

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

No. 18092.

Ship's Name <b>"EMPIRE STRAIT"</b>	Official Number <b>160789</b>	Nationality and Port of Registry <b>BRITISH WEST HARTLEPOOL</b>	Gross Tonnage <b>2824.07</b>	Date of Build <b>1940</b>	Port of Survey <b>West Hartlepool.</b>
Moulded Dimensions: Length <b>306.26</b> Breadth <b>44.25</b> Depth <b>26.25 to R.Q. dk</b>					Date of Survey <b>whilst building</b>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <b>5475</b> tons					Surveyor's Signature <b>W. J. Craig</b>
Coefficient of fineness for use with Tables <b>774</b>					Particulars of Classification <b>+100 A.I.</b>

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... .. <b>21.50</b>	(a) Where D is greater than Table depth (D - Table depth) R = <b>(21.56 - 20.42) x 2.356 = +2.68</b>	Moulded Breadth (B) <b>44.25</b>
Stringer plate <b>R.Q. dk .68</b> ... .. <b>.06</b>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{10.62}{50} = 11" \text{ (UPPER D'S)}$
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$	If restricted by superstructures	Ship's Round of Beam = <b>10.62</b>
Depth for Freeboard (D) = <b>21.56</b>		Difference <b>.38</b>
		Restricted to
		Correction = $\frac{\text{Diff}}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.38}{4} \times .3124 = -.03$

## DEDUCTION FOR SUPERSTRUCTURES.

Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ... ..				
" overhang ... ..				
R.Q.D. enclosed <b>equish.</b> <b>177.51</b>	<b>177.51</b>	<b>4.75</b>	<b>-</b>	<b>177.51</b>
" overhang ... ..				
Bridge enclosed ... ..				
" overhang aft ... ..				
" overhang forward ... ..				
Fore enclosed ... ..	<b>31.83</b>	<b>7.3</b>	<b>-</b>	<b>31.83</b>
" overhang ... ..	<b>2.50</b>	<b>7.3</b>	<b>-</b>	<b>1.25</b>
Trunk aft ... ..				
" forward ... ..				
Tonnage opening aft ... ..				
" " forward ... ..				
Total ... ..	<b>211.84</b>	<b>210.59</b>		<b>210.59</b>

Standard Height of Superstructure **6.563**  
" " R.Q.D. **4.75**  
Deduction for complete superstructure **35.75**  
Percentage covered  $\frac{S}{L} = \frac{69.19}{L}$   
" "  $\frac{S_1}{L} = \frac{68.76}{L}$   
Percentage from Table, Line A. **60.89**  
(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 = **35.75 x .6089 = -21.77**

## SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ... ..	<b>40.63</b>	<b>1</b>	<b>40.63</b>	<b>44.5</b>	<b>44.50</b>	<b>1</b>	<b>44.50</b>
$\frac{1}{8}L$ from A.P. ... ..	<b>18.075</b>	<b>4</b>	<b>72.30</b>	<b>19.8</b>	<b>19.80</b>	<b>4</b>	<b>79.20</b>
$\frac{2}{8}L$ " ... ..	<b>4.47</b>	<b>2</b>	<b>8.94</b>	<b>5.0</b>	<b>5.00</b>	<b>2</b>	<b>10.00</b>
Amidships ... ..	<b>-</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4</b>	<b>-</b>
$\frac{3}{8}L$ from F.P. ... ..	<b>8.94</b>	<b>2</b>	<b>17.88</b>	<b>10.5</b>	<b>10.50</b>	<b>2</b>	<b>21.00</b>
$\frac{4}{8}L$ " ... ..	<b>36.15</b>	<b>4</b>	<b>144.60</b>	<b>42.0</b>	<b>42.00</b>	<b>4</b>	<b>168.00</b>
F.P. ... ..	<b>81.25</b>	<b>1</b>	<b>81.25</b>	<b>94.5</b>	<b>94.50</b>	<b>1</b>	<b>94.50</b>
Total ... ..			<b>365.60</b>				<b>417.20</b>

Mean actual sheer aft =  
Mean standard sheer aft = } **Even**  
Mean actual sheer forward =  
Mean standard sheer forward =  
Length of enclosed superstructure forward of amidships = **.0797**  
" " aft of " = **.5**  
Correction =  $\frac{\text{Difference between sums of products}}{18} \left( \frac{.75 - \frac{S}{2L}}{.75} \right) = \frac{51.60}{18} \left( \frac{.75 - .3459}{.75} \right) = -1.16$   
If limited on account of midship superstructure.  $1.16 \times \frac{.797}{2} = -.104$   
If limited to maximum allowance of  $1\frac{1}{2}$  ins. per 100 ft. **✓**

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 at <b>19.4" full draft</b> $\Delta = 5813$	Correction for coefficient $\frac{.774 + .68}{1.36} = \frac{1.454}{1.36} = 1.069$
Depth to <b>R.Q.</b> Deck = <b>26.31</b>	Tons per inch immersion at summer load water line <b>T = 24.04</b>	Depth Correction ... .. <b>2.68</b>
Summer freeboard = <b>7.08</b>	Deduction = $\frac{\Delta}{40T}$ inches $= \frac{5813}{40 \times 24.04} = 5.37$ <b>= 5.37</b>	Deduction for superstructures ... .. <b>- 21.77</b>
Moulded draught (d) = <b>19.23</b>		Sheer correction ... .. <b>- 1.04</b>
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <b>4.81 = 4.81</b>		Round of Beam correction <b>✓</b> <b>.03</b>
Addition for Winter North Atlantic Freeboard (if required) = <b>4.81 + 2 = 6.81 = 6.81</b>		Correction for Thickness of Deck amidships ... .. <b>57.00</b>
		Other corrections, scantlings, etc. ... .. <b>-</b>
		<b>59.68</b> <b>22.84</b> <b>+ 36.84</b>
		Summer Freeboard = <b>84.92</b>

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, **Wood, Steel, Deck**.

Tropical Fresh Water Line above Centre of Disc ... ..	<b>10"</b>	Tropical Fresh Water Freeboard ... ..	<b>7.1"</b>
Fresh Water Line " " " " " " " " " " " "	<b>5 1/4"</b>	Fresh Water " " " " " " " " " " " "	<b>6.3"</b>
Tropical Line " " " " " " " " " " " "	<b>4 3/4"</b>	Tropical " " " " " " " " " " " "	<b>6.8 1/4"</b>
Winter Line below " " " " " " " " " " " "	<b>4 3/4"</b>	Winter " " " " " " " " " " " "	<b>7.5 1/4"</b>
Winter North Atlantic Line " " " " " " " " " " " "	<b>6 3/4"</b>	Winter North Atlantic " " " " " " " " " " " "	<b>7.7 1/4"</b>

26 DEC 1940

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RECEIVED



# Empire Strait

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.

R.Q. 82.

174.75  
 .43  
 175.18  
 2.33  
 177.51 equivalent length  
 2/3 x 48  
 3.50

Trade of ship

Names of sister ships

Wm Gray & Co No 1107 & 1108. viz "EMPIRE BAY" & "EMPIRE LOUGH"

Builder's name and yard number

Wm Gray & Co No 1112.

Owners

The Ministry of Shipping

Fee £

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