

***ICE TECHNICAL SERVICES  
Construction Safety Program***



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This guide provides a sample plan for the development of a construction safety program. It is designed to be a guide to assist you in the development of a comprehensive safety program. The plan does NOT address all local requirements for the hazards identified on the job site. Companies should develop their own programs to specifically counter the specific hazards associated with the following OSHA mandated programs:

Fall protection	Asbestos exposure	Confined space entry
Lock out/tag out	Excavations	Fire prevention/protection
Electrical safety	Hand and power tools	Construction Machinery
Mechanized equipment		

## Construction Requirements for Safety Plans

Prior to commencing work contractor should prepare an Accident Prevention Plan. This plan shall be written by the prime contractor for the specific work and hazards of the contract and implementing in detail the requirements for safety and occupational health. This plan shall be reviewed and found acceptable by Government personnel prior to initiation of work at the job site.

The safety plan must include:

- Statement of safety & health policy

- Administrative responsibilities for implementing the plan

- Identification and accountability of personnel responsible for accident prevention

- Means for controlling work activities of subcontractors and suppliers

- Responsibilities of subcontractors

- Plans for safety indoctrination of new employees

- Plans for continued safety training

- Provisions for safety inspections to include:

- work site/material and equipment inspection

- means for recording inspection results

- timetable for correction of deficiencies

- procedures for follow-up inspections to ensure correction

- Responsibilities for investigation and reporting accidents/exposure

- All accidents will be investigated & reported within 24 hours

Accidents which result in a fatality, three or more persons admitted to a hospital or significant property damage will be reported immediately to the Contracting Officer. Contractors are responsible for notifying OSHA. the accident scene shall not be disturbed except for rescue and emergency measures until released by the investigating official.

- First aid treatments shall be reported and recorded daily.

- Responsibilities for maintaining accident data, reports and logs

- Emergency response capabilities for disasters

Emergency Plans will include emergency phone numbers and shall be tested periodically. Plans shall include escape procedures, employee accounting following an emergency evacuation, rescue and medical duties, means of reporting emergencies and persons to be contacted.

Contingency plans for severe weather

Plans for maintaining job cleanup and safe access

Public safety requirements (fencing/signs)

Prevention of alcohol/drug abuse on the job

Plans for hazard communication program must include:

- A list of hazardous chemicals known to be present
- Methods used to inform employees of the hazards
- Containers must be present and labeled
- MSDS for each hazardous chemical on site

Plans for monthly supervisor safety meeting and weekly worker safety meetings. Meetings shall be documented including the date, attendance, subjects, and the name of individuals who conducted the meeting.

Local requirements for the hazards identified on the job site such as:

- Fall protection
- Asbestos exposure
- Confined space entry
- Lock out/tag out
- Excavations
- Fire prevention/protection
- Electrical safety
- Machinery and mechanized equipment
- Hand and power tools

## Hazard Analysis

Prior to beginning EACH MAJOR PHASE OF WORK, an activity hazard analysis shall be prepared by the contractor performing that work. Work will not proceed until the hazard analysis has been accepted. The analysis will:

- Define the activity being performed
- Identify the sequence of work to be accomplished
- Identify the specific hazards that are anticipated
- Identify the control measures needed to reduce each hazard to an acceptable level

Hazard analysis shall identify the principal steps to be accomplished in sequence to accomplish the operations. Equipment used in the operation shall be listed on the hazard analysis form. Inspection requirements for the equipment and machinery shall be listed on the hazard analysis form. Each step shall be analyzed to identify its potential hazards and a recommended control shall be identified to reduce the hazard to an acceptable level.

### Hazard Analysis

Activity _____		Analyzed by/Date _____	Reviewed by/Date _____
Principal Steps	Potential Hazards	Recommended Controls	
Identify the principal steps involved and the sequence of work activities	Analyze each principal step for its potential	Develop specific controls for each potential hazard	
Equipment to be used	Inspection requirements	Training Requirements	
List equipment/machinery to be used in conducting the work activities	List inspection requirement for equipment/machinery listed	Determine requirement for worker training. Include Hazard Communication/Fall Protection Confined Space/Lockout & Tagout/Asbestos	

**STATEMENT OF SAFETY & HEALTH**

TO ALL EMPLOYEES, SUBCONTRACTORS SUPPLIERS AND CUSTOMERS OF ICE TECHNICAL SERVICES.

RE: SAFETY IN CONSTRUCTION

Safety in all ICE TECHNICAL SERVICES operations is not a just corporate goal, it is a requirement!

To this end, we have formulated this written policy to govern all the operations.

It is a condition of employment with ICE TECHNICAL SERVICES that all employees must adhere faithfully to the requirements of this policy and the safety rules, instructions and procedures issued in conjunction with it. Failure to do so will result in disciplinary action as outlined in the attached policy.

It is a condition of all subcontracts and purchase orders issued by Construction, Inc. that this policy and the safety rules, instruction and procedures issued in conjunction with this policy as well as applicable State, Federal and Local codes and regulations be adhered to. Failure to comply is a breach of contract terms!

All visitors to ICE TECHNICAL SERVICES operations (including but not limited to: Suppliers, owners representatives, agents of the architect or engineer, regulatory authorities and insurance company representatives) shall be required to follow all safety rules and regulations in effect during their visit.

ICE TECHNICAL SERVICES will make an effort to insure that the operations of other contractors not under our control do not endanger the safety of our employees. To this end all employees are required to report hazardous activities of other employers to appropriate ICE TECHNICAL SERVICES officials.

The Safety Director and foreman have the full backing of management to enforce the provisions of this policy as it relates to responsibilities assigned to them.

ICE TECHNICAL SERVICES

President

## **CONSTRUCTION INC. GENERAL POLICY STATEMENT**

It is the policy of ICE TECHNICAL SERVICES to provide a safe and healthful place of employment for ALL EMPLOYEES. It is the purpose of this 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.

**ADMINISTRATIVE RESPONSIBILITIES FOR IMPLEMENTING THE PLAN**

## ICE TECHNICAL SERVICES. MANAGEMENT SHALL

1. Establish rules and programs designed to promote safety.
2. Make known to all employees 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 employee willfully disregarding this policy.
7. Provide protective equipment for employees where required.
8. Inform employees 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.
12. Implementation and update of this plan is the responsibility of \_\_\_\_\_,  
the Corporate Safety Director.

## **IDENTIFICATION AND ACCOUNTABILITY OF PERSONNEL RESPONSIBLE FOR ACCIDENT PREVENTION**

### **ICE TECHNICAL SERVICES. FOREMEN SHALL...**

1. Carry out safety program at work level.
2. Be aware of all safety requirements and safe working practices.
3. Report all injuries and safety violations.
4. Instruct new and existing employees in safe working practices.
5. Make sure protective equipment is available and used.
6. Secure prompt medical attention for any injured employees.
7. Make sure all work is performed in a safe manner.
8. Insure that no unsafe conditions or equipment are present.
9. Provide their crew with proper instruction on safety requirements.
10. Site Supervisors shall be identified and held responsible for activity on their sites.
11. All accidents shall be investigated and reported withing 24 hours.
12. First aid treatements shall be recorded daily.
13. Accidents resulting in a fatality, three or more persons hospitalized or significant property damage shall be immediately reported to the Contracting Officer as well as to OSHA. The accident scene shall not be disturbed except for rescue and emergency measures.

## **MEANS OF CONTROLLING SUBCONTRACTORS AND SUPPLIERS**

### **SUBCONTRACTORS AND SUPPLIERS OF ICE TECHNICAL SERVICES SHALL:**

1. Abide by all safety rules of ICE TECHNICAL SERVICES., the owner and other contractors.
2. Notify all other contractors when actions or activities undertaken by them could affect health or safety of employees of other companies.
3. Check in with job site supervision before entering job site.
4. Inform ICE TECHNICAL SERVICES of all injuries to workers.
5. Report to ICE TECHNICAL SERVICES any unsafe conditions that come to their attention.
6. The Site Supervisor shall insure that all subcontractors and suppliers comply with this policy.

## **SAFETY INDOCTRINATION OF NEW EMPLOYEES**

PRIOR TO NEW EMPLOYEES BEGINNING WORK FOR ICE TECHNICAL SERVICES, THE FOREMAN SHALL PROVIDE A SAFETY INDOCTRINATION TO EACH NEW EMPLOYEE. THAT INDOCTRINATION WILL INCLUDE:

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 insure his safety as well as that of his co-workers.
5. Avail himself of company and industry sponsored safety programs.
6. Use and maintain all safety devices provided to him.
7. Maintain and properly use all tools under his control.
8. Follow all Safety rules.
9. Provide fellow employees help with safety requirements.
10. Report for work in clothing suitable for work and in such a manner that clothes and jewelry worn will not constitute a safety hazard.
11. A copy of this safety manual shall be given to each new employee.

## **PROVISIONS FOR CONTINUED SAFETY TRAINING**

ICE TECHNICAL SERVICES SHALL PROVIDE SAFETY TRAINING FOR EMPLOYEES. DURING CONSTRUCTION SEASONS TRAINING SHALL CONSIST OF WEEKLY SAFETY MEETINGS CONDUCTED ON SITE.

A compendium of safety meeting outlines is contained at the back of this document. These “tailgate” meetings are normally held on each Friday at the work site. The foreman receives the safety topic earlier in the week, usually with the pay envelopes.

Copies are made of the topic and passed out to those workers at the meeting. The foreman selects an individual to read the topic aloud. Following the reading of the topic there is an open discussion concentrating on how that topic applies to the job site. Other timely items of safety concerns and interest are also discussed.

Prior to the ending of the meeting, all individuals are required to print and sign their name on the attendance form. The safety meeting report is turned into the office with that week's time schedule. A log for each employee shall be kept that lists the training that they have received.

During off peak seasons safety training will be obtained from professional safety personnel or trade organizations to complete the training for permanent employees and supervisors. Such training will follow OSHA and Trade Organization recommendations.

**VISITORS ON ICE TECHNICAL SERVICES PROJECTS 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 without contacting employees 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 workplace.
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. Report promptly to supervision all accidents and injuries observed whether involving company personnel or others.

## **PROVISIONS FOR SAFETY INSPECTIONS**

**FOREMEN ON ICE TECHNICAL SERVICES JOB SITES WIL CONDUCT AND DOCUMENT WEEKLY SAFETY INSPECTIONS.**

The forman shall inspect the general work site, to include sub contractors and suppliers areas. Equipment and material shall be inspected by the foreman. Results of the inspection shall be recorded and a timetable for correction of the deficiencies shall be established. Procedures for follow up inspections shall be documented to ensure correction of the deficiencies.

## **ICE TECHNICAL SERVICES PROBLEM SOLVING PROCEDURE**

To have an effective safety program, we will communicate both down and up corporate structure.

When a safety problem arises, everyone, even the least senior and experienced employees, have a responsibility to co-workers and the company to report or correct any hazardous conditions found. Every employee's concerns will be heard and each situation will be corrected or a valid explanation tendered.

The following is the ICE TECHNICAL SERVICES procedure for solving safety problems.

### **SAFETY PROBLEM SOLVING**

It is the intent of ICE TECHNICAL SERVICES to provide a safe workplace for all employees. 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 employees be on the lookout for unsafe conditions. If you observe a condition that is unsafe, the following actions are to be taken:

If possible, correct the condition immediately. Many safety hazards like a piece of missing guardrail are easy to correct.

If you are not able to take corrective action, report the condition to your immediate supervisor for correction.

All company employees 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 employee is requested to contact the General Superintendent who is also the corporate safety director.

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

## **ICE TECHNICAL SERVICES COMPANY DISCIPLINARY PROCEDURES**

The normal disciplinary policy of ICE TECHNICAL SERVICES. is as follows:

1. For minor first instance violations:
  - a. Immediate correction if applicable
  - b. verbal warning (documented in the supervisors log)
2. For minor second instance violations of the same safety requirement:
  - a. Immediate correction if applicable
  - b. Written warning with a copy to the Safety Director or General Superintendent
3. For minor third violation of the same safety requirement: **Immediate dismissal**

For more than three verbal warnings for minor violations of different safety requirements:

Immediate correction

Written warning with a copy to the Safety Director or General Superintendent

For more than two written warnings for minor violations of different safety requirements:

Immediate dismissal

Nothing in this policy prevents the immediate dismissal or removal from the job site of any employee or subcontractor whose conduct is a serious violation of the safety requirements and constitutes a grave danger to himself, co-workers, property, equipment, or the employees of others.

