

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

Ship's Name EMPIRE GAFFER. EX BETZDORF. (GERMAN).	Official Number 180643	Nationality and Port of Registry LONDON.	Gross Tonnage 1923.	Date of Build 1945.	Port of Survey NEWCASTLE-ON-TYNE
Moulded Dimensions: Length 280-2 3/4 Breadth 44-3 1/2 Depth 26-9 1/2					Date of Survey
Moulded displacement at moulded draught = 85 per cent. of moulded depth					Surveyor's Signature E. Young
Coefficient of fineness for use with Tables .77 (estimated)					Particulars of Classification TERM LLOYDS. + 100 2 (E) MIT FREEBOARD.

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... 26-4 1/2	(a) Where D is greater than Table depth (D - Table depth) R = $(26-94 - 18-73) \times 2.162 = +17.75$	Moulded Breadth (B) 44-3 1/2
Stringer plate04	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = -	Standard Round of Beam = $\frac{B \times 12}{50} = 10.63$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures	Ship's Round of Beam = 10-10"
Depth for Freeboard (D) = 26-94		Difference .63
		Restricted to
		Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.63^2}{4} \times .9077 = +.14$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...					
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...					
" overhang aft ...					
" overhang forward					
Fore enclosed 23-42	23-42	23-42	7-6	-	23-42
" overhang ... 2-53	2-53	2-53	-	-	2-53
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward					
Total ...	26-08	25-95			25-95

Standard Height of Superstructure **6-31**
" " R.Q.D. **-**
Deduction for complete superstructure **34-07**
Percentage covered $\frac{S}{L} = 9.28$
" " $\frac{S_1}{L} = 9.23$
" " $\frac{E}{L} =$
Percentage from Table, Line A. **4-62**
(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 = **34-07 x .0462 = -1-57**

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	38-10	1	38-10	43 1/2	38-10	1	38-10	1	38-10
1/4 L from A.P. ...	16-955	4	67-82	22 3/4	16-955	4	67-82	4	67-82
1/2 L " ...	4-19	2	8-38	6 3/4	4-19	2	8-38	2	8-38
Amidships ...	-	4	-	0	-	4	-	-	-
3/4 L from F.P. ...	8-38	2	16-76	10 5/8	10-625	2	21-25	2	21-25
1/4 L " ...	33-91	4	135-64	32 1/4	32-25	4	129-00	4	129-00
F.P. ...	76-20	1	76-20	64 5/8	64-62	1	64-62	1	64-62
Total ...			342-90				329-17		

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{12.73}{18} (.75 - .0464) = +.54$
If limited on account of midship superstructure. **-**
Mean actual sheer aft = **Even**
Mean standard sheer aft
Mean actual sheer forward = **.75-1**
Mean standard sheer forward
Length of enclosed superstructure forward of amidships = **1**
aft of " = **-**
Sheer Forward:

8-38	3	25-14	10-625	3	31-88
33-91	3	101-73	32-25	3	96-75
76-20	1	76-20	64-625	1	64-625
		203-07			193-25

If limited to maximum allowance of 1 1/2 ins. per 100 ft. **-**

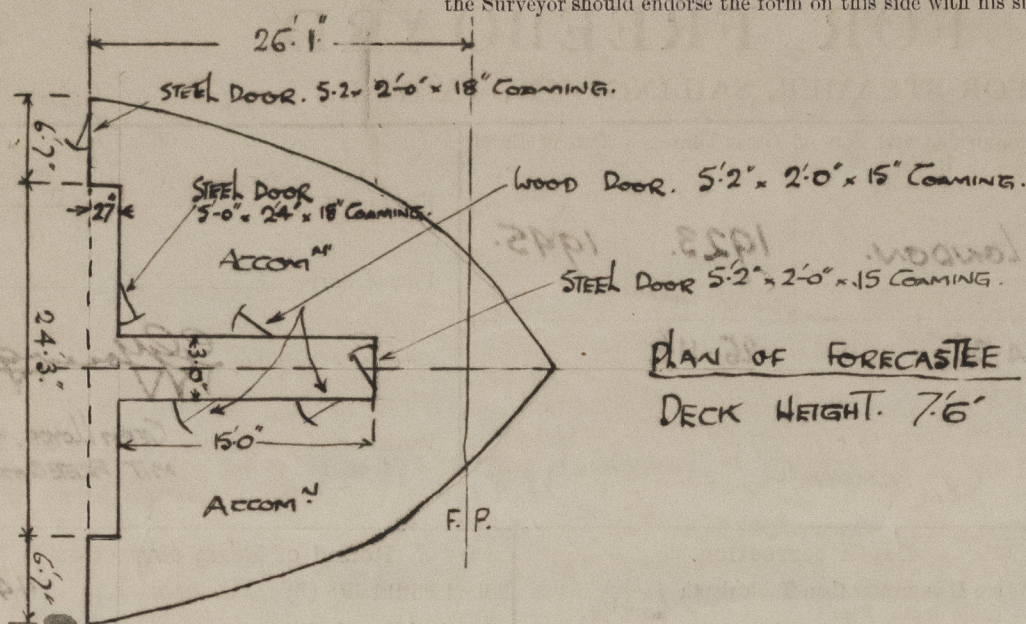
Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient $\frac{.77 + .68}{1.36} = \frac{1.45}{1.36}$
Depth to Freeboard Deck = 26-94	$\Delta = 4900$	Depth Correction ... 17-75
Summer freeboard = 8-60	Tons per inch immersion at summer load water line	Deduction for superstructures ... -1-57
Moulded draught (d) = 18-34	T = 9-83	Sheer correction54
Deduction for Tropical freeboard and Addition for Winter freeboard = $\frac{d}{4}$ inches = 4-58 = 4 1/2	Deduction = $\frac{\Delta}{40 T}$ inches = 12-46 = 5	Round of Beam correction14
Addition for Winter North Atlantic Freeboard (if required) = 6 1/2		Correction for Thickness of Deck amidships ... -
		Other corrections, scantlings, etc. 44-54
		Summer Freeboard = 103-25

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

Tropical Fresh Water Line above Centre of Disc ...	7 1/4	Tropical Fresh Water Freeboard ...	8-7 1/4
Fresh Water Line " " ...	5	Fresh Water " " ...	8-0
Tropical Line " " ...	2 1/4	Tropical " " ...	8-2 1/4
Winter Line below " " ...	4 1/2	Winter " " ...	8-5 (limited)
Winter North Atlantic Line " " ...	6 1/2	Winter " " ...	8-11 3/4
		Winter North Atlantic " " ...	9-1 3/4

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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.



$$\begin{array}{r} 15 \times 3 = 1.20 \\ 37.42 \\ \hline 2.25 \times 24.25 = 1.46 \\ 37.42 \\ \hline 2.3.42 \end{array}$$

26.08

2.66

2.3.42

The Bulkheads run up to Shelter Deck, they are not watertight in the Tween Decks

Freeboard markings verified on Ship's side are as follows, with metric equivalents taken from Capacity Plan. Deck line - Steel upper Deck.

T. F.	7 1/2"	70 mm	190 mm above S.
F.	4 3/4"		120 mm " "
T.	2 3/4"	50 mm	70 mm " "
S.	4 3/4"	120 mm	
W.	4 3/4"	240 mm	120 mm below S.
WNA.	6 1/16"	290 mm	170 mm " S.

Tween Deck Height 8'3" at Amidships

The Tonnage opening has now been plated over. (See correspondence)

Trade of ship

Names of sister ships

Builder's name and yard number Deutsche Werft. Hamburg.

Owners Ministry of War Transport

Fee £



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