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Title 29 → Subtitle B → Chapter XVII → Part 1926 → Subpart O

Browse Previous | Browse Next

Part 29: Labor
PART 1926—SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION

Subpart O—Motor Vehicles, Mechanized Equipment, and Marine Operations

Contents
§1926.600 Equipment.
§1926.601 Motor vehicles.
§1926.602 Material handling equipment.
§1926.603 Pile driving equipment.
§1926.604 Site clearing.
§1926.605 Marine operations and equipment.
§1926.606 Definitions applicable to this subpart.

AUTHORITY: Section 107, Construction Work Hours and Safety Standards Act (Construction Safety Act) (40 U.S.C. 333); Secs. 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 37326), 1-90 (55 FR 9033), 6-96 (62 FR 111), or 5-2007 (72 FR 31159), as applicable. Section 1926.602 also issued under 29 CFR part 1911.

⬆ Back to Top

§1926.600 Equipment.

- (a) *General requirements.* (1) All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment.
- (2) A safety tire rack, cage, or equivalent protection shall be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar devices.
- (3)(i) Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks shall be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them. Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, shall be either fully lowered or blocked when being repaired or when not in use. All controls shall be in a neutral position, with the motors stopped and brakes set, unless work being performed requires otherwise.
- (ii) Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines shall have the wheels chocked and the parking brake set.
- (4) The use, care and charging of all batteries shall conform to the requirements of subpart K of this part.
- (5) All cab glass shall be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine covered by this subpart.
- (6) All equipment covered by this subpart shall comply with the following requirements when working or being moved in the vicinity of power lines or energized transmitters, except where electrical distribution and transmission lines have been deenergized and visibly grounded at point of work or where insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines:
 - (i) For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet;
 - (ii) For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet;
 - (iii) In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for voltages less than 50 kV, and 10 feet for voltages over 50 kV, up to and including 345 kV, and 16 feet for voltages up to and including 750 kV;
 - (iv) A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means;
 - (v) Cage-type boom guards, insulating links, or proximity warning devices may be used on cranes, but the use of such devices shall not alter the requirements of any other regulation of this part even if such device is required by law or regulation;
 - (vi) Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded;
 - (vii) Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter shall be de-energized or tests shall be made to determine if electrical charge is induced on the crane. The following precautions shall be taken when necessary to dissipate induced voltages:
 - (A) The equipment shall be provided with an electrical ground directly to the upper rotating structure supporting the boom; and
 - (B) Ground jumper cables shall be attached to materials being handled by boom equipment when electrical charge is induced while working near energized transmitters. Crews shall be provided with nonconductive poles having large alligator clips or other similar protection to attach the ground cable to the load.
 - (C) Combustible and flammable materials shall be removed from the immediate area prior to operations.

- (7) *Rolling railroad cars.* Derrail and/or bumper blocks shall be provided on spur railroad tracks where a rolling car could contact other cars being worked, enter a building, work or traffic area.
 - (b) *Specific requirements.* [Reserved]

[44 FR 8577, Feb. 9, 1979; 44 FR 20940, Apr. 6, 1979, as amended at 58 FR 35183, June 30, 1993; 75 FR 48134, Aug. 9, 2010]

⬆ Back to Top

§1926.601 Motor vehicles.

