

# ESSENTIAL 29: Driver Safety

## Key Takeaways:

- Recognizing examples of poor driving behaviors like distracted driving, speeding, driving under the influence, and driving tired (fatigued); how to avoid poor behaviors while driving; and the safety benefits of wearing seat belts and following company policies and procedures.
- Understanding how proper vehicle maintenance can prevent driving accidents, in addition to the benefits of keeping emergency preparation items in the car trunk.
- Learning safe driving practices in adverse weather conditions or at night, and how to stay safe on the roadway when presented with an emergency situation.
- Comprehending defensive driving practices, how to respond to distracted drivers, and how to respond appropriately to others using the roadway.

## Course Description

Consider truck drivers – hauling freight is what they do. Great training and caution are fundamental to keeping your mobile workforce safe.

The caution you exercise while driving combined with your vehicle's condition determines your safety on the road. A frequently overlooked safety precaution is proper vehicle maintenance. Bald or low pressure tires, poor wiper blades, and dirty lights will all interfere with your visibility and the vehicle's maneuverability. You should replace your tires if the tread depth is less than 3/32nd of an inch, which can be determined by putting a penny upside down into your tire tread. If the top of Lincoln's head is visible, you need to replace your tires. Your vehicle can be disabled by worn, cracked, or loose hoses and belts, leaving you stranded. Loose dashboard items are very dangerous because during an accident, these objects become

missiles.

#### External Condition Cautions:

- Predict potential slippery or other dangerous road conditions and adjust your driving to suit conditions.
  - If you identify hazardous road conditions, slow down. Reducing speed allows you to identify and react to hazardous conditions sooner.
  - Be extra cautious while driving at night and in fog, heavy rain, or snow.
  - Turn on headlights after sunset or when visibility is 1000 feet or less (1000 feet = 330 yards or about 3 football fields). Drivers are also encouraged to use headlights in daylight hours.
- Other Driving Cautions
- Appropriately manage your speed with driving conditions.
  - Pay attention to slower moving vehicles, especially trucks on hills.
  - Do not forget, if you cannot see a truck's mirrors, the truck driver cannot see you.
  - Watch for motorcycles.
  - Scan for pedestrians and cyclists – they have the right of way.

#### Defensive Driving:

- Be extra cautious when your vehicle is in reverse.
- Look ahead at least 10 seconds, 1/4 mile, or to the next intersection or curve.
- Scan any traffic behind you frequently.
- When necessary, reduce your speed.
- Have caution when nearing intersections.
- Be aware of what other drivers do.
- Notify other drivers of what you plan to do.
- Prevent sudden changes in speed or direction.
- Lightly brake when trying to stop on a slippery surface and do not pump ABS brakes.
- Do not use cruise control on slippery or icy roads.
- Patiently adjust to the flow of traffic.
- Scan your blind spot before changing lanes.

- Be cognizant of other vehicles changing lanes.
- Have a safe following distance, which should range between 2 and 4 seconds depending on weather and other driving conditions.

When analyzing this safe distance, watch the vehicle ahead of you pass a specific mark. Proceed to count “one-thousand-one, one-thousand-two., etc.” up to 4. In the case that your front bumper passes the same mark before you finish counting, you’re following too closely. Allow plenty of space between your vehicle and the other vehicles around you, protecting you from others. Maintain that space cushion on all sides of you – ahead, to each side, and behind. When a vehicle is following you too closely, increase your following distance and increase your space cushion. As well, if you stop near or behind a truck or other large vehicle align your vehicle so the other driver can see you. Again, remember that if you cannot see their mirrors, they cannot see you.

In the case that your vehicle breaks down, drive your vehicle off the roadway as far as you can, when possible. Proceed to signal for help by turning on your vehicle’s emergency flashers, tying a white handkerchief or scarf to the window or antenna, or by raising the vehicle’s hood and if possible, set out flares or portable warning signals. Wait where you are; don’t walk along the freeway. As well, be cautious when strangers offer help. If you cannot do so, ask them to call the authorities. Be wary of people who are not police officers, firefighters, or traffic control personnel that signal for you to stop. In the case that your car is bumped from behind in a secluded or dark area, or if you are followed and are not sure of the follower’s intentions, go to the nearest well-lighted and busy public area, police department, or fire station and call for police assistance.

While this lesson familiarizes employees with the hazards of driving and methods to protect them from potential driving crashes, it is not intended to cover driving requirements. Such uncovered requirements may include commercial motor vehicles (CMVs) or the use of a commercial driver’s license (CDL), for examples. As well, this lesson does not address safety concerns

associated with the use of off-road (ATV) vehicles, motorcycles, towing a trailer, or load securement while hauling equipment such as in the bed of a pickup truck.

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## Driver Safety – Spanish

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Other Driving Cautions – Appropriately manage your speed with driving conditions.

- Pay attention to slower moving vehicles, especially trucks on hills.
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ask them to call the authorities. Be wary of people who are not police officers, firefighters, or traffic control personnel that signal for you to stop. In the case that your car is bumped from behind in a secluded or dark area, or if you are followed and are not sure of the follower's intentions, go to the nearest well-lit and busy public area, police department, or fire station and call for police assistance. While this lesson familiarizes employees with the hazards of driving and methods to protect them from potential driving crashes, it is not intended to cover driving requirements. Such uncovered requirements may include commercial motor vehicles (CMVs) or the use of a commercial driver's license (CDL), for examples. As well, this lesson does not address safety concerns associated with the use of off-road (ATV) vehicles, motorcycles, towing a trailer, or load securement while hauling equipment such as in the bed of a pickup truck.

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## **ESSENTIAL 29: Trenching and Excavation – Construction**

### **Key Takeaways:**

- Recognizing safety requirements when setting up an excavation site.
- Evaluating hazards in and around an excavation, trenching, and shoring site.
- Developing precautions, protective measures, and the types of support systems used at an excavation site.
- Acknowledging cave-in protection requirements and learning proper procedures to keep employees safe on an excavation.

### **Course Description**

Of all annual occupational deaths in the nation, deaths caused by excavation cave-ins account for nearly 1%.

Prior to any excavation, trenching, or shoring activities, you

must take specific steps to setup the site to avoid the accidental disruption of utilities, and assure the stability of adjacent structures—you need to engineer some controls and take precautionary measures. You may need to ensure your safe access into and out of the excavation and avoid the hazards of contaminated atmospheres, falling materials, and the collapse of excavation walls, through the use of protective systems. Numerous things can go wrong with these scenarios, so awareness and preparedness are critical priorities for protecting everyone.

Before opening an excavation, you need to take the proper steps to protect yourself, other employees, and any underground equipment. Firstly, your employer must determine the location of utility installations, such as sewer, telephone, fuel, electric, and water lines, or any other underground installations. Majority of areas have a “call before you dig” local resource for locating problem dig areas, so that’s a good number to have and share with your team; if excavation work is a daily part of your business, that number should be memorized.

