Welcome to the Hard Hat Training Series!

Welcome to the Hard Hat Training Series. Today we will talk about the safe operations of Powered Industrial Trucks (PITs). This training is designed to give you the information and knowledge to become a better, safer operator. For the purpose of this training, anytime we refer to a type of powered industrial truck, we will use the terms “machine” or “PIT.”

The Life & Times

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Investigators looking into recent worker fatality

Federal Way – Early in the morning last Saturday, local construction workers hired to install several utility poles were involved in an accident that killed two and injured four. The horrific chain of events started with a relatively simple accident at 7 a.m. during [illegible] when a [illegible]

The investigated accident profiles we will discuss throughout this training today are real. In some cases, two or three similar accidents have been combined for the purpose of illustrating key safety principles. They will show just how quickly things can go wrong if operators ignore safety principles or use equipment and PPE incorrectly.

PITs are designed for material handling both indoors and outdoors. They are used to handle materials by raising, lowering, moving, and removing. The objects being handled may be small, large, on pallets, in crates, in boxes, or in another type of container. Different types of PITs include forklifts, pallet jacks, telehandlers, and walkie stackers, so it's important to be familiar with the owner's manual specific to your machine.

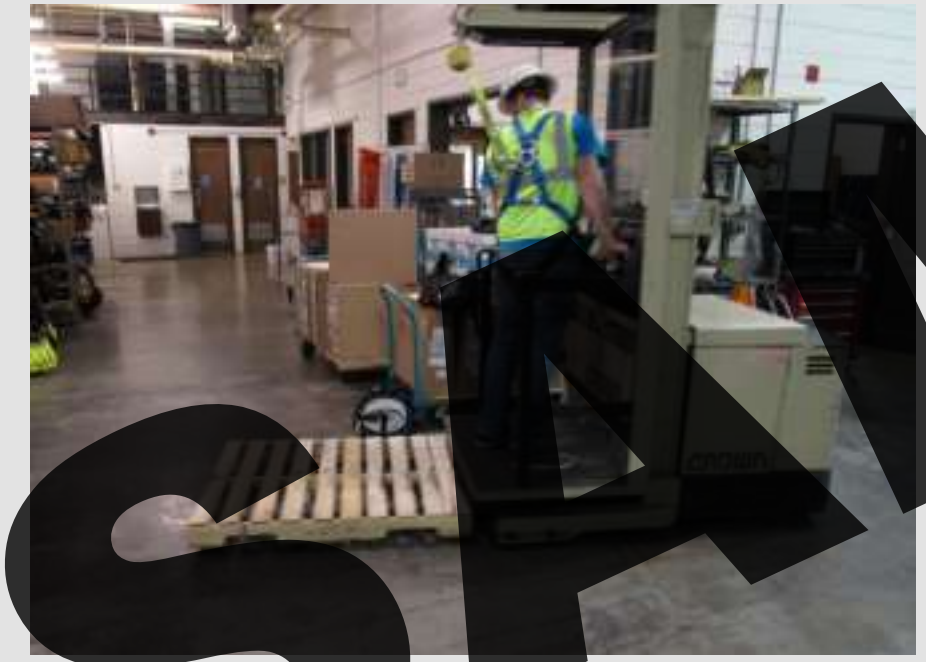
PITs evolved from the forklift. The first forklift was invented in 1917 when employees needed a machine that could carry and move heavy materials. In earlier days, the Tructractor was known as the first forklift, and it consisted of a small tractor equipped with a carrying attachment. By the early 1920s, however, manufacturers began to add other features such as a hydraulic lift for the purpose of carrying loads at heights and through narrow spaces.

