

 EMORY UNIVERSITY	Environmental Health and Safety Office	Effective Date: March 23, 2011	Version: 1	Page: 1 of 11
TITLE: SAF-375, POWERED INDUSTRIAL TRUCK PROGRAM				

1. PURPOSE

The purpose of this program is to protect the health and safety of all employees assigned to operate powered industrial trucks as prescribed by the Occupational Safety and Health Administration's (OSHA's) Powered Industrial Truck Standard - 29 CFR 1910.178.

2. SCOPE

This program is inclusive of Emory University employees, including faculty, staff, and student employees who are designated by their departments to operate, repair, or maintain powered industrial trucks, which include fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines. The only types of powered industrial trucks at Emory are electric powered and liquid petroleum gas (LPG).

3. REFERENCES

- 3.1. OSHA [Powered Industrial Trucks – 1910.178](#)

4. RESPONSIBILITIES

4.1. *Environmental Health and Safety Office (EHSO)*

As the administrative department for the Powered Industrial Truck Program, EHSO is responsible for:

- 4.1.1. Development, implementation, and administration of the Powered Industrial Truck Program;
- 4.1.2. Assisting with the development of specific procedures pertaining to the operation and maintenance of powered industrial trucks;
- 4.1.3. Evaluating the training program conducted by the FM Administrative Services Program Administrative Assistant or third party vendor, based on the general principles of safe truck operation, the type of vehicle(s) being used in the workplace, and the hazards of the workplace;
- 4.1.4. Evaluating potentially hazardous atmospheres;
- 4.1.5. Reviewing contractors' Powered Industrial Truck Safety Programs;
- 4.1.6. Reviewing, updating, and evaluating the overall effectiveness of the Powered Industrial Truck Program.

4.2. *Powered Industrial Truck Trainer*

The FM Administrative Services Program Administrative Assistant or third party vendor provides the required Powered Industrial Truck Training and is responsible for:

- 4.2.1. Conducting the training and evaluation of Emory University powered industrial truck operators;



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- 4.2.2. Providing the Campus Services Manager, Training and Communications or other Emory division securing the training with the training certification records and performance tests of employees included in the training sessions;
- 4.2.3. Providing certification cards to operators who successfully complete the training. Certification cards will include:
 - 4.2.3.1. name of the employee being certified;
 - 4.2.3.2. date certification is issued;
 - 4.2.3.3. date certification expires;
 - 4.2.3.4. name of the powered industrial truck trainer issuing the certification;
 - 4.2.3.5. types of powered industrial trucks the employee is permitted to operate; and
 - 4.2.3.6. any restrictions imposed on the employee.

4.3. Directors, Supervisors, and Managers

Directors, supervisors, and managers have primary responsibility for the management and enforcement of the Powered Industrial Trucks Program in their areas. They must ensure that:

- 4.3.1. Employees who operate powered industrial trucks in their departments have received appropriate training;
- 4.3.2. Employees who operate powered industrial trucks do so in a safe manner;
- 4.3.3. The vehicles under their responsibility are properly inspected and maintained in a safe operating condition;
- 4.3.4. EHSO is contacted before the purchase of any powered industrial truck to ensure that the equipment is compatible with the atmosphere of the work area;
- 4.3.5. Battery-charging areas are designated.

4.4. Employees

All employees are responsible for complying with the rules set forth by this program. They must ensure that they:

- 4.4.1. Operate powered industrial trucks in a safe manner;
- 4.4.2. Examine powered industrial trucks using the Powered Industrial Truck Pre-Use Checklist before the vehicle is placed into service.
 - 4.4.2.1. This examination must be performed before each day of use.
 - 4.4.2.2. When trucks are used on a round-the-clock basis, each truck will be examined before each shift;
- 4.4.3. Report equipment defects and/or maintenance needs to their supervisors immediately;
- 4.4.4. Attend Powered Industrial Training when required;
- 4.4.5. Complete the operator evaluation every three (3) years and keep the operator certification card on their person when operating a powered industrial truck.



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5. CONTRACTORS

Contractors working on campus are required to comply with 29 CFR 1926.602, 29 CFR 1910.178 and all other applicable OSHA workplace safety regulations. A contractor's safety programs shall be available for review upon request by representatives of ESHO.

