

Oregon OSHA Adopted Changes to the Vehicle Rules in General Industry and Construction

OR-OSHA Administrative Order 6-2007
Filed and effective September 26, 2007

***** Final text only *****

437-002-0223 Oregon Rules for Commercial and Industrial Vehicles.

Roll-Over Protective Structures: Overhead Protection

(1) Application. Roll-over protective structures (ROPS) shall be provided, installed and maintained on industrial vehicles which were manufactured after July 1, 1969. ROPS requirements apply to the following types of industrial vehicles and equipment: Rubber-tired self-propelled scrapers; front-end loaders and dozers; skid-steer equipment; wheel-type industrial tractors; crawler tractors; crawler-type loaders; and motor graders, with or without attachments, that are used in industrial work. This requirement does not apply to sideboom pipe laying tractors, or other vehicles whose structure prevents overturn, or to tractors used only in farming operations.

(2) ROPS – General Requirements.

(a) Roll-over protective structures and their supporting attachments to industrial vehicles shall be capable of supporting twice the weight of the vehicle, applied at the point of impact.

(b) The design objective for roll-over protective structures on industrial vehicles shall be to minimize the likelihood of a complete vehicle overturn, and to minimize the possibility of the operator being crushed.

(c) A vertical clearance of at least 52 inches between the work deck and the ROPS canopy is required for ingress and egress.

(d) ROPS which have been removed for any reason, shall be remounted with equal quality, or better, bolts or welding as required for the original mounting.

(3) Defects.

(a) Defects in ROPS shall be repaired by equal quality or better materials and welding as required for the original structure.

(b) Minimum performance criteria for roll-over protective structures for designated vehicles are contained in the following Society of Automotive Engineers (SAE) standards:

- (A) Prime movers, for scrapers, water wagons, bottom dump wagons, side dump wagons, rear dump wagons, towed fifth wheel attachments. (SAE J320, September 1972)
- (B) Wheeled front-end loaders and wheeled dozers. (SAE J394a, September 1972)
- (C) Track-type tractors and front-end loaders. (SAE J395a, September 1972)
- (D) Motor graders. (SAE J396a, September 1972)
- (E) Wheel-type agricultural and industrial tractors. (SAE J167, 1971)
- (F) Falling object protective structures (FOPS). (SAE J231, May 1971)

(4) Identification of ROPS. Each ROPS shall have the following information permanently affixed to the structure:

- (a) Manufacturer or fabricator's name and address;
- (b) ROPS model number, if any; and
- (c) Machine make, model, or series number that the structure is designed to fit.

(5) Approved Structures. Any machine in use, equipped with roll-over protective structures, shall be deemed in compliance with OAR 437-002-0223(37) through (41) if it meets the roll-over protective structure requirements of the U. S. Army Corps of Engineers, or the Bureau of Reclamation of the U. S. Department of the Interior, in effect on April 5, 1972. The requirements in effect are:

- (a) U. S. Army Corps of Engineers: General Safety Requirements, EM-385-1-1 (March 1967).
- (b) Bureau of Reclamation, U. S. Department of the Interior: Safety and Health Regulations for Construction, Part II (September 1971).

Bridges, Roadways, and Ramps

(6) Roadways.

- (a) Roadways shall be of sufficient width and evenness to ensure the safe operation of equipment.
- (b) Sufficient turnouts shall be provided and a safe side clearance shall be maintained along roads and runways.
- (c) Low clearance areas under conveyors which could present a hazard to mobile equipment operations shall be identified by a suitable means, such as signs, contrasting colors, or flags.
- (d) Broken planking, deep holes, large rocks, logs or other dangerous surface defects shall be corrected before any equipment is used thereon.

(e) Obstructions to clear view at intersections or on sharp curves shall be removed or all reasonable precautions taken to relieve the hazards of these conditions.

(f) An ample supply of nonskid materials, such as coarse sand or finely crushed rock, shall be available and used on slippery surfaces.

(g) Road grades shall not be too steep for safe operation of vehicles which operate over them and shall not exceed 20 percent in any case unless an auxiliary means of lowering vehicles is provided or unless vehicles are specifically designed and approved for operation on grades in excess of 20 percent.

