

# Estimate of Freeboard with a Tonnage Opening

## Lloyd's Register of Shipping.

### SURVEYS FOR FREEBOARD.

Index No. 27503  
(For London Office only.)

Computation of Freeboard for Steamer, Sailing Ship, Tanker  
 having a complete shelter deck with a tonnage opening

Port of Survey \_\_\_\_\_  
 Date of Survey 11 Aug 1934  
 Name of Surveyor \_\_\_\_\_

(Type of Superstructures.)

Ship's Name <u>Norwegian</u>	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
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Moulded Dimensions: Length 399.4 Breadth 52.16 Depth 29.5  
 Moulded displacement at moulded draught = 85 per cent. of moulded depth 11385 tons  
 Coefficient of fineness for use with Tables .763

Particulars of Classification  
100A1 Shelter Deck with free board

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... .. <u>29.50</u>	(a) Where D is greater than Table depth (D - Table depth) R = $(29.54 - 26.63) \times 3 = + 8.73$	Moulded Breadth (B) <u>52.16</u> Standard Round of Beam = $\frac{B \times 12}{50} = 12.52$ Ship's Round of Beam = <u>13.00</u> Difference = <u>.48</u>
Stringer plate ... .. <u>.04</u>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = <u>2.91</u>	Restricted to _____ Correction = $\frac{\text{Diff}^2}{4} \times (1 - \frac{S_1}{L}) = \frac{.48^2}{4} \times .0054 = \text{Nil}$
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) =$ _____	If restricted by superstructures <input checked="" type="checkbox"/>	
Depth for Freeboard (D) = <u>29.54</u>		

#### 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 ... ..				
„ overhang ... ..				
Bridge enclosed ... ..	<u>395.07</u>	<u>8.08</u>	<u>✓</u>	<u>395.07</u>
„ overhang aft ... ..				
„ overhang forward ... ..				
F'cle enclosed ... ..				
„ overhang ... ..				
Trunk aft ... ..				
„ forward ... ..				
Tonnage opening aft ... ..	<u>4.33</u>	<u>2.16</u>	<u>✓</u>	<u>2.16</u>
„ forward ... ..				
Total ... ..	<u>399.40</u>	<u>397.23</u>		<u>397.23</u>

Standard Height of Superstructure 7.494  
 „ „ R.Q.D. ✓  
 Deduction for complete superstructure 41.96  
 Percentage covered  $\frac{S}{L} = 100\%$   
 „ „  $\frac{S_1}{L} = 99.46\%$   
 „ „  $\frac{E}{L} = 99.46\%$   
 Percentage from Table, Line A. 99.33%  
 (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 = 41.96 × .9933 = - 41.67

#### SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ... ..	<u>49.94</u>	1	<u>49.94</u>	<u>46.5</u>	<u>53.53</u>	1	<u>53.53</u>
$\frac{1}{8}L$ from A.P. ... ..	<u>22.225</u>	4	<u>88.90</u>	<u>16.19</u>	<u>23.82</u>	4	<u>95.28</u>
$\frac{2}{8}L$ „ ... ..	<u>5.49</u>	2	<u>10.98</u>	<u>4.05</u>	<u>5.89</u>	2	<u>11.78</u>
Amidships ... ..	-	4	-	-	-	4	-
$\frac{3}{8}L$ from F.P. ... ..	<u>10.98</u>	2	<u>21.96</u>	<u>9.18</u>	<u>11.28</u>	2	<u>22.56</u>
$\frac{4}{8}L$ „ ... ..	<u>44.45</u>	4	<u>177.80</u>	<u>36.73</u>	<u>45.63</u>	4	<u>182.52</u>
F.P. ... ..	<u>99.88</u>	1	<u>99.88</u>	<u>95.5</u>	<u>102.53</u>	1	<u>102.53</u>
Total ... ..			<u>449.46</u>	<u>187.03</u>			<u>468.20</u>

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{18.74}{18} \times .25 = - .26$   
 If limited on account of midship superstructure.  If limited to maximum allowance of  $1\frac{1}{2}$  ins. per 100 ft.

