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POWERED MATERIAL-LIFTING EQUIPMENT  
Forklift, Crane & Hoist

I. INTRODUCTION

The purpose of this regulation is to provide operators with proper procedures for use of all types of powered material-lifting equipment, including industrial lift trucks such as forklift trucks, motorized hand trucks, all-terrain and telescoping lifts and various hoist and crane equipment. This regulation applies to all City employees who operate such equipment.

II. LIFT TRUCK OPERATOR TRAINING

A. Initial Training

Before being permitted to operate a powered industrial truck employees shall complete training. Initial training shall consist of a combination of formal instruction, practical training on the equipment they will be operating, and an evaluation of the operators performance in the workplace. The formal training may be provided to the operator through a variety of delivery methods such as online training or instructor led courses. Upon request, Risk and Safety Services will coordinate and arrange training for lift truck operators.

B. Refresher Training

Refresher training on relevant topics should be provided to the operator when the supervisor or their designee observes:

1. The employee operating the equipment in an unsafe manner (i.e. driving too fast or without a seatbelt, not using the horn, etc.);
2. The employee has been involved in an accident or near-miss incident;
3. The employee is assigned to drive a different type of powered industrial truck (such as electric vs. propane, stand-up vs. sit down operator position, vertical boom vs. extensible boom); or
4. A condition in the workplace changes in a manner that could affect safe operation of the truck.

Every three years following an employee's initial training, the supervisor or their designee shall review their operation of their assigned lift truck using a skill assessment form (Exhibit 6.01oo). If deficiencies are noted, the supervisor or their designee shall ensure that the employee receives refresher training on the relevant topics at a minimum. All operator skill assessment

forms shall be sent to Risk and Safety Services for documentation. Operator evaluations are not required to be announced in advance.

### III. RULES FOR LIFT TRUCK USE

#### A. Accidents

All accidents, regardless of fault or severity shall be reported to the employees' supervisor and Risk and Safety Services using an SD-1A form within 48 hrs.

#### B. Inspections

Each operator shall perform a pre-use or pre-shift inspection of the lift truck and any attachments they will be operating. Operators may use the Inspection form provided by the manufacturer or a pre-use checklist (Exhibit 6.01000) for the various types of lift trucks to document their inspection. If any defect is found the operator may not use the lift truck until the appropriate repair has been made. If the operator believes that the lift truck is unsafe to drive or operate, it should be immediately reported to the supervisor or designated individual and removed from service.

#### C. General Loading Practices

Operators shall determine the weight of the load prior to moving the load and verify that the rated capacity will not be exceeded. The rated capacity shall never be exceeded. Standing on a lift truck or adding counterweights is prohibited. Only stable or safely arranged loads should be handled. Operators must exercise additional caution when handling off-center loads that cannot be centered.

Lift trucks equipped with attachments shall be operated as partially loaded trucks when not handling a load.

The forks of lift trucks shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.

#### D. Rules for General Operation

The operator shall not:

1. Drive lift trucks up to anyone standing in front of a bench or other fixed object;
2. Allow others to stand or pass under the elevated portion of any forklift, whether loaded or empty;
3. Allow any person to ride on a lift truck except the operator, unless the forklift has provisions (additional seating authorized by the manufacturer) for passengers;
4. Place arms or legs between the uprights of the mast or outside the running lines of the forklift;
5. Use the lift truck for opening or closing doors;

6. Block fire aisles, access to stairways, or fire equipment with the lift truck or the load being handled;
7. Pass other forklifts traveling in the same direction at intersections, blind spots, or other dangerous locations;
8. Participate in stunt driving or horseplay; or
9. Push or tow other forklifts.

