

SURVEYS FOR FREEBOARD.

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

Ship's Name VERMEER EMPIRE RALEIGH		Official Number 168925	Nationality and Port of Registry British Sunderland Netherlands	Gross Tonnage 7241	Date of Build 1941	Port of Survey Sunderland
Moulded Dimensions: Length 421'-1 1/2" Breadth 56'-2 1/2" Depth 29.0"		Moulded displacement at moulded draught = 85 per cent. of moulded depth 12184 tons		Surveyor's Signature N.F.H. Duncan.		
Coefficient of fineness for use with Tables .731.		Particulars of Classification +100 A1 with fbd (compensated)				

Depth for Freeboard (D). Moulded depth 29.00 Stringer plate4103 Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ ✓ Depth for Freeboard (D) = 29.03	Depth correction. (a) Where D is greater than Table depth $(D - \text{Table depth}) R =$ $(29.03 - 28.08) = +2.85"$ (b) Where D is less than Table depth (if allowed) $(\text{Table depth} - D) R =$ ✓ If restricted by superstructures ✓	Round of Beam correction. Moulded Breadth (B) 56.21' Standard Round of Beam = $\frac{B \times 12}{50} =$ 13.49" Ship's Round of Beam = 14.00" Difference Excess .51" ✓ Restricted to Correction = $\frac{\text{Diff}^e}{4} \times \left(1 - \frac{S_1}{L} \right) =$.51 4 x .0067 = 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 ...	32.83	32.83	9.07'	✓	32.83
" overhang ...	50	25			25
R.Q.D. enclosed					
" overhang					
Bridge enclosed...	380.42	380.42	9.07'	✓	380.42
" overhang aft ...	2.62	1.96			1.96
" overhang forward					
File enclosed ...					
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...	4.75	Diff × 1/2 2.83		✓	2.83
" " forward					
Total ...	421.12	418.29			418.29

Standard Height of Superstructure 7.5' ✓

" " R.Q.D. 42.00"

Deduction for complete superstructure

Percentage covered $\frac{S}{L} = 100.00$

" " $\frac{S_1}{L} = 99.33$

" " $\frac{E}{L} = 99.33$

Percentage from Table, Line A. 99.18 ✓

(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 = $42.00 \times .9918 = -41.66"$

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate 118.84	Effective Ordinate	S M	Product
A.P.	52.11	1	52.11	60.06	78.90	1	78.90
$\frac{1}{2}$ L from A.P. ...	23.19	4	92.76	26.56	35.11	4	140.44
$\frac{2}{8}$ L " ...	5.73	2	11.46	6.56	8.68	2	17.36
Amidships ...	—	4	—	—	—	4	—
$\frac{3}{8}$ L from F.P. ...	11.46	2	22.92	13.50	15.33	2	30.66
$\frac{1}{8}$ L " ...	46.38	4	185.52	53.875	61.99	4	247.96
F.P.	104.22	1	104.22	140.50	139.34	1	139.34
Total ...			468.99	118.84			654.66

Correction = $\frac{\text{Difference between sums of products}}{18} \left(-75 - \frac{8}{2L} \right) = \frac{185.67}{18} \times 25 = -2.58$ If limited on account of midship superstructure.

If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft.

<p>Deduction for Tropical Freeboard.</p> <p>Addition for Winter and Winter North Atlantic Freeboard.</p>	<p>Deduction for Fresh Water.</p> <p>Displacement in salt water at summer load water line</p> <p>$\Delta =$</p> <p>Tons per inch immersion at summer load water line</p> <p>$T =$</p> <p>Deduction $= \frac{\Delta}{40 T}$ inches</p> <p>$=$</p>	<p>TABULAR FREEBOARD <small>corrected for Flush Deck (if required)</small></p> <p>Correction for coefficient $\frac{731 + 67}{1.36} = 1.411 / 1.36$</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">+</th> <th style="text-align: center;">-</th> </tr> </thead> <tbody> <tr> <td>Depth Correction</td> <td style="text-align: center;">2.85</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Deduction for superstructures</td> <td style="text-align: center;">-</td> <td style="text-align: center;">41.66</td> </tr> <tr> <td>Sheer correction</td> <td style="text-align: center;">-</td> <td style="text-align: center;">2.58</td> </tr> <tr> <td>Round of Beam correction</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Correction for Thickness of Deck amidships</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Other corrections, scantlings, etc.</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td></td> <td style="text-align: center;">2.85</td> <td style="text-align: center;">44.24</td> </tr> </tbody> </table> <p style="text-align: right;">Summer Freeboard = 39.61</p>		+	-	Depth Correction	2.85	-	Deduction for superstructures	-	41.66	Sheer correction	-	2.58	Round of Beam correction	-	-	Correction for Thickness of Deck amidships	-	-	Other corrections, scantlings, etc.	-	-		2.85	44.24
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Wood~~, Steel, Deck:—

SURFACE DISBURSED ANTI-AIRSHIP FROM CENTRE OF DISC TO TOP OF		TROPICAL FRESH WATER FREEBOARD	
ESS/7.0 draught = 25.72	Tropical Fresh Water Line above Centre of Disc	Tropical Fresh Water Freeboard	
Increase 1.5	Fresh Water Line " "	Fresh Water " "	
Scantling draught 27.22	Tropical Line " "	Tropical " "	
=	Winter Line below " "	Winter " "	
	Winter North Atlantic Line " "	Winter North Atlantic " "	

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