

17.11.33

34397

Index. No.  
(For London Office only.)  
-2 NOV 1933Lloyd's Register of Shipping.  
SURVEYS FOR FREEBOARD.

GRK REPORT N° 19642.

Computation of Freeboard for Steamer, Sailing Ship, Tanker					Port of Survey <u>Greenock</u>
having <u>Prop., Bridge &amp; Sockle (Disconnected)</u>					Date of Survey <u>while building</u>
(Type of Superstructures.)					Name of Surveyor <u>R. Dundas</u>
Ship's Name <b>"HARCALO"</b>	Nationality and Port of Registry <u>British</u> <u>LONDON.</u>	Official Number <u>163410</u>	Gross Tonnage <u>5081.47</u>	Date of Build <u>1933.</u>	Particulars of Classification <u>100 A1</u> <u>(Contemplated).</u>
Moulded Dimensions: Length <u>415.0</u> Breadth <u>56.0</u> Depth <u>27.25</u>					
Moulded displacement at moulded draught = 85 per cent. of moulded depth <u>11373</u> tons					
Coefficient of fineness for use with Tables <u>.74</u>					

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... .. <u>27.25</u>	(a) Where D is greater than Table depth (D - Table depth) R =	Moulded Breadth (B) <u>56.0</u>
Stringer plate ... .. <u>.05</u>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Standard Round of Beam = $\frac{B \times 12}{50} = 13.44$
Sheathing on exposed deck $T \left( \frac{L-S}{L} \right) = Nil$	<u>(27.67 - 27.30) 3.00 = -1.11</u>	Ship's Round of Beam = <u>14</u>
Depth for Freeboard (D) = <u>27.30</u>	If restricted by superstructures <input checked="" type="checkbox"/>	Difference = <u>.56</u>
		Restricted to
		Correction = $\frac{Diff}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.56}{4} \times .1596 = -.02$

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ... ..	<u>38.83</u>	<u>38.83</u>	<u>8'-6"</u>	<u>-</u>	<u>38.83</u>
" overhang ... ..					
R.Q.D. enclosed ... ..					
" overhang ... ..					
Bridge enclosed ... ..	<u>276.04</u>	<u>276.04</u>	<u>9'-6"</u>	<u>-</u>	<u>276.04</u>
" overhang aft ... ..					
" overhang forward ... ..					
F'cle enclosed ... ..	<u>33.88</u>	<u>33.88</u>	<u>8'-6"</u>	<u>-</u>	<u>33.88</u>
" overhang ... ..					
Trunk aft ... ..					
" forward ... ..					
Tonnage opening aft ... ..					
" forward ... ..					
Total ... ..	<u>348.75</u>	<u>348.75</u>			<u>348.75</u>

Standard Height of Superstructure <u>7'-6"</u>
" R.Q.D. <u>-</u>
Deduction for complete superstructure <u>42</u>
Percentage covered $\frac{S}{L} = 84.04\%$
" $\frac{S_1}{L} = 84.04\%$
" $\frac{E}{L} = 84.04\%$
Percentage from Table, Line A. (corrected for absence of forecastle (if required))
Percentage from Table, Line B. <u>80.31%</u> (corrected for absence of forecastle (if required))
Interpolation for bridge less than 2L (if required)
Deduction = <u>42 x .8031 = -33.73</u>

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ... ..	<u>51.50</u>	1		<u>51.50</u>	<u>66.0</u>	<u>66.00</u>	1		<u>66.00</u>
1/4 L from A.P. ... ..	<u>22.91</u>	4		<u>91.64</u>	<u>29.25</u>	<u>29.25</u>	4		<u>117.00</u>
1/2 L " ... ..	<u>5.66</u>	2		<u>11.32</u>	<u>7.25</u>	<u>7.25</u>	2		<u>14.50</u>
Amidships ... ..	<u>-</u>	4		<u>0</u>	<u>-</u>	<u>-</u>	4		<u>-</u>
3/4 L from F.P. ... ..	<u>11.33</u>	2		<u>22.66</u>	<u>14.50</u>	<u>14.50</u>	2		<u>29.00</u>
1/4 L " ... ..	<u>45.83</u>	4		<u>183.32</u>	<u>58.50</u>	<u>58.50</u>	4		<u>234.00</u>
F.P. ... ..	<u>103.00</u>	1		<u>103.00</u>	<u>132.0</u>	<u>132.00</u>	1		<u>132.00</u>
Total ... ..				<u>463.44</u>					<u>592.50</u>

Mean actual sheer aft = Excess.  
Mean standard sheer aft = Excess.Mean actual sheer forward = Excess.  
Mean standard sheer forward = Excess.Length of enclosed superstructure forward of amidships = > 10  " aft of " = > 10Correction =  $\frac{\text{Difference between sums of products}}{18} = \frac{129.06}{18} = 7.17$   
 $\left( \frac{.75 - S}{2L} \right) = \frac{.75 - .4202}{18} = -2.36$ 

If limited on account of midship superstructure.

