

# KMS WAREHOUSING 201 COURSE

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# Table of Contents

- I. Think Safety ..... 1
- II. Hazards & Solutions..... 1
- III. Docks ..... 1
- IV. Forklifts..... 2
- V. Conveyors ..... 3
- VI. Materials Storage ..... 3
- VII. Manual Lifting/Handling..... 3
- VIII. Hazard Communication..... 3
- IX. Charging Stations..... 4
- X. Poor Ergonomics..... 4
- XI. Other Hazards ..... 5
- XII. Think Safety Checklists ..... 5

## **I. Think Safety**

- A. More than 145,000 people work in over 7,000 warehouses.
- B. The fatal injury rate for the warehousing industry is higher than the national average for all industries.
- C. Potential hazards for workers in warehousing:
  - 1. Unsafe use of forklifts
  - 2. Improper stacking of products;
  - 3. Failure to use proper personal protective equipment;
  - 4. Failure to follow proper lockout/tagout procedures;
  - 5. Inadequate fire safety provisions; or
  - 6. Repetitive motion injuries.

## **II. Hazards & Solutions**

- A. Warehouse operations can present a wide variety of potential hazards for the worker.
- B. For warehousing establishments, the 10 OSHA standards most frequently included in the agency's citations were:
  - 1. Forklifts
  - 2. Hazard communication
  - 3. Electrical, wiring methods
  - 4. Electrical, system design
  - 5. Guarding floor & wall openings and holes
  - 6. Exits
  - 7. Mechanical power transmission
  - 8. Respiratory protection
  - 9. Lockout/tagout
  - 10. Portable fire extinguishers

## **III. Docks**

- A. Hazard: Injuries happen here when forklifts run off the dock, products fall on employees or equipment strikes a person.
- B. Solutions:
  - 1. Drive forklifts slowly on docks and dock plates;

2. Secure dock plates and check to see if the plate can safely support the load;
3. Keep clear of dock edges and never back up forklifts to the dock's edge;
4. Provide visual warnings near dock edges;
5. Prohibit "dock jumping" by employees;
6. Make sure that dock ladders and stairs meet OSHA specifications.

#### **IV. Forklifts**

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

## **V. Conveyors**

- A. Hazard: Workers can be injured when they are caught in pinch points or in the in-going nip points, are hit by falling products or develop musculoskeletal disorders associated with awkward postures or repetitive motions.
- B. Solutions:
  - 1. Inspect conveyors regularly;
  - 2. Ensure that pinch points are adequately guarded;
  - 3. Develop ways of locking out conveyors and train employees in these procedures;
  - 4. Provide proper lighting and working surfaces in the area surrounding the conveyor.

## **VI. Materials Storage**

- A. Hazard: Improperly stored materials may fall and injure workers.
- B. Solutions:
  - 1. Stack loads evenly and straight;
  - 2. Place heavier loads on lower or middle shelves;
  - 3. Remove one object at a time from shelves;
  - 4. Keep aisles and passageways clear and in good repair.

## **VII. Manual Lifting/Handling**

- A. Hazard: Back injuries may occur from improper lifting or overexertion.
- B. Solutions:
  - 1. Provide general ergonomics training and task-specific training;
  - 2. Minimize the need for lifting by using good design and engineering techniques;
  - 3. Lift properly and get a coworker to help if a product is too heavy.

## **VIII. Hazard Communication**

- A. Hazard: Chemical burns are possible if spills of hazardous materials occur.
- B. Solutions:
  - 1. Maintain a Material Safety Data Sheet (MSDS) for each chemical to which workers are exposed in the facility;
  - 2. Follow instructions on the MSDS for handling chemical products;
  - 3. Train employees on the risks of each chemical being stored;
  - 4. Provide spill cleanup kits in any area where chemicals are stored;
  - 5. Have a written spill control plan;

6. Train employees to clean up spills, protect themselves and properly dispose of used materials;
7. Provide proper personal protective equipment and enforce its use;
8. Store all chemicals safely and securely;
9. Store chemicals away from forklift traffic areas.

## **IX. Charging Stations**

- A. Hazard: Fires and explosion risks are possible unless proper guidelines are followed.
- B. Solutions:
  1. Prohibit smoking and open flames in and around charging stations;
  2. Provide adequate ventilation to disperse fumes from gassing batteries;
  3. Ensure that fire extinguishers are available and fully charged;
  4. Provide proper personal protective equipment such as rubber gloves and eye and face protection;
  5. Properly position forklifts and apply brakes before attempting to change or charge batteries; follow required procedures when refueling gas or propane fueled forklifts;
  6. Provide conveyors, overhead hoists or equivalent materials handling equipment for servicing batteries;
  7. Provide an eyewashing and safety shower facility for employees exposed to battery acids.

## **X. Poor Ergonomics**

- A. Hazard: Improper lifting, repetitive motion or poor design of operations can lead to musculoskeletal disorders in workers.
- B. Solutions:
  1. If possible, use powered equipment instead of requiring a manual lift for heavy materials;
  2. Reduce lifts from shoulder height and from floor height by repositioning the shelf or bin;
  3. Ensure overhead lighting is adequate for the task at hand;
  4. Provide employees with task-oriented ergonomic training;
  5. Use your legs and keep your back in a natural position while lifting;
  6. Test the load to be lifted to estimate its weight, size and bulk, and to determine the proper lifting method;
  7. Get help if the load exceeds the maximum weight a person can lift safely without assistance;

8. Don't twist while carrying a load, but shift your feet and take small steps in the direction you want to turn;
9. Keep floors clean and free of slip and trip hazards.

