

Nolan Construction Company

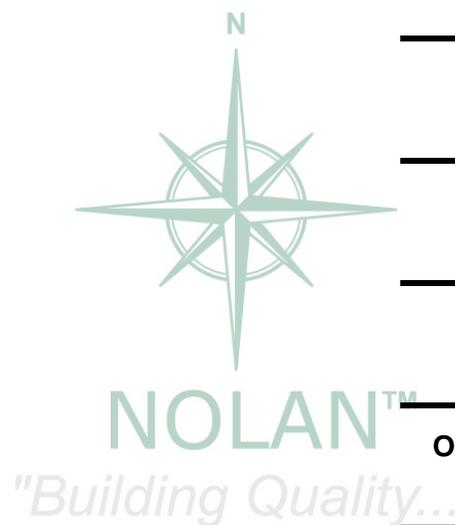
Safety Handbook



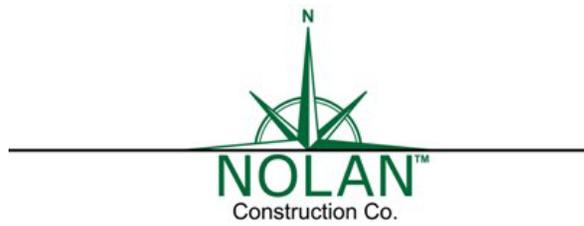
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NOTE: *If you require additional copies of this handbook or printed copies of any of the pages, reports and/or templates contained within please contact **Nolan Construction Company's** main office for a prompt response to your request.*

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SAFETY HANDBOOK

SECTION 01

NOLAN CONSTRUCTION COMPANY SAFETY POLICY

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Nolan Construction Company Safety Policy

It is the policy of Nolan Construction Company to provide a safe & healthful place of employment for all team members. It is therefore the purpose of this stated policy to:

1. Abide by all Federal, State, and Local regulations as they pertain to construction.
2. Apply good sense and safe practices as dictated by locations, conditions, and circumstances to all jobs.
3. Exercise good judgment in the application of this policy.
4. Heighten safety awareness.

MANAGEMENT SHALL...

1. Establish rules and programs designed to promote safety.
2. Make known to all team members the rules established.
3. Require all subcontractors as a matter of contract to follow safety rules.
4. Encourage all prime contractors to work safely.
5. Record all instances of violations and investigate all accidents.
6. Discipline any team member willfully disregarding this policy.
7. Provide protective equipment for team members where required.
8. Inform team members of changes in safety rules.
9. Appoint a Safety Officer with full enforcement authority over safety matters.
10. Conduct safety inspections of all job-sites and maintain records.
11. Provide all supervisors with copies of appropriate rules and regulations.

JOB SUPERINTENDENTS SHALL...

1. Be completely responsible for on the job safety and health.
2. Make sure proper safety materials and protective devices are available and used and all equipment is in safe working order.
3. Instruct foremen in safety requirements and make sure they pass on their instruction to their crews.
4. Take advantage of offered safety training and be aware of all safety rules.
5. Review all accidents, oversee correction of all unsafe practices, and file accident reports.
6. Conduct jobsite safety meetings.
7. Require conformance to safety standard from all subcontractors.
8. Notify office of all safety violations.
9. Provide all team members with proper instruction on safety requirements.

JOB FOREMEN SHALL...

1. Carry out safety program at the work level.
2. Be aware of all safety requirements and safe working practices.
3. Report all injuries and safety violations.
4. Instruct new team members and existing team members performing new tasks in safe working practices.
5. Make sure protective equipment is available and used.
6. Secure prompt medical attention for any injured team members.
7. Make sure all work is performed in a safe manner and no unsafe conditions or equipment are present.
8. Provide their crew with proper instruction on safety requirements.

TEAM MEMBERS SHALL...

1. Work safely.
2. Request help when unsure how to perform any task safely.
3. Report any unsafe acts to supervision.
4. Work in such a manner as to ensure your safety as well as that of team members.
5. Avail yourself of company and industry sponsored safety programs.
6. Use and maintain all safety devices provided to you.
7. Maintain and properly use all tools under your control.
8. Follow all safety rules.
9. Provide fellow team members help with safety requirements.

SUBCONTRACTORS AND SUPPLIERS SHALL...

1. Abide by all safety rules of owner and other contractors.
2. Notify all other contractors when actions or activities undertaken by them could affect health or safety of team members of other companies.
3. Check in with jobsite supervision before entering jobsite.
4. Inform controlling contractor of all injuries to team members.
5. Report to controlling contractor any unsafe conditions that come to their attention.
6. Provide a Competent Person, knowledgeable of work and safety concerns, on the jobsite at all times subcontractor's work is underway

ARCHITECT, OWNERS AND VISITORS SHALL...

1. Abide by all safety rules.
2. Check in with superintendent so protective equipment may be provided such as hard hats or eye and respirator protection.
3. Refrain from entering construction areas with contractor's team members working in those areas.

ALL PERSONNEL SHALL...

1. Strive to make all operations safe.
2. Maintain mental and physical health conducive to working safely.
3. Keep all work areas clean and free of debris.
4. Assess result of their actions on the entire work place. Work will not be performed in ways that cause hazards for others.
5. Replace or repair safety precautions removed or altered before leaving work area. Unsafe conditions will not be left to imperil others.
6. Abide by the safety rules and regulations of owner on their sites.
7. Work in strict conformance with OSHA regulations.
8. Abstain from alcoholic beverages and/or drugs (prescription or otherwise) before and during working hours.

SAFETY PROBLEM SOLVING

It is the intent of Nolan Construction Company to provide a safe work place for all team members. Supervision personnel have been instructed to watch for and correct all unsafe conditions immediately. Construction sites are complex and items are easily overlooked. It is important that all team members be on the lookout for unsafe conditions. If you observe a condition that is unsafe, the following actions are to be taken:

1. If possible, correct the condition immediately. Many safety hazards, like a piece of missing guardrail, are easy to correct.
2. If you are not able to take corrective action, report the condition to your immediate supervisor for correction.
3. All team members with any supervisory responsibility have been instructed to take corrective action or contact someone who can when a safety concern is raised. In the event corrective action is not begun in a reasonable length of time, the team member is requested to contact Sean McGinley, who is Corporate Safety Coordinator, and can be reached at (954) 596-0100.

We appreciate your cooperation in reporting all safety problems. If we all work together, we can all work safely.

Sincerely,



Daniel P. Nolan, President

*ACADEMY OF CONSTRUCTION, HEALTH
AND SAFETY, INC.*

CERTIFICATE OF ATTENDANCE

PRESENTED TO

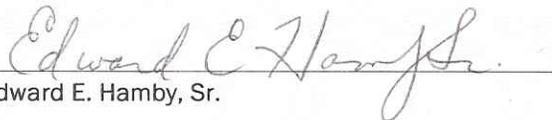
Daniel Nolan

For completion of

10-Hour Construction Outreach Training Program

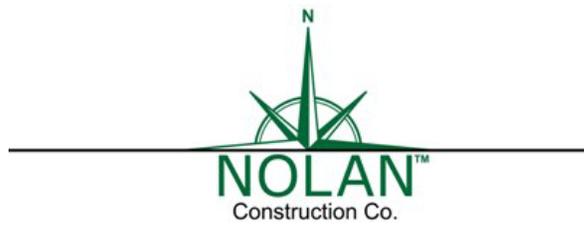
June 12-13, 2010


10 CEUs


Edward E. Hamby, Sr.

6-13-10
Date

FCILB APPROVAL NUMBER
0009195
PROVIDER NUMBER
003765



SAFETY HANDBOOK

SECTION 02

**TEAM MEMBER'S RESPONSIBILITY &
STANDARDS/GUIDELINES**

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Safety Standards

Nolan Construction Company's Goal:

ALL FIELD PERSONNEL WILL BECOME "COMPETENT PERSONS".

The following is the definition of a competent person and established guidelines for safety concerns and objectives for all of our jobsites.

GENERAL:

Nolan Construction Company, as part of OSHA Accident Prevention Responsibilities, shall provide for frequent and regular inspections of jobsites by "Competent Persons".

Competent Person: Three (3) Qualities

1. Knowledgeable of work and safety concerns.
2. Ability to make changes.
3. Ability to stop work until unsanitary, hazardous or dangerous conditions are corrected.

Reason for Safety Law OSHA Act of 1970. "Each employer shall furnish to each of his employees employment and a place of employment free from recognized hazards which may cause, or are likely to cause, death or serious physical harm to the employees."

Sub Part "C"

Recording and Reporting Injuries - Two (2) forms

1. OSHA #200
 - A. Injury & Illness Log
 - B. Summary - End of Year
2. OSHA #101 Supplemental for Additional information about cases recorded on OSHA #200.

Sub Part "E"

Personal Protective Equipment

1. Hard Hat
2. Hearing Protection
3. Eye and Face Protection
4. Respiratory Protection
5. Safety Belt or Harness
6. Foot Protection - "Safety Toe Footwear"
7. Body Protection
 - A. Work Gloves (leather, rubber, etc.)
 - B. Long Pants (preferably jeans)
 - C. Shirts (minimum of 6" sleeve)

Sub Part “F”**Fire Protection**

1. Fire Extinguishers
 - A. One (1) extinguisher per every 3,000 square feet.
 - B. Extinguishers must be no more than 100 feet apart.
2. Jobsite Conditions
 - A. Combustible Material
 - 1) Stacked no higher than 20 feet.
 - 2) Must be stacked/stored 36 inches away from fire door opening.
 - 3) Must have a 15 foot clear driveway between material and building or stacks of materials.
 - 4) “No Smoking” signs posted, especially when flammables are present.

Sub Part “I”**Power Tools**

1. Guards
 - A. Saws - guards in place, no pinning.
 - B. Grinders - 1/2 guard must be in place.
2. Electric
 - A. Double insulated or G.F.C.I. grounded.
 - B. No hoisting or lowering of tools using electric cord.

Power Actuated Tools

1. Must be trained and certified to use particular tool. Certification card must be carried on person.
2. Do not load tool until ready to use.
3. Wear personal protective equipment.
4. Violation: Unused strips or shot laying on ground around building or on floors and decks inside building.

Sub Part “K”**Electrical**

1. Cords
 - A. No cords less than 3 conductor, 12 gauge (12/3).
No zip or ribbon/flat cords.
Per OSHA: Extension cords are considered temporary wiring.
Must be labeled and visible.
Per OSHA: Extension cords are considered temporary wiring.
No loose caps, splices, or damaged insulation.
Must have grounded plug.
Cords should be of sufficient length to reach from tool to the electrical service. Do not connect multiple cords.
(Two 50's does not a 100 make.)
2. Guarding
 - A. G.F.C.I.

- B. When 4-way G.F.C.I. with pigtail is used, 4-way must be mounted on a piece of plywood and fastened to a wall, column or other vertical surface.

Sub Part “L”

Scaffolding

1. Stable and level base. Use mud sills.
2. 6 feet and above - must have guardrails.
3. 10 feet and above - must have toe boards 4 inches high.
4. Bracing both sides - bracing is not to be used as a ladder.
5. Erection - Plumb, level, square and rigid.
6. Planking
 - A. Must be stamped.
 - B. Must be full width of scaffold.
7. Must support four (4) times the load.
8. Secure vertically every 26 feet; secure horizontally every 30 feet.
9. Always use stacking pins with locking pins.

Fall Protection

1. Guardrails

A guardrail is used to protect a floor opening or open-sided floor. They can be found around elevator shafts, pits, duct chases, platforms, etc. Guardrails must be capable of withstanding, without failure, a force of at least 200 lbs. applied in any outward or downward direction. A typical guardrail consists of a smooth surfaced top rail, made of 2 inch x 4 inch stock, approximately 42 inches above the walking or working level, with a 1 inch x 6 inch mid-rail, and a toeboard of any substantial material that is a minimum of 4 inches high. 2 inch x 4 inch posts must be located no more than 8 feet apart. Metal and/or pipe may also be used for guardrails as long as minimum standards are met.
2. Handrails

A handrail is required on stairways that rise more than 30 inches or that have four (4) or more risers.
3. Covers

Covers are another method used to protect us from falling into openings in floors, roofs, etc. They must be capable of supporting, without failure, the maximum intended load and must be secured to prevent accidental displacement. Color code the cover or mark it with 'hole' or 'cover' to provide a warning of the hazard. A cover located in a roadway or vehicular aisle must be capable of supporting at least twice the maximum axle load of the largest vehicle expected to cross over it.

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Team Members' Safety Responsibility

Nolan Construction Company is committed to safety, and has taken steps to protect you from injury on the job.

Your help is vital for your own protection. Please observe your safety responsibilities at all times.

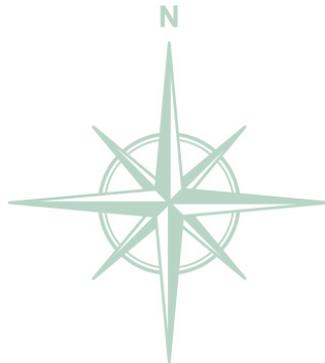
GENERAL

1. No one under the influence of alcohol or drugs will be allowed on the jobsite or at the Company office at any time.
2. Wear hard hats at all times (exceptions: while driving, in jobsite office, or in designated break areas).
3. Wear proper work attire at all times (i.e., construction grade shoes, long pants, Nolan Construction Company shirts).
4. Ask your supervisor if you need additional equipment or instructions to get the job done safely (i.e., safety goggles, gloves).
5. Lift with your legs, not your back, and get assistance with heavy loads.
6. Advise your Supervisor of any hazardous conditions.
7. Immediately report all job accidents or thefts to the Nolan Construction Company Safety Coordinator.
8. All non-emergency treatment for accidents must be pre-authorized by your Supervisor and Safety Coordinator.

VEHICLE

1. All Team Members must fully understand that the safe operation of company vehicles is considered an important part of their total job performance.
2. The use of company vehicles is restricted to Superintendents and Team Members who have been approved through a motor vehicle record check (obtained through the Safety Coordinator). The vehicle assigned is to be used for business purposes **only**.
3. At home use of the company vehicle by family members or others for any reason is prohibited.
4. Seat belts are to be worn at all times while driving or riding in any vehicle on company business.

5. Company vehicles must be maintained based on the manufacturer's required schedule. In addition, maintenance includes cleaning the inside and outside of assigned vehicles a minimum of two times per month.
6. Immediately report all accidents to the Safety Coordinator. This includes the completion of an accident form.
7. Team Members driving non-company owned vehicles for business purposes and receiving expense reimbursements must submit proof of insurance to the Accounting Department.
8. Use of alcoholic beverages while operating a company vehicle is grounds for immediate dismissal.



I acknowledge receipt of a copy of the Team Member's Safety Responsibility policy and agree to abide by its terms and conditions.

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Team Member Signature

Date



SAFETY HANDBOOK

SECTION 03

DRUG FREE WORK PLACE INFORMATION

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Nolan Construction Company Drug Testing Overview

What to do if you suspect someone is “under the influence”:

1. Ask a witness to be present with you when you take team member aside to a private area.
2. Confront team member citing specific behaviors. (See “Suspect Behaviors - Problem Indicators for Supervisors”.)
3. If it is believed team member is under the influence, have someone drive team member to a testing facility. **DO NOT ASK/TELL TEAM MEMBER TO GET BEHIND THE WHEEL OF ANY VEHICLE.** Make sure you give them the three drug testing forms:
 - a) Consent Form
 - b) Drug Use Information Form
 - c) Chain of Custody Form
4. Once at the testing facility, if it is determined that team member is under the influence, arrange for team member to be taken home. **DO NOT ASK/TELL TEAM MEMBER TO GET BEHIND THE WHEEL OF ANY VEHICLE.**
5. Afterwards, send the following paperwork to Human Resources:
 - a) Completed Drug Abuse Inventory Report
 - b) Team member’s completed Consent Form, Drug Use Information Form, and a copy of the Chain of Custody Form.

If you have any questions, please contact Human Resources at 561-865-1566.

**REMEMBER THIS IS JUST AN OVERVIEW. PLEASE BE SURE TO
READ EACH SECTION COMPLETELY.**

Nolan Construction Company **DrugFree Workplace Information**

- A. DRUG TESTING OVERVIEW - WHAT TO DO IF YOU SUSPECT SOMEONE IS
“UNDER THE INFLUENCE”**
- B. REASONABLE SUSPICION PROCEDURE**
- C. SUSPECT BEHAVIORS - PROBLEM INDICATORS FOR SUPERVISORS**
- D. FORMS COMPLETION PROCEDURE FOR REASONABLE SUSPICION DRUG
TESTING**
- E. NOLAN CONSTRUCTION COMPANY DRUGFREE WORKPLACE POLICY
SUMMARY**
- F. DRUGS WHICH MAY ALTER OR AFFECT A DRUG TEST**
- G. DRUG ABUSE INVESTIGATION REPORT**



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Nolan Construction Company Reasonable Suspicion Procedure

FOR SUPERVISORS TO FOLLOW FOR TEAM MEMBERS WHO ARE BELIEVED TO BE UNDER THE INFLUENCE OF DRUGS OR ALCOHOL OR TO HAVE CONSUMED DRUGS OR ALCOHOL ON COMPANY PREMISES

There may be instances when Supervisors have reasonable cause to believe that a team member has consumed drugs and/or alcohol on Company premises or reported to work under the influence of one or both and request a blood or urine screen even though the team member is not believed to be impaired. The drug/alcohol screen is not intended to prove impairment but to confirm the presence of the drug or alcohol. The Company policy does not require impairment in order to prove a violation; drugs and alcohol are controlled substances and their use on or off work premises can violate our policy, whether or not impairment is suspected. If you have reason to consider requiring a drug or alcohol screen, use the following process to validate your reasons for consider testing:

1. Escort the team member personally to your office or other private area. Have another Supervisor present as a witness, if at all possible.
2. Confront the team member with your reasons for suspecting drug and/or alcohol policy violations. Your conversation with the team member determines whether or not you believe the team member has either consumed drugs or alcohol on Company premises or during work duty or is under the influence of either.
3. If after you have discussed this matter with your Supervisor and you both conclude that the team member does not appear to be under the influence of alcohol or drugs, including controlled substances and prescription drugs, and the team member is able to perform regular work duties, have team member return to the work unit and resume work.
4. If you and your Supervisor believe that the team member is under the influence of or has consumed drugs and/or alcohol on Company premises or during work duty, report this to the Manager and an Officer of the Company. Upon approval, advise the team member that our rules may have been violated and that he/she is being requested to provide urine and/or blood sample for testing. Personally drive or have someone drive the team member (with the other Supervisor still present) to an approved drug testing site.
5. Require the team member to read and sign a consent form, available at the testing location, agreeing to the urinalysis or blood test. Advise the team member that refusal to sign the form or give a specimen will be treated as a refusal to obey a direct order, and will constitute grounds for termination. Once the specimen is taken and initialed by the team member, suspend team member pending test results and a review of the circumstances.

6. If the team member is considered to be impaired, make arrangements to have the team member taken home. Do not permit team member to leave the premises or drive alone. If the team member refuses any assistance, make sure the witnessing Supervisor can verify that the team member refused such assistance. If the team member cannot control his/her actions and departs without assistance, you must call the local police or law enforcement agency to inform them of the team member's condition and refusal of assistance immediately. Tell the law enforcement agency the team member's name, and a description of the automobile including the license number.
7. After any drug test which is based on reasonable suspicion, the Supervisor should complete the Drug Abuse Investigation Report. This must be done within seven (7) days of the test.



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Suspect Behaviors

Problem Indicators for Supervisors

1. Pattern of Declining Overall Performance/Productivity

- a) Decreased work efficiency (rate and accuracy) as compared to past satisfactory performance.
- b) Inconsistent work patterns.
- c) Avoidance of assignments or responsibilities.

2. Pattern of Poor or Declining Attitude Toward Job

- a) Isolation from team members and/or Supervisors.
- b) Increasingly negative comments about Supervisors, team members, management and/or organization.
- c) Blaming others for changes in personal work performance.
- d) Increased incidents of hostility toward fellow team members not previously shown.
- e) Increased need for disciplinary action.
- f) Decreased interest in the job.
- g) Persistent requests for job transfer.
- h) Over reaction to real or imagined criticism.

3. Lapses in Concentration

- a) Difficulty recalling instructions.
- b) "Forgetting" usual routine.
- c) Drowsiness or sleeping on the job.
- d) Declining accuracy of decision.
- e) Pattern of poor or slowing reactions.

4. Reduced Work Hours

- a) Increased absenteeism especially on Mondays, after holidays, and after paydays.
- b) Increased tardiness or unexplained absences from the work station.

- c) Increased or frequent use of sick leave.
- d) Increasingly longer lunch hours, and increased length and/or number of work breaks.
- e) Early departures.

5. **Reduced Productivity**

- a) Increased incidents of equipment damage.
- b) Decreased quality of work produced.
- c) Missed deadlines.
- d) Decreased quality control standards as the work shift progresses.
- e) Increased time necessary to produce same amount of work.

6. **Health Problems**

- a) Increased or frequent complaints about health.
- b) Increased use of medical benefits.
- c) Increased use of sick days.
- d) Noticeable change in physical/personal appearance (e.g., weight gain/loss, poor grooming).

7. **Safety/Accident Record**

- a) Increased accidents or injuries.
- b) Increased risk-taking behavior.
- c) Failure to use safety equipment.

8. **Behavior Changes**

- a) Increased aggressiveness of defensiveness.
- b) Decreased ability to receive constructive criticism.
- c) Encounters with police.
- d) Calls from creditors, letters of indebtedness.
- e) Frequent mood changes/swings.
- f) Increased isolation from other team members.



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Nolan Construction Company Forms Completion Procedure for Reasonable Suspicion Drug Testing

1. Supervisor complete the Drug Abuse Investigation Report.
2. Give the Team member:
 - a) The Nolan Construction Company Drug Free Workplace Policy Summary.
 - b) List of Drugs Which May Alter or Affect a Drug Test.
3. Have the Team member read, complete and sign:
 - a) The Consent Form: Release of Confidential Drug Test.
 - b) The top portion of the Drug Use Information Form.
4. Transport the Team member to the testing facility.
 - a) Give testing facility:
 - i) Pre-printed Chain of Custody Form,
 - ii) A copy of the Consent Form - Release of Confidential Drug Test and,
 - iii) A copy of the Drug Use Information Form.
 - b) After the test, have Team member complete and sign the bottom portion of the Drug Use Information Form.
 - c) Suspend the Team member without pay pending the results of the drug test.
 - d) Arrange for SAFE TRANSPORTATION for the Team member to go home.

Nolan Construction Company

Drug Free Workplace

POLICY SUMMARY

In a commitment to safeguard the health of our team members and to provide a safe working environment for everyone, we have established a Drug-free Workplace Policy for our Company.

The essential parts of this policy are:

1. The Company prohibits the illegal use, possession, sale, manufacture, or distribution, of drugs, alcohol, or other controlled substances on work premises. It is also against Company policy to report to work or to work under the influence of drugs or alcohol.
2. Drug Testing of Applicants:
 - a. All applicants considered final candidates for a position will be tested for the presence of drugs as part of the application process.
 - b. Applicants will be asked to sign the Acknowledgment and Consent to Testing form. If an applicant refuses they will not be considered for employment and the employment application process will terminate.
 - c. If an applicant's test is confirmed positive, the applicant will not be considered for employment at that time and will be informed that they have failed to meet employment requirements.
3. Testing of Team members:
 - a. Post Accident Testing: Team members who caused or contributed to an accident will be tested.
 - b. Reasonable Suspicion Testing: Team members will be tested when there is a reasonable suspicion that a team member is using or has used drugs or alcohol.
 - c. Supervisor Testing: All team members hired or promoted to a supervisory or managerial position will be tested.
 - d. Follow-up Testing: All team members who have been determined to have used drugs or alcohol and are permitted by the Company to return to work will be subject to unannounced follow-up drug tests.

- e. Return to Duty Testing: Team members permitted to return to work after a positive drug test will be subject to periodic testing.
 - f. Random Testing: Random testing will be conducted periodically and not less than twenty-five percent of the average number of Team members shall be chosen. No individual Team member may be tested at random more than twice in a calendar year.
 - g. Additional Testing: Additional testing may also be conducted as required by applicable state or federal laws, rules, or regulations or as deemed necessary by the Company.
 - h. Refusal to Test: Team members who refuse to submit to a test will be terminated.
4. Alcohol and Drug Use Prohibitions:
- a. The use, sale, purchase, possession, distribution, or dispensing of drugs or alcohol on duty or on work premises is cause for immediate discharge.
 - b. It is against Company policy to report to work or work under the influence of alcohol or drugs. Team members who violate this policy are subject to discipline up to and including discharge. In the case of a first-time violation of the Company's policy, including a positive drug or alcohol test result (without evidence of use, sale, possession, distribution, dispensation, or purchase of drugs or alcohol on work premises or while on duty), the team member will be subject to discipline up to and including discharge.
 - c. For the purpose of this policy, an individual is presumed to be under the influence of alcohol or drugs if an alcohol or drug test is positive.
 - d. The Company may suspend team members without pay under this policy pending the results of a drug test or investigation.
5. All information, interviews, reports, statement memoranda and drug test results, written or otherwise, received by the company as part of this drug testing program are confidential communications. Unless authorized by state laws, rules or regulations, the Company will not release such information without a written consent form signed voluntarily by the person tested.

6. A Drug Use Information form is a confidential report which must be filled out by team members before being drug tested. This form permits individuals to list all prescription and non-prescription drugs they are currently using or have used in the last month, as well as any other information they consider relevant to the test.
7. Prior to testing, team member will be given a list of the most common medications by brand name or common name and chemical name which may alter or affect a drug test.
8. Any team member who refuses to submit to a drug test may be terminated from employment or otherwise disciplined by the employer. When appropriate, the results of a drug or alcohol test taken pursuant to this policy may be used as evidence to deny a team member medical and indemnity benefits under workers' compensation.
9. A team member who receives a positive confirmed drug test result may contest or may explain the result to the employer within five (5) days after written notification of the positive test result.
10. A team member has the responsibility of notifying the drug testing laboratory of any administrative or civil action brought regarding the test. The lab will maintain the sample until the case or administrative appeal is settled.
11. The following is a list of all drugs (described by brand name, common name and/or chemical name) for which the employer may test:

Alcohol (booze, drink)

Amphetamines (Binhetamine, Desoxyn, Dexedrine)

Cannabinoids (marijuana, hashish, hash, hash oil, pot, joint, roach, spleaf, grass, weed, reefer)

Cocaine (coke, blow, nose candy, snow, flake, crack)

Phencyclidine (PCP, angel dust, hog)

Methaqualone

Opiates (opium, dover's powder, paregoric, parepectolin)

Barbiturates (Phenobarbital, Tunnel, Amytal)

Benzodiazophines (Ativan, Azene, Clonopin, Dalmane, Diazepam, Halcion, Librium, Poxipam, Restoril, Serax, Tranxene, Valium, Vertron, Xanax)

Methadone (Dolophine, Methadose)

Propoxyphene (Darvocet, Darvon N, Dolene)

12. Team members have the right to consult the testing laboratory for technical information regarding prescription and non-prescription medication.

