

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

23900
No. 174-2 23900
Index. No.
(For London Office only.)

Computation of Freeboard for Steamer, Sailing Ship, Tanker

Having Complete Superstructure with tonnage openingPort of Survey Gothenburg

(Type of Superstructures.)

Date of Survey 5th March

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
<u>SUMATRA</u>	<u>Gothenburg</u> <u>Swedish</u>	<u>5647</u>	<u>6840</u>	<u>1914</u> <u>9mo.</u>

Name of Surveyor L. Hjermqvist

Moulded Dimensions: Length 425'-0" Breadth 53'-9" Depth 29'-6"
 Moulded displacement at moulded draught = 85 per cent. of moulded depth 12760 tons
 Coefficient of fineness for use with Tables 779

Particulars of Classification *100A.1.
Shelter dk. with freeboard.

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... <u>29.5</u>	(a) Where D is greater than Table depth (D - Table depth) R = <u>(29.54 - 28.33) x 3 = +3.63</u>	Moulded Breadth (B) <u>53.79</u>
Stringer plate ... <u>0.038</u>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{12.91}{50}$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures	Ship's Round of Beam = <u>13.50</u>
Depth for Freeboard (D) = <u>29.54</u>		Difference <u>.59</u>
		Restricted to
		Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.59}{4} \times .0053 = \text{NIL}$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<u>31'-6"</u>	<u>31.50</u>	<u>8'-0"</u>	-	<u>31.50</u>
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...	<u>389'-0"</u>	<u>389.00</u>	<u>8'-0"</u>	-	<u>389.00</u>
" overhang aft ...					
" overhang forward					
F'cle enclosed ...					
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...	<u>4'-6"</u>	<u>2.25</u>	<u>2'-0"</u>		<u>2.25</u>
" forward					
Total ...	<u>425.00</u>	<u>422.75</u>			<u>422.75</u>

Standard Height of Superstructure 7.5
 " " R.Q.D. ✓
 Deduction for complete superstructure 42.0
 Percentage covered $\frac{S}{L} = 100\%$
 $\frac{S_1}{L} = 99.47\%$
 $\frac{E}{L} = 99.47\%$
 Percentage from Table, Line A 99.34%
 (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 = 42.0 x .9934 = - 41.72

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<u>52.5</u>	1		<u>52.50</u>	<u>1623</u>	<u>66.046 = 72</u>	1		<u>72.00</u>
$\frac{1}{6}$ L from A.P. ...	<u>23.36</u>	4		<u>93.44</u>	<u>644</u>	<u>28.05</u>	4		<u>128.16</u>
$\frac{2}{6}$ L " ...	<u>5.77</u>	2		<u>11.54</u>	<u>126</u>	<u>7.01</u>	2		<u>15.84</u>
Amidships ...	-	4		-	0	-	4		-
$\frac{2}{6}$ L from F.P. ...	<u>11.55</u>	2		<u>23.10</u>	<u>289</u>	<u>11.83</u>	2		<u>26.40</u>
$\frac{1}{6}$ L " ...	<u>46.73</u>	4		<u>186.92</u>	<u>1026</u>	<u>47.40</u>	4		<u>213.60</u>
F.P. ...	<u>105.0</u>	1		<u>105.00</u>	<u>3131</u>	<u>114.046 = 120</u>	1		<u>120.00</u>
Total ...				<u>472.50</u>					<u>576.00</u>

Mean actual sheer aft = Pass
 Mean standard sheer aft =

Mean actual sheer forward = Pass
 Mean standard sheer forward =

Length of enclosed superstructure forward of amidships = ✓" " aft of " = ✓

Actual height of T.D. = 8.00
 Standard " " = 7.50
 Difference = 6"

Correction = $\frac{\text{Difference between sums of products}}{18} \left(75 - \frac{S}{2L} \right) = \frac{103.50}{18} (.25) = - 1.44$

If limited on account of midship superstructure.

If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft.Deduction for Tropical Freeboard.
Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = 29.54
 Summer freeboard = 3.80
 Moulded draught (d) = 25.74

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 6.43Addition for Winter North Atlantic Freeboard (if required) = ✓

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta =$ 13202 tons

Tons per inch immersion at summer load water line

 $T =$ 45.7Deduction = $\frac{\Delta}{40T}$ inches $=$ 7.22

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{779 + .68}{1.36} = \frac{1.459}{1.36}$

	+	-
Depth Correction ...	<u>3.63</u>	-
Deduction for superstructures ...	-	<u>41.72</u>
Sheer correction ...	-	<u>1.44</u>
Round of Beam correction ...	-	-
Correction for Thickness of Deck amidships	-	-
Other corrections, scantlings, etc. ...	-	-
	<u>3.63</u>	<u>43.16</u>
Summer Freeboard =	<u>45.60</u>	

