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Title 29: Labor

PART 1917—MARINE TERMINALS

Subpart D—Specialized Terminals

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## **§1917.71 Terminals handling intermodal containers or roll-on roll-off operations.**

(a) Every intermodal container shall be legibly and permanently marked with:

(1) The weight of the container when empty, in pounds;

(2) The maximum cargo weight the container is designed to carry, in pounds; and

(3) The sum of the weight of the container and the cargo, in pounds.

(b) No container shall be hoisted by any crane or derrick unless the following conditions have been met:

(1) The employer shall ascertain from the carrier whether a container to be hoisted is loaded or empty. Empty containers shall be identified before loading or discharge in such a manner as will inform every supervisor and foreman on the site and in charge of loading or discharging, or every crane or other hoisting equipment operator and signalman, if any, that such container is empty. Methods of identification may include cargo plans, manifests or markings on the container.

(2) In the case of a loaded container:

(i) The actual gross weight shall be plainly marked so as to be visible to the crane or other hoisting equipment operator or signalman, or to every supervisor and foreman on the site and in charge of the operation; or

(ii) The cargo stowage plan or equivalent permanently recorded display serving the same purpose, containing the actual gross weight and the serial number or other positive identification of that specific container, shall be provided to the crane or other hoisting equipment operator and signalman, if any, and to every supervisor and foreman on the site and in charge of the operation.

(3) Every outbound loaded container which is received at a marine terminal ready to load aboard a vessel without further consolidation or loading shall be weighed to obtain the actual gross weight, either at the terminal or elsewhere, before being hoisted.

(4)(i) When container weighing scales are located at a marine terminal, any outbound container with a load consolidated at that terminal shall be weighed to obtain an actual weight before being hoisted.

(ii) If the terminal has no scales, the actual gross weight may be calculated on the basis of the container's contents and the container's empty weight. The weights used in the calculation shall be posted conspicuously on the container, with the name of the person making the calculation and the date.

(5) Open type vehicle carrying containers and those built specifically and used solely for the carriage of compressed gases are excepted from paragraphs (b)(3) and (b)(4) of this section.

(6) Closed dry van containers carrying vehicles are exempted from paragraph (b)(4) of this section provided that:

(i) The container carries only completely assembled vehicles and no other cargo;

(ii) The container is marked on the outside in such a manner that an employee can readily discern that the container is carrying vehicles; and

(iii) The vehicles were loaded into the container at the marine terminal.

(7) The weight of loaded inbound containers from foreign ports shall be determined by weighing or by the method of calculation described in paragraph (b)(4)(ii) of this section or by shipping documents.

(8) Any scale used within the United States to weigh containers for the purpose of the requirements of this section shall meet the accuracy standards of the state or local public authority in which the scale is located.

(c) No container or containers shall be hoisted if their actual gross weight exceeds the weight marked as required in paragraph (a)(2) of this section, or if it exceeds the capacity of the crane or other hoisting device intended to be used.

(d)(1) Marked or designated areas shall be set aside within a container or roll-on roll-off terminal for passage of employees to and from active cargo transfer points, except where transportation to and from those points is provided by the employer.

(2) The employer shall direct employees to stay clear of the area beneath a suspended container.

(e) Each employee working in the immediate area of container handling equipment or in the terminal's traffic lanes shall wear a high visibility vest (or equivalent protection).<sup>7</sup>

<sup>7</sup>Decals on hard hats will not be considered equivalent protection for the purposes of this paragraph.

NOTE TO PARAGRAPH (e): High visibility vests or equivalent protection means high visibility/retro-reflective materials which are intended to make the user clearly visible by day through the use of high

visibility (fluorescent) material and in the dark by vehicle headlights through the use of retro-reflective material. For example, an acceptable area of material for a vest or equivalent protection is .5 m<sup>2</sup> (760 in.<sup>2</sup>) for fluorescent (background) material and .13m<sup>2</sup> (197 in.<sup>2</sup>) for retro-reflective material. Vests or equivalent protection, such as high visibility/retro-reflective coveralls, that are available for industrial use, may also be acceptable.