- (a) *Coverage.* Motor vehicles as covered by this part are those vehicles that operate within an off-highway jobsite, not open to public traffic. The requirements of this section do not apply to equipment for which rules are prescribed in §1926.602.
- (b) *General requirements.* (1) All vehicles shall have a service brake system, an emergency brake system, and a parking brake system. These systems may use common components, and shall be maintained in operable condition.
 - (2)(i) Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition.
 - (ii) All vehicles, or combination of vehicles, shall have brake lights in operable condition regardless of light conditions.
- (3) All vehicles shall be equipped with an adequate audible warning device at the operator's station and in an operable condition.
- (4) No employer shall use any motor vehicle equipment having an obstructed view to the rear unless:
 - (i) The vehicle has a reverse signal alarm audible above the surrounding noise level or;
 - (ii) The vehicle is backed up only when an observer signals that it is safe to do so.
- (5) All vehicles with cabs shall be equipped with windshields and powered wipers. Cracked and broken glass shall be replaced. Vehicles operating in areas or under conditions that cause fogging or frosting of the windshields shall be equipped with operable defogging or defrosting devices.
- (6) All haulage vehicles, whose pay load is loaded by means of cranes, power shovels, loaders, or similar equipment, shall have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.
- (7) Tools and material shall be secured to prevent movement when transported in the same compartment with employees.
- (8) Vehicles used to transport employees shall have seats firmly secured and adequate for the number of employees to be carried.
- (9) Seat belts and anchorages meeting the requirements of 49 CFR part 571 (Department of Transportation, Federal Motor Vehicle Safety Standards) shall be installed in all motor vehicles.
- (10) Trucks with dump bodies shall be equipped with positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done.
 - (1) Operating levers controlling hoisting or dumping devices on haulage bodies shall be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism.
 - (2) Trip handles for tailgates of dump trucks shall be so arranged that, in dumping, the operator will be in the clear.
- (13) (i) All rubber-tired motor vehicle equipment manufactured on or after May 1, 1972, shall be equipped with fenders. All rubber-tired motor vehicle equipment manufactured before May 1, 1972, shall be equipped with fenders not later than May 1, 1973.
 - (ii) Mud flaps may be used in lieu of fenders whenever motor vehicle equipment is not designed for fenders.

- (14) All vehicles in use shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

⬆ Back to Top

§1926.602 Material handling equipment.

- (a) *Earthmoving equipment; General.* (1) These rules apply to the following types of earthmoving equipment: scrapers, loaders, crawler or wheel tractors, bulldozers, off-highway trucks, graders, agricultural and industrial tractors, and similar equipment. The promulgation of specific rules for compactors and rubber-tired "skid-steer" equipment is reserved pending consideration of standards currently being developed.
- (2) *Seat belts.* (i) Seat belts shall be provided on all equipment covered by this section and shall meet the requirements of the Society of Automotive Engineers, J386-1969, Seat Belts for Construction Equipment. Seat belts for agricultural and light industrial tractors shall meet the seat belt requirements of Society of Automotive Engineers J333a-1970, Operator Protection for Agricultural and Light Industrial Tractors.
 - (ii) Seat belts need not be provided for equipment which is designed only for standup operation.
 - (iii) Seat belts need not be provided for equipment which does not have roll-over protective structure (ROPS) or adequate canopy protection.
- (3) *Access roadways and grades.* (i) No employer shall move or cause to be moved construction equipment or 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.
 - (ii) Every emergency access ramp and berm used by an employer shall be constructed to restrain and control runaway vehicles.
- (4) *Brakes.* All earthmoving equipment mentioned in this §1926.602(a) shall have a service braking system capable of stopping and holding the equipment fully loaded, as specified in Society of Automotive Engineers SAE J237, Loader Dozer-1971, J236, Graders-1971, and J315b, Scrapers-1971. Brake systems for self-propelled rubber-tired off-highway equipment manufactured after January 1, 1972 shall meet the applicable minimum performance criteria set forth in the following Society of Automotive Engineers Recommended Practices:

Self-Propelled Scrapers	SAE J319b-1971.
Self-Propelled Graders	SAE J236-1971.
Trucks and Wagons	SAE J166-1971.
Front End Loaders and Dozers	SAE J237-1971.

- (5) *Fenders.* Pneumatic-tired earth-moving haulage equipment (trucks, scrapers, tractors, and trailing units) whose maximum speed exceeds 15 miles per hour, shall be equipped with fenders on all wheels to meet the requirements of Society of Automotive Engineers SAE J321a-1970, Fenders for Pneumatic-Tired Earthmoving Haulage Equipment. An employer may, of course, at any time seek to show under §1926.2, that the uncovered wheels present no hazard to personnel from flying materials.

