

Preliminary

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

Index. No.

(For London Office only.)

3438

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having

Port of Survey

**"DURHAM"**

(Type of Superstructures.)

Ship's Name

Nationality and Port of Registry

Official Number

Gross Tonnage

Date of Build

Workman Clark 533.

Date of Survey 30.8.33.

Name of Surveyor

Moulded Dimensions: Length 490' Breadth 68' Depth 39' ✓  
Moulded displacement at moulded draught = 85 per cent. of moulded depth 22900 ✓ tons  
Coefficient of fineness for use with Tables 726 ✓

Particulars of Classification +100 A1. with Freeboard. (Contemplated)

Depth for Freeboard (D)			Depth correction		Round of Beam correction	
Moulded depth	...	39.00	(a) Where D is greater than Table depth (D - Table depth) R =	✓	Moulded Breadth (B)	68.00'
Stringer plate	...	.04	(39.04 - 32.67) 3.00 = +19.11"	✓	Standard Round of Beam = $\frac{B \times 12}{50}$	16.32" ✓
Sheathing on exposed deck	...	✓	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	✓	Ship's Round of Beam	= 6.00'
$T \left( \frac{L-S}{L} \right) =$					Difference	10.32" ✓
Depth for Freeboard (D) =	39.04	✓	If restricted by superstructures	✓	Restricted to	
					Correction = $\frac{\text{Diff}^e}{4} \times \left( 1 - \frac{S_1}{L} \right)$	= $\frac{10.32}{4} \times .005 = +.01$

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)	
Poop enclosed ...	59.08	59.08	8.50	-	59.08	Standard Height of Superstructure 7.50 ✓
" overhang ...	.67	.33			.33	" " R.Q.D. ✓
R.Q.D. enclosed ...						Deduction for complete superstructure 42.00 ✓
" overhang ...						Percentage covered $\frac{S}{L} = 100\%$
Bridge enclosed ...	425.25	425.25	8.50	-	425.25	" " $\frac{S_1}{L} = 99.50\%$
" overhang aft ...	.67	.50			.50	" " $\frac{E}{L} = 99.50\%$ ✓
" overhang forward ...						Percentage from Table, Line A. (corrected for absence of forecastle (if required)) 99.38% ✓
F'ele enclosed ...						Percentage from Table, Line B. (corrected for absence of forecastle (if required))
" overhang ...						Interpolation for bridge less than 2L (if required)
Trunk aft ...						Deduction = 42 × .9938 = -41.74 ✓
" forward ...						
Tonnage opening aft ...	4.33	2.42	8.50	-	2.42	
" " forward ...						
Total ...	490.00	487.58			487.58	

## SHEER CORRECTION.

Actual T.O. Ht. = 102"  
Standard T.O. Ht. = 90"  
Excess 12"

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	59.00	1		59.00	66.00	78.00	1		78.00	Mean actual sheer aft =
$\frac{1}{2}$ L from A.P. ...	26.25	4		105.00	29.33	34.71	4		138.84	Mean standard sheer aft =
$\frac{2}{3}$ L " ...	6.49	2		12.98	7.33	8.58	2		17.16	Mean actual sheer forward =
Amidships ...		4					4			Mean standard sheer forward =
$\frac{2}{3}$ L from F.P. ...	12.98	2		25.96	16.67	17.82	2		35.64	Length of enclosed superstructure forward of amidships =
$\frac{1}{2}$ L " ...	52.51	4		210.04	66.67	72.10	4		288.40	" " aft of " =
F.P. ...	118.00	1		118.00	150.00	162.00	1		162.00	
Total ...				530.98					720.04	

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{189.06}{18} \left( .75 - .50 \right) = -2.63$$

If limited on account of midship superstructure.

If limited to maximum allowance of  $1\frac{1}{2}$  ins. per 100 ft.

## Deduction for Tropical Freeboard.

## Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = 39.04 ✓  
Summer freeboard = 6.46 ✓  
Moulded draught (d) = 32.58 ✓

Deduction for Tropical freeboard and addition for Winter freeboard =  $\frac{d}{4}$  inches = 8.14 ✓

Addition for Winter North Atlantic Freeboard (if required) =

## Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 22873$ 

Tons per inch immersion at summer load water line

 $T = 66.5$ 

Deduction =  $\frac{\Delta}{40T}$  inches = 8.5 ✓

## TABULAR FREEBOARD

Correction for coefficient

$$\frac{68 + 726}{136} = \frac{1406}{136}$$

Depth Correction ... 19.11 ✓  
Deduction for superstructures ... 41.74 ✓  
Sheer correction ... 2.63 ✓  
Round of Beam correction ... .01 ✓  
Correction for Thickness of Deck amidships ...  
Other corrections, scantlings, etc. ...

Summer Freeboard = 77.40

## SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc ...	16.34"	Tropical Fresh Water Freeboard ...	5'-0.34" ✓
Fresh Water Line " " ...	8.5" ✓	Fresh Water " " ...	5'-9" ✓
Tropical Line " " ...	8.4" ✓	Tropical " " ...	5'-9.4" ✓
Winter Line below " " ...	8.4" ✓	Winter " " ...	7'-1.34" ✓
Winter North Atlantic Line " " ...	✓	Winter North Atlantic " " ...	✓