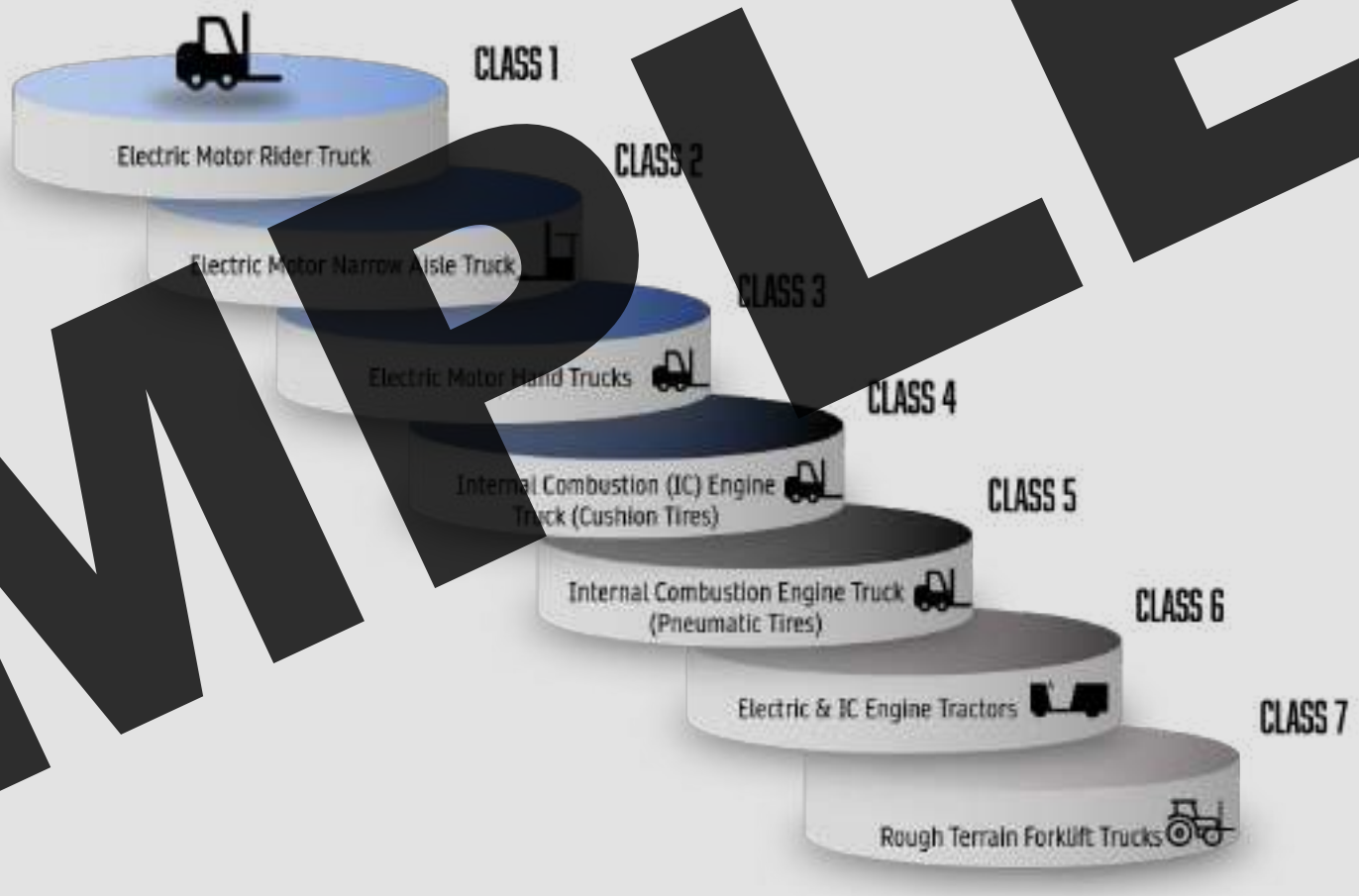
While these machines may seem easy to use, there are dangers to be aware of during operation. Approximately 100,000 injuries involving powered industrial trucks occur each year in the United States. Of those injuries, about 85 are fatal. Overall, there are around 855,000 operating PITs, meaning over ten percent of operators are likely to be involved in a work-related accident.

In the United States, from 1980 to 1994, there were a total of 1,021 PIT-related deaths. An analysis of these fatalities revealed that the most common types of accidents were forklift overturns, workers on foot being struck by forklifts, victims being crushed by forklifts, and falls from forklifts.

PIT Classification

There are seven different classes of PIT. Whatever type of PIT you will be operating, however, OSHA requires that you receive training specific to that machine, since each class of PIT is built differently than the others.