Mean actual sheer aft = Excess  
 Mean standard sheer aft = 7.03  
 Mean actual sheer forward = Excess  
 Mean standard sheer forward = \_\_\_\_\_  
 Length of enclosed superstructure forward of amidships = C.S.S.  
 „ „ aft of „ = \_\_\_\_\_

Deduction for Tropical Freeboard. Addition for Winter and Winter North Atlantic Freeboard. Depth to Freeboard Deck = <u>29.57</u> Summer freeboard = <u>3.56</u> Moulded draught (d) = <u>26.01</u> 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 = $\frac{\Delta}{40T}$ inches = _____	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient $\frac{.763 + .68}{1.36} = \frac{1.443}{1.36} =$ _____ <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%; text-align: center;">+</td> <td style="width: 50%; text-align: center;">-</td> </tr> <tr> <td>Depth Correction ... ..</td> <td style="text-align: center;"><u>8.73</u></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;"><u>41.67</u></td> </tr> <tr> <td>Sheer correction ... ..</td> <td style="text-align: center;">-</td> <td style="text-align: center;"><u>0.26</u></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;"><u>0.40</u></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;"><u>9.13</u></td> <td style="text-align: center;"><u>41.93</u></td> </tr> <tr> <td></td> <td colspan="2" style="text-align: center;">- <u>32.80</u></td> </tr> <tr> <td></td> <td colspan="2" style="text-align: center;">Summer Freeboard = <u>42.85</u></td> </tr> </table>		+	-	Depth Correction ... ..	<u>8.73</u>	-	Deduction for superstructures ... ..	-	<u>41.67</u>	Sheer correction ... ..	-	<u>0.26</u>	Round of Beam correction ... ..	-	-	Correction for thickness of Deck amidships ... ..	<u>0.40</u>	-	Other corrections, scantlings, etc. ... ..	-	-		<u>9.13</u>	<u>41.93</u>		- <u>32.80</u>			Summer Freeboard = <u>42.85</u>	
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#### 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 „ „ ... ..

**PARTICULARS OF PROTECTION TO OPENINGS, ETC.**

**HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS**

Description of Hatchway	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dimensions of Hatchway	...	...	...	...	...	...	...	...	...	...	...	...	...	...
COAMINGS	{	Height above Deck	...	...	...	...	...	...	...	...	...	...	...	...
		Thickness	Sides	...	...	...	...	...	...	...	...	...	...	...
			Ends	...	...	...	...	...	...	...	...	...	...	...
		Stiffeners	...	...	...	...	...	...	...	...	...	...	...	...
Brackets, Stays	...	...	...	...	...	...	...	...	...	...	...	...		
HATCH BEAMS	{	Number	...	...	...	...	...	...	...	...	...	...	...	...
		Spacing	...	...	...	...	...	...	...	...	...	...	...	...
		Scantling and Sketch	...	...	...	...	...	...	...	...	...	...	...	...
			...	...	...	...	...	...	...	...	...	...	...	...
Bearing Surface	...	...	...	...	...	...	...	...	...	...	...	...		
FORE AND AFTERS	{	Number	...	...	...	...	...	...	...	...	...	...	...	...
		Spacing	...	...	...	...	...	...	...	...	...	...	...	...
		Unsupported Lengths	...	...	...	...	...	...	...	...	...	...	...	...
			Scantling* and Sketch	...	...	...	...	...	...	...	...	...	...	...
Bearing Surface	...	...	...	...	...	...	...	...	...	...	...	...		
HATCH COVERS	{	Material	...	...	...	...	...	...	...	...	...	...	...	...
		Thickness	...	...	...	...	...	...	...	...	...	...	...	...
		How fitted	...	...	...	...	...	...	...	...	...	...	...	...
		Bearing Surface	...	...	...	...	...	...	...	...	...	...	...	...
Spacing of Cleats	...	...	...	...	...	...	...	...	...	...	...	...	...	
Number of Tarpaulins	...	...	...	...	...	...	...	...	...	...	...	...	...	

\*Are wood fore and afters steel shod at all bearing surfaces?  
 Are battens and wedges efficient and in good condition?  
 Are tarpaulins in good condition and in accordance with rule requirements?  
 Are lashings provided in accordance with rule requirements?

Particulars of fiddley, funnel and ventilator coamings :—

Particulars of Flush Bunker Scuttles :—

Particulars of Companionways :—

Particulars of Ventilators in exposed positions on freeboard and superstructure decks :—

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks :—

Particulars of Gangway Cargo and Coaling Ports :—