

Transporting Materials: Falling Object Struck-by Hazards

If materials transported by a truck, crane, or other equipment are not properly secured, they can fall and strike a worker, causing a serious injury or death.

Protect workers by:

- Making sure all workers are properly trained and licensed/certified, if appropriate.
- Planning how items will be moved – their weight, dimensions, contents, pick points, and center of gravity.
- Prior to a lift, discussing how the operator and signal person will communicate during the lift, including a back-up plan if communication is lost, and an emergency stop procedure.
- Reviewing the lifting capacity of the piece of equipment and rigging, as well as lifting points, methods of attachment, sling angles, boom and swing angles, and equipment orientation.
- Inspecting heavy equipment and rigging before use for wear or damage.
- Monitoring the weather (e.g., wind speeds), ground conditions, and other environmental factors.
- Setting up barricades and posting warning signs around lift zones.
- Ensuring they do not stand underneath a suspended load.
- Testing the load by raising it a few inches and holding, verifying the capacity and balance, and testing the brake system.
- Requiring the use of personal protective equipment, such as hard hats.

Planning Resources

- [Job Hazard Analysis](#)
- [Building Information Modeling \(BIM\) for Safety Planning](#)
- [CPWR's Head Protection Webpage](#)
- [OSHA Competent Person Resources](#)
- What's the Risk? Best Practices to Reduce the Likelihood of Struck-By Injuries From Heavy Equipment and Crane Activities: [Play Recording](#); [PDF of Slides](#)
- Cranes & Lifting – Avoiding Struck-By Incidents Under the Hook: [Play Recording](#); [PDF of Slides](#)
- NIOSH Science Blog: [Preventing Struck-by Injuries in Construction: Lift Zone Safety](#)



Training Resources

- Toolbox Talks:
 - Lift Zone Safety: Planning a Lift ([English](#), [Spanish](#))
 - Tower Crane Safety ([English](#), [Spanish](#))
 - Equipment: Falling Objects ([English](#), [Spanish](#))
 - Boom Truck Safety ([English](#), [Spanish](#))
 - Head Protection ([English](#), [Spanish](#))
- Hazard Alert Cards:
 - Preventing Head Injuries ([English](#), [Spanish](#))
- Posters/Infographics:
 - Crane and Lift Zone Safety: Planning for a Safe Lift (English [PDF](#) & [PNG](#); Spanish [PDF](#) & [PNG](#))
 - Best Practices for Safe Crane Lifts (English [PDF](#) & [PNG](#); Spanish [PDF](#) & [PNG](#))

- Head Protection (English [PDF](#) & [JPEG](#))
- In 1 Strike You Could Be Out (English [PDF](#) & [JPEG](#))
- Webinars:
 - What's the Risk? Best Practices to Reduce the Likelihood of Struck-By Injuries From Heavy Equipment and Crane Activities: [Play Recording](#); [PDF of Slides](#)
 - Cranes & Lifting – Avoiding Struck-By Incidents Under the Hook: [Play Recording](#); [PDF of Slides](#)

