

Table M.2
STEM & FORWARD DEADWOOD

Measured length	Stem (heel)		Stem (head)		Forward deadwood
	1 Siding	2 Moulding	3 Siding	4 Moulding	
m	mm	mm	mm	mm	mm
5	75	100	60	80	150
6	75	100	60	80	175
7	75	125	60	100	175
8	100	125	80	100	200
9	100	150	80	120	225
10	125	150	100	120	250
11	150	175	120	140	275
12	175	200	140	160	300
13	175	225	140	180	300
14	200	225	160	180	325
15	200	250	160	200	350
16	225	250	180	200	375
17	250	275	200	220	375
18	250	300	200	240	400
19	250	325	200	260	425
20	275	325	220	260	450
21	275	350	220	280	450
22	300	350	240	280	475
23	300	375	240	300	500
24	325	375	260	300	525
25	325	400	260	320	550
26	350	400	280	320	575
27	350	425	280	340	575
28	375	425	300	340	600
29	375	450	300	360	625
30	400	450	320	360	650
31	400	475	320	380	675
32	425	500	340	400	675
33	425	525	340	420	700
34	450	525	360	420	725
35	450	550	360	440	750

* Forward Deadwood does not include Apron.

Notes:

- Stem siding and moulding may be varied provided sectional area is maintained and the ratio of siding to moulding is not greater than 1 to 1.5.
- The stem may be uniformly tapered from heel to the dimensions shown in columns 3 and 4. Where stem siding and moulding are varied in accordance with Note (a) the taper shall be not greater than one fifth of the heel scantlings.
- The face of the stem may be reduced in siding below the declline.
- Laminated stems shall be subject to special consideration.
- Grown knees forming forward deadwoods shall have a moulding of not less than 1.5 times the siding.

Table M.3
STERNPOST AND AFT DEADWOOD

<i>Measured length</i>	<i>Sternpost</i>		<i>Aft deadwood</i>	
	<i>*Siding</i>	<i>Moulding</i>	<i>*Siding</i>	<i>Moulding</i>
m	mm	mm	mm	mm
5	75	100	75	100
6	75	100	75	100
7	75	125	75	125
8	100	125	100	125
9	100	150	100	150
10	125	150	125	150
11	150	175	150	175
12	175	200	175	200
13	175	225	175	225
14	200	225	200	225
15	200	250	200	250
16	225	250	225	250
17	250	275	250	275
18	250	300	250	300
19	250	325	250	325
20	275	325	275	325
21	275	350	275	350
22	300	350	300	350
23	300	375	300	375
24	325	375	325	375
25	325	400	325	400
26	350	400	350	400
27	350	425	350	425
28	375	425	375	425
29	375	450	375	450
30	400	450	400	450
31	400	475	400	475
32	425	500	425	500
33	425	525	425	525
34	450	525	450	525
35	450	550	450	550

* Thickness of timber on each side of the shaft tube is to be not less than 0.25 times the keel siding.

Notes:

- The sternpost is to be connected to the keel by a mortice and tenon joint and also by a dovetail plate or other equivalent connection on both sides in addition to the fastenings.
- The inner posts, deadwood and/or shaft logs shall be substantially moulded to permit a double row of fastenings in the hood ends coupled with a minimum faying surface of 3 times the planking thickness.
- Where the keel siding has been modified in accordance with Note (a) Table M.1, the sidings of sternposts and aft deadwoods may be uniformly tapered from below the shaft line to the keel.

Table M.4
HORN TIMBER ASSEMBLY

<i>Measured length</i>	<i>Sectional area</i>
m	mm ²
5	8 000
6	10 400
7	12 800
8	15 200
9	17 600
10	20 000
11	24 200
12	28 400
13	32 600
14	36 800
15	41 000
16	48 000
17	55 000
18	62 000
19	69 000
20	76 000
21	83 000
22	90 000
23	97 000
24	104 000
25	111 000
26	118 000
27	125 000
28	132 000
29	139 000
30	146 000
31	153 000
32	160 000
33	167 000
34	174 000
35	181 000