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

Tropical Fresh Water Line above Centre of Disc 13.65
 Fresh Water Line " " 7.22
 Tropical Line " " 6.43
 Winter Line below " " 6.43
 Winter North Atlantic Line " " ✓

Tropical Fresh Water Freeboard ... 31.95
 Fresh Water " ... 38.38
 Tropical " ... 39.17
 Winter " ... 52.03
 Winter North Atlantic " ... ✓

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
SHELTER DECK					Upper deck				
Description of Hatchway	No. 1	No. 2	No. 3	No. 4	No. 1	No. 2	No. 3	No. 4	No. 5
Dimensions of Hatchway	22'6" x 18'0"	27'0" x 18'0"	9'0" x 18'0"	30' x 36"	22'6" x 18'0"	27'0" x 18'0"	51' x 36"	36' x 36"	
COAMINGS	Height above Deck	27"	27"	27"	21"	12"	12"	9"	12"
	Thickness	4"	4"	3"	3"	12'3" x 52"	12'3" x 56"	12'3" x 52"	12'3" x 56"
	Sides	4"	4"	3"	3"				
	Stiffeners	9'3" x 42"	9'3" x 42"	9'3" x 42"					
HATCH BEAMS	Number	4	5	1	4	5			
	Spacing								
	Scantling and Sketch								
	PLATE	22' x 34"	22' x 34"	20' x 34"	16' x 40"	16' x 40"			
FORE AND AFTERS	ANGLES	4'3" x 40"	4'3" x 40"	4'3" x 36"	4'3" x 40"	4'3" x 40"			
	Bearing Surface	3"	3"	3"	3"	3"			
	Number								
	Spacing								
HATCH COVERS	Material	Wood	Wood	Wood	Wood	Wood	Wood	Wood	Wood
	Thickness	3"	3"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
	How fitted	for 2' aft.	for 2' aft.	for 2' aft.	for 2' aft.	for 2' aft.	for 2' aft.	for 2' aft.	for 2' aft.
	Bearing Surface	3"	3"	3"	3"	3"	3"	3"	3"
Spacing of Cleats	23"	23"	23"	19"	23"	21"	22"	21"	23"
Number of Tarpaulins	3	3	3	3	3	2	2	2	2

Particulars of fiddle, funnel and ventilator coamings:— Fiddle, funnel and ventilator on top of a 7'-6" high casing. Fiddle covered by strong steel hinged covers. Funnel and ventilators in efficient condition.

Particulars of Flush Bunker Scuttles:—

None

Particulars of Companionways:—

None

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

1 Vent. 12" diam. Coaming 31"	led to fore peak
16 " 18" " 36" x 36"	" hold space
4 " 18" " 36" x 36"	" led to bunkers
2 " 10" " 36" x 32"	" stores
2 " 10" " 36" x 24"	" crew space
2 " 9" " 36" x 24"	" "

All ventilators constructed in accordance with Rules and coamings closed with steel covers or wood plugs and canvas covers.

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

7 steel pipes goose neck 18" high 2" diam from dbl bottom tanks	
2 cast iron " 18" " 4" " "	
2 " " 15" " 4" " "	
3 " " 15" " 5" " "	

All air pipes are closed with wood plugs or canvas covers.

Particulars of Gangway Cargo and Coaling Ports:—

None

Particulars of Scuppers and Sanitary Discharge Pipes:— Scuppers and sanitary discharge pipes from space above freeboard deck fitted with non return valves. 4 scuppers each side in tween deck space and 1 each side in tonnage opening space, all with storm valves and screw plugs and led overboard.

Particulars of Side Scuttles:—

Tide scuttles to crew spaces aft fitted with hinged deadlights.

Particulars of Guard Rails:—

Guard rails on shelter deck forward and aft 3'-6" high having three rails and stanchions spaced 4'-4". Bulwark in way of accommodation amidship and aft 3'-6" high efficiently constructed and supported.