Relevant Standards

- OSHA Standard 29 CFR - <https://www.osha.gov/laws-regs/regulations/standardnumber/1926>
 - [1926 Subpart C - General Safety and Health Provisions](#)
 - [1926.20 - General safety and health provisions.](#)
 - [1926.21 - Safety training and education.](#)
 - [1926.22 - Recording and reporting of injuries.](#)
 - [1926.23 - First aid and medical attention.](#)
 - [1926.25 - Housekeeping.](#)
 - [1926.28 - Personal protective equipment.](#)
 - [1926.29 - Acceptable certifications.](#)
 - [1926 Subpart E - Personal Protective and Life Saving Equipment](#)
 - [1926.95 - Criteria for personal protective equipment.](#)
 - [1926.96 - Occupational foot protection.](#)
 - [1926.100 - Head protection.](#)
 - [1926.102 - Eye and face protection.](#)
 - [1926 Subpart G - Signs, Signals, and Barricades](#)
 - [1926.200 - Accident prevention signs and tags.](#)
 - [1926.201 - Signaling.](#)
 - [1926 Subpart H - Materials Handling, Storage, Use, and Disposal](#)
 - [1926.250 - General requirements for storage.](#)
 - [1926.251 - Rigging equipment for material handling.](#)
 - [1926.252 - Disposal of waste materials.](#)
 - [1926 Subpart N - Helicopters, Hoists, Elevators, and Conveyors](#)
 - [1926.551 - Helicopters.](#)
 - [1926.552 - Material hoists, personnel hoists, and elevators.](#)
 - [1926.554 - Overhead hoists.](#)
 - [1926.555 - Conveyors.](#)
 - [1926 Subpart O - Motor Vehicles, Mechanized Equipment, and Marine Operations](#)
 - [1926.600 - Equipment.](#)
 - [1926.601 - Motor vehicles.](#)
 - [1926.602 - Material handling equipment.](#)
 - [1926.603 - Pile driving equipment.](#)
 - [1926.604 - Site clearing.](#)
 - [1926.605 - Marine operations and equipment.](#)
 - [1926 Subpart R - Steel Erection](#)
 - [1926.752 - Site layout, site-specific erection plan and construction sequence.](#)
 - [1926.753 - Hoisting and rigging.](#)
 - [1926.754 - Structural steel assembly.](#)
 - [1926.757 - Open web steel joists.](#)
 - [1926.758 - Systems-engineered metal buildings.](#)
 - [1926.759 - Falling object protection.](#)
 - [1926.761 - Training.](#)
 - [1926 Subpart W - Rollover Protective Structures; Overhead Protection](#)

- [1926.1003 - Overhead protection for operators of agricultural and industrial tractors used in construction.](#)
- [1926 Subpart CC - Cranes and Derricks in Construction](#)
 - [1926.1400 - Scope.](#)
 - [1926.1401 - Definitions.](#)
 - [1926.1402 - Ground conditions.](#)
 - [1926.1403 - Assembly/Disassembly—selection of manufacturer or employer procedures.](#)
 - [1926.1404 - Assembly/Disassembly—general requirements \(applies to all assembly and disassembly operations\).](#)
 - [1926.1405 - Disassembly—additional requirements for dismantling of booms and jibs \(applies to both the use of manufacturer procedures and employer procedures\).](#)
 - [1926.1406 - Assembly/Disassembly—employer procedures--general requirements.](#)
 - [1926.1407 - Power line safety \(up to 350 kV\)—assembly and disassembly.](#)
 - [1926.1408 - Power line safety \(up to 350 kV\)—equipment operations.](#)
 - [1926.1409 - Power line safety \(over 350 kV\).](#)
 - [1926.1410 - Power line safety \(all voltages\)—equipment operations closer than the Table A zone.](#)
 - [1926.1411 - Power line safety—while traveling.](#)
 - [1926.1412 - Inspections.](#)
 - [1926.1413 - Wire rope—inspection.](#)
 - [1926.1414 - Wire rope—selection and installation criteria.](#)
 - [1926.1415 - Safety devices.](#)
 - [1926.1416 - Operational aids.](#)
 - [1926.1417 - Operation.](#)
 - [1926.1418 - Authority to stop operation.](#)
 - [1926.1419 - Signals—general requirements.](#)
 - [1926.1420 - Signals—radio, telephone or other electronic transmission of signals.](#)
 - [1926.1421 - Signals—voice signals—additional requirements.](#)
 - [1926.1422 - Signals—hand signal chart.](#)
 - [1926.1423 - Fall protection.](#)
 - [1926.1424 - Work area control.](#)
 - [1926.1425 - Keeping clear of the load.](#)
 - [1926.1426 - Free fall and controlled load lowering.](#)
 - [1926.1427 - Operator training, certification, and evaluation.](#)
 - [1926.1428 - Signal person qualifications.](#)
 - [1926.1429 - Qualifications of maintenance & repair employees.](#)
 - [1926.1430 - Training.](#)
 - [1926.1431 - Hoisting personnel.](#)
 - [1926.1432 - Multiple-crane/derrick lifts—supplemental requirements.](#)
 - [1926.1433 - Design, construction and testing.](#)
 - [1926.1434 - Equipment modifications.](#)
 - [1926.1435 - Tower cranes.](#)
 - [1926.1436 - Derricks.](#)
 - [1926.1437 - Floating cranes/derricks and land cranes/derricks on barges.](#)
 - [1926.1438 - Overhead & gantry cranes.](#)
 - [1926.1439 - Dedicated pile drivers.](#)
 - [1926.1440 - Sideboom cranes.](#)
 - [1926.1441 - Equipment with a rated hoisting/ lifting capacity of 2,000 pounds or less.](#)
 - [1926.1442 - Severability.](#)

