least $\frac{1}{2}$ -inch nylon and provide for a fall that does not exceed 6 feet. They must also have a nominal breaking strength of 5,400 pounds.
- Hardware on safety belts and lanyards in use must be drop forged or pressed steel or cadmium plated according to federal specifications. The surface must be smooth and free of sharp edges.
- Safety belt and lanyard hardware, except rivets, must withstand a tensile loading of 4,000 pounds without cracking, breaking, or taking a permanent deformation.

For more information, see the “Fall Protection” chapter.

OTHER PPE

COOLING VESTS AND SUITS

Personal cooling vests and suits are available for wear in operations involving extreme heat conditions. One design requires the use of a supplied air system. The air enters the vest or coverall through a tube in which it is cooled by as much as 40 degrees. The cooled air is channeled out over the upper torso and around the neck area when only the vest is being used. When the coverall or full body cooling type of PPE is used, the cooling air is also channeled to the leg and arm areas.

PERSONAL PROTECTIVE EQUIPMENT

There is a type of body cooling system that does not require an electrical, air, or water supply. This vest is made of durable flame-resistant cotton shell fabric. Sewn underneath the outer shell are layers of light metallic insulation that reflect radiant heat outward and cooling inward toward the body. Pouch-like areas are accessible for quick and easy installation of segmented, semi-frozen gel cooling packets. These gel packs, often referred to as plastic ice, provide approximately twice the cooling effect of the same volume of water ice. The gel packs will not leak, even if punctured. They can be refrozen overnight in an ordinary freezer.

Other systems use supplied cooling air and a manifold system of tubes to channel the cool air to the body extremities. Outer surfaces are frequently made of aluminum or other heat-reflective material, depending on the type and source of the heat conditions.

HIGH VISIBILITY APPAREL

High visibility apparel must be used by workers involved in traffic control, such as flaggers or law enforcement officers, or for employees who work on the roadways, such as sanitation, utility or construction workers, and emergency responders. The apparel should be high visibility orange, yellow, yellow-green, or a fluorescent version so that it contrasts with the surrounding area. Reflective material visible from all sides for 1,000 feet must be worn during dark hours.

FLOTATION VESTS

Employees working over or near water, where the danger of drowning exists, will be provided with approved life jackets or buoyant work vests. These vests are available as flotation pads inside high visibility international orange nylon shells or as vinyl coated flotation pads of international orange. The flotation vests must be U.S. Coast Guard approved.

Additionally, in any other workplace where employees work over or near water, or use boats, approved life jackets, buoyant work vests or other flotation devices must be provided. All buoyant work vests and life preservers will be checked for defects before and after each use.

WELDING AND HIGH HEAT

Coveralls, jackets, pants, and aprons are available for operations involving high heat or molten metal splashes. Leather is the traditional protective material for many welding operations. Where there is exposure to radiant heat as well as molten metal splashes, aluminized garments may be used. They reflect up to 95 percent of the radiant heat. Flame-resistant cotton coveralls designed for comfort and protection are sometimes preferred. Whatever the type of clothing used for welding operations, it should not have external pockets or cuffs. Fabrics of silica, ceramic, and fiberglass eliminate the need for asbestos and are now available for welding operations. Protective clothing with asbestos will not be used.

FORMS & ATTACHMENTS

Please find on the following pages the PPE Hazard Assessment Certification Form, which may be reproduced freely by W M Painting Inc for the purposes of implementing and maintaining a safety and health program.

PERSONAL PROTECTIVE EQUIPMENT

PPE Hazard Assessment Certification Form (pg. 2)

HEAD

<p><u>Work activities, such as:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> building <input type="checkbox"/> maintenance <input type="checkbox"/> confined space operations <input type="checkbox"/> construction <input type="checkbox"/> electrical wiring <input type="checkbox"/> walking/working under catwalks <input type="checkbox"/> walking/working on catwalks 	<p><u>Work-related exposure to:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> beams <input type="checkbox"/> pipes <input type="checkbox"/> exposed electrical wiring or components <input type="checkbox"/> falling objects <input type="checkbox"/> fixed object <input type="checkbox"/> machine parts <input type="checkbox"/> other: 	<p><u>Can hazard be eliminated without the use of PPE?</u></p> <p style="text-align: center;"><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><u>If no, use:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Protective Helmet <ul style="list-style-type: none"> <input type="checkbox"/> Type G (low voltage) <input type="checkbox"/> Type E (high voltage) <input type="checkbox"/> Type C <input type="checkbox"/> Bump cap (not ANSI-approved) <input type="checkbox"/> Hair net or soft cap <input type="checkbox"/> other:
--	---	---

HANDS/ARMS

<p><u>Work activities, such as:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> baking <input type="checkbox"/> cooking <input type="checkbox"/> grinding <input type="checkbox"/> welding <input type="checkbox"/> working with glass <input type="checkbox"/> using computers <input type="checkbox"/> using knives <input type="checkbox"/> dental care <input type="checkbox"/> health care services 	<p><u>Work-related exposure to:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> blood <input type="checkbox"/> irritating chemicals <input type="checkbox"/> tools or materials that could scrape, bruise, or cut <input type="checkbox"/> extreme heat <input type="checkbox"/> extreme cold <input type="checkbox"/> animal bites <input type="checkbox"/> electric shock <input type="checkbox"/> vibration <input type="checkbox"/> musculoskeletal disorders <input type="checkbox"/> sharps injury <input type="checkbox"/> other: 	<p><u>Can hazard be eliminated without the use of PPE?</u></p> <p style="text-align: center;"><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><u>If no, use:</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <ul style="list-style-type: none"> <input type="checkbox"/> Gloves <input type="checkbox"/> Chemical resistance <input type="checkbox"/> Liquid/leak resistance <input type="checkbox"/> Temperature resistance <input type="checkbox"/> Abrasion/cut resistance <input type="checkbox"/> Slip resistance <input type="checkbox"/> Latex or nitrile <input type="checkbox"/> Anti-vibration </td> <td style="width: 50%; border: none;"> <ul style="list-style-type: none"> <input type="checkbox"/> Protective sleeves <input type="checkbox"/> Ergonomic equipment <input type="checkbox"/> Other: _____ </td> </tr> </table>	<ul style="list-style-type: none"> <input type="checkbox"/> Gloves <input type="checkbox"/> Chemical resistance <input type="checkbox"/> Liquid/leak resistance <input type="checkbox"/> Temperature resistance <input type="checkbox"/> Abrasion/cut resistance <input type="checkbox"/> Slip resistance <input type="checkbox"/> Latex or nitrile <input type="checkbox"/> Anti-vibration 	<ul style="list-style-type: none"> <input type="checkbox"/> Protective sleeves <input type="checkbox"/> Ergonomic equipment <input type="checkbox"/> Other: _____
<ul style="list-style-type: none"> <input type="checkbox"/> Gloves <input type="checkbox"/> Chemical resistance <input type="checkbox"/> Liquid/leak resistance <input type="checkbox"/> Temperature resistance <input type="checkbox"/> Abrasion/cut resistance <input type="checkbox"/> Slip resistance <input type="checkbox"/> Latex or nitrile <input type="checkbox"/> Anti-vibration 	<ul style="list-style-type: none"> <input type="checkbox"/> Protective sleeves <input type="checkbox"/> Ergonomic equipment <input type="checkbox"/> Other: _____ 			

PERSONAL PROTECTIVE EQUIPMENT

PPE Hazard Assessment Certification Form (pg. 3)

FEET/LEGS

<p>Work activities, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> building maintenance <input type="checkbox"/> construction <input type="checkbox"/> demolition <input type="checkbox"/> food processing <input type="checkbox"/> foundry work <input type="checkbox"/> working outdoors 	<p>Work-related exposure to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> explosive atmospheres <input type="checkbox"/> explosives <input type="checkbox"/> exposed electrical wiring or components <input type="checkbox"/> heavy equipment <input type="checkbox"/> slippery surfaces <input type="checkbox"/> impact from objects <input type="checkbox"/> pinch points <input type="checkbox"/> slippery/wet surface 	<p>Work activities, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> logging <input type="checkbox"/> plumbing <input type="checkbox"/> trenching <input type="checkbox"/> use of highly flammable materials <input type="checkbox"/> welding <input type="checkbox"/> other:
<p>Can hazard be eliminated without the use of PPE?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, use:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Safety shoes or boots <input type="checkbox"/> Toe protection <input type="checkbox"/> Electrical protection <input type="checkbox"/> Puncture resistance <input type="checkbox"/> Anti-slip Soles 		
<p>Can hazard be eliminated without the use of PPE?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, use:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Leggings or chaps <input type="checkbox"/> Foot-Leg guards <input type="checkbox"/> Metatarsal protection <input type="checkbox"/> Heat/Cold protection <input type="checkbox"/> Chemical resistance <input type="checkbox"/> Other: 		

BODY/SKIN

<p>Work activities, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Baking or frying <input type="checkbox"/> battery charging <input type="checkbox"/> dip tank operations <input type="checkbox"/> fiberglass installation <input type="checkbox"/> sawing <input type="checkbox"/> other: 	<p>Work-related exposure to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> chemical splashes <input type="checkbox"/> extreme heat <input type="checkbox"/> extreme cold 	<p>Work activities, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> logging <input type="checkbox"/> use of highly flammable materials <input type="checkbox"/> welding <input type="checkbox"/> other:
<p>Can hazard be eliminated without the use of PPE?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, use:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Vest <input type="checkbox"/> Coveralls, Body suit <input type="checkbox"/> Raingear <input type="checkbox"/> Apron 		
<p>Can hazard be eliminated without the use of PPE?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, use:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Welding leathers <input type="checkbox"/> Abrasion/cut resistance <input type="checkbox"/> other: 		

BODY/WHOLE

<p>Work activities, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> building maintenance <input type="checkbox"/> construction <input type="checkbox"/> logging <input type="checkbox"/> computer work <input type="checkbox"/> working outdoors <input type="checkbox"/> utility work <input type="checkbox"/> other: 	<p>Work-related exposure to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> working from heights of 10 feet or more <input type="checkbox"/> impact from flying objects <input type="checkbox"/> impact from moving vehicles <input type="checkbox"/> sharps injury <input type="checkbox"/> blood <input type="checkbox"/> electrical/static discharge <input type="checkbox"/> hot metal <input type="checkbox"/> sparks 	<p>Work activities, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> logging <input type="checkbox"/> use of highly flammable materials <input type="checkbox"/> welding <input type="checkbox"/> other:
<p>Can hazard be eliminated without the use of PPE?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, use:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fall Arrest/Restraint <input type="checkbox"/> Traffic vest <input type="checkbox"/> Static coats/coveralls <input type="checkbox"/> Flame resistant jacket/pants <input type="checkbox"/> Insulated jacket <input type="checkbox"/> Cut-resistant sleeves/wristlets 		
<p>Can hazard be eliminated without the use of PPE?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, use:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hoists/Lift <input type="checkbox"/> ergonomic equipment <input type="checkbox"/> Other: <p style="text-align: center;">With</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hood <input type="checkbox"/> Full sleeves 		

PERSONAL PROTECTIVE EQUIPMENT

PPE Hazard Assessment Certification Form (pg. 4)		
LUNGS/RESPIRATORY		
<p>Work activities, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> cleaning <input type="checkbox"/> mixing <input type="checkbox"/> painting <input type="checkbox"/> fiberglass installation <input type="checkbox"/> compressed air or gas operations <input type="checkbox"/> confined space work 	<p>Work-related exposure to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> dust <input type="checkbox"/> particulate <input type="checkbox"/> toxic gas/vapor <input type="checkbox"/> chemical irritants (acids) <input type="checkbox"/> welding fume <input type="checkbox"/> asbestos <input type="checkbox"/> pesticides 	<p>Can hazard be eliminated without the use of PPE?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, use:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Disposable particulate respirator <input type="checkbox"/> Replaceable filter particulate w/cartridge <input type="checkbox"/> PAPR (air recycle) <input type="checkbox"/> PPSA (Air supply) <p>With:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Face shield <input type="checkbox"/> acid/gas crtg <input type="checkbox"/> organic crtg <input type="checkbox"/> pesticide crtg <input type="checkbox"/> spray paint crtg <input type="checkbox"/> half-faced <input type="checkbox"/> full-faced <input type="checkbox"/> hooded
EARS/HEARING		
<p>Work activities, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> generator <input type="checkbox"/> ventilation fans <input type="checkbox"/> motors <input type="checkbox"/> sanding <input type="checkbox"/> pneumatic equipment <input type="checkbox"/> punch or brake presses 	<p>Work-related exposure to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> loud noises <input type="checkbox"/> loud work environment <input type="checkbox"/> noisy machines/tools <input type="checkbox"/> punch or brake presses <input type="checkbox"/> other: 	<p>Can hazard be eliminated without the use of PPE?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, use:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Ear muffs <input type="checkbox"/> Ear plugs <input type="checkbox"/> Leather welding hood

POLICY

W M Painting Inc is committed to the safety and health of its employees. To identify and control hazards presented by products that contain materials, chemicals or components that may cause injury or illness in the workplace, W M Painting Inc has in place a Hazard Communication Program (HCP) to provide information to employees about any hazardous materials to which they are exposed.

If W M Painting Inc employees are exposed to any hazardous chemical, W M Painting Inc designates Wayne Mello to ensure a written HCP is created, communicated to all employees, and maintained according to all applicable regulations, standards and industry best practices.

All aspects of this policy and the W M Painting Inc Hazard Communication Program are subject to annual review by Wayne Mello and the safety committee to ensure the effectiveness of the policy, to guarantee a safe working environment for W M Painting Inc employees, and to reflect any regulatory changes to which the policy must respond.

The Hazard Communication Program (HCP) describes how W M Painting Inc will meet all applicable requirements regarding identifying hazardous chemicals, labeling under the GHS guidelines, providing availability of safety data sheets (SDSs), and employee information and training.

The HCP also will include the following:

- A list of chemicals (SDSs) in inventory known to present a hazard to W M Painting Inc employees
- Methods W M Painting Inc will use to inform employees of hazards presented by non-routine tasks
- Methods W M Painting Inc will use to inform employees of hazards associated with chemicals contained in unlabeled pipes in their work areas

RESPONSIBILITIES

Hazard communication is a cooperative effort between W M Painting Inc and its employees.

EMPLOYER RESPONSIBILITIES

- It is the responsibility of W M Painting Inc (through Wayne Mello) to:
- Establish a Hazard Communication Program if employees work with or around any potentially hazardous material
- Ensure that proper safeguards are in place to ensure the safety of personnel working with or around hazardous chemicals
- Ensure that every employee can readily access a list of hazardous chemicals that exist in the workplace, as well as information on the hazards they present (safety data sheets)
- Ensure all hazardous chemicals in the workplace are labeled and have a complete safety data sheet on file
- Ensure all employees are trained on the Hazard Communication Program (HCP)
- Provide support for the implementation of HCP; and
- Review the HCP at least annually to evaluate the effectiveness of the program
- Report the use of known carcinogens to the state OSHA division as required.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the W M Painting Inc safety committee to:

- Assist in the creation and implementation of the W M Painting Inc Hazard Communication Program
- Assist in the development and delivery of HCP training
- Identify issues of non-compliance and hazards related to the use of hazardous chemicals
- Recommend steps to promote safety compliance and adherence to all safety and health policy
- Provide an avenue for employees to share concerns and recommend changes regarding chemicals in the workplace to help ensure a safer work environment

EMPLOYEE RESPONSIBILITIES

Every W M Painting Inc employee is expected to:

- Follow safety policy and adhere to all precautions and safety requirements when working with or around hazardous chemicals
- Understand the hazards of the chemicals in the workplace by reviewing Safety Data Sheets before using any hazardous chemical
- Understand how to lessen or prevent exposure to hazardous chemicals through safe work practices and use of personal protective equipment
- Understand emergency procedures in the event of exposure to these chemicals
- Verify the proper labeling of chemicals at the worksite, and the presence of SDSs for each
- Report any deficiencies in hazard communication as soon as safely possible to his or her supervisor
- Attend and participate actively in safety trainings

TRAINING

W M Painting Inc will provide training covering all aspects of the Hazard Communication Program. W M Painting Inc will provide training on hazardous chemicals in their employee's work area at the time of assignment and whenever a new hazard is introduced to their work area.

All employees who may be exposed to hazardous chemicals under normal operating conditions while performing their job duties in their assigned work areas must receive training. W M Painting Inc may design training or use training designed to cover categories of hazards or specific chemicals.

The HCP will be made available upon request to any employee (or their designated representatives) and any regulatory official with the authority to demand it.

TRAINING COMPONENTS

Wayne Mello will ensure that all employees at W M Painting Inc are informed and trained in the following minimum elements for hazard communication:

- The requirements of regulatory bodies, industry standards and best safety practices regarding specific chemicals
- Operations in the employee's work area that involve hazardous chemicals
- Physical, health, simple asphyxiation, combustible dust, and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area
- Reading and understanding hazardous chemical labeling, including pictograms, signal words, hazard statements, and precautionary statements
- The availability and location of the written HCP, list of hazardous chemicals, and safety data sheets (SDSs)
- How to detect the presence or release of a hazardous chemical in the work area
- The classified and unclassified hazards of chemicals in the work area
 - The Globally Harmonized System of Classification (GHS) determines if a substance or mixture meets their criteria for a hazardous substance, meaning harmful to the environment or to humans. OSHA has adopted the GHS classification of chemicals. Those substances that are identified as hazardous are referred to as Classified. Substances that have not yet been classified are referred to as 'Hazards Not Otherwise Classified' (HNOC) or Unclassified.
- Measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented for employee protection
- The details of the HCP, including an explanation of all labels and SDSs, and how employees can obtain and use the appropriate hazard information. Training must include the order of information on the SDS and how to obtain and use the hazard information.

TRAINING RECORDS

- Training records will include the following information:
 - Dates of the training sessions
 - Contents or a summary of the training sessions
 - Names and qualifications of persons conducting the training
 - Names and job titles of all persons attending the training sessions
- W M Painting Inc will maintain employee training records for 3 years from the date on which training occurred.

HAZARD DETERMINATION & COMMUNICATION

W M Painting Inc will rely on the evaluation of the chemical manufacturer or importer of any hazardous chemicals at the worksite to provide the identifying labels and safety data information required for the HCP.

LABELS

The GHS does not specify a label format or layout, but requires the inclusion of several elements. All hazardous material containers at W M Painting Inc will be labeled, tagged, or marked with the following:

- 1. Product Identifier.** The product identifier must match the identifier on the safety data sheet and include the chemical identity of the substance or ingredients in a mixture that contribute to the product's hazards.
- 2. Pictograms.** Pictograms are combinations of graphical elements that convey information about the product's hazards. GHS hazard pictograms are a black symbol on a white field within a red diamond.
- 3. Signal Word.** Signal words indicate the severity of the product's hazard. "Danger" indicates severe hazards while "Warning" indicates less severe hazards.
- 4. Hazard Statements.** Hazard statements are assigned based on the nature of the product's hazards.
- 5. Precautionary Statements.** Precautionary statements inform the reader about how to prevent or minimize the negative effects of storing or handling the product unsafely. They fall into four categories: prevention, response, storage, and disposal.
- 6. Supplier Identification.** The supplier identification includes the name, address, and telephone number that can be used to locate or communicate with the manufacturer or supplier.

Other Elements: GHS permits competent authorities to require or allow additional information and specify where it must be presented on the product label as long as it does not impede, contradict, or confuse the standard information. Examples include transport pictograms, precautionary pictograms, first-aid recommendations, universal product codes, general usage information, etc.

HAZARD COMMUNICATION

For unclassified hazards, the label requires supplementary information, a description of the unclassified hazards and appropriate precautionary measures to ensure safe handling and use.

- Alternatively, hazardous material containers at W M Painting Inc can be marked with the product identifier and words, pictures, symbols, or combination thereof, to provide at least general information regarding the hazards of the chemicals. Labeling is done in conjunction with other information immediately available to employees under the HCP to provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.
- In lieu of affixing labels to individual containers, the W M Painting Inc HCP may rely on signs, placards, process sheets, batch tickets, operating procedures or similar written materials, as long as the alternative method provides workers with the same information. See the signage provisions of the National Fire Protection Association contained in NFPA 704 – Standard System for the Identification of the Hazards of Materials for Emergency Response, 2007.
- A container for a hazardous substance into which the substance has been transferred for immediate use does not have to be labeled. Labels are necessary, however, for any container that is stored.
- No employee will remove or deface labels or other forms of warnings.
- W M Painting Inc will ensure every label is legible in English, but may present the chemical's hazard information in another language, as long as it is also present in English.
- Do not make available any container known to have contained a hazardous substance unless the container has been thoroughly cleaned to remove all traces of any hazardous substance, except where the container is refilled with the same substance.
- Ensure that every container is correctly labeled with regard to its contents.

SAFETY DATA SHEETS

W M Painting Inc will continuously compile and keep at the workplace a list of all known hazardous chemicals that are present

The GHS does not specify a specific format or layout for the data sheet, but requires the inclusion of several elements, which will include the following section numbers and headings, and the information about the chemical associated with each:

- Section 1, Identification
- Section 2, Hazard(s) identification
- Section 3, Composition/information on ingredients
- Section 4, First-aid measures
- Section 5, Fire-fighting measures
- Section 6, Accidental release measures
- Section 7, Handling and storage
- Section 8, Exposure controls/personal protection
- Section 9, Physical and chemical properties
- Section 10, Stability and reactivity
- Section 11, Toxicological information
- Section 12, Ecological information
- Section 13, Disposal considerations
- Section 14, Transport information
- Section 15, Regulatory information
- Section 16, Other information, including date of preparation or last revision.

A sample SDS form is included at the end of this chapter

EMERGENCY PLANNING

Facilities that maintain Extremely Hazardous Substances (EHS) on-site in quantities greater than corresponding threshold planning quantities must cooperate in emergency plan preparation with local/state governments. Local governments are required to prepare chemical emergency response plans, and to review plans at least annually. State governments are required to oversee and coordinate local planning efforts.

For a complete list of related requirements, see the Emergency Planning and Community Right-to-Know Act (EPCRA), passed by Congress in 1986. This section, and the two that follow, contain the major provisions of the EPCRA.

REPORTING

Facilities must immediately report to state and local officials accidental releases of EHS chemicals and "hazardous substances" in quantities greater than corresponding Reportable Quantities (RQs) defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Information about accidental chemical releases must also be available to the public.

The EPA requires facilities that manufacture, use, or store 500 pounds or the Threshold Planning Quantity (whichever is less), of an extremely hazardous substance (EHS), report to state and local officials, and to local fire departments, inventories of all on-site chemicals for which safety data sheets exist. Facilities that manufacture, use, or store 10,000 pounds of any hazardous chemical must also follow the same reporting procedures (gasoline and diesel fuel are the only hazardous chemicals to have higher threshold levels).

Facilities, as applicable, must complete and submit a toxic chemical release inventory form (Form R) annually. Form R must be submitted for each of the over 600 TRI chemicals that are manufactured or otherwise used above the applicable threshold quantities.

COMMUNITY RIGHT TO KNOW

In addition to providing employees with information regarding the hazards of chemicals in the workplace, employers must also, upon request, inform members of the public about the health and environmental hazards posed by stored or released chemicals. The public is also entitled to know the approximate quantities of chemicals stored or released at a given workplace. If an employer denies a reasonable request, the requesting party may then file an application for information with the state agency that has jurisdiction, or federal OSHA.

HAZARD CONTROL

Employers must protect workers against the potential negative health effects of exposure to hazardous substances by ensuring employees use respirators and appropriate equipment if they are, or may be, exposed to substances at levels above permissible exposure limits (PELs).

PERMISSIBLE EXPOSURE LIMITS (PELs)

Approximately 500 PELs have been established by OSHA as part of 29 CFR 1910.1000 (see tables Z-1 and Z-2). Companies should meet the standards for the 1988/1989 updated OSHA PELs, and should also check to see if their state OSHA (if applicable) has more stringent standards for specific hazardous substances.

MULTI-EMPLOYER WORKPLACES

If hazardous chemicals present risk to employees of another employer, W M Painting Inc will ensure the HCP includes the methods to do the following for the other employers on the site:

- Provide onsite access to SDSs for each hazardous chemical to which their employees may be exposed
- Inform them of any precautionary measures that need to be taken for worker protection during normal operating conditions and foreseeable emergencies
- Inform them of the labeling system used in the workplace

MULTIPLE WORKPLACES

If employees must travel between workplaces during a shift, W M Painting Inc may keep the HCP at only the primary workplace facility.

NON-ROUTINE TASKS

Before employees begin work on hazardous non-routine tasks, the appropriate supervisor will give affected employees information about hazardous chemicals to which the employee may be exposed during such activity. This information will include the following:

- Specific chemical hazards
- Protective/safety measures employees can take
- Measures W M Painting Inc has taken to reduce the hazards

HAZARDOUS CHEMICALS IN UNLABELED PIPES

If there are hazards associated with chemicals in the piping system in the work area, a supervisor must inform employees working around the pipes and provide information about the chemical and its hazards. Labels to relay this information are good practice for workplaces that transport potentially hazardous chemicals through pipes, and may be required by other regulations.

Standards for labeling pipes in the workplace can be found in ANSI A13.1-2007.

FORMS & ATTACHMENTS

Please find on the following pages the below documents, which may be reproduced freely by W M Painting Inc for the purposes of implementing and maintaining a safety and health program.

- Hazardous Chemical labels
- Chemicals Known to Present a Hazard form
- Sample SDS form

HAZARD COMMUNICATION

Hazardous Chemical Label

***HAZARDOUS
CHEMICAL***

NAME OF CHEMICAL:

Physical Hazards:

Health Hazards, Target Organs, or Systems:

Optional Information, such as Personal Protective Equipment or Safe Handling:

***HAZARDOUS
CHEMICAL***

NAME OF CHEMICAL:

Physical Hazards:

Health Hazards, Target Organs, or Systems:

Optional Information, such as Personal Protective Equipment or Safe Handling:

***HAZARDOUS
CHEMICAL***

NAME OF CHEMICAL:

Physical Hazards:

Health Hazards, Target Organs, or Systems:

Optional Information, such as Personal Protective Equipment or Safe Handling:

***HAZARDOUS
CHEMICAL***

NAME OF CHEMICAL:

Physical Hazards:

Health Hazards, Target Organs, or Systems:

Optional Information, such as Personal Protective Equipment or Safe Handling:

SAFETY DATA SHEET — 16 Sections

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier			[WHMIS Classification]		
Product Use					
Manufacturer's Name			Supplier's Name		
Street Address			Street Address		
City		Province	City		Province
Postal Code	Emergency Telephone		Postal Code		Emergency Telephone
Date SDS Prepared		SDS Prepared By		Phone Number	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients (<i>specific</i>)	%	CAS Number	LD 50 of Ingredient <i>(specify species and route)</i>	LC 50 of Ingredient <i>(specify species)</i>

SECTION 3 — HAZARDS IDENTIFICATION

Route of Entry <input type="checkbox"/> Skin Contact <input type="checkbox"/> Skin Absorption <input type="checkbox"/> Eye Contact <input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion
[Emergency Overview]
WHMIS Symbols
Potential Health Effects

SECTION 4 — FIRST AID MEASURES

Skin Contact
Eye Contact
Inhalation
Ingestion

SECTION 5 — FIRE FIGHTING MEASURES

Flammable <input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, under which conditions?	
Means of Extinction		
Flashpoint (° C) and Method	Upper Flammable Limit (% by volume)	Lower Flammable Limit (% by volume)
Autoignition Temperature (°C)	Explosion Data — Sensitivity to Impact	Explosion Data — Sensitivity to Static Discharge
Hazardous Combustion Products		
[NFPA]		

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Leak and Spill Procedures

SECTION 7 — HANDLING AND STORAGE

Handling Procedures and Equipment
Storage Requirements

SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits <input type="checkbox"/> ACGIH TLV <input type="checkbox"/> OSHA PEL <input type="checkbox"/> Other (<i>specify</i>
Specific Engineering Controls (<i>such as ventilation, enclosed process</i>)
Personal Protective Equipment <input type="checkbox"/> Gloves <input type="checkbox"/> Respirator <input type="checkbox"/> Eye <input type="checkbox"/> Footwear <input type="checkbox"/> Clothing <input type="checkbox"/> Other
If checked, please specify type

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Odor and Appearance	Odor Threshold (ppm)
Specific Gravity	Vapor Density (air = 1)	Vapor Pressure (mmHg)
Evaporation Rate	Boiling Point (° C)	Freezing Point (° C)
pH	Coefficient of Water/Oil Distribution	[Solubility in Water]

SECTION 10 — STABILITY AND REACTIVITY

Chemical Stability <input type="checkbox"/> Yes <input type="checkbox"/> No	If no, under which conditions?
Incompatibility with Other Substances <input type="checkbox"/> Yes <input type="checkbox"/> No	If yes, which ones?
Reactivity, and under what conditions?	
Hazardous Decomposition Products	

SECTION 11 — TOXICOLOGICAL INFORMATION

Effects of Acute Exposure	
Effects of chronic exposure	
Irritancy of Product	
Skin sensitization	Respiratory sensitization
Carcinogenicity-IARC	Carcinogenicity - ACGIH
Reproductive toxicity	Teratogenicity
Embrototoxicity	Mutagenicity
Name of synergistic products/effects	

SECTION 12 — ECOLOGICAL INFORMATION

[Aquatic Toxicity]

SECTION 13 — DISPOSAL CONSIDERATIONS

Waste Disposal

SECTION 14 — TRANSPORT INFORMATION

Special Shipping Information	
	PIN
TDG	[DOT]
[IMO]	[ICAO]

SECTION 15 — REGULATORY INFORMATION

[WHMIS Classification]	[OSHA]
[SERA]	[TSCA]
<i>This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.</i>	

SECTION 16 — OTHER INFORMATION

POLICY

W M Painting Inc has established this electrical safety policy to protect all employees from the hazards of working with and around electricity. This policy is intended for employees who may be exposed to electrical hazards on the job. Employees who are qualified and assigned the duties of performing electrical work should refer to the “Electrical Work” chapter of this manual for additional information. Qualified workers (electrical trade workers) require additional training and or certification.

Many workers in manufacturing and construction deal with potential electrical hazards when working with power equipment and tools, but office personnel and others can also be exposed to these hazards. For that reason, all employees must be trained on electrical hazards and how to avoid them.

RESPONSIBILITIES

EMPLOYER RESPONSIBILITY

W M Painting Inc will ensure:

- All tools and equipment will meet the required safety standards
- Approved personal protective equipment will be provided to employees as needed
- A written electrical safety program will be created and all employees will be trained on the program

SAFETY COMMITTEE RESPONSIBILITIES

If W M Painting Inc has established a safety committee, it will be responsible for:

- Assisting in the creation and implementation of the W M Painting Inc electrical safety program
- Assisting in the development and delivery of electrical safety training
- Identifying issues of non-compliance and hazards related to the use electrical equipment
- Recommending steps to promote safety compliance and adherence to all safe work practices
- Providing an avenue for employees to share concerns and recommend changes regarding electrical safety in the workplace to help ensure a safer work environment

GENERAL ELECTRICAL SAFETY

EMPLOYEE RESPONSIBILITIES

Every W M Painting Inc employee is expected to:

- Follow safe work practices and adhere to all precautions and safety requirements when working with or around electrical equipment or circuits
- Understand how to lessen or prevent exposure to electrical hazards through safe work practices and use of personal protective equipment
- Use only hand tools, electric tools, extension cords, and other equipment that is in good repair.
- De-energize electric power circuits and/or equipment before working near, inspecting, or making repairs.
- Understand emergency procedures in the event of an electrical accident
- Report any potential electrical hazards as soon as safely possible to his or her supervisor
- Attend and participate actively in safety trainings
- Exercise good judgment when working near energized lines (including underground and overhead lines). Comply with OSHA regulations and the National Electric Code, NFPA 70 (2015).

HAZARDS

ELECTRICAL SHOCK

An electrical shock is received when electrical current passes through the body. Current will pass through the body in a variety of situations. Whenever two wires are at different voltages, current will pass between them if they are connected. Your body can connect the wires if you touch both of them at the same time. Current will pass through your body.

The severity of injury from electrical shock depends on the amount of electrical current and the length of time the current passes through the body. For example, $\frac{1}{10}$ of an ampere (amp) of electricity going through the body for just 2 seconds is enough to cause death. The amount of internal current a person can withstand and still be able to control the muscles of the arm and hand can be less than 10 milliamperes (milliamps or mA).

GENERAL ELECTRICAL SAFETY

The table below shows what usually happens for a range of currents (lasting one second) at typical household voltages. Longer exposure times increase the danger to the shock victim. For example, a current of 100 mA applied for 3 seconds is as dangerous as a current of 900 mA applied for a fraction of a second (0.03 seconds). The muscle structure of the person also makes a difference. People with less muscle tissue are typically affected at lower current levels. Even low voltages can be extremely dangerous because the degree of injury depends not only on the amount of current but also on the length of time the body is in contact with the circuit.

LOW VOLTAGE DOES NOT MEAN LOW HAZARD!

Effects of Electrical Current* on the Body	
Current	Reaction
1 milliamp	Just a faint tingle.
5 milliamps	Slight shock felt. Disturbing, but not painful. Most people can “let go.” However, strong involuntary movements can cause injuries.
6–25 milliamps (women)† 9–30 milliamps (men)	Painful shock. Muscular control is lost. This is the range where “freezing currents” start. It may not be possible to “let go.”
50–150 milliamps	Extremely painful shock, respiratory arrest (breathing stops), severe muscle contractions. Flexor muscles may cause holding on; extensor muscles may cause intense pushing away. Death is possible.
1,000–4,300 milliamps (1–4.3 amps)	Ventricular fibrillation (heart pumping action not rhythmic) occurs. Muscles contract; nerve damage occurs. Death is likely.
10,000 milliamps (10 amps)	Cardiac arrest and severe burns occur. Death is probable.
15,000 milliamps (15 amps)	Lowest over-current at which a typical fuse or circuit breaker opens a circuit!
*Effects are for voltages less than about 600 volts. Higher voltages also cause severe burns. †Differences in muscle and fat content affect the severity of shock.	

ELECTRICAL BURNS

The most common shock-related, nonfatal injury is a burn. Burns caused by electricity may be of three types: electrical burns, arc burns, and thermal contact burns. Electrical burns can result when a person touches electrical wiring or equipment that is used or maintained improperly. Typically, such burns occur on the hands. Electrical burns are one of the most serious injuries you can receive. They need to be given immediate attention. Additionally, clothing may catch fire and a thermal burn may result from the heat of the fire.

GENERAL ELECTRICAL SAFETY

Arc-blasts occur when powerful, high-amperage currents arc through the air. Arcing is the luminous electrical discharge that occurs when high voltages exist across a gap between conductors and current travels through the air. This situation is often caused by equipment failure due to abuse or fatigue. Temperatures as high as 35,000°F have been reached in arc-blasts.

Arc blast, or arc flash, usually occurs when working on or near high voltage sources. This work should only be performed by a qualified person.* Additional information on this topic is available in the Arc Flash chapter (if included) in this manual.

* OSHA defines a “qualified person” as someone who has received mandated training on the hazards and on the construction and operation of equipment involved in a task.

ELECTRICAL FIRES

Electricity is one of the most common causes of fires and thermal burns in homes and workplaces. Defective or misused electrical equipment is a major cause of electrical fires. If there is a small electrical fire, be sure to use only a Class C or multipurpose (ABC) fire extinguisher, or you might make the problem worse.

All fire extinguishers are marked with letter(s) that tell you the kinds of fires they can put out. Some extinguishers contain symbols, too.

Thermal burns may result if an explosion occurs when electricity ignites an explosive mixture of material in the air. This ignition can result from the buildup of combustible vapors, gasses, or dusts. Occupational Safety and Health Administration (OSHA) standards, the NEC, and other safety standards give precise safety requirements for the operation of electrical systems and equipment in such dangerous areas. Ignition can also be caused by overheated conductors or equipment, or by normal arcing at switch contacts or in circuit breakers.

PREVENTING ELECTRICAL ACCIDENTS

To prevent electrical accidents, W M Painting Inc will take the following steps:

- Establish proper rules and procedures on working around electrical control cabinets without getting hurt
- Make sure all employees know the importance of de-energizing (shutting off) electrical sources before performing repairs
- Equip voltage-regulating equipment with color-coded wiring
- Ensure that all workers are trained in CPR
- Prevent injuries and deaths by remembering the following points:
 - Test electrical circuits to make sure that they are de-energized before performing any work
Note: only qualified personnel can perform work on circuits, including testing
 - Be sure to lock out and tag out circuits so they cannot be re-energized
 - Always assume a conductor is dangerous

PERSONAL PROTECTIVE EQUIPMENT

Employees who are not working directly on energized parts, equipment, or circuits may still be required to wear PPE to prevent the risk of electrical injury. This equipment must meet OSHA/ANSI requirements and be appropriate for the parts of the body that need protection and the work performed. When working near electrical circuits, or on equipment that could become energized, employees should:

- Wear electrically protective gloves
- Wear insulated shoes
- Use only insulated tools

FIRST AID FOR ELECTRICAL INJURIES

If a co-worker is shocked or burned by electricity, the following actions need to be taken.

Shut off the electrical current if the victim is still in contact with the energized circuit. While you do this, have someone else call for help. If you cannot get to the switchgear quickly, pry the victim from the circuit with something that does not conduct electricity such as dry wood. Do not touch the victim yourself if he or she is still in contact with an electrical circuit! You do not want to be a victim, too!

Do not leave the victim unless there is absolutely no other option. You should stay with the victim while Emergency Medical Services (EMS) is contacted. The caller should come back to you afterwards to verify that the call was made. If the victim is not breathing, does not have a heartbeat, or is badly injured, quick response by a team of emergency medical technicians (EMT's) or paramedics gives the best chance for survival.

Once you know that electrical current is no longer flowing through the victim, call out to the victim to see if he or she is conscious (awake). If the victim is conscious, tell the victim not to move. It is possible for a shock victim to be seriously injured but not realize it. Quickly examine the victim for signs of major bleeding. If there is a lot of bleeding, place a cloth (such as a handkerchief or bandanna) over the wound and apply pressure. If the wound is in an arm or leg and keeps bleeding a lot, gently elevate the injured area while keeping pressure on the wound. Keep the victim warm and talk to him or her until help arrives.

If the victim is unconscious, check for signs of breathing. While you do this, move the victim as little as possible. If the victim is not breathing, someone trained in CPR should begin artificial breathing, then check to see if the victim has a pulse.

GENERAL ELECTRICAL SAFETY

Quick action is essential! To be effective, CPR must be performed within 4 minutes of the shock. If you are not trained in CPR or first aid, now is the time to get trained—before you find yourself in this situation! Ask your supervisor how you can become certified in CPR.

You also need to know the location of:

- Electricity shut-offs (“kill switches”).
- First-aid supplies.
- A telephone so you can find them quickly in an emergency.

CREATE A SAFE WORK ENVIRONMENT

A safe work environment is created by controlling contact with electrical voltages and the currents they can cause. Electrical currents need to be controlled so they do not pass through the body. In addition to preventing shocks, a safe work environment reduces the chance of fires, burns, and falls.

You need to guard against contact with electrical voltages and control electrical currents in order to create a safe work environment.

A safe work environment is not enough to control all electrical hazards. You must also work safely. Safe work practices help you control your risk of injury or death from workplace hazards. If you are working on electrical circuits or with electrical tools and equipment, you need to use safe work practices.

Before you begin a task, ask yourself:

What could go wrong?

Do I have the knowledge, tools, and experience to do this work safely?

All workers should be very familiar with the safety procedures for their jobs. You must know how to use specific controls that help keep you safe. You must also use good judgment and common sense.

GENERAL ELECTRICAL SAFETY

Make your environment safer by doing the following:

- Treat all conductors—even “de-energized” ones—as if they are energized until they are locked out and tagged.
- Lock out and tag out circuits and machines.
- Prevent overloaded wiring by using the right size and type of wire.
- Prevent exposure to live electrical parts by isolating them.
- Prevent exposure to live wires and parts by using insulation.
- Prevent shocking currents from electrical systems and tools by grounding them.
- Prevent shocking currents by using GFCIs.
- Prevent too much current in circuits by using overcurrent protection devices.

ELEMENTS OF ELECTRICAL SAFETY

W M Painting Inc employees will use the three-stage approach to safety: recognize, evaluate, and control hazards. To be safe, you must think about your job and plan for hazards. To avoid injury or death, you must understand and recognize hazards. You need to evaluate the situation you are in and assess your risks. You need to control hazards by creating a safe work environment, by using safe work practices, and by reporting hazards to a supervisor. If you do not recognize, evaluate, and control hazards, you may be injured or killed by the electricity itself, electrical fires, or falls.

RECOGNIZE HAZARDS

The first part of the safety model is recognizing the hazards around you. Only then, can you avoid or control the hazards. It is best to discuss and plan hazard recognition tasks with your co-workers. Sometimes others see hazards that we overlook. Of course, it is possible to be talked out of our concerns by someone who is reckless or dangerous. Do not take a chance. Careful planning of safety procedures reduces the risk of injury.

Knowing where to look helps you to recognize hazards.

- Inadequate wiring is dangerous.
- Exposed electrical parts are dangerous.
- Overhead power-lines are dangerous.
- Wires with bad insulation can give you a shock.
- Electrical systems and tools that are not grounded or double-insulated are dangerous.
- Damaged power tools and equipment are electrical hazards.
- Using the wrong PPE is dangerous.
- Using the wrong tool is dangerous.
- Some on-site chemicals are harmful.
- Defective ladders and scaffolding are dangerous.
- Ladders that conduct electricity are dangerous.
- Electrical hazards can be made worse if the worker, location, or equipment is wet.
- Overloaded circuits are dangerous

HAZARD INDICATORS

- Tripped circuit breakers and blown fuses show that too much current is flowing in a circuit. This condition could be due to several factors, such as malfunctioning equipment or a short between conductors. You need to determine the cause in order to control the hazard.
- An electrical tool, appliance, wire, or connection that feels warm may indicate too much current in the circuit or equipment. A qualified person should evaluate the situation.
- An extension cord that feels warm may indicate too much current for the wire size of the cord. You must decide when action needs to be taken.
- A cable, fuse box, or junction box that feels warm may indicate too much current in the circuits.
- A burning odor may indicate overheated insulation.
- Worn, frayed, or damaged insulation around any wire or other conductor is an electrical hazard because the conductors could be exposed. Contact with an exposed wire could cause a shock. Damaged insulation could cause a short, leading to arcing or a fire. Inspect all insulation for scrapes and breaks. You need to evaluate the seriousness of any damage you find and decide how to deal with the hazard.
- A GFCI that trips indicates there is current leakage from the circuit. First, you must decide the probable cause of the leakage by recognizing any contributing hazards. Then, you must decide what action needs to be taken.

Any of these conditions, or “clues,” tell you something important: There is a risk of fire and electrical shock. The equipment or tools involved must be avoided. You will frequently be caught in situations where you need to decide if these clues are present. A supervisor needs to be called if there are signs of overload and you are not sure of the degree of risk. Ask for help whenever you are not sure what to do. By asking for help, you will protect yourself and others.

EVALUATE HAZARDS

After you recognize a hazard, your next step is to evaluate your risk from the hazard. Obviously, exposed wires should be recognized as a hazard. If the exposed wires are 15 feet off the ground, your risk is low. However, if you are going to be working on a roof near those same wires, your risk is high. The risk of shock is greater if you will be carrying metal conduit that could touch the exposed wires. You must constantly evaluate your risk.

Combinations of hazards increase your risk. Improper grounding and a damaged tool greatly increase your risk. Wet conditions combined with other hazards also increase your risk. You will need to make decisions about the nature of hazards in order to evaluate your risk and do the right thing to remain safe.

GENERAL ELECTRICAL SAFETY

There are “clues” that electrical hazards exist. For example, if a GFCI keeps tripping while you are using a power tool, there is a problem. Do not keep resetting the GFCI and continue to work. You must evaluate the “clue” and decide what action should be taken to control the hazard.

CONTROL HAZARDS

Once electrical hazards have been recognized and evaluated, they must be controlled.

In order to control hazards, you must first create a safe work environment, and then work in a safe manner. Generally, it is best to remove the hazards altogether and create an environment that is truly safe. When OSHA regulations and the NEC are followed, safe work environments are created.

However, you never know when materials or equipment might fail. Prepare yourself for the unexpected by using safe work practices. Use as many safeguards as possible. If one fails, another may protect you from injury or death.

Controlling electrical hazards (as well as other hazards) reduces the risk of injury or death.

HAZARD TYPES

WIRING HAZARDS

An electrical hazard exists when the wire is too small a gauge for the current it will carry. Normally, the circuit breaker in a circuit is matched to the wire size. However, in older wiring, branch lines to permanent ceiling light fixtures could be wired with a smaller gauge than the supply cable.

For example, let's say a light fixture is replaced with another device that uses more current. The current capacity (ampacity) of the branch wire could be exceeded. When a wire is too small for the current it is supposed to carry, the wire will heat up. The heated wire could cause a fire.

When you use an extension cord, the size of the wire you are placing into the circuit may be too small for the equipment. The circuit breaker could be the right size for the circuit but not right for the smaller-gauge extension cord. A tool plugged into the extension cord may use more current than the cord can handle without tripping the circuit breaker. The wire will overheat and could cause a fire.

The kind of metal used as a conductor can cause an electrical hazard. Special care needs to be taken with aluminum wire. Since it is more brittle than copper, aluminum wire can crack and break more easily. Connections with aluminum wire can become loose and oxidize if not made properly, creating heat or arcing. You need to recognize that inadequate wiring is a hazard.

GENERAL ELECTRICAL SAFETY

EXPOSED ELECTRICAL PARTS HAZARDS

Electrical hazards exist when wires or other electrical parts are exposed. Wires and parts can be exposed if a cover is removed from a wiring or breaker box. The overhead wires coming into a home may be exposed. Electrical terminals in motors, appliances, and electronic equipment may be exposed. Older equipment may have exposed electrical parts. If you contact exposed live electrical parts, you will be shocked. You need to recognize that an exposed electrical component is a hazard.

OVERHEAD POWER-LINE HAZARDS

Most people do not realize that overhead power-lines are usually not insulated. More than half of all electrocutions are caused by direct worker contact with energized power-lines. Power-line workers must be especially aware of the dangers of overhead lines. In the past, 80% of all lineman deaths were caused by contacting a live wire with a bare hand. Due to such incidents, all linemen now wear special rubber gloves that protect them up to 34,500 volts. Today, most electrocutions involving overhead power-lines are caused by failure to maintain proper work distances.

Shocks and electrocutions occur where physical barriers are not in place to prevent contact with the wires. When dump trucks, cranes, work platforms, or other conductive materials (such as pipes and ladders) contact overhead wires, the equipment operator or other workers can be killed. If you do not maintain required clearance distances from power-lines, you can be shocked and killed. (The minimum distance for voltages up to 50kV is 10 feet. For voltages over 50kV, the minimum distance is 10 feet plus 4 inches for every 10 kV over 50kV.) Never store materials and equipment under or near overhead power-lines. You need to recognize that overhead power-lines are a hazard.

DEFECTIVE INSULATION HAZARDS

Insulation that is defective or inadequate is an electrical hazard. Usually, a plastic or rubber covering insulates wires. Insulation prevents conductors from coming in contact with each other. Insulation also prevents conductors from coming in contact with people.

Extension cords may have damaged insulation. Sometimes the insulation inside an electrical tool or appliance is damaged. When insulation is damaged, exposed metal parts may become energized if a live wire inside touches them.

Electric hand tools that are old, damaged, or misused may have damaged insulation inside. If you touch damaged power tools or other equipment, you will receive a shock. You are more likely to receive a shock if the tool is not grounded or double-insulated. (Double-insulated tools have two insulation barriers and no exposed metal parts.) You need to recognize that defective insulation is a hazard.

GENERAL ELECTRICAL SAFETY

IMPROPER GROUNDING HAZARDS

When an electrical system is not grounded properly, a hazard exists. The most common OSHA electrical violation is improper grounding of equipment and circuitry. The metal parts of an electrical wiring system that we touch (switch plates, ceiling light fixtures, conduit, etc.) should be grounded and at 0 volts. If the system is not grounded properly, these parts may become energized. Metal parts of motors, appliances, or electronics that are plugged into improperly grounded circuits may be electrified. When a circuit is not grounded properly, a hazard exists because unwanted voltage cannot be safely eliminated. If there is no safe path to ground for fault currents, exposed metal parts in damaged appliances can become energized.

Extension cords may not provide a continuous path to ground because of a broken ground wire or plug. If you come in contact with a defective electrical device that is not grounded or grounded improperly), you will be shocked. You need to recognize that an improperly grounded electrical system is a hazard.

Electrical systems are often grounded to metal water pipes that serve as a continuous path to ground. If plumbing is used as a path to ground for fault current, all pipes must be made of conductive material (a type of metal). Many electrocutions and fires occur because (during renovation or repair) parts of metal plumbing are replaced with plastic pipe, which does not conduct electricity. In these cases, the path to ground is interrupted by nonconductive material.

A ground fault circuit interrupter, or GFCI, is an inexpensive lifesaver. GFCIs detect any difference in current between the two circuit wires (the black wires and white wires). This difference in current can occur when electrical equipment is not working correctly, causing leakage current. If leakage current (a ground fault) is detected in a GFCI-protected circuit, the GFCI switches off the current in the circuit, protecting you from a dangerous shock. GFCIs are set at about 5 mA and are designed to protect workers from electrocution. GFCIs are able to detect the loss of current resulting from leakage through a person who is beginning to be shocked.

If this situation occurs, the GFCI switches off the current in the circuit. GFCIs are different from circuit breakers because they detect leakage currents rather than overloads. Circuits with missing, damaged, or improperly wired GFCIs may allow you to be shocked. You need to recognize that a circuit improperly protected by a GFCI is a hazard.

OVERLOAD HAZARDS

Overloads in an electrical system are hazardous because they can produce heat or arcing. Wires and other components in an electrical system or circuit have a maximum amount of current they can carry safely. If too many devices are plugged into a circuit, the electrical current will heat the wires to a very high temperature. If anyone tool uses too much current, the wires will heat up. The temperature of the wires can be high enough to cause a fire. If their insulation melts, arcing may occur. Arcing can cause a fire in the area where the overload exists, even inside a wall.

GENERAL ELECTRICAL SAFETY

In order to prevent too much current in a circuit, a circuit breaker or fuse is placed in the circuit. If there is too much current in the circuit, the breaker “trips” and opens like a switch. If an overloaded circuit is equipped with a fuse, an internal part of the fuse melts, opening the circuit. Both breakers and fuses do the same thing: open the circuit to shut off the electrical current.

If the breakers or fuses are too big for the wires they are supposed to protect, an overload in the circuit will not be detected and the current will not be shut off. Overloading leads to overheating of circuit components (including wires) and may cause a fire. You need to recognize that a circuit with improper overcurrent protection devices—or one with no overcurrent protection devices at all—is a hazard.

Overcurrent protection devices are built into the wiring of some electric motors, tools, and electronic devices. For example, if a tool draws too much current or if it overheats, the current will be shut off from within the device itself. Damaged tools can overheat and cause a fire. You need to recognize that a damaged tool is a hazard.

WET CONDITIONS HAZARDS

Working in wet conditions is hazardous because you may become an easy path for electrical current. If you touch a live wire or other electrical component—and you are well-grounded because you are standing in even a small puddle of water—you will receive a shock.

Damaged insulation, equipment, or tools can expose you to live electrical parts. A damaged tool may not be grounded properly, so the housing of the tool may be energized, causing you to receive a shock. Improperly grounded metal switch plates and ceiling lights are especially hazardous in wet conditions. If you touch a live electrical component with an uninsulated hand tool, you are more likely to receive a shock when standing in water.

Remember: you don't have to be standing in water to be electrocuted. Wet clothing, high humidity, and perspiration also increase your chances of being electrocuted. You need to recognize that all wet conditions are hazards.

ADDITIONAL HAZARDS

In addition to electrical hazards, other types of hazards are present at job sites. Remember that all of these hazards can be controlled.

There may be chemical hazards. Solvents and other substances may be poisonous or cause disease.

Frequent overhead work can cause tendonitis (inflammation) in your shoulders.

Intensive use of hand tools that involve force or twisting can cause tendonitis of the hands, wrists, or elbows. Use of hand tools can also cause carpal tunnel syndrome, which results when nerves in the wrist are damaged by swelling tendons or contracting muscles.

GENERAL ELECTRICAL SAFETY

Low back pain can result from lifting objects the wrong way or carrying heavy loads of wire or other material. Back pain can also occur because of injury from poor working surfaces such as wet or slippery floors. Back pain is common, but it can be disabling and can affect young individuals.

Chips and particles flying from tools can injure your eyes. Wear eye protection.

Falling objects can hit you. Wear a hard hat.

Sharp tools and power equipment can cause cuts and other injuries. If you receive a shock, you may react and be hurt by a tool.

You can be injured or killed by falling from a ladder or scaffolding. If you receive a shock—even a mild one—you may lose your balance and fall. Even without being shocked, you could fall from a ladder or scaffolding.

You expose yourself to hazards when you do not wear PPE. All of these situations need to be recognized as hazards.

HAZARD CONTROL

LOCK-OUT AND TAG-OUT CIRCUITS AND EQUIPMENT

Create a safe work environment by locking out and tagging out circuits and machines. Before working on a circuit, you must turn off the power supply. Once the circuit has been shut off and de-energized, lock out the switchgear to the circuit so the power cannot be turned back on inadvertently. Then, tag out the circuit with an easy-to-see sign or label that lets everyone know that you are working on the circuit.

If you are working on or near machinery, you must lock out and tag out the machinery to prevent startup. Before you begin work, you must test the circuit to make sure it is de-energized.

OSHA requires companies to have adequate machine-specific procedures for lock-out/tag-out. These should be written procedures that are on site and readily available to employees. Provide training on lock-out/tag-out to both authorized and affected employees. Interlocks may not be used as lockout or as equivalent lockout protection.

For more information on lock-out/tag-out procedures, see the “Controlling Hazardous Energy” chapter (if included) of this manual.

CONTROL INADEQUATE WIRING HAZARDS

Electrical hazards result from using the wrong size or type of wire. You must control such hazards to create a safe work environment. You must choose the right size wire for current expected in a circuit. The wire must be able to handle the current safely. The wire’s insulation must be appropriate for the voltage and tough enough for the environment. Connections need to be reliable and protected.

GENERAL ELECTRICAL SAFETY

Maximum Current Different Wire Sizes Can Safely Conduct							
Gauge	12 AWG (stranded)	12 AWG (solid)	10 AWG	8 AWG	6 AWG	2 AWG	1/0 AWG
Amperage	25 amps	25 amps	30 amps	40 amps	55 amps	95 amps	125 amps

CONTROL HAZARDS OF FIXED WIRING

The wiring methods and size of conductors used in a system depend on several factors:

- Intended use of the circuit system
- Building materials
- Size and distribution of electrical load
- Location of equipment (such as underground burial)
- Environmental conditions (such as dampness)
- Presence of corrosives
- Temperature extremes

Fixed, permanent wiring is better than extension cords, which can be misused and damaged more easily. NEC requirements for fixed wiring should always be followed. A variety of materials can be used in wiring applications, including nonmetallic sheathed cable (Romex®), armored cable, and metal and plastic conduit. The choice of wiring material depends on the wiring environment and the need to support and protect wires.

Aluminum wire and connections should be handled with special care. Connections made with aluminum wire can loosen due to heat expansion and oxidize if they are not made properly. Loose or oxidized connections can create heat or arcing. Special clamps and terminals are necessary to make proper connections using aluminum wire. Antioxidant paste can be applied to connections to prevent oxidation.

CONTROL HAZARDS OF FLEXIBLE WIRING

Electrical cords supplement fixed wiring by providing the flexibility required for maintenance, portability, isolation from vibration, and emergency and temporary power needs. Flexible wiring can be used for extension cords or power supply cords. Power supply cords can be removable or permanently attached to the appliance. **DO NOT** use flexible wiring in situations where frequent inspection would be difficult, where damage would be likely, or where long-term electrical supply is needed. Flexible cords cannot be used as a substitute for the fixed wiring of a structure.

GENERAL ELECTRICAL SAFETY

Flexible cords must not be

- Run through holes in walls, ceilings, or floors.
- Run through doorways, windows, or similar openings (unless physically protected).
- Attached to building surfaces (except with a tension take-up device within 6 feet of the supply end).
- Hidden in walls, ceilings, or floors.
- Hidden in conduit or other raceways.

USE THE RIGHT EXTENSION CORD

The size of wire in an extension cord must be compatible with the amount of current the cord will be expected to carry. The amount of current depends on the equipment plugged into the extension cord. Current ratings (how much current a device needs to operate) are often printed on the nameplate. If a power rating is given, it is necessary to divide the power rating in watts by the voltage to find the current rating. For example, a 1,000-watt heater plugged into a 120-volt circuit will need almost 10 amps of current. Let's look at another example: A 1-horsepower electric motor uses electrical energy at the rate of almost 750 watts, so it will need a minimum of about 7 amps of current on a 120-volt circuit. However, electric motors need additional current as they startup or if they stall, requiring up to 200% of the nameplate current rating. Therefore, the motor would need 14 amps.

Add to find the total current needed to operate all the appliances supplied by the cord. Choose a wire size that can handle the total current.

American Wire Gauge (AWG)	
Wire Size	Handles Up To
#10 AWG	30 amps
#12 AWG	25 amps
#14 AWG	18 amps
#16 AWG	13 amps
<i>Remember: The larger the gauge number, the smaller the wire!</i>	

The length of the extension cord also needs to be considered when selecting the wire size. Voltage drops over the length of a cord. If a cord is too long, the voltage drop can be enough to damage equipment. Many electric motors only operate safely in a narrow range of voltages and will not work properly at voltages different from the voltage listed on the nameplate. Even though light bulbs operate (somewhat dimmer) at lowered voltages, do not assume electric motors will work correctly at less-than-required voltages. In addition, when electric motors start or operate under load, they require more current. The larger the size of the wire, the longer a cord can be without causing a voltage drop that could damage tools and equipment.

GENERAL ELECTRICAL SAFETY

The grounding path for extension cords must be kept intact to keep you safe.

A typical extension cord grounding system has four components:

1. A third wire in the cord, called a ground wire.
2. A three-prong plug with a grounding prong on one end of the cord.
3. A three-wire, grounding-type receptacle at the other end of the cord.
4. A properly grounded outlet.

CONTROL HAZARDS OF EXPOSED LIVE ELECTRICAL PARTS

Isolate Energized Components

Electrical hazards exist when wires or other electrical parts are exposed. These hazards need to be controlled to create a safe work environment. Isolation of energized electrical parts makes them inaccessible unless tools and special effort are used. Isolation can be accomplished by placing the energized parts at least 8 feet high and out of reach, or by guarding. Guarding is a type of isolation that uses various structures—like cabinets, boxes, screens, barriers, covers, and partitions—to close-off live electrical parts.

Take the following precautions to prevent injuries from contact with live parts:

- Immediately report exposed live parts to a supervisor.
- Unless qualified, you should never attempt to correct the condition yourself without supervision.
- Provide guards or barriers if live parts cannot be enclosed completely.
- Use covers, screens, or partitions for guarding that require tools to remove them.
- Replace covers that have been removed from panels, motors, or fuse boxes.
- Even when live parts are elevated to the required height (8 feet), care should be taken when using objects (like metal rods or pipes) that can contact these parts.
- Close unused conduit openings in boxes so that foreign objects (pencils, metal chips, conductive debris, etc.) cannot get inside and damage the circuit.

CONTROL HAZARDS OF EXPOSURE TO LIVE ELECTRICAL WIRES

Use Proper Insulation

Insulation is made of material that does not conduct electricity (usually plastic, rubber, or fiber). Insulation covers wires and prevents conductors from coming in contact with each other or any other conductor. If conductors make contact, a short circuit is created.

In a short circuit, current passes through the shorting material without passing through a load in the circuit, and the wire becomes overheated. Insulation keeps wires and other conductors from touching, which prevents electrical short circuits. Insulation prevents live wires from touching people and animals, thus protecting them from electrical shock.

GENERAL ELECTRICAL SAFETY

Insulation helps protect wires from physical damage and conditions in the environment. Insulation is used on almost all wires, except some ground wires and some high-voltage transmission lines. Insulation is used internally in tools, switches, plugs, and other electrical and electronic devices.

Special insulation is used on wires and cables that are used in harsh environments. Wires and cables that are buried in soil must have an outer covering of insulation that is flame-retardant and resistant to moisture, fungus, and corrosion.

In all situations, you must be careful not to damage insulation while installing it. Do not allow staples or other supports to damage the insulation. Bends in a cable must have an inside radius of at least 5 times the diameter of the cable so that insulation at a bend is not damaged. Extension cords come with insulation in a variety of types and colors. The insulation of extension cords is especially important.

Since extension cords often receive rough handling, the insulation can be damaged. Extension cords might be used in wet places, so adequate insulation is necessary to prevent shocks. Because extension cords are often used near combustible materials (such as wood shavings and sawdust) a short in an extension cord could easily cause arcing and a fire.

Insulation on individual wires is often color-coded. In general, insulated wires used as equipment grounding conductors are either continuous green or green with yellow stripes. The grounded conductors that complete a circuit are generally covered with continuous white or gray insulation. The ungrounded conductors, or “hot” wires, may be any color other than green, white, or gray. They are usually black or red.

CONDUCTOR AND CABLE MARKINGS

Conductors and cables must be marked by the manufacturer to show the following:

- Maximum voltage capacity
- AWG size
- Insulation-type letter
- Manufacturer’s name or trademark

CONTROL SHOCK HAZARDS

When an electrical system is not grounded properly, a hazard exists. This is because the parts of an electrical wiring system that a person normally touches may be energized, or live, relative to ground. Parts like switch plates, wiring boxes, conduit, cabinets, and lights need to be at 0 volts relative to ground. If the system is grounded improperly, these parts may be energized. The metal housings of equipment plugged into an outlet need to be grounded through the plug.

GENERAL ELECTRICAL SAFETY

Grounding is connecting an electrical system to the earth with a wire. Excess or stray current travels through this wire to a grounding device (commonly called a “ground”) deep in the earth. Grounding prevents unwanted voltage on electrical components. Metal plumbing is often used as a ground. When plumbing is used as a grounding conductor, it must also be connected to a grounding device such as a conductive rod. (Rods used for grounding must be driven at least 8 feet into the earth.

Sometimes an electrical system will receive a higher voltage than it is designed to handle. These high voltages may come from a lightning strike, line surge, or contact with a higher voltage line. Sometimes a defect occurs in a device that allows exposed metal parts to become energized. Grounding will help protect the person working on a system, the system itself, and others using tools or operating equipment connected to the system. The extra current produced by the excess voltage travels relatively safely to the earth.

Grounding creates a path for currents produced by unintended voltages on exposed parts. These currents follow the grounding path, rather than passing through the body of someone who touches the energized equipment. However, if a grounding rod takes a direct hit from a lightning strike and is buried in sandy soil, the rod should be examined to make sure it will still function properly. The heat from a lightning strike can cause the sand to turn into glass, which is an insulator. A grounding rod must be in contact with damp soil to be effective.

Leakage current occurs when an electrical current escapes from its intended path. Leakages are sometimes low-current faults that can occur in all electrical equipment because of dirt, wear, damage, or moisture. A good grounding system should be able to carry off this leakage current. A ground fault occurs when current passes through the housing of an electrical device to ground. Proper grounding protects against ground faults. Ground faults are usually caused by misuse of a tool or damage to its insulation. This damage allows a bare conductor to touch metal parts or the tool housing.

When you ground a tool or electrical system, you create a low-resistance path to the earth (known as a ground connection). When done properly, this path has sufficient current-carrying capacity to eliminate voltages that may cause a dangerous shock. Grounding does not guarantee that you will not be shocked, injured, or killed from defective equipment. However, it greatly reduces the possibility.

EQUIPMENT GROUNDING REQUIREMENTS

Equipment needs to be grounded under any of these circumstances:

- The equipment is within 8 feet vertically and 5 feet horizontally of the floor or walking surface.
- The equipment is within 8 feet vertically and 5 feet horizontally of grounded metal objects, you could touch.
- The equipment is located in a wet or damp area and is not isolated.
- The equipment is connected to a power supply by cord and plug and is not double-insulated.

USE OF GFCIs

The use of GFCIs have lowered the number of electrocutions dramatically. A GFCI is a fast-acting switch that detects any difference in current between two circuit conductors. If either conductor comes in contact—either directly or through part of your body—with a ground (a situation known as a ground fault), the GFCI opens the circuit in a fraction of a second. If a current as small as 4 to 6 mA does not pass through both wires properly, but instead leaks to the ground, the GFCI is tripped. The current is shut off.

There is a more sensitive kind of GFCI called an isolation GFCI. If a circuit has an isolation GFCI, the ground fault current passes through an electronic sensing circuit in the GFCI. The electronic sensing circuit has enough resistance to limit current to as little as 2 mA, which is too low to cause a dangerous shock.

GFCIs are usually in the form of a duplex receptacle. They are also available in portable and plug-in designs and as circuit breakers that protect an entire branch circuit. GFCIs can operate on both two- and three-wire ground systems. For a GFCI to work properly, the neutral conductor (white wire) must:

- Be continuous
- Have low resistance
- Have sufficient current-carrying capacity

GFCIs help protect you from electrical shock by continuously monitoring the circuit. However, a GFCI does not protect a person from line-to-line hazards such as touching two “hot” wires (240 volts) at the same time or touching a “hot” and neutral wire at the same time. Also, be aware that instantaneous currents can be high when a GFCI is tripped. A shock may still be felt. Your reaction to the shock could cause injury, perhaps from falling.

Test GFCIs regularly by pressing the “test” button. If the circuit does not turn off, the GFCI is faulty and must be replaced.

GENERAL ELECTRICAL SAFETY

The NEC requires that GFCIs be used in these high-risk situations:

- Electricity is used near water.
- The user of electrical equipment is grounded (by touching grounded material).
- Circuits are providing power to portable tools or outdoor receptacles.
- Temporary wiring or extension cords are used.

Specifically, GFCIs must be installed in bathrooms, garages, outdoor areas, crawl spaces, unfinished basements, kitchens, and near wet bars.

BOND COMPONENTS TO ASSURE GROUNDING PATH

In order to assure a continuous, reliable electrical path to ground, a bonding jumper wire is used to make sure electrical parts are connected. Some physical connections, like metal conduit coming into a box, might not make a good electrical connection because of paint or possible corrosion. To make a good electrical connection, a bonding jumper needs to be installed.

A metal cold water pipe that is part of a path to ground may need bonding jumpers around plastic anti-vibration devices, plastic water meters, or sections of plastic pipe. A bonding jumper is made of conductive material and is tightly connected to metal pipes with screws or clamps to bypass the plastic and assure a continuous grounding path. Bonding jumpers are necessary because plastic does not conduct electricity and would interrupt the path to ground.

Additionally, interior metal plumbing must be bonded to the ground for electrical service equipment in order to keep all grounds at the same potential (0 volts). Even metal air ducts should be bonded to electrical service equipment.

CONTROL OVERLOAD CURRENT HAZARDS

When a current exceeds the current rating of equipment or wiring, a hazard exists. The wiring in the circuit, equipment, or tool cannot handle the current without heating up or even melting.

Not only will the wiring or tool be damaged, but the high temperature of the conductor can also cause a fire. To prevent this from happening, an overcurrent protection device (circuit breaker or fuse) is used in a circuit. These devices open a circuit automatically if they detect current in excess of the current rating of equipment or wiring. This excess current can be caused by an overload, short circuit, or high-level ground fault.

GENERAL ELECTRICAL SAFETY

Overcurrent protection devices are designed to protect equipment and structures from fire. They do not protect you from electrical shock! Overcurrent protection devices stop the flow of current in a circuit when the amperage is too high for the circuit. A circuit breaker or fuse will not stop the relatively small amount of current that can cause injury or death. Death can result from 20 mA (.020 amps) through the chest. A typical residential circuit breaker or fuse will not shut off the circuit until a current of more than 20 amps is reached!

However, overcurrent protection devices are not allowed in areas where they could be exposed to physical damage or in hazardous environments. Overcurrent protection devices can heat up and occasionally arc or spark, which could cause a fire or an explosion in certain areas. Hazardous environments are places that contain flammable or explosive materials such as flammable gasses or vapors (Class I Hazardous Environments), finely pulverized flammable dusts (Class II Hazardous Environments), or fibers or metal filings that can catch fire easily (Class III Hazardous Environments). Hazardous environments may be found in aircraft hangars, gas stations, storage plants for flammable liquids, grain silos, and mills where cotton fibers may be suspended in the air.

Special electrical systems are required in hazardous environments.

If an overcurrent protection device opens a circuit, there may be a problem along the circuit. (In the case of circuit breakers, frequent tripping may also indicate that the breaker is defective.) When a circuit breaker trips or a fuse blows, the cause must be found.

A circuit breaker is one kind of overcurrent protection device. It is a type of automatic switch located in a circuit. A circuit breaker trips when too much current passes through it. A circuit breaker should not be used regularly to turn power on or off in a circuit, unless the breaker is designed for this purpose and marked "SWD" (stands for "switching device").

A fuse is another type of overcurrent protection device. A fuse contains a metal conductor that has a relatively low melting point. When too much current passes through the metal in the fuse, it heats up within a fraction of a second and melts, opening the circuit. After an overload is found and corrected, a blown fuse must be replaced with a new one of appropriate amperage.

AVOID WET WORKING CONDITIONS AND OTHER DANGERS

Remember that any hazard becomes much more dangerous in damp or wet conditions. To be on the safe side, assume there is dampness in any work location, even if you do not see water. Even sweat can create a damp condition!

GENERAL ELECTRICAL SAFETY

AVOID OVERHEAD POWER LINES

Be very careful not to contact overhead power lines or other exposed wires. More than half of all electrocutions are caused by contact with overhead lines. When working in an elevated position near overhead lines, avoid locations where you (and any conductive object you hold) could contact an unguarded or uninsulated line. You should be at least 10 feet away from high-voltage transmission lines.

Vehicle operators should also pay attention to overhead wiring. Dump trucks, front-end loaders, and cranes can lift and make contact with overhead lines. If you contact equipment that is touching live wires, you will be shocked and may be killed. If you are in the vehicle, stay inside. Always be aware of what is going on around you.

USE PROPER WIRING AND CONNECTORS

- Avoid overloads — Do not overload circuits.
- Test GFCIs — Test GFCIs monthly using the “test” button.
- Check switches and insulation — Tools and other equipment must operate properly.
- Make sure that switches and insulating parts are in good condition.
- Use three-prong plugs — Never use a three-prong grounding plug with the third prong broken off.

When using tools that require a third-wire ground, use only three-wire extension cords, with three-prong grounding plugs, and three-hole electrical outlets. Never remove the grounding prong from a plug! You could be shocked or expose someone else to a hazard. If you see a cord without a grounding prong in the plug, remove the cord from service immediately.

Use extension cords properly — If an extension cord must be used, choose one with sufficient ampacity for the tool being used. An undersized cord can overheat and cause a drop in voltage and tool power. Check the tool manufacturer’s recommendations for the required wire gauge and cord length. Make sure the insulation is intact. To reduce the risk of damage to a cord’s insulation, use cords with insulation marked “S” (hard service) rather than cords marked “SJ” (junior hard service). Make sure the grounding prong is intact. In damp locations, make sure wires and connectors are waterproof and approved for such locations. Do not create a tripping hazard.

Check power cords and extensions — Electrical cords should be inspected regularly using the following procedure:

Remove the cord from the electrical power source before inspecting.

Make sure the grounding prong is present in the plug.

Make sure the plug and receptacle are not damaged.

Wipe the cord clean with a diluted detergent and examine for cuts, breaks, abrasions, and defects in the insulation.

GENERAL ELECTRICAL SAFETY

Coil or hang the cord for storage. Do not use any other methods. Coiling or hanging is the best way to avoid tight kinks, cuts, and scrapes that can damage insulation or conductors.

You should also test electrical cords regularly for ground continuity using a continuity tester as follows:

- Connect one lead of the tester to the ground prong at one end of the cord.
- Connect the second lead to the ground wire hole at the other end of the cord.
- If the tester lights up or beeps (depending on design), the cord's ground wire is okay. If not, the cord is damaged and should not be used.
- Do not pull on cords — Always disconnect a cord by the plug.
- Use correct connectors — Use electrical plugs and receptacles that are right for your current and voltage needs. Connectors are designed for specific currents and voltages so that only matching plugs and receptacles will fit together. This safeguard prevents a piece of equipment, a cord, and a power source with different voltage and current requirements from being plugged together. Standard configurations for plugs and receptacles have been established by the National Electric Manufacturers Association (NEMA).
- Use locking connectors — Use locking-type attachment plugs, receptacles, and other connectors to prevent them from becoming unplugged.

USE AND MAINTAIN TOOLS PROPERLY

Your tools are at the heart of your craft. Tools help you do your job with a high degree of quality. Tools can do something else, too. They can cause injury or even death! You must use the right tools for the job. Proper maintenance of tools and other equipment is very important. Inadequate maintenance can cause equipment to deteriorate, creating dangerous conditions.

Inspect tools before using them — Check for cracked casings, dents, missing or broken parts, and contamination (oil, moisture, dirt, corrosion). Damaged tools must be removed from service and properly tagged. These tools should not be used until they are repaired and tested.

Use the right tool correctly — Use tools correctly and for their intended purposes. Follow the safety instructions and operating procedures recommended by the manufacturer. When working on a circuit, use approved tools with insulated handles. **However, do not use these tools to work on energized circuits. Always shut off and de-energize circuits before beginning work on them.**

GENERAL ELECTRICAL SAFETY

Protect your tools — Keep tools and cords away from heat, oil, and sharp objects. These hazards can damage insulation. If a tool or cord heats up, stop using it! Report the condition to a supervisor immediately. If equipment has been repaired, make sure that it has been tested and certified as safe before using it. Never carry a tool by the cord. Disconnect cords by pulling the plug—not the cord!

