

Northwestern

Material Handling Equipment

Environmental Health and Safety

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## I. Purpose

This program establishes procedures for the safe operation of material handling equipment such as forklifts, motorized pallet jacks, tractors, overhead cranes, hoists, rigging equipment, and other similar equipment.

## II. Scope

This program applies to the operation of all material handling equipment on Northwestern property by staff and contractors.

## III. Responsibilities

### A. Environmental Health and Safety (EHS)

- i. Review and revise this program to reflect changes in regulatory requirements as necessary.
- ii. Provide consultation and guidance when necessary.

### B. Departments and Units

- i. Ensure operators attend all required training as required in **Section VII**.
- ii. Protect material handling equipment from unauthorized use. Keep equipment keys in a secure location and only issue to trained and authorized operators.
- iii. Maintain documentation and records required in **Section VIII**.
- iv. Ensure material handling equipment is inspected, operated, and maintained in accordance with **Sections V and VI**.
- v. Remove equipment from service when an operator identifies any condition that makes the unit unsafe to operate during inspection, maintenance, or operation.
- vi. Comply with all safety-related bulletins from the manufacturer, and communicate them to the operators.
- vii. Use reasonable diligence and make every effort to avoid contractor or other outside entity use of University-owned material handling equipment. If contractors or other outside entities will be operating a University-owned material handling equipment, contact EHS for approval.
- viii. Contact EHS to evaluate any safety concerns, or as specified in this program.

### C. Operators

- i. Attend all training and evaluation prior to operating any material handling equipment.
- ii. Operate only those material handling equipment for which they are authorized, trained, and familiar with.
- iii. Complete a pre-use inspection prior to operation (checklists can be found on the [EHS website](#)).
- iv. Immediately cease operations when any problems, hazardous conditions, or malfunctions arise. Operations may only continue after all issues have been corrected.
- ix. Report all maintenance issues, accidents, or unsafe practices to your manager or supervisor.
- x. Follow all safety and manufacturer guidelines and instructions.

#### D. **Contractors**

- i. Adhere to the requirements of this program.
- ii. Responsible for supplying and operating their own material handling equipment.
- iii. Prohibited from operating Northwestern material handling equipment unless approved by EHS.
- iv. Ensure employees are authorized, trained, and familiar with material handling equipment used.

## IV. Requirements

#### A. **General**

- i. Only trained and authorized personnel are authorized to operate material handling equipment.
- ii. Material handling equipment must be operated in accordance with this program and the manufacturer's guidelines and limitations.
- iii. All features that were received on material handling equipment from the dealer or manufacturer must be in the intended working condition, and not disabled, tampered, or removed from the equipment.
- iv. Operators must be aware of tasks, hazards, hazard control measures, and manufacturer's operating guidelines prior to use.
- v. Prior to use of specific material handling equipment, the operator must familiarize themselves with the equipment by reading, understanding, and following the manufacturer's operator manual and/or all safety labels.

#### B. **Forklifts, Motorized Pallet Jacks, Tractors, and Other Similar Equipment**

- i. If installed, seatbelts must be worn at all times during operation.
- ii. Stunt driving and horseplay is prohibited.
- iii. Modifications or additions to material handling equipment must be approved in writing by the manufacturer. If the manufacturer no longer exists, modification to material handling equipment must be made under the direction of an engineer with expertise in the material handling equipment. In addition, capacity, operation, and maintenance instruction plates, tags, or decals must be changed accordingly by the manufacturer.
- iv. Operators must yield the right-of-way to workers and pedestrians, and all vehicular traffic.
- v. Park material handling equipment in secure and/or designated areas that do not block doorways, egress routes, or safety equipment.
- vi. Always remove keys when not in use; equipment that is beyond the vision or more than 25 feet from the operator is considered unattended and should have the keys removed and be in the proper park position.
- vii. When operating near unprotected edges, such as loading docks and theater stages, always maintain as much distance from the edge as possible, and use a ground spotter when moving/positioning the equipment.
- viii. Only trained and authorized personnel may fuel, charge batteries, or replace propane cylinders on material handling equipment.

## V. Inspections

### A. Forklifts, Motorized Pallet Jacks, Tractors, and Other Similar Equipment

- i. Complete a pre-use inspection prior to operation and adhere to the manufacturer's guidelines for additional pre-use inspection criteria, if applicable. Completed pre-use inspection checklists must be submitted to supervisors.
- ii. Pre-use inspection checklists are on the EHS [website](#). Other pre-use inspection checklists may be used if they meet the requirements of this program.
- iii. Any safety defects, impairments, damage, or malfunctions must be reported to supervisors, and the material handling equipment must be immediately removed from service and tagged with a label "Dangerous: Do Not Use" or similar wording until repaired or replaced.

### B. Overhead Cranes, Hoists, and Rigging Equipment (e.g., Slings, Shackles, Hooks, Swivels, Rings, Chains, Wire Ropes, Eyebolts)

#### i. Pre-Use Inspections

- a. Complete a pre-use inspection of overhead cranes, hoists, and rigging equipment prior to operation.
- b. Documentation of pre-use inspections are not required for rigging equipment and overhead hoists.
- c. Pre-use inspection checklists are on the [EHS website](#). Other pre-use inspection checklists may be used if they meet the requirements of this program.
- d. Completed pre-use inspection checklists for overhead cranes must be submitted to supervisors.