(7) Access Roadways, Grades.

(a) No employer shall move, or cause to be moved, vehicles upon any access roadway or grade unless the access roadway or grade is constructed and maintained to accommodate safely the movement of the equipment and vehicles involved.

(b) Every emergency access ramp and berm used by an employer shall be constructed to restrain and control runaway vehicles.

(c) Elevated bridges, runways or ramps and loading docks shall be constructed to safely support at least four times the weight of any load to which it may be subjected. Ramps shall be covered with a material which will minimize the danger of skidding.

(d) The maximum inclination of a ramp used for wheeled equipment shall not exceed 20 percent from horizontal.

(e) Elevated bridges, ramps or runways used for the travel of wheeled equipment shall have exposed sides guarded with a substantial bull rail or sheer rail of sufficient height to prevent wheeled equipment from going over the rail.

437-002-0227 Additional Oregon Rules for Powered Industrial Trucks.

(1) Overhead Guards.

(a) Where a rider type lift truck operator is exposed to hoisted objects that might fall, or stacked objects that might be dislodged and fall, the truck shall be equipped with an overhead guard. The guard shall be of sufficient strength to support impact load tests as specified in Table OR-N-1:

<i>Rated Truck Capacity at 24" Load Center</i>	<i>Impact Test (Load X Drop Distance)</i>	<i>Minimum Weight of Test Load</i>
<i>3,000 and under</i>	<i>4,000 ft.-lbs.</i>	<i>750 lbs.</i>
<i>3,001 to 5,000 lbs.</i>	<i>8,000 ft.-lbs.</i>	<i>1,500 lbs.</i>
<i>5,001 to 8,000 lbs.</i>	<i>16,000 ft.-lbs.</i>	<i>3,000 lbs.</i>
<i>8,001 to 14,000 lbs.</i>	<i>24,000 ft.-lbs.</i>	<i>3,000 lbs.</i>
<i>14,001 to 25,000 lbs.</i>	<i>32,000 ft.-lbs.</i>	<i>3,000 lbs.</i>
<i>25,001 and over</i>	<i>36,000 ft.-lbs.</i>	<i>3,000 lbs.</i>

(b) Impact load tests shall be conducted with the guard in place on a vehicle for which it is designed or on a simulated mounting. Running gear need not be in place. The load shall be dropped in free fall from an appropriate height so that the impact is centered approximately above the driver's position. Test loads shall have a length equal to or greater than the width of the guard, and shall strike the canopy at right angles to the vehicle frame.

(c) Guards of a design which has been so tested shall be identified by a metal tag permanently attached to the canopy in a position where it may be easily read from the ground. This tag shall be permanently and clearly marked with the impact test load, expressed in foot-pounds to which guards of the same design have been tested.

Note: Guards required by OAR 437-002-0227(1)(a) through (c), or by the rules following, are not intended to withstand the impact of a capacity load falling from any height.

(d) Guards which are not of a design which has been tested in accordance with OAR 437-002-0227(1)(a) through (c) of this rule, may be constructed of material as specified in Table OR-N-2 or material of equivalent strength:

Table OR-N-2

Rated Truck Capacity	Round Pipe		Square Tube (CRS)		
	(Std.)	(X Heavy)	(XX Heavy)	(3/16" Wall)	(1/4" Wall)
3,000 and under	1 1/2"	1 1/4"	.....	1 1/4"	.....
3,001 to 5,000	2"	1 1/2"	.....	1 1/2"	.....
lbs.	2 1/2"	2"	1 1/2"	2"	.....
5,001 to 8,000	3"	2 1/2"	2"	3"	2 1/2"
lbs.	.....	3 1/2"	3"	3 1/2"	3"
8,001 to 14,000	.....	4"	.....	4"	3 1/2"
lbs.					
14,001 to 25,000					
lbs.					
25,001 and over					

(e) The construction of canopy guards are built in compliance with OAR 437-002-0227(1)(d) shall be based on the strength of four upright members. Guards constructed with less than four upright members shall be of equivalent strength.

(A) Canopy type overhead guard frames shall be braced to overhead members on each side of the frame to provide structural rigidity both longitudinally and transversely.

