

Lift Truck Safety in the Distribution Environment: A Behavioral Approach to OSHA 1910.178

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Introduction

Lift trucks, known in common parlance as forklifts, are used in a greater variety of industrial and commercial settings than nearly any other type of industrial vehicle. Anywhere materials must be moved—in warehouses, industrial shops, construction sites, and beyond—lift trucks are a common sight.

Their utility and familiarity, combined with their relatively small size and non-threatening appearance, can give operators and nearby workers alike a false sense of security. They may incorrectly feel that driving a lift truck is no more complicated than driving the family car.

But each year in the United States, nearly 100 workers are killed and approximately 12,000 are injured in lift truck-related incidents, reports the Bureau of Labor Statistics (BLS 2005). The biggest concerns are workers being struck by falling objects, caught between or in parts of the vehicle, falling from elevated platforms, being struck by a lift truck, and lift trucks colliding or overturning. Crushing and amputations are the two most worrisome types of injuries.

Unfortunately, these fatality rates have been borne out in at least one region of the Occupational Safety and Health Administration (OSHA), Region 5, which consists of Indiana, Illinois, and Wisconsin. The author was privileged to discuss the current level of lift truck fatalities with an OSHA administrator who shared OSHA's official but unpublished lift-truck-related fatality data for 2005 and 2006 in Region 5 (Table 1). Of these 28 fatalities, as many as 24 involved some element of crushing; the rest involved fall-protection issues. The administrator emphasized two key points: There is no reason to believe that the Region 5 numbers are not representative of the U.S. as a whole. Also, OSHA has made lift truck safety an area of emphasis in enforcement and training.

Table 1

OSHA Region 5 Lift Truck Fatalities, 2005-2006	
CAUSE	NUMBER
Struck by falling objects	9
Fall from elevated platform	4
Caught between	6
Caught in	3
Struck against	3
Overturn	2
Collision	1
TOTAL	28

Note: OSHA Region 5 covers Indiana, Illinois, and Wisconsin. These official but unpublished OSHA data for a two-year period were received from an OSHA administrator and use OSHA's exact classification language. These data suggest that extra attention should be paid to preventing falling loads and improving maintenance operations.

In the National Institute for Occupational Safety and Health (NIOSH) publication NIOSH Alert: Preventing Injuries and Deaths of Workers Who Operate or Work Near Forklifts, published in 2001 but the most current available, causes for this problem are made clear: “NIOSH investigations of forklift-related deaths indicate that many workers and employers (1) may not be aware of the risks of operating or working near forklifts and (2) are not following the procedures set forth in the Occupational Safety and Health Administration (OSHA) standards, consensus standards, or equipment manufacturer’s guidelines (NIOSH 2001).”

This statement also hints at another reason why lift truck incidents are so distressingly common: Companies must adhere to a variety of standards, from OSHA’s performance-based standard, CFR 29 1910.178, Powered Industrial Trucks, to other mandatory standards from the Department of Transportation, the Environmental Protection Agency, the Nuclear Regulatory Commission, and the Department of Labor.

One example is the Department of Labor’s Fair Labor Standards Act, which is the primary law governing the employment of youth under age 18. It prohibits workers under the age of 18 from using lift trucks and similar equipment in nonagricultural industries, (Hazardous Order No. 7 - Power-Driven Hoisting Apparatus Occupations). In agricultural industries, minors under age 16 are prohibited from using lift trucks.

Then there are numerous voluntary consensus standards from the American Society of Mechanical Engineers, the National Fire Protection Association and the International Organization for Standardization. Additionally, employers must follow all applicable guidelines and operating instructions from the lift truck manufacturer. It’s no wonder even conscientious employers can feel confused!

OSHA 1910.178 – A Good Start

Of all these standards, 29 CFR – 1910.178, Powered Industrial Trucks, is the one that most directly guides employers in protecting those who work with and near lift trucks. It is essential for employers to become familiar with the nuances of this standard and to design their lift truck programs with it in mind.

Even companies that approach the OSHA 1910.178 with the best of intentions as they design a lift truck safety program may find themselves in a quandary. The standard mandates that all employees who drive a lift truck must receive proper training. But, while the standard does list topical areas to be covered, it is limited regarding training formats or material specifics.