(f) Containers shall be handled using lifting fittings or other arrangements suitable and intended for the purpose as set forth in paragraphs (f)(1) through (f)(4) of this section, unless damage to an intermodal container makes special means of handling necessary.

(1) Loaded intermodal containers of 20 feet (6.1 m) or more in length shall be hoisted as follows:

(i) When hoisting containers by the top fittings, the lifting forces shall be applied vertically from at least four such fittings. A less than vertical lift is permitted only under the following conditions:

(A) The container being lifted is an ISO closed box container;

(B) The condition of the box is sound;

(C) The speed of hoisting and lowering is moderated when heavily laden containers<sup>8</sup> are encountered;

<sup>8</sup>A heavily laden container is one that is loaded to within 20 percent of its rated capacity.

(D) The lift angle is at 80 to 90 degrees;

(E) The distance between the lifting beam and the load is at least 8 feet and 2.4 inches (2.5 m); and

(F) The length of the spreader beam is at least 16.3 feet (5 m) for a 20-foot container, and at least 36.4 feet (11.1 m) for a 40-foot container.

(ii) If hoisted from bottom fittings, the hoisting connections shall bear on the fittings only, making no other contact with the container. The angles of the four bridle legs shall not be less than 30° to the horizontal in the case of 40 foot (12.2 m) containers, 37° in the case of 30 foot (9.1 m) containers, and 45° in the case of 20 foot (6.1 m) containers.

(iii) Lifting containers by fork lift trucks or by grappling arms from above or from one side may be done only if the container is designed for this type of handling.

(iv) Other means of hoisting may be used only if the containers and hoisting means are designed for such use.

(2)(i) When using intermodal container spreaders that employ lanyards for activation of load disengagement, all possible precautions shall be taken to prevent accidental release of the load.

(ii) Intermodal container spreader twistlock systems shall be designed and used so that a suspended load cannot accidentally be released.

(3) Flat bed trucks or container chassis used to move intermodal containers shall be equipped with pins, flanges, or other means to prevent the container from shifting.

(4) After July 27, 1998, flat bed, low boy trailers (mafis) and other similar equipment used to transport containers shall be marked with their cargo capacities and shall not be overloaded.

(5) Each tractor shall have all brake air lines connected when pulling trailers equipped with air brakes and shall have the brakes tested before commencing operations.

(g)(1) Intermodal containers shall be inspected for defects in structural members or fittings before handling.

(2) Any intermodal container found to be unsafe shall be identified as such, promptly removed from service and repaired before being returned to service.

(h) Containers shall not be hoisted unless all engaged chassis twist locks are released.

(i) *Vertical tandem lifts*. The following requirements apply to operations involving the lifting of two or more intermodal containers by the top container (vertical tandem lifts or VTLs). These requirements do not apply to operations involving the lifting of two or more interconnected platform containers.

(1) Each employee involved in VTL operations shall be trained and competent in the safety-related work practices, safety procedures, and other requirements in this section that pertain to their respective job assignments.

(2) No more than two intermodal containers may be lifted in a VTL.

(3) Before the lift begins, the employer shall ensure that the two containers lifted as part of a VTL are empty.

NOTE TO PARAGRAPH (i)(3): The lift begins immediately following the end of the prelift required by paragraph (i)(5) of this section. Thus, the weight may be determined during the prelift using a load indicating device meeting §1917.46(a)(1)(i)(A) on the crane being used to lift the VTL.

(4) The lift shall be performed using either a shore-based container gantry crane or another type of crane that:

(i) Has the precision control necessary to restrain unintended rotation of the containers about any axis,

(ii) Is capable of handling the load volume and wind sail potential of VTLs, and

(iii) Is specifically designed to handle containers.