- [1926 Subpart CC App A - Standard Hand Signals](#)
- [1926 Subpart CC App B - Assembly/Disassembly—Sample Procedures for Minimizing the Risk of Unintended Dangerous Boom Movement](#)
- [1926 Subpart CC App C - Operator Certification—Written Examination—Technical Knowledge Criteria](#)
- American National Standards Institute (ANSI):
 - [ANSI/ American Society of Safety Professionals \(ASSP\) A10.5-2020: Safety Requirements for Material Hoists](#)
 - [ANSI/ASSP A10.42 – 2000 \(R2017\): Safety Requirements for Rigging Qualifications and Responsibilities](#)
 - [ANSI/International Safety Equipment Association \(ISEA\) Z89.1-2014 \(R2019\) – Head Protection](#)

Nudges to Improve Planning

- Job Site Posters: *see Training Resources above*
- Text Messages

Target Audience	Texts: General	Texts: Specific
Supervisors and Workers	<ul style="list-style-type: none"> • Stop the Drop: Follow the plan to prevent struck-by incidents to keep you and your co-workers safe. • Stop the Drop: Follow the plan to secure materials when they are being transported to prevent them from falling and causing a serious injury. 	<ul style="list-style-type: none"> • Planning to prevent struck-by incidents when transporting materials should include training workers on the hazards and how to prevent an incident. (Supervisors)

- Email Messages

Example:

Dear [],

Safety is everyone’s responsibility – especially those who supervise others. If your employees are transporting materials using trucks, cranes, and other equipment, remember that serious injuries can occur if these materials fall because they weren’t secured properly. Create a plan before work begins using CPWR’s Struck-by Planning Program and communicate it with your workers to prevent struck-by incidents. As part of your plan, you should:

- Make sure all workers are properly trained and licensed/certified, if appropriate.
- Plan how items will be moved – their weight, dimensions, contents, pick points, and center of gravity.
- Prior to a lift, discuss how the operator and signal person will communicate during the lift, including a back-up plan if communication is lost, and an emergency stop procedure.
- Review the lifting capacity of the piece of equipment and rigging, as well as lifting points, methods of attachment, sling angles, boom and swing angles, and equipment orientation.
- Inspect heavy equipment and rigging before use for wear or damage.
- Monitor the weather (e.g., wind speeds), ground conditions, and other environmental factors.
- Set up barricades and post warning signs around lift zones.
- Ensure workers do not stand underneath a suspended load.
- Test the load by raising it a few inches and holding, verifying the capacity and balance, and testing the brake system.
- Require the use of personal protective equipment, such as hard hats.

Please reach out if you have any safety concerns or questions. Stay safe!

[Name]

- Stickers



CPWR has a simple “Sphere of Safety” hardhat sticker design that can be downloaded and printed. We also have limited supplies available for free, which can be ordered by contacting Grace Barlet at gbarlet@cpwr.com.

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