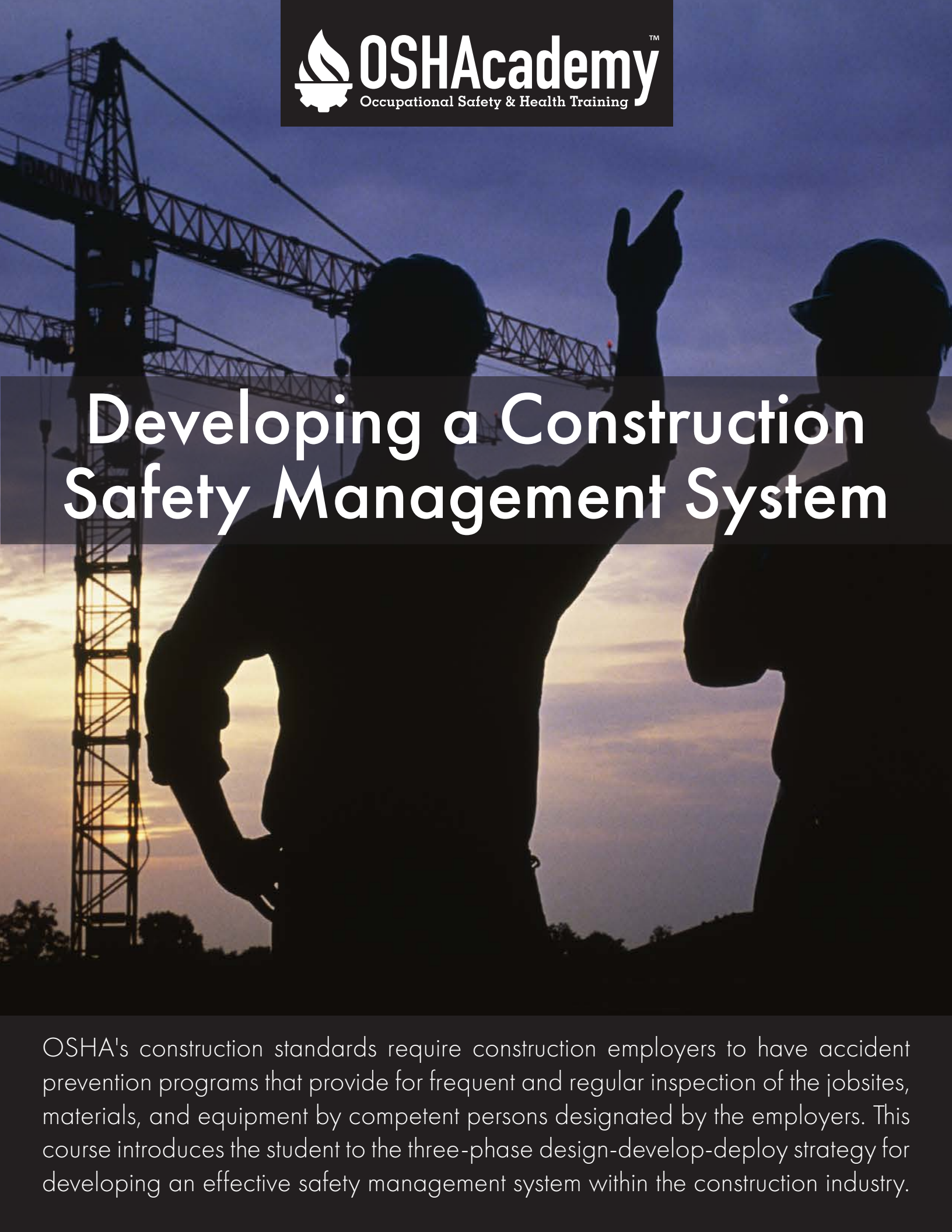




Developing a Construction Safety Management System

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. This course introduces the student to the three-phase design-develop-deploy strategy for developing an effective safety management system within the construction industry.

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OSHAcademy Course 833 Study Guide

Developing a Construction Safety Management System

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This study guide is designed to be reviewed off-line as a tool for preparation to successfully complete OSHAcademy Course 833.

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

Despite its high fatality rate, construction can be a safe occupation when workers are aware of the hazards and use an effective Construction Safety Management System (CSMS).

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.

An effective construction safety management system makes all the difference in preventing injuries and illnesses in the worksite. The result is lower accident-related costs. Other benefits include reduced absenteeism, lower turnover, higher productivity, and improved employee morale. And it's the right thing to do.

Safety does pay

A good way to begin the creation of an effective construction safety management system (CSMS) is to determine which standards and rules apply to the work being performed by your company. Construction employers should be in compliance with OSHA's construction standards within [CFR 29 1926](#), Construction.

The “3D” Process of the CSMS

Using the 3D model, the CSMS is implemented in three phases:

1. The **Design** Phase – The employer designs vision and mission statements, goals, objectives, roles, and responsibilities.
2. The **Development** Phase – The employer develops policies, plans, programs, processes, procedures and practices.
3. The **Deployment** Phase – The employer deploys the CSMS to everyone through instruction, training, feedback, CSMS analysis and evaluation, and continuous improvement.

We'll discuss each of the nine phases and the components of each phase throughout the course.

Hopefully, management in your company will be convinced that the 3D model will work to create a world-class CSMS and culture that is both efficient and effective in preventing and

controlling hazards. Let's continue by discussing what you'll need to do to create that world-class CSMS using the 3D model.

Module 1: Setting the Foundation

In this course, we will first discuss the necessity of building a firm foundation for a world-class CSMS. No matter how well you may have developed and deployed the CSMS; it is destined to fail unless the underlying foundation is an effective safety culture that expresses real management commitment, tough-caring leadership, and genuine employee involvement. This module will explore some of the important considerations to do that.

Culture

The traditional definition of "safety culture" in an organization is, "an organizational atmosphere where safety and health is understood to be, and is accepted as, the number one priority." However, as we'll learn, to be most effective, safety should not be considered a "priority," but rather a "core value." So, we still need to ask: "What is a safety culture?"

Culture may be defined as the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and proficiency of, an organization's health and safety management.

A strong safety culture is the result of:

- Positive workplace attitudes - from the president to the newest hire.
- Involvement and buy-in of all members of the workforce.
- Mutual, meaningful, and measurable safety and health improvement goals.
- Policies and procedures that serve as reference tools, rather than obscure rules.
- Personnel training at all levels within the organization.
- Responsibility and accountability throughout the organization.

From the employer's point of view, it's something to be managed, but if you ask an employee to define culture, they will likely tell you it's just "the way we do things around here."

You will know when your company has designed the elements of a world-class safety culture when:

- All individuals within the organization believe they have a right to a safe and healthful workplace.
- Each person accepts personal responsibility for ensuring his or her own safety and health.
- Everyone believes he or she has a duty to protect the safety and health of others.
- A high level of trust exists between management and labor in general.

Safety Leadership Styles

Effective safety leadership can and should be demonstrated at all organizational levels.

- **Managers** can demonstrate leadership by setting the proper example, displaying real commitment, and developing an effective CSMS.
- **Supervisors** demonstrate leadership by directly providing employees the necessary resources, psychosocial support, training, and by setting a good personal example.
- **Employees** demonstrate leadership through personal example and involvement. They do the right thing when not being supervised.

Three Primary Styles

Managers, supervisors, and employees generally use one or a mix of three leadership styles: Tough-coercive, Tough-controlling, or Tough-caring. As you'll see, tough-caring leadership is the most effective leadership style.

Tough-coercive Leadership

Managers are tough on safety to protect themselves. In this approach, the manager controls performance by yelling and using the threat of punishment. The manager is tough on safety only to achieve compliance to fulfill legal obligations through the use of fear. By definition, the use of fear cannot be effective in achieving world-class safety because employees perform only to the level that avoids punishment. Fear may be successful in achieving compliance, but that's it.

Tough-controlling Leadership

Managers are tough on safety to control production. They have high standards for behavior and performance, and they control all aspects of work to ensure compliance. This is most often considered the "traditional" approach to safety leadership. Leaders using this approach may be more successful, but employees usually do not perceive them as real leaders. Managers believe tight control is necessary to achieve production goals. Communication is typically top-down and information is used to control. Unfortunately, a safety manager is typically hired to act as a safety "cop" rather than an internal consultant.

Tough-caring Leadership

Managers and supervisors are tough on safety because they care about the safety of their employees. Managers understand that complying with the law, controlling losses, and improving production can best be assured if employees are motivated, safe, and able.

Managers also understand that they can best fulfill their commitment to their external customers by fulfilling their obligations to internal customers: their employees. Safety managers are hired as internal consultants rather than cops.

You can find out more about tough-caring and other leadership models in [Course 700 Introduction to Safety Management](#).

5-STAR Leadership

Below are the five key elements that help managers and supervisors demonstrate commitment through "5-STAR" leadership. The key 5-STAR leadership elements are:

1. **Supervision** - overseeing work activities to make sure employees are safe.
2. **Training** - conducting safety education and training.
3. **Accountability** - insisting everyone complies with company safety policies and rules.
4. **Resources** - providing physical resources - tools, equipment, materials, etc. so employees can work safely.
5. **Support** - creating a sound psychological environment - schedules, workloads, recognition, etc. so employees do not work under harmful stress.

You can learn more about this topic in [Course 712](#).

Proactive vs. Reactive Safety Leadership

Integrating safety and health concerns into everyday work allows for a proactive approach to safety. In a proactive approach, hazards and unsafe behaviors are addressed before an injury or illness occurs. In a reactive safety culture, safety is not a problem until after an injury or accident occurs.

Value vs. Priority

Safety must be elevated so that it is considered a critical value as opposed to something that must be done or accomplished as priorities allow. How can you tell when safety is a value vs. a priority on the worksite? Simple: Values don't change; priorities do, especially when the going gets tough.

Commitment

Before you set out to create the world's best CSMS, make sure that top management in your organization fully supports and has made a real commitment to your effort. But, what is the difference between "support" and "commitment?"

- **Support** occurs when management tells everyone they back up your efforts and insists that everyone else give their full support as well.
- **Commitment** occurs when management not only backs you up with words, they back you up with action in terms of time and money.

Top management may communicate their support for safety, but the real test for commitment is the degree to which management acts on their words with serious investments in time and money. When management merely communicates their interest in safety, but does not follow through with action, they are expressing only support, not commitment.

Getting Top Management Commitment

So, what is the secret in getting top management commitment to safety? The answer to that question is that management commitment will occur to the extent each employer clearly understands the positive benefits to their own success as well as to the success of the company.

Most employers will put time and money into employee safety when they understand the benefits in terms of how their commitment helps to fulfill their social, fiscal and/or legal obligations as an employer. Therefore, you should stress the benefits to your employer when meeting each of the three obligations. Let's take a look:

Social Obligation

Get management to come to the realization that long-term corporate survival depends on being a good "corporate citizen" in the community by doing whatever it takes to keep employees safe and healthful at work. By the way, fulfilling this obligation is most effective in assuring the long-term success for the company.

Financial Obligation

Stressing this obligation can be quite effective. Managers will be motivated to invest in safety when they understand the financial benefits derived from effective application of safety programs. Emphasize the cost vs. benefits of safety.

