

## MODULE 1: INTRODUCTION TO FALL PROTECTION

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### Overview

- Why is fall protection important?
- How do you report fatalities and catastrophes?
- What are the employer responsibilities, workers' rights, and whistleblower protections?
- What is a qualified person and a competent person?

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**Upon completion of this module the student will be able to explain:**

- Why fall protection is important and what can be done to reduce falls.
- How to report the deaths and dismemberment that happens on a job site.
- Who is responsible to make sure employees are protected, employees right to be protected and who protected if they decide to report their employers for unsafe conditions.
- What it take to be a qualified and competent person on a job site.

## Why is fall protection important?

- Falls are the leading cause of death in construction.
- Falls are among the most common causes of serious work-related injuries and deaths.



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### According to the US Center for Disease Prevention

- Falls are the number one cause of construction worker fatalities.
- The Construction FACE database of the National Institute on Occupational Safety and Health shows that between 1982 and 2015, 20 percent of all construction fatalities occur in the worker's first two months on the job.
- The Construction FACE Database (CFD) is a database in Excel created by CPWR - The Center for Construction Research and Training to facilitate the use of information provided by the NIOSH Fatality Assessment and Control Evaluation (FACE) Reports for users who want to analyze FACE reports using a statistical package.

### What can be done to reduce falls?

- OSHA requires that fall protection be provided at elevations of **four feet** in general industry workplaces, **five feet** in shipyards, **six feet** in the construction industry and **eight feet** in longshoring operations.
- OSHA requires that fall protection be provided when working over dangerous equipment and machinery, regardless of the fall distance.

## What can be done to reduce falls?

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- Provide working conditions that are free of known dangers.
- Keep floors in work areas in a clean and, so far as possible, a dry condition.
- Select and provide required personal protective equipment at no cost to workers.
- Train workers about job hazards in a language that they can understand.

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**Explain the ways to reduce falls listed on the slide. Then discuss the following employer responsibilities.**

**To prevent employees from being injured from falls, employers must:**

- Guard every floor hole into which a worker can accidentally walk (using a railing and toe-board or a floor hole cover).
- Provide a guard rail and toe-board around every elevated open sided platform, floor or runway.
- Regardless of height, if a worker can fall into or onto dangerous machines or equipment (such as a vat of acid or a conveyor belt) employers must provide guardrails and toe-boards to prevent workers from falling and getting injured.
- Other means of fall protection that may be required on certain jobs include safety harness and line, safety nets, stair railings and handrails.

## **FATAL FACT #1**

- A full-time carpenter was working on the second floor of a wood framed (new construction) residential house.
- Falls more than 20 feet through an unguarded stairway opening to the concrete basement floor.
- He was killed in the fall from fatal head and internal injuries.



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In the U.S., more than 800 construction workers die every year while on the job. Falls are the number one cause of fatalities in construction. Falls cause one of every three construction worker deaths. These falls happen in a split second while workers are on roofs, scaffolds, ladders, bridges, and other work surfaces. But these deaths can be prevented. The video you are about to see shows how quickly falls at construction sites can lead to workers' deaths. The video will also show what employers must do so that the work can be done more safely. Employers have a responsibility to provide a safe workplace and required protective equipment. You'll see that using the right type of fall protection saves lives. Please be advised. The scenes you are about to see deal with deaths at construction sites and might be disturbing for some people. All scenes are based on true stories.

### **Skilled and Experienced Workers**

Often skilled and experienced workers fall victim to unexpected and unavoidable circumstances on a job sites. OSHA 1926.501 Subpart M outlines the construction industry standards required for all worksites where falls from elevated platforms are possible. In this example, employees were working on the second floor near an open stairwell. There was no guardrail or floor cover, and the workers were not wearing personal fall protection. After framing one section of a wall, the workers raised it and moved forward to put it into place. While moving forward, one of the workers stepped towards the unguarded stairwell to hold the side of the wall section.

He fell down the unguarded stairwell opening. He fell 20 feet and landed on the concrete basement floor. He died from fatal head and internal injuries. Let's look at the events leading up to this tragic incident and see how it could have been prevented.


Originally, the workers were nailing in the boards to frame a section of the new wall, and the stairwell was not protected by a guardrail. Now, the stairwell is protected by a guardrail as required by OSHA. As before, the workers are moving forward to install the completed wall section. This time, as the worker steps toward the stairwell, the guardrail stops him; he continues forward to place the framed section in place. Another way to protect workers is by putting a proper cover over the stairwell opening. The cover must be secure. With the proper cover, the worker steps onto the cover and continues to put the section in place.

