

Preliminary how sailing Raggio

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Index. No. 31806
(For London Office only.)

Computation of Freeboard for Steamer, Sailing Ship, Tanker					Port of Survey _____	
having <u>Poop, Bridge & Forecastle</u>					Date of Survey <u>25-2-36</u>	
(Type of Superstructures.)					Name of Surveyor _____	
Ship's Name <u>CABO RAZO</u>	Nationality and Port of Registry <u>/</u>	Official Number <u>/</u>	Gross Tonnage <u>/</u>	Date of Build <u>/</u>	Particulars of Classification _____	
Moulded Dimensions: Length <u>103.0 M.</u> Breadth <u>13.107 M.</u> Depth <u>8.23 M.</u>						
Moulded displacement at moulded draught = 85 per cent. of moulded depth <u>7051</u> metric tons						
Coefficient of fineness for use with Tables <u>.728</u> = <u>6849 M³</u>						
Depth for Freeboard (D)		Depth correction		Round of Beam correction		
Moulded depth <u>8.230</u>		(a) Where D is greater than Table depth (D - Table depth) R = <u>8.33 (8.242 - 6.864) 2.601 = +298</u>		Moulded Breadth (B) <u>13.107 M</u>		
Stringer plate <u>12</u>		(b) Where D is less than Table depth (if allowed) (Table depth - D) R = <u>1.375</u>		Standard Round of Beam = $\frac{B \times 12}{50} = \frac{13.107 \times 12}{50} = 262$ fms.		
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$		If restricted by superstructures		Ship's Round of Beam = <u>273</u>		
Depth for Freeboard (D) = <u>8.242</u>				Difference <u>Excess 11</u>		
				Restricted to		
				Correction = $\frac{\text{Diff}^e}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{11}{4} \times .4412 = -1.17$ fms.		

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed <u>equivalent</u>	<u>9.554</u>	<u>9.554</u>	<u>2.438</u>		<u>9.554</u>	Standard Height of Superstructure <u>2.099</u>
" overhang ...						" " R.Q.D. _____
R.Q.D. enclosed						Deduction for complete superstructure <u>962</u>
" overhang						Percentage covered $\frac{S}{L} = \frac{52.40}{100} = 52.40$
Bridge enclosed...	<u>35.332</u>	<u>35.332</u>	<u>2.438</u>		<u>35.332</u>	" " $\frac{S_1}{L} = \frac{52.28}{100} = 52.28$
" overhang aft ...						" " $\frac{E}{L} = \frac{52.28}{100} = 52.28$
" overhang forward						Percentage from Table, Line A. (corrected for absence of forecastle (if required))
F'cle enclosed <u>equivalent</u>	<u>8.494</u>	<u>8.494</u>	<u>2.438</u>		<u>8.494</u>	Percentage from Table, Line B. <u>38.28</u> (corrected for absence of forecastle (if required))
" overhang ...	<u>.598</u>	<u>.444</u>			<u>.444</u>	Interpolation for bridge less than 2L (if required)
Trunk aft ...						Deduction = <u>962</u> × <u>.3828</u> = <u>-368</u> fms.
" forward ...						
Tonnage opening aft ...						
" " forward						
Total ...	<u>53.981</u>	<u>53.857</u>			<u>53.857</u>	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	<u>1112</u>	1		<u>1112</u>	<u>1016</u>	<u>1016</u>	1		<u>1016</u>	Mean actual sheer aft = <u>Deficient</u>
$\frac{1}{8}$ L from A.P. ...	<u>494</u>	4		<u>1976</u>	<u>391</u>	<u>391</u>	4		<u>1564</u>	Mean actual sheer forward = <u>Deficient 79.3%</u>
$\frac{2}{8}$ L " ...	<u>124</u>	2		<u>248</u>	<u>83</u>	<u>83</u>	2		<u>166</u>	Mean standard sheer forward
Amidships ...	<u>✓</u>	4		<u>✓</u>	<u>✓</u>	<u>✓</u>	4		<u>✓</u>	Length of enclosed superstructure forward of amidships = <u>Deficient</u>
$\frac{3}{8}$ L from F.P. ...	<u>244</u>	2		<u>488</u>	<u>154</u>	<u>154</u>	2		<u>308</u>	" " aft of " = <u>Deficient</u>
$\frac{1}{8}$ L " ...	<u>988</u>	4		<u>3952</u>	<u>440</u>	<u>440</u>	4		<u>3080</u>	
F.P. ...	<u>2224</u>	1		<u>2224</u>	<u>1930</u>	<u>1930</u>	1		<u>1930</u>	
Total ...				<u>10006</u>					<u>8064</u>	

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{1942}{18} \times (.45 - .262) = +53$ fms.

