

Table M.13
DECK PLANKING

<i>Measured Length</i>	<i>Deck planking</i>	
	<i>Single planked</i>	<i>Plywood</i>
m	mm	mm
5.	25	10
6.	25	10
7.	26	12
8.	28	14
9.	30	16
10.	32	18
11.	34	20
12.	36	22
13.	38	24
14.	42	26
15.	44	28
16.	46	30
17.	48	32
18.	50	34
19.	52	36
20.	54	38
21.	56	40
22.	58	42
23.	60	44
24.	64	46
25.	66	48
26.	68	50
27.	70	52
28.	72	54
29.	74	56
30.	76	58
31.	78	60
32.	80	62
33.	84	64
34.	86	66
35.	88	68

Notes:

- (a) Where beam spacing differs from the basic beam spacings shown in Table M.12, planking thickness shall be increased and may be decreased for every increase or decrease respectively in the resulting span between beams as follows:
 - (i) Single planked—3 mm per 25 mm difference.
 - (ii) Plywood—3 mm per 50 mm difference
- (b) Plywood may be in multiple thicknesses to obtain the total thickness shown in the right hand column of the table.
- (c) The table scantlings are for softwood of 640 kgs/m² density and marine grade plywood to Australian Standard AS 2272-1979, Plywood For Marine Craft.

Table M.14
PERMISSIBLE LOAD ON TIMBER PILLARS
 (Tonnes)

a (mm)	<i>Unsupported length of pillar (m)</i>							
	<i>Rectangular section</i>				<i>Round section</i>			
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
50	1.7	0.8	1.3	0.6
60	2.6	1.6	0.5	..	2.0	1.2	0.4	..
70	3.7	2.5	1.3	..	2.9	2.0	1.0	..
80	5.0	3.7	2.3	1.0	4.0	2.9	1.8	0.8
90	6.6	5.0	3.5	2.0	5.2	4.0	2.8	1.6
100	8.3	6.6	4.9	3.2	6.5	5.2	3.8	2.5
110	10.2	8.4	6.5	4.6	8.0	6.6	5.1	3.6
120	12.4	10.3	8.3	6.2	9.7	8.1	6.5	4.9
130	14.7	12.5	10.3	8.1	11.5	9.8	8.1	6.3
140	17.2	14.8	12.5	10.1	13.5	11.7	9.8	7.9
150	20.0	17.4	14.9	12.3	15.7	13.7	11.7	9.7
160	22.9	20.2	17.4	14.7	18.0	15.8	13.7	11.6
170	26.0	23.1	20.2	17.3	20.4	18.2	15.9	13.6
180	29.3	26.3	23.2	20.2	23.0	20.6	18.2	15.8
190	32.9	29.6	26.4	23.2	25.8	23.3	20.7	18.2
200	36.6	33.2	29.8	26.4	28.7	26.1	23.4	20.7

Note: In the above table a is the shorter side of a rectangular pillar or, the diameter of a circular pillar in millimetres.

Table M.15
DECK HOUSES

<i>Measured length</i>	<i>Deck house framing</i>					
	<i>Plywood</i>		<i>Planking</i>	<i>Spacing</i>	<i>Siding</i>	<i>Moulding</i>
	<i>Sides</i>	<i>Front</i>				
m	mm	mm	mm	mm	mm	mm
5	6	6	16	380	38	50
6	6	6	16	380	38	50
7	6	9	16	380	38	50
8	9	9	16	400	38	50
9	9	9	16	400	50	80
10	9	12	17	400	50	80
11	9	12	17	400	50	80
12	9	12	18	400	50	80
13	9	12	19	400	50	80
14	9	12	20	400	50	80
15	9	12	21	400	50	80
16	12	16	22	420	50	80
17	12	16	23	420	50	80
18	12	16	24	420	50	100
19	12	16	25	420	50	100
20	12	16	26	420	50	100
21	12	16	27	420	50	100
22	12	16	28	420	50	100
23	12	16	29	440	50	100
24	16	18	30	440	50	100
25	16	18	31	440	50	100
26	16	18	32	440	60	120
27	16	18	33	440	60	120
28	16	18	34	440	60	120
29	16	18	35	440	60	120
30	16	22	36	460	60	120
31	16	22	37	460	60	120
32	16	22	38	460	60	120
33	18	22	38	460	60	120
34	18	22	38	460	60	120
35	18	22	38	460	60	120

