

BY BRUCE GRAY

Rough Terrain Forklift Training

The presence of rough terrain forklifts on jobsites has become much more common over the last decade. Whether rented or owned, these forklifts save time, labor, and money; their appeal is undeniable. Reaping those benefits, however, requires an array of skills and knowledge to operate these vehicles responsibly on site—skills and knowledge that have to be validated, either by third-party safety trainers, like myself, or by individuals who have attended training-the-trainer-type classes (more on this below), or by the vendors renting the equipment.

I've been involved in industrial safety training and education since 1983, and for the last 16 years, I've been a self-employed safety consultant. My clientele has ranged from small businesses to Fortune 500 companies. A significant portion of my business deals with forklift operator training (or more precisely, powered industrial truck operator training). OSHA defines powered industrial trucks (PITs) as any mobile power-propelled vehicle that is used to carry, push, pull, lift, stack, or tier materials, and that can be ridden or controlled by a walking operator (see "Forklift Classification Explained," page 10).

In this article, I'll focus on Class VII rough terrain forklifts (particularly variable-reach types with telescoping booms) as they relate to home builders and remodelers. While it's true that safety officials (OSHA) are more likely to inspect large commercial jobsites than residential or multifamily ones, they will visit any site where incidents have occurred or where complaints have been made. Aerial lifts tend to attract watchful eyes.

The good news is there are steps you can take (which I'll outline in the following article) to prepare for that hypothetical day when they visit, though it will cost some money and take some time to be "legal" in the eyes of OSHA. Training costs are far cheaper than OSHA fines, and I believe most contractors want to build correctly and keep their people safe, but they may not always know where to begin.

Training the trainers. In the region where I work, small businesses (as opposed to the large manufacturing and commercial construction companies I normally consult with) often lack the resources for safety training. To help close that resource gap, I run "Train the Trainer" courses several times a year. The goal of the course is to help



Rough terrain forklifts (or telehandlers) were designed to move material from off-loading zones closer to jobsites (1) and to lift manageable loads to elevated work areas (2). Numerous makes and models with varying reach and load-lifting capacities can be found on residential sites today. They can be challenging to operate; drivers have to contend with stability issues related to projected loads from telescoping booms and uneven surfaces. Vehicle tip-overs can occur if load limits are not adhered to.

Photos: 1, Ree Osborn; 2, Seth Stafford

small businesses become self-sufficient regarding forklift operator training (upon successfully attending the class, individuals are certified to train fellow workers at their own place of employment).

“Train the Trainer” is a six-hour course in which I review OSHA regulations; how to evaluate an operator’s performance during a driving test; and how to properly operate and maintain forklifts in terms of their controls, attachments, maintenance, rules of the road, and so on. I charge \$175 per person, but similar programs can range anywhere from \$150 to \$600 per person.

Also worth noting, I teach to OSHA’s forklift standard 1910.178 and cover material related to general industry and not construction-specific subject matter. I can have anywhere from 20 to 30 attendees representing 15 different companies (in the industrial, manufacturing, and construction fields) with each company using several types of forklifts. Check with local home-builder associations, safety councils, and even insurance companies (which sometime sponsor safety training for small businesses) for similar opportunities.

OSHA 1910.178 (Preventing Forklift Accidents)

Why do we need forklift training? Powered industrial truck (PIT) accidents frequently make OSHA’s Top Ten Serious Violations list, with approximately 100 fatalities and 20,000 lost workday injuries per year across U.S. industry. OSHA standard 29 CFR 1910.178 covering PITs requires employers to develop and implement a training program based on the general principles of safe truck operation. It is an old safety standard (but well written) and is “performance oriented.” This means that if you have an accident or are observed to be driving unsafely, you need to be retrained. And it

has a mandatory training and performance evaluation default of every three years. It’s not just one and done; training is an on-going discipline.

Standard 1910.178 covers all aspects of forklift operator training, from fuel handling and charging batteries to truck operation and maintenance. A few examples of 1910.178 rules pertaining to builders operating rough terrain forklifts (or telehandlers) follow.