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

Deduction for Tropical Freeboard.  
Addition for Winter and Winter North Atlantic Freeboard.Depth to Freeboard Deck = 27.30  
Summer freeboard = 3.52  
Moulded draught (d) = 23.78

Deduction for Tropical freeboard and addition for

Winter freeboard =  $\frac{d}{4}$  inches = 6

Addition for Winter North Atlantic Freeboard (if required =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 11838$ 

Tons per inch immersion at summer load water line

T = 46Deduction =  $\frac{\Delta}{40 T}$  inches

DRAFT Full Displacement T.P.I.

23'-0" 11309 45.6624'-0" 11861 46.0025'-0" 12417 46.33

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	+	-
Depth Correction ... ..	<u>-</u>	<u>1.11</u>
Deduction for superstructures ... ..	<u>-</u>	<u>33.73</u>
Sheer correction ... ..	<u>-</u>	<u>2.36</u>
Round of Beam correction ... ..	<u>-</u>	<u>.02</u>
Correction for Thickness of Deck amidships ... ..	<u>-</u>	<u>-</u>
Other corrections, scantlings, etc. ... ..	<u>-</u>	<u>-</u>
	<u>-</u>	<u>37.22</u>

Summer Freeboard = 42.35

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

Tropical Fresh Water Line above Centre of Disc ... ..	<u>12 1/2"</u>
Fresh Water Line " " ... ..	<u>6 1/2"</u>
Tropical Line " " ... ..	<u>6"</u>
Winter Line below " " ... ..	<u>6"</u>
Winter North Atlantic Line " " ... ..	<u>-</u>

Tropical Fresh Water Freeboard ... ..	<u>3'-6 1/4"</u>
Fresh Water " " ... ..	<u>2'-5 3/4"</u>
Tropical " " ... ..	<u>2'-11 3/4"</u>
Winter " " ... ..	<u>3'-0 1/4"</u>
Winter North Atlantic " " ... ..	<u>4'-0 1/4"</u>