Use double-insulated tools — Portable electrical tools are classified by the number of insulation barriers between the electrical conductors in the tool and the worker. The NEC permits the use of portable tools only if they have been approved by Underwriter's Laboratories (UL Listed). Equipment that has two insulation barriers and no exposed metal parts is called double-insulated.

When used properly, double-insulated tools provide reliable shock protection without the need for a third ground wire. Power tools with metal housings or only one layer of effective insulation must have a third ground wire and three-prong plug.

Use multiple safe practices — Remember: A circuit may not be wired correctly. Wires may contact other "hot" circuits. Someone else may do something to place you in danger. Take all possible precautions.

ATTACHMENTS

The following pages contain a Safe Electrical Practices Checklist that can be reproduced and used by W M Painting Inc and its employees to ensure any electrically related work is performed safely.

GENERAL ELECTRICAL SAFETY

“SAFE ELECTRICAL WORK PRACTICES” CHECKLIST

- Are all employees required to report (as soon as practical) any obvious hazard to life or property observed in connection with electrical equipment or lines?
- Are employees instructed to make preliminary inspections and/or appropriate tests to determine what conditions exist before starting work on electrical equipment or lines?
- When electrical equipment or lines are to be serviced, maintained, or adjusted, are necessary switches opened, locked out, and tagged?
- Are portable hand-held electrical tools and equipment grounded or are they of the double-insulated type?
- Do extension cords have a grounding conductor? Are multiple plug adaptors prohibited?
- Are ground-fault circuit interrupters installed on each temporary 15, 20, or 30 ampere, 125-volt AC circuit at locations where construction, demolition, modifications, alterations, or excavations are being performed? OR...
- Do you have an assured equipment-grounding conductor program in place?
- Are all temporary circuits protected by suitable disconnecting switches or plug connectors at the junction with permanent wiring?
- Is exposed wiring and cords with frayed or deteriorated insulation repaired or replaced promptly?
- Are flexible cords and cables free of splices or taps?
- Are clamps or other securing means provided on flexible cords or cables at plugs, receptacles, tools, equipment, and are the cord jackets securely held in place?
- Are all cords, cable, and raceway connections intact and secure?
- In wet or damp locations, are electrical tools and equipment appropriate for the use or locations (or otherwise protected)?
- Are electrical power lines and cables located (overhead, underground, underfloor, other side of walls) before digging, drilling, or similar work begins?
- Is the use of metal measuring tapes, ropes, hand lines, or similar devices with metallic thread woven into the fabric prohibited where these could come into contact with energized parts of equipment or circuit conductors?
- Is the use of metal ladders prohibited in areas where the ladder or the person using the ladder could be exposed to energized parts of equipment, fixtures, or circuit conductors?
- Are all disconnecting switches and circuit breakers labeled to indicate their use or equipment served?
- Are disconnecting means always opened before fuses are replaced?
- Are all energized parts of electrical circuits and equipment guarded against accidental contact by approved cabinets or enclosures?
- Is sufficient access and working space provided and maintained around all electrical equipment to permit ready and safe operations and maintenance?

GENERAL ELECTRICAL SAFETY

- Are all unused openings (including conduit knockouts) of electrical enclosures and fittings closed with appropriate covers, plugs, or plates?
- Are electrical enclosures such as switches, receptacles, and junction boxes provided with tight-fitting covers or plates?
- Are employees prohibited from working alone on energized lines or equipment more than 600 volts?
- Are employees forbidden (unless properly qualified/certified) from working closer than 10 feet from high-voltage (more than 750 volts) lines?
- Have all underground utilities been located prior to any excavation work?
- Is all digging within 4 feet of power lines done by hand?
- Are power lines de-energized? Has the utility company been consulted before digging?
- Has the power company been notified if work is to be done near overhead lines?
- Are live parts of electrical circuits de-energized before an employee works on or near them?
- Are all exposed energized parts in the temporary power supply protected from possible contact?
- Are all power-supply circuit disconnects marked according to their functions?
- Is splicing allowed on extension cords only if they are larger than size 12 and the splicing retains insulation protection equal to the original extension cord?
- Are all plug connections used with the voltage for which they were designed?
- Do you always ensure that flexible cords are not immersed in water or exposed to damage from vehicles?
- Are all junction boxes used in a wet environment waterproof?
- Are you using a GFCI, or has an AEGCP been established?

W M Painting Inc

APPENDIX TABLE OF CONTENTS

1. Alternative Fall Protection
2. Cold Stress
3. Concrete Operations (Pouring)
4. Drywall-Plastering & Insulation
5. Elevating Work Platforms & Aerial Devices
6. Equal Employment and Affirmative Action Plan
7. Ergonomics
8. Fall Protection
9. Hearing Conservation
10. Heat Related Illness
11. Ladder & Stairway Safety
12. Painting Safety
13. Personal Hygiene
14. Scaffolds & Work Platforms
15. Slips, Trips & Falls

ALTERNATIVE FALL PROTECTION

BACKGROUND

In December 2010 The United States Department of Labor's Occupational Safety and Health Administration (OSHA) issued a directive rescinding the Interim Fall Protection Compliance Guidelines for Residential Construction (STD 03-00-001).

Since 1996, the Interim Fall Protection Compliance Guidelines for Residential Construction (STD 03-00-001), employers engaged in certain residential construction activities to use specified alternative methods of fall protection (e.g., slide guards or safety monitor systems) rather than the conventional fall protection (guardrails, safety nets, or personal fall arrest systems) required by residential construction fall protection standard (29 CFR 1926.501(b)(13)). Employers could use the alternative measures described in STD 03-00-001 without first proving that the use of conventional fall protection was infeasible or created a greater hazard and without a written fall protection plan.

All residential construction employers generally must ensure that employees working six feet or more above lower levels use guardrails, safety nets, or personal fall arrest systems. A personal fall arrest system may consist of a full body harness, a deceleration device, a lanyard, and an anchor point.

Other fall protection measures may be used to the extent allowed under other provisions of 29 CFR 1926.501(b) addressing specific types of work. For example, 1926.501(b) (10) permits the use of warning lines and safety monitoring systems during the performance of roofing work on low-sloped roofs.

OSHA allows the use of an effective fall restraint system instead of a personal fall arrest system. To be effective, a fall restraint system must be rigged to prevent a worker from reaching a fall hazard and falling over the edge. A fall restraint system may consist of a full body harness or body belt that is connected to an anchor point at the center of a roof by a lanyard of a length that will not allow a worker to physically reach the edge of the roof.

If the employer can demonstrate that use of conventional fall protection methods is infeasible or creates a greater hazard, it must ensure that a qualified person:

- Creates a written, site-specific fall protection plan in compliance with 29 CFR 1926.502(k)
- Documents, in that plan, the reasons why conventional fall protection systems are infeasible or why their use would create a greater hazard

Describe how your alternative method will protect workers: Describe specifically how your alternative fall-protection method will reduce or eliminate fall hazards. Include workers' tasks, the fall hazards they will encounter, the location of hazards, and how you intend to protect them from the hazards. You can list your responses in a table:

ALTERNATIVE FALL PROTECTION

Alternative Fall Protection Methods That Will Reduce Or Eliminate Fall Hazards			
Worker's task	Type of fall hazard	Location of fall hazard	Alternative protection

Appoint a qualified person to prepare the plan: A qualified person is one who has extensive knowledge, training, and experience with fall-protection systems.

- A qualified person must know how to design, use, and install fall-protection systems; the limitations of fall protection systems; and fall hazards associated with work tasks and processes.
- A qualified person must prepare a site-specific fall-protection plan and approve any changes to the plan.

Be sure that the plan identifies the following:

- The construction activity (leading-edge, residential, or precast concrete erection)
- The site address where you will use the plan
- The name of the person who prepared the plan (must be a qualified person)
- The date the qualified person prepared the plan

Establish controlled-access zones where you cannot use conventional protection: Your fall-protection plan must identify each area where you cannot use guardrails, safety nets, or personal fall-arrest systems, and you must designate those areas as controlled-access zones.

In addition, you must:

- Describe how you will limit access to controlled-access zones, including procedures that authorize workers to enter controlled-access zones.
- Describe how you will identify controlled-access zones and how you will separate them from other work areas.
- Identify all workers who will enter controlled-access zones.

Assign supervisory responsibility to a competent person: A competent person is someone who can identify hazardous conditions and appropriate applications for a fall-protection system and who has authority to correct hazards. A competent person must know the site specific fall- protection plan, how to perform work tasks safely, and the hazards associated with those tasks. You must designate a competent person to implement the fall-protection plan.

ALTERNATIVE FALL PROTECTION

Document accountability: Your fall-protection plan must describe how workers and supervisors will comply with its requirements.

Establish a training program: Everyone covered by a fall-protection plan must be trained by a competent person. Be sure to document the names of those who receive fall-protection training and their training dates.

The training program must cover:

- Fall hazards that workers will encounter
- Types of systems that will protect workers from falls
- Workers' responsibilities under the fall-protection plan
- Procedures for assembling, maintaining, and disassembling personal fall arrest systems
- How workers should comply with the plan
- Retraining procedures when the plan changes, tasks change, or when workers are not following the plan

Update the plan when site conditions change: When worksite conditions change and affect how workers are protected from falling, you must update your fall-protection plan so that it addresses the changes. An on-site qualified person must approve the changed plan.

The updated plan must:

- Describe the site-condition changes that required the update
- Include the qualified person's reasons for the update
- Include the date the qualified person approved the plan changes and the person's signature

Investigate accidents: If a worker covered by the fall-protection plan fell or had a near miss incident, you must investigate the accident and, if necessary, change the plan so that similar events will not happen again. The plan must describe near misses or accidents and how to prevent future incidents.

Keep the plan at the job site: You must keep a copy of the fall-protection plan, with all approved changes, at the job site.

ALTERNATIVE FALL PROTECTION

SAMPLE FALL PROTECTION PLAN

A Fall Protection Plan must be specific for a particular project and contain the following information:

- Location of Job
- Date Plan Prepared or Modified
- Who the Plan was prepared by
- Who the Plan was approved by
- Who the Plan is supervised by

The following Fall Protection Plan is a sample program prepared for the prevention of injuries associated with falls. A Fall Protection Plan must be developed and evaluated on a site by site basis. It is recommended that builders discuss the written Fall Protection Plan with their OSHA Area Office prior to going on a jobsite.

STATEMENT OF COMPANY POLICY

This company is dedicated to the protection of its employees from on-the-job injuries. All employees have the responsibility to work safely on the job. The purpose of the plan is to supplement our existing safety and health program and to ensure that every employee who works for this company recognizes workplace fall hazards and takes the appropriate measures to address those hazards.

This Fall Protection Plan addresses the use of conventional fall protection at a number of areas on the project, as well as identifies specific activities that require non-conventional means of fall protection. During the construction of residential buildings under 48 feet in height, it is sometimes infeasible or it creates a greater hazard to use conventional fall protection systems at specific areas or for specific tasks. The areas or tasks may include, but are not limited to:

- Setting and bracing of roof trusses and rafters
- Installation of floor sheathing and joists
- Roof sheathing operations; and d) Erecting exterior walls

In these cases, conventional fall protection systems may not be the safest choice for builders. This plan is designed to enable employers and employees to recognize the fall hazards associated with this job and to establish the safest procedures that are to be followed in order to prevent falls to lower levels or through holes and openings in walking/working surfaces.

Each employee will be trained in these procedures and will strictly adhere to them except when doing so would expose the employee to a greater hazard. If, in the employee's opinion, this is the case, the employee is to notify the competent person of their concern and have the concern addressed before proceeding.

ALTERNATIVE FALL PROTECTION

It is the responsibility of the Safety Coordinator 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 crew supervisor or foreman is responsible for correcting any unsafe practices or conditions immediately.

It is the responsibility of the employer to ensure that all employees understand and adhere to the procedures of this plan and to follow the instructions of the crew supervisor. It is also the responsibility of the employee to bring to management's attention any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employees. Any changes to the Fall Protection Plan must be approved by the Safety Coordinator

FALL PROTECTION SYSTEMS TO BE USED ON THIS JOB

Installation of roof trusses/rafters, exterior wall erection, roof sheathing, floor sheathing and joist/truss activities will be conducted by employees who are specifically trained to do this type of work and are trained to recognize the fall hazards. The nature of such work normally exposes the employee to the fall hazard for a short period of time. This Plan details how our company will minimize these hazards.

Controlled Access Zones

When using the Plan to implement the fall protection options available, workers must be protected through limited access to high hazard locations. Before any non-conventional fall protection systems are used as part of the work plan, a controlled access zone (CAZ) shall be clearly defined by the competent person as an area where a recognized hazard exists. The demarcation of the CAZ shall be communicated by the competent person in a recognized manner, either through signs, wires, tapes, ropes or chains.

Our company shall take the following steps to ensure that the CAZ is clearly marked or controlled by the competent person:

- All access to the CAZ must be restricted to authorized entrants;
- All workers who are permitted in the CAZ shall be listed in the appropriate sections of the Plan (or be visibly identifiable by the competent person) prior to implementation;
- The competent person shall ensure that all protective elements of the CAZ be implemented prior to the beginning of work.

Installation Procedures for Roof Truss and Rafter Erection

During the erection and bracing of roof trusses/rafters, conventional fall protection may present a greater hazard to workers. On this job, safety nets, guardrails and personal fall arrest systems will not provide adequate fall protection because the nets will cause the walls to collapse, while there are no suitable attachment or anchorage points for guardrails or personal fall arrest systems.

ALTERNATIVE FALL PROTECTION

On this job, requiring workers to use a ladder for the entire installation process will cause a greater hazard because the worker must stand on the ladder with his back or side to the front of the ladder. While erecting the truss or rafter the worker will need both hands to maneuver the truss and therefore cannot hold onto the ladder. In addition, ladders cannot be adequately protected from movement while trusses are being maneuvered into place. Many workers may experience additional fatigue because of the increase in overhead work with heavy materials, which can also lead to a greater hazard.

Exterior scaffolds cannot be utilized on this job because the ground, after recent backfilling, cannot support the scaffolding. In most cases, the erection and dismantling of the scaffold would expose workers to a greater fall hazard than erection of the trusses/rafters.

On all walls eight feet or less, workers will install interior scaffolds along the interior wall below the location where the trusses/rafters will be erected. "Sawhorse" scaffolds constructed of 46 inch sawhorses and 2x10 planks will often allow workers to be elevated high enough to allow for the erection of trusses and rafters without working on the top plate of the wall.

In structures that have walls higher than eight feet and where the use of scaffolds and ladders would create a greater hazard, safe working procedures will be utilized when working on the top plate and will be monitored by the crew supervisor. During all stages of truss/rafter erection the stability of the trusses/rafters will be ensured at all times.

Our company shall take the following steps to protect workers who are exposed to fall hazards while working from the top plate installing trusses/rafters:

- Only the following trained workers will be allowed to work on the top plate during roof truss or rafter installation:
- Workers shall have no other duties to perform during truss/rafter erection procedures;
- All trusses/rafters will be adequately braced before any worker can use the truss/rafter as a support;
- Workers will remain on the top plate using the previously stabilized truss/rafter as a support while other trusses/rafters are being erected;
- Workers will leave the area of the secured trusses only when it is necessary to secure another truss/rafter;
- The first two trusses/rafters will be set from ladders leaning on side walls at points where the walls can support the weight of the ladder; and
- A worker will climb onto the interior top plate via a ladder to secure the peaks of the first two trusses/rafters being set.
- The workers responsible for detaching trusses from cranes and/or securing trusses at the peaks traditionally are positioned at the peak of the trusses/rafters. There are also situations where workers securing rafters to ridge beams will be positioned on top of the ridge beam.

ALTERNATIVE FALL PROTECTION

Our company shall take the following steps to protect workers who are exposed to fall hazards while securing trusses/rafters at the peak of the trusses/ridge beam:

- Only trained workers will be allowed to work at the peak during roof truss or rafter installation
- Once truss or rafter installation begins, workers not involved in that activity shall not stand or walk below or adjacent to the roof opening or exterior walls in any area where they could be struck by falling objects
- Workers shall have no other duties than securing/bracing the trusses/ridge beam
- Workers positioned at the peaks or in the webs of trusses or on top of the ridge beam shall work from a stable position, either by sitting on a "ridge seat" or other equivalent surface that provides additional stability or by positioning themselves in previously stabilized trusses/rafters and leaning into and reaching through the trusses/rafters
- Workers shall not remain on or in the peak/ridge any longer than necessary to safely complete the task

ROOF SHEATHING OPERATIONS

Workers typically install roof sheathing after all trusses/rafters and any permanent truss bracing is in place. Roof structures are unstable until some sheathing is installed, so workers installing roof sheathing cannot be protected from fall hazards by conventional fall protection systems until it is determined that the roofing system can be used as an anchorage point. At that point, employees shall be protected by a personal fall arrest system.

Trusses/rafters are subject to collapse if a worker falls while attached to a single truss with a belt/harness. Nets could also cause collapse, and there is no place to attach guardrails.

All workers will ensure that they have secure footing before they attempt to walk on the sheathing, including cleaning shoes/boots of mud or other slip hazards.

To minimize the time workers must be exposed to a fall hazard, materials will be staged to allow for the quickest installation of sheathing.

Our company shall take the following steps to protect workers who are exposed to fall hazards while installing roof sheathing:

- Once roof sheathing installation begins, workers not involved in that activity shall not stand or walk below or adjacent to the roof opening or exterior walls in any area where they could be struck by falling objects
- The competent person shall determine the limits of this area, which shall be clearly communicated to workers prior to placement of the first piece of roof sheathing
- The competent person may order work on the roof to be suspended for brief periods as necessary to allow other workers to pass through such areas when this would not create a greater hazard
- Only qualified workers shall install roof sheathing

ALTERNATIVE FALL PROTECTION

- The bottom row of roof sheathing may be installed by workers standing in truss webs
- After the bottom row of roof sheathing is installed, a slide guard extending the width of the roof shall be securely attached to the roof. Slide guards are to be constructed of no less than nominal 4" height capable of limiting the uncontrolled slide of workers. Workers should install the slide guard while standing in truss webs and leaning over the sheathing
- Additional rows of roof sheathing may be installed by workers positioned on previously installed rows of sheathing. A slide guard can be used to assist workers in retaining their footing during successive sheathing operations;
- Additional slide guards shall be securely attached to the roof at intervals not to exceed 13 feet as successive rows of sheathing are installed. For roofs with pitches in excess of 9-in-12, slide guards will be installed at four-foot intervals.
- When wet weather (rain, snow, or sleet) are present, roof sheathing operations shall be suspended unless safe footing can be assured for those workers installing sheathing.
- When strong winds (above 40 miles per hour) are present, roof sheathing operations are to be suspended unless wind breakers are erected. Installation of Floor Joists and Sheathing During the installation of floor sheathing/joists (leading edge construction), the following steps shall be taken to protect workers:
 - Only trained workers will be allowed to install floor joists or sheathing
 - Materials for the operations shall be conveniently staged to allow for easy access to workers
 - The first floor joists or trusses will be rolled into position and secured either from the ground, ladders or sawhorse scaffolds
 - Each successive floor joist or truss will be rolled into place and secured from a platform created from a sheet of plywood laid over the previously secured floor joists or trusses
 - Except for the first row of sheathing which will be installed from ladders or the ground, workers shall work from the established deck
 - Any workers not assisting in the leading edge construction while leading edges still exist (e.g. cutting the decking for the installers) shall not be permitted within six feet of the leading edge under construction

ERECTION OF EXTERIOR WALLS

During the construction and erection of exterior walls, employers shall take the following steps to protect workers:

- Only the following trained workers will be allowed to erect exterior walls:
- A painted line six feet from the perimeter will be clearly marked prior to any wall erection activities to warn of the approaching unprotected edge;
- Materials for operations shall be conveniently staged to minimize fall hazards; and
- Workers constructing exterior walls shall complete as much cutting of materials and other preparation as possible away from the edge of the deck.

ALTERNATIVE FALL PROTECTION

ENFORCEMENT

Constant awareness of and respect for fall hazards, and compliance with all safety rules are considered conditions of employment. The crew supervisor or foreman, as well as individuals in the Safety and Personnel Department, reserve the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this program.

ACCIDENT INVESTIGATIONS

All accidents that result in injury to workers, regardless of their nature, shall be investigated and reported. It is an integral part of any safety program that documentation takes place as soon as possible so that the cause and means of prevention can be identified to prevent a reoccurrence.

In the event that an employee falls or there is some other related, serious incident occurring, this plan shall be reviewed to determine if additional practices, procedures, or training need to be implemented to prevent similar types of falls or incidents from occurring.

CHANGES TO PLAN

Any changes to the plan will be approved by (name of the qualified person). This plan shall be reviewed by a qualified person as the job progresses to determine if additional practices, procedures or training needs to be implemented by the competent person to improve or provide additional fall protection. Workers shall be notified and trained, if necessary, in the new procedures. A copy of this plan and all approved changes shall be maintained at the jobsite.

POLICY STATEMENT

Cold Stress is a well-known, recognized workplace hazard. All work operations involving exposure to low temperatures have the potential for inducing cold stress. This policy has been developed to address these issues. All employees will receive training relating to the causes and effects of, the personal and environmental factors that may lead to, and prevention measures to fight cold stress.

RESPONSIBILITIES

Preventing cold stress is a cooperative effort between this company and its employees.

Employer Responsibilities

It is the responsibility of this company to:

- Provide employees with information on signs and prevention of cold stress; and
- Provide reliable means of preventing cold stress and other related health hazards.

Employee Responsibilities

Employees working in cold environments, where illness or injury is a risk, are expected to:

- Wear appropriate clothing;
- Make sure to protect ears, face, hands, and feet;
- Move into warm locations during work breaks; limit the amount of time outside on extremely cold days.
- Carry cold weather gear, such as extra socks, gloves, hats, jacket, blankets, a change of clothes, and a thermos of hot liquid.
- Include a thermometer and chemical hot packs in your first aid kit.
- Avoid touching cold metal surfaces with bare skin.
- Monitor your physical condition and that of your coworkers.

TRAINING

We will ensure every employee is provided training on all equipment, procedures, and processes to protect from cold stress. This training will be provided at no cost to the employee during working hours.

Training will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees.

Training Components

The safety coordinator will ensure that every employee will be trained in the following minimum elements:

- proper clothing and equipment
- safe work practices
- guidelines for eating and drinking
- risk factors that increase the health effects of cold exposure
- how to recognize signs and symptoms of frostbite
- how to recognize signs and symptoms of hypothermia; and
- Appropriate first aid treatment, including rewarming procedures.

Training Records

Training records will include the following information:

- The dates of the training sessions
- The contents or a summary of the training sessions
- The names and qualifications of persons conducting the training
- The names and job titles of all persons attending the training sessions

Employee training records will be maintained for 3 years from the date on which the training occurred.

POLICY

Introduction & Overview

Employees who work in cold environments, or are exposed to extreme cold, are at risk of cold stress. Extremely cold or wet weather is a dangerous situation that can cause occupational illness and injuries such as hypothermia, frostbite, and trench foot. When the body is unable to warm itself, serious cold-related illnesses, and injuries may occur, and permanent tissue damage and death may result.

An individual gains body heat from food and muscular activity and loses it through convection, conduction, radiation, and sweating to maintain a constant body temperature. When a person's body temperature drops even a few degrees below its normal temperature of 98.6°F, the blood vessels constrict, decreasing peripheral blood flow to reduce heat loss from the surface of the skin. Shivering generates heat by increasing the body's metabolic rate.

Risk Factors

The four environmental conditions that cause cold-related stress are low temperatures, high/cool winds, dampness, and cold water. One of the gravest dangers of winter weather is wind chill. The wind chill is based on the rate of heat loss from exposed skin by combined effects of wind and cold. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Below is a wind chill chart from the National Weather Service.

Wind Chill Chart

Temperature (°F)

	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Wind Speed	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
	60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times:  30 minutes  10 minutes  5 minutes

To work safely, these challenges have to be counterbalanced by proper insulation, such as layered protective clothing, physical activity and by controlling exposure; e.g., work/rest schedule.

Air Temperature: Air temperature is measured by an ordinary thermometer in degrees Fahrenheit (°F) or degrees Celsius (°C).

Wind Speed: Various types of commercially available anemometers are used to measure wind speed or air movement.

Wind speed is usually measured in km/h or mph. The following is a suggested guide for estimating wind speeds if accurate information is not available:

- 5 mph (8 km/h): light flag moves
- 10 mph (16 km/h): light flag fully extended
- 15 mph (24 km/h): raises newspaper sheet
- 20 mph (32 km/h): causes blowing and drifting snow.

Humidity: Water conducts heat away from the body 25 times faster than dry air.

Physical Activity: The production of body heat by physical activity is difficult to measure. However, tables are available in literature, which shows metabolic rates for a variety of activities. Metabolic heat production is measured in kilocalories (kcal) per hour. One kilocalorie is the amount of heat needed to raise the temperature of one kilogram of water by 24°F.

Diet: Workers have increased energy requirements when working in the cold. Consider adding additional wholesome foods to the diet, such as pasta, potatoes, rice, dairy products, nuts, meat, herring, and salmon. Light snacks and warm fluids should be taken during rest breaks. Alcohol must not be consumed when working in the cold. Alcohol produces a deceptive feeling of warmth but may contribute to dehydration and impair judgment.

Work/rest Schedule: Regular rest breaks in a heated area are recommended for anyone working in the cold. The frequency of breaks depends on the air temperature and wind speed, as well as the degree of physical activity.

Protective Clothing: To be protected from the cold, workers should dress in layers.

- The inner layers should trap moisture and wick it away from the body; the middle layers provide insulation; the outer layers protect against the wind and weather.
- As work activity and environmental conditions change, workers should be able to easily add or remove layers.

Wind Chill

At any temperature, you feel colder as the wind speed increases. The combined effect of cold air and wind speed is expressed as equivalent chill temperature (ECT) or simply wind chill temperature in degrees Fahrenheit or Celsius

- It is essentially the air temperature that would feel the same on exposed human flesh as the given combination of air temperature and wind speed.
- It can be used as a general guideline for deciding clothing requirements and the possible health effects of cold.
- In some parts of the United States, the term wind chill factor is used. This is a measurement of a heat loss rate caused by exposure to wind and it is expressed as the rate of energy loss per unit area of exposed skin per second (e.g., joules/ [second-metre²] or watts/metre², W/m²).
- Cold Stress Prevention Controlling Cold Stress Environmental Measures
- Temperature and wind conditions should be known; e.g., weather report on the radio, current weather office information.
- Steps should be taken to protect workers from wind (or indoors from drafts or forced air from air handling units). The combination of low temperatures and even moderate winds can quickly create dangerous working conditions.
- Ensure that heated rest areas, such as a truck cab, tent, or hut, are available.

Equipment Design

For work below the freezing point, metal handles and bars should be covered by thermal insulating material. In addition, machines and tools should be designed so that they can be operated without a person having to remove mittens or gloves.

Here are some examples of engineering controls to reduce cold exposure:

- Isolate the worker from the environment, where possible.
- Use local heating for the body and especially bare hands (when fine work is required).
- This may include the use of warm air jets, radiant heaters, or contact warming plates.
- Provide structures to block air or reduce air velocities at the work location.
- Provide heated metal tools and handles or cover them with thermal insulating materials.
- Use machine controls and tools designed so that workers do not have to remove mittens or gloves to use them.

Work Practices

A schedule of regular rest breaks should be established to allow workers to warm up. These breaks should be not less than 10 minutes in length and should be taken in a heated area.

- Heated warming shelters; e.g., tents, cabins, rest rooms, should be provided.
- When entering the heated shelter, outer and middle clothing layers (as necessary) should be removed to prevent overheating and to allow dampness to evaporate. A change of dry clothing may be necessary since returning to cold work while damp or sweaty may result in rapid chilling.
- Warm fluids should be consumed at the work site to provide energy and warmth and to replace fluids lost during work.
- Recognize the symptoms of cold stress. The onset of severe shivering, the feeling of excessive fatigue, drowsiness, irritability, or euphoria indicate the need to immediately return to the shelter.

The following additional precautions apply at colder temperatures:

- Workers should be under constant protective observation by a buddy or supervisor.
- Work rate should not be high enough to cause sweating. If heavy work must be performed, rest periods in heated shelters and the opportunity to change into dry clothing should be provided.
- New employees should not be required to work full-time in the cold during the first days of employment until they become accustomed to the working conditions and required protective clothing.
- Weight and bulkiness of clothing should be included in estimating required work performance.
- Work should be arranged to minimize periods of standing or sitting still.
- Workers should be appropriately trained.
- Recognize the environmental and workplace conditions that lead to potential cold-induced illnesses and injuries.
- Learn the signs and symptoms of cold-induced illnesses/injuries and what to do to help the worker.
- Train the workforce about cold-induced illnesses and injuries.
- Select proper clothing for cold, wet, and windy conditions. Layer clothing to adjust to changing environmental temperatures. (Tight clothing, however, can reduce blood circulation to the extremities.) Wear a hat and gloves, in addition to underwear that will keep water away from the skin (polypropylene). Be aware that some clothing may restrict movement resulting in a hazardous situation.
- Protect the ears, face, hands, and feet in extremely cold or wet weather. Boots should be waterproof and insulated.
- Wear a hat to reduce the loss of body heat from your head.

- Carry extra socks, gloves, hats, jacket, blankets, a change of clothes, and a thermos of hot liquid.
- Include chemical hot packs in your first aid kit.
- Avoid touching cold metal surfaces with bare skin.
- Take frequent short breaks in warm dry shelters to allow the body to warm up.
- Perform work during the warmest part of the day.
- Avoid exhaustion or fatigue because energy is needed to keep muscles warm.
- Use the buddy system (work in pairs).
- Drink warm, sweet beverages (sugar water, sports-type drinks). Avoid drinks with caffeine (coffee, tea or hot chocolate) or alcohol.
- Eat warm, high-calorie foods like hot pasta dishes.

Dressing for the cold

Clothes must be layered to manage moisture and keep dry. Insulating layers trap air for warmth, and outer layers protect workers from wind and weather.

To remain comfortable as weather and work conditions change, clothing layers should be added or removed, or ventilation openings in clothing opened or closed.

Every effort must be made to avoid sweating and becoming damp. Clothing selections are normally made based on staying warm while inactive. Consider the work to be performed and weather conditions, and then have workers dress so layers can be shed and still remain comfortably warm. If clothing layers do become damp and remain that way, workers should be prepared to replace them before becoming chilled and hypothermic. If a worker is sweating, then his or her clothing is probably too warm for the conditions and tasks being performed.

Hand wear

- Mittens keep hands warmer than gloves since fingers are together. With gloves, fingers are separated and lose heat from one another.
- Have workers wear thin liners under gloves or mittens. Liners need not be removed when removing the gloves.
- Removable glove and mitten liners can be replaced and dried when they become damp.
- New mitten styles, including three-finger lobster claws that keep fingers warm yet offer good dexterity are available.
- Windproof overmitts offer additional hand protection, without adding significant bulk.

Headwear

- Up to 50% of body heat is lost through the head. A hat or other head protection must be worn in the cold.
- Avoid cotton; use synthetic fabrics or wool instead.
- Workers must use an appropriate hard hat liner to reduce heat.
- Select a hat appropriate for the weather conditions and activity level. Consider thickness, extent of head coverage (e.g., openface, full balaclava, ear coverage), need for Wind protection, effect on vision and hearing, and ability to fit into or over protective headwear, if required.
- A facemask and eye protection may sometimes be necessary.

Footwear

- Warm, insulated safety footwear is essential. Boots should have thick soles for insulation while standing in snow or on cold concrete. Footwear selection should be based on the work being performed, the surfaces on which the worker will work and the weather conditions to which the worker will normally be exposed. Tight-fitting boots reduce circulation and can make feet feel cold.
- Footwear should be sized so that it will accommodate an extra layer(s) of socks.
- A synthetic sock liner, worn beneath a synthetic blend or wool outer sock, wicks moisture away from the skin, keeping feet drier and warmer.

COLD-ENVIRONMENT CONDITIONS & FIRST AID MEASURES

Hypothermia

Symptoms of hypothermia can vary depending on how long you have been exposed to the cold temperatures. They include:

Early

- Shivering
- Fatigue
- Loss of coordination
- Confusion and disorientation

Late

- No shivering
- Blue skin
- Dilated pupils
- Slowed pulse and breathing
- Loss of consciousness

Treating hypothermia

- Alert the supervisor and request medical assistance.
- Move the victim into a warm room or shelter.
- Remove their wet clothing.
- Warm the center of their body first—chest, neck, head, and groin using an electric blanket, if available; or use skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.
- Warm beverages may help increase the body temperature, but do not give alcoholic beverages. Do not try to give beverages to an unconscious person.
- After their body temperature has increased, keep the victim dry, and wrapped in a warm blanket, including the head and neck.
- If victim has no pulse, begin cardiopulmonary resuscitation (CPR).

Cold Water Immersion

Cold water immersion creates a specific condition known as immersion hypothermia. It develops much more quickly than standard hypothermia because water conducts heat away from the body 25 times faster than air. Typically, people in temperate climates don't consider themselves at risk from hypothermia in the water, but hypothermia can occur in any water temperature below 70°F. Survival times can be lengthened by wearing proper clothing (wool and synthetics and not cotton), using a personal flotation device (PFD, life vest, immersion suit, dry suit), and having a means of both signaling rescuers (strobe lights, personal locator beacon, whistles, flares, waterproof radio) and having a means of being retrieved from the water. Below you will find links with information about cold water survival and cold water rescue.

Frostbite

Frostbite is an injury to the body that is caused by freezing. Frostbite causes a loss of feeling and color in the affected areas. It most often affects the nose, ears, cheeks, chin, fingers, or toes. Frostbite can permanently damage body tissues, and severe cases can lead to amputation. In extremely cold temperatures, the risk of frostbite is increased in workers with reduced blood circulation and among workers who are not dressed properly.

Symptoms of frostbite include:

- Reduced blood flow to hands and feet
- Numbness
- Tingling or stinging
- Aching
- Bluish or pale, waxy skin

Workers suffering from frostbite should:

- Get into a warm room as soon as possible.
- Unless absolutely necessary, do not walk on frostbitten feet or toes-this increases the damage.
- Immerse the affected area in warm-not hot- water (the temperature should be comfortable to the touch for unaffected parts of the body).
- Warm the affected area using body heat; for example, the heat of an armpit can be used to warm frostbitten fingers.
- Do not rub or massage the frostbitten area; doing so may cause more damage.
- Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming. Affected areas are numb and can be easily burned.

Trench Foot

Trench foot, also known as immersion foot, is an injury of the feet resulting from prolonged exposure to wet and cold conditions. Trench foot can occur at temperatures as high as 60 degrees F if the feet are constantly wet. Injury occurs because wet feet lose heat 25-times faster than dry feet. Therefore, to prevent heat loss, the body constricts blood vessels to shut down circulation in the feet. Skin tissue begins to die because of lack of oxygen and nutrients and due to the buildup of toxic products.

Symptoms of trench foot include:

- Reddening of the skin
- Numbness
- Leg cramps
- Swelling
- Tingling pain
- Gangrene (the foot may turn dark purple,
- Bleeding under the skin
blue, or gray)
- Blisters or ulcer

Workers suffering from trench foot should:

- Remove shoes/boots and wet socks.
- Dry their feet.
- Avoid walking on feet, as this may
cause tissue damage.

Chilblains

Chilblains are caused by the repeated exposure of skin to temperatures just above freezing to as high as 60 degrees F. The cold exposure causes damage to the capillary beds (groups of small blood vessels) in the skin. This damage is permanent and the redness and itching will return with additional exposure. The redness and itching typically occurs on cheeks, ears, fingers, and toes.

Symptoms of chilblains include:

- Redness
- Itching
- Possible blistering
- Inflammation
- Possible ulceration in severe cases

Workers suffering from chilblains should:

- Avoid scratching
- Slowly warm the skin
- Use corticosteroid creams to relieve
itching and swelling
- Keep blisters and ulcers clean and
covered

FORMS AND ATTACHMENTS

On the following pages, please find the Cold Stress Training Record document.

This form may be reproduced for the purposes of implementing and maintaining a safety and health program.

POLICY

This Company has implemented the following policies and safe work practices to protect employees performing concrete work from accident or injury.

An understanding of the potential risks of concrete construction and proper training is necessary for limiting the number of concrete construction-related injuries. Every worker in concrete construction must be aware of safety.

Any worker can halt operations if conditions look unsafe. The ultimate safety of a construction project is the responsibility of everyone associated with the project.

RESPONSIBILITIES

- Owners are responsible for implementing a safety program and providing safety equipment.
- Managers are responsible for conducting safety training, planning jobs according to the safety program, and ensuring employees are adhering to safety standards.
- Superintendents and supervisors must enforce the safety regulations and be prepared to halt unsafe actions.
- Workers must utilize safety training by recognizing hazards, wearing and using safety equipment, policing fellow workers, and reporting unsafe conditions.

HAZARDS

Health effects

Thousands of construction workers are exposed to concrete every day without harm. However, anyone who uses or supervises the use of cement should know its health hazards and the safe working procedures necessary to minimize exposure.

Cement can cause ill health by skin contact, eye contact, or inhalation. Risk of injury depends on duration and level of exposure, and individual sensitivity.

Different cements have different ingredients that can be harmful. Many types of cement contain substances that can be hazardous, like silica, lime, gypsum, nickel, cobalt, and chromium compounds. Hazardous materials in wet concrete and mortar include:

- Alkaline compounds such as lime (calcium oxide) that are corrosive to human tissue
- Trace amounts of crystalline silica that is abrasive to the skin and can damage lungs
- Trace amounts of chromium that can cause allergic reactions.

Skin contact

The hazards of wet cement are due to its caustic, abrasive, and drying properties.

- Wet concrete contacting the skin for a short period and then thoroughly washed off causes little irritation. Continuous contact between skin and wet concrete allows alkaline compounds to penetrate and burn the skin.
- When wet concrete or mortar is trapped against the skin (e.g. by falling inside a worker's boots or gloves or by soaking through protective clothing) the result may be first, second, or third degree burns or skin ulcers. These injuries can take several months to heal and may involve hospitalization and skin grafts.
- Severe cases can occur when personal protective clothing or equipment is worn.
- Wet concrete may get trapped inside rubber boots or gloves, or gradually soak through coveralls. Concrete finishers kneeling on fresh concrete have had their knees severely burned. Corrosive bleed water from the concrete is absorbed by the worker's pants and held against the skin for prolonged periods.
- Cement dust released during bag dumping or concrete cutting can also irritate the skin. Moisture from sweat or wet clothing reacts with the cement dust to form a caustic solution.

Allergic skin reaction: Some workers become allergic to the hexavalent chromium in cement. A small yet significant percentage of all workers using cement will develop an allergy to chromium, with symptoms ranging from a mild rash to severe skin ulcers.

- In addition to skin reactions, hexavalent chromium can cause a respiratory allergy called occupational asthma. Symptoms include wheezing and difficulty breathing. Workers may develop both skin and respiratory allergies to hexavalent chromium.
- It is possible to work with cement for years without any allergic skin reaction and then to suddenly develop such a reaction. The condition gets worse until exposure to even minute quantities triggers a severe reaction. The allergy usually lasts a lifetime and prevents any future work with wet concrete or powder cement.

Eye contact: Exposure to airborne dust may cause immediate or delayed irritation of the eyes. Depending on the level of exposure, effects may range from redness to chemical burns and blindness.

Inhalation: Inhaling high levels of dust may occur when workers empty bags of cement. In the short term, such exposure irritates the nose and throat and causes choking and difficult breathing.

Sanding, grinding, or cutting concrete can also release large amounts of dust containing high levels of crystalline silica and other particulates. Prolonged or repeated exposure can lead to health problems.

CONCRETE OPERATIONS

During operations in which powered tools or equipment are used to cut, grind, core, or drill concrete or masonry materials, a dust-reduction system will be applied to effectively reduce airborne particulate. Exceptions include operations in which permissible exposure limits can be shown not to be exceeded, roofing operations with tile, pavers, or similar materials, and during the first 24 hours of an emergency operation.

Prolonged exposure to silica can cause a disabling and often fatal lung disease called silicosis. Some studies also indicate a link between crystalline silica exposure and lung cancer.

Symptoms of silicosis:

- Acute silicosis can occur after a few weeks of very high exposure (for example, in sandblasters). Symptoms are shortness of breath, coughing, fever, and weight loss.
- Chronic silicosis is rarely seen in workers with less than ten years of exposure. It permanently damages your lungs.
- Silicosis also increases your chance of getting tuberculosis.

How to determine the ingredients in cement

- Find a list of ingredients, a safety warning, or both.
- Read the Safety Data Sheet (SDS) for the product. SDS are required by law. They will tell you the ingredients and possible health hazards. Everyone working on the site has a right to see SDS.
- When you work with cement, you often use other chemicals (form oils, curing agents, bond breakers, and retardants). Remember to check their SDS.

Hygiene

- Clothing contaminated by wet cement should be quickly removed. Skin in contact with wet cement should be washed immediately with large amounts of cool clean water.
- Do not wash your hands with water from buckets used for cleaning tools.
- Provide adequate hygiene facilities on site for workers to wash hands and face at the end of a job and before eating, drinking, smoking, or using the toilet. Facilities for cleaning boots and changing clothes should also be available.

First aid

- Wash skin contaminated with wet or dry cement using cold running water as soon as possible.
- Cover any open sores or cuts with suitable dressings.
- Get medical attention if discomfort persists.
- Wash contaminated eyes with cold tap water for at least 15 minutes before taking the affected person to a hospital.

CONCRETE OPERATIONS

Material

- Cement comprises 7-15% of total concrete volume. As an alkaline material, wet cement is caustic, and can cause severe chemical burns to exposed skin and eyes.
- Working with fresh concrete presents an obvious risk. It is always important to wear waterproof gloves, a long-sleeved shirt, full-length trousers, and proper eye protection.
- If you must stand in wet concrete, wear water-proof boots that are high enough to keep the concrete from flowing into your boots.
- Wash wet concrete, mortar, cement, or cement mixtures from your skin immediately. Flush eyes with clean water immediately after contact. Indirect contact through clothing can be as serious as direct contact, so promptly rinse out wet concrete, mortar, cement, or cement mixtures from clothing. Always seek immediate medical attention if you have persistent or severe discomfort.
- 95% of cement particles are smaller than 45 µm (micrometer). The caustic nature of cement creates a danger from inhalation.
- Workers opening bags or sacks of cement and cement products should always wear a dust mask in addition to their regular safety attire.

Machinery

Early-entry saws, concrete/masonry saws, cut-off saws, and power trowels pose a threat to appendages when used improperly.

Any sustained or sudden noise above 85 decibels emanating from machinery can be damaging to the ear.

Hydraulic jacks used in shoring, compressed air and hydraulic concrete pumps, belt conveyors, welding equipment, post-tensioning jacks, demolition devices, and other equipment also create potential hazards on a concrete construction site.

Tools

Sharp-edged trowels, hammers, chisels, utility knives, etc. can be dangerous when used carelessly or incorrectly.

Long-handled bullfloats, when used near utility wires, can be dangerous.

Height

The number one leading cause of construction-related injuries and fatalities is attributed to falls from heights. Sources of height associated with concrete construction include but are not limited to scaffolding, ladders, bucket-trucks, catwalks, elevated or wall forms, and elevated floors.

Owners, managers, contractors, and laborers should be aware of specific height sources on a project as they are virtually unavoidable in construction.

CONCRETE OPERATIONS

PERMITS

This Company will comply with all permit requirements. Permits may be required for:

- Trenches and excavations five feet or deeper where employee entry is required
- The erection/dismantling of vertical shoring systems more than three stories or 36 ft. high
- The construction/demolition of any building, structure, scaffolding, or falsework more than three stories or 36 feet high
- The use of fixed and mobile cranes

JOBSITE CONDITIONS

This Company will ensure that all employees are informed of hazards and protected when working in cramped, confined projects or sections of a project, locations exposed to traffic, utility wires, excavations, hazardous materials, or weather conditions that could result in injury.

PERSONAL PROTECTIVE EQUIPMENT

All employees will be trained on the use of the PPE required for their job, and are expected to wear their PPE at all times. This equipment can consist of, but is not limited to:

- Alkali-resistant gloves, cloth, leather, or rubber for wet conditions
- Coveralls with long sleeves and full-length trousers (pull sleeves down over gloves and tuck pants inside boots and duct-tape at the top to keep mortar and concrete out)
- Waterproof boots high enough to prevent concrete from flowing in when workers must stand in fresh concrete
- Ear plugs or muffs
- Respiratory protective equipment such as a P, N, or R 95 respirator when cement dust cannot be avoided
- Eye protection where mixing, pouring, or other activities may endanger eyes (minimum—safety glasses with sideshields or goggles, under extremely dusty conditions, tight-fitting unvented or indirectly vented goggles. Do not wear contact lenses when handling cement or cement products).
- Employees working more than six feet (1.8 m) above any adjacent working surface must be provided with personal fall arrest systems, safety net systems, or positioning device systems.
- Employees exposed to public vehicular traffic will be provided with, and wear; warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

EQUIPMENT AND TOOLS

General provisions

- The Company will ensure that all equipment used at the jobsite is properly maintained and equipped with manufacturer recommended safety devices. Disabling or removing safety devices is prohibited.
- All unsafe or inoperable equipment will be marked as such to prevent further use of the equipment.
- No employee may operate equipment without being properly trained and alert to potential hazards. In training and in the worksite safety and health program, it also is important to include procedures for fast notification and investigation of accidents.

All equipment, material, and construction techniques used in concrete construction and masonry work should meet the applicable requirements for design, construction, inspection, testing, maintenance, and operations as prescribed in ANSI A10.9-1970, Safety Requirements for Concrete Construction and Masonry Work.

Construction loads: No construction loads will be placed on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.

Vertical loads: Vertical loads consist of a dead load plus an allowance for live load. The weight of formwork together with the weight of freshly placed concrete is dead load. The live load consists of the weight of workers, equipment, runways, and impact, and must be computed in pounds per square foot (psf) of horizontal projection.

Lateral loads: Braces and shores must be designed to resist all foreseeable lateral loads such as wind, cable tensions, and inclined supports, impact of placement, and starting and stopping of equipment. The assumed value of load due to wind, impact of concrete, and equipment acting in any direction at each floor line shall not be less than one hundred pounds per lineal foot of floor edge or two percent of total dead load of the floor, whichever is greater. Wall forms must be designed for a minimum wind load of ten psf, and bracing for wall forms should be designed for a lateral load of at least one hundred pounds per lineal foot of wall, applied at the top. Walls of unusual height require special consideration.

Bulk cement storage: Bulk storage bins, containers, and silos must be equipped with the following:

- Conical or tapered bottoms and mechanical or pneumatic means of starting the flow of material.
- No employee shall be permitted to enter storage facilities unless the ejection system has been shut down and locked out.
- Safety belts, harnesses, lanyards, lifelines or droplines, independently attached or attended, must be used properly.

CONCRETE OPERATIONS

Special loads: Formwork must be designed for all special conditions of construction likely to occur, such as unsymmetrical placement of concrete, impact of machine-delivered concrete, uplift, and concentrated loads. Form supports and wedges shall be checked during concrete placement to prevent distortion or failure.

Reinforcing steel: All protruding reinforcing steel, onto and into which employees could fall, is required to be guarded to eliminate the hazard of impalement.

Wire mesh rolls: Wire mesh rolls must be secured at each end to prevent recoiling action.

Guying: Reinforcing steel for walls, piers, columns, and similar vertical structures must be guyed and supported to prevent overturning and to prevent collapse.

Concrete buckets

- Concrete buckets equipped with hydraulic or pneumatic gates are required to have positive safety latches or similar safety devices installed to prevent premature or accidental dumping.
- Concrete buckets must be designed to prevent concrete from hanging up on top and the sides.
- Riding of concrete buckets for any purpose is prohibited, and vibrator crews must be kept out from under concrete buckets suspended from cranes or cableways.
- When discharging on a slope, the wheels of ready-mix trucks are required to be blocked and the brakes set to prevent movement.
- No employee is permitted to work under concrete buckets while buckets are being elevated or lowered into position.
- To the extent practical, elevated concrete buckets must be routed so that no employee, (or the fewest number of employees), are exposed to the hazards associated with falling concrete buckets.

Tremies: Sections of tremies and similar concrete conveyances must be secured with wire rope (or equivalent materials in addition to the regular couplings or connections).

Bullfloats: If Bullfloats are used where the handles could contact energized electrical conductors, they must be made of nonconductive material or insulated with a nonconductive sheath whose electrical and mechanical characteristics provide the equivalent protection of a handle constructed of nonconductive material.

Lockout/tagout procedures: No employee shall be permitted to perform maintenance or repair activity on equipment (such as compressors, mixers, screens, or pumps used for concrete and masonry construction activities) where the inadvertent operation of the equipment could occur and cause injury, unless all potentially hazardous energy sources have been locked out and tagged.

Concrete mixers: Concrete mixers with one cubic yard (.8 m³) or larger loading skips are required to be equipped a mechanical device to clear the skip of materials and guardrails installed on each side of the skip.

CONCRETE OPERATIONS

Power concrete trowels: Powered and rotating type concrete troweling machines that are manually guided must be equipped with a control switch that will automatically shut off the power whenever the hands of the operator are removed from the equipment handles.

Concrete buggies: Concrete buggy handles must not extend beyond the wheels on either side of the buggy. Installation of knuckle guards on buggy handles is recommended.

Foundations: After the foundation walls are constructed, take special precautions to prevent injury from cave-ins in the area between the excavation wall and the foundation wall.

- The depth of the foundation/basement trench cannot exceed 7½ feet deep unless you provide other cave-in protection.
- Keep the horizontal width of the foundation trench at least 2 feet wide. Make sure no work activity vibrates the soil while workers are in the trench.
- Plan the foundation trench work to minimize the number of workers in the trench and the length of time they spend there.
- Inspect the trench regularly for changes in the stability of the earth (water, cracks, vibrations, spoils pile). Stop work if any potential for cave-in develops and fix the problem before work starts again.

Runways

Runways will be constructed to carry the maximum contemplated load with a safety factor of four, have a smooth running surface, and be of sufficient width for two buggies to pass.

Single runs to have a minimum width of forty-two inches with turnouts. Runways to have standard railings. Where motor driven concrete buggies are used, a minimum four inches by four inches wheel guard will be securely fastened to outside edge of runways.

All concrete buggy runways that are 12 inches or more above a work surface or floor, or ramps with more than 4 percent incline must be considered “elevated” runways.

Exception: Small jobs utilizing only one concrete buggy, or larger jobs utilizing a one-way traffic pattern may be exempt from the requirements for turnouts or for sufficient width for two buggies to pass.

Exemption: Runways less than 12 inches above the floor or ground that are utilized by hard-powered buggies only, may be exempt from the guardrail and wheel guard requirements.

Stairways and ladders

- Install permanent or temporary guardrails on stairs.
- Do not store materials on stairways that are used for general access.
- Keep hazardous projections out of the stairs, treads, or handrails.
- Correct any slippery conditions on stairways before they are used.
- Inspect ladders before use for broken rungs or other defects. Discard or repair defective ladders.
- Secure ladders near the top or at the bottom to prevent them from slipping.

Safe walking surfaces on concrete structural members

- Structural members with studs, dowels, or shear connectors installed on the top side must not be used as a walkway and/or means of access. If studs, dowels, or shear connectors are present, they must be covered with suitable material that will provide a walking surface as stable and free of hazards as one without obstructions.
- Place ladders at the proper angle (1 foot out from the base for every 4 feet of vertical rise).
- Extend ladders at least 3 feet above the landing to provide a handhold or for balance when getting on and off the ladder from other surfaces.
- Do not set up a ladder near passageways or high traffic areas.
- When ladders cannot be tied off, it must be located on a stable and level surface so it cannot be knocked over or the bottom of it kicked out.
- Use ladders for their intended purpose only. Never use a ladder as a platform, runway, or as scaffold planks.
- Always face the ladder and maintain 3 points of contact when climbing a ladder.

Welding and Cutting

- Perform Safety Check on all equipment.
- Ensure tanks have gas and fittings are tight.
- Ensure fire extinguisher is charged and available.
- Inspect hoses for defects.
- Ensure all PPE is available and in good condition.
- All defective equipment must be repaired or replaced before use.
- Remove flammables and combustibles
- Welding is not permitted on or near containers of flammable material, combustible material or unprotected flammable structures.
- Place welding screen or suitable barricade around work area to provide a fire safety zone and prevent injuries to passersby (do not block emergency exits or restrict ventilation).
- Use an authorized Air Filtering Respirator, if required.
- Ensure adequate ventilation and lighting.
- Execute Hot Work Permit procedures.
- Maintain fire watch for one hour after welding, and until all welds have cooled.
- Perform final fire watch and terminate permit.

CONSTRUCTION PRACTICES

General practices

- When laying concrete block, have different sizes on hand to avoid cutting or hammering to make them fit.
- Work in ways that minimize the amount of cement dust released.
- Where possible, wet-cut rather than dry-cut masonry products.
- Mix dry cement in well-ventilated areas.
- Make sure to work upwind from dust sources.
- Where possible, use ready-mixed concrete instead of mixing on site.
- When kneeling on fresh concrete, use a dry board or waterproof kneepads to protect knees from water that can soak through fabric.
- Remove jewelry such as rings and watches because wet cement can collect under them.
- Use power tools with HEPA filters when cutting or drilling concrete.
- Use a special HEPA vacuum to clean up dust, not dry sweeping.
- Wear a respirator with HEPA cartridges if there is a lot of dust in the air.

Certain practices associated with concrete construction contribute to risks. The use of cranes for lifting and placing concrete buckets, for tilt-up concrete panels, and for lifting precast members present hazards to the finishers and erectors.

Concrete pumping, hydro-demolition, or shotcreteing operations where high pressures are generated in hoses prompt safety concerns for the nozzle men.

Reinforcement construction can involve heavy materials, protruding steel, oxyacetylene torches or welding equipment, and height sources, each of which introduces a safety hazard either singularly or in any combination.

Post-tensioning operations impart stresses nearly equal to the yield strength of pre-stressing tendons, which can be 250,000 psi. Such forces are dangerous to jack operators or on looking personnel. Precast plants with heavy table forms, consolidation equipment, and curing rooms must follow safety procedures.

TYPES OF CONCRETE WORK

- Concrete pumping
- Foundation work
- Rebar & working at heights
- Cast in place
- Tilt-up operations
- Lift slab operation
- Post-tensioning operations
- Finishing
- Masonry work

CONCRETE PUMPING

Personal Protective Equipment:

- Hard hat
- Safety goggles or glasses
- Heavy duty work shoes or boots
- Rubber boots (for clean outs)
- Work gloves (rubber when necessary)
- Long sleeved shirt (when necessary)
- Ear plugs or muffs

Equipment inspection

- Read and understand the manufacturer's operating manual.
- Check engine oil, hydraulic oil, and radiator water before operations begin.
- Inspect all safety covers, instruments, gauges, grates, outriggers, and other equipment for safe and proper operating procedures.
- Inspect safety slings, cables, and chains. All clamps should be pinned at all times, including the boom system.
- In the cab of the truck should be a:
 - Fire extinguisher
 - Safety flares
 - Safety reflector
 - First-aid kit

General rule: One safety sling for every item hanging from the boom. The anchor point for a safety sling should be the boom itself, not the pipeline.

- Only one worker is to give directions to the pump operator.
- Pump operators' and the ground worker must know the proper hand signals.
- Keep a minimum of 17 feet away from all electrical lines.
- Water boxes must be in place when the machine is in operation.
- Never reach into the valve or water box.

Trailer Pumps

The following items will be checked prior to using a trailer pump:

- The condition of the truck and trailer.
- The hitch is closed and secured.
- The safety chain is connected.
- All air and electric connections are working.
- All safety pins are in place.
- All equipment is secure.
- All emergency shut off buttons are labeled.

CONCRETE OPERATIONS

Set up

- Locate pump in an area for easy access to ready mix trucks and pour.
- Locate wash out area and water access.
- Placing line should be short and straight.
- A 90 degree bend creates as much pressure as nine ft. of straight pipe.
- Clamp the steel pipeline directly to the pump reducer whenever possible.
- Avoid using a rubber hose between the pump and the placing line.
- It is three times as hard to pump through rubber hose as opposed to steel.
- Check the pipes thickness and inspect for wear.
- Frayed or worn hoses can cause kinking, which builds up unwanted pressure, causing the hose to jerk and rupture. Kinking can cause a hydraulic line to burst and can blow the end off a hose or burst a clamp.
- Know the pump piston face pressure and the placing line working pressure.
- Concrete poured on high rises wears out the standpipe faster than the upper line.
- Raised ends on the placing line will withstand higher pressure.
- Prime the pump and placing line with a mixture of slurry.

During the pour

- Grease the pumps seals and bearings. Manufacturers recommend greasing every hour or every 50 yards during the day.

Remember:

- Pumping up 200 ft. is equal to pumping 800 ft. straight out.
- A 10 ft. section of 5 inch pipe contains 200 pounds of concrete.

High rise pumping

- Secure the placing line or pour a concrete thrust block.
- Use a shut off or switching valve in the line right after the pump.
- The pipe from the valve to the clean out area must include a slurry tee.
- Everyone on site needs to know who is responsible for checking and maintaining the placing line and clean out procedures.
- Be aware of any admixtures in the concrete.

Lightweight concrete

- Concrete is porous and may absorb water under the pressure of the pumping.
- Person responsible for the pour should add any needed water.
- Too much water can cause the rock and sand to separate, causing a plug (segregation).
- Never reach into the concrete pump valve. Use special tools.
- Do not remove the grate from the hopper or operate the pump without a grate on the hopper.
- Never reach into the hopper when the pump engine is running or the agitator is turning.

Clean Out (compressed air)

- Clean out should begin within 5 minutes after pumping is complete.
- Verify with pump operator that the shut off valve is closed.
- All pipe added to a discharge end must be lubricated by using a grout tee or adding slurry.
- No one is allowed near the discharge end.
- Attach a catch basket to the discharge end or use established control methods.
- Position the pipe high enough to allow easy discharge.
- The sponge or plug must be tight to prevent airflow around the plug into the concrete.
- Connect blow out cap onto the placing line.
- Connect the air hose to the blow out cap.
- Open the bleeder valve.
- Once the concrete is moving, close the bleeder valve and slowly add air.
- After the blow out is completed, retrieve all disconnected hoses and pipe.
- Insure that the air pressure has been completely relieved before working on the line.

Multiple section boom pumps

- Clean set up area of debris and position pump so obstructions do not interfere.
- Extend outriggers fully and lock. If the area is cramped, the outriggers on the side of the pump away from the pour should be jacked down.
- All outriggers that feel the weight of the boom must be fully extended.
- The boom must not rotate beyond an extended outrigger toward a non-extended outrigger.
- Use pads and dunnage for stabilization. Make sure pads do not sink.
- All truck mounted boom pumps are required to be level for safe operation. Make sure tires are blocked.

One to One Rule: For every 1 foot of vertical drop, stay back from the base edge 1 foot. Make sure the base is not undercut.

- Unfold the boom sections in the proper sequence.
- Make sure safety hooks or straps used for transport are not bent or binding.
- Never force the boom when it is in a bind. Eliminate the problem.
- Never over rotate the boom.
- Never drag the hoses sideways with the boom.
- Never move the truck concrete pump without folding the boom fully and placing the outrigger in the proper travel position.

Electrical Hazards

Lightning: Lower or fold the boom and seek shelter.

Power lines: Power lines cause electrocutions.

- Assign a spotter to watch the boom to warn if the boom comes within 17 feet of lines.
- Take all necessary precautions to rectify the situation. Move to a safer area.

Small line pumps: A small-line pump is defined as a pump that pumps grout or a 3/8" pea gravel mix through pipe and hose that has a diameter of 2 inches, 2-1/2 inches, or 3 inches. The size of any coarse aggregate and the proportioning of the mix will dictate the diameter of the pipe or hose that is required.

It is recommended that the diameter of the placing line be at least 3 times and, preferably, 4 times the size of the largest aggregate in the mix.

Grout may contain as little as 5 sacks of cement (470 pounds), or as much as 10 sacks (940 pounds) of cement per cubic yard. It may be desirable to request a retarder be added to the mix if a slow pour with high cement content is anticipated.

- When using a high cement content and a high ambient temperature, extreme care should be taken to prevent the mix from setting in the placing line.
- The pump operator may make recommendations concerning the mix design or slump, but the contractor has the final responsibility for mix design and slump.
- The pump operator should never add any water without the contractor or superintendent's approval.
- Check all fluid levels of the truck and concrete pump before starting the truck or pump engine.
- On the pump, check the engine oil, hydraulic oil, radiator water, and flush box water.

Hose and pipe: When selecting hose and pipe size, it is recommended that you remember the rule concerning the diameter of the largest aggregate in relation to the diameter of the placing line.

- When it is necessary to pump a long distance, it is recommended that steel pipe be used for as much of the distance as is practical; then rubber hoses for distribution at point or placement.
- Use only raise-end fittings for pipe or hoses. The clamps must be properly adjusted to give a tight fit and gaskets must be used in all clamps.
- Make sure all your clamps are complete with gaskets and they are clean. A clamp without a gasket leaks slurry and may cause a plug. It will also leak air, giving you trouble when you try to suck a ball back.

CONCRETE OPERATIONS

Inspect hoses daily: Any frayed or worn hoses should be taken out of service because of the increased danger of kinking or bursting. Kinking can be dangerous because it almost instantly builds pressure to the maximum pressure that the pumps can produce.

- When starting to pump, it is important that the first material through the placing line have the ability to lubricate the placing line.
- If a high slump, wet grout is pumped, it may be adequate to lubricate the placing line.
- When a low slump or low cement content grout is pumped, it may be necessary to add additional water to the first hopper full of concrete.
- When a pea gravel mix is to be pumped, it is recommended that a line lubrication mixture be put into the hopper ahead of the concrete. This lubricating mix may be cement and water or any of several commercial priming products available on the market.
- A number of problems may cause a plug in the line. It may be caused when starting to pump by a lack of lubrication in front of the grout or pea gravel. It may be caused by dirty placing lines that were not properly cleaned on the previous day.
- A plug can be caused by the mix bleeding for segregation of the sand and aggregate. A plug may occur when larger stones or aggregates that are not designed to be in the mix are dropped into the pump hopper. It is recommended when using small diameter line that a grate with smaller holes be placed on the hopper to prevent large stones or other contaminants from entering the pump.
- If plugging conditions in the pump or hose occur for any reason at all, do not attempt to use more power or correct the condition. Reverse the pump or release the line pressure, determine the cause of the plug, correct it, clean the plug, and resume pumping.
- Trying to force material through under jammed conditions may result in serious injury to people or damage to the pump or placing line. If the hose or pipe connected to the reducer and hose starts to move or rise up as pressure is applied, the blockage is down the line.
- Check the system until you locate a soft spot in the hose or a hollow sound with a hammer if it is pipe. If the reducer rises up, but the hose is soft, you know the plug is in the reducer.
- Never open a coupling when the placing line is pressurized. Consult the manufacturer's operation manual for the method releasing pressure from the pipeline or hose. Extreme caution must be taken when this condition occurs.
- Plugs usually occur in reducers, and sometimes in hoses as they have more friction than pipe. To remove a plug when reversing does not work, first relieve the line pressure, then disconnect the plugged system, elevate it and tap on the plugged area with a hammer. Break down the plug and shake it out the end of the hose or pipe. Do not re-hook the system until the plug is removed.

CONCRETE OPERATIONS

Clean out: Immediately upon completion of placing operation, attention must be given to clean out. During some pours, hose and pipes can be cleaned out as they are being removed from the system. Do not leave your machine to help drag hose during the pour.

When the pour is complete, there are several ways to clean out the placing line depending on the pump you are operating.

- Clean out the hopper, dump the hopper, or pump the hopper down, and re-hook the hose to the pump with a sponge inside of the hose. Fill the hopper with water and pump the water through the hose until the sponge comes out. Never handle concrete with your bare hands, as it contains lime and can burn your skin.
- Dump all hoses and place long hoses with one end uphill and fill lowest end with water.
- After the hose is full of water, walk the hose in a rolling direction until empty, and then repeat using opposite end.
- When cleaning inside the hopper, make sure the grate is in place and properly secured, or the engine is shut off, and the accumulator circuit is bled.

When pumping and clean-out operations are completed, make sure your unit is safe and ready for travel back to your yard.

- Check to make sure that the safety chains are properly fastened and the tongue jack and outriggers are raised and locked in position.
- Do a final walk around the truck and pump to be certain there are no loose objects that may fall off during travel.

Pumps with placing booms: Make sure all warning labels and signs are visible and in good shape. When missing, replace immediately. Safety reminders are important.

Spreaders: Always communicate with your fellow workers.

- Wear the proper protective equipment. (Rubber boots, goggles, gloves)
- Plan the layout ahead of beginning operations
- Hold the pipe firmly. Pumping pressures can cause injury
- Keep moving. Do not let the concrete build up to overflow in one area
- Do not let the pipe whip
- Do not work during strong winds
- Have a spotter keep you apprised of where you are
- Only one tip hose may be safely hung from the tip of the placing boom
- The safety cable or strap between the boom pipeline and the end of the hose must be in place, attached, and in good working order
- All connections must be capable of handling the pressure of the pump being used.

FOUNDATION WORK

Truck Placement

Effective immediately and until further notice, 29 CFR 1926.652 will not apply to house foundation/basement excavations when all the following conditions are present.

- The house foundation/basement excavation is less than seven and one-half feet in depth or is benched at least (2) feet horizontally for every five (5) feet or less of vertical height
- The minimum horizontal width (excavation face to formwork/wall) at the bottom of the excavation is as wide as practicable but not less than two (2) feet
- There is no water, surface tension cracks, nor other environmental conditions present that reduce the stability of the excavation
- There is no heavy equipment operating in the vicinity that causes vibration to the excavation while employees are in the excavation
- All soil, equipment, and material surcharge loads are no closer in distance to the top edge of the excavation than the excavation is deep
- However, when front end loaders are used to dig the excavations, the soil surcharge load must be placed as far back from the edge of the excavation as possible, but never closer than two (2) feet
- Work crews in the excavation are the minimum number needed to perform the work
- The work has been planned and is carried out in a manner to minimize the time employees are in the excavation

Concrete trucks, drivers, spotters

Safety: Federal regulations require every driver to record a pre-trip and post-trip inspection report.

- All drivers need a commercial driver's license.
- Stay alert to all traffic movements.
- Look for workers, vehicles, or obstacles that may be in the trucks path.
- Check for flat, low, or damaged tires. Repair or replace immediately.
- Check for fluid leaks.
- Keep chutes cleaned and stowed properly to avoid dropping concrete or stones while traveling.
- The circle of safety is a perimeter check around the entire vehicle. Do this daily.
- Maintain a current medical card.
- Use the three point rule for getting on and off the vehicle.
- Stay alert to pinch point hazards (e.g. rotating parts, chutes).
- Keep hands away from pivot points.
- Do not let anyone stand or walk under the chutes or near the discharge end of the mixer.

CONCRETE OPERATIONS

Backing up to pump operators: Drive slowly. Know the conditions of the brakes.

- Designate a spotter. Maintain visual contact all times.
- Take direction from only one spotter. The spotter and truck driver must know hand signals. Make sure to agree on the signal used. Stop immediately if you do not understand. (See the signal charts at the end of this section).
- Use only one rear view mirror (the one on the spotter) while backing up.
- Never get closer than 10 ft. to the pump unless there is a clear view of the spotter.
- When the spotter is not visible, stop the truck immediately. Wait until the spotter can be seen.
- Do not allow any worker to move, raise, lower, adjust, or unfold the discharge chute while backing up.

Outside of the truck: Set the parking brake before leaving the cab.

- Make sure the transmission is in neutral.
- Put on a hard hat and safety glasses or goggles before leaving the cab.
- Never get between the pump and the truck.
- When more than one truck is delivering to the hopper, keep communicating to all workers to stay out

Delivering the Concrete: Learn where all E-stop switches are.

- Put the concrete into the pump hopper only when directed to do so by the pump operator.
- When there is foreign matter coming from the truck into the hopper, signal the operator to stop the pump or hit the emergency stop switch (E-stop).
- Never reach into the hopper, while it is running, to retrieve objects.
- Remember; even when the pump is stopped, the pump is remote controlled and can start up at any time.
- Stay in direct communication with the pump operator at all times.
- Some pumps are equipped with horns. Learn how to use them.
- Stand away from a hopper that has to have trapped air removed from the delivery system. Wait for the go ahead from the pump operator.
- The release of trapped air can cause hose whipping and spewing hazards.
- Never stand on the hopper grate.
- Never lift or move the hopper grate.
- Avoid walking under any boom or outrigger.
- Do not overfill the hopper. Excess concrete causes tripping hazards.

CONCRETE OPERATIONS

Clean up: Do not wash out the truck into the pump hopper.

- Do not allow the level of material in the hopper to become so low that air is sucked into the material cylinders.
- If concrete is being pumped back into the truck, stay away from the hopper or stay in the cab.
- Let the pump operator handle the end hose.
- Do not drive under the boom when pulling away. Have the operator move the boom or take a different path off the job.
- Make sure all workers are a safe distance before pulling away.

Electrocution: When a boom becomes energized by touching an electrical wire, the electricity passing through the concrete going into the hopper will energize the truck. A worker touching the truck can be electrocuted.

- Monitor boom movements.
- Alert operator when boom moves closer than 17 ft. to any electrical wire.
- Never stand on a concrete pipeline when it is in use. Never touch the pipe, clamps, or hoses.
- Move away from pipelines that are being worked on. When pressure is still in the line and the line is opened, concrete will be spewed at a high velocity.
- Use the 3 point rule for getting on and off the truck. The three point rule is one foot and two hands or vice versa.
- Never carry loads or objects that could cause you to lose your balance and fall.
- Keep a safe distance when monitoring the hopper.
- Never look into the end of a connected pipe or hose.

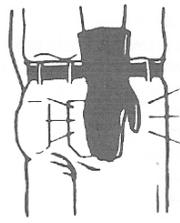
CONCRETE OPERATIONS

CONCRETE OPERATIONS

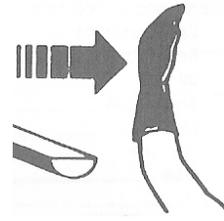
The spotter and driver must know the following hand signals:



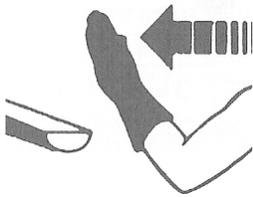
DRIVE IN



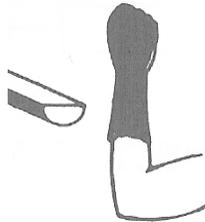
BACK IN



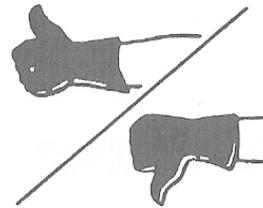
BACK UP



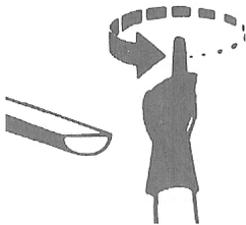
PULL FORWARD



STOP



RAISE CHUTE/LOWER CHUTE



START POURING



MORE WATER



STOP POURING

CONCRETE OPERATIONS

Signals: The spotter and truck driver must know hand signals. Make sure to agree on the signal used. Stop immediately if you do not understand. Only one spotter gives signals.



START PUMP
(SPEED UP)



SLOW PUMP



STOP PUMP



LITTLE BIT



ADD WATER (4 GALLONS)



ALL DONE (CLEAN UP)



BOOM UP



BOOM LEFT



BOOM RIGHT



OPEN



CLOSE



STOP BOOM



BOOM DOWN



RELIEVE (2 TAPS)

REBAR & WORKING AT HEIGHTS

Handling rebar

- Cut rebar will always have sharp chisel ends that can cause lacerations and puncture wounds. Rebar often has scale, rust, or burs that can cause abrasions or lacerations. Wear proper personal protective equipment such as heavy leather gloves when working with rebar.
- When manually bending rebar, make sure you have a firm footing and a firm grip on the bar. Do not place your entire weight on the bar being bent, to prevent falling, if the bar should slip or break.
- Use mechanical hoists or lifts to handle heavy bundles of rebar.
- When carrying full lengths of rebar, lift the load forward of center, letting the trailing end drag, if necessary, to prevent the front end from whipping and possibly catching on the ground, coworkers, or other objects.

Fall-protection for rebar and concrete formwork

Workers on the face of formwork or reinforcing steel are required to use fall protection if they are six feet or more above a lower level. Workers and employers can choose from among the following types of fall protection: personal fall-arrest systems, safety nets, or positioning-device systems.

Personal fall-arrest systems: Personal fall-arrest systems are designed to stop a worker from free falling to a lower level. A personal fall arrest system consists of an anchorage, connectors, and a full body harness.

- Other system components may include a lanyard, a lifeline, and a deceleration device. These components must be used only for fall protection and not for any other purpose.
- If the system, or any system component, is subjected to a fall, it must be immediately removed from service and cannot be used again until a competent person determines it is undamaged.

Competent person: A competent person is capable of identifying existing and predictable hazards in the work environment and who has authorization to take prompt measures to eliminate the hazards.

- Use a personal fall-arrest system as fall protection when you are constructing standard forms or doing dismantling work, exterior building work, or erecting precast concrete members.

Safety-net systems: Safety-net systems consist of mesh nets, panels, connectors, and other impact-absorbing components. Use safety nets as fall protection for doing standard formwork, slipform work, and erecting precast concrete members. Rebar and

CONCRETE OPERATIONS

Positioning-device systems: Positioning-device systems are the most appropriate type of personal fall-protection for working on and placing rebar. A positioning-device system enables one person to work on a vertical surface with both hands free and it limits free-fall distance to two feet or less.

- The difference between a positioning device system and a personal fall-arrest system is that a positioning-device system supports a worker on an elevated surface and limits a fall to two feet.
- A personal fall arrest system, on the other hand, prevents a worker from free falling more than six feet.

