

Lloyd's Register of Shipping.  
SURVEYS FOR FREEBOARD.  
(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name <u>Yewforest</u> <u>Empire Fenchurch</u>	Official Number <u>180995</u>	Nationality and Port of Registry <u>British</u> <u>Aberdeen</u>	Gross Tonnage <u>1047.02</u>	Date of Build <u>18 Dec</u> <u>1945</u>	Port of Survey.....
Moulded Dimensions: Length <u>202.00</u> Breadth <u>32.58</u> Depth <u>15.71</u> <u>to after deck</u>					Date of Survey <u>25.5.46</u>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <u>1795</u> <u>1797</u> tons					Surveyor's Signature.....
Coefficient of fineness for use with Tables <u>.716</u>					Particulars of Classification.....

DEPTH FOR FREEBOARD (D).	DEPTH CORRECTION.	ROUND OF BEAM CORRECTION.
Moulded depth ... <u>15.71</u>	(a) Where D is greater than Table depth (D-Table depth) R = <u>(15.75-13.47) x 1.553 = +3.53</u>	Moulded Breadth (B) <u>32.58</u>
Stringer plate <u>Thick</u> ... <u>.48</u> ... <u>.04</u>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = <u>2.27</u>	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{32.58 \times 12}{50} = 7.82$
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$ <u>Nil</u>	If restricted by superstructures	Ship's Round of Beam = <u>7.87</u>
Depth for Freeboard (D) = <u>15.75</u>		Difference = <u>.05</u>
		Restricted to
		Correction = $\frac{\text{Diff}^e}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.05}{4} \times \frac{1802}{4} = .11$

DEDUCTION FOR SUPERSTRUCTURES.					Standard Height of Superstructure <u>6.00</u>
Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)	" " R.Q.D. <u>3.68</u>
Poop enclosed ... <u>38.75</u>	<u>38.75</u>	<u>3.6</u> above R.Q.D.		<u>38.75</u>	Deduction for complete superstructure <u>26.20</u>
" overhang ...					Percentage covered $\frac{S}{L} = \frac{88.92}{100} = 88.92$
R.Q.D. enclosed ... <u>94.00</u>	<u>94.00</u>	<u>5.1 1/2</u> (no sheer)		<u>94.00</u>	" " $\frac{S_1}{L} = \frac{81.98}{100} = 81.98$
" overhang ...					Percentage from Table, Line A. <u>77.76</u>
Bridge enclosed <u>13.33</u>	<u>13.33</u>	<u>7.0</u>		<u>13.33</u>	(corrected for absence of forecastle (if required))
" overhang aft ...					Percentage from Table, Line B. <u>✓</u>
" overhang forward ...					(corrected for absence of forecastle (if required))
F'cle enclosed <u>23.25</u>	<u>19.52</u>	<u>7.0</u>		<u>19.52</u>	Interpolation for bridge less than .2L (if required)
" overhang ...					Deduction = <u>26.20 x .7776 = 20.37</u>
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" " forward ...					
Total ... <u>169.33</u>	<u>165.60</u>			<u>165.60</u>	

SHEER CORRECTION.									
Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ... <u>30.20</u>	<u>30.20</u>	1		<u>30.20</u>	<u>27.16</u>	<u>27.16</u>	1		<u>27.16</u>
1/8 L from A.P. ... <u>13.44</u>	<u>13.44</u>	4		<u>53.76</u>	<u>12.09</u>	<u>12.09</u>	4		<u>48.36</u>
2/8 L " ... <u>3.32</u>	<u>3.32</u>	2		<u>6.64</u>	<u>2.99</u>	<u>2.99</u>	2		<u>5.98</u>
Amidships ...		4					4		
2/8 L from F.P. ... <u>6.64</u>	<u>6.64</u>	2		<u>13.28</u>	<u>1.00</u>	<u>1.00</u>	2		<u>2.00</u>
1/8 L " ... <u>26.88</u>	<u>26.88</u>	4		<u>107.52</u>	<u>25.125</u>	<u>25.125</u>	4		<u>100.50</u>
F.P. ... <u>60.40</u>	<u>60.40</u>	1		<u>60.40</u>	<u>65.00</u>	<u>65.00</u>	1		<u>65.00</u>
Total ...				<u>271.80</u>					<u>249.00</u>
Correction = $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{22.8}{18} \left( .75 - \frac{.4191}{2} \right) = \frac{22.8}{18} \times .3309 = +.42$									
If limited on account of midship superstructure.									

Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Corrected for Flush Deck (if required)
Depth to Freeboard Deck = <u>20.29</u>	$\Delta = 2060$ EXT	Correction for coefficient <u>1.36</u>
Summer freeboard = <u>5.19</u>	Tons per inch immersion at summer load water line	Depth Correction ... <u>3.53</u>
Moulded draught (d) = <u>15.10</u>	T = <u>13.12</u>	Deduction for superstructures ... <u>20.37</u>
Deduction for Tropical freeboard and addition for	Deduction = $\frac{\Delta}{40 T}$ inches	Sheer correction ... <u>.42</u>
Winter freeboard = $\frac{d}{4}$ inches =		Round of Beam correction ... <u>54.50</u>
Addition for Winter North Atlantic Freeboard (if required) =		Correction for thickness of Deck amidships ... <u>58.45</u>
		Other corrections, scantlings, etc. ...
		Summer Freeboard = <u>612.25</u>

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck :—			
Tropical Fresh Water Line above Centre of Disc ...		Tropical Fresh Water Freeboard ...	
Fresh Water Line " " ...		Fresh Water " " ...	
Tropical Line " " ...		Tropical " " ...	
Winter Line below " " ...		Winter " " ...	
Winter North Atlantic Line " " ...		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.

$$\begin{aligned}
 \text{Height of R.Q. On above line} &= \frac{20'-3''}{23'-10''} \\
 \text{Virtual unaltered depth} &= \frac{15'-8\frac{1}{2}''}{\cancel{4'-1\frac{1}{2}''}} \\
 \text{Standard height R.Q.} &= \frac{4'-6\frac{1}{2}''}{4'-5\frac{1}{2}''} \\
 &= \frac{3.68}{.86'} \\
 &= 10.32''
 \end{aligned}$$

Virtual height R.Q. On

$$10.32 \times \left(\frac{101}{62.25}\right)^2 = 27.16'' \text{ Virtual stress at AP.}$$

$$27.16'' = \frac{2.26}{15.71}$$

$$\frac{17.95}{24.12}$$

$$\frac{6.87}{6.87} = \text{greater than standard height of ports}$$

∴ use 27.16'' at AP.

B.C. assigns freeboards:-

Summer 5'-6" top of stinger R.Q. On

T.F. 6½" above

F.W. 4" "

T. 2½" "

W. 3½" below

W.A. 5½" "

Trade of ship

Coasting

Names of sister ships

X Empires Helson, Clayne, Ken, Richmond

Tudor Queen class

Builder's name and yard number

X Henry John Lewis & Sons

No 187.

Owners

Fee £

Whodship Section, Shell Expansion, Hatches, Decks.  
Copies of these plans have been sent to the Owners



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