



Solutions for Safety & Visual Communication



Warehouse Safety Hazards and Solutions Guide

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This guide identifies various hazards and areas within a warehouse, describes the common hazards and presents recommended solutions based on OSHA standards and guidelines.



1 What are the top ten most frequently cited OSHA warehouse violations?



9 What needs to be checked for proper hazardous communication?

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An in-depth look at each of the common OSHA violations and possible solutions to avoid injuries and fatalities

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Please feel free to share this with someone else who could use it.

Thank you!

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THINK SAFETY

Warehouse operations can present a wide variety of potential hazards for the worker. The ten most frequently cited OSHA warehouse violations are:

1. Forklifts
2. Hazard communication
3. Electrical, wiring methods
4. Electrical, system design
5. Guarding floor and wall openings and holes
6. Exits
7. Mechanical power transmission
8. Respiratory protection
9. Lockout/tagout
10. Portable fire extinguishers

DID YOU KNOW?

Warehouse facts:

- More than 145,000 people work in over 7,000 warehouses
- The fatal injury rate for the warehousing industry is higher than the national average for other industries
- Potential hazards for warehouse workers include:
 - Unsafe use of forklifts
 - Improper stacking of products
 - Failure to use proper personal protective equipment
 - Failure to follow proper lockout/tagout procedures
 - Inadequate fire safety provisions
 - Repetitive motion injuries



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Forklifts

Hazard

About 100 employees are killed and 95,000 injured every year while operating forklifts in all industries. Forklift turnovers account for a significant percentage of these fatalities.

Solutions

- Train, evaluate, and certify all operators to ensure they can operate forklifts safely
- Label forklifts with operating information
- Do not allow anyone under 18 years old to operate a forklift
- Properly maintain haulage equipment, including tires
- Before using a forklift, examine it for hazardous conditions which would make it unsafe to operate
- Label forklifts with inspection checklists
- Follow safe procedures for picking up, putting down, and stacking loads
- Drive safely, never exceeding 5 mph, and slow down in congested areas or on slippery surfaces
- Ensure that the operator wears a seat belt installed by the manufacturer
- Never drive up to a person standing in front of a fixed object such as a wall or stacked materials
- Prohibit stunt driving and horseplay
- Do not handle loads that are heavier than the weight capacity of the forklift
- Remove unsafe or defective trucks from service until the defect is properly repaired
- Maintain safe clearances for aisles and at loading docks or passages where forklifts are used
- Ensure adequate ventilation either by opening doors/windows or using a ventilation system to provide enough fresh air to keep concentrations of noxious gases from engine exhaust below acceptable limits
- Provide covers and/or guardrails to protect workers from the hazards of open pits, tanks, vats and ditches
- Train employees on the hazards associated with the combustion of products from forklift operation, such as carbon monoxide



Docks

Hazard

Injuries happen when equipment is driven off the dock or equipment strikes a person.

Solutions

- Operate equipment slowly on docks and dock plates
- Secure dock plates and verify that the plate can safely support the load
- Keep clear of dock edges and never back up equipment to the dock's edge
- Provide visual warnings, including appropriate signage, near dock edges
- Make sure dock ladders and stairs meet OSHA specifications
- Prohibit "dock jumping"



Conveyors

Hazard

Workers can be injured when caught in pinch points, ongoing nip points, or in the conveyor system.

Solutions

- Inspect conveyors regularly
- Ensure that pinch points are adequately guarded and have appropriate warning labels and signs
- Provide proper lighting and working surfaces in the area surrounding the conveyor
- Keep clothing, fingers, hair, and other body parts away from the conveyor
- Develop ways of locking out conveyors and train employees in these procedures



A well-placed label alerts workers to potential machine hazards.

THINK SAFETY



Manual Lifting/Handling

Hazard

Back injuries may occur from improper lifting or overexertion.

Solutions

- Provide ergonomics training and task-specific training
- Minimize the need for lifting by using good design and engineering techniques
- Obtain assistance with heavy objects
- Use signs and posters to remind workers of proper lifting techniques



Materials Storage

Hazard

Improperly stored materials may fall and injure workers.