13. To ensure the drugs and alcohol do not enter to affect the workplace, the Company reserves the right to search all containers, lockers, or other items on work premises in furtherance of this policy. Individuals may be requested to display personal property for visual inspection upon Company request.
14. Failure to consent to search or display for visual inspection will be grounds for termination or reason for denial of access to work premises by any others.
15. Searches of team member's personal property will take place only in the team member's presence. All searches under this policy will occur with the utmost discretion and consideration for the team members involved.
16. Details of this policy may be obtained from a Company Officer or manager.
17. The contents of these drug and alcohol guidelines are presented as statements of the Company's current policy and may be changed and updated by the Company. These guidelines are not intended to create a contract between the Company and any team member. Nothing in these guidelines binds the Company to a specific or definite period of employment or to any specific policies, procedures, actions, rules, or terms and conditions of employment.
18. Team members, as a condition of employment, are required to abide by these guidelines.



Nolan Construction Company

Drugs Which May Alter or Affect a Drug Test

The following list contains the brand name or common name, and the chemical name, of the most common medications which may alter or affect a drug test. This list has been provided by the Department of Health and Rehabilitative Services.

1. **ALCOHOL**

All liquid medications containing ethyl alcohol (ethanol). Please read the label for alcohol content. As an example, Vick's Nyquil is 25% (50 proof) ethyl alcohol, Comtrex is 20% (40 proof), Contac Severe Cold Formula Night Strength is 25% (50 proof), and Listerine is 26.9% (54 proof).

2. **AMPHETAMINES**

Obetrol, Biphphetamine, Desoxyn, Dexedrine, Didrex

3. **CANNABINOIDS**

Marinol (Dronabinol, THC)

4. **COCAINE** - Cocaine Hcl Topical Solution (Roxanne)

5. **PHENCYCLIDINE** - Not legal by prescription

6. **METHAQUALINE** - Not legal by prescription

7. **OPIATES**

Paregoric, Parepectolin, Donnagel PG, Morphine, Tylenol with Codeine, Empirin with Codeine, Aspirin with Codeine, Robitussin AC, Guaiatuss AC, Novahistine DH, Novahistine Expectorant, Dilaudid (Hydromorphone), M-S Contin and Roxanol (morphine sulfate), Percodan, Percocet, Vicodin, etc.

8. **BARBITURATES**

Phenobarbital, Tuinal, Amytal, Nembutal, Seconal, Lotusate, Fiorinal, Fioricet, Esgic, Butisol, Mebaral, Butabarbital, Butabital, Phrenilin, Triad, etc.

9. **BENZODIAZEPINES**

Ativan, Azene, Clonopin, Dalmane, Diazepam, Librium, Xanax, Serax, Tranxene, Valium, Verstran, Halcion, Paxipam, Restoril, Centrax.

10. **METHADONE**

Dolophine, Methadose

11. **PROPOXYPHENE**

Darvocet, Darvon N, Dolene, etc.

Nolan Construction Company Drug Abuse Investigation Report

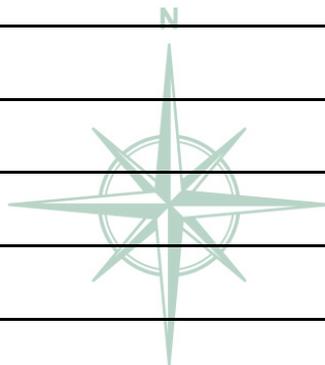
This form should be completed on the **SAME DAY** that the team member is asked to take a test, or at the **LATEST** within seven (7) days after the drug/alcohol test.

I have observed the following condition(s) affecting the work of:

_____ (Team member Name)

which give(s) rise to suspicion of possible drug abuse and request an investigation of the same:

CONDITION(S) OBSERVED: _____



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Supervisor's Signature

Date

Supervisor requested the following person to witness "Reasonable Suspicion Procedure" with above Team member.

Witness's Signature

Date

Manager's Signature

Date

Company Officer's Signature

Date

Nolan Construction Company Consent Form Release of Confidential Information

I _____, hereby give my consent to release the results of my drug test to **Nolan Construction Company**. The purpose of the disclosure is:

_____.

The duration of the consent is 90 days.

Signature of Individual Authorizing Release of Information

Printed Name

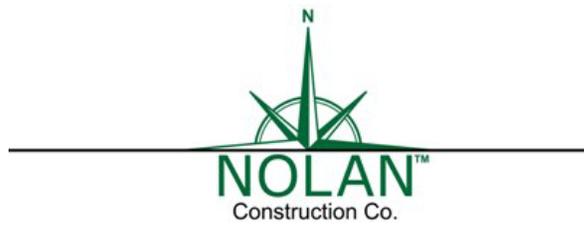
Date



Witness Signature

Printed Name of Witness

Date



SAFETY HANDBOOK



SECTION 04

LIST OF FORMS

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Nolan Construction Company **List of Forms**

- A. PROJECT MANAGER AND SUPERINTENDENT SAFETY CHECKLIST**
- B. JOBSITE SAFETY INSPECTION REPORT**
- C. INCIDENT REPORT**
- D. SUPERVISOR'S ACCIDENT INVESTIGATION REPORT**
- E. MULTI-EMPLOYER JOBSITE NOTICE OF HAZARDOUS CONDITION**
- F. NOTICE OF SAFETY VIOLATION**
- G. DISCIPLINARY WARNING**
- H. SAFETY TRAINING MINUTES**
- I. PERSONAL PROTECTIVE EQUIPMENT**
- J. MEDICAL FACILITY AND DRUG SCREEN FACILITY INFORMATION**
- K. CONSENT FORM - RELEASE OF CONFIDENTIAL DRUG TEST**



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Nolan Construction Company Project Manager and Superintendent Safety Checklist

Include Subcontractors. They are our responsibility.

Job Name _____

Job Number: _____

Date: _____

Project Manager: _____

Superintendent: _____

CHECKLIST (TO BE COMPLETED WEEKLY)

1. Is all information required by OSHA posted at the jobsite? _____
2. Are emergency phone numbers (doctor, ambulance, hospital) posted near phone? _____
3. Is a First Aid Kit on the jobsite? _____
Is it completely stocked? _____
4. Are safety meetings being held? _____
Are meetings being documented? _____
5. Are there people on the site who are trained in First Aid? _____
Do they have a certified card? _____
6. Is drinking water container clearly identified? _____
Is waste can at water container for used cups? _____
7. Is the site clean and free of debris? _____
Are materials stored or stacked neatly? _____
Are trash containers provided? _____
Are aisles and passageways kept clear and in good repair? _____

8. Is fuel storage located properly and marked? _____
Is fire extinguisher nearby (no further than 20 feet from stored fuel)? _____
9. Are adequate fire extinguishers on the site? # _____
10. Are team members wearing proper personal protective gear? _____
If not, state trades or subs: _____
11. Are accident prevention signs and tags being used? _____
12. Are floor and wall openings properly guarded with standard railings and toe-boards? _____
Are extension platforms outside a wall properly guarded with side rails equivalent guards? _____
Are open-sided floors or platforms six feet or more above ground or floor level guarded by standard railing? _____
Are flights of stairs with four or more risers equipped with standard stair railings or hand rails? _____
13. Are inspection records being kept on cranes, material and personnel hoist? _____
Are rated load capacities, recommended operating speeds, and special hazard warnings posted on all equipment and visible from operator's station? _____
Is equipment inspected by a competent person before each use? _____
Are thorough annual inspections made on hoisting machinery and records of the dates and results of inspection maintained by employer? _____
Are accessible areas within the swing radius of the rear rotating superstructure of the crane barricaded? _____
Is your crane near overhead electric power lines? _____
If so, have you developed a swing clearance diagram for the crane operator? _____
14. Is all electrical equipment free from recognized hazards that may cause death or serious harm? _____
Are ground fault circuit interrupters used to protect workers? _____
Is the temporary lighting for the general construction area adequate? _____
Are lamps for general illumination protected against breakage? _____
Are all cabinets, cut out boxes, fittings, boxes, panel board enclosures, switches, circuit breakers, and switchboards located in wet or damp locations enclosed in weather proof enclosures? _____
Are electrical cords or cables taken out of service when worn or frayed? _____

15. Are workers who are performing any type of welding, cutting, or heating protected by suitable eye protective equipment? _____
Is suitable fire extinguishing equipment immediately available in the work area and ready for instant use? _____
When transporting or storing compressed gas cylinders, are cylinders secured and caps in place? _____
Are all compressed gas cylinders secured in an upright position at all times? _____
16. Are defective ladders - broken or missing rungs or steps, broken or split side rails - immediately withdrawn from service? _____
Is the footing or anchorage for scaffolds sound, rigid, and capable of supporting the maximum intended load without settling or displacement? _____
Are scaffold guardrails and toeboards installed on all open sides and ends of platforms more than ten feet above ground or floor? _____
17. Do all vehicles with an obstructed view to the rear have a back up alarm or are always used with an observer? _____
Do all vehicles have seat belts and are they used? _____
Does all bi-directional earthmoving equipment have a horn in operable condition? _____
Is all earthmoving or compacting equipment with an obstructed rear view equipped with an operable backup alarm or used only with an observer? _____
18. Have all underground utility installations been located? _____
In trenches more than four feet deep, are stairways, ladders, or ramps located so that travel to them is no more than twenty-five feet? _____
Are excavation or other materials kept at least two feet from the edge of excavations? _____
Is excavation inspected daily and after any hazard increasing occurrence? _____
Are workers in an excavation five feet deep or more, or with the potential for cave in, protected by an adequate protective system? _____
19. Is all protruding reinforcing steel, onto or into which workers could fall, guarded to eliminate the hazard of impalement? _____
Is all formwork for cast-in-place concrete designed, fabricated, erected, supported, braced, and maintained so that it will support without failure all loads that may be anticipated? _____

INCIDENT REPORT - NOLAN CONSTRUCTION COMPANY

(PLEASE PRINT ALL REQUIRED INFORMATION, WITH THE EXCEPTION OF THE SIGNATURE LINE)

Prepared by: _____ Title: _____ Date of Report: _____

Job No. _____ Project Name: _____

Project Superintendent: _____ Project Manager: _____

PERSONAL INJURY/ILLNESS: Injury Illness Fatality

Note: If fatality occurred or more than 3 employees are hospitalized, OSHA must be notified within 8 hours.

Date and Time of Injury/Illness: _____ AM PM

Name of Injured Party: _____ Age: _____

Address: _____

Home Telephone No. () _____ By Whom Employed: _____

Nature and Extent of Injuries: _____

Did injured party return to work: Yes No Date/Time Returned: _____ AM PM

PROPERTY DAMAGE:

Date and Time of Incident: _____ AM PM

Name of Owner: _____ Telephone No. () _____

Owner Address: _____

Kind of Property and Extent of Damage: _____

THEFT: (Attach copy of Police Report or Case No.)	Items Stolen	Estimated Value
Date of Theft: _____	_____	_____
_____	_____	_____
_____	_____	_____

Estimated Time of Theft: _____ AM PM

First to Arrive at Scene: _____

Observations: _____

AUTO ACCIDENT: Date of Accident: _____ Time: _____ AM PM
(Attach copy of Police Report or Case No.)

Location: _____

Description: _____

Injuries: Yes No Equipment Malfunction: Yes No Unsafe Conditions: Yes No

Witness: _____
NAME ADDRESS TELEPHONE

Witness: _____
NAME ADDRESS TELEPHONE

Any person who, knowingly and with intent to injure, defraud, or deceive any employer or employee, insurance company or self-insured program, files a statement of claim containing any false or misleading information is guilty of a felony of the third degree. I have reviewed, understand and acknowledge the above statement.

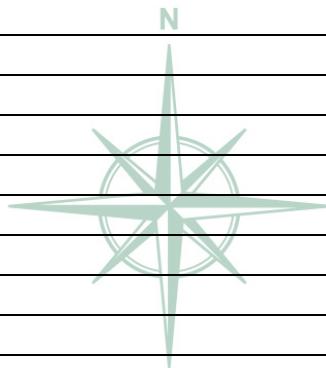
TEAM MEMBER SIGNATURE

SUPERVISOR'S SIGNATURE

DATE

DATE

USE REVERSE SIDE OF THIS FORM FOR ADDITIONAL INFORMATION



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Nolan Construction Company Supervisor's Accident Investigation Report

Team Member's Name: _____

Last First Middle

Accident Date _____ Accident Time _____ a.m. p.m.

Date Reported _____ Last Day Worked _____

Paid for day of injury? yes no

Did Team Member return to work? yes no Date Returned: _____

Place of accident: _____

Street _____
City/State/Zip _____
County _____

Description of accident: _____

Injury/illness that occurred: _____

Part of body affected: _____

Witnesses: _____

Equipment malfunction? yes no

Describe damage to equipment or property: _____

Name of doctor/hospital: _____

Any person who, knowingly and with intent to injure, defraud, or deceive any employer or employee, insurance company, or self-insured program, files a statement of claim containing any false or misleading information is guilty of a felony of the third degree. I have reviewed, understand, and acknowledge the above statement.

_____ Team Member Signature	_____ Supervisor Signature
_____ Date	_____ Date

SUPERVISOR TO COMPLETE THE FOLLOWING:

I agree with the description of the accident yes no. If no, describe:

Unsafe conditions/act causing accident? yes no. If yes, please explain:

Action taken or to be taken to prevent similar accident:

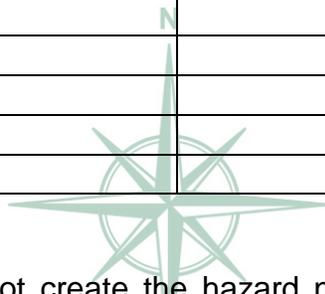
CC: Main Office, Field Supervisor(s), Team Member.

**Nolan Construction Company
Multi-Employer Jobsite
Notice of Hazardous Condition**

TO: _____ PROJECT: _____
 FROM: _____ DATE: _____
 COMPANY: _____

**Please Be Advised That A Hazardous Condition(s)
Exist(s) In The Following Location(s)**

Hazardous Condition(s)	Location



_____ did not create the hazard nor do we have the responsibility, authority or the ability to correct the hazard, therefore, we solicit your cooperation to have this (these) hazardous condition(s) abated.

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Signature

Date

Action Taken/Date Corrected

Signature

Date

Nolan Construction Company Notice of Safety Violation

EMPLOYER: _____

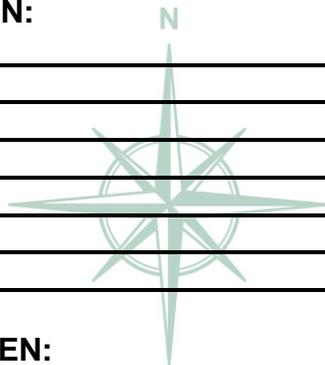
PROJECT: _____

TEAM MEMBER: _____

CLASSIFICATION: _____

SUPERVISOR: _____

DESCRIPTION OF VIOLATION:



DISCIPLINARY ACTION TAKEN:

Date

Signature

Print Name

Nolan Construction Company Safety Training Minutes

Date: _____

ATTENDEES:

TOPIC:

Discussion:

ACTION

TOPIC:

Discussion:

ACTION

TOPIC:

Discussion:

ACTION

TOPIC:

Discussion:

ACTION



TOPIC:

Discussion:

ACTION

TOPIC:

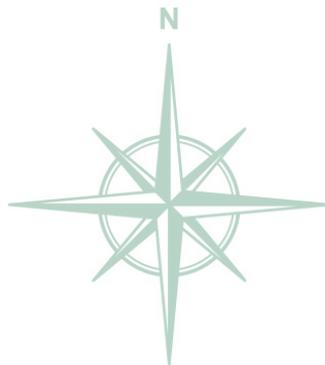
Discussion:

ACTION

TOPIC:

Discussion:

ACTION



Next meeting scheduled for _____ - NCC office.

End of minutes.

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Nolan Construction Company Personal Protective Equipment

THE FOLLOWING SAFETY EQUIPMENT HAS BEEN ISSUED TO THE TEAM MEMBER NAMED BELOW:

- ___ HARD HAT
- ___ SAFETY GLASSES
- ___ SAFETY SHOE INSOLES
- ___ SAFETY BELT WITH SIX FOOT LANYARD
(Requires full harness for fall protection.)
- ___ RAIN SUIT
- ___ RUBBER BOOTS
- ___ RESPIRATOR



TEAM MEMBER'S NAME: _____

TEAM MEMBER'S SIGNATURE: _____

SUPERVISOR'S SIGNATURE: _____

DATE: _____

PROJECT NUMBER: _____

PROJECT NAME: _____

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Nolan Construction Company Medical Facility and Drug Screening Facility

Project Name: _____

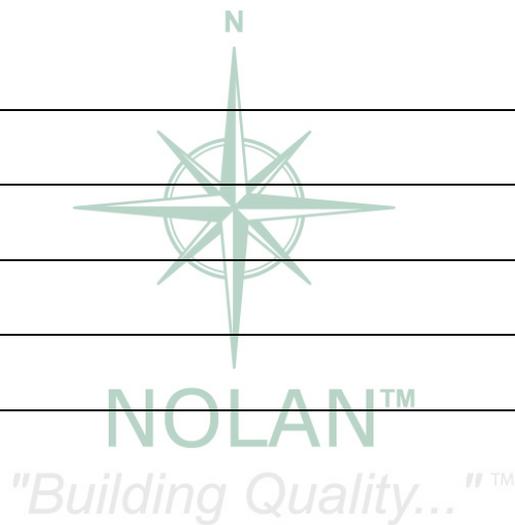
Project Address: _____

MEDICAL FACILITY: _____

Address: _____

Telephone: _____

Contact Person: _____



DRUG SCREENING FACILITY: _____

Address: _____

Telephone: _____

Contact Person: _____

Nolan Construction Company Consent Form

Release of Confidential Drug Test

I, _____,

hereby give my consent to release the results of my drug test to **Nolan Construction Company**

The purpose of this disclosure is:

- _____ pre-employment
- _____ random
- _____ reasonable suspicion.

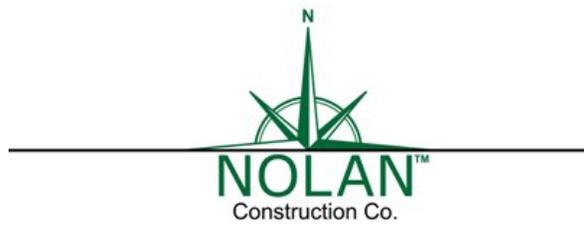
The duration of this consent is ninety (90) days.



DATE

SIGNATURE AUTHORIZING RELEASE OF INFORMATION

SIGNATURE OF WITNESS



SAFETY HANDBOOK

SECTION 05

COMPETENT PERSON FORMS

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Nolan Construction Company Subcontractor Safety Competent Person

Project Name: _____

Contractor Name: _____

Address: _____

Phone (Home Office): _____

Phone (Jobsite): _____

Project Manager: _____

OSHA 1926.32 definition of Competent Person:

Competent Person means one who is capable of identifying existing and predictable hazards in the surroundings or work conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

The Competent Person is responsible for jobsite safety, making regular inspections and correcting unsafe conditions or work procedures, and employee indoctrination.

The name of the Competent Person is: _____

Signature

Print Name

Date

Nolan Construction Company Subcontractor Safety Competent Person (Excavations)

Project Name: _____

Contractor Name: _____

Address: _____

Phone (Home Office): _____

Phone (Jobsite): _____

Project Manager: _____

OSHA 1926.32 definition of Competent Person:

Competent Person means one who is capable of identifying existing and predictable hazards in the surroundings or work conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

OSHA 1926.650 Subpart P - Excavations

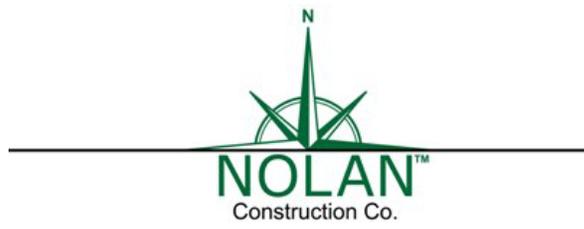
Although the definition of "competent person" in 1926.650 has not been changed from the proposal and is the same as that in the existing 1926.32, it is important to note that what constitutes a "competent person" depends on the context in which the term is used. In order to be a "competent person" for the purposes of this standard, one must have had specific training in, and be knowledgeable about, soils analysis, the use of protective systems, and the requirement of this standard.

The name of the competent person is: _____

Signature

Date

Print Name



SAFETY HANDBOOK



SECTION 06

LIST OF SIGNS

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Nolan Construction Company **Safety Notice**

Temporary Guardrails, Handrails and Covers

ALL TEAM MEMBERS AND SUBCONTRACTOR'S EMPLOYEES MUST REQUEST PERMISSION FROM THE SUPERINTENDENT IN CHARGE TO REMOVE OR ALTER ANY TEMPORARY GUARDRAIL, HANDRAIL OR FLOOR OPENING COVER.

ANY TEAM MEMBER WHO REMOVES OR ALTERS A TEMPORARY GUARDRAIL, HANDRAIL OR FLOOR OPENING COVER WITHOUT PERMISSION OF THE SUPERINTENDENT IN CHARGE WILL BE SUBJECT TO DISCIPLINARY ACTION UP TO AND INCLUDING TERMINATION OF EMPLOYMENT.

ANY SUBCONTRACTOR'S EMPLOYEE WHO REMOVES OR ALTERS A TEMPORARY GUARDRAIL, HANDRAIL OR FLOOR OPENING COVER WITHOUT THE PERMISSION OF THE SUPERINTENDENT IN CHARGE WILL BE ASKED TO LEAVE THE JOBSITE AND WILL BE RESTRICTED FROM WORKING ON THE PROJECT.

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Nolan Construction Company List of Signs

- _____ 1. SAFETY FIRST - HELP KEEP THIS JOB SAFE AND CLEAN
- _____ 2. YOU MUST REPORT ALL INJURIES IMMEDIATELY TO YOUR FOREMAN
- _____ 3. DANGER - KEEP OUT
- _____ 4. DANGER - HIGH VOLTAGE
- _____ 5. DANGER - MEN WORKING ABOVE
- _____ 6. DANGER - NO TRESPASSING
- _____ 7. DANGER - HARD HAT AREA
- _____ 8. DANGER - FALL PROTECTION IS REQUIRED WHEN WORKING 6' ABOVE A LOWER LEVEL
- _____ 9. DANGER - FALL PROTECTION IS REQUIRED WHEN WORKING 6' FROM EDGE OF BUILDING
- _____ 10. DANGER - FLOOR OPENING COVER. DO NOT REMOVE.
- _____ 11. DANGER - NO SMOKING, MATCHES OR OPEN FLAME
- _____ 12. DANGER - FLAMMABLE LIQUIDS
- _____ 13. NOTICE - DRUG FREE WORKPLACE
- _____ 14. NOTICE - HAZARD COMMUNICATIONS
- _____ 15. COMPANY LOGO HARD HATS
- _____ 16. NOTICE - TEMPORARY GUARDRAILS, HANDRAILS & COVERS

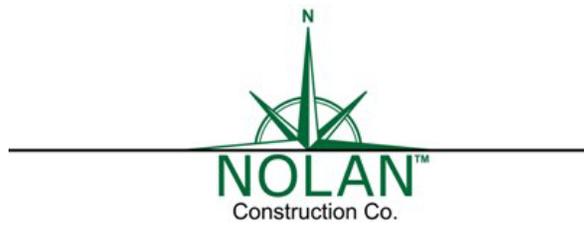
Please indicate beside each item the quantity of signs your jobsite will need. Return this list to the Safety Department.

JOB NAME

JOB NUMBER

SUPERINTENDENT (Please Print)

DATE



SAFETY HANDBOOK

SECTION 07

HAZARD COMMUNICATION PROGRAM

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HAZARD COMMUNICATION PROGRAM



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Refer to "HAZARD COMMUNICATION PROGRAM" Book
(Red Book)

HAZARD COMMUNICATION PROGRAM

ASSESSMENT:

Perform an evaluation/assessment of all hazardous chemicals used in the workplace. Use the material safety data sheets (MSDS) as your primary source of information. Determine how they are used in your operations. Based on their utilization, determine the potential for exposure. Use the MSDS for guidance on what protective measures should be implemented.

OSHA requires that the Hazard Communication program include several elements. The following elements are incorporated into this program to comply with the regulation.

CONTAINER LABELING:

Identify a person such as the plant supervisor, foreperson etc., who will be responsible for verifying that each container received is properly labeled. The labels shall include the following information:

- clearly labeled as to its contents
- note the appropriate hazard warning
- Include the name and address of the manufacturer

No container shall be allowed into the establishment until the above data is verified. If the data is not on the container the information will be gleaned from the MSDS and transposed onto a label and affixed to the container. If no data sheet is available, the manufacturer will be notified immediately to request a data sheet.

DOWNSTREAM LABELING:

Hazardous chemicals or materials taken from a bulk container and placed into a smaller container will also be labeled. The person responsible for the Haz Comm Program will see that the container is labeled. You can use some type of system including a numbering system to identify the hazardous chemical or material. For example: The number 1 can be used to identify the trade name of a product and that it is a caustic substance.

MATERIAL SAFETY DATA SHEET:

Copies of all material safety data sheets (MSDS) for all hazardous chemicals to which employees may be exposed will be kept in the plant superintendents office. The data sheets will be available for review to all employees upon request. Copies will be made for anyone requesting them.