## Hazard Communication Program

**BASIS:** About 32 million workers are potentially exposed to one or more chemical hazards on a daily basis. There are an estimated 575,000 existing chemical products, and hundreds of new ones being introduced annually. This poses a serious problem for exposed workers and their employer. The OSHA Hazard Communication Standard establishes uniform requirements to make sure that the hazards of all chemicals imported into, produced, or used in U.S. workplaces are evaluated, and that this hazard information is transmitted to all affected workers.

**GENERAL:** ICE TECHNICAL SERVICES will ensure that the hazards of all chemicals used within our facility are evaluated, and that information concerning their hazards is transmitted to all employees. This standard practice instruction is intended to address comprehensively the issues of; evaluating the potential hazards of chemicals, communicating information concerning these hazards, and establishing appropriate protective measures for employees.

**RESPONSIBILITY:** The company Safety Officer is **insert name here**. He/she is solely responsible for all facets of this program and has full authority to make necessary decisions to ensure success of the program. The Safety Officer will develop written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions. This company has expressly authorized the Safety Officer to halt any operation of the company where there is danger of serious personal injury.

### Contents of the ICE TECHNICAL SERVICES Hazard Communication Program

1. Written Program.
2. Training Program.
3. Labeling Program.
4. Material Safety Data Sheets Program.
5. Non-Company Employees Program.
6. Definitions.
7. Sample Letter Requesting an MSDS.

## ICE TECHNICAL SERVICES Hazard Communication Program

1. Written Program. This standard practice instruction will be maintained in accordance with 29 CFR 1926.59 and updated as required. Where no update is required this document will be reviewed annually. Effective implementation of this program requires support from all levels of management within this company. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives. ICE TECHNICAL SERVICES shall:

1.1 Annually review and revise this written hazard communication program.

1.2 Provide a program for proper labeling of containers, describe other needed forms of warning, and detail the use and purpose material safety data sheets (MSDS). Describe how employee information and training requirements will be met, to include the following:

a. Generate a list of the hazardous chemicals known to be present at each work site. This list will be available to all employees, and located as a minimum in the Worker Right-To-Know Center".

b. Detail the method ICE TECHNICAL SERVICES will use to inform employees of the hazards. Immediate supervisors of affected employees will oversee this requirement. The Safety Officer may be consulted to provide any task hazard analysis assistance required.

c. The methods ABC will use to inform employee(s) of any precautionary measures that need to be taken to protect employees during normal operating conditions and in foreseeable emergencies. Immediate supervisors of affected employees will oversee this requirement. The Maintenance Manager and or the Safety Officer may be consulted to provide any task hazard analysis assistance required.

d. ICE TECHNICAL SERVICES shall make the written hazard communication program available to all employees, during each work shift.

2. Training Program. ABC shall provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment, annually, and whenever a new chemical is introduced into their work area that could present a potential hazard.

a. Information. ABC Employees shall be informed of:

1 Any operations in their work area where hazardous chemicals are present.

2 The location and availability of the written hazard communication program, including a list(s) of hazardous chemicals used in their department, and the associated material safety data sheet (MSDS). This information will be:

- Centrally located at ICE TECHNICAL SERVICES in a "Worker Right-To-Know Center". All employees will have convenient access to this location and materials during each shift. A chemical list will be provided and broken down by department.

- Located at each work site. All employees will have access to this location and materials during each shift. All employees will have convenient access to this location and materials during each shift. A chemical list will be provided and broken down by department.

b. Training. Employee hazard communication training at ICE TECHNICAL SERVICES shall be conducted annually. This training will be conducted by an approved training instructor. Newly hired personnel will be briefed on the general requirements of the OSHA hazard communication standard by **insert name here**, as well as duty specific hazards by their immediate supervisor before they begin any duties within the department. This training will include at least the following:

1 Methods (subjective and objective) that may be used to detect the presence or release of a hazardous chemical in the work area. This will include; any monitoring conducted by ABC, continuous monitoring devices, visual appearance, or odor of hazardous chemicals when being released, etc. Material Safety Data Sheets (MSDS) will be used augment this requirement where ever possible.

2 The physical and health hazards of the chemicals present in the work area (MSDS).

3 The measures employees can take to protect themselves from these hazards. Specific procedures ICE TECHNICAL SERVICES. has implemented to protect employees from exposure to hazardous chemicals, to include; appropriate work practices, Standard Practice Instructions, emergency procedures, and personal protective equipment.

4 An explanation of the labeling system used at ICE TECHNICAL SERVICES, the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

5 The chemical (formal) and common name(s) of products used, and all ingredients which have been determined to be health hazards.

6 Physical and chemical characteristics of the hazardous chemical including, vapor pressure, and flash point.

7 The physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity.

8 The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical.

9 The primary route(s) of entry; inhalation, absorption, ingestion, injection, and target organs.

10 The OSHA permissible exposure limit, ACGIH Threshold Limit Value, including any other exposure limit used or recommended by the chemical manufacturer.

11 Whether the hazardous chemical has been found to be a potential carcinogen by the International Agency for Research on Cancer (IARC).

12 Any generally applicable precautions for safe handling and use which are known including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks.

13 Any generally applicable control measures which are known appropriate engineering controls, work practices, or personal protective equipment.

14 Emergency and first aid procedures.

15 How to determine the date of preparation of the material safety data sheet concerned, and or the last change to it.

16 Specific chemical identity such as the chemical name, Chemical Abstracts Service (CAS) Registry Number, synonyms, or any other information pertinent to the training session.

c. Documentation. All training will be documented using a standard company attendance roster. Certificates of completion will be issued to attendees. A copy of the completion certificate will be maintain as part of the employees permanent company record.

3. Labeling Requirements. Labeling requirements of containers of chemicals used at ICE TECHNICAL SERVICES., as well as of containers of chemicals and hazardous materials being shipped off site. The following procedures apply:

a. Unmarked Containers. No unmarked container containing chemicals may be used in conjunction with any duties or operations at ICE TECHNICAL SERVICES. Unless the container is a portable container in the control of a specific person for their immediate use. Container means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this standard practice instruction, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers. Immediate use means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

b. Container Labeling. ICE TECHNICAL SERVICES will maintain and provide a container labeling kit to any employee requesting its use. Employees shall ensure that labels on

incoming containers of hazardous chemicals are not removed or defaced. Containers containing hazardous chemicals will be properly disposed of and the labels defaced after use. Once they are emptied, chemical containers can never be used in the place of any other container (for example, trash receptacles).

c. Label Information for a single chemical (non-mixture). ABC will provide the appropriate hazard rating and chemical compatibility charts to label containers. The MSDS will be consulted first to determine labeling requirements. The label as a minimum will contain:

1 Information concerning the personal protective equipment (PPE) required to use or handle the chemical.

2 The DOT hazard class i.e., whether the chemical is Flammable, Toxic, Irritating, Corrosive, Water Reactive, or is an oxidizer.

3 The chemical name as reflected on the MSDS.

4 The normal operational use of the chemical.

5 Name, address, and emergency phone number of the chemical manufacturer, importer, or other responsible party.

d. Label Information (mixtures). ICE TECHNICAL SERVICES will provide the appropriate hazard rating and chemical data to label containers. The MSDS's of the chemicals used to create the mixture will be consulted first to determine labeling requirements, see para 3.3.

1 If a mixture has been tested by an approved laboratory as a whole to determine its hazardous characteristics, the results of such testing shall be used to determine whether the mixture is hazardous and to provide the appropriate labeling information.

2 If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture. Scientifically valid data such as that provided on the MSDS to evaluate the physical hazard potential of the mixture must be used. The Safety Officer may be consulted to provide any hazard analysis assistance required.

e. Where Labels are not required. Questions concerning any of the exceptions listed below should be directed to the Safety Administrator for clarification. ICE TECHNICAL SERVICES generally should not be affected by these requirements, however they are provided for information and because they are included in the Hazard Communication Standard. The Hazard Communication Standard does not require labeling of the following chemicals:

1 Any pesticide subject to the labeling requirements Environmental Protection Agency.

2 Any food, food additive, color additive, drug, cosmetic, or medical or veterinary device subject to the labeling requirements of the Food and Drug Administration;

3 Any distilled spirits (beverage alcohols), wine, or malt beverage intended for nonindustrial use subject to the labeling requirements the Bureau of Alcohol Tobacco, and Firearms.

4 Any consumer product or hazardous subject to the Consumer Product Safety Commission.

f. Labeling of containers of chemicals and hazardous materials being shipped off site designated as hazardous waste. Where these materials are classified as hazardous waste they fall under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 et seq.), and the provisions of 40 CFR. And as such will be subject to regulations issued under that Act by the Environmental Protection Agency. Consult with the Safety and Environmental Administrator where this determination is unclear or assistance is required.

#### 4. Evaluation and Distribution of Material Safety Data Sheets to Employees.

a. ABC shall maintain copies of any material safety data sheets that are received with incoming shipments of the sealed containers of hazardous chemicals, shall obtain a material safety data sheet for sealed containers of hazardous chemicals received without a material safety data sheet if an employee requests the material safety data sheet, and shall ensure that the material safety data sheets are readily accessible during each work shift.

b. Master copies of each MSDS will be maintained in the \_\_\_\_\_ office.

c. Right-To-Know (worker) copies will be available to all employees in the facility, and located as a minimum in the \_\_\_\_\_. Additionally, a list of the hazardous chemicals known to be present in each department using an identity that is referenced from the appropriate material safety data sheet will be located in the \_\_\_\_\_. ABC will ensure a system is in place to maintain a current set of MSDS's.

d. MSDS copies will be maintained for all chemicals abandoned for use for a period of 30 years.

e. MSDS requests. A request letter will be forwarded to any vender who does not provide an MSDS with a product received by this company. The letter will be forwarded within \_\_\_\_\_ days of receipt of the material. The format will be the same as the sample letter located at the back of this instruction.

4.6 Employees must be familiar with the various sections of the MSDS.

Section \_\_\_\_\_ Contents

Section I	- Product Identity
Section II	- Hazardous Ingredients
Section III	- Physical/Chemical Characteristics
Section IV	- Fire and Explosion Hazard Data
Section V	- Reactivity Data
Section VI	- Health Hazards Data
Section VII	- Precautions for Safe Handling and Use
Section VIII	- Control Measures/Protection Info
Section IX	- Additional Information

5. Non-Company Employees Program. Visitors, Contract Employees, Contractor Personnel and In-House Representatives. Any contractor bringing chemicals on-site must provide ICE TECHNICAL SERVICES with the appropriate hazard information on these substances, including the labels used and the precautionary measures to be taken in working with these chemicals. Consult with the \_\_\_\_\_ where this determination is unclear or assistance is required.

6. Definitions Commonly Found in the OSHA Hazard Communication Standard or that Relate to the Contents of the Standard.

Article means a manufactured item:

(1) Which is formed to a specific shape or design during manufacture.

(2) which has end use function(s) dependent in whole or in part upon its shape or design during end use.

(3) which does not release, or otherwise result in exposure to, a hazardous chemical, under normal conditions of use.

Chemical means any element, chemical compound or mixture of elements and/or compounds.

Chemical manufacturer means an employer with a workplace where chemical(s) are produced for use or distribution.

Chemical name means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

Combustible liquid means any liquid having a flashpoint at or above 100 °F (37.8 °C), but below 200 °F (93.3 °C), except any mixture having components with flashpoints of 200 °F (93.3 °C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

Common name means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

Compressed gas means:

1. A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 °F (21.1 °C); or
2. A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 °F (54.4 °C) regardless of the pressure at 70 °F (21.1 °C); or
3. A liquid having a vapor pressure exceeding 40 psi at 100 °F (37.8 °C) as determined by ASTM D-323-72.

Designated representative means any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

Distributor means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

Employee means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies.

Employer means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

Explosive means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Exposure or exposed means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.), and includes potential (e.g. accidental or possible) exposure.

Flammable means a chemical that falls into one of the following categories:

1. Aerosol, flammable means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening.
2. Gas, flammable means:

2.1 A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less.

2.2 A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit.

2.3 Liquid, flammable means any liquid having a flashpoint below 100 °F (37.8 °C), except any mixture having components with flashpoints of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

2.4 Solid, flammable means a solid, other than a blasting agent or explosive as defined in § 190.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flashpoint means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested

Foreseeable emergency means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

Hazardous chemical means any chemical which is a physical hazard or a health hazard.

Hazard warning means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the hazard(s) of the chemical(s) in the container(s).