(B) All guard mountings or attaching brackets shall be constructed and secured to the vehicle in a manner to provide adequate support to the upright members of the canopy type overhead guard.

(C) Cantilever overhead guards shall be of equivalent strength.

(f) Guards shall be constructed in a manner that does not interfere with good visibility, but openings in the top shall not exceed 6 inches in one of the two dimensions, width or length. Guards shall be large enough to extend over the operator under all normal circumstances of operation, including forward tilt.

(A) Provisions shall be made so that failure of the mast-tilting mechanism will not allow the overhead guard to cause injury to the operator.

(B) Lift trucks operated by seated operators shall have not less than 39 inches of clear vertical space between the operator's seat when depressed and the underside of the guard. Lift trucks operated by standing operators shall have not less than 74 inches of clear vertical space between the platform and the underside of the guard.

Note: Where overall height of truck with forks in lowered position is limited by head room conditions and there is insufficient space for vertical clearance or for the operator to assume a normal driving position, normal overhead guard heights may be reduced, or the overhead guard may be omitted. The height and stability of stacks of piled material, the weight of individual units handled, and the operating space available shall be such as will provide reasonable safety for the operator if it is necessary to remove the overhead guard.

(2) Load Back Rest. Lift trucks which handle small objects or unbanded units shall be equipped with a vertical load back rest.

(a) It shall have height, width, strength, sufficient to prevent the load or any part of it from falling toward the operator.

(b) It shall be constructed in a manner that does not interfere with good visibility.

(c) Size of openings shall not exceed 6 inches in one dimension.

(3) Shear Point Guards. Shear points on forklift loaders and similar type vehicles shall be guarded as necessary to protect operators from hazardous exposure.

(4) Personnel Platforms. Whenever a lift truck is used for lifting personnel without controls at the platform, the following precautions shall be taken for the protection of personnel being elevated:

(a) A work platform equipped with standard guardrails or equivalent means, and firmly secured to the lifting carriage or forks, shall be used.

(b) The hydraulic system shall be so designed that the lift mechanism will not drop faster than 135 feet per minute in the event of a failure in any part of the system.

(c) An operator shall attend the lift equipment while workers are on the platform.

(d) The operator shall be in the normal operating position while raising or lowering the platform.

(e) The vehicle shall not travel from point to point with the work platform elevated at a height greater than 4 feet while workers are on the platform. When necessary at heights greater than 4 feet, inching may be permitted provided it is done at a very slow speed.

(f) If workers on the platform can contact the lift chains or other dangerous pinch or shear points on the mast or carriage, the platform must have a screen or guard that prevents contact.

(5) Equipment and attachments.

(a) Do not allow spinner knobs on vehicles without power steering. Spinner knobs must be on the inside of the steering wheel.

(b) All vehicles must have a working horn that can be heard above surrounding area noise.

NOTE: Paragraph (c) does not apply when the vehicle backs up with an observer or when the operator verifies that there is nobody behind the vehicle or when nobody may enter the danger area without the operator's knowledge.

(c) Vehicles with an obstructed view to the rear must have a backup alarm that can be heard over the surrounding noise. If surrounding noise prevents this or if there are so many vehicles using backup alarms that they cannot be distinguished from each other, flashing or strobe lights are acceptable.

(d) Vehicle brakes must be effective when the vehicle is fully loaded.

437-002-2224 Vehicle Drivers and Riders. (Division 2/N, General Industry)

437-003-3224 Vehicle Drivers and Riders. (Division 3/O, Construction)

(1) Scope. This rule applies, without regard to vehicle ownership when your employees drive or ride as part of their employment.

NOTE: The Oregon Bureau of Labor and Industries (BOLI) administers rules about using minors as drivers. Please contact the nearest BOLI office for more information.

(2) Driver Qualifications. You must not allow an employee to drive a vehicle on a public highway or road unless they have a valid driver's license appropriate for that type vehicle.

(3) General Safety.

(a) Do not allow employees to drive or ride in any vehicle known to be unsafe.

(b) Require employees to report any safety problems effecting vehicles you own or provide.

(4) Rider Safety - General.

