

Introduction to Construction Safety Management

There are many serious hazards in the construction industry, including falling or being struck by heavy construction equipment. The information, tools, and resources provided in this course are designed to introduce you to the basic concepts and principles of effective construction safety management. This course will help you, whether you're a worker or an employer, to identify, reduce, and eliminate construction-related hazards.

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OSHAcademy Course 800 Study Guide

Construction Safety Management

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Contact OSHAcademy to arrange for use as a training document.

This study guide is designed to be reviewed off-line as a tool for preparation to successfully complete OSHAcademy Course 800.

Read each module, answer the quiz questions, and submit the quiz questions online through the course webpage. You can print the post-quiz response screen which will contain the correct answers to the questions.

The final exam will consist of questions developed from the course content and module quizzes.

We hope you enjoy the course and if you have any questions, feel free to email or call:

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Course Introduction

Construction is a high hazard industry that has a wide range of activities involving alteration, and/or repair. Examples include residential and commercial building construction, bridge erection, roadway paving, excavations, demolitions, and large-scale painting jobs.

Construction workers engage in many activities that may expose them to serious hazards, such as falling from rooftops, unguarded machinery, being struck by heavy construction equipment, electrocutions, silica dust, and asbestos.

This course is an introduction to Construction Safety and Health Management.

The information, tools, and resources provided in this course are designed to help you, whether you're a worker or an employer, to identify, reduce, and eliminate construction-related hazards.

Like all construction companies, you need to tailor your construction safety management system (CSMS) to your own specific work operations and work environments.

An effective CSMS has five primary elements:

- the safety culture
- involvement
- worksite analysis
- hazard prevention and control
- education and training

The standards apply to:

- All contractors who enter into contracts which are for construction, alteration, and/or repair, including painting and decorating [[29 CFR 1926.10\(a\)](#)].
- All subcontractors who agree to perform any part of the labor or material requirements of a contract [[29 CFR 1926.13\(c\)](#)].
- All suppliers who furnish any supplies or materials, if the work involved is performed on or near a construction site, or if the supplier fabricates the goods or materials specifically for the construction project, and the work can be said to be a construction activity [[29 CFR 1926.13\(c\)](#)].

Module 1: The Safety Culture

Before we get started, it is critical to understand that the only way your Construction Safety Management System (CSMS) will succeed is to make sure the underlying safety culture includes a real long-term serious commitment and tough-caring leadership by management.

This first module will briefly explore some of the important components that are necessary in an effective safety culture. By the way, if you are interested in developing your CSMS, be sure to take [Course 833, Developing a Construction Safety Management System](#).

Safety Culture Definition

Believe it or not, OSHA has a pretty good definition for a safety culture. OSHA defines culture as "a combination of an organization's, attitudes, behaviors, beliefs, values, ways of doing things, and other shared characteristics of a particular group of people".

It's important to understand that, from the employer's point of view, the company's corporate culture is something to be managed, but if you ask an employee to define culture, they will likely tell you it's just...

"...the way things are around here."

Commitment

The success of your company's CSMS depends on the willingness of top management to demonstrate a long term serious commitment to protect every employee from injury and illness on the job.

But how do you get top management commitment if you don't already have it? Real commitment doesn't just appear out of thin air.

Management commitment to safety will occur to the extent each manager clearly understands the positive benefits derived from their effort. Understanding the benefits will create a strong desire to do what it takes to improve the company's safety culture.

Managers will invest serious time and money into effective safety management by developing safety policies, programs, plans and procedures. They will also display leadership through effective accountability and recognition of behaviors and results.

Bottom line: Serious commitment requires serious time and money.

Leadership

Every day, construction workers, supervisors and managers have many opportunities to communicate and act in ways that demonstrate safety leadership. Unfortunately, these opportunities go unanswered because they are just not seen as real leadership opportunities.

Employers and managers do not understand that the simple expression of tough-caring safety leadership – being tough about safety standards because you care about the employee - can result in enormous benefits. The ability to perceive leadership opportunities improves the company's potential to succeed.

Tough-caring leaders also assume their workers, at all levels of the organization, are good people trying to do the best they can with the skills they have.

Employees, on the other hand, do not always have the physical resources and psychosocial support needed to achieve the kind of results expected of them. This is because they are not being provided with adequate physical resources (tools, equipment, machinery, materials, etc.) or the education, training, time, and consequences.

Effective leadership can overcome these challenges by providing the resources and training needed for their workers to excel.

Accountability

Accountability ranks right at the top with management commitment as a critical ingredient in a company's safety and health management system. Why do we behave the way we do in the workplace? Consequences. Why do we take the unsafe shortcut?

Accountability may be thought of as establishing the "obligation to fulfill a task to standard or else." When you are held accountable, your performance is measured against some specific criteria and consequences are applied appropriate to the level or quality of performance.

Example: If a builder has built a house for a man and his work is not strong, and if the house he has built falls in and kills the householder, that builder shall be slain. (King Hammurabi of Babylon, 18th Century B.C.)

“The ancient Romans had a tradition: whenever one of their engineers constructed an arch, as the capstone was hoisted into place, the engineer assumed accountability for his work in the most profound way possible: he stood under the arch.” (Michael Armstrong- Former CEO of AT&T, Hughes Electronics, and Comcast)

Management may impose all kinds of safety policies, programs, written plans, directives, rules, and training. However, if appropriate application of effective consequences within a culture of accountability does not exist, desired behaviors will not be sustained. If employees do not **believe** they are going to be held accountable for the decisions they make and the actions they take, you can be sure any safety effort is ultimately doomed to fail.

Six important elements should be present in an employer safety accountability system:

1. formal standards of performance
2. adequate resources and psychosocial support
3. a system of performance measurement
4. application of effective consequences
5. appropriate application of consequences
6. continuous evaluation of the accountability system

If you believe there are weaknesses in your employer's accountability system, make sure to document the behaviors and conditions you see in the workplace that may be pointing to accountability system policies, plans, processes, procedures and practices that are inadequate or missing. You can learn more about accountability systems in [courses 700](#) and [712](#).

Goals and Objectives

An effective CSMS will include stated goals and objectives.

First, it's good to initially develop general goals or "wishes" for your construction safety program. Look at the following general goals that would be included in the CSMS:

- designate a qualified safety person to coordinate the program
- plan for safety using a written Job Safety Analysis
- make regular job site safety inspections and conduct health monitoring
- follow safety procedures and rules
- provide on-going safety training
- enforce safety rules and use appropriate discipline

Safety objectives are measurable and more specific in terms of results. Here are some examples of operational safety objectives:

- "Increase the number of safety suggestions submitted each month to at least 15 by July 31st."
- "Reduce the number of back injuries in the warehouse by 70% by the end of 1997."
- "Lower our workers compensation rate to .9 by the end of the calendar year."

Safety and Health Policies

Safety policies help to set standards and guidelines for decision-making. They let managers, supervisors and employees make safety decisions with some degree of confidence without having to constantly check with "the boss." Managers, supervisors and workers know they are making decisions that conform to corporate safety policies.

Below are many points that would be good to adopt in your company's safety and health policy:

- No job or no task is more important than worker health and safety.
- If a job represents a potential safety or health threat, every effort will be made to plan a safe way to do the task.
- Every procedure must be a safe procedure. Shortcuts in safe procedures by either foremen or workers must not be tolerated.
- If a worker observes any unsafe condition, which may pose a potential threat to their health or safety, it should be expected that employees will immediately correct the situation when feasible or inform management. Management has the responsibility to take adequate precautions, comply with OSHA standards, and assure the safety and health of employees.
- If a job cannot be done safely it will not be done.
- Management should provide visible ongoing commitment, resources, and leadership to assure the implementation of the SHMS. All employees should be provided equally high quality safety and health protection.
- Leadership within a company should acknowledge the importance of creating a positive safety culture through employee involvement and effective policies and procedures.

Safety Programs

A safety “program” may be thought of as a plan of action to accomplish a safety objective. An effective safety program is designed around the processes, procedures, and practices normally assigned to employees and integrate safety-related decisions and precautions into them. Construction contractors must initiate and maintain such programs as may be necessary to comply with CFR 1926.20. Ref: 1926.20(b) See Module 7 for more information on Programs.

Responsibilities

It’s important to understand who is responsible for safety on the construction worksite. According to OSHA, there are four employer roles or categories on a multi-employer worksite:

1. **Creating employer:** the employer who caused a hazardous condition which violates an OSHA standard
2. **Exposing employer:** This is an employer whose own employees are exposed to the hazard.
3. **Correcting employer:** This is an employer who is engaged in a common undertaking, on the same worksite as the exposing employer, and is responsible for correcting a hazard. This usually occurs where an employer is given the responsibility of installing and/or maintaining safety/health equipment or devices.
4. **Controlling employer:** This is an employer who has general supervisory authority over the worksite, including the power to correct safety and health violations itself or require others to correct them. Control can be established by contract or, in the absence of explicit contractual provisions, by the exercise of control in practice.

The controlling contractor assumes all obligations under the standards, whether or not he subcontracts any of the work [29 CFR 1926.16(b)].

To the extent that a subcontractor agrees to perform any part of the contract, he assumes responsibility for complying with the standards with respect to that part [29 CFR 1926.16(c)].

