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Title 29 —Labor
Subtitle B —Regulations Relating to Labor
Chapter XVII —Occupational Safety and Health Administration, Department of Labor
Part 1915 —Occupational Safety and Health Standards for Shipyard Employment

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Source: 47 FR 16986, Apr. 20, 1982, unless otherwise noted.

Subpart G Gear and Equipment for Rigging and Materials Handling

Subpart G—Gear and Equipment for Rigging and Materials Handling

§ 1915.111 Inspection.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) All gear and equipment provided by the employer for rigging and materials handling shall be inspected before each shift and when necessary, at intervals during its use to ensure that it is safe. Defective gear shall be removed and repaired or replaced before further use.

(b) The safe working load of gear as specified in §§ 1915.112 and 1915.113 shall not be exceeded.

§ 1915.112 Ropes, chains and slings.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) ***Manila rope and manila-rope slings.*** Employers must ensure that manila rope and manila-rope slings:

(1) Have permanently affixed and legible identification markings as prescribed by the manufacturer that indicate the recommended safe working load for the type(s) of hitch(es) used, the angle upon which it is based, and the number of legs if more than one;

(2) Not be loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer; and

(3) Not be used without affixed and legible identification markings as required by paragraph (a)(1) of this section.

(b) ***Wire rope and wire-rope slings.***

(1) Employers must ensure that wire rope and wire-rope slings:

(i) Have permanently affixed and legible identification markings as prescribed by the manufacturer that indicate the recommended safe working load for the type(s) of hitch(es) used, the angle upon which it is based, and the number of legs if more than one;

(ii) Not be loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer; and

(iii) Not be used without affixed and legible identification markings as required by paragraph (b)(1)(i) of this section.

(2) Protruding ends of strands in splices on slings and bridles shall be covered or blunted.

(3) When U-bolt wire rope clips are used to form eyes, employers must use Table G–1 in § 1915.118 to determine the number and spacing of clips. Employers must apply the U-bolt so that the "U" section is in contact with the dead end of the rope.

(4) Wire rope shall not be secured by knots.

(c) ***Chain and chain slings.***

(1) Employers must ensure that chain and chain slings:

(i) Have permanently affixed and legible identification markings as prescribed by the manufacturer that indicate the recommended safe working load for the type(s) of hitch(es) used, the angle upon which it is based, and the number of legs if more than one;

(ii) Not be loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer; and

(iii) Not be used without affixed and legible identification markings as required by paragraph (c)(1)(i) of this section.

(2) All sling chains, including end fastenings, shall be given a visual inspection before being used on the job. A thorough inspection of all chains in use shall be made every 3 months. Each chain shall bear an indication of the month in which it was thoroughly inspected. The thorough inspection shall include inspection for wear, defective welds, deformation and increase in length or stretch.

(3) Employers must note interlink wear, not accompanied by stretch in excess of 5 percent, and remove the chain from service when maximum allowable wear at any point of link, as indicated in Table G–2 in § 1915.118, has been reached.

(4) Chain slings shall be removed from service when, due to stretch, the increase in length of a measured section exceeds five (5) percent; when a link is bent, twisted or otherwise damaged; or when raised scarfs or defective welds appear.

(5) All repairs to chains shall be made under qualified supervision. Links or portions of the chain found to be defective as described in paragraph (c)(4) of this section shall be replaced by links having proper dimensions and made of material similar to that of the chain. Before repaired chains are returned to service, they shall be proof tested to the proof test load recommended by the manufacturer.

(6) Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding six months when recommended by the manufacturer. The chain manufacturer shall be consulted for recommended procedures for annealing or normalizing. Alloy chains shall never be annealed.

(7) A load shall not be lifted with a chain having a kink or knot in it. A chain shall not be shortened by bolting, wiring or knotting.