EMPLOYEE TRAINING AND EDUCATION

Training will be provided to all current employees. All new hires will be trained during the orientation session prior to beginning work. The training will include the following:

- all employees will be provided a copy of the written program and trained as to its policies
- location and availability of the written program including the list of hazardous chemicals and material safety data sheets
- training on the physical and health hazards of chemicals used in their respective work areas
- how to lessen or prevent exposure to these chemicals, through practices, emergency procedures and the use of personal protective equipment
- what the company has done to lessen or prevent exposure to these chemicals
- procedures to follow if exposure to these chemicals occurs
- method and observation that may indicate the presence or release of a hazardous chemical (i.e. monitoring, visual appearance, or odor of chemical when released).
- In depth explanation of the details of the hazardous communication program including the labeling system, list, data sheets, etc., in short, what the company's policies are and what is expected of employees and their rights under the program.

TRAINING CERTIFICATION

- In order to certify training, each employee will sign a form stating that they have received the written material and have actually been trained on the program and what their rights are under the program.
- The introduction of a new chemical will result in additional training and certification.

LIST OF HAZARDOUS CHEMICALS:

The following is an alphabetical listing of all the hazardous chemicals used in our operations. An additional breakdown will be made for each department. This will allow for operation specific identification of where and who is using these chemicals. The list can be obtained for review by notifying your immediate supervisor.

HAZARDOUS CHEMICAL LIST: LIST EACH CHEMICAL

- 1.
- 2.
- 3.

HAZARDOUS NON-ROUTINE TASKS and CHEMICALS IN UNLABELED PIPES

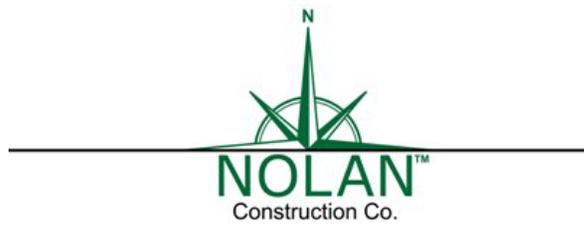
An assessment has been made of the entire establishment. Presently we are unable to identify tasks which we would consider non-routine in nature. Similarly, we have not been able to identify any hazardous chemicals in unlabeled pipes. However, we have established a policy that will provide guidance for employees who might encounter a non-routine task or chemical in an unlabeled pipe in the foreseeable future.

NON-ROUTINE TASK POLICY:

Any employee confronted with a task that is not within his or her normal work assignment that would involve maintenance or something similar in nature, are required to notify their supervisor before beginning the task. Failure to comply with this requirement will result in disciplinary action to the supervisor and the employee.

Upon notification, the supervisor will contact his/her supervisor, who will notify the owner, if the situation is beyond their control. Failure to comply with this requirement will result in disciplinary action.

NOTE: IT IS EXTREMELY IMPORTANT TO FOLLOW THESE GUIDELINES. IT MAY SAVE YOUR LIFE.



SAFETY HANDBOOK

SECTION 08

OSHA PROCEDURES

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Nolan Construction Company OSHA Inspection Procedures

I. PRE-INSPECTION

- A. Normally, OSHA will come on the jobsite without advance notice during regular business hours for an inspection because of:
1. Complaints filed by team members, subcontractors, unions or even outside third parties (if a complaint, ask for a copy).
 2. Fatality on Project.
 3. Random selection.
- B. The OSHA Compliance Officer will present credentials, explain the nature and the purpose of the visit and will generally ask for an opening conference at which the officer may request company safety personnel, subcontractor representatives and union/employee representatives be present.
- C. The Project Manager shall immediately notify the officer in charge of the Project, and the Safety Director, of the OSHA Compliance Officer's presence. The Project Manager shall have the OSHA Compliance Officer speak with the Safety Director by telephone. A request will be made to the OSHA Compliance Officer to wait for the Safety Director to accompany the OSHA Compliance Officer for the inspection.
- D. If it is determined that an inspection Warrant is required for this Project, then the Project Manager and Safety Director will discuss with the OSHA Compliance Officer the Company policy requiring a valid inspection Warrant.
- E. The Project Manager shall hand the OSHA Compliance Officer a copy of "Notice to OSHA" if an inspection Warrant is required (make additional copies if more than one OSHA Compliance Officer).

II. THE INSPECTION

- A. The Project Manager and/or Safety Director is to inform the Compliance Officer that Company Policy requests that the Safety Director be present for all jobsite safety inspections.
- B. The Safety Director will accompany the OSHA Compliance Officer on the entire walk-around inspection.
- C. If the Safety Director cannot be present for the walk-around inspection, the Project General Superintendent or some other responsible Supervisor will accompany the OSHA Compliance Officer.
- D. During the inspection, it is extremely important that the Company's positive attitude be communicated to the OSHA Compliance Officer. However, never volunteer information and never admit guilt, maintain a good attitude during the entire inspection, be cooperative and polite and outline the Company's safety efforts, where appropriate.
- E. The OSHA Compliance Officer will take pictures during the inspection where the officer believes there may be a violation of the OSHA Standards and should notify the Company representative, of the violation, when doing so. If the officer does not, ask the officer to do so. Take picture-for-picture with the Compliance Officer, in as close a position to the officer's as possible. Take additional photographs, as necessary, for better perspective and for additional details and information. The Company representative accompanying the OSHA Compliance Officer shall maintain a photograph log. This log shall list each photograph by number, with any pertinent data, for easy reference to subsequent Citation, if any.
- F. Take notes at each location visited; i.e., equipment checked, names of personnel interviewed, "gist" of conversations, etc. Try not to get involved in conversation between the OSHA Compliance Officer and the person being interviewed, but remain with them at all times. Answer questions, but do not volunteer any information, particularly about operation of a particular machine. Never demonstrate the operation of a particular machine. If a machine is not being operated, never state that it was or when it was.
- G. "Unsafe Acts": It is important to distinguish between "Unsafe Acts" and "Unsafe Conditions". Most serious violations (as well as injuries) are the result of "Unsafe Acts" on the part of a worker and not an "Unsafe Condition". "Unsafe Acts" include such things as team members' failure to wear company-furnished personal protective equipment, hard hat, safety goggles, safety belt with lanyard, etc. When a Company representative, accompanying the OSHA Compliance Officer, observes an "Unsafe Act", the representative should contact the team member directly and instruct

worker to cease the “Unsafe Act”. Such acts may not avoid a Citation, but will mitigate the circumstances and show good faith.

- H. “Unsafe Conditions”: Most “Unsafe Conditions” can and should be corrected during the walk-around inspection. This should be done as the OSHA Compliance Officer generally records such correction in order to note the contractor’s good faith. If Officer fails to note immediate abatement, call the immediate corrective action taken to Officer’s attention. Even though corrected, apparent violations may still be the basis for a Citation and/or a proposed Penalty. Defective equipment being operated should be removed, tagged and taken out of service. Work in areas of violation that cannot be corrected immediately should be stopped and the team members reassigned until corrective action can be taken.
- I. At the end of the walk-around inspection, the OSHA Compliance Officer will discuss the apparent violations found and the type of Citations(s) recommended be issued.
1. Record the names of all persons present and take notes of what was said.
 2. List all alleged violations discussed by the OSHA Compliance Officer and indicate type: willful, serious or other. Record the OSHA Standard given for each alleged violation by the OSHA Compliance Officer. If the OSHA Compliance Officer fails to give the Standard that is in alleged violation, ask for it.
 3. If you believe that an alleged violation discussed by the OSHA Compliance Officer is:
 - a. not a violation of the OSHA Standards, state your reason to the OSHA Compliance Officer.
 - b. the result of a subcontractor’s non-compliance with the OSHA Standards, request that the subcontractor be identified and documented in the Compliance Officer’s report.

Again, be cooperative and polite and display a positive safety attitude. Don’t be antagonistic. Never admit that something is a violation.

III. POST INSPECTION

- A. Immediately complete OSHA Inspection Data Form and forward to the Safety Director as soon as possible, together with the photographs, photo log, and comments regarding each alleged violation(s), including abatement action taken. This will be of considerable help in establishing our position in contesting any of the Citations.
- B. Any Citations received at the Project should be forwarded to the Safety Director with a copy to the Officer in charge of the Project.
- C. The Officer in charge of the Project, the Project Manager, and the Safety Director will address the company's position and prepare a response to the alleged Citations.

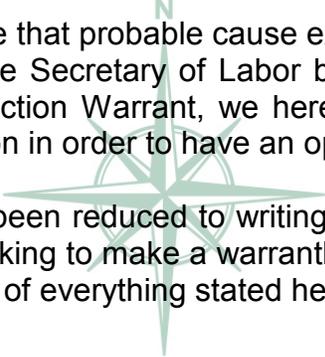


Nolan Construction Company Notice to OSHA

It is the policy of Nolan Construction Company to cooperate with any Governmental Agency seeking to lawfully enforce federal, state, or local laws or regulations pursuant to the safeguards guaranteed us by the Constitution of the United States. We are familiar with Federal Court decisions and the U.S. Supreme Court's ruling in Marshall v. Barlow's, Inc., that all warrantless searches or inspections of company property, or any portion thereof, conducted pursuant to Section 8(a) of the Occupational Safety and Health Act of 1970 are unconstitutional. Therefore, we choose to exercise our constitutional rights and will not permit, nor is any team member of the Company authorized to permit, any search or inspection by any representative of the Occupational Safety and Health Administration unless conducted pursuant to a valid Warrant.

This company does not believe that probable cause exists for an OSHA inspection of its property. In the event that the Secretary of Labor believes otherwise and decides to make application for an inspection Warrant, we hereby request that we be given advance notice of such application in order to have an opportunity to oppose the same.

This Statement of Policy has been reduced to writing and is being delivered in hand to the OSHA representatives seeking to make a warrantless search of our property so that OSHA will be officially advised of everything stated herein.



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Nolan Construction Company OSHA Inspection Data Form

Date of Inspection: _____

A. INSPECTION WARRANT

Attach a copy of the valid Inspection Warrant, if required.

B. PRE-CONSTRUCTION

1. Who did the OSHA Compliance Officer first contact at the jobsite?

Name: _____ Position: _____

2. Who was assigned to go with the OSHA Compliance Officer?

Name: _____ Position: _____

3. Did the OSHA Compliance Officer have credentials?

YES _____ NO _____

4. The Compliance Officer's Name: _____

Federal _____ State _____

C. OPENING CONFERENCE

1. Who was present? 1. _____

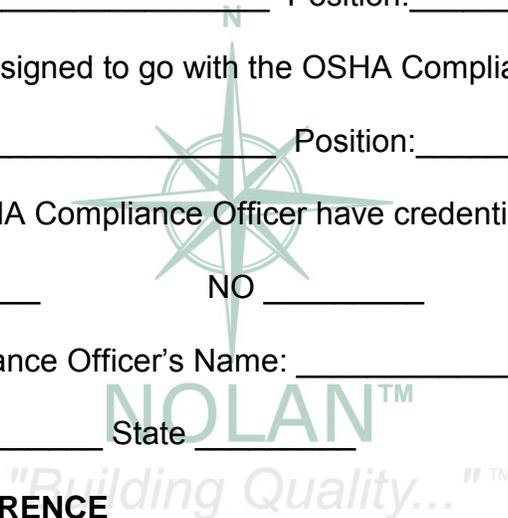
2. _____

3. _____

4. _____

5. _____

6. _____



2. What was the purpose of the visit as explained by the Compliance Officer?

3. Was there a complaint? _____

4. Were you given a copy of the complaint? YES _____ NO _____
5. Did the OSHA Compliance Officer review record keeping under OSHA?
YES _____ NO _____
6. How were worker representatives selected? _____

7. What trades do they represent? _____

8. Other comments: _____

D. THE INSPECTION: Take pictures of everything the OSHA Compliance Officer does.

1. Who was present during the walk-around? _____

2. Were they paid for the time spent? YES _____ NO _____
3. Comments by the OSHA Compliance Officer. Briefly list them.

4. Were pictures taken? YES _____ NO _____
5. Were "red tags" used? YES _____ NO _____
6. If "Yes", what was red tagged? _____

7. Was any portion of the job shut down? YES _____ NO _____

8. If "Yes", for how long? _____

9. Comments _____

E. CLOSING CONFERENCE

Name

Firm

1. Who was present? 1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

2. Were alleged violations of standards discussed? YES ___ NO ___

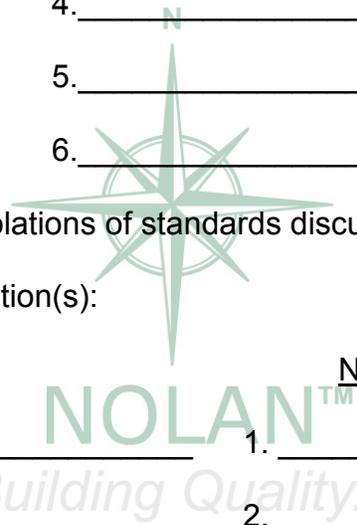
3. List alleged violation(s):

Serious

Non-Serious

- | | |
|----------|----------|
| 1. _____ | 1. _____ |
| 2. _____ | 2. _____ |
| 3. _____ | 3. _____ |
| 4. _____ | 4. _____ |

4. Comments: _____



F. TIME SCHEDULE

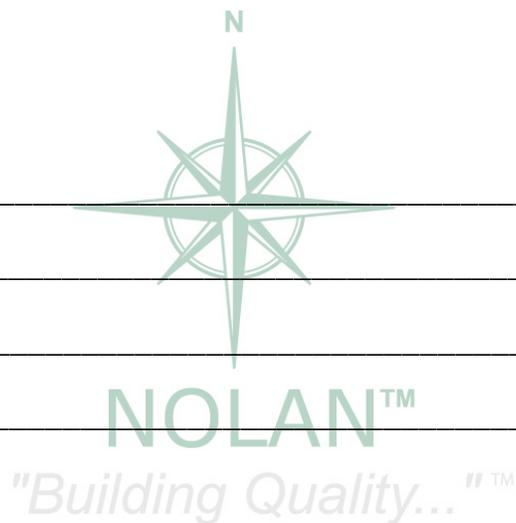
1. Time the OSHA Compliance Officer arrived: _____
2. Time opening conference began: _____
3. Time opening conference ended: _____
4. Time inspection began: _____
5. Time inspection ended: _____
6. Time closing conference began: _____
7. Time closing conference ended: _____

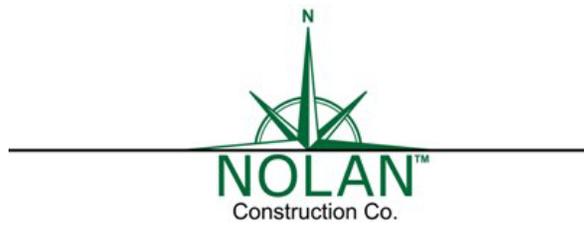
PROJECT NAME: _____

PROJECT NUMBER: _____

SIGNED: _____

DATE: _____





SAFETY HANDBOOK

SECTION 09

**OSHA RECORDKEEPING GUIDELINES FOR
OCCUPATIONAL INJURIES & ILLNESSES**

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Nolan Construction Company OSHA Recordkeeping Guidelines For Occupational Injuries and Illnesses

Basic recordkeeping concepts and guidelines are included with instruction on the back of form OSHA No. 200. The following summarizes the major recordkeeping concepts and provides additional information to aid in keeping records accurately.

1. An injury or illness is considered work-related if it occurs in the work environment (defined as any area on the employer's premises, e.g., worksite, company cafeteria, or company parking lot). The work environment surrounds the workers routes (e.g., sales representative, pipeline worker, vending machine repairer, telephone line worker).
2. All work-related fatalities are recordable.
3. All diagnosed work-related illnesses are recordable.
4. All work-related injuries requiring medical treatment or involving loss of consciousness, restriction of work or motion or transfer to another job are recordable.

Recordable and Nonrecordable injuries. Each case is distinguished by the treatment provided; i.e., if the injury required medical treatment, it is recordable; if only first aid was required, it is not recordable. However, medical treatment is only one of several criteria for determining recordability. Regardless of treatment, if the injury involved loss of consciousness, restriction of work or motion, transfer to another job or termination of employment, the injury is recordable.

Medical treatment. The following are considered to involve medical treatment and are recordable for a work-related injury.

- Antiseptics applied on second or subsequent visit to doctor or nurse.
- Burns of second or third degree
- Butterfly sutures
- Compresses, hot or cold, on second or subsequent visit to a doctor or nurse
- Cutting away dead skin (surgical debridement)
- Diathermy treatment
- Foreign bodies, if removal from wound requires a physician because of depth of embedment, size or shape of object(s) or location of wound
- Infection, treatment for prescription medications used
- Soaking, hot or cold, on second or subsequent visit
- Sutures (stitches)
- Whirlpool treatment
- X-ray which is positive

First Aid Treatment. The following are considered to involve only first-aid treatment and need not be recorded if the work-related injury does not involve loss of consciousness, restriction of work or motion, or transfer to another job.

Antiseptics, application of, on first visit to a doctor or nurse
Bandaging on any visit to a doctor or nurse
Burns of first degree
Compresses, hot or cold, on first visit to a doctor or nurse only
Elastic bandage, use of, on first visit to a doctor or nurse only
Foreign bodies, not embedded, irrigation of eye for removal
Foreign bodies, removal from wound by tweezers or other simple techniques
Nonprescription medications, use of
Observation of injury on second or subsequent visit
Ointments applied to abrasions to prevent drying or cracking

Other procedures not considered medical treatment. The following, in themselves, are not considered medical treatment.

Tetanus shot, initial or booster alone
Hospitalization for observation (no treatment other than first aid)
X-ray which is negative

Reminder: Work-related injuries requiring only First-Aid Treatment and that do not involve any of the conditions in item 4 above, are not recordable.





SAFETY HANDBOOK



SECTION 10

OSHA FORM 2000

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Public reporting burden for this collection of information is estimated to vary from 4 to 30 minutes per response with an average of 15 minutes per response, including the time you will spend reviewing the instructions, searching and gathering the data needed, and completing and reviewing the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments regarding these estimates or any other aspects of this data collection, send them to: US Department of Labor, Occupational Safety and Health Administration, Office of Statistics, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210 or US Department of Labor, Office of IRM Policy, Room N-1301, 200 Constitution Avenue, NW, Washington DC 20210.

Instructions for OSHA No. 200

I. Log and Summary of Occupational Injuries and Illnesses

Each employer who is subject to the recordkeeping requirements of the Occupational Safety and Health Act of 1970 must maintain for each establishment a log of all recordable occupational injuries and illnesses. This form (OSHA No. 200) may be used for that purpose. A substitute for the OSHA No. 200 is acceptable if it is as detailed, easily readable, and understandable as the OSHA No. 200.

Enter each recordable case on the log within six (6) workdays after learning of its occurrence. Although other records must be maintained at the establishment to which they refer, it is possible to prepare and maintain the log at another location, using data processing equipment if desired. If the log is prepared elsewhere, a copy updated to within 45 calendar days must be present at all times in the establishment.

Logs must be maintained and retained for five (5) years following the end of the calendar year to which they relate. Logs must be available (normally at the establishment) for inspection and copying by representatives of the Department of Labor, or the Department of Health and Human Services, or States accorded jurisdiction under the Act. Access to the log is also provided to employees, former employees and their representatives.

II. Changes in Extent of or Outcome of Injury or Illness

If, during the 5-year period the log must be retained, there is a change in an extent and outcome of an injury or illness which affects entries in columns 1, 2, 6, 8, 9, or 13, the first entry should be lined out and a new entry made. For example, if an injured employee at first required only medical treatment but later lost workdays away from work, the check in column 6 should be lined out, and checks entered in columns 2 and 3 and the number of lost workdays entered in column 4.

In another example, if an employee with an occupational illness lost workdays, returned to work, and then died of the illness, any entries in columns 9 through 12 should be lined out and the date of death entered in column 8.

The entire entry for an injury or illness should be lined out if later found to be nonrecordable. For example: an injury which is later determined not to be work related, or which was initially thought to involve medical treatment but later was determined to have involved only first aid.

III. Posting Requirements

A copy of the totals and information following the fold line of the last page for the year must be posted at each establishment in the place or places where notices to employees are customarily posted. This copy must be posted no later than **February 1 and must remain in place until March 1.**

Even though there were no injuries or illnesses during the year, zeros must be entered on the totals line, and the form posted.

The person responsible for the **annual summary totals** shall certify that the totals are true and complete by signing at the bottom of the form.

IV. Instructions for Completing Log and Summary of Occupational Injuries and Illnesses

Column A — CASE OR FILE NUMBER. Self-explanatory.

Column B — DATE OF INJURY OR ONSET OF ILLNESS.

For occupational injuries, enter the date of the work accident which resulted in injury. For occupational illnesses, enter the date of initial diagnosis of illness, or, if absence from work occurred before diagnosis, enter the first day of the absence attributable to the illness which was later diagnosed or recognized.

Columns C through F — Self-explanatory.

Columns 1 and 8 — INJURY OR ILLNESS-RELATED DEATHS.
Self-explanatory.

Columns 2 and 9 — INJURIES OR ILLNESSES WITH LOST WORKDAYS.
Self-explanatory.

Any injury which involves days away from work, or days of restricted work activity, or both must be recorded since it always involves one or more of the criteria for recordability.

Columns 3 and 10 — INJURIES OR ILLNESSES INVOLVING DAYS AWAY FROM WORK. Self-explanatory.

Columns 4 and 11 — LOST WORKDAYS—DAYS AWAY FROM WORK.
Enter the number of workdays (consecutive or not) on which the employee would have worked but could not because of occupational injury or illness. The number of lost workdays should not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work.
NOTE: For employees not having a regularly scheduled shift, such as certain truck drivers, construction workers, farm labor, casual labor, part-time employees, etc., it may be necessary to estimate the number of lost workdays. Estimates of lost workdays shall be based on prior work history of the employee AND days worked by employees, not ill or injured, working in the department and/or occupation of the ill or injured employee.

Columns 5 and 12 — LOST WORKDAYS—DAYS OF RESTRICTED WORK ACTIVITY.

Enter the number of workdays (consecutive or not) on which because of injury or illness:
(1) the employee was assigned to another job on a temporary basis, or
(2) the employee worked at a permanent job less than full time, or
(3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

The number of lost workdays should not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work.

Columns 6 and 13 — INJURIES OR ILLNESSES WITHOUT LOST WORKDAYS. Self-explanatory.

Columns 7a through 7g — TYPE OF ILLNESS.
Enter a check in only **one** column for each illness.

TERMINATION OR PERMANENT TRANSFER—Place an asterisk to the right of the entry in columns 7a through 7g (type of illness) which represented a termination of employment or permanent transfer.

V. Totals

Add number of entries in columns 1 and 8.
Add number of checks in columns 2, 3, 6, 7, 9, 10, and 12.
Add number of days in columns 4, 5, 11, and 12.
Yearly totals for each column (1-13) are required for posting. Running or page totals may be generated at the discretion of the employer.

If an employee's loss of workdays is continuing at the time the totals are summarized, estimate the number of future workdays the employee will lose and add that estimate to the workdays already lost and include this figure in the annual totals. No further entries are to be made with respect to such cases in the next year's log.

VI. Definitions

OCCUPATIONAL INJURY is any injury such as a cut, fracture, sprain, amputation, etc., which results from a work accident or from an exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact.
NOTE: Conditions resulting from animal bites, such as insect or snake bites or from one-time exposure to chemicals, are considered to be injuries.

OCCUPATIONAL ILLNESS of an employee is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact.

The following listing gives the categories of occupational illnesses and disorders that will be utilized for the purpose of classifying recordable illnesses. For purposes of information, examples of each category are given. These are typical examples, however, and are not to be considered the complete listing of the types of illnesses and disorders that are to be counted under each category.

7a. Occupational Skin Diseases or Disorders
Examples: Contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil acne; chrome ulcers; chemical burns or inflammations; etc.

7b. Dust Diseases of the Lungs (Pneumoconioses)
Examples: Silicosis, asbestosis and other asbestos-related diseases, coal worker's pneumoconiosis, byssinosis, siderosis, and other pneumoconioses.

7c. Respiratory Conditions Due to Toxic Agents
Examples: Pneumonitis, pharyngitis, rhinitis or acute congestion due to chemicals, dusts, gases, or fumes; farmer's lung; etc.

7d. Poisoning (Systemic Effect of Toxic Materials)
Examples: Poisoning by lead, mercury, cadmium, arsenic, or other metals; poisoning by carbon monoxide, hydrogen sulfide, or other gases; poisoning by benzol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays such as parathion, lead arsenate; poisoning by other chemicals such as formaldehyde, plastics, and resins; etc.

7e. Disorders Due to Physical Agents (Other than Toxic Materials)
Examples: Heatstroke, sunstroke, heat exhaustion, and other effects of environmental heat; freezing, frostbite, and effects of exposure to low temperatures; caisson disease; effects of ionizing radiation (isotopes, X-rays, radium); effects of nonionizing radiation (welding flash, ultraviolet rays, microwaves, sunburn); etc.

7f. Disorders Associated With Repeated Trauma
Examples: Noise-induced hearing loss; synovitis, tenosynovitis, and bursitis; Raynaud's phenomena; and other conditions due to repeated motion, vibration, or pressure.

7g. All Other Occupational Illnesses
Examples: Anthrax, brucellosis, infectious hepatitis, malignant and benign tumors, food poisoning, histoplasmosis, coccidioidomycosis, etc.

MEDICAL TREATMENT includes treatment (other than first aid) administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does NOT include first-aid treatment (one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care) even though provided by a physician or registered professional personnel.

ESTABLISHMENT: A single physical location where business is conducted or where services or industrial operations are performed (for example: a factory, mill, store, hotel, restaurant, movie theater, farm, ranch, bank, sales office, warehouse, or central administrative office). Where distinctly separate activities are performed at a single physical location, such as construction activities operated from the same physical location as a lumber yard, each activity shall be treated as a separate establishment.

For firms engaged in activities which may be physically dispersed, such as agriculture; construction; transportation; communications; and electric, gas, and sanitary services, records may be maintained at a place to which employees report each day.

Records for personnel who do not primarily report or work at a single establishment, such as traveling salesmen, technicians, engineers, etc., shall be maintained at the location from which they are paid or the base from which personnel operate to carry out their activities.

WORK ENVIRONMENT is comprised of the physical location, equipment, materials processed or used, and the kinds of operations performed in the course of an employee's work, whether on or off the employer's premises.