In the author’s opinion, it is entirely possible for a company’s lift truck program to be fully in compliance with 1910.178 and yet not provide adequate protection to its employees. For example, consider 1910.178(1)(3): “Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee) and evaluation of the operator’s performance in the workplace.”

Companies that want to interpret the standard minimally can be in compliance by certifying a worker who has watched a 30-minute safety video, driven a lift truck once through a 20-foot practical application course and been evaluated using a two- or three-question pass/fail checklist.

Then, if this employee is fortunate enough to avoid any lift truck accidents, he only needs to repeat these steps three years later to satisfy the standard's retraining requirement.

It's impossible to know how the majority of companies handle their lift truck training behind closed doors unless and until OSHA inspectors visit the premises, but one point is clear: Many companies are deficient in their training. This fact is shown by OSHA's willingness to cite 1910.178(l)(i) when assessing lift truck violations, reports the OSHA Region 5 administrator who shared these data with the author. Table 2 summarizes OSHA's official but unpublished top 20 lift truck violations for 2002-2006, referenced by paragraph of the standard. Note that 9 out of 20 violation codes referenced operator training, totaling 14,715 violations for which initial penalties were levied at \$8,901,612.00. Nearly half of that dollar amount (\$4,191,675.00) was levied under 1910.178(l)(i): "The employer shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in this paragraph (l)." (OSHA 1910.178)

Table 2
OSHA's Top 20 Lift Truck Violations, 2002-2006 (Includes Federal and State Data)

	Paragraph			Description	Serious Violations	Total Violations	Initial Penalty
1	1910.178	(a)	(4)	modifications shall not be made without manufacturer approval, nameplate changed accordingly	468	638	\$755,487.00
2	1910.178	(a)	(5)	other than factory installed front end attachments - provide new load center information	151	206	\$113,763.00
3	1910.178	(a)	(6)	legible nameplates and markings	311	787	\$277,089.00
4	1910.178	(g)	(2)	charging stations must have facilities for flushing/neutralizing electrolyte, fire protection, protected chargers, and proper ventilation	211	363	\$211,270.00
5	1910.178	(k)	(1)	brakes set on highway trucks, rear wheels chocked to prevent rolling when boarded by lift truck	142	241	\$189,473.00
6	1910.178	(l)		Operator Training	1,340	2,271	\$1,355,011.00
7	1910.178	(l)	(1)	Operator Training/Safe Operation	162	208	\$190,115.00
8	1910.178	(l)	(1)	(i) operator properly trained and evaluated	3,334	4,836	\$4,191,675.00
9	1910.178	(l)	(1)	(ii) operator successfully trained before operating lift truck (except during training)	783	1,076	\$1,291,451.00
10	1910.178	(l)	(2)	(ii) training consists of formal instruction, practical, and evaluation	343	554	\$402,348.00
11	1910.178	(l)	(3)	Training Program Content: training must be trained in applicable topics from list	95	149	\$110,526.00
12	1910.178	(l)	(4)	(i) Refresher Training - evaluation of refresher, knowledge and skills done at proper time	109	186	\$171,250.00
13	1910.178	(l)	(4)	(iii) operator's performance evaluated at least every three years	622	1,634	\$539,666.00
14	1910.178	(l)	(6)	Certification: employer certified operator was trained and evaluated, tracking operator name/training date/evaluation date/trainer name	1,316	3,801	\$649,570.00
15	1910.178	(m)	(3)	ride alongs by unauthorized person, safe place to ride must be provided when authorized	161	181	\$293,100.00
16	1910.178	(m)	(5)	(i) unattended vehicle must have forks down, power off, and brakes set (and blocked wheels on incline)	254	447	\$298,657.00
17	1910.178	(n)	(4)	slow down and sound horn at cross aisles and blindspots	215	282	\$441,486.00
18	1910.178	(p)	(1)	vehicle in need of repair, defective, or unsafe should be taken out of service	1,590	2,497	\$2,251,950.00
19	1910.178	(q)	(1)	unsafe vehicles removed from service, repaired by authorized personnel	332	469	\$361,399.00
20	1910.178	(q)	(7)	inspected prior to shift/daily, defects reported/corrected immediately	1,085	2,114	\$709,039.00

Indeed, safety professionals know that far more rigorous and consistent training than our hypothetical example above is required to make the workplace safe for lift truck operators and their co-workers. But what form should that training take? Who should deliver it? Who should determine the content? How long should the training period be? What records should be kept and by whom? How should incidents be investigated? How much routine retraining is ideal?