Particulars of Gangways, Lifelines, etc.:—

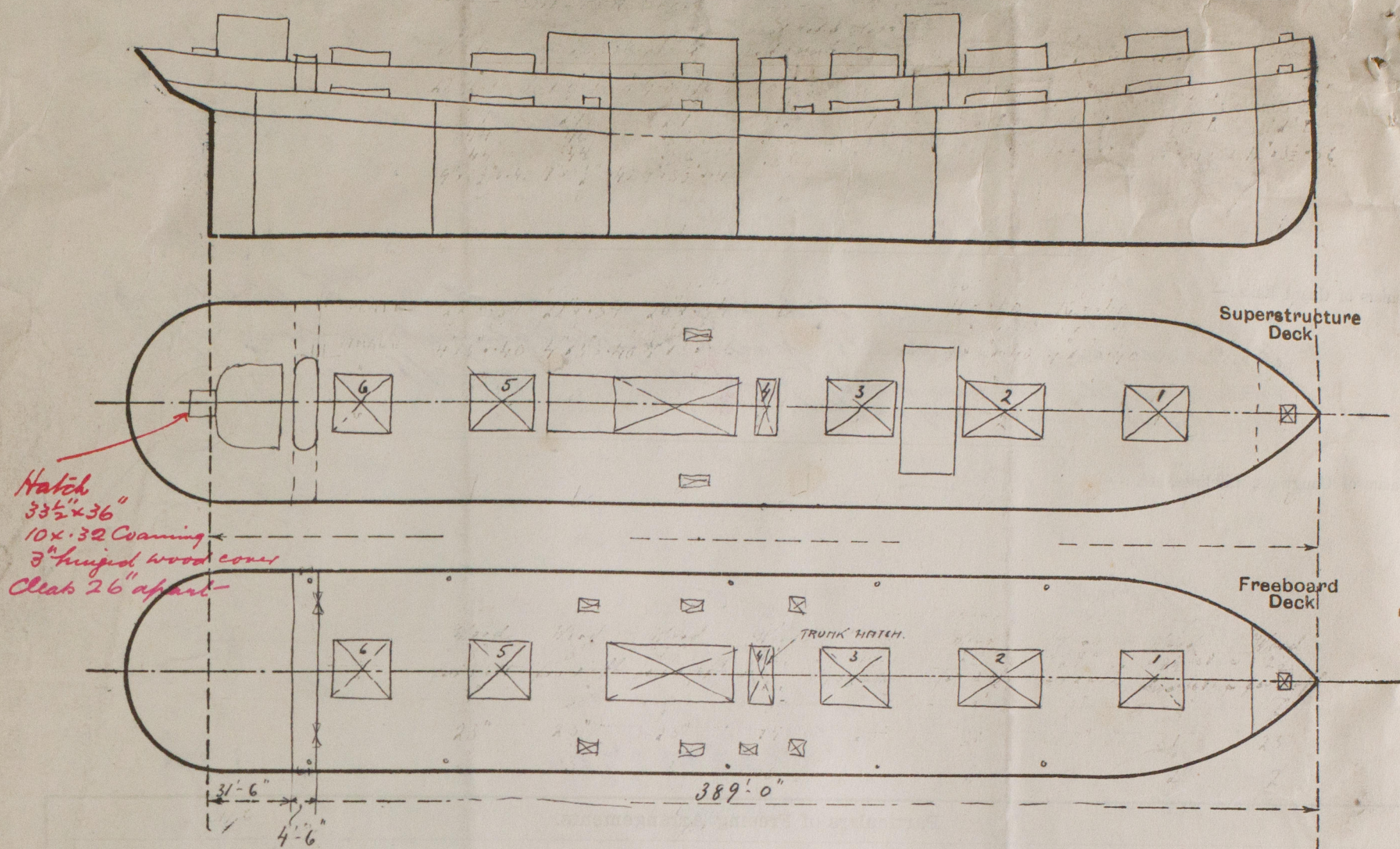
None

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			Open rails on shelter deck.			
Forward Well			Freeing ports in Lorange well	1 P.S.	3 1/2 x 21	
State position of each freeing port (F. and A. position and height above deck edge) After Well:— Forward Well:— State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— 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	28"	28"	3 1/2" x 32L	35"	None	None		
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	28"	28"	3 1/2" x 32L	35"	None	8'0" x 4'0"	None	
Bridge, Forward Bulkhead								
Forecastle Bulkhead								
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	32"	32"	3 1/2" x 40L	36"	None	5'0" x 1'10"	15"	7'6"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	32"	32"	4' x 36L	36"	Continued top and bottom	None		
Deckhouses on Flush Deck Ships								

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Poop Bulkhead	No opening
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	Shifting boards in rooked channels full height
Bridge, Forward Bulkhead	
Forecastle Bulkhead	
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	
Exposed Machinery Casings on Superstructure Decks	Steel door capable of being manipulated from both sides
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	No opening
Deckhouses on Flush Deck Ships	

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:—

Tonnage opening aft.

Coaming 10" x 3" x 48 L; 3" wood covers, tarpaulins and lashings efficient.

FW Allowance

$$\begin{aligned}
 SMD &= 25.74 = 25' - 9'' \\
 &\quad \quad \quad 23/4 \\
 &\quad \quad \quad \hline
 &\quad \quad \quad 25' - 11 3/4 \\
 \Delta @ 25' - 3 1/2 &= 12825 \\
 25' - 11 3/4 &\quad \quad \quad \hline
 &\quad \quad \quad 8 1/2 \\
 &\quad \quad \quad \times 45.7 = 377 \\
 &\quad \quad \quad \hline
 &\quad \quad \quad 13202
 \end{aligned}$$

Builder's name and yard number Earle's Co. Ltd. Hull.

Names of sister ships

Owners A.B. Poenska Ostasiatiska Komp. (G. Borin Mgr.)

Fee Kr. 390-

Received by me



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Foundation