For everyone’s safety, the excavation needs to have a proper method of access and escape. Varying with the size of the excavation, this could mean structural ramps, stairs, or ladders, to be used only by authorized employees; it is fundamental that these areas are clearly marked to keep non-participants, like other contractors on a job site, out and away for excavation operations.

Below are basic safety precautions for you to implement while performing excavation work:

- Excavations less than four feet in depth do not require a stairway, anchored ladder, or ramp. Excavations at or over four feet in depth require one of these structures, or other safe means of access and egress. This way, employees do not have to travel more than 25 feet to get out of the excavation from any point within the excavation.
- As well, walkways need to be provided where employees or equipment are permitted to cross over excavations. Guardrails that satisfy OSHA requirements must be provided where walkways are 6

feet or more above lower levels. Be cognizant of your surroundings. Do not go beneath loads handled by lifting or digging equipment.

- Avoid vehicles that being loaded or unloaded, to avoid being struck by any spillage or falling materials. When the vehicles are equipped to provide adequate protection for the operator, they can stay in vehicle cabs that are being loaded or unloaded.
- Warning devices must be in place whenever mobile equipment is operated next to or near the edge of an excavation and the operator does not have a clear view of the edge of the excavation. Examples of warning systems include barricades and stop logs, and hand or mechanical signals. Whenever possible, all grade should be sloped away from the excavation.
- Always have emergency rescue equipment available. Breathing apparatuses should always be on site, in addition to a safety harness and lifeline, both of which are required in confined spaces, and a basket stretcher.
- Use diversion ditches, dikes, or other suitable methods to prevent surface water from entering the excavation and to provide adequate drainage of the area next to the excavation.
- Anywhere that the stability of nearby buildings, walls, or other structures is endangered by excavation operations, support systems are required. Examples include shoring, bracing, and underpinning, to ensure stability and protect employees.
- During an excavation, you need to have protection from cave-ins. A protective systems purposed for this could include sloping and bench systems, and support systems, such as aluminum hydraulic shoring. Also, these systems need to have the capacity to resist any reasonably expected load that could be applied to the system.

# Ergonomics

## Course Description

Learning about ergonomics can prevent injury. This course explains why ergonomics helps prevent office injuries, provides ideas and procedures to prevent pain or injury, and describes strategies for the office to be more ergonomic.

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## Fundamental 55: Office Ergonomics (Spanish)

## Course Description

Learning about ergonomics can prevent injuries. This course explains why ergonomics helps prevent injuries in the office, provides ideas and procedures to prevent pain or injury, and describes strategies to make the office more ergonomic. (Spanish Version)

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## BETTER BUSINESS: Ethics

Key Takeaways:

- Understanding the definition of ethics, state the purpose of an Ethics program, and list its common characteristics.
- Recognizing ethical standards for fairness and honesty, accurate record keeping, the treatment of other employees, political

contributions, and financial standards—such as time charging and preservation of company assets.

- Evaluating conflicts of interest and ethical standards for giving and receiving gifts, gratuities, and entertainment with regard to customers and suppliers in both government and non-government sectors.
- Learning the laws, acts and practices associated with ethics in the workplace.
- Acknowledging the responsibility to comply with ethical expectations and report suspected violations, the disciplinary actions that could result from failure to comply with expectations or report violations, and the available methods for raising ethical concerns and seeking additional counsel.
- Comprehending the application of ethics principles through the use of case studies.

### Course Description

Ethics Programs are meant to constantly reinforce honesty and integrity as the foundation for all other business principles, promote ethical work behavior, individual accountability and responsibility, and to protect employees and the company all accusations of wrongdoing. It can be devastating to a company if they fail to set and protect these high ethical standards.

You may define ethics simply as a solid commitment to integrity, which in turn, is defined as a “strict adherence to a moral code.” A company’s reputation as an organization of honesty and integrity is so crucial to society that you need to do more than simply follow the law. As well, you need to avoid even the appearance of inappropriate conduct.

Characteristics of an Ethics Program – Includes everyone – Incites active support of top management down to local supervisors – Demonstrates a model of ethical behavior – Guides through ethical dilemmas – Identifies questionable situations before they escalate to a violation – Can also require a verbal or written acknowledgement of compliance It is important to note that all employees are expected to act professionally and to tell the truth in every dealing with the company, other employees, customers, and

third parties. Employees need to be truthful in all company statements and entries or other types of communication, including telephone calls, faxes, and emails. As well, the omission of information may be considered a misrepresentation of the truth (not giving the full story in certain circumstances, or sharing only half of the facts). Employees are responsible for accurately completing all company records. Criminal prosecution for both the employee and the company can result from creating bids, proposals, reports, or any other documents containing inaccurate, false, or fraudulent information. Every financial statement and record must also accurately reflect company or customer transactions, and should be properly and promptly recorded. Anti-trust laws preserve a competitive economy for free enterprise to thrive. Companies are legally obligated to compete fairly and ethically for all procurement opportunities. Anti-trust violations are considered felonies and can result in severe penalties, including significant monetary fines and/or imprisonment. Never try to inappropriately obtain or possess a competitor's proposals or proprietary information. Even actions such as talking about prices, bids, and proposals with a competitor can be considered a violation. As well, you must realize that a company who is a customer or supplier in one area of business might actually compete with your company in another. You must not take any action which could be construed as an effort to fix prices or terms and conditions, disclose information about a company proposal, or otherwise limit competition; any agreement with a competitor to limit competition is a violation of anti-trust law. This is what 'white collar' crime looks like. Even though companies usually establish their own specific policies, many are similar throughout the private sector.

- Purchasing Goods and Services – Purchases must solely be based on quality, performance, and price.
- Laws punish all offering, soliciting, or receiving any form of bribe or kickback.
- Legal departments of companies should be advised if any request to engage in such activity is received.
- Relations with Non-Government Personnel – Employees are allowed to, within reason, furnish meals, modest gifts, and entertainment in conjunction with business discussions.
- Employees and supervisors need to use discretion to ensure expenditures are appropriate and could not be

construed as bribes. – Modest gifts are allowed to commemorate a specific holiday or special event. – Companies are allowed to enforce a set dollar limit for gifts, such as \$100. General Guidelines – Every approved expenditures needs to be fully documented. – All questions regarding specific company policy must be referred to management or the company's legal department. – Employees are responsible for avoiding any financial, business, or other arrangement that might not be in the best interests of the company, or cause a conflict with the performance of their duties. – Each employee is entrusted with the use of valuable company assets every day, and is responsible for protecting them from misuse and damage. Company assets can include property and equipment, such as buildings, vehicles, computers, cell phones, and many other items. It is important to note that theft of company or customer property, or other associated crimes are grounds for immediate termination of employment and may result in the filing of a criminal complaint.