Health hazard means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term health hazard includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

Identity means any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

Immediate use means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label means any written, printed, or graphic material, displayed on or affixed to containers of hazardous chemicals.

Material safety data sheet (MSDS) means written or printed material concerning a hazardous chemical which is prepared in accordance with 29 CFR 1910.1200, paragraph (g).

Mixture means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

Oxidizer means a chemical other than a blasting agent or explosive as defined in 29 CFR 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Physical hazard means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Produce means to manufacture, process, formulate, or repackage.

Pyrophoric means a chemical that will ignite spontaneously in air at a temperature of 130 F (54.4 C) or below.

Responsible party means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

Specific chemical identity means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Trade secret means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.

Unstable (reactive) means a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Use means to package, handle, react, or transfer.

Water-reactive means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard. Often when the water is heated it goes into a gaseous state allowing oxygen to be released which can help feed a fire.

Work area means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Work place means an establishment, job site, or project, at one geographical location containing one or more work areas.

SAMPLE LETTER REQUESTING AN MSDS

XYZ Manufacturing Company  
1234 Street  
Anytown, USA 11222

Dir Sir:

The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) requires employers be provided Material Safety Data Sheets (MSDS's) for all hazardous substances used in their facility, and to make these MSDS's available to employees potentially exposed to these hazardous substances.

We, therefore, request a copy of the MSDS for your product listed as Stock Number \_\_\_\_\_ . We did not receive an MSDS with the initial shipment. We also request any additional information, supplemental MSDS's, or any other relevant data that your company or supplier has concerning the safety and health aspects of this product.

Please consider this letter as a standing request to your company for any information concerning the safety and health aspects of using this product that may become known in the future.

The MSDS and any other relevant information should be sent to us within 10, 20, 30, days (select appropriate time). Delays may prevent use of your product. Send the information to the address listed below.

Please be advised that if we do not receive the MSDS on the above chemical by \_\_\_\_\_, we may have to notify OSHA of our inability to obtain this information.

Your cooperation is greatly appreciated. Thank you for your timely response to this request. If you have any questions please contact me at (123) 456-7891.

Sincerely

\_\_\_\_\_ Safety and Health Manager  
ICE TECHNICAL SERVICES  
111 Street  
Anchorage, Alaska

## **Fall Protection Plan**

This Fall Protection Plan is specific for the following project:

Location of Job:

Company:

Date Plan Prepared or Modified:

Plan Prepared By:

Plan Approved By:

Plan Supervised By:

The following Fall Protection Plan is a sample program prepared for the prevention of injuries associated with falls. A Fall Protection Plan must be developed and evaluated on a site by site basis. It is recommended that erectors discuss the written Fall Protection Plan with their OSHA AreaOffice prior to going on a jobsite.

ICE TECHNICAL SERVICES is dedicated to the protection of its employees from on-the-job injuries. All employees of ICE TECHNICAL SERVICES have the responsibility to work safely on the job. The purpose of this plan is: (a) To supplement our standard safety policy by providing safety standards specifically designed to cover fall protection on this job and; (b) to ensure that each employee is trained and made aware of the safety provisions which are to be implemented by this plan prior to the start of erection.

This Fall Protection Plan addresses the use of other than conventional fall protection at a number of areas on the project, as well as identifying specific activities that require non-conventional means of fall protection. These areas include:

- a. Connecting activity (point of erection).
- b. Leading edge work.
- c. Unprotected sides or edge.
- d. Grouting.

This plan is designed to enable employers and employees to recognize the fall hazards on this job and to establish the procedures that are to be followed in order to prevent falls to lower levels or through holes and openings in walking/working surfaces. Each employee will be trained in these procedures and strictly adhere to them except when doing so would expose the employee to a greater hazard. If, in the employee's opinion, this is the case, the employee is to notify the foreman of the concern and the concern addressed before proceeding.

Safety policy and procedure on any one project cannot be administered, implemented, monitored and enforced by any one individual. The total objective of a safe, accident free work environment can only be accomplished by adedicated, concerted effort by every individual involved with the project from management down to the last employee. Each employee must understand their value to the company; the costs of accidents, both monetary, physical, and emotional; the objective of the safety policy and procedures; the safety rules that apply to the safety policy and procedures; and what their individual role is in administering, implementing, monitoring, and compliance of their safety policy and procedures. This allows for a more personal approach to compliance through planning, training, understanding and cooperative

effort, rather than by strict enforcement. If for any reason an unsafe act persists, strict enforcement will be implemented.

It is the responsibility of (name of competent person) to implement this Fall Protection Plan. (Name of Competent Person) is responsible for continual observational safety checks of their work operations and to enforce the safety policy and procedures. The foreman also is responsible to correct any unsafe acts or conditions immediately. It is the responsibility of the employee to understand and adhere to the procedures of this plan and to follow the instructions of the foreman. It is also the responsibility of the employee to bring to management's attention any unsafe or hazardous conditions or acts that may cause injury to either themselves or any other employees. Any changes to this Fall Protection Plan must be approved by (name of Qualified Person).

## II. Fall Protection Systems to Be Used on This Project

Where conventional fall protection is infeasible or creates a greater hazard at the leading edge and during initial connecting activity, we plan to do this work using a safety monitoring system and expose only a minimum number of employees for the time necessary to actually accomplish the job. The maximum number of workers to be monitored by one safety monitor is six (6). We are designating the following trained employees as designated erectors and they are permitted to enter the controlled access zones and work without the use of conventional fall protection.

Safety monitor:

Designated erector:

Designated erector:

Designated erector:

Designated erector:

Designated erector:

Designated erector:

The safety monitor shall be identified by wearing an orange hard hat. The designated erectors will be identified by one of the following methods:

1. They will wear a blue colored arm band, or
2. They will wear a blue colored hard hat, or
3. They will wear a blue colored vest.

Only individuals with the appropriate experience, skills, and training will be authorized as designated erectors. All employees that will be working as designated erectors under the safety monitoring system shall have been trained and instructed in the following areas:

1. Recognition of the fall hazards in the work area (at the leading edge and when making initial connections-point of erection).
2. Avoidance of fall hazards using established work practices which have been made known to the employees.
3. Recognition of unsafe practices or working conditions that could lead to a fall, such as windy conditions.
4. The function, use, and operation of safety monitoring systems, guardrail systems, body belt/harness systems, control zones and other protection to be used.

5. The correct procedure for erecting, maintaining, disassembling and inspecting the system(s) to be used.

6. Knowledge of construction sequence or the erection plan.

A conference will take place prior to starting work involving all members of the erection crew, crane crew and supervisors of any other concerned contractors. This conference will be conducted by the precast concrete erection supervisor in charge of the project. During the pre-work conference, erection procedures and sequences pertinent to this job will be thoroughly discussed and safety practices to be used throughout the project will be specified. Further, all personnel will be informed that the controlled access zones are off limits to all personnel other than those designated erectors specifically trained to work in that area.

#### Safety Monitoring System

A safety monitoring system means a fall protection system in which a competent person is responsible for recognizing and warning employees of fall hazards. The duties of the safety monitor are to:

1. Warn by voice when approaching the open edge in an unsafe manner.
2. Warn by voice if there is a dangerous situation developing which cannot be seen by another person involved with product placement, such as a member getting out of control.
3. Make the designated erectors aware they are in a dangerous area.
4. Be competent in recognizing fall hazards.
5. Warn employees when they appear to be unaware of a fall hazard or are acting in an unsafe manner.
6. Be on the same walking/working surface as the monitored employees and within visual sighting distance of the monitored employees.
7. Be close enough to communicate orally with the employees.
8. Not allow other responsibilities to encumber monitoring. If the safety monitor becomes too encumbered with other responsibilities, the monitor shall (1) stop the erection process; and (2) turn over other responsibilities to a designated erector; or (3) turn over the safety monitoring function to another designated, competent person. The safety monitoring system shall not be used when the wind is strong enough to cause loads with large surface areas to swing out of radius, or result in loss of control of the load, or when weather conditions cause the walking-working surfaces to become icy or slippery.

#### Control Zone System

A controlled access zone means an area designated and clearly marked, in which leading edge work may take place without the use of guardrail, safety net or personal fall arrest systems to protect the employees in the area. Control zone systems shall comply with the following provisions:

1. When used to control access to areas where leading edge and other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access.

When control lines are used, they shall be erected not less than 6 feet (1.8 m) nor more than 60 feet (18 m) or half the length of the member being erected, whichever is less, from the leading edge.

2. The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.
3. The control line shall be connected on each side to a guardrail system or wall.
4. Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:
  5. Each line shall be flagged or otherwise clearly marked at not more than 6-foot (1.8 m) intervals with high-visibility material.
  6. Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches (1 m) from the walking/working surface and its highest point is not more than 45 inches (1.3 m) from the walking/working surface.
  7. Each line shall have a minimum breaking strength of 200 pounds.

## Holes

All openings greater than 12 in. x 12 in. will have perimeter guarding or covering. All predetermined holes will have the plywood covers made in the precasters' yard and shipped with the member to the jobsite. Prior to cutting holes on the job, proper protection for the hole must be provided to protect the workers. Perimeter guarding or covers will not be removed without the approval of the erection foreman.

Precast concrete column erection through the existing deck requires that many holes be provided through this deck. These are to be covered and protected. Except for the opening being currently used to erect a column, all opening protection is to be left undisturbed. The opening being uncovered to erect a column will become part of the point of erection and will be addressed as part of this Fall Protection Plan. This uncovering is to be done at the erection foreman's direction and will only occur immediately prior to "feeding" the column through the opening. Once the end of the column is through the slab opening, there will no longer exist a fall hazard at this location.

## III. Implementation of Fall Protection Plan

The structure being erected is a multistory total precast concrete building consisting of columns, beams, wall panels and hollow core slabs and double tee floor and roof members.

The following is a list of the products and erection situations on this job:

### Columns

For columns 10 ft to 36 ft long, employees disconnecting crane hooks from columns will work from a ladder and wear a body belt/harness with lanyard and be tied off when both hands are needed to disconnect. For tying off, a vertical lifeline will be connected to the lifting eye at the top of the column, prior to lifting, to be used with a manually operated or mobile rope grab. For columns too high for the use of a ladder, 36 ft and higher, an added cable will be used to reduce the height of the disconnecting point so that a ladder can be used. This cable will be left in place until a point in erection that it can be removed safely. In some cases, columns will be unhooked from the crane by using an erection tube or shackle with a pull pin which is released from the ground after the column is stabilized. The column will be adequately connected and/or braced to safely support the weight of a ladder with an employee on it.

### Inverted Tee Beams

Employees erecting inverted tee beams, at a height of 6 to 40 ft, will erect the beam, make initial connections, and final alignment from a ladder. If the employee needs to reach over the side of the beam to bar or make an adjustment to the alignment of the beam, they will mount the beam and be tied off to the lifting device in the beam after ensuring the load has been stabilized on its bearing. To disconnect the crane from the beam an employee will stand a ladder against the beam. Because the use of ladders is not practical at heights above 40 ft, beams will be initially placed with the use of tag lines and their final alignment made by a person on a manlift or similar employee positioning systems.

## Spandrel Beams

Spandrel beams at the exterior of the building will be aligned as closely as possible with the use of tag lines with the final placement of the spandrel beam made from a ladder at the open end of the structure. A ladder will be used to make the initial connections and a ladder will be used to disconnect the crane. The other end of the beam will be placed by the designated erector from the double tee deck under the observation of the safety monitor.

The beams will be adequately connected and/or braced to safely support the weight of a ladder with an employee on it.

## Floor and Roof Members

During installation of the precast concrete floor and/or roof members, the work deck continuously increases in area as more and more units are being erected and positioned. Thus, the unprotected floor/roof perimeter is constantly modified with the leading edge changing location as each member is installed. The fall protection for workers at the leading edge shall be assured by properly constructed and maintained control zone lines not more than 60 ft away from the leading edge supplemented by a safety monitoring system to ensure the safety of all designated erectors working within the area defined by the control zone lines.

The hollow core slabs erected on the masonry portion of the building will be erected and grouted using the safety monitoring system. Grout will be placed in the space between the end of the slab and face shell of the concrete masonry by dumping from a wheelbarrow. The grout in the keyways between the slabs will be dumped from a wheelbarrow and then spread with long handled tools, allowing the worker to stand erect facing toward the unprotected edge and back from any work deck edge.

Whenever possible, the designated erectors will approach the incoming member at the leading edge only after it is below waist height so that the member itself provides protection against falls.