6. POWERED INDUSTRIAL TRUCK SAFETY RULES

6.1. General Requirements

- 6.1.1. All new powered industrial trucks acquired, except for vehicles intended primarily for earth moving or over-the-road hauling, must meet the design and construction requirements for powered industrial trucks established in the American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969";
- 6.1.2. Any modifications and additions to powered industrial trucks which affect capacity and safe operation must be approved in writing by the manufacturer of the powered industrial truck. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly;
- 6.1.3. If the truck is equipped with front-end attachments other than factory installed attachments, the user shall request that the truck be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with load laterally centered;
- 6.1.4. All nameplates and markings are in place and are maintained in a legible condition;
- 6.1.5. Prior to the consideration of industrial trucks being used in a potentially hazardous location, the atmosphere of the location must have been classified as hazardous by EHSO. Hazardous locations include the following:
 - 6.1.5.1. Atmospheres that contain hazardous concentrations of metal dust, including aluminum, magnesium, and their commercial alloys, or other metals of similarly hazardous characteristics;
 - 6.1.5.2. Atmospheres that contain carbon black, coal or coke dust;
 - 6.1.5.3. Atmospheres that contain acetone, acrylonitrile, alcohol, ammonia, benzene, benzol, butane, ethylene dichloride, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas, propane, propylene, styrene, vinyl acetate, vinyl chloride, or xylenes in quantities sufficient to produce explosive or ignitable mixtures;
 - 6.1.5.4. Locations where volatile flammable liquids or flammable gases are handled, processed or used, but in which the hazardous liquids, vapors or gases will normally be confined within closed containers or closed systems;
 - 6.1.5.5. Locations in which hazardous concentrations of gases or vapors are normally prevented by positive mechanical ventilation but which might become hazardous through failure or abnormal operation of the ventilating equipment.



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- 6.1.6. Only powered industrial trucks that are approved for use in hazardous (explosive) areas may be used in such areas. Trucks approved for use in hazardous areas (for fire safety purposes) will have the manufacturer’s label or some other identifying mark indicating approval for the intended use by a recognized national testing laboratory [e.g., Underwriters Laboratories (UL) or Factory Mutual (FM)];
- 6.1.7. Power-operated industrial trucks cannot be used in atmospheres containing hazardous concentration of acetylene, butadiene, ethylene oxide, hydrogen (or gases or vapors equivalent in hazard to hydrogen, such as manufactured gas), propylene oxide, acetaldehyde, cyclopropane, diethyl ether, ethylene, isoprene, or unsymmetrical dimethyl hydrazine (UDMH).

6.2. PITs Suitable in Non-Hazardous Areas

The following types of forklifts are only suitable for use in non-hazardous areas since they include only minimum safeguards against inherent fire hazards:

TYPE OF FORKLIFT	DESCRIPTION
D	Diesel-powered units having minimum acceptable safeguards against inherent fire hazards
E	Electrically powered units having minimum acceptable safeguards against inherent fire and electrical shock hazards
G	Gasoline-powered units having minimum acceptable safeguards against inherent fire hazards
LP	Liquefied-petroleum gas-powered units having minimum acceptable safeguards against inherent fire hazards

6.3. *PITs Suitable in Hazardous Areas*

The following types of forklifts are suitable for certain hazardous areas based on their design since they are equipped with additional safeguards (i.e., special exhaust, fuel, or electrical systems) or other modifications against inherent fire hazards:

TYPE OF FORKLIFT	DESCRIPTION
DS	Diesel-powered units provided with all the requirements for the type D units and additional safeguards to the exhaust, fuel, and electrical systems
DY	Diesel-powered units that have all the safeguards of the type DS units - except they do not have any electrical equipment, including ignition; they are equipped with temperature-limitation features
ES	Electrically powered units provided with all the requirements for the type E units and additional safeguards to the electrical system to prevent emission of hazardous sparks and to limit surface temperatures
EE	Electrically powered units provided with all the requirements for the type E and ES units, and also have electric motors and all other electrical equipment completely enclosed
EX	Electrically powered units that differ from type E, ES, or EE units in that the electrical fittings and equipment are designed, constructed, and assembled so that the units may be used in atmospheres containing specifically named flammable vapors or dusts
GS	Gasoline-powered units that, in addition to all the requirements for the type G units, are provided with additional safeguards to the exhaust, fuel, and electrical systems
LPS	Liquefied-petroleum gas-powered units that, in addition to the requirements for the type LP units, are provided with additional safeguards to the exhaust, fuel, and electrical systems

