

Basis computation for CSS with T.O.

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, ~~SAILING SHIP~~, TANKER.)

Index. No. **36767**
(For London Office Only).

Ship's Name EMPIRE GRACE.	Official Number	Nationality and Port of Registry British, Belfast.	Gross Tonnage	Date of Build 1942	Port of Survey Belfast.
Moulded Dimensions: Length 512.53' Breadth 70.0 Depth 35.04					Date of Survey During construction.
Moulded displacement at moulded draught = 85 per cent. of moulded depth 21556 tons					Surveyor's Signature W.M. Balfour.
Coefficient of fineness for use with Tables .706					Particulars of Classification + 100 A1 with freeboard.

Depth for Freeboard (D). Moulded depth ... 35.04 Stringer plate42"03 Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ ✓ Depth for Freeboard (D) = 35.07	Depth correction. (a) Where D is greater than Table depth $(\frac{D - \text{Table depth}}{10}) \times 3 = +2.70"$ (b) Where D is less than Table depth (if allowed) (Table depth - D) R = If restricted by superstructures	Round of Beam correction. Moulded Breadth (B) 70 Standard Round of Beam = $\frac{B \times 12}{50} =$ 16.8 Ship's Round of Beam = 17.5 Difference .7 Restricted to Correction = $\frac{\text{Diff.}}{4} \times (1 - \frac{S_1}{L}) = \frac{.7}{4} \times .0053 = \text{Nil.}$
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DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	70.92	70.92	8.36		70.92
.. overhang92	.46			.46
R.Q.D. enclosed ...					
.. overhang ...					
Bridge enclosed ...	435.94	435.94	8.36		435.94
.. overhang aft ...					
.. overhang forward ...					
Fore enclosed ...					
.. overhang ...					
Trunk aft ...					
.. forward ...					
Tonnage opening aft ...	4.75	Diff. x 1/2 2.61			2.61
.. " forward					
Total ...	512.53	509.93			509.93

Standard Height of Superstructure **7.5'**
 " " R.Q.D. **✓**
 Deduction for complete superstructure **42.00"**
 Percentage covered $\frac{S}{L} =$ **100.00**
 " " $\frac{S_1}{L} =$ **99.47**
 " " $\frac{E}{L} =$ **99.47**
 Percentage from Table, Line A. **99.34**
 (corrected for absence of forecastle (if required)) **✓**
 Percentage from Table, Line B. **✓**
 (corrected for absence of forecastle (if required)) **✓**
 Interpolation for bridge less than 2L (if required) **✓**
 Deduction = **42.00 x .9934 = -41.72"**

SHEER CORRECTION.

Actual Tween deck height **8.36**
Standard **7.50**
 $\frac{.86}{.86} = 10.25"$

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	61.25	1		61.25	69.00	79.25	1		79.25
$\frac{1}{2}$ L from A.P. ...	27.26	4		109.04	29.20	35.27	4		141.08
$\frac{2}{3}$ L " ...	6.74	2		13.48	5.7	8.72	2		17.44
Amidships ...		4					4		
$\frac{2}{3}$ L from F.P. ...	13.475	2		26.95	16.8	15.69	2		31.38
$\frac{1}{2}$ L " ...	54.52	4		218.08	60.8	63.48	4		253.92
F.P. ...	122.51	1		122.51	132.4	142.65	1		142.65
Total ...				551.31	+10.25				665.72

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) = \frac{114.41}{18} \times .25 = -1.59"$

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 = 35.07 Summer freeboard = 5.61 Moulded draught (d) = 29.46 Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = Addition for Winter North Atlantic Freeboard (if required) =	Deduction for Fresh Water. Displacement in salt water at summer load water line $\Delta =$ Tons per inch immersion at summer load water line $T =$ Deduction = $\frac{\Delta}{40T}$ inches =	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient .706 $\frac{1.68}{1.36} = 1.38/1.36$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>+</th> <th>-</th> </tr> </thead> <tbody> <tr> <td>Depth Correction ...</td> <td>2.70</td> <td>-</td> </tr> <tr> <td>Deduction for superstructures ...</td> <td>-</td> <td>41.72</td> </tr> <tr> <td>Sheer correction ...</td> <td>-</td> <td>1.59</td> </tr> <tr> <td>Round of Beam correction ...</td> <td>-</td> <td>-</td> </tr> <tr> <td>Correction for Thickness of Deck amidships ...</td> <td>-</td> <td>-</td> </tr> <tr> <td>Other corrections, scantlings, etc. ...</td> <td>-</td> <td>-</td> </tr> <tr> <td></td> <td>2.70</td> <td>43.31</td> </tr> <tr> <td>Summer Freeboard =</td> <td colspan="2">67.33</td> </tr> </tbody> </table>		+	-	Depth Correction ...	2.70	-	Deduction for superstructures ...	-	41.72	Sheer correction ...	-	1.59	Round of Beam correction ...	-	-	Correction for Thickness of Deck amidships ...	-	-	Other corrections, scantlings, etc. ...	-	-		2.70	43.31	Summer Freeboard =	67.33	
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:

CSS/To draught 29.46	Tropical Fresh Water Line above Centre of Disc ...	
Increase 1.5	Fresh Water Line	
Scantling draught 30.96	Tropical Line	
	Winter Line below	
	Winter North Atlantic Line	

Tropical Fresh Water Freeboard ...	
Fresh Water	
Tropical	
Winter	
Winter North Atlantic	

A new form should be prepared if any alterations that affect the freeboard have been made. If no such alterations have been made, the Surveyor should endorse the form on this side with his signature and the date.

Trade of ship.....

Names of sister ships.....

Builder's name and yard number.....

Owners.....

Fee £.....



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Foundation