Solutions

- Stack loads evenly and straight
- Place heavier loads on lower or middle shelves
- Remove one object at a time from shelves
- Keep aisles and passageways clear and in good repair



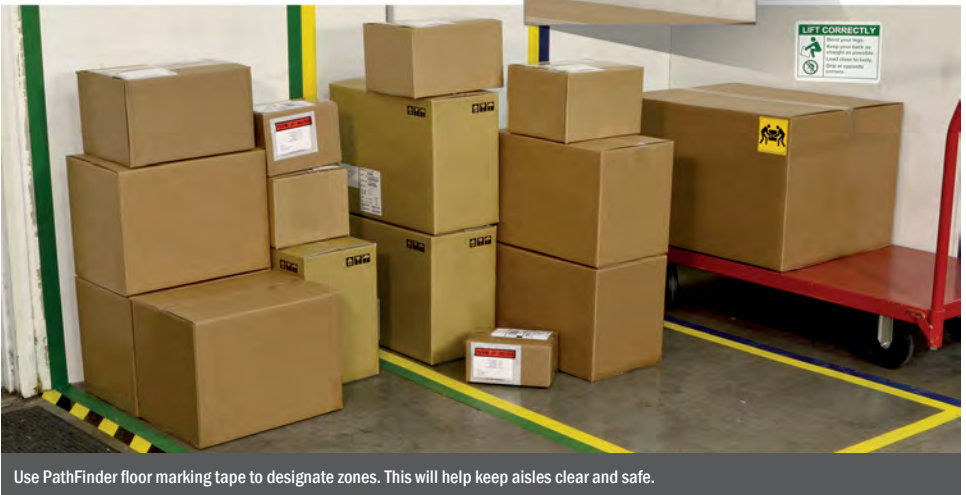
Poor Ergonomics

Hazard

Improper lifting, repetitive motion or poor ergonomic design can lead to musculoskeletal disorders in workers.

Solutions

- If possible, use powered equipment instead of requiring a manual lift for heavy materials
- Ensure overhead lighting is adequate for the task at hand
- Provide employees with task-oriented ergonomic and lift training
- Test the load to be lifted to estimate its weight, size and bulk, and to determine the proper lifting method
- Obtain help if the load exceeds the maximum weight a person can lift safely without assistance
- Reduce lifts from shoulder height and from floor height by repositioning the shelf or bin
- Use your legs and keep your back in a natural position while lifting
- Don't twist while carrying a load, but shift your feet and take small steps in the direction you want to turn



Use PathFinder floor marking tape to designate zones. This will help keep aisles clear and safe.



Hazard Communication

Hazard

Injuries occur when unsafe conditions are not clearly marked.

Solutions

- Clearly mark all hazards with large, easy-to-read signs and labels that comply with current ANSI standards
- Have a means available to quickly make signs for emergency marking of temporary hazards
- Avoid confusion by clearly identifying areas and equipment within the warehouse with appropriate signs and labels
- Provide clear traffic control signs, using high visibility signs (reflective) as needed
- Maintain a Safety Data Sheet (SDS) for each chemical workers are exposed to in the facility
- Follow instructions on the SDS for handling chemicals
- Train employees on risks of each chemical being stored
- Provide spill cleanup kits in all chemical storage areas
- Have a written spill control plan
- Train employees now to clean up spills, protect themselves and properly dispose of used materials
- Provide proper personal protective equipment and training, and mandate its use
- Store all chemicals safely and securely
- Store chemicals away from forklift traffic areas



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THINK SAFETY



Charging Stations

Hazard

Fires and explosion risks are possible unless proper guidelines are followed.

Solutions

- Prohibit smoking or open flames in/near charging stations
- Post "No smoking" and "No open flame" signs where applicable
- Provide adequate ventilation to disperse fumes from gassing batteries
- Ensure fire extinguishers are available and fully charged
- Identify fire extinguisher locations with highly visible signs
- Properly position forklifts and apply brakes before attempting to change or charge batteries
- Follow required procedures when refueling gas or propane fueled forklifts
- Provide appropriate materials handling equipment for servicing batteries
- Provide proper personal protective equipment and training for caustic chemicals
- Provide an eye wash and safety shower station in case of hazardous exposure and mark with large, easy-to-see signs
- Clearly mark location of emergency first aid equipment and directions for use



Use PathFinder Glow tape with DuraLabel BoldGlo Phosphorescent tape to assure exits and emergency equipment are visible during a power outage.