Except for the situations described below, when the arriving floor or roof member is within 2 to 3 inches of its final position, the designated erectors can then proceed to their position of erection at each end of the member under the control of the safety monitor. Crane hooks will be unhooked from double tee members by designated erectors under the direction and supervision of the safety monitor.

Designated erectors, while waiting for the next floor or roof member, will be constantly under the control of the safety monitor for fall protection and are directed to stay a minimum of six (6) ft from the edge. In the event a designated erector must move from one end of a member, which has just been placed at the leading edge, they must first move away from the leading edge a minimum of six (6) ft and then progress to the other end while maintaining the minimum distance of six (6) ft at all times.

Erection of double tees, where conditions require bearing of one end into a closed pocket and the other end on a beam ledge, restricting the tee legs from going directly into the pockets, require special considerations. The tee legs that are to bear in the closed pocket must hang lower than those at the beam bearing. The double tee will be "two-lined" in order to elevate one end higher than the other to allow for the low end to be ducked into the closed pocket using the following procedure.

The double tee will be rigged with a standard four-way spreader off of the main load line. An additional choker will be attached to the married point of the two-legged spreader at the end of the tee that is to be elevated. The double tee will be hoisted with the main load line and swung into a position as close as possible to the tee's final bearing elevation. When the tee is in this position and stabilized, the whip line load block will be lowered to just above the tee deck. At this time, two erectors will walk out on the suspended tee deck at midspan of the tee member and pull the load block to the end of the tee to be elevated and attach the additional choker to the load block. The possibility of entanglement with the crane lines and other obstacles during this two lining process while raising and lowering the crane block on that second line could be hazardous to an encumbered employee.

Therefore, the designated erectors will not tie off during any part of this process. While the designated erectors are on the double tee, the safety monitoring system will be used. After attaching the choker, the two erectors then step back on the previously erected tee deck and signal the crane operator to hoist the load with the whip line to the elevation that will allow for enough clearance to let the low end tee legs slide into the pockets when the main load line is lowered. The erector, who is handling the lowered end of the tee at the closed pocket bearing, will step out on the suspended tee. An erection bar will then be placed between the end of the tee leg and the inside face of the pocketed spandrel member. The tee is barred away from the pocketed member to reduce the friction and lateral force against the pocketed member. As the tee is being lowered, the other erector remains on the tee which was previously erected to handle the other end. At this point the tee is slowly lowered by the crane to a point where the tee legs can freely slide into the pockets. The erector working the lowered end of the tee must keep pressure on the bar between the tee and the face of the pocketed spandrel member to very gradually let the tee legs slide into the pocket to its proper bearing dimension. The tee is then slowly lowered into its final erected position.

The designated erector should be allowed onto the suspended double tee, otherwise there is no control over the horizontal movement of the double tee and this movement could knock the spandrel off of its bearing or the column out of plumb. The control necessary to prevent hitting the spandrel can only be done safely from the top of the double tee being erected.

**Loadbearing Wall Panels:** The erection of the loadbearing wall panels on the elevated decks requires the use of a safety monitor and a controlled access zone that is a minimum of 25 ft and a maximum of 1/2 the length of the wall panels away from the unprotected edge, so that designated erectors can move freely and unencumbered when receiving the panels. Bracing, if required for stability, will be installed by ladder. After the braces are secured, the crane will be disconnected from the wall by using a ladder. The wall to wall connections will also be performed from a ladder.

Non-Loadbearing Panels(Cladding): The locating of survey lines, panel layout and other installation prerequisites (prewelding, etc.) for non-loadbearing panels (cladding) will not commence until floor perimeter and floor openings have been protected. In some areas, it is necessary because of panel configuration to remove the perimeter protection as the cladding is being installed. Removal of perimeter protection will be performed on a bay to bay basis, just ahead of cladding erection to minimize temporarily unprotected floor edges. Those workers within 6 ft of the edge, receiving and positioning the cladding when the perimeter protection is removed shall be tied off.

#### Detailing

Employees exposed to falls of six (6) feet or more to lower levels, who are not actively engaged in leading edge work or connecting activity, such as welding, bolting, cutting, bracing, guying, patching, painting or other operations, and who are working less than six (6) ft from an unprotected edge will be tied off at all times or guardrails will be installed. Employees engaged in these activities but who are more than six (6) ft from an unprotected edge as defined by the control zone lines, do not require fall protection but a warning line or control lines must be erected to remind employees they are approaching an area where fall protection is required.

### IV. Conventional Fall Protection Considered for the Point of Erection or Leading Edge Erection Operations

#### A. Personal Fall Arrest Systems

In this particular erection sequence and procedure, personal fall arrest systems requiring body belt/harness systems, lifelines and lanyards will not reduce possible hazards to workers and will create offsetting hazards during their usage at the leading edge of precast/prestressed concrete construction.

Leading edge erection and initial connections are conducted by employees who are specifically trained to do this type of work and are trained to recognize the fall hazards. The nature of such work normally exposes the employee to the fall hazard for a short period of time and installation of fall protection systems for a short duration is not feasible because it exposes the installers of the system to the same fall hazard, but for a longer period of time.

1. It is necessary that the employee be able to move freely without encumbrance in order to guide the sections of precast concrete into their final position without having lifelines attached which will restrict the employee's ability to move about at the point of erection.

2. A typical procedure requires 2 or more workers to maneuver around each other as a concrete member is positioned to fit into the structure. If they are each attached to a lifeline, part of their attention must be diverted from their main task of positioning a member weighing several tons to the task of avoiding entanglements of their lifelines or avoiding tripping over lanyards. Therefore, if these workers are attached to lanyards, more fall potential would result than from not using such a device.

In this specific erection sequence and procedure, retractable lifelines do not solve the problem of two workers becoming tangled. In fact, such a tangle could prevent the lifeline from retracting as the worker moved, thus potentially exposing the worker to a fall greater than 6 ft. Also, a worker crossing over the lifeline of another worker can create a hazard because the movement of one person can unbalance the other. In the event of a fall by one person there is a likelihood that the other person will be caused to fall as well. In addition, if contamination such as grout (during hollow core grouting) enters the retractable housing it can cause excessive wear and damage to the device and could clog the retracting mechanism as the lanyard is dragged across the deck. Obstructing the cable orifice can defeat the device's shock absorbing function, produce cable slack and damage, and adversely affect cable extraction and retraction.

3. Employees tied to a lifeline can be trapped and crushed by moving structural members if the employee becomes restrained by the lanyard or retractable lifeline and cannot get out of the path of the moving load. The sudden movement of a precast concrete member being raised by a crane can be caused by a number of factors. When this happens, a connector may immediately have to move a considerable distance to avoid injury. If a tied off body belt/harness is being used, the connector could be trapped. Therefore, there is a greater risk of injury if the connector is tied to the structure for this specific erection sequence and procedure.

When necessary to move away from a retractable device, the worker cannot move at a rate greater than the device locking speed typically 3.5 to 4.5 ft/sec. When moving toward the device it is necessary to move at a rate which does not permit cable slack to build up. This slack may cause cable retraction acceleration and cause a worker to lose their balance by applying a higher than normal jerking force on the body when the cable suddenly becomes taut after building up momentum. This slack can also cause damage to the internal spring-loaded drum, uneven coiling of cable on the drum, and possible cable damage.

The factors causing sudden movements for this location include:

(a) Cranes

(1) Operator error.

(2) Site conditions (soft or unstable ground).

(3) Mechanical failure.

(4) Structural failure.

(5) Rigging failure.

(6) Crane signal/radio communication failure.

(b) Weather Conditions

(1) Wind (strong wind/sudden gusting) - particularly a problem with the large surface areas of precast concrete.

(2) Snow/rain (visibility).

(3) Fog (visibility).

(4) Cold - causing slowed reactions or mechanical problems.

(c) Structure/Product Conditions.

(1) Lifting Eye failure.

(2) Bearing failure or slippage.

(3) Structure shifting.

(4) Bracing failure.

(5) Product failure.

(d) Human Error.

(1) Incorrect tag line procedure.

(2) Tag line hang-up.

(3) Incorrect or misunderstood crane signals.

(4) Misjudged elevation of member.

(5) Misjudged speed of member.

(6) Misjudged angle of member.

4. Anchorages or special attachment points could be cast into the precast concrete members if sufficient preplanning and consideration of erectors' position is done before the members are cast. Any hole or other attachment must be approved by the engineer who designed the member. It is possible that some design restrictions will not allow a member to be weakened by an additional hole; however, it is anticipated that such situations would be the exception, not the rule. Attachment points, other than on the deck surface, will require removal and/or patching. In order to remove and/or patch these points, requires the employee to be exposed to an additional fall hazard at an

unprotected perimeter. The fact that attachment points could be available anywhere on the structure does not eliminate the hazards of using these points for tying off as discussed above. A logical point for tying off on double tees would be using the lifting loops, except that they must be cut off to eliminate a tripping hazard at an appropriate time.

5. Providing attachment at a point above the walking/working surface would also create fall exposures for employees installing their devices. Final positioning of a precast concrete member requires it to be moved in such a way that it must pass through the area that would be occupied by the lifeline and the lanyards attached to the point above. Resulting entanglements of lifelines and lanyards on a moving member could pull employees from the work surface. Also, the structure is being created and, in most cases, there is no structure above the members being placed.

(a) Temporary structural supports, installed to provide attaching points for lifelines limit the space which is essential for orderly positioning, alignment and placement of the precast concrete members. To keep the lanyards a reasonable and manageable length, lifeline supports would necessarily need to be in proximity to the positioning process. A sudden shift of the precast concrete member being positioned because of wind pressure or crane movement could make it strike the temporary supporting structure, moving it suddenly and causing tied off employees to fall.

(b) The time in manhours which would be expended in placing and maintaining temporary structural supports for lifeline attaching points could exceed the expended manhours involved in placing the precast concrete members. No protection could be provided for the employees erecting the temporary structural supports and these supports would have to be moved for each successive step in the construction process, thus greatly increasing the employee's exposure to the fall hazard.

(c) The use of a cable strung horizontally between two columns to provide tie off lines for erecting or walking a beam for connecting work is not feasible and creates a greater hazard on this multi-story building for the following reasons:

(1) If a connector is to use such a line, it must be installed between the two columns. To perform this installation requires an erector to have more fall exposure time attaching the cable to the columns than would be spent to make the beam to column connection itself.

(2) If such a line is to be installed so that an erector can walk along a beam, it must be overhead or below him. For example, if a connector must walk along a 24 in. wide beam, the presence of a line next to the connector at waist level, attached directly to the columns, would prevent the connector from centering their weight over the beam and balancing themselves. Installing the line above the connector might be possible on the first level of a two-story column; however, the column may extend only a few feet above the floor level at the second level or be flush with the floor level. Attaching the line to the side of the beam could be a solution; however, it would require the connector to attach the lanyard below foot level which would most likely extend a fall farther than 6 ft.

(3) When lines are strung over every beam, it becomes more and more difficult for the crane operator to lower a precast concrete member into position without the member becoming fouled. Should the member become entangled, it could easily dislodge the line from a column. If a worker is tied to it at the time, a fall could be caused.

## 6. The ANSI A10.14-1991 American National Standard for Construction and Demolition Operations -

Requirements for Safety Belts, Harnesses, Lanyards and Lifelines for Construction and Demolition Use, states that the anchor point of a lanyard or deceleration device should, if possible, be located above the wearer's belt or harness attachment. ANSI A10.14 also states that a suitable anchorage point is one which is located as high as possible to prevent contact with an obstruction below should the worker fall.

Most manufacturers also warn in the user's handbook that the safety block/retractable lifeline must be positioned above the D-ring (above the work space of the intended user) and OSHA recommends that fall arrest and restraint equipment be used in accordance with the manufacturer's instructions.

Attachment of a retractable device to a horizontal cable near floor level or using the inserts in the floor or roof members may result in increased free fall due to the dorsal D-ring of the full-body harness riding higher than the attachment point of the snaphook to the cable or insert (e.g., 6 foot tall worker with a dorsal D-ring at 5 feet above the floor or surface, reduces the working length to only one foot, by placing the anchorage five feet away from the fall hazard). In addition, impact loads may exceed maximum fall arrest forces (MAF) because the fall arrest D-ring would be 4 to 5 feet higher than the safety block/retractable lifeline anchored to the walking-working surface; and the potential for swing hazards is increased. Manufacturers also require that workers not work at a level where the point of snaphook attachment to the body harness is above the device because this will increase the free fall distance and the deceleration distance and will cause higher forces on the body in the event of an accidental fall.

