



Caught-In or -Between Hazards

OSHA 10-Hour Construction Industry Course

Required Online Topic Time: 30m



Learning Objectives



Duration

30 minutes

Terminal Learning Objective

Given current OSHA and industry information regarding construction worksite illnesses, injuries and/or fatalities, the student will be able to recognize caught-in or -between hazards in construction.

Enabling Learning Objectives

- Identify common caught-in or -between hazards
- Describe types of caught-in or -between hazards
- Protect themselves from caught-in or -between hazards
- Recognize employer requirements to protect workers from caught-in or -between hazards



Introduction



5,147 workers were killed on the job in 2017.

On average, more than 99 a week or more than 14 deaths every day. Out of 4,674 worker fatalities in the private industry in 2017, 971 (or 20.7%) were in construction.

If the **fatal four** hazard-related deaths were eliminated, 582 workers' lives in America would be saved every year.

- *Fall Hazards*
- *Struck-By Hazards*
- *Electrocution Hazards*
- *Caught-in or -between Hazards*

A construction site is one of the most dangerous places to work. It is a place where open holes, machinery, and sometimes negligence can cause serious injuries or death. Therefore, it is important for employers and workers to be aware of common caught-in and caught-between hazards and how to avoid and prevent them.



Defining Caught-In and Between Hazards



Each year, workers suffer **approximately 125,000 injuries** when body parts get caught in or caught between two objects or entangled in machinery. These hazards are also called **pinch points**. The physical forces applied to a body part caught in a pinch point can vary and cause injuries or death.

OSHA defines caught-in and caught-between hazards as injuries resulting from a person being squeezed, caught, crushed, pinched, or compressed between two or more objects, or between parts of an object. This includes individuals who are caught or crushed:

- *In operating equipment*
- *Between other mashing objects*
- *Between a moving and stationary object*
- *Between two or more moving objects*



Defining Caught-In and Between Hazards continued...



Some caught-in and caught-between incidents may appear to be **similar** to struck by events.

However, the key difference between a caught event and a struck event is if the impact of the object alone caused the injury. If the impact alone creates the injury, it is a struck incident. But, if the injury is due to being crushed between objects, it is a caught incident.

Caught-in incidents include:

- *Cave-ins during trenching*
- *Being pulled or caught in machinery*
- *Being compressed or crushed between rolling, sliding, or shifting objects*



Defining Caught-In and Between Hazards continued...



Knowledge Key

Caught-in or caught-between incidents happen when a person is crushed, pinched, or compressed between two objects, resulting in injuries or death. You must be attentive on the job site to heavy objects that can move, such as vehicles, equipment, machinery, and materials. All of these objects under the wrong circumstances can contribute to caught-in or caught-between hazards.

Common Caught-In and Between Hazards



The most common types of caught-in and caught-between hazards are:

Machinery with Unguarded Moving Parts

Almost all construction sites use machinery with moving or rotating parts that require maintenance or repair at some point. Workers handling machines or power tools can get clothes or body parts caught in machinery if they do not properly **guard** machinery during regular use or **lockout or de-energize** machinery during maintenance or repair.

Burial Dangers

Workers in a variety of industries must spend a significant amount of time working below ground or in trenches, which puts them at risk for being buried, crushed or suffocated; drowning in water, sewage or chemicals; or being shocked, burned or electrocuted when working near underground utilities.

Pinning Dangers

Accidents where workers are pinned between objects can result in broken bones, asphyxiation, or death. Employees can be hurt if they get pinned between equipment and a solid object, materials being stacked or stored and a solid object, or shoring and construction materials in a trench.

Common Caught-In and Between Hazards continued...



Knowledge Key

The most common types of caught-in and caught-between hazards are: working with machinery with unguarded moving parts, being buried in or by something, and getting pinned between objects. Any of these hazards can result in you being injured or killed.

Protection Against Caught-In and Between Hazards



Follow these guidelines to avoid caught-in or caught-between accidents while working with power tools and machinery.