Never work or pass under extended or elevated forks (whether loaded or empty). This might seem like common sense, but let’s say hypothetically, you and your crew are installing a small beam with the help of a telehandler. It’s easy to forget this rule in the moment as you pass under the forks while struggling to precisely place the beam from below. Operator error or hydraulic failure are not out of the realm of possibility while operating these vehicles.

Never leave a vehicle unattended with a load engaged. OSHA’s definition of an unattended vehicle is when the operator is 25 feet or more away from the vehicle while it is remaining in his or her view, or whenever the operator leaves the vehicle and it is not in his or her view. Again, hypothetically, you may have gotten in the habit of suspending a dumpster from an unattended telehandler during demolition. This is not legal. Technically, when the vehicle is unattended, the load engaging means must be fully lowered, the controls neutralized, the power shut off, and brakes set. Also, if parked on an incline, the wheels must be blocked.

Never operate a vehicle in need of repair. If a forklift is in need of repair, is defective, or is in any way unsafe, it should be taken out of service until it has been restored to safe operating condition, with all repair work done by authorized personnel. The margin of error

Forklift Classification Explained

Forklift terminology is fairly complex. Descriptive, task-oriented names (such as “side loader, high-lift pallet” forklift) aside, forklifts are often referred to in more colloquial terms. In my region, paper mills call them “tow motors,” warehouses may refer to them as “stackers,” and builders tend to use “telehandlers” in lieu of “rough terrain forklifts.” OSHA uses the all-encompassing phrase “powered industrial trucks,” or PITs, when referring to forklifts in its 1910.178 standard.

PITs can be defined as any mobile power-propelled vehicle used to carry, push, pull, lift, stack, or tier materials, and that can be ridden or controlled by a walking operator. Within 1910.178, OSHA categorizes all forklifts into seven PIT classes (broken down by their various functions, fuel sources, and even tire types). They are:

- Class I: Electric Motor Rider Trucks
- Class II: Electric Motor Narrow Aisle Trucks
- Class III: Electric Motor Hand Trucks or Hand/Rider Trucks
- Class IV: Internal Combustion Engine Trucks (Solid/Cushion Tires)
- Class V: Internal Combustion Engine Trucks (Pneumatic Tires)
- Class VI: Electric and Internal Combustion Engine Tractors
- Class VII: Rough Terrain Forklifts

For more information on forklift types, go to osha.gov.

Class VII: Rough terrain forklifts can be defined as PITs with large flotation tires for outdoor use on difficult surfaces. They’re often used on construction sites to transport (and lift) materials from off-loading areas to various jobsite locations. There are three basic types:

- **Variable-reach (or telehandler) forklifts** are used to lift pallets or other objects to heights using a telescoping arm. The arm allows the operator flexibility in picking up and placing loads (at various distances and lift heights) from the front of the machine.
- **Vertical-mast rough terrain forklifts** are ruggedly constructed and are designed to be used outdoors. They are common at lumberyards, auto recyclers, and commercial construction sites.
- **Truck/trailer-mounted forklifts** are portable self-propelled forklifts that are typically transported to the jobsite. They are mounted on a carrier to the back of a truck (or trailer) and are used to unload heavy items from the truck (or trailer) at the jobsite.

One last note: Personnel lifts are not considered PITs; they’re covered by their own, less-defined standard. When asked about them in relation to training, I tell people to use the forklift standard to evaluate a new employee’s operating skills. Also, it is recommended to use a pre-use inspection sheet. — *B.G.*