Manufacturers recommend an anchorage for the retractable lifeline which is immovably fixed in space and is independent of the user's support systems. A moveable anchorage is one which can be moved around or which can deflect substantially under shock loading (such as a horizontal cable or very flexible beam). In the case of a very flexible anchorage, a shock load applied to the anchorage during fall arrest can cause oscillation of the flexible anchorage such that the retractable brake mechanism may undergo one or more cycles of locking/unlocking/locking (ratchet effect) until the anchorage deflection is dampened. Use of a moveable anchorage involves critical engineering and safety factors and should only be considered after fixed anchorage has been determined to be not feasible.

Horizontal cables used as an anchorage present an additional hazard due to amplification of the horizontal component of maximum arrest force (of a fall) transmitted to the points where the horizontal cable is attached to the structure.

This amplification is due to the angle of sag of a horizontal cable and is most severe for small angles of sag. For a cable sag angle of 2 degrees the horizontal force on the points of cable attachment can be amplified by a factor of 15.

It is also necessary to install the retractable device vertically overhead to minimize swing falls. If an object is in the worker's swing path (or that of the cable) hazardous situations exist: (1) due to the swing, horizontal speed of the user may be high enough to cause injury when an obstacle in the swing fall path is struck by either the user or the cable; (2) the total vertical fall distance of the user may be much greater than if the user had fallen only vertically without a swing fall path.

With retractable lines, overconfidence may cause the worker to engage in inappropriate behavior, such as approaching the perimeter of a floor or roof at a distance appreciably greater than the shortest distance between the anchorage point and the leading edge. Though the retractable lifeline may arrest a worker's fall before he or she has fallen a few feet, the lifeline may drag along the edge of the floor or beam and swing the worker like a pendulum until the line has moved to a position where the distance between the anchorage point and floor edge is the

shortest distance between those two points. Accompanying this pendulum swing is a lowering of the worker, with the attendant danger that he or she may violently impact the floor or some obstruction below.

The risk of a cable breaking is increased if a lifeline is dragged sideways across the rough surface or edge of a concrete member at the same moment that the lifeline is being subjected to a maximum impact loading during a fall. The typical 3/16 in. cable in a retractable lifeline has a breaking strength of from 3000 to 3700 lbs.

7. The competent person, who can take into account the specialized operations being performed on this project, should determine when and where a designated erector cannot use a personal fall arrest system.

## B. Safety Net Systems

The nature of this particular precast concrete erection worksite precludes the safe use of safety nets where point of erection or leading edge work must take place.

1. To install safety nets in the interior high bay of the single story portion of the building poses rigging attachment problems. Structural members do not exist to which supporting devices for nets can be attached in the area where protection is required. As the erection operation advances, the location of point of erection or leading edge work changes constantly as each member is attached to the structure. Due to this constant change it is not feasible to set net sections and build separate structures to support the nets.

2. The nature of the erection process for the precast concrete members is such that an installed net would protect workers as they position and secure only one structural member. After each member is stabilized the net would have to be moved to a new location (this could mean a move of 8 to 10 ft or the possibility of a move to a different level or area of the structure) to protect workers placing the next piece in the construction sequence. The result would be the installation and dismantling of safety nets repeatedly throughout the normal work day. As the time necessary to install a net, test, and remove it is significantly greater than the time necessary to position and secure a precast concrete member, the exposure time for the worker installing the safety net would be far longer than for the workers whom the net is intended to protect. The time exposure repeats itself each time the nets and supporting hardware must be moved laterally or upward to provide protection at the point of erection or leading edge.

3. Strict interpretation of 1926.502(c) requires that operations shall not be undertaken until the net is in place and has been tested. With the point of erection constantly changing, the time necessary to install and test a safety net significantly exceeds the time necessary to position and secure the concrete member.

4. Use of safety nets on exposed perimeter wall openings and opensided floors, causes attachment points to be left in architectural concrete which must be patched and filled with matching material after the net supporting hardware is removed.

In order to patch these openings, additional numbers of employees must be suspended by swing stages, boatswain chairs or other devices, thereby increasing the amount of fall exposure time to employees.

5. Installed safety nets pose an additional hazard at the perimeter of the erected structure where limited space is available in which members can be turned after being lifted from the ground by the crane. There would be a high probability that the member being lifted could become entangled in net hardware, cables, etc.

6. The use of safety nets where structural wall panels are being erected would prevent movement of panels to point of installation. To be effective, nets would necessarily have to provide protection across the area where structural supporting wall panels would be set and plumbed before roof units could be placed.

7. Use of a tower crane for the erection of the high rise portion of the structure poses a particular hazard in that the crane operator cannot see or judge the proximity of the load in relation to the structure or nets. If the signaler is looking through nets and supporting structural devices while giving instructions to the crane operator, it is not possible to judge precise relationships between the load and the structure itself or to nets and supporting structural devices. This could cause the load to become entangled in the net or hit the structure causing potential damage.

### C. Guardrail Systems

On this particular worksite, guardrails, barricades, ropes, cables or other perimeter guarding devices or methods on the erection floor will pose problems to safe erection procedures. Typically, a floor or roof is erected by placing 4 to 10 ft wide structural members next to one another and welding or grouting them together. The perimeter of a floor and roof changes each time a new member is placed into position. It is unreasonable and virtually impossible to erect guardrails and toe boards at the ever changing leading edge of a floor or roof.

1. To position a member safely it is necessary to remove all obstructions extending above the floor level near the point of erection. Such a procedure allows workers to swing a new member across the erected surface as necessary to position it properly without worrying about knocking material off of this surface.

Hollow core slab erection on the masonry wall requires installation of the perimeter protection where the masonry wall has to be constructed. This means the guardrail is installed then subsequently removed to continue the masonry construction. The erector will be exposed to a fall hazard for a longer period of time while installing and removing perimeter protection than while erecting the slabs.

In hollow core work, as in other precast concrete erection, others are not typically on the work deck until the precast concrete erection is complete. The deck is not complete until the leveling, aligning, and grouting of the joints is done. It is normal practice to keep others off the deck until at least the next day after the installation is complete to allow the grout to harden.

2. There is no permanent boundary until all structural members have been placed in the floor or roof. At the leading edge, workers are operating at the temporary edge of the structure as they work to position the next member in the sequence. Compliance with the standard would require a guardrail and toe board be installed along this edge. However, the presence of such a device would prevent a new member from being swung over the erected surface low enough to allow workers to control it safely during the positioning process. Further, these employees would have to work through the guardrail to align the new member and connect it to the structure. The guardrail would not protect an employee who must lean through it to do the necessary work, rather it would hinder the employee to such a degree that a greater hazard is created than if the guardrail were absent.

3. Guardrail requirements pose a hazard at the leading edge of installed floor or roof sections by creating the possibility of employees being caught between guardrails and suspended loads. The lack of a clear work area in which to guide the suspended load into position for placement and welding of members into the existing structure creates still further hazards.

4. Where erection processes require precast concrete stairways or openings to be installed as an integral part of the overall erection process, it must also be recognized that guardrails or handrails must not project above the surface of the erection floor. Such guardrails should be terminated at the level of the erection floor to avoid placing hazardous obstacles in the path of a member being positioned.

#### V. Other Fall Protection Measures Considered for This Job

The following is a list and explanation of other fall protection measures available and an explanation of limitations for use on this particular jobsite. If during the course of erecting the building the employee sees an area that could be erected more safely by the use of these fall protection measures, the foreman should be notified.

A. Scaffolds are not used because:

1. The leading edge of the building is constantly changing and the scaffolding would have to be moved at very frequent intervals. Employees erecting and dismantling the scaffolding would be exposed to fall hazards for a greater length of time than they would by merely erecting the precast concrete member.
2. A scaffold tower could interfere with the safe swinging of a load by the crane.
3. Power lines, terrain and site do not allow for the safe use of scaffolding.

B. Vehicle mounted platforms are not used because:

1. A vehicle mounted platform will not reach areas on the deck that are erected over other levels.
2. The leading edge of the building is usually over a lower level of the building and this lower level will not support the weight of a vehicle mounted platform.
3. A vehicle mounted platform could interfere with the safe swinging of a load by the crane, either by the crane swinging the load over or into the equipment.
4. Power lines and surrounding site work do not allow for the safe use of a vehicle mounted platform.

C. Crane suspended personnel platforms are not used because:

1. A second crane close enough to suspend any employee in the working and erecting area could interfere with the safe swinging of a load by the crane hoisting the product to be erected.
2. Power lines and surrounding site work do not allow for the safe use of a second crane on the job.

## VI. Enforcement

Constant awareness of and respect for fall hazards, and compliance with all safety rules are considered conditions of employment. The jobsite Superintendent, as well as individuals in the Safety and Personnel Department, reserve the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this program.

## VII. Accident Investigations

All accidents that result in injury to workers, regardless of their nature, shall be investigated and reported. It is an integral part of any safety program that documentation take place as soon as possible so that the cause and means of prevention can be identified to prevent a reoccurrence.

In the event that an employee falls or there is some other related, serious incident occurring, this plan shall be reviewed to determine if additional practices, procedures, or training need to be implemented to prevent similar types of falls or incidents from occurring.

#### VIII. Changes to Plan

Any changes to the plan will be approved by (name of the qualified person). This plan shall be reviewed by a qualified person as the job progresses to determine if additional practices, procedures or training needs to be implemented by the competent person to improve or provide additional fall protection. Workers shall be notified and trained, if necessary, in the new procedures. A copy of this plan and all approved changes shall be maintained at the jobsite.

## **ICE TECHNICAL SERVICES JOB SITE GENERAL WORK RULES**

### **1. Management Commitment and Employee Participation**

a. It is the policy of ICE TECHNICAL SERVICES, to ensure safe and healthful work and working conditions on the job site. Supervisory personnel must give priority to ensure that safe and healthful work practices are used at all times. Safety and health protection must receive priority over other organizational values.

b. The goal and objective of the program is to ensure a safe and healthful work environment.

c. The on site supervisor of each job will be responsible for implementing safety meetings on a weekly basis and ensuring a safe and healthful work environment is provided on a day to day basis.

d. The jobsite foreman is delegated the responsibility to maintain all necessary safety machinery, tools, materials and safeguards in a safe condition, available, in use prior to commencing work.

e. Employees shall follow safe practice rules and report all unsafe conditions or practices to the job site foreman. All employees shall report all injuries to their supervisor.

### **2. Work Site**

a. Hazards will be identified through surveys, inspections, and analysis of change to equipment, material and processes.

b. The onsite supervisor of each job will be responsible for providing regular safety and health inspections, investigating any accidents and near misses and providing analysis of the patterns of injuries and illnesses.

### **3. Hazard Prevention and Control**

a. Safe work practices and personal protective equipment must be in place and used at all times.

b. \_\_\_\_\_ will be responsible for preventive maintenance, planning and preparation for emergencies and providing access to appropriate medical care.

c. hazards identified through surveys and inspections will be corrected on a priority basis.

### **4. Safety and Health Training**

a. \_\_\_\_\_ will ensure that all employees have been instructed in safe and healthful work practices and in the recognition and avoidance of hazards associated with their work or process.

b. \_\_\_\_\_ will ensure that the job site supervisor understands his safety and health responsibilities to identify previously unrecognized hazards, maintain physical protections, and reinforce employee training through feedback on performance and enforcement when necessary.

## IMPLEMENTATION

To fully implement the safety program, ICE TECHNICAL SERVICES :

1. Holds a supervisory meeting for all of its supervisors at least annually.
2. Prepares at least annually a detailed description of all accidents including their causes and measures taken to prevent reoccurrence for distribution to all supervisory personnel.
3. Requires weekly safety training sessions on all projects and documents the topics and attendance.
4. Actively participates in safety programs available through membership in the Associated General Contractors or other professional organizations.
5. Avails itself of the technical expertise available to it through Consultation Services
6. Uses applicable resources and materials available to it through its insurance carrier.
7. Makes available free of charge to employees construction industry sponsored programs including but not limited to First Aid, CPR and Supervisory Training Programs.
8. Actively participates in totally available safety programs.
9. Uses the resources of its equipment and material suppliers to train its employees in the safe use of their equipment and materials.
10. Subscribes to safety periodicals to insure up to date, state of the art information on safety.
11. Collects where possible Material Safety Data Sheets on materials in use by the company.
12. Distributes copies of OSHA regulations and other standards to supervisory personnel.

## ICE TECHNICAL SERVICES JOB SITE HAZARDOUS COMMUNICATIONS

1. A list of hazardous chemicals on the work site can be found in the front section of the MSDS book. This book is found in the job shack for the project. When a job shack is not available, the MSDS book will be located in the foreman's truck.