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## **ESSENTIAL 29: Machine Guarding**

### **Key Takeaways:**

- Understanding the hazards of working with mechanical equipment, including where those hazards occur and the motions and actions that cause the hazards
- Recognizing the purpose of machine safeguarding, safeguarding device requirements, factors that influence safeguarding methods, and the safeguarding methods used to protect you from mechanical hazards
- Acknowledging your responsibilities to utilize machine safeguards properly

# Course Description

Any machine that is not properly safeguarded can cause serious injury, such as crushed or severed fingers, hands and arms, eye injuries, and even blindness.

If you have seen the gruesome result of a complex machinery accident, then you will appreciate the machine safeguards. Safeguards are the simple devices or methods that protect and make it difficult for workers to injure themselves while working on a machine. They may come in the forms of a shield or guard to protect from sparks, or a grate that keeps them away from the churning part of a rotary blade.

Taking shortcuts around machine safety protocols are a frequently cited cause for many machine related accidents, happening when workers decide to forego the normal protocol of working with a safeguard and bypass it altogether, leaving them with considerable risk of harm and injury. You must never ignore the engineered controls or safety features of machinery, they exist for a reason.

OSHA standards require that one or more methods of machine guarding be provided to protect the operator and other employees in the machine area from hazards created by moving parts, in addition to preventing contact with other hazards such as heat, non-ionizing radiation, sharp edges, etc. As well, safeguards need to be secured in place, protect against falling objects, create no new hazards or interference, and allow for safe maintenance and lubrication of the machinery. Poor and inadequate maintenance of machinery is a situation commonly related to machine accidents, so awareness in those situations is critical to personal safety, as is recognition of safeguards and proper protocol, like shutting down equipment, and locking out operation.

A safeguard by definition will need to prevent hands, arms, and any other part of a worker's body from making contact with dangerous moving parts. Fantastic safeguarding systems physically eradicate the potential of the operator or another worker placing parts of their bodies near hazardous moving parts. Often, physical

barriers are an effective means for providing this protection, but sometimes this is not possible depending on a machine's point of operation. In such events, a presence-sensing device is used, which stops a hazardous action before contact can be made.

Other times, restraints such as a sweep or pull-back device are used. These devices require physically removing the operator's hands from the point of operation. Another way to keep an operator's hands away from the point of operation hazard are two-hand constant pressure operating switches, which must be held down in order for the machine to operate. Many machines use combinations of both types of protective devices. Lastly, when hazards are not within 7 feet of a place where they are accessible, they are considered guarded by location.

How are safeguards decided to be necessary for a piece of machinery? The type of operation, the size and shape of material, and the method of handling, placing, and removal of the material at the point of operation are all considerations made by a safety professional. As well, considerations may also involve the physical layout of the work area and the production requirements. To decide the correct safeguards, there needs to be both a detailed understanding of the machinery and of the procedure for operation that workers must follow to accomplish their job.

## **Machine Safeguarding Methods**

- Barrier guards
- Presence-sensing and/or physical restraint devices
- Guarding by location/distance
- Feeding and ejection methods

## **Miscellaneous aids**

The first method of protection is barriers protecting against hazards from all sources, including access prevention to danger areas. This area, sometimes called the danger zone, is where the machine works, where the operator must stay clear during the machine's operation cycle to prevent injury. In general, there are four types of barrier guards: fixed, interlocked, adjustable, and

self-adjusting.

The next method for machine safeguarding is safety devices. A safety device could do various things and for example, it may occupy both of the operator's hands to keep them from entering the danger zone while the machine is cycling. This type of device will force the operator to keep both hands and their body out of danger. Alternatively, the safety device could also be a presence-sensing kind that detects the presence of anything entering the danger zone and stops the machine in mid-cycle. A different form of device is a physical restraint, which is designed to physically withdraw the operator's hands from the danger area during operation.

The third way to safeguard is through location or distance. Using distance means that hazardous moving machine parts must be inaccessible or far enough away to not present a hazard to a worker during the normal operation of the machine.

Lastly, miscellaneous aids are the another method of machine safeguarding. Although miscellaneous aids do not completely protect against machine hazards, they can provide the operator with an extra margin of safety. Awareness barriers, shields, placement and holding tools, and push sticks or blocks are all examples of this type.

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## Machine Guarding – Spanish

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- Recognizing the purpose of machine safeguarding, safeguarding device requirements, factors that influence safeguarding methods, and the safeguarding methods used to protect you from mechanical

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Machine Safeguarding Methods – Barrier guards – Presence-sensing and/or physical restraint devices – Guarding by location/distance – Feeding and ejection methods Miscellaneous aids The first method of protection is barriers protecting against hazards from all sources, including access prevention to danger areas. This area, sometimes called the danger zone, is where the machine works, where the operator must stay clear during the machine's operation cycle to prevent injury. In general, there are four types of barrier guards: fixed, interlocked, adjustable, and self-adjusting. The next method for machine safeguarding is safety devices. A safety device could do various things and for example, it may occupy both of the operator's hands to keep them from

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## **ESSENTIAL 29: Drug and Alcohol-Free Workplace**

### **Key Takeaways:**

- Understanding the issues created by drug and alcohol use in the workplace.
- Evaluating signs and symptoms of workplace behavior related to drug and alcohol use.
- Comprehending the best practices on internal reporting of possible drug and alcohol use.
- Recognizing sources for getting help for drug and alcohol misuse.
- Learning the federal requirements for a Drug-Free Workplace program.

### **Course Description**

It is estimated that around 33 million adults are affected by alcohol problems; 14% of the U.S. population. About one out of every seven people at your office are estimated to meet the definition of a 'problem drinker.'

Reports for drug abuse aren't any better. About 7 million Americans abuse controlled-substance prescription medications, which leads to more deaths from prescription drug overdoses than auto accidents, according to Drug Enforcement Administration Chief Michele Leonhart. If you also consider illegal drugs like cocaine and heroin, those statistics are increasingly higher.

Of the workplaces that choose to test their employees for drugs on a regular basis, Quest Diagnostics reported that the number of positive drug tests went up nearly 9.3 percent from 2013 to 2014.

Higher reports of positive drug tests could be a result of more testing, but it can also be attributed in part to the rise in prescription drug abuse. More and more employees are misusing stimulants like Adderall and Concerta to help them stay alert, concentrate better and be more productive on the job. This trend is most common among those who work long hours and need a boost to keep them awake and focused.

Regardless that the effects of stimulants may seem positive at first glance, many doctors are concerned about the anxiety, rapid heartbeat and hallucinations that stimulants can incite when taken in high doses. If used on a regular basis, stimulants can also significantly reduce the amount of sleep a body needs for proper functioning.

#### Common Warning Signs of Drug or Alcohol Problem

- Slow Reactions, Unsteadiness, Confusion
- Recklessness
- Frequent Accidents
- Absenteeism and Tardiness
- Unreliability
- Declining Performance
- Drug-Free Workplace Program

Drug and Alcohol-Free Workplace programs offer a way for employees to get help for themselves. As well, it's a way co-workers get help for other co-workers. Preventing drug and alcohol abuse from entering the workplace is about safety, but it's also about getting employees the help they may need to stay healthy and employed. In addition, there are standards for employees working directly for or contracted by the federal government.