With respect to subcontracted work, the controlling contractor and any subcontractors are deemed to have joint responsibility [[29 CFR 1926.16\(d\)](#)].

Construction companies should designate a person to coordinate, implement, and administer the construction safety management system (CSMS). Responsibilities include:

1. understand potential job hazards and how to eliminate them
2. conduct or assist with Job Safety Analysis
3. assure compliance with OSHA construction safety and health standard requirements
4. conduct regular job site safety and health inspections
5. establish safety and health procedures
6. coordinate regular safety and health training
7. conduct or assist with Tailgate or Tool Box Talks
8. maintain documentation of training, inspections, injuries and illnesses, and other safety records
9. participate in accident investigations and implementation of corrective actions
10. involve employees in the implementation of the SHMS
11. create statistical reports that compare severity and frequency rates against prior records

The Supervisor's Safety Responsibilities

The supervisor's attitude plays an important part in obtaining or preventing the acceptance of safe and healthful work practices, policies, and procedures. It is the supervisor's responsibility to identify potential hazards, identify methods to control or eliminate worksite hazards, ensure workers use safe and healthful work practices, and make sure everyone receives safety and health training to do their work.

Immediate supervisors should review, investigate, and take any necessary and appropriate action on all employee reports of hazards or potential hazards.

OSHA Requirements

- provide employees with sanitary and safe working conditions [29 CFR 1926.20(a)]
- assign safety and health responsibilities [29 CFR 1926.20(b)]
- give safety and health designees authority to correct hazards [29 CFR 1926.32(f)]

- ensure employees that they may voice safety and health concerns without fear of reprisal [29 CFR 1903.11(d)]
- inform employees of hazards [29 CFR 1926.21(b), 29 CFR 1926.33, 29 CFR 1926.59, 29 CFR 1926.454, 29 CFR 1926 Subpart Z]
- coordinate hazard communication with other employers on site [29 CFR 1926.59, 29 CFR 1926.65, 29 CFR 1926.652]
- post the OSHA State or Federal Poster [29 CFR 1903.2(a)]

Module #1 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. The underlying safety culture must include a real long-term serious commitment and tough-caring leadership by ____.**
 - a. management
 - b. employees
 - c. safety staff
 - d. workers

- 2. A ____ is defined as “a combination of an organization’s, attitudes, behaviors, beliefs, values, ways of doing things, and other shared characteristics of a particular group of people.”**
 - a. safety culture
 - b. safety policy
 - c. safety management system
 - d. the positive benefits

- 3. From the employer's point of view, a safety culture is ____.**
 - a. something that is managed
 - b. just the way things are
 - c. hard to manage
 - d. always unique and unmanageable

- 4. Which of the following is the employer that causes a hazardous condition on a worksite that violates an OSHA standard?**
 - a. Creating employer
 - b. Exposing employer
 - c. Correcting employer
 - d. Controlling employer

- 5. It is the supervisor's responsibility to do all of the following, except _____.**
- a. ensure workers know how to reply to OSHA questions
 - b. identify potential hazards
 - c. identify methods to control hazards
 - d. ensure workers use safe procedures

Module 2: Working with Contractors

Construction contractors are responsible for ensuring that all work under contract meets or exceeds the OSHA standards in addition to complying with the company's safety and health standards. The contractor is responsible for ensuring safe work performance of employees and subcontractors.

Construction contractors provide a variety of construction services, including:

- building construction and maintenance activities
- utilities and infrastructure construction
- grounds maintenance
- training and consultation
- installation, testing, calibration, repair, and maintenance of equipment and instruments

All of these work activities must be performed safely and in accordance with the applicable safety codes, standards and regulations.

Involvement Begins Before the Project Starts

It's important that the employer communicates about safety in all phases of the construction project. From the time the project is first conceived until it is finished, safety must be an important part of the development and planning process.

During the Pre-Award phase, requirements are developed, solicitations are sought, contractors are selected, and contracts are awarded. Key safety related efforts during this phase include:

- consideration of a contractor's past performance during the contractor selection process,
- establishment of appropriate safety and health requirements in contract specifications, and
- inclusion of applicable safety and health clauses.

The Pre-Bid Meeting

In the pre-bid meeting, contract safety requirements should be discussed, including:

- site specific safety plan
- designated safety representative identification and requirements
- daily pre-work coordination meetings
- safety enforcement policies and procedures
- drug screening
- identification of potential hazards
- defining hazard control responsibilities

The Pre-Mobilization Meeting

During the pre-mobilization meeting, the following should be discussed:

- contractual safety requirements
- site-specific safety plan
- pre-phase work plan discussion
- requirement for daily pre-task meetings
- requirements for safety talks, worker and supervisor training
- confirm assignment of safety responsibilities
- roles, responsibilities, accountability and authority of the owner, general contractor and all contractor personnel

Contractor Selection Criteria

It's traditional to select construction contractors based on three criteria:

- low bidder
- lower bidder
- lowest bidder who can start now

However, in a world-class construction company that understands the importance of safety, they will not make a decision based solely on cost. They will use the following criteria:

- Total Days Away, Restricted, or Job Transferred Rate (DART) should be below national average
- Total Case Incidence Rate (TCIR) should be below the national average
- Experience Modification Rate (EMR) of less than 1.0 for past three years, and improving.
- Past safety performance
- Site-specific safety plan development
- Key management and worker training and experience

Experience Modification Rate (Mod Rate or EMR)

Experience Modification Rate (EMR) has strong impact upon a business. It is a number used by insurance companies to gauge both past cost of injuries and future chances of risk. The lower the EMR of your business, the lower your worker compensation insurance premiums will be. An EMR of 1.0 is considered the industry average. (Source: Safety Management Group).

According to the Michigan Construction Users Council (MCUC), the following EMR chart indicates the relative effectiveness of a contractor's CSMS.

0.30 - 0.71 = Superior – Distinguished results

0.72 - 0.81 = Effective – Impressive results – Obvious commitment

0.82 – 1.04 = Average – Within industry norm

1.05 – 1.29 = Inadequate – Conspicuous past problems

1.30 – 2.05 = Poor – Lack of safety involvement

As you can see, safety is a serious consideration when choosing contractors to work on the construction project. Using these criteria will not only result in selecting a higher level of contractor safety, it will also result in selecting a contractor that will be more professional in all aspects of the contracted work that will be performed.

DART Rate

The "DART" (Days Away, Restricted, or Job Transferred) is another incident rate used in all industries. The DART Rate is the number of CASES with days away from work or job transfer or restrictions (cases on the OSHA 300 log with either column H or I checked) multiplied by 200,000 divided by total hours worked by all employees during the year covered. You can compute the DART Rate using the following formula:

Calculating the DART Rate

DART = **D**ays **A**way, **R**estricted, or **T**ransferred

$$\text{DART Rate} = \frac{N}{EH} \times 200,000$$

Where:

N = Number of DART incidents

EH = Total hours worked by all employees during the calendar year.

200,000 = The number of hours for 100 full-time-equivalent workers (working 40 hours per week, 50 weeks per year.)

On construction sites, the total number of hours worked by all employees will include your own employees, your temporary employees, and contractors directly supervised by you **plus** all contractor/subcontractor employees.

Total Case Incident Rate (TCIR)

The **Total Case Incident Rate, or "TCIR"** is a common method used to report workplace injuries. It is defined as the average number of work-related injuries incurred by 100 workers during a one-year period. When using the TCIR to report workplace injuries, it allows a comparison of accident and injury statistics across industries, among industry segments, and from one year to the next.

The TCIR is typically calculated as follows:

$$\text{TCIR} = \frac{200,000 \times \text{annual \# of injuries/illnesses}}{\text{annual total \# of hours worked}}$$



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For example, if an employer with 50 workers reported 10 injuries in 2013, and workers in that industry worked 1,000,000 hours that year, then the 2013 TCIR for that employer would be:

$$\text{TCIR} = \frac{200,000 \times 10}{1,000,000} = \frac{2,000,000}{1,000,000} = 2.0$$



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Experience Modification Rate (Mod Rate or EMR)

The Experience Modification Rate (EMR) has strong impact upon a business. It is a number used by insurance companies to gauge both past cost of injuries and future chances of risk. The lower the EMR of your business, the lower your worker compensation insurance premiums will be. An EMR of 1.0 is considered the industry average. (Source: Safety Management Group).

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Key Players

The contractor, the owner, general contractor, project manager, site superintendent, and safety manager, should all have:

- previous experience on similar type construction projects
- previous experience on projects of similar size
- a history of success on previous projects

All managers on the construction site should be competent in safety management. Workers should be competent in the work they are performing. Heavy equipment operators should all be able to show written documentation providing proof of competency. Also, a trained on-site healthcare provider or nurse should be present on large projects (more than \$75 million).

Project Designers

Project designers that are involved in the construction phase should do the following:

- Identify the impact of changes in your design on the health and safety of those involved in the project.
- Provide sufficient information on health and safety associated with your design and planning to those who need it, so they can conduct the necessary training if needed.
- Cooperate and coordinate with the contracted parties, and, where appropriate, other designers/advisers involved in the project.
- Provide ongoing advice and information, if requested, regarding the head contractor's health and safety plan (such as by advising of any changes to planned activities).