Link to Spanish video: <https://youtu.be/MybFvRDb0Tc>

Slide 11

### **FATAL FACT #2**

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- A worker was installing vinyl siding on a two-story townhome.
- He placed a ladder on top of a scaffold.
- Standing on the top step of the ladder, overreached and the ladder overturned.
- He fell 20 feet to the driveway below.
- He died later that day from injuries caused by the fall.

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#### **Improper use of Equipment Causes Death**

Often times the falls from an elevation over 6 ft in construction and 4 ft, in general industry isn't caused by holes or unprotected leading edges. Many employees improperly use equipment that results in their own death. OSHA 29 CFR 1926.451 Subpart L address the rules for ladders used on or with scaffolds.

A worker was installing vinyl siding on a two-story townhome. He was standing on a ladder that was placed on top of a scaffold. A co-worker was on the scaffold cutting pieces of siding. The scaffold had no guardrails. The workers were not wearing any fall protection. While standing on the top step of the ladder, the worker putting up siding overreached to one side and the ladder overturned. He fell nearly 20 feet and landed on the driveway below. He died later that day from injuries caused by the fall.

Let's look at the events leading up to this tragic incident, and see how it could have been prevented. Originally, the worker installing siding was standing on a ladder that was placed on top of a scaffold. This is a very serious and dangerous OSHA violation. Also, there was no fall protection for these workers. OSHA requires employers to provide workers with fall protection when they are working on scaffolds more than 10 feet above a lower level.


Let's look again at the worker installing siding. But now, the worker is standing on a fully-decked pump-jack scaffold. It has guardrails at the top, middle, and ends. So, instead of being at risk from falling while installing siding, this worker is now protected from fall hazards.

This example shows the importance of following OSHA's fall protection standards. These types of construction deaths are preventable. The fall protection measures shown here save workers' lives. Use fall protection on the job: it could be the difference between life and death.

Link to Spanish video: <https://youtu.be/Nd9RWLvcpUE>

**FATAL FACT #3**

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- Four workers were installing sheet metal steel decking on a pre-engineering building.
- One worker lost his footing and fell through an opening.
- He died the next day from injuries caused by the fall.

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**Warning Lines, Control Access, Safety Monitoring Systems Oh My!**

Four workers were insulating the roof and applying the top layer of sheet metal roof decking on a tall, pre-engineered building. The roof was fairly flat, there was no controlled decking zone, and the workers were not wearing any personal fall protection. The workers were using drills to screw the metal sheets into the purlins.

As one of the workers walked down the roof, he lost his footing. He fell through the space between the purlins, and landed on the floor below. He died the next day from his injuries.

Let's look at the events that led up to this tragic incident, and see how it could have been prevented. Originally, the workers had no fall protection, which OSHA requires the employer to provide when working at heights of 15 feet and above.


Let's look again at the workers installing the metal roofing sheets and see what happens when these workers use fall protection. They are now using a temporary horizontal lifeline. This involves a horizontal cable attached to two or more anchor points on the roof. In this system, the workers connect their harnesses to a horizontal lifeline that is secured to the roof structure instead of individual anchor points.

Again, as the worker loses his footing and falls between the purlins, his lifeline stops him from falling to the floor below. While he is hanging from his fall arrest system, a co-worker brings over a lift and rescues the worker.

Link to Spanish video: <https://youtu.be/m88kSUNx-RQ>

**FATAL FACT #4**

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- Two workers were re-roofing a two-story home with a pitched roof.
- One of the workers reached to pick up another shingle, lost her balance and fell more than 20 feet to the driveway below.
- She died instantly from her injuries.

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**It's about working together.**

Two workers were reroofing a two-story home with a pitched roof. They were not wearing any personal fall protection. The workers used nail guns to install shingles over an old layer of shingles.

One of the workers was close to the edge of the roof. As she reached to pick up another shingle, she lost her balance. She slipped off the edge of the roof. She fell more than 20 feet and landed on the driveway below. She died instantly from her injuries.

Let's look at the events leading up to this tragic incident, and see how it could have been prevented. Originally, the workers had no fall protection, which OSHA requires when working in residential construction at heights of 6 feet and above.

Let's look again at the workers installing shingles. Now, they are both wearing personal fall arrest systems. Each system has a full-body harness, a rope-grab lifeline, and connectors. Snaphooks connect each worker's rope-grab lifeline to secure roof anchors, which are located higher up on the roof. D-rings connect the workers' safety harnesses to their rope-grab lifelines.