2. All employees and subcontractors on site are responsible for reviewing the contents of the MSDS book which contains the listing of hazardous chemicals found on the job site, a copy of the company Hazardous Communication Plan and copies of the Material Safety Data Sheets. When a new hazardous chemical is introduced to the workplace, the worker bringing the chemical into the area is responsible for bringing an MSDS for that chemical and providing a copy of the MSDS to the foreman. The foreman will post the sheet in the book and inform the other workers of the dangers of the new chemical. The foreman responsible for this action is:

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3. All containers which contain hazardous chemicals will be labeled using the NFPA or similar system. Containers which are labeled by the manufacturer need not be re labeled by the workers, providing that the chemical is identified and the hazards are printed on the manufacturers label.

*THIS LIST IS NOT A COMPLETE LIST OF ALL APPLICABLE SAFETY RULES. IT IS INTENDED TO PROVIDE GENERAL GUIDANCE AND TO BE USED WHERE MORE SPECIFIC WORK PRACTICE GUIDES HAVE NOT BEEN ISSUED*

#### Abrasive Grinding

Abrasive wheel bench or stand grinders must have safety guards strong enough to withstand bursting wheels. Use the Ring Test to verify that the new grinding wheel that is being mounted on the machine is safe and sound.

Adjust work rests on grinders to a clearance not to exceed 1/8 inch between rest and wheel surface. Inspect and ring test abrasive wheels before mounting. Always leave wheel in working condition for next user. Properly dress wheel before using or/and when finished.

#### Alcohol and Controlled Substance Use

The use of alcohol or controlled substances during working hours on any Construction, Inc. project or any ICE TECHNICAL SERVICES facility shall be cause for immediate dismissal. Any individual who reports for work under the influence of alcohol or other controlled substance shall not be allowed to work.

#### Air Tools

Secure pneumatic tools to hose in a positive manner to prevent accidental disconnection. Install and maintain safety clips or retainers on pneumatic impact tools to prevent attachments from being accidentally expelled. All hoses exceeding 1/2 inch inside diameter require safety devices at source of supply to reduce pressure in case of hose failure.

#### Asbestos

No work involving contact with asbestos containing material will be performed without first contacting the General Superintendent for clearance to perform the work. All work will be performed in accordance with applicable OSHA, EPA, and local regulations. Workers suspecting that the operations of their contractors are releasing asbestos fibers into the work environment are requested to notify supervisory personnel of their suspicions.

#### Clothing

Proper clothing will consist of a minimum of sturdy work boots, long leg pants (free of holes) and a work shirt. Employees reporting to work not dressed properly may be sent home.

#### Confined Spaces

Work shall not be performed in confined spaces unless the atmosphere has been properly tested and adequate ventilation is available.

#### Compressed Air Use of

Compressed air used for cleaning purposes may not exceed 30 psi and then only in conjunction with effective chip guarding and personal protective equipment. Exceptions to 30 psi are allowed only for concrete form, mill scale, and similar cleaning operations. The use of compressed air to clean off yourself or other workers is not allowed.

#### Compressed Gas Cylinders

Put valve protection caps in place before compressed gas cylinders are transported, moved, or stored. Cylinder valves will be closed when work is finished and when cylinders are empty or being moved.

Compressed gas cylinders will be secured in an upright position at all times. Keep cylinders a safe distance or shield from welding or cutting operations and placed where they cannot become part of an electrical circuit. Oxygen and acetylene must not be stored together.

Oxygen and fuel regulators must be in proper working order while in use.

#### Disposal Chutes

Use an enclosed chute whenever materials are dropped more than 20 feet to any exterior point of a building.

When debris is dropped through floor holes without a chute, the area where the material is dropped must be enclosed with barricades at least 42 inches high and not less than 6 feet back from projected edges of opening above. Post warning signs at each level.

#### Electrical - General

All extension cords must be 3-wire type, protected from damage, and not fastened with staples, hung from nails, or suspended from wires. No cord or tool with a damaged ground plug may be used. Worn or frayed cables may not be used.

Except where bulbs are deeply recessed in reflector, bulbs on temporary lights will be equipped with guards. Temporary lights may not be suspended by their electric cords unless so designed.

Receptacles for attachment plugs will be of approved, concealed contact type. Where different voltages, frequencies, or types of current are applied, receptacles must be such that attachment plugs are not interchangeable.

Each disconnecting means for motors and appliances and each service feeder or branch circuit at point of origin must be legibly marked to indicate its purpose, unless located and arranged so purpose is evident.

Cable passing through work areas will be covered or elevated to protect from damage. Boxes with covers for disconnecting means must be securely and rigidly fastened to mounting surface.

No employees may work in proximity to any electric power circuit that may be contacted during course of work unless protected against electric shock by de-energizing circuit and grounding it or by guarding with effective insulation. In work areas where exact location of underground electric power lines is unknown, workmen using jackhammers, bars or other hand tools which may contact lines must wear insulated protective gloves.

#### Electrical - Grounding

15 and 20-ampere receptacle outlets on single-phase, 120-volt circuits for construction sites which are not a part of permanent wiring of the building or structure, must be protected by either ground-fault circuit interrupters or an assured equipment grounding conductor program.

An 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.

Inspect 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, before each day's use for external defects and possible internal damage. Remove from service or repair immediately any defective items.

Put valve protection caps in place before compressed gas cylinders are transported, moved, or stored. Cylinder valves will be closed when work is finished and when cylinders are empty or being moved.

Tests will 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. Grounding conductors will be tested for continuity. Each receptacle and attachment cap or plug will be tested for correct attachment of the equipment grounding conductor. Tests will be recorded. This test record must identify each receptacle, cord set, and cord and plug-connected equipment that passed the test, and will indicate the last date it was tested or the interval for which it was tested. No electrical tool or cord may be used unless it has been tested according to company's assured grounding program. The non current-carrying metal parts of fixed, portable and plug-connected equipment must be grounded except those protected by an approved system of double insulation. The path from circuits, equipment, structures, and conduit or enclosures to ground must be permanent and continuous and have ample current carrying capacity.

### Equipment Operation

No employee will operate electric, gas or hand powered tools or equipment unless familiar with use of the item and safety precautions required. Supervision will provide necessary safety information for all tasks and equipment.

### Eye and Face Protection

Eye and face protection will be provided and must be worn when machines or operations present potential eye or face injury.

Employees involved in welding operation must wear filter lenses or plates of the proper shade number.

Employees exposed to laser beams must use suitable laser safety goggles which will protect for the specific wave length of the laser and be optical density (O.D.) adequate for the energy involved.

Goggles will be worn over any employee owned prescription glasses that do not meet industrial safety standards.

### Fire Protection

Fire fighting equipment must be conspicuously located and readily accessible at all times, and periodically inspected and maintained in operating condition. Report any inoperative or missing equipment to supervision.

If the project includes automatic sprinkler protection, installation will closely follow construction and be placed in service, as soon as applicable laws permit, following completion of each story.

Fire extinguishers, rated not less than 2A, will be provided for each 3,000 square feet of building area, (or major fraction). Travel distance from any point to the nearest fire extinguisher may not exceed 100 feet with at least one extinguisher per floor.

In multi-story buildings, at least one fire extinguisher must be located adjacent to stairway.

### Flagmen

When signs, signals, and barricades do not provide necessary protection on or adjacent to a highway or street, flagmen or other appropriate traffic controls may be used. Flagmen will wear a red or orange warning garment.

Warning garments will be made of reflective material.

### Flammable and Combustible Liquids

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

No more than 25 gallons of flammable or combustible liquids may be stored in a room outside of an approved storage cabinet.

No more than 60 gallons of flammable or 120 gallons of combustible liquids may be stored in any one storage cabinet.

No more than three storage cabinets may be located in a single storage area. Inside orange rooms for flammable and combustible liquids must be of fire-resistive construction, with self-closing fire doors, 4-inch sills or depressed floors, a ventilation system of at least six air changes per hour, and electrical wiring and equipment approved for Class I, Division 1 locations.

Storage in containers outside buildings may not exceed 1,100 gallons in any one pile or area. Grade storage areas to divert possible spills away from building or other exposures, or surrounded with a curb or dike. Locate storage areas at least 20 feet from any building and keep free from weeds, debris, and other combustible materials.

Keep flammable liquids in closed containers when not in use.

Post conspicuous and legible signs prohibiting smoking in service and refueling areas.

Floor Openings. Open Sided Floors.

Guard openings with standard guardrails and toeboards or cover. Provide railing on all exposed sides, except at entrances to stairways.

Every open-sided floor or platform, 6 feet or more above adjacent floor or ground level, must be guarded by a standard railing, or equivalent, on all open sides except where there is entrance to a ramp, stairway, or fixed ladder.

Runways 4 feet or more high need standard railings on all open sides.

Guard floor openings or platforms with standard guardrails and standard toeboards on all exposed sides, except at entrance to opening, with passage through the railing provided by a swinging gate or offset so a person cannot walk directly onto opening.

Temporary floor openings will have standard railings or effective covers.

Floor holes into which persons can accidentally walk will be guarded by either a standard railing with standard toeboard on all exposed sides, or a standard floor hole cover.

While the cover is not in place, the floor hole will be protected by a standard railing.

Gases, Vapors, Fumes, Dusts and Mists

Exposure to toxic gases, vapors fumes, dusts, and mists at a concentration above those specified in the "Threshold Limit Values of Airborne Contaminants" should be avoided. When engineering and administrative controls are not feasible to achieve full compliance, protective equipment or other protective measures will be used to keep the exposure of employees to air contaminants within the limits prescribed. Any equipment and technical measures used for this purpose must be reviewed for each particular use by a technically qualified person. Employees will wear all furnished equipment at all times.

### Hand Tools

Employees will not use unsafe hand tools.

Wrenches may not be used when jaws are sprung to the point slippage occurs. Keep impact tools free of mushroomed heads. Keep wooden tool handles free of splinters or cracks and tight in the tool.

Electric power operated tools will either be approved double insulated, be properly grounded, or used with ground fault circuit interrupters.

### Hard Hats

Hard hats will be worn at all times on construction sites.

### Hearing Protection

Hearing protection will be worn in areas where sound levels may exceed 85 decibels.

### Heating Devices, Temporary

Fresh air must be present in sufficient quantities to maintain safety of workers. Solid fuel salamanders are prohibited in buildings and on scaffolds.

### Hoists, Material and Personnel

Rated load capacities, recommended operating speeds, and special hazard warnings or instructions posted on cars and platforms may not be exceeded. Material entrances will be protected by substantial full width gates or bars. Hoistway doors or gates of personnel hoists will be not less than 6 feet 6 inches high, and be protected with mechanical locks which cannot be operated from the landing side and are accessible only to persons on the car.

Provide overhead protective covering on the top of the hoist cage or platform.

### Horseplay

Horseplay and practical jokes are not allowed and can result in immediate disciplinary action.

### Housekeeping

Form and scrap lumber with protruding nails and all other debris, will be kept clear from work areas. Remove combustible scrap and debris at regular intervals. Containers will be provided for collection and separation of all refuse. Covers are required on containers used for flammable or harmful substances.

At the end of each portion of work return all tools and excess material to proper storage. Clean up all debris before moving on to next phase.

### Jointers

Each hand-fed planer and jointer with a horizontal head must be equipped with a cylindrical cutting head. Keep opening in the table as small as possible. Each hand-fed jointer with a horizontal cutting head must have an automatic guard to cover the section of the head on working side of fence or cage. Guards may not be removed.

A proper jointer guard will automatically adjust itself to cover unused portion of the head, and will remain in contact with material at all times. Each hand-fed jointer with horizontal cutting head must have a guard which will cover the section of the head back of the cage or fence.

### Ladders

The use of ladders with broken or missing rung or steps, broken or split side rails, or with other faulty or defective construction is prohibited. When ladders with such defects are discovered, withdraw them from service immediately. Place portable ladders on a substantial base at a 4-1 pitch, have clear access at top and bottom, extend a minimum of 36 inches above landing, or where not practical, provide grab rails. Secure against movement while in use.

Portable metal ladders may not be used for electrical work or where they may contact electrical conductors.

Job-made ladders will be constructed for their intended use. Cleats will inset into side rails 1/2 inch, or filler blocks used. Cleats will be uniformly spaced, 12 inches, top-to-top.

### Lasers

Only trained employees will be allowed to operate lasers. Employees will wear proper eye protection where there is a potential exposure to laser light greater than 0.005 watts (5 milliwatts).

