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)	2x4	3x4 or 2x6	4x4	3x4	4x4	4x6
Bearers (in inches)	2x6	2x6	2x6	2x8	2x8	2x10
Ledgers (in inches)	2x6	2x6	2x6	2x8	2x8	2x8
Stringers (not supporting bearers) (in inches)	1x6	1x6	1x6	1x6	1x6	1x6
Braces (in inches)	1x4	1x6	1x6	1x6	1x6	1x6

TABLE E–1—DIMENSIONS AND SPACING OF WOOD INDEPENDENT-POLE SCAFFOLD MEMBERS—Continued

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
Pole spacing—longitudinally (in feet)	7½	7½	7½	7	7	7
Pole spacing—transversely (in feet)	6½ min	7½ min	8½ min	6½	10	10
Ledger spacing—vertically (in feet)	7	7	7	4½	4½	4½

TABLE E–2—SPECIFICATIONS FOR SIDE RAILS OF LADDERS

Length (in feet)	Cross section (in inches)	
	At ends	At center
15	1⅞ x 2¾	1⅞ x 3¾
16	1⅞ x 2¾	1⅞ x 3¾
18	1⅞ x 3	1⅞ x 4
20	1⅞ x 3	1⅞ x 4
24	1⅞ x 3	1⅞ x 4½

TABLE E–3—SPECIFICATIONS FOR THE CONSTRUCTION OF HORSES

Structural members	Height in feet		
	≤10	>10≤16	16≤20
	inches	*inches*	*inches*
Legs	2 x 4	3 x 4	4 x 6
Bearers or headers	2 x 6	2 x 8	4 x 6
Crossbraces	2 x 4 or 1 x 8	2 x 4	2 x 6
Longitudinal braces	2 x 4	2 x 6	2 x 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 x 10	1⅝ x 9½	2 x 12	1⅝ x 11½	3 x 8	2⅝ x 7½	3 x 10	2⅝ x 9½	3 x 12	2⅝ x 11½
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—MANILA ROPE

[In pounds or tons of 2,000 pounds]

Circumferences	Diameter in inches	Single leg	60° bridle	45° bridle	30° bridle
		lbs.	lbs.	lbs.	lbs.
¾	¼	120	204	170	120
1	5/16	200	346	282	200
1⅛	⅜	270	467	380	270
1¼	7/16	350	605	493	350
1⅜	15/32	450	775	635	450
1½	½	530	915	798	530
1¾	9/16	690	1190	973	690
2	⅝	880	1520	1240	880
2¼	¾	1080	1870	1520	1080

TABLE G–1—MANILA ROPE—Continued

[In pounds or tons of 2,000 pounds]

Circumferences	Diameter in inches	Single leg	60° bridle	45° bridle	30° bridle
		lbs.	lbs.	lbs.	lbs.
2½	13/16	1300	2250	1830	1300
2¾	7/8	1540	2660	2170	1540
3	1	1800	3120	2540	1800
		Tons	Tons	Tons	Tons
3¼	1 1/16	1.0	1.7	1.4	1.0
3½	1 1/8	1.2	2.1	1.7	1.2
3¾	1 1/4	1.35	2.3	1.9	1.35
4	1 5/16	1.5	2.6	2.1	1.5
4½	1½	1.8	3.1	2.5	1.8
5	1 5/8	2.25	3.9	3.2	2.25
5½	1¾	2.6	4.5	3.7	2.6
6	2	3.1	5.4	4.4	3.1
6½	2 1/8	3.6	6.2	5.1	3.6

TABLE G–2—RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE CORE, WIRE ROPE AND WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope diameter	Single leg					
	Vertical			Choker		
	A	B	C	A	B	C
	6×19 Classification					
¼″	.59	.56	.53	.44	.42	.40
⅜″	1.3	1.2	1.1	.98	.93	.86
½″	2.3	2.2	2.0	1.7	1.6	1.5
⅝″	3.6	3.4	3.0	2.7	2.5	2.2
¾″	5.1	4.9	4.2	3.8	3.6	3.1
⅞″	6.9	6.6	5.5	5.2	4.9	4.1
1″	9.0	8.5	7.2	6.7	6.4	5.4
1⅛″	11	10	9.0	8.5	7.8	6.8
	6×37 Classification					
1¼″	13	12	10	9.9	9.2	7.9
1⅜″	16	15	13	12	11	9.6
1½″	19	17	15	14	13	11
1¾″	26	24	20	19	18	15
2″	33	30	26	25	23	20
2¼″	41	38	33	31	29	25

(A)—Socket or Swaged Terminal attachment.
(B)—Mechanical Sleeve attachment.
(C)—Hand Tucked Splice attachment.