Notes:

- (a) Where the basic spacing shown in the table is not adopted, frame scantlings are to be adjusted by maintaining the section modulus of the frame per millimetre of frame spacing (Refer to Note (b) Table M.6).
- (b) Where frame spacing differs from the basic frame spacings shown in Table M.6, planking thickness shall be increased and may be decreased for every increase or decrease respectively in the resulting span between frames as follows:
- (i) Bent frames—3 mm per 25 mm difference
 - (ii) Other frame types—3 mm per 30 mm difference.

Table M.16
DECK HOUSE BEAMS AND DECK HOUSE TOP (NON WORKING DECK)

<i>Length of beam</i>	<i>Deck house beams</i>			<i>Deck house top</i>	
	<i>Spacing</i>	<i>Siding</i>	<i>Moulding</i>	<i>Plywood</i>	<i>Planking</i>
m	mm	mm	mm	mm	mm
1.5	350	30	54	9	12
2	350	35	70	9	13
3	350	45	100	9	15
4	400	60	140	12	17
5	400	75	180	12	19
6	400	90	200	12	21
7	450	100	220	16	23
8	450	100	240	16	25

Notes:

- (a) Basic spacing is from beam centre to beam centre.
- (b) Length of beam shall be the breadth of the deck house at the position of the beam.
- (c) Length of beam when pillars and girders are fitted is to be determined from M.17.1(f).
- (d) If basic spacing is increased or decreased then the section modulus at mid-span of the beam shall be increased or may be decreased respectively in the same proportion.
- (e) If the table dimensions for siding and moulding are varied then the section modulus is to be maintained

$$\left(\text{Section modulus } Z = \frac{S \times M^2}{6} \right)$$

- (f) Where it is intended that the deck house top be used as a working deck then scantlings shall be taken from Tables M.12 and M.13 and associated Notes.
- (g) Where beam spacing differs from the basic beam spacings shown in the Table planking thickness shall be increased and may be decreased for every increase or decrease respectively in the resulting span between beams as follows:
 - (i) Single planked—3 mm per 25 mm difference
 - (ii) Plywood—3 mm per 50 mm difference.

Table M.17
HARD CHINE VESSELS—KEEL AND HOG

<i>Measured length</i>	<i>Keel</i>			<i>Hog</i>		
	<i>Section area</i>	<i>Siding</i>	<i>Moulding</i>	<i>Section area</i>	<i>Siding</i>	<i>Moulding</i>
m	mm ²	mm	mm	mm ²	mm	mm
5	7 350	70	105	4 200	120	35
6	8 625	75	115	5 400	135	40
7	10 625	85	125	6 750	150	45
8	12 150	90	135	8 250	165	50
9	14 250	95	150	9 900	180	55
10	16 800	105	160	10 725	195	55
11	18 700	110	170	12 600	210	60
12	21 600	120	180	14 625	225	65
13	23 750	125	190	16 800	240	70
14	27 000	135	200	19 125	255	75
15	29 400	140	210	20 250	270	75
16	33 750	150	225	22 800	285	80
17	36 425	155	235	25 500	300	85
18	40 425	165	245	28 800	320	90
19	44 200	170	260	31 825	335	95
20	48 600	180	270	35 000	350	100
21	51 800	185	280	36 500	365	100
22	56 550	195	290	39 900	380	105
23	60 000	200	300	43 450	395	110
24	65 100	210	310	47 150	410	115
25	68 800	215	320	50 400	420	120

Notes:

- (a) Keel siding and moulding may be varied provided section area is maintained and siding is sufficient to provide 0.25 times the table siding on each side of the shaft tube.
- (b) Hog siding and moulding may be varied provided section area is maintained, and
 - (i) Siding is sufficient for garboard plank landings of at least 1.75 times plank thickness on either side of keel; and
 - (ii) Moulding is sufficient to provide 2.5 times plank thickness.
- (c) Vessels over 25 metres measured length will be specially considered by the Authority.