Legal Obligation

Place a lot of emphasis on this obligation when managers only want to fulfill the obligation to comply with OSHA rules. You need to be familiar with how OSHA works be sure to understand the OSHA enforcement process.

Involvement

In a world-class safety culture, all employees are given opportunities to provide suggestions and recommendations on safety policies and rules, products, procedures, and training. For example, employees:

- are given some responsibility to test out products or conduct research to substantiate recommendations
- provide input informally or through the formal suggestion program.
- participate in a variety of ways such as being a trainer, member of a safety committee, or inspection team member.

Understanding the benefits will create a strong desire to improve the company's safety culture which is ultimately the most important outcome of an effective CSMS.

The Key: Effective Recognition

The key to a world-class safety culture that is characterized by employee involvement in safety is "perception." What they believe about the company, management, and themselves is critical to a successful CSMS.

Recognition as a positive consequence can be quite effective in dramatically increasing daily involvement in safety. After all, we do what we do to either avoid negative consequences or to obtain positive consequences. Recognition helps ensure employees focus on positive consequences. Make sure employees are recognized every time they make a suggestion that improves the CSMS. For more information on effective recognition, see [OSHAcademy course 117 Introduction to Safety Recognition](#).

The Construction Safety Committee (CSC)

Because construction is such a hazardous industry, most employers understand the importance of a strong safety committee. This is one of the most important safety teams within the CSMS and a very important part of employee involvement.

At least annually the CSC can develop its own strategic plan with written safety goals and objectives, and the tactics to achieve them. Monthly tracking of progress is also important. The safety goals and objective should be communicated to all employees.

Membership on your company's CSC should include both management and hourly employees. Members should be elected, appointed and/or volunteers and should serve on the committee for at least a year or other specified amount of time.

You can learn more about the importance of the CSC by taking Courses OSHAcademy courses [701 Effective Safety Committee Operations](#) and [707 Effective OSH Committee Meetings](#).

Safety Inspections

Another important way that employees are involved in safety is to participate in regular walk-around safety inspections to help identify potentially hazardous conditions, unsafe actions, and initiate corrective actions. Inspection findings should be presented to the decision-maker and copies of the findings should be sent to supervisors and the safety committee for review.

Corrective actions should be approved by the decision-maker and implemented under the direction of a designated line worksite superintendent, manager, or supervisor.

Suggestion Programs

Employee involvement is crucial to the company's success, so they should be encouraged to make safety suggestions to help improve the CSMS. Suggestions include ways to improve:

- materials, equipment, tools, machinery, and the work environment, and
- safety policies, programs, plans, processes, procedures, and practices.

In some companies, suggestions are given to the safety committee to handle. In world-class safety cultures, where trust between labor and management is high, employees give suggestions directly to their supervisors. In either case, the most effective method should be the one that's used.

Stay away from using suggestion boxes

Suggestion forms may be used in a formal suggestion box program; however, we do not encourage a policy that allows anonymous suggestions unless management demonstrates tough-caring leadership. Also, if management allows anonymous suggestions, the subtle message to employees may be that their concerns about suffering negative consequences when suggestions are submitted may be valid. The fear of retribution and a lack of trust between labor and management is common in fear-based safety cultures.

Here's an example of what can happen using a formal safety suggestion box method in a culture suffering from a low level of trust.

Real World Example

I set up a new suggestion box at my last office. Employees were informed it was there to use for any suggestions they may have. I would check it once a day and they could either sign their suggestion or not. All suggestions would be looked into and [the] person making the suggestion would be advised of the outcome within (5) days or, if the suggestion was unsigned, the outcome would be announced at our next safety meeting.

Because of the feeling it was all a big joke, and no one really cared, only one person in 12 months made a suggestion. I handled it just as I said I would. If the employee's suggestion was such that I could fix it without getting approval, I did so. Didn't seem to encourage others. The real problem was they had heard it all before and just didn't believe anymore.

As the example above illustrates, a formal safety suggestion program only works within a framework of strong leadership: Management gives each suggestion attention, responds, and thanks the employee making the suggestion. In the best-case scenario where there is the presence of strong, tough-caring safety leadership, a formal program may not be needed because leaders respond immediately to suggestions and provide meaningful recognition informally, and/or one-on-one to their employees.

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. From the employee's point of view, culture is ____.**
 - a. something to be managed
 - b. the way things are around here
 - c. the cost of doing business
 - d. not relevant to safety

- 2. Employees should be given an opportunity to provide input on which of the following topics?**
 - a. Who should be punished for violating a safety rule
 - b. How to improve the CSMS
 - c. How to cover up unsafe behaviors and conditions
 - d. Purchasing the least expensive safety products

- 3. When should employees be recognized for making safety suggestions?**
 - a. Every time
 - b. Once a month
 - c. Quarterly
 - d. Annually

- 4. In this leadership approach, managers are tough on safety because they are concerned first about employee safety and success.**
 - a. Tough-coercive leadership
 - b. Tough-controlling leadership
 - c. Tough-caring leadership
 - d. Tough-committing leadership

5. Which of the following is the key to a high level of employee involvement in safety?

- a. Perception
- b. Consequences
- c. Performance
- d. Attitude

Module 2: 3D Process: Design

To help gain the support and a real commitment from managers, they must have a good idea what the CSMS will look like. To do that, it's important not to wait to begin the process of designing the structure of an effective CSMS. We think the following process to design, develop, and deploy the CSMS can be very effective and we'll be discussing the three phases throughout the rest of the course.

Structure

The purpose of this first phase is to paint the "big picture" that helps guide everyone in developing and deploying the elements of the CSMS. During this first phase in the process, gather a team of managers, supervisors, and employees who volunteer to discuss and draft the following five components within the CSMS:

1. vision, mission, and values statements
2. safety goals, objectives and performance measures
3. duties and responsibilities of line and staff positions
4. programs to include in the CSMS
5. strategic safety plan

From the very start it's important to have the vision to understand who you are and a sense of mission about what you do as a corporate entity, and to do that, you'll need to create a vision and mission statement. So, let's take a look at these two concepts.

Vision, Values, and Mission Statements

To help establish a sound foundation for the CSMS, it's important that we have the vision necessary to create a strong sense of mission. A very important principle that everyone should understand at all levels of the company is that...

"we do what we do because of who we think we are."

If we believe our company is the best, we will act like it is the best. If we think the company values safety, we will act in ways that reflect that belief.

With that in mind, it's important to develop a vision statement that tells everyone in the company who the company is.

Take a look at a few sample vision statements below:

Sample Vision Statements

- XYZ Construction values its "relationship with customers" above all. To be successful we treat all employees as valued internal customers. We respect their ideas, value their work, and provide whatever is needed so that they may accomplish excellence in a safe-productive manner. Doing this empowers our employees so that they may manifest our values daily with our external customers.
- At XYZ, safety is a line responsibility, not a staff responsibility. It's equal to all other considerations of production, costs, and quality.

The mission statement, on the other hand, is action-oriented, telling the world what the company does and why it exists, by stating its intended purpose. The mission statement lets everyone know what the company's product or service is; who its customers are; what its service territory is.

Take a look at a few sample vision statements below:

Sample Mission Statements

- It is the mission of XYZ Construction to safely manufacture and deliver the highest quality megalithic cyberwidgets to our valued customers throughout the world.
- The XYZ Safety Committee's mission is to help management keep the worksite as safe and healthful as possible by providing quality feedback and effective solutions to safety issues.
- Maintaining a safe work environment is a top priority of the company and must be a personal goal of every employee. The company will work with all departments and any other organization to implement an up-to-date Integrated Safety Plan and achieve its goal of zero work related injuries and illnesses.

Goals and Objectives

Now that your company has a vision and mission statements that support the CSMS. The next step is to develop some broad goals and specific operational objectives that support the vision and mission, and therefore, the CSMS.

Goals

Goals are easy to write. That's because they're nothing more than mere "wishes." For instance, a safety goal might be to:

- "get everyone trained"
- "lower injury rates"
- "recognize everyone who exceeds expectations"

SMART Operational Objectives

On the other hand, objectives are structured statements that provide much more detail. Objectives should be structured so they're **SMART**: **S**pecific, **M**easurable, **A**ction-oriented, **R**elevant, and **T**imely.

Action-oriented objectives and are also called operational objectives should describe specific job-related actions that can be measured. The results should be achievable and relevant, or important, to the company. And finally, the objective should set a time limit.

How to Write an Operational Objective

However, operational objectives take a little more thought.

Objectives should have the following elements present:

- **Starts with an action verb.** (Decrease, increase, improve, etc.)
- **Specifies a single key result** to be accomplished.
- **Is quantifiable.** Uses numbers to measure a desired change. (i.e., 50% increase)
- **Specifies a target date** for accomplishment.

For example, operational safety objectives might be written like this:

- "Increase the number of safety suggestions to 25 a month by July 31st."
- "Reduce the number of back injuries in the warehouse by 70% by the end of 1997."

Roles and Responsibilities

Now that you have developed some broad goals and objectives for your CSMS, the next step is to think about and draft general management-level roles and responsibilities that will be assigned to your managers, site superintendents, foremen and supervisors.

A person's role and associated responsibilities have the same kind of relationship as the company's vision and mission statement. Remember, the vision statement tells everyone who we are, and the mission statement let's everyone know what we do.

The Roles We Play

A person's "role" may be thought of as the part (or assigned position) played by a person in a particular business environment. The person's behavior and actions at work is influenced by his own, and other employees' expectations of what are appropriate for the role being played.

Some examples of business roles are:

- Manager
- Supervisor
- Safety Director
- OSHA Inspector
- Safety Committee Member

We think you can see that each of these "roles" has a certain set of expectations tied to them. And, since every company's corporate culture varies, expectations for these same roles might be quite different.

For instance, in one company, the safety director might perform the role of a "cop" enforcing safety with an iron fist, while in another company; he or she might more appropriately be expected to perform the role of "consultant," helping line managers with their safety responsibilities.

With Roles Come Responsibilities

Management safety responsibilities are assigned to line and staff positions within the company. Responsibilities include organizing, coordinating, and administering programs as appropriate.

Here are some examples of typical management and supervisor safety responsibilities:

- Conduct or supervise Job Safety Analyses.
- Assure compliance with OSHA construction safety standard requirements.
- Conduct regular job site safety inspections.
- Establish corporate safety procedures.
- Coordinate regular safety training.
- Conduct or assist with Tool Box Talks or Five-Minute Safety Talks.
- Document training, inspections, injuries and illnesses, and other safety records.
- Participate in accident investigations and implementation of corrective actions.
- Involve employees in the implementation of the CSMS.

- Create statistical reports that compare severity and frequency rates against prior records.

Identify Safety Programs

Finally, in the design phase you'll need to determine which specific safety programs will be a part of the CSMS. Every CSMS is composed of various programs that are actually quite similar in structure to the corporate SMS but they have a very narrow focus and are determined primarily by the type of construction performed by the company. Each program can also be created using the 3D process.