As well, Drug and Alcohol-Free Workplace programs increasingly address the risk of tobacco. Progressive safety and health professionals want to implement 'tobacco-free zones' and work to improve the total health of the people served by the organizations they support. Currently, hospitals and healthcare providers are popular examples of institutions moving forward with tobacco-free workplace policies. These efforts are being made because 1 out of every 5 deaths in the United States is the result of tobacco use and exposure. Deadly risks include cancer, heart and lung disease, second-hand smoke, and burn injuries incurred during fires directly resulting from cigarette use.

The one way employers can begin to mitigate the impact of drug and alcohol abuse in the workplace is through Drug and Alcohol-Free Workplace programs. Drug and Alcohol-Free Workplace programs are meant to not interfere in anyone's personal life, but to improve safety in the workplace. In high-risk work environments, risk and liability both rise when drugs and alcohol enter the workplace.

Drug-Free Workplace Program Federal Requirements – An employee printed statement – A drug-free awareness program – Copies of the policy statement to distribute – Teaching how the policy affects conditions of employment – Informing contracting officers about employee convictions – Performing appropriate action Printed Statement Federally contracted employers are required to publish a statement notifying every employee about company policy and that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace. This statement needs to specify what actions will be taken by the employer against any employee who violates this policy. Drug-Free Awareness Program The employer must practice a drug-free awareness

program to inform employees about: – Dangers caused by drug abuse in the workplace. – Company policy and the activities used to maintain a drug-free workplace. – Every type of services available, such as drug counseling, rehabilitation, and employee assistance programs. – Any penalties that will be imposed on employees who violate the drug-free workplace policy.

**Policy Statement** Everyone who is employed because of a government agreement is required to have a copy of the company Drug-Free Workplace statement. The company document must explain all employee requirements around the program and how the company supports the federal program to provide a drug-free workplace.

**Employment Conditions** Federal guidelines make federally contracted employers give each employee a written statement to explain that employees must abide by the terms of the company program. In government contracted companies, an employee must notify their employer in writing about any criminal drug statute conviction for any violation that occurs in the workplace, which must be done within 5 calendar days following the conviction.

**Notify Contracting Officer** Employers must notify the government contracting officer within 10 calendar days after learning about an employee's conviction. Employer notification may be a direct communication with the employee or from other legal sources. The contracting officer's notification will include the position title of the employee working on the government agreement.

**Action Taken** The Drug-Free Workplace Act states that specific action is needed when there are convictions for drug abuse in the workplace. However, these requirements are for companies receiving government agreements. In the case that there is a drug abuse conviction, the employer has 30 days to take action against the employee. It is required that convictions of drug abuse violations that occur in the workplace and that every action taken follows company policy. Possible actions can vary from requiring the employee to participate in a drug abuse assistance or rehabilitation program to termination of employment.

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# **ESSENTIAL 29: GHS HazCom – Hazard Communication**

## **Key Takeaways:**

- Understanding the purpose and importance of a hazard communication program
- Comprehending common physical and health hazards associated with hazardous chemicals
- Observing chemicals and their hazards, through labeling, markings, pictograms, and warning practices
- Learning the purpose and components of a Safety Data Sheet

## **Course Description**

This course details the purpose of a hazard communication program and Safety Data Sheets, physical and health hazards of chemicals, labels and warnings used to identify chemical hazards, and information and training that should be supplied by an employer.

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# **GHS Hazcom Hazard Communication – Spanish**

## **Course Description**

This course details the purpose of a hazard communication program and Safety Data Sheets, physical and health hazards of chemicals, labels and warnings used to identify chemical hazards, and information and training that should be supplied by an employer.  
(Spanish Version)

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# LOTO – Lockout-Tagout – Construction

## Key Takeaways:

- Understanding the purpose of lock and tag procedures
- Connecting the roles and responsibilities for worker designations under lock and tag
- Recognizing the sources of energy hazards and consequences of improper control
- Acknowledging employer responsibilities and requirements for lock and tag
- Identifying different types of lock and tag devices
- Learning the basic procedural steps for lock and tag
- Comprehending criteria and situations that qualify as exceptions to lock and tag requirements

## Course Description

OSHA has estimated that not controlling hazardous stored energy causes nearly ten percent of serious accidents across industries, and in addition, workers injured on the job from exposure to hazardous energy lose an average of 24 workdays. However, OSHA states that compliance with lockout and tagout procedures prevents an estimated 120 fatalities and 50,000 injuries annually.

For your protection from the serious hazards posed by the unexpected start-up or operation of equipment during repair or maintenance, OSHA has established a Control of Hazardous Energy standard. Commonly referred to as lockout/tagout (LOTO), or energy isolation standard, this standard requires the application of markings and barriers that prevent unauthorized persons from energizing and operating equipment.

In any form, energy becomes hazardous when it builds to a certain level, or is released inadvertently or unexpectedly. The phrase, lockout/tagout, refers to specific practices and procedures that

safeguard employees from the unexpected startup of machinery and equipment, or the release of hazardous energy, during service or maintenance activities.

### Locks and Tags Purpose

Lock and tag procedures establish safe boundaries to protect workers, in addition to ensuring that a machine has been isolated or disconnected from its power source. Individually, locks and tags serve different purposes and must be used accordingly.

Tags alone cannot sufficiently prevent an individual from starting a piece of equipment while another individual is servicing it. Due to this fact, tags must only act as temporary warnings until the hazardous equipment can be properly locked.

Every tag needs to be securely attached, legible and understandable. As well, tags must be made of materials capable of withstanding the environmental conditions they may encounter, such as rain or snow, and they must bear the name of the authorized person placing the tag on the equipment. Whenever possible, fasten tags to the same point as the lock. If that is not possible, then the tag must be near the lock and immediately obvious.

Locks are barriers keeping equipment from starting up and causing harm to someone who may be working on that piece of machinery. In order to work, locks must hold the energy isolating devices in a "safe" or "off" position. Regularly, locks should be inspected to guarantee they are standardized and durable.

Every lock needs to be keyed differently so no more than one person's key will open it. Whenever a combination lock is used, for everyone's safety only the person placing the lock can know the combination to open it. There's a reason for placing locks and tags on equipment, therefore they should never be ignored or removed by anyone other than the individual who placed them.

In the case that it is not possible to lock a de-energized energy source, only a tag may be used. Any tag without a lock should be treated as if it is a lock. Whoever placed the tag must be identified on it, typically through the person's name and contact

information.

### Lock and Tag Training

OSHA standards require employers train workers so that they can understand the purpose and function of an energy control program, in addition to its lockout and tagout procedures.

An authorized employee is someone who received training in recognizing applicable hazardous energy sources, type and magnitude of the energy available, and methods and means for energy isolation and control. As well, these employees must be annually trained on the control of hazardous energy, and must be retrained when there is a change in job assignments, machines, or energy control procedures.