Beam shutters or caps will be utilized, or laser turned off, when laser transmission is not actually required. When lasers are left unattended for a substantial period of time, turn them off.

### Lead

Incidental contact with lead or lead-based products is a possibility in construction. Prior to commencement of work, a qualified person, designated by the company, will make an initial determination as to what situations have the potential of presenting a lead exposure hazard. All employees will be trained in what to do in cases of encountering lead or lead-based products.

### Liquefied Petroleum Gas

Each system will have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type.

Every container and vaporizer must be provided with one or more approved safety relief valves or devices. Containers will be placed upright on firm foundations or otherwise firmly secured.

Portable heaters must be equipped with an approved automatic device to shut off the flow of gas in event of flame failure. Storage of LPG within buildings is prohibited. Storage locations must have at least one approved portable fire extinguisher, rated not less than 20-B.C.

Medical Services and First Aid

When a medical facility is not reasonable accessible, a person trained to render first aid will be available at the work site. First aid supplies must be readily available.

The telephone numbers of physicians, hospitals, or ambulances must be conspicuously posted.

#### Motor Vehicles and Mechanized Equipment

Check all vehicles in use at beginning of each shift to assure that all parts, equipment, and accessories affecting safe operation are in proper operating condition and free from defects. All defects shall be corrected before placing vehicle in service.

No employee shall use any motor vehicles, earthmoving, or compacting equipment having an obstructed view to the rear unless: vehicle has a reverse signal alarm distinguishable from surrounding noise level, or vehicle is backed up only when an observer signals it is safe to do so.

Heavy machinery, equipment, or parts thereof which are suspended or held aloft will be substantially blocked to prevent falling or shifting work under or between them.

No person shall operate a motor vehicle on a public highway without a valid drivers license.

#### Personal Protective Equipment (PPE)

The employee is responsible for wearing appropriate personal protective equipment in operations where there is exposure to hazardous conditions or where need is indicated to reduce hazards. A hazard analysis will be completed for each job to determine the correct PPE.

Lifelines, safety belts, and lanyard will be used only for employee safeguarding. Employees working over or near water, where danger of drowning exists, will wear U.S. Coast Guard-approved life jackets or buoyant work vests.

#### Powder-Actuated Tools

Only trained employees will be allowed to operate powder-actuated tools. All powder-actuated tools will be tested daily before use and all defects discovered before or during use will be corrected. Tools will not be loaded until immediately before use. Loaded tools will not be left unattended.

#### Power Transmission.

Mechanical belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded if such parts are exposed to contact by employees or otherwise constitute a hazard. No equipment may be used without guards in place.

### Railings

A standard railing will consist of top rail, intermediate rail, toeboard, and posts, and have a vertical height of approximately 42 inches from upper surface of top rail to floor, platform, etc. The top rail of a railing will be smooth-surfaced, with a strength to withstand at least 200 pounds. The intermediate rail will be approximately halfway between top rail and floor.

A stair railing will be of construction similar to a standard railing, but the vertical height will be not more than 34 inches nor less than 30 inches from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread.

### Respiratory Protection

In emergencies, or when feasible engineering or administrative controls are not effective in controlling toxic substances, approved respiratory protective equipment will be provided and used. Respiratory protective devices will be approved for the hazardous material involved and extent and nature of work requirements and conditions.

Employees required to use respiratory protective devices will be thoroughly trained to their use. Respiratory protective equipment will be inspected regularly and maintained in good condition.

### Rollover Protective Structures (ROPS)

Rollover protective structures (ROPS) standards apply to the following types of materials handling equipment: To all rubber-tired, self-propelled scrapers, rubber-tired front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler tractors, crawler-type loaders, and motor graders, with or without attachments, that are used in construction work.

### Safety Nets

Safety nets are required when workplaces are more than 25 feet above the surface and the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts is impractical.

### Safety Programs

The company makes available safety training programs covering construction hazards. All employees are requested to actively participate in these programs.

### Saws

All portions of band saws blades will be enclosed or guarded, except for working portion of blade between bottom of guide rolls and table.

Portable, power-driven circular saws will be equipped with guards above and below the base plate or shoe.

The lower guard will cover the saw to depth of teeth, except for minimum are required to allow proper retraction and contact with the work, and will automatically return to covering position when blade is removed from the work.

Radial Saws will have an upper guard which completely encloses upper half of the saw blade. The sides of lower exposed portion of blade will be guarded by a device that will automatically adjust to thickness of and remain in contact with material being cut. Radial saws used for ripping must have nonkickback fingers or dogs. Radial saws will be installed so the cutting head will return to starting position when released by operator.

All swing or sliding cut-off saws will be provided with a hood that will completely enclose upper half of saw. Limit stops will be provided to prevent swing or sliding type cut-off saws from extending beyond front or back edges of the table. Each swing or sliding cut-off saw will be provided with an effective device to return saw automatically to back of table when released at any point of its travel. Inverted sliding cut-off saws will be provided with a hood that will cover the part of the saw that protrudes above top of the table or material being cut.

Circular table saws will have a hood over portion of saw above the table, so mounted that the hood will automatically adjust itself to thickness of and remain in contact with material being cut. Circular table saws will have a spreader aligned with the blade, spaced no more than 1/2 inch behind largest blade mounted in saw. Circular table saws used for ripping will have non-kickback fingers or dogs. Feed rolls and blades of self-feed circular saws will be protected by a hood or guard to prevent hands of operator from coming in contact with inrunning rolls at any time.

#### Scaffolds (General)

Scaffolds will be capable of supporting 4 times-maximum intended load and erected on sound, rigid footing, capable of carrying the maximum intended load without settling or displacement. Guardrails and toeboards will be installed on all open sides and ends of platforms more than 10 feet above ground or floor, except needle beam scaffolds and floats which require the use of safety belts. Scaffolds 4 feet to 10 feet in height, having a minimum dimension in either direction of less than 45 inches, will have standard guardrails installed on all open sides and ends.

There will be a screen with maximum 1/2 inch openings between toeboard and guardrail, where persons are required to work or pass under scaffolds. Planking will be Scaffold Grade or equivalent as recognized by approved grading rules for species of wood used. Overlap scaffold planking a minimum of 12 inches or secure from movement.

Scaffold planks will extend over end supports not less than 6 inches or more than 12 inches. Scaffolding and accessories with defective parts will be immediately replaced or repaired. Wherever possible scaffold planks will be cleated.

### Scaffolds (Mobile)

Platforms will be tightly planked for full width of scaffold except for necessary entrance opening. Platforms will be secured in place.

Guardrails made of lumber, not less than 2 x 4 inches (or equivalent) approximately 42 inches high, with a midrail of 1 x 6 inch lumber (or equivalent), and toeboards will be installed at all open sides and ends on scaffolds more than 10 feet above ground or floor. Toeboards will be minimum 4 inches in height. Where persons are required to work or pass under scaffolds, install wire mesh between toeboard and guardrail.

### Scaffolds (Tubular Welded Frame)

Scaffolds will be properly braced by cross bracing or diagonal braces, or both, for securing vertical members together laterally. Cross braces will be of such length as will automatically square and align vertical members so erected scaffold is plumb, square, and rigid. All brace connections will be made secure.

### Stairs

Flights of stairs having four or more risers will be equipped with standard stair railings or handrails as specified below. On stairways less than 44 inches wide having one side open, at least one stair railing on the open side. On stairways less than 44 inches wide having both sides open, one stair railing on each side. On stairways more than 44 inches wide but less than 88 inches wide, one handrail on each enclosed side and one stair railing on each open side.

On all structures 20 feet or over in height, stairways, ladders, or ramps will be provided. Rise height and tread width will be uniform throughout any flight of stairs.

### Storage

All materials stored in tiers will be secured to prevent sliding, falling or collapse.

Aisles and passageways will be kept clear and in good repair.

Stored materials will not obstruct exits. Materials will be sorted with due regard to fire characteristics.

### Toilets

Toilets will be provided according to the following: 20 or fewer persons - one facility; 20 or more persons - one toilet seat and one urinal per 40 persons; 200 or more persons - one toilet seat and one urinal per 50 workers.

### Wall Openings

Wall openings, from which there is a drop of more than 4 feet, and the bottom of opening is less than 3 feet above working surface, will be guarded.

When the height and placement of the opening in relation to the working surface is such that a standard rail or intermediate rail will effectively reduce the danger of falling, one or both will be provided. The bottom of a wall opening, which is less than 4 inches above the working surface, will be protected by a standard toeboard or an enclosing screen.

### Welding Cutting and Heating

Proper precautions (isolating welding and cutting, removing fire hazards from the vicinity, providing a fire watch, etc.) for fire prevention will be taken in areas where welding or other "hot work" is being done. No welding, cutting or heating will be done where the application of flammable paints, or presence of other flammable compounds, or heavy dust concentrations creates a fire hazard. Equip torches with anti flashback devices.

Arc welding and cutting operations will be shielded by noncombustible or flameproof shields to protect employees from direct arc rays.

When electrode holders are left unattended, electrodes will be removed and holder will be placed or protected so they cannot make electrical contact. All arc welding and cutting cables will be completely insulated. There will be no repairs or splices within 10 feet of electrode holder, except where splices are insulated equal to the insulation of the cable. Defective cable will be repaired or replaced.

Fuel gas and oxygen hoses must be easily distinguishable and not interchangeable. Inspect hoses at beginning of each shift and repair or replace if defective.

General mechanical or local exhaust ventilation or air line respirators will be provided, as required, when welding, cutting or heating hazardous materials or in confined spaces. Always wear approved tinted eye protection when welding or in areas where welding is being done.

Wire Ropes. Chains. Ropes, Etc.

Wire ropes, chains, ropes and other rigging equipment will be inspected prior to use and as necessary during use to assure their safety. Remove defective rigging equipment from service immediately.

Job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other such attachments, will not be used. When U-bolts are used for eye splices, the U-bolt will be applied so the "U" section is in contact with dead end of rope.

Woodworking Machinery

All fixed power-driven woodworking tools will be provided with a disconnect switch that can be either locked or tagged in off position.

## JOB SITE REQUIREMENTS CHECKLIST

### TEMPORARY FACILITIES

- a. GFCI's or assured grounding program is required on this job site
- b. Site/storage layout for placement of materials, shanties, equipment, etc.
- c. Communication system
- d. Water (including drinking water) and sanitary facilities
- e. Jobsite security equipment (fencing, lights, etc.)
- f. Temporary access and parking facilities

### PAPER WORK REQUIREMENTS

- a. Copy of OSHA standards poster
- b. Posting area for employee notices
- c. Emergency phone numbers
- d. OSHA 200's Civilian Injury Log (must be posted in February)
- e. Copy of assured grounding program (if in use)
- f. Maintenance records for equipment (cranes, material hoists, etc.)
- g. Contractors safety program and rules
- h. Approvals (deep trenches, high scaffolds, demo surveys, shoring, etc.)
- i. Proof of training and safety instructions (lasers, powder actuated tools, first aid, etc.)
- J Written respiratory protection program (if respirators are in use)
- k. Required signs (Hard Hats, No Trespassing, Danger, Caution, etc.)
- l. Required special permits (burning, welding, traffic, etc.)
- m. Worker's comp notice, EEO, Minimum Wage, U/E Posters
- n. Accident and treatment report forms

### EMERGENCY NEEDS

- a. First aid trained personnel
- b. First aid kit (checked at least weekly)
- c. Fire extinguishers (or water equivalent)
- d. Emergency evacuations plans
- e. Contingency plans for severe weather
- f. Public safety requirements (fencing/signs)

## PROTECTIVE EQUIPMENT

- a. Hardhats
- b. Safety Glasses
- C. Respirators
- d. Ear Plugs
- e. Guarding material for perimeter scaffolds and floor holes
- f. Safety cans for flammable liquids
- g. Tagged alloy steel chains when used for rigging
- h. Safety belts, lifeline, and lanyards or nets where fall hazards exist
- i. Trench and excavation shoring materials when necessary
- J Personal Protective Equipment for visitors (Hardhat/glasses/ear plugs)

## GENERAL SAFETY REQUIREMENTS

- a. Cleanup schedule and waste disposal facilities
- b. Safe access (stairs, ladders, etc.)
- c. Safety library - manufacturers instructions, safety handbooks, data sheets, etc.
- d. Flashers, signals, barricades and reflective clothing for traffic controls

## MASONRY OPERATIONS

### SCAFFOLDING

- a. All scaffolding set on adequate level bearing
- b. All required bracing installed
- c. All guardrails, midrails and toeboards in place
- d. All scaffolds fully planked
- e. Proper tie-ins to prevent tipping
- f. No defective scaffolding units
- g. Ladders in place and high enough

## 2. EQUIPMENT

- a. All guards in place - saws, mixers, others
- b. Forklift bells, horns, alarms, fully functional
- c. Fuel stored in safety cans
- d. GFCI's or up to date Assured Grounding Program in use
- e. All cords of 3 wire type and in good operating condition

## 3. PERSONAL PROTECTIVE EQUIPMENT

- a. Hard hats worn by all
- b. Safety glasses and/or respirators available at saws
- c. hearing protection available where required

4 GENERAL

- a. First Aid personnel and equipment available
- b. Emergency phone numbers and phones available
- c. Material neatly and properly stored
- d. Good housekeeping practiced
- e. Sufficient fire extinguishers
- f. Proper light levels in work areas
- g. All hand tools in good working condition
- h. All floor and wall openings properly guarded
- i. All temporary heaters properly installed, maintained, and vented.