The major components of a positioning-device system are:

- Body support: a body belt or full body harness.
- Connectors and connecting assemblies: a chain/ web rebar assembly or rope/web lanyard, snaphooks, and D-rings.
- Anchorage connector: a carabiner or snaphook.
- Anchorage: a rebar or other support structure.
- Positioning-device systems must meet the following requirements:

Body support: A body belt must limit the maximum arrest force on a worker to 900 pounds and cannot be used for any purpose other than personal fall protection. A body harness must limit the maximum arrest force to 1,800 pounds and must be used only for fall protection.

- Make sure the body belt or harness has side D-rings, or a single front D-ring for positioning. (Rear D-rings are for fall arrest only.)
- Use a body belt or full body harness that is properly fitted; belts and harnesses come in different sizes. Body belts must not ride up and compress the rib cage.

Connectors and connecting assemblies: Connecting assemblies must have a minimum tensile strength of 5,000 pounds. Snaphooks and D-rings must be proof-tested to a minimum tensile load of 3,600 pounds without cracking, deforming, or breaking.

- They must be made of dropforged steel or equivalent materials, the finish must be corrosion-resistant, and the surfaces smooth. The dimensions of snaphooks must be compatible with the members to which they are connected or the snaphooks must be of the double-locking type to prevent roll out.

Anchorage: Positioning-device systems must be secured to an anchorage that can support at least twice the potential impact load of a worker's fall or 3,000 pounds, whichever is greater.

- Be sure to inspect positioning device systems for wear, damage, or deterioration before using them. Remove defective components from service.

CONCRETE OPERATIONS

Climbing rebar: Workers may free-climb concrete forms and rebar to reach work areas. The maximum free-climbing height is 24 feet. The horizontal bars must be spaced not less than six inches, or more than 16 inches on center.

- When rebar spacing is more than 16 inches on center, use a ladder or lift to reach work areas. Upon reaching a work area, you must use a personal fall-arrest system, safety net, or positioning-device system for fall protection.
- Check the rebar's rigidity before climbing it. If it's not rigid, brace it to meet the required 3,000-pound anchor load requirement.
- Avoid climbing overhanging rebar or forms. This type of climbing increases your risk of falling and overexerting your muscles and joints.
- If you have to work on overhanging objects, use a powered elevated lift or ladder.

Capping rebar: Whenever you work above rebar that protrudes from the floor, cover the rebar with protective caps that will prevent you from being impaled if you fall. Cap rebar protruding horizontally to prevent scrapes, cuts, or eye injuries.

Standard formwork: When you work on standard forms more than six feet above a lower level, you must use appropriate fall protection (personal fall-arrest, safety net, or positioning- device systems) or work from a platform such as a carpenter bracket scaffold. Railings on work platforms must be 42+3 inches high. Include midrails and toeboards if people are working below.

- When you climb standard forms with walers or crossties to gain access to a work area, make sure the climbing members are no more than 16 inches apart. Use a ladder or lift to reach the work area if the climbing members are spaced more than 16 inches apart. Ladder rungs must offer reliable footing. Tie off an unstable ladder so that it is anchored at the access to the work area and at the ladder's base.

Note: Walers have depths ranging from 1 1/2 inches to 3 1/2 inches. The smaller walers do not offer much toehold. Use caution when you climb walers with narrow depths.

- If you are doing dismantling or erecting work outside protective guardrails, you must use a personal fall-arrest system.
- When rebar protrudes from wall forms that you are dismantling, you may tie off to the exposed rebar if it's strong enough and if you can't slide off the end. A number three, grade 60, bar (0.375-inches diameter) has ultimate shear strength of about 6,000 pounds. A number-four grade 60 bar (0.500 in diameter) has a shear strength of 8,000 pounds.
- Do not walk, sit, or stand on top of wall forms.

Slipforms: Workers using slipforms are usually protected from falls by safety-net systems or catch platforms attached to the forms by carpenter brackets. Special hooks that anchor directly to slipforms are available, too. Follow the manufacturer's recommendations and instructions if you use these hooks.

CAST IN PLACE CONCRETE

Requirements for formwork

- Formwork must be designed, fabricated, erected, supported, braced, and maintained so that it will be capable of supporting without failure all vertical and lateral loads that may reasonably be anticipated to be applied to the formwork.
- Formwork that is designed, fabricated, erected, supported, braced, and maintained will be deemed to meet all requirements.
- Any form, regardless of size, must be planned, designed, and constructed with an adequate factor of safety.
- In addition to computable loading, additional form pressures may result from impact during concrete placement, sudden lowering of temperatures retarding the set and increasing the liquid head or static pressure, vibrations of the form or concrete, uneven stressing resulting from failure or weakening of form members, or impact from concrete buckets or placing equipment.
- As a result, an adequate factor of safety is required to offset these unpredictable conditions.
- The thoroughness of planning and design shall be governed by the size, complexity, and intended use of the form.
- Formwork which is complex in nature or which will be subjected to unusually high concrete pressures must be designed or approved for use by an engineer or experienced form designer.
- Drawings or plans, including all revisions, for the jack layout, formwork (including shoring equipment), working decks, and scaffolds, shall be available at the jobsite.

Shoring and reshoring: All shoring equipment must be inspected prior to erection to determine that it is as specified in the shoring layout.

- A shoring layout must be prepared or approved by a person qualified to analyze the loadings and stresses that are induced during the construction process.
- A copy of the shoring layout is required to be available at the jobsite.
- The shoring layout shall include all details of the specification, including unusual conditions such as heavy beams, sloping areas, ramps, and cantilevered slabs, as well as plan and elevation views.
- Shoring equipment found to be damaged such that its strength is reduced to less than that required must not be used for shoring.
- Erected shoring equipment shall be inspected immediately prior to, during, and immediately after concrete placement.
- Upon inspection, shoring equipment that is found to be damaged or weakened must be immediately removed and replaced.
- The sills for shoring shall be sound, rigid, and capable of carrying the maximum intended load without settlement or displacement.

CONCRETE OPERATIONS

- All base plates, shore heads, extension devices, and adjustment screws must be in firm contact, and secured when necessary, with the foundation and the form.
- Eccentric loads on shore heads and similar members are prohibited unless these members have been designed for such loading.
- The minimum total design load for any shoring used in slab and beam structures must be at least one hundred pounds per square foot for the combined live and dead load regardless of slab thickness; however, the minimum allowance for live load and formwork must be not less than twenty pounds per square foot in addition to the weight of the concrete.
- Additional allowance for live load will be added for special conditions other than when placing concrete for standard-type slabs and beams.
- Shoring must also be designed to resist all foreseeable lateral loads such as wind, cable tensions, inclined supports, impact of placement, and starting and stopping of equipment.
- The assumed value of load due to wind, impact of concrete, and equipment acting in any direction at each floor line shall not be less than one hundred pounds per lineal foot of floor edge or two percent of total dead load of the floor, whichever is greater.
- When motorized carts are used, the design load is required to be increased twenty-five pounds per square foot.
- The design stresses for form lumber and timbers shall be within the tolerance of the grade, condition, and species of lumber used.
- The design stresses used for form lumber and timber must be shown on all drawings, specifications, and shoring layouts.
- All load-carrying timber members of scaffold framing shall be a minimum of 1500 f (stress grade) construction grade lumber. All dimensions are nominal sizes except that where rough sizes are noted, only rough or undressed lumber of the size specified will satisfy minimum requirements.
- When shoring from soil, an engineer or other qualified person must determine that the soil is adequate to support the loads that are to be placed on it.
- Precautions must be taken so that weather conditions do not change the load-carrying conditions of the soil below the design minimum.
- When shoring from fill, or when excessive earth disturbance has occurred, an engineer or other qualified person must supervise the compaction and reworking of the disturbed area and determine that it is capable of carrying the loads that are to be imposed upon it.
- Suitable sills are required to be used on a pan or grid dome floor or any other floor system involving voids where vertical shoring equipment could concentrate an excessive load on a thin concrete section.
- When temporary storage of reinforcing rods, material, or equipment on top of formwork becomes necessary, these areas must be sufficient to meet the loads.
- If any deviation in the shoring plan is necessary because of field conditions, the person who prepared the shoring layout must be consulted for approval of the actual field setup before concrete is placed.

CONCRETE OPERATIONS

- The shoring setup must be checked to ensure that all details of the layout have been met.
- The completed shoring setup must be a homogenous unit or units and is required to have the specified bracing to give it lateral stability.
- The shoring setup must be checked to make certain that bracing specified in the shoring layout for lateral stability is in place.
- All vertical shoring equipment must be plumb. Maximum allowable deviation from the vertical is one eighth inch in three feet. If this tolerance is exceeded, the shoring equipment must not be used until readjusted within this limit.
- Upon inspection, shoring equipment that is found to be damaged or weakened must be immediately removed and replaced.
- Shoring equipment must not be released or removed until the approval of a qualified engineer has been received.
- Removal of shoring equipment must be planned so that the equipment that is still in place is not overloaded.
- Slabs or beams, which are to be reshored, should be allowed to take their actual permanent deflection before final adjustment of reshoring equipment is made.
- While the reshoring is underway, no construction loads are to be permitted on the partially-cured concrete.
- The allowable load on the supporting slab must not be exceeded when reshoring.
- The reshoring must be thoroughly checked to determine that it is properly placed and that it has the load capacity to support the areas that are being reshored.

Tubular welded frame shoring

- Metal tubular frames used for shoring must have allowable loads based on tests conducted according to the Recommended Procedure for Compression Testing of Scaffolds and Shores, of the Scaffolding & Shoring Institute.
- Design of shoring layouts must be based on allowable loads that were obtained using test procedures and on at least a two and one-half to one safety factor.
- All metal frame shoring equipment will be inspected before erection.
- Metal frame shoring equipment and accessories must not be used if heavily rusted, bent, dented, re-welded, or having broken weldments or other defects.
- All locking devices on frames and braces must be in good working order, coupling pins must align the frame or panel legs, pivoted cross braces must have their center pivot in place, and all components are required to be in a condition similar to that of original manufacture.
- When checking the erected shoring frames with the shoring layout, the spacing between towers and crossbrace spacing must not exceed that shown on the layout and all locking devices are required to be in the closed position.
- Devices for attaching the external lateral stability bracing must be securely fastened to the legs of the shoring frames.

CONCRETE OPERATIONS

- All base plates, shore heads, extension devices, or adjustment screws are required to be in firm contact with the footing sill and the form material, and shall be snug against the legs of the frames.
- Eccentric loads on shore heads and similar members must be prohibited unless the shore heads have been designed for such loading.
- When formwork is installed at an angle, or sloping, or when the surface shored from is sloping, the shoring must be designed for such loading.
- Adjustment screws will not be adjusted to raise formwork after the concrete is in place.

Tube and coupler shoring

- Tube and coupler towers used for shoring must have allowable loads based on tests conducted according to the Recommended Procedure for Compression Testing of Scaffolds and Shores, of the Scaffolding & Shoring Institute.
- Design of shoring layouts must be based on working loads that were obtained using the test procedures on at least a two and one-half to one safety factor.
- All tube and coupler components must be inspected before being used.
- Tubes of shoring structures that are heavily rusted, bent, dented, or having other defects will not be used.
- Couplers (clamps) must not be used if deformed, broken, or having defective or missing threads on bolts, or other defects.
- The material used for the couplers (clamps) must be of a structural type such as dropforged steel, malleable iron, or structural grade aluminum. Gray cast iron cannot be used.
- When checking the erected shoring towers with the shoring layout, the spacing between posts must not exceed that shown on the layout, and all interlocking of tubular members and tightness of couplers should be checked.
- All base plates, shore heads, extension devices, or adjustment screws must be in firm contact with the footing sill and the form material, and shall be snug against the posts.
- Eccentric loads on shore heads and similar members must be prohibited unless the shore heads have been designed for such loading.
- Special precautions must be taken when formwork is at angles, or sloping, or when the surface shored from is sloping.
- Adjustment screws must not be adjusted to raise formwork after the concrete is in place.

Single post shores

- When checking erected single post shores with the shoring layout, the spacing between shores in either direction must not exceed that shown on the layout, and all clamps, screws, pins, and all other components must be in the closed or engaged position.
- For stability, single post shores are required to be horizontally braced in both the longitudinal and transverse directions. Diagonal bracing must also be installed. Such bracing will be installed as the shores are being erected.
- Devices that attach to the external lateral stability bracing must be securely fastened to the single post shores.
- All base plates or shore heads of single post shores must be in firm contact with the footing sill and the form material.
- Whenever single post shores are used in more than one tier, the layout must be designed and inspected by a structural engineer.
- Eccentric loads on shore heads is prohibited unless the shore heads have been designed for such loading.
- When formwork is at an angle, or sloping, or when the surface shored from is sloping, the shoring must be designed for such loading.
- Adjustment of single post shores to raise formwork must not be made after concrete is in place.

Fabricated single post shores

- The clamp used for adjustable timber single post shores must have working load ratings based on tests conducted according to the standard test procedures for fabricated single post shores in the Recommended Procedure for Compression Testing of Scaffolds and Shores, Scaffolding & Shoring Institute, and on at least a three to one safety factor.
- Shoring layouts are required to be made using working loads which were obtained using test procedures and on at least a three to one safety factor.
- All fabricated single post shores must be inspected before being used.
- Fabricated single post shores cannot be used if heavily rusted, bent, dented, rewelded, or having broken weldments or other defects. If they contain timber, they must not be used if timber is split, cut, has sections removed, is rotted, or otherwise structurally damaged.
- All clamps, screws, pins, threads, and all other components are required to be in a condition similar to that of original manufacture.

Adjustable timber single post shores

- The clamp used for adjustable timber single post shores must have working load ratings based on tests conducted according to the standard test procedures for fabricated single post shores in Recommended Procedure for Compression Testing of Scaffolds and Shores, Scaffolding & Shoring Institute, 1967, and on at least a three to one safety factor.

CONCRETE OPERATIONS

- Timber used must have the safety factor and allowable working load for each grade and species as recommended in the Tables for wooden columns in the Wood Structural Design Data Book, National Forest Products Association, 1970.
- The shoring layout must be made using the allowable load obtained by using the test procedure for the clamp or Tables for timber.
- All timber and adjusting devices to be used for adjustable timber single post shores must be inspected before erection.
- Timber must not be used if it is split, cut, has sections removed, is rotted, or otherwise structurally damaged.
- Adjusting devices may not be used if heavily rusted, bent, dented, rewelded, or having broken weldments or other defects.
- All nails used to secure bracing on adjustable timber single post shores must be driven home and the point of the nail bent over.

Timber single post shores:

- Timber used as single post shores must have the safety factor and allowable working load for each grade and species as recommended in the Tables for wooden columns in the Wood Structural Design Data Book, National Forest Products Association.
- The shoring layout must be prepared using working loads obtained from the tables referred to above.
- All timber to be used for single post shoring must be inspected before erection.
- Timber must not be used if it is split, cut, has sections removed, is rotted, or is otherwise structurally damaged.
- All nails used to secure bracing on timber single post shores must be driven home and the point of the nail bent over.

Tiered single post shores

Whenever single post shores are used one on top of another (tiered), the employer must comply with the following specific requirements in addition to the general requirements for formwork:

- The design of the shoring must be prepared by a qualified designer and the erected shoring will be inspected by an engineer qualified in structural design.
- The single post shores are required to be vertically aligned.
- The single post shores must be spliced to prevent misalignment.
- The single post shores are required to be adequately braced in two mutually perpendicular directions at the splice level. Each tier must also be diagonally braced in the same two directions.
- Adjustment of single post shores to raise formwork must not be made after the placement of concrete.
- Reshoring must be erected, as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.

Vertical slip forms

- Slip forms will be designed, constructed, and the form movement carried out, under the immediate supervision of a person or persons experienced in slip form design and operation. Drawings prepared by a qualified engineer, showing the jack layout, formwork, working decks, and scaffolding, must be available at the jobsite, and followed.
- The steel rods or pipe on which the jacks climb, or by which the forms are lifted, must be designed for this purpose. Such rods must be adequately braced where not encased in concrete.
- Forms must be designed to prevent excessive distortion of the structure during the jacking operation.
- All vertical slip forms must be provided with scaffolding or work platforms completely encircling the area of placement.
- Jacks and vertical supports must be positioned in such a manner that the loads do not exceed the rated capacity of the jacks.
- The jacks or other lifting devices are required to be provided with mechanical dogs or other automatic holding devices to support the slip forms whenever failure of the power supply or lifting mechanism occurs.
- The form structure must be maintained within all design tolerances specified for plumbness during the jacking operation.
- Lifting must proceed steadily and uniformly and must not exceed the predetermined safe rate of lift. A jacking system, which provides precise, simultaneous movement of the entire form in small preselected increments, is recommended for large structures.
- Workers placing reinforcing steel must comply with the requirements when working above the scaffold level.
- The total allowable load on slip form platforms is required to be determined by the design engineer and enforced by the field supervisor.
- Lateral and diagonal bracing of the forms must be provided to prevent excessive distortion of the structure during the sliding operation.
- While the slide is in operation, the form structure must be maintained in line and plumb.
- A field supervisor experienced in slip form construction is required to be present on the deck at all times.

Placing and removal of forms: When moved or raised by crane, cableway, A-frame, or similar mechanical device, forms must be securely attached to slings having a minimum safety factor of five. Use of No. 9 tie wire, fiber rope, and similar makeshift lashing is prohibited.

- Taglines must be used when moving panels or other large sections of forms by crane or hoist.
- All hoisting equipment, including hoisting cable used to raise and move forms must have a minimum safety factor incorporated in the manufacturer's design, and the manufacturer's recommended loading cannot be exceeded.

CONCRETE OPERATIONS

- Field-fabricated or shop-fabricated hoisting equipment must be designed or approved by a registered professional engineer, incorporating a minimum safety factor of five in its design. Panels and built-up form sections shall be equipped with metal hoisting brackets for attachment of slings.
- Forms intended for use where there is a free fall of over ten feet must be equipped with adequate scaffolding and guardrails, or employees working on the forms will be protected from falls during forming and stripping operations.
- Vertical forms being raised or removed in sections, must not be released until adequately braced or secured. Overhead forms may not be released until adequately braced or secured.
- Workers or others at lower levels must be protected from falling materials. Appropriate warning signs must be erected along walkways.
- Forms must not be removed until the concrete is cured. The concrete is required to be adequately set in order to permit safe removal of the forms, shoring, and bracing.
- Engineer's specifications and local building codes will be adhered to in determining the length of time forms should remain in place following concrete placement. In addition, tests will be made on field-cured concrete specimens in order to insure that concrete has obtained sufficient strength to safely support the load prior to removal of forms.

PRECAST CONCRETE AND TILT-UP OPERATIONS

- It must be the responsibility of the contractor to use compatible accessories.
- The design capacity of all lifting devices and accessories must be known and only devices and accessories with the appropriate capacity will be used.
- Prior to pouring the panels of a tilt-up type construction job, a set of plans or job specifications, including lifting procedures, must be drawn up.
- These plans are required to be at the job site and made available upon request.
- Any changes made in the rigging procedure of a tilt-up panel or slab must provide the same degree of safety as required by the original plans.

The plans or specifications must contain the following information:

- The type, size, and location of all lifting inserts.
- The type, size, and location of all brace inserts or fittings for guy wires in each panel and floor or support.
- The size of braces or guys to be used.
- The compression strength that concrete panels must attain prior to being lifted.

CONCRETE OPERATIONS

The following conditions must be included in the erection process and are required to be incorporated in the design plan:

- Braces and all associated components of the bracing system must be designed to incorporate a safety factor of one and one-half to resist any normal stresses to which they may be subjected, including normal high wind velocity pressures for the area.
- Precast concrete wall units, structural framing, and tilt-up wall panels will be adequately supported to prevent overturning and to prevent collapse until permanent connections are completed.
- Floor braces used to secure panel sections must be placed at an angle of not less than forty-five degrees or more than sixty degrees from horizontal when physically possible to install in this manner.
- The bracing on all panel sections will be installed prevent the panel from accidentally rotating.
- Each panel section not secured by other means must have a minimum of two braces. The braces must be installed in such a manner as to evenly distribute the load or guy wires, when properly installed, may be used in lieu of stiff leg braces.
- If braces are attached to a panel or slab by bolts tightened into inserts installed in holes drilled in concrete, the type of inserts used and method of installation must be such as to develop the required strength to be maintained for the bracing system.
- Inserts to be installed for lifting sections of tilt-up precast panels will be designed mechanically to maintain a safety factor of three.
- Lifting inserts which are embedded or otherwise attached to precast concrete members, other than the tilt-up members, must be capable of supporting at least four times the maximum intended load applied or transmitted to them.
- The compression strength of the concrete shall be such that when the proper type, size, and amount of inserts are installed a minimum safety factor of two will be maintained.
- Lifting hardware must be capable of supporting at least five times the maximum intended load applied or transmitted to the lifting hardware.
- Lifting bolts or other lifting devices that have been bent, worn, or are defective are required to be discarded.
- The upper and lower sections of telescoping type braces must be secured by high tensile steel pins or bolts which provide adequate shear strength and which will positively secure against accidental removal.
- Manufactured products must not be altered in any manner that would reduce the safe working load to less than its original value.
- Inserts shall be positioned so that bolts, or lifting devices, when inserted, will be perpendicular to the face on which they are placed.

CONCRETE OPERATIONS

Design of the panels and layout of the pour must be made in such a manner so that when picking, the top of the panel will be away from the crane.

If this is not possible, the contractor must consult with a representative of the department and the crane company involved, determining the procedure to be followed in lifting and placing it in its permanent position, safely.

- Panels must be lifted and handled so that they will not strike the hoisting equipment, in case of failure.
- Physical stops will be provided which will prevent the bottom edge of a panel being set from slipping off the edge of its supporting structure.
- Tilt-up panels must not be set when there is a possibility that wind velocity would create a hazardous condition.
- A qualified signalperson must be designated, and must consult with the crane operator on lifting procedures, prior to making the pick. The signalperson shall be located in such a position during the pick of the panel that they can observe both the crane operator and the employees working in the immediate area.
- During the lifting process, workers must keep clear of the underside of the panel.
- Persons not involved in the lifting process must be kept clear of the hazardous area near where panels are being raised, moved, or placed.
- If braces must be removed temporarily during construction, other effective means will be provided to safely support the panel during the interim period.
- Each panel is required to be properly braced or otherwise secured prior to removal of the hoisting equipment.
- Short panels or sections not otherwise supported by floor, footings, columns or other structure, will be properly shored.

When doing tilt-up work:

- Make sure wall anchors are cast in the wall when it is formed on the ground.
- Attach braces to the wall before the lift.
- Install appropriately sized bolts and shackles to do the lift.
- After the wall is tilted into place, secure the braces at an appropriate angle before the lifting cables are released.
- Stand clear of the wall and out of its drop zone until it is securely braced.
- Use appropriate fall-protection equipment to walk or straddle upper wall areas.
- Use ladders to gain access to the upper wall area.

Precast concrete: When you erect precast concrete members such as wall panels and columns, or do related work such as grouting precast members and you are six feet or more above a lower level: you must be protected from falling by one of the following methods:

- Guardrail systems
- Safety-net systems
- Personal fall-arrest systems
- A written fall protection plan and a controlled-access zone.

CONCRETE OPERATIONS

A fall protection plan allows workers doing precast concrete erection work to use alternative fall-protection systems or methods when conventional systems are infeasible.

However, the employer must be able to show that conventional systems aren't practical or that they pose a greater safety hazard to workers than other alternatives.

Employers must make sure these plans meet other requirements as well.

A controlled-access zone is created by erecting a control line, or lines, to restrict access to a work area. The control line warns others that access to the zone is limited to authorized workers. You must have a safety monitor to warn workers of fall hazards within the controlled-access zone.

Exterior building work: If you work on an unguarded surface or an exterior wall six or more feet above a lower level, you must use ladders, lifts, or appropriate fall protection (such as a personal fall-arrest system, safety-net system, or positioning-device system).

Ladders: Falls from ladders occur frequently among workers doing rebar and exterior building work. Most ladder falls involve portable ladders that move, tilt, or shift while a worker is climbing or descending.

Keep in mind the following points when using a ladder:

- If the ladder is not stable, tie it off (at the top and bottom) before climbing it.
- Stay within the side rails when climbing or working from a ladder. You can reach out from a ladder, but your torso must remain within the side rails.
- Face the ladder when climbing or descending it. Don't try to carry objects that could cause you to lose your balance. Keep hands free to grasp the ladder.

Protective equipment: When working with concrete, wear protective clothing and equipment appropriate for the task. Important items are gloves, safety glasses, leatherwork shoes, and a hard hat.

Employers must be aware of workplace fall hazards and take appropriate action to eliminate or minimize those hazards. They should select appropriate fall protection for a particular area or operation and train workers to use it correctly.

LIFT-SLAB OPERATIONS

- Lift-slab operations must be designed and planned by a registered professional engineer who has experience in lift-slab construction.
- Such plans and designs must be implemented by the employer and shall include detailed instructions and sketches indicating the prescribed method of erection.
- These plans and designs must also include provisions for ensuring lateral stability of the building/structure during construction.
- Jacks/lifting units must be marked to indicate their rated capacity as established by the manufacturer.
- Jacks/lifting units must not be loaded beyond their rated capacity as established by the manufacturer.
- Jacking equipment must be capable of supporting at least two and one-half times the load being lifted during jacking operations and the equipment shall not be overloaded. For the purpose of this provision, jacking equipment includes any load bearing component which is used to carry out the lifting operation(s).

Such equipment includes, but is not limited to, the following: Threaded rods, lifting attachments, lifting nuts, hook-up collars, T-caps, shearheads, columns, and footings.

- Jacks/lifting units must be designed and installed so that they will neither lift nor continue to lift when they are loaded in excess of their rated capacity.
- Jacks/lifting units will have a safety device installed which will cause the jacks/lifting units to support the load in any position in the event any jack/lifting unit malfunctions or losses [loses] its lifting ability.
- Jacking operations will be synchronized to ensure even and uniform lifting of the slab. During lifting, all points at which the slab is supported will be kept within 1/2 inch of that needed to maintain the slab in a level position.
- If leveling is automatically controlled, a device will be installed that will stop the operation when the 1/2 inch tolerance is exceeded, or where there is a malfunction in the jacking (lifting) system.
- If leveling is maintained by manual controls, the controls must be located in a central location and attended by a competent person while lifting is in progress. The competent person must be experienced in the lifting operation and with the lifting equipment being used.
- The maximum number of manually controlled jacks/lifting units on one slab shall be limited to a number that will permit the operator to maintain the slab level within specified tolerances, but in no case shall that number exceed 14.
- No employee, except those essential to the jacking operation, is permitted in the building/structure while any jacking operation is taking place unless the building/structure has been reinforced sufficiently to ensure its integrity during erection.

CONCRETE OPERATIONS

- The phrase “reinforced sufficiently to ensure its integrity” means that a registered professional engineer, independent of the engineer who designed and planned the lifting operation, has determined from the plans that if there is a loss of support at any jack location, that loss will be confined to that location and the structure as a whole will remain stable.

Under no circumstances, will any employee who is not essential to the jacking operation be permitted immediately beneath a slab while it is being lifted.

A jacking operation begins when a slab or group of slabs is lifted and ends when such slabs are secured (with either temporary connections or permanent connections).

- When making temporary connections to support slabs, wedges must be secured by tack welding, or an equivalent method of securing the wedges to prevent them from falling out of position. Lifting rods may not be released until the wedges at that column have been secured.
- All welding on temporary and permanent connections must be performed by a certified welder, familiar with the welding requirements specified in the plans and specifications for the lift-slab operation.
- Load transfer from jack/lifting units to building columns must not be executed until the welds on the column shear plates (weld blocks) are cooled to air temperature.
- Jacks/lifting units shall be positively secured to building columns so that they do not become dislodged or dislocated.
- Equipment must be designed and installed so that the lifting rods cannot slip out of position, or the Company will institute other measures to provide positive connection between the lifting rods and attachments and will prevent components from disengaging during lifting operations.

Non-mandatory lift-slab operations: Operations may require the removal of employees from the building/structure during jacking operations unless an independent registered professional engineer, other than the engineer who designed and planned the lifting operation, has determined that the building/structure has been sufficiently reinforced to insure its integrity.

One method to comply with this provision is to ensure that continuous bottom steel is provided in every slab and in both directions through every wall or column head area.

Column head area means the distance between lines that are one and one half times the thickness of the slab or drop panel. These lines are located outside opposite faces of the outer edges of the shearhead sections.

The amount of bottom steel must be established by assuming loss of support at a given lifting jack and then determining the steel necessary to carry, by catenary action over the span between surrounding supports, the slab service dead load, plus any service dead and live loads likely to be acting on the slab during jacking.

The surrounding supports must be capable of resisting any additional load transferred to them because of the loss of support at the lifting jack.

PRE-STRESSED AND POST-STRESSED CONCRETE OPERATIONS

Anchor fitting: In utilizing anchor fittings for tensioned strands, the recommendations and instructions of the supplier concerning installation, maintenance, and replacement will be followed. Tools and strand vices must be kept clean and in good repair.

Safety factor

- Expendable strand deflection devices used to pretension concrete members must have a minimum safety factor of two.
- Reusable strand deflection devices shall have a minimum safety factor of three.

Jacking operations

- During jacking operations of any tensioning element or group of tensioning elements, the anchors must be kept turned up close to the anchor plate.
- No one is permitted to stand in line or directly over the jacking equipment during tensioning operations.
- Employees shall not stand behind the jack during tensioning operations.
- Deadheads used in post tensioning of tendons must be the type that will increase the grip on the cable as the tension is increased.
- Proper means and equipment will be used to prevent over-tensioning of the tendons.
- Only qualified workers are required to perform this type work.

Jacking and pulling equipment: Pulling headers, bolts, and hydraulic rams will be inspected frequently for indication of fatigue, and the threads on bolts and nuts inspected for diminishing cross section.

Storage: Stressed members must be stored on a level base and adequately supported during storage and transportation to prevent tipping.

Rigging

- Stressed members must be handled at pick points specifically designated on the manufacturer's drawings.
- Stressed members will be lifted with lifting devices recommended by the manufacturer or the engineer in charge.
- No one is allowed under stressed members during lifting and erection.
- No employee (except those essential to the post-tensioning operations) is permitted to be behind the jack during tensioning operations.
- Signs and barriers will be erected to limit employee access to the post-tensioning area during tensioning operations.

CONCRETE FINISHING

Concrete finishing methods are used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high pressure water blasting. Stormwater and non-stormwater exposed to concrete finishing by-products may have a high pH and may contain chemicals, metals, and fines.

Proper procedures and implementation of appropriate BMPs can minimize the impact that concrete-finishing methods may have on stormwater and non-stormwater discharges.

- Scaffolds for use of cement finishers must comply with all scaffolding requirements.
- Where grinders, chippers, and other equipment is used which creates a thrust force while working on scaffolding, such scaffold must be securely tied to a structure or held in with weighted drop lines.
- Grinding and dressing operations carried on within closed rooms, stairwells, elevator shafts, etc., must be provided with forced air ventilation.
- Grinding machine operators are required to wear respirators whenever machines are in operation or where a dust hazard exists.
- Workers engaged in grinding, chipping, or sacking concrete must wear eye protection.

Implementation

These procedures apply to all construction locations where concrete finishing operations are performed.

- Collect and properly dispose of water from high-pressure water blasting operations.
- Collect contaminated water from blasting operations at the top of slopes. Transport or dispose of contaminated water while using BMPs such as those for erosion control.
- Direct water from blasting operations away from inlets and watercourses to collection areas for infiltration or other means of removal (dewatering).
- Protect inlets during sandblasting operations.
- Concrete Waste Management for disposal of concrete based debris.
- Minimize the drift of dust and blast material as much as possible by keeping the blasting nozzle close to the surface.
- When blast residue contains a potentially hazardous waste.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharges daily while discharges are occurring.
- Sweep or vacuum up debris from sandblasting at the end of each shift.
- At the end of each work shift, remove and contain liquid and solid waste from containment structures, if any, and from the general work area.

MASONRY CONSTRUCTION

Whenever a masonry wall is being constructed, a limited access zone must be established and meet the following requirements. The limited access zone must:

- Be established prior to the start of construction of the wall.
- Be equal to the height of the wall to be constructed plus four feet, and will run the entire length of the wall.
- Be established on the side of the wall that will be unscaffolded.
- Restricted to entry by employees actively engaged in constructing the wall. No other employees will be permitted to enter the zone.
- Remain in place until the wall is adequately supported to prevent overturning and to prevent collapse unless the height of wall is over eight feet, in which case, the limited access zone shall remain in place until the requirements have been met.

All masonry walls over eight feet in height must be adequately braced to prevent overturning and to prevent collapse unless the wall is adequately supported so that it will not overturn or collapse. The bracing must remain in place until permanent supporting elements of the structure are in place.

The following practices will be followed when constructing stone walls:

- Employees engaged in cutting or chipping will wear suitable eye protection.
- Masonry saws will be constructed, guarded, and operated properly.
- Persons charged with operation of derricks used for stone setting must be qualified in that type of work.
- Stone will be set directly on the wall by the derrick.
- Breast derricks when used in setting stone will be secured against a slip or kick back and guyed with wire cables. Provide hold down line to prevent derrick from falling back.
- Stone cutters will wear goggles while trimming stone or cutting holes.
- Pins will be tested for security before stone is hoisted.
- Hoisting cables must be protected from chafing and wearing over corners.
- Mason's mortar mixers must have a bar-type grill installed over the mixer opening. The guard will be installed with an automatic disconnect switch to stop the mixer tub rotation and prevent the mixer from starting if the guard is not in place.

Hand tools: Sharp-edged trowels, hammers, chisels, utility knives

Maintain all hand tools and equipment in a safe condition, check them regularly for defects, and follow these safe practices.

- Use double insulated tools, or ensure that the tools are grounded.
- Keep cutting tools sharp.
- Make sure guards are in place before using power saws.
- Keep hand tools in a tool belt or toolbox. When hand tools are worn, replace them.

CONCRETE OPERATIONS

- Do not use impact tools with mushroomed heads. Replace them.
- Keep wooden handles free of splinters or cracks and be sure the handles stay tight in the tool.
- Workers using powder-activated tools must receive proper training prior to using the tools.
- Never leave cartridges for pneumatic or powder-actuated tools unattended.
- Always be sure that hose connections are secure when using pneumatic tools.
- Keep equipment in a safe place, according to the manufacturer's instructions.
- Require proper eye and hand protection for workers.

CUTTING & DRILLING

All operators of concrete cutting and drilling equipment must know how to work safely and should be able to demonstrate competency before using this equipment.

Employers must ensure workers are trained in safe concrete cutting and drilling work practices and procedures, and are supervised by experienced people before carrying out this unsupervised work.

Training will be conducted at least annually, and must include information and instruction on:

- Dust, fumes, and air quality
- The hazards and risks associated with the work activities, including the potential health hazards of overexposure to airborne dust generated from concrete materials, including silicosis, lung cancer, chronic obstructive lung disease (COPD) and decreased lung function.
- Recognition of poorly ventilated areas and confined spaces.
- Methods to control exposure to airborne dust from concrete materials, including wet cutting, local exhaust ventilation systems, and process isolation, as applicable.
- Proper use and maintenance of dust reduction systems, including the safe handling and disposal of waste materials.
- The importance of good personal hygiene and housekeeping practices when working in proximity to dust from concrete, including not smoking, cleaning up before eating, cleaning clothes appropriately.
- Additional safe work practices and procedures, including: the safe operation of equipment; the control measures in place; safe handling procedures (including lifting and moving); the safe use of hazardous substances; fire protection; emergency and first aid procedures; electrical safety; safety in confined spaces; and other training required under hazard-specific regulations.
- The correct use, fit, care, and storage of tools and personal protective equipment,

The operator should be monitored, as necessary or required, to ensure safe work practices and procedures are being followed.

MISCELLANEOUS CONCRETE WORK

Concrete Curing

Concrete curing includes the use of both chemical and water methods. Discharges of stormwater and non-stormwater exposed to concrete during curing may have a high pH and may contain chemicals, metals, and fines.

Proper procedures reduce or eliminate the contamination of stormwater runoff during concrete curing.

Suitable Applications

Suitable applications include all projects where Portland Cement Concrete (PCC) and concrete curing chemicals are placed where they can be exposed to rainfall, runoff from other areas, or where runoff from the PCC will leave the site.

Chemical Curing

- Avoid over spray of curing compounds.
- Minimize the drift of chemical cure as much as possible by applying the curing compound close to the concrete surface.
- Apply an amount of compound that covers the surface, but does not allow any runoff of the compound.
- Use proper storage and handling techniques for concrete curing compounds. Protect drain inlets prior to the application of curing compounds.

Water Curing for Bridge Decks, Retaining Walls, and other Structures

- Direct cure water away from inlets and watercourses to collection areas for infiltration or other means of removal in accordance with all applicable permits.
- Collect cure water at the top of slopes and transport or dispose of water in a non- erodible manner.
- Utilize wet blankets or a similar method that maintains moisture while minimizing the use and possible discharge of water.

Inspection and Maintenance

- Inspect and verify that activity-based Best management Practices (BMPs) are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Ensure that employees and subcontractors implement appropriate measures for storage, handling, and use of curing compounds.
- Inspect cure containers and spraying equipment for leaks.

CONCRETE WASTE MANAGEMENT

Prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employee and subcontractors.

Suitable Applications

Concrete waste management procedures and practices are implemented on construction projects where:

- Concrete is used as a construction material or where concrete dust and debris result from demolition activities
- Slurries containing portland cement concrete (PCC) or asphalt concrete (AC) are generated, such as from saw cutting, coring, grinding, grooving, and hydro-concrete demolition
- Concrete trucks and other concrete-coated equipment are washed onsite
- Mortar-mixing stations exist

The following steps will help reduce stormwater pollution from concrete wastes:

- Discuss the concrete management techniques described in this BMP (such as handling of concrete waste and washout) with the ready-mix concrete supplier before any deliveries are made.
- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Store dry and wet materials under cover, away from drainage areas.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks offsite or in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped onsite, except in designated areas.

For onsite washout:

- Locate washout area at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.
- Avoid creating runoff by draining water to a bermed or level area when washing concrete to remove fine particles and expose the aggregate.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.

Education

- Educate employees, subcontractors, and suppliers on the concrete waste management techniques described herein.
- Arrange for contractor's superintendent or representative to oversee and enforce concrete waste management procedures.

Concrete Slurry Wastes

- PCC and AC waste should not be allowed to enter storm drains or watercourses.
- PCC and AC waste should be collected and disposed of or placed in a temporary concrete washout facility.
- A sign should be installed adjacent to each temporary concrete washout facility to inform concrete equipment operators to utilize the proper facilities.
- Below grade concrete washout facilities are typical. Above grade facilities are used if excavation is not practical.
- A foreman or construction supervisor should monitor onsite concrete working tasks, such as saw cutting, coring, grinding, and grooving to ensure proper methods are implemented.
- Saw-cut PCC slurry should not be allowed to enter storm drains or watercourses. Residue from grinding operations should be picked up by means of a vacuum attachment to the grinding machine. Saw cutting residue should not be allowed to flow across the pavement and should not be left on the surface of the pavement.
- Slurry residue should be vacuumed and disposed in a temporary pit and allowed to dry. Dispose of dry slurry residue properly.

Onsite Temporary Concrete Washout Facility, Transit Truck Washout Procedures

- Temporary concrete washout facilities should be located a minimum of 50 ft. from storm drain inlets, open drainage facilities, and watercourses. Each facility should be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Temporary concrete washout facilities should be constructed above grade or below grade at the option of the contractor. Temporary concrete washout facilities should be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.
- Temporary washout facilities should have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
- Washout of concrete trucks should be performed in designated areas only.
- Only concrete from mixer truck chutes should be washed into concrete wash out.

CONCRETE OPERATIONS

- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed of offsite.
- Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of per WM-5, Solid Waste Management. Dispose of hardened concrete on a regular basis.

Temporary Concrete Washout Facility (Type above Grade)

Temporary concrete washout facility (type above grade) should be constructed with a recommended minimum length and minimum width of 10 ft., but with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.

Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

Temporary Concrete Washout Facility (Type below Grade)

Temporary concrete washout facilities (type below grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and minimum width of 10 ft. The quantity and volume should be sufficient to contain all liquid and concrete waste generated by washout operations.

Plastic lining material should be a minimum of 10 mil polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

Removal of Temporary Concrete Washout Facilities

When temporary concrete washout facilities are no longer required for the work, the hardened concrete and the materials used to construct the washout facility will be removed and disposed of properly. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Inspection and Maintenance

Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.

Temporary concrete washout facilities will be maintained to provide adequate holding capacity with a minimum freeboard of 4 in. for above grade facilities and 12 in. for below grade facilities. Maintaining temporary concrete washout facilities should include removing and disposing of hardened concrete and returning the facilities to a functional condition.

Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75% full.

TEMPORARY BATCH PLANTS

The construction of roads, bridges, retaining walls, and other large structures in remote areas, often requires temporary batch plant facilities to manufacture Portland Cement Concrete (PCC) or asphalt cement (AC). Temporary batch plant facilities typically consist of silos containing fly ash, lime, and cement; heated tanks of liquid asphalt; sand and gravel material storage areas; mixing equipment; above ground storage tanks containing concrete additives and water; and designated areas for sand and gravel truck unloading, concrete truck loading, and concrete truck washout.

Proper control and use of equipment, materials, and waste products from temporary batch plant facilities will reduce the discharge of potential pollutants to the storm drain system or watercourses, reduce air emissions, and mitigate noise impacts.

These procedures typically apply to construction sites where temporary batch plant facilities are used.

Limitations

The General Permit for discharges of stormwater associated with industrial activities may be applicable to temporary batch plants.

Specific permit requirements or mitigation measures such as Air Resources Board (ARB), Air Quality Management District (AQMD), Air Pollution Control District (APCD), Regional Water Quality Control Board (RWQCB), county ordinances, and city ordinances may require alternative mitigation measures for temporary batch plants.

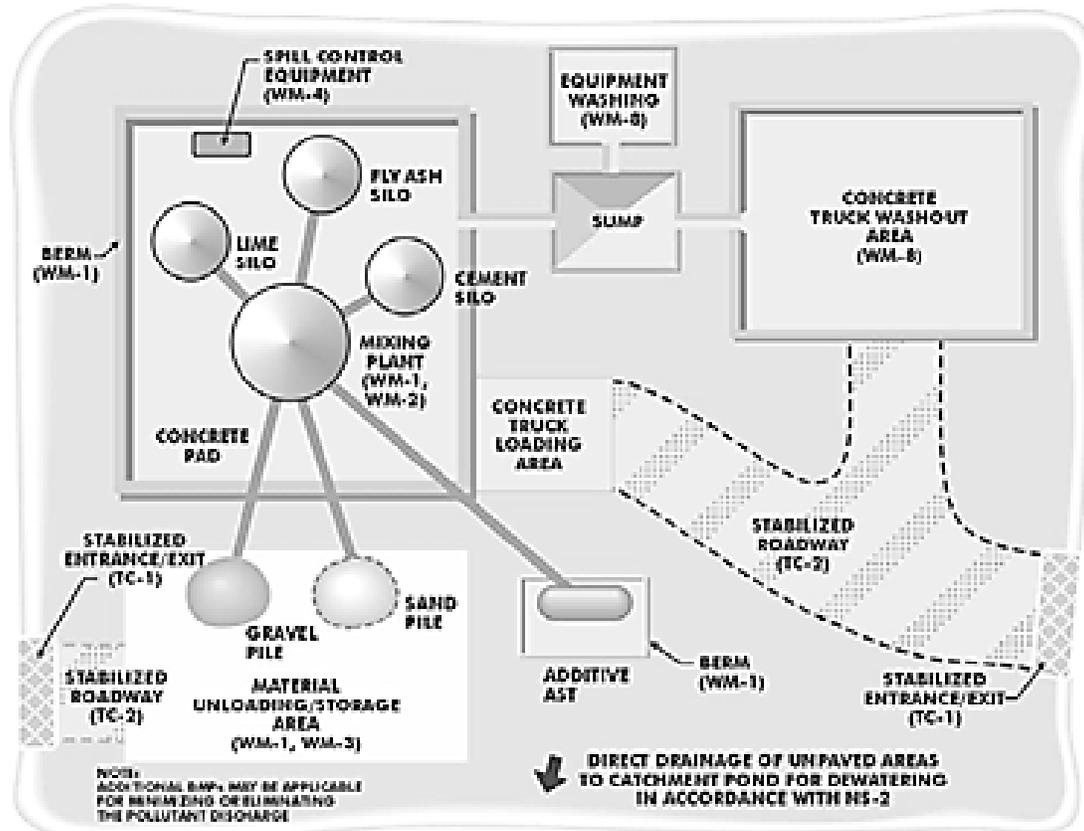
Implementation steps are as follows:

- Temporary batch plants may be subject to the General Industrial NPDES permit. To comply with the permit, a Notice of Intent (NOI) must be submitted to the State Water Resource Control Board.
- Proper planning, design, and construction of temporary batch plants should be implemented to minimize potential water quality, air pollution, and noise impacts associated with temporary batch plants.
- BMPs and a Sampling and Analysis Plan (SAP) must be included in the project Stormwater Pollution Prevention Plan (SWPPP). BMPs must be implemented, inspected, and maintained.
- Temporary batch plants should be managed to comply with AQMD Statewide Registration Program and/or local AQMD Portable Equipment Registration requirements.
- Construct temporary batch plants down-wind of existing developments whenever possible.
- Placement of access roads should be planned to mitigate water and air quality impacts.

CONCRETE OPERATIONS

Layout and Design

- Temporary batch plants should be properly located and designed to mitigate water quality impacts to receiving water bodies. Batch plants should be located away from watercourses, drainage courses, and drain inlets. Batch plants should be located to minimize the potential for stormwater run-on onto the site.
- Temporary batch plant facilities (including associated stationary equipment and stockpiles) should be located at least 300 ft. from any recreational area, school, residence, or other structure not associated with the construction project.
- Construct continuous interior AC or PCC berms around batch plant equipment (mixing equipment, silos, concrete drop points, conveyor belts, admixture tanks, etc.) to facilitate proper containment and cleanup of releases. Rollover or flip top curb or dikes should be placed at ingress and egress points.
- Direct runoff from the paved or unpaved portion of the batch plant into a sump and pipe to a lined washout area or dewatering tank.
- Direct stormwater and non-stormwater runoff from unpaved portions of batch plant facility to catchment ponds or tanks.
- Construct and remove concrete washout facilities in accordance with all concrete waste management requirements



Typical Temporary batch plant design

Waste Management Operational Procedures

- Washout of concrete trucks should be conducted in a designated area.
- Do not dispose of concrete into drain inlets, the stormwater drainage system, or watercourses.
- Equipment washing should occur in a designated area.
- All dry material transfer points should be ducted through a fabric or cartridge type filter unless there are no visible emissions from the transfer point.
- Equip all bulk storage silos, including auxiliary bulk storage trailers, with fabric or cartridge type filter(s).
- Maintain silo vent filters in proper operating condition.
- Equip silos and auxiliary bulk storage trailers with dust-tight service hatches.
- Fabric dust collection system should be capable of controlling 99 percent of the particulate matter.
- Fabric dust collectors (except for vent filters) should be equipped with an operational pressure differential gauge to measure the pressure drop across the filters.
- All transfer points should be equipped with a wet suppression system to control fugitive particulate emissions unless there are no visible emissions.
- All conveyors should be covered, unless the material being transferred results in no visible emissions.
- There should be no visible emissions beyond the property line, while the equipment is being operated.
- Collect dust emissions from the loading of open-bodied trucks at the drip point of dry batch plants, or dust emissions from the drum feed for central mix plants.
- Equip silos and auxiliary bulk storage trailers with a visible and/or audible warning mechanism to warn operators that the silo or trailer is full.
- All open-bodied vehicles transporting material should be loaded with a final layer of wet sand and the truck will be covered with a tarp to reduce emissions.

Tracking Control

- Plant roads (batch truck and material delivery truck roads) and areas between stockpiles and conveyor hoppers should be stabilized, watered, treated with dust-suppressant chemicals, or paved with a cohesive hard surface that can be repeatedly swept, maintained intact, and cleaned as necessary to control dust emissions.
- Trucks should not track PCC from plants onto public roads. Use appropriate practices to prevent tracking.

Materials Storage

- All batch plants using concrete components or compounds should have an effective strategy is to cover and contain materials.
- Material use should be conducted in a way to minimize or eliminate the discharge of materials to storm drain system or watercourse.
- Ensure that finer materials are not dispersed into the air during operations, such as unloading of cement delivery trucks.
- Stockpiles should be covered and enclosed with perimeter sediment barriers.
- Uncovered stockpiles should be sprinkled with water and/or dust-suppressant chemicals as necessary to control dust emissions, unless the stockpiled material results in no visible emissions. An operable stockpile watering system should be onsite at all times.
- Store bagged and boxed materials on pallets and cover on non-working days prior to rain.
- Minimize stockpiles of demolished PCC by recycling them in a timely manner.
- Provide secondary containment for liquid materials. Containment should provide sufficient volume to contain precipitation from a 25-year storm plus 10% of the aggregate volume of all containers or plus 100% of the largest container, whichever is greater.
- Handle solid and liquid waste properly.
- Maintain adequate supplies of spill cleanup materials and train staff to respond to spills.
- Immediately clean up spilled cement and fly ash and contain or dampen so that dust or emissions from wind erosion or vehicle traffic are minimized.

TRAINING

The Company will ensure that all workers are trained on the safe work practices associated with their jobs, the use of required PPE, and any applicable emergency procedures.

Fall Protection

Employers are required to provide training for all workers exposed to fall hazards. The training must be provided by a competent person and should ensure that workers can:

- Recognize fall hazards in their work area.
- Use appropriate procedures to minimize their exposure to fall hazards.

Workers who use or intend to use a personal fall-arrest system also should know:

- How to inspect the equipment before they use it.
- How to wear the equipment.
- Proper hook-up and attachment methods for the equipment.
- Anchoring and tie-off techniques appropriate for the work.
- How to estimate free-fall distances.
- Equipment care and storage procedures.
- Rescue procedures and techniques.

In addition, supervisors must be trained:

- To know and understand the information outlined above in this section.
- To identify tasks that may result in employee exposure to dust or other hazards, and, as necessary, initiate procedures that reduce employee exposure to dust or other hazards.

Workers who are required to work in excavations or confined spaces must receive additional training before being allowed to work in those areas. Refer to the Excavation and Confined Spaces chapters of this manual for additional information.

Retraining: Workers who do not recognize hazards at a particular work area must be retrained. Workers may need retraining because of changes at a worksite that make earlier training obsolete, changes in the types of equipment used, and failure to demonstrate the necessary skills for using equipment effectively.

Training records: The Company will maintain written records of all worker training. The records must document the worker's name, the date the worker was trained, and the trainer's signature.

EMERGENCY RESPONSE

Emergencies: The Company is responsible for establishing emergency response procedures to ensure that workers receive prompt emergency and medical attention. Emergency procedures should identify key rescue and medical personnel, equipment available for rescue, emergency communications procedures, retrieval methods, and primary first-aid requirements.

The company should also establish rescue procedures for personal fall-arrest systems before workers use the systems. Fall-protection systems are designed to minimize workers' exposure to fall hazards and to reduce their risk of injury if they do fall.

NOTE: Workers in 911 service areas can use the 911 number for ambulance service; however, most 911 responders are not trained to rescue an injured worker suspended in a personal fall-arrest system. Rescue procedures must assure prompt rescue of a suspended worker. The 911 number does not ensure prompt rescue.

Use the guidelines below to develop your own emergency-response procedures.

Before on-site work begins

- Make fire department or emergency-response units aware of the job specifications at the site and any factors that may slow response time.
- Document the rescue plan and make sure it's posted at the worksite.
- Post emergency responder phone numbers and addresses at the worksite.
- Mark the worksite with signs and note the easiest access routes in and out of the site.
- Make sure you have quick access to rescue and retrieval equipment.

CONCRETE OPERATIONS

As on-site work progresses

- Identify on-site equipment that can be used for rescue and retrieval, such as lifts and ladders.
- Maintain a current equipment inventory at the worksite. Equipment may change frequently as the job progresses.
- Reevaluate and update the emergency-response plan if on-site work tasks change.

Respond to emergencies: If the worker is injured, call 911 or other emergency numbers indicated on the emergency-response plan for ambulance service.

Remember, 911 responders are not trained to rescue an injured worker suspended in a personal fall-arrest system. First responders should clear a path to the victim. Others should be sent to direct emergency personnel to the scene.

- Make sure only qualified personnel attempt a technical rescue.
- Prohibit all nonessential personnel from the fall/rescue site.
- Talk to the fall victim.
- Determine the victim's condition if possible.
- If the victim is accessible, provide comfort and check vital signs.
- If necessary, administer chest compressions, and attempt to stop bleeding.

Investigating accidents:

- Report fatalities and catastrophes to OSHA within eight hours. Report injuries requiring overnight hospitalization and medical treatment other than first aid within 24 hours.
- Identify all equipment associated with the accident and place it out of service until the accident investigation is complete.
- Document step by step what went wrong and what went right.
- Review the emergency response plan. Determine how the plan could be changed to prevent similar accidents. Revise the plan accordingly.
- Have a competent person examine equipment associated with the accident. If it contributed to the accident, determine how and why. Replace it if necessary.

For additional information on this topic, see the Accident Investigation chapter of this manual.

EQUIPMENT MAINTENANCE

- Equipment should be maintained to prevent fluid leaks and spills.
- Maintain adequate supplies of spill cleanup materials and train staff to respond to spills.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place before beginning work.
- While activities are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Inspect and repair equipment (for damaged hoses, fittings, and gaskets).
- Inspect and maintain stabilized haul roads as needed.
- Inspect and maintain materials and waste storage areas as needed.

ATTACHMENTS

The following pages contain driver inspection and vehicle accident reporting forms. These may be reproduced for company and employee use.

CONCRETE OPERATIONS

CONCRETE OPERATIONS

Driver Inspection Report			
Truck No. _____		Mileage _____	
General Condition	Truck In-Cab	Exterior	
<input type="checkbox"/> Cab/Doors/Windows <input type="checkbox"/> Body/Doors <input type="checkbox"/> Oil Leak _____ <input type="checkbox"/> Grease Leak _____ <input type="checkbox"/> Coolant _____ <input type="checkbox"/> Fuel Leak _____ <input type="checkbox"/> Other _____ Engine Compartment <input type="checkbox"/> Oil Level <input type="checkbox"/> Coolant Level <input type="checkbox"/> Belts <input type="checkbox"/> Other _____	<input type="checkbox"/> Gauges/Warning Indicators <input type="checkbox"/> Windshield Wipers/Washers <input type="checkbox"/> Horn(s) <input type="checkbox"/> Heater/Defroster <input type="checkbox"/> Mirrors <input type="checkbox"/> Steering <input type="checkbox"/> Clutch <input type="checkbox"/> Service Brakes <input type="checkbox"/> Parking Brake <input type="checkbox"/> Emergency Brakes <input type="checkbox"/> Seat <input type="checkbox"/> Radio <input type="checkbox"/> Radio Antenna <input type="checkbox"/> Other _____	<input type="checkbox"/> Lights <input type="checkbox"/> Reflectors <input type="checkbox"/> Suspension <input type="checkbox"/> Tires <input type="checkbox"/> Wheels/Rims/Lugs <input type="checkbox"/> Battery <input type="checkbox"/> Exhaust <input type="checkbox"/> Brakes <input type="checkbox"/> Air Lines <input type="checkbox"/> Mud Flaps <input type="checkbox"/> Overall Appearance <input type="checkbox"/> Cleanliness <input type="checkbox"/> Paint <input type="checkbox"/> Other _____	
<input type="checkbox"/> No Defects			
Mixer			
<input type="checkbox"/> Chutes <input type="checkbox"/> Hold Downs <input type="checkbox"/> Lifts <input type="checkbox"/> Controls	<input type="checkbox"/> Counter <input type="checkbox"/> Water Hose <input type="checkbox"/> Water Line <input type="checkbox"/> Water Tank	<input type="checkbox"/> Oil Leak <input type="checkbox"/> Hydraulic Leak <input type="checkbox"/> Air Leak <input type="checkbox"/> _____	<input type="checkbox"/> Other _____ <input type="checkbox"/> No Defects
Remarks:			
Reporting Driver:		Date:	
Name:		Emp. No.:	
Maintenance Action:		Date:	
<input type="checkbox"/> Repairs Made		<input type="checkbox"/> No Repairs Made	
Certified By: _____			
Location: _____			
Shop remarks:			

CONCRETE OPERATIONS

CONCRETE OPERATIONS

Motor Vehicle Accident Report

AFTER AN ACCIDENT: 1 Stay Calm 2 If the vehicles are drivable and it is safe to do so, move them safely out of traffic 3 Apply first aid (if properly trained) 4 Call police, and if necessary, ambulance 5 Take brief notes

Vehicle Driver Name		Other Vehicle Driver Name	
Address		Address	
Phone	Driver License #	Phone	Driver License #
Vehicle Type		Other Vehicle Type	
Vehicle license Plate #		Vehicle license Plate #	
Owner's Name		Owner's Name	
Address		Address	
Vehicle Insurance Co. Name		Other Vehicle Insurance Co. Name	
Name Policy is Under	Policy #	Name Policy is Under	Policy #
Passenger Info	Passenger Info	Passenger Info	Passenger Info

ACCIDENT DETAILS

Date of Accident	Explain how the accident happened
Time of Accident <input type="checkbox"/> am <input type="checkbox"/> pm	
Street	
City	
State	
Approx. Speed: Your MPH: Other MPH:	Describe your vehicle's damage
Describe any Injuries	
	Describe other vehicle's damage

Investigating Officer Name	
Phone Badge No.	
Police Department	
Investigating Officer Name	
Phone Badge No.	
Police Department	
Witness Info	
Witness Info	
Report Completed By	
Signature	

CONCRETE OPERATIONS

DRYWALL, PLASTERING, & INSULATION

POLICY STATEMENT

It is the duty of each worker to obey all company safety rules and to use all required safety equipment. If you are unsure of the safe method to do your job, stop and ask your supervisor. Ignorance is no excuse for a safety violation.

- Bring any new hazards you observe to the attention of your supervisor.
- Develop a daily routine of checking your job area and equipment for any potential hazards or deficiencies.
- Maintain a clean and orderly work place.
- Wear all personal protective devices (i.e. safety eyewear, safety footwear, protective gloves, etc.) as required by your position or the job task.
- Become familiar with the performance limitations of your tools and equipment.
- Know the location of fire and safety exits.
- Learn the location of first aid kits and fire extinguisher equipment in your work area.
- Each employee is expected to be responsible for his/her own safety and at the same time to exercise care to avoid injury to his fellow workers and others.
- Always perform your job task in a safe manner. No horseplay or practical jokes.
- Lift correctly and safely, with your legs, not your back. Ask for help whenever in doubt.
- Observe all warning, caution, and danger signs as well as safety and health notices.
- Smoking is not permitted inside the building.
- All employees will wear fall protection equipment when applicable.

JOB SITE

- Do not walk under partially demolished walls or floors.
- Stop working outdoors and seek shelter during lightning storms.
- Do not begin working until barricades, warning signs, or other protective devices have been installed to isolate the work area.
- Never throw or toss debris outside barricaded areas.
- Stay clear of all trucks, forklifts, cranes, and other heavy equipment when in operation.
- Do not approach any heavy equipment until the operator has seen you and has signaled to you that it is safe to approach.
- Keep shirts on to avoid dehydration and sunburn.

BARRIERS AND SIGNS

- Place signs (lights) well in advance of the work area to permit upcoming pedestrians and motorists time to react.
- Erect protective barriers or guards and warning signs prior to demolition work where accessible by vehicular or pedestrian traffic.
- Position the work vehicle to guard the work area while work is in progress.
- Do not work on open sided floors, elevated walkways, or elevated platforms if there are no guardrails in place.
- Stand clear of floor openings if guardrails or covers are removed or displaced.

DRYWALL, PLASTERING, & INSULATION

HOUSEKEEPING

- Never place trash in walkways and passageways.
- Do not kick objects out of your pathway; pick them up or push them aside and out of the way.
- Never throw matches, cigarettes, or other smoking materials into trash bins.
- Do not store or leave items on stairways.
- Never block or obstruct stairwells, exits, or accesses to safety and emergency equipment such as fire extinguishers or fire alarms.
- Do not leave loose tools, lunch boxes, or other items on a ledge or lying around on the floor. Return tools to their storage places after use.
- Keep walking surfaces of elevated working platforms, such as scaffolds and aerial lifts, clear of tools and materials that are not being used.
- Do not use gasoline for cleaning purposes.
- Sweep up scraps and debris from wallboard installation such as screws, mesh, and tape by using a broom and a dustpan.
- Use a vacuum to eliminate dust and small particles.

LIFTING

- Plan the move before lifting; remove obstructions from your chosen pathway.
- Test the weight of the load before lifting by pushing the load along its resting surface.
- If the load is too heavy or bulky, use lifting and carrying aids such as hand trucks, dollies, pallet jacks, and carts. Get assistance from a co-worker when necessary.
- When assistance is required to perform a lift, coordinate and communicate your movements with those of your co-worker.
- Never lift anything if your hands are greasy or wet.
- Wear protective gloves when lifting objects with sharp corners or jagged edges.
- Do not lift an object from the floor to a level above your waist in one motion. Set the load down on a table or bench and then adjust your grip before lifting it higher.

STACKING MATERIAL (SHEET ROCK, GYPSUM, FOAM BOARDS)

- When stacking panels by hand, position the panels sideways slightly in front of you, so you do not have to reach over your head or twist your body to lift the materials.
- Position panels to lean flat against a wall so they do not wobble or slide.
- Push and slide panels along their edge or get assistance from a co-worker.

DRYWALL, PLASTERING, & INSULATION

LADDERS AND STEP LADDERS

- Do not use ladders that have loose rungs, cracked, or split side rails, missing rubber footpads, or are otherwise visibly damaged.
- Keep ladder rungs clean of grease. Remove any buildups of plaster, dirt, or mud.
- Secure the ladder in place by having another employee hold it.
- Face the ladder when climbing up or down.
- Maintain a three-point contact by keeping both hands and one foot, or both feet and one hand on the ladder at all times when climbing up or down.
- Do not carry items in your hands while climbing up or down a ladder.
- Read and follow the manufacturer's instructions label affixed to the ladder if you are not sure of the maximum weight allowance.
- Do not use a metal ladder on rooftops or within 50 feet of electrical power lines.
- Never jump from rooftops, platforms, scaffolds, or ladders.
- Do not use building materials as improvised climbing devices.
- Never use electrical tools while working on a metal ladder unless the ladder has rubber feet.
- Do not stand on the top two rungs of any ladder.

Performing Work from a Step Ladder

- One person must be on the ladder at a time.
- Face the ladder and do not lean backward or sideways from the ladder.
- Never use a ladder that wobbles or that leans to the left or right.
- Do not try to "walk" a ladder by rocking it. Climb down the ladder, and then move it.

PERSONAL PROTECTIVE EQUIPMENT

- Wear steel-toed boots when handling panels and in material handling environments designated by your supervisor.
- Make sure you wear work gloves when handling fiberglass batts, sprayed on finishes, rough textured gypsum board panels, metal lath, or when sanding surfaces.
- Wear your safety glasses and dust mask when handling or mixing plaster ingredients and additives, or applying mud, finishing ceilings, or sanding.
- Always wear your safety glasses when snipping metal pieces such as corner beads, trims, and wire mesh.
- Do not continue to work if your safety glasses become fogged. Stop work and clean the glasses until the lenses are clear and defogged.
- Wear chemical goggles when using, applying, or handling chemical liquids or powders from containers labeled caustic or corrosive.
- Make sure you wear your earplugs or earmuffs when the minimum noise level is exceeded.

DRYWALL, PLASTERING, & INSULATION

ELECTRICAL

- Assume all electrical wires as live wires.
- Do not wear watches, rings, or other metallic objects that could act as conductors of electricity around electrical circuits.
- Wear dielectric gloves when working on electric current.

Electric Powered Tools

- Do not use power equipment or tools on which you have not been trained.
- Never carry plugged in equipment or tools with your finger on the switch.
- Do not leave tools that are "On" unattended.
- Never handle or operate electrical tools when your hands are wet or when you are standing on wet floors.

Do not operate a power hand tool or portable appliance:

- That has a frayed, worn, cut, improperly spliced or damaged cord.
- That has a two-pronged adapter or a two-conductor extension cord.
- When the ground prong from the three-pronged power plug is missing or has been removed.
- Disconnect the tool from the outlet by pulling on the plug, not the cord.
- Always turn the tool off before plugging or unplugging it.
- Turn off the electrical tool and unplug it from the outlet before attempting repairs or service work. Tag the tool: Out of Service
- Do not stand in water or on wet surfaces when operating power hand tools or portable electrical appliances.
- Wear rubber-soled or insulated work boots when operating electrical equipment.
- Do not operate a power hand tool or portable appliance while holding a part of the metal casing or while holding the extension cord in your hand.
- Hold all portable power tools by the plastic handgrips or other nonconductive areas designed for gripping purposes.
- Do not use electrical tools if its housing is cracked.

Electrical Cords

- Keep power cords away from the path of drilling and cutting equipment.
- Do not use cords that have splices, exposed wires, or cracked or frayed ends.
- Never remove the ground prong from electrical cords.
- Do not use an adapter such as a cheater plug that eliminates the ground.
- Never plug multiple electrical cords into a single outlet.

DRYWALL, PLASTERING, & INSULATION

Power Saws

- Wear safety goggles, protective gloves, a dust mask, and hearing protection when operating a power saw.
- Do not wear loose clothing or jewelry.
- Clean any residue from the blade or cutting head before making a new cut with the power saw.
- Do not use a power saw that has cracked, broken, or loose guards.
- Keep your hands away from the exposed blade.
- Operate the saw at full cutting speed, with a sharp blade, to prevent kickbacks.
- Do not alter the anti-kickback device or blade guard.
- Never perform cutting operations with the power saw while standing on a wet or slippery floor.
- When using the power saw, do not reach across the cutting operation.
- Cut away from your body and below your shoulder level when you are using a power saw.
- If the saw becomes jammed, turn the power switch of the saw to "Off" before pulling out the incomplete cut.

Pneumatic Tools

- Do not point a compressed air hose at bystanders.
- Never use compressed air to clean your clothing.
- Do not use tools that have handles with burrs or cracks.
- Turn the tool "off" and let it come to a complete stop before leaving it unattended.
- Disconnect the tool from the airline before making any adjustments or repairs to the tool.
- Do not use compressors if their belt guards are missing. Replace the belt guards before use.
- Engage positive locks on hoses and attachments before use.
- Shut off pressure valve and disconnect airline when not in use.
- Tag damaged or defective pneumatic tools "Out of Service" to prevent usage of the tool by other employees.

Powder Actuated Tools

- Wear impact resistant safety goggles or face shields when operating any powder actuated tools.
- Do not attempt to fasten through a pre-drilled hole unless the powder actuated tool has a hole locator.
- Keep your head and body behind the powder-actuated tool when firing it.
- Before using powder-actuated tools, do not alter, bypass or remove the shield or guard at the muzzle end of the powder-actuated tool.
- Do not load a powder-actuated tool until you are ready to fire it.

DRYWALL, PLASTERING, & INSULATION

HAND TOOLS

- Use tied off containers to keep tools from falling off elevated work platforms.
- Never use a tool if its handle has splinters, burrs, cracks, splits, or if the head of the tool is loose.
- Do not use tools while your hands are oily, greasy, or wet.
- When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
- Never carry sharp pointed hand tools such as screwdrivers in your pocket unless the tool or your pocket is sheathed.
- Do not perform makeshift repairs to tools.
- Never throw tools from one location to another, from one employee to another, or from scaffolds and other elevated platforms.
- Do not carry tools in your hand when climbing. Carry tools in tool belts or hoist the tools to the work area with a hand line.
- Transport hand tools only in toolboxes or tool belts. Do not carry tools in your clothing.
- When you are performing electrical work, use tools with rubber sleeves covering the handle, these are insulated.

Hammers

- Do not strike nails or other objects with the cheek of the hammer.
- Never strike one hammer against another hammer.
- Do not use hammers with mushroomed heads.

Pliers

- Never attempt to force pliers by using a hammer on them.
- Do not use pliers that are cracked, broken, or sprung.
- When using diagonal cutting pliers, shield the loose pieces of cut material from flying into the air by using a cloth or your gloved hand.

Hand Saws

- Keep control of saws by releasing downward pressure at the end of the stroke.
- Make sure your hands and fingers are away from the saw blade while using.
- When using a handsaw, hold your panel firmly against the worktable.
- Do not use a saw that has dull saw blades.
- Never carry a saw by the blade.
- Oil saw blades after each use of the saw.

DRYWALL, PLASTERING, & INSULATION

Snips

- Wear safety glasses or safety goggles when cutting lath or corner beads.
- Make sure you wear your work gloves when cutting materials with snips.
- Do not use straight cut snips to cut curves.
- Keep the blade aligned by tightening the nut and bolt on the snips.
- Do not use snips as a hammer, screwdriver, or pry bar.
- Engage the locking clip on the snips after use.
- Keep your snips in a sheath or toolbox when not in use.

Knives/Sharp Instruments

- When handling knife blades and other cutting tools, direct sharp points and edges away from you.
- Always cut in the direction away from your body.
- Carry all sharp tools in a sheath or holster. Store knives in knife blocks or in sheaths after using them.
- Do not use knives that have dull blades. Use the knife that has been sharpened.
- Never use knives as screwdrivers.
- Do not pick up knives by their blades.
- Carry knives with the tips pointed towards the floor.

Tool Boxes/Chests/Cabinets

- Tape over or file off sharp edges on toolboxes, chests, or cabinets.
- Do not stand on toolboxes, chests, or cabinets to gain extra height.
- Lock the wheels on large toolboxes, chests, or cabinets to prevent them from rolling.
- Push large chests, cabinets, and toolboxes; do not pull.
- Do not open more than one drawer of a toolbox at a time.
- Close and lock all drawers and doors before moving the tool chest to a new location.
- Never use a toolbox or chest as a workbench.
- Do not move a toolbox, chest, or cabinet if it has loose tools or parts on the top.

DRYWALL, PLASTERING, & INSULATION

SCAFFOLDING

- Inspect the scaffold prior to use. Do not use a scaffold if any pulley, block, hook, or fitting is visibly worn, cracked, rusted, or otherwise damaged. Do not use a scaffold if any rope is frayed, torn, or visibly damaged.
- Do not use any scaffold tagged "Out of Service".
- Never use unstable objects, such as barrels, boxes, loose brick, or concrete blocks to support scaffolds or planks.
- Do not work on platforms or scaffolds unless they are fully planked.
- Never use a scaffold unless the guardrails and all flooring are in place.
- Level the scaffold after each move. Do not extend adjusting leg screws more than 12 inches.
- Do not walk or work beneath a scaffold unless a wire mesh has been installed between the mid rail and the toeboard or planking.
- Use your safety belts and lanyards when working on scaffolding at a height of 10 feet or more above ground level (Cal/OSHA is 7 ½ feet). Attach the lanyard to a secure anchor on the scaffold.
- Do not climb the cross braces for access to the scaffold. Use the ladder.
- Never jump from, to, or between scaffolding.
- Do not slide down cables, ropes, or guys used for bracing.
- Keep both feet on the decking. Do not sit or climb on the guardrail.
- Do not lean out from the scaffold. Do not rock the scaffold.
- Keep the scaffold free of scraps, loose tools, tangled lines, and other obstructions.
- Do not throw anything overboard unless a spotter is available. Use a debris chute or lower things by hoist or by hand.
- Never move a mobile scaffold if anyone is on the scaffold.
- Chock the wheels of the rolling scaffold, using the wheel blocks, and lock the wheels by using your foot to depress the wheel lock, before using the scaffold.
- Do not work on scaffolds outside during stormy or windy weather.
- Never climb on scaffolds that wobble or lean to one side.

DRYWALL, PLASTERING, & INSULATION

LATHERS

Lifting Bags, Cans, Buckets

- Position your feet 6 to 12 inches apart with one foot slightly in front of the other.
- Face the load.
- Bend at the knees, not at the back.
- Keep your back straight.
- Get a firm grip on the object with your hands and fingers. Use handles when present.
- Perform lifting movements smoothly and gradually; do not jerk the load.
- Hold objects as close to your body as possible.
- If you must change direction while lifting or carrying the load, pivot your feet and turn your entire body. Do not twist at the waist.
- Set down objects in the same manner as you picked them up, except in reverse.
- Slide materials to the end of the tailgate before attempting to lift them off a pick-up truck. Do not lift over the walls or tailgate of the truck bed.

SANDBLASTING

Restoration and Work where Asbestos Is Suspected

- Do not perform asbestos removal operations, unless you have been trained, qualified, and certified in asbestos removal procedures.
- Use the respirator that has been fit tested and assigned to you by your supervisor.
- Always assume that materials used prior to 1976, such as plaster and blown insulation, contain asbestos.
- Never use sanders or power devices that may create dust or airborne particles.
- Do not dry scrape, bead blast, or mechanically pulverize any existing plaster or blown insulation.
- Notify the state OSHA division at least 24 hours before beginning any asbestos-related demolition work in which more than 100 sq. ft. of asbestos-containing material (greater than 0.1 percent asbestos by weight) will be disturbed.

Fiberglass Batts and Sprayed-on Insulation

- Do not take work clothes home when exposed to sprayed-on insulation or fiberglass batts.
- Change your work clothes before leaving the job site.
- Place work clothes contaminated with fiberglass or sprayed-on insulation in a closed labeled container approved by your employer.
- Use your respirator when working with sprayed-on insulation or fiberglass.

DRYWALL, PLASTERING, & INSULATION

RESPIRATORY PROTECTION

- Shave daily to prevent facial hair from interfering with the face seal of the respirator.
- Clean and return respirators to their carrying cases or cartons. Store them in your locker or in a designated storage area as instructed by your employer when the work is completed.
- Only use the respirator that has been fitted and issued to you.