Table M.18
HARD CHINE VESSELS—TRANSOM

<i>Measured length</i>	<i>Thickness plywood</i>	<i>*Stiffeners</i>		<i>Margin</i>	
		<i>Moulding</i>	<i>Moulding</i>	<i>Siding</i>	<i>Moulding</i>
m	mm	mm	mm	mm	mm
5	12	50	25	75	35
6	12	55	25	80	40
7	12	60	25	85	45
8	12	60	30	90	45
9	16	65	30	95	50
10	16	70	30	100	50
11	19	70	35	105	50
12	19	75	40	110	55
13	19	80	40	120	60
14	24	85	45	125	60
15	24	90	45	130	65
16	24	95	45	140	65
17	24	95	50	145	70
18	24	100	50	150	75
19	24	105	50	160	75
20	24	110	55	165	80
21	30	115	55	170	80
22	30	115	60	180	85
23	30	120	60	185	90
24	30	125	65	190	90
25	30	130	65	200	95

* Stiffeners spaced at 450mm centre to centre..

Notes:

- (a) Where planking is used table thickness is to be increased by 25 per cent.
- (b) Where stiffener spacing varies from the standard spacing of 450mm used in the table, stiffener scantlings are to be adjusted by maintaining the section modulus of the stiffener per millimetre of stiffener spacing (Refer to Note (b) Table M.6).
- (c) Transom thickness may be decreased if the stiffener spacing is less than the basic 450mm as follows:
 - (i) Plywood—3mm per 50mm
 - (ii) Planking—3mm per 30mm.
- (d) Plywood may be in multiple thicknesses to obtain the total thickness shown in the table.
- (e) The table scantlings are for hardwood of 960 kg/m³ density and marine grade water-proof plywood to Australian Standard AS 2272-1979, Plywood for Marine Craft.
- (f) Vessels over 25 metres measured length will be specially considered by the Authority.

**Table M.19
HARD CHINE VESSELS—FLOORS**

<i>Measured length</i>	<i>*Floors</i>	
	<i>Siding</i>	<i>Moulding at centre line</i>
m	mm	mm
5	35	90
6	35	100
7	40	110
8	40	120
9	45	130
10	50	140
11	50	150
12	55	160
13	60	180
14	60	190
15	65	200
16	70	210
17	70	220
18	75	230
19	80	250
20	80	260
21	85	270
22	90	280
23	90	290
24	95	300
25	100	310

* Floors spaced at 450mm centres.

Notes:

- (a) Where floor spacing is less than 450mm, floor scantlings may be adjusted by maintaining the section modulus of the floor at the vessel's centre line per millimetre of floor spacing (Refer to Note (b) Table M.6).
- (b) Vessels over 25 metres measured length will be specially considered by the Authority.

Table M.20
HARD CHINE VESSELS—BOTTOM STRINGERS

<i>Measured Length</i>	<i>Bottom stringers</i>			
	<i>Spacing</i>	<i>Total section area per side</i>	<i>Moulding</i>	<i>Siding</i>
m	mm	mm ²	mm	mm
5.	215	2 760	20	46
6.	245	4 032	24	56
7.	270	5 544	28	66
8.	295	7 056	28	84
9.	260	8 448	32	66
10.	280	9 728	32	76
11.	300	11 248	38	74
12.	320	12 464	38	82
13.	280	14 060	38	74
14.	300	15 580	38	82
15.	325	17 200	40	86
16.	345	18 400	40	92
17.	310	20 160	40	84
18.	330	21 600	40	90
19.	340	22 680	42	90
20.	355	24 192	42	96
21.	325	25 872	42	88
22.	340	27 048	42	92
23.	355	28 336	44	92
24.	370	30 184	44	98
25.	385	31 416	44	102

Notes:

- (a) Where stringer spacing varies from the table, stringer scantlings are to be adjusted by maintaining the section modulus of stringer per millimetre of stringer spacing (Refer Note (b) Table M.6).
- (b) Where the spacing of web frames supporting bottom or side stringers varies from the table spacing in Table M.7, the scantlings of stringers shall be increased or may be decreased for any increase or decrease respectively in web frame spacing by increasing or decreasing the section modulus in accordance with the formula:

$$Z_1 = Z \left(\frac{S_1}{S_2} \right)^2$$

Where Z = section modulus of table stringer as adjusted for stringer spacing, if applicable.