- (a) Except as in (5), (6) and (7), do not allow employees to occupy a vehicle in excess of its seating capacity.
- (b) Require employees to comply with all applicable seatbelt and traffic safety laws.

(5) Rider Safety in the Bed of Dump Trucks, Pickups and Similar Vehicles. Do not transport workers in the beds of dump trucks, pickups or similar vehicles unless these conditions are met when applicable:

- (a) When seating is available, it must be secure to the floor and passengers may not stand.
- (b) The bed is secure to the frame. Beds that tilt or slide must be secure from movement.
- (c) Dump beds must be secure or the activating lever locked.
- (d) The total height of the sides of the transport area must be at least 42 inches. If riders sit on the floor, the height must be at least 24 inches.
- (e) There must be a tailgate the same height as the sides or three evenly spaced chains, cables or ropes taut across the back.
- (f) Not more than 4 workers may ride on a flatbed without sides or a tailgate and then only when the speed will not be more than 30 mph. There must be two handholds for each rider.
- (g) Workers must not ride in space with cargo unless it is secure from movement.

(6) Standing Rider Safety – Buses. Riders must not sit on the floor while the vehicle is moving. Riders may stand if these conditions are met:

- (a) There must be an aisle at least 12 inches wide leading to the emergency exit.
- (b) There are no seats in or boards across the aisle.
- (c) There must be handholds for standing riders.
- (d) Not more than one rider per row of seats may stand.
- (e) Riders may not sit or stand near the driver and not ahead of the forward-most row of seats.
- (f) Workers in transit must not stand for more than one hour or 45 miles, whichever is less. At the end of that period, the standing workers must get a seat or the vehicle must stop for a 15-minute rest allowing the workers to get out.

(7) Fueling.

- (a) There must be no smoking or other source of ignition within 25 feet of any refueling operation.
- (b) Do not fill any container that is not bonded or grounded while it is inside the vehicle, in the pickup bed or anyplace other than on the ground.
- (c) Stop the engine (except diesels) during fueling.
- (d) Refueling vehicles with LPG must be outdoors.

(8) Hauling gasoline or flammable liquid.

- (a) For buses, vehicles that carry 16 or more, crew trucks, vans and passenger cars, use only DOT or UL approved containers that hold 5 gallons or less and secure them in an area separate from passengers.

(b) For pickups, flatbeds and other vehicles not in (a), there is no container size limit as long it is not in an enclosed passenger area.

(9) Hauling Explosives. When hauling explosives, only the driver and one qualified person may be in the vehicle. Comply with OAR 437-002-1910.109 and 437-002-0109.

(10) Loading or Unloading. When loading or unloading vehicles in a manner that is likely to cause the vehicle to move, set the brakes and chock the wheels.

(11) High Voltage Clearances. When operating a vehicle near overhead lines carrying more than 600v, OAR 437-002-0047 applies for general industry employers and OAR 437-003-0047 applies for Construction employers.

(12) Traffic Control. You must require employees to set up appropriate traffic controls when they stop on or adjacent to a highway, street, or road in a way that creates a hazard and when traffic cannot adjust safely on its own. The controls must conform to the Millennium Edition of the (FHWA) Manual of Uniform Traffic Control Devices (MUTCD), December 2000.

NOTE: Get a copy of the Millennium Edition from the following organizations: American Traffic Safety Services Association, 15 Riverside Parkway, Suite 100, Fredericksburg, VA 22406-1022; Telephone: 1-800-231-3475; Fax: (540) 368-1722; www.atssa.com; Institute of Transportation Engineers, 1099 14th Street, NW., Suite 300 West, Washington, DC 20005-3438; Fax: (202) 289-7722; www.ite.org; and American Association of State Highway and Transportation Officials; www.aashto.org; Telephone: 1-800-525-5562.

OR: Download the MUTCD 2000 at <http://mutcd.fhwa.dot.gov/kno-millennium>.

OR: The MUTCD 2000 is available for review at the Oregon OSHA Resource Center, 350 Winter Street NE, Basement - Room 26, Salem, Oregon 97301-3882; Telephone: (503) 378-3272, or toll free in Oregon 1-800-922-2689.

NOTE: Employers who follow the most current edition of the Oregon Temporary Traffic Control Handbook for Operations of 3 Days or Less comply with this requirement.