- *Keep safety guards in place when using power tools*
- *Do not wear loose clothing or jewelry that can get caught in moving parts*
- *Always de-energize or turn off tools to ensure they cannot start accidentally*
- *Disconnect tools from their power sources when not in use, before servicing, and when changing accessories, like blades, bits, and cutters*
- *Lower or block blades on bulldozers, scraper blades, end-loader buckets, dump bodies, and similar equipment when doing repairs, maintenance or not using them*
- *Turn off vehicles completely before doing maintenance or repair work*

Protection Against Caught-In and Between Hazards continued...



Protection in Trenches or Excavations

- Always enter and exit a trench or excavation using a ladder, stairway, or properly designed ramp.
- Never work in an unprotected trench that is more than five feet deep.
- If you must work in a trench or excavation deeper than five feet, the area must be protected using one or more of the following systems: sloping, benching, shielding, or shoring.

Training

Make sure you have the proper training on the equipment and hazards of your job so that you can do your work safely.

Protection from Pinning Dangers

- Be aware of the equipment around you at all times and stay a safe distance away.
- Never stand between moving equipment or materials and an immovable structure, vehicle, or stacked materials.
- Do not work under suspended or raised loads or materials.
- Ensure that all loads carried by equipment are stable and secure.
- Steer clear of the swing radius of cranes and other equipment.
- Wear a seatbelt, if required, to avoid being thrown from a vehicle and, possibly, crushed by the vehicle if it tips over.

Protection Against Caught-In and Between Hazards

continued...



Knowledge Key

There are various guidelines which you can follow to keep yourself safe while working around caught-in or caught-between hazards. What you should do to stay safe changes based on the hazards you're exposed to at your work site, but in all cases, you should be aware of any hazards which are present.

Employer Responsibilities



Your employer is responsible for guarding machinery in the following ways:

- Fit tools with appropriate guards and safety switches for electric, pneumatic, liquid fuel, hydraulic, or powder-actuated machinery.
- Guard exposed moving parts, such as belts, gears, shafts, pulleys.
- Guard points-of-operation where the worker applies a tool to materials. For example, power saws require point-of-operation guarding.
- Guard in-running nip points, such as where a sanding belt runs onto a pulley in a belt sanding machine.
- Provide a LOTO program or equivalent system to ensure that equipment is not accidentally energized during maintenance or repair. Lockout and tagout procedures are specifically required for equipment used in concrete and masonry operations.



Employer Responsibilities

continued...



Your employer also has specific responsibilities to protect you from **burial dangers**, including:

- *Designating a competent person to inspect trenching operations.*
- *Using various protection systems for excavations and trenches five feet deep or more.*
- *Preventing equipment or materials from falling or rolling into excavations.*

Employers must also protect you from **pinning dangers** by:

- *Taking measures to prevent workers from being pinned between various objects.*
- *Ensuring that only the necessary personnel are present during demolition operations that involve balling or clamming.*
- *Using proper bracing between heavy plates when shoring a trench.*
- *Creating a clear travel path when loading, unloading, stacking, and storing materials to prevent workers from getting caught between objects.*

Additionally, employers must protect their workers from caught-in or -between hazards associated with **heavy equipment** and a **lack of training**.



Employer Responsibilities

continued...



Knowledge Key

Your employer is responsible for keeping you, the worker, safe from caught-in and -between hazards. To do this, employers must maintain and guard hand-held power tools and other heavy equipment, construct and protect trenches properly, and take measures to protect workers from pinning dangers on the work site.

Practice Questions



1. Caught-in and caught-between injuries result from a person being squeezed, caught, crushed, pinched, or compressed between _____ objects.

- a. Solid
- b. Two
- c. Other
- d. Construction

2. A worker's arm is on top of a rotary. The worker is wearing a glove and long sleeves. Which hazard is present in this situation?

- a. The worker's glove could be caught in the rotating machinery.
- b. The worker's hand could be cut by the sharp edges.

3. Never work in an unprotected trench that is more than _____ feet deep.

- a. 2
- b. 5
- c. 20
- d. 25

4. Keep safety guards in place while using power tools, and always de-energize or turn off tools to ensure they cannot start accidentally. Is this true or false?

- a. True
- b. False

Practice Questions continued...



5. Which of the following are steps you can take to protect yourself from being pinned? **Select all that apply.**

- a. Never stand between moving equipment or materials and an immovable structure, vehicle, or stacked materials.
- b. Wear gloves when you may handle sharp objects or equipment, even if they may rotate.
- c. Wear a seatbelt, if required, to avoid being thrown from a vehicle.