SAFETY HANDBOOK

SECTION 11

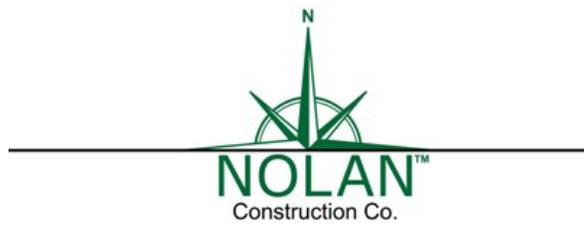
HURRICANE PREPARATION PROCEDURE

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Hurricane Preparation Procedure for Job Sites

1. Secure camera and shoot 30 - 50 photos of jobsite interior and exterior. This will aid in documenting damages after the storm and show precautions taken to prevent damage.
2.
 - a. Get home phone numbers of all **Nolan Construction Company** Team Members involved with the Project. Give list to Owner.
 - b. Prepare emergency phone list of all subcontractor's supervisors.
 - c. Ask subs to get home phone numbers of their employees.
3. Make arrangements for extra plywood to cover windows and other openings.
4. Secure the job office trailers with 1/2" cable in at least three places along trailer. Use 55 gallon drums filled with concrete. Board up all trailer windows, remove all documents and equipment.
5. Locate portable generators to be readily available for use if night work is anticipated. Also make arrangements for a large capacity water pump.
6. Make sure all equipment on the site is full of fuel. Fill all safety cans on the job.
7. If possible, move all job files into safe area such as inside the project on a second floor area stairwell.
8. Band all loose materials on the job with metal straps. Secure banded materials to floors and columns.
9. Broom clean entire project inside and outside building.
10. Remove all trash from jobsite prior to storm.
11. Obtain extra Visqueen for use after the storm.
12. Obtain emergency plans from local Fire Department, Civil Defense or any other agency. Review plan with Owner, team members and subs.
13. Check your first aid supplies.
14. Lower tower cranes, if possible, let the mast weather-vane. Check with manufacturer/lessor for recommendations on hurricane procedures.
15. Motor-Crawler Cranes: lower boom to ground in remote area.
16. Place extra steel - rebar and/or beams on deck areas not poured with concrete. It would be best to remove plywood decks rather than putting extra steel on them.



SAFETY HANDBOOK

SECTION 12

**PERSONAL PROTECTIVE EQUIPMENT AND
HAND & POWER TOOL SAFETY GUIDELINES**

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Subpart E - Personal Protective Equipment

(1926.95 - 107)

		Head protection required	
	100(a)	[REDACTED]	
		Eye and face protection	
	102(a)(1)	[REDACTED] 220	
		PPE - Provided, used and maintained	
	95(a)	[REDACTED] 165	
		Safety nets for falls over 25 feet	
	105(a)	[REDACTED] 112	
		Respirators - Surveillance of conditions and exposure	
	103(e)(8)	[REDACTED] 25	

Standard - 1926.

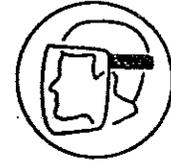
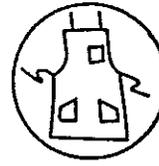


PERSONAL PROTECTIVE AND LIFE SAVING EQUIPMENT

CRITERIA FOR PERSONAL PROTECTIVE EQUIPMENT - §1926.95

Application

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.



Employee-Owned Equipment

Where employees provide their own protective equipment, the employer shall be responsible to assure its adequacy, including proper maintenance, and sanitation of such equipment.

Design

All personal protective equipment shall be of safe design and construction for the work to be performed.

**OSHA CONSTRUCTION INDUSTRY
PERSONAL PROTECTIVE EQUIPMENT STANDARDS
CFR 29 PART 1926**

1926.23 First aid and medical attention.

First aid services and provisions for medical care shall be made available by the employer for every employee covered by these regulations. Regulations prescribing specific requirements for first aid, medical attention, and emergency facilities are contained in Subpart D of this part.

1926.25 Housekeeping.

(a) During the course of construction, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures.

(b) Combustible scrap and debris shall be removed at regular intervals during the course of construction. Safe means shall be provided to facilitate such removal.

(c) Containers shall be provided for the collection and separation of waste, trash, oily and used rags, and other refuse. Containers used for garbage and other oily, flammable, or hazardous wastes, such as caustics, acids, harmful dusts, etc. shall be equipped with covers. Garbage and other waste shall be disposed of at frequent and regular intervals.

1926.28 Personal protective equipment.

(a) The employer is responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions or where this part indicates the need for using such equipment to reduce the hazards to the employees.

(b) Regulations governing the use, selection, and maintenance of personal protective and lifesaving equipment are described under Subpart E of this part.

1926.52 Occupational noise exposure.

(a) Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table D-2 of this section when measured on the A-scale of a standard sound level meter at slow response.

(b) When employees are subjected to sound levels exceeding those listed in Table D-2 of this section, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment as required in Subpart E, shall be provided and used to reduce sound levels within the levels of the table.

(c) If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

(d)(1) In all cases where the sound levels exceed the values shown herein, a continuing, effective hearing conservation program shall be administered.

TABLE D-2 PERMISSIBLE NOISE EXPOSURES

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 or less.....	115

(2) (i) 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. Exposure to different levels for various periods of time shall be computed according to the formula set forth in paragraph (d)(2)(ii) of this section.

$$(ii) F_e = (T_1/L_1) + (T_2/L_2) + \dots + (T_n/L_n)$$

where:

F_e = The equivalent noise exposure factor.

T = The period of noise exposure at any essentially constant level.

L = The duration of the permissible noise exposure at the constant level (from Table D-2).

If the value of F_e exceeds unity (1) the exposure exceeds permissible levels.

(iii) A sample computation showing an application of the formula in paragraph (d)(2)(ii) of this section is as follows. An employee is exposed at these levels for these periods:

110 db A ¼ hour.

100 db A ½ hour.

90 db A 1½ hours.

$$F_e = (1/4 \cdot 1/2) + (1/2 \cdot 1/2) + (1\frac{1}{2} \cdot 1/8)$$

$$F_e = 0.500 + 0.25 + 0.188$$

$$F_e = 0.938$$

Since the value of F_e does not exceed unity, the exposure is within permissible limits.

(e) Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

1926.100 Head protection.

(a) Employees working in areas where there is a possible danger of head injury from impact, or from falling of flying objects, or from electrical shock and burns, shall be protected by protective helmets.

(b) Helmets for the protection of employees against impact and penetration of falling and flying objects shall meet the specifications contained in American National Standards Institute, Z89.1-1969, Safety Requirements for Industrial Head Protection.

(c) Helmets for the head protection of employees exposed to high voltage electrical shock and burns shall meet the specifications contained in American National Standards Institute Z89.2-1971.

1926.101 Hearing protection.

(a) Wherever it is not feasible to reduce the noise levels or duration of exposures to those specified in Table D-2, Permissible Noise Exposures, in 1926.52, ear protective devices shall be provided and used.

(b) Ear protective devices inserted in the ear shall be fitted or determined individually by competent persons.

(c) Plain cotton is not an acceptable protective device.

1926.102 Eye and face protection.

(a) General. (1) Employees shall be provided with eye and face protection equipment when machines or operations present potential eye or face injury from physical, chemical, or radiation agents.

(2) Eye and face protection equipment required by this Part shall meet the requirements specified in American National Standards Institute, Z87.1-1968, Practice for Occupational and Educational Eye and Face Protection.

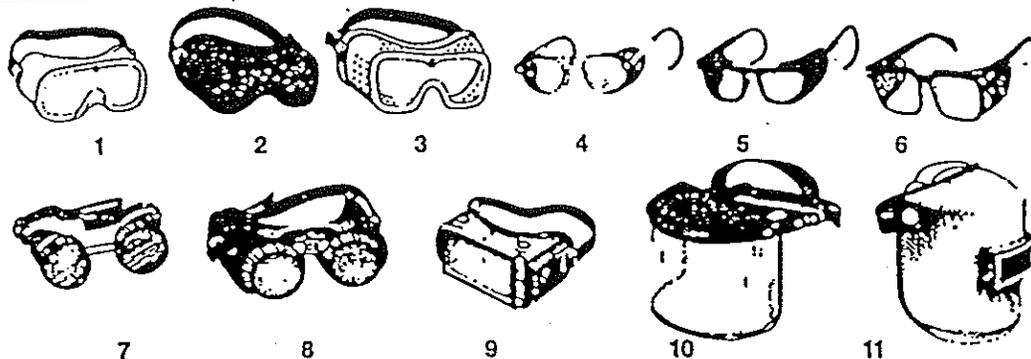
(3) Employees whose vision requires the use of corrective lenses in spectacles, when required by this regulation to wear eye protection, shall be protected by goggles or spectacles of one of the following types:

- (i) Spectacles whose protective lenses provide optical correction;
- (ii) Goggles that can be worn over corrective spectacles without disturbing the adjustment of the spectacles;
- (iii) Goggles that incorporate corrective lenses mounted behind the protective lenses.

(4) Face and eye protection equipment shall be kept clean and in good repair. The use of this type equipment with structural or optical defects shall be prohibited.

(5) Table E-1 shall be used as a guide in the selection of face and eye protection for the hazards and operations noted.

TABLE E-1 EYE AND FACE PROTECTOR SELECTION GUIDE



- | | |
|--|---|
| 1. GOGGLES, Flexible Fitting, Regular Ventilation | **8. WELDING GOGGLES, Coverspec Type Tinted Lenses (illustrated) |
| 2. GOGGLES, Flexible Fitting, Hooded Ventilation | 8A. CHIPPING GOGGLES, Coverspec Type, Clear Safety Lenses (not illustrated) |
| 3. GOGGLES, Cushioned Fitting, Rigid Body | **9. WELDING GOGGLES, Coverspec Type, Tinted Plate Lens |
| *4. SPECTACLES, Metal Frame, with Sideshields | 10. FACE SHIELD (Available with Plastic or Mesh Window) |
| *5. SPECTACLES, Plastic Frame, with Sideshields | **11. WELDING HELMETS |
| *6. SPECTACLES, Metal-Plastic Frame, with Sideshields | |
| **7. WELDING GOGGLES, Eyecup Type, Tinted Lenses (illustrated) | |
| 7A. CHIPPING GOGGLES, Eyecup Type, Clear Safety Lenses (not illustrated) | |

*Non-side shield spectacles are available for limited hazard use requiring only frontal protection.

**See Table E-2, in paragraph (b) of this section. Filter Lens Shade Numbers for Protection Against Radiant Energy.

APPLICATIONS		
Operation	Hazard	Recommended protectors: Bold Type numbers signify preferred protection
Acetylene-Burning, Acetylene-Cutting rays, Acetylene-Welding.	Sparks, harmful rays, molten metal, flying particles.	7, 8, 9
Chemical Handling	Splash, acid burns, fumes	2, 10 (For severe exposure add 10 over 2).
Chipping	Flying particles	1, 3, 4, 5, 6, 7A, 8A.
Electric (arc) welding	Sparks, intense rays, molten metal	9, 11, (11 in combination with 4, 5, 6, in tinted lenses, advisable).
Furnace operations	Glare, heat, molten metal	7, 8, 9 (For severe exposure add 10).
Grinding-Light	Flying particles	1, 3, 4, 5, 6, 10.
Grinding-Heavy	Flying particles	1, 3, 7A, 8A (For severe exposure add 10).
Laboratory	Chemical splash, glass breakage	2 (10 when in combination with 4, 5, 6):
Machining	Flying particles	1, 3, 4, 5, 6, 10.
Molten metals	Heat, glare, sparks, splash	7, 8, (10 in combination with 4, 5, 6, in tinted lenses).
Spot welding	Flying particles, sparks	1, 3, 4, 5, 6, 10.

(b) Protection against radiant energy—(1) Selection of shade numbers for welding filter. Table E-2 shall be used as a guide for the selection of the proper shade numbers of filter lenses or plates used in welding. Shades more dense than those listed may be used to suit the individual's needs.

TABLE E-2 Filter Lens Shade Numbers for Protection Against Radiant Energy

Welding operation	Shade number
Shielded metal-arc welding $\frac{1}{16}$ -, $\frac{3}{32}$ -, $\frac{1}{8}$ -, $\frac{5}{32}$ -inch diameter electrodes	10
Gas-shielded arc welding (nonferrous) $\frac{1}{16}$ -, $\frac{3}{32}$ -, $\frac{1}{8}$ -, $\frac{5}{32}$ -inch diameter electrodes ..	11
Gas-shielded arc welding (ferrous) $\frac{1}{16}$ -, $\frac{3}{32}$ -, $\frac{1}{8}$ -, $\frac{5}{32}$ -inch diameter electrodes	12
Shielded metal-arc welding, $\frac{3}{16}$ -, $\frac{7}{32}$ -, $\frac{1}{4}$ -inch diameter electrodes	12
$\frac{5}{16}$ -, $\frac{3}{4}$ -inch diameter electrodes	14
Atomic hydrogen welding	10-14
Carbon-arc welding	14
Soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, over 6 inches	5 or 6
Gas welding (light), up to $\frac{1}{4}$ -inch	4 or 5
Gas welding (medium), $\frac{1}{8}$ -inch to $\frac{1}{2}$ -inch	5 or 6
Gas welding (heavy), over $\frac{1}{2}$ -inch	or 8

(2) Laser protection.

- (i) Employees whose occupation or assignment requires exposure to laser beams shall be furnished suitable laser safety goggles which will protect for the specific wavelength of the laser and be of optical density (O.D.) adequate for the energy involved. Table E-3 lists the maximum power or energy density for which adequate protection is afforded by glasses of optical densities from 5 through 8.

TABLE E-3 Selecting Laser Safety Glass

Intensity, CW maximum power density (watts/cm ²)	Optical density (O.D.)	Attenuation Attenuation factor
10 ⁻²	5	10 ⁵
10 ⁻¹	6	10 ⁶
1.0	7	10 ⁷
10.0	8	10 ⁸

Output levels falling between lines in this table shall require the higher optical density.

- (ii) All protective goggles shall bear a label identifying the following data:
- The laser wavelengths for which use is intended;
 - The optical density of those wavelengths;
 - The visible light transmission.

1926.103 Respiratory protection.

(a) *General.* (1) In emergencies or when controls required by Subpart D of this part either fail or are inadequate to prevent harmful exposure to employees, appropriate respiratory protective devices shall be provided by the employer and shall be used.

(2) Respiratory protective devices shall be approved by the U.S. Bureau of Mines or acceptable to the U.S. Department of Labor for the specific contaminant to which the employee is exposed.

(b) *Respirator selection.* (1) The chemical and physical properties of the contaminant, as well as the toxicity and concentration of the hazardous material, shall be considered in selecting the proper respirators.

(2) The nature and extent of the hazard, work requirements, and conditions, as well as the limitations and characteristics of the available respirators, shall also be factors considered in making the proper selection.

(3) The following table lists the types of respirators required for protection in dangerous atmospheres:

TABLE E-4 SELECTION OF RESPIRATORS

Hazard	Respirator (See Note)
Oxygen deficiency	Self-contained breathing apparatus. Hose mask with blower. Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.
Gas and vapor contaminants immediately dangerous to life and health	Self-contained breathing apparatus. Hose mask with blower. Air-purifying, full facepiece respirator with chemical canister (gas mask). Self-rescue mouthpiece respirator (for escape only). Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.
Not immediately dangerous to life and health	Air-line respirator. Hose mask without blower. Air-purifying, half-mask or mouthpiece respirator with chemical cartridge.
Particulate contaminants immediately dangerous to life and health	Self-contained breathing apparatus. Hose mask with blower. Air-purifying, full facepiece respirator with appropriate filter. Self-rescue mouthpiece respirator (for escape only). Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.
Not immediately dangerous to life and health	Air-purifying, half-mask or mouthpiece respirator with filter pad or cartridge. Air-line respirator. Air-line abrasive-blasting respirator. Hose-mask without blower.
Combination gas, vapor, and particulate contaminants immediately dangerous to life and health	Self-contained breathing apparatus. Hose mask with blower. Air-purifying, full facepiece respirator with chemical canister and appropriate filter (gas mask with filter). Self-rescue mouthpiece respirator (for escape only). Combination air-line respirator with auxiliary self-contained air supply or an air-storage receiver with alarm.
Not immediately dangerous to life and health	Air-line respirator. Hose mask without blower. Air-purifying, half-mask or mouthpiece respirator with chemical cartridge and appropriate filter.

NOTE: For the purpose of this part, "immediately dangerous to life and health" is defined as a condition that either poses an immediate threat to life and health or an immediate threat of severe exposure to contaminants, such as radioactive materials, which are likely to have adverse delayed effects on health.

(c) Selection, issuance, use and care of respirators. (1) Employees required to use respiratory protective equipment approved for use in atmospheres immediately dangerous to life shall be thoroughly trained in its use. Employees required to use other types of respiratory protective equipment shall be instructed in the use and limitations of such equipment.

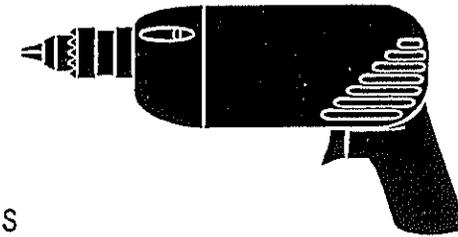
(2) Respiratory protective equipment shall be inspected regularly and maintained in good condition. Gas mask canisters and chemical cartridges shall be replaced as necessary so as to provide complete protection. Mechanical filters shall be cleaned or replaced as necessary so as to avoid undue resistance to breathing.

(3) Respiratory protective equipment which has been previously used shall be cleaned and disinfected before it is issued by the employer to another employee. Emergency rescue equipment shall be cleaned and disinfected immediately after each use.

Subpart I - Tools: Hand & Power

(1926.300 - 307)

	Woodworking tools - ANSI requirements	
304(f)	[REDACTED]	241
	Tools designed for guards - Guards in place	
300(b)(1)	[REDACTED]	102
	Guarding of rotating/moving parts	
300(b)(2)	[REDACTED]	89
	Guarding of cup-type grinding wheels	
303(c)(3)	[REDACTED]	32



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Power Tool Safety

Safety Tips:

Use the proper tool for the job.

Never carry a tool by the cord or hose.

Keep cords and hoses away from heat, oil, or sharp edges.

Disconnect tools when not in use, before servicing, and when changing accessories.

Keep all guards in place and make sure they are working properly.

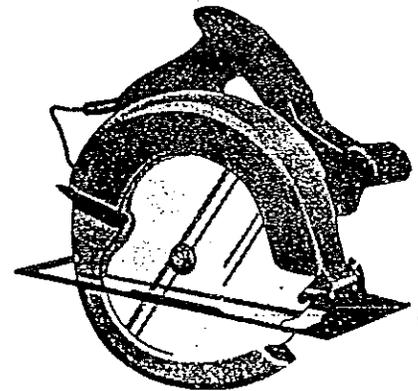
Wear proper apparel. Loose clothing, long hair, and jewelry can become caught in moving parts.

Wear personal protective equipment, including safety glasses and hearing protection.

Take these precautions when using these power tools types:

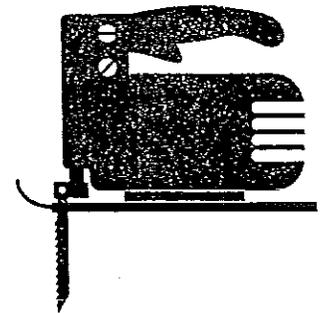
Electric

- Make sure tools are grounded.
- Use double-insulated tools when possible.
- Do not use electric tools in damp or wet locations, store the tools in a dry place.
- Never yank the cord to disconnect it from the receptacle.



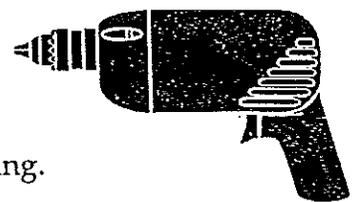
Hydraulic

- Use approved fire-resistant fluid for the most extreme temperatures to which it will be exposed.
- Do not exceed the manufacturer's recommended safe operating pressures.
- Do not check for leaks using your hands because fluid under pressure may puncture skin.



Pneumatic

- Always wear eye and hearing protection.
- Use a safety clip or a retainer to prevent attachments from being unintentionally shot from the barrel.
- Fasten air hoses together securely with wire or a locking device.



Fuel

- Store and transport fuel only in approved containers.
- Shut off the engine and extinguish all open flames before refueling.
- When operating equipment in closed areas, be sure there is proper ventilation.

HAND AND POWER TOOLS

HAZARD RECOGNITION

Tools are such a common part of our lives that it is difficult to remember that they may pose hazards. All tools are manufactured with safety in mind but, tragically, a serious accident often occurs before steps are taken to search out and avoid or eliminate tool-related hazards.

In the process of removing or avoiding the hazards, workers must learn to recognize the hazards associated with the different types of tools and the safety precautions necessary to prevent those hazards.

HAND TOOLS

Hand tools are non-powered. They include anything from axes to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance.

Some examples:

- Using a screwdriver as a chisel may cause the tip of the screwdriver to break and fly, hitting the user or other employees.
- If a wooden handle on a tool such as a hammer or an axe is loose, splintered, or cracked, the head of the tool may fly off and strike the user or another worker.
- A wrench must not be used if its jaws are sprung, because it might slip.



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- Impact tools such as chisels, wedges, or drift pins are unsafe if they have mushroomed heads. The heads might shatter on impact, sending sharp fragments flying.

The employer is responsible for the safe condition of tools and equipment used by employees but the employees have the responsibility for properly using and maintaining tools.

Employers should caution employees that saw blades, knives, or other tools be directed away from aisle areas and other employees working in close proximity. Knives and scissors must be sharp. Dull tools can be more hazardous than sharp ones.

Appropriate personal protective equipment, e.g., safety goggles, gloves, etc., should be worn due to hazards that may be encountered while using portable power tools and hand tools.

Safety requires that floors be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.

Around flammable substances, sparks produced by iron and steel hand tools can be a dangerous ignition source. Where this hazard exists, spark-resistant tools made from brass, plastic, aluminum, or wood will provide for safety.

POWER TOOL PRECAUTIONS

Power tools can be hazardous when improperly used. There are several types of power tools, based on the power source they use: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated.

Employees should be trained in the use of all tools - not just power tools. They should understand the potential hazards as well as the safety precautions to prevent those hazards from occurring.

The following general precautions should be observed by power tool users:

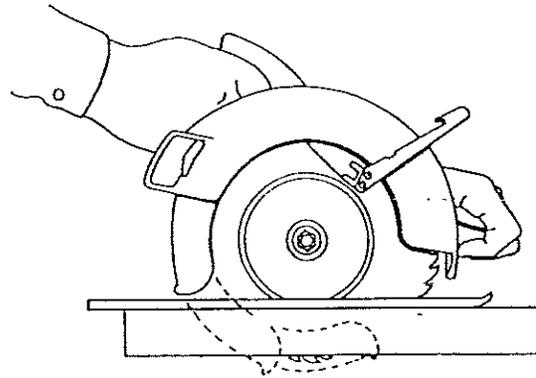
- Never carry a tool by the cord or hose.
- Never yank the cord or the hose to disconnect it from the receptacle.
- Keep cords and hoses away from heat, oil, and sharp edges.
- Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters.
- All observers should be kept at a safe distance away from the work area.
- Secure work with clamps or a vise, freeing both hands to operate the tool.
- Avoid accidental starting. The worker should not hold a finger on the switch button while carrying a plugged-in tool.
- Tools should be maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories.
- Be sure to keep good footing and maintain good balance.
- The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.
- All portable electric tools that are damaged shall be removed from use and tagged "Do Not Use."

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GUARDS

Hazardous moving parts of a power tool need to be safeguarded. For example, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded if such parts are exposed to contact by employees.



Guards, as necessary, should be provided to protect the operator and others from the following:

- point of operation,
- in-running nip points,
- rotating parts, and
- flying chips and sparks.

Safety guards must never be removed when a tool is being used. For example, portable circular saws must be equipped with guards. An upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except when it makes contact with the work material. The lower guard must automatically return to the covering position when the tool is withdrawn from the work.

SAFETY SWITCHES

The following hand-held powered tools must be equipped with a momentary contact "on-off" control switch: drills, tappers, fastener drivers, horizontal, vertical

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and angle grinders with wheels larger than 2 inches in diameter, disc and belt sanders, reciprocating saws, saber saws, and other similar tools. These tools also may be equipped with a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.

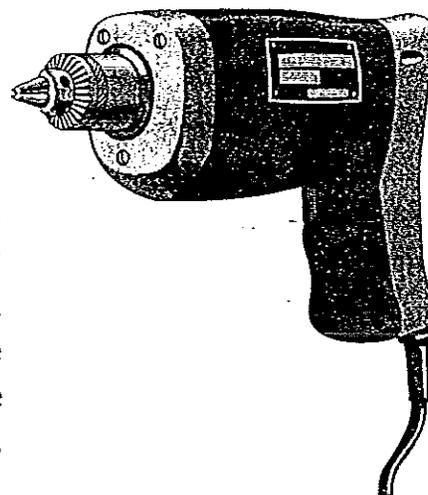
The following hand-held powered tools may be equipped with only a positive "on-off" control switch: platen sanders, disc sanders with discs 2 inches or less in diameter; grinders with wheels 2 inches or less in diameter; routers, planers, laminate trimmers, nibblers, shears, scroll saws and jigsaws with blade shanks ¼-inch wide or less.

Other hand-held powered tools such as circular saws having a blade diameter greater than 2 inches, chain saws, and percussion tools without positive accessory holding means must be equipped with a constant pressure switch that will shut off the power when the pressure is released.

ELECTRIC TOOLS

Employees using electric tools must be aware of several dangers; the most serious is the possibility of electrocution.

Among the chief hazards of electric-powered tools are burns and slight shocks which can lead to injuries or even heart failure. Under certain conditions, even a small amount of current can result in fibrillation of the heart and eventual death. A shock also can cause the user to fall off a ladder or other elevated work surface.



To protect the user from shock, tools must either have a three-wire cord with ground and be grounded, be double insulated, or be powered by a low-voltage isolation transformer. Three-wire cords contain two current-carrying conductors and a grounding conductor. One end of the grounding conductor connects to the tool's metal housing. The other end is grounded through

a prong on the plug. Anytime an adapter is used to accommodate a two-hole receptacle, the adapter wire must be attached to a known ground. The third prong should never be removed from the plug.