Infection Control

- Wash your hands (after removing your gloves) with soap or mild detergent and water before eating, smoking, using the toilet, or on any areas of the body that may have contacted cementitious mixtures, pastes, or spray-on insulation at the end of each workday.
- Use a mechanic's cream hand cleaner where water is not readily available.

FINISHING (TAPPING, BEDDING, SANDING)

Mixing Cementitious Components

- Apply Vaseline to exposed skin surfaces on your arms and hands prior to handling plaster, lime, or any cementitious mixtures.
- Do not handle lime or cementitious mixtures if you have open cuts or scratches on exposed skin surfaces such as your arms or hands.
- Use personal protective clothing or equipment such as canvas gloves and protective eyewear to avoid cement poison or burns.
- Open doors and windows. Make sure exhaust fans are turned on when working indoors.

Applying Exterior Finishes (scratch coats, coquina, stucco installations, etc.)

- Never use a metal ladder on rooftops or within 50 feet of electrical power lines.
- Do not block the walking surfaces of elevated working platforms, such as scaffolds, with tools or materials that are not being used.
- When working outdoors, drink plenty of fluids and keep shirts on to avoid dehydration and sunburn.

DRYWALL, PLASTERING, & INSULATION

Using Joint Compounds

- Wear protective gloves when handling compounds or chemicals from containers labeled flammable, toxic, caustic, or poisonous. Wash your hands after removing the gloves.
- Follow the instructions on the label and in the corresponding Safety Data Sheet for each joint compound or chemical product used in your workplace.
- Each time you use your gloves, wash your gloves before removing them. Use cold tap water and normal hand washing motion. Always wash your hands after removing the gloves.
- Do not use joint/filler compounds or chemicals from unlabeled containers.
- Do not store chemical containers labeled oxidizer with containers labeled corrosive or caustic.
- Always use goggles and gloves when handling joint/filler compounds or chemicals labeled corrosive or caustic.

Applying Finishes: Plaster, Coquina, Popcorn, or other

- Do not smoke or eat while performing stucco or popcorn finishes.
- Stand clear of mixing or blowing operations.
- Do not stand, work, or operate pneumatic equipment such as blowers with hoses within three feet of any unprotected roof opening or within five feet of any unprotected roof edge.

PERSONAL PROTECTIVE EQUIPMENT

- Wear your safety glasses when mixing plaster ingredients and additives, applying spackling, finishing ceilings, or sanding.
- Wear dust mask or respirator when emptying sacks of dry material such as additives for fireproofing or plaster ingredients.
- Use lifelines, safety harnesses, or lanyards when you are working higher than 6 feet off the ground.
- Wear safety glasses while plastering, applying mud, or sanding.
- Wear safety goggles when using power tools or when applying a finishing material.

MANUAL STACKING AND HANDLING

- Store all wallboard flat.
- Do not store boards vertically; this will damage the edges creating unstable stacks.
- Stand each board vertically on its side as close to the edge of the pile as possible, tilt the board toward the stack, and let the board drop freely on top of the stack.
- Do not allow boards to overhang more than an inch. Align flush all boards, to keep the boards from becoming unstable and topple on someone while restacking.
- Use a co-worker to assist handling the boards when stocking. Coordinate and communicate your movements with those of your co-worker.

DRYWALL, PLASTERING, & INSULATION

Drywall Access Hatch

- Proper access to all projects over one story is a major concern. Drywall delivery to many construction projects, particularly up to four stories tall, has become more difficult in recent years. Often access to the upper levels is limited to interior staircases requiring delivery workers to carry the drywall up manually.
- A safety access hatch will ensure a safe and efficient means of placing drywall on the upper levels when there is no safe alternative. The use of window openings that meet the 2 ft. wide by 5 ft. high minimums is an acceptable alternative.
- Without an access, the possibility of back and shoulder injury increases when deliveries have to be made up the stairs. A company's time loss due to job related injuries is a concern.
- Safety regulations clearly place responsibility for worker safety on all employers responsible for the site to arrange the work area to allow the safe movement of workers, equipment, and materials.

Opening

- Delivery can be facilitated by the prime contractor providing an unobstructed opening in the exterior wall at each floor level. An appropriately framed exterior-wall delivery hatch opening that is 24 inches wide and 60 inches high will meet the minimum requirements. An existing opening can be used if it meets the minimum hatch size, and does not have the door or window installed.
- If the opening needs to be covered, the prime contractor can tack temporary sheathing material over the opening on the inside. The supplier removes the cover, the drywall is delivered through the opening, and the cover can be replaced from the inside.
- Unobstructed access for equipment to reach the building is required, and should not exceed a distance of 18 feet from the delivery entrance.

Drywall Mold Inspection/Testing

- Do not enter or work in a moldy area without wearing proper respiratory and other personal protection. Molds are known allergens and may be toxic.
- You should use Personal Protective Equipment (PPE) while investigating a mold problem. The minimum PPE includes an N-95 respirator, gloves, and eye protection.
- Many different types of mold can be found growing on the same or nearby sections of drywall. Different molds appear at different locations according to variations in moisture level. Attics, basements, and outdoor environments contract many molds.
- Crawl spaces can have high levels of airborne mold spores and mold spores in settled dust. Do not assume that because there is no visible mold on surfaces that there is not a problem mold reservoir in exposed insulation.
- Inspect ceilings, wall and ceiling cavities, floors, carpeting, backsides of stairs, exposed sides of all framing, joists, girders, posts, and exposed fiberglass insulation as a possible mold reservoir for moisture.
- For larger areas of mold, look for the dominant mold present.

DRYWALL, PLASTERING, & INSULATION

- Collect one sample per location using clear adhesive tape. Do not use the same tape to sample from multiple locations. Put the sample into a clear Ziploc bag. Look for variations in appearance, texture, growth surface, or mold growing in different areas for reasons to sample more than one. Dust samples need to be taken where there is no visible mold. Collect settled dust particles from a horizontal surface. If you are going to collect a single dust-screening sample, collect it from the area you are most suspicious of, or from the area where building occupants spend the most time. Where the tape sample is collected can make a big difference in what you find. Send your mold samples to a reputable tester.
- If you suspect there is a serious mold problem, call a professional testing company. The tester will take air samples and physical samples that can be incubated for seven days in a Petri dish. The tester will have a snake device that can go behind drywall to find mold in the wall cavity. They will have a moisture meter to check for unseen leaks.
- Different molds may be found growing in the same building on the drywall room side, drywall cavity side, plywood sheathing, wood stud or joist framing, painted surfaces, exposed fiberglass insulation, and paper vapor barrier.
- Water-loving molds grow closest to the floor (highly visible black molds). Molds on drywall grow a little higher (*Cladosporium* sp., *Cladosporium sphaerospermum*, *Cladosporium cladosporioides*, *Ulocladium chartarum*), and molds liking the drywall even higher on a vertical wall are (light-colored but more airborne *Aspergillus* sp., *Aspergillus glaucus*, *Aspergillus flavus*, *Penicillium* sp., etc.).
- Prepare for a building inspection and mold remediation plan.
- When in doubt go on-line to: www.epa.gov/iaq/molds/preventionandcontrol.html, or call 800-490-9198.
- Indoor Air Quality Association is at: www.IAQA.org.

After Remediation Is Complete

- Make sure outside problems have been fixed that are causing wet conditions such as the roof, roof gutter, or downspout spillage by the building foundation.
- Make sure inside conditions such as plumbing leaks or improper ventilation have been fixed.

DRYWALL, PLASTERING, & INSULATION

This company has adopted this program for the safety of employees when working on or around "Vehicle Mounted Elevating and Rotating Work Platforms" from OSHA regulations.

The safety coordinator is designated by this company as the competent person in authority over all aerial device work procedures. The safety coordinator will ensure that all safety measures and systems are in place and correctly installed, all safety procedures are adhered to, and ensure regular inspections of the operational site and aerial equipment are made. This company has implemented and will enforce the following work practices and procedures to assure that no employee will be exposed to hazards during aerial lifting operations:

- The safety coordinator will confirm and verify that all employees are trained in and familiar with required work practices and procedures in the use of any equipment required, proper PPE, and safety procedures which must be followed to safeguard personnel involved in aerial lifting operations or who work in the vicinity of aerial lifting operations.
- Only trained and authorized personnel will be permitted to operate equipment.
- Each work platform will be inspected, maintained, repaired, and kept in proper working order in accordance with the manufacturer's maintenance and repair manuals.
- Any work platform not in safe operating condition must be removed from service until it is repaired. All repairs will be made by a qualified service person in conformance with the manufacturer's operating, maintenance, and repair manuals.
- Modifications or alterations of work platforms will be made only with written permission of the manufacturer or any other equivalent entity.
- Each work platform will be equipped with a mechanical parking brake, which will hold the unit on any slope it is capable of climbing. When possible, wheel chocks will be installed before using an aerial lift on an incline.
- The following information will be displayed on all work platforms in a clearly visible, accessible area and in as permanent a manner as possible:
 - Warnings, cautions, or restrictions for safe operation in accordance with ANSI requirements
 - The rated work load will be clearly displayed at each entrance to the platform.
- Before using the work platform, the operator must:
 - Read and understand the manufacturer's operating instructions and safety rules, and be trained by a qualified person on the contents of the manufacturer's instructions and safety rules.
 - Read and understand all decals, warnings, and instructions on the work platform.
 - On a daily basis, before the work platform is used, it must be given a thorough inspection, which must include:
 - Inspection for defects such as cracked welds, hydraulic leaks, damaged control cable, loose wire connections, and tire damage.
 - Inspection of functional controls for proper operation.
 - Any suspect items discovered through inspection must be carefully examined and a determination made by a qualified service person as to whether they constitute a safety hazard. All unsafe items must be corrected before further use of the work platform.

- Before the work platform is used, the operator must survey the area for hazards such as:
 - Untamped earth fills.
 - Ditches.
 - Dropoffs or holes.
 - Bumps & floor obstructions.
 - Debris.
 - Overhead obstructions and high-voltage conductors.
 - Other possible hazardous conditions.
- Before each elevation of the work platform, the operator must:
 - Check for overhead obstructions and high-voltage conductors. A minimum distance of ten feet from energized high-voltage conductors must be maintained at all times between the conductors and the operator and platform equipment.
 - Ensure that the load and its distribution on the platform are in accordance with the manufacturer's rated capacity. The manufacturer's recommended load limits must never be exceeded.
 - Ensure that outriggers and stabilizers are used if the manufacturer's instructions require their use.
 - Ensure that guardrails are properly installed and gates are closed.
- Before and during driving while the platform is elevated, the operator will:
 - Be required to look in the direction of, and keep a clear view of, the path of travel and assure that the path of travel is firm and level.
 - Maintain a safe distance from obstacles, debris, drop-offs, holes, depressions, ramps, or other hazards to safe elevated travel.
 - Maintain a safe distance from overhead obstacles.
- The operator must limit travel speed according to conditions. Conditions to be observed are: Ground surface, congestion, slope, location of personnel, and other factors that may create a hazard of collision or injury to personnel.
- Stunt driving and horseplay is prohibited.
- Personnel must maintain a firm footing on the platform while working thereon unless they are secured by safety harness and lanyard devices fixed to manufacturer-approved anchor points. Use of railings or planks, ladders or any other device on the work platform for achieving additional height is prohibited.
- The operator will immediately report defects or malfunctions which become evident during operation and must stop use of the work platform until correction has been made.
- Altering or disabling of safety devices or interlocks is prohibited.

VEHICLE MOUNTED ELEVATING & ROTATING WORK PLATFORMS

Basic Types of Elevating Work Platforms and Aerial Devices

There are two basic types of elevating work platforms – boom and scissor. Both types come in:

- “On-Slab” models for use on smooth hard surfaces such as concrete or pavement.
- “Rough-Terrain” models for use on firm level surfaces such as graded and compacted soil or gravel.

Both types share three major components: base, lifting mechanism, and platform assembly.

SCISSOR-TYPE MACHINES

These are raised and lowered by hydraulic pistons and an expanding scissor mechanism. Platforms are available in various configurations with different capabilities for extension and movement. Some have extendable platforms or platforms that can rotate. Extendable platforms should be retracted before raising or lowering the device. Typical machines are illustrated in Figure 1.

On-Slab Units

- Not designed for uneven or sloping ground.
- Normally have solid rubber tires.
- Generally powered by rechargeable DC battery.
- Some are powered by internal combustion engine, either gasoline or propane.
- Most have “pothole protection” – a metal plate lowered close to the ground to afford some protection against inadvertent movement into depressions or debris.

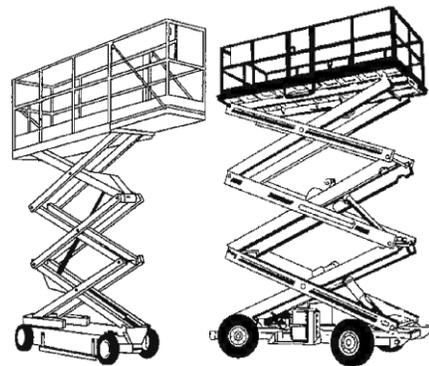


Figure 1

Rough-Terrain Units

- Similar in design to on-slab machines.
- Built to handle rigorous off-slab challenges

FIGURE 1: Scissor-type Powered

- Normally have wider wheel bases, larger wheels, and pneumatic tires.
- Some fitted with outriggers for extra stability.
- Usually powered by internal combustion engines: gasoline, diesel, or propane.
- DC Battery powered units are also available, but are not common.
- Lifting mechanism is hydraulic.

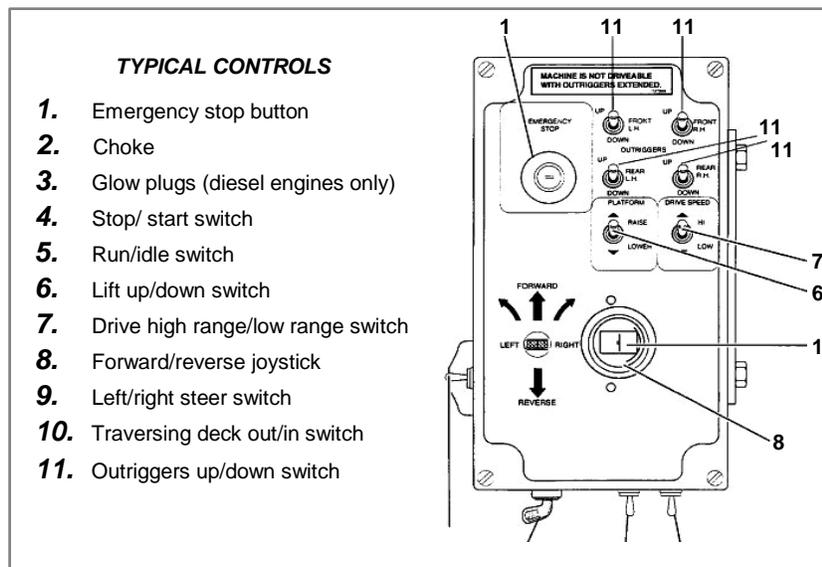
Scissor-lifts range in capacity from 500 to several thousand pounds. They are available with platform heights often reaching 50 feet or more.

Scissor-lifts must be set up on stable, level ground, even with outriggers deployed. A slight imbalance or instability is amplified when the machine is raised.

Figure 2 shows one example of controls. Although fixed to the platform, the controls are moveable from one side of the platform to the other. This enables the operator to see the path of travel.

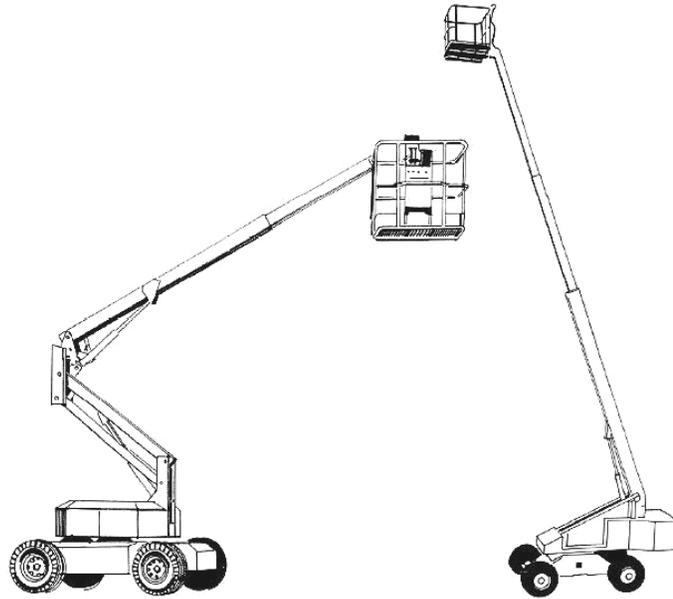
The controls must be oriented correctly so that the operator does not inadvertently move the machine in the wrong direction. Many machines have color-coded directional arrows on the chassis to aid the operator in moving the machine.

FIGURE 2: Example of Controls on Scissor-Type Platforms



Self-Propelled Boom-Supported Platforms

- Normally fitted with rough-terrain undercarriages.
- Some smaller on-slab units.
- Platforms have lifting capacity of about 500 pounds or two workers.
- Lack capacity of scissor-type machines; not intended for lifting materials.
- Usually powered by an internal combustion engine: gasoline, diesel, or propane.



Booms

- Telescopic, articulating, or combination of both.
- Raised and extended by hydraulic cylinders.
- Can reach up to 150 feet.

Platforms

- Can extend well beyond the wheelbase.

Figure 4 shows one example of controls for a boom machine. Although controls are fixed in position, the operator may become disoriented by machine rotation and must remain aware of the direction of movement. Many machines have color-coded directional arrows to help the operator move the machine in the right direction.

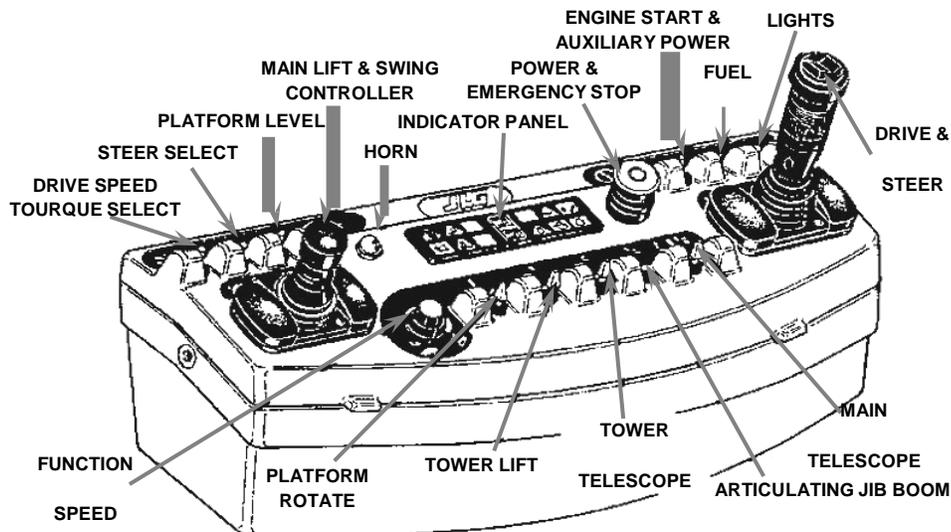


FIGURE 4 Mobile Controls

As with mobile cranes, stability decreases with length of boom and boom angle as the center of gravity moves in relation to the platform position. The machine will overturn if the center of gravity moves outside the machine's base.

Machines come with load charts that show safe operating configurations. Machines with booms long enough to cause overturning at low boom angles are required to have radius-limiting interlocks to prevent operation in unstable configurations.

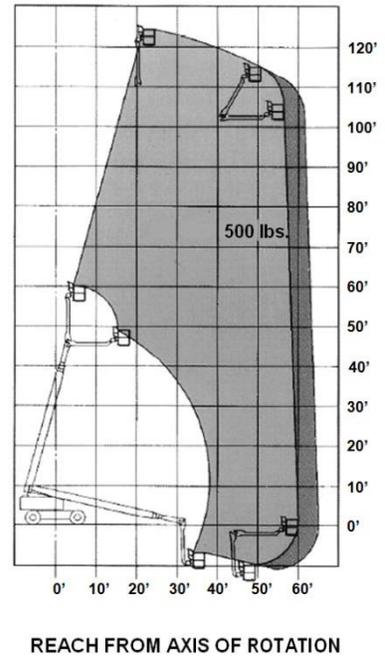
The reach chart shown in Figure 5 indicates the safe operating configurations for a machine with 120 feet of reach operating on a level surface. The reach diagram in Figure 6 shows the safe operating envelope for a 36-foot boom machine.

Notice that the machine does not achieve its maximum height directly overhead. Nor does it achieve its maximum reach at ground level.

Users must be familiar with the operating range of the individual make and model of the equipment they are using.

This knowledge is essential in order to position the machine correctly and reach the work location safely.

Figure 5



NON-SELF-PROPELLED OR PUSH-AROUNDS

As the name indicates, these units are not self-propelled and must be transported from one location to another with an independent power source or manually in the case of the smaller devices.

The machines are intended primarily for use on smooth, level, hard surfaces or on-slab conditions. Some trailer-mounted units are available. Many of these devices can fold up to pass through a standard door and can be transported by pick-up truck. As a result, they are suitable for maintenance or renovation work.

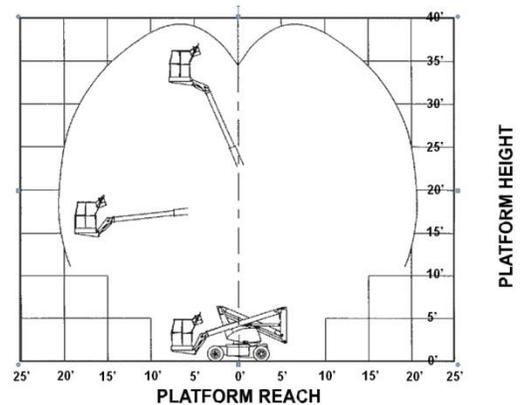
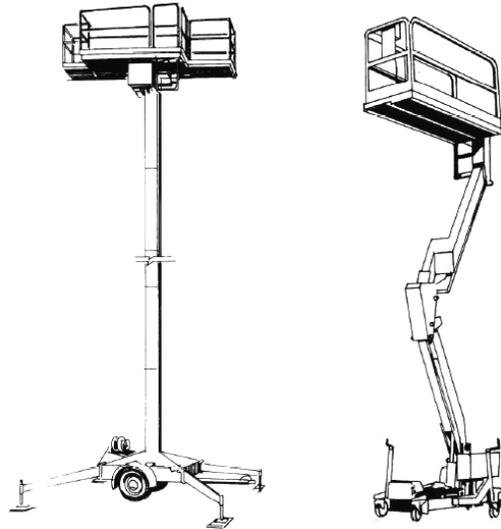


FIGURE 6: Reach Diagram for a 36 foot Articulating

PUSH-AROUNDS

- Raising mechanism normally powered by gasoline or propane engine or by electric motors, either AC or DC.
- Normally raised and lowered by hydraulic cylinders.
- Platform capacities vary from 300 to 1000 pounds or more but are generally less than 500 pounds.
- Devices with capacity less than 500 pounds are **Not Recommended** for construction—this type is better suited to maintenance activities.
- Platforms usually do not exceed 36 feet in height.
- As platform is raised, risk of overturning increases.
- Extra care required when operating at maximum height.



EQUIPMENT SELECTION

Elevating work platforms are designed for different uses. It is essential to select the appropriate equipment for the job.

Typical Mistakes

- Using an on-slab machine on rough terrain.
- Using a unit undersized with respect to height, reach, and lifting capacity.
- Lifting large materials that overhang the platform.
- Using a scissor lift where the reach of a boom-type machine is needed.
- Extending the platform with planks, ladders, or other devices because the machine cannot reach the required height.

Factors to Consider

- *Capacity* – Does the machine have the lifting capacity, the reach, and the height to complete the task?
- *Surface Conditions* – Are the surface conditions hard or soft, sloped or level? Will the ground have an effect on the type of machine selected?
- *Platform Size and Configuration* – Do you need a regular or extendable platform? Is rotation required? Are there space restrictions to consider?
- *Mobility* – Is a boom type better suited than a scissor lift to the task at hand?
- *Material to be Lifted* – Will the machine be able to lift the size and weight of material required for the job?
- *Access* – Will the machine be able to travel around the workplace safely? Are there obstructions or depressions that will restrict the use of certain machines?

- *Operator Skill or Training* – Are the people on site competent to operate the machine? If a propane-powered engine is used, has the operator received propane training?
- *Work Environment* – If the work is to be done indoors, or in a poorly ventilated area, will an electrically powered machine be required?

FUNDAMENTAL ELEVATING WORK PLATFORM HAZARDS

The following are some of the basic hazards to be aware of during operations:

- *Machine Tipping or Overturning* – Many factors cause instability – sudden stops, depressions, drop-offs, overreaching, overloading, etc. Overturning and tipping result in many fatalities and injuries.
- *Overriding Safety Features* – Disarming features such as the tilt or level warning and the deadman switch can prevent operators from knowing when they are in a dangerous situation. Overriding the deadman switch has resulted in fatalities; so has malfunction of the tilt warning.
- *Overhead Power line Contact* – Contacting overhead wires can cause electrocution. This can happen with any type of machine – and with the loads carried by or overhanging the machine.
- *Falls from Elevated Platforms* – Many falls occur because workers get in a hurry and fail to observe standard fall protection procedures. Many such falls cause serious injury or even fatalities.
- *Makeshift Extensions* – When the machine cannot reach the working height desired, do not compensate by using scaffold planks, ladders, blocks of wood, or other makeshift arrangements. Such practices lead to falls and machine instability.
- *Overloading the Platform* – Elevating work platforms overloaded or loaded unevenly can become unstable and fail. Boom-type machines are especially sensitive to overloading. Always stay within the operating range specified by the manufacturer.
- *Failure to Cordon Off* –
 - Elevating work platforms have been struck by other construction equipment or oncoming traffic when the work area is not properly marked or cordoned off.
 - Workers have been injured when they inadvertently entered an unmarked area and were struck by falling material, tools, or debris.
 - In unmarked areas, workers have also been injured by swinging booms and pinched by scissor mechanisms.
- *Accidental Contact* – Many elevating work platforms have blind spots. Moving the machine or platform may cause contact with workers or with obstacles. Use a designated signaller on the ground to guide the operator when the path of travel is not clear or access is tight.
- *Improper Maintenance or Modifications* – Elevating work platforms should be maintained by competent workers in accordance with manufacturer's instructions.

No modifications should be made to the machine without the manufacturer's approval.

- *Improper Blocking During Maintenance* – Failing to block, or improperly blocking the machine, boom, or platform can cause serious crushing injuries and property damage.
- *Improper Access* – Do not enter or leave the platform by climbing the scissors or the boom. Do not use extension ladders to gain access. Ladders exert lateral loads on the platform that can cause overturning. For the safest access, lower the machine completely.
- *Moving with Platform Raised* – Lower the platform before moving the machine unless:
 - The machine is designed to move with platform raised.
 - The supporting surface is smooth and level. Slight dips and drops are amplified when the platform is raised and can cause the machine to overturn.
- *Improper Refueling* – Take care when refueling. Gasoline, for instance, should be kept in approved containers and dispensed to prevent spills and sparking.
- *Pinch Points* – Clothing, fingers, and hands can get caught in scissor mechanisms. As platforms are raised, machines may sway. Workers can be pinched between guardrails and the structure. Position the platform so that work takes place above guardrail height.

RESPONSIBILITIES DURING ELEVATING WORK PLATFORM PROJECTS

Because elevating work platforms are often rented from an equipment supplier, there is confusion as to the responsibilities of the parties involved. Generally, the responsibilities can be summarized in the following way:

The owner or supplier must ensure that the machine:

- Is maintained in good operating condition.
- Conforms to appropriate regulations and standards.
- Includes the operator's manual and correct load rating charts.

The employer and supervisor on the project must:

- Ensure that the operator is fully trained and is competent to operate the particular equipment being used.
- Ensure that the machine has the correct load rating capacity for the job.
- Maintain the equipment and all its protective devices.
- Maintain a daily inspection log for each platform.
- Ensure that workers use appropriate personal protective equipment.
- Keep the manufacturer's operating manual with the equipment.
- Train workers on each type of equipment that they will be using.

The operators and workers using the equipment must:

- Receive adequate training to be fully competent.
- Only operate the machine when competent.
- Operate the machine in a safe manner as prescribed by the manufacturer and according to Company safety and health policies.
- Inspect the equipment each day or each shift before use.
- Perform function tests before use.
- Report any defects to the supervisor.
- Read, understand, and obey the manufacturer's safety rules, including the operating manual and warning decals. When a defect is reported to the supervisor, the equipment must be taken out of service until the repairs are completed and the equipment is inspected and approved for use.

STABILITY AND TIPPING

In general, elevating work platforms are well manufactured and are safe to use within their specific limitations. However, as with any equipment or tool, there are do's and don'ts to follow. One of the most dangerous hazards in operating elevating work platforms is tipping over. This can be caused by one or more of the following factors:

- Sudden movement of the unit or parts of the unit when elevated.
- Making sudden stops while in motion with platform elevated.
- Uneven or overloading of the platform.
- Traveling or operating on a slope or uneven terrain.

- Changing the weight distribution of the machine by replacing parts with others of a different weight or adding attachments not approved by the manufacturer.
- Holes or drop-offs in the floor surface causing one wheel to drop suddenly.
- Operating the equipment in windy conditions (refer to the operator’s manual for safe operating conditions).

It is important that users understand what makes a platform stable and what causes it to overturn. To understand stability, one must understand the concept of center of gravity, tipping axis (or tipping point), and forces that shift the center of gravity.

Stability is resistance against tipping over. Stability depends on the location of the center of gravity in relation to the tipping axis.

CENTER OF GRAVITY

Every object has a center of gravity. It is the point where the object’s weight would be evenly distributed or balanced. If a support is placed under that point, the object would be perfectly balanced.

The center of gravity is usually located where the mass is mostly concentrated. However, the location does not always remain the same.

Any action that changes the machine’s configuration – such as raising the platform, extending the boom, or traveling on a slope – can change the location of the center of gravity.

Figure 8 shows how raising a scissor-type platform affects the center of gravity.

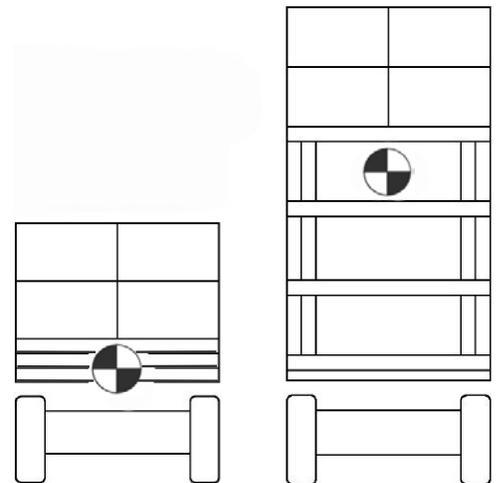


Figure 8

TIPPING AXIS

When an EWP turns over, it tips around an axis or point. This is called the tipping axis or tipping point. EWPs typically have four tipping axes – front, back, left, and right.

Each EWP has its own area of stability. This varies from platform to platform and from model to model. In most cases, the area of stability is bound by the four tipping axes (or the four tires or outriggers). The platform is stable as long as the center of gravity remains inside the area of stability. This is the key to safe operation.

Figure 9 shows how lowering the boom angle affects the center of gravity. In this example the center of gravity moves towards the platform but remains inside the area of stability.

When the center of gravity shifts beyond the area of stability, the machine will tip over. Some factors that can cause a shift beyond the stability area are overloading, moving on excessively sloped ground, a sudden drop of one wheel, and shock loading.

Raising the platform also raises the EWP's center of gravity. When a scissor lift is situated on a slope, and the platform is raised, the platform's center of gravity will move toward the tipping axis. If the center of gravity moves beyond the tipping axis, the platform will overturn.

Boom-supported aerial devices work in the same way. When the boom is extended outward, the center of gravity moves outwards towards the tipping axis. The aerial device will overturn if the boom is extended such that the center of gravity moves beyond the axis.

Boom-type machines have an interlocking system that prevents the machine from moving into an unstable configuration.

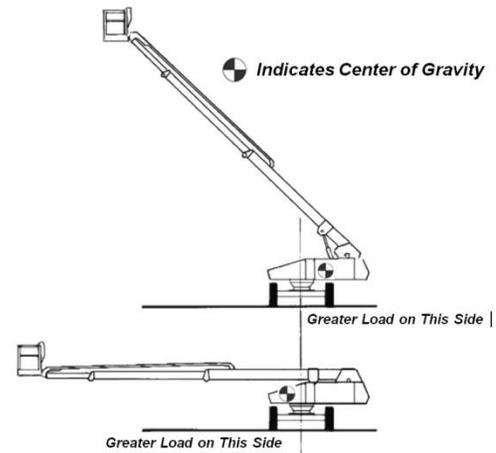


Figure 9

FACTORS AFFECTING STABILITY

Dynamic Forces

Dynamic forces are forces generated by movement or change of movement. For example, applying the brakes suddenly or traveling too fast around corners can cause instability – as in a car or van. Sudden stops while raising or lowering the platform can also cause instability.

Traveling

Traveling the platform over rough or uneven ground can also cause instability. Figure 10 shows how a tire dropping 4 inches can cause the boom to sway 2 feet. It is important to lower the platform fully or to retract telescoping sections while traveling, particularly on uneven surfaces.

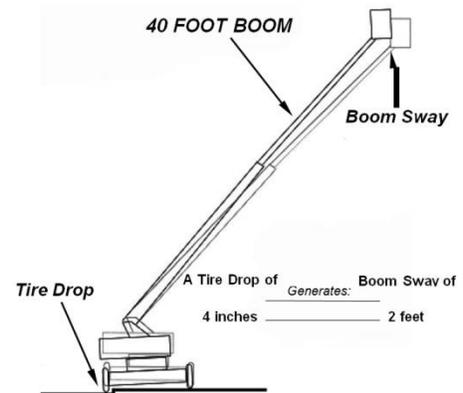


Figure 10

EQUIPMENT INSPECTION

All components that bear directly on the safe operation of the EWP and can change from day to day must be inspected daily. Inspection is mostly visual – done in a quick but thorough manner.

Users must check the operator's manual for a complete list of pre-operational checks. See the end of this section for Daily Inspection Checklists for Elevating Work Platforms and Aerial Devices.

Minimum Requirements

Before climbing onto the platform, check:

- Tires for proper pressure and wheels for loose or missing lug nuts.
- Steer cylinder, linkage, and tie rods for loose or missing parts, damage, & leaks.
- Hydraulic oil for leaks and fluid level. Hydraulic hoses, lift cylinder(s), and connections for leaks or loose connections.
- Fuel supply – adequate fuel, filler cap in place, no damage, leaks, or spills.
- Battery for fluid level and state of charge.
- Proper connection of all quick-disconnect hoses.
- Structural components for damage, broken parts, cracks in welds, including scissor arms, outrigger arms, and pads.
- Ladder or steps for damage and debris (ladder must be firmly secured to the platform and relatively free of grease, mud, and dirt).
- Beacon and warning lights for missing and defective lenses or caps.
- Ground controls (manual and powered) – including emergency stop switch and platform lower/lift switch – for proper function and damaged and missing control sticks/switches
- Decals and warning signs to make sure they are clean, legible, and conspicuous.

After mounting the platform, check:

- Platform assembly for missing or loose parts, missing or loose lock pins & bolts.
- Platform floor for structural damage, holes, or cracked welds and any dirt, grease, or oil that can create a hazard.
- Operator's manual to make sure it is in place.
- Extendable platform deck for ease of extension/retraction and proper function of locking position of platform
- Guardrails to make sure they are in place and secure.
- Access gate for ease of movement, missing parts, latch, and locking capabilities.
- All fall protection anchorage points.
- All control mechanisms for broken or missing parts.
- All emergency controls for proper function – stopping, descending, master OFF switch.
- All safety devices such as tilt and motion alarms for malfunction.
- Swivels for freedom of rotation.
- Scissors for smooth movement up and down.
- Brakes for stopping capabilities.
- Horn for proper function.

MANUALS, SIGNS, AND DECALS

Signs clearly visible to the operator at the controls must indicate:

- The equipment's rated working load.
- All limiting operating conditions, including the use of outriggers, stabilizers, and extendable axles.
- The specific firm, level surface conditions required for use in elevated position.
- Such warnings as may be specified by the manufacturer.
- Other than for a boom-type elevating work platform, the direction of machine movement for each operating control.
- The name/number of the ANSI standard to which the platform was designed.
- The name and address of the owner.

In addition to the above, ANSI standards require the following signs:

- The make, model, serial number, and manufacturer's name and address.
- The maximum platform height.
- The maximum travel height, if not equal to the maximum platform height.
- The nominal voltage rating of the batteries, if battery-powered.
- A warning to study the operating manual before using the equipment.
- A statement as to whether or not the platform is insulated.
- A notice outlining the required inspections.
- The capacity in each configuration.
- Diagrams/description of various configurations in which the platform can be used.
- Warnings against replacing, without the manufacturer's consent, components critical to the machine's stability – for example, batteries or ballasted tires with lighter weight components (the minimum weights of such components must be specified).

Many of these signs are vital to the operation of the machine and the protection of workers. All signs and decals must be kept clear of dust and grease so they can be easily read. Torn or damaged signs must be replaced.

Standards also require that the manufacturer provide a manual containing the following information:

- Description, specifications, and capacities of the platform.
- The operating pressure of the hydraulic or pneumatic system that is part of the work platform.
- Instructions regarding operation and maintenance, including recommended daily, weekly, and monthly inspection checklists.
- Information on replacement parts.
- The manual must be stored on the equipment in a weatherproof storage container.

SAFE PRACTICES

Operators must be familiar with the requirements for the specific machine they will use:

- The manufacturer's operating manual.
- The manufacturer's warning and caution signs on the machine.
- The location of all emergency controls and emergency procedures.
- The daily maintenance checks to perform.

GENERAL SAFETY GUIDELINES FOR EWPS AND AERIAL DEVICES

- Always check for overhead power lines before moving the machine or operating the platform. The limits of approach from overhead power lines must be observed. If work must be done within these limits, make arrangements with the owner of the utility to have the power line de-energized. Allow for movement or sway of the lines as well as the platform. Be aware of overhanging tools or equipment.
- Wear a full body harness and tie off to a designated tie-off point while the machine is moving.
- Do not leave the machine unattended without locking it or otherwise preventing unauthorized use.
- Do not load the platform above its Rated Working Load (RWL). Wherever possible, keep the load below $\frac{2}{3}$ of the RWL.
- Make sure that all controls are clearly labeled with action and direction.
- Keep guardrails in good condition and ensure that gate is securely closed before moving the platform. Do not remove guardrails while the platform is raised.
- Shut off power and insert the required blocking before maintenance or servicing.
- Deploy stabilizers or outriggers according to the manufacturer's instructions.
- Position the boom in the direction of travel where possible.
- Keep ground personnel away from the machine and out from under platform.
- Do not access the platform by walking on the boom.
- Do not try to push or move the machine by telescoping the boom.
- Do not use the machine as a ground for welding.
- Do not use a boom-supported platform as a crane.
 - Do not operate the equipment in windy conditions. For safe wind speeds, refer to the operator's manual.
 - Do not place the boom or platform against any structure to steady either the platform or the structure.
 - Secure loads and tools on the platform so that machine movement will not dislodge them.
 - Make sure that extension cords are long enough for the full platform height and will not be pinched or severed by the scissor mechanism.
 - Use three-point contact and proper climbing techniques when mounting or dismounting from the machine

Important Note: Never operate equipment on which you have not been trained or which you are not comfortable operating. Your safety and that of others on site depends on competent, knowledgeable operation of the equipment.

WORK AREA INSPECTION

Before operating elevating work platforms and aerial devices, check the work area for:

- Drop-offs or holes in the ground.
- Slopes.
- Bumps or floor obstructions.
- Debris.
- Overhead obstructions.
- Overhead wires, power lines, or other electrical conductors.
- Hazardous atmospheres.
- Adequate operating surface – ground or floor.
- Sufficient ground or floor support to withstand all forces imposed by the platform in every operating configuration.
- Wind and weather conditions.

Fall Protection Requirements

The fall protection required for persons who work on aerial lifts depends on the type of aerial lift used. The table below shows acceptable fall protection.

Type of Lift	Fall Protection Required
Vehicle-Mounted Elevating and Rotating Work Platforms (ANSI A92.2 devices)	Platforms other than buckets or baskets must include guardrail systems – guardrails, a midrail, and toeboards. Each person who works on a boom-supported platform must wear a body harness and lanyard attached to the boom or basket.
Manually Propelled Elevating Aerial Platforms (ANSI A92.3 devices)	The platform must have a guardrail at least 42 inches \pm 3 inches above the floor, a midrail, and toeboards at least 4 inches high.
Boom-Supported Elevating Work Platforms (ANSI A92.5 devices)	The platform must have a guardrail at least 42 inches \pm 3 inches above the floor, a midrail, and toeboards at least 4 inches high. Each worker on the platform must wear a body harness and lanyard attached to the boom or platform.
Self-Propelled Elevating Work Platforms (ANSI A92.6 devices)	The platform must have a guardrail 42 inches \pm 3 inches above the floor, a midrail, and toeboards at least 4 inches high.

FALL PROTECTION FOR ELEVATING WORK PLATFORMS

- Personnel shall maintain firm footing on the platform while working on the platform. The use of railings, planks, ladders, or any other devices on the platform for achieving additional height is prohibited.
- A safety harness that has a lanyard which is in compliance with construction safety standard "Fall Protection" and which is affixed to attachment points provided and approved by the manufacturer shall be provided by the employer and used by any occupant of an aerial work platform described in this section. A fall arrest system shall only be used where the aerial lift is designed to withstand the vertical and lateral loads caused by an arrested fall.
- A body belt may be used with a restraint device with the lanyard and the anchor arranged so that the employee is not exposed to any fall distance. A restraint device is required where the aerial lift cannot withstand the vertical and lateral loads imposed by an arrested fall.
- Belting off to an adjacent pole, structure, or equipment while working from an aerial work platform is prohibited.
- An employer shall not allow employees to exit an elevated aerial work platform, except where elevated work areas are inaccessible or hazardous to reach.

Employees may exit the platform with the knowledge and consent of the employer. When employees exit to unguarded work areas, fall protection shall be provided and used as required.

FALL PROTECTION FOR AERIAL DEVICES

- Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
- Boom and basket load limits specified by the manufacturer shall not be exceeded.
- A safety belt or harness shall be used with a lanyard attached to the boom or basket when working from an aerial lift. The safety belt, harness, and lanyard shall be provided by the employer. An in-plant, industrial-type aerial device used on a level surface and equipped with a platform with approved railings is exempt from this rule.
- Body belts are not acceptable as part of a personal fall arrest system. The use of a body belt in a tethering system or in a restraint system is acceptable.
- A boom platform shall be provided with a rail or other structure around its upper periphery that shall be not less than 38 inches above the floor of the platform and with a toeboard not less than 4 inches high. A basket of a cherry picker shall be considered to meet this requirement. A platform may have the guardrail removed from the working side if a safety belt and lanyard is worn by the employee on the platform.
- Belting off to an adjacent pole, structure, or equipment while working from an aerial device shall not be permitted.
- Climbers shall not be worn while working from an aerial device unless gaff guards are provided.

OSHA REGULATIONS AND RESPONSIBILITIES

OSHA Regulations include the following requirements:

- Elevating work platforms must be engineered and tested to meet the relevant standard for that equipment.
- Aerial devices must be checked each day before use by a trained worker.
- The owner or supplier must keep a log of all inspections, tests, repairs, modifications, and maintenance.
- The log must be kept up to date and include names and signatures of persons who performed inspections and other work.
- Workers must be given oral and written instruction before using the platform for the first time. Instruction must include items to be checked daily before use.

Vehicle Mounted Elevating and Rotating Work Platforms & Aerial Devices

This section provides for the safe operation and maintenance by the employer and the safe use by the employee of vehicle mounted elevating and rotating work platforms in, around, and about a place of employment. Firefighting equipment and powered industrial trucks are not included in these rules.

Employer Responsibility

An employer shall provide each employee who will operate the aerial work platform with instruction and training regarding the equipment that will be used. Such instruction and training shall ensure that each operator is in compliance with the minimum following provisions:

- Is instructed by a qualified person in the intended purpose and function of each of the controls.
- Is trained by a qualified person or reads and understands the manufacturer's operating instructions and safety rules.
- Understands by reading or by having a qualified person explain, all decals, warnings, and instructions displayed on the aerial work platform.
- Reads and understands the provisions of these rules or be trained by a qualified person on their content.

The manufacturer's operating instructions and safety rules shall be provided and maintained in a legible manner on each unit by the employer.

Maintain an aerial device in a condition free of known defects and hazards which could cause an injury.

Employee Responsibility

An employee shall:

- Operate an aerial device only after being trained and authorized by the employer.
- Report known defects and hazards concerning an aerial device to the supervisor.

Equipment Instructions and Marking

Each unit shall have a manual containing instructions for maintenance and operations. If a unit is able to be operated in different configurations, then these shall be clearly described, including the rated capacity in each configuration.

Each aerial device placed in service shall have a conspicuously displayed legible plate or other legible marking verifying the aerial device is designed and manufactured in accordance with the following applicable specifications:

ANSI A92.2 — Vehicle Mounted Elevating and Rotating Aerial Devices.

ANSI A92.3 — Manually Propelled Elevating Work Platforms.

ANSI A92.5 — Boom Supported Elevating Work Platforms.

ANSI A92.6 — Self-Propelled Elevating Work Platforms.

- The above plates shall contain the following data, when applicable:
- Make, model, and manufacturer's serial number.
- Rated capacity.
 - Maximum capacity at the maximum platform height.
- Platform height.
 - Maximum travel height.
- Maximum recommended operating pressure of hydraulic or pneumatic system(s) or both.
- Caution or restrictions of operation or both.
- Operating instructions.
- Manufacturer's rated line voltage (dielectric capability).
- Alternative configurations shall require in addition to the above:
 - Chart, schematic, or scale showing capacities of all combinations in their operating positions.
 - Cautions, restrictions, or both, of operation of all alternate or combinations of alternate configurations.

Employees shall be instructed in the proper use of the platform.

All aerial devices and elevating work platforms shall be assembled and erected in accordance with these rules and shall be maintained in safe operating condition.

All electrical tests shall conform to the requirements of the applicable NFPA 70 Standard or equivalent DC voltage test approved by the equipment manufacturer or equivalent entity.

Factors of Safety in Design of Work Platform Assembly

- Where the platform is supporting its rated workload by a system of wire ropes or lift chains, or both, the safety factor of the wire or chain shall not be less than 6 to 1.

- All critical components of a hydraulic or pneumatic system used in a work platform shall have a bursting strength that exceeds the pressure attained when the system is subjected to the equivalent of four times the rated workload. Critical components are those in which a failure would result in a free fall or free rotation of the boom. All noncritical hydraulic components shall have a bursting safety factor of at least 2 to 1.
- Automatic safety devices or systems shall be provided to prevent free fall of the work platform should a failure of the power supply or elevating system occur.

Construction, Modification, Remounting, Testing, and Use

- An aerial device purchased, modified, or remounted after December 28, 1974, shall be as prescribed in ANSI A92.2-1969, standard for Vehicle-Mounted Elevating and Rotating Work Platforms.
- A permanent label or tag shall be affixed to an aerial device purchased, modified, or remounted certifying compliance.
- An employer modifying the basic design of an aerial device shall secure approval of the modification in writing from the manufacturer of the aerial device, a firm offering an equivalent service, or a qualified engineer knowledgeable in the aerial device operations. The results of the modification shall be at least as safe as the original design.
- An aerial device shall bear a permanent plate stating the designed rating capacity.
- An aerial device shall be mounted on a vehicle capable of sustaining, or reinforced to sustain, the imposed load. The vehicle shall be a stable support for the aerial device.
- The lifting and outrigger system of an aerial device shall be equipped with a means, such as but not limited to, a pilot operated check valve to ensure that the system will not permit the work platform to drop in a free fall in event of a power or hydraulic line failure.
- An aerial device acquired before December 31, 1976, which does not meet the requirements shall not be used unless it has been inspected and modified as required to conform to the essential stability, structural, electrical insulation, and operational requirements of ANSI A92.2.
- In addition to the welding requirements prescribed in ANSI A92.2, an aerial device shall conform to the AWS D2.0-69, Specifications for Welding Highway and Railway Bridges standard.

Maintenance and Repairs

- The materials used in the repair of aerial devices and elevating work platforms shall conform to standard specifications of strength, dimensions, and weights, and shall be selected to safely support the rated workload.
- Electrical wiring and equipment shall meet NFPA 70 provisions.
- All exposed surfaces shall be free from sharp edges, burrs, or other hazardous projections.

Electrical Ratings

- The rating plate required shall include a statement as to whether the aerial device is insulated or is noninsulated and, if insulated, the rated line voltage for which the aerial device was designed and tested.
- The insulating portion of an aerial device shall not be altered in any manner that might reduce its insulating value.

Safety Factors and Yield Points

- The design of the basic structural elements of the aerial device including the platform and its component parts shall have a yield point of not less than 3 times the rated load. Structural materials not having a clearly defined yield or break point shall have a designed safety factor of not less than 5.
- The designed safety factor of not less than 4 shall apply to those hydraulic and pneumatic components which would, on failure, permit a free fall, free rotation of the boom, or loss of stability.
- Noncritical components shall have a bursting safety factor of not less than 2.

Controls

- The controls for the operation of an aerial device shall be permanently labeled as to their functions.
- Controls for an aerial device shall be designed or guarded to prevent inadvertent actuation.
- Articulating, extensible boom platforms, or both, primarily designed as personnel carriers, shall be equipped with both upper and lower controls.
- Upper controls shall be located within reach of the operator.
- Lower controls shall be capable of overriding the upper controls. Except in case of an emergency, the lower controls shall not be operated unless permission has been obtained from the employee in the basket or on the work platform.

Stability Requirements for New or Modified Aerial Devices

Each new or modified aerial device shall be inspected and tested before initial use to assure compliance with all of the following requirements.

- Each aerial device, when mounted on a vehicle which meets the manufacturer's minimum vehicle specifications and when used in a specific configuration, shall comprise a mobile unit capable of sustaining a static load 1 ½ times its rated load capacity in every position in which the load can be placed within the definition of the specific configuration when the vehicle is on a firm and level surface. If having the outriggers extend to a firm footing is part of the definition of the configuration, they shall be extended to provide leveling for the purpose of determining whether the mobile unit meets the stability requirements.
- Each aerial device, when mounted on a vehicle which meets the manufacturer's minimum vehicle specifications and when used in a specific configuration, shall comprise

a mobile unit capable of sustaining a static load $1 \frac{1}{3}$ times its rated load capacity in every position in which the load can be placed within the definition of the specific configuration when the vehicle is on a slope of 5 degrees downward in the direction most likely to cause overturning. If having the outriggers extended to a firm footing is part of the definition of the configuration, they shall be extended to provide leveling for the purpose of determining whether the mobile unit meets the stability requirements. If other facilities, such as a means of turntable leveling, are provided to minimize the effect of the sloping surface, then those facilities shall be utilized for the purpose of determining whether the mobile unit meets the stability requirements. Vertical towers designed specifically for operation only on a level surface shall be excluded from this requirement.

- None of the stability tests described shall produce instability of the mobile unit, or cause permanent deformation of any component. The lifting of a tire or outrigger on the opposite side of the load does not necessarily indicate a condition of instability.

Verification by the manufacturer or an equivalent entity that the stability of an aerial device meets the requirements may be used to demonstrate compliance.

Inspection and Tests

- An aerial device shall be inspected and tested at least annually for permanent deformation and cracks by using $1 \frac{1}{2}$ times the rated load and for defects by visual inspection during and following the load test.
- An annual electrical test of insulated aerial devices shall be made. An equivalent DC voltage test may be used in place of the prescribed AC voltage.
- Field inspection and tests shall be performed only by an authorized and trained employee or outside service.
- Lift controls shall be tested each day before use to determine that the controls are in safe working condition. An aerial device with defective controls shall not be used until repaired.

Use

- Any overhead line shall be considered energized until the owner, owner representative, or utility indicates otherwise and the line has been visibly grounded, and the owner, owner representative, or utility shall be notified and provided with all pertinent information of the job before the commencement of operations near electrical lines.
- Except as prescribed or where insulating barriers not a part of or an attachment to the aerial device have been erected to prevent physical contact with the lines, an aerial device shall maintain the distances from energized distribution and transmission power lines and equipment prescribed in table 1.
- A qualified lineman or a qualified line clearance tree trimmer performing work on or near an exposed power transmission or distribution line from an aerial lift shall maintain distances prescribed in table 2, unless the employee is insulated or guarded from the energized part by gloves or gloves and sleeves, or insulated, isolated, or guarded from any other conductive part or the energized part is insulated from the employee.

- A qualified telecommunications employee shall maintain the distances prescribed in table 3 when working from an aerial lift, unless the employee is insulated, isolated, or guarded from any other conductive part or the energized part is insulated from the employee.
- The insulated bucket, gloves, and sleeves used to comply shall be rated at more than the voltage to be worked on or that with which they might come into contact.
- An in-plant, industrial-type aerial lift designed to be used on level surfaces shall not be used on slopes, unless the aerial lift is adjusted to a firm, level plane.
- A safety belt or harness shall be used with a lanyard attached to the boom or basket when working from an aerial lift. The safety belt, harness, and lanyard shall be provided by the employer. An in-plant, industrial-type aerial device used on a level surface and equipped with a platform with approved railings is exempt from this rule.
- A boom platform shall be provided with a rail or other structure around its upper periphery that shall be not less than 38 inches above the floor of the platform and with a toeboard not less than 4 inches high. A basket of a cherry picker shall be considered to meet this requirement. A platform may have the guardrail removed from the working side if a safety belt and lanyard is worn by the employee on the platform.
- The designed rated capacity for a given altitude shall not be exceeded.
- A proximity warning device may be used, but not in place of meeting the requirements of this rule.
- Belting off to an adjacent pole, structure, or equipment while working from an aerial device shall not be permitted.
- An employee shall stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket, except that an employee may sit in the basket if it is equipped with a specifically designed seat. A plank, ladder, or other device shall not be used from a basket.
- Climbers shall not be worn while working from an aerial device unless gaff guards are provided.

Table One

Minimum Clearance Distances for Equipment		
Voltage	Clearance with Boom Raised	Clearance Boom Lowered and no Load in Transit
To 50kV	10 feet	4 feet
Over 50kV	10 feet + .4 inch per each 1 kV over 50 kV	10 feet
50 to 345kV		10 feet
346 to 750 kV		15 feet

TABLE 2

Minimum Working Distances for Qualified Line Clearance Tree Trimmers and Qualified Linemen	
Voltage Range Phase to Phase (KV)	Minimum Working Distance
2.1 to 15.0	2'0"
15.1 to 35.0	2'4"
35.1 to 46.0	2'6"
46.1 to 72.5	3'0"
72.6 to 121.0	3'4"
138.0 to 145.0	3'6"
161.0 to 169.0	3'8"
230.0 to 242.0	5'0"
345.0 to 362.0	7'0"
550.0 to 552.0	11'0"
700.0 to 765.0	15'0"

***NOTE:** For 345 — 362 kV., 500 — 552 kV., and 700 — 765 kV., the minimum working distance and the minimum clear hot stick distance may be reduced that such distances are not less than the shortest distance between the energized part and a grounded surface.

TABLE 3

Minimum Approach Distances for Qualified Telecommunications Employees	
Voltage Range (Nominal Phase to Phase)	Minimum Approach Distances
300 V and less	12"
Over 300 V, not over 750 V	18"
Over 750 V, not over 2 kV	24"
Over 2 kV, not over 15 kV	36"
Over 15 kV, not over 37 kV	42"
Over 37 kV, not over 87.5 kV	48"
Over 87.5 kV, not over 121 kV	54"
Over 121 kV, not over 140 kV	--"

Vehicles

- Before a vehicle supporting an aerial ladder is moved for highway travel, the ladders shall be secured in the lower position, and the manually operated device at the base of the ladder, or other effective means, shall be used to prevent elevation or rotation of the ladder.
- Before a vehicle supporting an aerial lift is moved for travel, the boom shall be inspected to insure that it is properly cradled and the outriggers are in the stowed position.
- A vehicle supporting an aerial device shall not be moved when the boom is elevated with employees in working position, unless the equipment is specifically designed for this type of operation and meets the requirements.
- Brakes shall be set and outriggers, when used, shall be positioned on pads or a solid surface.
- Wheel chocks shall be installed before using an aerial device on an incline.

ELEVATING WORK PLATFORMS

These rules apply to equipment that has a primary function of elevating personnel, together with their tools and necessary materials, on a platform that is mechanically positioned. The following units are covered:

- **ANSI Standard A92.2-1990**, "Vehicle-Mounted Elevating Work Platforms", which applies to vehicle-mounted devices installed on commercial chassis and covers the following type of units:
 - Extensible boom aerial devices.
 - Aerial ladders.
 - Articulating boom aerial devices.
 - Vertical towers.
 - A combination of any of the equipment specified.
- **ANSI Standard A92.3-1990**, "Manually Propelled Elevating Work Platforms", which is adopted by applies to work platforms which are manually propelled, which are vertically adjustable by manual or powered means, and which may be towed or manually moved horizontally on wheels or casters that are an integral part of the work platform base.
- **ANSI Standard A92.5-1992**, "Boom-Supported Elevating Work Platforms", which applies to all integral frame, boom-supported elevating work platforms which telescope, articulate, rotate, or extend beyond the base dimensions.
- **ANSI Standard A92.6-1999**, "Self-Propelled Elevating Work Platforms", which applies to self-propelled vertically adjustable integral chassis work platforms. Such work platforms are power operated with primary controls for all movement operated from the platform.

Equipment not Covered

- Equipment that has a primary function other than elevating personnel, such as fork trucks or cranes that are adapted to elevating personnel, is not covered by these rules.
- Also excluded from coverage of these rules is firefighting equipment that is covered by the provisions of the publication entitled "American National Practices for the Maintenance, Care, Testing, and Use of Fire Department Aerial Ladders and Elevating Platforms."

Construction

- Aerial work platforms shall be designed, constructed, and tested so as to be in compliance with the requirements of ANSI standards A92.2, A92.3, A92.5, and A92.6
- Aerial work platforms shall not be field-modified for uses other than those intended by the manufacturer, unless the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in compliance with the applicable ANSI standard and this rule, and to be at least as safe as the equipment was before modification.
- Directional controls shall be in compliance with all of the following provisions:
 - Be of the type that will automatically return to the off or neutral position when released.
 - Be protected against inadvertent operation.

- Be clearly marked as to their intended function.
- An overriding control shall be provided in the platform which must be continuously activated for platform directional controls to be operational and which automatically returns to the off position when released.
- Aerial work platforms shall be equipped with emergency controls at ground level.
- Emergency ground level controls shall be clearly marked as to their intended function and be capable of overriding the platform controls.

Table 1

Minimum Clearance Distances for Equipment		
Voltage	Clearance With Boom Raised	Clearance Boom Lowered and No Load in Transit
To 50 kV	10 feet	4 feet
Over 50 kV	10 feet + .4 inch per each 1 kV over 50 kV	10 feet
50 to 345 kV		10 feet
346 to 750 kV		15 feet

- All of the following information shall be clearly marked in a permanent manner on each aerial work platform.
 - Special workings, cautions, or restrictions necessary for operation.
 - Rated workload.
 - A clear statement of whether or not the aerial work platform is electrically insulated.
- Rotating shafts, gears, and other moving parts that are exposed to contact shall be guarded as required.
- Attachment points shall be provided for fall protection devices for personnel who occupy the platform on aerial work platforms.

Inspection, Maintenance, and Testing

An employer shall comply with all of the following requirements:

- Each aerial work platform shall be inspected, maintained, repaired, and kept in proper working condition in accordance with the manufacturer's operating, maintenance, and repair manuals.
- Any aerial work platform found not to be in a safe operating condition shall be removed from service until repaired. All repairs shall be made by an authorized person in accordance with the manufacturer's operating, maintenance, and repair manuals.
- If the aerial work platform is rated and used as an insulated aerial device, the electrical insulating components shall be tested for compliance with the rating of the aerial platform in accordance with ANSI standard A92.2-1990, Section 6.

Such testing shall comply with all of the following provisions:

- The test shall be performed not less than annually.
- Written, dated, and signed test reports shall be made available by the employer for examination by OSHA.
- The insulated portion of an aerial device shall not be altered in any manner that might reduce its insulating value.
 - All danger, caution, and control markings and operational plates shall be legible and not obscured.

Preoperation Procedures

- Before use on each work shift, an aerial work platform shall be given a visual inspection by the operator for defects that would affect its safe operation and use. The inspection shall consist of not less than both of the following procedures:
 - Visual inspection for all of the following:
 - ┆ Cracked welds.
 - ┆ Bent or broken structural members.
 - ┆ Hydraulic or fuel leaks.
 - ┆ Damaged controls and cables.
 - ┆ Loose wires.
 - ┆ Tire condition.
 - ┆ Fuel and hydraulic fluid levels.
 - ┆ Slippery conditions on the platform.
 - Operate all platform and ground controls to ensure that they perform their intended function.
- Before the aerial work platform is used, and during use on the job site, the operator shall inspect the operational area for all of the following:
 - Ditches.
 - Drop-offs.
 - Holes.
 - Debris.
 - Bumps and floor obstructions.
 - Overhead obstructions.
 - Power lines

The area around the aerial work platform shall also be inspected to assure clearance for the platform and other parts of the unit.

- All unsafe items found as a result of the inspection of the aerial work platform or work area shall be corrected before further use of the aerial work platform.
- When the specified clearances cannot be maintained, the owner of electrical lines or the authorized representative shall be notified and provided with all pertinent information before the commencement of operations near electrical lines.
- Any overhead wire shall be considered to be an energized line until the owner of the line or the authorized representative states that it is de-energized.

Operating Procedures

- The aerial work platform shall be used only in accordance with the manufacturer's operating instructions and safety rules.
- The following clearances shall be maintained when operating aerial work platforms or other equipment under, over, by, or near energized electric power lines:

<i>VOLTAGE</i>	<i>MINIMUM CLEARANCE</i>
0 to 50 kV	10 feet
More than 50 kV	10 feet + .4 inch per kV

- The clearance requirements of this rule do not apply to the following situations:
- Where work is performed from an insulated aerial device that is insulated for the work and the work is performed in accordance with the provisions of construction safety standard "Power Transmission and Distribution" and "Telecommunications."
- Where the electric power transmission or distribution lines have been de-energized and visibly grounded at the point of work or where insulating barriers that are not a part of an attachment to the aerial work platform have been erected to prevent physical contact with the line.
- Where work is being performed by journeymen electricians on equipment up to .5kV.
 - Two journeymen electricians will be required for work within the minimum clearance on equipment over .5kV.
 - Proximity warning devices may be used, but shall not be used instead of meeting the requirements of this rule.
 - The manufacturer's rated load capacity shall not be exceeded. The employer shall ensure that the load and its distribution on the platform are in accordance with the manufacturer's specifications. The aerial work platform rated load capacity shall not be exceeded when loads are transferred to the platform at elevated heights.
 - Only personnel, their tools, and necessary materials shall be on or in the platform.
 - The guardrail system of the platform shall not be used to support any of the following:
 - ┆ Materials.
 - ┆ Other work platforms.
 - ┆ Employees.
- Personnel shall maintain firm footing on the platform while working on the platform. The use of railings, planks, ladders, or any other devices on the platform for achieving additional height is prohibited.
- Fuel gas cylinders shall not be carried on platforms that would allow the accumulation of gases.
- A safety harness that has a lanyard which is in compliance with construction safety standard "Fall Protection" and which is affixed to attachment points provided and approved by the manufacturer shall be provided by the employer and used by any occupant of an aerial work platform described in these rules. A fall arrest system shall only be used where the aerial lift is designed to withstand the vertical and lateral loads caused by an arrested fall.
- A body belt may be used with a restraint device with the lanyard and the anchor arranged so that the employee is not exposed to any fall distance. A restraint device is required where the aerial lift cannot withstand the vertical and lateral loads imposed by an arrested fall.
- Belting off to an adjacent pole, structure, or equipment while working from an aerial work platform is prohibited.

- An employer shall not allow employees to exit an elevated aerial work platform, except where elevated work areas are inaccessible or hazardous to reach. Employees may exit the platform with the knowledge and consent of the employer. When employees exit to unguarded work areas, fall protection shall be provided and used as required.
- Only aerial work platforms that are equipped with a manufacturer's installed platform controls for horizontal movement shall be moved while in the elevated position.
- Before and during driving while elevated, an operator of a platform shall do both of the following:
 - Look in the direction of, and keep a clear view of, the path of travel and make sure that the path is firm and level.
 - Maintain a safe distance from all of the following:
 - ┆ Obstacles.
 - ┆ Debris.
 - ┆ Drop-offs.
 - ┆ Holes.
 - ┆ Depressions.
 - ┆ Ramps.
 - ┆ Overhead obstructions.
 - ┆ Overhead electrical lines.
 - ┆ Other hazards to safe elevated travel
- Outriggers or stabilizers, when provided, are to be used in accordance with the manufacturer's instruction. Outriggers and stabilizers shall be positioned on pads or a solid surface.
- Aerial work platforms shall be elevated only when on a firm and level surface or within the slope limits allowed by the manufacturer's instructions.
- A vehicle-mounted aerial work platform shall have its brakes set before elevating the platform.
- A vehicle-mounted aerial work platform shall have wheel chocks installed before using the unit on an incline.
- Climbers shall not be worn while performing work from an aerial work platform.
- Platform gates shall be closed while the platform is in an elevated position.
- Stunt driving and horseplay are prohibited.
- Altering, modifying, or disabling safety devices or interlocks is prohibited.
- Care shall be taken by the employer to prevent ropes, cords, and hoses from becoming entangled in the aerial work platform.
- A platform operator shall ensure that the area surrounding the aerial work platform is clear of personnel and equipment before lowering the platform.
- Before and during travel, except as provided for horizontal movement, an operator shall do all of the following:
 - Inspect to see that booms, platforms, aerial ladders, or towers are properly cradled or secured.
 - Ensure that outriggers are in a stored position.
 - Limit travel speed according to the following factors:

- | Condition of the surface
 - | Congestion
 - | Slope
 - | Location of personnel
 - | Other hazards
- The aerial work platform shall not be positioned against another object to steady the platform.
 - The aerial work platform shall not be operated from a position on a truck, trailer, railway car, floating vessel, scaffold, or similar equipment.
 - The boom and platform of the aerial work platform shall not be used to move or jack the wheels off the ground unless the machine is designed for that purpose by the manufacturer.
 - If the platform or elevating assembly becomes caught, snagged, or otherwise prevented from normal motion by adjacent structures or other obstacles so that control reversal does not free the platform, all personnel shall be removed from the platform before attempts are made to free the platform.

Elevating Work Platform Equipment

- The platform deck shall be equipped with a guardrail or other structure around its upper periphery that shall be 42 inches high, plus or minus 3 inches, with a midrail. (Chains or the equivalent may be substituted where they give equivalent protection.) Where the guardrail is less than 39 inches high, an approved personal fall protection system shall be used.
- The configuration of an elevating work platform may include a ladder for personnel to use in reaching the platform deck. Any ladder device used in this way shall have rungs located on uniform centers not to exceed 12 inches.
- Any elevating work platform equipped with a powered elevating assembly and having a platform height exceeding 60 inches shall be supplied with safe emergency lowering means compatible with the specific elevating assembly employed.
- Any powered elevating work platform shall have both upper and lower control devices. Controls shall be plainly marked as to their function and guarded to prevent accidental operation. The upper control device shall be in or beside the platform, within easy reach of the operator. The lower control device shall have the capability to lower the platform where the operator's safety is in jeopardy.
- An emergency stopping device shall be provided at the upper controls of elevating work platforms.
- Elevating Work Platforms shall include:
 - Toeboards at sides and ends which shall not be less than 4 inches high.
 - EXCEPTION: Toeboards may be omitted at the access openings.
 - A hinged trap access door, if applicable.
 - A platform whose minimum width shall not be less than 16 inches.

Guarding of Moving Parts

All rotating shafts, gearing, and other moving parts shall be guarded.

Stability on Inclined Surfaces

Unless recommended for such use by the manufacturer, no elevating work platform shall be used on an inclined surface. Procedures for maintaining stability must be clearly outlined in the special warnings section of user's manual. The user shall not deviate from the manufacturer's instructions.

Operating Instructions (Elevating Work Platforms)

- No employee shall ride, nor tools, materials, or equipment be allowed on a traveling elevated platform unless the following conditions are met:
 - The travel speed at Maximum Travel Height does not exceed 3 feet per second.
 - Self-propelled units shall be equipped with electrical or other interlock means that will prevent driving them with the platform height greater than the Maximum Travel Height or at speeds greater than permitted at Maximum Travel Height.
 - The surface upon which the unit is being operated is level with no hazardous irregularities or accumulation of debris that might cause a moving platform to overturn.
- Units shall be assembled, used, and disassembled in accordance with the manufacturer's instructions.
- Units shall be assembled, and used only by personnel who have been trained in their use. Units shall be inspected for damaged and defective parts before use.
- Units shall not be loaded in excess of the design working load and shall be taken out of service when damaged or weakened from any cause. They shall not be used until repairs are completed.
- Employees shall not sit, stand, or climb on the guardrails of an elevating work platform or use planks, ladders, or other devices to gain greater working height or reach.
- Employees shall not work on units when exposed to high winds, storms, or when they are covered with ice or snow (unless provisions have been made to ensure the safety of the employees).
- Employees climbing or descending vertical ladders shall have both hands free for climbing.

NOTE: Employees should remove foreign substances, such as mud or grease from their shoes.

- Where moving vehicles are present, the work area shall be marked with warnings such as flags, roped off areas or other effective means of traffic control shall be provided.
- Unstable objects such as barrels, boxes, loose brick, tools, debris, shall not be allowed to accumulate on the work level.
- In operations involving production of small debris, chips, etc., and the use of small tools and materials, and where persons are required to work or pass under the equipment, screens shall be required between toeboards and guardrails. The screen shall extend along the entire opening, shall consist of No. 18 gage U.S. Standard Wire ½-inch mesh, or equivalent.

Pin-On Platforms

- Pin-on platforms shall be securely pinned to the boom or boom extension.
- Employees on the elevated pin-on platform shall be secured to the boom by a safety belt and lanyard or a body belt and safety strap.

Operating Instructions (Aerial Devices)

- Aerial baskets or platforms shall not be supported by adjacent structure(s) when workers are on the platform or in the basket while in an elevated position.
- Lift controls shall be tested in accordance with the manufacturer's recommendations or instructions prior to use to determine that such controls are in safe working condition.
- Only authorized persons shall operate an aerial device.
- Belting off to an adjacent pole, structure, or equipment while working from an aerial device shall not be permitted.
- Employees shall not sit or climb on the edge of the basket or use planks, ladders or other devices to gain greater working height.
- Boom and basket and platform load limits specified by the manufacturer shall not be exceeded.
- When elevating personnel with the vehicle stationary the braking systems shall be set.
- Provided they can be safely installed, wheel chocks shall be installed before using an aerial device on an incline.
- When used, outriggers shall be positioned on pads or a solid surface. All outriggers shall be equipped with hydraulic holding valves or mechanical locks at the outriggers.
- Climbers shall not be worn while performing work from an aerial device.
- When an insulated aerial device is required, the aerial device shall not be altered in any manner that might reduce its insulating value.
- An aerial device truck shall not be moved when the boom is elevated in a working position with employees in the basket or platform except when all of the following are complied with:
 - The equipment is specifically designed for this type of operation.
 - All controls and signaling devices are tested and are in good operating condition.
 - An effective communication system shall be maintained at all times between the basket or platform operator and where applicable, the vehicle operator.
 - The route to be traveled is surveyed immediately prior to the work trip, checking for overhead obstructions, traffic, holes in the pavement, ground or shoulder, ditches, slopes, etc., for areas other than paved, a survey should be made on foot.
 - The speed of the vehicle does not exceed three (3) miles per hour.
 - Only one employee is in the basket.
 - Both the driver and/or the elevated employee have been specifically trained for this type of work (towering) in accordance with the manufacturer's recommendations.

- Lower level controls shall not be operated unless permission has been obtained from the employee in the device, except in case of emergency.
- Before moving an aerial device for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.
- An employee, while in an elevated aerial device, shall be secured to the boom, basket or tub of an aerial device through the use of a safety belt, body belt, or body harness equipped with safety strap or lanyard.
 - Safety belts/body belts are prohibited for use in personal fall arrest systems, but may be used as part of a fall restraint or positioning device system.
 - Safety belts/body belts used as part of a positioning device system shall be rigged such that an employee cannot free fall more than 2 feet.
 - A body harness may be used in a personal fall restraint, positioning or fall arrest system. When a body harness is used in a fall arrest system, the lanyard shall be rigged with a deceleration device to limit maximum arresting force on an employee to 1,800 pounds and prevent the employee from hitting any levels or objects below the basket or platform, and shall limit free fall to a maximum of 6 feet.

Definition of Terms Relating To Aerial Devices

Aerial Device or Aerial Work Platform – means any vehicle-mounted device, telescoping or articulating or both, that is designed and manufactured to raise personnel to an elevated work position on a platform supported by scissors, masts, or booms.

Aerial Ladder – means an aerial device that consists of a single- or multiple-section rung ladder.

Articulating Boom Platform – means an aerial device that has two or more hinged boom sections.

Authorized Person – means a person who is approved and assigned to perform specific types of duties by the employer and who is qualified to perform those duties because of his or her training or experience.

Boom – An elevating member, the lower end of which is so attached to a rotating or non-rotating base that permits elevation of the free or outer end in vertical plane.

Commercial Chassis – means a vehicle that is built for over-the-road (roadway) travel.

Elevating Work Platform – A device designed to elevate a platform in a substantially vertical axis (Vertical Tower, Scissor Lift).

Extensible Boom Platform – means an aerial device, except for the aerial ladder-type, with a telescopic or extensible boom. A telescopic derrick with a personnel platform attachment shall be considered to be an extensible boom platform when used with a personnel platform.

