1926 Construction Focus Four Struck-By Hazards

Struck-By Hazards

Objectives

By the end of the session, students will be able to:

- List the three main causes of struck-by fatalities.
- Describe how to prevent struck-by fatalities.
- Describe safe equipment operation to avoid struck-by accidents.

The Second Leading Cause of Construction Fatalities Is Being Struck by an Object or a Piece of Equipment

- Vehicles
- Heavy Equipment
- Falling Objects
- Flying Objects

Vehicle and Roadway Hazards

What Are the Leading Causes of Highway Worker Fatalities?

For highway workers on foot…

being struck by construction equipment.

For highway equipment operators…

equipment rollover.

Vehicle and Roadway Hazards

If vehicle safety practices are not observed at your site, you risk being pinned between construction vehicles and walls, struck by swinging backhoes, crushed beneath overturned vehicles, you risk being struck by trucks or cars.

How Do I Avoid Hazards?

- Use traffic signs, barricades or flaggers when construction takes place near public roadways
- Workers must be highly visible in all levels of light. Warning clothing, such as red or orange vests, are required; and if worn for night work, must be of reflective material.
- Communicate with operators by radio and/or eye contact

Vehicle and Roadway Hazards

How Do I Avoid Hazards?

- Do not drive a vehicle in reverse gear with an obstructed rear view, unless it has an audible reverse alarm, or another worker signals that it is safe.
- Drive vehicles or equipment only on roadways or grades that are safely constructed and maintained.
- Do not exceed a vehicle's rated load or lift capacity.
- Set parking brakes when vehicles and equipment are parked, and chock the wheels if they are on an incline.

Falling Objects

Falling Objects

You are at risk from *falling* objects when you are beneath cranes, scaffolds, etc., or where overhead work is being performed.

- Rigging failure
- Loose or shifting materials
- Lack of overhead protection

Falling Objects

How Do I Avoid Hazards?

- Wear hardhats
- Stack materials to prevent sliding, falling, or collapse
- Use debris nets, catch platforms, or canopies to catch or deflect falling objects
- Avoid working underneath loads being moved
- Barricade hazard areas and post warning signs
- Secure tools and materials to prevent them from falling on people below

Falling Objects

Objects coming down the elevator hoistway

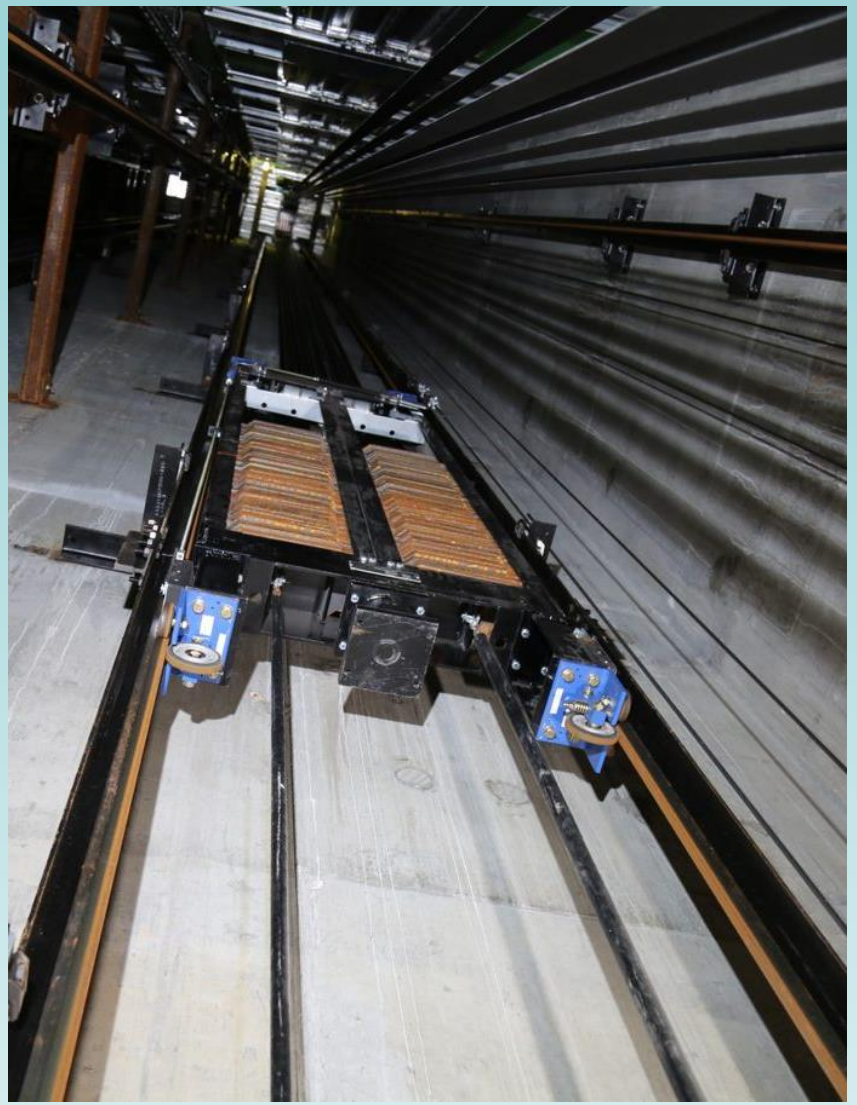
Overhead protection is required on false cars and temporary platforms. This can be accomplished by screening at the hoistway entrances, or as a solid roof.