F3 NOV 1933

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# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
			UPPER DECK			* SUPERSTRUCTURE DECKS				
Description of Hatchway	...	...	Nº 1 HATCH	Nº 2 HATCH	Nº 3 HATCH CROSS BUNKER	Nº 4 HATCH	Nº 5 HATCH	Nº 6 HATCH	Nº 7 HATCH	Nº 8 HATCH
Dimensions of Hatchway	...	...	24' 3 1/2" x 24'-0"	33' 1 1/2" x 24'-0"	11'-0 1/2" x 24'-0"	37' 6 1/2" x 24'-0"	28' 8 1/2" x 24'-0"	33' 1 1/2" x 20'-0"	35' 4" x 20'-0"	17'-8" x 5'-0"
COAMINGS	Height above Deck	...	4' 6"	8' 4"	8' 4"	8' 4"	4' 6"	3' 6"	3' 6"	3' 6"
	Thickness	...	4' 4"	12' 3 1/2" x 50'	12' 3 1/2" x 50'	12' 3 1/2" x 50'	4' 4"	4' 4"	4' 4"	4' 4"
	Sides	...	4' 4"	4' 4"	4' 4"	4' 4"	4' 4"	4' 4"	4' 4"	4' 4"
	Stiffeners	...	9' 3" x 40'	✓	✓	✓	9' 3" x 40'	9' 3" x 40'	9' 3" x 40'	9' 3" x 40'
HATCH BEAMS	Brackets, Stays	...	2' DIA	✓	✓	✓	2' DIA	2' DIA	2' DIA	2' DIA
	Number	...	4	6	1	7	5	6	3	2
	Spacing	...	4' 10 1/2"	4' 8 3/4"	5' 6 1/2"	4' 8 3/4"	4' 9 1/2"	4' 8 3/4"	4' 5"	5' 0 1/2"
	Scantling and Sketch	...	PLATE 19 1/2" x 38"	21" x 38"	24" x 40"	20 1/4" x 38"	19 1/2" x 38"	14 1/2" x 33"	14" x 33"	14 1/2" x 34"
FORE AND AFTERS	Bearing Surface	...	5' 3 1/2" x 46"	5' 3 1/2" x 46"	5' 3 1/2" x 46"	5' 3 1/2" x 46"	5' 3 1/2" x 46"	4' 3" x 40"	4' 3" x 40"	4' 3" x 40"
	Number	...	ESCAPE HATCHES IN BRIDGE	COAL HATCH	ABREAST	ABREAST	ABREAST	ABREAST	ABREAST	ABREAST
	Spacing	...	12' IN N°	12' IN N°	12' IN N°	12' IN N°	12' IN N°	12' IN N°	12' IN N°	12' IN N°
	Unsupp'd Lengths	...	23' x 30'	23' x 30'	23' x 30'	23' x 30'	23' x 30'	23' x 30'	23' x 30'	23' x 30'
HATCH COVERS	Scantling and Sketch	...	COAMING 12' 3 1/2" x 45 BA	COAMING 12' 3 1/2" x 45 BA	COAMING 12' 3 1/2" x 45 BA	COAMING 12' 3 1/2" x 45 BA	COAMING 12' 3 1/2" x 45 BA	COAMING 12' 3 1/2" x 45 BA	COAMING 12' 3 1/2" x 45 BA	COAMING 12' 3 1/2" x 45 BA
	Bearing Surface	...	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"
	Material	...	3" SOLID WOOD	COVERS TO MAIN HATCHES ON UPPER DECK & SUPERSTRUCTURE DECKS	COVERS TO MAIN HATCHES ON UPPER DECK & SUPERSTRUCTURE DECKS	COVERS TO MAIN HATCHES ON UPPER DECK & SUPERSTRUCTURE DECKS	COVERS TO MAIN HATCHES ON UPPER DECK & SUPERSTRUCTURE DECKS	COVERS TO MAIN HATCHES ON UPPER DECK & SUPERSTRUCTURE DECKS	COVERS TO MAIN HATCHES ON UPPER DECK & SUPERSTRUCTURE DECKS	COVERS TO MAIN HATCHES ON UPPER DECK & SUPERSTRUCTURE DECKS
	Thickness	...	FITTED F & A	3 1/2" x 3" BEARING SURFACE	3 1/2" x 3" BEARING SURFACE	3 1/2" x 3" BEARING SURFACE	3 1/2" x 3" BEARING SURFACE	3 1/2" x 3" BEARING SURFACE	3 1/2" x 3" BEARING SURFACE	3 1/2" x 3" BEARING SURFACE
Spacing of Cleats			2 TARPULINS TO EACH HATCH Nº 1 & 5 ON UPPER DECK & TO ALL HATCHES ON SUPERSTRUCTURE DECKS.							
Number of Tarpaulins			1 TARPULIN TO HATCHES IN BRIDGE & FOCLE SPACES.							

Particulars of fiddle, funnel and ventilator coamings:—

Engine Skylight of steel, strongly constructed.  
Fidley gratings fitted with hinged steel covers.  
Fidley, Funnel & Vent coamings in efficient condition.

Particulars of Flush Bunker Scuttles:—

None.

Particulars of Companionways:—

Steel house on Poop Deck, having solid wood doors, with 18" Sills.

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

Fore D<sup>5</sup> 2-21 Vents, coamings 36" x 40"; 1-10 Vent, Coaming 36" x 32.  
Bridge D<sup>5</sup> 2-27 Vents, coamings 36" x 40"; 8-27 Vents, coamings 30" x 40"; 2-31 Vents, coamings 36" x 40"; 4-21 Vents, coamings 30" x 40.  
2-12 Vents, coamings 30" x 34"; 1-10 Vent, Coaming 36" x 32.  
Well Aft. 2-21 Vents, coamings 36" x 40"; Poop D<sup>5</sup> 3-12 Vents, coamings 30" x 34"; 4-9 Vents, coamings 30" x 32.  
All ventilators constructed in accordance with the Rules, & coamings closed with wood plugs & canvas covers.

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

Fore D<sup>5</sup> 1-3 1/2" M1 to Fore Peak 18" high; 1-2 1/2" M1 (P) to Afterdram 18" high; 1-5 1/2" M1 (P&S) to Nº 1 Tank, 18" high.  
Bridge D<sup>5</sup> 1-5 1/2" M1 (P&S) to Nº 2 Tank; 1-5 1/2" M1 (P&S) to Nº 3 Tank; 1-5 1/2" M1 (P&S) to Engine Room Tank; 1-2 1/2" M1 (P&S) to Afterdram.  
1-5 1/2" M1 (P&S) to Nº 5 Tank: All Air Pipes 18" high.  
Well Aft. 1-3 1/2" M1 (P&S) to Nº 6 Tank, 36" high.  
Poop D<sup>5</sup> 1-4 1/2" M1 (P&S) to After Peak, 18" high.  
All air pipes fitted with wood plugs.