As before, the worker reaches over to pick up a shingle, loses her balance, slips, and falls. But now, because she is wearing a fall arrest system, she only slips 2 feet and doesn't fall off the roof.

Link to Spanish video: <https://youtu.be/50ft9rjfl>

## What happens when someone gets hurt?

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- Employee Rights
- Employer Responsibility



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- **EMPLOYEES:**
- You have the right to notify your employer or OSHA about workplace hazards.
- You have the right to keep your name confidential.
- You have the right to request an OSHA inspection.
- You have the right to participate in that inspection.
- You have the right to file a complaint.
- You have a right to see OSHA citations issued to your employer.
- Your employer must correct workplace hazards.
- You have the right to copies of your medical records.
- **EMPLOYERS:**
- You must furnish your employees a place of employment free from recognized hazards.
- You must comply with the occupational safety and health standards issued under the *OSH Act*.

### Reporting Fatality

Injury and Illness Information to the Government requires that employers report all work related fatalities within eight (8) hours and all work-related inpatient hospitalizations, all amputations and all losses of an eye within 24 hours.

## Refusing work is protected if...



- You have asked the employer to eliminate the danger, and the employer failed to do so; and
- You refused to work in “good faith,” and
- A reasonable person would agree that there is a real danger of death or serious injury (illness); and
- There isn’t enough time, due to the urgency of the hazard, to get it corrected through regular enforcement channels, such as requesting an OSHA inspection.

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***Your right to refuse to do a task is protected if all of the following conditions are met:***

- “Good Faith.” This means that you must genuinely believe that an imminent danger exists. Your refusal cannot be a disguised attempt to harass your employer or disrupt business.

***When all of these conditions are met, you take the following steps:***

- Ask your employer to correct the hazard;
- Ask your employer for other work;
- Tell your employer that you won’t perform the work unless and until the hazard is corrected; and
- Remain at the worksite until ordered to leave by your employer. (Clarify that the worker should not remain in the hazardous area.)

## What are Employers' Responsibilities to provide fall protection?

- Assess the workplace
- Industry requirements -
  - 4 feet: General Industry
  - 5 feet: Shipyards
  - 6 feet: Construction Industry
  - 8 feet: Longshoring



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### Responsibilities

Employers must assess the work conditional in order to provide the proper fall protection. There are different action levels that require fall protection in different industries:

#### Industry Fall Protection Action Level

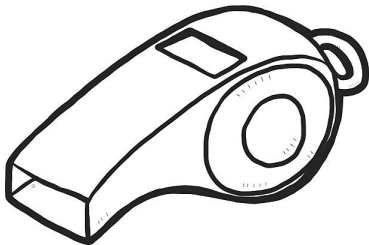
General Industry:	4 feet
Shipyards:	5 feet
Construction Industry:	6 feet
Longshoring:	8 feet

- Fall protection requirements can apply at heights of less than 6 feet when working near dangerous equipment.
- For example, working over machinery with open drive belts, pulleys or gears or open vats of degreasing agents or acid.

## Your rights as a Whistleblower

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- You may file a complaint.
- You have the right to report unsafe working conditions.
- You have the right to file a complaint with out fear of retaliation.
- *Note: There is a time limit.*



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### Your Rights as a Whistleblower

- You may file a complaint with OSHA.
- If your employer retaliates against you by taking unfavorable personnel action document your experience and issue it within your report.

### Whistleblower Laws Enforced by OSHA

Each law requires that complaints be filed within a certain number of days after the alleged retaliation. You may file complaints by telephone or in writing under the:

- Occupational Safety and Health Act (30 days)
- Surface Transportation Assistance Act (180 days)
- Asbestos Hazard Emergency Response Act (90 days)
- International Safe Container Act (60 days)
- Federal Rail Safety Act (180 days)
- National Transit Systems Security Act (180 days)

Under the following laws, complaints must be filed in writing:

- Clean Air Act (30 days)
- Comprehensive Environmental Response, Compensation and Liability Act (30 days)
- Energy Reorganization Act (180 days)
- Federal Water Pollution Control Act (30 days)
- Pipeline Safety Improvement Act (180 days)
- Safe Drinking Water Act (30 days)
- Sarbanes-Oxley Act (90 days)
- Solid Waste Disposal Act (30 days)
- Toxic Substances Control Act (30 days)
- Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (90 days)

## Qualified Person

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- Recognized degree or professional certificate
- Extensive knowledge, training, and experience in the fall protection and rescue field
- Capable of designing, analyzing, evaluating and specifying fall protection and rescue systems
- Responsibility for design of anchorage points for personal fall arrest systems (PFAS)

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**Qualified person** means a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, can successfully demonstrate the ability to solve/resolve problems relating to the subject matter, the work, or the project.

