





**WOOD DECK** (Arts. 5 and 6)

	Mean Length in ft.	Thickness in ins.	Products
Forecastle	31.08		
Bridge	170.50	3.5-.44	703.28
Poop	28.25	3.06	
Open Deck, ford.			
.. aft.			
Total length = $l =$	229.83		703.28
Sum of Products =			1.56
Sum of Products = $t =$		ins. ;	$L$

**CORRECTION FOR DEPTH & CORRECTION FOR FREEBOARD.**

If no sheathing fitted amidships =  $t_1 = \pm$  ins. (Arts. 6 and 57 p. 1)

If sheathing is fitted amidships =  $(t - t_1) = \mp$  ins. (Arts. 6 and 57 p. 2)

\* Note : Use the upper sign in correction for depth and the lower sign in correction for freeboard.

**DEPTH TO USE IN FREEBOARD TABLE.**

Depth moulded = 37.0 ft. ins.

Thickness of Stringer Plate = .44

Thickness of Wood Deck Amidships = 37 - 0.44

Correction for partial wood deck = 1.56

Depth to use in Freeboard Tables = 37 ft. 2.00 ins. =  $D_1 = 37.17$  ft.

**SUPERSTRUCTURES.**

HEIGHT (Arts. 46-48)

Standard Height =  $(0.018 L + 1.2)$  ft. = 7.5

	Complete Superstructure	Forecastle	Bridge	Poop or R.Q.D.
Actual	7.37	.98	7.63	1
Standard	7.5		7.5	1

**CLOSING APPLIANCES** (Arts. 50 and 54)

	Forecastle	Bridge	Poop or Raised Quarter Deck
Means of Closing openings in bulkhead	Hinged steel Door	W.T. Door	Steel W.T. Door
Corresponding Class	II	I	I

**EFFECTIVE LENGTH** (Arts. 55 and 56)

	Mean Length	Coef. Art. 56	Height Coef.	Products.
Forecastle closed part	31.08	1.00	.98	30.46
.. open part	2.27	.75	.98	1.67
Bridge closed part	170.5	1.00	1.00	170.50
.. open part ford.				
.. .. aft.				
Poop closed part	28.25	1.00	1.00	28.25
.. open part				
Total Effective Length =	230.88			
Length of Vessel = $r =$	450			
Corresponding Coef. in Table (Art. 49) = $e =$				.328
Reduction for Complete Superstructure				12.79
Product				12.79
Correction for Superstructures				12.79

**EFFECTIVE LENGTH** (Shelter Deck Vessels Arts. 87-92)

$l + \frac{1}{2}(1-p)(L-l) =$  ft.

(\* See Art. 90)

**CORRECTION FOR PROPORTIONS L/D** (Art. 58)

When  $D_1$  is less than 35 ft. =  $\frac{D_1 + 16}{300} (1 - e/2) (L - 12 D_1)$

.. .. greater than 35 ft. =  $0.17 (1 - e/2) (L - 12 D_1)$

[Note  $e = 1.0$  if more than  $6/10$  covered] = 1.56

Are the Engine and Boiler openings covered by a Bridge, Poop, Raised Quarter Deck or enclosed by a strong steel deck house? **Covered by Bridge.**

If openings are not so protected give thickness of plating and scantlings and spacing of stiffeners of Casings. **10'-5.44"**

Are suitable means provided for closing all openings in them in bad weather? **Yes**

State the vertical distance from base line at top of keel to lower edge of lowest side scuttle **Above Upper Deck.**

State if there are any cargo ports or scuppers through sides of vessel below upper deck **No**

State any special features in the construction of the vessel

Sister vessels

Fee. Yen. ; Depth of Keel ins. ; Draught (btm. keel) ft. ins.

**CORRECTION FOR ROUND OF BEAM** (Art. 59)

Standard Round of Beam =  $\frac{\text{Length of Beam in ins.}}{50} = 14.4$  ins.

Correction =  $\frac{1}{4} (\text{Standard Round of Beam} - \text{Actual Round of Beam}) = \frac{1}{4} (14.4 - 15) = -.15$  ins.