This article will answer these and other questions about building an effective lift truck training program. We will look specifically at the warehouse, or distribution center, environment because lift trucks are extremely common in this setting. Large numbers of distribution center employees must operate lift trucks, and all employees at these sites—especially pedestrians—

must know how to work safely around lift trucks. Note: These ideas are equally applicable to lift truck operations in manufacturing plants and other industrial settings.

Components of an Exceptional Lift Truck Program

Experience has shown that the ideal solution for creating an environment where lift truck safety is valued and attained every day is to introduce a thorough in-house training program that:

- Enables managers to select only good employees to operate lift trucks;
- Relies on carefully selected and trained employees as trainers;
- Includes a brief but concentrated period of formal instruction based on a written, uniform curriculum;
 - Differentiates novice operators by a readily recognizable item of apparel;
 - Outlines exactly what driving skills each operator should demonstrate, and when;
 - Requires continual reinforcement in the form of brief, individual coaching sessions for several weeks following the initial training period;
 - Includes frequent operator signoffs on forms that include clear statements of consequence if safe working behaviors are not followed;
 - Specifies periodic recertification for all operators, regardless of their safety records.

The author has successfully designed and implemented just such a program for several large companies, including a leading pharmacy retailer that has 1,300 lift trucks and 5,000 operators located in 14 distribution centers located throughout the United States and Puerto Rico.

As always, management plays a key role in creating and maintaining a successful safety culture. A key management decision involving a lift truck safety program is to designate one or two members of management to assume the role of master trainer(s) for each distribution center. The responsibilities of the master trainer include training all certified trainers on the use of approved training materials, maintaining the ratio of one certified trainer for every 15 lift truck operators within the facility, and reviewing the certified trainers' qualifications annually. The master trainer must also manage the training function so that new team members are properly trained and experienced team members receive recertification or additional training as needed, submit training documentation for each lift truck operator to the human resources department, and audit the lift truck program annually with the safety manager and/or safety team.

Accordingly, the master trainer should have a good performance and safety record, be familiar with all applicable equipment and have good interpersonal skills. He or she also needs presentation skills to train certified trainers, evaluation skills to assess certified trainers, and organizational skills to manage the lift-truck training program. While good technical skills are vital, the master trainer's responsibilities require a clear understanding of the "big picture" of certifying lift truck operators.

In contrast, safe driving skills are an absolutely vital criterion for selecting certified trainers. They must also be able to understand the approved training materials, able to coach employees during and after training, and able to administer equipment recertification training to experienced lift truck operators. As such, presentation, interpersonal, communications, and evaluation skills are all necessary components of a successful certified trainer.

Note that all master trainers and certified trainers will continue to perform their regular jobs even while completing their training responsibilities. Employers must be willing to grant time away from regular tasks as needed; equally, all trainers must be able to plan their training time carefully and use it wisely. Fortunately, the total time trainers must be away from their primary duties can be surprisingly reasonable. Plan on 60-90 minutes per week for 6-9 weeks for one certified trainer to train and coach 1-3 drivers.

Observe, Coach, and Reinforce (OCR)

In the author's experience, the key to achieving thorough training of lift truck operators is to follow the deceptively simple method of Observe, Coach, and Reinforce (OCR). As Table 3 shows, the OCR method of coaching consists of six steps that are vital to changing unsafe behaviors in the workplace. What's more, by engaging the trainees in regular one-on-one discussions of their own performance, management sends the message that they will accept nothing less than safe behavior at all times in the workplace. Also, OCRs provide an opportunity for management to have regular quick but meaningful safety-focused interactions with each employee.