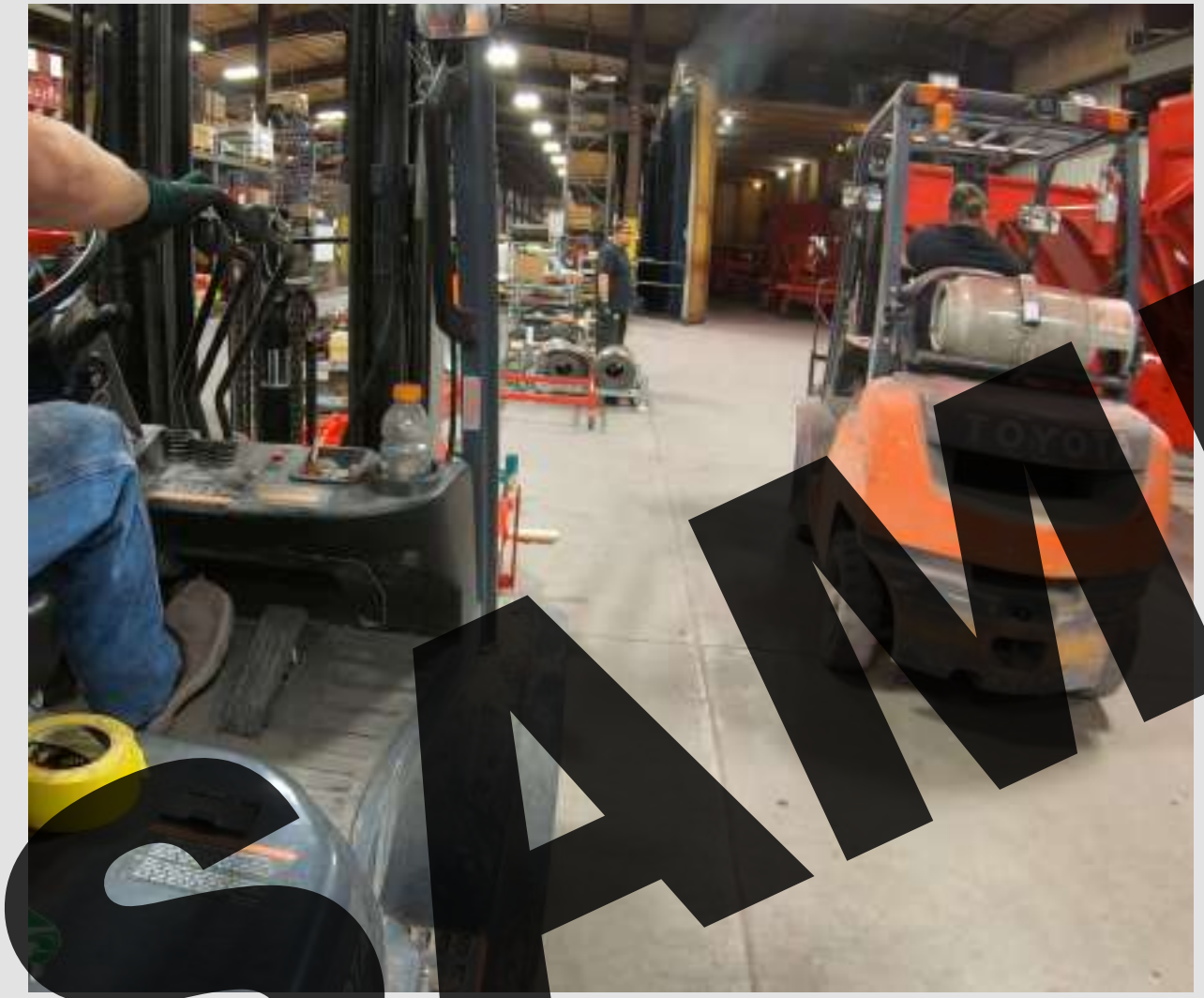


Class I PITs can have cushion or pneumatic tires, which we'll discuss in more detail later in this training. Class I PITs are powered by electric batteries because they're mostly used in areas that require safe air ventilation. That being said, it is common to see these types of machines being used in warehouses where the operator moves pallets around and the ground is smooth and level.

On a Class II PIT, the operator controls the machine by standing behind it. Because of its narrow body, operators use this type of PIT in areas where space is carefully and efficiently utilized such as in narrow aisles. Class II PITs also improve the efficiency of such jobs because of their small structure. They are also easy to store in warehouses.

Class III PITs include machines such as pallet jacks and walkie stackers, where the operator walks behind the machine and steers it using a tiller. While walkie stackers commonly feature powered lifts, pallet jacks are only used for moving loads laterally.

Class IV PITs are internal-combustion-powered trucks with cushion tires that are designed for use in loading dock, storage, or smooth-surfaced areas. Due to the internal combustion engine, they are not intended for use with food or pharmaceutical products. These machines do not work well on wet or slick surfaces, which can cause them to become unstable.