437-002-2225 Vehicles for Highway and Road Operation Characteristics and Maintenance (Division 2/N, General Industry)

437-003-3225 Vehicles for Highway and Road Operation Characteristics and Maintenance (Division 3/O, Construction)

(1) Scope. This applies to employer-owned vehicles licensed for highway and road use, driven and/or maintained by employees on public or private property, except the following:

(a) Powered Industrial Trucks covered by OR-OSHA standard 1910.178 and OAR 437-002-0227.

(b) Earth moving equipment (scrapers, loaders, bulldozers and graders) covered by OAR 437-003-1926.602.

(c) Manufactured structures, ATVs, golf carts and other similar devices not intended for highway or road use.

NOTE: When operating a vehicle near overhead power lines more than 600 volts, OAR 437-002-0047 applies for General Industry employers and OAR 437-003-0047 applies for Construction employers.

(2) Vehicle Components.

(a) The engine start/stop control must be within reach of the driver.

(b) There must be steps, ladders and railings to allow safe access to and exit from areas on vehicles where employees must access. Steps and rungs must be slip resistant.

(c) Vehicles whose cargo is loaded by cranes, power shovels or other powered loaders must have a cab or cab shield that protects the occupants from the impact of falling material.

(d) Secure all material, equipment or tools to prevent movement or a barrier must be in place to protect the occupants from moving items.

(e) Vehicles with cabs must have a door or doors for entry and exit.

(f) Vehicle cargo must not prevent occupants from exiting under any condition.

(g) Vehicles must comply with ORS 811.225, Failure to Maintain Safety Belts in Working Order.

(3) Flashing Warning Lights. Buses with a capacity of 16 or more passengers must have a working flashing light system that complies with ORS 816.260 if they load or unload passengers on a public highway or road.

- (4) Buses and Crew Trucks.
 - (a) Buses and crew trucks must have a secure seat with back rest for each occupant.
 - (b) Buses with an enclosed seating area for 12 or more workers, unless loaded from the rear, must have an emergency exit not less than 24 inches wide by not less than 48 inches high on the left side or rear of the vehicle. It must open easily from inside or outside the vehicle.
- (5) Passenger Compartments.
 - (a) Floors and decks must be slip resistant.
 - (b) Seal openings between the engine compartment and muffler area to prevent carbon monoxide from entering the enclosed passenger compartment.
 - (c) Enclosed passenger compartment must be substantially dust proof and watertight.
 - (d) Areas where workers sit or stand must be free of protruding nails, screws, splinters or similar physical hazards.
 - (e) Protect riders from inclement weather by enclosing riding areas as necessary.
- (6) Steering. Do not allow spinner knobs on vehicles without power steering. Spinner knobs must be on the inside of the steering wheel.
- (7) Lighting. Where general lighting in vehicle operating areas is less than 2 footcandles per square foot, vehicles must have working lights that sufficiently light the travel path.
- (8) Testing, Maintenance, and Repair.
 - (a) Block or crib heavy machinery, equipment or parts supported by slings, hoists, jacks or otherwise prevent it from falling before employees work underneath or between such objects.
 - (b) During repair or maintenance set all controls in neutral, stop the motor and set the brakes unless the work requires otherwise.
 - (c) During maintenance or inspection on vehicles with dump bins, use an attached, lockable support that prevents unintentional lowering of the bin.
 - (d) Disconnect the vehicle battery when the work allows and the energized system could cause injury.
- (9) Warning Devices.
 - (a) All vehicles must have a working horn that can be heard above surrounding area noise.

Paragraph (b) does not apply when the vehicle backs up with an observer or when the operator verifies that there is nobody behind the vehicle or when nobody may enter the danger area without the operator's knowledge.

(b) Vehicles with an obstructed view to the rear must have a backup alarm that can be heard over the surrounding noise. If surrounding noise prevents this or if there are so many vehicles using backup alarms that they cannot be distinguished from each other, flashing or strobe lights are acceptable.

(10) Control of Exhaust Gases.

(a) Vehicles must have a working muffler.

(b) Exhaust pipes must direct the gasses away from occupants.