(5) The employer shall ensure that the crane operator pauses the lift when the vertically coupled containers have just been lifted above the supporting surface to assure that each interbox connector is properly engaged.

(6) Containers below deck may not be handled as a VTL.

(7) VTL operations may not be conducted when the wind speed exceeds the lesser of:

(i) 55 km/h (34 mph or 30 knots) or

(ii) The crane manufacturer's recommendation for maximum wind speed.

(8) The employer shall ensure that each interbox connector used in a VTL operation:

(i) Automatically locks into corner castings on containers but only unlocks manually (manual twistlocks or latchlocks are not permitted);

(ii) Is designed to indicate whether it is locked or unlocked when fitted into a corner casting;

(iii) Locks and releases in an identical direction and manner as all other interbox connectors in the VTL;

(iv) Has been tested and certificated by a competent authority authorized under §1918.11 of this chapter (for interbox connectors that are part of a vessel's gear) or §1917.50 (for other interbox connectors):

(A) As having a load-bearing surface area of 800 mm<sup>2</sup> when connected to a corner casting with an opening that is 65.0 mm wide; and

(B) As having a safe working load of 98 kN (10,000 kg) with a safety factor of five when the load is applied by means of two corner castings with openings that are 65.0 mm wide or equivalent devices;

(v) Has a certificate that is available for inspection and that attests that the interbox connector meets the strength criteria given in paragraph (i)(8)(iv) of this section; and

(vi) Is clearly and durably marked with its safe working load for lifting and an identifying number or mark that will enable it to be associated with its test certificate.

(9) The employer shall ensure that each container and interbox connector used in a VTL and each corner casting to which a connector will be coupled is inspected immediately before use in the VTL.

(i) Each employee performing the inspection shall be capable of detecting defects or weaknesses and be able to assess their importance in relation to the safety of VTL operations.

(ii) The inspection of each interbox connector shall include: a visual examination for obvious structural defects, such as cracks; a check of its physical operation to determine that the lock is fully functional with adequate spring tension on each head; and a check for excessive corrosion and deterioration.

(iii) The inspection of each container and each of its corner castings shall include: a visual examination for obvious structural defects, such as cracks; a check for excessive corrosion and deterioration; and a visual examination to ensure that the opening to which an interbox connector will be connected has not been enlarged, that the welds are in good condition, and that it is free from ice, mud or other debris.

(iv) The employer shall establish a system to ensure that each defective or damaged interbox connector is removed from service.

(v) An interbox connector that has been found to be defective or damaged shall be removed from service and may not be used in VTL operations until repaired.

(vi) A container with a corner casting that exhibits any of the problems listed in paragraph (i)(9)(iii) of this section may not be lifted in a VTL.

(vii) The requirements of paragraph (i)(9) of this section do not apply to ship-to-shore VTLs.

(j) *Transporting vertically coupled containers.* (1) Equipment other than cranes used to transport vertically connected containers shall be either specifically designed for this application or evaluated by a qualified engineer and determined to be capable of operating safely in this mode of operation.

(2) The employer shall develop, implement, and maintain a written plan for transporting vertically connected containers. The written plan shall establish procedures to ensure safe operating and turning speeds and shall address all conditions in the terminal that could affect the safety of VTL-related operations, including communication and coordination among all employees involved in these operations.

(k) *Safe work zone.* The employer shall establish a safe work zone within which employees may not be present when vertically connected containers are in motion.

(1) The safe work zone shall be sufficient to protect employees in the event that a container drops or overturns.

(2) The written transport plan required by paragraph (j)(2) of this section shall include the safe work zone and procedures to ensure that employees are not in this zone when a VTL is in motion.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40200, July 25, 1997; 65 FR 40940, June 30, 2000; 73 FR 75289, Dec. 10, 2008; 79 FR 22020, Apr. 21, 2014]

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