Double insulation is more convenient. The user and the tools are protected in two ways: by normal insulation on the wires inside, and by a housing that cannot conduct electricity to the operator in the event of a malfunction.

These general practices should be followed when using electric tools:

- Electric tools should be operated within their design limitations.
- Gloves and safety footwear are recommended during use of electric tools.
- When not in use, tools should be stored in a dry place.
- Electric tools should not be used in damp or wet locations.
- Work areas should be well lighted.

POWERED ABRASIVE WHEEL TOOLS

Powered abrasive grinding, cutting, polishing, and wire buffing wheels create special safety problems because they may throw off flying fragments.

Before an abrasive wheel is mounted, it should be inspected closely and sound- or ring-tested to be sure that it is free from cracks or defects. To test, wheels should be tapped gently with a light non-metallic instrument. If they sound cracked or dead, they could fly apart in operation and so must not be used. A sound and undamaged wheel will give a clear metallic tone or "ring."

To prevent the wheel from cracking, the user should be sure it fits freely on the spindle. The spindle nut must be tightened enough to hold the wheel in place, without distorting the flange. Follow the manufacturer's recommendations. Care

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must be taken to assure that the spindle wheel will not exceed the abrasive wheel specifications.

Due to the possibility of a wheel disintegrating (exploding) during start-up, the employee should never stand directly in front of the wheel as it accelerates to full operating speed.

Portable grinding tools need to be equipped with safety guards to protect workers not only from the moving wheel surface, but also from flying fragments in case of breakage.

In addition, when using a powered grinder:

- Always use eye protection.
- Turn off the power when not in use.
- Never clamp a hand-held grinder in a vise.

PNEUMATIC TOOLS

Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders.

There are several dangers encountered in the use of pneumatic tools. The main one is the danger of getting hit by one of the tool's attachments or by some kind of fastener the worker is using with the tool.

Eye protection is required and face protection is recommended for employees working with pneumatic tools.

Noise is another hazard. Working with noisy tools such as jackhammers requires proper, effective use of hearing protection.

When using pneumatic tools, employees must check to see that they are fastened securely to the hose to prevent them from becoming disconnected. A short wire or positive locking device attaching the air hose to the tool will serve as an added safeguard.

A safety clip or retainer must be installed to prevent attachments, such as chisels on a chipping hammer, from being unintentionally shot from the barrel.

Screens must be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills.

Compressed air guns should never be pointed toward anyone. Users should never "dead-end" it against themselves or anyone else.

POWDER-ACTUATED TOOLS

Powder-actuated tools operate like a loaded gun and should be treated with the same respect and precautions. In fact, they are so dangerous that they must be operated only by specially trained employees.

Safety precautions to remember include the following:

- These tools should not be used in an explosive or flammable atmosphere.
- Before using the tool, the worker should inspect it to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions.
- The tool should never be pointed at anybody.
- The tool should not be loaded unless it is to be used immediately. A loaded tool should not be left unattended, especially where it would be available to unauthorized persons.

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- The tool should never be pointed at anybody.
- The tool should not be loaded unless it is to be used immediately. A loaded tool should not be left unattended, especially where it would be available to unauthorized persons.

- Hands should be kept clear of the barrel end. To prevent the tool from firing accidentally, two separate motions are required for firing: one to bring the tool into position, and another to pull the trigger. The tools must not be able to operate until they are pressed against the work surface with a force of at least 5 pounds greater than the total weight of the tool.

If a powder-actuated tool misfires, the employee should wait at least 30 seconds, then try firing it again. If it still will not fire, the user should wait another 30 seconds so that the faulty cartridge is less likely to explode, than carefully remove the load. The bad cartridge should be put in water.

Suitable eye and face protection are essential when using a powder-actuated tool.

The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles that might otherwise create a hazard when the tool is fired. The tool must be designed so that it will not fire unless it has this kind of safety device.

All powder-actuated tools must be designed for varying powder charges so that the user can select a powder level necessary to do the work without excessive force.

If the tool develops a defect during use it should be tagged and taken out of service immediately until it is properly repaired.

FASTENERS

When using powder-actuated tools to apply fasteners, there are some precautions to consider. Fasteners must not be fired into material that would let them pass through to the other side. The fastener must not be driven into materials like brick or concrete any closer than 3 inches to an edge or corner. In steel, the fastener must not come any closer than one-half inch from a corner or edge. Fasteners must not be driven into very hard or brittle materials which might chip or splatter, or make the fastener ricochet.

An alignment guide must be used when shooting a fastener into an existing hole. A fastener must not be driven into a spalled area caused by an unsatisfactory fastening.

HYDRAULIC POWER TOOLS

The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed.

The manufacturer's recommended safe operating pressure for hoses, valves, pipes, filters, and other fittings must not be exceeded.

JACKS

All jacks - lever and ratchet jacks, screw jacks, and hydraulic jacks - must have a device that stops them from jacking up too high. Also, the manufacturer's load limit must be permanently marked in a prominent place on the jack and should not be exceeded.

A jack should never be used to support a lifted load. Once the load has been lifted, it must immediately be blocked up.

Use wooden blocking under the base if necessary to make the jack level and secure. If the lift surface is metal, place a 1-inch-thick hardwood block or equivalent between it and the metal jack head to reduce the danger of slippage.

To set up a jack, make certain of the following:

- the base rests on a firm level surface,
- the jack is correctly centered,
- the jack head bears against a level surface, and

- the lift force is applied evenly.

Proper maintenance of jacks is essential for safety. All jacks must be inspected before each use and lubricated regularly. If a jack is subjected to an abnormal load or shock, it should be thoroughly examined to make sure it has not been damaged.

Hydraulic jacks exposed to freezing temperatures must be filled with an adequate antifreeze liquid.

GENERAL SAFETY PRECAUTIONS

Employees who use hand and power tools and who are exposed to the hazards of falling, flying, abrasive and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases must be provided with the particular personal equipment necessary to protect them from the hazard.

All hazards involved in the use of power tools can be prevented by following five basic safety rules:

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job.
- Examine each tool for damage before use.
- Operate according to the manufacturer's instructions.
- Provide and use the proper protective equipment.

Employees and employers have a responsibility to work together to establish safe working procedures. If a hazardous situation is encountered, it should be brought to the attention of the proper individual immediately.



SAFETY HANDBOOK

SECTION 13

**ELECTICAL, SCAFFOLD & FALL PROTECTION
SAFETY GUIDELINES**

NOLAN™

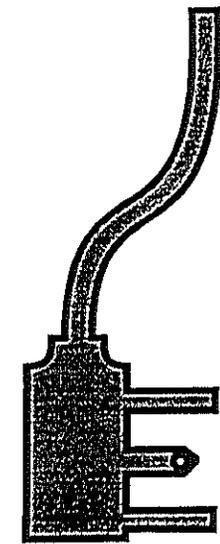
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Subpart K - Electrical

(1926.400 - 449)

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ELECTRICAL STANDARDS FOR CONSTRUCTION

INTRODUCTION

Electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, fires, and explosions.

Experts in electrical safety have traditionally looked toward the widely used *National Electrical Code* (NEC) for help in the practical safeguarding of persons from these hazards. The Occupational Safety and Health Administration (OSHA) recognized the important role of the NEC in defining basic requirements for safety in electrical installations by including the entire 1971 NEC by reference in Subpart K of 29 *Code of Federal Regulations* Part 1926 (Construction Safety and Health Standards).

In a final rule dated July 11, 1986, OSHA updated, simplified, and clarified Subpart K, 29 CFR 1926. The revisions serve these objectives:

- NEC requirements that directly affect employees in construction workplaces have been placed in the text of the OSHA standard, eliminating the need for the NEC to be incorporated by reference.
- Certain requirements that supplemented the NEC have been integrated in the new format.
- Performance language is utilized and superfluous specifications omitted and changes in technology accommodated.

In addition, the standard is easier for employers and employees to use and understand. Also, the OSHA revision of the electrical standards has been made more flexible, eliminating the need for constant revision to keep pace with the NEC, which is revised every three years.

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SUBPART K

The NEC provisions directly related to employee safety are included in the body of the standard itself - making it unnecessary to continue the adoption by reference of the NEC. Subpart K is divided into four major groups plus a general definitions section:

- Installation Safety Requirements
[29 CFR 1926.402 - 1926.415]
- Safety-Related Work Practices
[29 CFR 1926.416 - 1926.430]
- Safety-Related Maintenance and Environmental Considerations
[29 CFR 1926.431 - 1926.440]
- Safety Requirements for Special Equipment
[29 CFR 1926.441 - 1926.448]
- Definitions
[29 CFR 1926.449]

I. INSTALLATION SAFETY REQUIREMENTS

Part I of the standard is very comprehensive. Only some of the major topics and brief summaries of these requirements are included in this discussion.

Sections 29 CFR 1926.402 through 1926.408 contain installation safety requirements for electrical equipment and installations used to provide electric power and light at the jobsite. These sections apply to installations, both temporary and permanent, used on the jobsite; but they *do not* apply to existing permanent installations that were in place before the construction activity commenced.

If an installation is made in accordance with the 1984 *National Electrical Code*, it will be considered to be in compliance with Sections 1926.403 through 1926.408, except for:

- 1926.404(b)(1) Ground-fault protection for employees
 - 1926.405(a)(2)(ii)(E) Protection of lamps on temporary wiring
 - 1926.405(a)(2)(ii)(F) Suspension of temporary lights by cords
 - 1926.405(a)(2)(ii)(G) Portable lighting used in wet or conductive locations
 - 1926.405(a)(2)(ii)(J) Extension cord sets and flexible cords
-

Approval

The electrical conductors and equipment used by the employer must be approved.

Examination, Installation, and Use of Equipment

The employer must ensure that electrical equipment is free from recognized hazards that are likely to cause death or serious physical harm to employees. Safety of equipment must be determined by the following:

- Suitability for installation and use in conformity with the provisions of the standard. Suitability of equipment for an identified purpose may be evidenced by a listing, by labeling, or by certification for that identified purpose.
- Mechanical strength and durability. For parts designed to enclose and protect other equipment, this includes the adequacy of the protection thus provided.
- Electrical insulation.
- Heating effects under conditions of use.
- Arcing effects.
- Classification by type, size, voltage, current capacity, and specific use.
- Other factors that contribute to the practical safeguarding of employees who use or are likely to come in contact with the equipment.

Guarding

Live parts of electric equipment operating at 50 volts or more must be guarded against accidental contact. Guarding of live parts must be accomplished as follows:

- Location in a cabinet, room, vault, or similar enclosure accessible only to qualified persons.

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- Use of permanent, substantial partitions or screens to exclude unqualified persons.
- Location on a suitable balcony, gallery, or platform elevated and arranged to exclude unqualified persons.
- Elevation of eight feet or more above the floor.

Entrance to rooms and other guarded locations containing exposed live parts must be marked with conspicuous warning signs forbidding unqualified persons to enter.

Electric installations that are over 600 volts and that are open to unqualified persons must be made with metal-enclosed equipment or enclosed in a vault or area controlled by a lock. In addition, equipment must be marked with appropriate caution signs.

Overcurrent Protection

The following requirements apply to overcurrent protection of circuits rated 600 volts, nominal, or less.

- Conductors and equipment must be protected from overcurrent in accordance with their ability to safely conduct current and the conductors must have sufficient current-carrying capacity to carry the load.
- Overcurrent devices must not interrupt the continuity of the grounded conductor unless all conductors of the circuit are opened simultaneously, except for motor-running overload protection.
- Overcurrent devices must be readily accessible and not located where they could create an employee safety hazard by being exposed to physical damage or located in the vicinity of easily ignitable material.
- Fuses and circuit breakers must be so located or shielded that employees will not be burned or otherwise injured by their operation, e.g., arcing.

Grounding of Equipment Connected by Cord and Plug

Exposed noncurrent-carrying metal parts of cord- and plug-connected equipment that may become energized must be grounded in the following situations:

- When in a hazardous (classified) location.
- When operated at over 150 volts to ground, except for guarded motors and metal frames of electrically heated appliances if the appliance frames are permanently and effectively insulated from ground.
- When one of the types of equipment listed below. But see Item 6 for exemption.
 1. Hand held motor-operated tools.
 2. Cord- and plug-connected equipment used in damp or wet locations or by employees standing on the ground or on metal floors or working inside metal tanks or boilers.
 3. Portable and mobile X-ray and associated equipment.
 4. Tools likely to be used in wet and/or conductive locations.
 5. Portable hand lamps.
 6. [Exemption] Tools likely to be used in wet and/or conductive locations need not be grounded if supplied through an isolating transformer with an ungrounded secondary of not over 50 volts. Listed or labeled portable tools and appliances protected by a system of double insulation, or its equivalent, need not be grounded. If such a system is employed, the equipment must be distinctively marked to indicate that the tool or appliance uses a system of double insulation.

II. SAFETY-RELATED WORK PRACTICES

Protection of Employees

The employer must not permit an employee to work near any part of an electric power circuit that the employee could contact in the course of work, unless the employee is protected against shock by de-energizing the circuit and grounding it or by guarding it effectively by insulation or other means.

Where the exact location of underground electric power lines is unknown, employees using jack hammers or hand tools that may contact a line must be provided with insulated protective gloves.

Even before work is begun, the employer must determine by inquiry, observation, or instruments where any part of an exposed or concealed energized electric power circuit is located. This is necessary because a person, tool or machine could come into physical or electrical contact with the electric power circuit.

The employer is required to advise employees of the location of such lines, the hazards involved, and protective measures to be taken as well as to post and maintain proper warning signs.

Passageways and Open Spaces

The employer must provide barriers or other means of guarding to ensure that workspace for electrical equipment will not be used as a passageway during the time when energized parts of electrical equipment are exposed. Walkways and similar working spaces must be kept clear of electric cords. Other standards cover load ratings, fuses, cords, and cables.

Lockout and Tagging of Circuits

Tags must be placed on controls that are to be deactivated during the course of work on energized or de-energized equipment or circuits. Equipment or circuits that are de-energized must be rendered inoperative and have tags attached at all points where such equipment or circuits can be energized.

III. SAFETY-RELATED MAINTENANCE AND ENVIRONMENTAL CONSIDERATIONS

Maintenance of Equipment

The employer must ensure that all wiring components and utilization equipment in hazardous locations are maintained in a dust-tight, dust-ignition-proof, or explosion-proof condition without loose or missing screws, gaskets, threaded connections, seals, or other impairments to a tight condition.

Environmental Deterioration of Equipment

Unless identified for use in the operating environment, no conductors or equipment can be located:

- In damp or wet locations.
- Where exposed to gases, fumes, vapors, liquids, or other agents having a deteriorating effect on the conductors or equipment.
- Where exposed to excessive temperatures.

Control equipment, utilization equipment, and busways approved for use in dry locations only must be protected against damage from the weather during building construction.

For protection against corrosion, metal raceways, cable armor, boxes, cable sheathing, cabinets, elbows, couplings, fittings, supports, and support hardware must be of materials appropriate for the environment in which they are installed.

IV. SAFETY REQUIREMENTS FOR SPECIAL EQUIPMENT

Batteries

Batteries of the unsealed type must be located in enclosures with outside vents or in well-ventilated rooms arranged to prevent the escape of fumes, gases, or electrolyte spray into other areas. Other provisions include the following:

Ventilation--to ensure diffusion of the gases from the battery and to prevent the accumulation of an explosive mixture.

Racks and trays--treated to make them resistant to the electrolyte.

Floors--acid-resistant construction unless protected from acid accumulations.

Face shields, aprons, and rubber gloves--for workers handling acids or batteries.

Facilities for quick drenching of the eyes and body--within 25 feet (7.62 m) of battery handling areas.

Facilities--for flushing and neutralizing spilled electrolytes and for fire protection.

Battery Charging

Battery charging installations must be located in areas designated for that purpose. When batteries are being charged, vent caps must be maintained in functioning condition and kept in place to avoid electrolyte spray. Also, charging apparatus must be protected from damage by trucks.

GROUND-FAULT PROTECTION ON CONSTRUCTION SITES

INSULATION AND GROUNDING

Insulation and grounding are two recognized means of preventing injury during electrical equipment operation. Conductor insulation may be provided by placing nonconductive material such as plastic around the conductor. Grounding may be achieved through the use of a direct connection to a known ground such as a metal cold water pipe.

Consider, for example, the metal housing or enclosure around a motor or the metal box in which electrical switches, circuit breakers, and controls are placed. Such enclosures protect the equipment from dirt and moisture and prevent accidental contact with exposed wiring. However, there is a hazard associated with housings and enclosures. A malfunction within the equipment--such as deteriorated insulation--may create an electrical shock hazard. Many metal enclosures are connected to a ground to eliminate the hazard. If a "hot" wire contacts a grounded enclosure, a ground fault results which normally will trip a circuit breaker or blow a fuse. Metal enclosures and containers are usually grounded by connecting them with a wire going to ground. This wire is called an equipment grounding conductor. Most portable electric tools and appliances are grounded by this means. There is one disadvantage to grounding: a break in the grounding system may occur without the user's knowledge.

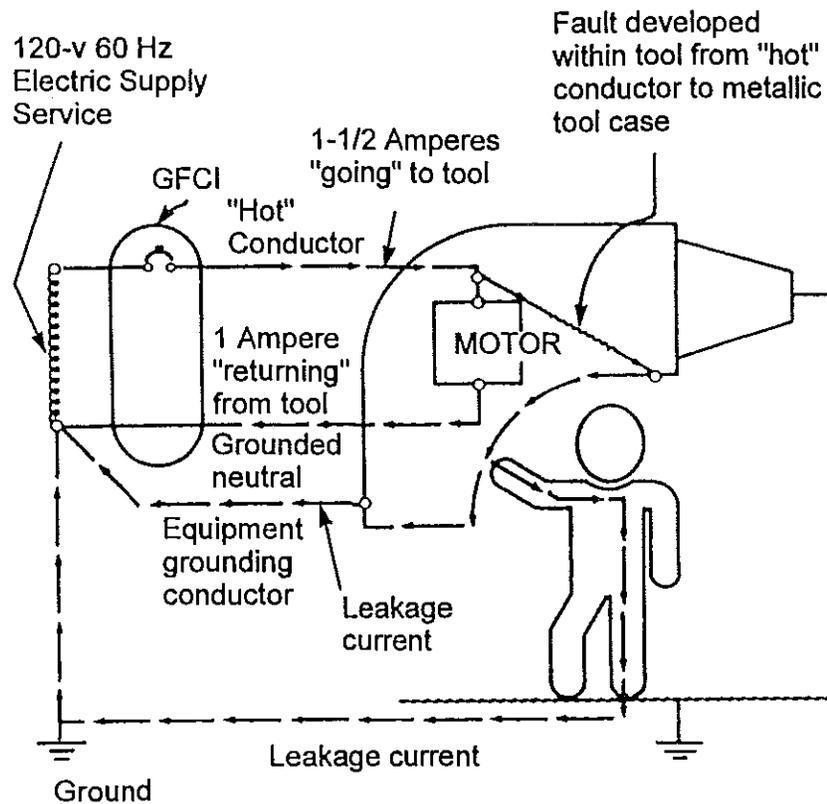
Insulation may be damaged by hard usage on the job or simply by aging. If this damage causes the conductors to become exposed, the hazards of shocks, burns, and fire will exist. Double insulation may be used as additional protection on the live parts of a tool, but double insulation does not provide protection against defective cords and plugs or against heavy moisture conditions.

The use of a ground-fault circuit interrupter (GFCI) is one method used to overcome grounding and insulation deficiencies.

WHAT IS A GFCI?

The ground-fault circuit interrupter (GFCI) is a fast-acting circuit breaker which senses small imbalances in the circuit caused by current leakage to ground and, in a fraction of a second, shuts off the electricity. The GFCI continually matches the amount of current going to an electrical device against the amount of current returning from the device along the electrical path. Whenever the amount "going" differs from the amount "returning" by approximately 5 milliamps, the GFCI interrupts the electric power within as little as 1/40 of a second. (See diagram.)

Ground-Fault Circuit Interrupter



GFCI monitors the difference in current flowing into the "hot" and out to the grounded neutral conductors. The difference (1/2 ampere in this case) will flow back through any available path, such as the equipment grounding conductor, and through a person holding the tool, if the person is in contact with a grounded object.

However, the GFCI will not protect the employee from line-to-line contact hazards (such as a person holding two "hot" wires or a hot and a neutral wire in each hand). It does provide protection against the most common form of electrical shock hazard--the ground fault. It also provides protection against fires, overheating, and destruction of insulation on wiring.

WHAT ARE THE HAZARDS?

With the wide use of portable tools on construction sites, the use of flexible cords often becomes necessary. Hazards are created when cords, cord connectors, receptacles, and cord- and plug-connected equipment are improperly used and maintained.

Generally, flexible cords are more vulnerable to damage than is fixed wiring. Flexible cords must be connected to devices and to fittings so as to prevent tension at joints and terminal screws. Because a cord is exposed, flexible, and unsecured, joints and terminals become more vulnerable. Flexible cord conductors are finely stranded for flexibility, but the strands of one conductor may loosen from under terminal screws and touch another conductor, especially if the cord is subjected to stress or strain.

A flexible cord may be damaged by activities on the job, by door or window edges, by staples or fastenings, by abrasion from adjacent materials, or simply by aging. If the electrical conductors become exposed, there is a danger of shocks, burns, or fire. A frequent hazard on a construction site is a cord assembly with improperly connected terminals.

When a cord connector is wet, hazardous leakage can occur to the equipment grounding conductor and to humans who pick up that connector if they also provide a path to ground. Such leakage is not limited to the face of the connector but also develops at any wetted portion of it.

When the leakage current of tools is below 1 ampere, and the grounding conductor has a low resistance, no shock should be perceived. However, should the resistance

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of the equipment grounding conductor increase, the current through the body also will increase. Thus, if the resistance of the equipment grounding conductor is significantly greater than 1 ohm, tools with even small leakages become hazardous.

PREVENTING AND ELIMINATING HAZARDS

GFCIs can be used successfully to reduce electrical hazards on construction sites. Tripping of GFCIs--interruption of current flow--is sometimes caused by wet connectors and tools. It is good practice to limit exposure of connectors and tools to excessive moisture by using watertight or sealable connectors. Providing more GFCIs or shorter circuits can prevent tripping caused by the cumulative leakage from several tools or by leakages from extremely long circuits.

EMPLOYER'S RESPONSIBILITY

OSHA ground-fault protection rules and regulations have been determined necessary and appropriate for employee safety and health. Therefore, it is the employer's responsibility to provide either: (a) ground-fault circuit interrupters on construction sites for receptacle outlets in use and not part of the permanent wiring of the building or structure; or (b) a scheduled and recorded assured equipment grounding conductor program on construction sites, covering all cord sets, receptacles which are not part of the permanent wiring of the building or structure, and equipment connected by cord and plug which are available for use or used by employees.

GROUND-FAULT CIRCUIT INTERRUPTERS

The employer is required to provide approved ground-fault circuit interrupters for all 120-volt, single-phase, 15- and 20-ampere receptacle outlets on construction sites which are not a part of the permanent wiring of the building or structure and which are in use by employees. Receptacles on the ends of extension cords are not part of the permanent wiring and, therefore, must be protected by GFCIs whether or not the extension cord is plugged into permanent wiring. These GFCIs monitor the current-to-the-load for leakage to ground. When this leakage exceeds $5 \text{ mA} \pm 1 \text{ mA}$,

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the GFCI interrupts the current. They are rated to trip quickly enough to prevent electrocution. This protection is required in addition to, not as a substitute for, the grounding requirements of OSHA safety and health rules and regulations, 29 CFR 1926. The requirements which employers must meet, if they choose the GFCI option, are stated in 29 CFR 1926.404(b)(1)(ii). (See appendix.)

ASSURED EQUIPMENT GROUNDING CONDUCTOR PROGRAM

The assured equipment grounding conductor program covers all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and equipment connected by cord and plug which are available for use or used by employees. The requirements which the program must meet are stated in 29 CFR 1926.404(b)(1)(iii), but employers may provide additional tests or procedures. (See appendix.) OSHA requires that a written description of the employer's assured equipment grounding conductor program, including the specific procedures adopted, be kept at the jobsite. This program should outline the employer's specific procedures for the required equipment inspections, tests, and test schedule.

The required tests must be recorded, and the record maintained until replaced by a more current record. The written program description and the recorded tests must be made available, at the jobsite, to OSHA and to any affected employee upon request. The employer is required to designate one or more competent persons to implement the program.

Electrical equipment noted in the assured equipment grounding conductor program must be visually inspected for damage or defects before each day's use. Any damaged or defective equipment must not be used by the employee until repaired.

Two tests are required by OSHA. One is a continuity test to ensure that the equipment grounding conductor is electrically continuous. It must be performed on all cord sets, receptacles which are not part of the permanent wiring of the building or structure, and on cord- and plug-connected equipment which is required to be grounded. This test may be performed using a simple continuity tester, such as a

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lamp and battery, a bell and battery, an ohmmeter, or a receptacle tester.

The other test must be performed on receptacles and plugs to ensure that the equipment grounding conductor is connected to its proper terminal. This test can be performed with the same equipment used in the first test.

These tests are required before first use, after any repairs, after damage is suspected to have occurred, and at 3-month intervals. Cord sets and receptacles which are essentially fixed and not exposed to damage must be tested at regular intervals not to exceed 6 months. Any equipment which fails to pass the required tests shall not be made available or used by employees.

SUMMARY

This discussion provides information to help guide employers and employees in protecting themselves against 120-volt electrical hazards on the construction site, through the use of ground-fault circuit interrupters or through an assured equipment grounding conductor program.

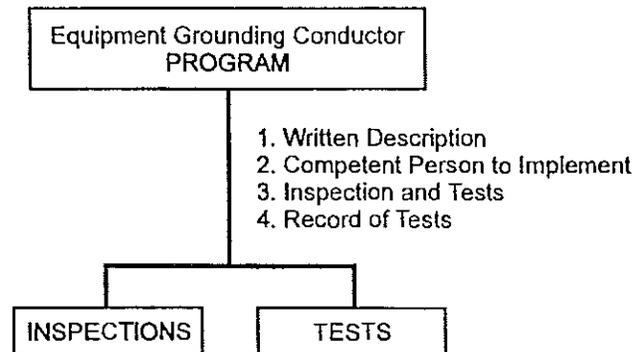
When planning your program, remember to use the OSHA rules and regulations as a guide to ensure employee safety and health. Following these rules and regulations will help reduce the number of injuries and accidents from electrical hazards. Work disruptions should be minor, and the necessary inspections and maintenance should require little time.