Falling Objects

When working in a multi-car hoistway, screening should be installed between adjacent cars. This will help with falling objects, and provide a separation between running cars.

Elevator Counterweight

The counterweight runs in the opposite direction of the car and passes within a few inches. Always be aware of the position of the counterweight.



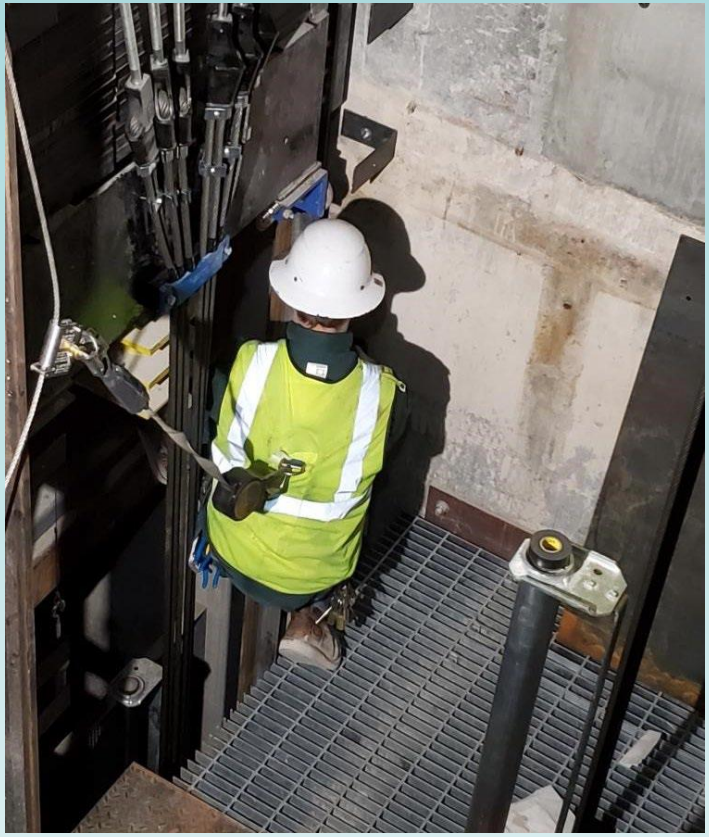
ACCIDENT

A construction crew was adjusting counterweight guard brackets in the pit from an elevated working platform.

A 1st year Apprentice was on the working platform with a 4th year Apprentice. The Adjuster and Mechanic were on the car top, 58 floors above.

The 1st year Apprentice crouched partly under the counterweight with his left foot on a spreader beam and right foot on the platform. The 4th year Apprentice had just stepped away to grab a tool.

The Adjuster and Mechanic heard the command “car up” over the radio. As they ran the car up, the counterweight came down and struck the Apprentice.



Accident re-enactment photo

ACCIDENT cont.

The 4th Year Apprentice heard the 1st year calling out his name. He looked down into the pit to see the Apprentice lying on the grating. He called out over the radio “Stop, stop! Run the car down!”

The 4th year entered the pit and assessed the 1st year lying on the grating. The 1st year was able to climb out of the pit from the pit ladder.

The employer’s on-site safety and GC safety teams were notified immediately and attended to the Apprentice. He was transported to the hospital and determined to have suffered 3 fractured vertebrae and placed in a back brace.