Instability – means a condition of a mobile unit in which the sum of the moments tending to overturn the unit is equal to or exceeds the sum of the moments tending to resist overturning.

Insulated Aerial Device – means an aerial work platform that is designed with dielectric components to meet specific electrical insulating ratings for work on or near energized lines and apparatus.

Mechanically Positioned – means that the elevating assembly, whether a mechanical (cable or chain), hydraulic, pneumatic, electric or other powered mechanism, is used to raise or lower the platform.

Mobile Unit – means a combination of an aerial device, vehicle and related equipment.

Override – means to transfer or to take away platform control functions by another station.

Pin-On Platform – A platform other than basket or tub, without a guardrail which is attached to a boom by hinge or pivot connection allowing movement in the vertical plane, including such hinge down platforms used at the upper end of aerial ladders.

Platform – means the portion of an aerial work platform, such as a bucket, basket, stand, cage, or the equivalent, that is designed to be occupied by personnel and is a component of an aerial device.

Qualified Person – means a person who possesses a recognized degree, certificate, professional standing, or skill and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems relating to the subject matter, the work, or the project.

Qualified Line Clearance Tree Trimmer – means an employee trained to work in proximity of energized power transmission and distribution lines. An employee in a training program is included in this definition.

Qualified Lineman – means an employee trained and authorized to work on or near energized lines. An employee in a training program is included in this definition.

Qualified Telecommunications Employee – means an employee trained to work on communication lines in the proximity of energized power transmission and distribution lines.

Rated Work Load – The safe design live load carrying capacity of the work platform.

Safety Factor – means the ratio of the breaking strength of a piece of material or object to maximum designed load or stress applied when in use.

Stability – A condition of a work platform in which the sum of the moments, which tends to overturn the unit is less than the sum of the moments tending to resist overturning.

Vehicle – means any carrier that is not manually propelled.

Vehicle Mounted Elevating and Rotating Work Platform – means an aerial device.

Vertical Tower – means an aerial device designed to elevate a platform in a substantially vertical axis on a level surface

Yield Point – means the point where material begins to take a permanent deformation.



ELEVATING WORK PLATFORMS & AERIAL DEVICES

Aerial Lift Equipment Daily Inspection/Checklist

Use only equipment which is in safe working condition. DO NOT operate equipment if any inspected items need repair.			
Company:		Location of Use:	Time: Date:
Operator's Name:		Supervisor's Name:	
Inspector(s) Name:		Hour Meter Reading:	
Equipment Type:		Equipment I.D. Numbers:	Manufacturer:
OK REPAIR N/A	General Site Information:		OK REPAIR N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hazard assessment of work area/		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Controls in place for identified hazards/		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Work areas properly signed and barricaded?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Operator's manual on lift?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Ground man available for emergency descent who is knowledgeable of descent valve operation?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Test controls – including emergency descent valve?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
OK REPAIR N/A	Carrier Vehicle:		OK REPAIR N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Motor		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Crank case oil is clean and full		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Engine coolant is about 2" below cap		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Clutch /Converter		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drive Line		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Transmission fluid at proper level		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Frame		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Brakes		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Differentials		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Outriggers		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Cab		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Steering		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Lights		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Tires properly inflated		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Cuts or bulges in the tires		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Wheels & Lug Nuts secure		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fire Extinguisher		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Cab Glass		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Warning Lights and Alarm		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Access		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
OK REPAIR N/A	HYDRAULICS:		OK REPAIR N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Relief Valve(s)		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Restrictor Valves		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pipe Lines		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hose Lines		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Outrigger Cylinders		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Boom Crowd Cylinders		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Control Valves		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Swing Motor		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pumps		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Bearings		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Check hydraulic oil level		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Mounting Bolts		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Swing Gear		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Swing Pinion		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Seals - Hydraulic		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Leaks		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
OK REPAIR N/A	BOOM:		OK REPAIR N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Shipper Welds		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Boom Welds		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Pins - Boom Pivot		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Support Roller		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Boom Pins		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Boom Main Section		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
OK REPAIR N/A	OPERATIONAL CHECKS:		OK REPAIR N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Operators familiar with load charts?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Test emergency descent valve?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Out rigger pads not cracked?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hydraulic hoses in good condition?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Does boom swing break work properly?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Outriggers fully extended, working properly, and swing radius barricades in place?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Boom angle indicator is available and working?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Swing through 360 degrees, does boom angle indicator stay the same throughout rotation?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Engine is started and gauges are checked and working properly?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Extend out the boom, are all sections extending evenly?		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Comments:			
Signature (person(s) performing inspection/evaluation)			Date

Items to check during the daily inspection

- Check all welds between cylinders and booms for cracks or wear.
- Inspect all pivot pins for security of their locking devices.
- Check all exposed cables, sheaves, and leveling devices for wear and secure attachment.
- Inspect hydraulic system for frayed hoses and leaks.
- Check lubrication and fluid levels.
- Inspect boom and basket for cracks or abrasions.
- Check for the load capacity posting.
- Operate boom from ground controls through one complete cycle. Check for unusual noises and uncontrolled movements.

Prestart Checks

- Ensure that there are no obstacles around the work platform and in the path of travel such as holes, drop offs, ditches, soft fill, or debris.
- Check overhead clearances.
- Make sure the batteries are fully charged. Disconnect the AC charger cord from the external power source.
- Make sure that the Free-Wheeling Valve is fully closed.
- Make sure all guardrails and lock-pins are in place and locked in position.
- Make sure both side battery and hydraulic trays are closed and locked.

What to do when using a bucket or other aerial device

- Wear a safety harness connected to the boom. Do not attach safety harness to adjacent pole or structure.
- Ensure that no one is in the area before lowering stabilizers, outriggers, or the boom.
- Ensure that each axle is horizontal when vehicle is parked on a hill. Work with the boom pointed uphill beyond the vehicle center.
- Protect a roadway job site with traffic warning signs, lights, and barricades. Determine if extended boom movements will interfere with traffic.
- Secure all tools when not in use.
- Maintain the recommended distance from electrical wires unless you and the bucket are certified for electrical work.
- Face the direction of travel.
- Operate hydraulic controls slowly for smooth platform motion.

What not to do

- Do not stand on top of a bucket or use planks or ladders to gain extra height.
- Do not enter or leave a bucket by walking on the boom.
- Do not exceed the rated load limit.
- Do not ride from one job to another in the bucket.
- Do not climb from bucket to another elevated position without being secured to new position.
- Do not work above other workers. Clear the area below.
- Do not throw tools to or from an elevated bucket.
- Do not attempt to slow any air or hydraulic leak by using your hand or body.

Scissor Lift Operator Daily Inspection/Checklist		
Company Name:	Time:	Date:
Site Location:	Job Foreman/Supervisor:	
Person(s) Making Inspection:		
Equipment Type:	Equipment #s:	Manufacturer:
MECHANICAL		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Structural damage or cracked welds – Visual walk-around inspection.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Parking brake – Check operation.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Tires/wheels & fasteners – Visually inspect, check operation & tightness.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Guides/rollers & slider pads – Visually inspect, check operation, and ensure there is no metal to metal contact with slider, slider side, or running surface. Check for free movement of surface. Also check for free movement of the slider pin through the slider.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Railings & railing lock pins – Visually inspect & check tightness.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Entry chains or gates – Check operation & tightness.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Bolts and fasteners – Check tightness.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Safety Bar – Check operation.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Wheel Bearings & King pins – Visually inspect, check operation & lubricate.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Pothole Protection – Visually inspect & check operation.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Steering cylinder & tie rod – Visually inspect, check operation & lubricate.
ELECTRICAL		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Battery fluid level – Visually inspect.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Control switches – Visually inspect & check operation.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Cables & wiring harnesses – Visually inspect.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Battery Terminals – Visually inspect & check tightness.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Terminals & Plugs – Check tightness.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Generator/receptacle – Visually inspect & check operation.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Limit switches – Check operation.
HYDRAULIC		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Hydraulic oil reservoir level – Check oil level.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Hydraulic Hoses/Fittings – Visually inspect & check for leaks.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Lift/lowering time – Check operation & refer to specification tables.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Cylinders – Visually inspect & check operation.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Emergency lowering – Check operation.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Lift capacity – Check relief valve setting & refer to specification tables.
MISCELLANEOUS		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Manual – Visually check that proper manual is in box.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Placards, I.D. plates, warnings & control labels – Replace if missing/illegible.
PRESTART CHECKS		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Ensure that there are no obstacles around the work platform and in the path of travel such as holes, drop offs, ditches, soft fill, or debris.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Check overhead clearances.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Make sure the batteries are fully charged. Disconnect the AC charger cord from the external power source.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Make sure that the Free-Wheeling Valve is fully closed.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Make sure all guardrails and lock-pins are in place and locked in position
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Make sure both side battery and hydraulic trays are closed and locked.
<p>NOTE: At any point during this inspection there are any deficiencies, do not operate lift any further. Notify the proper personnel or repair unit as needed. Do not operate equipment without proper authorization and training.</p>		
Signature (person(s) performing inspection/evaluation)		Date

Items to check during the daily inspection

- Tires for proper pressure and wheels for loose or missing lug nuts.
- Steer cylinder, linkage, and tie rods for loose or missing parts, damage, & leaks.
- Hydraulic oil for leaks and fluid level. Hydraulic hoses, lift cylinder(s), and connections for leaks or loose connections.
- Fuel supply – adequate fuel, filler cap in place, no damage, leaks, or spills.
- Battery for fluid level and state of charge.
- Proper connection of all quick-disconnect hoses.
- Structural components for damage, broken parts, cracks in welds, including scissor arms, outrigger arms, and pads.
- Ladder or steps for damage and debris (ladder must be firmly secured to the platform and relatively free of grease, mud and dirt).
- Beacon and warning lights for missing and defective lenses or caps.
- Ground controls (manual and powered) – including emergency stop switch and platform lower/lift switch – for proper function and damaged and missing control sticks/switches
- Decals and warning signs to make sure they are clean, legible, and conspicuous.

After mounting the platform. check:

- Platform assembly for missing or loose parts, missing or loose lock pins & bolts.
- Platform floor for structural damage, holes, or cracked welds and any dirt, grease, or oil that can create a hazard.
- Operator's manual to make sure it is in place.
- Extendable platform deck for ease of extension/retraction and proper function of locking position of platform
- Guardrails to make sure they are in place and secure.
- Access gate for ease of movement, missing parts, latch, and locking capabilities.
- All fall protection anchorage points.
- All control mechanisms for broken or missing parts.
- All emergency controls for proper function – stopping, descending, master OFF switch.
- All safety devices such as tilt and motion alarms for malfunction.
- Swivels for freedom of rotation.
- Scissors for smooth movement up and down.
- Brakes for stopping capabilities.
- Horn for proper function.

EQUAL EMPLOYMENT AND AFFIRMATIVE ACTION

EAAAP AND STATEMENT OF POLICIES

The purpose of this Company's Equal Employment and Affirmative Action Plan (the "Plan") is to describe the application of key policies and procedures designed to assure the right of all persons to work and to advance based on ability. This Plan has been developed for the following purposes:

1. To achieve full equal treatment of minority groups and women at all levels and in all sectors of the work force;
2. To ensure compliance with applicable equal employment laws and government regulations;
3. To set forth mandatory steps to be taken at all Company office locations to maintain and implement equal employment and affirmative action policies throughout the Company.

STATEMENT OF POLICIES

Equal Employment – The Company employment policy is to make no distinctions in treatment, hiring, or advancement of applicants or employees based on race, religion, color, sex, age, national origin, handicap status, Vietnam era or disabled veterans status, or on any other basis prohibited by law.

Affirmative Action – The Board of Directors, President, and all officers of the Company will affirmatively implement the policies and procedures in this plan with regard to women, minorities, and protected class individuals and will regard those policies and procedures as contract requirements.

DISSEMINATION OF THE PLAN AND POLICIES

INTERNAL

The Company will communicate to each executive, manager, supervisor, and foreman this Plan and its equal employment and affirmative action policies through the following procedures:

- Upon request, the Company will give to any employee a copy of this Plan.
- The existence and requirements of the Plan will be communicated to all employees from time to time through such internal publications as may be appropriate.
- A copy of the Statement of Policies will be given to all applicants for employment upon their request for an employment application.
- Implementation of the Plan will be discussed during management staff meetings.
- Periodically, the Equal Opportunity Officer will meet with each manager and the manager's immediate staff to give them assistance in implementing the Plan.
 - The Company will communicate to union officials this Plan and its equal employment and affirmative action policies and procedures.
 - Posters and policies relevant to the Plan will be displayed in conspicuous places where employees are located and particularly, in employment areas.

EQUAL EMPLOYMENT AND AFFIRMATIVE ACTION

EXTERNAL

The Company will communicate the Plan and the Statement of Policies to the public by the following procedure:

- Recruiting sources, such as personnel agencies, community organizations, colleges and training institutes, will be informed of the basic aims of the Plan and the Statement of Policies and will be requested to include minorities, females, and handicapped persons in their referrals.
- Advertisements for employment will be placed in news media chosen to reach all qualified applicants, including minorities, women, and handicapped persons. All employment advertisements will contain the phrase "An Equal Opportunity Employer".
- The Company will, in all solicitations or advertisements for employees placed by or on behalf of the Company; state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, handicap status, Vietnam era, or disabled Veterans status.
- The Company will send each labor union or representative of workers with which they have a collective bargaining agreement or other contract or understanding, a notice advising the labor union or workers' representative of the Plan and policies. The Company's recruitment and hiring practices will include:
 - The avoidance of any help-wanted advertising in sex-segregated columns in newspapers or other publications,
 - The avoidance in recruitment letters, or other materials of any reference to "male" or "female" or any indication of preference for men or women in certain jobs.

ADMINISTRATION

RESPONSIBILITY

The Company's Board of Directors has the overall responsibility for the policies included in the Plan. The President of the Company has the primary responsibility for the successful implementation of the Plan. The President has appointed, _____, to be the Company's Equal Opportunity Officer with delegated responsibility for program planning, direction, and operation.

EQUAL EMPLOYMENT AND AFFIRMATIVE ACTION

DUTIES OF THE EQUAL OPPORTUNITY OFFICER

- Manages, coordinates, supervises, and integrates day-to-day operations and activities in implementing the Plan at all offices of the Company;
- Develops programs and policies for securing compliance at all the Company locations with equal employment opportunity and affirmative action policies of the Company;
- Reviews employment practices as required to determine whether any current policies serve to bar handicapped individuals from employment;
- Reviews all qualification requirements to assure that they are job-related, are consistent with job necessity and safe performance on the job;
- Directs compliance reviews and investigations of complaints of discrimination;
- Prepares and issues statistical data and evaluation of progress to measure the success of the program and to identify areas where minorities, women, and handicapped persons are underutilized.

UTILIZATION AND WORK FORCE ANALYSIS

UTILIZATION ANALYSIS

The purpose of the utilization analysis is to identify job classifications within the Company's work force in which minorities and women are being under-utilized. The utilization analysis will include an examination of the Company's work force and a comparison of the availability of minorities, women, and handicapped persons in the job classification and geographic areas where the Company can recruit.

In determining if minorities and women are underutilized in any of the Company's job classifications, the Equal Opportunity Officer shall evaluate the following factors:

- The minority and female populations of the area surrounding the Company and their proportion to the total;
- The size of the minority and female unemployment force in the area surrounding the Company;
- The general availability of minorities and women having requisite skills in an area from which the Company can recruit;
- The minorities and women employed by the Company with the requisite skills for the job classifications involved;
- The number and percentage of minorities and women applying for employment.

WORK FORCE ANALYSIS

The Equal Opportunity Officer will develop an analysis of job titles and job classifications held by minorities and women which shall include a listing of each job title including the wage rate or salary range, as it appears on the Company payroll records, ranked from the lowest paid to the highest paid within each organizational unit and the total number of incumbents by sex and minority group in each job title.

EQUAL EMPLOYMENT AND AFFIRMATIVE ACTION

IDENTIFICATION OF PROBLEM AREAS

The Equal Opportunity Officer will be responsible for the periodic analysis of the entire employment process in order to identify problem areas. Among the subjects covered will be:

- The recruitment process;
- Concentration of women and minorities in various job titles and job classifications;
- Selection standards and procedures;
- Transfer and promotion policies;
- Provisions and practices regarding seniority in union contracts;
- Administration and validity of all tests for employment and promotional purposes;
- Upward mobility systems, promotions, and training;
- Termination and disciplinary actions;
- Utilization of qualified handicapped persons.

GOALS AND TIMETABLES

The final process in the utilization and work force analysis is the formulation of goals and timetables for employment of minorities and women. The Company will use the following process in establishing goals and timetables:

- A goal will be established when the percentage of total minorities and women in a job classification within the Company is lower than the total percentage of minorities and women available in that job classification within the surrounding labor market area.
- The goal will be stated as a percentage of the total employees in the job classification and will be equal to the percentage of minorities and women available for work in the job classification in the surrounding labor market area.
- For each job classification with a goal, a specific timetable will be established for reaching the goal in the minimum feasible time period.

EXECUTION OF THE EEAAP

RECRUITMENT

The Company will actively seek minorities, women, and handicapped persons for employment. The following techniques will be used to ensure that personnel practices of the Company are not discriminatory:

- The Company will analyze and review recruitment procedures for each job title to identify and eliminate discriminatory barriers;
- The Company will establish objective measures to analyze and monitor the recruitment process. These shall include application records, including for each job applicant, name, race, sex, handicap status, Vietnam era or disabled veterans status, referral source, date of application, position applied for, and whether a job offer was made;
- Prior to filling any position for which goals and timetables have been established, the Equal Opportunity Officer will review the number of minority and women applicants who applied for the position;
- Recruitment sources will be listed to ensure that the Company is making contact with recruitment sources that provide the widest range of applicants.

EQUAL EMPLOYMENT AND AFFIRMATIVE ACTION

SELECTION STANDARDS AND PROCEDURES

- The Company will carefully review and evaluate every step of its hiring process to ensure that the job requirements, hiring standards, and methods of selection and placement do not discriminate, are job related, and contribute toward the goals of this Plan.
- Having identified handicap status, reasonable accommodation to the known physical or mental limitations of an otherwise qualified handicapped applicant will be made, unless it can be shown that such accommodation would impose an undue hardship for the project.

UPWARD MOBILITY, PROMOTIONS, TRAINING

In order to assure the absence of discrimination against the employment of minorities, women, and handicapped persons in all positions, the Company will review all practices – both formal and informal – affecting promotions and training opportunities to ensure that minorities, women and handicapped persons are promoted and given training opportunities. The following records and procedures will be used, developed, and implemented in order to ensure compliance:

- The number and percentage of minorities, women and handicapped persons in all training programs for employees of the Company;
- Employees will be informed of all job opportunities.

LAYOFFS, DISCHARGES, DEMOTIONS, DISCIPLINARY ACTION

The standards for deciding when an employee will be terminated, demoted, or disciplined, will be the same for all employees of the Company and will not be applied differently for minorities, women, and handicapped persons. The Company will keep a record of:

- All Terminations, indicating total, name, date, number of members of minority group, handicapped persons, and women by job category and reason for termination; and
- All Layoffs and Demotions, indicating total, name, date, number of members of minority group, handicapped persons, and women by job category and reasons for action.

AUDITS AND REPORTS

The Company will monitor appropriate personnel records and reports to ensure a policy of equal opportunity and to ensure compliance with the Company goals and timetables. The Company will develop and implement a reporting procedure that will provide for the continued auditing, monitoring, and evaluation of the Company offices. A formal audit of the Company will be made at least annually with periodic checks as deemed appropriate.

EQUAL EMPLOYMENT AND AFFIRMATIVE ACTION

SUBCONTRACTORS, CONSULTANTS, SERVICES

The Company recognizes its responsibilities in the areas of equal opportunity and affirmative action with respect to subcontractors, consultants, and companies that supply materials and services to the Company. The Equal Opportunity Officer will develop and implement policies and procedures to ensure that those responsibilities are being met.

UTILIZATION OF WOMEN AND MINORITY BUSINESS ENTERPRISES

It is the policy of the Company that women and minority business enterprises shall have the maximum practicable opportunity to participate in the performance of company contracts.

The Company will establish policies and procedures that will enable women and minority business enterprises to be considered fairly as subcontractors and suppliers under contracts.

These policies and procedures will ensure that:

- The Company will develop and implement policies and procedures to recruit and give equal consideration to women and minority firms and consultants to provide personnel services or supplies to the Company;
- The Company will develop a listing of women and minority firms and consultants that provide services for which the Company normally contracts;
- The Equal Opportunity Officer will periodically review and monitor the Company use of subcontractors, suppliers, consultants, and services in order to assure fair use, consideration, and treatment of women and minority suppliers, subcontractors, consultants and services;
- The Company will notify all subcontractors and suppliers that its Affirmative Action Plan is on file prior to bidding on the contract;
- The Company will endeavor to cause nondiscrimination clauses in collective bargaining agreements and endeavor to discover any present discriminatory provisions in collective bargaining agreements and to modify and delete same;
- When the Company contemplates subcontracting activities, a good faith effort will be made to utilize women and minority firms or subcontractors;
- The Company will not use a facility or any portion thereof that segregates because of race, religion, color, age, national origin, or sex. Further, the Company will not sponsor, endorse, or contribute to any association or establishment that excludes minorities, women, and handicapped persons.

EQUAL EMPLOYMENT AND AFFIRMATIVE ACTION

STATEMENT OF COMMITMENT

It is the policy of the Company to provide equal employment opportunity in all employment practices, including but not limited to, recruitment, advertising, hiring, layoff, rate of pay, training, termination, upgrading, demotion, transfer, fringe benefits, and use of facilities; without discrimination because of race, color, sex, age, religion, national origin, handicap status, Vietnam era or disabled veteran status, or on any other basis prohibited by law. This Plan will be updated and revised to reflect experience, changes in laws and regulations, and better understanding of effective approaches that will assure equal employment opportunities for all.

President (Print Name)

Signature

OR

Equal Opportunity Officer (Print Name)

Signature

Date

EQUAL EMPLOYMENT AND AFFIRMATIVE ACTION

**AFFIDAVIT OF CONTRACTOR’S POLICIES AND COMMITMENTS
TO EQUAL EMPLOYMENT OPPORTUNITY AND UTILIZATION OF
WOMEN AND MINORITY-OWNED BUSINESS**

I, _____, do hereby solemnly swear and affirm under the penalty of perjury that _____. (hereinafter referred to as “the Company”),

1) has a policy to provide equal employment opportunities to all employees and applicants for hiring without regard to race, color, religion, age, sex, national origin, handicap status, Vietnam era or disabled veterans status or on any other basis prohibited by law and to make all personnel decisions to further this policy of equal employment opportunity;

2) that the aforementioned Company has a written Affirmative Action Plan, Contractor’s Qualification Committee and that the above-described Affirmative Action Plan reflects the true attitude and intent of the Company regarding equal employment opportunities;

3) that the contents of the Affirmative Action Plan are true and correct;

4) that each executive, officer, supervisor, and manager of the Company has received a copy of the Affirmative Action Plan and has been expressly instructed that he or she has the obligation to act in accordance with our policy to provide equal employment opportunity at all times to all employees and all applicants for hiring;

5) that _____ has been appointed to administer and implement our Affirmative Action Plan and otherwise carry out our commitment to equal employment opportunity; and,

6 _____ will take affirmative steps to utilize minority- and female-owned businesses as subcontractors and suppliers on any and all contract awards received; and, finally 7) that all information and data furnished regarding use of minorities, females and the handicapped and minority-owned businesses and female-owned businesses are true and correct and that if at any time such information may no longer reflect the true composition of our work force and use of minority-owned businesses and female-owned businesses, that the changes will be reported.

WITNESS:

(SEAL)

SIGNED:

NAME

TITLE

COMPANY

DATE: _____

Name of Company _____ WC

Report all permanent, temporary, or part-time employees including apprentices and on-the-job trainees. Enter the appropriate figures on all lines and all columns. All blank spaces will be considered zero.

NUMBER OF EMPLOYEES

JOB CATEGORIES	OVERALL TOTALS	MALE					FEMALE				
		White	Black	Hispanic	Asian	Amer. Indian	White	Black	Hispanic	Asian	Amer. Indian
Officials and Managers											
Professionals											
Technicians											
Sales Workers											
Office and Clerical											
Craft Workers (skilled)											
Operatives (semi-skilled)											
Laborers (unskilled)											
Service Workers											
Other											
TOTALS											

(The Trainees below should be included in the figures for the appropriate occupational categories above).

Formal on-the-job Trainees	Skilled										
	Un-skilled										
Apprentices											

ESTABLISHMENT INFORMATION

What is the major activity of the establishment? Be specific, e.g. manufacturing, construction, maintenance, repair, demolition of physical facilities, etc. Include the specific type of product or type of service provided, as well as the principal business or industry activity.

REMARKS

CERTIFICATION

All reports are accurate and were prepared in accordance with instruction. Yes _____

Name of Certifying Official	Title	Date
Address	City and State	Zip Code
		Telephone

All reports and information will be kept confidential

POLICY

This company has implemented this policy to ensure that proper safe work practices and procedures are followed to protect employees from the fall hazards. A Program Administrator will be designated as the responsible person for managing and supervising the Fall Protection Program.

RESPONSIBILITIES

Providing sufficient protection to prevent falling from height is a cooperative effort between this company and its employees.

Employer Responsibilities

It is the responsibility of this company to:

- Provide adequate and timely resources to support the fall protection program
- Identify fall hazards and implement procedures to eliminate or control them
- Develop and maintain written fall protection procedures wherever an active fall protection system is being used
- Inform authorized employees about a foreseeable fall hazard before exposure
- Provide continuous fall protection or ensure that such protection is available to employees and within regulations
- Provide training to operate any active fall protection systems
- Ensure supervision of employees exposed to fall hazards
- Verify all fall protection procedures are understood and followed

Fall Protection Program Administrator

It is the responsibility of the program administrator to:

- Develop and implement the managed fall protection program
- Be knowledgeable of current fall protection regulations, standards, equipment and systems
- Advise and provide guidance to managers, employees, and other departments on all managed fall protection program matters
- Establish and assign all duties and responsibilities outlined in this standard to trained and qualified individuals
- Provide or verify that the personnel have the necessary resources to accomplish their duties and responsibilities
- Establish and implement a system to identify, and eliminate or control, new and existing fall hazards
- Ensure that written procedures for fall protection, rescue and evacuation are developed for every foreseeable fall hazard to which persons are exposed
- Develop training programs for all Authorized Persons
- Verify that all Authorized Persons are provided with training
- Measure and evaluate the effectiveness of the managed fall protection program by: conducting periodic program evaluations, and making improvements

- Provide participation (personally or other Qualified person) in the investigation of all incidents related to falls from heights, including:
 - Reviewing incident reports
 - Taking corrective action to eliminate causes
 - Making necessary reports to management
 - Maintaining an incident report system

Qualified Person Responsibilities

Company employees who are identified as “a qualified person” are expected to:

- Analyze and design all anchor points for structural engineering strength requirements as set by this standard and also be in compliance with local and state building code requirements
- Analyze and design all horizontal lifeline systems for structural engineering strength requirements and also be in compliance with local and state building code requirements
- Establish the clearance requirements for each fall protection system selected
- Verify the fall protection equipment system is adequate for the specific fall hazard abatement option
- Maintain a safety factor of 2.0 against failure of the structural system for both anchor points and horizontal lifeline systems
- Establish adequate vertical and horizontal clearance requirements for each fall protection system. Swing fall consideration shall be analyzed and limitation requirements shall be established for each fall protection system

Competent Person Responsibilities

Company employees who are identified as “a qualified person” are expected to:

- Stop work if unsafe
- Conduct a fall hazard survey to identify fall hazards
- Establish the clearance requirements for each fall protection system
- Verify that available clearance is adequate before allowing persons to work at heights
- Supervise, for work restraint, travel restraint, work positioning, and non-certified fall arrest anchorages: installation, use, and inspection;
- Verify that fall protection systems have been installed and inspected in compliance with this standard and all applicable federal, state, and local regulations
- Identify, evaluate, and impose limits on the workplace activities to control fall hazard exposures and swing falls
- Communicate limits to all Authorized Persons who utilize the fall protection systems
- Prepare, update, and approve written fall protection, rescue, and evacuation procedures
- Specify that written fall protection, rescue, and evacuation procedures include:
 - Anchorage locations
 - Connecting means
 - Body supports
 - Other required fall protection equipment

FALL PROTECTION

- Review the written procedures as workplace activities change for needed additional practices, procedures, or training
- Verify that Authorized Persons:
 - Are trained and authorized
 - Have had the fall protection, rescue, and evacuation procedures reviewed with them before work begins
 - Provide or ensure that a prompt rescue can be accomplished with the rescue and evacuation procedures
 - Participate in the investigation of all incidents related to falls from heights
 - Immediately remove from service all damaged equipment or components (and equipment or components that have experienced a fall arrest)
 - Inspect for damage and follow the manufacturer's instructions for damaged equipment and equipment that has experienced a free-fall arrest
 - Periodically inspect all fall protection equipment as per the manufacturer's requirements and applicable regulations

Authorized Person Responsibilities

Company employees who are identified as “an authorized person” are expected to:

- Follow the instructions of the program administrator and the Competent Person regarding the use of fall protection systems
- Understand and adhere to the fall protection procedures
- Notify the Competent Person of unsafe or hazardous conditions or acts that may cause injury before proceeding with workplace activities
- Correctly use, inspect, maintain, store, and care for fall protection equipment and systems
- Inspect any fall protection equipment, prior to use, for defects or damage
- Notify the Competent Person of defects and damage found from inspections
- Use only equipment free of defects or damage

SAFE PRACTICES

Fall Protection Requirements

Fall protection may be required in areas and activities including, but not limited to the following:

- Ramps, runways, and other walkways
- Excavations
- Hoist areas
- Holes
- Formwork and reinforcing steel
- Leading edge work
- Unprotected sides
- Edges
- Overhand bricklaying and related work
- Roofing work
- Precast concrete erection
- Wall openings
- Residential construction
- Other walking/working surfaces

Employees will be protected from fall hazards and falling objects whenever an affected employee is above the established threshold height (6 feet for construction or 4 feet for general industry) above a lower level. Appropriate fall-protection systems are guardrail systems, safety-net systems, or personal fall-arrest systems.

Fall Protection Systems	
Type of fall-protection system	What it does
Personal fall-arrest system	Controls a fall
Personal fall-restraint system	Prevents a fall
Positioning-device system	Positions and limits fall to 2 feet
Guardrail system	Prevents a fall
Safety-net system	Controls (arrests) a fall
Warning line	Warns of fall hazard

Alternative Fall Protection Methods

If work undertaken at height is leading-edge work, precast concrete erection work, or residential-type construction work, fall protection other than appropriate guardrail systems, safety-net systems, or personal fall-arrest systems may be used — provided there is a fall-protection plan that demonstrates that such systems are not feasible or would create a fall hazard.

Other Fall Protection Requirements

If activities at height include any of the following, consult the appropriate regulation and/or policy for more information on appropriate fall protection:

- Scaffolds
- Cranes and derricks
- Steel erection work
- Tunneling operations
- Electric transmission lines/equipment
- Stairways and ladders

FALL PROTECTION SYSTEMS AND METHODS

Planning Fall Protection

Methods, systems, and procedures to control exposure to fall hazards must be established before work commences. Careful preparation lays the groundwork for an accident-free workplace. Fall protection measures in project plans must reflect all anticipated fall hazards at the worksite. The nature and scope of the planning effort depend on the complexity and size of the project.

Planning must at least identify fall hazards and the systems and procedures to control the hazards. Effective planning reduces exposure risks for workers during a project and for others after the project is finished. For example, anchor points used by construction workers on a project might also be used to protect window cleaners or other maintenance personnel.

Use the following tips to plan:

- Identify all fall hazards that workers are likely to encounter during the project
- Describe how workers will gain access to the worksite (by ladders or stairs, for example)
- Describe how workers will prevent tools and materials from dropping to lower levels
- Establish procedures for inspecting, maintaining, and storing fall protection equipment
- Identify the tasks that expose workers to fall hazards
- Make sure workers use fall protection systems appropriate for their tasks
- Identify anchor point locations
- Describe the methods for setting anchors and securing lifelines
- Identify areas in which workers may be exposed to falling objects and decide how to control the hazards
- Describe emergency-response procedures for rescuing workers who fall
- Post emergency responders' phone numbers and make sure workers know them
- Describe all equipment that will be available for rescuing workers who fall

Competent and Qualified Personnel

Effective fall protection relies on the efforts of all personnel. However, each worksite that demands fall protection measures, must have personnel onsite with the knowledge and authority to prevent injury as hazards arise.

Competent Person

A competent person can identify existing hazards as well as potential hazards and has the authority to take prompt corrective actions to eliminate such hazards and ensure employees are out of harm's way until the hazards can be eliminated.

The competent person:

- Serves as the monitor in a safety-monitoring system, is responsible for recognizing hazards that cause falls, and warns workers about hazards
- Determines whether safety nets meet requirements
- Inspects a personal fall-arrest system after it arrests a fall and determines whether the system is damaged
- Evaluates alteration to a personal fall-arrest system and determines if it is safe to use
- Supervises installation of slide-guard systems
- Trains employees how to recognize fall hazards and follow safety procedures

Qualified Person

A qualified person has successfully demonstrated his or her ability to solve problems relating to the project by possession of a recognized degree, certificate, or professional standing; or by extensive knowledge, training and experience.

The qualified person:

- Supervises design, installation, and use of horizontal lifeline systems to ensure that they can maintain a safety factor of at least two — twice the impact of a worker free-falling six feet
- Supervises design, installation, and use of personal fall-restraint anchorages
- Supervises design, installation, and use of personal fall-arrest anchorages

Covers for Roof Openings or Holes

Roof Openings are fall hazards and must either be covered or surrounded by a guardrail. Skylights will usually break unless guarded or screened.

A cover is necessary regardless of the fall distance and includes any rigid object used to overlay openings in floors, roofs, and other walking and working surfaces. Covers must be able to support at least twice the maximum anticipated load of workers, equipment, and materials. Covers should have full edge bearing on all four sides. All covers must be color-coded or marked with the word "Hole" or "Cover" and must be secured to prevent accidental displacement.

Conventional Fall Protection

Personal Fall Arrest System

These consist of an anchorage, connectors, and a body harness and may include a deceleration device, lifeline, or suitable combinations. If a personal fall arrest system is used for fall protection, it must do the following:

- Limit maximum arresting force on an employee to 900 pounds used with a body belt
- Limit maximum arresting force on an employee to 1,800 pounds used with a body harness
- Be rigged so that an employee can neither free fall more than 6 feet nor contact any lower level
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet
- Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet or the free fall distance permitted by the system, whichever is less

The use of body belts for fall arrest is prohibited; however, the use of a body belt in a positioning device system is acceptable.

Personal fall arrest systems must be inspected before each use for wear damage, and other deterioration. Defective components must be removed from service.

A personal fall arrest system includes 4 elements referred to as ABCDs of Fall Arrest:

- **A: Anchorage** - a fixed structure or structural adaptation, often including an anchorage connector, to which the other components of the PFAS are rigged
- **B: Body Wear** - a full body harness worn by the worker
- **C: Connector** - a subsystem component connecting the harness to the anchorage, such as a lanyard
- **D: Deceleration Device** - a subsystem component designed to dissipate the forces associated with a fall arrest event

Anchor

An anchor provides a secure point of attachment for a lifeline, lanyard, or deceleration device and is perhaps the most important personal fall arrest system component. It must support a minimum load of 5,000 pounds – a challenging requirement, particularly on wood framed and residential-type structures. If you don't know how much weight an anchor will hold, you should have a qualified person design a complete fall protection system. The system must be installed under the supervision of the qualified person and it must maintain a safety factor of at least two – twice the impact force of a worker free-falling six feet.

Never use hoists or guardrails as anchors. They are not built to withstand the forces generated by a fall.

In addition to anchor strength consider the following:

- Anchorage connector: Unless an existing anchorage has been designed to accept a lanyard or lifeline, you'll need to attach an anchorage connector — a device that provides a secure attachment point. Examples include tie-off adapters, hook anchors, beam connectors, and beam trolleys. Be sure the connector is compatible with the lanyard or lifeline and appropriate for the task
- Attachment point: The anchorage can be used only as the attachment point for a personal fall-arrest system; it can't be used to support or suspend platforms
- Location: The anchorage should be located directly above the worker, if possible, to reduce the chance of a swing fall
- Fall distance: Because a personal fall-arrest system doesn't prevent a fall, the anchorage must be high enough above a worker so that the arrest system, rather than a lower level, stops the fall. Consider free-fall distance, lanyard length, shock-absorber elongation, and body-harness stretch in determining the height of an anchorage

Body Harness

The full-body harness has straps that distribute the impact of a fall over the thighs, waist, chest, shoulders, and pelvis. Full-body harnesses come in different styles, many of which are light and comfortable. Before you purchase harnesses, make sure that they fit those who will use them, they're comfortable, and they're easy to adjust.

A full-body harness should include a back D-ring for attaching lifelines or lanyards and a back pad for support. Never use a body belt as part of a personal fall-arrest system.

Keep the following in mind when you buy a full-body harness:

- The harness must be made from synthetic fibers
- The harness must fit the user. It should be comfortable and easy to adjust
- The harness must have an attachment point, usually a D-ring, in the center of the back at about shoulder level. The D-ring should be large enough to easily accept a lanyard snap hook
- Chest straps should be easy to adjust and strong enough to withstand a fall without breaking
- Use only industrial full-body harnesses (not recreational climbing harnesses)
- The harness must be safe and reliable. It should meet ANSI and CSA standards and the manufacturer should have ISO 9001 certification, which shows the manufacturer meets international standards for product design, development, production, installation, and service

Connectors

An anchorage, a lanyard, and a body harness are not useful until they're linked together. Connectors do the linking; they make the anchorage, the lanyard, and the harness a complete system. Connectors include carabiners, snap hooks, and D-rings. Connectors must be dropforged, pressed or made from formed steel or equally strong material. They must be corrosion-resistant, with smooth surfaces and edges that will not damage other parts of the personal fall arrest system.

Carabiner

This high-tensile alloy steel connector has a locking gate and is used mostly in specialized work such as window cleaning and high-angle rescue. Carabiners must have a minimum tensile strength of 5,000 pounds.

Snap hook

A hook-shaped member with a keeper that opens to receive a connecting component and automatically closes when released. Snap hooks are typically spliced or sewn into lanyards and self-retracting lifelines. Snap hooks must be high-tensile alloy steel and have a minimum tensile strength of 5,000 pounds. Use only locking snap hooks with personal fall-arrest systems; locking snap hooks have self-locking keepers that won't open until they're unlocked.

D-ring

D-rings are the attachment points sewn into a full-body harness. D-rings must have a minimum tensile strength of 5,000 pounds.

Deceleration Devices

Any mechanism with a maximum length of 3.5 feet, such as a rope grab, rip stitch lanyard, tearing or deforming lanyards, self-retracting lifelines, etc. which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

Because a shock-absorbing lanyard extends up to 3.5 feet, it's critical that the lanyard stops the worker before the next lower level. Allow about 20 vertical feet between the worker's anchorage point and the level below the working surface. Always estimate the total distance of a possible fall before using a shock-absorbing lanyard.

Remember: Never use a shock-absorbing lanyard if the shock absorber is even partially extended or if the lanyard has arrested a fall.

Shock Absorbing Lanyard

Deceleration devices protect workers from the impact of a fall and include shock-absorbing lanyards, self-retracting lifelines or lanyards, and rope grabs.

Because a shock-absorbing lanyard extends up to 3.5 feet, it's critical that the lanyard stops the worker before the next lower level. Allow about 20 vertical feet between the worker's anchorage point and the level below the working surface. Always estimate the total distance of a possible fall before using a shock-absorbing lanyard.

Self-Retracting Lanyards or Lifelines

Self-retracting lanyards and lifelines offer more freedom to move than shock-absorbing lanyards. Each has a drum-wound line that unwinds and retracts as the worker moves. If the worker falls, the drum immediately locks, which reduces free-fall distance to about two feet — if the anchorage point is directly above the worker. Some self-retracting lanyards will reduce free-fall distance to less than one foot. Self-retracting lanyards are available in lengths up to 20 feet. Self-retracting lifelines, which offer more freedom, are available in lengths up to 250 feet.

Rope Grab

A rope grab allows a worker to move up a vertical lifeline but automatically engages and locks on the lifeline if the worker falls.

When using a rope grab, keep the following in mind:

- The rope grab must be compatible with the lifeline
- The rope grab must be correctly attached to the lifeline (not upside down)
- Keep the lanyard (between the rope grab and the body harness) as short as possible
- Keep the rope grab as high as possible on the lifeline

Lifelines

A lifeline is a cable or rope that connects to a body harness, lanyard, or deceleration device, and at least one anchorage. There are two types of lifelines, vertical and horizontal.

Vertical Lifeline: A vertical lifeline is attached to an overhead anchorage and must be connected directly to a worker's full-body harness, lanyard, retractable device, or rope grab; it must have a minimum breaking strength of 5,000 pounds. When a worker needs to move horizontally, however, a vertical lifeline can be hazardous due to the potential for a swing fall — the pendulum motion that results when the worker swings back under the anchor point. A swing fall increases a worker's risk of striking an object or a lower level during the pendulum motion.

Horizontal Lifeline: Unlike a vertical lifeline, the horizontal lifeline stretches between two anchorages. When you connect a lanyard or rope grab to a horizontal lifeline, you can move about freely, thus reducing the risk of a swing fall. However, horizontal lifelines are subject to much greater loads than vertical lifelines. Horizontal lifelines can fail at the anchorage points if they're not installed correctly. For this reason, horizontal lifelines must be designed, installed, and used under the supervision of a qualified person.

Sag Angles: Any load on a horizontal lifeline will cause it to deflect or sag. The sag angle is a horizontal lifeline's angle of deflection when it's subjected to a load, such as a falling worker. Reducing the sag angle (making a horizontal lifeline too tight) actually increases the force on the line during a fall. As you tighten a horizontal lifeline, you increase the impact load dramatically!

For example, when the sag angle is 15 degrees, the force on the lifeline and anchorages subjected to a load is about 2:1. However, if you decrease the sag angle to five degrees, the force increases to about 6:1.

Fall Arrest Rules

When using personal fall arrest systems:

- If you fall, the impact force to the body has to be less than 1800 pounds, achieved by using shock absorbing lanyards and a harness
- Minimize fall distance; the maximum free fall distance can only be 6 feet
- There cannot be any structures below in your fall distance
- Maximum weight of an individual w/tools is 310 pounds

Guardrails

A guardrail system consists of a top rail, midrail, and intermediate vertical member. Guardrail systems can also be combined with toeboards that prevent materials from rolling off the walking/working surface.

Guardrail systems must be free of anything that might cut a worker or snag a worker's clothing. Top rails and midrails must be at least ¼-inch thick to reduce the risk of hand lacerations; steel and plastic banding cannot be used for top rails and midrails.

Other requirements for guardrails include:

- Wire rope used for a top rail must be marked at least every six feet with high-visibility material
- The top rail of a guardrail must be 42 inches (plus or minus three inches) above the walking/working surface. The top-edge height can exceed 45 inches if the system meets all other performance criteria
- Midrails must be installed midway between the top rail and the walking/working surface unless there is an existing wall or parapet at least 21 inches high
- Screens and mesh are required when material could fall between the top rail and midrail or between the midrail and the walking/working surface
- Intermediate vertical members, when used instead of midrails between posts, must be no more than 19 inches apart
- A guardrail system must be capable of withstanding a 200-pound force applied within two inches of its top edge in any outward or downward direction
- Midrails, screens, and intermediate structural members must withstand at least 150 pounds of force applied in any downward or outward direction

Safety Nets

Safety-net systems consist of mesh nets and connecting components.

- Safety-net openings can't be more than six inches on a side, center to center
- Safety nets must not be installed more than 30 feet below the working surface
- An installed net must be able to withstand a drop test consisting of a 400-pound sandbag, 30 inches in diameter, dropped from the working surface
- Inspect safety nets regularly and remove debris from them no later than the start of the next work shift

Other Fall Protection Systems and Methods

Fall Restraint System

A personal fall-restraint system prevents a worker from reaching an unprotected edge and thus prevents a fall from occurring. The system consists of an anchorage, connectors, and a body harness or a body belt. The attachment point to the body belt or full-body harness can be at the back, front, or side D-rings.

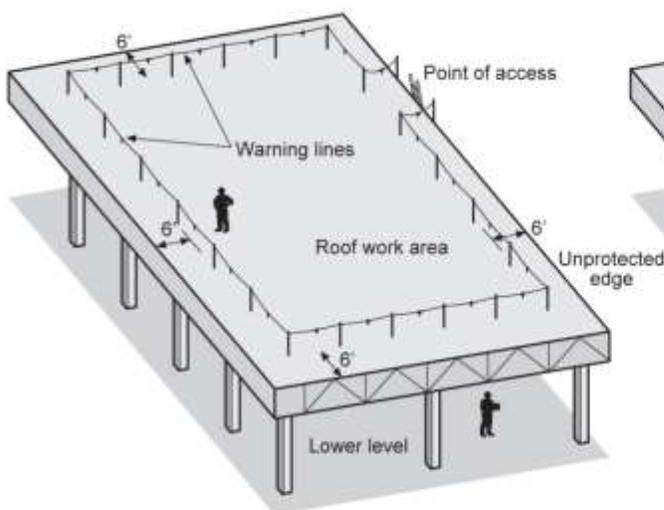
The anchorage for a fall-restraint system must support at least 3,000 pounds or be designed and installed by a qualified person and have a safety factor of at least two — twice the impact force of a worker free-falling six feet.

Positioning Device System

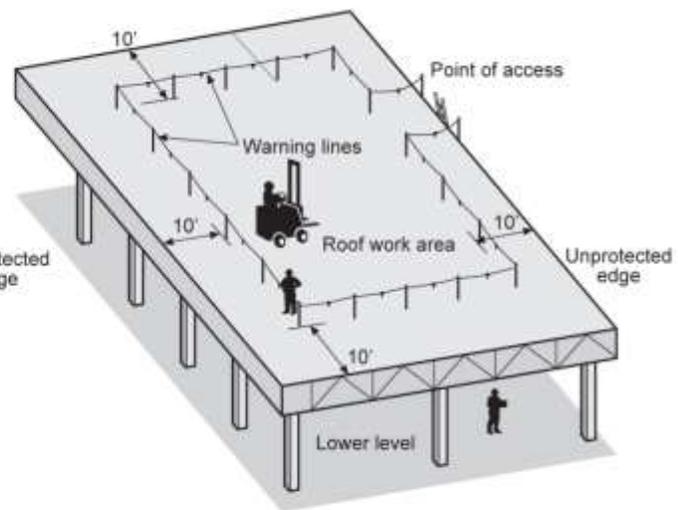
Positioning-device systems make it easier to work with both hands free on a vertical surface such as a wall or concrete form. Positioning-device systems are also called “class II Work-positioning systems” and “work-positioning systems”.

The components of a positioning-device system — anchorage, connectors, and body support — are similar to those of a personal fall arrest system. However, the systems serve different purposes. A positioning-device system provides support and must stop a free fall within two feet; a personal fall arrest system provides no support and must limit free-fall distance to six feet.

- Anchorage. Positioning-device systems must be secured to an anchorage that can support at least twice the potential impact of a worker’s fall or 3,000 pounds, whichever is greater
- Connectors. Connectors must have a minimum strength of 5,000 pounds. Snap hooks and D-rings must be proof-tested to a minimum load of 3,600 pounds without deforming or breaking
- Body support. A body belt is acceptable as part of a positioning-device system. However, it must limit the arresting force on a worker to 900 pounds and it can only be used for body support. A full-body harness is also acceptable but must limit the arrest force to 1,800 pounds. Belts or harnesses must have side D-rings or a single front D-ring for positioning



Warning-line system where no mobile equipment is used



Warning-line system where mobile equipment is used

Warning Line System

Warning line systems consist of ropes, wires, or chains, and supporting stanchions that form a barrier to warn those who approach an unprotected roof side or edge. The lines mark off an area within which one can do roofing work without using guardrails or safety nets; warning line systems can be combined with guardrail systems, personal fall arrest systems, or safety monitoring systems to protect those doing roofing work on low slope roofs (4:12 or less, 2:12 in some jurisdictions).

When mechanical equipment is not being used, the warning line shall be erected not less than 6 feet from the roof edge. When mechanical equipment is being used, the warning line shall be erected not less than 6 feet from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than 10 feet (3.1 m) from the roof edge which is perpendicular to the direction of mechanical equipment operation

Safety Monitoring System

A safety monitoring system is a set of procedures assigned to a competent person for monitoring and warning workers who may be unaware of fall hazards. A safety monitoring system used in conjunction with a controlled access zone and a fall protection plan is also appropriate in situations where conventional fall protection is not feasible.

Controlled Access Zones

The controlled access zone is best thought of as a combination of a warning line system and a safety monitoring system.

It defines an area where workers can do leading edge, overhand bricklaying and related work, or work under a fall protection plan without using conventional fall protection. All others are prohibited from entering a controlled access zone. The zone is created by erecting a control line, or lines, to restrict access to the area. The control line warns workers that access to the zone is limited to authorized persons.

Control lines must meet the following criteria:

- Consist of ropes, wires, tapes, or equivalent materials and supporting stanchions
- Be flagged at least every 6 feet with high visibility material
- Be no less than 39 inches from the working surface at its lowest point and no more than 45 inches from the working surface at its highest point (50 inches in overhand bricklaying operations)
- Have a minimum breaking strength of 200 lbs
- For work such as overhand bricklaying, the control lines should be 10-15 ft from the unprotected edge

Other Fall Protection Systems and Methods

Those who work on elevated surfaces must be familiar with systems and methods that control their exposure to fall hazards; they must also ensure that their equipment and tools don't endanger workers below them.

Common methods for protecting workers from falling objects include the following:

- Canopies suspended above the work area
- Barricades and fences to keep people from entering unsafe areas
- Screens, guardrail systems, and toeboards to prevent materials from falling to lower levels

The following guidelines will help you keep your tools and equipment where they belong:

- If you use toeboards, they must be strong enough to withstand a force of at least 50 lbs applied in any downward or outward direction and be at least 3½" high
- If you need to pile material higher than the top edge of a toeboard, install panels or screens to keep the material from dropping over the edge
- If you use canopies as falling object protection, make sure they won't collapse or tear from an object's impact
- You can use guardrails with toeboards as falling object protection if the guardrail openings are small enough to keep the objects from falling through
- When you do overhand bricklaying work, keep material and equipment – except masonry and mortar – at least four feet from the working edge. Remove excess mortar and other debris regularly
- When you do roofing work, keep materials and equipment at least six feet from the roof edge unless there are guardrails along the edge. All piled, grouped, or stacked material near the roof edge must be stable and self-supporting

The Fall Protection Plan

Employees doing leading edge work, precast concrete erection work, or residential construction work for whom conventional fall protection equipment is infeasible or creates a greater hazard may be protected by a fall protection plan instead. A fall protection plan used by this company will conform to the following standards:

- The fall protection plan shall be prepared by a qualified person and developed for the site where the leading edge work, precast concrete work, or residential construction work is being performed, and the plan must be maintained up to date
- A qualified person must approve any changes to the fall protection plan
- A copy of the fall protection plan and changes will be maintained at the job site
- A competent person will implement the fall protection plan
- The fall protection plan shall document the reasons why the use of conventional fall protection systems (guardrail systems, personal fall arrest systems, or safety nets systems) are infeasible or why their use would create a greater hazard
- The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from the conventional fall protection systems. For example, the employer shall discuss the extent to which scaffolds, ladders, or vehicle mounted work platforms can be used to provide a safer working surface and thereby reduce the hazard of falling
- The fall protection plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones and adhere to all appropriate policies and regulations
- Where no other alternative measure has been implemented, the employer shall implement a safety monitoring system
- The fall protection plan must include a statement which provides the name or other method of identification for each employee who is designated to work in controlled access zones. No other employees may enter controlled access zones
- In the event an employee falls, or some other related, serious incident occurs, the employer shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and shall implement those changes to prevent similar types of falls or incidents

INSPECTING & MAINTAINING FALL-PROTECTION EQUIPMENT

Employees will inspect fall protection systems and equipment regularly for wear or damage.

- Inspect manila, plastic or synthetic rope used for top rails or midrails or a guardrail system frequently
- Inspect safety nets at least once a week, removing defective nets from service
- Inspect PFASs or positioning device systems everytime they are used
- A PFAS that has been subjected to a fall must not be used again until a competent person determines it is safe

Lanyard Inspections

Snaps

Inspect closely for hook and eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should seat into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper. Keeper locks must prevent the keeper from opening when the keeper closes.

Thimbles

The thimble must be firmly seated in the eye of the splice, and the splice should have no loose or cut strands. The edges of the thimble must be free of sharp edges, distortion, or cracks.

Wire Rope (Steel) Lanyard

Always wear gloves when inspecting a wire rope lanyard because broken strands can cause injury. To inspect, rotate the wire rope lanyard while watching for cuts, frayed areas or unusual wearing patterns on the wire. Broken strands will separate from the body of the lanyard.

Web Lanyard

While bending webbing over a pipe, observe each side of the webbed lanyard. This will reveal any cuts, snags or breaks. Swelling, discoloration, cracks and charring are obvious signs of chemical or heat damage. Observe closely for any breaks in stitching.

Rope Lanyard

Rotate the rope lanyard while inspecting from end-to-end for any fuzzy, worn, broken or cut fibers. Weakened areas from extreme loads will appear as a noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in period.

Shock Absorber Pack

The outer portion of the pack should be examined for burn holes and tears. Stitching on areas where the pack is sewn to D-rings, belts or lanyards should be examined for loose strands, rips, deterioration or other signs of activation.

Shock-Absorbing Lanyard

Shock-absorbing lanyards should be examined as a web lanyard. However, also look for the warning flag or signs of deployment. If the flag has been activated, remove this shock-absorbing lanyard from service.

Common Types of Damage to Webbing and Lanyards

Heat

In excessive heat, nylon becomes brittle and has a shriveled brownish appearance. Fibers will break when flexed and should not be used above 180 degrees Fahrenheit.

Chemical

Change in color usually appears as a brownish smear or smudge. Transverse cracks appear when belt is bent over tight. This causes a loss of elasticity in the belt.

Ultraviolet Rays

Do not store webbing and rope lanyards in direct sunlight, because ultraviolet rays can reduce the strength of some material.

Molten Metal or Flame

Webbing and rope strands may be fused together by molten metal or flame. Watch for hard, shiny spots or a hard and brittle feel. Webbing will not support combustion, nylon will.

Paint and Solvents

Paint will penetrate and dry, restricting movements of fibers. Drying agents and solvents in some paints will appear as chemical damage.

Self-Retracting Lines

Check Housing

Before every use, inspect the unit's housing for loose fasteners and bent, cracked, distorted, worn, malfunctioning or damaged parts.

Lifeline

Test the lifeline retraction and tension by pulling out several feet of the lifeline and allow it to retract back into the unit. Maintain a light tension on the lifeline as it retracts. The lifeline should pull out freely and retract all the way back into the unit. Do not use the unit if the lifeline does not retract. Also check for signs of damage. Inspect for cuts, burns, corrosion, kinks, frays or worn areas. Inspect any sewing (web lifelines) for loose, broken or damaged stitching.

Braking Mechanism

Test the braking mechanism by grasping the lifeline above the load indicator and applying a sharp steady pull downward to engage the brake. There should be no slippage of the lifeline while the brake is engaged. Once tension is released, the brake should disengage and the unit should return to the retractable mode. Do not use the unit if the brake does not engage.

Snap Hook

Check the snap hook to be sure it operates freely, locks, and the swivel operates smoothly. Inspect the snap hook for any signs of damage to the keepers and any bent, cracked, or distorted components.

Anchorage Connection

Make sure the carabiner is properly seated and in the locked position between the attachment swivel/point on the device and the anchor point

Self-Retracting Lines

Webbing

Grasp the webbing with your hands 6 inches (152 mm) to 8 inches (203mm) apart. Bend the webbing in an inverted “U”. The surface tension resulting makes damaged fibers or cuts easier to detect. Follow this procedure the entire length of the webbing, inspecting both sides of each strap. Look for frayed edges, broken fibers, pulled stitches, cuts, burns and chemical damage.

D-Rings/Back Pads

Check D-rings for distortion, cracks, breaks, and rough or sharp edges. The D-ring should pivot freely. Inspect for any unusual wear, frayed or cut fibers, or broken stitching of the D-ring attachments. Pads should also be inspected for cracks, excessive wear, or other signs of damage.

Buckles

Inspect for any unusual wear, frayed or cut fibers, or broken stitching of buckle attachments.

Tongue Buckles/Grommets

Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Roller should turn freely on frame. Check for distortion or sharp edges. Inspect for loose, distorted or broken grommets. Webbing should not have additional punched holes.

Friction and Mating Buckles

Inspect the buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points at the center bar.

Quick-Connect Buckles

Inspect the buckle for distortion. The outer bars and center bars must be straight. Make sure buckles engage properly.

Harness Fall Arrest Indicators

Inspect fall arrest indicators (located on the back D-ring pad) for signs of activation. Remove from service if broken or stretched between any of the four pairs of arrows.

Cleaning of Equipment

Basic care for fall protection safety equipment will prolong the life of the equipment and contribute to its safety performance. Proper storage and maintenance after use is as important as cleaning dirt, corrosives or contaminants off the equipment. The storage area should be clean, dry, and free of exposure to fumes or corrosive elements.

Nylon and Polyester

Wipe off all surface dirt with a sponge dampened in plain water. Squeeze the sponge dry. Dip the sponge in a mild solution of water and commercial soap or detergent. Work up a thick lather with a vigorous back and forth motion. Then wipe the belt dry with a clean cloth. Hang freely to dry but away from excessive heat.

Housing

Periodically clean the unit using a damp cloth and mild detergent. Towel dry.

Drying

Harness, belts, and other equipment should be dried thoroughly without exposure to heat, steam, or long periods of sunlight.

EMERGENCY PLANNING

The best strategy for protecting workers from falls is to eliminate the hazards that cause falls. If you can't eliminate the hazards, you must protect workers with an appropriate fall-protection system or method. If a worker is suspended in a personal fall-arrest system, you must provide for a prompt rescue.

The emergency response plan outlines key rescue and medical personnel, equipment available for rescue, emergency communications procedures, retrieval methods, and primary first-aid requirements. Please see the chapter on Emergency Action Plans for more information.

Before Work Begins

- Identify emergencies that could affect your work site
- Establish a chain of command
- Document procedures for responding to emergencies and make sure they're available at the site
- Post emergency-responder phone numbers and addresses at the work site
- Identify critical resources and rescue equipment
- Train on-site responders
- Identify off-site responders and inform them about any conditions at the site that may hinder a rescue effort
- Identify emergency entry and exit routes
- Make sure responders have quick access to rescue and retrieval equipment, such as lifts and ladders

During Work

- Identify on-site equipment that can be used for rescue and retrieval, such as extension ladders and mobile lifts
- Maintain a current rescue-equipment inventory at the site. Equipment may change frequently as the job progresses
- Re-evaluate and update the emergency-response plan when on-site work tasks change

When an Emergency Occurs

- First responders should clear a path to the victim. Others should direct emergency personnel to the scene. You can use 911 for ambulance service; however, most 911 responders are not trained to rescue a worker suspended in a personal fall-arrest system
- Make sure only trained responders attempt a technical rescue
- Prohibit all nonessential personnel from the rescue site

After an Emergency

- Report fatalities and catastrophes to OSHA within eight hours
- Report injuries requiring overnight hospitalization with medical treatment (other than first aid) to OSHA within 24 hours
- Identify equipment that may have contributed to the emergency and put it out of service
- Have a competent person examine equipment. If the equipment is damaged, repair or replace it. If the equipment caused the accident, determine how and why
- Document in detail the cause of the incident and describe how it can be prevented from happening again
- Review emergency procedures. Determine how the procedures could be changed to prevent similar events. Revise the procedures accordingly

TRAINING

This company will ensure every employee is provided training on Fall Protection. This training will be provided at no cost to the employee during working hours.

The company will use only training material that is appropriate in content and vocabulary to the educational level, literacy, and language of employees.

Training Components

The program administrator will ensure that every employee will be trained in the following minimum elements:

- The nature of fall hazards in the work area
- The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used
- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used
- The role of each employee in the safety monitoring system when this system is used
- The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection
- The role of employees in fall protection plans
- The standards contained in subpart M of 29 CFR 1926

Training Records

Training records will include the following information as a written certification:

- The dates of the training sessions
- The contents or a summary of the training sessions
- The names and qualifications of persons conducting the training
- The names and job titles of the attendees

Employee training records will be maintained for the duration of the employee's employment.

Retraining

If the company has reason to believe that any affected employee who has already been trained does not have the understanding and skill required the employee must be retrained. Examples where such retraining may be required include, but are not limited to the following:

- Changes in the workplace render previous training obsolete
- Changes in the types of fall protection systems or equipment to be used render previous training obsolete
- Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill

FORMS & ATTACHMENTS

On the following pages, please find the following document(s):

- Fall Hazard Assessment
- Employee Training for Fall Protection Certification

FALL PROTECTION

Fall Hazard Assessment			
Job Name:		Location:	
Date Assessed:	Related Operating Procedures Reviewed: <input type="checkbox"/> YES <input type="checkbox"/> NO	Location Marked and Entry Controlled: <input type="checkbox"/> YES <input type="checkbox"/> NO	
FALL HAZARD ASSESSMENT CHECKLIST			
1. Can an employee enter the area without restriction and perform work?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
2. Are fall prevention systems such as cages, guardrails, toeboards, and manlifts in place?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
3. Have slipping and tripping hazards been removed or controlled?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
4. Have visual warnings of fall hazards been installed?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
5. Can the distance a worker could fall be reduced by installing platforms, nets etc.?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
6. Are any permanently installed floor coverings, gratings, hatches, or doors missing?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
7. Does the location contain any other recognized safety and or health hazards?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
8. Is the space designated as a Permit Required Confined Space?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
9. Have anchor points been designated and load tested?		<input type="checkbox"/> YES	<input type="checkbox"/> NO
ASSESSMENT INFORMATION			
Initials	Hazard	Remarks/Recommendations	
	Total potential fall distance:		
	Number of workers involved:		
	Frequency of task:		
	Obtainable anchor point strength:		
	Required anchor point strength: (not less than 5000 lbs)		
ADDITIONAL REQUIREMENTS			
Potential environmental conditions that could impact safety:			
Initials	Condition	Remarks/Recommendations	
Possible required structural alterations:			
Initials	Alteration	Remarks/Recommendations	
Possible task modification that may be required:			
Initials	Task	Remarks/Recommendations	
Training requirements:			
Initials	Requirement	Remarks/Recommendations	
Personal protective equipment required:			
Initials	Requirement	Remarks/Recommendations	
Comments:			
<input type="checkbox"/> Approved		AUTHORIZATION	
I certify that I have conducted a Fall Hazard Assessment of the above designated location and have detailed the findings of the assessment on this form. * Further detailed on attachment: <input type="checkbox"/> YES <input type="checkbox"/> NO			
Title:		Date:	Time:
Name:		Signature:	

INTRODUCTION

Some of the tasks we perform at work, such as lifting, reaching, and repeating the same movements can strain our bodies. In some situations, these tasks can result in an injury to the muscles, tendons, ligaments, nerves, blood vessels, and joints of the neck, shoulders, arms, wrists, legs, and back. This type of injury is called a musculoskeletal injury, or MSI. MSI is a common type of workplace injury in all industries in the United States. For these reasons, this Company has developed the following safe work practices to prevent employee injury.

WHAT IS MSI?

Musculoskeletal injury (MSI) is an injury or disorder of the muscles, tendons, ligaments, joints, nerves, blood vessels, or related soft tissue including a sprain, strain, and inflammation that may be caused or aggravated by work.

SIGNS AND SYMPTOMS OF MSI

It is important for employers and workers to recognize the early signs and symptoms of MSI. If treatment is needed, it can be started right away. You can also take steps in the workplace and outside it to avoid making the condition worse.

A sign can be seen, for example:

- Swelling
- Redness
- Difficulty moving a particular body part
- A symptom can be felt, for example:
- Numbness
- Tingling
- Pain

If employees are experiencing signs or symptoms of MSI, they need to inform their supervisor immediately.

Signs and symptoms of MSI may appear suddenly, from a single incident that causes an injury, or they may appear gradually over a longer period. Do not ignore early signs and symptoms of MSI. You may need treatment or may need to take steps to prevent the injury from getting worse.

POTENTIAL HEALTH EFFECTS

An MSI can affect your ability to perform tasks at work. Early signs or symptoms of MSI's can progress into conditions such as the following, which can have long-term effects:

- Muscle strains to the neck, back, shoulders, or legs
- Tendonitis (swelling of a tendon)
- Carpal tunnel syndrome (pressure on a nerve in the wrist, resulting in numbness, tingling, pain, or weakness in the hand, wrist, or forearm).

TREATMENT

Treatment will vary according to the type of MSI. Treatment can include the application of cold or heat, medication, physical therapy, and even surgery. An MSI may be treated more effectively if it is discovered and reported early.

RISK FACTORS

The factors that contribute to the risk of MSI are called risk factors. A risk factor is something that may cause or contribute to an injury. Two or more risk factors can be present at one time, increasing the risk of injury.

Workers may not always be able to identify all the risk factors in a task. However, it is important for workers to recognize situations when they are at higher risk. If a worker must bend awkwardly to lift a heavy object in a cramped area, the worker will be exposed to a greater risk of MSI than a worker who uses a mechanical lifting device or one who has enough room to follow safe lifting procedures.

The primary risk factors for MSI are the physical demands of a task:

- Force
- Repetition
- Work posture
- Local contact stress

Note: For each of these risk factors, duration and magnitude must be considered.

Other risk factors that can affect these physical demands include:

- Layout and condition of the workplace or workstation- for example, a workstation that is too high or too low can create awkward working postures.
- Characteristics of objects handled- for example, an object that is slippery or has no handles may cause awkward postures and require greater force to handle the object in a stable manner.
- Environmental conditions of the workplace- for example, cold temperatures or drafts reduce blood flow to the hands and arms, requiring more grip force.
- Organization of work tasks- for example, a worker performing a variety of different tasks throughout the day is likely at less risk of injury than a worker who has little variety in their job, and is exposed to the same risk factor for a longer time.

The mere presence of MSI risk factors may not in itself result in an injury. It depends on, for example, how great the force is and how long the worker is exposed to the risk. It can also depend on individual characteristics that vary from worker to worker (such as height, gender, and the body's ability to deal with the risk factors).

The primary risk factors for MSI are explained on the following pages, along with examples and illustrations of some work activities that may expose workers to these risk factors. You will probably be able to identify the same risk factors in some of your activities outside the workplace.

Force

The force that a worker exerts on an object is a primary risk factor. Muscles and tendons can be overloaded when you apply a strong force against an object. Holding a lighter object for long periods of time can also expose workers to a risk of MSI.

Three types of activity require force:

- Force involved in lifting, lowering, or carrying
- Force involved in pushing or pulling
- Grip force

Lifting, lowering, or carrying

Lifting, lowering, or carrying an object or person requires force. A worker needs to exert more force to lift a heavy object than a light one.

Pushing or pulling

Force is needed for pushing or pulling an object. Pushing may be less of a risk than pulling because it uses stronger back muscles.

Grip force

Additional grip force is needed in situations such as the following:

- The worker is gripping a small tool.
- The worker is handling slippery or odd-shaped objects that are difficult to hold.
- Objects are too large for a comfortable grip.
- Objects are grasped or handled using a pinch grip instead of a power grip.
- Vibrating tools or equipment are used.
- The worker is wearing heavy or bulky gloves that make gripping more difficult.
- Handles or grip spans are too large or too small.
- The handles on tools have an awkward shape.
- The workers hands are cold.

Finger and Hand Grips

The tip grip (pinching) is a position grasp used for precise manipulations. The side grip is also classified as a precision grip. Repeated use of these grips creates stress on the two tendons controlling the thumbs and fingers.

The power grip requires the thumb to align with the long axis of the forearm and the wrist assumes a slight ulnar deviation. The posture may be stressful when combined with high repetition and extreme force.

Repetition

Repeatedly doing a task that uses the same muscles with little chance for rest or recovery, puts workers at a higher risk of injury when other risk factors are also present (such as an awkward posture or heavy force). This applies to both large and small muscles.

Situations that increase the risk of MSI include the following:

- There is not enough variety in the worker's tasks to give muscles a rest or opportunity to recover.
- The worker is unaccustomed to the task, for example, when starting a new job or returning from a prolonged absence from work, or when the equipment or workstation has changed.

Work Posture

Posture refers to the position of different parts of your body. Muscles, tendons, and ligaments must work harder and can be stressed when you are in an awkward posture. Awkward posture occurs when any joint of your body bends or twists excessively, outside a comfortable range of motion. If the position is held long enough for you to feel aches and pains, then your muscles have been held in one position for too long. A posture held for a long time is called a static posture.

Various work activities can result in awkward postures:

- Leaning sideways, such as when reaching into a low drawer to one side (awkward back posture).
- Bending down to work at a low level (awkward back posture).
- Reaching overhead (awkward shoulder posture).
- Flaring the elbows out to the side (awkward shoulder posture).
- Bending the wrist when moving objects or keyboarding (awkward wrist posture).
- Bending the neck down, such as looking at small components in poor lighting conditions (awkward neck posture).
- Twisting part of the body, such as twisting the neck to view documents while keyboarding for a long time (awkward neck posture).

The effects of awkward posture can be made worse by:

- Applying force in an awkward position, such as lifting a heavy object with arms above the body or using a strong grip with a bent wrist.
- Holding an awkward position for a prolonged period (static posture), such as holding a telephone between the head and shoulder.

Local Contact Stress

Local contact stress occurs when a hard or sharp object comes in contact with the skin. The pressure can injure the nerves and the tissues beneath the skin.

Here are some examples of activities that can result in local contact stress:

- Ridges and hard edges on tool handles digging into the hand
- Edges of work surfaces digging into the forearm or wrist
- Striking objects sharply with the hand, foot, or knee (such as striking the carpet stretcher with the area above the knee when laying carpet)

The effects of local contact stress can be made worse if:

- The hard object contacts an area without much protective tissue, such as the wrist, palm, or fingers
- Pressure is applied repeatedly or held for a long time

Duration and Magnitude

Duration, or “how long”, should be considered along with the four primary risk factors rather than separate from them. The amount of risk depends on how long (the total time in the workday) the worker is exposed to the risk factor.

The person looking at risk factors should consider questions about duration for each:

- How long is the worker using force (for example, to lift or grip an object)?
- How long does the worker perform a repeated task?
- How long does the worker perform a task with an awkward body posture?
- How long is one part of the body exposed to the local contact stress?
- Magnitude, or “how much,” should also be considered for each risk factor:
- How much force is the worker using?
- How fast is the worker doing the repeated movements?
- How severe is the awkward posture?
- How hard is the edge digging into the skin, causing local contact stress?

Multiple risk factors

More than one risk factor can occur at the same time. The more risk factors in the task, the greater the risk of injury. This example is used to show how several risk factors might occur at one time.

Implementing a Program to Minimize Repetitive Motion Injuries

This section applies to a job, process, or operation where a repetitive motion injury (RMI) has occurred to more than one employee under all of the following conditions:

- The RMIs were predominantly caused (50% or more) by a work-related repetitive job, process, or operation
- The employees incurring the RMIs were performing a job process, or operation of identical work activity. Identical work activity means that the employees were performing the same repetitive motion task, such as but not limited to word processing, assembly or, loading.
- The RMIs were musculoskeletal injuries that a licensed physician objectively identified and diagnosed
- The RMIs were reported by the employees to the employer in the last 12 months

If this section applies to an employer based on the variables above, the employer must establish and implement a program designed to minimize RMIs. The program shall include a worksite evaluation, control of exposures that have caused RMIs, and the training of employees, as described below.

(1) Worksite evaluation—each job, process, or operation of identical work activity covered by this section, or a representative number of such jobs, processes, or operations of identical work activities, must be evaluated for exposures that have caused RMIs.

(2) Control of exposures that have caused RMIs—any exposures that have caused RMIs must be corrected in a timely manner, or if they are not capable of being corrected, the exposures must be minimized to the extent feasible. The employer must consider engineering controls, such as workstation redesign, adjustable fixtures or tool redesign, and administrative controls such as job rotation, work pacing, or work breaks.

(3) Training—employees must be provided training that includes an explanation of:

- The employer's program
- The exposures which have been associated with RMIs
- The symptoms and consequences of injuries caused by repetitive motion
- The importance of reporting symptoms and injuries to the employer
- Methods used by the employer to minimize RMIs

Employers are expected to implement controls that cause the greatest reduction in RMIs, unless those controls would impose unreasonable costs.

IDENTIFYING RISK FACTORS

This Company is responsible for identifying factors in the workplace that may expose workers to a risk of MSI. Employers must consult with the its safety committee or the worker health and safety representative, if there is one, when doing this risk identification.

To start this process, employers need to identify risk factors associated with each job according to priority, one job at a time.

EXAMPLE

Task: A worker repeatedly bends to lift boxes from a pallet to a storage shelf.

Risk factors:

- Force - lifting the heavy weight of the box with one hand.
- Awkward posture - worker bent forward at the waist.
- Awkward posture - forward reach of right shoulder.
- Local contact stress - worker grasping narrow plastic strapping.
- Repetition - worker performing similar lifting task all day.

Identifying jobs with a higher risk of MSI

To determine which jobs are at a higher risk for MSI and should be given priority, the Company will examine first aid records and claims history for MSI. If workers have already had an MSI or they have signs or symptoms of MSI, their jobs will likely have a higher risk of MSI. Priority for risk identification should therefore be given to jobs in the following situations:

- A worker has already had a work-related MSI claim
- A worker reports to first aid with an MSI
- A worker has reported signs or symptoms of MSI

Risk identification must also take place before any problems or injuries are reported so that risk factors can be eliminated or minimized and injuries prevented. The employer might set priorities for preventive risk identification by interviewing workers, taking a survey, or observing workers on the job. In addition, paying attention to the following situations can help prevent injuries:

- A worker or supervisor observes high exposures to risk factors in a job, for example, during workplace inspections and observations of current work methods.
- A new job is introduced, or a process changes.