An effective safety and health program requires the cooperation of both the employer and employees.

If you need additional information planning your program, contact the OSHA office nearest you.

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Visual inspection of following:

1. cord sets
2. cap, plug and receptacle of cord sets
3. equipment connected by cord and plug

Exceptions:

- receptacles and cord sets which are fixed and not exposed to damage

Frequency of Inspections:

- before each day's use

Conduct tests for:

1. continuity of equipment grounding conductor
2. proper terminal connection of equipment grounding conductor

Frequency of Tests:

- before first use
- after repair, and before placing back in service
- before use, after suspected damage
- every 3 months, except that cord sets and receptacles that are fixed and not exposed to damage must be tested at regular intervals not to exceed 6 months.

APPENDIX

Construction Safety and Health Regulations Part 1926 Subpart K (Partial)

§1926.404 Wiring design and protection.

(b) Branch circuits--(1) Ground-fault protection--(i) General.

The employer shall use either ground-fault circuit interrupters as specified in paragraph (b)(1)(ii) of this section or an assured equipment grounding conductor program as specified in paragraph (b)(1)(iii) of this section to protect employees on construction sites. These requirements are in addition to any other requirements for equipment grounding conductors.

(ii) Ground-fault circuit interrupters. All 120-volt, single-phase, 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground-fault circuit interrupters for personnel protection. Receptacles on a two-wire, single-phase portable or vehicle-mounted generator rated not more than 5kW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with ground-fault circuit interrupters.

(iii) Assured equipment grounding conductor program. The employer shall establish and implement an assured equipment grounding conductor program on construction sites covering cord sets, receptacles which are not a part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees. This program shall comply with the following minimum requirements:

(A) A written description of the program, including the specific procedures adopted by the employer, shall be available at the jobsite for inspection and copying by the Assistant Secretary and any affected employee.

(B) The employer shall designate one or more competent persons [as defined in §1926.32(f)] to implement the program.

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(C) Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day's use for external defects, such as deformed or missing pins or insulation damage, and for indications of possible internal damage. Equipment found damaged or defective shall not be used until repaired.

(D) The following tests shall be performed on all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and cord- and plug-connected equipment required to be grounded:

(1) All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.

(2) Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.

(E) All required tests shall be performed:

(1) Before first use;

(2) Before equipment is returned to service following any repairs;

(3) Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over); and

(4) At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months.

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(F) The employer shall not make available or permit the use by employees of any equipment which has not met the requirements of this paragraph (b)(1)(iii) of this section.

(G) Tests performed as required in this paragraph shall be recorded. This test record shall identify each receptacle, cord set, and cord- and plug-connected equipment that passed the test and shall indicate the last date it was tested or the interval for which it was tested. This record shall be kept by means of logs, color coding, or other effective means and shall be maintained until replaced by a more current record. The record shall be made available on the jobsite for inspection by the Assistant Secretary and any affected employee.

Subpart L - Scaffolds

(1926.450 - 454)

Standard - 1926.	451(g)(1)	Scaffolds above 10 ft. - Fall protection	827
	451(e)(1)	Scaffold access	511
	451(b)(1)	Scaffold working levels - Planked & decked	380
	454(a)	Training for employees using scaffolds	296
	451(d)(10)	Suspension scaffolds - Rope inspection	235

The Five Most Serious Scaffold Hazards

- Falls
- Unsafe Access
- Struck by falling objects
- Electrocution
- Scaffold Collapse

Did you know that:

1926.451 (f)(7): SCAFFOLDS SHALL BE ERECTED, MOVED, DISMANTLED, OR ALTERED ONLY UNDER THE SUPERVISION AND DIRECTION OF A COMPETENT PERSON, QUALIFIED IN SCAFFOLD ERECTION, MOVING, DISMANTLING OR ALTERATION. SUCH ACTIVITIES SHALL BE PERFORMED ONLY BY EXPERIENCED AND TRAINED EMPLOYEES SELECTED FOR SUCH WORK BY THE COMPETENT PERSON.

OSHA GENERAL DUTY CLAUSE

SECTION 5. (a) Each *employer* --

(1) shall furnish to each of his/her employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his/her employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

SECTION 5. (b) Each *employee* --

shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his /her own actions and conduct.

A COMPETENT PERSON -

MEANS ONE WHO IS CAPABLE OF IDENTIFYING EXISTING AND PREDICTABLE HAZARDS IN THE SURROUNDINGS OR WORKING CONDITIONS WHICH ARE UNSANITARY, HAZARDOUS, OR DANGEROUS TO EMPLOYEES, AND WHO HAS AUTHORIZATION TO TAKE PROMPT CORRECTIVE MEASURES TO ELIMINATE THEM.

A QUALIFIED PERSON -

MEANS ONE WHO, BY POSSESSION OF A RECOGNIZED DEGREE, CERTIFICATE, OR PROFESSIONAL STANDING, OR WHO BE EXTENSIVE KNOWLEDGE, TRAINING, AND EXPERIENCE, HAS SUCCESSFULLY DEMONSTRATED HIS/HER ABILITY TO SOLVE OR RESOLVE PROBLEMS RELATED TO THE SUBJECT MATTER, THE WORK, OR THE PROJECT.

TRAINING REQUIREMENTS

Paragraph 1926.454:

This paragraph supplements and clarifies 1926.21(b)(2).

(a) The employer shall provide TRAINING for scaffold users.

- Training performed by a qualified person who:
 - is qualified in the subject matter
 - can recognize the hazards
 - understand procedures to control or minimize the hazards

- The training shall include:
 - the nature of any electrical, fall, and falling object hazards
 - the correct procedures for:
 - dealing with electrical hazards
 - erecting, maintaining, and disassembling fall protection systems
 - erecting, maintaining, and disassembling falling object protection systems
 - 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 pertinent requirements

**SEE NEXT PAGE FOR TRAINING REQUIREMENTS FOR
SCAFFOLD ERECTORS**

Paragraph 1926.454 - TRAINING REQUIREMENTS, continued

(b) The employer shall provide TRAINING for employees involved in:

- Scaffold Erection
 - Scaffold disassembly
 - Scaffold moving
 - Scaffold operating
 - Scaffold repairing
 - Scaffold maintenance
 - Scaffold inspection
- The training is performed by a competent (*this should read qualified*) person who recognizes hazards associated with the work
 - The training shall include the following topics, as applicable:
 - The nature of the scaffold hazards
 - the design criteria
 - maximum intended load carrying capacity
 - intended use of the scaffold
 - any other pertinent requirements of this subpart
 - The correct procedures for;
 - erecting scaffold
 - disassembling scaffold
 - moving scaffolds
 - operating scaffolds
 - repairing scaffolds
 - inspecting scaffolds
 - maintaining scaffolds

(c) The employer shall provide RETRAINING:

- when the employee demonstrates lack of skill or understanding needed for safe work involving the erection, use, or dismantling of scaffolds
- to regain the requisite proficiency

Retraining is required in at least the following situations:

- when changes at the worksite present a hazard about which the employee has not been trained
- where changes in the types of scaffolds, fall protection, falling object protection, or other equipment presents a hazard for which the employee has not been trained.
- the employee's actions indicate a need for retraining

Scaffolding 1926.450

No scaffolding shall be erected, dismantled, or altered except under the supervision of competent persons.

Competent Person - one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Types of Scaffolds and their Capacity

- Light Duty - rated for 25 lbs per square foot.
- Medium Duty - rated for 50 lbs per square foot.
- Heavy Duty - rated for 75 lbs per square foot.

Capacity Requirements

- Must support own weight and 4x the maximum intended load.
- Suspension rope and hardware, 6x the maximum intended load.
- Designed by a qualified person and built and loaded to design.

Scaffold Platform Construction

- Platforms should be fully planked or decked.
- Not more than a 1" gap between planks.
- Maximum openings of 9 1/2".
- Scaffold platforms and walkways must be 18" wide.
- Guardrails and/or personal fall arrest systems for platforms and runways not 18" wide.
- The front edge must be no more than 14" from the face of the work.
- Plastering operations can be 18" maximum from the face of the work.
- Platforms 10' and less to extend at least 6" but not more than 12" past support unless designed and/or guarded properly. If the platform is greater than 10' it can extend only 18" past the support.
- Overlap platforms not less than 12" only over supports, unless restrained to prevent movement.
- Where planks change direction, the plank at an angle other than a right angle should be laid first.
- No paint on wood platforms, except edges that may be marked for identification.
- No mixed scaffold components used unless compatibility and integrity maintained.
- No modifications to mixed scaffold components.
- No components of dissimilar metals should be used together.

Access

- Must have safe access
- No access by cross braces
- Bottom rung not more than 24" high
- Rest platforms at 35' intervals
- Some types of frame ends can be used for access.

Fall Protection

- Required at 10 feet
- PFAS in lieu of guardrails on some scaffolds
- PFAS and guardrails on suspension scaffolds
- PFAS at 6 feet where feasible for erectors and dismantlers
- As of 1-1-2000, top rails on scaffolding can be 38" to 45" high
- Use cross bracing instead of midrails in some cases

Falling Object Protection

- Hardhats required
- Protect employees below
- Barricades to exclude working below
- Toe boards 4" in height at edges of platforms
- Use panels, screens, and canopies to protect people below

Mobile Scaffolds

- Should maintain a 4 to 1 height ratio using outriggers if necessary
- Can be pushed with workers on them if they meet the following requirements:
 - 1.) The floor is within 3 degrees of level.
 - 2.) The minimum base dimension of the scaffolding is at least 1/2 the height of the scaffold.
 - 3.) All tools are secured.
- Any attachable ladder should extend 3 feet above the top working platform.
- There should always be a gate that opens in at the top for access.
- All mobile scaffolds should have a diagonal horizontal cross brace.

SUPPORTED SCAFFOLDS

SCAFFOLD INSPECTION PROCEDURE

This inspection procedure is intended to be used as a guideline in the evaluation of constructed scaffolds. This procedure is not intended to be a substitute for training, experience, and knowledge. All scaffolds, by law, must be constructed under the supervision of a competent person, a person who can identify hazards and has the authority to eliminate the hazards.

Familiarize yourself with all applicable codes, standards, and regulations, including company rules.

Inspect the overall jobsite for organization, housekeeping, coordination of workers, safety equipment, and safety procedures.

Observe the erection crew for procedure, fall protection, coordination, and organization.

Observe the overall scaffold. Does it appear to be constructed properly?

Does the overall appearance of the scaffold suggest quality construction?

Is the scaffold plumb?

Is the scaffold level?

Are guardrail systems installed on all open platforms?

Is the guardrail system between 36 and 45 inches high?

Is the guardrail system strong enough?

If there is no guardrail system, are occupants wearing proper fall arrest equipment?

Is falling object protection provided where required?

Sight up the scaffold. Is it straight or is there an "s" curve?

Is the scaffold tied to the structure?

What is the tie spacing? (Assuming that ties are required)

If there are no ties, is the height to base ratio less than 4 to 1? (Or 3 to 1)

Inspect the foundation. Are there sills?

If screw jacks are used, are the handles tight?

Are there base plates?

Is there full contact between the base plates and the sills and/or foundations?

Is there any evidence of settlement?

Is there any evidence of wet soil or erosion?

Is the ground or soil compacted?

Is there access?

How high is the first step? (It should be less than 24 inches)

If a ladder is used, is there a rest platform at 35 feet or less?

Does the ladder extend above the top platform or is there a handhold?

Is the ladder rung spacing less than 16-3/4 inches?

Is there proper access between the ladder and the platform?

If a stairway is used, are the handrails installed and the guardrails installed?

Inspect the ties. Can they resist both tension and compression loads?

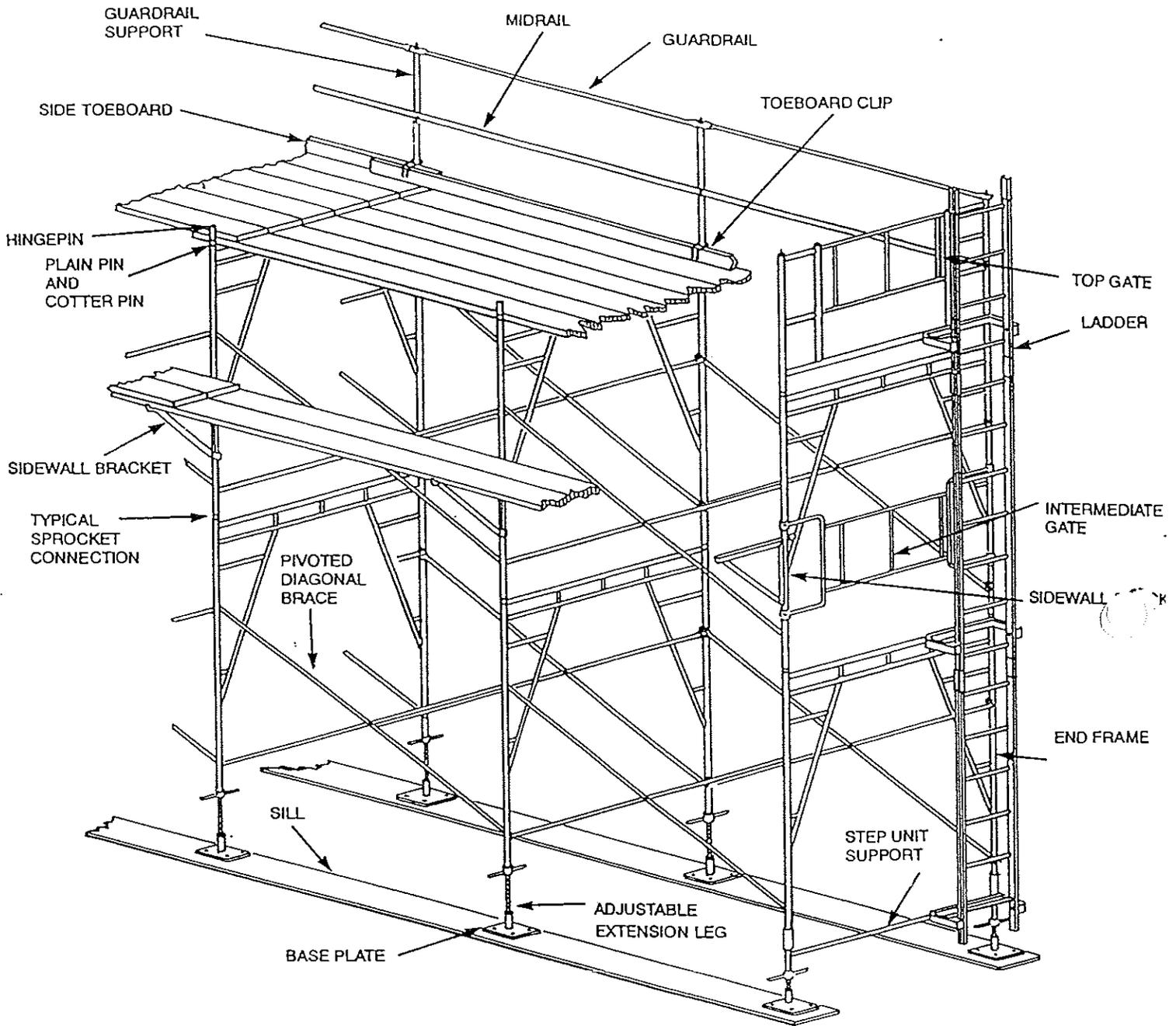
Is the scaffold tied to the structure at proper intervals?

How do the platforms look?

- Are all platforms at least 18 inches wide?
- Is the space between the platform and the work surface less than 14 inches?
- If not, are the workers properly protected from falls?
- What is the maximum spacing between plank? (It should be less than 1")
- Is the maximum space between the platform and the guardrail system less than 9-1/2"?
- Are the spans of the plank consistent with the strength of the plank?
- Is there proper support for the plank?
- Is the overlap of the plank sufficient?
- Are the plank secured from uplift?
- Are cantilevers minimized and within the regulations?
- Is the scaffold tagged in any way that would limit the use?
- Are there any electrical lines that might energize the scaffold? (and the workers!)
- If side brackets, or outriggers, are used, are they properly installed?
- Are all scaffold components in good condition?
- Are the materials loaded on the scaffold safely supported?
- Is the scaffold overloaded?
- Are the users of the scaffold trained in the recognition of electrical, fall, and falling object hazards?

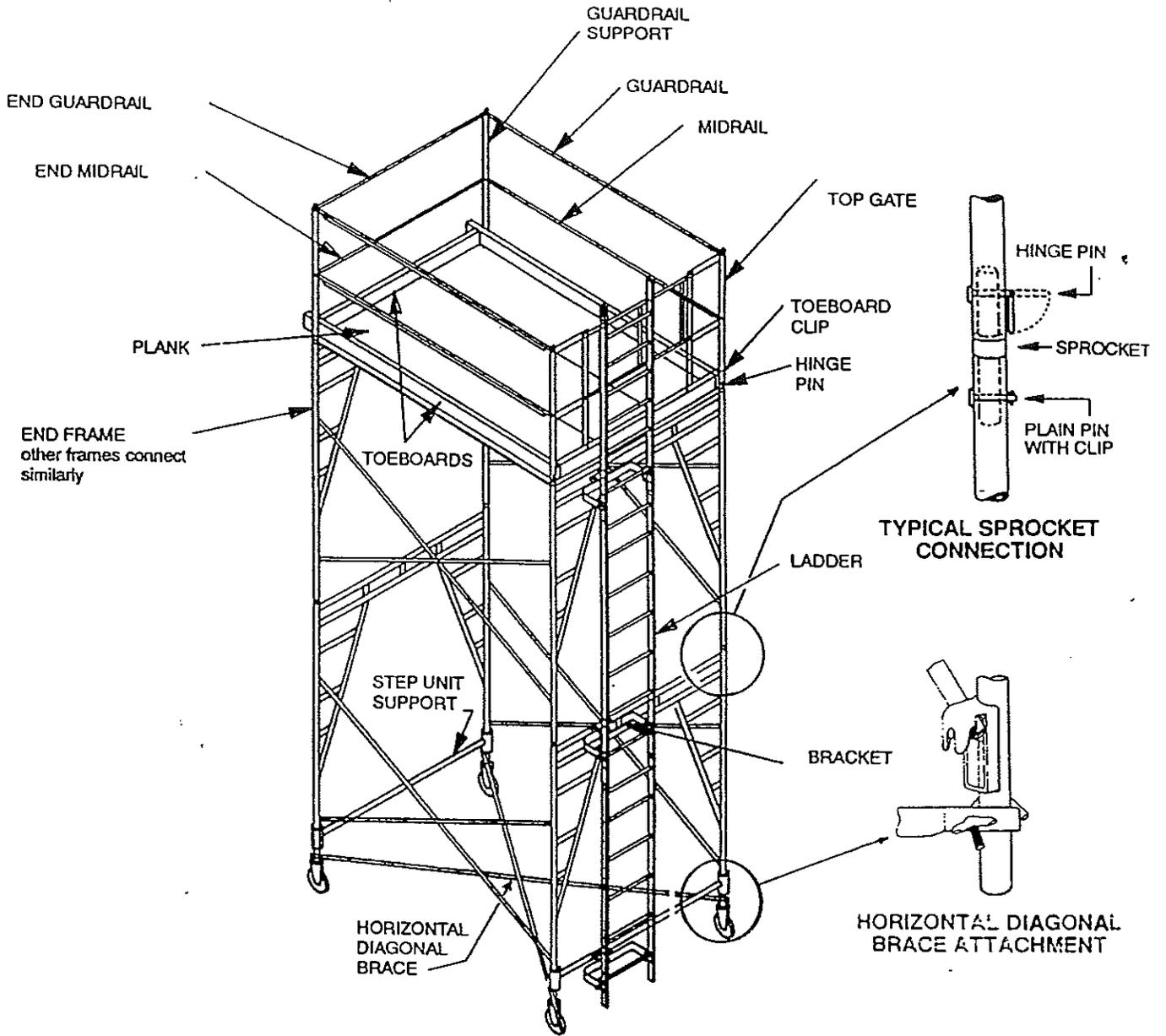
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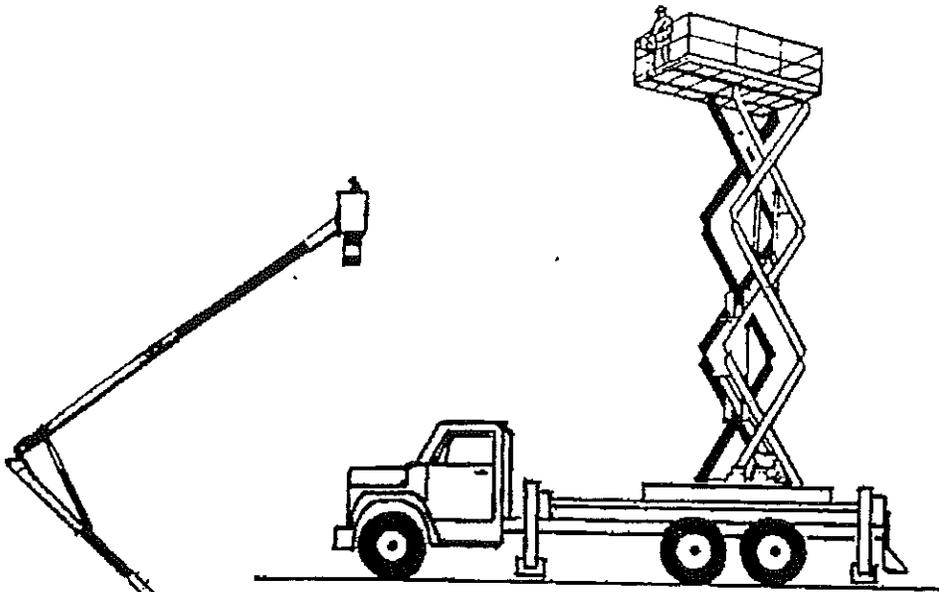
STATIONARY SCAFFOLDS



TYPICAL ROLLING SCAFFOLDS

(Towers not higher than 4 times the narrowest base dimension)



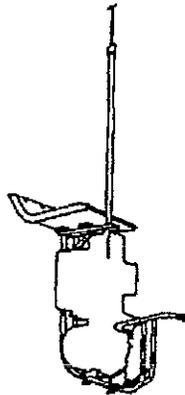


VEHICLE-MOUNTED AERIAL PLATFORM
(SCISSOR TYPE)

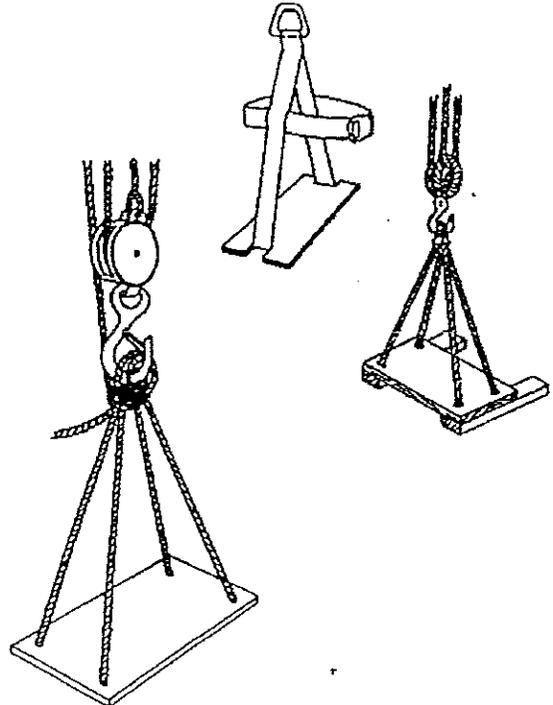
VEHICLE-MOUNTED AERIAL PLATFORM
WITH TELESCOPING AND ROTATING BOOM

AERIAL PLATFORMS

BOATSWAIN CHAIR

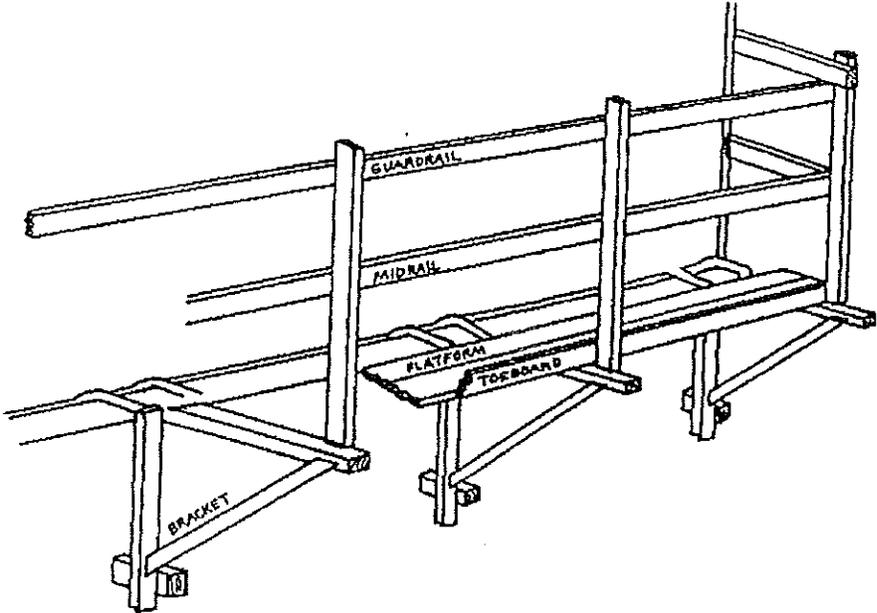


BOATSWAIN CHAIR
(POWERED)

