

# Materials Handling Practices for Construction

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To reduce incidents associated with workplace equipment, employees need to be trained in the proper use and limitations of the equipment they operate.

## Cranes

Only trained and qualified or certified people may operate cranes.

Operators need to know what they are lifting, what it weighs, and the intended path of travel. For example, rated capacity of mobile cranes varies with the length of the boom and the boom radius. When a crane has a telescoping boom, a load may be safe to lift at a short boom length and/or a short boom radius, but may overload the crane when the boom is extended and the radius increases.

Everyone working on a site that has a crane must keep the following guidelines in mind:

- Do NOT pass under loads or place any of your body parts where they may be crushed or pinched
- Make sure you are qualified to signal crane operators
- Use a tag line to guide loads
- Keep people away from fall hazards when loads are received at elevations
- Exclude general site workers from the fall zone where hooking/unhooking loads are taking place. These areas are limited to authorized employees who are directly involved with hooking and unhooking loads.
  - A fall zone is the area (including but not limited to the area directly beneath the load) where it is reasonably foreseeable that partially or completely suspended materials could fall in the event of an accident.
- Help watch for dangers such as winds, storms and power lines
- Do not use cranes in severe weather conditions
- Stay out of the swing radius of the counterweight

## Slings

When working with slings, rigging or other materials-handling equipment, knowledgeable employees must ensure that they are visually inspected before use and during operation, especially if used under heavy stress. Qualified riggers or other knowledgeable employees conduct or assist in the inspection because they are aware of how the sling is used and what makes it unserviceable.

Remove damaged or defective slings from service. Use slings according to the manufacturer's instructions. Store slings in an area where they will not be subjected to mechanical, chemical or ultraviolet damage or extreme temperatures. Do not shorten slings with knots or bolts. Remove kinked sling legs from service. Do not load slings beyond their rated capacity.

Keep suspended loads clear of all obstructions. Crane operators must avoid sudden starts and stops when moving suspended loads. Employees must remain clear of loads about to be lifted and suspended.

## **Rough Terrain Lifts, Telehandlers and Powered Industrial Trucks**

Workers who must handle and store materials often use:

- Fork trucks
- Platform lift trucks
- Concrete buggies
- Other specialized industrial trucks powered by electrical motors or internal combustion engines

Riggers, signal persons, lift directors and equipment operators need hands-on and equipment-specific training about the equipment's safety requirements, design, maintenance and use.

### ***Safety Considerations***

Perform a hazard assessment. Use spotters, tag lines and other precautions to maintain the required separation distances between overhead power lines, lifting equipment and loads being lifted.

Watch out for low spots or holes in the driving path. Drive straight up or down a slope rather than diagonally or horizontally to avoid tip-over. Watch out for other workers or equipment near the driving path. Pay attention to areas with limited visibility.

Read the load charts to ensure the load is within the equipment's maximum capacity. Balance the load. Avoid carrying the load too high.

If equipped with outriggers, verify they are placed correctly and securely cribbed to prevent settling.

Slings are not allowed to be attached directly to the forks of a forklift/telehandler (commonly referred to as free rigging).

### **Restricted Access Zones (Fall Zones)**

For activities such as crane lifts or utilizing a telehandler to move materials, restrict access to the fall zone. Only authorized employees are allowed access inside the fall zone. Barricade or rope off the swing radius of the crane. Block off areas below overhead material loading and unloading to limit possible exposure to falling materials.

Materials handling at elevated heights brings additional risk to workers, such as:

- Using trash chutes for material disposal
- Stacking material overhead
- Removing scrap bulk material
- Walking in areas that are not covered or protected from falling materials

## **Safety and Health**

### ***Ergonomics***

Ergonomics not only improves jobsite safety but also makes performing certain tasks easier. Ergonomic principles for materials handling may require controls to mitigate stresses and strains on the body. Such controls include:

- Reducing the size or weight of the objects lifted
- Arranging material delivery to reduce carrying distance

- Using forklift rather than manually moving materials
- Moving concrete using a pumper truck or concrete buggy

### ***Lifting***

Back injuries and lifting injuries CAN BE PREVENTED by:

- Training employees in appropriate lifting techniques
- Using proper materials-handling equipment on the jobsite

Before lifting:

- Size up the load and where you need to carry it
- Get help if you need it
- Consider using a dolly, cart, wheelbarrow or other assistance in moving heavy materials long distances

When you lift a load manually:

- Bend your knees to avoid stooping over
- Do not jerk or pull at the load
- Keep the load close to your body
- Move your feet when you pick something up or set it down
- Do not twist your body

Additional factors to consider:

- Can I get a good grip on the load?
- Is the item wet? (wet bags of soil can increase their weight by nearly 50%)
- Is the item covered with dust or any other material that could limit a strong grip?

Avoid the risks associated with moisture or dust by:

- Covering the material with polythene sheets when delivered to the site
- Using straw-filled matting and polyurethane foam to protect materials from the effects of frost and snow
- Using a dry goods storage area to protect the material from bad weather