How employers can identify risk factors

After identifying particular jobs that pose a risk of MSI to workers, the Company will identify the MSI risk factors for each of those jobs. The employer must consult with the safety committee or worker health and safety representative about risk identification. The employer may also consult with workers, since they often know the job best.

There are several tools (such as checklists and worksheets) for identifying risk factors in a job. These tools help identify risk factors that require further investigation to assess the risk to workers. These tools should take duration and magnitude into account along with the risk factors to help the employer establish priorities for risk control. Employers may use other methods to identify risk factors as long as they consider the risk factors listed in the Occupational Health and Safety Regulation.

How workers can help identify risk factors in their jobs

Workers are expected to assist in the process of identifying risk factors. Workers often have the best insights into the demands of their job and are in a good position to help identify risks and prevent MSI. Workers must report any work-related injuries and signs or symptoms of MSI immediately.

If a worker reports an injury requiring medical attention or an unsafe condition that could lead to injury, the employer must investigate. An investigation will help to identify risk factors that contributed to the injury or condition and lead to implementing controls to eliminate or minimize the risk factors.

Think about your job and all the different duties. For each duty, try to identify which, if any, of the four primary risk factors (force, repetition, work posture, local contact stress) are present. Then consider these questions:

- Does the total time (duration) you spend doing a particular duty increase the physical demands on your body?
- Do any of the following increase the physical demands on your body?
 - Layout of your workplace or workstation (such as work surfaces that are too high or too low or that result in excessive reaching distances)
 - Characteristics of the objects you handle (such as objects that are too large to handle or that have their weight unevenly distributed)
 - Environmental conditions (such as an atmosphere or objects cold enough to make the hands cold while the worker handles objects)
 - Organization of your work duties (such as a lack of variety of task, with the result that your muscles do not have a chance to rest and recover)

After you answer these questions, you will have a fairly good idea of what risk factors you are exposed to in your work. You can probably see which duties place you at the most risk of MSI and where changes are most needed.

You may also have some suggestions for practical solutions to reduce or eliminate some of these risk factors. Discuss your answers and suggestions with your supervisor. You might also talk to members of the joint committee or your worker health and safety representative about the risks of MSI.

CUMULATIVE TRAUMA DISORDERS

Musculoskeletal injuries caused by working are common. The majority of these injuries are not accident related broken bones or strained ligaments. They usually develop over a period of time as a result of repeated stress on a particular body part. The condition is often ignored until the symptoms become chronic and permanent injury occurs. Cumulative trauma disorders (CTDs) and repetitive motion injuries are terms used to refer to certain musculoskeletal injuries.

A key reason for the increase in CTDs is the increase in production due to automation. The assembly line, computerized office machines, and electronic checkout stations in grocery stores are examples of workstations that require a high volume of output. One simple, strain-producing task may be repeated several thousand times a day. High production demands do not allow much time for rest and recovery.

The aging work force relates to the incidence of CTDs because the ability to withstand shock, chronic strain, and stress decreases as an individual ages. In addition, awareness of the causes and nature of CTDs has increased. Employers and employees can recognize tasks that cause or contribute to these disorders.

Recent studies have shown that a great deal of workers' compensation costs is due to CTDs. CTDs are responsible for many cases of lost work time. Early detection of CTDs can be difficult because the disorders often develop slowly over months or years. Therefore, preventing CTDs is important. Prevention can be partially accomplished by tool and workstation redesign and better work methods.

WORK AREA DESIGN

A workstation should be designed to accommodate the person who actually works on a given job. For example, workstations should not force workers into awkward body positions. Workstations should be easily adjustable and selected to fit specific tasks, so that they are comfortable for the workers using them. The workspace should be large enough to allow for the full range of required movements, especially where knives, saws, hooks, and similar tools are used.

Methods for reducing extreme and awkward postures include:

- Adjustable fixtures and rotating tables so that the position of the work can be easily manipulated.
- Workstations and bins that can accommodate the heights and reach limitations of a wide range of workers.
- Work platforms that move up and down for certain operations.

Examples of methods to reduce the need to use excessive force include:

- Adjustable fixtures that allow operations and movements to be easily made.
- Properly located bins so that workers do not have to toss products and by-products.
- Mechanical or powered devices that eliminate the need for extreme manual force.
- The suspension of heavy tools.

MINIMIZATION OF MANUAL MATERIALS HANDLING

Manual materials handling is another area in which injuries to employees can occur. This type of work entails lifting, bending, and twisting, which can cause great damage to the human body if done improperly.

Lifting puts stress on two main body systems. One is the musculoskeletal system and the other is the cardiovascular system. Since the problem associated with the cardiovascular system deals with oxygen consumption or increased heart rate, the focus of most information regarding lifting has been the musculoskeletal system.

Most studies use criteria such as “stress in relation to capability over a given amount of time” as an index of the associated strain.

MECHANICAL AIDS

One way to reduce manual materials handling problems is by using self-leveling dispensers, such as the spring-loaded tray dispensers used in many cafeterias.

The way these mechanisms work is that when a load is removed, the platform rises in order to maintain the top layer at a constant level. A worker does not have to bend over or stretch upward to receive work. Instead, work can be reached at a constant height. These dispensers can eliminate unnecessary motion and thereby reduce worker fatigue.

Many other types of mechanical aids are available to assist employees during manual materials handling.

Hooks, bars, rollers, jacks, platforms, and trestles (or A frames) are examples of simple job aids. Drum handling units are in common use and exist as either a trestle or lever. In most cases, the engineer or ergonomist can find off-the-shelf aids readily available to fit the lifting task and to minimize the amount of manual lifting.

Other available equipment which will minimize, if not eliminate, manual materials handling includes the standard industrial equipment classes of conveyors, hoists and cranes, industrial vehicles (such as towmotor or forklift trucks), and positioners. The International Material Management Society defines positioners as equipment used to transfer material from workplace to materials handling equipment, or vice versa. Positioners include manipulators, dumpers, up-enders, positioning tables, lifts, jacks, and transfer machines.

Today, with so much equipment available to the plant engineer or ergonomist, manual materials handling can be reduced, if not eliminated, for most tasks.

CARPAL TUNNEL SYNDROME

Carpal Tunnel Syndrome (CTS) is a common nerve CTD. Workers, from aircraft assemblers to office assistants, are at risk for CTS. It is a progressively disabling and painful condition of the hand. CTS results from injury to the median nerve, which is located in the wrist. It is a nerve entrapment that develops from the buildup of pressure on the median nerve as it passes through the carpal tunnel. This is a dime size passage between the carpal (wrist) bones and the anterior transverse carpal ligament. Since musculoskeletal strain from repeatedly flexing the wrist or applying arm-wrist-finger force does not cause observable injuries, it often takes months or years for workers to detect damage.

Symptoms of CTS include weakness, clumsiness, numbness, pain, tingling, and a lack of sweating in parts of the hand innervated by the median nerve. CTS has been reported to occur from two to ten times more frequently in women than in men. The condition is progressive and can lead to compensable hand disabilities.

In the early stages, the signs and symptoms of CTS may be fleeting, intermittent, and vague. One of the first symptoms is awakening at night because the hand is aching, tingling, and numb. The term "nocturnal numbness" is often applied to CTS because symptoms are often severe during sleep. CTS usually affects the dominant hand. These symptoms may continue for months or even years.

The patient may attribute the strange feelings to poor circulation from having slept on his or her hand during the night.

At first, rubbing, or shaking the hand can make the feelings go away. Gradually though, the feelings begin to persist. As pressure on the median nerve mounts, the thumb and the first three ringers increase in numbness. The pain becomes more intense, sometimes spreading to the forearm, and even up into the shoulder. Eventually as the disease progresses, the person begins to lose control of the hand, and may drop things or be unable to turn a key in a lock.

CTS is considered an occupational disease, as it is often associated with the performance of particular repetitive tasks. The reason that some people develop this condition while others do not is not known. A higher incidence of CTS among the female population is difficult to explain. Smaller hands and wrists may be at more risk.

One study found that the use of vibrating tools is strongly associated with CTS. Repetitive motion tasks that involve the wrists were also found to be associated with CTS. The use of vibrating tools may involve repetitive wrist movements. This association may partially relate to the link between vibration and CTS.

Tests used to determine the presence of CTS:

- **Phalen's wrist-flexion test** - The patient props his or her elbows on a table and allows the wrists to drop into complete flexion for 30 to 60 seconds. If paresthesia and numbness occur almost immediately, the test is considered positive.
- **Forced wrist-flexion test** - The patient props his or her elbows on the table, one wrist is held, and the other is in complete flexion for 20 to 30 seconds. If the patient has CTS, symptoms should occur immediately.
- **Tinel's sign test** - A percussion hammer is used to tap the patient at the wrist crease. If the patient feels a tingling in the hand along the median nerve distribution, the test is positive.
- **Electroneuromyography** - A physician performs this test, which requires an electromyograph and related equipment. Its purpose is to measure the median nerve's conduction velocity, the speed at which nerve impulses translate into muscle responses. If the velocity measures 5 milliseconds or more below normal, chances are the median nerve is compressed in the carpal tunnel. A negative result, however, does not rule out CTS since a median nerve may be compressed yet its conduction velocity may remain normal. Electroneuromyography is the most reliable of these tests used to determine the presence of CTS.

OTHER CUMULATIVE TRAUMA DISORDERS

Although CTS is the best known of repetitive motion disorders, other disorders can also be disabling.

Other CTDs include:

- **Tenosynovitis** - Tenosynovitis is the inflammation of the tendons and sheaths. It is often associated with tasks demanding extreme wrist deviation. For example, wrist deviation is required to hold an in-line nut-runner in a horizontal position.
- **Trigger finger** - Trigger finger is a form of tenosynovitis which results when any finger must be frequently flexed against resistance. It may be avoided by designing tool handles for operation by the thumb, by more than one finger, with lower force requirements, or by not requiring constant pressure.
- **De Quervain's Disease** - In De Quervain's disease, the tendon sheath of both the long and the short abductor muscles of the thumb narrows.
- The disease is common among women workers, particularly those who perform repetitive manual tasks involving radial or inward hand motion and firm grips.

- **Tennis Elbow** - Also called epicondylitis, this form of tendinitis is an inflammatory reaction of tissues in the elbow region. In an industrial environment, tennis elbow may follow effort requiring palm-upward hand motion against resistance, such as using a screwdriver, or the violent upward extension of the wrist with the palm down. The condition may be avoided by ensuring that the rotation axis of the tool or machine coincides with the rotation axis of the forearm.
- **White Finger** - White Finger Disease or Raynaud's Syndrome occurs when blood vessels and nerves in the hands constrict from conditions such as cold temperature, vibration, or emotion. The hands, fingers, or fingertips may become cold, blue, numb, and lose fine manipulative ability. Upon recovery, the hands become red, accompanied by a burning sensation. It can be confused with the one sided numbness of carpal tunnel syndrome.

Corrective actions to prevent CTDs

Based on risk assessment results, the Company will implement as many of the following actions as are warranted and feasible:

- Adjusting the height of work tables, conveyors, and seats
- Automating tasks to eliminate manual handling
- Reducing the frequency of tasks or increasing the frequency to a point where automation is necessary
- Reducing the size or weight of loads
- Providing arm rests
- Redesigning hand tools so that the axis of rotation or application of force coincides with the axis of rotation of the arm
- Providing operator training
- Using careful pre-placement screening to identify high risk employees
- Changing load positions in relation to the body or hands
- Minimizing the time that a load is held in the hands
- Eliminating gloves if they cause a problem or trying different gloves.

Recommendations to help prevent the development of CTS include:

- Use of Low frequency vibration in hand tools should be eliminated or reduced.
- Wrist deviation from the straight position should be minimized especially where a great deal of force must be exerted.
- Where possible, a closed fist (rather than a pinch) should be used to reduce tendon tension.

Medical Treatment of Cumulative Trauma Disorders

Correct diagnosis of a musculoskeletal injury is important to avoid the stressful activity that caused the injury, and to lead to effective treatment. Diagnosis includes identifying the affected part of the body, determining the extent of injury, and determining what caused the disorder. The patient's description will aid in determining what area is painful, how and when the pain started, and what tasks are difficult.

The physical examination consists of initial inspection for asymmetry or irregularities such as swelling cysts. Limitations in the patient's range of motion may indicate a joint, muscle, or tendon problem. Once the disorder is located and the degree of damage is determined, proper treatment must be developed.

Successful therapy may require weeks or months. During this time, the patient's work activities may be restricted. An additional strategy could involve limiting movement of the injured area and possible splinting, the application of heat or cold, medication to reduce inflammation and swelling, and special exercise.

If conservative approaches fail, special drugs or surgery may be required. It is important that the worker not continue performing the same job or task that caused the injury. The worker could be reassigned, or the task should be redesigned.

HAND TOOLS

Each year, hand tools are the source of 7 to 8 percent of all compensable injuries. Improper use of hand tools and defective tools can cause biomechanical stress and injuries. Types of injuries frequently reported include broken bones, contusions, loss of eyes and eyesight, and puncture wounds. Additionally, fingers, tendons, and arteries are severed from the use of cutting tools.

Basic safety precautions mandate that tools always be kept in good condition and be used properly. Workers should be careful to use the proper tool for the job performed.

Hand and Wrist Postures

Some hand tools may force the wrist to assume awkward postures. The wrist position affects the effective strength of the contracting muscles. Therefore, as the angle of the joint increases or decreases from the neutral position, there is more stress on the tendons.

- **Ulnar deviation** is the bending of the wrist toward the little finger.
- **Radial deviation** is the bending of the wrist toward the thumb.
- **Extension** is bending the wrist up and back.
- **Flexion** is bending of the wrist down towards the palm.

A job requiring repeated ulnar deviation, extension, or flexion can lead to tenosynovitis of the tendons on the back of the hand. Similarly, severe radial deviation can cause elbow soreness.

VISUAL DISPLAY TERMINALS (VDTS)

A hidden toll is taken on employees who daily sit in front of their flickering display screens. They pay this price with sore necks and shoulders, cramped fingers, tired eyes, strained backs, numb buttocks, and aching legs and feet. Tension headaches are common. It may be possible to trace these ailments directly to improper workspace layout.

A standard visual display terminal is an electronic device that displays information on a screen and works on a principle similar to that of a television set. The picture tube is called a cathode ray tube (CRT). It contains a source of electrons which, when beamed across the phosphor-coated screen, produces a visible image. The operator manipulates the image through specific commands entered through a keyboard or a pointing device such as a mouse.

Because work involving sustained use of VDTs can be repetitious and confining, special attention must be paid to the user's comfort. Traditional ergonomic considerations include chair and table selection, rest breaks, office noise, light, and temperature. However, VDT use poses unique questions, such as:

- What type of screen image, character size, and screen brightness is optimal for the task?
- How can screen glare and reflections be eliminated?
- What type of keyboard is best for the user and the task?
- Where should the screen, document holder, and accessories be placed?

Workstation Design

The equipment should be suited to the job. It should be set and spatially organized such that:

- Forced air exhausts are not directed toward the user.
- Workstation adjustment controls are convenient and easy to use.
- Equipment with the longest and/or most frequent eye contact lies in the center of the work field.
- Equipment handled the most lies within the optimal range of reach.
- Glare is avoided.
- Pronounced visual contrast differences between important subjects is avoided.

Visual Display Screens

The primary viewing area should be between 0 and 60 degrees below the horizontal line of sight. The screen should be tilted so that the middle of the screen is perpendicular to the viewing angle. The top row of data should not lie above eye level, and observation angles greater than 40 degrees should be avoided. To avoid distracting reflections, it may be necessary to tilt the screen or to use screen filters.

European standards recommend that the observation distance between the eye and cursor be between 17 and 24 inches, or 450 and 600 mm in an upright sitting position. ANSI recommends that the minimum viewing distance be 12 inches or 305 mm. ANSI also specifies several optical quality requirements.

The contrast ratio between the characters and the background should be at least 3:1. Small characters must have a higher minimum contrast. "Jittering" displays should be eliminated. The discrete dots that make up the characters should not be perceptible. The characters must appear solid to the viewer.

Saturated blue on a dark background, thin lines, or high-resolution information for text should be avoided.

Pure red in displays should also be avoided to help color-blind people read displays.

Keyboards

ANSI recommends that the keyboard permit the user to keep an angle between the upper arm and forearm at 70 to 90 degrees. The angle may increase if the operator is leaning back, but the maximum angle should not exceed 135 degrees. The keyboard should consist of the QWERTY layout, with "ASDFJKL;" as the home keys.

The keyboard should be stable for normal keying functions. A number keypad should be provided if the main task involves numerical data input from the keyboard. To reduce user discomfort, alternative keyboards may be needed, such as split-fixed or split and vertical inclined styles.

Document Holders; Footrests

Document holders and footrests should be provided, if needed by individual operators. The document holder should be adjustable and extensible.

Work Surfaces

The work surface should provide adequate legroom so that the legs are not cramped. The height of the leg clearance should be at least equivalent to the highest point on the thigh or knee. ANSI recommends that when the leg is perpendicular to the floor, minimum leg clearance depth under the work surface is 60 percent of the buttocks-to-knee length. The size of the work surface should also accommodate the task.

Work Chairs

The height of a chair should allow the user to place the feet firmly on a support surface. The maximum seat depth should allow contact with the seat back at the lumbar region while allowing clearance behind the knees. Minimum seat width should be 18 inches or the thigh breadth of the seated user, whichever is greater.

If the chair design requires the user's feet to be flat on the floor, the seat pan angle should keep the angle between the upper and lower leg between 60 and 100 degrees. In addition, the angle between the seat pan and back should allow the user to maintain a working posture in which the torso-thigh angle is not less than 90 degrees (100 degrees is preferred). Chairs should have back rests with lumbar support.

If the chairs have arms, the distance between the armrests should be a minimum of 18.2 inches. Appropriate chair castors should be provided.

Noise and Temperature

Noise should be reduced to a maximum of 55 decibels and sporadic noises above normal ambient sound levels should be prevented. ANSI recommends that surface temperatures of equipment intended to be touched not exceed 95°F. Air drafts should not be allowed to flow under desks. Care should be taken to see that heat does not build up under desks as well.

ILLUMINATION

Lighting of a sufficient intensity is essential to reduce worker fatigue and allow them to perform visual tasks. How a space is used and what it is used for influences how lighting should be applied. Other factors that influence lighting design for a task include appearance, economics, building costs, energy consumption, and the quality of lighting desired. Factors affecting the visual environment include lighting fixtures, visual tasks, lighting maintenance, lighting system design, and the individuals' eyesight.

The Nature of Light

The nature of light is determined by its quantity and quality. Light quantity is the amount of illumination cast upon the task and surrounding area. Light quality includes the color of the light, the direction and diffusion of the light, and the amount and type of glare from the light.

Quantity of Illumination

The quantity of illumination relates to the amount of light that exists or is required at a workplace. The amount of light necessary for effective work depends on the nature of the work, the sharpness of a worker's vision, and the environment in which the work is done.

The absolute minimum amount of light required for reading, writing, and many manual tasks is approximately one foot-candle (2). As a reference point, a light in an indoor exit sign has at least five foot-candles.

In the design of good lighting, safety and welfare should be taken into account as well as visual efficiency.

In some jobs where visual demands are not great, it is normal for recommended levels of illumination to be based on safety, welfare, and amenity (creation of a pleasant environment). The minimal amenity level is 20 foot-candles. When light levels fall below 20 foot-candles, workers usually have a negative reaction to the lighting.

Too much light can be as damaging as too little. There is great variation between the amounts of illumination required by a younger worker and an older worker. The quantity of illumination needed depends upon the age of a person who must see to do the task, the reflecting characteristics present, the amount of light needed to do a task, and the speed and accuracy required of the person performing the task. As the amount of illumination provided for a task increases, so does the luminance (light reflected upward) and, as a result, the accuracy and speed of vision improves. The best ergonomic solution for these varying needs is to provide general workplace lighting and supplement it with specific task lighting.

Lighting systems should be designed to provide a uniform distribution of light over the entire work area. To ensure that a given illumination level will be maintained, give more light initially than is minimally required. The reason for this is that such factors as dirt, use, and time deteriorate lighting.

At any given time, most people have lights that appear dull and which no amount of cleaning will improve. Generally, this happens when 80 percent of the stated life of the bulb or light has been used. The best ergonomic solution is to replace it at this point.

Tables exist to provide the recommended levels of illumination for visual performance of young adults with normal vision. The IES Lighting Handbook provides such data for various industries. Illumination recommendations are intended as guides for lighting levels from an overall operational standpoint. The lighting levels are not recommended in order to ensure safety and are not, therefore, a basis for regulatory minimum illumination.

Quality of Illumination

The quality of illumination pertains to the distribution of brightness in a visual environment. A good quality of illumination means that all brightness contributes favorably to visual performance, visual comfort, ease of seeing, safety, and aesthetics for the specific visual task involved.

A worker can normally see the task itself, the immediate background to the task, and the general surroundings.

The eyes tend to be attracted to brighter and more colorful parts of the field of vision. Therefore, light and color can be used to direct the focus of attention to the task. Lighting should be directed to the work, or special local lighting should be provided to match the needs of the work and the general lighting levels.

The level of brightness required for any task is determined by the degree of detail the operator has to meet, the time allowed for seeing, and the reflection characteristics of the task. The general level of brightness in the room also contributes to the level of brightness required for a task. In practice, it is advisable to plan the illumination first in relation to what the operator requires to accomplish the task and then to plan the brightness of the other parts of the room to provide proper emphasis, visual comfort, and interest.

Poor quality industrial illumination is easy to recognize. It presents uncomfortable and hazardous situations.

Certain tasks, such as distinguishing fine details, require higher quality illumination than do others.

In addition, work areas in which visual tasks are severely demanding and which are performed over a prolonged period require higher quality illumination.

Slight glare conditions may result in a loss of seeing efficiency and undue fatigue. Some factors that affect the quality of light include glare, shadows, colors, veiling reflections, and luminance distribution.

The Effect of Glare on the Quality of Light

Glare is a disturbance of the retina's ability to adapt to amounts of light. It may cause discomfort or reduce the ability to see, or both. It occurs when some parts of the field of view are excessively bright in relation to the general level of brightness. A common example is presented by a person who is trying to watch a television set in a bright room. The ergonomic solution is to lower the lighting in the room.

The degree of glare resulting directly from light sources depends on such factors as the brightness and sizes of the sources, their position in the operator's field of view, and the average brightness of the surroundings against which they are seen. Glare can cause discomfort without affecting the operator's ability to see the work, especially in very bright surroundings. Ensuring that lights are placed above the line of sight will help eliminate glare.

There are three major types of glare. They are absolute, adaptive, and relative glare. Absolute glare exists when luminosity is so high that adaptation is impossible. Adaptive glare exists when adaptation to a certain amount of light has not yet been reached.

Relative glare is present when there is too much of a contrast in the visual field. In addition, glare can be classified as direct or specular. Direct glare results from a light source, whereas specular glare is created by reflection from a bright surface.

Direct glare can be reduced by:

- Avoiding bright light sources within 60 degrees of the center of the visual field.
- Using shields, hoods, and visors to keep the direct light source out of the viewers' eyes.
- Using indirect lighting.
- Using several low intensity sources of light rather than one high intensity source.

Specular glare can be reduced by:

- Using diffuse light.
- Using a dull matte surface (flat paints, desk blotters) rather than polished surfaces.
- Arranging direct light sources so that the viewing angle to the work is not equal to the angle of incidence from the source.

Light Sources Used in the Industrial Environment

Daylight and electrical light are the two major sources of light used in industrial sites. Artificial light is commonly used in industrial buildings during daytime to provide additional local lighting on the work to provide special effects, such as modeling, silhouettes, and specular reflections, or to illuminate surfaces inaccessible to the daylight. There are many instances where the amount of daylight in a building is inadequate or obstructed, and artificial lighting may be required as permanent supplement to daylight. Daylight, however, is by far the best light source if it is available.

There are many different types of electrical light sources, and the choice for any particular situation depends upon the level of illumination required and the standard of color judgment involved in the visual task. Economic factors also influence the selection of electrical light sources.

LIGHTING FOR VIDEO DISPLAY TERMINALS

ANSI recommends eliminating intense light sources from the VDT user's peripheral field of vision. A nominal lighting strength of 300 to 500 lux is recommended. The intensity of lighting on the worktable at the display should never reach 300 lux. (One foot-candle equals approximately 10 lux.)

Screen Reflection Reduction Methods	
Location	Measure
At source	Cover windows. Place light fixtures properly. Use directional lighting.
At workstation	Move station. Tilt screen. Use screen filters or hoods. Use reverse video.
Between source and workstation	Hang or erect partitions.

Work areas with nominal lighting

Intensity at 750 lux must be individually tested to determine whether the area is suited for display workstations. In rooms with nominal lighting intensity of 1,000 lux or higher, there should not be any display workstations, unless special precautions are taken, such as using micromesh or glare filters (polarized and/or non-reflective coating should also be considered). See table

VDT Workstation Accessories

VDT workstation accessories are available to help provide a comfortable workstation and reduce fatigue.

One accessory is the keyboard armrest. Because typists frequently rest their wrists on the keyboard or tabletop while typing, excessive strain is placed on tendons controlling the fingers and hands. The wrist rest elevates and rests the wrists and reduces tendon stress. (The usual recommendation is to use the wrist rest during pauses in typing.)

The keyboard drawer slides under a desk when not in use, allowing efficient use of desk space. When the drawer is extended, the keyboard can be raised or lowered.

The extension arm allows the operator to place the monitor in a comfortable location for maximum efficiency. The extension arm rotates, extends, and retracts a swiveling monitor platform for viewer comfort and glare reduction.

Workers should alternate VDT work with other tasks that do not require similar, close-work skills. Managers should be conscious of this work routine when planning a day's work schedule. Frequent breaks should be provided to allow the operator to stretch, move, and other non-hand intensive tasks.

Recommended work/break intervals

One break (5–10 minutes) for every hour of keying moderate workloads, with more frequent, short mini breaks or pauses (30–60 seconds) for more intense VDT use.

The key to a comfortable and productive office environment is recognizing each worker as an important individual with individual needs. This recognition will increase morale and heighten productivity.

Key questions

If you may be exposed to a risk of MSI in your job, you must be educated in risk identification related to your work. This includes recognizing the early signs and symptoms of MSI and their potential health effects.

You should be able to answer the following questions:

- What are some early signs and symptoms of MSI?
- What person would you report these signs and symptoms to?
- What can happen if you ignore early signs and symptoms of MSI?
- What are the risk factors in your job that could lead to MSI?

SUMMARY

Risk identification is just one step in eliminating or minimizing the risk of MSI to workers. Once risk factors have been identified, the employer must do a risk assessment to find out how great the risk is.

Not all risk factors are necessarily severe enough or occur for a long enough time to cause or contribute to an injury.

Risk assessment will be conducted by people who understand the work process, the MSI risk factors, and the principles of risk assessment and control. When doing a risk assessment, the Company will consult with workers who have signs or symptoms of MSI and with a representative sample of workers who carry out the work. The sample should include workers who represent a range of characteristics such as gender, age, and height.

The risk assessment may determine that control measures are needed to eliminate or minimize the risk.

Some examples of control measures are mechanical lifting devices, adequate recovery time from repetitive tasks, adjustable workstation heights, and padding on sharp edges of work surfaces.

Workers may also need to be trained in safe work procedures for some tasks, such as adjusting their workstation to fit the task correctly.

The Company will ensure that employees are trained on the proper use of any mechanical aids or PPE provided to them.

POLICY STATEMENT

This Company is committed to ensuring a safe, healthy work environment. This commitment includes monitoring the workplace for noise levels that may damage hearing and includes protecting the hearing of those who work in high-noise environments with a complete hearing protection program (HPP) implemented and maintained by this company and its employees.

RESPONSIBILITIES

Hearing protection is a cooperative effort between the Company and its employees.

Employer Responsibilities

It is the responsibility of the Company to:

- Protect employees from work-related hearing loss;
- Utilize administrative or engineering noise controls to reduce noise levels and protect worker hearing;
- Ensure employee participation in hearing protection training program;
- Ensure proper initial fitting of hearing protection devices;
- Make hearing protectors available, and replace them as necessary;
- Ensure hearing protectors are worn;
- Notify employees exposed to high-noise activities and equipment;
- Employ an audiologist, otolaryngologist or physician if audiometric evaluations and follow-up are provided;
- Maintain and retain all records necessary for proper implementation of the HPP; and
- Review the hearing protection program according to changes in workplace noise levels, personnel changes and technological changes to ensure that the hearing protection program is providing the most possible protection to employees.

Employee Responsibilities

Company employees are expected to:

- Participate in training;
- Wear hearing protection devices when appropriate;
- Report any problems or concerns about the hearing protection program; and
- Report any injuries or loss of hearing to appropriate supervisor.

TRAINING

The Company will ensure every employee is provided training on hearing protection. This training will be provided at no cost to the employee during working hours.

The Company will use only training material that is appropriate in content and vocabulary to the educational level, literacy, and language of employees.

Training will be repeated annually with an updated training program that reflects changes in protective equipment and work processes.

Training Components

The Safety Coordinator will ensure that every employee will be trained in the following minimum elements:

Use and care of all hearing protectors provided;

Effects of noise on hearing;

Purpose of hearing protectors, advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use and care;

The purpose of audiometric testing and an explanation of test procedures (if offered); and

Steps an employee can take in the workplace and outside of the workplace to protect hearing.

Training Records

Training records will include the following information:

Dates of the training sessions;

Contents or a summary of the training sessions;

Names and qualifications of persons conducting the training; and

Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the date on which the training occurred.

HEARING CONSERVATION

POLICY

Any workplace sound that is not wanted is noise. Workplace noise may be present in a number of ways, each of which has a different potential impact on workers' hearing, and demands different controls to prevent damage to hearing.

Unacceptable levels of noise that may warrant a hearing conservation program are often present on construction sites. OSHA mandates an effective hearing conservation program when sound levels exceed the values shown in table 1.

If a worker needs to raise his voice for someone within arm's reach to hear, the site is probably noisy enough to require workers to wear hearing protection.

Further, exposure to impulsive or impact noise needs to stay below 140 dB peak sound pressure level.

The following trades are routinely overexposed to noise and should practice hearing protection as a matter of course: carpenters, plumber pipefitters, sprinkler installers, mobile equipment operators, welders/fabricators, sandblasters, drillers, electricians, steel erectors, drywallers shooting tracks or boarding.

Engineering and administrative noise controls should be implemented to reduce sound sufficiently. Where such controls fail to sufficiently reduce sound levels, The Company will provide appropriate personal protective equipment for hearing.

13.4.1.1 Permissible Noise Exposure	
Duration per day, hours	Sound level dBA slow response
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
≤ ¼	115

Footnote: When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each.

Table 1

NOISE EXPOSURE

Where noise exposure levels are reasonably expected to be above an 8-hour time weighted average of 85 dBA, exposure measurement can determine the extent of hearing protection necessary and identify tools or processes where sound abatement opportunities exist.

Worker exposure to "background noise" alone often averages above 85 dBA over the course of a work shift. Accordingly, identifying high-noise activity, tools, and equipment at a construction site is the first step to lowering site-wide noise levels and reducing noise exposure.

Sound level measurement and dosimetry are valuable tools to measure possible exposure over the course of the day and for specific equipment, but they have their limitations on a construction site.

Attaching the sound level information for a piece of equipment onto the equipment itself can help inform workers about the hazards they face when working with or around that equipment.

Sound monitoring should be repeated when there has been a change that may increase noise exposures and:

More employees may be exposed, or

Hearing protectors in use may no longer provide adequate protection to hearing.

Noise Measuring Instrument

Instruments used to perform exposure monitoring according to manufacturer's instructions should be calibrated to ensure accuracy, and operators should follow manufacturer's instructions to conduct sampling.

Sound Level Meter

A Sound Level Meter (SLM) is the basic instrument for investigating noise levels. Sound level meters can be used to:

Spot-check noise dosimeter performance;

Determine an employee's noise dose whenever use of a noise dosimeter is unavailable or inappropriate;

Identify and evaluate individual noise sources for abatement purposes;

Aid in determining the feasibility of engineering controls for individual noise sources; and

Evaluate hearing protectors.

Noise measurements should be taken from the hearing zone of the employee being monitored (within a two-foot diameter sphere surrounding the head of the worker) according to manufacturer's instructions.

Dosimeter

A noise dosimeter is worn by the employee to measure sound levels and determine noise exposure over the course of the workshift (or sampling period).

During workshift sampling, a dosimeter with a threshold of 80 dBA and 90 dBA measures noise exposure. The 80-dBA threshold dosimeter will measure whether the workers are exposed to the 85 dBA TWA "action level", and should be included in a hearing protection program. The 90 dBA threshold dosimeter determines whether the noise level to which workers are exposed falls within the permissible exposure limits (PEL) indicated in Table 1.

Noise exposure exceeding the PEL, demands appropriate controls.

NOISE CONTROL

When employees are exposed to an 8-hour time weighted average of 90 dBA or more, noise controls must be in place.

Before relying on hearing protection devices to protect worker hearing, other control systems using engineering and administrative controls need to be in place to reduce exposure to hazardous noise levels.

Engineering Controls

Engineering controls can abate noise hazards whenever practicable. Examples include, but are not limited to the following:

- Low-noise tools and machinery;
- Appropriate maintenance of all equipment;
- Barriers between noise sources and employees; and
- Enclosure or isolation of noise sources.

Advantages & Disadvantages

When you replace a noisy machine with a quiet one, modify it to make it quieter, or change the sound path so that dangerous noise never reaches the listener; you are using an engineering control.

Effective, practical, and affordable engineering controls are the best way to control noise. For example, if you have an old, noisy, electric hand drill, you can replace it with a newer, quieter one — a practical, affordable engineering control. If you have a large, noisy chipper/shredder, however, replacing it may not be practical. Instead, you might isolate the noise by enclosing the shredder or block the noise by constructing a barrier between the shredder and the listener.

When you double the distance between the listener and the sound source, you decrease the sound pressure level by six decibels. For example, a hazardous 96-decibel noise source at five feet is a safe 84 decibels at 20 feet.

Strategy Overview

Applying effective, practical, affordable engineering controls to a noise problem is challenging because there are no ready-to-order solutions — you have to tailor them to your workplace. You are more likely to find an engineering-control solution when you have accomplished the following:

- Understand what is causing the noise;
- Determine how the noise is reaching the listener;
- Identify the most appropriate point, or points, at which to control the noise: at the source, along the sound path, or at the listener;
- Establish acoustical enclosures and barriers around generators;
- Use sound absorbing material and vibration isolation systems on hand tools; and
- Quiet work practices — use rubber mallets to erect and dismantle formwork.

Administrative Controls

Administrative controls also can reduce worker exposure to noise. Examples of such controls include, but are not limited to:

- Scheduling regular maintenance activities;
- Operating noisy machines in shifts when fewer workers are present; and
- Limiting time employees are exposed to a noise.

Advantages & Disadvantages

To administer an activity means to manage it. Unlike engineering controls — which prevent hazardous noise from reaching a worker — administrative controls manage workers' activities to reduce exposure. Closely related to administrative controls are work-practice controls, which emphasize safe work practices and procedures.

Administrative and work-practice controls are usually less expensive to carry out than engineering controls; that is because there are no significant capital costs involved in changing or modifying equipment. In some cases, administrative controls have reduced employee exposure to noise and increased productivity by rotating employees through a demanding, noisy task. Work-practice controls also improve employee performance by emphasizing safe work practices.

On the other hand, administrative controls and work-practice controls usually are not as effective as engineering controls because they do not control the noise source. Noisy machines are still noisy and the hazard is still present.

Applying Administrative Controls

Examples of administrative and work-practice controls include the following:

- Reducing the time employees spend working in noisy areas — for example, rotating two or more employees so that each is exposed to noise levels less than 85 decibels, averaged over an eight-hour day.
- Shutting down noisy equipment when it is not needed for production.
- Ensuring that employees maintain their equipment to keep it running smoothly and quietly.
- Ensuring that employees know how to perform tasks and operate equipment at safe noise levels.
- Using warning signs to identify work areas where noise exceeds safe levels.
- Teaching employees appropriate methods for eliminating or controlling noise.
- Encouraging employees to report noise hazards to supervisors.

HEARING PROTECTION

Hearing protection devices (HPDs) are the least preferred option to control problematic noise exposure. HPDs will be used in the time it takes to establish engineering or administrative noise controls, or if these controls fail to provide sufficient protection.

This company will provide and replace HPDs at no cost to all employees who work in the following situations:

Where other controls fail to reduce noise exposure below an 8-hour TWA of 90 dBA; or

Where employees are exposed to noise at or above an 8-hour TWA of 85 dBA, and have experienced hearing loss.

In-ear protective devices may not be plain cotton and must be fitted or determined by a competent person to ensure adequate fit.

When using hearing protectors it is important that workers not overprotect. Devices shouldn't lower noise levels below 70 dBA to ensure workers can hear instructions and ambient sounds to ensure safety.

Recommended Noise Reduction Rating for Hearing Protective Devices by Trade	
Trade	NRR (dB)
Masonry Restoration Worker	26
Operating Engineer	24
Laborer	24
Bricklayer	22
Ironworker	18
Cement Mason	14
Carpenter	14
Tilesetter	12
Electrician	12
Insulation Worker	12
Sheet Metal Worker	12

Table 6

There are many types of hearing protection. Each type is designed for certain noise conditions.. However, remember – unless worn properly and all the time in high noise areas, the devices will not be effective. The Company will consider the “three c’s” of hearing protection selection — comfort, convenience, and compatibility — to ensure the devices will be worn correctly 100% of the time when needed.

Hearing protectors available on the market will be labeled with a noise reduction rating (NRR), which indicates how much noise the protective device can block according to laboratory testing. Workers in trades subject to more noise should where an HPD with a higher NRR. Table 6 offers the suggestions from the University of Washington for appropriate levels of protection for each of several trades.

AUDIOMETRIC TESTING

Audiometric testing monitors an employee’s hearing over time. It also provides an opportunity for employers to educate employees about their hearing and the need to protect it.

Although OSHA does not require it for construction activities, all employees exposed to an 8-hour TWA of 85 Db or more should have free audiometric testing as part of the hearing conservation program.

The difficulty in establishing a baseline hearing threshold level and tracking hearing over time for employees in the construction industry, even with the availability of mobile testing facilities, is a well-known challenge in the construction industry. Still, preventing damage to the hearing of employees is of paramount importance, and all appropriate steps should be taken to provide employees the protection they need.

A licensed or certified audiologist, otolaryngologist, or other physician should be responsible for the audiometric testing program and oversee all aspects of such testing. Trained technicians may conduct testing without immediate physician oversight if they are appropriately qualified to conduct such tests and they are accountable to an audiologist, otolaryngologist or physician.

Audiogram

A baseline audiogram should be established for each employee within 6 months of his or her first exposure at or above the 85-dBA 8-hour TWA action level.

Baseline audiograms should be preceded by 14 hours free of workplace noise exposure (or hearing protector use) and be conducted according to NIOSH or OSHA guidelines by a competent technician or doctor. Audiometric testing should be performed in an appropriate setting with a calibrated, ANSI-approved audiometer.

RECORDKEEPING

The Company should maintain accurate records of employee exposure measurements and audiometric test records pursuant to this policy. This audiometric test record should include the following:

- Name and job classification of the employee;
- Date of the audiogram;
- Examiner's name;
- Date of the last acoustic or exhaustive calibration of the audiometer; and
- Employee's most recent noise exposure assessment.

The following records will be maintained for at least the following periods:

- Noise exposure measurement records for two years; and
- Audiometric test records for the duration of the affected employee's employment.

All hearing protection program records should be maintained for the duration of the affected worker's employment and be provided upon request to employees, former employees, representatives designated by the individual employee, and any authorized government official.

If the Company ceases to do business, it will transfer hearing protection program records to the successor employer.

Record a hearing loss on the OSHA 300 log if the following are true:

- A standard threshold shift is indicated by an audiometric examination;
- The employee's overall hearing level is at 25 dB or more above audiometric zero averaged at 2000, 3000 and 4000 Hz in the affected ear(s); and
- The hearing loss is work related.

Evaluation

A physician or appropriate technician should compare each employee's annual audiogram to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred.

A standard threshold shift according to OSHA is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear (excepting an allowance for age as specified by OSHA in 1910.95 Appendix F: Calculation and Application of Age Correction to Audiograms). However, more stringent guidelines may also be followed.

The audiologist, otolaryngologist, or physician will review problem audiograms and shall determine whether there is a need for further evaluation.

Audiogram Evaluation Follow-Up

This company will inform the employee in writing within 21 days of an annual audiogram indicating a standard threshold shift to the baseline audiogram.

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the Company shall ensure the following steps when a standard threshold shift occurs:

- Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them;
- Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary;
- We will refer the employee for a clinical audiological evaluation or an otological examination as appropriate if additional testing is necessary or if the employer suspects a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors; and
- Inform the employee of the need for an otological examination with suspicion of a medical pathology of the ear unrelated to the use of hearing protectors.

If later audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, the Company:

Shall inform the employee of the new audiometric interpretation; and
May discontinue the required use of hearing protectors for that employee.

An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram:

The standard threshold shift revealed by the audiogram is persistent; or
The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

FORMS & ATTACHMENTS

On the following pages, please find the following document(s):

Audiometric & Identification Information
Hearing Conservation Program Employee Enrollment
Hearing Protection Training Record Sheet

HEARING CONSERVATION

Audiometric & Identification Information

Name: _____

ID#: _____ Birth Date: ___/___/_____ Gender: _____

Test Date: ___/___/_____ Time: ____:____ Test type: _____ Time since last exposure: ___ hrs.

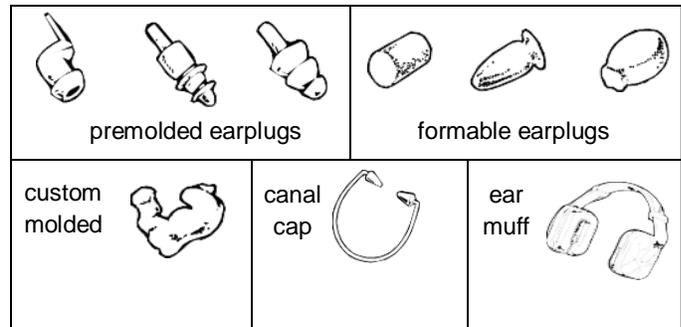
Exposure Level: _____ dBA

Hearing Protection Devices Used (choose)

Hearing Activity

- Issue
- Reissue
- Training
- Retraining

Protector



Self-

Reported Employee History

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> Medical history <input type="checkbox"/> Diabetes <input type="checkbox"/> Ear Surgery <input type="checkbox"/> Head Injury <input type="checkbox"/> High Fever <input type="checkbox"/> Measles <input type="checkbox"/> Mumps <input type="checkbox"/> Hypertension <input type="checkbox"/> Ringing in Ears <input type="checkbox"/> Ear Infection <input type="checkbox"/> Other: | <ul style="list-style-type: none"> <input type="checkbox"/> Hobby/Military <input type="checkbox"/> Hunt/Shoot <input type="checkbox"/> Car Racing <input type="checkbox"/> Motorcycles <input type="checkbox"/> Other Loud Vehicles <input type="checkbox"/> Loud Music/Band <input type="checkbox"/> Power Tools <input type="checkbox"/> Other Noisy Hobbies <input type="checkbox"/> Military Service <input type="checkbox"/> Other: | <ul style="list-style-type: none"> <input type="checkbox"/> Additional Information <input type="checkbox"/> Noisy 2nd Job <input type="checkbox"/> Noisy past job <input type="checkbox"/> Exposure to Solvents <input type="checkbox"/> Exposure to Metals <input type="checkbox"/> Difficulty Hearing <input type="checkbox"/> Hearing Aid <input type="checkbox"/> Recent Change in Hearing <input type="checkbox"/> See Physician About Ears <input type="checkbox"/> Other: |
|--|---|--|

Audiogram

Test Frequency

	500	1000	2000	3000	4000	6000	8000
Right Ear							
Left Ear							

Audiometer _____

Serial Number _____

Exhaustive Cal. date ___/___/_____

Biological Cal. Date ___/___/_____

Tester ID _____

Test reliability Good Fair Poor

Review ID _____

Audiogram Classification _____

Comments: _____

HEARING CONSERVATION

HEARING CONSERVATION

HEARING CONSERVATION

PREVENTING HEAT-RELATED ILLNESS

POLICY STATEMENT

Operations, indoor and outdoor, that involve working where there are high air temperatures, radiant heat sources, high humidity, direct physical contact with hot objects, or strenuous physical activities, have a high potential for causing heat-related illness.

This policy is the written plan to establish, implement, and maintain heat stress protection. It will be available at the worksite so that any employee, who requests to, can see it.

The body regulates its temperature through sweat and circulating blood to the skin; however, high temperatures and high humidity make this process more difficult. As the body's ability to cool itself decreases, it must store the excess heat, raising the body's core temperature. If the body's temperature becomes too high, it ceases to be able to regulate itself, which could result in death.

This policy has been developed to address these issues. All employees will receive training relating to: the causes and effects of, the personal and environmental factors that may lead to, and the prevention measures to fight, heat-related illnesses.

RESPONSIBILITIES

Preventing heat-related illness is a cooperative effort between this company and its employees.

This policy incorporates Cal/OSHA's updates of its heat-related illness regulations effective May 1, 2015 and addresses: training, shade, water, preventative breaks, first-aid response, acclimatization, and emergency procedures.

OSHA does not have its own heat stress regulation but has interpretations that refer to the General Duty Clause and a technical manual (OTM Sect. III Ch. 4) that has heat illness information and guidelines.

Employers that have work environments with recognizable heat-related hazards can be cited for ignoring a recognized hazard like heat stress. Cal/OSHA's heat stress plan is recognized as an industry standard across the country. The following provides appropriate steps for both employers and employees.

STANDARDS AND REGULATIONS

This company will ensure that all procedures and safe work practices adhere to the following applicable rules and regulations:

- OSHA General Duty Clause, Section 5(a)(1)
- OSHA sanitation regulation CFR 1926.51
- Title 8 of California Code of Regulations Section 3395

PREVENTING HEAT-RELATED ILLNESS

GENERAL RESPONSIBILITIES – EMPLOYER

It is the responsibility of the company to:

- Conduct a risk assessment for all worksites to identify heat risks and safe work procedures
- Establish and implement safe work practices to lessen the effects of heat stress as much as reasonably practical
- Establish and implement supervisor and employee training so everyone can recognize and respond to heat illness symptoms
- Ensure that all relevant risk factors, health, first aid, and emergency response procedures are communicated to all employees and supervisors
- Adjust work practices as necessary when workers complain of heat stress
- Use engineering controls the primary means of limiting employees exposure to high heat conditions wherever possible;
- Oversee heat stress training and acclimatization for new workers, and for workers who have been off the job for a while
- Establish and implement emergency communication procedures to ensure quick access to first aid and emergency responders

EMPLOYEE RESPONSIBILITIES

Employees are expected to:

- Follow established safe work policy and procedures
- Know about and recognize initial heat illness symptoms in yourself and others
- Know how to appropriately respond to heat illness symptoms
- Participate in all required training
- Find out whether any prescription medications you are required to take can increase heat stress
- Get adequate rest and sleep
- Drink small amounts of water regularly to maintain fluid levels and avoid dehydration
- Report signs and symptoms of heat-related illness to supervisor immediately

SAFETY COMMITTEE RESPONSIBILITIES

If safety committees are required, the company will ensure that the necessary requirements for the establishment and operation of the committee comply with the applicable regulations. In addition, the safety committee will:

- Assist in training personnel in heat safety and heat-related illness prevention
- Assist with periodic reviews and walkthroughs to identify hazards and determine controls for those hazards
- Offer management recommendations for improvements to the heat-illness prevention program

PREVENTING HEAT-RELATED ILLNESS

HAZARDS

This company will ensure that all relevant risk factors, health, first aid, and emergency response procedures are communicated to all employees and supervisors. These include, but are not limited to heat illness prevention (drinking fluids, rest, acclimatization, heat stress factors) and heat illness symptoms; procedures (high heat procedures).

Employees are expected to report symptoms to their supervisor, designated first aid responder, or outside emergency response personnel.

RISK FACTORS

Many factors determine the total risk a worker faces from excessive heat while at work. At the core of temperature-related risk factors is the basic question of how hot a worker feels. The factors that must be considered when assessing a workers risk of heat stress include:

- **Temperature** - The apparent temperature can be affected by:
 - The season
 - Reflected heat
 - Heat from equipment
 - Working in direct sunlight

Keeping track of the temperature at the workplace is a critical element of any program to prevent heat-related illness

- **Humidity** - As humidity rises, sweat tends to evaporate less. As a result, body cooling decreases and body temperature increases.
- **Air Movement** - As long as the air temperature is less than the worker's skin temperature, air movement can help workers stay cooler by increasing both the rate of evaporation and the heat exchange between the skin and the air.
- **Job-specific Exertion** – The body generates more heat during heavy physical work. Heavy physical work requires careful evaluation, even at temperatures as low as 75° F, to prevent heat disorders. This is especially true for workers who are not acclimated to the heat
- **Clothing and PPE** - Heat stress can be caused or aggravated by wearing PPE such as fire or chemical retardant clothing. Coated and non-woven materials used in protective garments block the evaporation of sweat and can lead to substantial heat stress. The more or heavier clothing worn, the longer it takes evaporation to cool the skin
- **Time** - Working for long stretches of time and during the heat of the day exposes workers to a higher risk of heat illness. Workers should cycle through light work and heavy work, taking breaks as necessary.

PREVENTING HEAT-RELATED ILLNESS

EQUIPMENT AND PROCESSES

Equipment and processes at the work site contribute greatly to the heat stress a worker faces.

The body generates more heat during heavy physical work. Heavy physical work requires careful evaluation, even at temperatures as low as 75° F, to prevent heat disorders. This is especially true for workers who are not acclimated to the heat.

Hot engines and work that involves high temperature processes can significantly raise temperature and put workers at risk. Contact with hot surfaces can also present the danger of burns.

Work According to Level of Exertion	
Light Work	<ul style="list-style-type: none">• Using a table saw• Some walking about• Operating a crane, truck, or other vehicle• Welding
Moderate Work	<ul style="list-style-type: none">• Laying brick• Walking with moderate lifting or pushing• Hammering nails• Tying rebar• Raking asphalt• Sanding drywall
Heavy Work	<ul style="list-style-type: none">• Carpenter sawing by hand• Shoveling dry sand• Laying block• Ripping out asbestos• Scraping asbestos fireproofing material
Very Heavy Work	<ul style="list-style-type: none">• Shoveling wet sand• Lifting heavy objects

PERSONNEL-SPECIFIC

It is difficult to predict who will be affected by heat stress and when, because individual susceptibility varies. There are, however, certain physical conditions that can reduce the body's natural ability to withstand high temperatures.

Age

As the body ages, its sweat glands become less efficient. Workers over the age of 40 may therefore have trouble with hot environments. Acclimatization to the heat and physical fitness can offset some age-related problems.

Weight

Workers who are overweight, lose heat less efficiently, and are more easily subject to heat-related illness.

PREVENTING HEAT-RELATED ILLNESS

Skin Pigmentation

Persons with lighter complexions are at a higher risk of sunburn and heat illnesses than those with higher levels of skin pigmentation, because skin with less pigmentation absorbs approximately 20% more heat.

Fitness

Being physically fit increases your ability to cope with the increased demands that heat places on your body.

Caffeine & Alcohol

Alcohol consumption within 24 hours of work leads to dehydration and increased risk of heat stress. While recent research suggests that caffeine may not be as detrimental to hydration as formerly believed, in large amounts it does act as a diuretic and can contribute to dehydration.

Medical Conditions

In order to pump blood to the skin and cool the body, the heart rate increases. This can cause stress on the heart, which is particularly hazardous to those with heart disease or high blood pressure.

Certain medications may cause heat intolerance by reducing sweating or increasing urination. People who work in a hot environment should consult their physician or pharmacist before working while taking certain medications.

Workers with recent illnesses involving diarrhea, vomiting, or fever have an increased risk of dehydration and heat stress because their bodies have lost salt and water.

HEAT ILLNESS HAZARDS

There are varying degrees of heat related illness and all company employees and supervisors will be trained on the symptoms of them and the procedures to follow in case of an emergency.

The effects of heat illnesses can range from mild discomfort to life threatening and consist of the following types. All company employees will be trained to recognize the symptoms of each.

SUNBURN

Although sunburn is not classified as a heat illness, it can make it more difficult for the body to release heat in addition to causing pain and discomfort. A severe sunburn can cause blistering and become infected. Sunscreen and appropriate clothing can prevent sunburn.

HEAT RASH

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather.

Workers experiencing heat rash should:

- Try to work in a cooler, less humid environment when possible.
- Keep the affected area dry.
- Dusting powder may be used to increase comfort.

PREVENTING HEAT-RELATED ILLNESS

HEAT CRAMPS

Heat cramps usually affect workers who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Workers with heat cramps should:

- Stop all activity, and sit in a cool place.
- Drink clear juice or a sports beverage.
- Not return to strenuous work for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke.
- Seek medical attention if any of the following apply:
 - The worker has heart problems.
 - The worker is on a low-sodium diet.
 - The cramps do not subside within one hour.

HEAT SYNCOPE

Heat syncope is a fainting (syncope) episode or dizziness that usually occurs in a warm environment when the body's blood pressure drops while attempting to dissipate heat. The result is less blood to the brain, causing light-headedness and fainting when a person stands up quickly or stands for a long period. Those who perform strenuous work outside in warm climates are at particular risk.

Workers with heat syncope should:

- Sit or lie down in a cool place when they begin to feel symptoms.
- Slowly drink water, clear juice, or a sports beverage.

HEAT EXHAUSTION

Heat exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating. Workers most prone to heat exhaustion are those that are elderly, have high blood pressure, and those working in a hot environment.

HEAT STROKE

Heat stroke is the most serious heat-related disorder. It occurs when the body becomes unable to control its temperature, the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 106 degrees Fahrenheit or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not given.

Take the following steps to treat a worker with heat stroke:

- Call 911 and notify their supervisor.
- Move the sick worker to a cool shaded area.
- Cool the worker by either:
 - Soaking their clothes with water
 - Spraying, sponging, or showering them with water
 - Fanning their body Heat Exhaustion

PREVENTING HEAT-RELATED ILLNESS

Heat Illness Symptoms

Symptoms of sunburn

Typically, there is initial redness, followed by varying degrees of pain, depending on the duration and intensity of exposure. Other symptoms can include swelling, itching, peeling skin, rash, nausea, fever, chills and fainting. Sunburns may be first or second degree burns.

Symptoms of heat rash include:

- Heat rash looks like a red cluster of pimples or small blisters.
- It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.

Symptoms of heat cramps include:

- Muscle pain or spasms usually in the abdomen, arms, or legs.
- Severe, sometimes disabling, cramps that typically begin suddenly in the hands, calves, or feet
- Hard, tense muscles

Symptoms of heat syncope include:

- Light-headedness
- Dizziness
- Fainting

Symptoms of heat exhaustion include:

- Heavy sweating and/or cold, clammy skin
- Extreme weakness or fatigue
- Excessive thirst
- Dizziness, confusion, or hallucinations
- Nausea
- Slowed or weakened heartbeat
- Pale or flushed complexion
- Muscle aches and cramps
- Slightly elevated body temperature
- Fast and shallow breathing
- Chills
- Throbbing headache
- High body temperature
- Slurred speech

NOTE: Pesticide poisoning has similar symptoms as heat exhaustion.

PREVENTING HEAT-RELATED ILLNESS

Symptoms of heat stroke include:

- Nausea and vomiting
- Headache
- Dizziness or fainting
- Fatigue
- Hot, flushed, dry skin
- Rapid or slowed heart rate
- Decreased sweating
- Shortness of breath
- Decreased urination
- Blood in urine or stool
- Increased body temperature (104 degrees to 106 degrees F)
- Confusion, delirium, or loss of consciousness
- Convulsions

Heat stroke can occur suddenly, without any symptoms of heat exhaustion. If a person is experiencing any symptoms of heat exhaustion or heat stroke, GET MEDICAL CARE IMMEDIATELY. Any delay could be fatal.

EMERGENCY RESPONSE

Emergency medical services will be provided as quickly as possible if a worker suffers from heat illness.

All employees may contact 9-1-1 when necessary, but at least one accessible person for each crew will be designated responsible for initiating an emergency response. The emergency response can include immediate first aid, continued monitoring, contacting 9-1-1, and transporting the victim to emergency responders. An appropriately trained and equipped first aid provider at the worksite can decide on the appropriate response. If that person does not exist, then 9-1-1 will be called for any employee showing heat related illness symptoms.

A risk assessment will be conducted for all worksites that consider the heat stress risk factors: if 9-1-1 can be accessed from the worksite, whether the work site is served by the 9-1-1 system, and ensure emergency responders can access any victims. All employees will have access to a map of their location or clear, detailed, and precise directions.

Employees and supervisors will know the basic first aid to stop the progression of heat illness.

PREVENTING HEAT-RELATED ILLNESS

REQUIREMENTS

ACCESS TO SHADE

- When the outdoor temperature in the work area exceeds 80 degrees Fahrenheit, the company must provide and maintain one or more shaded areas for employees that are either open to the air, or supplied with ventilation or cooling. The amount of shade present must be at least enough to accommodate all of the employees on rest or recovery periods, allowing them to sit in a normal posture, fully in the shade, without being in physical contact with each other. The shaded area will be located as close as practicable to the employees work area.
- When the outdoor temperature in the work area does not exceed 80 degrees, employers will either provide shade or provide timely access to shade if requested by an employee.
- Employees will be allowed and encouraged to take a cool-down rest in the shade for a period of no less than five minutes at a time, when they feel the need to do so to protect themselves from overheating. Access to shade must be permitted at all times.
- Exceptions
 - Where the company can demonstrate that it is infeasible or unsafe to have a shade structure, or otherwise to have shade present on a continuous basis, the employer may utilize alternative equivalent procedures for providing access to shade.
 - Except for employers in the agricultural industry, cooling measures other than shade (e.g., use of misting machines) may be provided instead of shade if the employer can demonstrate that these measures are at least as effective as shade in allowing employees to cool.

HIGH-HEAT PROCEDURES

- The company will implement high-heat procedures when the temperature equals or exceeds 95 degrees Fahrenheit. These procedures will include the following to the extent practicable:
 - Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if reception in the area is reliable
 - Observing employees for alertness and signs or symptoms of heat illness
 - Reminding employees throughout the work shift to drink plenty of water
 - Close supervision of a new employee by a supervisor or designee, for the first 14 days of their employment by the company, unless the employee indicates at the time of hire that he or she has been doing similar outdoor work for at least 10 of the past 30 days for 4 or more hours per day

POTABLE WATER

An adequate supply of potable water will be provided continuously in all places of employment, along with single-service cups (unless the source is a drinking fountain). The water should be kept cool or cold if supplied in a hot environment. Potable water is defined as water that meets the drinking water standards of the state or local authority having jurisdiction, or water that meets the quality standards prescribed by the EPA's drinking water regulations.

PREVENTING HEAT-RELATED ILLNESS

FLUID INTAKE

In a day's work in the heat, a worker may produce as much as 2 to 3 gallons of sweat. Because so many heat disorders involve excessive dehydration of the body, it's essential that water intake during the workday be about equal to the amount of sweat produced. Most workers exposed to hot conditions drink less than needed because of an insufficient thirst drive.

A worker, therefore, should not depend on thirst to signal when and how much to drink. Instead, the worker should drink 5 to 7 ounces of fluids every 15 to 20 minutes to replenish the necessary fluids in the body. There is no optimum temperature of drinking water, but most people tend not to drink warm or very cold fluids as readily as they will cool ones. Whatever the temperature of the water, it must be agreeable and readily available to the worker. Individual drinking cups should be provided, unless a drinking fountain is used. OSHA sanitation standards prohibit the use of a common drinking cup.

Heat acclimatized workers lose much less salt in their sweat than do workers who are not adjusted to the heat. The average American diet contains sufficient salt for acclimatized workers even when sweat production is high. If, for some reason, salt replacement is required, the best way to compensate for the loss is to add a little extra salt to the food. Salt tablets **should not** be used.

NUMBER AND DURATION OF EXPOSURES

Rather than be exposed to heat for extended periods during the course of a job, workers should, wherever possible, be permitted to distribute the workload evenly over the day and incorporate work-rest cycles. Work-rest cycles give the body an opportunity to rid itself of excess heat, slow down the production of internal body heat, and provide greater blood flow to the skin.

Workers employed outdoors are especially subject to weather changes. A hot spell or a rise in humidity can create overly stressful conditions. The following practices can help to reduce heat stress:

- Postponement of nonessential tasks
- Permit only those workers acclimatized to heat to perform the more strenuous tasks
- Provide additional workers to perform the tasks keeping in mind that all workers should have the physical capacity to perform the task and that they should be accustomed to the heat

ENGINEERING CONTROLS

A variety of engineering controls can be introduced to minimize exposure to heat. For instance, improving the insulation on a furnace wall can reduce its surface temperature and the temperature of the area around it. In a laundry room, exhaust hoods installed over those sources releasing moisture will lower the humidity in the work area. In general, the simplest and least expensive methods of reducing heat and humidity can be accomplished by:

- Opening windows in hot work areas
- Using fans
- Using other methods of creating airflow such as exhaust ventilation or air blowers

PREVENTING HEAT-RELATED ILLNESS

REST

Providing cool rest areas in hot work environments considerably reduces the stress of working in those environments. There is no conclusive information available on the ideal temperature for a rest area. However, a rest area with a temperature near 76°F appears to be adequate and may even feel chilly to a hot, sweating worker, until acclimated to the cooler environment.

The rest area should be as close to the workplace as possible. Individual work periods should not be lengthened in favor of prolonged rest periods. Shorter but frequent work-rest cycles are the greatest benefit to the worker.

The revised Cal-OSHA heat illness regulation requires agricultural employers to ensure that employee takes a minimum ten minute net preventative cool-down rest period every two hours when temperatures reach 95 degrees or above.

ACCLIMATIZATION

When exposed to heat for a few days, the body will adapt and become more efficient in dealing with raised environmental temperatures. This process is called acclimatization. Acclimatization can take from 4 to 14 days, depending on the individual, of working at least two hours a day in the heat.

A supervisor or designee will closely observe employees who have been newly assigned to a high heat area or job for the first 14 days of the employee's employment

Acclimatization may be lost in as little as three days away from work. Employees, and supervisors, who return to work after a holiday or long weekend, need to understand this. Workers should be allowed to gradually re-acclimatize to work conditions.

PROCEDURES

WRITTEN PROCEDURES

This policy is the written plan to establish, implement, and maintain heat stress protection. This policy will also be made available at the worksite so that any employee, who requests to, can see it.

Each worksite will have procedures in place that document how to provide:

- Enough refreshing, pure, and cool drinking water for all employees
- Available shade to encourage preventative cool down rests
- Acclimatization in high heat
- Weather condition monitoring and associated safety precautions
- Adjustments needed in high temperatures
- Training employees and supervisors
- Communicating this policy
- First Aid
- Emergency response
- Specific knowledgeable person(s) designated to implement these procedures

PREVENTING HEAT-RELATED ILLNESS

HIGH-HEAT PLANNING

EXTREME HEAT ADVISORIES

The national weather service issues heat-related notifications that can help ensure work planning includes appropriate controls and processes to prevent heat-related illness and treat them as they arise:

EXCESSIVE HEAT OUTLOOK

Excessive Heat Outlooks are issued when the potential exists for an excessive heat event in the next 3-7 days.

EXCESSIVE HEAT WATCH

Excessive Heat Watches are issued by the National Weather Service when the heat is expected to be in excess of 105°F (41°C) during the day combined with nighttime low temperatures of 80°F (27°C) or higher are forecast to occur for two consecutive days.

EXCESSIVE HEAT WARNING AND ADVISORIES

Excessive Heat Warning/Advisories are issued within 12 hours of when the heat index is expected to be at least 105°F for more than 3 hours per day for 2 consecutive days, or more than 115°F for any length of time. These notices are issued when an excessive heat event is occurring, is imminent, or has a very high probability of occurring. The warning is used for conditions posing a threat to life or property. An advisory is for less serious conditions that cause significant discomfort or inconvenience and, if caution is not taken, could lead to a threat to life and/or property.

OUTDOOR WORKING PROCEDURES

When employees are working outdoors during high heat periods, steps will be taken to limit the effects of heat exposure when temperatures exceed an action level depending on the type of clothing being worn.

All other clothing	89°F
Double-layer woven clothes including coveralls, jackets and sweatshirts	77°F
Non-breathing clothes including vapor barrier clothing or PPE such as chemical resistant suits	52°F

These steps include

- Supplying at least one quart of drinking water per employee per hour throughout the shift
- Encouraging workers to frequently drink water and other hydrating beverages
- Monitoring workers for heat illness symptoms
- Hold pre-shift meeting to remind workers of high heat hazards

Workers with heat related illness symptoms will be relieved from duty and given a way to reduce their body temperature and monitored to determine if they need medical attention.

Someone is considered to be working outdoors when they are outside for more than 15 minutes in an hour. Work environments are considered outdoors when the factors affecting the temperature are not managed by engineering controls (e.g. air conditioning). Some examples include vehicle cabs, sheds, and tents.

PREVENTING HEAT-RELATED ILLNESS

HEAT PROTECTION

Employees working in areas that present heat hazards should follow these recommendations:

- When working in the heat, clothing should be loose fitting, lighter color to reflect sun, and should contain as much cotton as possible.
- Wear sunscreen
- Wear a hat
- Use UV eye protection (if possible)
- Change out of wet clothing when working in high humidity conditions

PPE

Employees who are required to wear specific types of PPE in high heat environments should consider the use of the following additional equipment:

- Cooling pad inserts for hardhats
- Insulated gloves
- Insulated suits,
- Reflective clothing
- Infrared reflecting face shields

For extremely hot conditions, thermally conditioned clothing is available. One such garment carries a self-contained air conditioner in a backpack, while another is connected to a compressed air source that feeds cool air into the jacket or coveralls through a vortex tube. Another type of garment is a plastic jacket that has pockets that can be filled with dry ice or containers of ice.

Employees should discuss these options with their supervisor to determine if the provision of the items by the company is warranted.

BUDDY SYSTEM

A worker may not recognize his own signs and symptoms of heat-related illness. Workers should be encouraged to look after each other to ensure the team stays safe and healthy. A buddy system assigns each worker to one other worker to ensure there is at least one other person is monitoring the heat health of every worker.

Actions to Prevent Heat-Related Illness Based on Temperature

OSHA-Suggested Heat Index Thresholds		
Temperature	Risk Level	Protective Measures
<91°F	Lower Caution	Basic heat safety and planning
91°F – 103°F	Moderate	Implement precautions and heighten awareness
103°F – 115°F	High	Additional precautions to protect workers
>115°F	Very high/Extreme	Even more aggressive measures

As temperatures rise, managers and supervisors need to take responsibility for ensuring appropriate procedures are being followed to reduce the ill effects of heat on workers.

PREVENTING HEAT-RELATED ILLNESS

Lower Caution

- Adequate drinking water
- Available medical services
- Acclimatize new and returning workers who perform strenuous work.
- Check forecast regularly.
- Encourage workers to wear sunscreen and use other protections from direct sunlight.
- Depending on site conditions, take actions for moderate risk conditions

Moderate Caution

Follow “Lower Caution” precautions.

- Alert workers to index, identify additional precautions necessary
- Remind workers to drink small amounts of water through the day.
- Respond to heat-related illnesses and medical emergencies immediately.
- Review heat-related illness symptoms and signs and the established site- specific precautions.
- Schedule frequent breaks in cool, shaded areas.
- Acclimatize new and returning workers.
- Set up a buddy system
- Instruct supervisors to watch workers for signs of heat-related illness.

High Caution

- Follow “Lower Caution” precautions.
- Follow “Moderate” precautions.
- Have a knowledgeable person onsite to modify work activities and the work/rest schedule as necessary.
- Establish and enforce work/rest schedules.
- Adjust work activities.
- Take extra precautions for workers in clothing that may add to a heat hazard.
- Maintain effective communication with crew.

Very High to Extreme

- Follow “High” precautions.
- Reschedule non-essential outdoor work.
- Move essential outdoor work to coolest part of work shift.
- Stop work if necessary

TRAINING

We will ensure every employee is provided training on preventing heat-related illness. This training will be provided at no cost to the employee during working hours.

Training will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees.

PREVENTING HEAT-RELATED ILLNESS

TRAINING ELEMENTS

Training will be provided to employees and supervisors before being assigned to any outdoor work for the first time and then at least annually on the following topics:

- Heat related illness environmental factors
- Personal factors that increase susceptibility (e.g. age, acclimatization, medical conditions, water consumption, alcohol, caffeine, nicotine, and medical conditions)
- Removing heat retaining PPE during breaks
- Acclimatization
- Symptoms of types of heat related illness
- Immediately reporting symptoms in themselves or co-workers
- Emergency response procedures

EMPLOYEE TRAINING COMPONENTS

The safety coordinator will ensure all employees are trained in the following minimum elements:

- The environmental and personal risk factors for heat illness, as well as the added burden of heat load on the body caused by exertion, clothing, and personal protective equipment
- The procedures for complying with this policy
- The importance of frequent consumption of small quantities of water, up to four cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties
- The importance of acclimatization (the body's ability to adjust to high temperatures over time), how it is developed, and how worksite procedures address it
- The different types of heat illness, and the common signs and symptoms
- The procedures that can be taken to prevent heat-related illness
- The importance of immediately reporting to the employer/supervisor, symptoms or signs of heat illness in themselves, or in co-workers
- The employer's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary
- The employer's procedures for contacting emergency medical services, and if necessary, for transporting employees to a an emergency medical service provider
- The employer's procedures for ensuring that, in the event of an emergency, clear and precise directions to the work site will be provided as needed to emergency responders. These procedures must include designating a person to be available to ensure that emergency procedures are initiated when appropriate.

PREVENTING HEAT-RELATED ILLNESS

SUPERVISOR TRAINING

Supervisor training will cover:

- What employees need to know
- Procedures to implement this program
- Emergency response procedures (e.g. transportation, reaching an emergency medical service provider)

Prior to supervising employees performing work that should reasonably be anticipated to result in exposure to the risk of heat illness; effective training on the following topics will be provided to supervisors:

- The information required to be provided to employees in the section immediately above.
- The procedures the supervisor is to follow to implement the applicable provisions in this chapter.
- The procedures the supervisor is to follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.
- How to monitor weather reports and how to respond to hot-weather advisories.

TRAINING RECORDS

Training records will include the following information:

- The dates of the training sessions
- The contents or a summary of the training sessions
- The names and qualifications of persons conducting the training
- The names and job titles of all persons attending the training sessions

Employee training records will be maintained for 3 years from the date on which the training occurred.

FORMS AND ATTACHMENTS

Please find the following document on the pages below:

- Heat Illness Training Documentation

This form may be reproduced for the purposes of implementing and maintaining a safety and health program.

PREVENTING HEAT-RELATED ILLNESS

POLICY

Ladders are valuable tools, but they present a range of hazards that workers need to understand in order to use them safely. This company has created this policy to ensure employees understand how to use ladders safely, how to select the right ladder for a job, how to store and maintain ladders, and how to recognize ladders that may be hazardous.

RESPONSIBILITIES

Preventing injuries from ladder use is a cooperative effort between this company and its employees.

EMPLOYER RESPONSIBILITIES

This company is responsible for:

- Ensuring all ladders meet safety requirements and are maintained in safe, working condition
- Selecting ladders to purchase according to needs of operations
- Ensuring employees are trained in safe ladder selection and use
- Removing ladders from service when they are no longer safe to be used
- Ensuring employees use ladders as safely as possible

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the safety committee to:

- Develop and provide training on ladder safety and fall hazards
- Suggest recommendations to management to increase ladder safety
- Assist in hazard analyses and periodic walkthroughs and safety reviews to ensure continued safe ladder use

EMPLOYEE RESPONSIBILITIES

Employees will:

- Participate actively in ladder safety training
- Recommend safety improvements and report safety hazards to supervisor, safety team or other appropriate personnel
- Report damaged or otherwise unsafe ladders
- Follow safe practices when using ladders
- Transport and store ladders according to best safe practices

TRAINING

The Company will ensure every employee receives training on ladder and stair safety. This training will be provided at no cost to the employee during working hours.

This Company will use only training material that is appropriate in content and vocabulary to the educational level, literacy, and language of its employees.

TRAINING COMPONENTS

Our safety coordinator will ensure that employees receive training from a competent person in the following:

- Nature of fall hazards in the work area
- Correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used
- Proper construction, use, placement, and handling of stairways and ladders;
- Maximum load-carrying capacities of ladders used. In addition, retraining must be provided for each employee, as necessary, so that the employee maintains the understanding and knowledge acquired through compliance with the standard

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions
- Contents or a summary of the training sessions
- Names and qualifications of persons conducting the training
- Names and job titles of all persons attending the training sessions

The Company will maintain all employee training records for 3 years from the date of the training.

SAFE PRACTICES

GENERAL REQUIREMENTS

Anytime there is a break in elevation of 19 inches or more, and no ramp, runway, embankment, or hoist is provided, the company will provide either a stairway or a ladder.

The point of access between levels must always allow free passage. If there is work being performed limits free access, another point of access must be provided.

The company will ensure that all necessary fall protection is in place before employees are permitted to work from elevation. Consult the chapter on Fall Protection for more information.

Consult the chapter on Scaffold Safety for requirements on ladders used to access scaffolds.

LADDERS

Most ladder falls involve portable ladders that move, tilt, or shift while a worker is climbing or descending. Unstable or slippery base surfaces are the primary reasons ladders fail.