It is crucial that authorized employees are the only people allowed to apply locks or tags and perform work on isolated equipment. Before starting work, the authorized employee is responsible for verifying that the equipment is isolated and de-energized. In addition, they must perform annual inspections to ensure energy control procedures are being followed. In the case that there are deviations in equipment, or inadequacies in the use and knowledge of energy control procedures are identified, the issue must be corrected immediately through repairs, new equipment purchases, or employee retraining.

On the other hand, an affected employee is someone who, during normal operations, uses a machine or equipment on which servicing or maintenance will be performed under a lockout/tagout action, or works in an area in which such servicing or maintenance is being performed.

Everyone else is those who work operations require them to access but not operate machinery in an area where energy control procedures may be utilized. These may be other employees, visitors, or contractors who are working in the area.

For both the health and safety of workers, lock and tag procedures are vital. Employers must follow OSHA's standard for the Control of Hazardous Energy to protect their employees from harm.

Here are three basic rules related to the lockout/tagout standard:

- Employees who aren't qualified should never remove a lock or tag, or operate a piece of equipment that is locked or tagged.
- Locks that isolate energy sources are required to be dedicated, marked, and not used for any other purpose.
- The tags in lockout/tagout activities are coloured red, to communicate 'danger'. As well, they may include different warnings printed on them, such as 'Do Not Operate', 'Do Not Start', 'Do Not Open', 'Do Not Close', or 'Do Not Energize'. Only ever use locks and tags that are constructed to withstand the environment in which they are used.

#### Worker Responsibilities for Locks and Tags

- Be conscious of and follow lockout/tagout procedures.
- Do not remove a lock or tag.
- Do not try to restart, or restore energy to, a machine, circuit, or any equipment that is locked or tagged.
- Do not try to bypass equipment that is locked or tagged.
- All lockout/tagout training is crucial to the safety of employees working with electrical equipment. Prior to conducting lockout/tagout procedures, make sure that machines and equipment are stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any servicing or maintenance.

Employees can conduct some routine tasks and maintenance without invoking lock and tag procedures. However, employers need to first confirm that tasks for exception are routine, repetitive, and integral to normal production, document excepted tasks in the company's lock and tag policy, and train workers on ways to conduct tasks safely.

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# LOTO – Lockout-Tagout – Spanish

## Key Takeaways:

- Understanding the purpose of lock and tag procedures
- Connecting the roles and responsibilities for worker designations under lock and tag
- Recognizing the sources of energy hazards and consequences of improper control
- Acknowledging employer responsibilities and requirements for lock and tag
- Identifying different types of lock and tag devices
- Learning the basic procedural steps for lock and tag
- Comprehending criteria and situations that qualify as exceptions to lock and tag requirements

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## Locks and Tags Purpose

Lock and tag procedures establish safe boundaries to protect workers, in addition to ensuring that a machine has been isolated or disconnected from its power source. Individually, locks and tags serve different purposes and must be used accordingly.

Tags alone cannot sufficiently prevent an individual from starting a piece of equipment while another individual is servicing it. Due to this fact, tags must only act as temporary warnings until the hazardous equipment can be properly locked.

Every tag needs to be securely attached, legible and understandable. As well, tags must be made of materials capable of withstanding the environmental conditions they may encounter, such as rain or snow, and they must bear the name of the authorized person placing the tag on the equipment. Whenever possible, fasten tags to the same point as the lock. If that is not possible, then the tag must be near the lock and immediately obvious.

Locks are barriers keeping equipment from starting up and causing harm to someone who may be working on that piece of machinery. In order to work, locks must hold the energy isolating devices in a “safe” or “off” position. Regularly, locks should be inspected to guarantee they are standardized and durable.

Every lock needs to be keyed differently so no more than one person’s key will open it. Whenever a combination lock is used, for everyone’s safety only the person placing the lock can know the combination to open it. There’s a reason for placing locks and tags on equipment, therefore they should never be ignored or removed by anyone other than the individual who placed them.

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in addition to its lockout and tagout procedures.

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On the other hand, an affected employee is someone who, during normal operations, uses a machine or equipment on which servicing or maintenance will be performed under a lockout/tagout action, or works in an area in which such servicing or maintenance is being performed.

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## ESSENTIAL 29: LOTO – Lockout-Tagout

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# OSHA: Work-Related Injury and Illness Recordkeeping

## Course Description

Recordkeeping isn't just paperwork. It's about transparency, accountability, and using information to make workplaces safer. This course will help you understand exactly what needs to be recorded, what doesn't, how to do it correctly, and why it matters far beyond avoiding a fine.

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## Environmental Management

### Key Takeaways:

- Understanding what environmental management is and why it is important.
- Learning about the types of industrial pollutants and the hazards they present to public health and the environment.
- Understanding what industrial facility employees and management can do to prepare for and respond to environmental emergencies.

### Course Description

This course will teach about the industrial sources of land, air, and water pollution, the health dangers that environmental pollutants present, and the types of actions industrial facility workers must complete to control industrial pollutants and respond to environmental incidents.

The EPA states that “[h]azardous waste is waste that is dangerous or potentially harmful to our health or the environment. Hazardous wastes can be liquids, solids, gases, or sludges. They can be discarded commercial products, like cleaning fluids or pesticides,

or the by-products of manufacturing processes.”

Only recently has there been a growing awareness of the dangerous side effects of hazardous waste contamination. Years ago, numerous industrial plants discharged heavy metals and unstable organic compounds directly into streams or injected them into the earth’s subsurface through wells, killing populations with close proximity to these toxic sites.

Due to agricultural applications, nitrates, phosphates, and synthetic organic compounds in pesticides and fertilizers have made their way into streams and ground water. The atomic age created radionuclide contamination from man-made sources, like nuclear power plants.

There are many physical forms of hazardous waste, such as solids, semi-solids, liquids, and gases. In addition, hazardous waste includes spent solvents and many pesticides and excess, discarded, or spilled chemicals.

There are many reasons why hazardous waste continues to be affect our environment:

- It does not easily break down naturally and stays intact for anywhere from a few years to a few millenia;
- It can be travel through the air, water, soils, and sediments;
- It can be transferred from one organism to another, trthrough consumption or decomposition.

Heavy metals and toxic chemicals have such an influence on our bodies that the World Health Organization (WHO) and the National Cancer Institute estimate they cause between 60 and 90 percent of all cancers.

Additional chronic health effects from waste contaminants include stroke, kidney and thyroid disease, cardiovascular damage, nervous disorders, and impairment of speech, hearing, vision, and memory.

In light of these effects, hazardous wastes are regulated to:

- Guarantee safe treatment, storage, transportation, and disposal;
- Prohibit the generation of hazardous waste through pollution prevention;

- Minimize the amount of any hazardous substance, pollutant, or contaminant released into the environment.

Technologies for hazardous waste treatment can include:

- Distillation
- Stabilization
- Neutralization
- Incineration
- Evaporation

Prevent the creation of hazardous wastes by:

- Modifying processes (avoid the need for the hazardous material).
- Substituting products (purchase the least toxic substance available).
- Reducing product purchase (purchase minimum quantity and in small containers initially).