6.4. *Truck Operations*

- 6.4.1. A safe distance will be maintained from the edge of ramps or platforms while on any elevated dock, platform or freight car;
- 6.4.2. When leaving the truck unattended, the forks will be fully lowered, the controls placed in neutral, the power shut off, the brakes set and the key or connector plug removed. The wheels will be blocked if the truck is parked on an incline;
 - NOTE:** A powered industrial truck is considered unattended when the operator is 25 feet or more away from the vehicle which remains in his/her view or whenever the operator leaves the vehicle and the truck is not in view.
- 6.4.3. Trucks will not be used to open or close freight doors;



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- 6.4.4. The brakes of trucks, trailers and railroad cars will be set and wheel chocks or stops will be in place to prevent movement during loading or unloading operations. Fixed jacks may be necessary to support a semi-trailer during loading or unloading when the trailer is not coupled to a tractor. The flooring of trucks, trailers and railroad cars will be checked by the operator for breaks and weakness before driving these vehicles into these surfaces;
- 6.4.5. An overhead guard will be used as protection against falling objects;
NOTE: The overhead guard is intended to offer protection from the impact of small packages, boxes or bagged materials only.
- 6.4.6. A load backrest extension will be used whenever necessary to minimize the possibility of the load or part of the load from falling rearward;
- 6.4.7. Fire doors, access to stairways, fire extinguishers and emergency exits will always be kept clear;
- 6.4.8. Only approved industrial trucks will be used in hazardous locations;
- 6.4.9. Powered industrial trucks will not be driven up to anyone standing in front of a bench or other fixed object;
- 6.4.10. No person will be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty;
- 6.4.11. Passengers are not permitted to ride on powered industrial trucks unless authorized and the truck is equipped with a safe place for the passenger to ride;
- 6.4.12. The operator is not permitted to place his/her arms or legs between the uprights of the mast or outside the running lines of the truck;

6.5. *Traveling*

- 6.5.1. Traffic regulations will be observed, including observing all STOP SIGNS and authorized speed limits;
- 6.5.2. A safe distance of approximately three truck lengths from the truck ahead must be maintained;
- 6.5.3. The "Right of Way" will be yielded to fire trucks, ambulances or other vehicles in emergency situations;
- 6.5.4. The operator will slow down and sound the horn at intersections and other locations where vision is obstructed;
- 6.5.5. If the load being carried obstructs forward view, the operator will travel in reverse with the load trailing;
- 6.5.6. Railroad tracks will be crossed diagonally whenever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited;
- 6.5.7. Grades will be ascended or descended slowly. When ascending or descending grades in excess of 10 percent, loaded trucks will be driven with the load upgrade. On all grades, the load and load engaging means will be tilted back and raised only as far as necessary to clear the road surface;
- 6.5.8. The operator will slow down for wet and slippery floors;



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- 6.5.9. Dockboards or bridgeplates will be properly secured before they are driven over and their rated capacity will never be exceeded. Dockboards or bridge plates will always be driven over carefully and slowly;
- 6.5.10. Elevators will be approached slowly and then entered squarely after the elevator car is properly leveled. Once on the elevator, the transmission will be in neutral, the engine shut off, and the brakes set to prevent movement;
- 6.5.11. Motorized hand trucks must always enter elevators or other confined areas with the load end forward;
- 6.5.12. When making turns, the operator will reduce the truck's speed to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate;
- 6.5.13. Other trucks traveling in the same direction or at intersections, blind spots or other dangerous locations will not be passed;
- 6.5.14. Horseplay and stunt driving, including spinning of the tires, is not permitted;
- 6.5.15. Running over loose objects in aisles will be avoided;
- 6.5.16. Under all travel conditions, the truck will be operated at a speed that will permit the truck to be brought to a stop in a safe manner;
- 6.5.17. The operator will always look in the direction of travel and keep a clear view of the path of travel;
- 6.5.18. Railroad tracks will be crossed diagonally whenever possible.