[47 FR 16986, Apr. 20, 1982, as amended at 67 FR 44543, July 3, 2002; 76 FR 33609, June 8, 2011]

§ 1915.113 Shackles and hooks.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) ***Shackles.*** Employers must ensure that shackles:

(1) Have permanently affixed and legible identification markings as prescribed by the manufacturer that indicate the recommended safe working load;

(2) Not be loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer; and

(3) Not be used without affixed and legible identification markings as required by paragraph (a)(1)(i) of this section.

(b) ***Hooks.***

(1) The manufacturer's recommendations shall be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which no applicable manufacturer's recommendations are available shall be tested to twice the intended safe working load before they are initially put into use. The employer shall maintain and keep readily available a certification record which includes the date of such tests, the signature of the person who performed the test and an identifier for the hook which was tested.

(2) Loads shall be applied to the throat of the hook since loading the point overstresses and bends or springs the hook.

(3) Hooks shall be inspected periodically to see that they have not been bent by overloading. Bent or sprung hooks shall not be used.

[47 FR 16986, Apr. 20, 1982, as amended at 51 FR 34562, Sept. 29, 1986; 76 FR 33609, June 8, 2011]

§ 1915.114 Chain falls and pull-lifts.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) Chain falls and pull-lifts shall be clearly marked to show the capacity and the capacity shall not be exceeded.

(b) Chain falls shall be regularly inspected to ensure that they are safe, particular attention being given to the lift chain, pinion, sheaves and hooks for distortion and wear. Pull-lifts shall be regularly inspected to ensure that they are safe, particular attention being given to the ratchet, pawl, chain and hooks for distortion and wear.

(c) Straps, shackles, and the beam or overhead structure to which a chain fall or pull-lift is secured shall be of adequate strength to support the weight of load plus gear. The upper hook shall be moused or otherwise secured against coming free of its support.

(d) Scaffolding shall not be used as a point of attachment for lifting devices such as tackles, chain falls, and pull-lifts unless the scaffolding is specifically designed for that purpose.

§ 1915.115 Hoisting and hauling equipment.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) ***Derrick and crane certification.***

(1) Derricks and cranes which are part of, or regularly placed aboard barges, other vessels, or on wingwalls of floating drydocks, and are used to transfer materials or equipment from or to a vessel or drydock, shall be tested and certificated in accordance with the standards provided in part 1919 of this title by persons accredited for the purpose.

(b) The moving parts of hoisting and hauling equipment shall be guarded.

(c) ***Mobile crawler or truck cranes used on a vessel.***

(1) The maximum manufacturer's rated safe working loads for the various working radii of the boom and the maximum and minimum radii at which the boom may be safely used with and without outriggers shall be conspicuously posted near the controls and shall be visible to the operator. A radius indicator shall be provided.

(2) The posted safe working loads of mobile crawler or truck cranes under the conditions of use shall not be exceeded.

(d) Accessible areas within the swing radius of the outermost part of the body of a revolving derrick or crane, whether permanently or temporarily mounted, shall be guarded in such a manner as to prevent an employee from being in such a position as to be struck by the crane or caught between the crane and fixed parts of the vessel or of the crane itself.

(e) ***Marine railways.***

(1) The cradle or carriage on the marine railway shall be positively blocked or secured when in the hauled position to prevent it from being accidentally released.

[47 FR 16986, Apr. 20, 1982, as amended at 67 FR 44543, July 3, 2002]

§ 1915.116 Use of gear.

(a) The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking except that paragraphs (c) and (d) of this section shall apply to ship repairing and shipbuilding only.

(b) Loads shall be safely rigged before being hoisted.

(c) Plates shall be handled on and off hulls by means of shackles whenever possible. Clips or pads of ample size shall be welded to the plate to receive the shackle pins when there are no holes in the plate. When it is not possible to make holes in or to weld pads to the plate, alligator tongs, grab clamps or screw clamps may be used. In such cases special precautions shall be taken to keep employees from under such lifts.

(d) Tag lines shall be provided on loads likely to swing or to need guidance.