ACCIDENT cont.

Recommendations and lessons learned:

- Always perform a detailed JHA
- Never place your body or limbs in the path of travel
- Install standard railing on working platforms as required
- Test and verify two-way communication
- All personnel must exit the pit prior to moving the conveyance
- Verbally repeat commands for direction of movement and all personnel are clear prior to initiating movement
- Use separate, dedicated radio channels and repeaters

Pit Access: Struck-by car or counterweight

Be aware of car position when accessing the pit. Always perform LOTO and secure the car from unintended movement according to your company safety procedures before entering the pit. Identify refuge space in the pit before entering.

What's Wrong With This Picture?

Workers not wearing hard hats

Workers could be struck by falling objects from scaffold

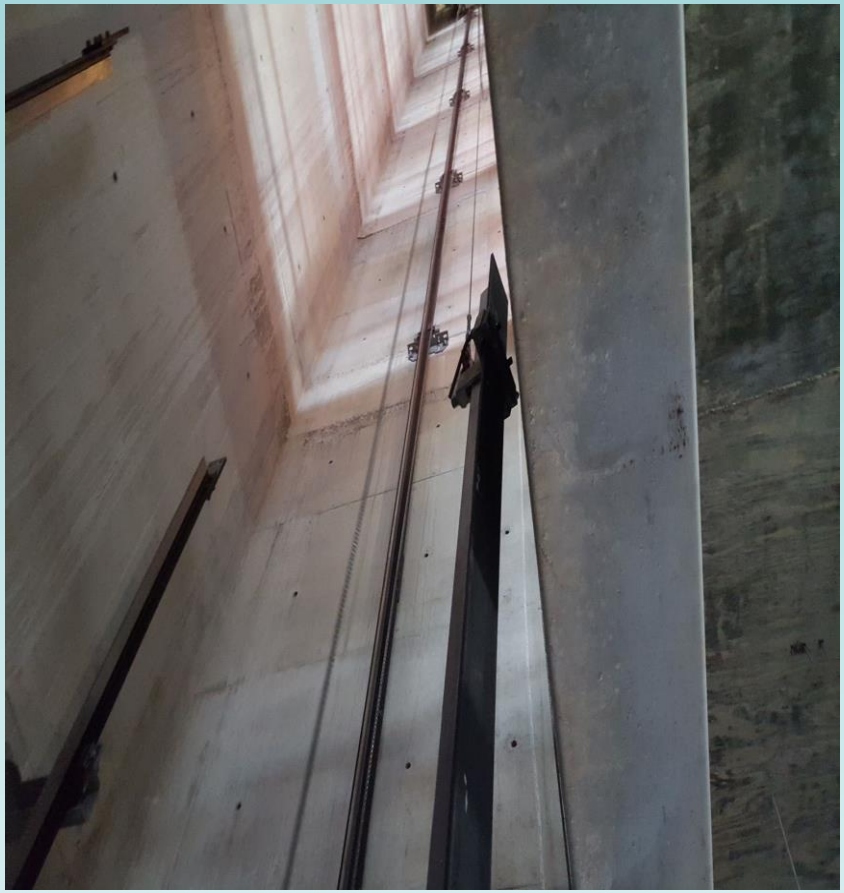
Struck-By Hazards When Handling Material

Many workers are hurt or killed from handling loads including: loads falling out of rigging, being struck by swinging or descending loads and being pulled off upper elevations from swinging loads.

Rigging equipment can fail, loads can shift or roll.

Working Under a Suspended Load

- Elevator Constructors should never work under a suspended load.
- During hoisting operations within the hoistway, workers should be positioned outside the hoistway and should control the load by using taglines from the open entrances.
- If you are installing rails and brackets from a false car or running platform, never allow the load to be hoisted above you.



Struck-By Hazards When Handling Material

Pipes, stacks of material, etc., can roll off a truck when bindings are removed.

Unsecured material can fall from forklifts and other equipment.

A worker was killed when these pipes rolled off the truck and crushed him.