Below are just a few of the programs usually included in the CSMS:

- Safety Training Program
- Safety Suggestion/Recognition Program
- Industrial Hygiene Program
- Hazard Communication Program
- Confined Space Safety Program
- Industrial Truck Safety Program
- Construction Safety Committee Program
- Electrical Safety Program
- Asbestos Safety Program

We'll discuss more about plans, policies, programs, processes, procedures and practices (the 6-P's) in upcoming modules.

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. The purpose of the design phase in the implementation of the CSMS is to _____ that helps guide everyone in developing and deploying the CSMS.**
 - a. focus on programs
 - b. narrow options
 - c. paint the “big picture”
 - d. provide control measures

- 2. The vision statement tells everyone _____.**
 - a. who the company is
 - b. who is responsible for safety
 - c. what the company does
 - d. what the purpose of the company is

- 3. SMART objectives have all the following characteristics, EXCEPT _____.**
 - a. they specific single results
 - b. they are what we hope and wish to achieve
 - c. they start with an action verb
 - d. they state quantifiable targets

- 4. During which phase in the implementation process, would you gather a team of managers, supervisors, and employees to discuss CSMS roles and responsibilities of line and staff?**
 - a. Design phase
 - b. Development phase
 - c. Deployment phase
 - d. Duplication phase

5. How we fulfill the role we play at work depends on ____.

- a. how many subordinates we have
- b. the consensus agreement of our peers
- c. what the expectations are for that role
- d. our position description

Module 3: 3D Process: Develop

Develop the CSMS Components

Now that you have the basic design of the CSMS completed, it's time to get down to the nitty-gritty by completing the "6-Ps". Yes, another acronym! Using the 6-P development model, we can systematically complete the following components:

Plans, Programs, Policies, Processes, Procedures and Practices.

In most instances, a safety professional will be responsible to assist others, but it's important to understand that development of the CSMS should not be a "one person show" – others, from top management, to employees should be involved in the development phase.

The outcome of the development phase is a formal comprehensive written CSMS Plan containing all components of the CSMS. This will serve as the primary document that everyone at all levels in the company will use to help them fulfill their own safety responsibilities.

The CSMS Written Plan

One of the most important end-results of the design and development phases when creating a CSMS is the written plan. This is the formal document that contains all of the important information needed to deploy the CSMS.

It's important to note that you will not only write a plan for the overall CSMS, but you'll need to write a plan for each of the various programs within the CSMS as well. OK, this might be a little confusing, and even the language can get you tied up, so let's define a couple of terms:

Plan vs. Program

One of the most important end-results of the design and development phases when creating a CSMS is the written plan. This is the formal document that contains all of the important information needed to deploy the CSMS.

Plans Within Plans

The CSMS will also contain many "programs" and each program will require a more narrowly-focused "plan". When all of the program plans are combined, you have your CSMS "plan." Both the CSMS and each program within the CSMS should contain at least the following sections:

- vision and mission statements,
- goals and objectives,

- roles and responsibilities (R&R), and
- programs, policies, processes, procedures, and practices

Last, but not least, a "formal" CSMS plan should be written, approved, and signed by top management. We'll discuss each of these components of the written plan below.

CSMS Program

A safety "program" may be thought of as a plan of action to accomplish a safety objective. The safety program will give specific details on:

- **The task or work to be done.** For example, a task described within the Fall Protection Program might be to conduct a routine inspection of fall protection equipment.
- **The person or group responsible.** Usually this would be the person or group performing the hazardous procedure or work practice.
- **When the hazardous procedure or practice is to be done.** For instance, a safety inspection program might specify that an inspection must be completed before and after each use of the fall protection equipment.
- **The means or resources used to accomplish the task or work.** A worker might use a magnifying glass to look for tiny cracks in the fall protection metal parts or tears in the fabric.

An effective safety program is designed around the processes, procedures, and practices normally assigned to employees and integrates safety-related decisions and precautions into them.

Sample Program Responsibilities

Let's look at common manager, supervisor, and employee OSHA-required CSMS program responsibilities.

Hazard Identification and Control Program

Employer responsibilities under this program include:

- evaluate operations, procedures, facilities, and equipment to identify hazards
- monitor exposure levels
- ensure regular safety and health inspections
- conduct accident investigations

- determine the need for engineering controls, administrative controls, or personnel protective equipment
- ensure machines and tools are in safe working order and in compliance with relevant standards
- institute engineering and work practice controls to eliminate health hazards
- perform housekeeping to remove hazards posed by scrap and debris in work areas
- provide appropriate personal protective equipment when other controls are infeasible
- guarantee safe means of egress

Emergency Response Program

Responsibilities under this program include:

- developing emergency response plans;
- developing fire prevention and protection programs;
- activating the Emergency Response team;
- activating additional response contractors and local resources;
- communicating with Emergency Response Team; and
- responding to cleanup operations.

Emergency Action Program

Responsibilities under this program include:

- providing medical services, first aid treatment, and supplies;
- ensuring availability of emergency rescue for injured employees; and
- posting emergency numbers for physicians, hospitals, or ambulances.

Training Program

Responsibilities under this program include training workers on:

- recognizing and controlling hazards;
- recognizing and avoiding unsafe conditions;
- safe work practices and applicable standards;
- the safe operation of equipment and machinery;
- the hazards of access ladders and stairways; and
- confined and enclosed space entry hazards and precautions.

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. What is one of the most important end-results of the development phase when creating a CSMS?**
 - a. Written plan
 - b. Pareto chart
 - c. Phase analysis
 - d. Control policy

- 2. Which of the following may be thought of as a plan of action to accomplish a safety objective?**
 - a. Safety policy
 - b. Safety program
 - c. Safe job procedure
 - d. Safe work practice

- 3. An effective safety program will give specific details on each of the following, EXCEPT ____.**
 - a. the task or work to be done
 - b. the person or group responsible
 - c. the means or resources used
 - d. the procedures to file an OSHA report

- 4. According to the text, a well-written corporate CSMS plan contains all of the important information needed to ____ the CSMS.**
 - a. design
 - b. deploy
 - c. develop

d. duplicate

5. The “formal” CSMS plan should be written, approved, and signed by ____.

- a. top management
- b. the safety manager
- c. the safety committee
- d. an OSHA program auditor

Module 4: Policies and Processes

Now let's take a look at safety policies and processes to see how they fit into the CSMS.

Developing CSMS 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.

The safety policy is usually stated in three different ways:

- a. **What you intend to do in safety:** "It will be our policy to perform safe-construction or no-construction."
- b. **Who will be involved in safety:** "Site supervisors/foreman will be responsible for the safety of workers on their site."
- c. **How you will control safety:** "Lockout/Tagout will be performed for electrical work on 50V circuits or higher."

Sample Policies

Below are a few more examples of various safety policies that may be important to include:

- No job or 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 will be a safe procedure. Shortcuts in safe procedures by either foremen or workers will not be tolerated.
- If a worker observes any unsafe condition, which may pose a potential threat to their health or safety, it will 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 of employees.
- If a job cannot be done safely it will not be done.

- Management will provide visible ongoing commitment, resources, and leadership to assure the implementation of the CSMS. All employees should be provided equally high-quality safety and health protection.
- Leadership within a company will acknowledge the importance of creating a positive safety culture through employee involvement and effective policies and procedures.

Rules vs. Guidelines

It's important to understand the difference between "rules" and "guidelines". It's simple: rules are required – guidelines are not.

To be valid, rules include words like "must", "shall", or "will". Remember, rules do not give a person a choice: they are mandatory. By the way, if no word is listed, assume it's a rule.

Guidelines, on the other hand, do give employees a choice. They contain words like "should", "recommend" or "may." It's very important to know that you can't really "enforce" guidelines because they are voluntary. If you find that you have guidelines and rules listed together, be sure to define the concepts and separate them so that everyone clearly understands the difference.

You're probably familiar with the safety rules within your company, but, just to make sure, we've listed a few of the more common rules generally found at construction sites:

- Compressed air shall not be used to blow dust or dirt from clothes, hair, or hands.
- Any fear of working at heights must be reported to the immediate supervisor.
- Employees working at height must keep back at least 10 feet from all power lines.
- Do not remove a safety device or safeguard on equipment without proper authorization.
- Excavations more than five feet deep will be shored or sloped as required. Keep out of trenches or cuts that are not properly shored or sloped.
- All workers will use the "four to one" rule when using a ladder. One foot of base for every four feet of height.
- Portable ladders in use shall be equipped with safety feet unless the ladders are tied, blocked or otherwise secured.

Developing CSMS Processes

A process is nothing more than a sequence of interdependent and linked procedures. Each CSMS program may include one or more processes used to build residential or commercial

buildings, construct highways or to construct dams. The emphasis would be to ensure safe procedures and practices.

Here are some more common processes for building a residential building.

- Worksite inspection
- Laying a foundation
- Roof construction
- Framing the structure
- Obtaining permits
- Accident investigation
- Electrical installation
- Painting
- Installing HVAC

We'll discuss two more common processes within CSMS programs in the next few sections.

Accident Investigation Process

All accidents on your worksite resulting in injury or property damage should be investigated. The investigation is a very important process that includes procedures for documenting the accident scene, analyzing the facts, and interviewing witnesses.

The accident investigation process will make sense if you understand that ultimately, the purpose of the investigation is to improve the safety management system. If you conduct the investigation for any other reason, it will likely result in ineffective solutions.

Here are the six basic procedures in conducting accident investigations.

1. secure the accident scene
2. conduct interviews
3. develop the sequence of events
4. conduct cause analysis
5. determine the solutions
6. write the report

Accountability - Disciplinary Process

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

Ultimately, without the *expectation* of consequences, an accountability program will lack credibility and effectiveness. In other words, no consequences - no accountability.

Consequences need to be appropriate as well as effective. This is the element with which everyone is probably most familiar. Unfortunately, in some companies, consequences are either not appropriate, not effective, or both.

Criteria for Appropriate Consequences

- **Justification.** Consequences are justified. Has management fulfilled their obligations to employees first?
- **Impact.** Consequences correspond to the degree of positive or negative results of the violation. Could some serious intentional violations result in immediate termination?
- **Application.** Consequences are applied objectively and consistently throughout the entire organization. Do consequences occur at all levels throughout the company? Are they administered in a progressive manner (verbal warning, written warning, suspension, termination)?

There are some violations that are so dangerous to the worker and/or others that they will result in immediate termination if justified. For more information on developing an effective accountability program that includes an effective disciplinary process, be sure to take courses [700 Introduction to Safety Management](#), [702 Effective Accident Investigation](#), or [704 Hazard Analysis and Control](#).

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. _____ help to set standards and guidelines for decision-making.**
 - a. Safety policies
 - b. Safety programs
 - c. Safe job procedures
 - d. Safe work practices

- 2. The emphasis in any safety process should be?**
 - a. Keeping the number of steps limited
 - b. Safe procedures and practices
 - c. Cost efficiency and effectiveness
 - d. Limiting the number of workers

- 3. Which of the following focuses on one particular safety behavior or action?**
 - a. Safety policies
 - b. Safety programs
 - c. Safety rules
 - d. Safe work practices

- 4. What allows managers, supervisors and employees to make safety decisions without having to constantly check with “the boss”?**
 - a. Safety policies
 - b. Safety programs
 - c. Safety plans
 - d. safety rules

5. What are nothing more than narrowly-focused policies?

- a. Rules
- b. Programs
- c. Plans
- d. Procedures

Module 5: Procedures and Practices

Introduction

Construction companies should make sure that safe job procedures and safe work practices are developed to address significant hazards that may present significant risks/liabilities to them.