TABLE G–3—RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE CORE, WIRE ROPE SLINGS

[in tons of 2,000 pounds]

Rope diameter	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
	6×19 Classification											
¼″	1.2	1.1	1.0	1.0	.97	.92	.83	.79	.75	.59	.56	.53
⅜″	2.6	2.5	2.3	2.3	2.1	2.0	1.8	1.8	1.6	1.3	1.2	1.1
½″	4.6	4.4	3.9	4.0	3.8	3.4	3.2	3.1	2.8	2.3	2.2	2.0
⅝″	7.2	6.8	6.0	6.2	5.9	5.2	5.1	4.8	4.2	3.6	3.4	3.0
¾″	10	9.7	8.4	8.9	8.4	7.3	7.2	6.9	5.9	5.1	4.9	4.2
⅞″	14	13	11	12	11	9.6	9.8	9.3	7.8	6.9	6.6	5.5
1″	18	17	14	15	15	12	13	12	10	9.0	8.5	7.2
1⅛″	23	21	18	19	18	16	16	15	13	11	10	9.0

TABLE G–3—RATED CAPACITIES FOR IMPROVED PLOW STEEL, INDEPENDENT WIRE ROPE CORE, WIRE ROPE SLINGS—Continued

[in tons of 2,000 pounds]

Rope diameter	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
	6×37 Classification											
1¼″	26	24	21	23	21	18	19	17	15	13	12	10
1⅜″	32	29	25	28	25	22	22	21	18	16	15	13
1½″	38	35	30	33	30	26	27	25	21	19	17	15
1¾″	51	47	41	44	41	35	36	33	29	26	24	20
2″	66	61	53	57	53	46	47	43	37	33	30	26
2¼″	83	76	66	72	66	57	58	54	47	41	38	33

(A)—Socket or Swaged Terminal Attachment.
(B)—Mechanical Sleeve Attachment.
(C)—Hand Tucked Splice Attachment.

TABLE G–4—RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE AND WIRE ROPE SLINGS

[in tons of 2,000 pounds]

Rope diameter	Single leg					
	Vertical			Choker		
	A	B	C	A	B	C
	6×19 Classification					
¼″	.55	.51	.49	.41	.38	.37
⅜″	1.2	1.1	1.1	.91	.85	.80
½″	2.1	2.0	1.8	1.6	1.5	1.4
⅝″	3.3	3.1	2.8	2.5	2.3	2.1
¾″	4.8	4.4	3.9	3.6	3.3	2.9
⅞″	6.4	5.9	5.1	4.8	4.5	3.9
1″	8.4	7.7	6.7	6.3	5.8	5.0
1⅛″	10	9.5	8.4	7.9	7.1	6.3
	6×37 Classification					
1¼″	12	11	9.8	9.2	8.3	7.4
1⅜″	15	13	12	11	10	8.9
1½″	17	16	14	13	12	10
1¾″	24	21	19	18	16	14
2″	31	28	25	23	21	18

(A)—Socket or Swaged Terminal attachment.
(B)—Mechanical Sleeve attachment.
(C)—Hand Tucked Splice attachment.

TABLE G–5—RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE SLINGS

[In tons of 2,000 pounds]

Rope diameter	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
	6 × 19 Classification											
¼″	1.1	1.0	.99	.95	.88	.85	.77	.72	.70	.55	.51	.49
⅜″	2.4	2.2	2.1	2.1	1.9	1.8	1.7	1.6	1.5	1.2	1.1	1.1
½″	4.3	3.9	3.7	3.7	3.4	3.2	3.0	2.8	2.6	2.1	2.0	1.8
⅝″	6.7	6.2	5.6	5.8	5.3	4.8	4.7	4.4	4.0	3.3	3.1	2.8
¾″	9.5	8.8	7.8	8.2	7.6	6.8	6.7	6.2	5.5	4.8	4.4	3.9
⅞″	13	12	10	11	10	8.9	9.1	8.4	7.3	6.4	5.9	5.1
1″	17	15	13	14	13	11	12	11	9.4	8.4	7.7	6.7
1⅛″	21	19	17	18	16	14	15	13	12	10	9.5	8.4

TABLE G–5—RATED CAPACITIES FOR IMPROVED PLOW STEEL, FIBER CORE, WIRE ROPE SLINGS—Continued

[In tons of 2,000 pounds]

Rope diameter	Two-leg bridle or basket hitch											
	Vertical			60° bridle			45° bridle			30° bridle		
	A	B	C	A	B	C	A	B	C	A	B	C
	6 × 37 Classification											
1¼″	25	22	20	21	19	17	17	16	14	12	11	9.8
1⅜″	30	27	24	26	23	20	21	19	17	15	13	12
1½″	35	32	28	30	27	24	25	22	20	17	16	14
1¾″	48	43	38	41	37	33	34	30	27	24	21	19
2″	62	55	49	53	48	43	43	39	35	31	28	25

(A)—Socket or Swaged Terminal attachment.
(B)—Mechanical Sleeve attachment.
(C)—Hand Tucked Splice attachment.

TABLE G–6—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)	.....	.....	.....
½	3	4	3
⅝	3	4	3¾
¾	4	5	4½
⅞	4	5	5¼
1	4	6	6
1⅛	5	6	6¾
1¼	5	7	7½
1⅜	6	7	8¼
1½	6	8	9

[1] Three clips shall be used on wire size less than ½-inch diameter.