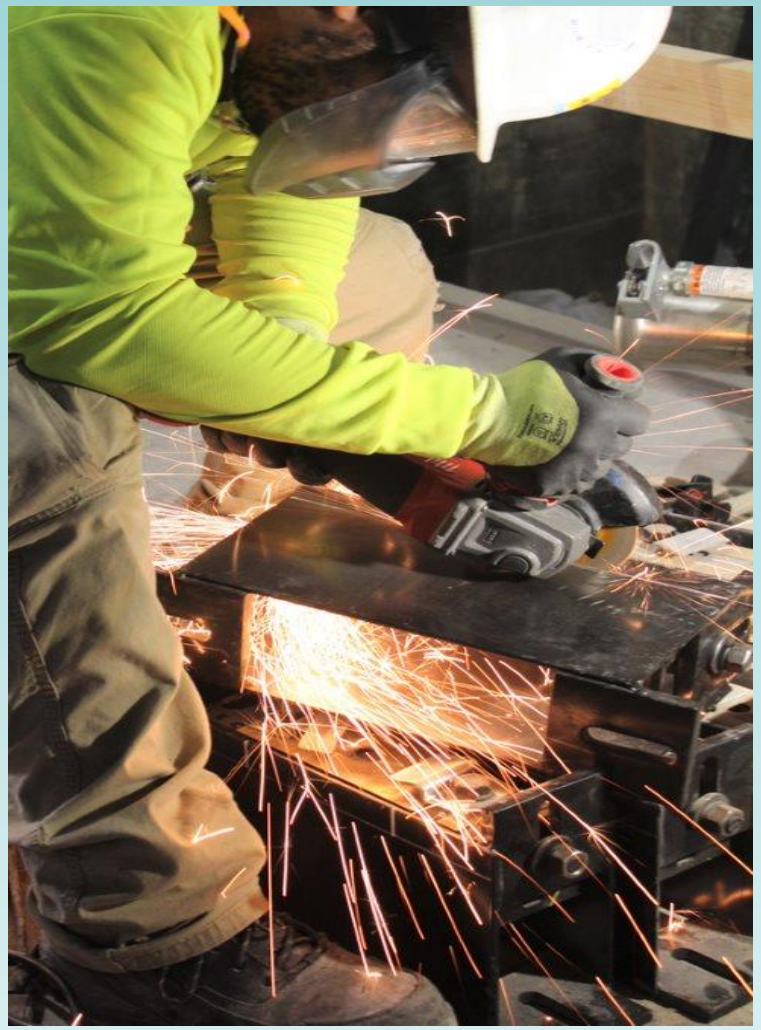
Struck-By Flying Objects

Tools can create particles when chipping, grinding, sawing, brushing, or hammering.

Particles from some tools move at high speed and can hit with the force of a bullet, like those from pneumatic and powder-actuated tools.

How can you be protected from flying objects?

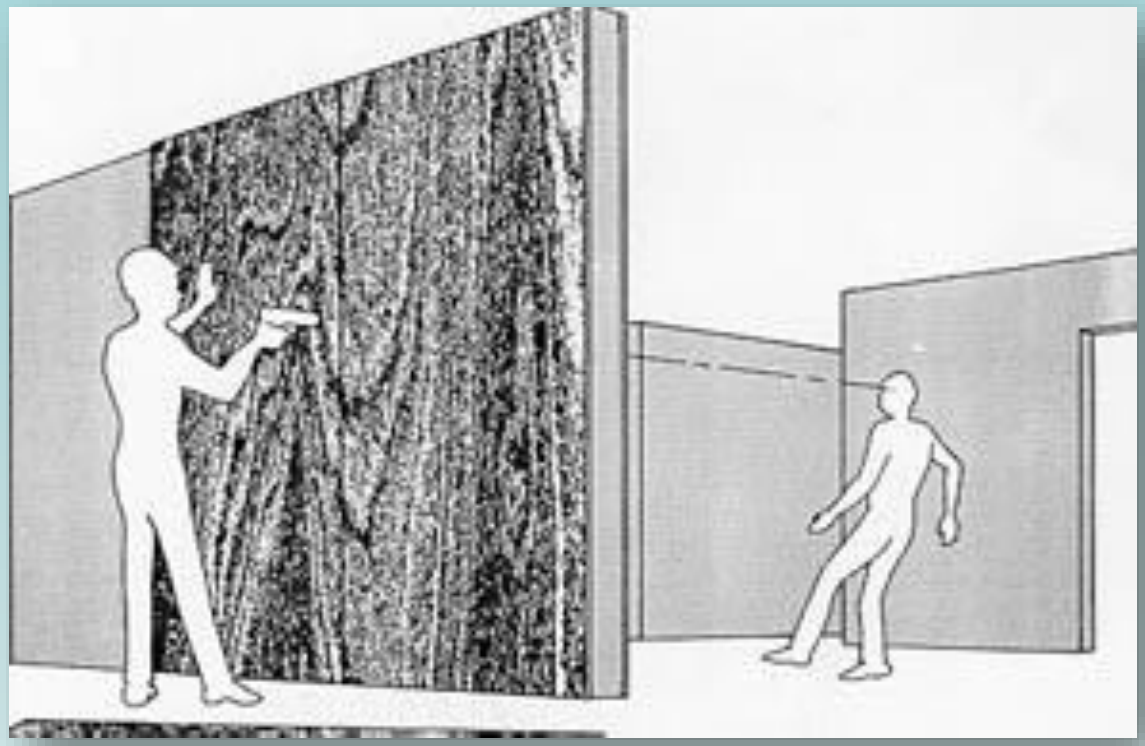
Be sure you are properly trained before using any power tool and always wear the proper PPE.