Particulars of Gangway Cargo and Coaling Ports:—

None.

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Particulars of Scuppers and Sanitary Discharge Pipes — WC, Bath & Wash Basin discharges from Saloon Accommodation, & from Officers Accommodation absent being carried through ship's side above freeboard deck & fitted with storm valves. WC & Wash Basin discharges from Crews Quarters in Poop Space carried through ship's side above freeboard deck & fitted with storm valves. 3 1/2" Scuppers from Poop, Bridge & Fore Spaces fitted with storm valves & having wood plugs on inner ends. 1 1/2" Scuppers from Dynamite Flat & Fore Room in Bridge Space fitted with storm valves & having screw cap on inner end.

Particulars of Side Scuttles:

10' Dia Sidelights in Poop & Fore Spaces, strongly constructed, & fitted with deadlights.

Particulars of Guard Rails:—

Fore D<sup>5</sup> & Poop D<sup>5</sup> Rails 3'-3" high with 2 rods & stanchions spaced 5'-0" apart.  
Bridge D<sup>5</sup> Rails clear of bulwark 4'-0" high with 3 rods & stanchions spaced 5'-0" apart.  
Bulwark amidships 4'-0" high, having 3 freeing ports (P.S.), well bar fitted.

Particulars of Gangways, Lifelines, etc.:—

Efficient gangway fitted in after well.  
Provision made for rigging lifelines in any part of the ship used by the crew.

## Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well	35'-4"	4'-0"	3'-3" x 9"	4	9.72 sq	10.04 sq
Forward Well	30'-11"	4'-0"	3'-3" x 9"	4	9.72 sq	9.59 sq

State position of each freeing port (F. and A. position and height above deck edge) } After Well:— 9'-6"; 14'-0"; 18'-6"; 22'-6" from Bridge end } 12" above deck  
Forward Well:— 10'-0"; 14'-6"; 18'-6"; 22'-6" from Bridge end }  
State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such } None

Additional area where sheer is less than standard.

## Particulars of Superstructures, Trunks, Casings, Deckhouses.

	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead	38	38	ANGLE 6' x 3' x 46	29"	LUAGED 3-3/4 R	5'-0" x 2'-0"	18"	8'-6"
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	30	30	ANGLE 4' x 3' x 32	30"	NONE	5'-0" x 4'-0"	18"	9'-6"
Bridge, Forward Bulkhead	44	44	BA 10' x 3 1/2" x 42	30"	LUAGED 5-3/4 R	4'-6" x 3'-3"	18"	9'-6"
Forecastle Bulkhead	30	30	ANGLE 4' x 3' x 32	27"	NONE	10' 6'-0" x 4'-0"	18"	8'-6"
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	34	31	3' x 3' x 30	30"	TOP BRACKETED	5'-0" x 2'-0"	18"	8'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	31	31	3' x 3' x 30	30"	NONE	5'-0" x 2'-0"	18"	9'-6"
Deckhouses on Flush Deck Ships								

