Loss Control Insight

Materials: Storage and Handling

Part of public works day to day consists of simply moving, handling and storing various materials and equipment. From accepting shipments, loading and transporting tools and materials from the shop to the jobsite, moving materials around a jobsite, to loading and bringing tools and materials back to the shop. Thus, construction workers are usually involved in a constant state of material movement.

This is perhaps why material handling is a major factor in workplace injuries. Improper storage and handling methods can cause costly injuries. While it is discussed frequently, improper lifting is still a leading cause of workplace injury. Bending, and especially bending and lifting with a twisting motion can sometimes cause severe back injury. In fact, according to the National Safety Council, more than 20% of all occupational illnesses are the result of back injuries.

In addition to injury caused by lifting, workers can also be injured by falling or collapsing materials improperly stacked, or by the lifting or moving of equipment.

The common actions that result in injury can be grouped into three categories:

- Carrying or lifting loads that are too large and awkward, or too heavy can cause muscle or ligament tears, strains or sprains.
- Being struck by or caught between materials or lifting or moving equipment can cause fractures, bruising, or in extreme cases, even fatalities.
- Falling materials, or improperly cutting ties, or straps can cause cuts, bruises and fractures to the worker or bystanders.

In most of the above cases, using personal protective equipment can prevent or limit injury from materials handling. Hardhats, gloves, safety shoes, eye, ear and face protection, and sometimes clothing can all contribute to protecting the worker.
Employers need to assess their storage areas and jobsites in an effort to minimize or eliminate causes of injury from material movement. The following are some of OSHA's regulations regarding this subject.

Material Storage

General

"This was when I got bored with safety, and this was when I tried to save time, and this was when I didn't remember safety..."

When storing materials, it needs to be done in a manner that will not cause or contribute to fire propagation or explosion, overgrowth of weeds or vegetation, or to the harboring of rats and other pests. Naturally when storing flammable or combustible materials more stringent requirements apply. For instance, flammable liquids need to be separated from other materials by a fire wall. Also, combustible materials are required to be in an area where smoking and open flames or sparks are prohibited.

Another consideration is to provide sufficient aisle space around materials to allow for loading, unloading, and turning to prevent a worker from accidentally getting pinned between materials or equipment. Aisles should also be looked at for any trip hazards that may be present due to improper material storage. Overhead clearance shall also be assessed since materials striking an obstruction can fall onto workers.

When stacking materials, it's important to be aware of the condition of the boxes or containers, accessibility, and the materials weight and size.

Bound Materials

Materials bound together need to be blocked, or stacked in a manner that will prevent sliding, falling, or collapsing of material piles. Aisles need to be kept clear, especially any aisles that serve as a fire exit. If storing on a building or structure's floor, care needs to be taken to ensure the floor loading is not exceeded.

Lumber

When stacking lumber, OSHA will allow stack heights to 16 ft. when the materials are moved manually. If forklifts, or other similar equipment is used for material handling, lumber may be stored up to 20FT. If used lumber is stored, OSHA does require all nails to be removed before stacking.

Brick and Block

When stacking brick or block, OSHA has height and stacking requirements also. Stacks of loose brick shall not be more than 7 ft. high, however any brick layers above 4 ft. shall be placed on a 1:6 taper (see diagram). Masonry blocks are allowed to be stacked higher, but any block layers higher than 6 ft. shall be placed on a 1:2 taper (see diagram).

Bagged and Bundled Materials

When stacking bagged or bundled materials, they shall be stacked in interlocking rows for stability. Bagged materials shall be stacked by stepping back the layers and cross-keying the bags at least every ten layers.

Drums and Barrels

When stacking drums or barrels, they need to be stacked symmetrically. If stored on their sides, the bottom layer of drums need to be blocked at the sides to prevent movement. When stacked on end, each layer of drums or barrels shall have planks, plywood, pallets, or other similar articles placed on each layer to provide a flat stacking surface for the next layer. In addition, the bottom layer of drums would be required to be blocked on the sides to prevent movement.

Finally, some materials may be more suitable for storage by placing in other containers, or racks. Also pipe and bars should not be stored in racks that face main aisle as it could cause a hazard to others when loading or unloading

As always ~ be safe!