Struck-By Flying Objects

While it is not common to use powder actuated tools and nail guns in the elevator industry, other trades will be using them around you. The following slides will give you the basic knowledge of how these tools work and some safety requirements for when they are being used.

Struck-By Flying Objects



OSHA Fatal Facts

A 22-year-old Carpenter Apprentice was killed when he was struck in the head by a nail that was fired from a powder-actuated tool.

Struck-By Flying Objects

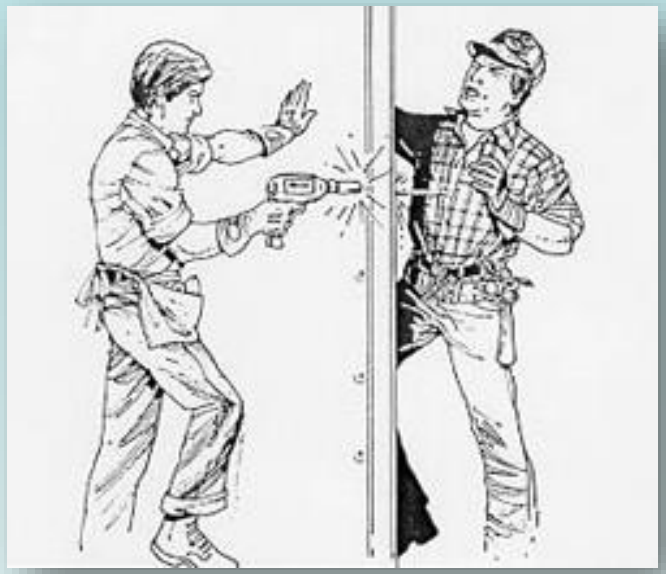
Using powder actuated tools correctly and safely – 1926.302(e):

- Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a powder-actuated tool
- Personal protective equipment is required – eye/face, hands, hearing protection

Struck-By Flying Objects

Using powder actuated tools correctly and safely cont.:

- Never load the tool until you are ready to use it
- Always insert the fastener before cocking the tool
- Never cock the tool against the hand or point the tool at anyone
- Always check penetrations and use proper loads



Struck-By Flying Objects

Nail Guns

- May be air or battery operated
- Proper training is required prior to use
- Equipment must be inspected prior to use
- All safety switches must be installed and operating properly
- As with powder tools, proper PPE must be worn

Struck-By Flying Objects

What's wrong here?

Nail Guns cont.

- NEVER point a nail gun toward you or co-workers
- ALWAYS wear proper PPE when using any power tool. In this picture: the user should be using hard hat, hearing and eye protection, fall protection
- PPE and training are useless if you don't use it. Who is counting on you to work safe and come home at the end of the day? Don't let your family down….