### **Anchorage Points**

- a registered professional engineer with experience in designing fall protection systems, or another **qualified person** with appropriate education and experience should design an anchor point to be installed.
- A **qualified person** should be used to evaluate the suitability of these "make shift" anchorages with a focus on proper strength.

## Competent Person

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- Individual *chosen by the employer ...*
- Responsible for immediate supervision, application, and observing of the employer's managed fall protection program
- Can identify, evaluate and address existing and potential fall hazards (through training and knowledge)
- Has the employer's authority to take prompt corrective action regarding such hazards

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### **Competent person**

- means one who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- Within OSHA's fall protection standards, a "Competent Person" is required to perform frequent and regular inspections of the job-site materials and equipment.
- A competent person must also train each employee on how to recognize fall hazards and the procedures to be followed in order to minimize these hazards.

### **Training Requirements**

- The nature of fall hazards in the work area.
- The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.
- The role of employees in fall protection plans.
- OSHA fall protection standards.
- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used.
- The role of each employee in the safety monitoring system when this system is used.
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.

## Occupational Safety and Health Act of 1970

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### OSHA MISSION

- Safe and healthy working conditions
- Enforceable standards
- State programs
- Research
- Information, education and training

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**The OSHA ACT of 1970** states its mission as the following:

“To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health...”

### Safe and healthy working conditions

- The employer must determine if the walking/working surfaces on which its employees are to work have the strength and structural integrity to support employees safely.
- Employees shall be allowed to work on those surfaces only when the surfaces have the requisite strength and structural integrity.

### Enforceable standards

CFR 29 1926.501 Subpart M lays out the requirements and criteria for fall protection in construction workplaces. For example, it applies when workers are working at heights of 6 feet or more above a lower level. It also covers protection from falling objects, falls from tripping over or falling through holes, and protection when walking and working around dangerous equipment without regard to height.

The standard identifies certain areas and activities where fall protection or falling object protection may be needed.

For example, it might require fall protection for a worker who is: on a ramp, runway, or another walkway; at the edge of an excavation; in a hoist area; on a steep roof; on, at, above, or near wall openings; on a walking or working surface with holes (including skylights) or unprotected sides or edges; above dangerous equipment; above a lower level where leading edges are under construction; on the face of formwork and reinforcing steel; or otherwise on a walking or working surface 6 feet or more above a lower level.

The standard may also require fall protection where a worker is: constructing a leading edge; performing overhand bricklaying and related work; or engaged in roofing work on low-slope roofs, precast concrete.

## Code of Federal Regulations (CFR)



- Download the most recent copy of fall protection regulations from [osha.gov](http://osha.gov) (or [ecfr.gov](http://ecfr.gov).)
- General Duty Clause
- 29 CFR 1926 Subpart M
- 29 CFR 1910 Subpart D

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### General Duty Clause:

- An employer failed to keep the workplace free of a hazard to which employees of that employer were exposed.
- The hazard was recognized. (Refer to examples in student book.)
- The hazard was causing or was likely to cause death or serious physical harm.
- There was a feasible and useful method to correct the hazard.

### 29 CFR 1926 Subpart M Fall Protection for Construction Industry:

- Applies when working at heights of 6 feet or more above a lower level
- Also covers protection from falling objects, falls from tripping over or falling through holes, and protection when walking and working around dangerous equipment without regard to height
- Does not apply to workers inspecting, investigating, or assessing workplace conditions prior to the actual start of work or after all construction work has been completed

### 29 CFR 1910 Subpart D Walking-Working Surfaces for General Industry

- Effective date January 17, 2017
- Similar to construction industry rules
- Contains specific requirements for fall protection systems
- Requires worker training

- Some phased requirements
  - Refer to detailed explanation of requirements in student text
- Slide 22

## MODULE 1 NOW YOU KNOW...

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- Falls are the leading cause of death in construction.
- OSHA requires that fall protection be provided at elevations of
  - 4 feet general industry, 5 feet shipyards, 6 feet construction and 8 feet longshoring operations.
- Report fatality within (8) hours and all work-related inpatient hospitalizations, amputations and losses of an eye within 24 hours.
- **Qualified person** has a recognized degree, or by extensive knowledge, training and experience can successfully demonstrate the ability to solve/resolve problems.
- **Competent person** can identify existing and predictable hazards **and** has authorization to take prompt corrective measures to eliminate them.

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Refer to “Key Take-aways” listed at end of chapter and emphasize points on slide