The operator shall:

1. Maintain a safe distance (recommended 3-to-5 feet) from the edge of ramps or platforms while on any elevated dock, or platform or freight car;
2. Assure sufficient clearance for load, mast, and roll cage (ROPS) under overhead installations, lights, pipes, sprinkler system, etc.;
3. Observe all traffic safety rules; the lift truck shall be operated no faster than the travel conditions permit and shall not exceed any facility speed limits;
4. Yield the right-of-way to pedestrians;
5. Avoid loose objects on the roadway surface;
6. Slow down and sound the horn at cross aisles and other locations where vision is obstructed;
7. Travel with the load trailing if the load being carried obstructs forward view; look in the direction of, and keep a clear view of, the path of travel;
8. Cross railroad tracks diagonally wherever possible; and
9. Ascend or descend grades slowly:
  - a. When ascending or descending grades in excess of 10%, loaded trucks shall be driven with the load upgrade.
  - b. On all grades the load and load engaging means shall be tilted back if applicable, and raised only as far as necessary to clear the road surface.

#### E. Precautions for Unattended Lift Trucks

When a lift truck will be left unattended the operator is expected to:

1. Fully lower the load engaging means;
2. Neutralize controls;
3. Shut off power to the equipment;
4. Set the brakes; and
5. Block wheels if the lift truck is parked on an incline.

#### F. Refueling or Recharging Operations

1. Battery operated lifts:
  - a. Battery charging areas shall be located in areas with adequate ventilation;
  - b. Employees should examine flexible cords used to charge batteries and vent caps for damage. If damage is found, employees shall

- remove the damaged equipment from service and report the damage to their supervisor or designee;
  - c. No smoking or open flames shall be permitted in areas that are used for charging or refueling lift trucks. Post signs where necessary; and
  - d. Operators shall not add water or electrolyte to batteries. This service is commonly conducted by Fleet Services.
- 2. Petroleum Powered Trucks:
  - a. Operators shall turn off the lift truck before fueling.

#### IV. CRANE AND HOIST SAFETY

Supervisors with employees who will use cranes or hoists shall ensure that those employees have the knowledge and experience necessary to safely operate each crane or hoist they will be expected to use. Each crane or hoist operator shall be responsible for utilizing all equipment according to each manufacturer's instructions. For the purposes of this regulation, a crane shall be a piece of equipment capable of hoisting or lowering a load and can move that suspended load horizontally.

##### A. Requirements for Crane and Hoist Equipment

In-house manufactured cranes shall not be made or used. Crane bridges and hoist monorails shall be labeled on both sides with the maximum capacity. Directional signs indicating North, South, East, West travel shall be displayed on the bridge underside, and a corresponding directional label shall be placed on the pendant.

##### B. Crane and Hoist Inspections

All tests and inspections shall be conducted in accordance with the manufacturer's instructions. All cranes or hoists shall be visually inspected for apparent deficiencies prior to use or shift. This same visual inspection shall be documented once per month with the form (or manufacturer's equivalent) in Exhibit 6.010000. If a department has more than one operator for a crane, the operators shall collaborate and coordinate monthly inspections of their crane. Exhibit 6.010000 contains separate inspection forms for cranes, hoists, and hooks. A documented comprehensive inspection should be conducted on an annual basis by an outside contractor qualified to inspect the unit. Departments will maintain documentation of the inspection for the life of the equipment.

##### C. Crane and Hoist Operation Rules

Operators shall comply with the following general rules while operating cranes or hoists:

1. Do not engage in any practice that will divert your attention while operating the crane. Cell phones shall not be used while operating a crane or hoist unless it is use for signaling;

2. Respond to signals only from the person who is directing the lift, or any appointed signal person. EXCEPTION: Obey a stop signal at all times, no matter who gives the signal;
3. Never move a load over people. People shall not be placed in jeopardy by being under a suspended load. Never work under a suspended load unless the load is supported by blocks, jacks, or a solid footing that will safely support the entire weight. Have a crane or hoist operator remain at the controls or lock open and tag the main electrical disconnect switch;
4. Ensure that the rated load capacity of a crane's bridge, individual hoist, or any sling or fitting is not exceeded. Know the weight of the object being lifted or use a dynamometer or load cell to determine the weight;
5. Avoid side pulls; and
6. To prevent shock loading, avoid sudden stops or starts. Shock loading can occur when a suspended load is accelerated or decelerated, and can overload the crane or hoist. When completing an upward or downward motion, ease the load slowly to a stop.