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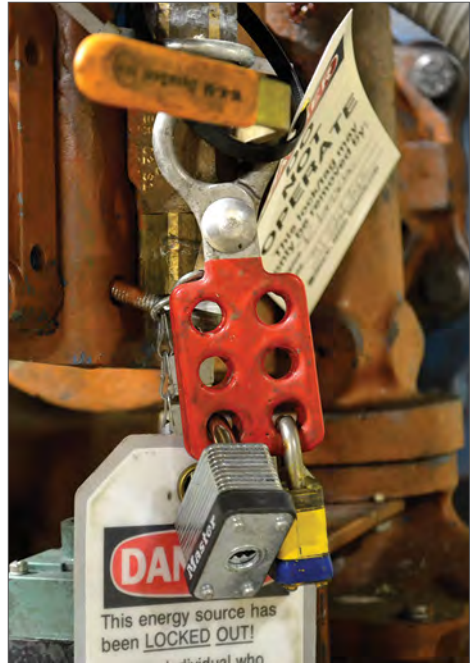


Other Hazards

Inadequate fire safety provisions, improper use of lockout procedures, and failure to wear personal protective equipment also create hazards in the warehouse workplace. Employers should have an emergency plan that describes what is expected of employees in the event of an emergency.

Solutions

- Provisions for emergency exit locations and evacuation procedures
- Procedures for accounting for all employees and visitors
- Location and use of fire extinguishers and other emergency equipment
- Post emergency information using large format phosphorescent or reflective signs
- Implement a lockout/tagout program to prevent equipment from being accidentally energized
- Train employees on the lockout/tagout program
- Conduct a site hazard assessment
- Determine what personal protective equipment (PPE) must be worn
- Train warehouse employees on proper PPE selection, use, and maintenance



According to OSHA, compliance with lockout/tagout standards prevents 120 fatalities and 50,000 injuries each year. Graphic Products carries a full line of lockout/tagout supplies from the trusted Master Lock brand.

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THINK SAFETY CHECKLISTS

The following checklists may help you take steps to avoid hazards that cause injuries, illnesses, and fatalities. As always, be cautious and seek help if you are concerned about a potential hazard.



General Safety

- Exposed or open loading dock doors and other areas where employees could fall four feet or more or walk off, should be chained off, roped off, or otherwise blocked.
- Floors and aisles are clear of clutter, electrical cords, hoses, spills, and other hazards that could cause employees to slip, trip, or fall.
- Potential hazards are clearly marked with signs or labels. Operating instructions and safety information is provided at the point of need using signs and labels.
- Proper work practices are factored into determining the time requirements for an employee to perform a task.
- Employees performing physical work have adequate periodic rest breaks to avoid fatigue levels that could result in greater risk of accidents and reduced quality of work.
- Newly-hired employees receive general ergonomics training and task-specific training.
- The warehouse is well-ventilated.
- Employees are instructed on how to avoid heat stress in hot, humid environments.
- Employees are instructed on how to work in cold environments.
- The facility has lockout/tagout procedures and lockout/tagout supplies are available.



Materials Handling Safety

- There are appropriately marked and sufficiently safe clearances for aisles and at loading docks and passageways where mechanical handling equipment is used.
- Loose/unboxed materials which might fall from a pile are properly stacked by blocking, interlocking, or limiting the height of the pile to prevent falling hazards.
- Bags, containers, bundles, etc. are stored in tiers that are stacked, blocked, interlocked, and limited in height so they are stable and secure to prevent sliding or collapsing.
- Storage areas are kept free from accumulation of materials that could lead to tripping, fire, explosion, or pest infestations.
- Excessive vegetation is removed from building entrances, work, and traffic areas to prevent possible trip or fall hazards because of visual obstructions.
- Derail and/or bumper blocks are provided on spur railroad tracks where a rolling car could contact other cars being worked on and at entrances to buildings, work, or traffic areas.
- Covers and/or guardrails are provided to protect personnel from the hazards of stair openings in floors, meter or equipment pits, and similar hazards.
- Personnel use proper lifting techniques.
- Elevators and hoists for lifting materials/containers are properly used with adequate safe clearances, no obstructions, appropriate signals/directional warning signs.