6.6. Loading/Stacking

- 6.6.1. Only stable and safely arranged loads will be handled. Extreme caution will be used when handling off-centered loads that cannot be centered on the forks;
- 6.6.2. Only loads within the rated capacity of the truck will be handled;
- 6.6.3. The forks will be placed under the load as far as possible and the mast carefully tilted backward to stabilize the load;
- 6.6.4. Extreme care will be used when tilting the load forward or backward especially when high tiering. Tilting forward with load engaging means elevated is prohibited except to pick up a load. An elevated load will not be tilted forward except when the load is in a deposit position over a rack or stack of material;
- 6.6.5. When stacking or tiering loads, the operator will tilt the load backward only enough to stabilize the load;
- 6.6.6. The operator will remove unsafe containers and pallets from service;
- 6.6.7. Trucks equipped with attachments will be operated as a partially loaded truck when not handling a load;
- 6.6.8. The operator will adjust long and high loads, including multiple-tiered loads that may affect the capacity of the truck;



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- 6.6.9. The operator will ensure there is always a safe distance between the mast and overhead lights, pipes and sprinkler systems.

6.7. Fueling Powered Industrial Trucks

- 6.7.1. Spillage of excess oil will be carefully cleaned up and disposed off in accordance with state and federal regulations and EHSO requirements.
- 6.7.2. The operator will always wear the proper personal protective equipment (PPE), including face and hand protection, when fueling or performing any other maintenance on the truck (refer to Emory University's PPE Guideline for additional guidance);
- 6.7.3. No truck will be operated with a leak in the fuel system until the leak has been repaired.
- 6.7.3.1. All records of repair will be kept with the powered industrial truck;
- 6.7.4. Open flames will not be used to check the electrolyte level in batteries or the gasoline level in the fuel tank;
- 6.7.5. Smoking is not allowed while changing LPG tanks or refueling gas powered trucks.

6.8. Changing and Charging Batteries

- 6.8.1. Battery charging areas must be located in areas designated for that purpose;
- 6.8.2. Facilities must be provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of battery off-gassing;
- 6.8.3. A carboy tilter or siphon must be provided for handling electrolyte;
- 6.8.4. When checking fluid levels in batteries, personal protection (eye, face, and hand protection) must be worn.
- 6.8.5. Smoking and other potential ignition sources are prohibited in the charging area;

6.9. Maintenance and Inspection of Powered Industrial Trucks

- 6.9.1. The operator will conduct an examination of the truck using the Powered Industrial Truck Pre-Use Checklist before the vehicle is placed into service. This examination must be made at least before each day of use. When trucks are used on a round-the-clock basis, each truck will be examined after each shift;
- 6.9.2. The operator will immediately notify his/her supervisor if the truck is found to be in need of repair and/or unsafe;
- 6.9.3. If repairs are needed on a powered industrial truck that prevents its safe operation, the truck will be taken out of service until the repairs have been made;
- 6.9.4. Repairs must be made by authorized personnel only;
- 6.9.5. When the temperature of any part of any truck is found to be in excess of its normal operating temperature, the vehicle must be removed from service and not returned to service until the cause for the overheating has been eliminated;



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- 6.9.6. Any vehicle that emits hazardous sparks, flames or smoke from the exhaust system will be removed from service and not returned to service until the cause for the hazardous emissions has been corrected;
- 6.9.7. Powered industrial trucks are to be kept in a clean condition and free of excess lint, oil, and grease. Only noncombustible agents should be used for cleaning trucks. Cleaning trucks with low flash point solvents (below 100 degrees Fahrenheit) is not permitted;
- 6.9.8. Precautions regarding toxicity, ventilation, personal protective equipment and fire hazards are to be followed as stated on the warning label and/or the Material Safety Data Sheet (MSDS) for that particular cleaning agent;
- 6.9.9. Parts used in any industrial truck requiring replacement will be replaced only with parts equal in safety to those parts originally provided by the manufacturer.