Z = required section modulus at new spacing

S = table spacing for web frames

S = new spacing for web frames

- (c) Vessels over 25 metres measured length will be specially considered by the Authority.

Table M.21
HARD CHINE VESSELS—CHINES

<i>Measured length</i>	<i>Sectional area</i>	<i>Siding</i>	<i>Moulding</i>
m	mm ²	mm	mm
5.	1 458	27	54
6.	1 800	30	60
7.	2 312	34	68
8.	2 628	36	73
9.	3 200	40	80
10.	3 872	44	88
11.	4 560	48	95
12.	5 354	52	104
13.	6 272	56	112
14.	6 844	58	118
15.	7 688	62	124
16.	8 712	66	132
17.	9 248	68	136
18.	10 366	72	144
19.	10 952	74	148
20.	12 168	78	156
21.	12 800	80	160
22.	13 440	82	164
23.	14 450	85	170
24.	15 480	88	176
25.	16 200	90	180
26.	17 200		
27.	18 200		
28.	19 200		
29.	20 200		
30.	21 200		
31.	22 200		
32.	23 200		
33.	24 200		
34.	25 200		
35.	26 200		

To the satisfaction
of the Authority
concerned

Table M.22
HARD CHINE VESSELS—BEAM
SHELF/SHEER CLAMP

<i>Measured length</i>	<i>Section area</i>
m	mm ² :
5	2 300
6	2 500
7	3 250
8	4 050
9	4 900
10	6 000
11	6 970
12	7 420
13	8 500
14	9 620
15	10 800
16	12 350
17	13 650
18	15 370
19	15 750
20	17 200
21	19 120
22	20 700
23	22 320
24	24 500
25	26 250

Note:

- (a) Vessels over 25 metres measured length will be specially considered by the Authority.

Table M.23
HARD CHINE VESSELS—HULL PLANKING THICKNESS

<i>Measured length</i>	<i>Bottom</i>		<i>Topside</i>	
	<i>Plywood</i>	<i>Double diagonal</i>	<i>Plywood</i>	<i>Double diagonal</i>
m	mm	mm	mm	mm
5	9	15	9	15
6	11	17	9	15
7	12	19	9	15
8	14	21	11	16
9	15	23	11	18
10	16	25	12	19
11	18	26	14	20
12	20	28	15	21
13	21	30	16	23
14	22	32	17	24
15	24	34	18	26
16	25	36	19	27
17	27	38	20	29
18	28	40	21	30
19	30	42	22	32
20	31	44	23	33
21	33	45	25	34
22	34	47	26	36
23	36	49	27	37
24	37	51	28	39
25	39	53	29	40

Notes:

- (a) Where stringer spacing differs from the basic stringer spacings shown in Table M.20, planking thickness shall be increased and may be decreased for every increase or decrease respectively in the resulting span between stringers as follows:
 - (i) Plywood—3 mm per 50 mm difference
 - (ii) Diagonal planking—3 mm per 30 mm difference.
- (b) Plywood may be in multiple thicknesses to obtain the total thickness shown in the table.
- (c) the table scantlings are for hardwood of 960 kg/m³ density and marine grade water-proof plywood to Australian Standard AS 2272-1979 Plywood for Marine Craft.
- (d) Table thicknesses for double diagonal planking are applicable only to hulls where planking layers are glued together.
- (e) Vessels over 25 metres measured length will be specially considered by the Authority.

Table M.24
HARD CHINE VESSELS—PLYWOOD PLANKING BUTT STRAPS

<i>Plywood planking thickness</i>	<i>Breadth of butt strap</i>	<i>Fastings</i>	
		<i>Method of fastening</i>	<i>Copper boat nails</i>
mm	mm		S.W.G.
6	175		12
9	225	Double	12
12	250	fastened	12
16	300		10
19	325	Treble	10
24	375	fastened	8

Notes:

- (a) Where multiple layers of plywood are used butt straps are not required to be fitted, however overlaps having a minimum width equal to the table width for butt straps shall be provided.
- (b) Butt straps should not be fitted in the bottom or side plywood planking in any of the machinery space.