- Make sure other designers/advisers and contractors continue to carry out their duties and coordinate with others on the project (such as by asking for regular written activity reports or holding site meetings).

Head Contractors

The general or head contractor on site should do the following:

- Develop and carry out a site-specific health and safety plan.
- Make sure any contractor engaged to carry out construction work is competent and has made suitable provisions for health and safety.
- Obtain and check site-specific safety plans from subcontractors.
- Make sure the coordination and cooperation of subcontractors regarding:
 - information and on-site activity (such as site meetings, site procedures)
 - appropriate communication arrangements between contractors on site for health and safety
 - arrangements for discussing health and safety matters with people on site (such as setting regular toolbox/tailgate meeting times)
 - incident and accident reporting
- Make sure training for health and safety is carried out.
- Make arrangements to monitor health and safety performance (such as reports, audits and inspections).
- Make arrangements to pass on information from the client or designer/adviser to other contractors and employees (such as activity reports).
- Make arrangements to control visitor access, including such things as delivery of materials.

Subcontractors

Subcontractors on site should do the following:

- Develop a site-specific safety plan for your work activity.

- Identify the hazards of your work, assess the risks arising from them, and tell the head contractor and client about how these risks will be controlled.
- Obtain evidence of the training and competence of your subcontractors and employees.
- Keep the head contractor informed of any dangerous incident or accident.
- Provide the head contractor with the information needed for health and safety management.
- Cooperate with the head contractor and other contractors on health and safety matters.
- Follow any directions of the client or head contractor so that they can meet their obligations.
- Provide information and training to your employees on site.

Module #2 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. Requirements are developed, solicitations are sought, contractors are selected and contracts are awarded during the ____.**
 - a. post-award phase
 - b. construction phase
 - c. concept phase
 - d. pre-award phase

- 2. All of the following should be discussed in the pre-bid meeting, except ____.**
 - a. safety enforcement policies and procedures
 - b. drug screening
 - c. identification of local OSHA representatives
 - d. defining hazard control responsibilities

- 3. All of the following should be discussed in the pre-mobilization meeting, except ____.**
 - a. pre-phase work plan discussion
 - b. response to OSHA citations
 - c. requirement for pre-task meetings
 - d. confirm assignment of safety responsibilities

- 4. Which of the following is a characteristic of a world-class company that understands the importance of safety?**
 - a. An experience modification rate (EMR) of .50
 - b. An experience modification rate (EMR) of 1.00
 - c. An experience modification rate (EMR) of 1.50
 - d. An experience modification rate (EMR) of 2.50

- 5. The contractor should have all of the following, except ____.**
- a. previous experience on similar type construction projects
 - b. previous experience on projects of similar size
 - c. a history of success on previous projects
 - d. a TCIR above the national average

Module 3: Involvement in Safety

Management and Employees Must Be Involved

Employee involvement provides the means through which workers develop and express their own commitment to safety and health.

The best safety and health management systems involve employees at every level of the organization. Employees are often those closest to the hazard, and have the most first-hand knowledge of workplace hazards. Clearly, the employer has ultimate responsibility for its workers; however, using employees' knowledge and experience to help identify and resolve problems can make the system more effective.

It's difficult to have an effective safety and health program without developing a corporate safety culture which encourages genuine employee involvement. When you mention involvement in safety, most people think only about "employee" involvement, but to do it right, management should be out front and involved.

Management needs to lead by example and that means communicating and following through with action. This module will discuss some of the components of employer and employee involvement in safety.

Responding to Safety and Health Issues

Management in your company should take prompt consistent action when responding to safety and health issues. Doing so will demonstrate their commitment to addressing safety and health concerns and encourage employee participation.

Management should respond to employees' reports of actual or potential hazards and any other safety concerns employees might have. There should be an effective process for employees to report such hazards.

The employee reporting a real or potential hazard should be notified by management of the outcome in a timely manner. Reporting hazards should be made without fear of reprimand or any safety reporting process is doomed to failure.

Employee Participation

The employees in your company should be given an opportunity to provide input regarding recommendations on safety and health products, procedures, and training as it pertains to daily

work operations. For example, employees could be given some responsibility to test out products or conduct research to substantiate recommendations.

Employee input could be provided through the suggestion system, the reporting of hazards, or through actions the safety and health committee initiate. Employees could participate in a variety of ways such as; a trainer, inspector, or problem solver.

Exercise Programs

More than a third of all accepted disabling claims are sprains/strains and other musculoskeletal disorders. Although construction work will always include lifting, carrying, and pulling (among others), many contractors have made great strides in preventing these types of injuries through pre-task planning, employee involvement, medical management, and training their crews to recognize risk factors and best practices.

Safety Inspections

One of the best ways employees can participate in the company's safety program is to help conduct safety inspections. This gives employees a greater sense of ownership in safety and it can be a real educational experience too!

Depending on the hazardous nature of the construction on the worksite, weekly or daily inspections may be needed to effectively identify hazards and unsafe actions.

Safety Recognition Programs

It's important to understand designing, developing and deploying safety "programs" is basically a management function requiring effective organizational skill. Many companies develop and implement formal safety recognition programs because that is what they've been told works best and that is what everyone else does.

There are many different types of safety recognition program strategies used and promoted these days. Of course, some are more effective than others, but there is certainly no one-fits-all program. To be successful, the recognition program should fit the unique culture of the organization.

For instance, you can't have a highly successful safety recognition program in an oppressively authoritarian corporate culture displaying tough-coercive leadership due to the lack of positive relationships between managers and employees.

A recognition program, within a controlling (typical) safety culture will usually think a “managed” program is necessary to be successful. The “suggestion box” is likely to be used to maintain anonymity which is a symptom of a lack of trust. It just won’t work.

On the other hand, a world-class safety culture may not have the need to develop a managed safety recognition program with formal procedures: why?

Because managers will likely perceive the process of recognition as their opportunity to demonstrate leadership through recognition so that ultimately, positive working relationships are established or reinforced. You can learn more about leadership styles and recognition systems in Course 700.

The Construction Safety Committee

The purpose of a safety and health committee is to give employees the ability to participate in the implementation of the safety and health system that exists within your company.

The committee in your company should be comprised of management and employee representatives. The committee should meet at least monthly.

The committee should:

- have defined goals and objectives
- address safety and health issues
- record and post minutes of the meetings
- involve employees in problem solving
- document action taken and post on the bulletin boards for all employees to read and or comment
- have a formal agenda

Suggestion Program

The employees in your company should be encouraged to make safety and health suggestions to help improve a process, prevent an accident, or to make any improvement in the safety and health system.

The suggestion system should be implemented by a designated person, usually the safety director, who will be responsible for determining priority and the proper means of

implementation. It's important to remember that in effective safety cultures, it's not necessary to have a policy that anonymity will be assured because a high level of trust exists between managers and employees.

Safety suggestions should be shared with the Safety and Health Committee for input. Suggestion forms may be placed in suggestion boxes or given directly to a designated person such as the immediate supervisor or safety committee chairperson.

Employee Right to Communicate

OSHA requires an employer make sure employees are able to voice safety and health concerns without fear of reprisal. Think about it- would a perception of reprisal for voicing a safety concern benefit the company? No way!

More specifically, no person will discharge or in any manner discriminate against any employee because the employee has:

1. filed any complaint or instituted or caused to be instituted any proceeding under or related to the OSH Act
2. testified or is about to testify in any such proceeding
3. has exercised any right afforded by the OSH Act behalf of himself or others

Prior to or during an OSHA inspection of a workplace, any employee or representative (usually a union person) may notify an OSHA Compliance Safety and Health Officer, in writing, of any violation of the Act which they have reason to believe exists in such workplace.

Gaining Recognition

If your construction company shows safety as a top priority, you may receive some recognition from national safety organizations.

Let's take a closer look at an example from Opp Construction in Grand Forks, North Dakota:

Opp Construction was named the nation's safest construction company in 2012 by the Associated General Contractors of America. Organizers of the top award say Opp Construction won the award because of its "exceptional leadership in safety." The association's president added this company was "dedicated to the development and implementation of premier safety and loss prevention programs. "

“Opp Construction also showed outstanding guidance in safety and occupation health management, risk control, safety training, work site hazard identification and control, and safety program innovation.”

[Read Full Article](#)

Module #3 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. A construction safety committee should do all of the following, except ____.**
 - a. meet at least once a month
 - b. develop defined goals and objectives
 - c. document actions taken
 - d. recommend employee reprimands

- 2. Reporting hazards should be ____ or any safety reporting process is doomed to failure.**
 - a. only a management responsibility
 - b. only an employee responsibility
 - c. made without fear of reprimand
 - d. considered a planned activity

- 3. Who should be on a member of the construction safety committee?**
 - a. Both employee and manager representative
 - b. Employee representatives
 - c. Management representatives
 - d. Safety staff

- 4. In an effective CSMS, it is ____ to maintain anonymity when submitting safety suggestions.**
 - a. necessary
 - b. unnecessary
 - c. a good idea
 - d. required

5. No person will discharge or in any manner discriminate against any employee because the employee has done any of the following, except_____.

