



Fall Protection: Working From Tops Of Trucks And Rolling Stocks

Drivers are frequently required to work at height. As a result, many serious injuries and fatalities have occurred while working from tops of trucks or rolling stocks (such as rail tank or hopper cars and tank or hopper trucks or trailers). The design



of the truck, the type of load transported, and the collection and delivery points can all lead to the driver having to access the vehicle and trailer frequently. There are also few applicable regulatory standards that specifically cover fall hazards from trucks and rolling stocks. As a result, many companies are confused on the regulatory requirements when working on top of trucks or rolling stocks. The following summarizes applicable fall protection standards, regulatory enforcement policies, and fall protection alternatives concerning working on top of trucks or rolling stocks.

APPLICABLE FALL PROTECTION STANDARDS AND ENFORCEMENT

What OSHA and DOT fall protection standards apply?

Working from tops of rolling stocks (such as rail tank or hopper cars and tank or hopper trucks or trailers) at facilities falls under both the Occupational Safety and Health Administration

(OSHA) and the US Department of Transportation (DOT). OSHA has the authority to regulate occupational safety and health while the DOT has the authority to regulate commercial motor vehicles. OSHA's authority is precluded only if another Federal agency prescribes or enforces a regulation dealing with the working condition, i.e., the danger, in question. The Federal Motor Carrier Safety Regulation addresses fall protection for persons entering or exiting the cabs of trucks/truck tractors having a high profile cab-over-engine configuration or accessing the back of the truck/truck tractor cab portion (49 CFR Part 399.207, Truck and Truck-Tractor Access). Even if the trucks fall within the scope of Part 399, those regulations do not address falls from other areas of the vehicle. In such cases, OSHA standards would apply.

The current OSHA fall protection standard for general industry is contained in Subpart D, Walking-Working Surfaces. However, this standard does not specifically address fall hazards from the tops of trucks or rolling stocks. As a result, falls from rolling stocks will not be cited under Subpart D, Walking-Working Surfaces. However, OSHA's standard for Personal Protective Equipment, 29 CFR 1910.132(d), applies if employees are working on top of stock that is positioned inside of or contiguous to a building or other structure where the installation of fall protection is feasible. In such cases, fall protection systems are often feasible in many facilities. For other areas, OSHA may cite under the General Duty Clause, Section 5(a)(1) of the OSH Act if feasible means exist to eliminate or materially reduce the hazard. The General Duty Clause requires the employer to provide employ-

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ees with a workplace that are likely to cause death or serious physical harm.

In essence, the key factor for determining compliance with OSHA regarding fall protection on top of trucks or rolling stocks is whether or not feasible means exists to eliminate or materially reduce the fall hazard.

What about sites regulated by MSHA?

For sites regulated by the Mine Safety and Health Administration (MSHA), contract haulers and others who regularly travel onto mine property are subject to the requirements of MSHA while on site. MSHA requires “safety belts and lines where there is a danger of falling.” This is one of the two standards that MSHA regularly uses to cite for fall hazards involving work on top of trucks and trailers. The other standard, which is typically directed at mine operators rather than contractors, is the “safe access standard.” It states: “Safe means of access shall be provided and maintained to all working places.” MSHA considers a working place to be any location, including the top of a truck, where a person performs any function at all. Ultimately, MSHA relies on the mine operator to either eliminate any danger of falling or make sure that safety lines are utilized. However, contract haulers or contractors may also be cited if their personnel are exposed.

FALL PROTECTION ALTERNATIVES

The first step in minimizing the risk of fall hazards is to perform a risk assessment for the tasks involving work on top of trucks or rolling stocks. The risk assessment should consider both of the following:

- The nature and duration of the task.
- The physical surroundings and conditions in which the task is performed.

It is also important to consider what equipment, tools or materials will be used in performing the task. Once the fall hazards have been identified and assessed, consider the following fall protection alternatives:

- Working at Ground Level
- Platforms and Guardrails
- Loading Platforms (Mobile or Fixed)
- Personal Fall Arrest Systems and Fall Restraint Systems
- Hatch Platform and PFAS

WORKING AT GROUND LEVEL

Many vehicles have been designed or modified so that drivers do not work at heights of more than six feet. For example, some fuel and bulk liquid tankers now have all tank fittings arranged so that all loading and unloading can be carried out from ground level.

Tasks should be reviewed to determine if working at heights or on top of trucks or rolling stocks can be removed by performing the same task, or part of the task, from the ground level or from a solid platform with guardrails.

PLATFORMS AND GUARDRAILS

If the task cannot be done on the ground or from a solid platform with guardrails, consider the feasibility of permanent or temporary work platform or guardrail attached to truck or trailer. Guardrails on vehicles are becoming more common and popular. Where there are height or width restrictions during transport, guardrails are often designed to fold until needed. Another limitation that should be considered when evaluating the feasibility of this alternative is weight restrictions.