7. INFORMATION AND TRAINING

- 7.1. EHSO is responsible for ensuring that Powered Industrial Truck training is provided to Emory University employees who operate powered industrial trucks. This training shall be given upon initial assignment and whenever there is reason to believe any affected employee who has already been trained does not have the understanding and skill required to operate a powered industrial truck safely.
- 7.2. Only employees who have successfully completed training in accordance with 29 CFR1910.178 will be permitted to operate a powered industrial truck;
- 7.3. Operator training and evaluation will be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.
- 7.4. Training will consist of a combination of formal instruction (e.g., video, group discussion), hands-on practical training, and evaluation of the operator's driving performance in the workplace.
- 7.5. Training will include a review/discussion of the following topics:
 - 7.5.1. The safe operation of powered industrial trucks;
 - 7.5.2. Differences between powered industrial trucks and the automobile;
 - 7.5.3. Truck controls and instrumentation;
 - 7.5.4. Engine or motor operation;
 - 7.5.5. Steering and maneuvering;
 - 7.5.6. Visibility (including restrictions due to loading);
 - 7.5.7. Fork and attachment adaptation, operation, and use limitations;
 - 7.5.8. Vehicle capacity;
 - 7.5.9. Vehicle stability;
 - 7.5.10. Vehicle inspection and maintenance;
 - 7.5.11. Refueling and/or recharging of batteries;



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- 7.5.12. Operating limitations;
- 7.5.13. Load manipulation, stacking and unstacking;
- 7.5.14. Pedestrian traffic;
- 7.5.15. Narrow aisles and other restricted places where the vehicle will be operated;
- 7.5.16. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
- 7.6. Refresher training in relevant topics will be provided to the operator when:
 - 7.6.1. The operator has been observed to operate the vehicle in an unsafe manner;
 - 7.6.2. The operator has been involved in an accident or near-miss incident;
 - 7.6.3. The operator has received an evaluation that reveals that the operator is not operating the truck safely;
 - 7.6.4. The operator is assigned to drive a different type of truck;
 - 7.6.5. A condition in the workplace changes in a manner that could affect safe operation of the truck.
- 7.7. An evaluation of each operator's performance will be conducted at least once every three years.
- 7.8. If an operator has previously received training in a topic specified in paragraph 29 CFR 1910.178, and the training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.
- 7.9. The Campus Services Manager, Training and Communications or Emory division securing the training will maintain documentation of the attendance which will include the operator's name, the date of training/evaluation, and the name of the instructor.

8. PROGRAM EVALUATION

The written Powered Industrial Truck Program shall be re-evaluated annually and revised if necessary.

9. RECORD KEEPING

Training and recertification records are retained by the Campus Services Manager, Training and Communications or the Emory division securing the training and are available in accordance with the Powered Industrial Trucks Standard for record retention.



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GLOSSARY OF TERMS

Backrest	Supports the load when tipped back and adds stability
EHSO	Environmental Health and Safety Office
Hazardous Locations	Locations in which flammable gases, vapors, or combustible dust are present or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.
Mast	The mechanism on the truck that raises and lowers the load. The mast is made up of a set of tracks that house bearings and chains.
Motorized Hand Truck	A type of powered industrial truck designed to move palletized materials. These trucks may be called powered pallet trucks, <i>walkies</i> , or <i>walkie riders</i> .
Nameplates	Contain information about the truck's design and capacity including information about the truck's engine, load capacity, serial number, weight and the truck's type designation.
Nonhazardous Locations	Locations that do not possess flammable or explosive atmospheres
Powered Industrial Trucks	Industrial vehicles used to carry, push, pull, lift or stack material that is powered by an electric motor or an internal combustion engine. Included are vehicles that are commonly referred to as forklift trucks, rider trucks, motorized or powered hand trucks, pallet trucks and tugs. Not included are: compressed air or nonflammable compressed gas-operated industrial trucks, farm vehicles or vehicles intended primarily for earth moving or over-the-road hauling.
Overhead Guard	A guard over the operator's head that protects the operator from falling debris. NOTE: The overhead guard is not designed to withstand the full impact of falling objects.