(e) When slings are secured to eye-bolts, the slings shall be so arranged, using spreaders if necessary, that the pull is within 20 degrees of the axis of the bolt.

(f) Slings shall be padded by means of wood blocks or other suitable material where they pass over sharpe edges or corners of loads so as to prevent cutting or kinking.

(g) Skips shall be rigged to be handled by not less than 3 legged bridles, and all legs shall always be used. When open end skips are used, means shall be taken to prevent the contents from falling.

(h) Loose ends of idle legs of slings in use shall be hung on the hook.

(i) Employees shall not be permitted to ride the hook or the load.

(j) Loads (tools, equipment or other materials) shall not be swung or suspended over the heads of employees.

(k) Pieces of equipment or structure susceptible to falling or dislodgement shall be secured or removed as early as possible.

(l) An individual who is familiar with the signal code in use shall be assigned to act as a signalman when the hoist operator cannot see the load being handled. Communications shall be made by means of clear and distinct visual or auditory signals except that verbal signals shall not be permitted.

(m) Pallets, when used, shall be of such material and contruction and so maintained as to safely support and carry the loads being handled on them.

(n) A section of hatch through which materials or equipment are being raised, lowered, moved, or otherwise shifted manually or by a crane, winch, hoist, or derrick, shall be completely opened. The beam or pontoon left in place adjacent to an opening shall be sufficiently lashed, locked or otherwise secured to prevent it from moving so that it cannot be displaced by accident.

(o) Hatches shall not be open or closed while employees are in the square of the hatch below.

(p) Before loads or empty lifting gear are raised, lowered, or swung, clear and sufficient advance warning shall be given to employees in the vincinity of such operations.

(q) At no time shall an employee be permitted to place himself in a hazardous position between a swinging load and a fixed object.

[47 FR 16986, Apr. 20, 1982, as amended at 67 FR 44543, July 3, 2002]

§ 1915.117 Qualifications of operators.

Paragraphs (a) and (d) of this section shall apply to ship repairing and shipbuilding only. Paragraphs (b) and (c) of this section shall apply to ship repairing, shipbuilding and shipbreaking.

(a) When ship's gear is used to hoist materials aboard, a competent person shall determine that the gear is properly rigged, that it is in safe condition, and that it will not be overloaded by the size and weight of the lift.

(b) Only those employees who understand the signs, notices, and operating instructions, and are familiar with the signal code in use, shall be permitted to operate a crane, winch, or other power operated hoisting apparatus.

(c) No employee known to have defective uncorrected eyesight or hearing, or to be suffering from heart disease, epilepsy, or similar ailments which may suddenly incapacitate him, shall be permitted to operate a crane, winch or other power operated hoisting apparatus.

(d) No minor under eighteen (18) years of age shall be employed in occupations involving the operation of any power-driven hoisting apparatus or assisting in such operations by work such as hooking on, loading slings, rigging gear, etc.

§ 1915.118 Tables.

The provisions of this section apply to ship repairing, shipbuilding and shipbreaking.

Table E–1—Dimensions and Spacing of Wood Independent-Pole Scaffold Members

Structural members	Light duty (Up to 25 pounds per square foot)—Height in feet			Heavy duty (25 to 75 pounds per square foot)—Height in feet		
	≤24	>24≤40	>40≤60	≤24	>24≤40	>40≤60
Poles or uprights (in inches)	2 × 4	3 × 4 or 2 × 6	4 × 4	3 × 4	4 × 4	4 × 6
Bearers (in inches)	2 × 6	2 × 6	2 × 6	2 × 8	2 × 8	2 × 10
Ledgers (in inches)	2 × 6	2 × 6	2 × 6	2 × 8	2 × 8	2 × 8
Stringers (not supporting bearers) (in inches)	1 × 6	1 × 6	1 × 6	1 × 6	1 × 6	1 × 6
Braces (in inches)	1 × 4	1 × 6	1 × 6	1 × 6	1 × 6	1 × 6
Pole spacing—longitudinally (in feet)	$7^{1}/_{2}$	$7^{1}/_{2}$	$7^{1}/_{2}$	7	7	7
Pole spacing—transversely (in feet)	$6^{1}/_{2}$ min	$7^{1}/_{2}$ min	$8^{1}/_{2}$ min	$6^{1}/_{2}$	10	10
Ledger spacing—vertically (in feet)	7	7	7	$4^{1}/_{2}$	$4^{1}/_{2}$	$4^{1}/_{2}$