Table 3

The Observe, Coach, and Reinforce (OCR) Method	
Step 1	Prepare for Observation
Step 2	Assess the Behavior
Step 3	Provide Feedback
Step 4	Allow Operator to Respond
Step 5	Summarize
Step 6	Reinforcement & Recognition

Table 4

Sample Observation Sheet Using OCR Method			
ADMIN			
DEPT	OBSERVATION	<input type="checkbox"/> OCR	<input type="checkbox"/> DATA
DATE	TIME		
TASK	VEHICLE TYPE		
ASSESS THE BEHAVIOR			
	targeted?	BEHAVIOR	safe at-risk
ICONTrol My Safety <i>What is the operator doing to control his/her own safety?</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO		
ICONTrol My Vehicle <i>What is the operator doing to control his/her vehicle?</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO		
ICONTrol My Load <i>What is the operator doing to control his/her load?</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO		
ICONTrol the Safety of Others <i>What is the operator doing to control the safety of others?</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO		
COACHING FEEDBACK – any details related to the behavior or situation			
OPERATOR RESPONSE – restate operator's message for understanding			
FOLLOW-UP REQUIRED – any promised follow-up or anything needing an expert			
AT-RISK LIST: OBSERVED BEHAVIORS			
ICONTrol My Safety	ICONTrol the Safety of Others		
1. Seatbelts	12. Looking in Direction of Travel (Scan Path 180°/45°)		
2. Fall Protection	13. Fork Height (approx 4")		
3. Operator Safe Zone	14. Braking and Plugging		
	15. Stopping Distance		
ICONTrol My Vehicle	16. Following Distance		
4. Daily Vehicle Checklist	17. No Passing (Moving Same Direction)		
5. Housekeeping (Warehouse/Trailers)	18. Passing an Elevated Vehicle		
6. Housekeeping (Vehicle)	19. AGVs (Operating Near)		
7. Reporting Hazards	20. Corners / Intersections		
8. Secure / Release Trailer	21. Entering / Exiting Trailers		
	22. Pedestrians (Operating Near)		
ICONTrol My Load	23. Pedestrians (Walkways)		
9. Stable / Secure Load	24. No Passengers		
10. Maximum 15/15 Empty Rule (Totes and Pallets)			
11. Load Height / Weight / Overhang			
Certified Trainer		Team Member	
PRINT	PRINT	PRINT	PRINT
SIGN	SIGN	SIGN	SIGN

Table 4 provides a template for certified trainers to use when they conduct OCRs with trainees. Each observation takes about 5-10 minutes; with experience, the method becomes condensed to the three crucial functions found in the acronym OCR. Note that, for training purposes, OCR is a formal observation process that involves asking a trainee to perform a specific task and then giving feedback on how well he performs that task. OCR can also be used to perform observations on an informal basis. This means that the observer may look for safe and unsafe behaviors for the purpose of gathering and tracking data.

Table 5 provides a weekly summary of the training schedule to be followed when training order picker operators. Below the weekly summaries of content to be learned, the table also indicates how many OCRs should occur. Each driver should receive one OCR by the end of Week 3, then another by the end of Week 5 and, finally, two OCRs in Weeks 7-9. The table also

Table 5

Sample Training Schedule - Order Picker						
Coincides with the standard 45 workday introduction period for trainee						
Initial Training	Week 2 Activity	Week 3 Activity	Week 4 Activity	Week 5 Activity	Week 6 Activity	Week 7 8 9
Orientation to Vehicle and Inspection Classroom Training Slalom Course Training Receives "Orange Vest"	Passing Other Vehicles that are raised Fall Protection General Driving in DC	Passing other lift trucks in the same aisle Inspection Checklist Offloading Totes	Picking & raising Put-aways General Driving in DC	Passing & being passed by other vehicles Review of any special issues with each driver prior to their final exam. Work on any problems.	Trainer reviews and has driver sign off on Driver Acknowledgment. Trainer states that driver has 2-3 weeks of driving on his/her own and the final review will be in Week 9.	Driver is now in the final phase of their introductory period. 1. Driver takes final test with a Certified Trainer from the department during week 8-9. (not the one who trained the driver) 2. Orange Vest comes off at the end of Week 9. 3. Formally congratulate in a startup meeting after successful completion of Week 9.
	1 OCR of each driver over the 2 week period.		1 OCR of each driver over the 2 week period.			2 OCR's of each driver over the next 3 weeks
	60-90 Minutes for 1-3 drivers	60-90 Minutes for 1-3 drivers	60-90 Minutes for 1-3 drivers	60-90 Minutes for 1-3 drivers	60-90 Minutes for 1-3 drivers	5 mins per driver per OCR

indicates that each trainer should allot 60-90 minutes per week to train up to three drivers, and that he or she should spend about 5 minutes per driver per OCR. As for the actual content of what the trainee learns, we'll come back to that shortly.