**Table M.5
TRANSOM**

<i>Measured length</i>	<i>Thick-ness</i>	<i>*Stiffeners</i>		<i>Margin</i>	
		<i>Siding</i>	<i>Mould-ing</i>	<i>Siding</i>	<i>Mould-ing</i>
m	mm	mm	mm	mm	mm
5	28	50	25	75	35
6	30	55	25	80	40
7	32	60	25	85	45
8	34	60	30	90	45
9	36	65	30	95	50
10	38	70	30	100	50
11	40	70	35	105	50
12	42	75	40	110	55
13	44	80	40	120	60
14	46	85	45	125	60
15	48	90	45	130	65
16	50	95	45	140	65
17	52	95	50	145	70
18	54	100	50	150	75
19	56	105	50	160	75
20	58	110	55	165	80
21	60	115	55	170	80
22	62	115	60	180	85
23	64	120	60	185	90
24	66	125	65	190	90
25	68	130	65	200	95
26	70	130	70	205	95
27	72	135	70	210	100
28	74	140	75	220	100
29	76	145	75	225	105
30	78	150	80	230	110
31	80	155	85	235	110
32	82	155	90	245	115
33	84	160	90	250	120
34	86	165	95	255	120
35	88	170	100	260	125

* Stiffeners spaced at 450 mm centre to centre.

Notes:

- (a) Table thickness is for single thickness planked construction. Where diagonal or multiple skin construction is adopted, the thickness may be reduced to 0.75 of that in the table.
- (b) Where stiffener spacing is less than the standard spacing or 450 mm used in the table, stiffener scantlings may be adjusted by maintaining the section modulus of stiffener per millimetre of stiffener spacing. For example:

Vessel 20 m length—propose to use spacing of 300 mm with siding of 100 mm;
Modulus per millimetre at table scantlings and spacing = 123

$$\text{Required moulding} = \sqrt{\frac{123 \times 300 \times 6}{100}} = 47 \text{ mm}$$

- (c) Where the stiffener spacing is less than the basic 450 mm the transom thickness may be decreased for every decrease in the resulting space between the stiffeners at the rate of 3 mm per 30 mm decrease.

Table M.6
BENT FRAMES

<i>Measured length</i>	<i>Bent frames</i>		
	<i>*Spacing</i>	<i>Siding</i>	<i>Moulding</i>
m	mm	mm	mm
5	100	30	25
6	110	35	25
7	120	40	25
8	130	45	25
9	140	45	25
10	150	50	25
11	160	55	30
12	170	60	30
13	180	65	35
14	190	70	35
15	200	75	40
16	210	80	45
17	220	85	50
18	230	85	55
19	240	90	55
20	250	95	60
21	260	100	60
22	270	105	65
23	280	105	70
24	290	110	70
25	300	115	75
26	310	120	80
27	320	125	85
28	330	125	90
29	340	130	95
30	350	135	95
31	360	140	100
32	370	145	100
33	380	150	105
34	390	155	105
35	400	160	110

* Spacing is measured from centre to centre of frames.

Notes:

- (a) Bent frames may be in unglued laminations, each not less than 12 mm in thickness and fastened with copper nails clenched or rivetted on roves or bolts with nuts and washers. See Table M.26.
- (b) If the frame spacing shown is not used then frame scantlings are to be adjusted by maintaining the section modulus of frame per millimetre of frame spacing. For example—
Vessel 20 m length—wish to use spacing of 300 mm with siding of 100 mm:
Modulus per millimetre at table scantlings and spacing = 228

$$\text{Required moulding} = \sqrt{\frac{228 \times 300 \times 6}{100}} = 64 \text{ mm}$$

N.B. Plank thickness will also require increase of 3 mm per 25 mm increase in frame spacing—refer note (a) Table M.11

Table M.7
TRANSVERSE WEB FRAMES

Measured length	*Spacing	Web frames	
		Siding	Moulding
m	mm	mm	mm
5.	500	20	60
6.	550	25	65
7.	600	25	75
8.	650	30	80
9.	700	30	90
10.	750	35	95
11.	800	35	105
12.	850	40	110
13.	900	45	120
14.	950	45	125
15.	1 000	50	135
16.	1 050	50	140
17.	1 100	55	150
18.	1 150	60	155
19.	1 200	60	165
20.	1 250	65	170
21.	1 300	65	180
22.	1 350	70	185
23.	1 400	75	195
24.	1 450	75	200
25.	1 500	80	210
26.	1 550	80	215
27.	1 600	85	225
28.	1 650	90	230
29.	1 700	90	240
30.	1 750	95	250
31.	1 800	95	255
32.	1 850	100	265
33.	1 900	105	270
34.	1 950	105	280
35.	2 000	110	285

* Spacing is measured from frame centre to frame centre.

