

7.1: Introduction to Materials Handling, Storage, Use, and Disposal

Handling Materials

Handling of jobsite materials is a core function on all construction sites as well as in fulfillment centers, warehouse and distribution facilities. Yet, improper procedures and unsafe practices which often lead to accidents and injury are quite common. Good housekeeping practices frequently ignored are just as important to materials handling safety as using the right PPE. The following standards for materials handling contain practices and procedures that not only reduce the risk of accident and injury, but also damaged materials and exposure to financial loss.

General requirements for storage

OSHA requires that all materials used on the jobsite shall be properly stored. Materials stored in tiers shall be stacked, racked, blocked, interlocked or otherwise secured to prevent sliding, falling or collapse.

Great care must be used in storage areas to ensure that maximum safe loads are not exceeded. Maximum safe load limits for floors must be posted in all buildings and structures in the appropriate storage areas. The safe limits must be listed in pounds per square foot, for all floors except those located on grade.

Material Storage

Location

Material stored inside of buildings under construction shall not be placed within six ft. of any hoist way or inside floor opening. Such material shall also be kept at least 10 ft. from an exterior wall, which does not extend above the top of the material stored.

Fall Protection

Fall protection must be provided for all employees required to work in silos, hoppers, tanks, and similar locations where materials are stored. Materials that are not compatible shall be segregated in storage.

Bagged Material

Bagged materials shall be stored so that the bags are stacked by stepping back the layers and cross-keying the bags at least every 10 bags high.

Scaffolds and Runways

Unless the materials are for immediate use, they shall not be stored on scaffolds or runways.

Bricks and Masonry

Brick stacks shall not be more than seven feet in height. Where loose brick stacks exceed four feet, they must be tapered back two inches for every foot of height above four ft. When masonry blocks are stored in stacks higher than six feet, the stacks shall be tapered back one-half block per tier above the six ft. level.

Lumber

When lumber is stored all of the following conditions shall be followed:

1. All nails shall first be removed.
2. It must be stacked on level and solidly supported sills.
3. It must be stable and self-supporting.
4. The piles must not exceed 20 ft., provided the lumber to be handled manually, does not exceed 16 ft.

Steel materials

Structural steel, poles, pipe, bar stock, and other cylindrical materials shall be stacked and blocked so as to prevent spilling or tilting. Such items are permitted to be stored by means of racks.

Housekeeping

Storage areas must be kept clear. Accumulation of materials that may cause tripping, fire, explosion or pest harborage hazard in the storage area is not permitted. Aisles and passageways must be kept clear to provide for ready access and safe movement of material

handling equipment or employees.

Fire Prevention

General

Smoking shall be prohibited at, or in, the vicinity of operations, which constitute a fire hazard, and shall be conspicuously posted: "No Smoking or Open Flame."

Portable fire extinguishing equipment

Portable fire extinguishing equipment, suitable for the fire hazard involved shall be provided at convenient, conspicuously accessible locations in the yard area. Portable fire extinguishers, rated not less than 2A, shall be placed so that maximum travel distance to the nearest unit shall not exceed 100 feet.

Materials stored outdoors

Combustible materials installed in open yard storage areas shall be piled with due regard to the stability of piles and in no case higher than 20 feet. Method of piling shall be solid wherever possible and in orderly and regular piles. No combustible material shall be stored outdoors within 10 feet of a building or structure.

Materials stored indoors

Storage in indoor areas shall not obstruct, or adversely affect, means of exit. All materials shall be stored, handled, and piled with due regard to their fire characteristics. Incompatible materials, which may create a fire hazard, shall be segregated by a barrier having a fire resistance of at least one hour.

Material stored indoors shall be piled to minimize the spread of fire internally and to permit convenient access for firefighting. Stable piling shall be maintained at all times. Aisle space shall be maintained to safely accommodate the widest vehicle that may be used within the building for firefighting purposes.

A clearance of 24 inches shall be maintained around the path of travel of fire doors unless a barricade is provided, in which case no clearance is needed. Material shall not be stored within 36 inches of a fire door opening.

Clearance shall be maintained around lights and heating units to prevent ignition of combustible materials. Clearance of at least 36 inches shall be maintained between the top level of the stored material and the sprinkler deflectors.

Flammable and Combustible Liquids

General

Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids. Approved metal safety cans shall be used for the handling and use of flammable liquids in quantities greater than one gallon, except that this shall not apply to those flammable liquid materials, which are highly viscous (extremely hard to pour), which may be used and handled in original shipping containers. For quantities of one gallon or less, only the original container or approved metal safety cans shall be used for storage, use, and handling of flammable liquids.

Storage

No more than 25 gallons of flammable or combustible liquids shall be stored in a room outside of an approved storage cabinet. Electrical wiring and equipment located in inside storage rooms shall be approved for Class 1, Division 1, Hazardous Locations.

Flammable or combustible liquids shall not be stored in areas used for exits, stairways, or normally used for the safe passage of people. Materials which will react with water and create a fire hazard shall not be stored in the same room with flammable or combustible liquids.

In locations where flammable vapors may be present, precautions shall be taken to prevent ignition by eliminating or controlling sources of ignition. Sources of ignition may include open flames, lightning, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, and mechanical), spontaneous ignition, chemical and physical-chemical reactions, and radiant heat.

Equipment in classified (Class I, Class II, Class III) hazardous locations must also be suitable for those locations and not permit the ignition of vapors, gases, or combustible dusts.

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