

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

Ship's Name <b>"DURHAM"</b>	Official Number <b>163522</b>	Nationality and Port of Registry <b>British Honduras.</b>	Gross Tonnage	Date of Build <b>1934</b>	Port of Survey
Moulded Dimensions: Length <b>490.0</b> Breadth <b>68.33</b> Depth <b>47.18</b>					Date of Survey <b>16.11.39.</b>
Moulded displacement at moulded draught = 85 per cent. of moulded depth _____ tons					Surveyor's Signature
Coefficient of fineness for use with Tables <b>.755 (estimated).</b>					Particulars of Classification <b>+100M with fullness</b>

<p>Depth for Freeboard (D).</p> <p>Moulded depth ... .. 47.18</p> <p>Stringer plate ... .. .04</p> <p>Sheathing on exposed deck</p> <p><math>T \left( \frac{L-S}{L} \right) = .21 \times \frac{278}{490} = .12</math></p> <p>Depth for Freeboard (D) = <u>47.34</u></p>	<p>Depth correction.</p> <p>(a) Where D is greater than Table depth  <math>(D - \text{Table depth}) R =</math>  <math>(47.34 - 32.67) \times 3 = + 44.01</math></p> <p>(b) Where D is less than Table depth (if allowed)  <math>(\text{Table depth} - D) R =</math> ✓</p> <p>If restricted by superstructures ✓</p>	<p>Round of Beam correction.</p> <p>Moulded Breadth (B) 68.33</p> <p>Standard Round of Beam = <math>\frac{B \times 12}{50} = 16.40</math></p> <p>Ship's Round of Beam = 16.00</p> <p>Difference ✓</p> <p>Restricted to</p> <p>Correction = <math>\frac{\text{Diff}^e}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.40}{4} = +.10</math></p>
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## 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...	...				
„ overhang aft	...				
„ overhang forward	...				
F'cle enclosed	...				
„ overhang	...				
Trunk aft	...				
„ forward	...				
Tonnage opening aft	...				
„ „ forward	...				
Total	...				

Standard Height of Superstructure.....

„ „ R.Q.D.

Deduction for complete superstructure.....

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

„ „  $\frac{S_1}{L} =$

„ „  $\frac{E}{L} =$

Percentage from Table, Line A.

(corrected for absence of forecastle (if required))

Percentage from Table, Line B.

(corrected for absence of forecastle (if required))

Interpolation for bridge less than  $\cdot 2L$  (if required)

Deduction =  $N\%.$

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ... ..	59.00	1	59.00	66.00	66.00	1	66.0
$\frac{1}{2}$ L from A.P. ...	26.25	4	105.00	29.25	29.25	4	117.0
$\frac{3}{8}$ L .. ...	6.49	2	12.98	7.25	7.25	2	14.5
Amidships ...	-	4	-	-	-	4	-
$\frac{3}{8}$ L from F.P. ...	12.98	2	25.96	16.50	16.50	2	33.0
$\frac{1}{4}$ L .. ...	52.51	4	210.04	66.50	66.50	4	266.0
F.P. ... ..	118.00	1	118.00	150.00	150.00	1	150.0
Total ...			530.98				646.5

$$\frac{\text{Mean actual sheer aft}}{\text{Mean standard sheer aft}} = \text{Even}$$

$$\frac{\text{Mean actual sheer forward}}{\text{Mean standard sheer forward}} = \text{Even}$$

$\frac{\text{Length of enclosed superstructure}}{L}$  forward of amidships = } NX  
 " aft of " = }

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( \frac{75-8}{21} \right) = \frac{115.62}{18} \times 75 = -4.82$  If limited on account of midship superstructure. *No. Flush Deck.*

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

<p><b>Deduction for Tropical Freeboard.</b></p> <p><b>Addition for Winter and Winter North Atlantic Freeboard.</b></p> <p style="text-align: right;">Ft.</p> <p>Depth to Freeboard Deck = <u>47.43</u></p> <p>Summer freeboard = <u>15.12</u></p> <p>Moulded draught (d) = <u>32.31</u></p> <p>Deduction for Tropical freeboard and addition for Winter freeboard = <math>\frac{d}{4}</math> inches = <u>8.08</u></p> <p>Addition for Winter North Atlantic Freeboard (if required) = <u>8</u></p>	<p><b>Deduction for Fresh Water.</b></p> <p>Displacement in salt water at summer load water line</p> <p><math>\Delta = 23135</math></p> <p>Tons per inch immersion at summer load water line</p> <p><math>T = 69.65</math></p> <p>Deduction = <math>\frac{\Delta}{40 T}</math> inches = <u>8.30</u></p> <p style="text-align: right;"><u>8 1/4</u></p>	<p><b>TABULAR FREEBOARD</b> corrected for Flush Deck (if required)</p> <p>Correction for coefficient <math>\frac{755 + .68}{1.36} = \frac{1.435}{1.36} =</math></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;">44.01</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;">-</td> </tr> <tr> <td>Sheer correction ... ..</td> <td style="text-align: center;">-</td> <td style="text-align: center;">4.82</td> </tr> <tr> <td>Round of Beam correction ... ..</td> <td style="text-align: center;">.10</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Correction for Thickness of Deck amidships ... ..</td> <td style="text-align: center;">1.08</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Other corrections, scantlings, etc. ... ..</td> <td style="text-align: center;">0.00</td> <td style="text-align: center;">-</td> </tr> <tr> <td><b>Summer Freeboard =</b></td> <td></td> <td></td> </tr> </tbody> </table>		+	-	Depth Correction ... ..	44.01	-	Deduction for superstructures ... ..	-	-	Sheer correction ... ..	-	4.82	Round of Beam correction ... ..	.10	-	Correction for Thickness of Deck amidships ... ..	1.08	-	Other corrections, scantlings, etc. ... ..	0.00	-	<b>Summer Freeboard =</b>		
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99.30 + 2.35 = 106.65

755 + .68 = 1.435 = 112.53

82.8

16.11.39

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

TROPICAL WATERSHIPS FROM CENTRE OF DISC			
Tropical Fresh Water Line above Centre of Disc	...	...	16 1/4"
Fresh Water Line	"	"	8 1/4"
Tropical Line	"	"	8"
Winter Line	below	"	8"
Winter North Atlantic Line	-	-	

Tropical Fresh Water Freeboard	
Fresh Water	"
Tropical	"
Winter	"
Winter North Atlantic	"