To determine the need for safe job procedures and work practices, conduct a comprehensive hazard analysis prior to the start of work on each worksite. It's important to note that the Job Safety/Hazard Analysis is an excellent process for determining safe job procedures and safe work practices.

Create Safe Job Procedures

Safe job procedures are a series of specific instructions presented in steps that outline the preferred method for performing a task.

- They guide a worker through a job task from start to finish one step at a time in chronological order.
- They are designed to reduce the risk to employees by minimizing potential exposure.

There may be many construction processes on a job site and usually a number of safe job procedures within construction process. Sample procedures include:

- scaffold installation
- setting up guardrails
- installing an appliance
- pouring cement
- laying shingles

Some specific safety procedures are required by OSHA to be included as part of a written program. Specific written procedures should be included in the following programs and processes:

Lockout/Tagout procedures should be put in writing.

- Lockout/Tagout
- handling hazardous chemicals
- using fall protection equipment
- confined space entry procedures
- use of respiratory protection, dust masks, etc.

- protection from floor holes and other walking-working surface hazards
- safe use of hand and power tools

CSMS Safe Work Practices

Finally, safe work practices are generally written methods outlining how to perform a task with minimum risk to people, equipment, materials, environment, and processes. A particular task, job, or procedure may include one or more safe practices.

As with procedures, safe work practices help to ensure worker exposure to hazardous situations, substances, and physical agents is controlled in a safe manner.

Below are just a few examples of safe work practices:

- Testing fall protection equipment prior to each use
- Three-point control rule for climbing ladders
- Wearing proper gloves for the job
- Placing fire extinguishers in key locations
- Ensuring proper ventilation
- Using the “Buddy system”

OSHA’s Spin on Safe Work Practices

Safe work practices include your company’s general worksite rules and other operation-specific rules. For example, even when a hazard is enclosed, exposure can occur when maintenance is necessary. Through established safe work practices, employee exposure to hazards can be further reduced.

Depending on the type of industry and the operations, work practices for specific OSHA standards or to recognize hazards may be required.

Some of these specific areas include:

- Respiratory Protection [29 CFR 1910.134].
- Lockout/Tagout [29 CFR 1910.147].
- Confined Space Entry [29 CFR 1910.146].

- Hazard Communication [29 CFR 1910.1200, 29 CFR 1926.59].
- Bloodborne Pathogens [29 CFR 1910.1030].
- Hearing Conservation [29 CFR 1910.95].
- Laboratory Chemical Hygiene [29 CFR 1910.1450].

This list is not all-inclusive. Refer to the specific OSHA standard for information and guidance on the required elements for these individual programs.

Documentation

Keep written safe work practices in a central location where the work is performed. Make sure they are readily available to the workforce and review them from time to time during safety meetings.

The best way to train safe job procedures and work practices is the time-tested "show and tell" method. To do that, develop a Job Safety/Hazard Analysis for each hazardous procedure, and use it as your training plan.

Keep formal documentation that shows employees have been trained on safe job procedures and work practices. The documentation should verify that employees had an opportunity to perform the safety job procedures and work practices under direct supervision, and that they have successfully demonstrated adequate knowledge, skills, and abilities.

Should you Reference or Repeat

Developing safe job procedures and practices is an ongoing challenge. We recommend that you start by covering the most hazardous procedures first, and then continue by incrementally adding procedures and practices as needed.

If OSHA standards clearly cover a procedure, go ahead and reference it so you don't have to repeat it. Generally, OSHA standards are "performance-based" and do not provide detailed procedures, so be careful in evaluating the need to develop your own procedures.

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. Safe job procedures are designed to reduce the risk to employees by ____.**
 - a. minimize the duration to hazards
 - b. reducing hazards
 - c. minimizing potential exposure
 - d. maintaining strict control over behaviors

- 2. Which of the following tasks is required by OSHA to have written procedures?**
 - a. Setting up guardrails
 - b. Equipment Lockout/Tagout
 - c. Laying hardwood floors
 - d. Installing sheetrock

- 3. What is a series of specific instructions presented in steps that outline the preferred method for performing a task?**
 - a. Safe job procedures
 - b. Safety programs
 - c. Safety policies
 - d. Safe job behaviors

- 4. Specific work practices are required for each of the following OSHA standards, EXCEPT ____.**
 - a. Hazard Communication
 - b. Confined Space Entry
 - c. Bloodborne Pathogens
 - d. Safety Committee Operations

- 5. What helps ensure worker exposure to hazardous situations, substances, and physical agents is controlled in a safe manner?**
- a. Safe work practices
 - b. Safety inspections
 - c. Accountability
 - d. Safety posters

Module 6: 3D Process: Deploy

Educate and Train

After the development phase is completed, deploy the completed CSMS plan so that everyone has it and can take action. However, to make sure everyone understands the CSMS, educate them first on the components of the CSMS and conduct initial instruction and training on:

- manager and supervisor leadership responsibilities
- train-the-trainer topics for those who will be conducting safety training
- technical hands-on-how-to on-the-job training (OJT) for employees

After completing the training, make sure it is properly documented. Remember, as far as OSHA is concerned, "if it isn't in writing, it probably didn't get done." Once training is completed, it's time to officially deploy the CSMS.

To make sure the training was successful, do the following:

- Get feedback from everyone on the success of the deployment.
- Analyze and evaluate the quality within a year.
- Make necessary improvements in training not meeting performance standards.

Orientation, Instruction, and Training

To help make sure managers, supervisors, and employees do their jobs safely, they must receive adequate:

- initial safety orientation,
- general instruction on OSHA standards and the company's CSMS, and
- technical training on hazardous processes and procedures

You should also evaluate safety training and performance periodically to make sure everyone understands their safety responsibilities as well as related OSHA standards.

How to Monitor Worksite Safety Training

It will be very important to continuously monitor the effectiveness of employee training needs to keep workers safe and healthy on the job. To do that, make sure employees are observed regularly by supervisors and safety staff.

Use observation, interviews and written exams as necessary to make sure:

- all employees, including contractors, understand the hazards to which they may be exposed and how to prevent harm to themselves and others;
- supervisors and managers understand their responsibilities and the reasons for them;
- periodic, annual, (if required) and as-needed refresher training is performed; and
- workers are trained on first aid and how to respond to emergencies on the worksite.

Idea: To help make sure safety training requirements are met, let employees know that completion of safety training is being entered into their performance appraisals and could affect pay raises and career advancement.

New Employees

New employees should receive initial orientation that introduces them to the company's safety rules and expectations. They should also receive an overview of the hazards that can be expected on the work site.

When developing and presenting initial orientation and instruction, consider the following:

- After inspecting a job site, a designated person should identify and evaluate all potential hazards for potential of serious injuries and probability of an accident. Actions will be taken to minimize the hazards and protect the workers.
- The length and level of detail of new employee orientation, instruction, and training depend on the nature of the hazards on the worksite and OSHA requirements.
- The safety coordinator or other designated site safety person will appraise the knowledge, skills, and abilities (KSAs) of exposed workers, and provide any needed on-the-job (OJT) training.
- Where safety training is needed, appropriate initial hands-on how-to (OJT) training should be provided.
- Records should be maintained for all new employee training sessions with descriptions of topics covered and names of workers trained.

On-the-Job (OJT) Training

The purpose of OJT is to provide the employee with task-specific knowledge and skills in his or her job/work area. The knowledge and skills presented during on-the-job training are directly related to those they will perform on the job.

OJT can be one of the best training methods because it is planned, organized, and can be conducted at the employee's worksite. OJT is generally the most common method used to broaden employee skills and increase productivity. It is particularly appropriate for developing

skills unique to an employee's job. And, did you know that most safety training requires hands-on practice and demonstration, so OJT is a great way to make sure you meet OSHA expectations.

Toolbox Talks

Toolbox talks should be conducted regularly (weekly or daily).

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.

Training records

One of the best ways to keep both the employer and all employees safe is to ensure strong safety training documentation. It's not just a good idea for the employer to keep complete and accurate records of all safety and health training; it's required by more than 100 OSHA standards. It's also recommended by ANSI Z490.1-2009.

Records can provide evidence of the employer's good faith effort to comply with OSHA standards. Strong documentation can also help the employer defend against claims of negligence. Documentation can also supply an answer to one of the first questions an accident investigator will ask: "Was the injured employee adequately trained to do the job?"

Attendance Rosters

If your training or safety meeting presents general information related to safety, it's most likely considered safety "instruction." When conducting general safety instruction, we may not need to evaluate employee performance to determine ability to perform specific hazardous procedures. It may be perfectly fine to use a simple attendance roster to document the training. An attendance roster may include the following information:

- a. date
- b. subject
- c. names attendees

- d. other identifying information

Formal Certification of Training

When OSHA or any safety training requires employees to demonstrate knowledge and skills in performing hazardous procedures or using safe practices, an attendance roster may not be legally sufficient to document the training.

Technical safety training should include testing and formal (written) certification. Certification of training usually involves issuing a certificate of competency or qualification.

According to ANSI Z490.1-2009, Section 7.4, Issuing Certificates, recommended certification of training should include:

- trainee's name
- course title
- date, location and hours of instruction
- statement that the trainee has successfully completed the course
- name and address of training provider
- date periodic refresher training is due (if required) or expiration date
- a unique trainee identification number
- the level of training or type of certificate awarded
- any other information required by regulation
- number of credits (CECs, CEUs, etc.), if issued. Make sure employees have met all requirements for credits.

To make your documentation stronger, you may want to consider including the following information:

- trainee statement that he/she was provided opportunity to ask questions and perform procedures and practices.
- trainer statement that trainees, through testing, demonstrated adequate knowledge.

- trainer statement that measurement (testing) of knowledge and skills was conducted and that trainees met or exceeded required levels of performance.
- trainee statement of intent to comply with the procedures, practices, policies, and rules.
- trainee statement of understanding that failure to comply may result in discipline.
- a list or description of the specific subject(s) being trained. Describe the safety procedures, practices, policies, rules addressed in training.
- a list or description of the specific procedures practiced in the learning environment.
- certification - a place for trainee and trainer signatures

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
_____	_____	_____
_____	_____	_____
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 has 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

Notice that supervisor certification of competency is included as part of the training document. This certification evaluates employee knowledge and skills in the actual work environment. Including this will help ensure employees are "fully qualified" to perform hazardous procedures and practices.

On the second page of the sample training certification, information about the subjects, performance exercises, and tests is described.

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.

Sample Training Certification - Page 2

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)

Job Hazard Analysis

Determining the content of training for employee populations at higher levels of risk like construction is similar to determining what any employee needs to know, but more emphasis is placed on the requirements of the job and the possibility of injury.