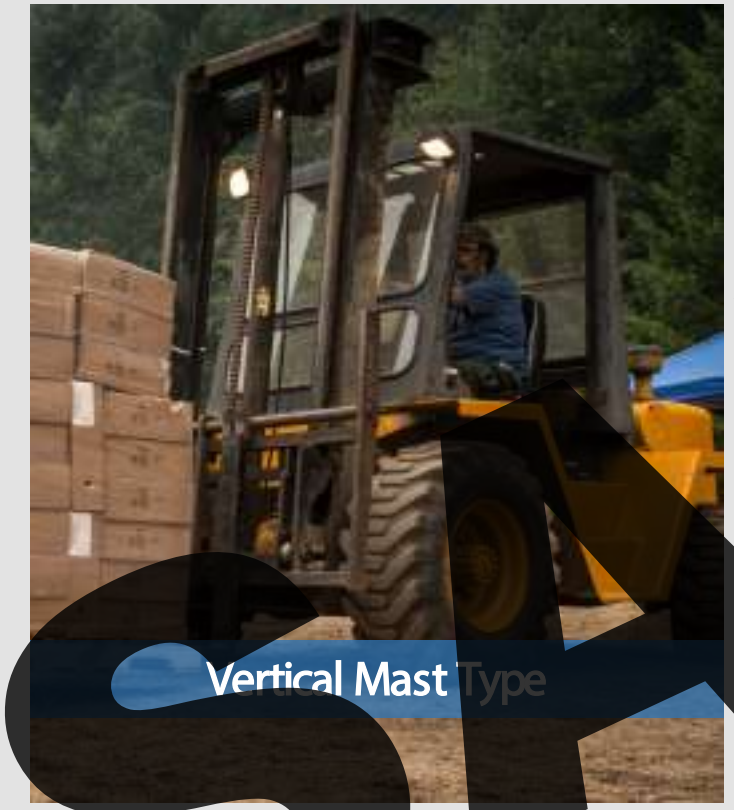


Class V PITs drive on pneumatic tires, which are similar to car tires. They can be used for both indoor and outdoor handling, but they are commonly seen in warehouses. They can perform almost any application and can carry small and large loads of materials.

You've probably noticed a Class VI PIT hauling luggage at an airport. You can also find this type of machine at work in factories and assembly lines. They run on either an electric or internal combustion engine and can pull as much as 55,000 pounds. Most of the ones used indoors will feature an electric engine.

Image: Raymond

Unlike the other classes of PITs, the Class VII PITs or rough terrain forklift trucks come with a heftier suspension system and more rugged tires. They are designed for operation over uneven terrain. For this reason, companies mostly use these machines on construction sites, where they help lift and transport building materials. There are three types of rough terrain forklifts: vertical mast type, variable reach type, and trailer or truck mounted type.



Vertical Mast Type

Variable Reach Type

Truck or Trailer Mounted

In 1999, OSHA updated its standards for PITs, The newest standard makes it mandatory for employers to provide training for PIT operators that is specific to the class and model of the machine they use. This training must be completed before the operator can be allowed to use the machine.

This certification process includes an in-class training portion and a written exam. Afterwards, the operator must be observed inspecting the machine, mounting and dismounting it, and safely operating it. An obstacle course can be a great way for trainers to perform these observations. Both written and practical evaluations need to be kept on file to prove competency.

OSHA outlines when an operator must receive refresher training, and it is essential to know how to prevent and minimize accidents. This slide lists just some of the situations in which employees need to be retrained and reevaluated. Remember, it is essential that operators know how to prevent and minimize accidents, no matter how long they've been on the job.

During this training we'll take a look at the different types of PITs and their anatomy. We'll also show you why it's important to conduct a thorough pre-shift inspection each day before putting it into service.

We will discuss safe operating and load handling principles, including how to maintain stability while driving with a load. We will talk about the proper procedures for charging and changing an industrial battery. In discussing these topics, we will also go over the most common hazards associated with PITs and illustrate them through accident case studies.

When you complete this training, you will have an increased knowledge of how to inspect PITs and safely operate them. Additionally, you will be able to recognize and avoid the most common hazards associated with their use.