I CONtrol...

But first, it is important to emphasize the crucial importance of teaching novice lift truck operators that, even in an optimally safe workplace, they must always assume some responsibility for their own safety. Of course, instilling this attitude in all workers is a large component of attaining that optimally safe workplace in the first place. In other words, all workers must realize that each worker controls his or her own behavior and only the safest behaviors will be tolerated, leading to a safer workplace for everyone.

To this end, consider the ICON™ safety principles:

- I CONtrol My Safety
- I CONtrol My Vehicle
- I CONtrol My Load
- I CONtrol the Safety of Others

Successful lift truck training programs begin imparting this crucial concept immediately. Regardless of the type of lift truck to be learned, certain general safety rules apply, divided into the four categories expressed above: personal safety, vehicle safety, load safety, and coworker safety. Since these rules apply to all types of lift trucks, it's best to refer to them by an all-inclusive title like "rules of the road" and introduce them on the very first day of training.

Note that the ICON principles are intended to be a shorthand device to help operators remember specific techniques for operating their lift trucks safely. The specific rules of the road should be thoroughly covered during the initial training. For example, Table 6 shows the detail

Table 6

Lift Truck Training "Rules of the Road"/ICON Form - Excerpt	
ICONtrol my Load	Safe Behavior
1 Stable/Secure Load	With non-standard loads, always maintain stability by securing load with a band or strap, or seek assistance on the best way to handle the load.
2 15/15 Empties Rule (Totes and Pallets)	a. Transport stacks of pallets only 15 high. b. Load totes only 15 high when removing from trailers and loading for operations.
3 Load Height/Weight/Overhang	a. Be aware of the maximum height of loads for your vehicle. Check pallet weight is within the limitations of the vehicle (weight). b. Re-stack merchandise on any pallet with overhang.
4 Slotting Loads	a. Do not try to force a pallet into a slot. Straighten other pallets if over the line. b. Be sure pallet is setting firmly on both sides of beams and pallet rails, taking up only one space before backing from under pallet. Watch opposite side so freight is not pushed out. If pallet moves while backing out, reposition it before leaving the area.

Note: This is excerpted from a two-page form that also contains sections that detail safe behavior under these headings: I CONtrol My Safety, I CONtrol My Vehicle, and I CONtrol the Safety of Others. Each trainee signs this form as part of their initial lift truck training. It will be kept on file by the Human Resources department for the duration of employment.

behind the third ICON principle, I CONtrol My Load. After covering all the ICON principles in class, have the trainee sign your detailed rules of the road document to acknowledge their understanding of these key safety principles.

Other helpful components of the initial lift truck training include presenting each trainee with an orange vest or other mandatory trainee-specific apparel that must be worn on the job at all times until the entire lift truck operator training program has been successfully completed. Initial training should also include an orientation to the specific type of lift truck each trainee will drive; the specifics of the daily pre-driving inspection process; and hands-on, practical application exercises that reflect the actual job tasks and their environment. Simply put, Initial training should teach the trainee all he or she needs to know about how to be productive and safe on the job. This training can be broken up over two or more days or delivered in one full-day session.

The Evolution of an Order Picker

Then, over the next 4-5 weeks, the certified trainer conducts weekly coaching sessions for small groups of trainees. These sessions, approximately 60 minutes in length, delve into the specifics of the trainee's assigned vehicle. The coaching sessions are coupled with individual OCR sessions as outlined above until the completion of the "orange vest" period and the trainee becomes a fully trained operator.

To return to the earlier example of the order picker trainee, he or she, like all other lift truck operators, will learn all the ICON principles in the first training session, as well as safe operating principles specific to this equipment. It is to be stressed that, during the 45-day introductory period, the trainee should receive individual reinforcement repeatedly from the certified trainer on all aspects of on-the-job safety and cover them in more detail than the initial training allowed, in addition to learning vehicle-specific material.