## **XI. Other Hazards**

- A. Inadequate fire safety provisions, improper use of lockout procedures and failure to wear personal protective equipment also create hazards in the warehouse workplace.
- B. Employers should have an emergency plan that describes what is expected of employees in the event of an emergency, including:
  1. Provisions for emergency exit locations and evacuation procedures;
  2. Procedures for accounting for all employees and visitors;
  3. Location and use of fire extinguishers and other emergency equipment.
- C. Warehouse operations need a lockout/tagout program to prevent equipment from being accidentally energized and injuring employees. Employees required to perform these operations should be trained and all employees should have a working knowledge of the program.
- D. Finally, management at warehouse operations needs to conduct a site hazard assessment to determine what personal protective equipment (PPE) must be worn based on the hazards present and train warehouse employees on proper PPE selection, use and maintenance.

## **XII. 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.

- A. General Safety
  1. Exposed or open loading dock doors and other areas that employees could fall 4 feet or more or walk off should be chained off, roped off or otherwise blocked.
  - 2.
  3. Floors and aisles are clear of clutter, electrical cords, hoses, spills and other hazards that could cause employees to slip, trip or fall.
  4. Proper work practices are factored into determining the time requirements for an employee to perform a task.
  5. 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.
  6. Newly-hired employees receive general ergonomics training and task-specific training.

7. The warehouse is well ventilated.
8. Employees are instructed on how to avoid heat stress in hot, humid environments.
9. Employees are instructed on how to work in cold environments.
10. The facility has lockout/tagout procedures.

B. Materials Handling Safety

1. There are appropriately marked and sufficiently safe clearances for aisles and at loading docks or passageways where mechanical handling equipment is used.
2. 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.
3. Bags, containers, bundles, etc. are stored in tiers that are stacked, blocked, interlocked and limited in height so that they are stable and secure to prevent sliding or collapse.
4. Storage areas are kept free from accumulation of materials that could lead to tripping, fire, explosion or pest infestations.
5. Excessive vegetation is removed from building entrances, work or traffic areas to prevent possible trip or fall hazards due to visual obstructions.
6. 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.
7. Covers and/or guardrails are provided to protect personnel from the hazards of stair openings in floors, meter or equipment pits and similar hazards.
8. Personnel use proper lifting techniques.
9. Elevators and hoists for lifting materials/ containers are properly used with adequate safe clearances, no obstructions, appropriate signals and directional warning signs.

C. Hazard Communication Safety

1. All hazardous materials containers are properly labeled, indicating the chemical's identity, the manufacturer's name and address, and appropriate hazard warnings.
2. There is an updated list of hazardous chemicals.
3. The facility has a written program that covers hazard determination, including Material Safety Data Sheets (MSDSs), labeling and training.
4. There is a system to check that each incoming chemical is accompanied by a MSDS.

5. All employees are trained in the requirements of the hazard communication standard, the chemical hazards to which they are exposed, how to read and understand a MSDS and chemical labels, and on what precautions to take to prevent exposure.
6. All employee training is documented.
7. All outside contractors are given a complete list of chemical products, hazards and precautions.
8. Procedures have been established to maintain and evaluate the effectiveness of the current program.
9. Employees use proper personal protective equipment when handling chemicals.
10. All chemicals are stored according to the manufacturer's recommendations and local or national fire codes.

D. Forklift Safety

1. 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.
2. Written approval from the truck manufacturer has been obtained for any modifications or additions that affect the capacity and safe operation of the vehicle.
3. Capacity, operation and maintenance instruction plates, tags or decals are changed to specify any modifications or additions to the vehicle.
4. Nameplates and markings are in place and maintained in a legible condition.
5. Forklifts that are used in hazardous locations are appropriately marked/approved for such use.
6. Battery charging is conducted only in designated areas.
7. 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.
8. Conveyors, overhead hoists or equivalent materials handling equipment are provided for handling batteries.
9. Reinstalled batteries are properly positioned and secured.
10. Carboy tilters or siphons are used for handling electrolytes.
11. Forklifts are properly positioned and brakes applied before workers start to change or charge batteries.
12. Vent caps are properly functioning.

13. Precautions are taken to prevent smoking, open flames, sparks or electric arcs in battery charging areas and during storage/changing of propane fuel tanks.
14. Tools and other metallic objects are kept away from the top of uncovered batteries.
15. Concentrations of noxious gases and fumes are kept below acceptable levels.
16. 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.
17. The training program content includes all truck-related topics, workplace related topics and the requirements of 29 CFR 1910.178 for safe truck operation.
18. 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.
19. 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.
20. Evaluations of each operator's performance are conducted at least once every three years.
21. Load engaging means are fully lowered, with controls neutralized, power shut off and brakes set when a forklift is left unattended.
22. Operators maintain a safe distance from the edge of ramps or platforms while using forklifts on any elevated dock, platform or freight car.
23. There is sufficient headroom for the forklift and operator under overhead installations, lights, pipes, sprinkler systems, etc.
24. Overhead guards are provided in good condition to protect forklift operators from falling objects.
25. Operators observe all traffic regulations, including authorized plant speed limits.
26. Drivers are required to look in the direction of and keep a clear view of the path of travel.
27. Operators run their trucks at a speed that will permit the vehicle to stop in a safe manner.
28. Dock boards (bridge plates) are properly secured when loading or unloading from dock to truck.
29. Stunt driving and horseplay are prohibited.

30. All loads are stable, safely arranged and fit within the rated capacity of the truck.
31. Operators fill fuel tanks only when the engine is not running.
32. Replacement parts of trucks are equivalent in terms of safety with those used in the original design.
33. Trucks are examined for safety before being placed into service and unsafe or defective trucks are removed from service.

Please watch the video below for additional information on warehouse safety.

[Warehouse Safety Video](#)