**CORRECTION FOR FREEING PORTS** (in vessels less than 15 ft. Depth Art. 64)

Length of bulwark in feet each side

Area of Freeing ports each side

Area of Freeing ports required by Table

Correction  $1.2 (r - 0.5) D_1 = +$  ins.

**CORRECTION FOR ACCESS TO CREW'S QUARTERS** (Arts. 65-67)

Are Crew berthed in Bridge House or Forecastle?

Height and breadth of gangway

Correction =  $-.012 (80 - l) D_1$  or  $1.2 (r - 0.5) D_1$

**SUMMARY.**

Freeboard by Tables = 115.15 ins.

Correction for Sheer = 3.13

.. .. Partial Wood Deck = 1.56

.. .. Superstructures = 12.79

.. .. Proportions L/D = .56

.. .. Round of Beam = .15

.. .. Freeing Ports =

.. .. Access to Crew's Quarters =

Totals = 17.63

Net Correction = 17.07

Geometric Freeboard = 98.08

Corresponding Geometric Draught (mid.) = 28.86

Moulded Draught limited by (to) = 26.58

Corresponding Freeboard (Summer) = 125.4

Winter Freeboard (Art. 22) =  $\frac{1}{4} (D_1 - 10) + r/45 (59 - D_1)$  = 7.04

Tropical Freeboard (Art. 24) do. do. = 7.04

Winter North Atlantic Fbd. (Art. 23) Vessels 330 ft. and below.

Ratio of effective length of superstructures to length of vessel

Additional Freeboard =

Fresh Water Freeboard (Art. 27)

$\frac{1}{4}$ " per foot of Summer Draught = 6.65

**FREEBOARD TO BE ASSIGNED.**

Vertical distance from upper edge of horizontal line indicating the freeboard deck to the centre of the disc. (Summer Line) = 125.4

Fresh Water Load Line above centre of disc. = 6.7

Tropical Load Line above " " " = 7.0

Winter Load Line below " " " = 7.0

Winter N.A. Load Line below " " " =

Vertical distance from the point of intersection of the extended line of the upper surface of the **Stringer plate** of the **Upper** deck at mid length of the vessel with the outside of shell plating to the upper edge of the horizontal line indicating the freeboard deck = 0.0

DETAILS OF CONSTRUCTION OF WEATHER DECK HATCHWAYS.

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
Length and Breadth	25'x24'to 20'	27'3" x 24'	38'6" x 24'	27'6" x 24'	24'9" x 24'	44' x 24'	27'6"x24'
Height above deck and thickness of side and end coaming	37"x.50 side .44 End	37"x.50 side .44 End	37"x.50 side .44 End	31"x.44	31"x.44	37"x.44 End	37"x.50 side .44 End
Shifting Beams	Four Plate 20x.38 150x75x10.5 B.A.	Five 20 x.38 150x75x10.5 B.A.	Seven 20 x.38 150x75x10.5 B.A.	Five 14x.34 150x75x10.5 B.A.	Four 14x.34 150x75x10.5 B.A.	Eight 20 x.38 150x75x10.5 B.A.	Five 20x.38 150x75x10.5 B.A.
*Fore and Afters	Number and Material Scantlings						
Thickness of hatches							
Remarks							

\* When the fore and afters are of wood the depth should be stated from the underside of hatches.

LONGITUDINAL MODULUS. (Minimum)

Top of Keel = 14.8'

Height of Assumed Axis above base = 14.8'

Section at Midship Section Plan.