Forklift Safety

- Powered industrial trucks (forklifts) meet the design and construction requirements established in American National Standard for Powered Industrial Trucks, Part II ANSI B56.1-1969.
- Written approval from the truck manufacturer has been obtained for any modifications or additions that affect the capacity and safe operation of the vehicle.
- Capacity, operation and maintenance instruction plates, tags or decals are changed to specify any modifications or additions to the vehicle.
- Nameplates and markings are in place and maintained in a legible condition.
- Forklifts that are used in hazardous locations are appropriately marked and approved for such use.
- Battery charging is conducted only in designated areas.
- Appropriate facilities are provided for flushing and neutralizing spilled electrolytes, for fire extinguishing, for protecting charging apparatus from damage by trucks and for adequate ventilation to disperse fumes from gassing batteries.
- Conveyors, overhead hoists or equivalent materials handling equipment are provided for handling batteries.
- Reinstalled batteries are properly positioned and secured.
- Carboy tilters or siphons are used for handling electrolytes.
- Forklifts are properly positioned and brakes applied before workers change or charge batteries.
- Vent caps are properly functioning.
- Precautions are taken to prevent smoking, open flames, sparks or electric arcs in battery charging areas and during storage/changing of propane fuel tanks.
- Tools and other metallic objects are kept away from the top of uncovered batteries.
- Concentrations of noxious gases and fumes are kept below acceptable levels.
- Forklift operators are competent to operate a vehicle safely as demonstrated by successful completion of training and evaluation conducted and certified by persons with the knowledge, training, and experience to train operators and evaluate their performance.
- The training program content includes all truck-related topics, workplace-related topics and the requirements of 29 CFR 1910.178 for safe truck operation.
- Refresher training and evaluation is conducted whenever an operator has been observed operating the vehicle in an unsafe manner or has been involved in an accident or a near-miss incident.
- Refresher training and evaluation is conducted whenever an operator is assigned to drive a different type of truck or whenever a condition in the workplace changes in a manner that could affect safe operation of the truck.
- Evaluations of each operator's performance are conducted at least once every three years.
- Load engaging means are fully lowered, with controls neutralized, power shut off and brakes set when a forklift is left unattended.
- Operators maintain a safe distance from the edge of ramps or platforms while using forklifts on any elevated dock, platform or freight car.
- There is sufficient headroom for the forklift and operator under overhead installations, lights, pipes, sprinkler systems, etc.
- Overhead guards are provided in good condition to protect forklift operators from falling objects.
- Operators observe all traffic regulations, including authorized plant speed limits.
- Drivers are required to look in the direction of and keep a clear view of the path of travel.
- Operators run their trucks at a speed that will permit the vehicle to stop in a safe manner.
- Dock boards (bridge plates) are properly secured when loading or unloading from dock to truck.
- Stunt driving and horseplay are prohibited.
- All loads are stable, safely arranged and fit within the rated capacity of the truck.
- Operators fill fuel tanks only when the engine is not running.
- Replacement parts of trucks are equivalent in terms of safety with those used in the original design.
- Trucks are examined for safety before placed into service and unsafe or defective trucks are removed from service.

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OSHA WAREHOUSE SAFETY & HEALTH RESOURCES

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Electrical Hazards

Control of Hazardous Energy (Lockout/Tagout)

- OSHA Publication 3120 (Revised 2002). 174 KB PDF, 45 pages
- This booklet presents OSHA's general requirements for controlling hazardous energy during service or maintenance of machines or equipment

Controlling Electrical Hazards

- OSHA Publication 3075 (Revised 2002). 349KB PDF, 71 pages
- This publication provides an overview of basic electrical safety on the job



Materials Handling

Materials Handling and Storage

- OSHA Publication 2236 (Revised 2002). 559KB PDF, 40 pages
- A comprehensive guide to hazards and safe work practices in handling materials

Portions of this guide were resourced from the Occupational Health & Safety Administration website, www.osha.org.

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