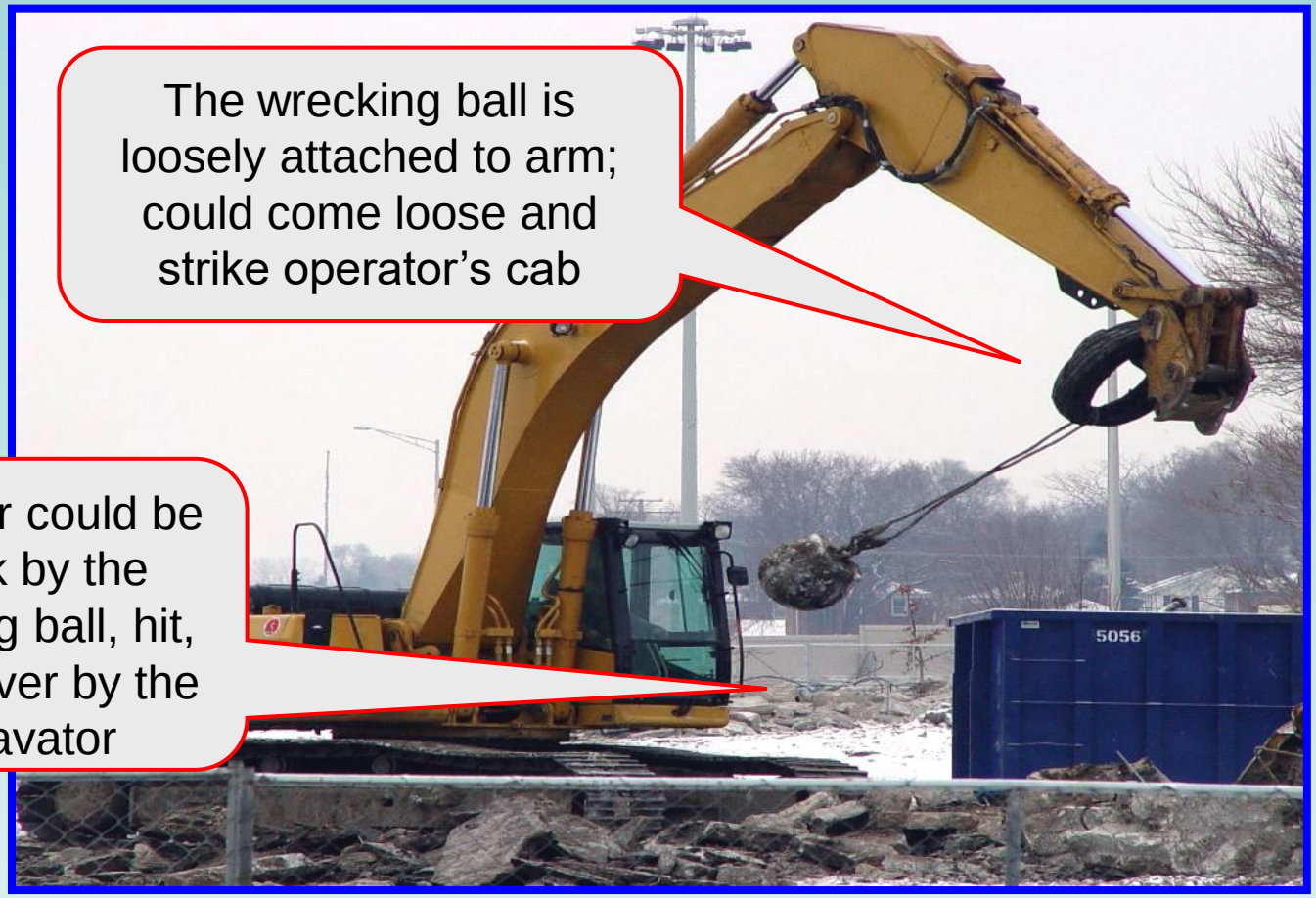
  Safety first, safety always!

What's the hazard here?

Both workers could be crushed by moving equipment

What's the hazard here?

What's the hazard here?