Other reasons include a misstep or a slip of the foot, loss of balance, an overreach, and being struck by a vehicle or other object.

GENERAL

If a work area for 25 or more employees can be accessed only by a ladder (or anytime two-way traffic relies on a ladder), the Company will provide either a double-cleated ladder or two or more separate ladders to serve two-way traffic.

Ladder rungs, cleats, and steps must be parallel, level, and uniformly spaced when the ladder is in position for use.

Rungs, cleats, and steps of portable and fixed ladders (except as provided below) must not be spaced less than 10 inches apart, nor more than 14 inches apart, along the ladder's side rails.

Rungs, cleats, and steps of step stools must not be less than 8 inches apart, nor more than 12 inches apart, between centerlines of the rungs, cleats, and steps.

Rungs, cleats, and steps at the base section of extension trestle ladders must not be less than 8 inches nor more than 18 inches apart, between centerlines of the rungs, cleats, and steps. The rung spacing on the extension section must not be less than 6 inches nor more than 12 inches.

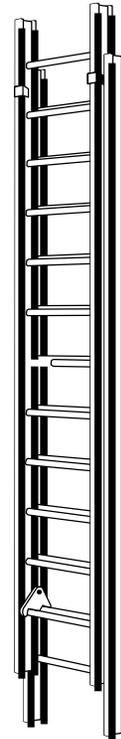
Ladders must not be tied or fastened together to create longer sections unless they are specifically designed for such use.

A metal spreader or locking device must be provided on each stepladder to hold the front and back sections in an open position when the ladder is being used.

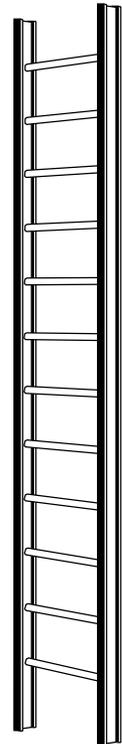
When splicing side rails, the resulting side rail must be equivalent in strength to a one-piece side rail made of the same material.

Two or more separate ladders used to reach an elevated work area must be offset with a platform or landing between the ladders, except when portable ladders are used to gain access to fixed ladders.

Ladder components must be constructed to prevent injury from punctures or lacerations, and prevent snagging of clothing.



Extension Ladder



Straight Ladder

LADDER & STAIR SAFETY

Wood ladders must not be coated with any opaque covering, except for identification or warning labels, which may be placed only on one face of a side rail.

Ladders with conductive metal sides will be marked with the words “WARNING — Do not use around energized electrical equipment” and may not be used around energized electrical equipment.

PORTABLE LADDERS

Workers can reduce ladder fall risks by doing the following:

- Frequently inspecting & maintaining ladders
- Matching tasks to appropriate ladders
- Setting up ladders correctly
- Climbing & descending ladders properly

Any portable ladder used during construction activities: must be meet the following specifications

- Non-self-supporting and self-supporting portable ladders must support at least four times the maximum intended load; extra heavy-duty type 1A metal or plastic ladders must sustain 3.3 times the maximum intended load. The ability of a self-supporting ladder to sustain loads must be determined by applying the load to the ladder in a downward vertical direction. The ability of a non-self-supporting ladder to sustain loads must be determined by applying the load in a downward vertical direction when the ladder is placed at a horizontal angle of 75.5 degrees
- The minimum clear distance between side rails for portable ladders must be 11.5 inches
- The rungs and steps of portable metal ladders must be corrugated, knurled, dimpled, coated with skid-resistant material, or treated to minimize slipping

NON-SELF SUPPORTING LADDERS

Single Portable or Straight Ladders

The single portable or straight ladder is indispensable for general use. It is the most common type of portable ladder and has the widest range of applications. When used on slippery surfaces, this ladder must have slip-resistant feet or be secured to prevent it from sliding.

Rubber or neoprene ladder shoes are recommended for smooth, dry surfaces, and spikes are recommended for snow or ice. Single portable ladders must not be longer than 30 feet and be used by only one worker at a time.

LADDER & STAIR SAFETY

Extension or Section Ladder

Extension ladders offer the greatest length in a general purpose ladder. The ladder consists of two or more sections that travel in guides or brackets, allowing adjustable lengths. The sections must be assembled so that the sliding upper section is on top of the lower section. Each section must overlap its adjacent section a minimum distance, based on the ladder's overall length. See Table 2.

Number of Sections for metal ladders	Maximum Length (in feet)
one section (or any section of a multiple-section ladder)	30
two-section ladder	48
more than two sections	60

TABLE 1

Normal Length of Ladder (in feet)	Overlap (in feet)
Up to and including 36	3
Over 36, up to and including 48	4
Over 48, up to 60	5

TABLE 2

The overall length of an extension ladder is determined by adding the lengths of the individual sections, measured along the side rails.

Note: Install positive stops on individual ladder sections to ensure the required overlap.

Extension ladders are made of wood, metal, or reinforced fiberglass. Wood ladders cannot have more than two sections and must not exceed 60 feet. Metal and fiberglass ladders can have as many as three sections; however, the overall length must not exceed 72 feet. See Table 1. Individual sections of any extension ladder must not be longer than 30 feet.

Extension ladders are for use by only one person at a time.

Make sure extension ladders have non-slip bases if there is a chance the ladder can slip. Cord-face ladder shoes are recommended for wet surfaces, rubber, or neoprene ladder shoes for smooth dry floor surfaces, and steel spikes for ice or snow. Be careful if you use an extension ladder on oily, metal, or concrete surfaces. Place the ladder securely and tie it off to prevent it from slipping.

SELF-SUPPORTING LADDERS

Standard Stepladder

The standard stepladder, a general purpose ladder, has flat steps and a hinged back. It is self-supporting and nonadjustable. An industrial model, designed for heavy service demands, has oversize back legs, heavy-duty flat steps, and knee braces that increase rigidity and durability.

Standard stepladders should be used only on surfaces that offer firm, level footing such as floors, platforms, and slabs. They are available in metal, wood, or reinforced fiberglass versions, and are intended to support only one worker at a time. Remember not to stand on, or work from, the top step. The ladders must have a metal spreader or locking arms. They cannot be longer than 20 feet, measured along the front edge of the side rails.

Two-Way Stepladder

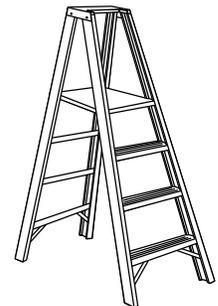
The two-way stepladder is similar to the industrial standard stepladder; however, each side of this ladder has a set of steps. The extra set of steps offers convenience and versatility: One person can work from either side or two people can work from the ladder at the same time — one on each side.



Two-Way Stepladder

Platform Ladder

The platform ladder is a special-purpose ladder that has a large stable platform from which you can work at the highest standing level. The ladder's length is determined by the length of the front edge of the side rail from the bottom of the ladder to the base of the platform. The length of a platform ladder cannot exceed 20 feet.



Platform Ladder

Trestle Ladder

A trestle ladder is a self-supporting portable ladder that has two sections hinged at the top, forming equal angles with the base. A variation of the trestle ladder, the extension trestle ladder, includes a vertically adjustable single ladder that can be locked in place. (The single extension section must lap at least three feet into the base section.) Trestle ladders are used in pairs to support planks or staging. The rungs are not intended to be used as steps.

The angle of spread between open front and back legs must be 5 ½ inches per foot of length. The length cannot be more than 20 feet, measured along the front edge of the side rails. Rails must be beveled at the top and have metal hinges to prevent spreading. Metal spreaders or locking devices are also required to keep the rails in place.

LADDER STORAGE

The storage area should be well ventilated. Wood ladders should not be exposed to moisture or excessive heat. Avoid storing ladders near stoves, steam pipes, or radiators.

Store straight or extension ladders in flat racks or on wall brackets. Make sure there are enough brackets to support the ladder so that it does not sag. If the ladder rails have a lateral curve, the wall brackets should match the curve.

Store stepladders vertically, in a closed position, to reduce the risk of sagging or twisting. Secure stored ladders so that they will not tip over if they are struck.

Store ladders, especially wood ladders, promptly after using them. Exposure to moisture and sun will shorten the life of a wood ladder.

TRANSPORTING LADDERS

When you hand-carry a ladder, keep the front end elevated, especially around blind corners, in aisles, and through doorways. You will reduce the chance of striking another person with the front of the ladder.

When you transport a ladder in a truck or trailer, place it parallel to the bed. Avoid tossing, throwing, or dropping it in the bed. If you transport a long ladder on a short truck bed over long distances, support the ladder so it will not sag or bend.

Drive slowly over rough terrain. Tie the ladder securely to eliminate nicking, gouging, chafing, and road shock.

FIXED LADDERS

A fixed ladder must be capable of supporting at least two loads of 250 pounds each, concentrated between any two consecutive attachments. Fixed ladders also must support added anticipated loads caused by ice buildup, winds, rigging, and impact loads resulting from the use of ladder safety devices.

Individual rung/step ladders must extend at least 42 inches above an access level or landing platform, either by the continuation of the rung spacing as horizontal grab bars, or by providing vertical grab bars that must have the same lateral spacing as the vertical legs of the ladder rails.

Each step or rung of a fixed ladder must be capable of supporting a load of at least 250 pounds applied in the middle of the step or rung.

The minimum clear distance between the sides of individual rung/step ladders and between the side rails of other fixed ladders must be 16 inches.

The rungs of individual rung/step ladders must be shaped to prevent slipping off the end of the rungs. The rungs and steps of fixed metal ladders must be corrugated, knurled, dimpled, coated with skid-resistant material, or treated to minimize slipping.

LADDER & STAIR SAFETY

The minimum perpendicular clearance between fixed ladder rungs, cleats, and steps, and any obstruction behind the ladder must be 7 inches, except that the clearance for an elevator pit ladder must be 4.5 inches.

The minimum perpendicular clearance between the centerline of fixed ladder rungs, cleats, and steps, and any obstruction on the climbing side of the ladder must be 30 inches. If obstructions are unavoidable, clearance may be reduced to 24 inches, provided a deflection device is installed to guide workers around the obstruction.

The step-across distance between the center of the steps or rungs of fixed ladders and the nearest edge of a landing area must be no less than 7 inches and no more than 12 inches. A landing platform must be provided if the step-across distance exceeds 12 inches.

Fixed ladders must have cages, wells, ladder safety devices, or self-retracting lifelines where the length of climb is less than 24 feet but the top of the ladder is at a distance greater than 24 feet above lower levels. Fixed ladders without cages or wells must have at least a 15-inch clear width to the nearest permanent object on each side of the centerline of the ladder.

If the total length of a climb on a fixed ladder equals or exceeds 24 feet, at least one of the following items is required:

- Ladder safety devices
- Self-retracting lifelines, and rest platforms at intervals not to exceed 150 feet
- A cage or well, and multiple ladder sections, each ladder section not to exceed 50 feet in length, these ladder sections must be offset from adjacent sections, and landing platforms must be provided at maximum intervals of 50 feet

The side rails of through or side-step fixed ladders must extend 42 inches above the top level or landing platform served by the ladder. For a parapet ladder, the access level must be at the roof if the parapet is cut to permit passage through it; if the parapet is continuous, the access level is the top of the parapet.

Steps or rungs for through-fixed-ladder extensions must be omitted from the extension; and the extension of side rails must be flared to provide between 24 inches (61 cm) and 30 inches clearance between side rails.

When safety devices are provided, the maximum clearance between side rail extensions must not exceed 36 inches.

CAGES FOR FIXED LADDERS

Horizontal bands must be fastened to the side rails of rail ladders, or directly to the structure, building, or equipment for individual-rung ladders.

Vertical bars must be on the inside of the horizontal bands and must be fastened to them.

Cages must not extend less than 27 inches, or more than 30 inches from the centerline of the step or rung, and must not be less than 27 inches wide.

The inside of the cage must be clear of projections.

Horizontal bands must be spaced at intervals not more than 4 feet apart measured from centerline to centerline.

Vertical bars must be spaced at intervals not more than 9.5 inches apart measured from centerline to centerline.

The bottom of the cage must be between 7 feet and 8 feet above the point of access to the bottom of the ladder. The bottom of the cage must be flared not less than 4 inches between the bottom horizontal band and the next higher band.

The top of the cage must be a minimum of 42 inches above the top of the platform, or the point of access at the top of the ladder. Provisions must be made for access to the platform or other point of access.

WELLS FOR FIXED LADDERS

- Wells must completely encircle the ladder
- Wells must be free of projections
- The inside face of the well on the climbing side of the ladder must extend between 27 inches and 30 inches from the centerline of the step or rung
- The inside width of the well must be at least 30 inches
- The bottom of the well above the point of access to the bottom of the ladder must be between 7 feet and 8 feet

LADDER SAFETY DEVICES AND SUPPORT SYSTEMS FOR FIXED LADDERS

All safety devices must be capable of withstanding, without failure, a drop test consisting of a 500-pound weight dropping 18 inches.

All safety devices must permit the worker to ascend or descend without continually having to hold, push, or pull any part of the device, leaving both hands free for climbing.

All safety devices must be activated within 2 feet after a fall occurs, and limit the descending velocity of an employee to 7 feet/second or less.

The connection between the carrier or lifeline and the point of attachment to the body belt or harness must not exceed 9 inches in length.

LADDER & STAIR SAFETY

MOUNTING LADDER SAFETY DEVICES FOR FIXED LADDERS

Mountings for rigid carriers (rails) must be attached at each end of the carrier, with intermediate mountings, spaced along the entire length of the carrier, to provide the necessary strength to stop workers' falls.

Mountings for flexible carriers (cables) must be attached at each end of the carrier. Cable guides for flexible carriers must be installed with a spacing between 25 feet and 40 feet along the entire length of the carrier, to prevent wind damage to the system.

The design and installation of mountings and cable guides must not reduce the strength of the ladder.

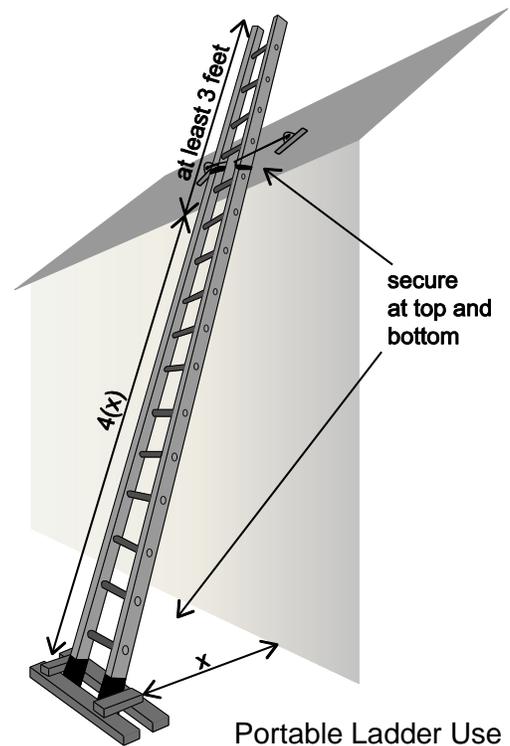
Side rails, and steps or rungs for side-step fixed ladders must be continuous in extension.

USE

Inspect ladders for damage or wear before use.

When portable ladders are used for access to an upper landing surface, the side rails must extend at least 3 feet above the upper landing surface. When such an extension is not possible, the ladder must be secured, and a grasping device such as a grab rail must be provided to assist workers in mounting and dismounting the ladder. A ladder extension must not deflect under a load that would cause the ladder to slip off its support.

- Ladders must be maintained free of oil, grease, and other slipping hazards
- Ladders will not be loaded beyond the maximum intended load or the manufacturer's rated capacity
- Ladders may only be used for the purpose for which they were designed
- Non-self-supporting ladders must be used at an angle where the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder. Wood job-made ladders with spliced side rails must be used at an angle where the horizontal distance is one-eighth the working length of the ladder
- Fixed ladders must be used at a pitch no greater than 90 degrees from the horizontal, measured from the backside of the ladder
- Ladders must be used only on stable and level surfaces unless secured to prevent accidental movement



Portable Ladder Use

LADDER & STAIR SAFETY

- Ladders may not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental movement. Slip-resistant feet must not be used as a substitute for the care in placing, lashing, or holding a ladder upon slippery surfaces
- Ladders placed in areas such as passageways, doorways, or driveways, or where they can be displaced by workplace activities or traffic, must be secured to prevent accidental movement, or a barricade must be used to keep traffic or activities away from the ladder
- The area around the top and bottom of the ladders must be kept clear
- The top of a non-self-supporting ladder must be placed with two rails supported equally unless it is equipped with a single support attachment
- Ladders must not be moved, shifted, or extended while in use
- Ladders must have nonconductive side rails if they are used where the worker or the ladder could contact exposed energized electrical equipment
- The top or top step of a stepladder must not be used as a step
- Cross-bracing on the rear section of stepladders must not be used for climbing unless the ladders are designed and provided with steps for climbing on both front and rear sections.
- Ladders must be inspected by a competent person for visible defects on a periodic basis and after any incident that could affect their safe use
- Single-rail ladders must not be used
- When ascending or descending a ladder, the worker must face the ladder
- Each worker must use at least one hand to grasp the ladder
- A worker on a ladder must not carry any object or load that could cause the worker to lose balance and fall

STRUCTURAL DEFECTS OF LADDERS

Portable ladders with structural defects-such as broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty or defective components-must immediately be marked defective, or tagged with "Do Not Use" or similar language and withdrawn from service until repaired.

Fixed ladders with structural defects-such as broken or missing rungs, cleats, or steps, broken or split rails, or corroded components-must be withdrawn from service until repaired. Ladder repairs must restore the ladder to a condition meeting its original design criteria, before the ladder is returned to use.

Defective fixed ladders are considered withdrawn from use when they are:

- Immediately tagged with "Do Not Use" or similar language
- Marked in a manner that identifies them as defective
- Blocked (such as with a plywood attachment that spans several rungs)

STAIRWAYS

Landings for stairways that will not be a permanent part of the structure must be at least 30 inches in the direction of travel and extend at least 22 inches in width at every 12 feet or less of vertical rise.

Stairs will be installed between 30 deg. and 50 deg. from horizontal. Riser height and tread depth shall be uniform within each flight of stairs, including any foundation structure used as one or more treads of the stairs. Variations in riser height or tread depth shall not be over ¼-inch in any stairway system.

Where doors or gates open directly on a stairway, a platform must be provided, and the swing of the door cannot reduce the width of the platform to less than 20 inches.

Metal pan landings and metal pan treads, when used, will be secured in place before filling with concrete or other material.

All parts of stairways must be free of hazardous projections, such as protruding nails.

Slippery conditions on stairways must be eliminated before the stairways are used to reach other levels.

TEMPORARY SERVICE

Except during construction of the actual stairway, stairways with metal pan landings and treads will not be used where the treads and/or landings have not been filled in with concrete or other material, unless the pans of the stairs and/or landings are temporarily filled in with wood or other material. All treads and landings must be replaced when worn below the top edge of the pan.

Except during construction of the actual stairway, skeleton metal frame structures and steps must not be used (where treads and/or landings are to be installed later) unless the stairs are fitted with secured temporary treads and landings. Temporary treads must be made of wood or other solid material, and installed the full width and depth of the stair.

STAIR RAILS

Stairways having four or more risers, or rising more than 30 inches in height, whichever is less, must have at least one handrail. A stair rail also must be installed along each unprotected side or edge. When the top edge of a stair rail system also serves as a handrail, the height of the top edge must not be more than 37 inches nor less than 36 inches from the upper surface of the stair rail to the surface of the tread.

- Winding or spiral stairways must be equipped with a handrail to prevent using areas where the tread width is less than 6 inches
- Stair rails must not be less than 36 inches in height
- Screens or mesh, when used, must extend from the top rail to the stairway step, and along the opening between top rail supports
- Intermediate vertical members, such as balusters, when used, must not be more than 19 inches apart
- Other intermediate structural members, when used, must be installed so that there are no openings of more than 19 inches wide

HANDRAILS

- Handrails and the top rails of the stair rail systems must be capable of withstanding, without failure, at least 200 pounds of weight applied within 2 inches of the top edge in any downward or outward direction, at any point along the top edge
- The height of handrails must not be more than 37 inches nor less than 30 inches from the upper surface of the handrail to the surface of the tread
- The height of the top edge of a stair rail system used as a handrail must not be more than 37 inches nor less than 36 inches from the upper surface of the stair rail system to the surface of the tread
- Stair rail systems and handrails must be surfaced to prevent injuries such as punctures or lacerations and to keep clothing from snagging
- Handrails must provide an adequate handhold for employees to grasp to prevent falls
- The ends of stair rail systems and handrails must not have dangerous projections such as rails protruding beyond the end posts of the system
- Temporary handrails must have a minimum clearance of 3 inches between the handrail and walls; stair rails systems, and other objects
- Unprotected sides and edges of stairway landings must have a standard 42-inch guardrail system

MIDRAILS

Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top rail and stairway steps of the stair rail system.

Midrails, when used, must be located midway between the top of the stair rail system and the stairway steps.

FORMS & ATTACHMENTS

On the following pages, please find the following document(s):

- General Ladder Setup Procedure
- Setting Up an Extension Ladder
- Ladders & Stairs Safety Training Documentation

LADDER & STAIR SAFETY

General Ladder Setup Procedure

- Move the ladder near your work. Get help if it is too difficult to handle alone.
- Make sure there are no electrical wires overhead.
- Set up the ladder on a secure, level surface or secure it so that it cannot be displaced.
- Lock the spreaders on a stepladder. Secure the lock assembly on extension ladders.
- Use traffic cones or other barriers to protect the base of the ladder if vehicles or pedestrians could strike it.
- Make sure that a non-self-supporting ladder extends at least three feet above the top support point for access to a roof or other work level.
- Angle non-self-supporting ladders properly. The length of the side rails from the ladder's base to the top support points (the working length) should be four times the distance from ladder's base to the structure (the setback distance).

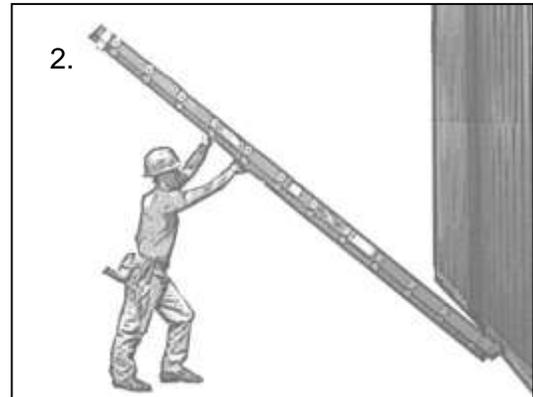
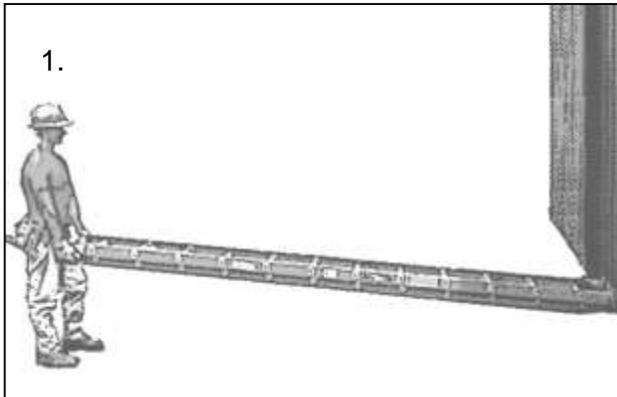
Quick tip — 4:1 Ladder Setup

A non-self-supporting ladder should have a set-up angle of about 75 degrees — a 4:1 ratio of the ladder's working length to setback distance.

Here's how to achieve it: Stand at the base of the ladder with your toes touching the rails. Extend your arms straight out in front of you. If the tips of your fingers just touch the rung nearest your shoulder level, the angle of your ladder has a 4:1 ratio.



LADDER & STAIR SAFETY



Setting Up an Extension Ladder

1. The ladder should be closed. Position the ladder with the base section on top of the fly section. Block the bottom of the ladder against the base of the structure.
2. Make sure there is clearance and no electrical lines are overhead. Carefully “walk” the ladder up until it is vertical. Keep your knees bent slightly and your back straight.
3. Firmly grip the ladder, keep it vertical, and carefully move back from the structure about one quarter the distance of the ladder’s working length. This allows you to place it at the correct angle against the structure.
4. Raise the fly section. After the bottom rung of the fly section clears the bottom rung of the base section, place one foot on the base rung for secure footing.
5. Lean the ladder against the structure. The distance from the base of the ladder to the structure should be one quarter the distance of the ladder’s working length. Make sure the ladder extends three feet above the top support points for access to a roof or other work level. Both rails should rest firmly and securely against the structure.

POLICY STATEMENT

People's susceptibility to paint chemicals varies widely. Additionally, the types and amounts of chemical emitted from paint vary widely, especially between oil-based and latex paints. Therefore, this Company has established the following policies and procedures to reduce possible adverse reactions by its employees and/or clients.

These steps include reading the label to select products that do not emit harmful vapors, and providing ventilation.

Painters should be aware that harmful gases can move through common walls through gaps around pipes and electrical outlets.

Property managers should consider giving advance notice to neighbors when a unit is to be painted. They should consider inspecting painted units to ensure that ventilation is maintained during painting and, as a rule of thumb, for at least 2 to 3 days afterwards, and they should consider loaning box fans to residents who are painting their apartments.

Problems may be reduced if all apartments being painted, as well as neighboring apartments, are vented to the outdoors with box fans.

- Try to schedule painting for dry periods in the fall or spring, when windows are more easily left open for ventilation.
- Keep windows wide-open, as weather permits, for about 2 to 3 days after painting to avoid unwanted exposure to paint vapors (and to return to acceptable indoor air quality).
- Use window-mounted box fans to exhaust vapors from the work area. Make sure they cannot fall out of the window. If fans cannot be used, make sure that rooms being painted have adequate cross-ventilation.
- Provide advance notice to neighbors in adjacent units that painting is to begin.
- Take frequent fresh air breaks while painting. Avoid freshly painted rooms for 2 to 3 days, whenever possible.
- Keep young children and individuals with breathing problems from freshly painted rooms. Leave painted areas if you experience eye watering, headaches, dizziness, or breathing problems.

Usually it is necessary to keep windows wide-open and to use exhaust fans. Fans should be used while painting, and, for some paints, for 2 to 3 days afterwards.

HEALTH CONCERNS

Most paints contain chemicals that evaporate in the air. The ability of these chemicals to cause health effects varies greatly. As with any chemical, the likelihood of a reaction and the extent and type of health effect will depend on many factors.

These factors include the amount of chemical in the indoor air, the length of time a person is exposed to the chemical, and a person's age, pre-existing medical conditions, and individual susceptibility.

Eye and throat or lung irritation, headaches, dizziness, and vision problems are among the immediate symptoms that some people have experienced soon after exposure to some chemicals.

In professional painters who are exposed to high levels of paint vapors for long periods of time, some chemicals in paints have damaged the nervous system, liver and kidneys.

Some chemicals cause cancer or reproductive and developmental effects in laboratory animals. Because of these concerns, susceptible people, such as young children and individuals with breathing problems, should avoid paint vapors.

To avoid any health risks for themselves and their unborn babies, pregnant women should avoid undertaking painting projects and should limit their time in freshly painted rooms, especially when oil-based paints are being used.

SELECTING PAINT

- First, make sure you select paints that are for indoor use.
- Do not use exterior paints indoors.
- There are two categories of interior paints, water-based and oil-based.
- Water-based paints are referred to as "latex" paints.
- The oil-based paints are referred to as "alkyd" paints. In general, water-based paints will emit fewer chemicals and lower levels of chemical vapors.

Short-term exposure to solvents from alkyd paints can be significantly higher than from latex paints. When selecting paint or contracting for painting services, read the label for information about the potential health effects of the paints or ask the paint supplier.

SPECIFIC SAFETY PRECAUTIONS

Paints contain different chemicals and the potential hazards are different for various products. Each product has specific safety precautions given on the label. However, there are some basic safety steps to keep in mind when using any paint.

- Always read and follow all the instructions and safety precautions on the label.
- Do not assume you already know how to use the product. The hazards may be different from one product to another. Some ingredients in individual products may also change over time.
- The label tells you what actions you should take to reduce hazards and the first aid measures to use if there is a problem.

PAINTING SAFETY

- There must be plenty of fresh air where you paint. Open all doors and windows to the outside (not to hallways).
- Curtains and blinds should be pushed back so that there is nothing blocking the airflow, to ensure cross-ventilation. Place a box fan securely in the window blowing out to ensure air movement. Do not point the fan directly at someone else's space.
- Secure the fan within the window frame so that it cannot fall out of the window or be tipped over by children. If it rains or snows, turn the fan off and remove it from the window to avoid an electrical shock hazard.
- An air conditioning unit should not be substituted for the use of a fan. In addition, bathroom/kitchen exhaust fans do not always vent out-of-doors and should not be relied upon to increase ventilation.
- Continue to provide fresh air after painting.
- Part of the risk with indoor painting arises from the idea that dry paints are safe. While some paints may have only a small quantity of volatile materials that evaporate quickly, other paints may have a significant amount of organic solvents or drying oils that take several days to go away.
- Given this fact, a general "rule of thumb" for avoiding unwanted exposure to paint vapors (and to return the air to acceptable quality), ventilation should be continued for 2 or 3 days.
- Follow paint can directions for the safe cleaning of brushes and other equipment.
- Latex paint usually cleans up with soap and water.
- For alkyd paints, you will need to purchase specific products as listed on the label.
- Never use gasoline to clean paint brushes. Gasoline is extremely flammable. Read the label to find out if the paint cleaner is flammable. All flammable products should be used away from ignition sources such as water heaters, furnaces, electric motors, fans, etc.
- Buy only what you need, and store or throw away the unused amount. Since paints are used only occasionally, buy only as much as you will use right away.
- If you have leftover paint, be sure to close the container tightly. Vapors can leak from improperly sealed containers.
- Follow the directions on the can on how to dispose of the product. Latex paint and its containers can often be thrown out with regular household trash.
- In some communities, there are special recycling programs for paints. To find out about these, contact your local government.
- Do not perform work in a heavily populated area, including building air intake areas, until appropriate warnings are posted and occupants notified. If possible, rope off the immediate work area to prevent injury to bystanders.
- Protect your working area with warning flags and traffic cones when painting parking lot, road, and traffic lines.
- When spraying roofs or building exteriors, have adequate barricades and signs to detour traffic.
- Eye protection is required whenever rust or loose paint is removed from surfaces with a wire brush. A hard hat is required if the work area is exposed to falling objects.
- To avoid splinters, always observe the condition of the wood before sanding.

PAINTING SAFETY

- Store and dispense flammable solvents from approved safety cans only.
- Follow the manufacturer's instructions for handling all epoxy materials, thinners, catalysts, paint removers, etc. Gloves and respirators may be required.
- Clean all working areas after each job and/or shift.
- Make sure that you wash your hands thoroughly with soap and water before handling food.
- Inspect all ladders and scaffolds before you begin work.
- Make a safety check of all equipment such as staging tools, spray pots, hoses, fitting hooks, etc.
- An approved life line, independently fastened to the building above the worker, is required for each worker on a swinging scaffold, boatswain's chair, or unguarded slope 20 feet or more above ground level.
- Make sure that planks or ladder stages are long enough to extend well beyond the supports.
- Do not climb onto or use rolling-type scaffolds unless wheels are fully locked.
- Inspect all rope before use. Rope used around acid or caustics should be inspected frequently during use.
- Do not use fiber rope that cannot easily be bent or worked, or if fibers seem to be dry or brittle.
- Do not use fiber rope near sandblasting, or where there is exposure to chemical washing solutions.

SPRAYING

- An approved respirator should be worn when spray painting is being done.
- Do not spray paint in shops, storage rooms, or similar locations without specific instructions from the supervisor of such locations.
- Do not perform spray painting in confined spaces without specific permission from your supervisor. Appropriate breathing equipment, and/or controls are required for such work to assure that the atmosphere is safe.
- Do not break connections in pressurized air hose lines.
- Airless spraying with flammable materials should not be performed in confined areas unless there is sufficient ventilation to keep the atmosphere below the lower explosive limit of the material.
- Airless spraying with flammable materials may cause generation of static electricity. This will require grounding of both the spraying equipment and the object to be sprayed.
- Do not point an airless spray gun at any part of the body. Do not clean airless spray guns while there is pressure in the system.
- Inspect and clean all gauges, gaskets, and valves on all spray equipment to ensure that they are in good working order.
- Do not interfere with the mechanical operation of safety devices designed to protect you from contact with the spray under pressure.
- Do not leave rags saturated with paint or thinner lying around in a pile. In order to avoid a fire, see that these rags are left unfolded until they are properly aired out and then discard them in approved containers. Storage in a water filled container is recommended.

- Spontaneous ignition can occur if certain types of spray paint residues are permitted to mix or accumulate.
- Dispose of surplus paints and solvents by approved methods only.
- Removal of lead-based paint requires additional personal protective equipment, and air sampling to determine lead exposure.

HIGH VOLUME LOW PRESSURE SPRAY SYSTEMS (HVLP)

Two types of high volume low pressure (HVLP) spray systems dominate the painting market; portable turbines and direct hook-up guns. The two systems use completely different air sources, but atomize material in similar manners. Hazards include eye injury, possible inhalation of paint fumes, and fire.

- Read and understand the manufacturer's manual before operating the HVLP spray system. Read all cautions and warnings.
- Designate a competent person to demonstrate, to new painters, how the HVLP spray system works.
- Inspect the equipment for damage. Use manufacturer approved parts when making any repairs or replacements on the spray system.
- Personal protective equipment (PPE) should include respiratory and skin protection, safety glasses or goggles, slip-resistant shoes /boots, and gloves. A full body coverall will provide complete body protection. Keep all PPE well maintained. Store in a safe place.
- Always spray in a well-ventilated area. Wear a NIOSH dust mask to protect your lungs from microscopic particles.
- Know the paints you are spraying. Read all Material Safety Data Sheets (MSDSs) for paints and solvents being used. The MSDS will tell you when you need to wear a half or full face respirator to protect your lungs.
- Never spray near sparks, open flames, or hot surfaces. Certain coating materials are highly flammable. Do not smoke while spraying.
- Keep a properly rated and charged fire extinguisher available at all times when spraying flammable material.
- Check all material hoses for cuts, leaks, abrasions, cover bulging or movement of couplings before each operation. If any of these conditions exist, replace the hose immediately. Do not attempt to repair a paint hose.
- Never point the spray gun at yourself or any fellow workers. Keep all unauthorized personnel out of the work area.
- Remember to identify confined spaces. Painting in a confined space produces oxygen deficiency, and a flammable or toxic atmosphere. The area must be kept well-ventilated throughout the entire period you will be painting.
- Keep the work area free of debris that could cause trips and falls. Do not leave the spray system unattended while it is running.

PAINTING SAFETY

- Clean your spray gun thoroughly after each use. Remember; your safety may depend on the condition of the equipment you are working with. Empty the spray material from the cup. Pour a small amount of the appropriate solvent in the cup and attach the cup to the spray gun. Make sure you are wearing your protective equipment.
- Shake and spray the gun in a well-ventilated area. Back-flushing of the system is not necessary, so do not restrict the nozzle when cleaning. Repeat these steps until the solvent appears clear. Keep spray to area to a minimum.
- Wipe the exterior of the cup and the spray gun with the appropriate solvent until it is clean. Dispose of all rags properly.
- Make sure the air holes and material passages are completely clean. Never use metal tools or picks to clean the air cap or nozzle.
- Thoroughly clean the check valve and hoses. Do not soak check valve hoses in hot solvents.
- Lubricate any threaded parts on the sprayer with petroleum jelly when you put them back together. This will keep them working properly. However, do not use any lubricants containing silicone, which can cause problems when used with some paints.
- Inspect the cup gasket during each cleaning. Normal wear requires the gasket to be replaced periodically.
- Check for leaks. If material leaks from around or through the packing nut, tighten the packing nut slightly. Squeeze the trigger to see if the leaking has stopped. If it has not, continue to tighten the packing nut until the leaking stops. Be careful not to over-tighten the packing nut or the needle will stick in the packing. If adjusting the packing nut does not stop the leak, replace the packing.
- Keep the filter clean. Remove the filter. Use air to blow material residue from the filter, or tap the particles out.
- Remember, for material that is not easily blown or knocked loose, use soapy water or mineral spirits.
- Allow the filter to dry before placing it back into the unit. Filters should not be cleaned with highly flammable solvents.
- Once cleaned, insert it back into the end from which it was removed. If the filter cannot be cleaned, install a new filter.
- Workers must be constantly aware of the health risks involved when spraying in a confined area. Remember to use proper respiratory and eye protection.

SPRAY PAINTING SAFETY

Spray painting allows coverage of large areas with even coats of primer, paint, sealers, and other coatings. However, workers in spray painting operations need to recognize and guard against the hazard associated with spray painting processes.

Many paints, coatings, catalysts, sealers, hardeners, and solvents contain hazardous chemicals. Exposure to chemicals can occur during mixing of the coating, spraying the material, and grinding or sanding it. Even some surface preparation and cleanup solvents can pose a hazard, if not handled properly. As such, workers should avoid using solvents for cleaning paint from hands or skin. They should use water-based cleansers that are meant for personal cleanup.

Hazardous chemicals in coatings and solvents can enter the body several ways. Workers can inhale chemical vapors from spraying, absorb the chemical by skin contact or inject the chemical with high pressure spray painting equipment. Symptoms of overexposure to hazardous chemicals include nausea, rashes, and long term illnesses like asthma, lung cancer, and sensitization (becoming severely allergic to the paint). Before work begins, spray painters should read the Safety Data Sheet (SDS) of the chemical they'll be using then wear the appropriate personal protective equipment such as safety glasses, a respirator (if medically qualified, properly fit-tested, and trained), gloves or coveralls to protect themselves against its hazards.

As proper ventilation is important when working with paint coatings, a spray booth is an excellent way to remove spray paint vapors and debris from a worker's breathing zone. Many coatings contain flammable substances that are aerosolized when sprayed through powered equipment and without proper ventilation, such as in a spray booth, these vapors can build up and create an explosion and fire danger. But to provide maximum protection, the spray booth must be properly maintained, including regular cleaning of filters and overspray.

To prevent sparking a flammable substance, smoking and other sources of flame near spray painting operations should be prohibited and tools should be properly rated and grounded for work in a spray painting area.

Because much of the equipment used for spray painting and surface preparation uses compressed air, workers should be aware that noise can be a risk, so should wear hearing protection when working with air powered tools. Grinding and sanding equipment not only generates noise, they also create fine dust particles so, workers should be advised to use safety glasses and a dust mask or a respirator, if required and qualified to do so.

Consider ergonomics when spraying coatings. Often, workers must hold full paint pots and maneuver heavy, awkward objects while spraying. Balanced spray guns that fit comfortably in the hand or using hoists and dollies to move objects can reduce the chance of accidents and injuries. Also, workers should be encouraged to take frequent breaks and stretch often to avoid strains and sprains. If workers can think about safety in and around spray paint operations, they can avoid painting themselves into a hazardous corner.

PROTECTION

Protect all exterior surfaces and areas, including landscaping, walks, drives, all adjacent building surfaces (including glass, aluminum surfaces, etc.) and equipment and any labels and signage from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.

Protect all interior surfaces and areas, including glass, aluminum surfaces, etc. and equipment and any labels and signage from painting operations and damage by drop cloths, shields, masking, templates, or other suitable protective means and make good any damage caused by failure to provide such protection.

Erect barriers or screens and post signs to warn of or limit or direct traffic away or around work area as required.

CLEAN-UP

Remove all paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

Keep work area free from an unnecessary accumulation of tools, equipment, surplus materials and debris.

Remove combustible rubbish materials and empty paint cans each day and safely dispose of same in accordance with requirements of authorities having jurisdiction.

Clean equipment and dispose of wash water / solvents as well as all other cleaning and protective materials (e.g. rags, drop cloths, masking papers, etc.), paints, thinners, paint removers / strippers in accordance with the safety requirements of authorities having jurisdiction.

REPAINTING OF EXISTING FINISHES

Use finish coat of respective new surface paint system for minor repair of existing finishes. Use system primer where existing finishes are damaged down to bare surface.

WASTE MANAGEMENT AND DISPOSAL

Paint, stain and wood preservative finishes and related materials (thinners, solvents, etc.) are regarded as hazardous products and are subject to regulations for disposal. Obtain information on these controls from applicable state and local government departments having jurisdiction.

All waste materials shall be separated and recycled. Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility. Materials that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

PAINTING SAFETY

To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:

- Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.
- Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
- Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
- Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
- Empty paint cans are to be dry prior to disposal or recycling (where available).
- Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.

Set aside and protect surplus and uncontaminated finish materials not required and deliver or arrange collection for verifiable re-use or re-manufacturing.

POLICY STATEMENT

The company requires all employees to present themselves in a professional manner, with regard to attire, personal hygiene, and appearance. These standards are commensurate with our organizational practices of appropriate business conduct, professionalism, and dress code.

This Policy Shall Discuss:

- Work-appropriate hygiene;
- Acceptable levels of personal grooming;
- Appropriate business attire;
- Distribution employees;
- Workplace inappropriate attire;
- Personal protective equipment;
- Policy compliance.

RESPONSIBILITIES

EMPLOYER RESPONSIBILITIES

All managers, supervisors and employees will abide by the policies set forth in the personal hygiene and dress policy. Failure to do so will result in disciplinary action.

EMPLOYEE RESPONSIBILITIES

HYGIENE POLICY

This company's employees are expected to meet hygiene requirements during regular business hours for the duration of their employment.

- Maintain personal cleanliness by bathing daily.
- Oral hygiene (brushing of teeth) required.
- Use deodorant / anti-perspirant to minimize body odors.
- No heavily scented perfumes, colognes, and lotions. These can cause allergic reactions, migraines, and respiratory difficulty for some employees.
- Clean and trimmed fingernails (¼ inch long or less).
- Wash hands after eating, or using the restrooms.

HYGIENE & DRESS

PERSONAL GROOMING

- Clothing must be clean, pressed, in good condition and fit appropriately.
- Socks or hose must be worn with shoes.
- Neat and well-groomed hair, sideburns, mustaches, and beards (no artificial colors e.g. pink, green, etc. that would be deemed unprofessional).
- Moderate make-up.

PERSONAL HYGIENE & DRESS

- Secured long hair (hair must be tied back to prevent potential for being caught in equipment).
- Clothing must not interfere with the safe operation of equipment.
- No dark glasses (unless prescribed by a physician).
- Limited jewelry and no dangling or large hoop jewelry that may create a safety hazard to self or others. A general rule of thumb is that if a pencil can be passed through a hoop earring it is not safe to wear near operating equipment.
- Body piercing must be limited to three per ear. Other visible body piercing is unacceptable, unless demanded by religion / culture.
- Tattoos perceived as offensive, hostile, or that diminish the effectiveness of the employee's professionalism must be covered, and not visible.

ATTIRE

Any (Company Name) staff that maintains regular, in-person contact with customers will be required to wear appropriate attire.

MEN:

WOMEN:

INAPPROPRIATE ATTIRE

The following items are not permitted in any area during normal working hours:

- Sweat pants;
- Jogging pants;
- Pants that expose the midriff, underwear or leggings;
- Gym shorts;
- Bicycle shorts or other athletic shorts;
- Low-cut tops;
- Halter tops;
- Spaghetti strap tops;
- Tops that expose the midriff or underwear;
- Mini-skirts;
- Any form of clothing that is mesh, sheer, see-through or otherwise revealing;
- Any form of clothing that is generally offensive, controversial, disruptive or otherwise distracting;
- Any form of clothing that is overtly commercial, contains political, personal or offensive messages;
- Plastic flip-flops or sandals;
- Beach footwear.

CLARIFICATION

Every company employee is responsible for exercising sound judgment and common sense for his or her attire at all times. If an employee is deemed to be wearing inappropriate attire, his/her Manager is responsible for coaching the employee accordingly.

Individual situations relating to appropriate workplace attire may be addressed on a case-by-case basis. If you have questions about these guidelines or a particular business areas dress requirements, contact your manager.

COMPLIANCE

Departure from appropriate grooming, hygiene and attire standards will result in employee counseling and/or disciplinary action up to and including termination of employment. These days are occasionally approved by the Company and/or appropriate department, when a deviation from these guidelines is appropriate, and when the business necessities will not be affected. Personal appearance standards may be reviewed periodically and updated as deemed necessary.

SCAFFOLDS & WORK PLATFORMS

POLICY STATEMENT

This company has implemented this policy to ensure that employees are not exposed to hazards while working on or with scaffolding or elevated work platforms. The Company's designated competent scaffolding person is responsible for ensuring the following engineering controls, training requirements, and safe work practices are enforced to protect our employees from hazards associated with the erecting, use, and dismantling of scaffolds.

RESPONSIBILITIES

Preventing injuries during the setup, use and dismantling of scaffolds is a cooperative effort between the Company and its employees.

Employer Responsibilities

It is the responsibility of the Company to:

- Ensure employees are trained appropriately to their level of responsibility regarding scaffolds
- Acquire appropriate scaffolding for the job to be performed
- Ensure all equipment, including scaffolds, is safe for use by employees
- Ensure there is at least one qualified person at every job that requires scaffolding

Qualified Person Responsibilities

It is the responsibility of the qualified person to:

- Be competent in fall protection
- Review work plans to determine if scaffolds are necessary
- Design scaffolds to the required specifications
- Ensures the onsite scaffolding meets requirements of the job and all safety guidelines
- Train employees who perform work on scaffolds and work platforms to recognize the hazards specific to that type of work and understand the procedures necessary to control them.

Competent Person

It is the responsibility of the competent person to:

- Take prompt measures to eliminate conditions that may pose harm to employees
- Ensure scaffold components from different manufacturers do not intermix
- Evaluate direct connections and to confirm the supporting surfaces are capable of supporting the loads to be imposed on them
- Inspect all suspension scaffold ropes before each shift and after anything that might affect a rope's integrity
- Supervise the erection, moving, dismantling, and altering of scaffolds.

SCAFFOLDS & WORK PLATFORMS

Employee Responsibilities

All company employees are expected to:

- Complete all requisite training before using scaffolds
- Follow company safety policy and best industry practices
- Perform pre-use inspection before accessing the scaffold
- Report any unsafe condition to the appropriately qualified person.

TRAINING

The Company will ensure all employees are trained on scaffold safety. This training will be provided at no cost to the employee during working hours.

Only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees will be used.

Training Components

The Company's designated competent scaffolding person will ensure that every employee who performs work from a scaffold receives training in the following minimum elements:

- The nature of any electrical hazards, fall hazards, and falling object hazards in the work area
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used
- The proper use of the scaffold and the proper handling of materials on the scaffold
- The maximum intended load and the load-carrying capacities of the scaffolds used
- Any other safety topics deemed pertinent to the particular work-site, scaffold system, or fall protection systems being used.

The Company's designated competent scaffolding person will ensure that every employee involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold will be trained in the following minimum elements:

- The nature of scaffold hazards
- The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold being used
- The design criteria, maximum intended load-carrying capacity, and intended use of the scaffold
- Any other safety topics deemed pertinent to the particular work-site, scaffold system, or fall protection systems being used.

SCAFFOLDS & WORK PLATFORMS

Retraining is required when the Company's designated competent scaffolding person has reason to believe an employee lacks the skill or understanding needed to perform work that involves the erection, use, or dismantling of scaffolds safely. The employee will be retrained so that the required proficiency is regained. Retraining is required in all of the following situations:

- When changes at the worksite create new hazards about which an employee has not been previously trained
- When changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained
- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the required skill, knowledge, and proficiency for the work involved.

Training Records

Training records will include the following information:

- The dates of the training sessions.
- The contents or a summary of the training sessions.
- The names and qualifications of persons conducting the training.
- The names and job titles of all persons attending the training sessions.

The Company will maintain all employee training records for 3 years from the date on which the training occurred.

POLICY

General Requirements

Scaffolds must be constructed and loaded according to the design of a qualified person.

Capacity

Scaffolds and their components must be able to support their own weight and 4 times the maximum intended load.

Counterweights used to balance adjustable suspension scaffolds, must be able to resist at least four times the tipping moment imposed by the scaffold operating at either the rated load of the hoist, or one-and-a-half (minimum) times the tipping moment imposed by the scaffold operating at the stall load of the hoist, whichever is greater.

Suspension rope and connecting hardware must be able to support 6 times the maximum intended load of non-adjustable suspension scaffolds.

On adjustable suspension scaffolds, the suspension rope and connecting hardware must support twice the stall load of the hoist if that is greater than 6 times the maximum intended load of the scaffold.

SCAFFOLDS & WORK PLATFORMS

SCAFFOLD PLATFORM CONSTRUCTION

Planking and Decking

Platforms on working levels of scaffolds must be planked or decked between the front uprights and the guardrail supports so the space between adjacent units and between the platform and uprights is no more than 1 inch wide. Special exception can be made where a wider space is necessary (but never wider than 9½ inches).

Width

Scaffold platforms must be at least 18 inches wide except the following:

- Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold must be at least 12 inches wide
- There is no minimum width requirement for boatswains' chairs
- Where scaffolds must be used in areas so narrow that platforms and walkways cannot be at least 18 inches wide, these platforms and walkways must be as wide as feasible, and employees on those platforms and walkways must be protected from fall hazards by the use of guardrails and/or personal fall arrest systems.

Distance from Work Face

The front edge of all platforms must be within 14 inches of the face of the work unless guardrail and/or personal fall arrest systems are used to prevent employees from falling, except the following:

- Outrigger scaffolds may be a maximum of 3 inches from the face of work
- For plastering and lathing operations, the maximum distance from the face is 18 inches.

Access and Egress

- Instead of the requirements for a stair, fixed ladder, or portable ladder, the intermediate horizontal members of a frame of a manufactured tubular welded frame scaffold may be used for access to, and egress from, the work platform if all of the following conditions are met:
 - All frames and component parts are compatible in design.
 - The intermediate horizontal members of a frame are a minimum of 16 inches in length.
 - The horizontal members of each frame must be uniformly spaced and must not exceed 17 inches center to center vertically.
 - When frames connect vertically to one another, the distance between the bottom horizontal member of the upper end frame and the top horizontal member of the lower end frame must be within 3 inches of the uniform spacing of the horizontal members of each frame.

SCAFFOLDS & WORK PLATFORMS

- The elevation to the lowest horizontal member of the bottom frame must not exceed 21 inches from ground or floor.
- Each horizontal member must be capable of supporting 300 pounds applied at the member's midpoint without bending or cracking.
- Each horizontal member must be free of cracks, bends, or bad welds.
- Only 1 employee at a time may use a horizontal member of a frame as access to, or egress from, the workstation.
- Cross braces on tubular welded frame scaffolds must not be used as a means of access or egress.
- The guardrail system located on the side where horizontal members of the scaffold frame are used for access to or egress from, a work platform must be constructed as follows:
 - The intermediate rail must be omitted between the corner posts at access location.
 - The top rail must be continuous between posts.

Other

- Each end of a platform must extend over the centerline of its support by at least 6 inches unless it is cleated, or restrained by hooks or equivalent means.
- A platform 10 feet or less may not extend over its support more than 12 inches unless it is designed not to tip when supporting weight or has guardrails to block access.
- A platform more than 10 feet in length may not extend over its support more than 18 inches unless it is designed not to tip when supporting weight or has guardrails to block access.
- Where scaffold planks abut one another to create a long platform, they should only overlap over supports by more than 12 inches unless they are nailed together or otherwise restrained.
- Where the platform changes direction, as around a corner, lay platforms off right angles first and platforms that rest at right angles second.
- Construction and attachment of a scaffold must not cause a direct pull on the fasteners.
- Do not cover wood platforms with opaque finishes (platform edges may be covered or marked for identification). Platforms may be coated periodically with wood preservatives, fire-retardant finishes, and slip-resistant finishes, but the coating may not obscure the top or bottom wood surfaces.
- Scaffolding endangered by a truck or other moving equipment must be protected by a warning device, or barrier, or both.
- Scaffold components from different manufacturers must not be intermixed unless the components fit together without force and the scaffold's structural integrity is maintained by the user. Do not modify scaffold components by different manufacturers to intermix them unless a competent person determines the resulting scaffold is structurally sound.
- Components of different metals may not be used together unless a competent person can confirm that galvanic action will not reduce their strengths.

SCAFFOLDS & WORK PLATFORMS

CRITERIA FOR SUPPORTED SCAFFOLDS

Restraints

Supported scaffolds with a height to base width ratio of more than four to one (4:1) must be restrained from tipping by guying, tying, bracing, or equivalent means, as follows:

- Guys, ties, and braces must be installed at locations where horizontal members support both inner and outer legs
- Guys, ties, and braces must be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the 4:1 height and be repeated vertically at locations of horizontal members every 20 feet or less thereafter for scaffolds 3 feet wide or less, and every 26 feet or less thereafter for scaffolds greater than 3 feet wide
- The top guy, tie, or brace of completed scaffolds must be placed no further than the 4:1 height from the top. Such guys, ties and braces must be installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet (measured from one end to the other, not both ends to the center)
- Ties, guys, braces, or outriggers must be used to prevent the tipping of supported scaffolds in all circumstances where an eccentric load, such as a cantilevered work platform, is applied or is transmitted to the scaffold.

Foundations

- Supported scaffold poles, legs, posts, frames, and uprights must bear on adequate firm foundation.
- Footings must be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.
- Scaffolds may not be supported with unstable objects.
- Unstable objects must not be used as working platforms.
- Do not use front-end loaders and similar pieces of equipment to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.
- Do not use forklifts to support scaffold platforms unless the entire platform is attached to the fork and the forklift is not moved horizontally while the platform is occupied.
- Brace and plumb supported scaffold poles, legs, posts, frames, and uprights to prevent swaying and displacement.

SCAFFOLDS & WORK PLATFORMS

Erection & Dismantling

- A safe means of access must be provided for employees erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. A competent person will determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination must be based on site conditions and the type of scaffold being erected or dismantled.
- Hook-on or attachable ladders must be installed as soon as scaffold erection has progressed to a point that permits their safe installation and use.
- When erecting or dismantling tubular welded frame scaffolds, (end) frames, with horizontal members that are parallel, level and are not more than 22 inches apart vertically may be used as climbing devices for access, provided they are erected in a manner that creates a usable ladder and provides good hand hold and foot space.

CRITERIA FOR SUSPENSION SCAFFOLDS

All suspension scaffold support devices must rest on surfaces capable of supporting at least 50 lbs/ft² and 4 times the load imposed on them by the scaffold operating at the rated load of the hoist (or at least 1.5 times the load imposed on them by the scaffold at the stall capacity of the hoist, whichever is greater).

Before the scaffold is used, direct connections must be evaluated by a competent person who can confirm supporting surfaces are capable of supporting the loads to be imposed.

A bearer for a suspension scaffold must be made of 4 x 6-inch timber set on edge or structural steel of equivalent strength. A bearer must have sufficient length to hold the planks between the frames where a hoisting machine is used. Plank edges must abut.

The connections of a masons' multi-point adjustable suspension scaffold must be designed by an engineer experienced in such scaffold design.

Counterweights

Use counterweights made of non-flowable material. Sand, gravel, and similar materials can easily be dislocated and must not be used as counterweights.

Use items specifically designed as counterweights to secure scaffold systems. Construction materials such as, but not limited to, masonry units and rolls of roofing felt, must not be used as counterweights.

Secure counterweights by mechanical means to the outrigger beams to prevent accidental displacement.

Do not remove counterweights from an outrigger beam until the scaffold is disassembled.

SCAFFOLDS & WORK PLATFORMS

Outrigger Beams

Suspension scaffold outrigger beams, when used, must be made of structural metal or equivalent strength material, and be restrained to prevent movement.

Stabilize the inboard ends of suspension scaffold outrigger beams with bolts or other direct connections to the floor or roof deck, or by counterweights. (Masons' multi-point adjustable suspension scaffold outrigger beams may not be stabilized by counterweights.)

Place outrigger beams perpendicular to bearing support (usually the face of the building or structure). However, where the employer can demonstrate that it is not possible to place an outrigger beam perpendicular to the face of the building or structure because of obstructions that cannot be moved, the outrigger beam may be placed at some other angle, provided opposing angle tiebacks are used.

Suspension scaffold outrigger beams must be:

- Provided with stop bolts or shackles at both ends
- Securely fastened together with the flanges turned out when channel iron beams are used in place of I-beams
- Installed with all bearing supports perpendicular to the center line of the beam
- Set and maintained with the web in a vertical position
- When an outrigger beam is used, the shackle or clevis that attaches the rope to the outrigger beam must be placed directly over the centerline of the stirrup.

Tiebacks

Outrigger beams not stabilized by bolts or other direct connections to the floor or roof deck must be secured by tiebacks.

- Tiebacks must be equivalent in strength to the suspension ropes and secured to a structurally sound anchorage on the building or structure. Sound anchorages include structural members, but not piping systems, vents, or electrical conduit.
- Install tiebacks perpendicular to the face of the building or structure, or install opposing angle tiebacks. Single tiebacks installed at an angle are prohibited.
- Tiebacks must be equivalent in strength to the hoisting rope.

Support Devices

Suspension scaffold support devices such as cornice hooks, roof hooks, roof irons, parapet clamps, or similar devices must be:

- Made of steel, wrought iron, or materials of equivalent strength
- Supported by bearing blocks
- Secured against movement by tiebacks installed at right angles to the face of the building or structure. If opposing angle tiebacks are used, they must be installed and secured to a structurally sound anchorage point on the building or structure. Sound points of anchorage include structural members, but do not include standpipes, vents, other piping systems, or electrical conduit.

SCAFFOLDS & WORK PLATFORMS

Hoists & Ropes

When winding drum hoists are used on a suspension scaffold, they must contain at least four wraps of the suspension rope at the lowest point of scaffold travel. When other types of hoists are used, the suspension ropes must be long enough to allow the scaffold to be lowered to the level below without the rope end passing through the hoist, or the rope end must be configured or provided with means to prevent the end from passing through the hoist.

Do not use repaired wire rope as suspension rope, and do not join them together except with eye splice thimbles connected with shackles or cover plates.

Equip the load end of wire suspension ropes with proper size thimbles and secure them by eye splicing or equivalent means.

Ropes must be inspected for defects by a competent person before each work shift and after occurrences that could affect a rope's integrity. Ropes must be replaced if any of the following conditions exist:

- Physical damage that impairs the function and strength of the rope;
- Kinks that might impair the tracking or wrapping of rope around the drum(s) or sheave(s);
- Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay;
- Abrasion, corrosion, scrubbing, flattening or peening causing loss of more than one-third of the original diameter of the outside wires;
- Heat damage from a torch or damage caused by contact with electrical wires; and
- Evidence that the secondary brake has been activated during an overspeed condition and has engaged the suspension rope.

Swaged attachments or spliced eyes on wire suspension ropes must not be used unless they are made by the wire rope manufacturer or a qualified person.

When wire rope clips are used on suspension scaffolds:

- There must be a minimum of 3 wire rope clips installed, each a minimum of 6 rope diameters apart
- Install clips according to the manufacturer's recommendations
- Retighten clips to the manufacturer's recommendations after the initial loading
- Inspect clips and retighten them to the manufacturer's recommendations at the start of each work shift thereafter
- U-bolt clips must not be used at the point of suspension for any scaffold hoist
- When U-bolt clips are used, the U-bolt must be placed over the dead end of the rope, and the saddle must be placed over the live end of the rope.

SCAFFOLDS & WORK PLATFORMS

- Suspension scaffold power-operated hoists and manual hoists must be tested by a qualified testing laboratory.
- Do not use gasoline-powered equipment and hoists on suspension scaffolds.
- Enclose gears and brakes of power-operated hoists used on suspension scaffolds.
- In addition to the normal operating brake, suspension scaffold power-operated hoists and manually operated hoists must have a braking device or locking pawl that engages automatically when a hoist makes an instantaneous change in momentum or an accelerated overspeed.
- Manually operated hoists must require a positive crank force to descend.
- Two-point and multi-point suspension scaffolds must be secured to prevent them from swaying, as determined to be necessary based on an evaluation by a competent person. Window cleaners' anchors must not be used for this purpose.
- Devices whose sole function is to provide emergency escape and rescue must not be used as working platforms. This provision does not preclude the use of systems that are designed to function both as suspension scaffolds and emergency systems.

ACCESS TO ALL SCAFFOLDS

When scaffold platforms are more than 2 feet above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/towers), stairway-type ladders, ramps, walkways, integral pre-fabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface must be used. Do not use crossbraces as a means of access.

In addition to requirements outlined in the chapter on ladder safety, portable, hook-on, and attachable ladders must adhere to the following criteria:

- Position portable, hook-on, and attachable ladders so as not to tip the scaffold
- Position hook-on and attachable ladders so their bottom rung is not more than 24 inches above the scaffold supporting level
- When hook-on and attachable ladders are used on a supported scaffold more than 35 feet high, they must have rest platforms at 35-foot maximum vertical intervals.
- Hook-on and attachable ladders must be designed for the type of scaffold being used
- Hook-on and attachable ladders must have a minimum rung length of 11½"
- Hook-on and attachable ladders must have uniformly spaced rungs with a maximum spacing between rungs of 16¾ inches.

SCAFFOLDS & WORK PLATFORMS

Stairway-type ladders must:

- Be positioned such that their bottom step is not more than 24 inches above the scaffold supporting level
- Be provided with rest platforms at 12 foot maximum vertical intervals
- Have a minimum step width of 16 inches, except that mobile scaffold stairway-type ladders must have a minimum step width of 11½ inches
- Have slip-resistant treads on all steps and landings.

Stair towers

- Stair towers (scaffold stairway/towers) must be placed so that their bottom step is not more than 24 inches above the scaffold supporting level.
- A stair rail consisting of a toprail and a midrail must be provided on each side of each scaffold stairway.
- The toprail of each stair rail system must also be capable of serving as a handrail, unless a separate handrail is provided.
- Handrails, and toprails that serve as handrails, must provide an adequate handhold for employees grasping them to avoid falling.
- Stair rail systems and handrails must be surfaced to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.
- The ends of stair rail systems and handrails must be constructed so that they do not constitute a projection hazard.
- Handrails, and toprails used as handrails, must be at least 3 inches from other objects.
- Stair rails must be at least 28 inches but not more than 37 inches from the upper surface of the stair rail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
- A landing platform at least 18 inches wide and 18 inches long must be provided at each level.
- Each scaffold stairway must be at least 18 inches wide between stair rails.
- Treads and landings must have slip-resistant surfaces.
- Stairways must be installed between 40 degrees and 60 degrees from the horizontal.
- Guardrails meeting safety requirements must be installed on the open sides and ends of each landing.
- Riser height must be uniform, within ¼ inch, for each flight of stairs. Greater variations in riser height are allowed for the top and bottom steps of the entire system, not for each flight of stairs.
- Tread depth must be uniform, within ¼ inch, for each flight of stairs.

SCAFFOLDS & WORK PLATFORMS

Ramps & Walkways

- Ramps and walkways 6 feet or more above lower levels must have guardrail systems that comply with fall protection regulations.
- No ramp or walkway must be inclined more than a slope of one vertical to three horizontal (20 degrees above the horizontal).
- If the slope of a ramp or a walkway is steeper than one vertical in eight horizontal, the ramp or walkway must have cleats not more than fourteen inches apart that are securely fastened to the planks to provide footing.

Integral prefabricated scaffold access frames must:

- Be specifically designed and constructed for use as ladder rungs
- Have a rung length of at least 8 inches
- Not be used as work platforms when rungs are less than 11½ inches in length, unless each affected employee uses fall protection, or a positioning device
- Be uniformly spaced within each frame section
- Be provided with rest platforms at 35-foot maximum vertical intervals on all supported scaffolds more than 35 feet high
- Have a maximum spacing between rungs of 16¾ inches. Non-uniform rung spacing caused by joining end frames together is allowed, provided the resulting spacing does not exceed 16¾ inches.

Other Requirements

Steps and rungs of ladder and stairway type access must line up vertically with each other between rest platforms.

Direct access to or from another surface must be used only when the scaffold is not more than 14 inches horizontally and not more than 24 inches vertically from the other surface.

USE OF SCAFFOLDS

- Never load scaffolds or their components in excess of their maximum intended loads or rated capacities, whichever is less.
- Do not use shore or lean-to scaffolds.
- A competent person must inspect scaffolds and scaffold components for visible defects before use and after any occurrence that could affect a scaffold's structural integrity.
- Any part of a scaffold that is damaged or weakened resulting in a reduction of the structures strength, must be immediately repaired or replaced, braced to meet those provisions, or removed from service until repaired.
- Unless a registered professional engineer designed the scaffolds specifically for movement, no scaffold may be moved horizontally while employees are on them.

SCAFFOLDS & WORK PLATFORMS

- No scaffold may be erected, used, dismantled, altered, or moved if any conductive material handled on them might come closer to exposed and energized power lines than indicated in Table 1.
- Scaffolds may be closer than specified after the utility company, or electrical system operator has been notified, has de-energized the lines, or installed protective coverings to prevent accidental contact.
- Only experienced and trained employees will erect, move or dismantle scaffolds, and only under the supervision and direction of a competent person.
- Employees may not work on scaffolds covered in slippery material like ice or snow (except as needed to remove it).

Insulated Lines			Uninsulated Lines		
Voltage	Minimum distance	Alternatives	Voltage	Minimum distance	Alternatives
Less than 300 volts	3 feet		Less than 50 kv	10 feet	2 times the length of the line insulator, never less than 10 feet
300 volts to 50 kv	10 feet		More than 50 kv	10 feet + 0.4 inches for each 1 kv over 50 kv.	
More than 50 kv	10 feet + 0.4 inches for each 1 kv over 50 kv	2 times the length of the line insulator, never less than 10 feet			

Table 1

- Use tag lines to control swinging loads from making unintentional contact while being hoisted.
- Ropes that support adjustable suspension scaffolds must be large enough in diameter to provide enough surface area for the functioning of brake and hoist mechanisms.
- Employees may not work on or from scaffolds during storms or high winds, unless a competent person has determined it is safe, and the employees are protected by a personal fall arrest system or wind screens.
- Stationary manufactured scaffolding must be tied to and braced against a building at least every 30 feet horizontally and 26 feet vertically, unless otherwise guyed.
- Adjusting screws on stationary manufactured scaffolding must have an adjustment of not more than 18 inches from baseplate to bottom of frame with a minimum of 6 inches retained within the frame.
- Suspension ropes must be shielded from heat-producing processes and corrosive substances.
- No debris can be allowed to accumulate on platforms to cause a hazard.

SCAFFOLDS & WORK PLATFORMS

Ladder Safety on Scaffolds

Employees may not increase the working level on top of scaffold platforms with makeshift devices like boxes or barrels.

Ladders also may not be used to increase the working level height of an employee unless the following criteria are met:

- When the ladder is placed against a structure which is not a part of the scaffold, the scaffold must be secured against the sideways thrust exerted by the ladder
- The platform units must be secured to the scaffold to prevent their movement
- The ladder legs must be on the same platform or other means must be provided to stabilize the ladder against unequal platform deflection
- The ladder legs must be secured to prevent them from slipping or being pushed off the platform.

Welding Safety on Scaffolds

To reduce the possibility of welding current arcing through the suspension wire rope when performing welding from suspended scaffolds, the following precautions must be taken, as applicable:

- An insulated thimble must be used to attach each suspension wire rope to its hanging support (such as cornice hook or outrigger). Excess suspension wire rope and any additional independent lines that is in contact with the scaffold must be insulated
- The suspension wire rope must be covered with insulating material extending at least 4 feet above the hoist. If there is a tail line below the hoist, it must be insulated to prevent contact with the platform. The portion of the tail line that hangs free below the scaffold must be guided or retained, or both, so that it does not become grounded
- Each hoist must be covered with insulated protective covers
- In addition to a work lead attachment required by the welding process, a grounding conductor must be connected from the scaffold to the structure. The size of this conductor must be at least the size of the welding process work lead, and this conductor must not be in series with the welding process or the work piece
- If the scaffold grounding lead is disconnected at any time, the welding machine must be shut off
- An active welding rod or uninsulated welding lead must not be allowed to contact the scaffold or its suspension system.

SCAFFOLDS & WORK PLATFORMS

FALL PROTECTION

Fall protection must be provided to employees working on a scaffold more than 10 feet above a lower level to prevent falls to that lower level. See Table 2

Fall Protection by Type of Scaffold

- Each employee on a boatswains' chair, catenary scaffold, float scaffold, needle beam scaffold, or ladder jack scaffold must be protected by a personal fall arrest system
- Each employee on a single-point or two-point adjustable suspension scaffold must be protected by both a personal fall arrest system and guardrail system
- Each employee on a crawling board (chicken ladder) must be protected by a personal fall arrest system, a guardrail system (with minimum 200 pound toprail capacity), or by a three-fourth inch diameter grabline or equivalent handhold securely fastened beside each crawling board
- A lifeline and safety belt must be used where an employee is required to crawl out on a thrustout or projecting beam
- Each employee on a self-contained adjustable scaffold must be protected by a guardrail system (with minimum 200 pound toprail capacity) when the platform is supported by the frame structure, and by both a personal fall arrest system and a guardrail system (with minimum 200 pound toprail capacity) when the platform is supported by ropes
- Each employee on a walkway located within a scaffold must be protected by a guardrail system (with minimum 200 pound toprail capacity) installed within 9½ inches (24.1 cm) of and along at least one side of the walkway.
- Each employee performing overhand bricklaying operations from a supported scaffold must be protected from falling from all open sides and ends of the scaffold (except at the side next to the wall being laid) by the use of a personal fall arrest system or guardrail system (with minimum 200 pound toprail capacity).

For all scaffolds not otherwise specified, each employee must be protected by the use of personal fall arrest systems or guardrail systems meeting all safety requirements.

FALL PROTECTION REQUIRED	TYPE OF SCAFFOLD
Personal Fall-Arrest System	Boatswain's Chair Catenary Scaffold Float Scaffold Needle Beam Scaffold Ladder Jack Scaffold
Guardrails	Self-contained adjustable scaffold when platform is supported by the frame structure Walkways located within a scaffold
Personal Fall-Arrest System and Guardrails	Single-point adjustable suspension scaffold Two-point adjustable scaffold Self-contained adjustable scaffold when platform is supported by ropes
Personal Fall-Arrest System, Guardrails, or Grab-line	Crawling Board (chicken ladder)
Personal Fall-Arrest System or Guardrails	Overhand bricklaying on a supported scaffold All other types of scaffolds not identified in this table

Table 2

SCAFFOLDS & WORK PLATFORMS

SCAFFOLDS & WORK PLATFORMS

Fall Protection for Scaffold Erectors and Dismantlers

The company will have a competent person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds, and will provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

Personal fall arrest systems used on scaffolds will follow all safety regulations and policy for fall protection and will be attached by lanyard to a vertical lifeline, horizontal lifeline, or scaffold structural member. Vertical lifelines must not be used when overhead components, such as overhead protection or additional platform levels, are part of a single-point or two-point adjustable suspension scaffold.

When vertical lifelines are used, they must be fastened to a fixed safe point of anchorage, must be independent of the scaffold, and must be protected from sharp edges and abrasion. Safe points of anchorage include structural members of buildings, but do not include standpipes, vents, other piping systems, electrical conduit, outrigger beams, or counterweights.

When horizontal lifelines are used, they must be secured to two or more structural members of the scaffold, or they may be looped around both suspension and independent suspension lines (on scaffolds so equipped) above the hoist and brake attached to the end of the scaffold. Horizontal lifelines must not be attached only to the suspension ropes.

When lanyards are connected to horizontal lifelines or structural members on a single-point or two-point adjustable suspension scaffold, the scaffold must be equipped with additional independent support lines and automatic locking devices capable of stopping the fall of the scaffold in the event one or both of the suspension ropes fail. The independent support lines must be equal in number and strength to the suspension ropes.

Vertical lifelines, independent support lines, and suspension ropes must not be attached to each other, or attached to or use the same point of anchorage, nor can they be attached to the same point on the scaffold or personal fall arrest system.

Guardrails

Guardrail systems must comply with the following provisions:

- Guardrail systems must be installed along all open sides and ends of platforms. Guardrail systems must be installed before employees, other than erection/dismantling crews, can use the scaffold
- The top edge height of toprails or equivalent members on supported scaffolds manufactured or placed in service after Jan. 1, 2000 must be installed between 38 inches and 45 inches above the platform surface. The top edge height on supported scaffolds manufactured and placed in service before Jan. 1, 2000, and on all suspended scaffolds where both a guardrail and a personal fall arrest system are required, must be between 36 inches and 45 inches. When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other criteria

SCAFFOLDS & WORK PLATFORMS

- When midrails, screens, mesh, intermediate vertical members, solid panels, or equivalent structural members are used, they must be installed between the top edge of the guardrail system and the scaffold platform
- When midrails are used, they must be installed at a height approximately midway between the top edge of the guardrail system and the platform surface
- When screens and mesh are used, they must extend from the top edge of the guardrail system to the scaffold platform, and along the entire opening between the supports
- When intermediate members (such as balusters or additional rails) are used, they must not be more than 19 inches apart
- Each toprail or equivalent member of a guardrail system must be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along its top edge of at least 100 pounds for guardrail systems installed on single-point adjustable suspension scaffolds or two-point adjustable suspension scaffolds, and at least 200 pounds for guardrail systems installed on all other scaffolds
- When the loads are applied in a downward direction, the top edge must not drop below the height above the platform surface.
- Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members of a guardrail system must be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along the midrail or other member of at least 75 pounds for guardrail systems with a minimum 100-pound toprail capacity, and at least 150 pounds (666 n) for guardrail systems with a minimum 200-pound toprail capacity
- Suspension scaffold hoists and non-walk-through stirrups may be used as end guardrails, if the space between the hoist or stirrup and the side guardrail or structure does not allow passage of an employee to the end of the scaffold
- Guardrails must be surfaced to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing
- The ends of all rails must not overhang the terminal posts except when such overhang does not constitute a projection hazard to employees
- Steel or plastic banding must not be used as a toprail or midrail
- Manila or plastic (or other synthetic) rope being used for toprails or midrails must be inspected by a competent person as frequently as necessary to ensure that it continues to meet strength requirements
- Crossbracing is acceptable in place of a midrail when the crossing point of two braces is between 20 inches and 30 inches above the work platform or as a toprail when the crossing point of two braces is between 38 inches and 48 inches above the work platform. The end points at each upright must be no more than 48 inches apart.

