

FORKLIFT SAFETY

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Forklifts, also known as powered industrial trucks, are used in numerous work settings, primarily to move materials.

From 2011 to 2017, 614 workers lost their lives in forklift related incidents and more than 7,000 nonfatal injuries with days away from work occurred every year.¹

Of the 74 fatal work injuries involving forklifts in 2017, the events that led to the most workplace deaths were non-roadway incidents (20), struck by powered vehicle, non-transport cases (13), struck by falling object cases (12), falls to lower level (11), and pedestrian vehicular incidents (9).

Forklifts were involved in 9,050 nonfatal workplace injuries or illnesses with days away from work in 2017. These cases resulted in workers taking a median of 13 days away from work, higher than the median of 8 days for all cases. Of

these cases, 2,050 involved non-roadway accidents with the forklift, and 1,850 more cases involved pedestrians while the forklift was in transportation use. Forklift related occupational injuries to pedestrians resulted in the highest median days away from work (20 days) compared to other forklift related events.

1. Bureau of Labor Statistics - Percentage of fatal injuries and nonfatal injuries and illnesses involving forklifts by selected events, 2017.

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WHAT DOES THE OSHA STANDARD REQUIRE?

OSHA has developed standards for powered industrial trucks (such as low- and high-lift trucks and forklift trucks) [29 CFR* 1910.178] and for forklifts used in the construction industry [29 CFR 1926.600; 1926.602].



Worker Training

- Make sure that workers do not operate a forklift unless they have been trained and licensed.
- Develop, implement, and enforce a comprehensive written safety program that includes worker training, operator licensure, and a timetable for reviewing and revising the program. A comprehensive training program is important for preventing injury and death. Operator training should address factors that affect the stability of a forklift—such as the weight and symmetry of the load, the speed at which the forklift is traveling, operating surface, tire pressure, and driving behavior.
- Inform operators of sit-down type forklifts that they can be crushed by the overhead guard or another part of the truck after jumping from the overturning forklift. The operator of a sit-down type forklift should stay with the truck if lateral or longitudinal tip over occurs. The operator should hold on firmly and lean away from the point of impact.
- Train operators of stand-up type forklifts with rear-entry access to exit from the truck by stepping backward if a lateral tip over occurs.
- Ensure that operator restraint systems are being used on sit-down type forklifts. Since 1992, forklift manufacturers have been required to equip new sit-down type forklifts with operator restraint systems. Many manufacturers of these forklifts offer restraint systems that can be retrofitted on older forklifts. Many of the fatalities resulting from overturns of sit-down type forklifts might have been prevented if the operator had been restrained. The overhead guard of the forklift is generally the part that crushes the operator's head or torso after he or she falls or jumps outside of the operator's compartment. The risk of

being crushed by the overhead guard or another rigid part of the forklift is greatly reduced if the operator of a sit-down type forklift remains inside the operator's compartment. Because many forklifts are not equipped with a restraint system and operator compliance is less than 100% on forklifts equipped with a restraint system, *operators of sit-down type forklifts should be instructed not to jump from the operator's compartment but to stay inside by leaning in the opposite direction of the overturn.*

- Train operators to handle asymmetrical loads when their work includes this activity.

Employers must certify that each operator has been trained and evaluated in accordance with the OSHA standard. [29 CFR 1910.178(l)(6)]

The certification must include:

- Operator name.
- Training date.
- Evaluation date.
- Name of person(s) performing the training or evaluation



Forklift Inspection and Maintenance

- Establish a vehicle inspection and maintenance program.
- Retrofit old sit-down type forklifts with an operator restraint system if possible.

Lifting

- Ensure that operators use only an approved lifting cage and adhere to general safety practices for elevating personnel with a forklift. Also, secure the platform to the lifting carriage or forks.
- Provide means for personnel on the platform to shut off power to the truck whenever the truck is equipped with vertical only or vertical and horizontal controls for lifting personnel.

Workers on Foot

- Separate forklift traffic and other workers where possible.
- Limit some aisles to workers on foot only or forklifts only.
- Restrict the use of forklifts near time clocks, break rooms, cafeterias, and main exits, particularly when the flow of workers on foot is at a peak (such as at the end of a shift or during breaks).
- Install physical barriers where practical to ensure that workstations are isolated from aisles traveled by forklifts.
- Evaluate intersections and other blind corners to determine whether overhead dome mirrors could improve the visibility of forklift operators or workers on foot.
- Make every effort to alert workers when a forklift is nearby. Use horns, audible backup alarms, and flashing lights to warn workers and other forklift operators in the area. Flashing lights are especially important in areas where the ambient noise level is high.

Work Environment

- Ensure that workplace safety inspections are routinely conducted by a person who can identify hazards and conditions that are dangerous to workers. Hazards include obstructions in the aisle, blind corners and intersections, and forklifts that come too close to workers on foot. The person who conducts the inspections should have the authority to implement prompt corrective measures.
- Install the workstations, control panel, and equipment away from the aisle when possible. Do not store bins, racks, or other materials at corners, intersections, or other locations that obstruct the view of operators or workers at workstations.
- Enforce safe driving practices such as obeying speed limits, stopping at stop signs, and slowing down and blowing the horn at intersections.
- Repair and maintain cracks, crumbling edges, and other defects on loading docks, aisles, and other operating surfaces.

Workers

- Do not operate a forklift unless you have been trained and licensed.
- Use seatbelts if they are available.
- Report to your supervisor any damage or problems that occur with a forklift during your shift.
- Do not jump from an overturning, sit-down type forklift. Stay with the truck if lateral or longitudinal tip over occurs. Hold on firmly and lean in the opposite direction of the overturn.
- Exit from a stand-up type forklift with rear-entry access by stepping backward if a lateral tip over occurs.

- Use extreme caution on grades, ramps, or inclines. Normally you should travel only straight up and down.
- On all grades, tilt the load back if applicable, and raise it only as far as needed to clear the road surface.
- Do not raise or lower the forks while the forklift is moving.
- Do not handle loads that are heavier than the rated weight capacity of the forklift.
- Operate the forklift at a speed that will permit it to be stopped safely.
- Slow down and sound the horn at intersections and other locations where vision is obstructed.
- Look toward the path of travel and keep a clear view of it.
- Do not allow passengers to ride on forklift trucks unless a seat is provided.
- When dismounting from a forklift, always set the parking brake, lower the forks, and neutralize the controls.
- Do not drive up to anyone standing in front of a bench or other fixed object.
- Do not use a forklift to elevate workers who are standing on the forks.
- Do not elevate a worker on a platform unless the vehicle is directly below the work area.
- Whenever a truck is used to elevate personnel, secure the elevating platform to the lifting carriage or forks of the forklift.
- Use a restraining means such as rails, chains, or a body belt with a lanyard or deceleration device for the person(s) on the platform.
- Do not drive to another location with the work platform elevated.



REFERENCES AND FOR ADDITIONAL INFORMATION:

Occupational Safety and Health Administration (OSHA) - <https://www.osha.gov/SLTC/etools/pit/operations/measurements.html>

ASME [2005]. Safety standard for low lift and high lift trucks. New York: American Society of Mechanical Engineers and American National Standards Institute, ASME B56.1—2005.

BLS [June 2019]. Occupational Injuries, Illnesses, and Fatalities Involving Forklifts Washington, DC: U.S. Department of Labor, Bureau of Labor Statistics, Report 913.

USC. United States code. Washington, DC: US Government Printing Office.

[Preventing Injuries and Deaths of Workers Who Operate or Work Near Forklifts Cdc-pdf\[PDF – 128K\]](#)

PHOTOS

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