Before operating a crane or hoist, operators should complete the following steps:

1. Test the upper-limit switch. Slowly raise the unloaded hook block until the limit switch trips;
2. Visually inspect the hook, load lines, trolley, and bridge as much as possible from the operator's station;
3. If provided, test the lower-limit switches;
4. Test all direction and speed controls for both bridge and trolley travel;
5. Test all bridge and trolley limit switches, where provided, if operation will bring the equipment in close proximity to the limit switches;
6. Test the pendant emergency stop;
7. Test the hoist brake to verify there is no drift without a load; and
8. If provided, test the bridge movement alarm.

Remove the crane or hoist from service if it fails any of the above tests.

When moving a load:

1. Center the hook over the load to keep the cables from slipping out of the drum grooves and overlapping, and to prevent the load from swinging when it is lifted. Inspect the drum to verify that the cable is in the grooves;
2. Use a tag line when loads must traverse long distances or must otherwise be controlled. Manila rope may be used for tag lines;
3. Plan and check the travel path to avoid other employees and obstructions;
4. Lift the load only high enough to clear the tallest obstruction in the travel path;
5. Start and stop slowly; and
6. Land the load when the move is finished. Choose a safe landing.

*Never* leave suspended loads unattended. In an emergency where the crane or hoist has become inoperative, if a load must be left suspended barricade and post signs in the surrounding area, under the load, and on all four sides. Lock open the crane or hoist's main electrical disconnect switch.

Crane or hoists shall not be loaded beyond their rated capacity for normal operations. Any crane or hoist suspected of having been overloaded shall be removed from service by locking open the main disconnect switch. Additionally, overloaded cranes shall be inspected, repaired, load tested, and approved for use before being returned to service.

#### D. Rigging

All rigging equipment shall be used and inspected in accordance with the manufacturer's instructions. Inspections shall be conducted annually and documented by a department or division-designated individual. This documentation shall be made available to all employees involved with crane operation. Prior to use, employees shall perform a visual inspection of rigging equipment as well. Damaged or defective equipment shall be removed from service and destroyed to prevent inadvertent reuse. All crane and hoist hooks shall have safety latches. Hooks shall not be painted (or re-painted) if the paint previously applied by the manufacturer is worn. Each hoist and hook block shall be labeled with the maximum capacity.

1. Nylon slings shall be checked for abnormal wear, torn stitching, broken or cut fibers, and discoloration or deterioration;
2. Wire-rope slings shall be checked for kinking, crushing, bird-caging or other distortions; evidence of heat damage, cracks, deformation, or worn end attachments; six (6) randomly broken wires in a single rope lay; or three (3) broken wires in one strand of rope;
3. Hooks shall be checked for throats open more than 15%, cracks, and more than 10 degrees of sideways twist from the plane of an unbent hook; and
4. Alloy steel chain slings shall be checked for cracked, bent, or elongated links or components.

When rigging a load, those involved shall:

1. Never guess or estimate the weight of the load; always determine the weight of the load prior to rigging or lifting;
2. Determine the proper size for slings and components;
3. Never use manila rope for rigging;
4. Verify that ordinary eye bolts are threaded in at least 1.5 times the bolt diameter and safety hoist rings are used as a preferred substitute for eye bolts where possible;
5. Pad sharp edges to protect slings. Wood, tire rubber, or other pliable materials may be suitable for padding;
6. Do not use slings, eye bolts, shackles, or hooks that have been cut, welded, or brazed;

7. Install wire-rope clips with the base only on the live end and the U-bolt only on the dead end; (Follow the manufacturer's recommendations for the spacing for each specific wire size.);
8. Determine the center of gravity and balance the load before moving it; and
9. Initially lift the load only a few inches to test the rigging and balance.

E. Operating Cranes near Power Lines

Mobile cranes should not be used within 20ft of power lines. If it is possible that mobile cranes could come within 20ft of a power line the operator shall make arrangements with the utility to de-energize and ground the power lines before initiating work. To prevent encroachment, crane operators shall organize a planning meeting for the crew using the mobile crane and the utility. If tag lines are used they must be nonconductive. Elevated warning lines, barricades, or signs shall be used to warn the operator of encroachment within 20ft of a power line, in addition to a proximity alarm, spotter, warning device, range limiter, or insulating link.