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.		Deduction for Fresh Water.		TABULAR FREEBOARD corrected for Flush Deck (if required)		1348 -	
Addition for Winter and Winter North Atlantic Freeboard.				.728 + .68		1395 -	
		Displacement in salt water at summer load water line		Correction for coefficient			
Ft. ✓							
Depth to Freeboard Deck = 8.242		Δ = ✓		Depth Correction 298		+	
Summer freeboard = 1.344		Tons per inch immersion at summer load water line		Deduction for superstructures 368		-	
Moulded draught (d) = 6.865		T = ✓		Sheer correction 53			
		Deduction = Δ / 40 T inches		Round of Beam correction 11			
				Correction for Thickness of Deck amidships ✓			
				Other corrections, scantlings, etc. ✓			
Deduction for Tropical freeboard and addition for Winter freeboard = d / 48 inches = 143. ✓							
Addition for Winter North Atlantic Freeboard (if required) = ✓		143 fms.					
						351 369 - 18	
						Summer Freeboard = 1344 fms.	

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

Tropical Fresh Water Line above Centre of Disc ...	<u>286</u>	Tropical Fresh Water Freeboard ...	<u>1091</u>
Fresh Water Line " " ...	<u>143</u>	" " " " ...	<u>1234</u>
Tropical Line " " ...	<u>143</u>	" " " " ...	<u>1234</u>
Winter Line below " " ...	<u>143</u>	" " " " ...	<u>1520</u>
Winter North Atlantic Line " " ...	<u>✓</u>	" " " " ...	<u>✓</u>

Hand-drawn technical drawing of a ship's hull cross-section, showing two decks: Superstructure Deck and Freeboard Deck. The drawing includes various dimensions and a calculation for the total length.

Calculation:

$$\begin{array}{r}
 48' = 23.442 \\
 + \quad 11.56 \\
 \hline
 35.332
 \end{array}$$

Dimensions (Superstructure Deck):

- Overall length: 48'
- Length of bow section: 9.145
- Length of bow section (sub-section): 1.219
- Height of bow section: 7.463
- Height of bow section (sub-section): 11.28
- Length of stern section: 9.092
- Height of stern section: 1.829
- Height of stern section (sub-section): 4.264
- Length of stern section (sub-section): 1.829
- Height of stern section (sub-section): 1.753
- Height of stern section (sub-section): 1.524
- Height of stern section (sub-section): 4.038
- Height of stern section (sub-section): 1.981

Dimensions (Freeboard Deck):

- Overall length: 48'
- Length of bow section: 9.145
- Length of bow section (sub-section): 1.219
- Height of bow section: 7.463
- Height of bow section (sub-section): 11.28
- Length of stern section: 9.092
- Height of stern section: 1.829
- Height of stern section (sub-section): 4.264
- Length of stern section (sub-section): 1.829
- Height of stern section (sub-section): 1.753
- Height of stern section (sub-section): 1.524
- Height of stern section (sub-section): 4.038
- Height of stern section (sub-section): 1.981

Proof.

$$+ \frac{1.219 \times 3.812}{11.28} = .412$$
$$\underline{\underline{9.557}}$$

Forecastle

$$9.092$$
$$+ .457$$
$$\underline{9.549}$$
$$- 1.055$$
$$\underline{\underline{8.494}}$$

Recesses.

$$4.038 \times 1.219 = 4.922$$
$$1.981 \times 1.524 = 3.019$$
$$1.829 \times .229 = .419$$
$$\underline{8.360}$$
$$\underline{7.924} = 1.055$$

Sheer

<u>Standard.</u>			<u>actual</u>		
247	3	741	154	3	462
988	3	2964	440	3	2310
2224	1	2224	1930	1	1930
		<u>5929</u>			<u>4402</u>

of 8 standard

$$\text{Percentage Deficient} = \frac{4402}{5929} = 79.3\%$$

Fee £

Received by me.