STANDARDS

OSHA 29 CFR 1910.178 Powered Industrial Truck Standard

OSHA 29 CFR 1926.602 — Material Handling Equipment

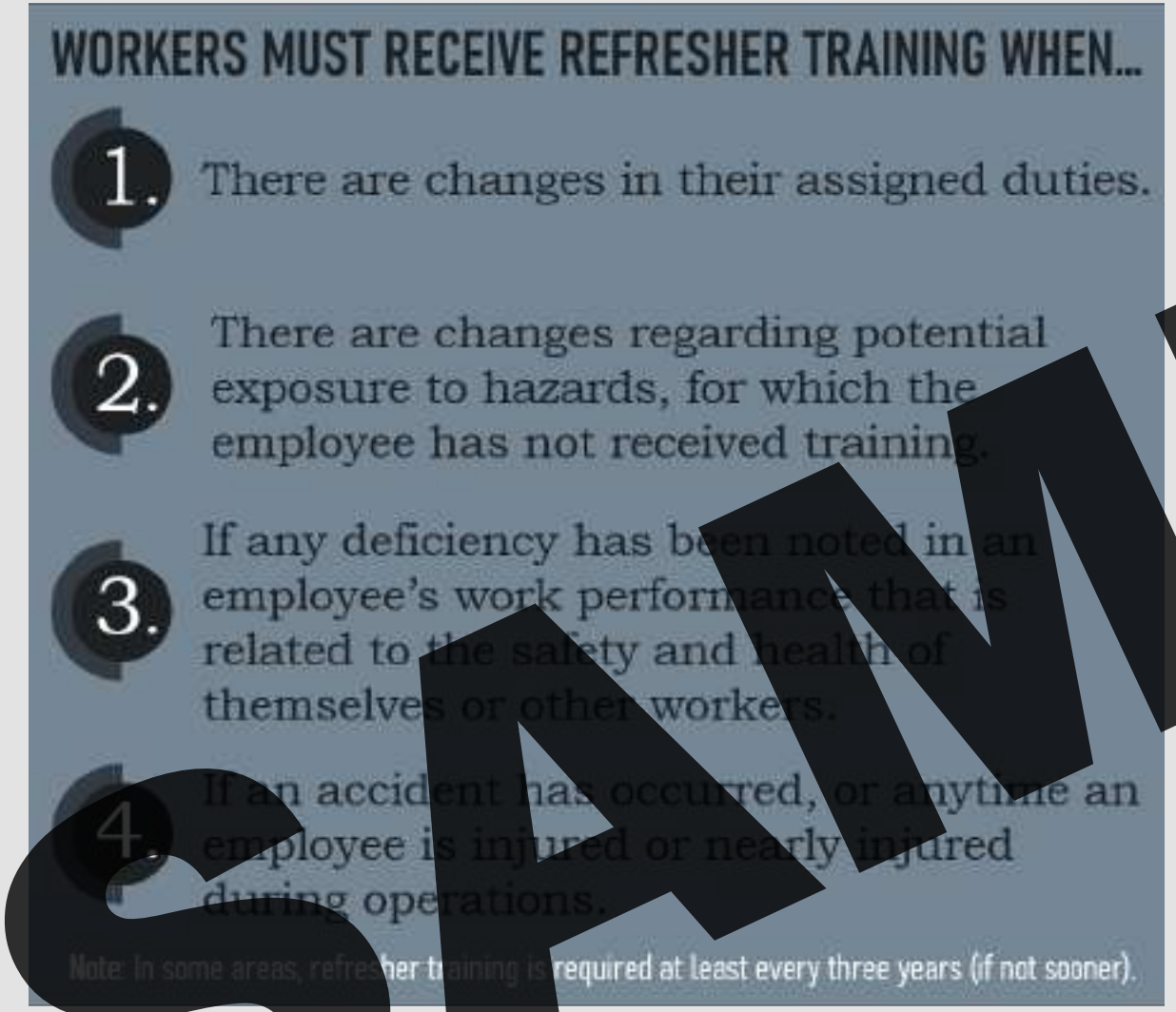
ASME/ANSI B56.1-2020 — Safety Standard for Low and High Lift Trucks

These are some of the main standards concerning powered industrial trucks. Many states or provinces have additional standards, as do some industries. We have provided these as a guide, but it's your responsibility to know all federal, local, and company rules that apply to your job site.

Why Training?

No matter the situation, it is common to hear workers and even employers ask, “Where does it state we need to be trained?” Can’t a worker also be deemed “qualified” based on experience? The answer is “no.” Experience helps, yes, but regulations are very clear that employees must be trained (no matter how long they’ve been on the job) and that it is the employer who is responsible for overseeing that safety training, ensuring employees have the understanding, knowledge, and skills needed to operate safely.

Initial training and refresher training, as well as any written and practical evaluations, must be documented and filed. At the very least, employers need to show proof of proper and consistent training (in the way of training outlines, class lists, training goals, tests, certificates, and so on.) These documents should include the name of the person who taught the class or conducted the evaluation.



Training is not just a one-and-done occurrence; it is on-going. In fact, training should take place whenever there is a demonstrated need for it. We have listed several instances when refresher training would be required. Can you think of any others?

The extent of training will be determined by the employer, but at the very least it should include classroom instruction followed by a written and practical examination that prove continued competency.

Anatomy & Inspection