One of the best tools for determining training content and required skills for hazardous construction job requirements is the Job Hazard Analysis described earlier. This procedure examines each step of a job, identifies existing or potential hazards, and determines the best way to perform the job in order to reduce or eliminate the hazards. Its key elements are:

1. job description
2. job location

3. key steps (preferably in the order in which they are performed)
4. tools, machines and materials used
5. actual and potential safety and health hazards associated with these key job steps
6. safe and healthful practices
7. apparel and equipment required for each job step

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. As far as OSHA is concerned, if it isn't in writing _____.
a. there must be a verbal confirmation
b. the employer must explain the procedure
c. completion of training is based on observation
d. it probably didn't get done**
- 2. To help make sure managers, supervisors, and employees perform to CSMS standards, they must receive adequate safety _____.
a. indoctrination and special education
b. training on various OSHA guidelines
c. orientation, instruction, and technical training
d. knowledge of consequences of failure to comply**
- 3. An attendance roster that lists date, subject and names of those attending may be sufficient as what type of training document?
a. Safety instruction
b. Technical safety training
c. All safety training
d. Training that measures skills**
- 4. How many OSHA standards require safety and health training?
a. More than 40
b. More than 60
c. More than 80
d. More than 100**

- 5. What is one of the best tools for determining training content and required skills for hazardous construction job requirements?**
- a. Job Hazard Analysis
 - b. Videos
 - c. Online training
 - d. Classroom training

Module 7: Worksite Analysis

Conducting a Worksite Analysis

As part of the deployment process, it's important to make sure the CSMS is working effectively. To do that conduct regular worksite analyses to analyze and evaluate the performance (results). Conduct systematic actions that provide information as needed to recognize and understand the hazards that exist, and work practices used on each worksite.

Listed below are types of worksite analysis actions that can assist you with making an inventory of potential and actual hazards in your worksite:

1. Job safety analysis.
2. Comprehensive hazard surveys (insurance inspections, OSHA consultation, etc.).
3. Hazard analysis of changes in your worksite (new equipment, new processes).
4. Regular site safety inspections (employee and management).
5. Employee report of hazards or potential hazards.
6. Accident and incident investigations with corrective actions and follow-up.
7. Injury and illness trend analysis.
8. Personal protective equipment assessment.
9. Ergonomic analysis.
10. Specific identification of confined spaces.
11. Identification of energy sources for specific machines.
12. Copies of written inspections and surveys by: fire department, in-house as required by Safety standards (e.g., overhead crane inspections, powered industrial truck daily inspection, etc.).

OSHAcademy courses 702, 704, 706, 707, 709, 710, and 711 cover these topic areas.

Analyzing a Construction Worksite

Each of the following program components should be analyzed on the worksite. Use a checklist to help make sure your analysis is efficient and accurately identifies hazards. Be sure to document what you find whether it is in conformance or not.

1. **Program Administration** – OSHA postings, emergency numbers, HAZCOM labels, training and meeting documents, incident reports, medical kits, etc.
2. **Housekeeping/Sanitation** – Work area orderliness, passageways/walkways clear, lighting, waste containers, sanitary facilities, eating/drinking area.
3. **Fire Prevention** – Fueling/Welding areas, GFCI and overcurrent protection, breaker boxes, lockout/tagout procedures, drop cords, utility lines located and marked, overhead lines, high-voltage lines.
4. **Fall Protection** – Hazards identified and controlled; such as guardrails, walking-working surfaces, skylights, floor holes, window openings, fall protection systems (arrest and restraint systems), equipment use/care, and inspections.
5. **Hand and Power Tools** – Training documentation, defective or damaged tools, proper tools for the job being used, power tool grounding and insulation, condition of cords, mechanical safeguards, power-actuated tools.
6. **Ladders/Stairs** – Ladder inspections, training documentation, condition of ladders, job-made ladders in use, proper ladders for job, ladders secured, extend above landing, step ladders fully open, overhead electrical exposures, stair pans filled, stair railings.
7. **Scaffolds** – Proper erection, supervision, inspection procedures, training documentation, competent person, connections, footing and mudsills, scaffold secured to building, protection from falling objects, scaffold access, planks properly placed and secured, debris, ice, snow, overhead electrical exposure.
8. **Excavation and Shoring** – Competent person, soil analysis documentation, proper equipment (coffins, etc.), area supervision, adjacent structures shored, excavation barricaded, cave-in protection, spoils set back, ladders adequate and properly spaced, equipment away from edge, PPE use.
9. **Heavy Equipment/Motor Vehicles** – Maintenance and inspection, operations manuals available, operator qualification, training documents, roads, speed limits, seat belts in

use, vehicle inspections, wheels properly chocked, glass/windows, weight limits and load capacities, personnel properly riding vehicles.

10. **Welding and Cutting** – Extinguishers available, firewatch posted, screens and shields adequate, cylinders secured and stored, proper PPE being used, training documentation, electrical grounding, cables.
11. **Materials Handling and Storage** – Materials properly stored and stacked, dust protection, proper number of workers for job, proper ergonomics practices, training documentation.
12. **Barricades and Fencing** – worksite properly fenced, condition of fencing, evidence of tampering, roadways and sidewalks protected, proper access, traffic control measures, training documentation.
13. **Cranes, Derricks and Hoists** – Equipment maintenance and inspections, equipment support and proper outriggers, proper load capacities posted and observed, use of signalman as necessary, overhead electrical exposure, training documentation for operators and signalman.
14. **Roadway Construction** – Local regulations, permits, ordinances observed, use of PPE, flagman use as necessary, postings and signage, warning markers, training documentation.
15. **Demolition** – Preplanning and documentation, protection of public and property/structures, clear areas for chutes and trucks.
16. **Personal Protective Equipment** – Training documentation, eye/face protection, hand protection, head protection mandatory, foot protection, fall protection, respiratory protection, proper ventilation, noise testing and protection, high visibility vests, outerwear.

Recognized and Foreseeable Hazards

In conducting the worksite analysis, it's important to look for hazards that are generally recognized within the industry, and those hazards that should be foreseeable on the worksite.

"Recognized" Hazards

As described in OSHA's Field Compliance 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 during or before the OSHA inspection, or instances where employees have clearly called the hazard to the employer's attention.
- **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.

"Foreseeable" Hazards

An important, and potentially difficult, question to ask about the nature of worksite hazards relates to whether they are "foreseeable." The question of foreseeability should be addressed by safety managers during the worksite analysis. A hazard for which OSHA issues a citation must be reasonably foreseeable. However, all the factors which could cause a hazard need not be present in the same place at the same time in order to prove foreseeability of the hazard.

Example: If sufficient quantities of combustible gas and oxygen are present in a confined area to cause an explosion if ignited, but no ignition source is present or could be present, no OSHA duty clause Section 5(a)(1) violation would exist. However, if the employer has not taken sufficient safety precautions to preclude the presence or use of ignition sources in the confined area, then a foreseeable hazard may exist. NOTE: It is necessary to establish the reasonable foreseeability of the workplace hazard, rather than the particular circumstances that led to an accident/incident. (Source: FOM)

New Equipment, Processes, and Worksite Hazard Analysis

Designate a competent person to analyze new equipment, processes, procedures and materials on the worksite for hazards and potential hazards at your companies work sites.

Document the findings and develop plans to minimize or design out the hazards using the “hierarchy of control” strategies. (See course 704 for more on this topic)

Job Hazard/Safety Analysis

A Job Hazard/Safety Analysis (JSA) should be used to determine potential hazards and identify methods to reduce exposure to the hazards at your work sites. (See course [706 Conducting a Job Hazard Analysis](#) for more on this topic).

Job Safety Analysis is a method of planning for Safety. There are three basic parts to a JSA.

1. The first component of a JSA is breaking down a job or task into the specific steps it takes to complete the job. Although this can be done in small detail, typically only the major steps are listed. This often results in five to ten steps. The steps are listed in chronological order, listing the first thing that should be done, then what comes next, and so on.
2. The second component of a JSA is to list all the hazards that are involved in each step. There may be many hazards that get listed next to some steps and may not be any associated with some steps.
3. The third step is to write down how each hazard will be eliminated or controlled. In other words, describe what needs to be done in order to perform that task safely.

Sample JSA Form				
Job Title:	Page: __ of __	JSA No.	Date:	☐ New ☐ Revised
Equipment:	Supervisor:	Analysis by:		
Department:	Approved by:			
Required Personal Protective Equipment (PPE):				
Job Steps	Potential Hazards	Recommended Safe Job Procedures		
Trainee(s) Name:			Training Date:	
Trainer(s) Name:			Trainer(s) Signature:	
Four-Step Instruction Completed?	Prepare the Worker..... Trainer(s) Initials Present the Operation..... Trainer(s) Initials Try Out Performance..... Trainer(s) Initials Follow Up..... Trainer(s) Initials			
Comments:				

Note: Job Hazard Analysis is often called different things. Other names for it include: job hazard analysis, job task analysis, task hazard analysis, safe work procedure, and safety task analysis.

Employee Hazard Reports

Employees play a key role in identifying, controlling, and reporting hazards that may occur or already exist in your worksite. Employee 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.

They can also help to determine if any trends in hazardous conditions or unsafe behaviors exist.

Informal and Formal Employee Observation Processes

An informal observation process is nothing more than being watchful for hazards and unsafe behaviors throughout the work shift. No special procedure is involved. All employees should be expected to look over their work areas once in a while.

One of the most effective proactive methods to collect useful data about the hazards and unsafe behaviors at the worksite is the formal observation program because it includes a written plan and procedures.

For example, safety committee members or other employees may be assigned to complete a minimum number of observations of safe/unsafe behaviors during a given period of time. This data is gathered and analyzed to produce graphs and charts reflecting the current status and trends in employee behaviors.

Posting the results of these observations tends to increase awareness and lower injury rates. But, more importantly, the data gives valuable clues about safety management system weaknesses.

Observation is important because it can be a great tool to effectively identify behaviors that account for fully 95 percent of all worksite injuries. The walk-around inspection, as a method for identifying hazards, may not be as effective as observation in identifying unsafe behaviors.

Worksite Safety Inspections

Inspections are the best understood and most frequently used tool to assess the worksite for hazards. Much has been written about them, and many inspection checklists are available in various OSHA publications. The term "inspection" means a general walk-around examination of

every part of the worksite to locate conditions that do not comply with safety standards. This includes routine industrial hygiene monitoring and sampling.

Inspection Frequency

The regular site inspection should be done at specified intervals. The employer should inspect as often as the type of operation or character of equipment requires.

The inspection team can document in writing the location and identity of the hazards and make recommendations to the employer regarding correction of the hazards. Regular inspections of satellite locations should be conducted by the committee team or by a person designated at the location.

The frequency of a safety inspection depends on the nature of the work being performed and the worksite. More frequent change and higher probability for serious injury or illness require more frequent inspections. For construction sites, daily inspections are a must because of the rapidly changing nature of the site and its hazards.

At small fixed worksites, the entire site should be inspected at one time. And even for the smallest worksite, inspections should be done at least quarterly. If the small worksite uses hazardous materials or involves hazardous procedures or conditions that change frequently, inspections should be done more often.

Incident and Accident Investigation

Your company should conduct an investigation for all injury accidents, property-damage incidents and non-injury near misses. Be sure to adequately document all reports. Only those who are properly trained and trusted should conduct investigations involving injury or property damage.