Safe Waste Management Practices:

- Organize waste materials in their properly designated containers.
- Cover chemical containers.
- Label containers.
- Keep chemicals out of the weather.
- Carry out the guidelines for proper management, handling, and disposal of hazardous wastes or “unknowns”.
- Notify your company’s Environmental or Health, Fire, & Safety Departments of all chemical spills.
- Throw out aerosol cans in a manner approved by state or local regulations (these normally incorporate provisions for capturing and safe disposal of any remaining container contents and disposal of the empty aerosol cans).
- Always drain used oil filters and place in the marked container.
- Place all used oil in bulk used oil containers.
- Do not leave lids off of oil funnels, solvent containers, or other waste containers.
- Do not place full or partially full aerosol cans in trash containers.
- Do not place waste streams in improper, unlabeled containers.
- Never storing chemical containers on bare ground.

- Always store chemical containers inside and on paved surfaces.
- Carry out the spill release reporting guidelines for chemical releases and spills.
- When you have general waste management issues or questions, contact your company's Environmental Department personnel for direction.

#### Precautions

- Ensure that there are procedures for proper response to an accidental spill or release in place.
- Keep emergency response supplies and equipment be on hand.
- Clearly identify waste receptacles for the types of waste.

Whenever you discover a hazardous material spill or release at work:

- Promptly report it to your manager, supervisor, building administrator, or company environmental organization.
  - Immediately call your company's emergency number if it is life threatening or immediately hazardous.
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# Stormwater Management

## Course Description

After completing this course, learners will be able to identify components of a Stormwater Pollution Prevention Plan, identify best practices for housekeeping, spill prevention, inspections, erosion control, and responding to a hazmat spill/release.

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# Compressed Gas Safety

## Key Takeaways:

- Understanding all the hazards of cylinder dispensing and control components and contents
- Comprehending identification labels and markings on compressed gas cylinders
- Knowing the practices to safely use compressed gas cylinders and their components
- Recognizing safe methods of moving and storing compressed gas cylinders

## Course Description

After completion, employees will be able to compressed gas cylinder hazards, recall practices to safely using compressed gas cylinders and their components, and identify safe methods of moving and storing compressed gas cylinders.

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# Confined Spaces

## Key Takeaways:

- Recognizing characteristics and examples of a confined space.
- Evaluating hazards of confined spaces.
- Understanding the differences between permit-required and non-permit-required confined spaces.
- Comprehending the basic requirements of a permit-required confined space program.

## Course Description

Confined spaces in the workplace are defined as enclosed or partially enclosed spaces of a size such that employees can

squeeze entry for performing assigned work through a narrow opening; they're cramped, tight spaces. Typically, you will only enter these areas to perform specific tasks before barricading them to prevent unauthorized access.

Consider the examples of storage tanks or bins, mixing tanks, railroad tank cars, silos, vaults, pits, or any large tank used for holding liquid. It may be the case that these big storage containers need to be cleaned out, so a worker goes inside and they're completely surrounded by walls of the structure, with only a small entry/exit hatch for escape if things go awry. Confined spaces are a nightmare for the claustrophobic. They may be large or small and above or below ground.

The Occupational Safety & Health Administration (OSHA) created a standard to better protect those who work in confined spaces in 1993. OSHA based this standard on the most effective practices for eliminating and controlling confined space hazards. In their explanation, OSHA stated that repair, maintenance, cleaning and inspection activities account for nearly 25% of confined space related fatalities, with construction and manufacturing industries experiencing the most fatalities.

Numerous confined spaces are poorly ventilated, which leads to the release of vapors that are safe in the open air creating an oxygen-deficient, toxic, combustible, or otherwise harmful atmosphere. These types of atmospheres are able to cause immediate asphyxiation, acute and chronic poisoning, or impairment that can result in injury. The leading cause of death in confined spaces is asphyxiation. Confined spaces are also capable of posing the hazard of asphyxiation or other injury from engulfment in the materials inside (i.e. grain or sawdust within a silo).

If several unexpected situations develop, confined spaces can kill.

A lack of oxygen is one highly probable factor contributing to confined space accidents. A situation like this occurs when the air in a confined space is consumed by chemical or biological reactions, diluting the amount of oxygen in the immediate

atmosphere to below 21%, increasing negative physiological responses as that percentage declines.

Another killer in confined spaces is oxygen displacement. This occurs when inert gas concentration is high enough to remove oxygen from the chamber, essentially replacing the normal air we breathe with colorless, odorless gases like nitrogen or carbon dioxide, and creating a situation of complete suffocation for workers.

More likely problem situations to consider involve flammable atmospheres, toxic gases, and solvents: each poses different, specific hazards that have killed high-risk workers in the past.

In addition, there are other potential hazards: sloped, tapered, or inwardly converging walls in a confined space, such as a discharge pipe, can pose the hazard of asphyxiation from compression of the chest to workers who slip and fall into them. Being caught between or under objects in a space can also lead to confinement.

For employees, there can also be exposure to extreme noise, heat, or cold in a confined space and that may introduce hazards just because of the tools they bring into such an environment. Welding certain materials are able to create fire hazards and cleaning the inside of tanks with solvents may create a toxic atmosphere, for example.

Confined spaces have two classifications: “non-permit required” or “permit required.” A non-permit required confined space is a enclosed space that does not pose life, health, or safety hazards. Many permit-required confined spaces could contain hazardous atmospheres because of their very nature and configuration.

An confined space that requires a permit:

- Houses or has the potential to produce a hazardous atmosphere
- Has a material that can engulf someone who enters the space
- Is configured internally in a way that might cause an entrant to be trapped or asphyxiated
- Has other recognized serious safety or health hazards

A company's Permit-required Confined Space Entry Program is the overall policy and plan for protecting every employee and contractor from confined space hazards, in addition to regulating entry into permit-required spaces. When a job site has permit-required confined spaces and workers are authorized to enter them, employers must develop, implement, and update this program. As well, the company must enforce and periodically evaluate their Confined Space Entry program.

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## Confined Spaces – Spanish

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# FUNDAMENTAL 55: Industrial Ergonomics

## Course Description

Poor ergonomics can cause pain and injury. This course covers the purpose of ergonomics, common ergonomic problems and their signs and symptoms, and how changes in habits and workspace arrangement can reduce ergo related problems.

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## Industrial Ergonomics – Spanish

### Key Takeaways:

- Recognizing the underlying principle of ergonomics in the workplace and core risk factors
- Learning the causes of CTDs
- Understanding common types of cumulative trauma disorders
- Connecting warning signs and symptoms with solutions and actions
- Learning ergonomic principles
- Understanding the elements of an effective ergonomic health and safety program

### Course Description

Over time, poor ergonomics can lead to cumulative traumatic musculoskeletal disorders (MSDs) which strain our bodies. Numerous good reasons exist for analyzing the ergonomic health of your workforce; musculoskeletal injuries, once developed, can take people off of the job for life.