In Week 2, the certified trainer will review fall protection elements, including harness, retractable and anchor point. He or she will address the proper procedure for passing a raised lift, and demonstrate proper eye contact and horn usage to avoid brushing. Once again, trainees will focus on general driving in the warehouse, including intersections, passing, and pedestrians. Trainees will be asked to demonstrate all these safe driving behaviors.

In Week 3, the certified trainer will demonstrate how to pass other lift trucks in the same aisle, including using proper speed, eye contact and the horn to avoid brushing. New content will include how to off-load totes and boxes. Trainees will learn and demonstrate the proper safety techniques of not walking off the vehicle, being properly tethered, and keeping at least one foot on the vehicle at all times. Each group will also review the inspection checklist. In some applications the physical checklist is replaced by an automatic system that is enabled by the swipe of an employee's ID card. Whether it is paper or electronic, the standard requires that an inspection on the vehicle is conducted at the beginning of each shift.

In Week 4, trainees will refine their mastery of picking, including how to approach racks, how to raise the lift safely, and the finer points of actual picking procedures. Proper methods for putaways will also be addressed, including how to approach racks, how to raise the lift safely and how to replace product. Again, general warehouse driving will be reviewed, including intersections, passing, and pedestrians. Week 5 will consist of a review of the proper procedure for passing a raised lift, along with an in-depth review of any behaviors that need improvement or clarification.

Throughout all the coaching sessions, the certified trainer maintains a separate sheet for each trainee that lists all the necessary skills and provides a signoff area for the trainer's initials and date accomplished. During Week 6, the trainee reviews and signs a driver acknowledgement form pledging to always follow the safe driving practices just learned. The certified trainer then informs the trainee that he will have 2-3 weeks of driving on his own, but with periodic OCRs being conducted. The final review and exam will occur in Week 9. At that time, the driver will take the final test with a certified trainer other than the one who trained him. Once he passes this test, he removes the orange vest and is formally congratulated for completing lift truck operator training. Then, the new order picker becomes a full-fledged member of the team.

Of course, similar training cycles can occur concurrently as needed throughout the distribution center for trainees assigned to other types of equipment. Each type of lift truck used by the company will require its own list of weekly coaching activities, including the single/double transporter, sit-down lift, stand-up/pacer lift truck, clamp truck, reach truck, gofer, and turret truck. Note that operators designated to drive multiple types of equipment will first complete coaching on their primary type of lift truck, with training on additional types to follow at a later date.

Recordkeeping and Incident Investigation

As one would expect, running an effective lift truck training program creates large volumes of training records to be maintained. Fortunately, the requirements are comparable to the recordkeeping rules involved in other types of safety training. OSHA 1910.178 requires record retention of initial certification, equipment repairs due to accidents, and for recertification.

Here is a quick review of which job functions must maintain which records. The certified trainer creates and holds training records for all trainees during the training period. Trainees' managers verify and review their final training records. The human resources department maintains operators' training records as part of their permanent personnel file. Maintenance personnel maintain the records of all equipment repairs and maintenance.

Likewise, incident investigation procedures relating to lift trucks are comparable to any other recognized investigation techniques. OSHA 1910.178 states that accidents must be investigated and corrective action taken, including operator recertification. Effective lift truck operations require operator accountability when preventable accidents happen. An important step in creating a culture of safety is to impart this expectation of accountability as part of initial training and, later, retraining. When the driver is found to be at fault, corrective action may be necessary.

Part of the accident investigation process will be to assess the dollar value of the accident. The purpose of this is to establish an effective threshold to require an immediate drug test and institute specified corrective actions. For example, the distribution organization being discussed established their drug test/corrective action threshold at \$100 of property damage.

For the first documented at-fault incident, the operator will receive documented verbal coaching and cannot operate the vehicle until recertification has occurred. This retraining will include a written test and observation by a certified trainer or the operator's manager. For a second such incident within a three-year period, the operator will receive a written warning and is

banned from operating the vehicle for 15 workdays and until completing recertification. As with the first incident, this retraining will include a written test and observation by a certified trainer or the operator's manager. A third such incident in the same period will trigger a written warning. He or she will be banned from operating the vehicle for 90 calendar days and must be recertified. The retraining will include a written test provided by the certified trainer and three scheduled observations to be conducted by the operator's manager over a four-week period.