ELEVATED WORK PLATFORMS

For sites that receive regular deliveries, ensure that adequate access facilities, such as an elevated work platform (fixed or mobile), are available when loading/unloading materials or re-filling/re-fueling tanks. In many instances, a mobile elevated work platform will be a cost-effective solution. There are various designs available commercially.

PERSONAL FALL ARREST SYSTEMS (PFAS) AND FALL RESTRAINT SYSTEMS

Some worksites have overhead structural members installed that provide anchor points or cables to which the fall protection device is attached before accessing the tops of tank trucks. These structures are effective but rely on drivers to be suitably trained in fall protection and to use the harnesses available.

Some trailers have integrated anchor points or cables in the container or trailer design, which allow drivers to clip a harness on and perform the task with reduced risk of falling to the ground. Either a PFAS or fall restraint system may be used. However, fall restraint systems are preferred over PFAS since a fall restraint system does not allow the person to move beyond a designated point where they can fall.

Personal fall arrest systems should only be used where fall restraint devices, guard railing, or elevated or mobile work platforms are not practical and where a person can be rescued immediately in the event of a fall.

PLATFORM AND PFAS

Since falls often occur from slipping while standing on top of a rolling stock (such as a tank truck) while performing the task, consider having a platform installed at frequent work locations (such as around the hatch) to provide a level, non-slip work surface. If guardrails (either temporary or permanent) cannot be installed, a PFAS should also be used where feasible.

The advantages and disadvantages of fall protection alternatives for working on or around trucks and rolling stocks are summarized in Table 1.

REFERENCES

1. American National Standards Institute (ANSI). *Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components*. ANSI Z359.1. New York, NY: ANSI, 1992.
2. American National Standards Institute (ANSI). *Safety Requirements for Workplace Floor and Wall Openings, Stairs, and Railing Systems*. ANSI A1264.1. New York, NY: ANSI, 1995.
3. Miles, J. *Occupational Safety and Health Administration (OSHA). Memorandum for Regional Administrators: Enforcement of Fall Protection on Moving Stock (10/18/96)*.
4. Swanson, R.B. *Occupational Safety and Health Administration (OSHA). Interpretation Letter: Whether Fall Protection is Required for Employees Working on Vehicles and Trailers (3/10/04)*.

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FALL PROTECTION ALTERNATIVES DURING TASKS PERFORMED ON AND AROUND TRUCKS AND ROLLING STOCKS

ALTERNATIVE	ADVANTAGES	DISADVANTAGES
Working on ground level	<ul style="list-style-type: none"> – Eliminates (or partially eliminates) the fall hazards. 	<ul style="list-style-type: none"> – Limited to the configuration of the tank transporter. – Redesign or modification to the site and/or the tank transporter may be required.
Platform and guardrails	<ul style="list-style-type: none"> – Provides safe work platform to minimize slips. – Provides guardrails to prevent falls. – Guardrail systems include a top rail and a mid-rail. The top rail must be able to withstand a static load of 200 pounds applied in an outward or downward direction, and a mid-rail [2]. – No training is required. 	<ul style="list-style-type: none"> – Considered to be the most expensive option since many existing tank transporters are not equipped with permanent platforms and guardrails. – Obstructions at some facilities may inhibit the use of such platforms/guardrails on trucks and rolling stocks. – Weight and size limitations must be considered.
Mobile loading platform	<ul style="list-style-type: none"> – Provides safe work platform and guardrails to minimize slips and falls. – Provides treads, which is considered a safer access means than the ladder rungs. – Prefabricated mobile loading platforms are available (i.e., no engineering expenses). – Less expensive than engineering, fabricating, and installing permanent platforms. 	<ul style="list-style-type: none"> – Site obstructions may inhibit the use of a mobile loading platform. – Effectiveness relies on the ease of using such equipment (i.e., if the equipment is difficult to use or is not readily available, the site will likely not use the equipment).
Personal Fall Arrest System (PFAS) and Fall Restraint Systems	<ul style="list-style-type: none"> – Safety harnesses and lanyards are relatively inexpensive. – Fall restraint systems prevent falls if properly designed and used. – The anchorage device for fall restraint systems require significantly less design loading than PFAS anchorage devices. 	<ul style="list-style-type: none"> – A PFAS requires a properly engineered anchorage device to withstand a minimum static load of 3,600 pounds (if certification exists) or a minimum static load of 5,000 pounds (in the absence of certification) [1]. – If anchorage point not properly located, employee may reach the ground before the PFAS fully engages. – Best anchorage locations are likely to be external to the truck or rolling stock; therefore, the facility owner's approval is needed to use their property as an anchorage device. – Effectiveness is dependent on the employees' use of the PFAS equipment. – Training is required. – Employee may still be injured from the fall.
Hatch platform and PFAS	<ul style="list-style-type: none"> – Provides a safe platform to stand near the hatch, minimizing slip potential, especially during icy/rainy conditions. – Less expensive than installing a permanent platform with guardrails. – Would not interfere with obstructions that may be encountered at the loading racks of the terminal facilities. – Additional weight is minimal. 	<ul style="list-style-type: none"> – See disadvantages of a PFAS listed above.