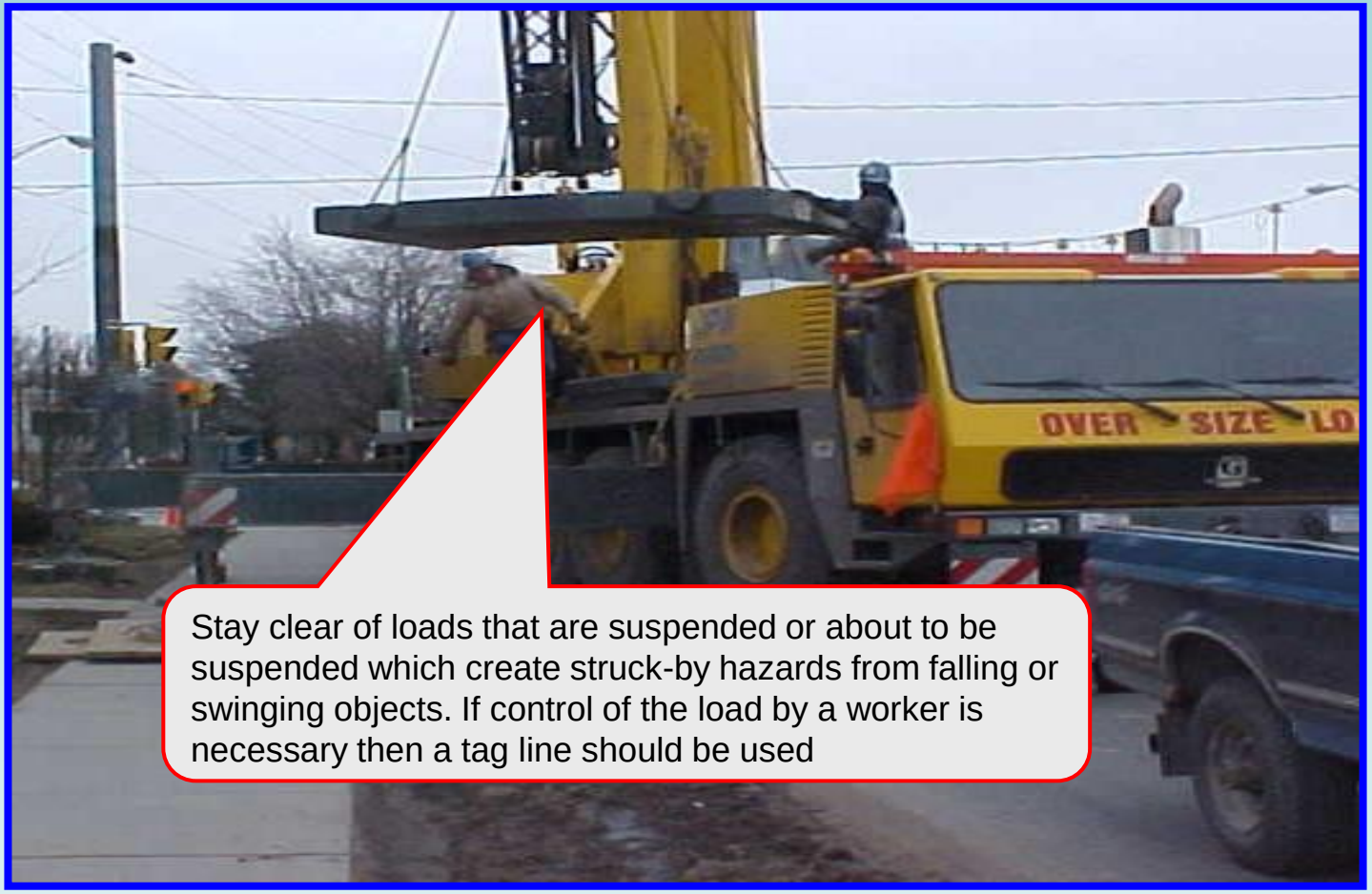
Source: Construction Safety Council

What's the hazard here?

Unsecured gas cylinders are being transported, exposing workers to struck-by hazard from flying projectiles

Source: National Photo Archive ID #1470

What's the hazard here?



Stay clear of loads that are suspended or about to be suspended which create struck-by hazards from falling or swinging objects. If control of the load by a worker is necessary then a tag line should be used

Source: OTI Course #2080

What's the hazard here?

Source: Susan Harwood Grant Number SH-17792-08-60-F-48 by Compacion Foundation

Summary:

As you can see, struck-by hazards are everywhere. They fall into one of three categories:

- Vehicle and roadway hazards
- Falling objects
- Flying objects

Struck-by hazards are preventable. Stay clear of operating vehicles and equipment, communicate with operators and maintain eye contact, avoid blind spots, wear high visibility clothing, and never stand under a load.

Power and powder actuated tools are dangerous and should only be used after proper training and only as directed. PPE must always be used and you must perform penetration checks when setting up the tool.

Remember who is counting on you to come home safe each day.

Through the Alliance between OSHA's 10 Regional Offices and the Elevator Contractors of America (ECA), Elevator Industry Work Preservation Fund (EIWPF), International Union of Elevator Constructors (IUEC), National Association of Elevator Contractors (NAEC), National Elevator Industry Educational Program (NEIEP), and National Elevator Industry Inc. (NEII), collectively known as The Elevator Industry Safety Partners, developed this Struck-By Hazard Industry Specific Content for informational purposes only. It does not necessarily reflect the official views of OSHA or the U.S. Department of Labor. May 2021

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Any Questions