BELOW ASSUMED AXIS.						ABOVE ASSUMED AXIS.					
Item	Scantlings	Area	Lever	Moment	Mt. of Inertia	Item	Scantlings	Area	Lever	Moment	Mt. of Inertia
Flat Keel (1/2)	36" x .88"	31.7	14.8	469	6940	Top Deck Str.	74.19 x .84	62.3	22.5	1402	31540
Centre Girder	47x.60x1/2	14.1	12.8	180	2310	.. .. Plating	78.38 x .80	62.7	22.9	1436	32880
C.G. btm. ang.	130x130x17x1/2	3.2	14.7	47	690	.. .. "	74.63 x .80	59.7	23.2	1385	32130
C.G. top angles	90x90x14x1/2	1.8	11.0	20	220	.. .. "	160x160x20	9.4	22.4	211	4720
T.T. Cr. Str. (1/2)	36 x .54	19.4	10.8	210	2260	.. .. Str. Ang.	66.2 x .44	29.1	11.5	335	3850
T.T. plating	79.25					.. .. Plating	74.25 x .40	29.7	11.8	350	4140
.. .. "	79.63 x .46	127.3	10.8	1375	14850	.. .. "	73.81 x .40	29.5	12.2	360	4390
.. .. "	80.09					.. .. "					
.. .. "	37.88					.. .. Str. Ang.					
.. .. Gusset	14 x .46	6.4	10.5	67	710	3rd Deck Str.					
Margin Plate	38.5 x .62	23.9	12.6	301	3790	.. .. Plating					
.. .. Flange	6.0 x .62	3.7	10.7	40	420	.. .. "					
.. .. Angle	110x110x14	4.5	14.4	65	930	.. .. "					
Shell Strake A	84" x .72	60.5	14.7	889	13070	.. .. Str. Ang.					
.. .. B	83.75x.72	60.3	14.7	886	13030	Sheerstrake	66 x .92	60.7	20.7	1256	26010
.. .. C	84" x .72	60.5	14.5	877	12710	Strake below	77.19x.72	55.6	15.2	845	12850
.. .. D	80.75x.72	58.1	14.3	831	11880	Shell Strake G	86.25 x .70	60.4	1.9	115	220
.. .. E	72.5 x .72	52.2	10.8	564	6090	.. .. H	87.38x.70	61.2	8.7	532	4630
.. .. F	84.69x.70	59.3	4.8	285	1370	.. .. "					
Totals below assumed axis		586.9		7106	91270	Totals above assumed axis		520.3		8227	157360
.. .. above assumed axis		520.3		8227	157360	Neutral Axis above assumed axis (x) =		1121		1107.2	= 1.0126
Sum or Difference		1107.2		1121	248630	Correction = (Total Area x x^2 x 2) =		1107.2 x 1.0126 x 2 = 2270			
						Moment of Inertia about Neutral Axis =		494990			
						Distance from Neutral Axis to top of strength deck beam at side =		21.19			
						MODULUS OF SECTION =		23360			
						Actual Modulus =		23360			
						f. B. =		13.635			

**DRAUGHT PERMITTED BY LONGITUDINAL STRENGTH** (Arts. 81-86) =  $\frac{\text{Actual Modulus}}{f. B.} = \frac{23360}{13.635} = 1713$

**TRANSVERSE MODULUS** (in way of Hold Framing A (under Bridge) in way of Engine Room B.)

Minimum Side Plating (Art. 77)  $\frac{0.105 \times 450 + 17}{100} = .64$ " ; Standard Frame Spacing (Art. 78) =  $-.025 \times 450 + 17 = .33$ "

Actual Side Plating = .70" ; Actual Frame Spacing = .33"

If actual frame spacing exceeds the standard  $\sqrt{\frac{\text{Actual frame spacing}}{\text{Standard frame spacing}}} = \sqrt{\frac{.33}{.33}} = 1$

Moulded Geometric Draught (d) = 28.86

$t = \frac{H}{K} = \frac{20.65}{23.5} = .88$

$d - t = 28.86 - .88 = 27.98$

Standard I/y =  $\frac{s(d-t)(f_1 + f_2)}{1000} = \frac{33 \times 27.98 \times (1.5 + 1.5)}{1000} = 2.7$

Frame in ship = 33" at 33" spacing I/y = 33.2

**DRAUGHT PERMITTED BY TRANSVERSE STRENGTH** =  $\frac{I/y \times 1000}{s(f_1 + f_2)} = \frac{33.2 \times 1000}{33 \times (1.5 + 1.5)} = 33.2$

Note: Clear of Superstructure k=18.5

$f_1 + f_2 = 2.7$

Draught Permitted = 30.38