- a. filed a complaint with OSHA
- b. notified OSHA about a violation
- c. testified in an OSHA proceeding
- d. informed local media about a violation

Module 4: CSMS and Worksite Analysis

Plan for Worksite Analysis

When planning for a construction worksite analysis, be sure to include the following five processes:

1. a comprehensive baseline survey
2. Identify hazards
3. job hazard analyses (JHA)
4. periodic and daily safety inspections
5. change analysis

The Comprehensive Baseline Survey

A comprehensive baseline survey should include a review of previous accidents, injuries, and illnesses; complaints; previous studies; etc. Comprehensive surveys should be performed depending on the business size and nature of the hazards at least every three years by private consultants, an insurance company, and/or state-funded programs.

The baseline survey should include a review of the following:

1. copies of written inspections and surveys by the fire department, and in-house as required by safety and health standards (e.g., overhead crane inspections, powered industrial truck daily inspection, etc.)
2. employee report of hazards or potential hazards
3. accident and incident investigations with corrective actions and follow-up
4. injury and illness trend analysis
5. personal protective equipment assessment
6. ergonomic analysis
7. specific identification of confined spaces

8. identification of energy sources for specific machines

As part of the worksite analysis process, the employer/general contractor should also require subcontractors to perform a baseline analysis as necessary in accordance with OSHA and company requirements. The subcontractors should share pertinent information with the general contractor, and/or other subcontractors.

Change Analysis

As you know, change is continuous on a construction worksite. Change analysis is simply the management of that change, conducted by competent persons, to make sure it does not introduce new hazards or unsafe procedures in the work environment.

A designated person should analyze how changes on the worksite can affect equipment, processes, and materials for hazards and potential hazards. Findings should be documented and plans developed to minimize or design out the new hazards.

Changes in the following categories need to be reviewed:

1. worksite layout
2. materials
3. process technology
4. equipment

To more specifically analyze how changes to worksite layout, materials, processes and equipment, affect the work being conducted, include the following in your analysis:

- site entrance and traffic routes/surfaces
- covered walkways
- protection from falling objects
- danger areas
- storage and personnel areas
- hazardous materials/dangerous goods
- barriers and fences

- loading and unloading areas
- bays and ramps
- working slopes for excavators, dump trucks etc.
- safety signage
- protection of pedestrians
- site security
- housekeeping and cleanliness

Job Hazard Analysis (JHA)

A Job Hazard Analysis is a technique that focuses on job tasks as a way to identify hazards before they occur. It focuses on the relationship among the worker, the task, the tools, and the work environment. Ideally, after you identify uncontrolled hazards, you will take steps to eliminate or reduce them to an acceptable risk level.

A JHA should be conducted for all hazardous jobs/procedures to determine potential hazards and identify methods to reduce exposure to those hazards at construction worksites. Here are the steps in a basic JHA:

1. List the steps in the job or procedure.
2. Describe the safety and health hazards in each step.
3. Develop preventive measures.
4. Write a safe job procedure.

Click [here](#) to see a sample JHA.

You can also learn more about conducting a JHA in [course 706](#).

Safety Inspections and Reports

Employees play a key role in identifying, controlling, and reporting hazards that may occur or already exist in your workplace. Safety inspection reports of potential hazards can be an effective tool to trigger a closer look at a piece of equipment, operation, or how work is being performed. Reports of potential hazards can also provide suggestions to eliminate a hazard.

There are many positive reasons for conducting safety inspections, including:

- helping ensure compliance with OSHA and meet other legal responsibility
- involving both management and employees
- identifying areas of high risk and controlling hazards
- developing positive attitudes - demonstrating leadership
- suggesting better methods of doing procedures safely

OSHA Requirements

The following is a list of topics relevant to worksite analysis by identifying worksite hazards.

- evaluate operations, procedures, facilities, and equipment to identify hazards [[29 CFR 1926.20\(a\)](#), [29 CFR 1926.21\(b\)](#)]
- monitor exposure levels [[29 CFR 1926.55](#), [29 CFR 1926.62](#), [29 CFR 1926 Subpart Z](#), [29 CFR 1926.1101](#)]
- ensure regular safety and health inspections [[29 CFR 1926.20\(b\)\(2\)](#), [29 CFR 1926.703\(b\)](#), [29 CFR 1926.1081](#)]
- conduct accident investigations [[29 CFR 1904.4](#)]
- determine if engineering or administrative controls or personnel protective equipment are to be used [[29 CFR 1926.103](#), [29 CFR 1926.951](#)]

Module #4 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. When planning for a construction worksite analysis, be sure to conduct a/an _____.
a. OSHA inspection
b. safety committee meeting
c. comprehensive baseline survey
d. work permit review**

- 2. All of the following should be included in a comprehensive baseline survey, except _____.
a. DOL reports
b. hazard surveys
c. employee reports of hazards
d. personal protective equipment**

- 3. Which of the following analysis techniques include a review of worksite layout, materials being used, processes, and equipment?
a. Pareto Analysis
b. Cost-Benefit Analysis
c. OSHA inspections
d. Change Analysis**

- 4. All of the following should be reviewed to more specifically analyze how changes that affect safety occur on the worksite, except _____.
a. emergency routes
b. employee work schedules
c. covered walkways
d. barriers and fences**

- 5. All of the following are good reasons to conduct daily safety inspections on the worksite, except _____.**
- a. suggesting better methods
 - b. involving both management and employees
 - c. identifying who is at fault
 - d. identifying areas of high risk

Module 5: Hazard Prevention and Control

Controlling Exposure - The Hierarchy of Controls

Controlling exposures to worksite hazards is the fundamental method of protecting workers on a construction site. Traditionally, the widely-accepted hierarchy of controls has been used as a means of determining how to implement feasible and effective controls.

ANSI/AIHA Z10-2005 discusses the five control measures below:

1. elimination
2. substitution
3. engineering controls
4. administrative controls
5. personal protective equipment

The idea behind this hierarchy is that the control methods at the top of the list are potentially more effective and protective than those at the bottom. Following the hierarchy normally leads to the implementation of inherently safer systems. The risk of illness or injury should be substantially reduced. Let's take a closer look at each of the control measures.

Elimination

The best control measure to control a hazard is to eliminate it. If you don't have the hazard, you won't get injured. While elimination is the most effective at reducing hazards, it also tends to be the most difficult to implement in an existing process.

If the construction project is still at the design or development stage, elimination and substitution of hazards may be inexpensive and simple to implement. For an existing process, major changes in equipment and procedures may be required to eliminate or substitute for a hazard.

Substitution

The next best control measure is to substitute something else in its place that would be non-hazardous or less hazardous to workers. For example, a non-toxic (or less toxic) chemical could be substituted for a hazardous one.

Engineering Controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The initial cost of engineering controls can be higher than the cost of administrative controls or personal protective equipment, but over the longer term, operating costs are frequently lower, and in some instances, can provide a cost savings in other areas of the process. Engineering controls should be designed to make it difficult for employees to defeat the controls.

Engineering controls include methods such as using noise dampening technology to reduce noise levels; enclosing a chemical process in a Plexiglas "glove box"; using mechanical lifting devices; or using local exhaust ventilation that captures and carries away the contaminants before they can get in the breathing zone of workers.

Administrative Controls

If engineering controls cannot be implemented, or cannot be implemented right away, administrative controls should be considered. These methods for protecting workers have also proven to be less effective than other measures, requiring significant effort by the affected workers. Administrative controls work only so long as employee behavior conforms to standards.

Administrative controls involve changes in workplace policies and procedures. They can include such things as:

- warning alarms
- labeling systems
- reducing the time workers are exposed to a hazard
- training

For example, workers could be rotated in and out of a hot area rather than having to spend eight hours per day in the heat. Back-up alarms on trucks that are backing up are an example of effective warning systems. However, warning signs used instead of correcting a hazard that can and should be corrected are not acceptable forms of hazard control.

Personal Protective Equipment (PPE)

PPE is the last resort and least effective means of controlling exposure to hazards because of the high potential for damage to render PPE ineffective. Again, the success of this control measure depends not only on the quality of the PPE, but also the quality of human behavior.

PPE should be used only while other more effective controls are being developed or installed, or if there are no other more effective ways to control the hazard.

This is because:

- The hazard is not eliminated or changed.
- If the equipment is inadequate or fails, the worker is not protected.
- No personal protective equipment is fool-proof (for example, respirators leak).
- Personal protective equipment is often uncomfortable and can place an additional physical burden on a worker.
- Personal protective equipment can actually create hazards. For example, the use of respirators for long periods of time can put a strain on the heart and lungs.
- While there are some jobs, such as removing asbestos, where wearing adequate personal protective equipment is absolutely essential, there are many jobs where employers hand out personal protective equipment when in fact they should be using more effective hazard control methods.

Other Methods to Prevent and Control Hazards

Let's take a look at some of the programs and processes that will help the company prevent and control typical hazards on a construction worksite.

Worksite Inspections

Your company should conduct daily worksite inspections. Hazards should be documented, reviewed, and corrections should be made in a timely manner. More detailed, written inspections should be conducted by a designated person on a weekly or monthly basis.