The primary goal of conducting an investigation is to determine the “root cause(s),” or system weakness in the “6-Ps” of the CSMS: plans, programs, policies, processes, procedures and practices. Uncovering the root causes will best help to prevent the risk of future incidents and accidents on the worksite.

Investigation reports should help determine injury and illness trends over time, so that patterns with common root causes can be identified and prevented. Investigations should not place blame.

Accidents and “near-miss” incidents should be investigated by qualified and trained persons in your company. It’s important that the person also be one who is trusted by employees.

The reports should be reviewed by the executive in charge your company (or the person in your company that has the power and ability to address the findings of the report) and the Safety Committee within a specified amount of time after an accident/incident. (More on this topic in course [702 Effective Accident Investigation](#)).

Module 7 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 worksite analysis should be conducted through systematic actions that provide information as needed to recognize and understand the ____.**
 - a. factors that increase production
 - b. weaknesses in the structural integrity of the worksite
 - c. hazards and potential hazards on the worksite
 - d. complexity of employee morale

- 2. John is conducting an accident investigation. What is his primary goal?**
 - a. To determine the surface cause(s)
 - b. To determine the root cause(s)
 - c. To reduce the company's liability
 - d. To increase the company's defense against litigation

- 3. As described in OSHA's Field Compliance Manual, recognition of a hazard is established on the basis of each of the following criteria, EXCEPT ____.**
 - a. industry recognition
 - b. employer recognition
 - c. common sense
 - d. foreseeability

- 4. Observation is important because it can be a great tool to identify behaviors that account for what percent of all worksite injuries?**
 - a. 95
 - b. 70
 - c. 50
 - d. 100

5. How should a small fixed worksite be inspected for hazards?

- a. Employees should inspect separate parts of the worksite at differing times.
- b. On an annual basis by a single person.
- c. At most on a quarterly basis and must include a union representative.
- d. The entire site should be inspected at one time, and should be done at least quarterly.

Module 8: Controlling Worksite Hazards

The Hierarchy of Controls (HOC)

As you learned earlier, there are many different types of hazards in the workplace.

- Hazardous conditions include unsafe materials, equipment, environment and employees.
- Unsafe work practices include allowing untrained workers to perform hazardous tasks, taking unsafe shortcuts, horseplay, or long work schedules.

To combat these hazardous conditions and unsafe work practices, control strategies, called the "Hierarchy of Controls" have been developed.

[ANSI/ASSP Z10-2012, Occupational Health and Safety Management Systems](#), encourages employers to use the following hierarchy of hazard controls:

Hazard Controls

1. Elimination
2. Substitution
3. Engineering controls

Exposure Controls

4. Warnings
5. Administrative controls
6. 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, ones where the risk of illness or injury has been substantially reduced. We'll take a closer look at the hierarchy of control strategies. First, let's learn about "feasible."

"Feasible" Controls

Hazard abatement measures required to correct a hazard must be technologically and economically feasible for the employer. OSHA uses the following criteria to determine feasibility of engineering and administrative controls:

- **Technical Feasibility:** Technical feasibility is the existence of technical know-how as to materials and methods available or adaptable to specific circumstances which can be applied to cited violations with a reasonable possibility that employee exposure to occupational health hazards will be reduced.
- **Economic Feasibility:** Economic feasibility means that the employer is financially able to undertake the measures necessary to abate identified hazards. Economic feasibility is a major issue to be considered when imposing hazard controls.

OSHA may allow the use of PPE to abate a hazard, at least until such time as engineering controls become a less significant economic burden for the company when the following conditions are met:

1. If significant reconstruction of a single establishment involving a capital expenditure which would seriously jeopardize the financial condition of the company is the only method whereby the employer could achieve effective engineering controls;
2. If there are no feasible administrative or work practice controls; and
3. If adequate personal protective equipment or devices are available.

Elimination and Substitution

Elimination and substitution, while most effective at reducing hazards, also tend to be the most difficult to implement in an existing process. If the process 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.

These strategies are considered first because they have the potential to completely eliminate the hazard, thus greatly reducing the probability of an accident due to the hazard.

Some examples of these two strategies include:

- Removing the source of excessive temperatures, noise, or pressure - this is "elimination."
- Substituting a toxic chemical with a less toxic or non-toxic chemical - this is "substitution."

Engineering Controls

These controls focus on eliminating or reducing the actual source of the hazard through design or redesign. Other control strategies that generally focus on employee exposure to the hazard.

The basic concept behind engineering controls is that, to the extent feasible, the work environment and the job itself should be designed to eliminate hazards or reduce exposure to hazards.

While this approach is called engineering controls, it does not necessarily mean that an engineer is required to design the control. Redesigning or replacing equipment or machinery may be expensive, but remember, the cost per medically consulted injury can be more than \$42,000, and the cost per death \$1,500,000 or more.

Remember: No hazard or No exposure = No accident.

Engineering controls do not necessarily have to be expensive or complicated. They can be quite simple in some cases. Engineering controls are based on the following broad strategies:

1. If feasible, design or redesign the tools, equipment, machinery, materials and/or facility.
2. Enclose the hazard to prevent exposure in normal operations; and
3. If complete enclosure is not feasible, establish barriers or local ventilation to reduce exposure to the hazard in normal operations.

Some examples of this strategy include:

- Redesigning a process to reduce exposure to a hazardous moving part;
- Redesigning a work station to relieve physical stress and remove ergonomic hazards; or
- Designing general ventilation with sufficient fresh outdoor air to improve indoor air quality and generally to provide a safe, healthful atmosphere.

Enclosure of Hazards

When you cannot remove a hazard and cannot replace it with a less hazardous alternative, the next best control is enclosure. Enclosing a hazard usually means that there is no hazard exposure to workers during normal operations. There still will be potential exposure to workers during maintenance operations or if the enclosure system breaks down. For those situations, additional controls such as safe work practices or personal protective equipment (PPE) may be necessary to control exposure.

Some examples of enclosure designs are:

- Complete enclosure of moving parts of machinery;
- Complete containment of toxic liquids or gases from the beginning to end of a process;
- Glove box operations to enclose work with dangerous microorganisms, radioisotopes, or toxic substances; and

- Complete containment of noise, heat, or pressure producing processes with materials especially designed for those purposes.

Barriers or Local Ventilation

When the potential hazard cannot be removed, replaced, or enclosed, the next best approach is a barrier to the exposure or, in the case of air contaminants, local exhaust ventilation to remove the contaminant from the workplace.

Barriers and local ventilation involve potential exposure to the worker even in normal operations. Consequently, they should be used only in conjunction with other types of controls, such as safe work practices designed specifically for the site condition and/or PPE. Examples include:

- ventilation hoods in laboratory work
- machine guarding, including electronic barriers
- isolation of a process in an area away from workers
- baffles used as noise-absorbing barriers
- nuclear radiation or heat shields

Warnings

With the release of ANSI Z10-2012, "warnings" have been promoted to their own hierarchy level. Previously they were considered part of administrative controls. Warnings do not prevent exposure to a hazard, but they do provide a visual or audible indicator to warn people of potential danger.

Warnings can be either visual, audible, or both. They may also be tactile. Some examples of warnings are:

- **Visual:** Signs, labels, tags, and flashing/strobe lights.
- **Audible:** Alarms, bells, beepers, sirens, announcement system and horns.
- **Tactile:** Vibration devices or air fans.

For instance, a door could have both a sign warning of a hazard as well as an alarm if opened. Warnings can be effective deterrents, but are not as effective as elimination, substitution, or engineering controls.

OSHA Signs

OSHA's [1910.145, Specifications for accident prevention signs and tags](#) details the following types of signs:

- **Danger Signs** - Signs that alert people to specific and immediate dangers (including radiation hazards).
- **Warning Signs** - Signs that warn people of potential hazards that can lead to death.
- **Caution Signs** - Signs used to alert people to potential hazards. This class can also be used to caution people against certain unsafe practices. This class is for hazards that can result in minor (non-life threatening) accident or injury.
- **Safety Instruction Signs** - These signs offer instructions for how someone should act or perform to avoid possible hazards.

One potential problem when using warnings is the misinterpretation of the warning itself. Does the symbol or text clearly explain what the hazard is to the public? For example, if a sign only contains a written warning, someone might read the sign but not know what the warning actually means. Or, if an alarm sounds, what does the alarm mean? These are challenges when using warnings and why they are not as effective as higher-level controls.

Administrative Controls

Administrative controls are aimed at reducing employee exposure to hazards that engineering controls fail to eliminate. Administrative controls work by designing safe work practices into job procedures and adjusting work schedules. Ultimately, effective administrative controls will successfully eliminate the human behaviors that result in 95% of all workplace accidents!

Administrative controls are only as effective as the safety management system that supports them. It's always better to eliminate the hazard so that you don't have to rely on management controls that tend to work only as long as employees behave. Here's an important principle that reflects this idea:

Any system that relies on human behavior is inherently unreliable.

To make sure management controls are effective in the long term, they must be designed from a base of solid hazard analysis and sustained by a supportive safety culture. They then must be accompanied by adequate resources, training, supervision, and appropriate consequences. Remember, administrative controls should be used in conjunction with, and not as a substitute for, more effective or reliable engineering controls. Now let's look at some examples of some administrative controls.

Safe Work Practices

Safe work practices may be quite specific or general in their applicability. They may be a very important part of a single job procedure or applicable to many jobs in the workplace.

General safe work practices: These are common to most workplaces and include:

- removing tripping, blocking, and slipping hazards
- using safe lifting techniques
- maintaining equipment and tools in good repair
- using personal protective equipment (PPE)

Specific safe work practices: Other safe work practices apply to specific jobs in the workplace and involve specific procedures for accomplishing a job. Examples of specific safe work procedures include:

- wetting down surfaces to keep toxic dust out of the air
- testing the air quality within a confined space
- placing chocks when parking a truck
- placing forks on the ground when the forklift is parked

To develop safe procedures, you conduct a job hazard analysis (JHA). If, during the JHA, you determine that a procedure presents hazards to the worker, you would decide that a training program is needed. We recommend using the JHA as a tool for training your workers in the new procedures. A training program may be essential if your employees are working with highly toxic substances or in dangerous situations.

Personal Protective Equipment (PPE)

Using personal protective equipment is a very important safe work practice. It's important to remember that, like other administrative controls, the use of PPE does not control the hazard itself, but rather it merely controls exposure to the hazard by setting up a barrier between the employee and the hazard. Use of PPE may also be appropriate for controlling hazards while engineering controls are being installed or work practices developed.

PPE Drawbacks

The limitations and drawbacks of safe work practices also apply to PPE. Employees need instruction in why the PPE is necessary and hands-on training on how to use and maintain it. It is also important to understand that PPE is designed for specific functions and are not suitable in all situations. For example, no one type of glove or apron will protect against all solvents. To

pick the appropriate glove or apron, you should refer to recommendations on the safety data sheets (SDSs) of the chemicals you are using.

Your employees need positive reinforcement and fair, consistent enforcement of the rules governing PPE use. Some employees may resist wearing PPE according to the rules, because some PPE is uncomfortable and puts additional stress on employees, making it unpleasant or difficult for them to work safely. This is a significant drawback, particularly where heat stress is already a factor in the work environment. An ill-fitting or improperly selected respirator is particularly hazardous, since respirators are used only where other feasible controls have failed to eliminate a hazard.