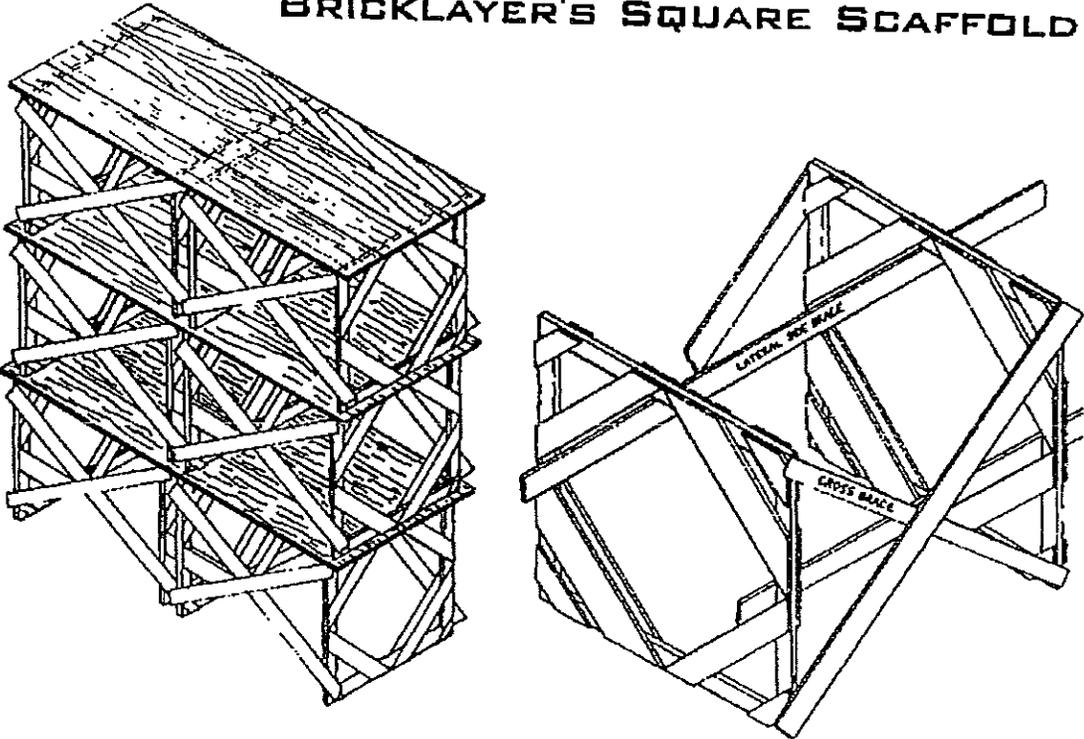


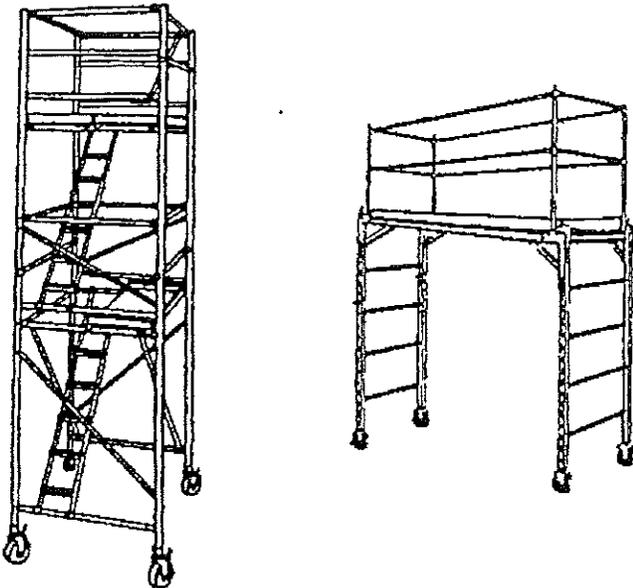
BOATSWAIN CHAIR
(MANUAL)

CARPENTER'S BRACKET SCAFFOLD



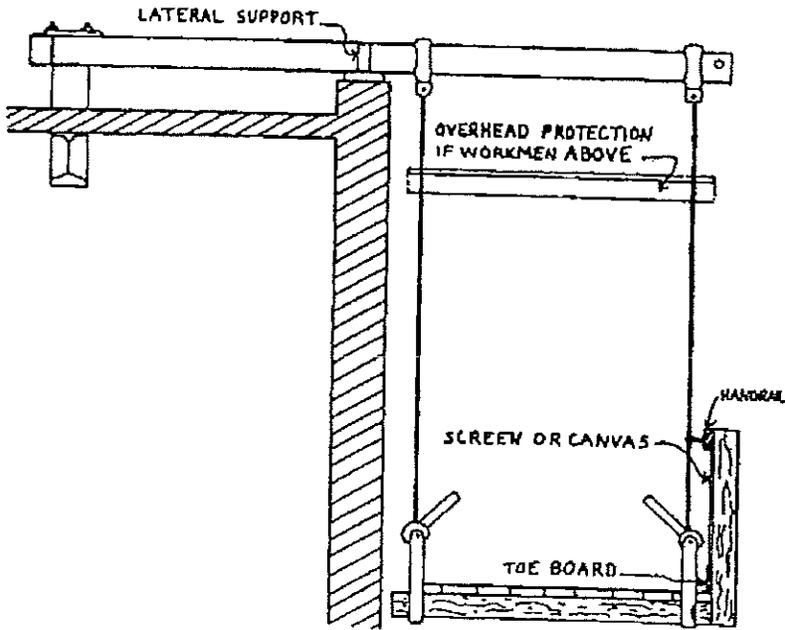
BRICKLAYER'S SQUARE SCAFFOLD



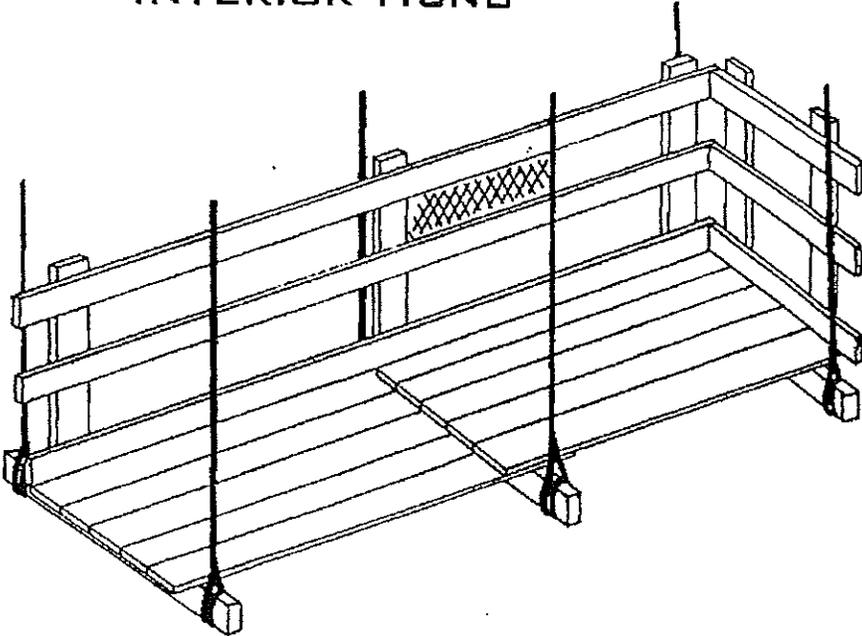


PREFABRICATED MOBILE TOWER UNIT

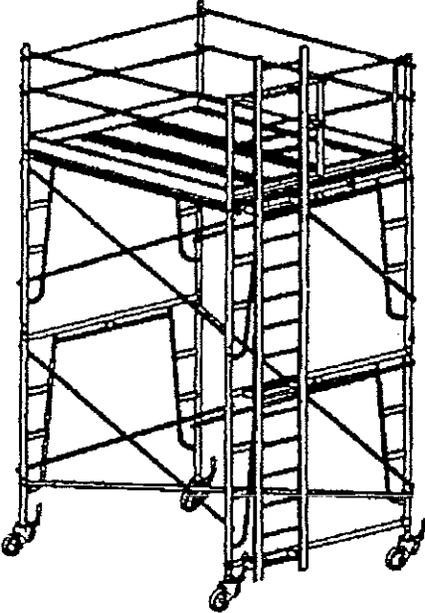
MASON'S MULTI POINT SUSPENDED SCAFFOLD



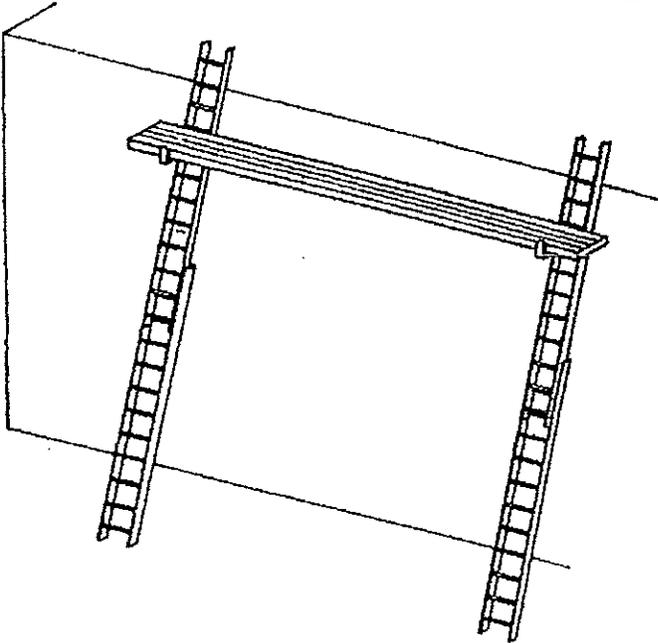
INTERIOR HUNG



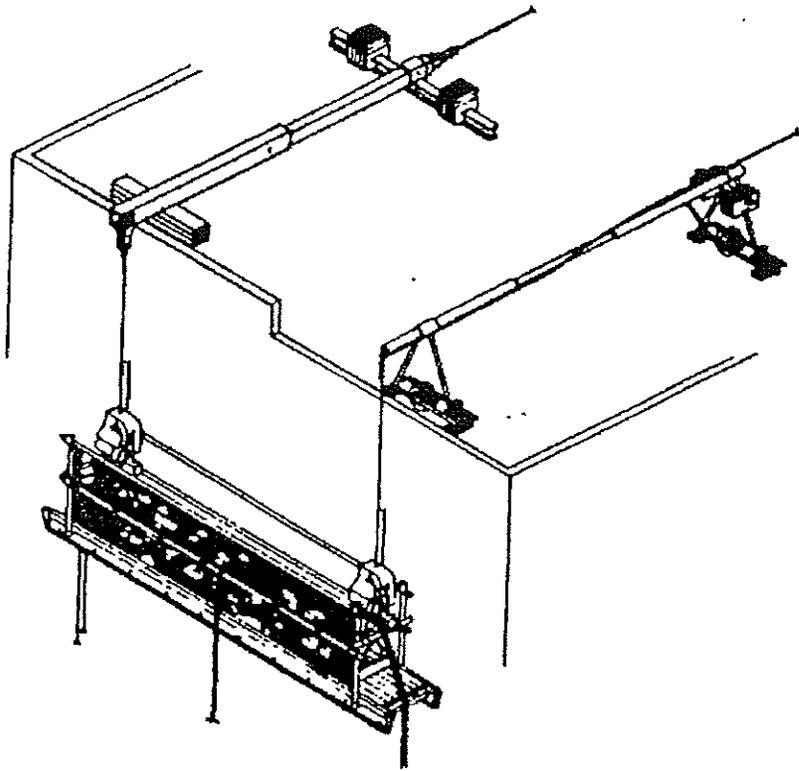
**MANUALLY PROPELLED
MOBILE SCAFFOLD**



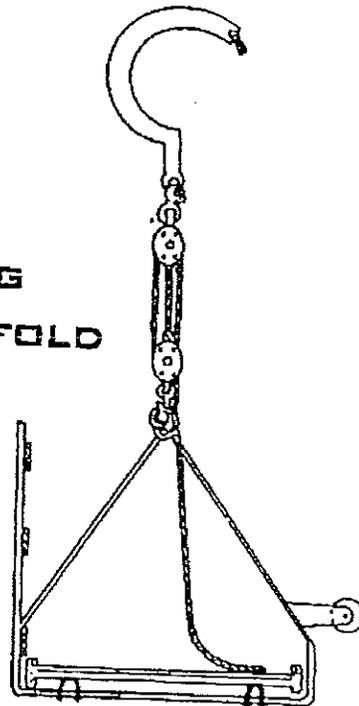
LADDER JACK SCAFFOLD



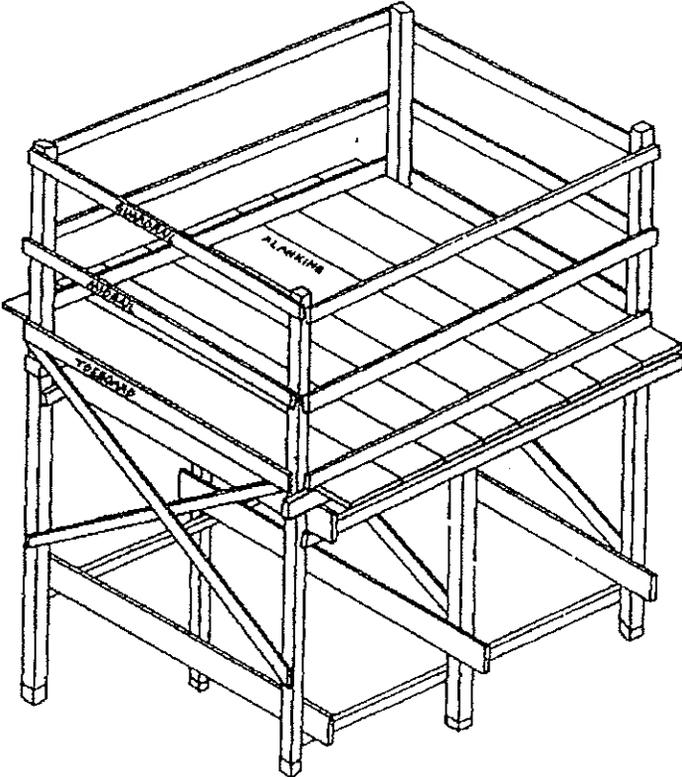
TWO POINT SUSPENDED SCAFFOLD



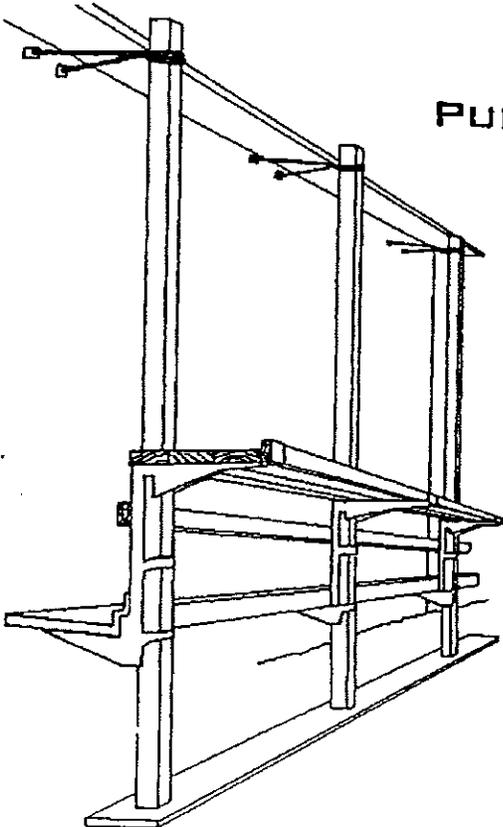
SWINGING SCAFFOLD

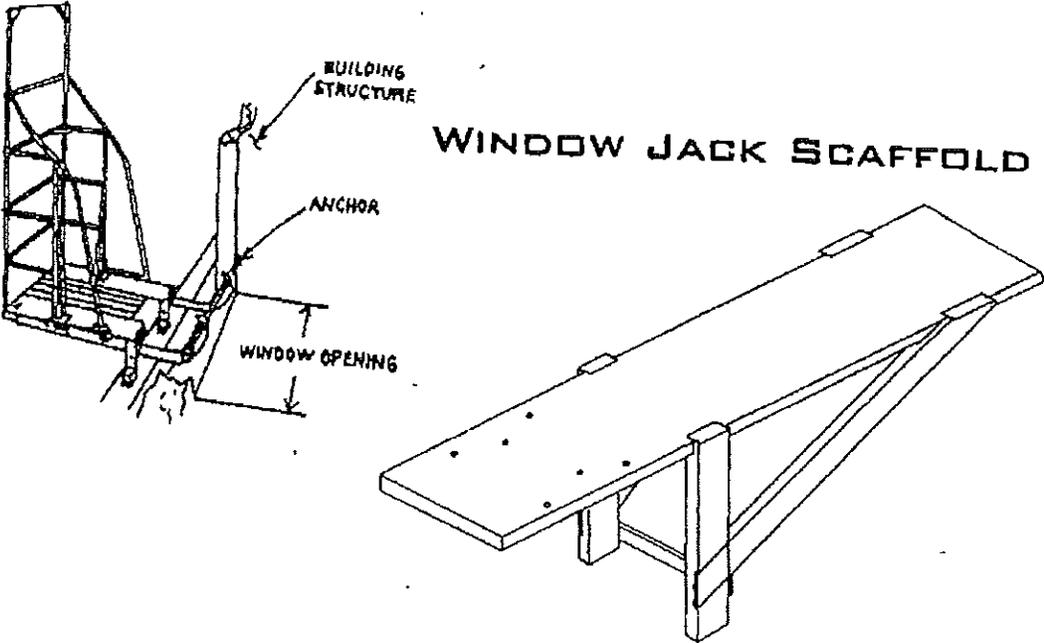


PLASTERERS DECORATORS SCAFFOLD

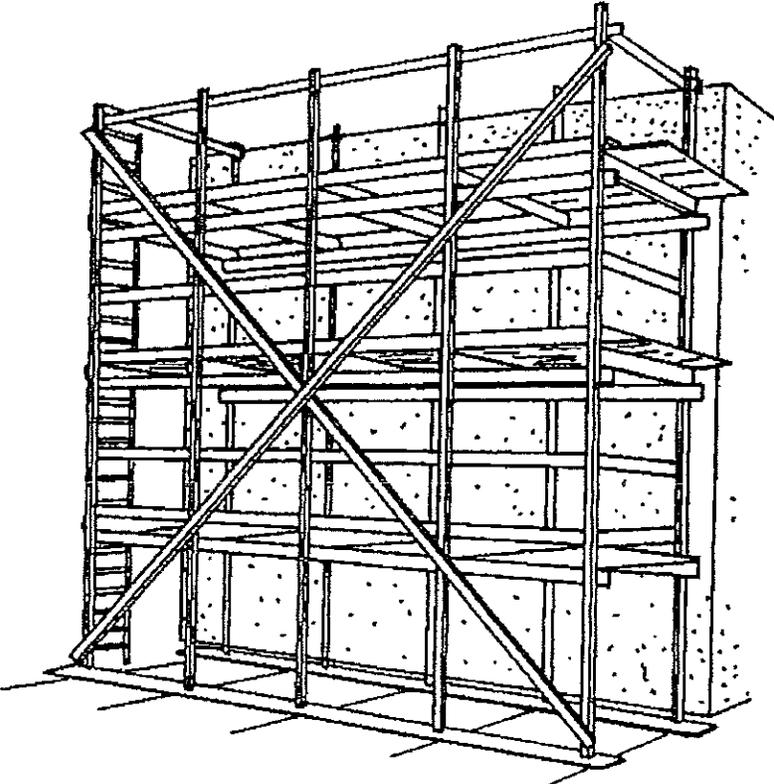


PUMP JACK SCAFFOLD



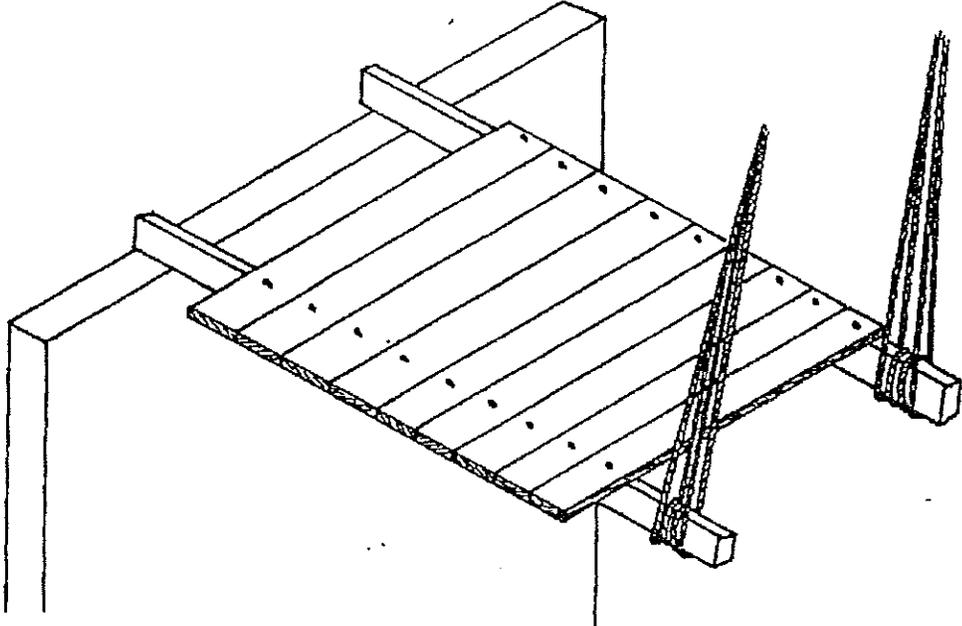


WINDOW JACK SCAFFOLD

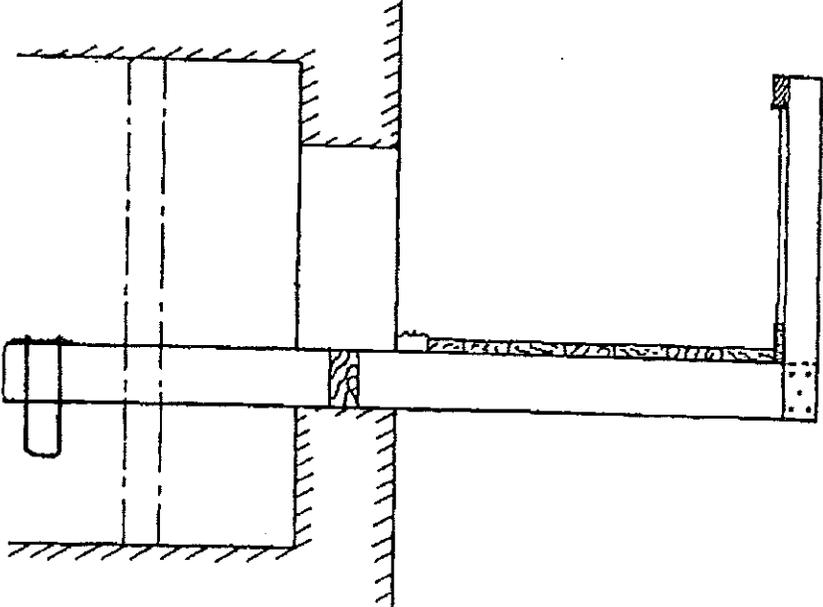


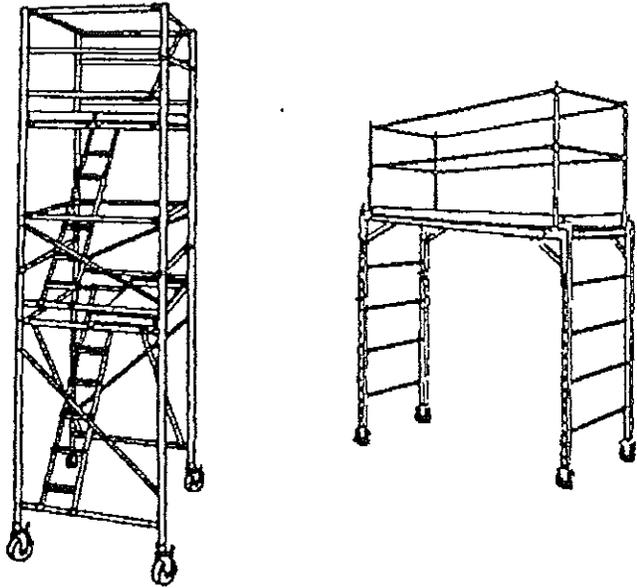
WOOD POLE SCAFFOLD

NEEDLE BEAM SCAFFOLD



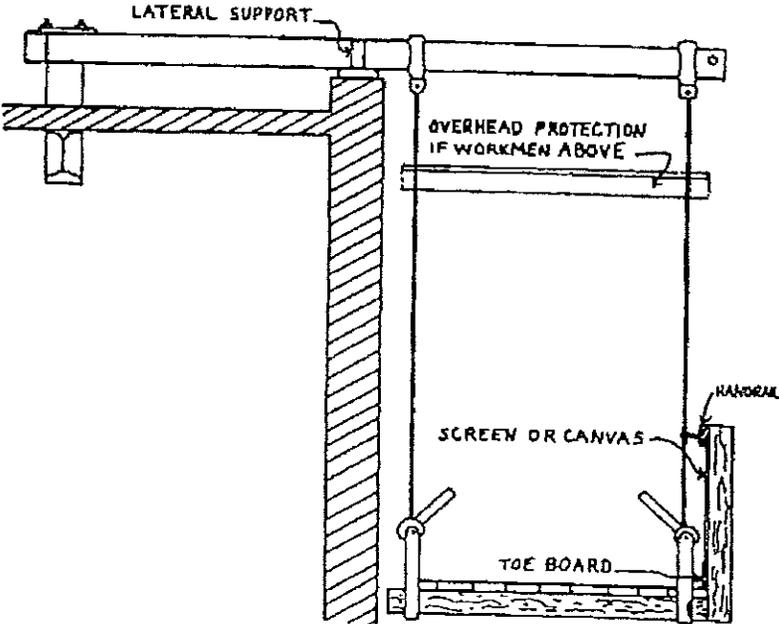
OUTRIGGER SCAFFOLD





PREFABRICATED MOBILE TOWER UNIT

MASON'S MULTI POINT SUSPENDED SCAFFOLD



Subpart M - Fall Protection

(1926.500 - 503)

Standard - 1926.	Description	Count
501(b)(1)	Unprotected sides & edges - Fall protection	1297
503(a)(1)	Fall hazards training program	493
501(b)(10)	Fall protection - Roofing work on low-slope roofs	341
501(b)(13)	Fall protection - Residential construction 6' or more	344
501(b)(4)	Fall protection - Holes	251

FALL PROTECTION

INTRODUCTION

In the construction industry in the U.S., falls are the leading cause of worker fatalities. Each year, on average, between 150 and 200 workers are killed and more than 100,000 are injured as a result of falls at construction sites. OSHA recognizes that accidents involving falls are generally complex events frequently involving a variety of factors. Consequently the standard for fall protection deals with both the human and equipment-related issues in protecting workers from fall hazards. For example, employers and employees need to do the following:

- Where protection is required, select fall protection systems appropriate for given situations.
- Use proper construction and installation of safety systems.
- Supervise employees properly.
- Use safe work procedures.
- Train workers in the proper selection, use, and maintenance of all protection systems.