Rough Terrain Forklift Documentation	
Proof of Training	<ul style="list-style-type: none"> • Mandatory: Typically, a card or certificate from a trained safety person noting when training occurred and expiration date. Recommended that operators possess card while on jobsite; keep copy on file. • Employers are responsible to make sure each vehicle operator has received training and a performance evaluation at least once every three years.
Vehicle Load Charts	<ul style="list-style-type: none"> • Mandatory: Vehicle load chart shows rated capacity of vehicle and maximum weight that may be safely lifted depending on vehicle's boom angle and extension arc (as a rule, a vehicle's carrying capacity is reduced the further out the telescoping boom is extended). • Most likely thing OSHA will look for first during an inspection (especially if an attachment such as a jib boom is observed being used on telescoping forklift—see below).
Attachment Load Charts	<ul style="list-style-type: none"> • Mandatory: Attachment load charts show rated loads when using an attachment (as a rule, a vehicle's carrying capacity is significantly reduced when an attachment such as a jib boom is used). • Only approved attachments can be used—made either by the forklift manufacturer or by an approved third-party manufacturer. Custom or site-built attachments are not legal. • Again, most likely thing OSHA will look for first; they'll want to see a load chart specific for attachment in use.
Pre-Use Checklist	<ul style="list-style-type: none"> • Not mandatory, highly recommended: Get into habit of documenting the vehicle's maintenance; it's good practice and shows safety officials that the operator (and employer) is on top of the vehicle's maintenance. • Keep it simple; complex checklists are less apt to be filled out by operators (the goal is to find a system that works for employer and operator to fill out a pre-use checklist on a regular basis). • Keep the Pre-Use Checklist or maintenance log on file, especially if you own the vehicle. • Don't let maintenance issues slide; act quickly on items noted on checklist. Rough terrain forklifts are complex vehicles with little margin for error when operating in the field.
Vehicle Inspection	<ul style="list-style-type: none"> • Mandatory: A yearly vehicle safety inspection is required and must be performed by authorized third-party vendors.
Nameplate Legibility	<ul style="list-style-type: none"> • Mandatory: Equipment nameplates (as well as all plates, tags, or decals noting carrying capacity, operation, and maintenance instruction) are required to be in place and in a legible condition. • Though not required, keeping a photograph clearly showing the vehicle's nameplate information on file is recommended, in case the nameplate becomes damaged or marred during years of use.
Operator Manual	<ul style="list-style-type: none"> • The vehicle's operator manual should be in the vehicle's cab regardless of whether the vehicle is rented or owned by the operator.

You should have these documents on hand (and on file) if you own, rent, or operate a rough terrain forklift. Most are mandatory; maintaining a pre-use checklist is not, though I highly recommend doing so (it's the biggest omission I encounter).


is narrow when using telehandlers to lift material; don't let maintenance issues slide.

Documentation. So, what documents do you need to be “legal” and what items should you keep on the jobsite? At a minimum, you should have a card or certificate of proof of training and the vehicle load charts (and attachment load charts as well, if applicable) on the jobsite—OSHA will look for these items first. Also, though not mandatory (but highly recommended), keep a pre-use checklist and maintenance log. It's a good habit to have and it'll demonstrate to a safety official that you're on top of things. For more information on what documentation you should have, both on site and in the office, see “Rough Terrain Forklift Documentation” at left.

Resources. Operating these complex vehicles in the field starting from scratch is not wise (or legal); familiarize yourself with them first. OSHA's “Powered Industrial Trucks - Operator Training” slideshow presentation on its website is a good starting point for an overview on the topic. Also, professional safety groups (such as the National Safety Council, American Society of Safety Professionals; and American Industrial Hygiene Association) are good sources to contact. They have local chapters and can help to find training opportunities similar to ones I've outlined above.

I used to say, “If it has forks on it and you're lifting up pallets, it's covered by the forklift standard.” But that's not 100% true anymore. For instance, skid steers with forks are now in a gray area and may not be covered by the forklift standard (depending on the safety jurisdiction). The point is, rules change and training requirements evolve. It's good business to be legit in the eyes of OSHA and to keep on top of your (and your employees') training.

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 For a more detailed discussion of rough terrain forklift training, go to www.jlconline.com/training-the-trades/rough-terrain-forklift-training