

Section 26: MATERIAL HANDLING AND PERSONNEL LIFTING EQUIPMENT

INTRODUCTION

Material handling and personnel lifting equipment is specialized equipment that is potentially hazardous. Many hazards are unique to this type of equipment, and training specific to the operation of each piece of equipment is required.

APPLICABILITY

There are many types of material handling and personnel lifting equipment. This procedure covers all, including forklifts, cranes, articulated boom lifts, scissor lifts and any other similar equipment.

RESPONSIBILITIES

Each Department's managers and supervisors are responsible to ensure that all operators and other affected employees operate material handling and personnel lifting equipment in the correct and safe way. Managers and supervisors must also ensure that employees receive adequate training, whether they have experience or not.

TRAINING

Training is required before operating any piece of equipment. The training must include all relevant items contained in the specific equipment operator's manual, including inspection, application and operation. Practical training on the specific equipment or equipment with similar controls is required. The trainer must determine that the trainee can properly operate the equipment.

Trainers must have the knowledge, training and experience to perform the training and then evaluate the competency of the operator.

Safety and Claims Management can assist departments with determining the adequacy of training programs, whether they are in-house or from vendors. In some cases, Safety and Claims Management can assist in developing an in-house training program.

FORKLIFTS

WAC 296-863, Powered Industrial Trucks, sets forth the Department of Labor and Industries rules regarding the operation of forklifts. This includes the sit-down, counter-balanced type of forklift, as well as the stand-up type, the order-picker (in which the employee is raised along with the forks), and powered pallet jacks.

Training

Training is required before an employee may operate a forklift. This training must include formal instruction, practical training, AND a hands-on performance evaluation. This training is offered by Safety and Claims Management. Forklift operator performance must be evaluated at least every 3 years.

Pre-shift inspection

Forklifts must be inspected daily, before being put into service. Any deficiencies found should be immediately reported to the supervisor.

Forklift operation

Forklifts often operate in tight quarters, and are therefore often driven in reverse. Operators should look in the direction of travel, and must slow down and sound the horn at cross aisles and other locations where vision is obstructed.

Keep a safe distance from the edge of docks or loading platforms. Forklifts differ from automobiles in that they have rear wheel steering. This provides greater maneuverability, but also results in tail-swing. Steering sharply away from the edge of a dock or platform will cause the rear of the forklift to swing over the edge.

Stability

Forklifts are at their most stable when the load is low and close to the mast. Therefore, the forks must be placed under the load as far as possible, and the mast must be tilted carefully backwards to stabilize the load. Carry the load as low as possible; do not travel while the load is elevated.

Overloading

Do not overload the forklift. The rated capacity of the forklift will be shown on the capacity plate, typically located in the driver's compartment. The exact weight of the load to be lifted is not always readily available. However, if the rear wheels of the forklift come off the ground when attempting to lift a load, it is certainly beyond the forklift's capacity. Do not add unauthorized counterweight to the forklift. Do not attempt to move a load if it is so heavy that the rear wheels don't maintain full, constant contact with the ground. Remember, the rear wheels are the steering wheels of the forklift – loss of rear wheel contact means loss of steering.

Leaving the normal operating position

When getting off the forklift, lower the forks, place the controls in neutral and set the parking brake. The operator must shut off the power any time the forklift will be more than 25 feet away, or any time the forklift cannot be seen by the operator.

AERIAL LIFT PLATFORMS

The two common types of mobile aerial lifts are articulated boom lifts and scissor lifts. They are commonly used by maintenance and construction employees as elevated work platforms both inside and outside.

Training must include a thorough review of the operation manual and hands-on operation of the equipment. Some equipment is owned by King County departments, but equipment is commonly rented. The same training requirement applies to rented equipment. Experienced, trained operators may review the operator's manual before use if the equipment is similar to what they have used previously.

It is required by this program, and all operator manuals, to perform a function test of the equipment from the ground controls before each daily use. It is important to do this before operation, rather than find out during operation that a critical function does not work.

The primary hazards are

- falls from an elevated platform;
- the entire lift falling over;
- contact with electrical conductors; and
- striking overhead obstacles while raising the platform.

Falls from an Elevated Platform

Personal fall-arrest systems are required for articulated boom lifts and some scissor lifts. A fall-arrest system is required if it is recommended by the scissor lift manufacturer, usually for lifts that are extraordinarily high. A personal fall-arrest system consists of a full body harness and a shock-absorbing lanyard connected to the anchorage specified by the manufacturer. See Section 20, Fall Protection, for the training and equipment requirements for using fall protection equipment.

Employees must never climb on the railing. Do not climb out of the platform to another surface (this can only be done under special circumstances where fall protection is always hooked up and the surface is safe). Do not stand on anything higher than the floor of the platform.

Lift Falling Over

Lifts can fall over when operated in a way that exceeds their capabilities. Newer lifts have safety devices that usually will not allow them to be operated if the lift's capabilities are exceeded, but the safety devices can fail.

Larger lifts have extendable axels, or outriggers, that increase the wheel base. If these are not extended while in use, the platform can tip over. This can happen with a boom extended towards the horizontal, on uneven ground, too much weight in the platform or a combination of these. On equipment without outriggers, the same conditions exist.

Always inspect the ground surface to be traveled. Surface irregularities, such as potholes, slopes or soft soil can cause tip-overs, damage or getting stuck. With an articulated boom lift the platform must always be in the lowered position when traveling. Travel is allowed in most scissor lifts while raised, but only on smooth surfaces that will not cause the elevated platform to sway.

Electrical Hazards

Never operate lifts near electrical lines. Electrical lines on poles and to buildings are not adequately insulated to prevent electrical shock. A 10 foot clearance from most lines to buildings is required. Distances of up to 45 feet, depending on the voltage carried, is required from lines on poles.

If using electrical equipment on the platform, use caution with cords and connections, as the lifts are metal.

Overhead Obstacles

Always be aware of the environment you are working in. Any overhead obstacles, such as structures or trees, can be a hazard while raising the platform. It is sometimes easy to forget them while working.

CRANES

Rigorous and very detailed regulations, unique to the State of Washington, apply to cranes. These regulations are from the State of WA Dept. of Labor and Industries, Safety Standards for Construction Work, WAC 296-155, Part L, Cranes, Rigging and Personnel Lifting.

A few of the major elements of the requirements are:

- State certification of crane operators for types of cranes operated
- Rigorous qualifications for riggers, signal persons, maintenance and repair
- Annual crane inspection by State-certified persons

There are some exemptions for certain types of cranes, such as cranes with a capacity of one ton or less and vehicle tow trucks. These exemptions are listed in WAC 296-155-52900. There are still rules for safe operation of these exempted cranes.

Each County-owned crane covered by these regulations is required to have written safe operating procedures unique to the type of crane. Safe operating procedures may be in the operation manual for the crane. Additional Washington State requirements must be added to the program.

Please contact Safety and Claims Management at 206-477-3350 for advice and assistance regarding material handling and lifting equipment.