Interim Measures

When a hazard is recognized, the preferred correction or control cannot always be accomplished immediately. However, in virtually all situations, interim measures can be taken to eliminate or reduce worker risk. These can range from taping down wires that pose a tripping hazard to actually shutting down an operation temporarily.

The importance of taking these interim protective actions cannot be overemphasized. There is no way to predict when a hazard will cause serious harm, and no justification to continue exposing workers unnecessarily to risk. By the way, OSHA believes there is always some kind of interim measure that can be used to temporarily abate a hazard.

Maintenance Strategies

There are two general types of maintenance processes needed to control hazards:

- Preventive maintenance to make sure equipment and machinery operates safely and smoothly.
- Corrective maintenance to make sure equipment and machinery gets back into safe operation quickly.

Hazard Tracking Procedures

An essential part of any day-to-day safety and health effort is the correction of hazards that occur in spite of your overall prevention and control program. Documenting these corrections is equally important, particularly for larger sites.

Documentation is important because:

- It keeps management and safety staff aware of the status of long-term correction items;

- It provides a record of what occurred, should the hazard reappear at a later date; and
- It provides timely and accurate information that can be supplied to an employee who reported the hazard.

The hierarchy of controls is the standard system of strategies to effectively eliminate workplace hazards. Remember, the first question to ask when considering ways to eliminate a hazard is, "can we apply engineering controls?" You may need to use a combination of strategies to effectively eliminate the hazard. Whatever it takes, do it. You are not just saving a life...you are saving a father, a mother, a son, or a daughter...you are saving a family. It's worth the effort!

Module 8 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. What may be a contributing factor in up to 95 percent of all workplace accidents?**
 - a. Unsafe behaviors
 - b. Unsafe conditions
 - c. Unsafe situations
 - d. Unsafe people

- 2. Which cause category is ultimately responsible for most accidents in the workplace?**
 - a. Hazardous conditions
 - b. Unsafe behaviors
 - c. Management system weaknesses
 - d. Lack of common sense

- 3. Which of the following is not one of the five areas within which all workplace hazards exist?**
 - a. Materials
 - b. Equipment
 - c. Energy
 - d. People

- 4. Which method of controls is most effective at reducing hazards?**
 - a. Elimination and substitution
 - b. Engineering controls
 - c. Administrative controls
 - d. Personal Protective Equipment

- 5. Which method of controls has also proven to be less effective than other measures, requiring significant effort by the affected workers?**
- a. Elimination
 - b. Engineering controls
 - c. Administrative controls
 - d. Substitution

Module 9: Managing Subcontractors

One of the greatest challenges the general or prime contractor has is managing the work that is being conducted by one or more subcontractors on a project. Change is continual on the worksite and subcontractors routinely create hazardous conditions, and unless all employees of other contractors are continually aware, they may get seriously injured or killed by a hazard that didn't exist just moments ago. Consequently, one of the greatest hazards in any construction project is the lack of subcontractor awareness of what's going on around them.

The Project Safety Plan

Both the Project Manager and Project Safety Representative/Manager have the responsibility to take reasonable care to recognize and control all worksite hazards and to make sure subcontractors comply with all safety and health requirements. To do that, a specific project safety plan needs to be written.

A well-designed project safety plan will include most or all the following subjects:

Safety Management System

- Contractor Prequalification
- Contractor Safety Representatives
- Monthly Safety Reports
- Communication
- Communication
- Job Safety
- Plan Overview

Project-Specific Safety Plan

- Accountability Plan
- Audits/Inspections
- Cell Phone Usage
- Confined Space Entry
- Crane Safety and Rigging
- Electric - Temporary
- Emergency Action/Response Plan
- Hazard Communication
- Equipment Safety
- Fall Protection

- Fire Prevention and Protection
- Housekeeping
- Job Hazard Analysis (JHA)
- Job Safety Analysis Form
- Hot Work Permit
- Personal Protective Equipment (PPE)
- Potentially hazardous exhaust systems
- Protection of the Public/Visitors
- Recordkeeping and Incident Reporting
- Rooftop Access
- Smoking
- Substance Abuse Policy
- Temporary Elevators
- Utility Tunnel Safety
- Incident/Accident Reports

General Contractor Responsibilities

The general contractor should take the following actions to help ensure subcontractor safety on the worksite:

- Prior to the start of work on the project, obtain and review site-specific subcontractor safety plans and training records to make sure needed programs are included.
- Ensure coordination and cooperation of subcontractors regarding information and worksite safety and health activities, such as safety training and meetings
- Make sure there is appropriate safety and health communication processes between and among all contractors on the project.
- Require that all subcontractors conduct regular safety and health training and toolbox/tailgate meetings.
- Ensure adequate procedures are in place for non-injury incident and injury accident reporting.
- Develop measures for safety and health and document performance through written reports, audits, and safety inspections.
- Control visitor access to the project.

Steps for Managing Subcontractors

The contractor is responsible to prequalify all subcontractors/trade contractors engaged on a project per their own written prequalification process. Managing subcontractors on the worksite involve these steps for the General Contractor:

- Make sure you require bid documents include subcontractor injury and illness records for the past three years (if the subcontractor has them), and copies of their written safety and health program, including training.
- Establish the criteria for safety and health performance required of potential bidders.
- Select subcontractors who can show they are competent to do the job safely and can demonstrate a history of doing so with a workers' compensation rate at or below 1.0.
- Require subcontractors to develop and implement their own effective CSMS.
- Give selected subcontractors a copy of your worksite safety plan and have them sign an agreement that they intend to comply with all requirements. Get a copy of the subcontractor's safety plan as well.
- Only allow subcontractors on site who have completed safety orientation and training.
- Monitor subcontractor safety performance on the worksite to make sure they are complying with safety rules and policies and using safe work procedures and practices.

As part of the subcontractor bid process, you will want to ask subcontractors for documentation of the following:

- experience modification rate (called a "Mod Rate" or EMR) for the past three years (should be 1.0 or less)
- OSHA Recordable Incident Rate, DART incidents and near misses for the past three years
- OSHA inspection results for the past three years, if available
- incident/accident analysis and investigation procedures
- participation by management and supervisors
- supervisors' safety meetings and toolbox safety meetings
- written safety and health plan
- employee orientation and training

Safety Representatives

Prior to the start of a project, a designated project safety representative/manager should be appointed and required to be on site at all times while work is being performed.

Safety Representative: General and subcontractor designated project safety representatives should have completed and documented at least a 30-Hour OSHA Construction Safety Course and have current CPR/First Aid Training. The project safety representative may also concurrently function as a superintendent, foreman or crew leader on the Project.

Safety Manager/Officer: A dedicated, full-time safety manager should be assigned on large or high-risk projects. If a safety manager is required by contract, he or she should not have any other duties. Safety managers should have earned professional credentials (CSP, CIH, CSHM, etc.) or completed the OSHA 30-Hour Construction Safety Course plus have additional training and experience necessary to understand the management of a project CSMS.

Safety Representative/Manager Duties

During the construction phase it will be important for safety representatives to do the following:

- Conduct regular scheduled and random worksite safety inspections and incident/accident investigations as needed.
- Identify the impact of changes on the worksite in safety and health of workers involved in the project.
- Provide sufficient information on health and safety on the worksite to supervisors and those who will train workers on safety, so they can conduct the necessary training if needed.
- Cooperate and coordinate safety and health with subcontractors and others throughout each phase of the project.
- Provide advice and information regarding the general contractor's health and safety plan to everyone involved with the project.
- Make sure the general contractor and all subcontractors continue to carry out their duties and responsibilities to regularly submit activity reports and hold worksite safety meeting.

Subcontractor Responsibilities

All subcontractors should make sure the following is completed during the project:

- Develop a site-specific written safety and health plan for your particular work activity.
- Identify the hazards of the work you will be doing on the worksite and determine the risks they pose to your employees and other subcontractors, and how these risks will be controlled.

- Maintain written documentation of the training and competence of all employees involved in the project.
- Keep the general contractor informed of all hazardous conditions, non-injury incidents and injury accidents that occur on the worksite.

Correcting Hazards Created by Subcontractors

- Establish and communicate the requirement for and methods that subcontractors can use to promptly correct hazards involving their work activities.
- Make sure subcontractors understand the hazards on the specific worksite, and the hazard other subcontractors may create during the workday. One of the most common reasons for injuries by one subcontractor is the lack of awareness of hazards created by other subcontractors.
- Work with subcontractor to use methods to ensure that hazards are identified, analyzed, corrected, and tracked in subcontractor's work areas.
- Make sure subcontractors have a person assigned responsibility for managing their safety and health program on site.
- Ensure subcontractors effectively implement systems to identify and correct hazards in their work areas and include responsibility for hazard correction in writing.

Multi-Employer Worksites

Most large construction projects are actually multi-employer worksites composed of the general or prime contractor and a number of subcontractors. It's important to understand the safety responsibilities of each employer category as more than one employer may be citable by OSHA for violations. Employers may perform one or more roles on a project.

Multi-Employer Categories

The four employer roles or categories on multi-employer worksites are:

1. **Creating employer:** The employer that caused a hazardous condition that 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 particular 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.

Multiple Roles

As mentioned above, an employer on a multi-employer worksite may, in fact, play a number of roles throughout the project. For instance, an exposing employer may also perform the role of a correcting employer.

For a more complete discussion of these categories, reference [OSHA CPL 02-00-124, X. Multi-employer worksites.](#)

Reasonable Care

It's important for everyone on a project to understand the concept of "Reasonable Care." According to OSHA, reasonable care may be established by meeting the following criteria on multi-employer worksites:

1. The controlling employer should have adequate knowledge of the hazards or violations of the creating or exposing employer.
2. There should be evidence of an effective safety and health program in place for the project.
3. There should be a system in place for identifying and correcting hazards for the project.
4. There should be documentation of regular jobsite safety meetings and or safety training.
5. If creating or exposing employers have a previous history of similar violations, documented steps should have been taken to identify and correct these situations.

Module 9 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. What is one of the greatest hazards on any construction project?**
 - a. A hazardous object falling out of the sky
 - b. A lack of individual common sense
 - c. An inability to foresee hazards
 - d. A lack of awareness of ongoing work activities

- 2. The _____ must take reasonable care to recognize and control all worksite hazards and to make sure subcontractors comply with all safety and health requirements.**
 - a. Project Manager and Project Safety Representative/Manager
 - b. On-site safety professional or registered engineer
 - c. each general contractor and subcontractor employees
 - d. the corporate safety professional

- 3. Select subcontractors who can show they are competent to do the job safely and can demonstrate a history of doing so with a worker's compensation rate _____.**
 - a. at least 1.0
 - b. at or above 0.5
 - c. at or below 1.0
 - d. at least 1.5

- 4. A dedicated, full-time _____ should be assigned on large or high-risk projects. If a safety manager is required by contract, he or she should not have any other duties.**
- a. Safety monitor
 - b. Safety manager
 - c. Safety coordinator
 - d. Safety helper
- 5. On a multi-employer project, the employer that caused a hazardous condition that violates an OSHA standard is called the _____.**
- a. creating employer
 - b. exposing employer
 - c. correcting employer
 - d. controlling employer

Module 10: Improving the CSMS

Continuous Improvement

Think of safety as an important aspect of the quality of production and service. Product quality is elusive. The only way you know you have it is by asking those who define it: the customer. All the company can do is try hard to produce a product that fits the customer's definition of quality. When the product is designed to prevent injury or illness, the customer will define the product as safe. Unfortunately, some companies do not consider safety when designing products. Consequently, they may unintentionally design unsafe or unhealthful features into their products.