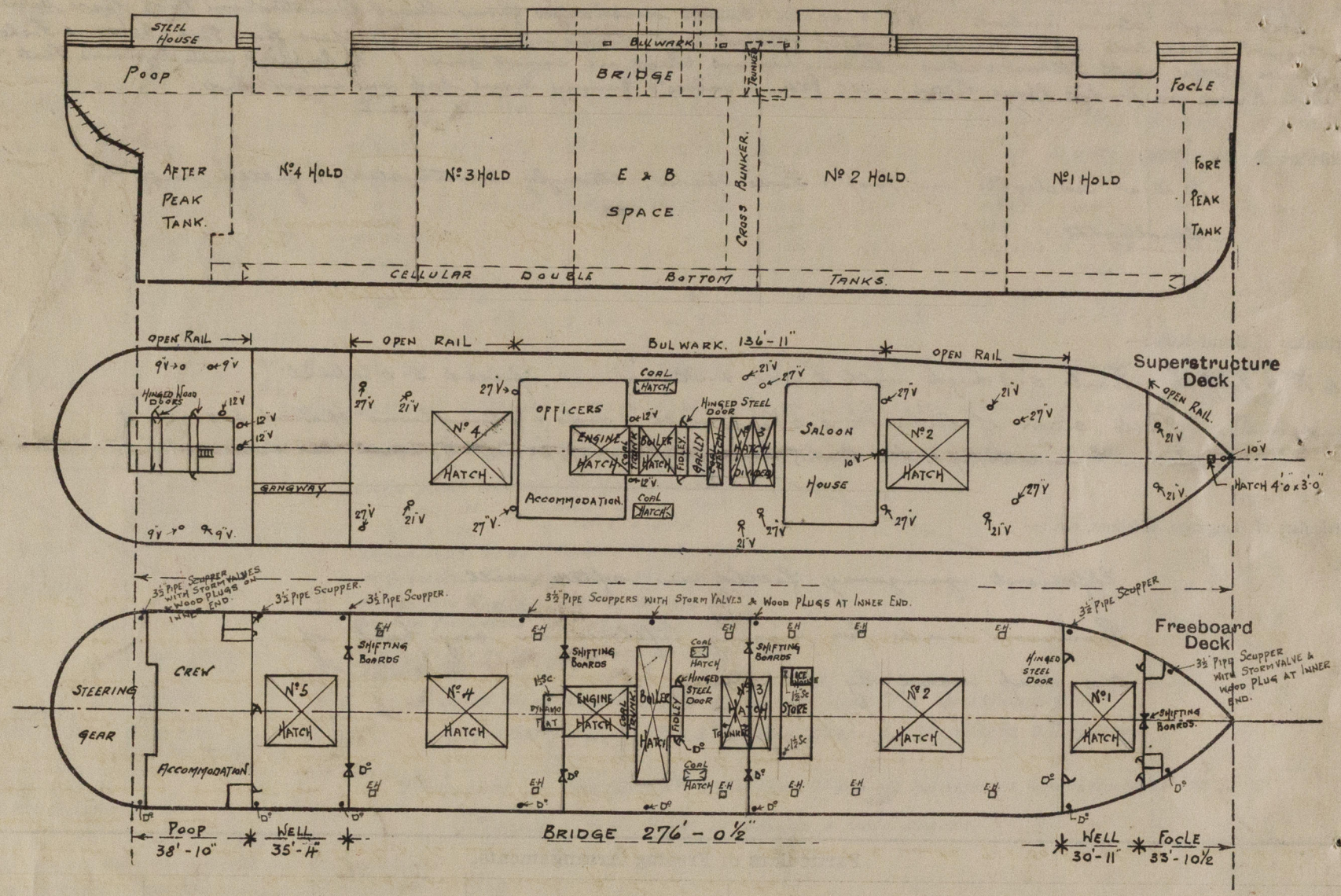
Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	Hinged steel doors. Workable from both sides.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	3" Slifting boards full height of openings, fitted in channels pivoted to bulkhead.
Bridge, Forward Bulkhead	Hinged steel doors. Workable from both sides.
Forecastle Bulkhead	Centre line opening 3" Slifting boards full height, fitted in channels pivoted to bulkhead.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	1 Hinged steel door & 2 Solid wood doors. Workable from both sides.
Exposed Machinery Casings on Superstructure Decks	Hinged steel doors. Workable from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel doors. Workable from both sides.
Deckhouses on Flush Deck Ships	



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Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shewn on the following sketches:—



State any special features in the construction of the ship:— This vessel has been built in accordance with the approved Plans & in general conformity with the Society's Rules for the class contemplated. The vessel is to be engaged on International Trade & a Lumber Freeboard is also requested. The approved Plans of Midship Section, Profile & Decks, & Hatches are forwarded for reference. Freeboard Request attached.

Lumber requirements

Double bottom tanks subdivided over midship half length.  
Steel Bulwark in wells 4'-0" high x 5/16" with 6 x 3 x .35 B.H. rail, supported with 7" x .50 B.P. stays spaced 4'-5" apart over beams.  
Steam steering engine in Prop Space, operated by telemotor.  
Emergency gear fitted & operated by relieving tackle led to warping winch on Poop Deck.  
Eyeplates for lashings, fitted in wells & on bridge deck, spaced 10 feet apart, as per approved sketch submitted with preliminary Freeboard report.  
Sockets for uprights not fitted, as the nature of the deck cargo is such that uprights are not required.

Builder's name and yard number Lithgows Limited Nº 863.  
Names of sister ships "HARBURY"  
Owners J & C. Harrison Ltd, London.

Est Fee £ 16 : 0 : 0 Received by me