The Occupational Safety & Health Administration (OSHA) stated that industries with the highest musculoskeletal disorders rates include health care, transportation, warehousing, retail, and

wholesale trade and construction.

Ergonomics refer to making the workplace conducive to the comfort and productivity of the employee. Implementing ergonomic principles helps everyone avoid on-the-job illness and injury, as well as improving worker job satisfaction through measures that provide a greater comfort, allowing people to perform assigned tasks more naturally.

Cumulative trauma disorders (CTDs) are caused by physical demands that exceed our maximum capacity, put strain on the body (tendons, muscles, nerves, joints, ligaments, cartilage or the spine), or disregard environmental factors like heat, humidity, noise and glare which can cause stress. Imagine a young man who moves heavy, awkward furniture on a daily basis, with poor technique and ignorance of future consequences from straining back muscles and bone beyond limitations. Over the years, his back becomes sore and gives out, jeopardizing the man's livelihood and negatively impacting the employer's workers compensation rating.

CTDs result from an accumulation of stress factors involving repetitive, forceful, or prolonged exertions; frequent or heavy lifting, pushing, pulling, or carrying of heavy objects; or prolonged awkward postures. One commonly cited issue is carpal tunnel syndrome, which can be alleviated by a bit of attention to ergonomics.

For your reference, here are ten general principles of ergonomics to evaluate the "fit" of a work area. Some of these principles relate to changes the worker can make and others suggest changes the employer could make.

1. Only work in a neutral posture. Make a conscious effort to maintain the natural "S" spine curve, whether sitting or standing.
2. Minimize excessive force. When available, use tools to help with pulling, pushing and lifting, and also use boxes that have handholds.
3. Place work tools in easy access. Set up your work area so things you use often do not require a stretch to reach.
4. Perform work only at proper heights. While sitting, such as at a computer, do most work elbow height.

5. Minimize excessive stressful motions. One simple method is to use power tools as much as possible. Analyze the work situation and make the necessary changes to eliminate excessive repeated motions.

6. Reduce fatigue and static load. Maintaining the same position over long periods of time creates static load and leads to fatigue and cramping. Also, using tools to keep parts in position and changing your body position can reduce static load.

7. Reduce the pressure of your body on other surfaces. For illustration, while squeezing a tool you create pressure points on your hands. Make sure to use a tool that is contoured to fit your hand or that has a cushioned grip to lessen the pressure.

8. Your work area must also be set up to have enough room so that you can work in a comfortable position without having your head, arms, elbows, knees or feet in unnatural or cramped positions.

9. Each day as you use your body, remember that we are meant to move, exercise and stretch. Your muscles must be used and strengthened and your heart rate must be elevated, on occasion. Throughout the day, change positions, stretch, and move often.

10. Keep a comfortable environment.

Follow these easy tips: maintain the "S" curve in your back when standing for long periods, it may help to put one foot on a footrest. Beware of relaxing into a "C" curve when sitting, this can put strain on your back. It is important to have good lumbar support in a chair to help maintain the proper curve in the small of your back.

While lifting or moving items, bending over in a "V" shape creates pressure on the back. If you frequently need to bend to lift items, seek mechanical means to reduce the amount of bending you must do. Make sure your neck is aligned with the rest of the spinal column, because prolonged twisted and bent positions are stressful. If necessary, adjust equipment to allow your neck to be in its neutral position. Make an effort to keep your elbows at their sides and adjust the work area height if necessary. You want to keep your wrists in neutral position with the hand in the same plane as the forearm. Lastly, seek out tools if needed to allow your wrist to assume this position.

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# Slips, Trips, and Falls

## Key Takeaways:

- Learning about the physical and behavioral hazards that can lead to slips, trips, and falls.
- Understanding the different ways both you and your employer are responsible for providing safe work spaces.
- Recognizing proper housekeeping practices and personal behaviors that can eliminate/prevent slip, trip, and fall hazards.
- Learning how to fall properly to avoid serious injury and how to respond to a fall injury.

## Course Description

This course on slips, trips, and falls reinforces good behaviors for workers on how and where to avoid areas where these hazards reside.

Recently, the Congressional Accountability Office of Compliance released statistics that indicate falls are the private industry's third leading cause of workplace fatalities. Nearly 600 workers die from a fatal slip, trip, or fall, annually.

In fact, most falls occur on flat surfaces like plant floors. Often, they happen because of slippery areas, improperly stored items, foreign objects, and floor surface issues.

Documenting hazards you see in and around the workplace and following good housekeeping practices are the best defenses from a serious fall. Good housekeeping means that when a worker encounters a spill, or finds debris in a walkway, they first

recognize the impact this material might have for colleagues negotiating the path, and then act immediately to clear the hazard. Typically, good housekeeping will mean keeping all areas of employment clean, orderly, and sanitary, including storerooms, service rooms, passageways, and bathrooms. It is easy to understand the idea when you think of picking up trash on the floors at home or children's toys left out on a staircase.

In part with good housekeeping practices, safety professionals need to be able to answer "yes" to these questions:

- Does every stairway and stairwell have smooth, continuous handrails and slip-resistant stair surfaces?
  - Is adequate lighting present in work areas and passageways?
  - Proper drainage for wet processes and dry places to stand exist where practical?
  - Do all exposed walking surfaces supply sufficient texture or treatment for safe traction?
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## **FUNDAMENTAL 55: Scaffold Safety**

Key Takeaways:

- Learning about common types of supported and suspended scaffolds.
- Understanding who is qualified to design, construct, and inspect scaffolds.
- Comprehending the key design and construction requirements for scaffolds, including the maximum intended load.
- Observing the hazards posed by working on scaffolds, including instability or collapse, falls, being struck by falling objects, overloading, and electrocution.
- Understanding the requirements and controls that protect against falls, falling objects, and electrical hazards.
- Recognizing conditions that prohibit scaffold use.
- Learning about inspection criteria for scaffolds.

## Course Description

OSHA reports that scaffolding accidents lead to an estimated 9,000 injuries and 79 fatalities every year.

Throughout the industrial world of construction and maintenance, scaffolds are widely used to typically give employees access to heights ranging from a few feet to over several hundred feet.

OSHA describes scaffolds as “any temporary elevated platform and its supporting structure used for supporting employees or materials.”

Regardless of how safe or sturdy a scaffold may look, it can only support a specific weight capacity specified by the manufacturer. It is the worker’s responsibility to recognize terms associated with capacity limits when working with scaffolds. Each scaffold and scaffolding component is required by OSHA to be capable of supporting, without failure, its own weight and at least four times the maximum intended load.

Here’s some basics on scaffold safety.