- (6) *Rollover protective structures (ROPS).* See subpart W of this part for requirements for rollover protective structures and overhead protection.
 - (7) *Rollover protective structures for off-highway trucks.* The promulgation of standards for rollover protective structures for off-highway trucks is reserved pending further study and development.
 - (8) *Specific effective dates—brakes and fenders.* (i) Equipment mentioned in paragraph (a)(4) and (5) of this section, and manufactured after January 1, 1972, which is used by any employer after that date, shall comply with the applicable rules prescribed therein concerning brakes and fenders. Equipment mentioned in paragraphs (a) (4) and (5) of this section, and manufactured before January 1, 1972, which is used by any employer after that date, shall meet the applicable rules prescribed herein not later than June 30, 1973. It should be noted that, as permitted under §1926.2, employers may request variations from the applicable brakes and fender standards required by this subpart. Employers wishing to seek variations from the applicable brakes and fenders rules may submit any requests for variations after the publication of this document in the *Federal Register*. Any statements intending to meet the requirements of §1926.2(b)(4), should specify how the variation would protect the safety of the employees by providing for any compensating restrictions on the operation of equipment.
 - (ii) Notwithstanding the provisions of paragraphs (a)(5) and (a)(8)(i) of this section, the requirement that fenders be installed on pneumatic-tired earthmoving haulage equipment, is suspended pending reconsideration of the requirement.

- (9) *Audible alarms.* (i) All bidirectional machines, such as rollers, compactors, front-end loaders, bulldozers, and similar equipment, shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction. The horn shall be maintained in an operative condition.
 - (ii) No employer shall permit earthmoving or compacting equipment which has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or an employee signals that it is safe to do so.

- (10) *Scissor points.* Scissor points on all front-end loaders, which constitute a hazard to the operator during normal operation, shall be guarded.
 - (b) *Excavating and other equipment.* (1) Tractors covered in paragraph (a) of this section shall have seat belts as required for the operators when seated in the normal seating arrangement for tractor operation, even though back-hoes, breakers, or other similar attachments are used on these machines for excavating or other work.

- (2) For the purposes of this subpart and of subpart N of this part, the nomenclatures and descriptions for measurement of dimensions of machinery and attachments shall be as described in Society of Automotive Engineers 1970 Handbook, pages 1088 through 1103.
- (3) The safety requirements, ratios, or limitations applicable to machines or attachment usage covered in Power Crane and Shovel Associations Standards No. 1 and No. 2 of 1968, and No. 3 of 1969, shall be complied with, and shall apply to cranes, machines, and attachments under this part.

- (c) *Lifting and hauling equipment (other than equipment covered under subpart N of this part).* (1) Industrial trucks shall meet the requirements of §1926.600 and the following:
 - (i) Lift trucks, stackers, etc., shall have the rated capacity clearly posted on the vehicle so as to be clearly visible to the operator. When auxiliary removable counterweights are provided by the manufacturer, corresponding alternate rated capacities also shall be clearly shown on the vehicle. These ratings shall not be exceeded.
 - (ii) No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.
 - (iii) If a load is lifted by two or more trucks working in unison, the proportion of the total load carried by any one truck shall not exceed its capacity.
 - (iv) Steering or spinner knobs shall not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin. The steering knob shall be mounted within the periphery of the wheel.
 - (v) All high lift rider industrial trucks shall be equipped with overhead guards which meet the configuration and structural requirements as defined in paragraph 421 of American National Standards Institute B56.1-1969, Safety Standards for Powered Industrial Trucks.
 - (vi) All industrial trucks in use shall meet the applicable requirements of design, construction, stability, inspection, testing, maintenance, and operation, as defined in American National Standards Institute B56.1-1969, Safety Standards for Powered Industrial Trucks.
 - (vii) Unauthorized personnel shall not be permitted to ride on powered industrial trucks. A safe place to ride shall be provided where riding of trucks is authorized.
 - (viii) Whenever a truck is equipped with vertical only, or vertical and horizontal controls elevatable with the lifting carriage or forks for lifting personnel, the following additional precautions shall be taken for the protection of personnel being elevated:
 - (A) Use of a safety platform firmly secured to the lifting carriage and/or forks.
 - (B) Means shall be provided whereby personnel on the platform can shut off power to the truck.
 - (C) Such protection from falling objects as indicated necessary by the operating conditions shall be provided.
 - (d) *Powered industrial truck operator training.*