Your company's Safety Coordinator or other designated safety person should tour each job site and observe potential safety/health hazards, and develop a plan for safeguarding the workers, which may include the following:

1. removing the hazard
2. guarding against the hazard as required by OSHA
3. providing personal protective equipment and enforcing its use
4. training workers in safe work practices
5. coordinating protection of workers through other contractors

A record of all safety inspections and correctional steps should be kept.

Analyze Past Accident Investigations

All accidents in your workplace resulting in injury or property damage should be investigated. By using the information gained through analysis of accident investigations occurring on previous projects, a similar, or perhaps more disastrous, accident may be prevented.

Control of Hazardous Energy

The control of hazardous energy through lockout/tagout procedures assures that you and other employees are protected from unintended machine motion or unintended release of energy which could cause injury. This includes electricity, water, steam, hydraulic, gravity, and many other sources of stored energy.

All sources of energy must be shut off, de-energized at the source, and locked-out prior to you or any other employee beginning work around or on the potential hazard.

Confined Space Entry

Analyze the project for the potential for confined spaces. Workers should not enter confined spaces without proper training and management authorization.

A confined space is defined as the following:

1. space that is NOT DESIGNED FOR CONTINUOUS employee OCCUPANCY
2. large enough and so configured that a person can bodily enter into and perform assigned work
3. has LIMITED or RESTRICTED means for ENTRY or EXIT

Confined spaces that may have a HAZARDOUS ATMOSPHERE require special precautions. Hazardous atmospheres are those that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue caused by:

- flammable gas
- airborne combustible dust
- atmospheric oxygen concentration below 19.5 or above 23.5%
- a toxic atmosphere or substance
- danger of engulfment

Analyze Fall Hazards

Each year, falls consistently account for the greatest number of fatalities in the construction industry. A number of factors are often involved in falls, including:

- unstable working surfaces
- misuse or failure to use fall protection equipment
- human error

Studies have shown that using guardrails, fall arrest systems, safety nets, covers and restraint systems can prevent many deaths and injuries from falls.

Analyze the project to determine if you will be using:

- aerial lifts or elevated platforms to provide safer elevated working surfaces
- guardrail systems with toeboards and warning lines or install control line systems to protect workers near the edges of floors, roofs, and floor holes
- safety net systems or personal fall arrest systems (body harnesses)

Analyze for Excavation Hazards

The primary hazard of trenching and excavation is employee injury from collapse. Soil analysis is important in order to determine appropriate sloping, benching, and shoring.

Additional hazards include working with heavy machinery; manual handling of materials; working in proximity to traffic; electrical hazards from overhead and underground power-lines; and underground utilities, such as natural gas.

Analyze for Hazardous Chemicals

Analyze the project for the potential for hazardous chemicals requiring a Hazard Communications Program (HCP) to ensure all workers know about the chemicals that they work with and work around.

The HCP involves the following elements:

1. written hazard communication program
2. training on the chemicals your company uses
3. labeling: using properly labeled containers
4. Safety Data Sheets (SDS): SDS must be readily available onsite - workers must know where to find SDS and be able to read and properly utilize an SDS.
5. Posting signs to inform employees of the location of MSDS and when new chemicals are brought on the job site.
6. Informing other contractors: if using chemicals around other contractors, it is your responsibility to inform the other contractors of the hazards involved. Every effort must be made to keep other contractors safe from the chemicals in use. Typically, the general contractor onsite will need to coordinate all chemical use of all contractors to maintain a safe workplace.

Note: Your written Hazard Communication program should outline the specific details of the elements listed above.

Analyze Electrical Hazards

Many construction workers are unaware of the potential electrical hazards present in their work environment. This could make them more vulnerable to the danger of electrocution.

Experts in electrical safety have traditionally looked toward the widely used National Electrical Code (NEC) for help in the practical safeguarding of persons from these hazards.

Electrical safety in construction involves two primary issues:

- powerlines
- temporary and permanent electrical wiring and equipment

Module #5 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. Which of the following is the fundamental method of protecting workers on a construction site?**
 - a. Controlling exposures to hazards
 - b. A cost-benefit analysis
 - c. OSHA inspections
 - d. Employee interviews

- 2. Which hazard control strategy is the most effective at reducing hazards, yet also tends to be the most difficult to implement in an existing process?**
 - a. Elimination
 - b. Engineering controls
 - c. Administrative controls
 - d. Personal protective equipment

- 3. Engineering controls should be designed to make it _____ for employees to defeat the controls.**
 - a. simple
 - b. easy
 - c. difficult
 - d. complicated

- 4. As a hazard control measure, _____ is the last resort and least effective means of controlling exposure to hazards because of the high potential for damage to render it ineffective.**
- a. use of barriers
 - b. personal protective equipment
 - c. engineering controls
 - d. substitution
- 5. Which of the following consistently accounts for the greatest number of fatalities in the construction industry?**
- a. Poisoning
 - b. Heat stress
 - c. Crushed-by accidents
 - d. Falls

Module 6: Education and Training

Introduction

This module will introduce you to general OSHA requirements for education and training in the construction industry. We will not only look at the minimum requirements, but also address best practices in effective safety and health education programs.

The employer should conduct safety training courses and educational programs to help broaden worker and manager knowledge/skills to recognize, avoid, and prevent safety and health hazards on jobsites.

To learn more about safety education and training, be sure to complete OSHA Academy courses 703, 721, and 723.

Informing Employees of Hazards

It's very important for the employer to establish safety education and training for employees so that they know how to avoid and prevent of unsafe conditions at the construction worksite.

Employers should also educate all employees on how to control or eliminate any hazards to which they are exposed.

Employees required to handle or use poisons, caustics, and other harmful substances should be instructed on how to safely handle and use them, and first aid procedures if exposure occurs. Employees should also be made aware of the potential hazards, personal hygiene, and personal protective measures required.

Employees required to enter into confined or enclosed spaces should be instructed as to the nature of the hazards involved, the necessary precautions to take, and how to use protective and emergency equipment.

Employers must inform employees about the hazards of all classified chemicals produced or imported.

Employees who perform work while on a scaffold must be trained by a qualified person to:

1. recognize the hazards associated with the type of scaffold being used
2. understand the procedures to control or minimize those hazards

The employer must inform workers on the physical and health hazards associated with toxic and hazardous substances to which employees may be exposed on the worksite.

Employers must provide workers and their designated representatives a right of access to relevant exposure and medical records. Employers must provide OSHA representatives access to these records in order to fulfill responsibilities under the OSH Act.

Implementing Education and Training

The company should provide safety information and training to assure the requirements of OSHA standards are met and it should continuously evaluate employee training needs to keep workers safe and healthy on the job.

New Employee Orientation

New employees should receive training on your company's safety and health management system, safe work practices and expectations, and specific safety and health training for the tasks that they will perform.

After inspecting a job site, a designated person should identify and evaluate all potential hazards that may cause serious injuries and increase the probability of an accident. Actions will be taken to minimize the hazards and protect the workers.

The Safety Coordinator or other designated site safety person will appraise the skill and knowledge level of exposed workers, and provide any needed training. Appropriate training should be provided where it is needed.

The following things must also be done when training new employees:

- Hazards must be identified.
 - Necessary precautions will be explained.
 - Training length and level of detail should be determined by the severity of the hazards and the requirements of OSHA.
1. Records should be maintained for all training sessions with descriptions of topics covered and names of workers trained.
 2. Crew or construction group should conduct toolbox talks (weekly or daily). The topics covered should include:

- the safe work practices necessary for that day's work
- any safety concerns workers may have
- brief refresher training on relevant safety topics (topics to be provided by the Safety Coordinator)

A Simple Seven Step On-The-Job Training (OJT) Process

Safety training should be simple training. It should be done where the task is performed, and hopefully the supervisor is conducting the training. Here is a seven-step OJT training process that helps to ensure new employees don't get hurt while being trained. Now I know that might sound funny, but it happens regularly.

Step 1- Introduction: State and discuss the learning objectives and answer any questions the employee may have. Discuss the acceptable standards of knowledge and performance. Tell the trainee what you're going to train. Emphasize the importance of the procedure to the success of the production/service goals.

Step 2- Trainer shows and tells: In this step the trainee becomes familiar with each work practice and why it is important. Review the initial conditions for the procedure. Demonstrate the process, carefully explaining each step as you go. Answer questions and continue to demonstrate and explain until the employee understands what to do, when and why to do it, and how to do it.

Step 3- Learner tells - Trainer shows: This step is necessary when exposure to hazards inherent in the procedure could cause serious harm. It protects the trainee because the trainer performs the procedure. The trainee explains the procedure to the trainer, while the trainer does it.

Step 4: Learner shows and tells: The trainer has the trainee do it. The trainee explains the step, gets permission to perform the step and then carries out the step. This step is very important when training tasks that might result in serious physical injury or death if not performed correctly.

Step 5- Conclusion: Recognize accomplishment: "Good job!" Reemphasize the importance of the procedure and how it fits into the overall process. Tie the training again to accountability by discussing the natural and system consequences of performance.

Step 6- Validate: After the conclusion of the OJT session, observe the employee perform in the actual workplace and question the employee to validate that the training has been successful and that the employee has adequate knowledge, skills, and a proper attitude about the work.

Step 7- Document: The well-known OSHA adage, "if it isn't in writing, it didn't get done," is true for any kind of safety training. For OJT training, documentation should be more than an attendance sheet.