Scaffold hazards: – Falls – Falling objects – Electrocution – Overloaded scaffolds Working on scaffolds is prohibited: – When there are storms or high winds unless a competent person determines it is safe, and a personal fall arrest system or wind screen is provided; – Anywhere snow, ice, or other slippery materials exist; – Everywhere scaffold foundation is not firm (i.e. in sand or mud). Employees working on scaffolds must wear a hardhat to protect against falling objects, such as tools, debris, and other small objects. As well, they must be provided with additional protection through the installation of toeboards, screens, or guardrail systems, or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects. Anytime that the falling objects are too large, heavy or massive to be contained or deflected by any of those measures, the objects need to be moved away from the edge of the surface they could fall from, in addition to being secured as necessary to prevent falling. In the case that these measures cannot be taken, the area below the scaffold must be barricaded,

and employees must not be permitted to enter the hazard area. Here are the required housekeeping practices to prevent falls and injuries: – Clear work levels of trash and debris. – Organize work areas and keep them free of tripping hazards. – Never stand on “makeshift devices”, such as boxes and barrels to increase working level height. Any employee on a scaffold over 10 feet above a lower level needs to be protected from falling to that lower level. Also, employers must provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible, and does not create a greater hazard. Varying with the type of scaffold or powered platform used, personal fall arrest systems used on scaffolds need to be attached by lanyard to a vertical lifeline, horizontal lifeline, or scaffold structural member. Again, dependent on the scaffold type, these fall arrest systems are either anchored to substantial members of the building or structure or are anchored to the scaffold or platform itself. Usually, the system will consist of a body belt/harness attached by a lanyard to a vertical or horizontal lifeline, or to a structural member of the scaffold. All workers need to wear personal fall arrest protective systems when provided by employers, as a last line defense against the potential hazards of working at heights. Guardrail systems are a vertical barrier designed to prevent employees from falling off a scaffold platform or walkway to lower levels. Generally, these are the most common type of fall protection used on elevated work surfaces. Due to the extreme danger of falls facing employees, OSHA standards require guardrail systems to be installed along all open sides and ends of platforms, and must be installed before the scaffold is released for use by employees other than erection/dismantling crews. It is a great idea to encourage workers to visually inspect scaffolding for safety concerns before trusting the structure; if it looks unsafe, it probably is. In addition, when a worker encounters a situation that presents a fall hazard on scaffolding, it is important that the worker note the situation and report it immediately. This is also true when a worker notices structural degradation, meaning the scaffolding looks unsafe for some reason, perhaps because its missing a critical linkage or supporting board. Always be aware of your

environment, and never take your scaffold safety for granted.

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## ESSENTIAL 29: Fire Safety

### Key Takeaways:

- Learning about dangers associated with fire
- Understanding the requirements for emergency action and fire prevention plans
- Observing housekeeping guidelines for fire prevention
- Comprehending the importance of emergency exits and identify their components
- Learning the actions to take in response to emergency alarms

### Course Description

Employers are required to provide a safe working environment for employees and that responsibility means having an emergency plan for responding positively to natural disasters. Readiness, through understanding of evacuation plans or drilling for regionally specific scenarios, is the key to keeping your workforce out of harm's way.

Working safely and following proper procedures for emergency preparedness can prevent many emergency situations. However, some emergencies are out of your control.

### Fire Safety

The most common workplace emergency is fire. The best way to prevent injuries and deaths from fires is to prevent fires in the first place.

According to the Occupational Safety and Health Administration (OSHA), more than 75,000 workplace fires and related explosions occur each year.

All companies should create a basic fire prevention plan for fire safety, which includes a list of the major workplace fire hazards

and proper handling and storage procedures for those materials. The plan should also cover potential ignition sources, such as welding and smoking and related control procedures, as well as discuss the type of fire protection equipment or systems which can control a fire. The fire prevention plan must include the names and/or regular job titles of those personnel responsible for maintenance of fire systems and those personnel responsible for control of fuel source hazards.

Dangers of fire include heat, smoke, and toxic gases which all present some very nasty consequences for the personal welfare and life safety of individuals exposed to fire.

Fire safety can include engineered controls, like fire sprinklers, fire alarms, and smoke detectors are mandatory for many modern structures and likely exist where you work.

### Fire Prevention Plan

This fire safety tip is directed toward employers. Not all businesses are required to have a fire safety plan in place, but OSHA advises employers to be proactive by teaching workers about fire hazards and showing them what to do in a fire emergency.

OSHA states that if your business is required to have a fire emergency action plan in place, you must develop a plan that:

- Describes the routes for workers to use and procedures to follow

- Accounts for all evacuated employees

- Remains available for employee review

- Includes procedures for evacuating disabled employees

- Addresses evacuation of employees who stay behind to shut down critical plant equipment

- Includes preferred means of alerting employees to a fire emergency

- Provides for an employee alarm system throughout the workplace

- Requires an alarm system that includes voice communication or sound signals such as bells, whistles, or horns.

- Makes the evacuation signal known to employees

- Ensures emergency training (Which is what this course is about)

- Requires employer review of the plan with new employees and with all employees whenever the plan is changed

## Emergency Exits and Routes

In the case of a fire emergency, you want to get everyone out of the facility as quickly as possible. Emergency exits and routes are crucial because they provide a clear path to safety. Here are the qualities of effective emergency exits and routes, as specified by OSHA:

### Emergency Exits

- Must be a permanent part of the building

- Must be provided with a protected way of travel out of the building or out of the area

- May contain way of access of passageways, stairs, aisles and stairwells, ramps, or a series exit doors

- May have ways of access that lead from one area or floor to another or from one building to another

### Exit Routes

- Must be clear of obstructions

- Must be kept free of explosive or highly flammable furnishings and other decorations

- Must be wide enough to accommodate the number of people trying to get out

- Must be strong enough to support their weight

- Must be properly lighted and marked with EXIT signs

### Alarm Systems

Alarm systems are significant because they alert all employees of a fire emergency, which is the first step in getting to safety. An alarm system may come in the form of a smoke detector, a manual pull box or even a vocal system in which employees alert others by yelling "fire" or some other specified word. If your business is using a smoke detector system the batteries should be changed once a year. When it comes to alarm systems, OSHA recommends knowing:

- The locations of the manual pull boxes or other alarm systems

- How to operate the alarm system

- When the alarm system is to be used

- What the alarm sounds like

- What action to take when the alarm is sounded

### Prevention

It's great to know what to do in a fire emergency, but it's even

better to prevent the fire from happening in the first place. Electrical fires claim the lives of 280 Americans each year and injure 1,000 more. The U.S. Fire Administration (USFA) provides the following precautions to help minimize the risk of a fire:

Routinely check your electrical appliances and wiring. Replace all worn, old or damaged appliance cords immediately.

If an appliance has a three-prong plug, use it only in a three-slot outlet. Never force it to fit into a two-slot outlet or extension cord.

Keep clothes, curtains, and other items that can catch fire at least three feet from all portable electric space heaters.

Avoid putting cords where they can be damaged or pinched by furniture, under rugs and carpets, or across doorways.

Let's not forget fire extinguishers as a key component for fire safety. Fire extinguishers put out fire by taking away one or more elements of fire.