Table M.25
TIMBER BULKHEADS

<i>Height of bulkhead</i>	<i>Planking</i>		<i>Stiffener</i>		
	<i>Double planked</i>	<i>Ply-wood</i>	<i>Stiff-ener spacing</i>	<i>Mould-ing</i>	<i>Siding</i>
m	mm	mm	mm	mm	mm
1.0	20	10	400	70	35
1.5	30	15	400	85	45
2.0	40	20	400	100	55
2.5	50	25	450	115	65
3.0	60	30	450	135	75
3.5	70	35	450	150	85
4.0	80	40	450	165	95

Notes:

- (a) The height of the bulkhead is to be measured from the top of the keel to the underside of the deck beam at the centre line of the vessel.
- (b) Where stiffener spacing differs from the basic stiffener spacings shown in the Table planking thickness shall be increased and may be decreased for every increase or decrease respectively in the resulting span between stiffeners as follows:
- (i) Planking—3 mm per 30 mm difference
 - (ii) Plywood—3 mm per 50 mm difference.

- (c) If the stiffener spacing shown in the table is not used then the stiffener scantlings are to be adjusted by maintaining the section modulus of stiffener per millimetre of stiffener spacing (Refer Note (b) Table M.6).
- (d) In the case of a collision bulkhead the table planking thickness is to be increased by 25 per cent and the section modulus of the stiffener is to be not less than 1.25 times the table modulus.
- (e) Where collision bulkhead stiffeners are glued and fastened to the bulkhead, the required increase, based on the section modulus will be specially considered.

**Table M.26
FASTENINGS**

Thickness of member being fastened	Copper nails	Screws	Bolts	
	Gauge	Gauge	Total thickness of members being joined	Diameter
mm	BG	No.	mm	mm
18-22.	12	4-6	150-200	9
22-26.	11	6-8	200-300	12
26-30.	10	8-10	300-380	16
30-34.	9	10-12	380-600	19
34-38.	8	12-14	600 and over	22
38-42.	7	14-16		
42-46.	6	16-18		
46-50.	5	16-18		
50-54.	4	16-18		
54-58.	3			
58-70.	2			
70-80.	1			

Note:

Minimum plank fastenings at frames shall be as follows:

- less than 150mm width of plank double fastened
- 150mm and over width of plank treble fastened.

The bolt sizes are based on the use of copper having an ultimate strength of 210 MPa.

For bolts of materials other than copper the diameter may be determined from the formula:

$$\text{diameter} = d_c \times \sqrt[3]{\frac{210}{U}}$$

where d_c = diameter of copper bolt

U = ultimate strength of other material

Table M.27
PLYWOOD DECK PLANKING AND ASSOCIATED DECK LONGITUDINALS

Plywood thickness	Deck longitudinals		
	Spacing	Siding	Moulding
6	140	30	45
8	180	30	50
10	230	40	50
12	270	40	54
14	310	40	58
16	350	40	62
18	395	45	62
20	435	45	64
22	465	45	68
24	510	50	68
26	550	50	70
28	595	55	70
30	635	55	72

Notes:

- (a) Deck longitudinal spacing is measured centre to centre.
- (b) Section Modulus of deck longitudinals in the Table is for longitudinals associated with web beams spaced 1000mm apart. Where spacing of web beams varies from 1000mm then the scantlings of longitudinals shall be increased or may be decreased for any increase or decrease respectively in web beam spacing by increasing or decreasing the section modulus in accordance with the formula

$$Z_1 = Z \left(\frac{S}{1000} \right)^2$$

where Z = section modulus of Table longitudinals as adjusted for longitudinal spacing, if applicable

Z₁ = required section modulus (refer note (e) Table M.12)

- (c) Where longitudinal spacings varies from the table, longitudinal scantlings are to be adjusted by maintaining the section modulus of the longitudinal per millimetre of longitudinal spacing (Refer Note (b) Table M.6)
- (d) Deck thickness shall be increased and may be decreased for every increase or decrease respectively in the table spacing by an amount of 3mm for each 50mm difference.

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