SCOPE AND APPLICATION

OSHA has revised its construction industry safety standards (29 *Code of Federal Regulations, Subpart M, Fall Protection*, 1926.500, 1926.501, 1926.502, and 1926.503) and developed systems and procedures designed to prevent employees from falling off, onto, or through working levels and to protect employees from being struck by falling objects (*Federal Register*, August 9, 1994, pp. 40672-40753). The performance-oriented requirements make it easier for employers to provide the necessary protection.

The rule covers most construction workers except those inspecting, investigating, or assessing workplace conditions prior to the actual start of work or after all work has been completed.

The rule identifies areas or activities where fall protection is needed. These include, but are not limited to, ramps, runways, and other walkways; excavations; hoist areas; holes; formwork and reinforcing steel; leading edge work; unprotected sides and edges; overhand bricklaying and related work; roofing work; precast concrete erection; wall openings; residential construction; and other walking/working surfaces. The rule sets a uniform threshold height of 6 feet (1.8 meters), thereby providing consistent protection. This means that construction employers must protect their employees from fall hazards and falling objects whenever an affected employee is 6 feet (1.8 meters) or more above a lower level. Protection must also be provided for construction workers who are exposed to the hazard of falling into dangerous equipment.

Under the new standard, employers will be able to select fall protection measures compatible with the type of work being performed. Fall protection generally can be provided through the use of guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, and warning line systems, among others.

The OSHA rule clarifies what an employer must do to provide fall protection for employees, such as identifying and evaluating fall hazards and providing specific training. Requirements to provide fall protection for workers on scaffolds and

ladders and for workers engaged in steel erection of buildings are covered in other subparts of OSHA regulations.

PROVISIONS OF THE STANDARD

The new standard prescribes the duty to provide fall protection, sets the criteria and practices for fall protection systems, and requires training. It covers hazard assessment and fall protection and safety monitoring systems. Also addressed are controlled access zones, safety nets, and guardrail, personal fall arrest, warning line, and positioning device systems.

DUTY TO HAVE FALL PROTECTION

Employers are required to assess the workplace to determine if the walking/working surfaces on which employees are to work have the strength and structural integrity to safely support workers. Employees are not permitted to work on those surfaces until it has been determined that the surfaces have the requisite strength and structural integrity to support the workers. Once employers have determined that the surface is safe for employees to work on, the employer must select one of the options listed for the work operation if a fall hazard is present.

For example, if an employee is exposed to falling 6 feet (1.8 meters) or more from an unprotected side or edge, the employer must select either a guardrail system, safety net system, or personal fall arrest system to protect the worker. Similar requirements are prescribed for other fall hazards as follows.

Controlled Access Zones

A Controlled access zone is a work area designated and clearly marked in which certain types of work (such as overhand bricklaying) may take place without the use of conventional fall protection systems--guardrail, personal arrest or safety net--to protect the employees working in the zone.

Controlled access zones are used to keep out workers other than those authorized to enter work areas from which guardrails have been removed. Where there are no guardrails, masons are the only workers allowed in controlled access zones.

Controlled access zones, when created to limit entrance to areas where leading edge work and other operations are taking place, must be defined by a control line or by any other means that restrict access. Control lines shall consist of ropes, wires, tapes or equivalent materials, and supporting stanchions, and each must be:

- Flagged or otherwise clearly marked at not more than 6-foot (1.8 meters) intervals with high-visibility material;
- Rigged and supported in such a way that the lowest point (including sag) is not less than 39 inches (1 meter) from the walking/working surface and the highest point is not more than 45 inches (1.3 meters)--nor more than 50 inches (1.3 meters) when overhand bricklaying operations are being performed--from the walking/working surface;
- Strong enough to sustain stress of not less than 200 pounds (0.88 kilonewtons). Control lines shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.
- Control lines also must be connected on each side to a guardrail system or wall.

When control lines are used, they shall be erected not less than 6 feet (1.8 meters) nor more than 25 feet (7.6 meters) from the unprotected or leading edge, except when precast concrete members are being erected. In the latter case, the control line is to be erected not less than 6 feet (1.8 meters) nor more than 60 feet (18 meters) or half the length of the member being erected, whichever is less, from the leading edge.

Controlled access zones when used to determine access to areas where overhand bricklaying and related work are taking place are to be defined by a control line erected not less than 10 feet (3 meters) nor more than 15 feet (4.6 meters) from the working edge. Additional control lines must be erected at each end to enclose the

controlled access zone. Only employees engaged in overhand bricklaying or related work are permitted in the controlled access zones.

On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones will be enlarged as necessary to enclose all points of access, material handling areas, and storage areas. On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work shall be removed.

Excavations

Each employee at the edge of an excavation 6 feet (1.8 meters) or more deep shall be protected from falling by guardrail systems, fences, barricades, or covers. Where walkways are provided to permit employees to cross over excavations, guardrails are required on the walkway if it is 6 feet (1.8 meters) or more above the excavation.

Formwork and Reinforcing Steel

For employees, while moving vertically and/or horizontally on the vertical face of rebar assemblies built in place, fall protection is not required when employees are moving. OSHA considers the multiple hand holds and foot holds on rebar assemblies as providing similar protection as that provided by a fixed ladder; consequently, no fall protection is necessary while moving point to point for heights below 24 feet (7.3 meters). An employee must be provided with fall protection when climbing or otherwise moving at a height more than 24 feet (7.3 meters), the same as for fixed ladders.

Hoist Areas

Each employee in a hoist area shall be protected from falling 6 feet (1.8 meters) or more by guardrail systems or personal fall arrest systems. If guardrail systems (or chain gate or guardrail) or portions thereof must be removed to facilitate hoisting operations, as during the landing of materials, and a worker must lean through the

access opening or out over the edge of the access opening to receive or guide equipment and materials, that employee must be protected by a personal fall arrest system.

Holes

Personal fall arrest systems, covers, or guardrail systems shall be erected around holes (including skylights) that are more than 6 feet (1.8 meters) above lower levels.

Leading Edges

Each employee who is constructing a leading edge 6 feet (1.8 meters) or more above lower levels shall be protected by guardrail systems, safety net systems, or personal fall arrest systems. If the employer can demonstrate that it is infeasible or creates a greater hazard to implement these systems, he or she must develop and implement a fall protection plan that meets the requirements of 29 CFR 1926.502(k).

Overhand Bricklaying and Related Work

Each employee performing overhand bricklaying and related work 6 feet (1.8 meters) or more above lower levels shall be protected by guardrail systems, safety net systems, or personal fall arrest systems, or shall work in a controlled access zone. All employees reaching more than 10 inches (25 cm) below the level of a walking/working surface on which they are working shall be protected by a guardrail system, safety net system, or personal fall arrest system.

Precast Concrete Erection and Residential Construction

Each employee who is 6 feet (1.8 meters) or more above lower levels while erecting precast concrete members and related operations such as grouting of precast concrete members and each employee engaged in residential construction, shall be protected by guardrail systems, safety net systems, or personal fall arrest systems. Where the employer can demonstrate, however, that it is infeasible or creates a greater hazard to use those systems, the employer must develop and implement a

fall protection plan that meets the requirements of 29 CFR 1926.502(k).

Ramps, Runways, and Other Walkways

Each employee using ramps, runways, and other walkways shall be protected from falling 6 feet (1.8 meters) or more by guardrail systems.

Roofing

Low-slope Roofs

Each employee engaged in roofing activities on low-slope roofs with unprotected sides and edges 6 feet (1.8 meters) or more above lower levels shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems or a combination of a warning line system and guardrail system, warning line system and safety net system, warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs 50 feet (15.24 meters) or less in width, the use of a safety monitoring system without a warning line system is permitted.

Steep Roofs

Each employee on a steep roof with unprotected sides and edges 6 feet (1.8 meters) or more above lower levels shall be protected by guardrail systems with toeboards, safety net systems, or personal fall arrest systems.

Wall Openings

Each employee working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is 6 feet (1.8 meters) or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches (1.0 meter) above the walking/working surface must be protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system.

FALL PROTECTION SYSTEMS CRITERIA AND PRACTICES

Guardrail Systems

If the employer chooses to use guardrail systems to protect workers from falls, the systems must meet the following criteria. Toprails and midrails of guardrail systems must be at least one-quarter inch (0.6 centimeters) nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for toprails, it must be flagged at not more than 6 feet intervals (1.8 meters) with high-visibility material. Steel and plastic banding cannot be used as toprails or midrails. Manila, plastic, or synthetic rope used for toprails or midrails must be inspected as frequently as necessary to ensure strength and stability.

The top edge height of toprails, or (equivalent) guardrails must be 42 inches (1.1 meters) plus or minus 3 inches (8 centimeters), above the walking/working level. When workers are using stilts, the top edge height of the top rail, or equivalent member, must be increased an amount equal to the height of the stilts.

Screens, midrails, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking/working surface when there are no walls or parapet walls at least 21 inches (53 centimeters) high. When midrails are used, they must be installed at a height midway between the top edge of the guardrail system and the walking/working level. When screens and mesh are used, they must extend from the top rail to the walking/working level and along the entire opening between top rail supports. Intermediate members, such as balusters, when used between posts, shall not be more than 19 inches (48 centimeters) apart.

Other structural members, such as additional midrails and architectural panels, shall be installed so that there are no openings in the guardrail system more than 19 inches (48 centimeters).

The guardrail system must be capable of withstanding a force of at least 200 pounds (890 newtons) applied within 2 inches of the top edge in any outward or downward

direction. When the 200 pound (890 newtons) test is applied in a downward direction, the top edge of the guardrail must not deflect to a height less than 39 inches (1 meter) above the walking/working level.

Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding a force of at least 150 pounds (667 newtons) applied in any downward or outward direction at any point along the midrail or other member.

Guardrail systems shall be surfaced to protect workers from punctures or lacerations and to prevent clothing from snagging.

The ends of top rails and midrails must not overhang terminal posts, except where such overhang does not constitute a projection hazard.

When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section must be placed across the access opening between guardrail sections when hoisting operations are not taking place.

At holes, guardrail systems must be set up on all unprotected sides or edges. When holes are used for the passage of materials, the hole shall have not more than two sides with removable guardrail sections. When the hole is not in use, it must be covered or provided with guardrails along all unprotected sides or edges.

If guardrail systems are used around holes that are used as access points (such as ladderways), gates must be used or the point of access must be offset to prevent accidental walking into the hole.

If guardrails are used at unprotected sides or edges of ramps and runways, they must be erected on each unprotected side or edge.

Personal Fall Arrest Systems

These consist of an anchorage, connectors, and a body belt or 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 (4 kilonewtons) when used with a body belt;
- Limit maximum arresting force on an employee to 1,800 pounds (8 kilonewtons) when used with a body harness;
- Be rigged so that an employee can neither free fall more than 6 feet (1.8 meters) nor contact any lower level;
- Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet (1.07 meters); and
- Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet (1.8 meters) or the free fall distance permitted by the system, whichever is less.

As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

Personal fall arrest systems must be inspected prior to each use for wear damage, and other deterioration. Defective components must be removed from service. Dee-rings and snaphooks must have a minimum tensile strength of 5,000 pounds (22.2 kilonewtons). Dee-rings and snaphooks shall be proof-tested to a minimum tensile load of 3,600 pounds (16 kilonewtons) without cracking, breaking, or suffering permanent deformation.

Snaphooks shall be sized to be compatible with the member to which they will be connected, or shall be of a locking configuration.

Unless the snaphook is a locking type and designed for the following connections, they shall not be engaged (a) directly to webbing, rope or wire rope; (b) to each other; (c) to a dee-ring to which another snaphook or other connector is attached; (d) to a horizontal lifeline; or (e) to any object incompatible in shape or dimension relative to the snaphook, thereby causing the connected object to depress the snaphook keeper and release unintentionally.

OSHA considers a hook to be compatible when the diameter of the dee-ring to which the snaphook is attached is greater than the inside length of the snaphook when measured from the bottom (hinged end) of the snaphook keeper to the inside curve of the top of the snaphook. Thus, no matter how the dee-ring is positioned or moved (rolls) with the snaphook attached, the dee-ring cannot touch the outside of the keeper, thus depressing it open. As of January 1, 1998, the use of nonlocking snaphooks is prohibited.

On suspended scaffolds or similar work platforms with horizontal lifelines that may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline.

Horizontal lifelines shall be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two. Lifelines shall be protected against being cut or abraded.

Self-retracting lifelines and lanyards that automatically limit free fall distance to 2 feet (0.61 meters) or less shall be capable of sustaining a minimum tensile load of 3,000 pounds (13.3 kilonewtons) applied to the device with the lifeline or lanyard in the fully extended position.

Self-retracting lifelines and lanyards that do not limit free fall distance to 2 feet (0.61 meters) or less, ripstitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds (22.2 kilonewtons) applied to the device with the lifeline or lanyard in the fully extended position.

Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body belts and body harnesses shall be made of synthetic fibers.

Anchorage shall be designed, installed, and used under the supervision of a qualified person, as part of a complete personal fall arrest system that maintains a safety factor of at least two, i.e., capable of supporting at least twice the weight expected to be imposed upon it. Anchorages used to attach personal fall arrest systems shall be independent of any anchorage being used to support or suspend platforms and must be capable of supporting at least 5,000 pounds (22.2 kilonewtons) per person attached.

Lanyards and vertical lifelines must have a minimum breaking strength of 5,000 pounds (22.2 kilonewtons).

Positioning Device Systems

These body belt or body harness systems are to be set up so that a worker can free fall no farther than 2 feet (0.6 meters). They shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds (13.3 kilonewtons), whichever is greater. Requirements for snaphooks, dee-rings, and other connectors used with positioning device systems must meet the same criteria as those for personal fall arrest systems.

Safety Monitoring Systems

When no other alternative fall protection has been implemented, the employer shall implement a safety monitoring system. Employers must appoint a competent person to monitor the safety of workers and the employer shall ensure that the safety monitor:

- Is competent in the recognition of fall hazards;
- Is capable of warning workers of fall hazard dangers and in detecting unsafe work practices;

**CONSTRUCTION SAFETY AND
HEALTH OUTREACH PROGRAM**U.S. Department of Labor
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- Is operating on the same walking/working surfaces of the workers and can see them;
- Is close enough to work operations to communicate orally with workers and has no other duties to distract from the monitoring function.

Mechanical equipment shall not be used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-sloped roofs.

No worker, other than one engaged in roofing work (on low-sloped roofs) or one covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.

All workers in a controlled access zone shall be instructed to promptly comply with fall hazard warnings issued by safety monitors.

Safety Net Systems

Safety nets must be installed as close as practicable under the walking/working surface on which employees are working and never more than 30 feet (9.1 meters) below such levels. Defective nets shall not be used. Safety nets shall be inspected at least once a week for wear, damage, and other deterioration. The maximum size of each safety net mesh opening shall not exceed 36 square inches (230 square centimeters) nor be longer than 6 inches (15 centimeters) on any side, and the openings, measured center-to-center, of mesh ropes or webbing, shall not exceed 6 inches (15 centimeters). All mesh crossings shall be secured to prevent enlargement of the mesh opening. Each safety net or section shall have a border rope for webbing with a minimum breaking strength of 5,000 pounds (22.2 kilonewtons). Connections between safety net panels shall be as strong as integral net components and be spaced no more than 6 inches (15 centimeters) apart.

Safety nets shall be installed with sufficient clearance underneath to prevent contact with the surface or structure below.

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When nets are used on bridges, the potential fall area from the walking/working surface to the net shall be unobstructed.

Safety nets must extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net.	Minimum required horizontal distance of outer edge of net from the edge of the working surface.
Up to 5 feet (1.5 meters)	8 feet (2.4 meters)
More than 5 feet (1.5 meters) up to 10 feet (3 meters)	10 feet (3 meters)
More than 10 feet (3 meters)	13 feet (3.9 meters)

Safety nets shall be capable of absorbing an impact force of a drop test consisting of a 400-pound (180 kilogram) bag of sand 30 inches (76 centimeters) in diameter dropped from the highest walking/working surface at which workers are exposed, but not from less than 42 inches (1.1 meters) above that level.

Items that have fallen into safety nets including--but not restricted to, materials, scrap, equipment, and tools--must be removed as soon as possible and at least before the next work shift.

Warning Line Systems

Warning line systems consist of ropes, wires, or chains, and supporting stanchions and are set up as follows:

- Flagged at not more than 6-foot (1.8 meters) intervals with high-visibility material;

**CONSTRUCTION SAFETY AND
HEALTH OUTREACH PROGRAM**U.S. Department of Labor
OSHA Office of Training and Education

- Rigged and supported so that the lowest point (including sag) is no less than 34 inches (0.9 meters) from the walking/working surface and its highest point is no more than 39 inches (1 meter) from the walking/working surface.
- Stanchions, after being rigged with warning lines, shall be capable of resisting, without tipping over, a force of at least 16 pounds (71 newtons) applied horizontally against the stanchion, 30 inches (0.8 meters) above the walking/working surface, perpendicular to the warning line and in the direction of the floor, roof, or platform edge;
- The rope, wire, or chain shall have a minimum tensile strength of 500 pounds (2.22 kilonewtons) and after being attached to the stanchions, must support without breaking, the load applied to the stanchions as prescribed above.
- Shall be attached to each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in the adjacent section before the stanchion tips over.

Warning lines shall be erected around all sides of roof work areas. When mechanical equipment is being used, the warning line shall be erected not less than 6 feet (1.8 meters) from the roof edge parallel to the direction of mechanical equipment operation, and not less than 10 feet (3 meters) from the roof edge perpendicular to the direction of mechanical equipment operation.

When mechanical equipment is not being used, the warning line must be erected not less than 6 feet (1.8 meters) from the roof edge.

Covers

Covers located in roadways and vehicular aisles must be able to support at least twice the maximum axle load of the largest vehicle to which the cover might be subjected. All other covers must be able to support at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time. To prevent accidental displacement resulting from wind, equipment, or

workers' activities, all covers must be secured. All covers shall be color coded or bear the markings "HOLE" or "COVER."

PROTECTION FROM FALLING OBJECTS

When guardrail systems are used to prevent materials from falling from one level to another, any openings must be small enough to prevent passage of potential falling objects. No materials or equipment except masonry and mortar shall be stored within 4 feet (1.2 meters) of working edges. Excess mortar, broken or scattered masonry units, and all other materials and debris shall be kept clear of the working area by removal at regular intervals.

During roofing work, materials and equipment shall not be stored within 6 feet (1.8 meters) of a roof edge unless guardrails are erected at the edge, and materials piled, grouped, or stacked near a roof edge must be stable and self-supporting.

Canopies

When used as protection from falling objects canopies must be strong enough to prevent collapse and to prevent penetration by any objects that may fall onto them.

Toeboards

When toeboards are used as protection from falling objects, they must be erected along the edges of the overhead walking/working surface for a distance sufficient to protect persons working below. Toeboards shall be capable of withstanding a force of at least 50 pounds (222 newtons) applied in any downward or outward direction at any point along the toeboard. Toeboards shall be a minimum of 3.5 inches (9 centimeters) tall from their top edge to the level of the walking/working surface, have no more than 0.25 inches (0.6 centimeters) clearance above the walking/working surface, and be solid or have openings no larger than 1 inch (2.5 centimeters) in size.

Where tools, equipment, or materials are piled higher than the top edge of a toeboard, panelling or screening must be erected from the walking/working surface or toeboard to the top of a guardrail system's top rail or midrail, for a distance sufficient to protect employees below.

TRAINING

Employers must provide a training program that teaches employees who might be exposed to fall hazards how to recognize such hazards and how to minimize them. Employees must be trained in the following areas: (a) the nature of fall hazards in the work area; (b) the correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems; (c) the use and operation of controlled access zones and guardrail, personal fall arrest, safety net, warning line, and safety monitoring systems; (d) the role of each employee in the safety monitoring system when the system is in use; (e) the limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs; (f) the correct procedures for equipment and materials handling and storage and the erection of overhead protection; and, (g) employees' role in fall protection plans.

Employers must prepare a written certification that identifies the employee trained and the date of the training. The employer or trainer must sign the certification record. Retraining also must be provided when necessary.

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Hole--A void or gap 2 inches (5.1 centimeters) or more in the least dimension in a floor, roof, or other walking/working surface.

Lanyard--A flexible line of rope, wire rope, or strap that generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

Leading edge--The edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed or constructed.

Lifeline--A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline) and that serves as a means for connecting other components of a personal fall arrest system to the anchorage.

Low-slope roof--A roof having a slope less than or equal to 4 in 12 (vertical to horizontal).

Opening--A gap or void 30 inches (76 centimeters) or more high and 18 inches (46 centimeters) or more wide, in a wall or partition, through which employees can fall to a lower level.

Personal fall arrest system--A system including but not limited to an anchorage, connectors, and a body belt or body harness used to arrest an employee in a fall from a working level. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

Positioning device system--A body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning backwards.

Rope grab--A deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest a fall.

Safety-monitoring system--A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

Self-retracting lifeline/lanyard--A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under minimal tension during normal employee movement and which, after onset of a fall, automatically locks the drum and arrests the fall.

Snaphook--A connector consisting of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released automatically closes to retain the object.

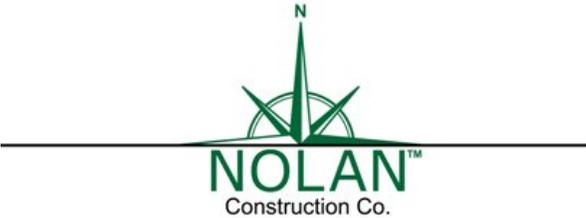
Steep roof--A roof having a slope greater than 4 in 12 (vertical to horizontal).

Toeboard--A low protective barrier that prevents material and equipment from falling to lower levels and which protects personnel from falling.

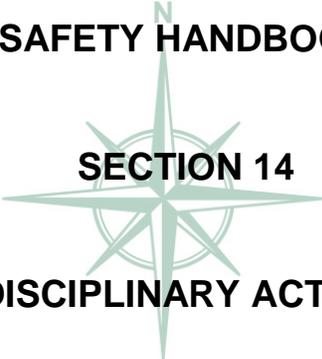
Unprotected sides and edges--Any side or edge (except at entrances to points of access) of a walking/working surface (e.g. floor, roof, ramp, or runway) where there is no wall or guardrail system at least 39 inches (1 meter) high.

Walking/working surface--Any surface, whether horizontal or vertical, on which an employee walks or works, including but not limited to floors, roofs, ramps, bridges, runways, formwork, and concrete reinforcing steel. Does not include ladders, vehicles, or trailers on which employees must be located to perform their work duties.

Warning line system--A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge and which designates an area in which roofing work may take place without the use of guardrail, body belt, or safety net systems to protect employees in the area.



SAFETY HANDBOOK



SECTION 14

DISCIPLINARY ACTION

NOLAN™

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Nolan Construction Company DISCIPLINARY ACTION

Disciplinary action will result when an individual willfully or repeatedly violates **Nolan Construction Company's** safety rules and/or program. Action that will be taken will include verbal, written warnings/reprimands, suspension and/or termination of employment.

A non-serious violation of our safety rules and/or program will result in the following:

1. First offense – counseling and verbal warning.
2. Second offense – counseling and a written warning by supervisor.
3. Third offense – mandatory meeting with management and written warning by management.
4. Fourth offense – treated as a serious violation.

A serious violation of **Nolan Construction Company's** safety and/or rule program will result in either suspension from work without pay or termination. If the violation is life threatening, it will result in immediate termination.

- If an employee gets two (2) written violations, they will be terminated for safety reason.
- If an employee reports to work intoxicated or under the influence of a controlled substance, or in possession of intoxicating or controlled substances he/she will be terminated.
- Fighting or provoking a fight will result in termination.
- Disregarding and/or disobeying a supervisors instructions will result in either suspension or termination; however, if the instructions place the individual in an unsafe position, no retaliation or penalty will result.

All safety rules must be enforced and obeyed by all personnel.

All disciplinary action will be documented and signed. A copy will be given to the individuals involved and a copy will be kept in the individual's personnel file. If after 12 months, the individual has no other disciplinary reports, the report may be removed from the individual's file.



SAFETY HANDBOOK

SECTION 15

TEAM MEMBER ACKNOWLEDGEMENT FORM

NOLAN™
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Nolan Construction Company Team Member Acknowledgment Form

Receipt is hereby acknowledged for:

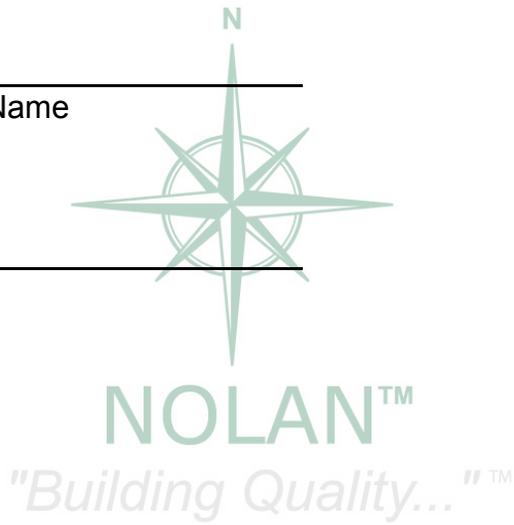
Nolan Construction Company Safety Handbook.

Received by:

Team Member's Signature

Team Member's Printed Name

Date



Nolan Construction Company Team Member Acknowledgment Form

Receipt is hereby acknowledged for:

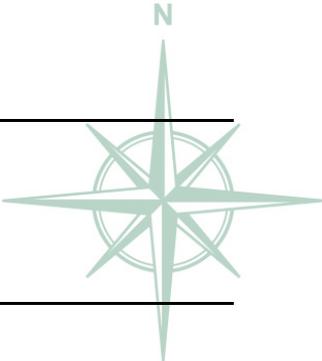
Nolan Construction Company Safety Handbook.

Received by:

Team Member's Signature

Team Member's Printed Name

Date



NOLAN™
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