TABLE G–7—WROUGHT IRON CHAIN

[In pounds or tons of 2,000 pounds]

Nominal size chains stock	Single leg	60° bridle	45° bridle	30° bridle
¼″ [1]	1060	1835	1500	1060
5/16″ [1]	1655	2865	2340	1655
⅜″ [1]	2385	2.1	3370	2385
7/16″ [1]	3250	2.8	2.3	3250
½″	2.1	3.7	3.0	2.1
9/16″ [1]	2.7	4.6	3.8	2.7
⅝″	3.3	5.7	4.7	3.3
¾″	4.8	8.3	6.7	4.8
⅞″	6.5	11.2	9.2	6.5
1″	8.5	14.7	12.0	8.5
1⅛″	10.0	17.3	14.2	10.0
1¼″	12.4	21.4	17.5	12.4
1⅜″	15.0	25.9	21.1	15.0
1½″	17.8	30.8	25.2	17.8
1⅝″	20.9	36.2	29.5	20.9
1¾″	24.2	42.0	34.3	24.2
1⅞″	27.6	47.9	39.1	27.6
2″	31.6	54.8	44.8	31.6

[1] These sizes of wrought iron chain are no longer manufactured in the United States.

TABLE G–8—ALLOY STEEL CHAIN

(In tons of 2,000 pounds)

Nominal size chain stock	Single leg	60° bridle	45° bridle	30° bridle
¼″	1.62	2.82	2.27	1.62
⅜″	3.30	5.70	4.65	3.30
½″	5.62	9.75	7.90	5.62
⅝″	8.25	14.25	11.65	8.25
¾″	11.5	19.9	16.2	11.5
⅞″	14.3	24.9	20.3	14.3
1″	19.3	33.5	27.3	19.8
1⅛″	22.2	38.5	31.5	22.2
1¼″	28.7	49.7	40.5	28.7
1⅜″	33.5	58.0	47.0	33.5
1½″	39.7	68.5	56.0	39.7
1⅝″	42.5	73.5	59.5	42.5
1¾″	47.0	81.5	62.0	47.0

TABLE G–9—MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK

Chain size in inches	Maximum allowable wear in fraction of inches
¼(9/32)	3/64
⅜	5/64
½	7/64
⅝	9/64
¾	5/32
⅞	11/64
1	3/16
1⅛	7/32
1¼	¼
1⅜	9/32
1½	5/16
1¾	11/32

TABLE G–10—SAFE WORKING LOADS FOR SHACKLES

[In tons of 2,000 pounds]

Material size (inches)	Pin diameter (inches)	Safe working load
½	⅝	1.4

TABLE G–10—SAFE WORKING LOADS FOR SHACKLES—Continued

[In tons of 2,000 pounds]

Material size (inches)	Pin diameter (inches)	Safe working load
5/8	3/4	2.2
3/4	7/8	3.2
7/8	1	4.3
1	1 1/8	5.6
1 1/8	1 1/4	6.7
1 1/4	1 3/8	8.2
1 3/8	1 1/2	10.0
1 1/2	1 5/8	11.9
1 3/4	2	16.2
2	2 1/4	21.2

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

EFFECTIVE DATE NOTE: At 76 FR 33610, June 8, 2011, §1915.118 was amended by removing Tables G–1, G–2, G–3, G–4, G–5, G–7, G–8, and G–10, and redesignating Table G–6 as Table G–1, and Table G–9 as Table G–2, effective July 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]

Subpart H—Tools and Related Equipment

§ 1915.131 General precautions.

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

(a) Hand lines, slings, tackles of adequate strength, or carriers such as tool bags with shoulder straps shall be provided and used to handle tools, materials, and equipment so that employees will have their hands free when using ship's ladders and access ladders. The use of hose or electric cords for this purpose is prohibited.

(b) When air tools of the reciprocating type are not in use, the dies and tools shall be removed.

(c) All portable, power-driven circular saws shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.

(d) The moving parts of machinery on a dry dock shall be guarded.

(e) Before use, pneumatic tools shall be secured to the extension hose or whip by some positive means to prevent the tool from becoming accidentally disconnected from the whip.

(f) The moving parts of drive mechanisms, such as gearing and belting on large portable tools, shall be adequately guarded.

(g) Headers, manifolds and widely spaced hose connections on compressed air lines shall bear the word ''air'' in letters at least 1-inch high, which shall be painted either on the manifolds or separate hose connections, or on signs permanently attached to the manifolds or connections. Grouped air connections may be marked in one location.

(h) Before use, compressed air hose shall be examined. Visibly damaged and unsafe hose shall not be used.

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

§ 1915.132 Portable electric tools.

The provisions of this section shall apply to ship repairing, shipbuilding and shipbreaking except that paragraph (e) of this section applies to ship repairing only.

(a) The frames of portable electric tools and appliances, except double insulated tools approved by Underwriters' Laboratories, shall be grounded either through a third wire in the cable containing the circuit conductors or through a separate wire which is grounded at the source of the current.

(b) Grounding circuits, other than by means of the structure of the vessel on which the tool is being used, shall be checked to ensure that the circuit between the ground and the grounded power conductor has resistance which is low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

(c) Portable electric tools which are held in the hand shall be equipped with