SCAFFOLDS & WORK PLATFORMS

Falling Object Protection

Where there is a danger of tools, materials, or equipment falling from a scaffold and striking employees below, the following provisions apply:

- The area below the scaffold to which objects can fall must be barricaded, and employees must not be permitted to enter the hazard area; or
- A toeboard must be erected along the edge of platforms more than 10 feet above lower levels for a distance sufficient to protect employees below, except on float (ship) scaffolds where an edging of $\frac{3}{4}$ x $1\frac{1}{2}$ inch wood or equivalent may be used in lieu of toeboards.
- Where tools, materials, or equipment are piled to a height higher than the top edge of the toeboard, paneling or screening extending from the toeboard or platform to the top of the guardrail must be erected for a distance sufficient to protect employees below; or
- A guardrail system must be installed with openings small enough to prevent passage of potential falling objects; or
- A canopy structure, debris net, or catch platform strong enough to withstand the impact forces of the potential falling objects must be erected over the employees below.

Canopies, when used for falling object protection, must comply with the following criteria:

- Canopies must be installed between the falling object hazard and the employees
- When canopies are used on suspension scaffolds for falling object protection, the scaffold must be equipped with additional independent support lines equal in number to the number of points supported, and equivalent in strength to the strength of the suspension ropes
- Independent support lines and suspension ropes must not be attached to the same points of anchorage.

Where used, toeboards must be:

- Capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or horizontal direction at any point along the toeboard
- At least three and one-half inches high from the top edge of the toeboard to the level of the walking/working surface. Toeboards must be securely fastened in place at the outermost edge of the platform and not have more than $\frac{1}{4}$ inch clearance above the walking/working surface. Toeboards must be solid or with openings not over one inch in the greatest dimension.

SCAFFOLDS & WORK PLATFORMS

REQUIREMENTS FOR SCAFFOLDS

General specifications

The specifications outlined in this section assume all load-carrying timber members of the scaffold are a minimum of 1,500 lb/in² construction grade lumber.

Allowable spans must comply with the National Design Specification for Wood Construction published by the National Forest Products Association; paragraph 5 of American National Standards Institute (ANSI) A10.8-1988 Scaffolding-Safety Requirements; or for 2x10-inch (nominal) or 2x9-inch (rough) solid sawn wood planks, as shown in Table 3.

The maximum permissible span for 1¼ x 9-inch or wider wood plank of full thickness with a maximum intended load of 50 lb/ft² must be 4 feet.

Fabricated planks and platforms may be used instead of wood. Maximum spans for such units must be as recommended by the manufacturer based on the maximum intended load being calculated as described in table 3.

Maximum intended nominal load	Maximum permissible span using full thickness undressed lumber (ft.)	Maximum permissible span using nominal thickness lumber (ft.)
25	10	8
50	8	6
75	6	

Table 3

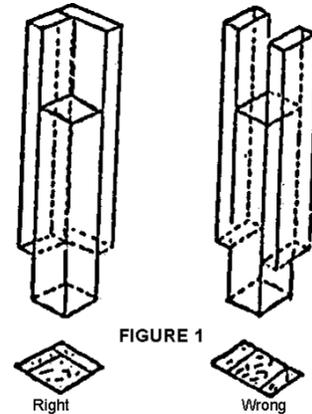
Pole Scaffolds

Single-pole scaffolding must:

- Have the inner end of the bearer rest in the wall of the building with at least a 4-inch bearing. Notching is prohibited.
- Have the inner end of the bearer, when used on frame buildings, rest on a block 12 inches long and not less than 2 inches by 6 inches nominal size. The block must be notched the width of the bearer and not less than 2 inches deep. The bearer must be nailed to both the block and the building.
- Have the inner end of the bearer, when it comes at a window opening, supporting by a plank of equal strength resting on the windowsill and fastened to the building. The bearer must be braced against displacement.
- Have a bearer reinforced with a 3/16 x 2-inch steel strip or its equivalent secured to its lower edge along its entire length.
- Be set as close to the wall of the building as possible. A pole scaffold must be guyed or tied to the building or structure. Where the height or length is more than 25 feet, the scaffold must be secured at intervals not more than 25 feet vertically and horizontally.

SCAFFOLDS & WORK PLATFORMS

- Diagonal bracing in both directions must be installed across the entire outside face of all double- and single-pole scaffolds. Diagonal bracing in both directions must be installed across the entire inside face of double-pole scaffolds used to support loads equivalent to a uniformly distributed load of 50 pounds or more per square foot.
- Braces, bearers, and runners (ledgers) must not be spliced between poles. When a wood pole is spliced, the ends should be square and flat. Not less than 2 wood splice plates should be secured to adjacent sides and should be not less than 4 feet in length by 1 inch thick by the same width as the pole and have equal overlap to the joint. More than 1 consecutive splice per general level must not be made (see the figure at right).
- Two runners meeting at a pole must be nailed to each other, and 2 ledgers meeting at a corner must have 1 cut flush to the pole and the other nailed on the outside and overlap.
- Runners must extend over a minimum of two poles, and must be supported by bearing blocks securely attached to the poles.
- Runners must overlap the poles at each end by not less than 4 inches, be level, and be nailed to the inside of the poles. A runner must not be nailed less than 1 inch to the top edge.
- A spliced runner must be reinforced by a bearing block secured to the side of the pole to form a support for the runner.
- Runners and bearers must be installed on edge.
- A bearer must be set with its greater dimension vertical and must project 3 inches beyond the runner and the inner and outer pole.



Pole scaffolds over 60 feet in height must be designed by a registered professional engineer, and must be constructed and loaded in accordance with that design.

- Successive lengths of planking must not abut on a single bearer and, where planks abut, 2 bearers must be placed not more than 8 inches apart.
- When moving a work platform to a new level, the old platform must remain in place until the new bearers are in place to receive the platform.
- A wood pole scaffold must not be erected beyond the reach of fire-fighting equipment.

SCAFFOLDS & WORK PLATFORMS

	Light duty up to 20 feet high	Light duty up to 60 feet high	Medium duty up to 60 feet high	Heavy duty up to 60 feet high
Maximum intended load	25 p.s.f.	25 p.s.f.	50 p.s.f.	75 p.s.f.
Poles or uprights	2 x 4 in.	4 x 4 in.	4 x 4 in.	4 x 6 in.
Maximum pole spacing (longitudinal)	6 feet	10 feet	8 feet	6 feet
Maximum pole spacing (transverse)	5 feet	5 feet	5 feet	5 feet
Runners	1 x 4 in	1¼ x 9 in	2 x 10 in	2 x 10 in
Bearers and max. spacing of bearers				
3 feet	2 x 4 in	2 x 4 in.	2 x 10 in. or 3 x 4 in.	
5 feet	2 x 6 in or 3 x 4 in	2 x 6 in or 3 x 4 in (rough)	2 x 10 in. or 3 x 4 in	2 x 10 in or 3 x 5 in
6 feet			2 x 10 in or 3 x 4 in	2 x 10 in or 3 x 5 in
8 feet			2 x 10 in or 3 x 4 in	
Planking	2 x 10 in (rough)	2 x 10 in	2 x 10 in	2 x 10 in
Maximum vertical spacing of horizontal members	7 feet	9 feet	7 feet	6 ft. 6 in.
Bracing horizontal	1 x 4 in	1 x 4 in	1 x 6 in or 1¼ x 4 in	2 x 4 in
Bracing Diagonal	1 x 4 in	1 x 4 in	1 x 4 in	2 x 4 in
Tie-ins	1 x 4 in	1 x 4 in	1 x 4 in	1 x 4 in

Single-pole Scaffolds

SCAFFOLDS & WORK PLATFORMS

Independent wood pole scaffolds

	Light duty up to 20 feet high	Light duty up to 60 feet high	Medium duty up to 60 feet high	Heavy duty up to 60 feet high
Maximum intended load	25 lbs/ft ²	25 lbs/ft ²	50 lbs/ft ²	75 lbs/ft ²
Poles or uprights	2 x 4 in	4 x 4 in	4 x 4 in	4 x 4 in
Maximum pole spacing (longitudinal)	6 feet	10 feet	8 feet	6 feet
Maximum pole spacing (transverse)	6 feet	10 feet	8 feet	8 feet
Runners	1¼ x 4 in	1¼ x 9 in	2 x 10 in	2 x 10 in
Bearers and max. spacing of bearers				
3 feet	2 x 4 in	2 x 4 in	2 x 10 in	2 x 10 in (rough)
6 feet	2 x 6 in or 3 x 4 in	2 x 10 (rough) or 3 x 8 in	2 x 10 in (rough) or 2 x 10 in	2 x 10 in
8 feet	2 x 6 in or 3 x 4 in	2 x 10 (rough) or 3 x 8 in	2 x 10 in	
10 feet	2 x 6 in or 3 x 4 in	2 x 10 (rough) or 3 x 3 in	2 x 10 in	
Planking	1¼ x 9 in	2 x 10 in	2 x 10 in	2 x 10 in
Maximum vertical spacing of horizontal members	7 feet	7 feet	6 feet	6 feet
Bracing horizontal	1 x 4 in	1 x 4 in	1 x 6 in or 1¼ x 4 in	2 x 4 in
Bracing diagonal	1 x 4 in	1 x 4 in	1 x 4 in	2 x 4 in
Tie-ins	1 x 4 in	1 x 4 in	1 x 4 in	1 x 4 in

Tube and Coupler Scaffolds

When platforms are being moved to the next level, the existing platform must be left undisturbed until the new bearers have been set in place and braced prior to receiving the new platforms.

Transverse bracing forming an "X" across the width of the scaffold must be installed at the scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically. Bracing must extend diagonally from the inner or outer posts or runners upward to the next outer or inner posts or runners. Building ties must be installed at the bearer levels between the transverse bracing and must conform to requirements.

Maximum Number of Planked Levels

Number of working levels	Maximum number of additional planked levels			Maximum height of scaffold (in feet)
	Light duty	Medium duty	Heavy duty	
1	16	11	6	125
2	11	1	0	125
3	6	0	0	125
4	1	0	0	125

SCAFFOLDS & WORK PLATFORMS

SCAFFOLDS & WORK PLATFORMS

On straight run scaffolds, longitudinal bracing across the inner and outer rows of posts must be installed diagonally in both directions, and must extend from the base of the end posts upward to the top of the scaffold at approximately a 45 degree angle. On scaffolds whose length is greater than their height, such bracing must be repeated beginning at least every fifth post. On scaffolds whose length is less than their height, such bracing must be installed from the base of the end posts upward to the opposite end posts, and then in alternating directions until reaching the top of the scaffold. Bracing must be installed as close as possible to the intersection of the bearer and post or runner and post.

Where conditions preclude the attachment of bracing to posts, bracing must be attached to the runners as close to the post as possible.

Minimum Size of Members

	Light Duty	Medium Duty	Heavy Duty
Maximum intended load	25 lbs/ft ²	50 lbs/ft ²	75 lbs/ft ²
Posts, runners and braces	Nominal 2 in. (1.90 in) OD steel tube or pipe	Nominal 2 in. (1.90 in) OD steel tube or pipe	Nominal 2 in. (1.90 in) OD steel tube or pipe
Bearers	Nominal 2 in. (1.90 in) OD steel tube or pipe and a maximum post spacing of 4 ft. x 10 ft.	Nominal 2 in. (1.90 in) OD steel tube or pipe and a maximum post spacing of 4 ft. x 7 ft. or nominal 2½ in (2.375 in) OD steel tube or pipe and a maximum post spacing of 6 ft. x 8 ft.	Nominal 2½ in (2.375 in) OD steel tube or pipe and a maximum post spacing 6 ft. x 6 ft.
Maximum runner spacing vertically	6 ft. 6 in.	6 ft. 6 in.	6 ft. 6 in.

Bearers must be installed transversely between posts, and when coupled to the posts, must have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers must be as close to the posts as possible.

Bearers must extend beyond the posts and runners, and must provide full contact with the coupler.

Tube and coupler type scaffolding must have ledgers (runners) erected along the length of the scaffold, which are located on both inside and outside posts at each bearer level.

Ledgers must be interlocked to form continuous lengths and coupled to each post. The bottom ledgers must be located as close to the base as possible. Ledgers must be placed not more than 6 feet 6 inches on centers, vertically.

Couplers must be of a structural metal, such as dropforged steel, malleable iron, or structural grade aluminum. The use of gray cast iron is prohibited.

Tube and coupler scaffolds over 125 feet in height must be designed by a registered professional engineer, and must be constructed and loaded in accordance with such design.

Plasterers', Decorators' and Large Area Scaffolds

The guidelines for pole scaffolds or tube and coupler scaffolds may be applied.

SCAFFOLDS & WORK PLATFORMS

Fabricated Frame Scaffolds

- When moving platforms to the next level, the existing platform must be left undisturbed until the new end frames have been set in place and braced prior to receiving the new platforms.
- Frames and panels must be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces must be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, level, and square. All brace connections must be secured.
- Frames and panels must be joined together vertically by coupling or stacking pins or equivalent means.
- Where uplift can occur which would displace scaffold end frames or panels, the frames or panels must be locked together vertically by pins or equivalent means.
- Brackets used to support cantilevered loads must:
 - Be seated with side-brackets parallel to the frames and end-brackets at 90 degrees to the frames;
 - Not be bent or twisted from these positions; and
 - Be used only to support personnel, unless the scaffold has been designed for other loads by a qualified engineer and built to withstand the tipping forces caused by those other loads being placed on the bracket-supported section of the scaffold.
- Scaffolds over 125 feet in height above their base plates must be designed by a registered professional engineer, and must be constructed and loaded in accordance with such design.

Bricklayers' Square Scaffolds (Squares)

- Scaffolds made of wood must be reinforced with gussets on both sides of each corner.
- Diagonal braces must be installed on all sides of each square.
- Diagonal braces must be installed between squares on the rear and front sides of the scaffold, and must extend from the bottom of each square to the top of the next square.
- Scaffolds must not exceed three tiers in height, and must be so constructed and arranged that one square rests directly above the other. The upper tiers must stand on a continuous row of planks laid across the next lower tier, and must be nailed down or otherwise secured to prevent displacement.

Maximum intended load: 50 lbs/ft². The squares must be set not more than 8 feet apart for light duty scaffolds and not more than 5 feet apart for medium duty scaffolds.

Maximum width:	5 ft.
Maximum height:	5 ft.
Gussets:	1 x 6 in.
Legs:	2 x 6 in.
Bearers:	2 x 6 in.

SCAFFOLDS & WORK PLATFORMS

Horse Scaffolds

- Scaffolds must not be constructed or arranged more than two tiers or 10 feet in height, whichever is less.
- When horses are arranged in tiers each horse must be placed directly over the horse in the tier below, the legs of each horse must be nailed down or otherwise secured to prevent displacement, and each tier must be cross-braced.
- A horse higher or longer than 4 feet must have the cross section of each member increased to the next nominal size in width.
- Nailing of extension pieces to the legs is prohibited.
- Legs must be set on concrete, another hard surface, or base plates.
- Maximum intended load (light duty): 25 lb/ft².
- Maximum intended load (medium duty): 50 lb/ft².
- Space horses no further apart than 8 feet for light duty loads and not more than 5 feet for medium duty loads.

Horizontal members or bearers:

Light duty:	2 x 6 in.
Medium duty:	3 x 4 in.
Legs:	2 x 4 in.
Longitudinal brace between legs:	1 x 6 in.
Gusset brace at top of legs:	1 x 8 in.

Form Scaffolds and Carpenters' Bracket Scaffolds

- Each bracket, except those for wooden bracket-form scaffolds, must be attached to the supporting formwork or structure by means of one or more of the following:
 - Nails; a metal stud attachment device
 - Welding
 - Hooking over a secured structural supporting member, with the form wales either bolted to the form or secured by snap ties or tie bolts extending through the form and securely anchored
 - For carpenters' bracket scaffolds only, by a bolt extending through to the opposite side of the structure's wall.
- Wooden bracket-form scaffolds must be an integral part of the form panel.
- Folding type metal brackets, when extended for use, must be either bolted or secured with a locking-type pin.
- Brackets must consist of a triangular-shaped frame made of wood with a cross-section not less than 2 inches by 3 inches, or of 1¼ inch x 1¼ inch x ½ inch structural angle iron.
- Bolts used to attach brackets to structures must not be less than 5/8 inches in diameter.
- Maximum bracket spacing must be 8 feet on centers.
- No more than two employees can occupy any 8 feet of a bracket or form scaffold at any one time. Tools and materials must not exceed 75 pounds in addition to the occupancy.
- If made of wood, the corners must be gusseted to prevent the joints from pulling apart.

SCAFFOLDS & WORK PLATFORMS

Roof Bracket scaffolds

- Scaffold brackets must be constructed to fit the pitch of the roof and must provide a level support for the platform.
- Brackets (including those provided with pointed metal projections) must be anchored in place by nails unless it is impractical to use nails. When nails are not used, brackets must be secured in place with first-grade manila rope of at least three-fourth inch (1.9 cm) diameter, or equivalent.

Outrigger Scaffolds

- The inboard end of outrigger beams, measured from the fulcrum point to the extreme point of anchorage, must be not less than one and one-half times the outboard end in length.
- Outrigger beams fabricated in the shape of an I-beam or channel must be placed so that the web section is vertical.
- The fulcrum point of outrigger beams must rest on secure bearings at least 6 inches in each horizontal dimension.
- Outrigger beams must be secured in place against movement, and must be securely braced at the fulcrum point against tipping.
- The inboard ends of outrigger beams must be securely anchored either by means of braced struts bearing against sills in contact with the overhead beams or ceiling, or by means of tension members secured to the floor joists underfoot, or by both.
- The entire supporting structure must be securely braced to prevent any horizontal movement.
- To prevent their displacement, platform units must be nailed, bolted, or otherwise secured to outriggers.
- Scaffolds and scaffold components must be designed by a registered professional engineer and must be constructed and loaded in accordance with such design.
- A standard barrier and toeboard must be installed.
- A horse scaffold must not be used with an outrigger scaffold.

Wooden figure-four scaffolds:

Maximum intended load:	25 lb/ft. ²
Uprights:	2 x 4 in. or 2 x 6 in.
Bearers (two):	1 x 6 in.
Braces:	1 x 6 in.
Maximum length of bearers (unsupported):	3 ft. 6 in.

Outrigger bearers must consist of two pieces of 1 x 6 inch lumber nailed on opposite sides of the vertical support.

Bearers for wood figure-four brackets must project not more than 3 feet 6 inches from the outside of the form support, and must be braced and secured to prevent tipping or turning. The knee or angle brace must intersect the bearer at least 3 feet from the form at an angle of approximately 45 degrees, and the lower end must be nailed to a vertical support.

SCAFFOLDS & WORK PLATFORMS

Metal bracket scaffolds

Maximum intended load:	25 lb/ft.2
Uprights:	2 x 4 inch
Bearers:	As designed
Braces:	As designed

Wood bracket scaffolds

Maximum intended load:	25 lb/ft.2
Uprights:	2 x 4 in or 2 x 6 in
Bearers:	2 x 6 in
Maximum scaffold width:	3 ft. 6 in
Braces:	1 x 6 in

Pump Jack Scaffolds

- Pump jack brackets, braces, and accessories must be fabricated from metal plates and angles. Each pump jack bracket must have two positive gripping mechanisms to prevent any failure or slippage.
- Poles must be secured to the structure by rigid triangular bracing or equivalent at the bottom, top, and other points as necessary. When the pump jack has to pass bracing already installed, an additional brace must be installed approximately 4 feet above the brace to be passed, and must be left in place until the pump jack has been moved and the original brace reinstalled.
- When guardrails are used for fall protection, a workbench may be used as the toprail only if it meets all applicable requirements.
- Workbenches must not be used as scaffold platforms.
- When poles are made of wood, the pole lumber must be straight-grained, free of shakes, large loose or dead knots, and other defects that might impair strength.
- When wood poles are constructed of two continuous lengths, they must be joined together with the seam parallel to the bracket.
- When two by fours are spliced to make a pole, mending plates must be installed at all splices to develop the full strength of the member.

Wood poles must not exceed 30 feet in height. Maximum intended load – 500 lbs between poles; applied at the center of the span. Not more than two employees must be on a pump jack scaffold at one time between any two supports. When 2x4s are spliced together to make a 4x4 inch wood pole, they must be spliced with “10 penny” common nails no more than 12 inches center to center, staggered uniformly from the opposite outside edges.

SCAFFOLDS & WORK PLATFORMS

Ladder Jack Scaffolds

- Platforms must not exceed a height of 20 feet.
- All ladders used to support ladder jack scaffolds must meet OSHA requirements, except that job-made ladders must not be used to support ladder jack scaffolds.
- The ladder jack must be so designed and constructed that it will bear on the side rails and ladder rungs or on the ladder rungs alone. If bearing on rungs only, the bearing area must include a length of at least 10 inches on each rung.
- Ladders used to support ladder jacks must be placed, fastened, or equipped with devices to prevent slipping.
- Scaffold platforms must not be bridged one to another.
- The span of a pick must not exceed 24 feet.
- Maximum intended load – 25 lb/ft². However, not more than two employees must occupy any platform at any one time. Maximum span between supports must be 8 feet.

Window Jack Scaffolds

- Not more than one employee must occupy a window jack scaffold at any one time.
- Scaffolds must be securely attached to the window opening.
- Scaffolds must be used only for working at the window opening through which the jack is placed.
- Window jacks must not be used to support planks placed between one window jack and another, or for other elements of scaffolding.

Crawling Boards (Chicken Ladders)

- Crawling boards must be not less than 10 inches wide and 1 inch thick, with cleats having a minimum 1 x 1½ inch cross-sectional area. The cleats must be equal in length to the width of the board and spaced at equal intervals not to exceed 24 inches.
- Crawling boards must extend from the roof peak to the eaves when used in connection with roof construction, repair, or maintenance.
- Crawling boards must be secured to the roof by ridge hooks or by means that meet equivalent criteria (e.g., strength and durability).

Step, Platform, and Trestle Ladder Scaffolds

- Scaffold platforms must not be placed any higher than the second highest rung or step of the ladder supporting the platform.
- All ladders used in conjunction with step, platform, and trestle ladder scaffolds must meet the pertinent requirements, except that job-made ladders must not be used to support such scaffolds.
- Ladders used to support step, platform, and trestle ladder scaffolds must be placed, fastened, or equipped with devices to prevent slipping.
- Scaffolds must not be bridged one to another.

SCAFFOLDS & WORK PLATFORMS

Single-Point Adjustable Suspension Scaffolds

When two single-point adjustable suspension scaffolds are combined to form a two-point adjustable suspension scaffold, the resulting two-point scaffold must comply with the requirements for two-point adjustable suspension scaffolds.

Maximum intended load – 250 lbs. Wood seats for boatswains' chairs must be not less than 1 inch thick if made of non-laminated wood, or 5/8 inches thick if made of marine quality plywood.

The supporting rope between the scaffold and the suspension device must be kept vertical unless all of the following conditions are met:

- The rigging has been designed by a qualified person
- The scaffold is accessible to rescuers
- The supporting rope is protected to ensure that it will not chafe at any point where a change in direction occurs
- The scaffold is positioned so that swinging cannot bring the scaffold into contact with another surface.

Boatswains' chair tackle must consist of correct size ball bearings or bushed blocks containing safety hooks and properly "eye-spliced" minimum five-eighth inch diameter first-grade manila rope, or other rope, which will satisfy the criteria (e.g., strength and durability) of manila rope.

Boatswains' chair seat slings must be reeved through four corner holes in the seat, must cross each other on the underside of the seat, and must be rigged to prevent slippage that could cause an out-of-level condition.

Boatswains' chair seat slings must be a minimum of five-eighth inch diameter fiber, synthetic, or other rope that will satisfy the criteria (e.g., strength, slip resistance, durability, etc.) of first grade manila rope.

When a heat-producing process such as gas or arc welding is being conducted, boatswains' chair seat slings must be a minimum of three-eighths inch wire rope.

Non-cross-laminated wood boatswains' chairs must be reinforced on their underside by cleats securely fastened to prevent the board from splitting.

SCAFFOLDS & WORK PLATFORMS

Two-Point Adjustable Suspension Scaffolds (Swing Stages) Excluding Swing Stages Used as Masons' or Stonesetters' Scaffolds

Platforms must be at least 20 inches, and not more than 36 inches wide unless designed by a qualified person to prevent unstable conditions.

The platform must be securely fastened to hangers (stirrups) by U-bolts or by other means that prevent the platform from slipping off the hangar.

The blocks for fiber or synthetic ropes must consist of at least one double and one single block. The sheaves of all blocks must fit the size of the rope used.

Platforms must be of the ladder-type, plank-type, beam-type, or light-metal type. Light metal-type platforms having a rated capacity of 750 pounds or less and platforms 40 feet or less in length must be tested and listed by a nationally recognized testing laboratory.

In addition to direct connections to buildings (except window cleaners' anchors), acceptable ways to prevent scaffold sway include angulated roping and static lines. Angulated roping is a system of platform suspension in which the upper wire rope sheaves or suspension points are closer to the plane of the building face than the corresponding attachment points on the platform, thus causing the platform to press against the face of the building. Static lines are separate ropes secured at their top and bottom ends closer to the plane of the building face than the outermost edge of the platform. By drawing the static line taut, the platform is drawn against the face of the building.

On suspension scaffolds designed for a working load of 500 pounds, no more than two employees must be permitted on the scaffold at one time. On suspension scaffolds with a working load of 750 pounds, no more than three employees must be permitted on the scaffold at one time.

Two-point scaffolds must not be bridged or otherwise connected one to another during raising and lowering operations unless the bridge connections are articulated (attached), and the hoists properly sized.

Passage may be made from one platform to another only when the platforms are at the same height, are abutting, and walk-through stirrups specifically designed for this purpose are used.

Where rope and blocks are used to support a swing scaffold, the scaffold must have:

- Hangers made of $\frac{3}{4}$ -inch round steel, or its equivalent, which are designed to have a flat bottom to hold a platform and which have arms to hold a standard barrier and a loop to hold the hook on a block
- Ropes made fast to the point of the hook on the hanger eye by a special hitch that cannot slip

SCAFFOLDS & WORK PLATFORMS

Multi-Point Adjustable Suspension Scaffolds, Stonesetters' Multi-Point Adjustable Suspension Scaffolds, and Masons' Multi-Point Adjustable Suspension Scaffolds

When two or more scaffolds are used, they must not be bridged one to another unless they are designed to be bridged, the bridge connections are articulated, and the hoists are properly sized.

If bridges are not used, passage may be made from one platform to another only when the platforms are at the same height and are abutting.

Scaffolds must be suspended from metal outriggers, brackets, wire rope slings, hooks, or means that meet equivalent criteria (e.g., strength, durability).

Ladder-Type Platforms

The side stringer must be of clear straight-grained spruce. The rungs must be of straight-grained oak, ash, or hickory, at least 1 $\frac{1}{8}$ inches in diameter, with $\frac{7}{8}$ inch tenons mortised into the side stringers at least $\frac{7}{8}$ inch. The stringers must be tied together with tie rods not less than $\frac{1}{4}$ inch in diameter, passing through the stringers and riveted tight against washers on both ends. The flooring strips must be spaced not more than $\frac{5}{8}$ inch apart, except at the side rails where the space may be 1 inch. Ladder-type platforms must be constructed according to the following:

Length of platform	12 feet	14 & 16 feet	18 & 20 feet	22 & 24 feet	28 & 30 feet
Side stringers, minimum cross section (finished sizes):					
at ends	1 $\frac{3}{4}$ x 2 $\frac{3}{4}$ in.	1 $\frac{3}{4}$ x 2 $\frac{3}{4}$ in.	1 $\frac{3}{4}$ x 3 in.	1 $\frac{3}{4}$ x 3 in.	1 $\frac{3}{4}$ x 3 $\frac{1}{2}$ in.
at middle	1 $\frac{3}{4}$ x 3 $\frac{3}{4}$ in.	1 $\frac{3}{4}$ x 3 $\frac{3}{4}$ in.	1 $\frac{3}{4}$ x 4 in.	1 $\frac{3}{4}$ x 4 $\frac{1}{4}$ in.	1 $\frac{3}{4}$ x 5 in.
Reinforcing strip (minimum)	A $\frac{1}{8}$ x $\frac{7}{8}$ inch steel reinforcing strip must be attached to the side or underside, full length.				
Rungs	Rungs must be 1 $\frac{1}{8}$ inch minimum diameter with at least $\frac{7}{8}$ inch in diameter tenons, and the maximum spacing must be 12 inches to center.				
Tie Rods:					
Minimum Number	3	4	4	5	6
Minimum Diameter	$\frac{1}{4}$ in.	$\frac{1}{4}$ in.	$\frac{1}{4}$ in.	$\frac{1}{4}$ in.	$\frac{1}{4}$ in.
Flooring, minimum finished size	$\frac{1}{2}$ x 2 $\frac{3}{4}$ in.	$\frac{1}{2}$ x 2 $\frac{3}{4}$ in.	$\frac{1}{2}$ x 2 $\frac{3}{4}$ in.	$\frac{1}{2}$ x 2 $\frac{3}{4}$ in.	$\frac{1}{2}$ x 2 $\frac{3}{4}$ in.

SCAFFOLDS & WORK PLATFORMS

Plank-Type Platforms

Plank-type platforms must be composed of not less than nominal 2 x 8 inch unspliced planks, connected together on the underside with cleats at intervals not exceeding 4 feet, starting 6 inches from each end. A bar or other effective means must be securely fastened to the platform at each end to prevent the platform from slipping off the hanger. The span between hangers for plank-type platforms must not exceed 10 feet.

Beam-Type Platforms

Beam platforms must have side stringers of lumber not less than 2 x 6 inches set on edge. The span between hangers must not exceed 12 feet when beam platforms are used. The flooring must be supported on 2 x 6 inch cross beams, laid flat and set into the upper edge of the stringers with a snug fit, at intervals of not more than 4 feet, securely nailed to the cross beams. Floorboards must not be spaced more than ½ inch apart.

Masons' Multi-point Adjustable Suspension Scaffolds

Maximum intended load – 50 lb/ft². Each outrigger beam must be at least a standard 7 inch, 15.3 pound steel I-beam, at least 15 feet long. Such beams must not project more than 6 feet 6 inches beyond the bearing point. Where the overhang exceeds 6 feet 6 inches, outrigger beams must be composed of stronger beams or multiple beams.

Catenary Scaffolds

- No more than one platform must be placed between consecutive vertical pickups, and no more than two platforms must be used on a catenary scaffold.
- Platforms supported by wire ropes must have hook-shaped stops on each end of the platforms to prevent them from slipping off the wire ropes. These hooks must be so placed that they will prevent the platform from falling if one of the horizontal wire ropes breaks.
- Wire ropes must not be tightened to the extent that the application of a scaffold load will overstress them.
- Wire ropes must be continuous and without splices between anchors.
- Maximum intended load – 500 lbs.
- Not more than two employees can be permitted on the scaffold at one time.
- Maximum capacity of come-along must be 2,000 lbs.
- Vertical pickups must be spaced not more than 50 feet apart.
- Ropes must be equivalent in strength to at least ½-inch diameter improved plow steel wire rope.

SCAFFOLDS & WORK PLATFORMS

Float (Ship) Scaffolds

The platform must be supported by a minimum of two bearers, each of which must project a minimum of 6 inches beyond the platform on both sides. Each bearer must be securely fastened to the platform. Rope connections must be such that the platform cannot shift or slip.

When only two ropes are used with each float:

- They must be arranged to provide four ends that are securely fastened to overhead supports.
- Each supporting rope must be hitched around one end of the bearer and pass under the platform to the other end of the bearer where it is hitched again, leaving sufficient rope at each end for the supporting ties.
- Maximum intended load – 750 lbs.
- Platforms must be made of $\frac{3}{4}$ inch plywood, equivalent in rating to American Plywood Association Grade B-B, Group I, Exterior.
- Bearers must be made from 2 x 4 inch, or 1 x 10 inch rough lumber. They must be free of knots and other flaws.
- Ropes must be equivalent in strength to at least 1 inch diameter first grade manila rope.

Interior Hung Scaffolds

- Scaffolds must be suspended only from the roof structure or other structural member such as ceiling beams.
- Overhead supporting members (roof structure, ceiling beams, or other structural members) must be inspected and checked for strength before the scaffold is erected.
- Suspension ropes and cables must be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).

Bearers (use on edge):	2 x 10 in.
Maximum intended load:	Maximum span
25 lb/ft.2:	10 ft.
50 lb/ft.2:	10 ft.
75 lb/ft.2:	7 ft.

SCAFFOLDS & WORK PLATFORMS

Needle Beam Scaffolds

- Scaffold support beams must be installed on edge.
- Ropes or hangers must be used for supports, except that one end of a needle beam scaffold may be supported by a permanent structural member.
- The ropes must be securely attached to the needle beams.
- The support connection must be arranged to prevent the needle beam from rolling or becoming displaced.
- Platform units must be securely attached to the needle beams by bolts or equivalent means. Cleats and overhang are not considered adequate means of attachment.

Maximum intended load: 25 lb/ft. 2

Beams: 4 x 6 in.

Maximum platform span: 8 ft.

Maximum beam span: 10 ft.

Ropes must be attached to the needle beams by a scaffold hitch or an eye splice. The loose end of the rope must be tied by a bowline knot or by a round turn and a half hitch.

Ropes must be equivalent in strength to at least 1 inch diameter first grade manila rope.

Multi-level Suspended Scaffolds

- Scaffolds must be equipped with additional independent support lines, equal in number to the number of points supported, and of equivalent strength to the suspension ropes, and rigged to support the scaffold in the event the suspension rope(s) fail.
- Independent support lines and suspension ropes must not be attached to the same points of anchorage.
- Supports for platforms must be attached directly to the support stirrup and not to any other platform.

Mobile Scaffolds

A mobile scaffold must:

- Not exceed a height of 50 feet unless designed and erected by an engineer knowledgeable in scaffolding.
- Not exceed a height of 4 times the minimum base dimension, or must be guyed every 20 feet of height to prevent movement. Outriggers, when used, may be considered as part of the base dimension.
- Have a landing platform at intervals of not more than 30 feet.
- Have the wheels locked when in use and attached by pins or bolts, or other equivalent means, to the frame or adjusting screw.
- Have a limit adjustment of screw jack to not more than 12 inches from top of castor bearing plate to bottom of frame. The castor stem must fit the socket in the frame and extend inside not less than 6 inches.

SCAFFOLDS & WORK PLATFORMS

- Have all scaffold castors provided with a positive wheel, a swivel lock, or both, to prevent movement.
- Have adequate rigid diagonal bracing, as well as cross, horizontal, or a combination of these three bracings, to prevent racking or collapse of the scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds must be plumb, level, and squared. All brace connections must be secured.
- Have exposed surfaces free from sharp edges, burrs, and other hazards.
- Have the width of a working platform at any level not less than 20 inches and secured in place.
- Have the designed load of all mobile scaffolds calculated on the basis of: Light – Designed and constructed to carry a working load of 25 pounds per square foot. Medium – Designed and constructed to carry a working load of 50 pounds per square foot. Heavy – Designed and constructed to carry a working load of 75 pounds per square foot.
- Have the work level platform of scaffolds, sometimes called towers, of wood, aluminum, or plywood planking, steel, or expanded metal for the full width of the scaffold, except for necessary openings. Work platforms must be secured in place.
- Stability test as described in the ANSI A92 series documents, as appropriate for the type of scaffold, can be used to establish stability.

In addition:

- Scaffolds constructed of tube and coupler components must also comply with the tube and coupler requirements of this chapter.
- Scaffolds constructed of fabricated frame components must also comply with the fabricated frame components requirements of this chapter.
- Manual force used to move the scaffold must be applied, as close to the base as practicable, but not more than 5 feet above the supporting surface.
- Power systems used to propel mobile scaffolds must be designed for such use. Forklifts, trucks, similar motor vehicles, or add-on motors must not be used to propel scaffolds unless the scaffold is designed for such propulsion systems.
- Scaffolds must be stabilized to prevent tipping during movement.
- Employees must not ride on scaffolds unless the following conditions exist:
 - The surface on which the scaffold is being moved is within 3 degrees of level, and free of pits, holes, and obstructions.
 - The height-to-base width ratio of the scaffold during movement is two-to-one or less, unless the scaffold is designed and constructed to meet or exceed nationally recognized stability test requirements.
 - Outrigger frames, when used, are installed on both sides of the scaffold.
 - When power systems are used, the propelling force is applied directly to the wheels, and does not produce a speed in excess of 1 foot per second.
 - No employee is on any part of the scaffold that extends outward beyond the wheels, casters, or other supports.

SCAFFOLDS & WORK PLATFORMS

A sectional folding stairway scaffold must:

- Be designed as medium duty, except for high clearance. A sectional folding stairway scaffold with a high clearance base must be designated as a light duty scaffold.
- Have an integral stairway and work platform incorporated into the structure.
- Have the end frames designed so that the horizontal bearers provide supports for multiple planking levels.
- Be not more than 4½ feet wide by 6 feet in length.

A sectional folding ladder scaffold must:

- Be designed as a light duty scaffold, including special base open end sections that are designed for high clearance. For certain special applications, the 6 foot in length folding ladder scaffolds, except for special high clearance base sections, must be designed for use as medium duty scaffolds.
- Have width of not more than 4½ feet.
- Have a length of not more than 6 feet 6 inches for a 6 foot long unit, 8 feet 6 inches for an 8 foot unit, or 10 feet 6 inches for a 10 foot long unit.
- Have the end frames designed so that the horizontal bearers provide supports for multiple planking levels.
- Have an integral set of pivoting and hinged folding diagonal and horizontal braces and a detachable work platform incorporated into the structure.

Wire Rope Scaffolds

- Wire rope used as a supporting means for a plank must have a designed safety factor of not less than 6 with the load figure including the total weight of men, materials, and scaffold.
- A lifeline must be used.
- A plank used on a wire rope scaffold must be attached to the wire rope in a manner that will not allow the plank to disengage any rope, and must facilitate moving the plank along the wire rope.
- Wire rope must be properly used and maintained, and must have a design safety factor of not less than 10.
- Hoisting rope must be replaced when there are 3 or more broken wires in one strand, or 6 or more broken wires in any one lay, or when the wire rope becomes damaged or deteriorated. See the "Wire rope" section below for more information.
- A bend radius in wire rope must not be less than 20 times the wire rope diameter.

SCAFFOLDS & WORK PLATFORMS

Repair Bracket Scaffolds

- Brackets must be secured in place by at least one wire rope at least ½ inch in diameter.
- Each bracket must be attached to the securing wire rope (or ropes) by a positive locking device capable of preventing the unintentional detachment of the bracket from the rope, or by equivalent means.
- Each bracket, at the contact point between the supporting structure and the bottom of the bracket, must be provided with a shoe (heel block or foot) capable of preventing the lateral movement of the bracket
- Platforms must be secured to the brackets in a manner that will prevent the separation of the platforms from the brackets and the movement of the platforms or the brackets on a completed scaffold.
- When a wire rope is placed around the structure to provide a safe anchorage for workers personal fall arrest systems, the wire rope must meet the requirements of CFR 1926 subpart M, but must be at least 5/16 inch in diameter.
- Each wire rope used for securing brackets in place or as an anchorage for personal fall arrest systems must be protected from damage due to contact with edges, corners, protrusions, or other discontinuities of the supporting structure or scaffold components.
- Tensioning of each wire rope used for securing brackets in place or as an anchorage for personal fall arrest systems must be by means of a turnbuckle at least 1 inch in diameter, or by equivalent means.
- Each turnbuckle must be connected to the other end of its rope by use of an eye splice thimble of a size appropriate to the turnbuckle to which it is attached.
- U-bolt wire rope clips must not be used on any wire rope used to secure brackets or to serve as an anchor for personal fall arrest systems.
- The employer must ensure that materials must not be dropped to the outside of the supporting structure.
- Scaffold erection must progress in only one direction around any structure.

Tank Builders' Scaffolds

- The maximum distance between brackets to which scaffolding and guardrail supports are attached must be no more than 10 feet 6 inches.
- Not more than three employees can occupy a 10 feet 6 inch span of scaffold planking at any time.
- A taut wire or synthetic rope supported on the scaffold brackets must be installed at the scaffold plank level between the innermost edge of the scaffold platform and the curved plate structure of the tank shell to serve as a safety line in lieu of an inner guardrail assembly where the space between the scaffold platform and the tank exceeds 12 inches. In the event the open space on either side of the rope exceeds 12 inches, a second wire or synthetic rope appropriately placed, or guardrails in accordance with regulations, must be installed in order to reduce that open space to less than 12 inches.

SCAFFOLDS & WORK PLATFORMS

- Scaffold planks of rough full-dimensioned 2-inch x 12-inch Douglas Fir or Southern Yellow Pine of Select Structural Grade must be used. Douglas fir planks must have a fiber stress of at least 1900 lb/in² and a modulus of elasticity of at least 1,900,000 lb/in², while Yellow Pine planks must have a fiber stress of at least 2500 lb/in² and a modulus of elasticity of at least 2,000,000 lb/in².
- Guardrails must be constructed of a taut wire or synthetic rope, and must be supported by angle irons attached to brackets welded to the steel plates. Guardrail supports must be located at no greater than 10 feet 6 inch intervals.

Guardrails must be as follows:

- Toprails must be equivalent in strength to 2 inch by 4 inch lumber; or 1¼ inch x ½ inch structural angle iron; or 1 inch x .070 inch wall steel tubing; or 1.990 inch x .058 inch wall aluminum tubing;
- Midrails must be equivalent in strength to 1 inch by 6 inch lumber; or 1¼ inch x 1¼ inch x ½ inch structural angle iron; or 1 inch x .070 inch wall steel tubing; or 1.990 inch x .058 inch wall aluminum tubing;
- Toeboards must be equivalent in strength to 1 inch by 4 inch lumber; or 1 ¼ inch x 1 ¼ inch structural angle iron; or 1 inch x .070 inch wall steel tubing; or 1.990 inch x .058 inch wall aluminum tubing.
- Posts must be equivalent in strength to 2 inch by 4 inch lumber; or 1 ¼ inch x 1 ¼ inch x ½ structural angle iron; or 1 inch x .070 inch wall steel tubing; or 1.990 inch x .058 inch wall aluminum tubing.
- Distance between posts must not exceed 8 feet.

Rated Load Capacity	Intended Load
Light-duty	25 pounds per square foot applied uniformly over the entire span area.
Medium Duty	50 pounds per square foot applied uniformly over the entire span area.
Heavy Duty	75 pounds per square foot applied uniformly over the entire span area.
One-Person	250 pounds placed at the center of the span.
Two-Person	250 pounds placed 18 inches to the left and right of the center of the span
Three-Person	250 pounds placed at the center of the span and 250 pounds placed 18 inches to the left and right of the center of the span.

Table 4

SCAFFOLDS & WORK PLATFORMS

Stilts

OSHA does not ban the use of stilts for scaffold work, some states have limitations and requirements for their use. Companies should consult state and local authorities to ensure compliance with all regulations.

An employee may wear stilts on a scaffold only if it is a large area scaffold.

When an employee is using stilts on a large area scaffold where a guardrail system is used to provide fall protection, the guardrail system must be increased in height by an amount equal to the height of the stilts being used by the employee.

Surfaces on which stilts are used must be flat and free of pits, holes and obstructions, such as debris, as well as other tripping and falling hazards.

Stilts must be properly maintained. Any alteration of the original equipment must be approved by the manufacturer.

POWERED PLATFORMS

Powered platforms must comply with the design and manufacturing requirements prescribed in ASME standard A120.1, 1970 edition, "Safety requirements for powered platforms for exterior building maintenance."

Powered platforms must comply with the requirements of OSHA 1910.66, "Powered platforms for building maintenance," in addition to the following:

Intermittent stabilization systems

- A powered platform must be suspended by 2 or more cables. Where 2 cables are used, each employee on the work platform must use a safety harness and lanyard that is attached to an individual lifeline. The lifeline must be secured to the building structure and must be independent of any cable and structures that support the powered platform.
- Where thrustouts are used in place of a roof car, they must be anchored to the building structure with fasteners that are capable of sustaining the imposed load.

SCAFFOLDS & WORK PLATFORMS

Roof cars

- A roof car must be used when it is necessary to move a working platform horizontally to a work or storage position.
- Movements of a roof car must be restricted to a designated path of travel. Mechanical stops must be provided and must prevent the roof car from traversing outside the intended path of travel. The stops must be capable of withstanding a force equal to 100% of the inertial effect of the roof car under power and must be designed to prevent a crushing or shearing hazard.
- The stability factor against overturning must not be less than 5 for horizontal traversing of the carriage, including the effects of impact and wind.
- Where a roof car is used, safety interlocks must be provided to ensure that the working platform will not leave the stored position until the required positive position anchor is engaged and to ensure that the roof car cannot move when the working platform is not in the stored position.

Safety factors

All of the parts of a powered platform that are subject to stress, except for the wire rope, must have a design safety factor of not less than 5. Wire rope must have a design safety factor of not less than 10.

Working platforms

A working platform that is used on the exterior of a building must be equipped with rollers that will be in contact with the building face. Where the vertical working travel of a working platform is more than 130 feet, the platform must be equipped with guide rollers or guide shoes, which must positively engage guides, such as "t" rails or indented mullions. The guide rollers or guide shoes must enter the guides at the lowest possible speed and must not require any manual assistance from an employee while the work platform is in motion.

SCAFFOLDS & WORK PLATFORMS

INSPECTIONS AND TESTS

An employer that has a powered platform under the employer's control must do all of the following:

- Provide operating instructions and a checklist for a visual inspection that must be used by the operator before each daily use of the platform. The visual inspection must include a check of the platform controls and safety interlocks.
- Provide for a physical inspection and service and repair when required, of the platform by a trained and authorized employee or an outside service every 30 days or before each use cycle if the equipment is used less often than every 30 days. The inspection, service, or repair must be logged to show the date and the signature of the authorized employee or outside service and the work done.
- Provide for inspections and operating tests not less than annually or after major alterations to determine that all components of the platform, including safety and operating equipment, comply with the provisions of these rules. Such inspections and operating tests must be made by a trained and authorized employee or outside service.

A special inspection of platform governors and secondary brakes must be made not less than annually by an authorized and trained employee or outside service to verify that the initiating device for the secondary brake operates at the proper overspeed. If a test cannot be made in the field, the initiating device or hoisting machine, or both, must be removed from the building and sent to a shop that is equipped to make such a test. When the tested parts are reinstalled, the powered platform must be re-inspected before returning it to service.

MAINTENANCE

The following maintenance must be performed, as required, during the regular, 30-day inspection:

- Replacement of any worn or defective parts noted during the inspections noted above.
- Electrical connections must be tightened and controller contacts and relays must be cleaned.
- Gears, shafts, bearings, brakes, and hoisting drums must be aligned.

In addition:

- Hoisting ropes must be inspected, and replaced when there are 6 or more broken wires in any 1 lay or when the wire rope becomes damaged or deteriorated.
- Hoisting ropes must be reshackled at the non-drum ends at least once every 2 years. In reshackling a rope, enough must be cut from the end to remove damaged or fatigued portions. The rope must be retagged and the limit switches reset, if necessary.

SCAFFOLDS & WORK PLATFORMS

Wire Rope

Wire rope for a scaffold must be replaced if any of the following conditions exists:

- In any length of 8 diameters, the total number of visible broken wires is more than 6 in 1 rope lay or 3 wires in 1 strand.
- It has been kinked, crushed, or bird-caged or has sustained any other damage that distorts the wire rope structure.
- It shows heat or corrosive damage.
- It contains a broken wire within 18 inches (460.8 mm) of the end attachment.
- It shows evidence of core failure. A lengthening of rope lay, protrusion of the rope core, and a reduction in rope diameter suggests core failure.
- Outer wire wear is more than 1/3 of the original outer wire diameter.
- Any other condition that a competent person determines has significantly affected the integrity of the rope.

In addition:

- Wire rope that is bent to form an eye over a bolt or rod, which has a diameter that is less than 4 times the rope diameter, must be equipped with a metal thimble.
- End fittings should be swagged or zinc-poured sockets.
- Where wire clips are used, industry safety standards must be followed and the U-bolts must be installed on the dead end or short end of the wire rope.
- Wire rope must be stored in a manner to prevent damage or deterioration.
- Before cutting wire rope, a seizing must be placed on each side of the cut on preformed wire rope, 2 seizings must be placed on each side of 7/8 inch size or smaller non-preformed wire rope, and 3 seizings must be placed on each side of 1 inch or larger size non-preformed wire rope.
- Wire rope must be maintained in a lubricated condition over its entire length with the same type of lubricant that is used by the manufacturer.

SCAFFOLDS & WORK PLATFORMS

Fiber Rope

A fiber rope must be inspected visually before the start of each daily use as follows (a rope that has any of the conditions specified below must be replaced or returned to the manufacturer for repair):

- Externally for any of the following conditions:
 - Abrasions
 - Cut or broken fibers
 - Decay
 - Burns
 - Lack of strength
 - Softness
 - Variation in size or roundness of the strands
- Internally, by separating the strands at 3 foot intervals, for any of the following conditions:
 - Broken fibers
 - Presence of grit
 - Mildew or mold
 - Color change of the fibers
 - Powdering
 - Short loose fibers
- A fiber rope that is subjected to an impact load that is equal to or more than its rated capacity must also be replaced.
- A fiber rope must be stored in a dry room in coils or on a reel.
- A wet fiber rope must be dried by placing it in the sunshine or a warm room hanging loosely over a rounded peg or hook.
- A fiber rope must not be kinked or run over sharp corners, must not be used when frozen, and must not be left in freezing temperatures when wet.
- A thimble must be used with fiber rope if the rope is bent to form an eye over a bolt or rod that has a diameter that is less than 4 times the rope diameter.

SCAFFOLDS & WORK PLATFORMS

Synthetic Rope

A synthetic rope shall be inspected visually before the start of each job for all of the following conditions (a rope that has any of these conditions shall be replaced or returned to the manufacturer for repair):

- Abrasions
- Cut or broken fibers
- Burns
- Melted fibers
- Variation in size or roundness of the strands.
- Because of the variance in manufacturing methods, the manufacturer's recommendations shall be followed.
- A synthetic rope shall not be kinked, run over sharp corners, used when frozen, or left in freezing temperatures when wet.
- A synthetic rope that is subjected to an impact load that is equal to or more than its rated capacity shall be replaced.
- A thimble shall be used with synthetic rope if the rope is bent to form an eye over a bolt or rod that has a diameter that is less than 4 times the rope diameter

AERIAL LIFTS

Aerial lifts include the following types of vehicle-mounted aerial devices used to elevate personnel to job-sites above ground:

- Extensible boom platforms
- Aerial ladders
- Articulating boom platforms
- Vertical towers
- A combination of any such devices. Aerial equipment may be made of metal, wood, fiberglass reinforced plastic (FRP), or other material; may be powered or manually operated; and are deemed to be aerial lifts whether or not they are capable of rotating about a substantially vertical axis.

Aerial lifts may be “field modified” for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any other equivalent entity, to be in conformity with all applicable provisions of ANSI A92.2-1969 and this section and to be at least as safe as the equipment was before modification.

Ladder Trucks & Tower Trucks

Aerial ladders must be secured in the lower traveling position by the locking device on top of the truck cab, and the manually operated device at the base of the ladder before the truck is moved for highway travel.

SCAFFOLDS & WORK PLATFORMS

Extensible and Articulating Boom Platforms

Lift controls must be tested each day prior to use to determine that such controls are in safe working condition.

Only authorized persons are permitted to operate an aerial lift.

Belting off to an adjacent pole, structure, or equipment while working from an aerial lift is not permitted.

Employees must always stand firmly on the floor of the basket, and must not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.

A body belt must be worn and a lanyard attached to the boom or basket when working from an aerial lift.

Do not exceed load limits specified by the boom and basket manufacturer.

The brakes must be set and when outriggers are used, they must be positioned on pads or a solid surface. Wheel chocks must be installed before using an aerial lift on an incline, provided they can be safely installed.

An aerial lift truck must not be moved when the boom is elevated in a working position with men in the basket, except for equipment that is specifically designed for this type of operation in accordance with regulations.

Articulating boom and extensible boom platforms, primarily designed as personnel carriers, must have both platform (upper) and lower controls. Upper controls must be in or beside the platform within easy reach of the operator. Lower controls must provide for overriding the upper controls. Controls must be plainly marked as to their function. Lower level controls must not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.

Climbers must not be worn while performing work from an aerial lift.

The insulated portion of an aerial lift must not be altered in any manner that might reduce its insulating value.

Before moving an aerial lift for travel, the boom(s) must be inspected to see that it is properly cradled and outriggers are in stowed position except as provided.

Electrical Tests

All electrical tests must conform to the requirements of ANSI A92.2-1969 section 5. However, equivalent d.c. voltage tests may be used in lieu of the a.c. voltage specified in A92.2-1969; d.c. voltage tests that are approved by the equipment manufacturer or equivalent entity must be considered an equivalent test for the purpose of this paragraph.

SCAFFOLDS & WORK PLATFORMS

Bursting Safety Factor

The provisions of the American National Standards Institute standard ANSI A92.2-1969, section 4.9 Bursting Safety Factor must apply to all critical hydraulic and pneumatic components. Critical components are those in which a failure would result in a free fall or free rotation of the boom. All noncritical components must have a bursting safety factor of at least 2 to 1.

Welding Standards

All welding must conform to the following standards as applicable:

- Standard Qualification Procedure, AWS B3.0-41;
- Recommended Practices for Automotive Welding Design, AWS D8.4-61;
- Standard Qualification of Welding Procedures and Welders for Piping and Tubing, AWS D10.9-69; and
- Specifications for Welding Highway and Railway Bridges, AWS D2.0-69.

FORMS AND ATTACHMENTS

On the following pages, please find the following documents:

- Summary of Training Requirements for Scaffold users
- Scaffolds and Work Platforms Training Record Sheet

These forms may be reproduced freely for the purposes of implementing and maintaining a safety and health program

SCAFFOLDS & WORK PLATFORMS

Summary of Training Requirements for Scaffold Users

	Those Who Work from Scaffolds	Those Who Erect and Dismantle Scaffolds
Critical Scaffold Issues	<p>Falling objects Fall protection Material handling on scaffolds Scaffold load capacities</p>	<p>Scaffold design criteria Scaffold erecting, disassembling, moving, and maintenance procedures Scaffold erecting, disassembling and, moving hazards Scaffold load capacities</p>
What They Need to Know	<p>How to use appropriate fall protection systems How to control scaffold hazards How to use scaffold walkways, platform components, and access areas Maximum-intended and load-carrying capacities of scaffolds Subpart L requirements</p>	<p>Hazards involved in erecting/dismantling Erection/dismantling planning procedures How to deal with electrical hazards How to inspect components Appropriate design criteria Maximum-intended and load-carrying capacities of scaffolds Subpart L requirements</p>
Who Can Train Them	<p>Any person who has training and experience in the above critical scaffold issues and who can teach the issues to scaffold users. Subpart L refers to a person with these skills as a qualified person.</p>	<p>Any person who has training and experience in the above critical scaffold issues who can teach the issues to erectors/dismantlers, and who has authority to control scaffold hazards. Subpart L refers to a person with these skills as a competent person.</p>
How Often to Train Them	<p>Before beginning a new job Whenever changes at the worksite present new hazards Whenever they fail to demonstrate skills related to any of the critical scaffold issues</p>	<p>Before they begin a new job Whenever changes at the worksite present new hazards Whenever they fail to demonstrate skills related to any of the critical scaffold issues</p>

SCAFFOLDS & WORK PLATFORMS

POLICY

This Company has established the following policies and practices to reduce the number of injuries and deaths due to slips, trips, and falls.

RESPONSIBILITIES

Employer:

- Owners, managers, and supervisors must make a commitment to prevent accidental slips, trips, and falls.
- Regular, frequent inspections of working and walking areas will be conducted to identify environmental and equipment hazards that could cause slips, trips, and falls. Special attention will be given to the working and walking surfaces, housekeeping, lighting, vision, stairways, and ladders. Immediate corrective action will be taken to correct any problems that are identified.
- Safety training on the prevention of slips, trips, and falls will be provided for all new employees.
- Regular retraining will be provided for all employees.
- Special attention will be given to proper techniques for walking; carrying loads; climbing and descending stairways; using ladders; mounting and dismounting vehicles and other equipment, etc. Unsafe practices will be corrected immediately.
- All slips, trips, and falls, with or without injury, will be recorded and thoroughly investigated. Corrective action to prevent repeat occurrences will be taken immediately.

Employees:

- Are required to wear proper footwear for their work and environment whether in the office or field.
- All slips, trips, and falls, with or without injury, must be reported immediately.
- Will use proper tools, hand trucks, dollies, carts, and hoists to lift and move heavy objects. Do not exceed the rated capacity of a hoist or lifting device.
- Inspect items to be handled for splinters, jagged edges, burrs, and rough or slippery surfaces. Wear protective gloves.
- Wipe off oily, wet, slippery, or dirty items before trying to handle them. To adjust your grip, set the object down.
- Never carry an object they cannot see over or around, plan your route of travel and be sure it is clear of obstacles.
- When moving items on dollies or hand trucks, push rather than pull whenever possible.
- Will avoid extreme and awkward postures by using adjustable fixtures and rotating tables, workstations, and delivery bins.

PREVENT SLIPS, TRIPS, AND FALLS

- Wear footwear that is appropriate for the conditions inside and outside. On smooth or wet surfaces, wear slip-resistant soles. On snowy, icy, and rainy days, wear boots to work and change after arriving.
- Clean footwear of mud, snow, etc., when entering a building.
- Be aware of changes in elevation and changes in walking surfaces. When moving from carpet to tile or dry tile to wet tile, etc., the friction (grip) between the sole of the shoe and the floor surface lessens. Alter your stride to take shorter, slower steps.
- Walk; don't run through work areas. When possible, stay on marked travel aisles and paths. Don't take "shortcuts" around machinery and equipment. Avoid areas that are cluttered or dimly lit.
- When carrying a load, make sure you can see over and around it. Scan the area ahead and plan your travel path. Get help to carry heavy or awkward objects. Use carts or other mechanical aids.
- Clean up, correct, remove, or report unsafe conditions such as spills, electric cords, frayed carpets, worn stairs, and other hazards that could result in a slip/trip/fall injury.
- Warn others that a hazard exists by placing signs or cones, or by isolation with caution tape or barricades.
- Do not allow equipment, tools, materials, or other obstacles to accumulate in aisles or walkways. Never store or place items on stairs.
- Keep desk and file cabinet drawers closed when they are not being used, or when unattended.
- Always use a ladder or step stool. Never stand on a chair, desk, shelf, crate, box, or any other unstable items to try to reach something. If you must routinely reach items in high locations, purchase a ladder or steps to allow it to be done safely.
- Walk erect using even strides and good balance. Always use handrails when available.
- Use "three-point positioning" when entering or exiting trucks, equipment, or construction vehicles. Maintain three points of attachment at all times, both hands and one foot or both feet and one hand.
- Enter and exit equipment while facing it. Use all of the steps, never jump.
- Maintain floors that are clean and free of water, oil, or grease. Areas such as mechanics bays may be periodically steam-cleaned. Tiled floors that have been worn or filled smooth can be etched to restore a rougher surface.
- Apply non-slip surfacing such as adhesive-backed sheets, anti-slip paint, open-spaced grates, or mats to ramps, docks, platforms, or stairways recognized as hazardous.
- Paint edges where elevation changes occur with "caution-yellow" paint. Post signs to warn of dangerous areas.
- During winter months, remove snow and ice, and apply sand and salt before work and frequently after work begins. Note areas that drain poorly, retain snow, or are habitually slippery, and initiate permanent changes to eliminate the hazard.

CONTRIBUTING FACTORS

Proper housekeeping in work and walking areas can contribute to safety and the prevention of falls. Not only is it important to maintain a safe working environment and walking surface, these areas must be kept free of obstacles that can cause slips and trips. One method that promotes good housekeeping in work environments is the painting of yellow lines to identify working and walking areas. Objects of any kind should never obstruct these areas.

Adequate lighting to ensure proper vision is also important in the prevention of slips and falls. Moving from a light to a dark area, or vice versa, could cause temporary vision problems that might cause a person to slip on an oil spill, or trip over a misplaced object.

Carrying an oversized object can also obstruct one's vision and result in a slip or a trip. This is a particularly serious problem on stairs.

BEHAVIORS THAT LEAD TO FALLS

In addition to wearing the wrong footwear, there are specific behaviors that can lead to slips, trips, and falls.

- Walking too fast or running can cause major problems. In normal walking, the most force is exerted when the heel strikes the ground, but in fast walking or running, one can land harder on the heel of the front foot and push harder off the sole of the rear foot; thus, a greater COF is required to prevent slips and falls. Rapid changes in direction create a similar problem.
- Other problems that can lead to slips, trips and falls are: distractions; not watching where one is going; carrying materials that obstruct the view of the pathway; wearing sunglasses in low-light areas; and failure to use handrails. These and other behaviors, caused by lack of knowledge, impatience, or bad habits developed over time, can lead to falls, injuries, or even death.

SLIP, TRIP, AND FALL INJURIES

Types of Falls

Falls are of two basic types: elevated falls and same-level falls.

- Same-level falls: high frequency and low severity
- Elevated falls: lower frequency and high severity

Same-level falls are generally slips or trips. Injury results when the individual hits a walking or working surface or strikes some other object during the fall.

Same-Level Falls

- Slips are primarily caused by a slippery surface and compounded by wearing the wrong footwear. In normal walking, two types of slips occur. The first of these occurs as the heel of the forward foot contacts the walking surface. Then, the front foot slips forward, and the person falls backward.
- The second type of fall occurs when the rear foot slips backward. The force to move forward is on the sole of the rear foot. As the rear heel is lifted and the force moves forward to the front of the sole, the foot slips back and the person falls.
- The force that allows you to walk without slipping is commonly referred to as "traction". Common experience shows that dry concrete sidewalks have good traction, while icy surfaces or freshly waxed floors can have low traction. Technically, traction is measured as the "coefficient of friction". A higher coefficient of friction means more friction, and therefore more traction. The coefficient of friction depends on two things: the quality of both the walking surface and the soles of your shoes.
- To prevent slips and falls, a high coefficient of friction (COF) between the shoe and walking surface is needed. On icy, wet, and oily surfaces, the COF can be as low as 0.10 with shoes that are not slip-resistant. A COF of 0.40 to 0.50 or more is needed for excellent traction. To put these figures in perspective, a brushed concrete surface and a rubber heel will often show a COF greater than 1.0. Leather soles on a wet, smooth surface, such as ceramic tile or ice, may have a COF as low as 0.10.
- Shoes with soft, rubber soles, and heels with rubber cleats provide a high coefficient of friction (COF).
- Providing dry walking and working surfaces, and slip-resistant footwear are the answer to slips and their resultant falls and injuries. In work areas where the walking and working surface is likely to be slippery, non-skid strips or floor coatings will be used. Since a COF of 0.40 to 0.50 is preferred for walking and working surfaces, we should strive for a surface that provides a minimum of 50 percent of this friction. If the working surface is very slippery, no footwear will provide a safe COF.
- "Fall-trips" occur when the front foot strikes an object and is suddenly stopped. The upper body is then thrown forward, and a fall occurs.
- As little as a 3/8" rise in a walkway can cause a person to "stub" their toe, resulting in a trip and fall. The same thing can occur when going up a flight of stairs: only a slight difference in the height of subsequent steps, and a person can trip and fall.
- Another type of working and walking surface fall is the "step and fall". This occurs when the front foot lands on a surface lower than expected, such as when unexpectedly stepping off a curb in the dark. In this type of fall, the person normally falls forward. A second type of "step and fall" occurs when a person steps forward or down, and either the inside or outside of the foot lands on an object higher than the other side. The ankle turns, and one tends to fall forward and sideways.

Elevated Falls

Most elevated falls occur when employees working on ladders or scaffolds lose their balance. More than 60 percent of elevated falls are from less than 10 feet.

Elevated falls, or falls from height, are normally due to:

- A lack of, or improper use of, fall protection
- Poor housekeeping practices
- Improper PPE
- Improper climbing techniques
- Accidental contact with objects or electricity

These accidents are avoidable if safe work practices are used.

Falls from Ladders

Ladders may be fixed or portable. They may be straight, extension, or stepladders, and may be made of wood, metal, plastic, or fiberglass. They can be light, medium, heavy, or extra heavy-duty.

The materials from which ladders are constructed have advantages and disadvantages in weight, durability, flexibility, conductivity, and strength. The intended use of the ladder should determine the type purchased, and only American National Standards Institute (ANSI)-approved ladders will be used.

Metal ladders may not be used in locations where the ladder or its user could come into contact with electricity.

The lower ends of the siderails will be equipped with slip-resistant pads, particularly if the ladder is to be used on hard surfaces. The same is true for the upper ends of the siderails if they are to rest against a surface.

Ladders will be set at a 4:1 angle, or as near to that angle as possible. For each three or four feet of rise from the base to the upper resting edge of the ladder, the base should be one foot out from a vertical line from the upper resting edge of the ladder to the working surface.

For example, if a ladder is leaning against a ledge that is 20 feet off the ground, the base of the ladder should be five feet back from the wall. The base of the ladder must be firmly set so that there is no possibility of slippage or settling into soft ground. The resting edge of the ladder should have both siderails in contact with the supporting wall. Whenever there is any question as to the stability of the ladder, additional precautions will be taken to stabilize the ladder as it is being climbed. Tying the top of the ladder to the supporting structure can also keep the ladder from slipping or sliding.

Ladders must be inspected before use: check for cracks, loose rungs, splinters, and sharp edges.

Never paint ladders, as the paint can hide potentially dangerous conditions. Wooden ladders can be coated with linseed oil or an oil-based wood preservative to keep them from drying out and cracking. Allow ladders to dry thoroughly before using them, or the rungs will be slippery.

The rungs and siderails of ladders must be kept free of oil, grease, and mud, and must be kept dry.

Since the shoe has limited contact with the rung or step of a ladder, it is very important that both rungs and shoes have a high COF. Only shoes with heels may be worn when climbing ladders; users should be taught that the rung or step of the ladder should be just in front of the heel, under the arch of the foot. Stepping or standing on a ladder with the front part of the shoe is inviting a slip and fall. Always face the ladder when climbing or descending.

Safe Climbing

Workers should have both hands free to hold the ladder's siderails, not the rungs, when climbing or descending. Small tools may be carried in a tool belt, not in the hands; but a better choice is to raise tools and supplies with a rope. Never raise or lower power tools by the cord or while they are plugged into an electrical source.

Make-shift ladders, chairs, boxes, and barrels may not be used as substitutes for a ladder.

FALLS FROM VEHICLES AND EQUIPMENT

Death or serious injury is a frequent result of extra riders falling from the bed of a truck.

Far too many injuries occur in the simple process of getting in and out of trucks, or truck beds. When the steps are metal, there is a low COF, which becomes even lower if they are wet, muddy, or oily. Keep the steps clean and dry.

Whenever mounting or climbing on a vehicle or machine, have a good handhold before stepping up. Pulling yourself up reduces the force between your shoe and the step, and reduces the danger of a slip. As with a ladder, the foot should be placed on the step or rung just in front of your heel, under the arch.

Always face the vehicle or equipment when mounting and dismounting. When stepping down backward, one steps down on the ball of the foot, which is best; when stepping down forward, however, one lands on the heel, thus increasing the chances of falling, twisting an ankle or knee, or suffering some other injury.

Practice the "Three-Point System". This system can significantly reduce the chances of injuring yourself through a slip or fall while climbing ladders or while entering or exiting a vehicle. The Three-Point System means that three of your four limbs are in contact with the ladder or vehicle at all times, either one hand and two feet, or two hands and one foot, only one limb is in motion at any one time.

FALLS FROM LOADING DOCKS

- Loading docks and ramps are dangerous areas. They are frequently congested, heavy-traffic areas, and working and walking surfaces are often wet. Metal dock plates can wear smooth and become very slippery; in particular, the edge of a dock plate invites trips and falls.
- Accidental backward steps can result in a fall from the dock. Portable railings, which can be easily removed from the edge of the dock, could prevent many dangerous falls. They are removed when a truck is at the dock, and replaced as soon as the truck or trailer leaves.
- Proper housekeeping, well-designed traffic patterns, and the use of abrasive, skid-resistant surface coatings will reduce the risk of slips, trips, and falls.
- Ramps and gangplanks have hazards similar to loading docks. The slopes should be as gradual as possible, as wide as possible, and as dry as possible. They should also have skid-resistant surfaces.

FALLS ON STAIRS

Stairwells will be well lighted, with sturdy handrails on both sides. Persons using the stairwell should have one hand free to be able to use the handrail.

All the steps will have the same rise and depth, with visible edges. They must be kept free of grease, oil, and obstacles that could cause slips and trips. Avoid carrying heavy or bulky objects that obscure your vision and/or require the use of both hands. Carry smaller, lighter loads, and make more trips, or obtain help with the load.

FIXED LADDERS

Fixed ladders are mounted on buildings and other tall structures that require workers to climb to high levels to perform some functions. Such ladders must be securely attached to the structure and be capable of supporting a minimum of 250 pounds of concentrated live weight. The rungs should be a minimum of 16 inches wide and a maximum of 12 inches apart. There will be seven inches of toe space between the rung and the structure to which it is attached. Fixed ladders extending more than 20 feet above the ground or floor level will be surrounded by a cage, beginning at 7 to 8 feet above the ground.

If a catwalk or working area is provided at the top of the ladder, it must have a protective railing at least 42 inches high. A toe board, four-inches high, around the edge of the work area will be provided to reduce the risks of a person stepping off the edge or having tools fall from the work area.

Workers climbing or descending a fixed ladder must have both hands free. Small tools can be carried in a tool belt; rope and pulleys or some other mechanical system must raise other tools and materials.

FALL PROTECTIVE DEVICES

Workers at high elevations, such as ladders, platforms, or catwalks, will be protected from falling by a fall protective device. This can be a protective cage, a lifeline, lanyard, or safety harness.

The system will provide maximum protection, but will also be reasonably comfortable and not restrict a worker's necessary work activity. This Company will also provide instruction on the safe use of this protective equipment.

SLIP-RESISTANT MATERIALS

Slip resistant coatings will be applied to concrete, metal, and wood surfaces to increase the COF and reduce the risks of slips and falls. These materials can consist of:

- Abrasive coatings formulated to resist grease, oil, water, and other chemicals.
- Skid-resistant products for use on stair treads, ramps, and other hazardous walking and working surfaces.
- Rubber or rubber-like mats.

SIGNS AND MARKINGS

Safety signs of slip, trip, and fall hazards will be posted to remind workers of the hazards, particularly where hazards cannot be removed or corrected.

Yellow striping to identify walking and working areas will be installed. Striped areas will indicate that no objects may be placed in these areas. Dropped and spilled materials must be removed immediately.

LEARNING HOW TO FALL

Naturally, the goal is not to slip, trip, and fall; however, the possibility of a fall still exists. There are correct ways to fall.

Recommended procedures are:

- Tuck your chin in, turn your head, and throw an arm up/out. It is better to land on your arm than on your head.
- While falling, twist or roll your body to the side. It is better to land on your buttocks and side than on your back.
- Keep your wrists, elbows, and knees bent. Do not try to break the fall with your hands or elbows. When falling, the objective is to have as many square inches of your body contact the surface as possible, thus, spreading out the impact of the fall.

SHOES AND BOOTS

According to the National Safety Council (NSC), there are 110,000 injuries each year to the feet and toes, representing 19 percent of all disabling work injuries.

It is very important to wear the proper footwear for your work and environment. Shoes or boots should provide three major types of protection:

- The soles and heels should be slip-resistant
- The toe of the shoe should resist crushing injuries
- The shoe should support the ankle

ANSI sets standards for shoes and boots. Never purchase work shoes that do not meet these standards. A typical ANSI rating could be 1-75 C-25. This means the toe will withstand 75-foot pounds of impact and 2,500 pounds of compression.

Chevron-pattern or cleat-designed soles are best for slippery situations because of the suction or squeezing action they provide. The softer soles are better for slippery indoor conditions; the harder, more rugged cleat-type sole is preferred for tough outdoor use.

Leather that covers the foot and ankle portion of the foot is preferred in most work environments. Rubber is satisfactory for wet conditions, but not with pesticides or petroleum. However, when working in wet environments or around chemicals, oils, greases or pesticides, boots made of polyvinyl chloride (PVC), a blend of PVC and polyurethane, or neoprene will be used.

SAFE LIFTING

Manually moving material can often be the cause of slips and falls. Attempting to move heavy or awkward shaped items can alter your center of gravity and result in slips or falls. These types of accidents often result in painful back injuries. In order to avoid these problems always follow safe lifting techniques, and use these safe practices:

Planning

- Size up the load and check overall conditions
- Check the route for clearances and obstacles
- Use a handcart or dolly when possible
- Break down large and heavy loads
- Know your limits
- Seek help if necessary
- Take extra care with awkward tasks

Carrying

- Hold the load close to your body
- Keep your eyes on the pathway you will be walking
- Take extra care carrying up and down stairs
- Don't twist your body; move your feet to turn

Lowering

- Bend your knees to lower the load
- Do not trap your fingers and toes
- Put it down first, then slide it into place
- Do not over-reach or stretch

Lifting tips

The weight of the objects you lift is an important factor in determining your risk of accident or injury, and you will want to be especially careful when lifting heavy items such as storage boxes full of files and cases of copy paper. However, weight is not the only thing that determines your risk of injury. It's important to remember the key point:

- Before lifting, make sure your path is dry and clear of objects that could cause a fall.
- Bend your knees and keep your back straight. (Lift with your legs, not your back.)
- Bring the load close to your body.
- Lift in a slow, even motion.
- Don't twist your body. If you must turn, move your feet.
- Keep your back straight when putting down the load.