To document the training, the trainee certifies:

1. training was accomplished
2. questions were answered
3. opportunities provided to do procedure
4. accountabilities understood
5. intent to comply

The instructor certifies the trainee has:

- demonstrated adequate knowledge
- developed the skills to complete the procedures

We have included a sample training certification in the final two sections of this module, and you can learn more about the OJT process in [OSHAcademy Course 723](#).

[Training Requirements in OSHA Standards and Training Guidelines](#). OSHA's Training Requirements Guide. Here's a great booklet that covers many OSHA training requirements and also gives you some ideas on training strategies.

Safety and Health Work Observations

Safety and health work observations should be performed periodically by supervisors or designated observers. Observations may be conducted randomly in an informal program, or they may be planned when a formal observations program (Behavior Based Safety Program) is part of the CSMS.

Safety and health work observations ensure:

- an employee has the knowledge to perform the work as trained
- the employee is actually performing their work task safely

Specific observations or audits are especially critical for lockout/tagout, confined space, fall protection and other programs where the risk of exposure to hazards is high. Results should be documented and follow-up training should be provided as needed. This process helps assure safety and health training is effective.

OSHA Requirements

- Train employees to recognize hazards [[29 CFR 1926.21\(b\)\(2\)](#), [29 CFR 1926.65](#), [29 CFR 1926.302\(e\)](#), [29 CFR 1926.1060](#)].
- Train workers to recognize and avoid unsafe conditions [[29 CFR 1926.21\(b\)\(2\)](#), [29 CFR 1926.65](#), [29 CFR 1926.454](#), [29 CFR 1926.901\(c\)](#)].
- Provide training on safe work practices and applicable standards [[29 CFR 1926.21\(b\)](#)].
- Provide training on safe operation of equipment and machinery [[29 CFR 1926.20\(b\)\(4\)](#), [29 CFR 1926.302\(e\)](#)].
- Provide training on hazards of access ladders and stairways [[29 CFR 1926.1060\(a\)](#), [29 CFR 1926.454](#), [29 CFR 1926.800\(b\)](#) and [\(c\)](#)].
- Provide training on confined and enclosed space entry hazards and precautions [[29 CFR 1926.21\(b\)\(6\)](#), [29 CFR 1926.353\(b\)](#), [29 CFR 1926.801](#)].

Sample Training Certification – Page 1

Training Subject _____ Date _____ Location _____

Trainee Certification of Training

I have received on-the-job training on those subjects listed (see other side of this sheet): This training has provided me adequate opportunity to ask questions and practice procedures to determine and correct skill deficiencies. I understand that performing these procedures/practices safely is a condition of employment. I fully intend to comply with all safety and operational requirements discussed. I understand that failure to comply with these requirements may result in progressive discipline (or corrective actions) up to and including termination.

#	Employee Name	Signature	Date
1	_____	_____	_____
2	_____	_____	_____

Trainer Certification of Competency

I have conducted orientation/on-the-job training to each employee listed above. I have explained related procedures, practices and policies. Each employee was given opportunity to ask questions and practice procedures in the learning environment. Based on each student's performance, I have determined that each employee trained has adequate knowledge and skills to safely perform these procedures/practices.

Trainer Name Signature Date

Supervisor Certification of Competency

I observed/interviewed the above employees on _____ date(s). Each employee demonstrated adequate knowledge and skills to safely perform all steps of the procedures/practices in the work environment (at their workstation, worksite, etc).

Supervisor Name Signature Date

Sample Training Certification – Page 2

The benefit of including this second page in the document is that it can also serve as a lesson plan for your training. The learning objects you've written will help you develop the list of subjects and performance exercises. It outlines the subjects and exercises that need to be conducted to make sure required training is accomplished.

The following information was discussed with students: (check all covered subjects)

- Overview of the hazard communication program - purpose of the program
- Primary, secondary, portable, and stationary process container labeling requirements
- Discussion of the various sections of the MSDS and their location
- Emergency and Spill procedures
- Discussion of the hazards of the following chemicals to which students will be exposed
- Symptoms of overexposure

Use/care of required personal protective equipment used with the above chemicals

Employee accountability

The following practice/performance exercises were conducted:

Spill procedures

Emergency procedures

Personal protective equipment use

The following written test was administered: (Or "Each student was asked the following questions:") (Keep these tests as attachments to the safety training plan and merely reference it here to keep this document on one sheet of paper)

1. What are the labeling requirements of a secondary container? (name of chemical, and hazard warning)
2. When does a container change from a portable to secondary container? (when employee loses control)
3. What are the symptoms of overexposure to ____? (stinging eyes)
4. Where is the "Right to Know" station (or MSDS station) located? (in the production plant)
5. What PPE is required when exposed to ____? (short answer)
6. How do you clean the PPE used with ____? (short answer)
7. What are the emergency procedures for overexposure to ____? (short answer)
8. Describe spill procedures for _____. (short answer)
9. When should you report any injury to your supervisor? (immediately)
10. What are the consequences? if you do not follow safe procedures with this chemical (injury, illness, discipline)

Module #6 Quiz

Use this quiz to self-check your understanding of the module content. You can also go online and take this quiz within the module. The online quiz provides the correct answer once submitted.

- 1. The employer must inform employees on the _____ associated with toxic and hazardous substances to which employees may be exposed on the worksite.**
 - a. OSHA rules
 - b. NEBOSH requirements
 - c. physical and health hazards
 - d. history

- 2. Training length and level of detail should be determined by the severity of the hazards and _____.**
 - a. local governmental rules
 - b. OSHA requirements
 - c. the types of hazards
 - d. the potential for hazards

- 3. Employees who perform work while on a scaffold must be trained by a _____.**
 - a. representative of OSHA
 - b. another worker
 - c. qualified worker
 - d. safety staff

- 4. Tool-box talks should include all of the following, except _____.**
- a. safe work practices
 - b. worker safety concerns
 - c. names of workers receiving reprimands
 - d. review of relevant safety topics
- 5. Specific observations or audits are especially critical for each of the following safety programs, except _____.**
- a. behavior-based safety
 - b. lockout/tagout
 - c. confined space
 - d. fall protection

Module 7: Getting Started

Steps to Identify OSHA Requirements

This module provides information to help you get started in building a CSMS. You're in luck! The information in this module is not testable (but it's very important). Follow the steps below to identify the major OSHA construction requirements and guidance materials that may apply to your construction jobsite.

These steps will lead you to resources on OSHA's website that will help you comply with OSHA requirements and prevent workplace injuries and illnesses.

Step 1: [OSHA Requirements Related to Leading Hazards at Construction Sites](#)

Step 2: [Other OSHA Requirements That May Apply to Your Jobsite](#)

Step 3: [Survey Your Workplace for Additional Hazards](#)

Step 4: [Develop a Jobsite Safety and Health Program](#)

Step 5: [Train Your Employees](#)

Step 6: [Recordkeeping, Reporting and Posting](#)

Step 7: [Find Additional Compliance Assistance Information](#)

Now, let's take a closer look at each step below.

Step 1: OSHA Requirements Related to Leading Hazards at Construction Sites

The following resources will introduce you to OSHA requirements that address some of the leading hazards at construction sites.

1. **Falls** consistently account for the greatest number of fatalities in the construction industry. If you have employees who work six or more feet above a lower level, you must provide fall protection.
 - Read an OSHA Fact Sheet: [Preventing Falls in Construction](#).
Also available as a 1 MB [PDF](#) - 353 KB]
 - Read the standards
 - [29 CFR 1926 Subpart M](#)

- [OSHA Safety and Health Topics Page: Fall Protection - Standards](#)
 - Review fall protection information for specific operations or types of construction:
 - Residential construction: [OSHA Fall Protection in Residential Construction](#)
 - Steel erection: [OSHA Construction eTool: Steel Erection - Fall Protection](#)
 - Learn more
 - [OSHA Safety and Health Topics Page: Fall Protection](#)
 - [OSHA Campaign to Prevent Falls in Construction](#)
 - [OSHA Construction eTool: Falls](#)
 - [OSHA Pocket Guide: Construction](#). OSHA Publication 3252 (2005). Also available as a 288 KB [PDF](#).
2. **Stairways and Ladders:** Working on and around stairways and ladders can be hazardous. Stairways and ladders are major sources of injuries and fatalities among construction workers.
- Review an OSHA booklet: [Stairways and Ladders](#). OSHA Publication 3124 (2003). Also available as a 156 KB [PDF](#).
 - Read the standards
 - [29 CFR 1926 Subpart X](#)
 - [OSHA Safety and Health Topics Page: Walking/Working Surfaces - OSHA Standards](#)
 - Learn more
 - [OSHA Safety and Health Topics Page: Walking/Working Surfaces](#)
 - [OSHA Construction eTool: Misuse of Portable Ladders](#)
3. **Scaffolding:** Do you use scaffolding on your jobsite?
- Review an OSHA booklet: [A Guide to Scaffold Use in the Construction Industry](#). OSHA Publication 3150 (2002). Also available as a 2 MB [PDF](#).