For a fourth at-fault accident within three years, the operator will receive a final written warning with one of two consequences. Depending on the severity and overall accident history, the operator may be banned from operating the vehicle for one year and then must "re-bid" to be allowed into the job again. Vehicle recertification will be required. Or, the operator may be banned permanently from operating vehicles in the warehouse for his or her employment tenure, which may necessitate a transfer if driving is an essential part of the job. Companies may devise a different corrective action process, but the important factor is that the consequences are clearly understood and communicated in advance of any accidents, in hope of helping to prevent them.

Recertification: The Last Piece of the Puzzle

OSHA 1910.178 states that recertification shall take place after an accident, when an operator has received an evaluation that reveals unsafe driving behaviors and for all operators every three years. But, once again, the standard raises as many questions as it answers: Who will conduct the training? What, specifically, should it cover? How can operators demonstrate proficiency?

As with initial training, recertification training should include ample review of key concepts and consist of classroom lectures, written testing, and practical application exercises. Scheduling, timing, and implementation can be done many different ways. For example, some companies choose to train operators in all types of equipment over a single period of time, while others train operators by equipment type on a monthly basis. Still others may recertify all their operators every two years to make sure that, even with absences and make-up testing, everyone meets the three-year cycle.

For classroom training, all operators must sign in legibly on a sign-in sheet that identifies topic, date, and instructor that meets the compliance issues laid out by OSHA. Class size should be limited to a maximum of 25 operators. The content should include a review of the ICON principles and specific situations like approaching an elevated vehicle and the proper entry and exit of an aisle and/or trailer. Classroom training should also include a review of any necessary fall-protection equipment, including having operators don and doff their harnesses, completion of written tests and having each participant sign off on important forms indicating their acceptance of company safety rules. This portion of the training can be accomplished in about one hour (two if fall protection is involved).

Once operators have been recertified in the classroom, formal floor exercises should be conducted within the following two weeks. This practical floor recertification will typically consist of asking operators to run through typical job tasks using a lift truck. A certified trainer can oversee these exercises but it must be the operator's manager who performs the formal sign-off for recordkeeping purposes.

The ICON principles offer an effective framework for these tasks:

I CONtrol My Safety

- Demonstrates proper use of safety devices, including seatbelts and harness/retractable.
- Operator keeps all body parts within the vehicle.

I CONtrol My Vehicle

- Reviews daily checklists.
- Understands controls.
- Performs plugging, deadman braking, proper use of horn, and knows how to enter and exit aisles and trailers.

I CONtrol My Load

- Demonstrates knowledge of the definition of a secure load.
- Demonstrates knowledge of load height and maximum 15-15 pallet/tote requirements.
- Understands fully loaded vehicle dynamics.
- Demonstrates proper load placement or picking in a safe, effective manner.

I CONtrol the Safety of Others

- Exhibits visual scanning when driving.
- Adheres to proper following distance.
- Demonstrates knowledge of standard for safe passing of an elevated vehicle.
- Negotiates intersections and automatic guided vehicles safely and maneuvers around pedestrians and other vehicles effectively.

As with the accident investigation process, informing operators during their initial training that all operators must be recertified according to a predetermined schedule will do much prepare them for the process.

Conclusion

Given the widespread use of lift trucks, companies should place a high priority on lift truck operator training. OSHA 1910.178 has all the right components in place—including training and retraining requirements—but the standard's nonspecific language can present challenges to companies that want to do more than the minimum required by the standard.

Key to this effort is the realization that training is not a finite event, but rather an ongoing dialogue between the company and the lift truck operator. Effective training programs select and develop an in-house corps of master and certified trainers to manage and deliver the training. They also build in numerous opportunities for quick but meaningful evaluations of lift truck operator performance by observing, coaching and reinforcing desired safety behaviors.

Equally important is the realization that operators are also responsible and accountable and, in fact, control their own safety, their vehicles, their loads, and the safety of others within a supportive workplace. Developing this desirable sense of responsibility may seem daunting but is

in fact a natural outgrowth of a training program that structures its technical lessons around these key points. In this way, the operators come to realize their true importance in the safety function.

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