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) Frames of the above siding and moulding may be notched to a depth of not more than 12.5 per cent of the moulding to house longitudinal stringers.

Table M.8
FLOORS (SINGLE PLANKED HULLS)

<i>Measured length</i>	<i>Floors</i>	
	<i>Siding</i>	<i>Moulding</i>
m	mm	mm
5.	40	100
6.	45	125
7.	45	150
8.	50	150
9.	55	175
10.	60	200
11.	65	225
12.	65	250
13.	70	250
14.	75	275
15.	80	300
16.	85	325
17.	90	325
18.	90	350
19.	95	375
20.	100	400
21.	105	425
22.	110	425
23.	110	450
24.	115	475
25.	120	500
26.	125	525
27.	125	550
28.	130	550
29.	135	575
30.	140	600
31.	145	625
32.	145	650
33.	150	650
34.	155	675
35.	160	700

Notes:

- (a) Both fitch and grown floors are to be sided generally 2 times the planking thickness shown for single planked hulls in Table M.11. Sidings are for single planked hulls, and floors shall be fitted at not more than 3 times the bent frame spacing outside the engine room in round bilge hulls.
- (b) Floors in machinery spaces shall be increased i.e. siding by 30 per cent or alternatively may be fitted at 2 times the bent frame spacing.
- (c) Where practicable floors should be of sufficient depth to connect with and be through fastened to the lower bilge stringers.
- (d) For floors in way of web frames refer to M.14.

Table M.9
CHINES AND STRINGERS (SINGLE PLANKED HULLS)

Measured length	Chines			Stringers		
	Section area	Siding	Moulding	Section area per side	Siding	Moulding
m	mm ²	mm	mm	mm ²	mm	mm
5.	1 950	30	65	5 400	60	30
6.	2 450	35	70	5 850	65	30
7.	3 000	40	75	7 350	70	35
8.	3 600	45	80	8 400	80	35
9.	4 250	50	85	9 600	80	40
10.	4 950	55	90	11 400	95	40
11.	6 000	60	100	14 175	105	45
12.	7 150	65	110	14 850	110	45
13.	8 050	70	115	18 000	120	50
14.	9 375	75	125	18 750	125	50
15.	10 800	80	135	22 275	135	55
16.	12 325	85	145	23 100	140	55
17.	13 950	90	155	27 000	150	60
18.	15 675	95	165	31 200	160	65
19.	17 000	100	170	32 175	165	65
20.	18 375	105	175	36 750	175	70
21.	19 800	110	180	37 800	180	70
22.	21 275	115	185	42 750	190	75
23.	22 800	120	190	45 000	200	75
24.	24 375	125	195	49 200	205	80
25.	26 000	130	200	51 600	215	80
26.	27 675	135	205	56 100	220	85
27.	29 400	140	210	62 100	230	90
28.	31 175	145	215	63 450	235	90
29.	33 000	150	220	69 825	245	95
30.	34 875	155	225	72 675	255	95
31.	36 800	160	230	78 000	260	100
32.	38 775	165	235	81 000	270	100
33.	40 800	170	240	88 200	280	105
34.	42 875	175	245	94 050	285	105
35.	45 000	180	250	97 350	295	110

Notes:

- (a) At least 3 stringers shall be fitted on each side of a round bilge hull and in the bottom of chine hulls. Where more than 3 stringers are fitted their scantlings shall be subject to special consideration by the Authority.
- (b) Stringers may be laminated. Each lamination should be not less than 12mm in thickness (Refer M.15.1 (b)).
- (c) Scantlings of chines and stringers may be reduced from those shown in the table by a uniform taper of both siding and moulding by up to 20 per cent of the cross sectional area beyond 0.6L amidships.