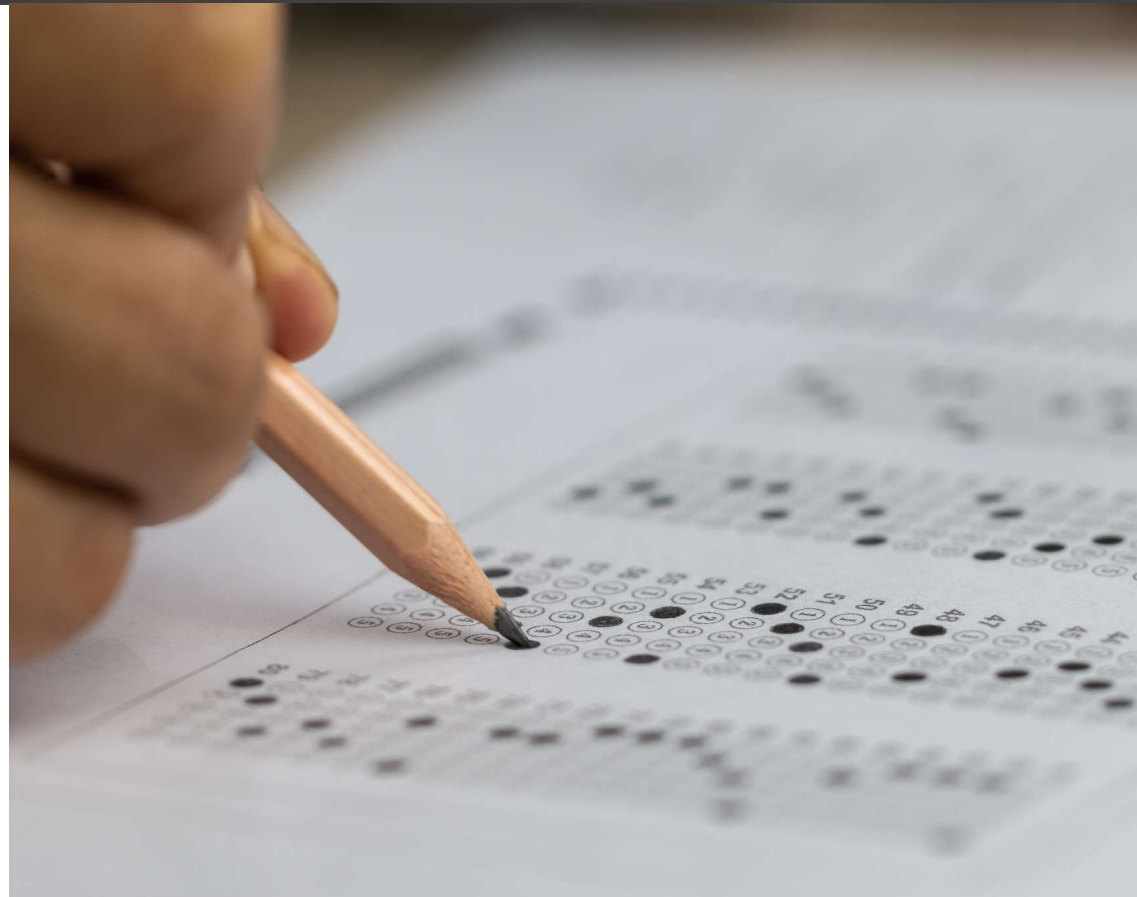
6. What must employers do to comply with OSHA's regulations in protecting workers from pinning dangers? **Select all that apply.**

- a. Use proper bracing between heavy plates when shoring a trench.
- b. Ensure that only the necessary personnel are present during demolition operations that involve balling or clamming.
- c. Take measures to prevent workers from being pinned between various objects.
- d. Provide good life insurance plans for workers and their families.
- e. Create a clear travel path when loading, unloading, stacking, and storing materials.

Practice Questions Answer Key



- 1. B
- 2. A
- 3. B
- 4. A
- 5. A, C
- 6. A, B, C, E



Conclusion



Well done!

You successfully completed the Caught-In and Caught-Between Hazards training topic.