#### ii. Frequent Inspections

- a. Complete a frequent inspection of overhead cranes and hoists:
  1. Prior to placing an overhead crane or hoist into service;
  2. If the overhead crane or hoist has been out of service for longer than three months;
  3. In accordance with the manufacturer's guidelines; and
  4. At least monthly, and more frequent if environmental conditions require a shorter period.
- b. Must be performed by a qualified person using the monthly inspection checklist on the [EHS website](#). Other inspection checklists may be used if they meet the requirements of this program.
- c. Must include all items specified by the manufacturer for frequent inspections.
- d. Completed frequent inspection checklists must be submitted to supervisors.

#### iii. Annual Inspections

- a. Annual inspections of overhead cranes, hoists, and rigging equipment must be performed by a qualified third party service no later than 12 months from the date of the previous annual inspection.
- b. Annual inspections must include all items specified by the manufacturer for frequent and annual inspections.

- iv. **Load Tests**
  - a. Documented load tests are required for new or altered overhead cranes and hoists and must be conducted by a qualified third party service.
  - b. Load tests must include all items specified by the manufacturer or engineer who designed and approved the equipment.
- v. Any safety defects, impairments, damage, or malfunctions discovered during pre-use, frequent, or annual inspections, or during load tests, must be reported to department supervisors, and the equipment must be immediately removed from service and tagged with a label “Dangerous: Do Not Use” or similar wording until repaired or replaced.
- vi. **Markings**
  - a. The rated load of the overhead crane or hoist must be marked on the hoist or its load block and must be legible from the ground or floor.
  - b. Overhead crane and hoist controls must be marked to indicate the direction of the resultant motion.
  - c. Cranes and hoists must be marked with the name of the manufacturer, model or serial number, electrical supply specifics (for electrical-powered equipment), and rated air pressure (for air-powered equipment).
  - d. Overhead cranes and hoists must have labels with product safety information, operating procedures, and other relevant information as required by ANSI B30.16.
  - e. Rigging equipment must be marked with the name of the manufacturer, rated load, and other relevant information as required by ANSI B30.26.

## VI. Maintenance

- A. Adhere to the manufacturer’s recommendations to establish a material handling equipment preventative maintenance program and take into account the environment of the workplace and severity of use.
- B. Only authorized and qualified personnel can perform maintenance, service, and repairs on material handling equipment.
- C. Protective measures, including personal protective equipment (PPE), must be utilized to prevent exposure to hazards, such as chemicals.
- D. Before initiating repairs on a battery-powered electrical system, disconnect the battery.
- E. Adhere to Northwestern’s [Control of Hazardous Energy](#) program for all maintenance that involves hazardous energy, such as air- or electric-powered equipment.
- F. Material handling equipment repairs must be conducted within a designated area for equipment or vehicle maintenance.

## VII. Training

- A. **Training**
  - i. Each employee must receive training and instruction specific to the material handling equipment they will be operating (e.g., forklift, tractor, overhead crane, etc.), and training must be successfully completed prior to the use of any material handling equipment.
  - ii. Theory instruction and/or hands-on demonstration and evaluation can be conducted by either a competent trainer in the department, equipment

manufacturer, or a vendor who specializes in material handling equipment training.

**B. Re-training**

Re-training is required whenever:

- i. The operator's valid training period has expired (i.e., 3 years),
- ii. The operator is observed using the material handling equipment in an unsafe manner, or the performance of the operator is deteriorated,
- iii. Introduction to new or significantly different material handling equipment,
- iv. The operator is involved in an accident or near-miss incident, or
- v. A condition in the workplace changes that could affect the safe operation.

## VIII. Recordkeeping

Departments and units are responsible for maintaining the following records:

- A. Operator training documentation (i.e., person trained, person providing training, date of training, type of material handling equipment trained on) for as long as the operator will be operating material handling equipment.
- B. All inspection and test records must include the inspection and test performed, date, any deficiencies found, corrective actions accomplished, and identification of person(s) performing the inspections and repairs.
- C. All material handling equipment inspection, maintenance, service, and repair documentation must be retained and made available for as long as the material handling equipment is in operation.
- D. Service, part, and operator manuals provided with each material handling equipment must be maintained for as long as the material handling equipment is in operation.

## IX. Regulatory Authority and Related Information

Northwestern and contractors will comply with the Occupational Safety and Health Administration's (OSHA) standards, American National Standards Institute (ANSI) codes, and any other applicable codes and standards, including:

[Northwestern's Control of Hazardous Energy \(Lockout/Tagout\) Program](#)

OSHA 29 CFR 1910.178 – Powered Industrial Trucks

OSHA 29 CFR 1910.179 – Overhead and Gantry Cranes

OSHA 29 CFR 1926.602 – Material Handling Equipment

OSHA Compliance Directive CPL 2-1.28A – Compliance Assistance for the Powered Industrial Truck Operator Training Standards

ANSI B56.1-1969 – Powered Industrial Trucks

ANSI B30.2-2011 – Overhead and Gantry Cranes

ANSI B30.9-2014 – Slings

ANSI B30.10-2010 – Hooks

ANSI B30.16-2012 – Overhead Hoists

ANSI B30.17-2015 – Cranes and Monorails

ANSI B30.26-2004 – Rigging Hardware

## X. Contact

For questions, contact Environmental Health and Safety at [ehs@northwestern.edu](mailto:ehs@northwestern.edu).