(c) Insulate or otherwise protect exhaust pipes exposed to worker contact.

(11) First Aid Kits. Vehicles for transport of 16 or more workers must have a clean, stocked first aid kit with enough supplies for the number of workers usually transported.

NOTE: Laws and/or administrative rules administered by other government agencies require fire extinguishers in vehicles under specifically defined circumstances.

(12) Controls.

(a) Levers that control dump or hoist devices must have a latch or other device that prevents accidental starting or tripping of the mechanism.

(b) The operator of a dump truck must be able to operate the tailgate trip handle from a position clear of the dumping load.

437-002-2226 Vehicles for Use on Property Other Than Public Roads and Highways Operation, Characteristics and Maintenance (Division 2/N, General Industry)

437-003-3226 Vehicles for Use on Property Other Than Public Roads and Highways Operation, Characteristics and Maintenance (Division 3/O, Construction)

(1) Scope. This rule applies to employer-owned vehicles, not licensed or normally operated on public highways or roads, except the following:

(a) Powered Industrial Trucks covered in OR-OSHA standard 1910.178 and OAR 437-002-0227.

(b) Earth moving equipment, (scrapers, loaders, bulldozers and graders) covered by OAR 437-003-1926.602.

(c) Manufactured structures, ATVs, golf carts and other similar devices not intended for highway or road use.

(2) Safe Operation. You must require the driver to:

- (a) Look in the direction of travel and have a clear view unless being guided by somebody with a clear view of the route.
- (b) Slow or stop as appropriate at intersections and not drive in marked pedestrian lanes.
- (c) Not drive a vehicle up to a person standing in front of a stationary object.
- (d) Manually control all towed or pushed vehicles unless they use a towbar.

(3) Vehicle Loads. You must protect employees from hazardous vehicle loads by requiring that they:

- (a) Not load a vehicle beyond its rated capacity.
- (b) Stabilize, lash down or otherwise secure the load.
- (c) Never be under an elevated load.

(4) Basic Equipment Requirements. You must assure your vehicles comply with the following:

- (a) Vehicles with windshields must have working powered wipers and an effective defroster.
- (b) There must be no broken glass that impairs the driver's vision.
- (c) When the load or passengers obstruct the use of the interior rear view mirror, there must be an outside rear view mirror on each side of the vehicle.
- (d) Vehicle brakes must be effective when the vehicle is fully loaded. The parking brake must hold the loaded vehicle on any slope which it may operate.

NOTE: The rules on safety chains do not apply to saddle-mount towing, or to a semitrailer coupled to a towing vehicle with a fifth wheel and kingpin assembly so designed that the upper and lower halves may not separate without being manually released onto a dolly without a tow bar.

(5) Uncoupled towing. You must assure that:

- (a) Towed vehicles with a gross weight of 5,000 pounds or less must have at least one safety chain or cable. Towed vehicles with a gross weight more than 5,000 pounds must have at least two safety chains or cables.
- (b) Safety chains or cables must be strong enough to control the towed vehicle in event the tow bar or coupling device fails.
- (c) Safety chains or cables must connect to the towed and towing vehicles and to the tow bar so as to prevent the tow bar from dropping to the ground if it or the coupling device fails.
- (d) There must be only enough slack in safety chains or cables to permit proper turning.

(6) Coupled towing. You must assure that:

- (a) Drawbar, coupling device, and other connections for towing of trailers must be strong enough to hold the weight of the towed vehicle on any grade over which it may operate.
- (b) Any coupling device on any towing vehicle used as a connection for the tow bar on any towed vehicle with a gross weight more than 5,000 pounds must be firmly attached to the frame or to a solid connection to the frame.
- (c) There must be a suitable locking means to prevent accidental separation of the towed and towing vehicles.
- (d) Connections must have only enough slack to allow for universal action of the connections.

NOTE: When operating a vehicle near overhead power lines more than 600 volts, OAR 437-002-0047 applies for General Industry employers and OAR 437-003-0047 applies for Construction employers.

1910.178(m) Truck operations.

NOTE: The Oregon Bureau of Labor and Industries (BOLI) administers rules about using minors as drivers. Please contact the nearest BOLI office for more information.