Note: The requirements applicable to construction work under this paragraph are identical to those set forth at §1910.1780) of this chapter.

[44 FR 8577, Feb. 9, 1979; 44 FR 20940, Apr. 6, 1979, as amended at 58 FR 35183, June 30, 1993; 63 FR 66274, Dec. 1, 1998]

⬆ Back to Top

§1926.603 Pile driving equipment.

- (a) *General requirements.* (1) Boilers and piping systems which are a part of, or used with, pile driving equipment shall meet the applicable requirements of the American Society of Mechanical Engineers, Power Boilers (section II).
- (2) All pressure vessels which are a part of, or used with, pile driving equipment shall meet the applicable requirements of the American Society of Mechanical Engineers, Pressure Vessels (section VIII).
- (3) Overhead protection, which will not obscure the vision of the operator and which meets the requirements of subpart N of this part, shall be provided. Protection shall be the equivalent of 2-inch plating or other solid material of equivalent strength.
- (4) Stop blocks shall be provided for the leads to prevent the hammer from being raised against the head block.
- (5) A blocking device, capable of safely supporting the weight of the hammer, shall be provided for placement in the leads under the hammer at all times while employees are working under the hammer.
- (6) Guards shall be provided across the top of the head block to prevent the crank from jumping out of the sheaves.
- (7) When the leads must be inclined in the driving of batter piles, provisions shall be made to stabilize the leads.
 - (8) Fixed leads shall be provided with ladder, and adequate rings, or similar attachment with loops, so that the loft worker may engage his safety belt lanyard to the leads. If the leads are provided with loft platforms(s), such platform(s) shall be protected by standard guardrails.
 - (9) Steam hose leading to a steam hammer or jet pipe shall be securely attached to the hammer with an adequate length of at least ½-inch diameter chain or cable to prevent whipping in the event the joint at the hammer is broken. Air hammer hoses shall be provided with the same protection as required for steam lines.
- (10) Safety chains, or equivalent means, shall be provided for each hose connection to prevent the line from thrashing around in case the coupling becomes disconnected.
 - (11) Steam line controls shall consist of two shutoff valves, one of which shall be a quick-acting lever type within easy reach of the hammer operator.
 - (12) Guys, outriggers, thrustouts, or counterbalances shall be provided as necessary to maintain stability of pile driver rigs.
- (b) *Pile driving from barges and floats.* Barges or floats supporting pile driving operations shall meet the applicable requirements of §1926.605.

- (c) *Pile driving equipment.* (1) Engineers and winchmen shall accept signals only from the designated signalmen.
 - (2) All employees shall be kept clear when piling is being hoisted into the leads.
 - (3) When piles are being driven in an excavated pit, the walls of the pit shall be sloped to the angle of repose or sheet-piled and braced.
 - (4) When steel tube piles are being "blown out", employees shall be kept well beyond the range of falling materials.
 - (5) When it is necessary to cut off the tops of driven piles, pile driving operations shall be suspended except where the cutting operations are located at least twice the length of the longest pile from the driver.
 - (6) When driving jacked piles, all access pits shall be provided with ladders and bulkheaded curbs to prevent material from falling into the pit.

⬆ Back to Top

§1926.604 Site clearing.