- Read the standards
 - [29 CFR 1926 Subpart L](#)
 - [OSHA Safety and Health Topics Page: Scaffolding - OSHA Standards](#)
- Learn more
 - [OSHA Safety and Health Topics Page: Scaffolding](#)
 - [OSHA Construction eTool: Scaffolding](#)
- 4. **Electrical:** Almost all construction employers must consider the hazards associated with electricity (i.e., electric shock, electrocution, fires and explosions).
 - Review OSHA booklets
 - [Controlling Electrical Hazards](#). OSHA Publication 3075 (2002)
 - Read the standards
 - [29 CFR 1926 Subpart K](#)
 - [OSHA Safety and Health Topics Page: Electrical - Standards](#)
 - Learn more
 - [OSHA Safety and Health Topics Page: Electrical](#)
 - [OSHA Construction eTool: Electrical Incidents](#)
- 5. **Trenching and Excavation** are among the most hazardous construction operations.
 - Read a QuickCard: [Working Safely in Trenches](#) [PDF* - 322 KB] OSHA Publication 3243 (2011) (English and Spanish)
 - Read an OSHA Fact Sheet: Trenching and Excavation Safety: [English](#) [PDF* - 249 KB] and [Spanish](#) [PDF* - 282 KB]
 - Get a poster: Trenching Poster: [English](#) [PDF* - 249 KB] OSHA Publication 3215 (2011) and [Spanish](#) [PDF* - 263 KB] OSHA Publication 3255 (2011)
 - Review an OSHA booklet: [Excavations](#). OSHA Publication 2226 (2002). Also available as a 536 KB [PDF](#).

- Read the standards
 - [29 CFR 1926 Subpart P](#)
 - [OSHA Safety and Health Topics Page: Trenching and Excavation - Construction](#)
 - Learn more
 - [OSHA Safety and Health Topics Page: Trenching and Excavation - Construction](#)
 - [OSHA Construction eTool: Trenching and Excavation](#)
 - [OSHA Technical Manual Chapter: Excavations - Hazard Recognition in Trenching and Shoring](#)
6. **Motor Vehicle Safety/Highway Work Zones:** Do you operate motor vehicles on your jobsite or do your employees work in and around highway work zones?
- Read an OSHA Fact Sheet: [Work Zone Traffic Safety](#) [PDF* - 21 KB]
- Read the standards
 - [29 CFR 1926 Subpart O, 29 CFR 1926 Subpart G](#)
 - [OSHA Safety and Health Topics Page: Motor Vehicle Safety - Construction](#)
 - Learn more
 - [OSHA Safety and Health Topics Page: Motor Vehicle Safety - Construction](#)
 - [OSHA Safety and Health Topics Page: Construction - Highway Work Zones and Signs, Signals and Barricades](#)
 - [OSHA Construction eTool: Vehicles](#)

NOTE: Most construction jobsites involve multiple employers (i.e., general contractors, construction managers, subcontractors, etc.). If you perform work on such jobsites, you should review OSHA's [Multi-Employer Citation Policy](#).

Step 2: Other OSHA Requirements That May Apply to Your Jobsite

In addition to the OSHA requirements covered in Step 1, a number of other OSHA standards may apply to your jobsite. The following items can help you identify other key OSHA standards that may apply and point you to information to help you comply with those standards.

1. **Personal Protective Equipment (PPE):** OSHA construction standards (see 29 CFR [1926.28](#) and [1926.95](#)) state that employers must require their employees to wear appropriate PPE in all operations where employees are exposed to hazardous conditions or where OSHA's construction standards indicate the need for using PPE to reduce the hazards.
 - Read an OSHA Fact Sheet
 - [Personal Protective Equipment](#) [PDF* - 293 KB]
 - Watch [videos](#)
 - Review an OSHA booklet
 - [Personal Protective Equipment](#). OSHA Publication 3151 (2004). Also available as a 632 KB [PDF](#).
 - Read the standards
 - [29 CFR 1926 Subpart E](#)
 - [OSHA Safety and Health Topics Page: Personal Protective Equipment \(PPE\) - Construction](#)
 - Learn more
 - [OSHA Safety and Health Topics Page: Personal Protective Equipment \(PPE\)](#)
 - [OSHA Safety and Health Topics Page: Respiratory Protection](#)
2. **Hand and Power Tools:** Hand and power tools are common at nearly every construction jobsite.
 - Review an OSHA booklet
 - [Hand and Power Tools](#). OSHA Publication 3080 (2002). Also available as a 172 KB [PDF](#).

- [Nail Gun Safety: A Guide for Construction Contractors](#) [PDF* - 1 MB] OSHA Publication 3459 (2011).
- Read the standards
 - [29 CFR 1926 Subpart I](#)
 - [OSHA Safety and Health Topics Page: Hand and Power Tools - OSHA Standards](#)
- Learn more
 - [OSHA Safety and Health Topics Page: Hand and Power Tools](#)
- 3. Do you use **concrete or masonry products** on your jobsite?
 - Review OSHA booklets
 - [Concrete and Masonry Construction](#). OSHA Publication 3106 (1998). Also available as a 415 KB [PDF](#).
 - [Preventing Skin Problems from Working with Portland Cement](#). OSHA Publication 3351 (2008). Also available as a 324 KB [PDF](#).
 - Read the standards
 - [29 CFR 1926 Subpart Q](#)
 - [OSHA Safety and Health Topics Page: Concrete and Concrete Products - Manufacturing and Construction - OSHA Standards](#)
 - Learn more
 - [OSHA Safety and Health Topics Page: Concrete and Concrete Products - Manufacturing and Construction](#)
 - [OSHA Construction eTool: Constructing Masonry Walls](#)
- 4. Do you use cranes, derricks, hoists, elevators, or conveyors on your jobsite?
 - Read a fact sheet on the revised standard
 - OSHA Fact Sheet: [Cranes and Derricks in Construction Final Rule](#)

- Review OSHA booklets and guidance documents:
 - [Small Entity Compliance Guide for Final Rule for Cranes and Derricks in Construction](#). OSHA Publication 3433 (2011). Also available as a 366 KB [PDF](#).
 - [Sling Safety](#). OSHA Publication 3072 (1996)
 - [Guidance on Safe Sling Use](#)
- Read the standards
 - [29 CFR 1926 Subpart CC](#)
 - [29 CFR 1926 Subpart N](#)
 - [OSHA Safety and Health Topics Page: Crane, Derrick and Hoist Safety - OSHA Standards](#)
- Learn more
 - [OSHA Safety and Health Topics Page: Crane, Derrick and Hoist Safety](#)
 - OSHA: [Cranes and Derricks in Construction Final Rule](#)
- 5. Do you conduct **welding, cutting, or brazing** at your jobsite?
 - Read the standards
 - [29 CFR 1926 Subpart J](#)
 - [OSHA Safety and Health Topics Page: Welding, Cutting, and Brazing - OSHA Standards](#)
 - Learn more
 - [OSHA Safety and Health Topics Page: Welding, Cutting, and Brazing](#)
- 6. Are you engaged in residential construction?
 - Review an OSHA booklet
 - [Selected Construction Regulations for the Home Building Industry](#)
 - Read the standards

- [OSHA Safety and Health Topics Page: Residential Construction Industry - OSHA Standards](#)
- Learn more
 - [OSHA Safety and Health Topics Page: Residential Construction Industry](#)
 - OSHA: [Fall Protection in Residential Construction](#)

7. Are you engaged in **steel erection**?

- Review a slide presentation: [OSHA Steel Erection Overview Presentation](#)
- Read the standards
 - [29 CFR 1926 Subpart R](#)
- Learn more
 - [OSHA Safety and Health Topics Page: Steel Erection](#)
 - [OSHA Construction eTool: Steel Erection](#)

Fire Safety and Emergency Action Planning: Construction employers are responsible for the development and maintenance of an effective fire protection and prevention program at the jobsite throughout all phases of the construction, repair, alteration, or demolition work. ([29 CFR 1926.24](#)). OSHA recommends that all employers have an emergency action plan. A plan is mandatory when required by an OSHA standard. ([29 CFR 1926.35](#)). An emergency action plan describes the actions employees should take to ensure their safety in a fire or other emergency situation.

- Review a publication that lists the requirements for emergency response and preparedness in OSHA's construction standards. [Principal Emergency Response and Preparedness - Requirements and Guidance](#). OSHA Publication 3122 (2004). Also available as a 620 KB [PDF](#).
- Read the standards
 - [29 CFR 1926 Subpart F](#)
 - [OSHA Safety and Health Topics Page: Fire Safety - Standards](#)
- Learn more

- [OSHA Safety and Health Topics Page: Fire Safety](#)

Hazard Communication Standard: This standard is designed to ensure that employers and employees know about hazardous chemicals in the workplace and how to protect themselves. Employers with employees who may be exposed to hazardous chemicals in the workplace must prepare and implement a written Hazard Communication Program and comply with other requirements of the standard, including providing Material Data Safety Sheets, training, and labeling.