**MULTI CONTRACTOR CHECKLIST (Use to check on subcontractors)**

1. Job Site Safety program
  - a. Emergency facilities and/or first aid trained personnel
  - b. First aid facility (or kit)
  - c. Safety Bulletin Board with OSHA Poster and Emergency Phone Numbers
  - d. Safety Meetings
  - e. Safety Inspections
  - f. Accident Investigations
2. Safety rails and covers for openings
3. Fire protection program
4. Fire prevention
5. Street and sidewalk protection and maintenance
6. Special notices to utilities, adjoining property owners, etc.
7. Temporary water (installation, cost)
8. Temporary toilets
9. Temporary telephones
10. Temporary Heat (Prior to enclosure)
11. Temporary Heat (After enclosure)
12. Temporary power/light
13. Temporary ladders and temporary stairs including access ramps and runways
14. Allocation of site storage space
15. Jobsite security fence and maintenance
16. Temporary roads and parking area
17. Hoisting during construction
18. Hoisting after structure is complete
19. Required progress clean-up
20. Final clean-up and window washing
21. Road and street cleaning
22. Street repairs
23. Main building permit
24. Sidewalk or street use permit
25. Approach and driveway permits
26. Insurance and bonds
27. Performance and payment bonds
28. Job site sign
29. Watchman
30. Offices and sheds, owner-architect
31. Contractors office
32. Testing
  - a. Compaction
  - b. Concrete
  - c. Other materials

## Fire Extinguishers

Fire extinguishers must be checked on a monthly basis to insure that they are present and charged. Either use a tag on the extinguisher itself, or use some type of form to keep track of these inspections. Check extinguishers for the correct label, verify that the unit is charged correctly and “heft” the unit to verify that it is filled.

Fire extinguishers must be checked annually by the fire department for a hydrostatic test.

Month	<u>Location(s)</u>	<u>Inspected by</u>
JANUARY	_____	_____
FEBRUARY	_____	_____
MARCH	_____	_____
APRIL	_____	_____
MAY	_____	_____
JUNE	_____	_____
JULY	_____	_____
AUGUST	_____	_____
SEPTEMBER	_____	_____
OCTOBER	_____	_____
NOVEMBER	_____	_____
DECEMBER	_____	_____

## ACCIDENT INVESTIGATION

Because "Those who do not learn from the past are condemned to repeat it", each and every accident must be investigated.

An accident is any unplanned occurrence that could have caused injury or damage, not just occurrences that did. If a sling breaks and drops a load, it is an accident whether anyone was hurt or not.

Accidents should be investigated by immediate supervision. Results should be reported completely on a standard form. Completely is the key. In today's world of litigation an incomplete form is of no use three years down the road when the case comes to court.

The immediate supervisor's report should be reviewed by the safety director. Appropriate steps to prevent reoccurrence should be taken.

Accident reports highlight problem areas. Patterns can be detected and resources directed towards preventing a re-occurrence. Accident reports make excellent training tools. The causes and effects of accidents can be reviewed at safety meetings.

A complete accident report contains as a minimum;

1. Employee information - Name, address, social security number, sex, marital status, occupation, and birth date.
2. Worksite Information - Address of jobsite, employee occupation, environmental conditions.
3. Accident Data - Information on what employee was doing, how the accident happened, who was injured and where. Diagram should be included.  
Eyewitnesses - Names of eyewitnesses and their independent statements.
5. Safety Rules - What safety rules were in effect, what weren't that should have been. What could have been done to prevent the accident.
6. Analysis - Primary, secondary and contributory causes of the accident.
7. Corrective Action - What steps will be taken to prevent reoccurrence of this or similar incidents.

## Supervisor's Injury/Incident/Lost time Report

To: Safety Office

Thru: \_\_\_\_\_

From: \_\_\_\_\_ Date: \_\_\_\_\_

### How did it happen?

What is your interpretation:

	Date	Who		Where
What			How	

Names of Witnesses:

1. Were there (circle as appropriate):

Unsafe acts involved?

Unsafe acts involving other employees?

Unsafe conditions?

Unsafe Equipment?

No unsafe acts/conditions

2. Contributing factors (circle as appropriate):

Inadequate personnel protection

Poor Housekeeping

Defective equipment/tool/material

Personal protective equipment not used

Congestion in work area

Failure to follow safety procedures

Operating without authority

Inattentive operator

Inadequate lighting

Inadequate or no training

Inadequate ventilation

Poor workplace layout/design

Other \_\_\_\_\_

3. Has this problem been previously reported? Yes No (circle one)

4. Was this the employees regular job? Yes No (circle one)

5. Was the employee properly trained? Yes No (circle one)

6. Who trained the employee:

7. When did the training take place:

### PREVENTION

1. What actions have you taken to prevent this from happening again (immediate/long range):

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2. What is the likelihood of this accident recurring? (Circle one)

Almost never

50-50

Almost certain

3. Was disciplinary action taken? Yes/No

\_\_\_\_\_  
Supervisor signature\_\_\_\_\_  
Date\_\_\_\_\_  
Employee signature\_\_\_\_\_  
Date

## Rules for Contractors on Federal Installations

Contractors who receive money from the Federal Government are subject to inspections by OSHA as well as by other appointed Safety Officials, such as the Safety Office of the installation. Refusal to allow these persons to inspect ongoing operations could have a negative impact on the contract as well as future contracts with the Government. While OSHA inspectors can issue citations and fine a contractor, the Safety Office works with the Contracting Office to correct safety violations.

**FARS Section 52.235-13 Accident Prevention** (This clause advises contractors that the *Engineer Manual 385-1-1* is applicable to all DOD contracts and that this clause must be included in the original contract and any subcontracts for the project)

a) The Contractor shall provide and maintain work environment and procedures which will (1) safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities; (2) avoid interruptions of government operations and delays in project completion dates; and (3) control costs in the performance of this contract.

(b) For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall --

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR part 1926 and 29 CFR 1910; and

(3) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

(c) If this contract is for construction or dismantling, demolition or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

**Rules for Contractors on Federal Installations**  
(Continued)

(d) Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the Contractor or the Contractor's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

(e) The Contractor shall insert this clause, including this paragraph (e) with appropriate changes in the designation of the parties, in subcontracts.

(f) Before commencing the work, the Contractor shall--

(1) Submit a written proposed plan for implementing this clause. The plan shall include an analysis of the significant hazards to life, limb, and property inherent in contract work performance and a plan for controlling these hazards; and

(2) Meet with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

## Typical OSHA Citations given to contractors working under FARS

**Serious:** Each employee in an excavation was not protected from cave-ins by an adequate protective system designed in accordance with 29 CFR 1926.652(c). The employer had not complied with the provisions of 29 CFR 1926.652(b)(1)(i) in that the excavation was sloped at an angle steeper than one and one half horizontal to one vertical (34 degrees measured from the horizontal):

- a) Six foot deep trench for water at XXXXX Building, north wall near fence was essentially a vertical slope.

**Proposed Penalty to contractor: \$2500**

**Serious:** 29 CFR 1926.451(u)(3): Catch platforms were not installed as required below the working area of roofs more than 16 feet above the ground:

On or about June 23, 1994, employees covering the roof of building #1413 with tarps were exposed to a fall of 21 feet. The slope of the roof was 5" and 12", and safety belts and lifelines were not being used.

**Proposed Penalty to contractor: \$875**

**Serious:** 29 CFR 1926.651 (j)(2): Protection was not provided by placing and keeping excavated materials or equipment at least 2 feet (.61m) from the edge of excavations, or by the use of retaining devices that were sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary:

- a) Trench for water and sewer, XXXXX Building, spoil or excavated material piled at north edge of trench.

**Proposed Penalty to contractor: \$2500**

**Serious:** 29 CFR 1926.59(h): Employees were not provided information and training as specified in 29 CFR 1926.59(h)(1) and (2) on hazardous chemicals in their work area at the time of their initial assignment and whenever a new hazard was introduced into their work area:

Employees were not provided training in regard to the hazards associated with the use of portland cement and concrete block and the availability of material safety data sheets.

**Proposed Penalty to contractor: \$450**

## **SAMPLE SAFETY MEETINGS**

Tail Gate Meetings are normally held on each Friday on each of the projects at the job site location. The project supervisor receives the Safety Topic earlier in the week or selects a timely topic from the following list. The safety meeting is a short meeting, lasting between 5 and 15 minutes on the job site. Attendance is recorded on the attendance form. All individuals are required to print and sign their name on the attendance form which is turned into the office with that weeks time cards.

Subcontractors are expected to attend the safety meeting. If Subcontractors do not attend they are required to submit a record of their weekly safety training to the job site fore man.

Copies of the topic are passed out to those attending the meeting. The project supervisor selects an individual to read the topic out loud while others follow along. After the topic has been read there is an open discussion of the topic, with comments as to how the topic applies to the job site. Other items of safety interest are also discussed.

## Weekly Safety Meeting

**Organization Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Supervisor:** \_\_\_\_\_ **Location:** \_\_\_\_\_

**Topic of Meeting:** \_\_\_\_\_

\_\_\_\_\_

**Safety Reminders/Lessons Learned:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**MSDS Sheet Reviewed:** \_\_\_\_\_

**Meeting Attended by (Printed Name, then Signature)**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

Place your Weekly Safety Topics here

## **Tips for Digging!! - Safety Meeting -**

### **News Flash!!! Tragedy in Lake Woebegone, MN**

Minnesota's worst air disaster occurred earlier today when a Cessna 152, a small two-seater plane, crashed into a Norwegian Cemetery here early this morning. Ole and Swen, working as search and rescue workers, have recovered 826 bodies so far, and expect that number to climb as digging continues into the night.

- ❑ **Locate hidden obstructions-**  
Contact the diggers hotline to find the electric, telephone and fiber optic cables in your area.
- ❑ **Watch out for disturbed ground-**  
Use extra care when excavating in soil that had been backfilled previously or if there are indications that the soil has been disturbed.  
Trenches in soil that has been previously disturbed may require additional sheeting or bracing. Even though the soil may appear stable, if there is another trench nearby that old trench may have weakened the soil.  
Water that is running or standing near the trench can erode the soil and seep into the soil, weakening the trench walls.  
Thawing soil can become soupy and unstable as the weather warms.  
Watch for nearby buildings/sidewalks, pipes that run through your trench.  
Be on the lookout for sources of vibrations that can weaken your walls.
- ❑ **Competent Person Daily Inspection**  
Must be done daily, or whenever conditions change. The competent person must know about excavations, the OSHA regulations, how to use protective systems, how to recognize and test for hazardous atmospheres and changing soil condition as well as have the authority to take prompt corrective action when unsafe conditions arise.  
Check for access/egress to trench (ladder within 25 feet?)  
Spoil piles two feet away from edge of trench  
PPE being used in trench?  
Trench walls sloped/shore or shielded?
- ❑ **Classifying the soil**  
Type A, B or C soils- Determined by the Competent Person.  
Thumb test: If thumb doesn't penetrate past the tip of the thumbnail- Type A  
If thumb penetrates half way- Type B  
If thumb penetrates easily into soil sample- Type C
- ❑ **Sloping, shoring the trench**  
More than five feet? Slope or shield or shore the trench  
Possibility of soil movement? Slope or shield or shore the trench!  
If you have a doubt- Slope or shield or shore the trench!  
Type A slope: 3/4 to 1 ratio  
Type B slope: 1 to 1 ratios  
Type C slope: 1 ½ to 1 ratio

