

Builder - as C.S.S. with T.O.

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name <i>Empire Voice</i>	Official Number	Nationality and Port of Registry	Gross Tonnage	Date of Build <i>1940</i>	Port of Survey
Moulded Dimensions: Length <i>420.5</i> Breadth <i>57.29</i> Depth <i>24.5</i>					Date of Survey <i>10/1/46</i>
Moulded displacement at moulded draught = 85 per cent. of moulded depth tons					Surveyor's Signature
Coefficient of fineness for use with Tables <i>0.725</i>					Particulars of Classification

DEPTH FOR FREEBOARD (D). Moulded depth <i>24.50</i> Stringer plate <i>3.4</i> <i>0.3</i> Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ Depth for Freeboard (D) = <i>24.53</i>	DEPTH CORRECTION. (a) Where D is greater than Table depth (D-Table depth) R = (b) Where D is less than Table depth (if allowed) (Table depth-D) R = <i>(28.03-24.53) 3 = -10.5</i> <i>3.5</i> If restricted by superstructures	ROUND OF BEAM CORRECTION. Moulded Breadth (B) <i>57.29</i> Standard Round of Beam = $\frac{B \times 12}{50} = 13.75$ Ship's Round of Beam = <i>14.00</i> Difference <i>0.25</i> Restricted to Correction = $\frac{\text{Diff}^e}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{0.25}{4} \times 0.062 = 0.0039$ <i>0.0062</i> <i>0.0062</i>
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DEDUCTION FOR SUPERSTRUCTURES.				
	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Effective Length (E)
Poop enclosed ...				
„ overhang ...				
R.Q.D. enclosed ...				
„ overhang ...				
Bridge enclosed ...	<i>416.5</i>	<i>416.5</i>	<i>10.0</i>	<i>416.5</i>
„ overhang aft ...				
„ overhang forward ...				
F'cle enclosed ...				
„ overhang ...				
Trunk aft ...				
„ forward ...				
Tonnage opening aft ...	<i>4.0</i>	<i>2.0</i>	<i>1/2 5.4</i>	<i>2.0</i>
„ „ forward ...				
Total ...	<i>420.5</i>	<i>418.5</i>		<i>418.5</i>

Standard Height of Superstructure *7.5*
 „ „ R.Q.D.
 Deduction for complete superstructure *42.0*
 Percentage covered $\frac{S}{L} = 100$
 „ „ $\frac{S_1}{L} = 99.5$
 „ „ $\frac{E}{L} = 99.38$
 Percentage from Table, Line A. *99.38*
 (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 = *42.0 × 99.38 = 41.74*

SHEER CORRECTION.							
Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S
A.P. ...	<i>52.05</i>	1		<i>52.05</i>	<i>57.25</i>	<i>87.25</i>	1
1/8 L from A.P. ...	<i>23.16</i>	4		<i>92.64</i>	<i>24.12</i>	<i>38.83</i>	4
2/8 L „ ...	<i>5.72</i>	2		<i>11.44</i>	<i>6.00</i>	<i>9.60</i>	2
Amidships ...	-	4		-	-	-	4
2/8 L from F.P. ...	<i>11.45</i>	2		<i>22.90</i>	<i>12.00</i>	<i>15.18</i>	2
1/8 L „ ...	<i>46.32</i>	4		<i>185.28</i>	<i>47.88</i>	<i>61.41</i>	4
F.P. ...	<i>104.10</i>	1		<i>104.10</i>	<i>108.00</i>	<i>138.00</i>	1
Total ...				<i>468.41</i>	<i>207.36</i>	<i>207.36</i>	

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{207.36}{18} \times .25 = 2.88$
 If limited on account of midship superstructure.

Mean actual sheer aft =
 Mean standard sheer aft =
 Mean actual sheer forward =
 Mean standard sheer forward =
 Length of enclosed superstructure forward of amidships =
 „ „ aft of „ =

Deduction for Tropical Freeboard. Addition for Winter and Winter North Atlantic Freeboard. Depth to Freeboard Deck = <i>24.53</i> Summer freeboard = <i>2.12</i> Moulded draught (d) = <i>22.41</i> 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 = $\frac{\Delta}{40 T}$ inches =	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient $\frac{7254.68}{136} = 53.34$ <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th></th> <th>+</th> <th>-</th> </tr> <tr> <td>Depth Correction</td> <td></td> <td><i>10.50</i></td> </tr> <tr> <td>Deduction for superstructures</td> <td></td> <td><i>41.74</i></td> </tr> <tr> <td>Sheer correction</td> <td></td> <td><i>2.88</i></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><i>55.12</i></td> <td><i>55.12</i></td> </tr> </table> Summer Freeboard = <i>25.42</i>		+	-	Depth Correction		<i>10.50</i>	Deduction for superstructures		<i>41.74</i>	Sheer correction		<i>2.88</i>	Round of Beam correction			Correction for Thickness of Deck amidships			Other corrections, scantlings, etc.				<i>55.12</i>	<i>55.12</i>
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck :-					
<i>Starting d = 25.41</i> <i>C.S.S. d = 22.41</i> <i>3.00</i>	Tropical Fresh Water Line above Centre of Disc ...	Fresh Water Line „ „ ...	Tropical Line „ „ ...	Winter Line below „ „ ...	Winter North Atlantic Line „ „ ...
	Tropical Fresh Water Freeboard	Fresh Water	Tropical	Winter	Winter North Atlantic