Quality and safety are very closely related. Both may be considered error-free performance. When an injury occurs, the "event" increases the number of unnecessary and wasted steps in the production process. So, how does safety fit into a philosophy of continuous improvement?

Every CSMS requires periodic review, analysis, and evaluation to make sure the system is efficiently and effectively operating as intended. Take a careful look at each element in the CSMS to see what is working and what changes are needed. Identify needed improvements and design, develop, and deploy them into the CSMS.

Change Management

After reviewing, analyzing, and evaluating the existing CSMS, you may discover that a number of improvements to the CSMS are necessary. It's important to carefully develop and implement the needed changes using effective change management principles.

W. Edwards Deming

A common change management technique is the Plan-Do-Study-Act (PDSA) Cycle, first developed by Dr. Walter Shewhart, and later successfully applied by W. Edwards Deming. If you remember the 1950s (a few of us still do), you probably remember that Japan did not have a good reputation for producing quality products. Deming was sent to Japan during the post-war occupation to teach quality control methods and he promoted the PDSA Cycle and was partly responsible for Japan's meteoric rise in manufacturing. He believed statistics held the key to improving processes, and that management must take responsibility for quality in the workplace because management controls the processes. He was so successful in helping Japan, he was awarded special recognition for his work.

Today, Deming is considered by many around the world as the father of [Total Quality Management](#) (TQM).

Deming's Plan-Do-Study-Act (PDSA) Cycle

The PDSA Cycle uses a systematic series of steps to gain data for the continual improvement of a product or process. The process is called a "cycle" because the steps are continually repeated. The PDSA Cycle contains four primary steps. These four steps are repeated over and over as part of a never-ending cycle of continual improvement.

Let's see how we can apply these steps to improve the CSMS:

1. **Plan.** Identify a safety goal, supporting objectives, strategies and metrics to measure the change. It's important to limit the scope of the change to reduce the number variables. Too many variables can make it difficult to determine specifically the causes for the results of the change.
2. **Do.** Implement the change, such as a new safety procedure. Make changes at one location to limit the negative impact if the changes do not work.
3. **Study.** Monitor the change to see if it works. Test the validity of the outcomes of the change for signs of progress and success, or problems and areas for improvement.
4. **Act.** Choose one of the following three actions when the cycle is complete:
 - If the change works, keep it.
 - If the change needs improvement, continue the cycle making small changes.
 - If the change does not work at all, throw it out and start over.

Continuous Improvement Principles

Important principles have evolved from companies that perform continuous safety improvement planning and implementation; they represent best practices in continuous safety improvement:

1. Determine the current situation using objective (fact-based) data analysis, not subjective feelings.
2. Set a goal to always address the root causes/system weaknesses. Assume root causes always exist.
3. Focus work and resources on the people, machines, and systems that add value.
4. Improve safety processes through continuous controlled experimentation using the Plan-Do-Study-Act (PDSA) and other methods.
5. Make decisions based on long-term systems improvement.

6. Update or create standardized processes to reduce variation and waste and promote continuous improvement.
7. Employ partnering and knowledge sharing within the company and with external suppliers, customers, and other stakeholders.

OSHA's CSMS Improvement Model

Once the CSMS is established, it should be evaluated initially to verify that it is being implemented as intended. After that, employers should periodically, and at least annually, step back and assess what is working and what is not, and whether the CSMS programs are on track to achieve their goals. Whenever these assessments identify opportunities to improve the program, employers, managers, supervisors, and employees should work together to make adjustments and monitor how well the program performs as a result. Sharing the results of monitoring and evaluation within the workplace, and celebrating successes, will help drive further improvement.

OSHA's CSMS evaluation and improvement contains three steps or "action items:" Monitoring, verification, and corrective actions. The basic components of the three-step process include:

- **Monitoring:** Establishing, reporting, and tracking goals and targets that indicate whether the program is making progress.
- **Verification:** Analyzing and evaluating the program initially, and periodically thereafter, to identify shortcomings and opportunities for improvement.
- **Corrective actions:** Providing ways for workers to participate in mitigating hazards and making improvements.

Action Item 1: Monitor Performance and Progress

The first step in monitoring is to define indicators that will help track performance and progress. Next, employers, managers, supervisors, and workers need to establish and follow procedures to collect, analyze, and review performance data.

Both lagging and leading indicators should be used.

- **Lagging indicators** generally track worker exposures and injuries that have already occurred.
- **Leading indicators** track how well various aspects of the program have been implemented and reflect steps taken to prevent injuries or illnesses before they occur.

It's more important to track leading indicators as they are predictive of future performance.

How to Accomplish It

Develop and track indicators of progress toward established safety and health goals.

- Track lagging indicators, such as:
 - Number and severity of injuries and illnesses
 - Results of worker exposure monitoring that show that exposures are hazardous
 - Workers' compensation data, including claim counts, rates, and cost
- Track leading indicators, such as:
 - Number of employee safety suggestions
 - Number of hazards, near misses, and first aid cases reported
 - Number of workers who have completed required safety and health training
- Analyze performance indicators and evaluate progress over time.
- Share results with employees and invite their input on how to further improve performance.
- When opportunities arise, share your experience and compare your results to similar facilities within your organization, with other employers you know, or through business or trade associations.

Indicators can be either quantitative or qualitative. Whenever possible, select indicators that are measurable (quantitative) and that will help you determine whether you have achieved your program goals. The number of reported hazards and near misses would be a quantitative indicator. A single worker expressing a favorable opinion about program participation would be a qualitative indicator.

Action Item 2: Verify Program Deployment

Initially and at least annually, employers need to evaluate the program to ensure that it is operating as intended, is effective in controlling identified hazards, and is making progress toward established safety and health goals and objectives. The scope and frequency of CSMS program evaluations will vary depending on:

- changes in OSHA standards;
- the scope, complexity, and maturity of the program; and
- the types of hazards it must control.

How to Accomplish It

- Verify that the core elements of the program have been fully implemented on each of your job sites.

- Involve workers in all aspects of program evaluation, including reviewing information (such as incident reports and exposure monitoring results); establishing and tracking performance indicators; and identifying opportunities to improve the program.
- Verify that the following key leading-indicators are being tracked and processes are in place and operating as intended:
 - Reporting injuries, illnesses, incidents, hazards, and concerns
 - Conducting job site inspections and incident investigations
 - Tracking progress in controlling identified hazards and ensuring that hazard control measures remain effective
 - Collecting and reporting any data needed to monitor progress and performance
- Review the results of any compliance audits to confirm that any program shortcomings are being identified. Verify that actions are being taken that will prevent recurrence.

Action item 3: Correct CSMS Weaknesses

Program evaluations should be conducted periodically (and at least annually) but might also be triggered by a change in process or equipment, or an incident such as a serious injury, significant property damage, or an increase in safety-related complaints. Whenever a problem is identified in any part of the safety and health program, employers, in coordination with supervisors, managers, and workers, should take prompt action to correct the problem and prevent its recurrence.

How to Accomplish It

- If you discover program shortcomings, take actions needed to correct them.
- Proactively seek input from managers, workers, supervisors, and other stakeholders on how you can improve the program.
- Determine whether changes in equipment, facilities, materials, key personnel, or work practices trigger any need for changes in the program.
- Determine whether your performance indicators and goals are still relevant and, if not, how you could change them to more effectively drive improvements in worksite safety and health.

Institute World-Class Leadership

According to W. Edwards Deming, "the aim of supervision should be to help people and machines do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers."

The key to adopting and instituting leadership, of course, lies at the top. Management needs to lead by example, action, and word. The leader "cares" about those he or she leads. After all, the management's success is tied to the success of all employees. The "servant leadership" (leaders serve those whom they lead) model fits well into the ideas expressed by Deming and others.

There is no better way to demonstrate sound principles of leadership and commitment than in making sure employees have the support, resources, training, and time to use safe work procedures at a job site. Ensuring safety is one of the most visible undertakings management can take to show employees that they are not merely hired hands who can be replaced but are valued human resources: a part of the family.

Drive Out Fear

To have an effective safety culture and CSMS, Deming believed that we must first, "drive out fear so that everyone may work effectively for the company."

Driving out fear is the most important requirement when deploying an effective CSMS. You must begin here first. Management controls the workplace. It influences the standards of behavior and performance of its employees by creating cultural norms in the workplace that dictate what are and are not acceptable behaviors. Management may rely solely on safety rules and progressive discipline (negative reinforcement) in their attempt to control the safety behavior and performance of its employees. However, a strategy such as this, that may be successful in forcing compliance, is never successful in producing excellence in product or process. Strategies using fear and control are rarely, if ever successful. What develops from such a strategy is a controlling, compliance driven climate of mistrust and disgust; only a shell of an effective CSMS.

Managers and supervisors can drive out fear through a real commitment to:

- fact-finding, not fault-finding;
- uncovering the weaknesses in the system that allow unsafe work practices and hazardous conditions to exist;
- educating and training everyone so that those weaknesses are strengthened; and
- recognizing employees for appropriate safety performance.

Doing these things will help build trust between labor and management. Morale and motivation improve because employees are not afraid to report safety concerns to management. In an effective CSMS, a safety concern is never considered a complaint.

Take Action

Put everybody in the company to work to accomplish CSMS improvement. The improvement process is everybody's job. What a great concept! Put everybody to work to improve the safety culture and CSMS.

Here's the hard part. Someone must have the vision: If not top management, who? How do you shift responsibility for safety from the safety director and/or safety committee to line management? If the effort does not have the blessing of the CEO (with action); real improvement may never be successful.

The safety committee may serve as the catalyst to initially begin the planning for CSMS improvement. If top management balks at the need for an improvement process, focus on "educating up" by emphasizing the benefits. The safety committee must provide the education to influence the perceptions that ultimately shape the transformation.

Module 10 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. Quality safety in the workplace may be thought of as one aspect of _____ - free performance.**
 - a. quality
 - b. emotion
 - c. error
 - d. stress

- 2. Who is considered to be the father of Total Quality Management?**
 - a. Peter Drucker
 - b. Howard Trump
 - c. W. Edwards Deming
 - d. Bill Gates

- 3. Safety can never be understood or properly appreciated if the _____ view is taken by management.**
 - a. national
 - b. global
 - c. long-term
 - d. short-term

- 4. According to Deming, what is the most important requirement when implementing a Total Quality Safety Management process?**
 - a. Instituting continuous safety education and training
 - b. Expressing constancy of purpose
 - c. Driving out fear in the workplace
 - d. Purchasing safe materials and equipment

5. What must we do if top management does not give or see the need for the CSMS improvement process?

- a. Educate up
- b. Go to the union
- c. Call OSHA
- d. Hope things will get better