Table E–2—Specifications for Side Rails of Ladders

Length (in feet)	Cross section (in inches)	
	At ends	At center
15	$1^{7}/_{8} \times 2^{3}/_{4}$	$1^{7}/_{8} \times 3^{3}/_{4}$
16	$1^{7}/_{8} \times 2^{3}/_{4}$	$1^{7}/_{8} \times 3^{3}/_{4}$

Length (in feet)	Cross section (in inches)	
	At ends	At center
18	$1^{7}/_{8} \times 3$	$1^{7}/_{8} \times 4$
20	$1^{7}/_{8} \times 3$	$1^{7}/_{8} \times 4$
24	$1^{7}/_{8} \times 3$	$1^{7}/_{8} \times 4^{1}/_{2}$

Table E–3—Specifications for the Construction of Horses

Structural members	Height in feet		
	≤10	>10≤16	16≤20
	inches	*inches*	*inches*
Legs	2 × 4	3 × 4	4 × 6
Bearers or headers	2 × 6	2 × 8	4 × 6
Crossbraces	2 × 4	2 × 4	2 × 6
	or		
	1 × 8		
Longitudinal braces	2 × 4	2 × 6	2 × 6

Table E–4—Safe Center Loads for Scaffold Plank of 1,100 Pounds Fibre Stress

Span in feet	Lumber dimensions in inches									
	A	B	A	B	A	B	A	B	A	B
	2 × 10	$1^{5}/_{8} \times 9^{1}/_{2}$	2 × 12	$1^{5}/_{8} \times 11^{1}/_{2}$	3 × 8	$2^{5}/_{8} \times 7^{1}/_{2}$	3 × 10	$2^{5}/_{8} \times 9^{1}/_{2}$	3 × 12	$2^{5}/_{8} \times 11^{1}/_{2}$
6	256		309		526		667		807	
8	192		232		395		500		605	
10	153		186		316		400		484	
12	128		155		263		333		404	
14	110		133		225		286		346	
16			116		197		250		303	

(A)—Rough lumber.

(B)—Dressed lumber.

Table G–1—Number and Spacing of U-Bolt Wire Rope Clips

Improved plow steel, rope diameter, inches	Number of clips		Minimum spacing, inches
	Drop forged	Other material	
([1])			
1/2	3	4	3
5/8	3	4	3 3/4
3/4	4	5	4 1/2
7/8	4	5	5 1/4
1	4	6	6
1 1/8	5	6	6 3/4
1 1/4	5	7	7 1/2
1 3/8	6	7	8 1/4
1 1/2	6	8	9

[1] Three clips shall be used on wire size less than 1/2-inch diameter.

Table G–2—Maximum Allowable Wear at Any Point of Link

Chain size in inches	Maximum allowable wear in fraction of inches
1/4(9/32)	3/64
3/8	5/64
1/2	7/64
5/8	9/64
3/4	5/32
7/8	11/64
1	3/16
1 1/8	7/32
1 1/4	1/4
1 3/8	9/32
1 1/2	5/16
1 3/4	11/32

[47 FR 16986, Apr. 20, 1982, as amended at 61 FR 26351, May 24, 1996; 67 FR 44543, July 3, 2002; 76 FR 33610, June 8, 2011]

§ 1915.120 Powered industrial truck operator training.

Note: The requirements applicable to shipyard employment under this section are identical to those set forth at § 1910.178(l) of this chapter.

[63 FR 66274, Dec. 1, 1998]