- (a) *General requirements.* (1) Employees engaged in site clearing shall be protected from hazards of irritant and toxic plants and suitably instructed in the first aid treatment available.
 - (2) All equipment used in site clearing operations shall be equipped with rollover guards meeting the requirements of this subpart. In addition, rider-operated equipment shall be equipped with an overhead or rear canopy guard meeting the following requirements:
 - (i) The overhead covering on this canopy structure shall be of not less than ½-inch steel plate or ¼-inch woven wire mesh with openings no greater than 1 inch, or equivalent.
 - (ii) The opening in the rear of the canopy structure shall be covered with not less than ¼-inch woven wire mesh with openings no greater than 1 inch.
 - (b) *Specific requirements.* [Reserved]

⬆ Back to Top

§1926.605 Marine operations and equipment.

- (a) *Material handling operations.* (1) Operations fitting the definition of "material handling" shall be performed in conformance with applicable requirements of part 1918, "Safety and Health Regulations for Longshoring" of this chapter. The term "longshoring operations" means the loading, unloading, moving, or handling of construction materials, equipment and supplies, etc. into, in, on, or out of any vessel from a fixed structure or shore-to-vessel, vessel-to-shore or fixed structure or vessel-to-vessel.
 - (b) *Access to barges.* (1) Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained, and properly secured.
 - (2) Unless employees can step safely to or from the wharf, float, barge, or river towboat, either a ramp, meeting the requirements of paragraph (b)(1) of this section, or a safe walkway, shall be provided.
 - (3) Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured.
 - (4) A Jacob's ladder shall either hang without slack from its lashings or be pulled up entirely.
 - (5) When the upper end of the means of access rests on or is flush with the top of the bulwark, substantial steps properly secured and equipped with at least one substantial hand rail approximately 33 inches in height, shall be provided between the top of the bulwark and the deck.
 - (6) Obstructions shall not be laid on or across the gangway.
 - (7) The means of access shall be adequately illuminated for its full length.
 - (8) Unless the structure makes it impossible, the means of access shall be so located that the load will not pass over employees.
 - (c) *Working surfaces of barges.* (1) Employees shall not be permitted to walk along the sides of covered lighters or barges with coamings more than 5 feet high, unless there is a 3-foot clear walkway, or a grab rail, or a taut handline is provided.
 - (2) Decks and other working surfaces shall be maintained in a safe condition.
 - (3) Employees shall not be permitted to pass fore and aft, over, or around deckloads, unless there is a safe passage.
 - (4) Employees shall not be permitted to walk over deckloads from rail to coaming unless there is a safe passage. If it is necessary to stand at the outboard or inboard edge of the deckload where less than 24 inches of bulwark, rail, coaming, or other protection exists, all employees shall be provided with a suitable means of protection against falling from the deckload.
 - (d) *First-aid and lifesaving equipment.* (1) Provisions for rendering first aid and medical assistance shall be in accordance with subpart D of this part.

- (2) The employer shall ensure that there is in the vicinity of each barge in use at least one U.S. Coast Guard-approved 30-inch lifeline with not less than 90 feet of line attached, and at least one portable or permanent ladder which will reach the top of the apron to the surface of the water. If the above equipment is not available at the pier, the employer shall furnish it during the time that he is working the barge.
- (3) Employees walking or working on the unguarded decks of barges shall be protected with U.S. Coast Guard-approved work vests or buoyant vests.

(e) *1910.401 diving operations.* Commercial diving operations shall be subject to subpart T of part 1910, §1910.401-1910.411, of this chapter.

[39 FR 22801, June 24, 1974, as amended at 42 FR 37674, July 22, 1977]

⬆ Back to Top

§1926.606 Definitions applicable to this subpart.

- (a) *Apron*—The area along the waterfront edge of the pier or wharf.
- (b) *Bulwark*—The side of a ship above the upper deck.
- (c) *Coaming*—The raised frame, as around a hatchway in the deck, to keep out water.
- (d) *Jacob's ladder*—A marine ladder of rope or chain with wooden or metal rungs.
- (e) *Rail*, for the purpose of §1926.605, means a light structure serving as a guard at the outer edge of a ship's deck.

⬆ Back to Top

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