Table M.10
SHEER CLAMP AND BEAM SHELF (SINGLE PLANKED HULLS)

<i>Measured length</i>	<i>Sheer clamp</i>		<i>Beam shelf</i>	
	<i>Siding</i>	<i>moulding</i>	<i>Siding</i>	<i>Moulding</i>
m	mm	mm	mm	mm
5	20	115	25	20
6	20	125	30	20
7	25	130	35	25
8	30	135	40	25
9	35	140	50	30
10	40	150	55	35
11	45	155	60	40
12	45	165	65	40
13	50	170	75	45
14	55	175	80	50
15	60	180	85	50
16	65	190	95	55
17	70	195	100	60
18	75	205	105	60
19	75	210	110	65
20	80	215	120	70
21	85	225	125	75
22	90	230	130	75
23	95	235	135	80
24	100	245	145	85
25	105	250	150	90
26	110	255	155	95
27	110	260	160	95
28	115	270	170	100
29	120	275	175	105
30	125	280	180	110
31	130	290	190	110
32	135	295	195	115
33	140	300	200	120
34	145	310	205	120
35	150	315	210	125

Notes:

- (a) Scantlings of sheer clamp and beam shelf may be reduced by a uniform taper of both moulding and siding by up to 20 per cent of the sectional area beyond 0.6L amidships.
- (b) Sheer clamps and beam shelves in way of raised decks, etc., shall have scantlings as shown in the Table.

Table M.11
HULL PLANKING THICKNESS

Measured length	Single planked	Multiple skins (total)			Marine plywood
		2 Layers	3 Layers	4 Layers	
m	mm	mm	mm	mm	mm
5	18	15	15	15	9
6	20	17	17	17	11
7	22	19	19	18	12
8	24	21	20	19	14
9	26	23	22	21	15
10	28	25	24	23	16
11	30	26	25	24	18
12	32	28	27	25	20
13	34	30	29	27	21
14	36	32	30	28	22
15	38	34	32	30	24
16	40	36	34	32	25
17	42	38	36	33	27
18	44	40	37	34	28
19	46	42	39	36	30
20	48	44	41	38	31
21	50	45	42	39	33
22	52	47	44	41	34
23	54	49	46	42	36
24	56	51	47	43	37
25	58	53	49	45	39
26	60	55	51	46	40
27	62	57	53	48	42
28	64	59	54	49	43
29	66	60	56	51	45
30	68	62	58	53	46
31	70	64	59	54	48
32	72	66	61	56	50
33	74	68	63	57	51
34	76	70	65	59	52
35	78	72	66	60	54

Notes:

- (a) 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
- (b) Plywood may be in multiple thicknesses to obtain the total thickness shown in the right hand column of the Table.
- (c) Table thicknesses for multiple skins are applicable only to hulls where planking layers are glued together.

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- (d) Where multiple skins are not glued together the total thickness shall be as for single planking, however, where the multiple skins are laid diagonally and not glued together the total thickness shall be 90 per cent of the Table thickness for single planking.
- (e) The Table scantlings are for hardwood of 960kg/m³ density and marine grade plywood to Australian Standard AS 2272-1979, Plywood For Marine Craft.

Table M.12
DECK BEAMS

* Length of beam	Deck beams			
	Spacing	Siding	Moulding (mid-span)	Moulding (ends)
m	mm	mm	mm	mm
1.	250	25	35	25
1.5	275	35	45	35
2.0	300	40	60	40
2.5	325	50	75	50
3.0	350	50	90	50
3.5	375	65	110	65
4.0	400	70	130	70
4.5	425	80	155	80
5.0	450	90	175	90
5.5	475	100	200	100
6.0	500	110	225	110
6.5	525	120	250	125
7.0	550	130	275	140
7.5	575	140	300	150
8.0	600	150	325	160

* See notes (b) and (c) for determination of length of beam.

Notes:

- (a) Basic spacing is from beam centre to beam centre.
- (b) Length of beam shall be the breadth of the vessel at the position of the beam.
- (c) Length of beam when pillars and girders are fitted is to be determined from sub-clause 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.

M not to exceed 3 x S

Note: section modulus $Z = S \times M^2/6$

where S = siding in mm

M = moulding in mm