- Read a fact sheet on the 2012 revisions to the Hazard Communication Standard
 - [OSHA Fact Sheet: Hazard Communication Standard Final Rule](#)
- See a sample program
 - [Model Plans and Programs for the OSHA Bloodborne Pathogens and Hazard Communications Standards](#). OSHA Publication 3186 (2003). Also available as a 520 KB [PDF](#). [[Disclaimer](#)]
- Read the standards
 - [29 CFR 1926.59, 29 CFR 1910.1200](#)
 - [OSHA Safety and Health Topics Page: Hazard Communication - OSHA Standards](#)
- Learn more
 - [OSHA Safety and Health Topics Page: Hazard Communication](#)

The previous list is not comprehensive - additional OSHA standards may apply to your workplace. In addition, section 5(a)(1) of the Occupational Safety and Health Act, known as the [General Duty Clause](#), requires employers to provide their employees with a workplace that is free of recognized hazards likely to cause death or serious physical harm. Be sure to review **OSHA's construction standards** ([29 CFR 1926](#)) for requirements that may apply to your workplace.

You may review and print FREE copies of OSHA's construction standards from OSHA's Website. You may also order bound volumes of the standards from the Government Printing Office (GPO) at (866) 512-1800 or from [GPO's website](#).

An OSHA booklet summarizes OSHA construction standards that are most frequently overlooked by employers and standards that cover particularly hazardous situations. [Construction Industry Digest](#). OSHA Publication 2202-09R, (2011).

The OSHA [Construction Resource Manual](#) includes links to the relevant mandatory standards for construction work that have been codified in OSHA's standards, including 29 CFR Parts 1903, 1904, 1910, and 1926.

Step 3: Survey Your Workplace for Additional Hazards

Survey your workplace for additional hazards by:

- Using construction safety checklists
 - [OSHA Pocket Guide: Construction](#): OSHA Publication 3252 (2005). Also available as a 288 KB [PDF](#)
- Reviewing OSHA's [Safety and Health Information Bulletins](#) (see the Construction Operations section)

Find information on workplace safety and health hazards, such as:

- Asbestos
 - [Asbestos Safety and Health Topics Page](#)
 - [Asbestos Expert Advisor](#)
- [Asphalt Fumes](#)
- Carbon Monoxide
 - [OSHA Fact Sheet](#) [PDF* - 68 KB]
 - [NIOSH Alert: Preventing Carbon Monoxide Poisoning From Small Gasoline-Powered Engines and Tools](#)
- [Distracted Driving](#) OSHA Web Page
- [Hazardous and Toxic Substances](#). = OSHA Safety and Health Topics Page
- Heat
 - [Heat Illness Prevention](#) OSHA Web Page

- [Occupational Heat Exposure](#) OSHA Safety and Health Topics Page
- [Laser Hazards - Construction](#) OSHA Safety and Health Topics Page
- [Lead - Construction](#) OSHA Safety and Health Topics Page
- [Occupational Noise Exposure - Construction](#) OSHA Safety and Health Topics Page
- [Silica, Crystalline - Construction](#) OSHA Safety and Health Topics Page
- [Toxic Metals](#) OSHA Safety and Health Topics Page

Recognized and Foreseeable Hazards

When conducting the worksite analysis, it's important to look for hazards that are generally recognized within the construction industry. Recognized hazards are generally foreseeable on the worksite. OSHA will require that these hazards are properly eliminated or controlled.

"Recognized" Hazards

As described in [OSHA's Field Operations Manual](#), recognition of a hazard is established on the basis of industry recognition, employer recognition, or "common sense" recognition criteria.

Industry Recognition: A hazard is recognized if the employer's industry recognizes it. Recognition by an industry, other than the industry to which the employer belongs, is generally insufficient to prove industry recognition. Although evidence of recognition by the employer's specific branch within an industry is preferred, evidence that the employer's industry recognizes the hazard may be sufficient.

Employer Recognition: A recognized hazard can be established by evidence of actual employer knowledge. Evidence of such recognition may consist of written or oral statements made by the employer or other management or supervisory personnel.

Common Sense Recognition: If industry or employer recognition of the hazard cannot be established, recognition can still be established if it is concluded that any reasonable person would have recognized the hazard. This argument is used by OSHA only in flagrant cases. Note: Throughout our courses we argue that "common sense" is a dangerous concept in safety. Employers should not assume that accidents in the worksite are the result of a lack of common sense.

Step 4: Develop a Jobsite Safety and Health Program

OSHA's construction standards require construction employers to have accident prevention programs that provide for frequent and regular inspection of the jobsites, materials, and equipment by competent persons designated by the employers. See 29 CFR 1926.20(b).

NOTE: OSHA's Construction Focused Inspection Policy recognizes the efforts of responsible contractors who have implemented effective safety and health programs, and encourages other contractors to adopt similar programs. Contractors who have implemented effective programs are eligible for focused inspections, should they be visited by an OSHA inspector. Focused inspections, which are narrower in scope than comprehensive inspections, target the leading construction hazards. See [Focused Inspections in Construction](#).

For help in developing a program:

- use an online tool: [OSHA Construction eTool: Safety & Health Program Component](#)
- find more help to create your own program: [OSHA eTool: Safety and Health Management Systems](#)
- request a free on-site consultation: [OSHA On-site Consultation Program](#)
- learn more: [OSHA Injury and Illness Prevention Programs](#)

Step 5: Train Your Employees

Learn about OSHA requirements and resources for training construction workers by:

- Reading the general safety training and education requirement in OSHA's construction standards. See [29 CFR 1926.21](#).
- Reviewing the specific training requirements in OSHA's construction standards. [Training Requirements in OSHA Standards and Training Guidelines](#), OSHA Publication 2254 (1998). Also available as a 724 KB [PDF](#).
- Downloading [OSHA 10-Hour Construction Industry Outreach-Trainer Presentations](#).
- Visiting [OSHA's Training and Reference Materials Library](#) page.
- Watching [OSHA videos](#) on reducing construction hazards.
- Review OSHA's [construction-related Spanish-language material](#).

Step 6: Recordkeeping, Reporting and Posting

1. Recordkeeping: OSHA generally requires construction employers to keep records of workplace injuries and illnesses ([29 CFR 1904](#)). If you had 10 or fewer employees during all of the last calendar year ([29 CFR 1904.1](#)), you are exempt from the recordkeeping requirements (unless asked to do so in writing by OSHA or the Bureau of Labor Statistics).
2. Reporting: OSHA requires all employers, regardless of size or industry, to report the work-related death of any employee or hospitalizations of three or more employees. Read about OSHA's reporting requirements ([29 CFR 1904.39](#)).
3. OSHA Poster: All employers must post the [OSHA Poster](#) (or state plan equivalent) in a prominent location in the workplace. Where employers are engaged in activities that are physically dispersed, such as construction, the OSHA Poster must be posted at the location to which employees report each day (see [29 CFR 1903.2](#)).
4. Access to Employee Exposure and Medical Records: An OSHA standard ([29 CFR 1910.1020](#)) requires employers to provide employees, their designated representatives, and OSHA with access to employee exposure and medical records.
5. NOTE: If your workplace is in a state operating an [OSHA-approved state program](#), state plan recordkeeping regulations, although substantially identical to federal ones, may have some more stringent or supplemental requirements, such as for reporting of fatalities and catastrophes. Contact your state program directly for additional information.

Step 7: Find Additional Compliance Assistance Information

1. Where can I find additional information targeted to the construction industry?
 - o Visit OSHA's [Construction Industry page](#).
2. Where can I find a collection of OSHA resources designed for smaller employers?
 - o Visit OSHA's [Small Business page](#) and learn about [OSHA's On-site Consultation Program](#).
3. Do you have Spanish-speaking employees?

- Learn about [OSHA's Spanish-language resources](#) and visit OSHA's [Spanish-language web site](#).
 - Review OSHA's [construction-related Spanish-language material](#).
4. Do you employ teen or young workers?
- Visit [OSHA's Young Workers page](#).
5. Are you concerned that your employees could suffer musculoskeletal disorders at the workplace?
- Visit OSHA's [Ergonomics Safety and Health Topics page](#). While this page is not specific to the construction industry, it includes some information targeted to construction, such as an eTool ([Ergonomic Solutions for Electrical Contractors](#)) and an [Ergonomics Success Story](#) about a construction company.
6. Has OSHA developed any compliance assistance information targeted for my specific construction industry?
- Learn about OSHA's [industry-specific resources for construction](#).
7. How can I find OSHA's guidance on preparing workplaces for pandemic influenza?
- Visit [OSHA's Pandemic Influenza Safety and Health Topics Page](#)
8. How do I find out about OSHA's voluntary programs and other ways to work cooperatively with OSHA?
- Learn about OSHA's [Cooperative Programs](#).
 - Review OSHA's [construction-related Alliances](#).
 - Review OSHA's [construction-related Strategic Partnerships](#).
 - Find out about ways to participate in OSHA's Voluntary Protection Programs (VPP), including [Mobile Workforce](#) and the Star Demonstration Program for [Resident Contractors at Non-Voluntary Protection Program Worksites](#).
9. What if I still have questions?
- Search the OSHA web site. Check the [site index](#) and the [search](#) page.

- Call the [OSHA 800 Number](#). (800) 321-OSHA (6742).
- Submit a question by [e-mail](#).
- Contact your local [OSHA office](#) or [state plan office](#).
- Request a free [on-site consultation](#).

There isn't a quiz for this module. If you are ready for the final exam, please go online to your student dashboard to take the final. Good luck!