

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

B.T. COPY

Index No. 28064
(For London Office only.)

Computation of Freeboard for Steamer, Sailing Ship, etc.
having Shelter Deck with tonnage opening
FATAKADA

Port of Survey London

Date of Survey 1st April 1932 &c

Name of Surveyor Thomas E. Snowden

Particulars of Classification +100A.1 Shelter decks with freeboard.

(Type of Superstructures.) Deck 3.7.39
Ship's Name hendon Exchange Nationality and Port of Registry British London Official Number 115884 Gross Tonnage 5410 Date of Build 1921-3
Moulded Dimensions: Length 419.5 Breadth 54.5 Depth 30.5 to Up 5.5
Moulded displacement at moulded draught = 85 per cent. of moulded depth 12150 tons
Coefficient of fineness for use with Tables 715

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... 30.5	(a) Where D is greater than Table depth (D - Table depth) R = (30.54 - 27.97) 3 = 2.57	Moulded Breadth (B) 54.67
Stringer plate 46.02 } 54.54 } Sheathing on exposed deck 22 Pine aft end T $\frac{L-S}{L}$ =	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = -	Standard Round of Beam = $\frac{B \times 12}{50}$ =
Depth for Freeboard (D) = 30.54	If restricted by superstructures -	Ship's Round of Beam = 13.14
		Difference
		Restricted to
		Correction = $\frac{\text{Diff}}{4} \times (1 - \frac{S_1}{L})$ = Nil

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	26.10	26.83	8'-6"		26.83
" overhang ...	-	-	-		-
R.Q.D. enclosed					
" overhang					
Bridge enclosed...					
" overhang aft					
" overhang forward	388.3	388.25	8'-6"		388.25
Fore enclosed ...					
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft	4'-5"	2.20	8'-6"		2.20
" forward					
Total ...	419.6	417.28			417.28

Standard Height of Superstructure 7.5
" " R.Q.D. -
Deduction for complete superstructure 42.0
Percentage covered $\frac{S}{L} = 1.000$
" " $\frac{S_1}{L} = .9946$
" " $\frac{E}{L} = .9946$
Percentage from Table, Line A.
(corrected for absence of forecastle (if required)) -
Percentage from Table, Line B. .9933
(corrected for absence of forecastle (if required)) -
Interpolation for bridge less than 2L (if required) -
Deduction = 42.7.9933 = 41.72

SHEER CORRECTION.

Station	Standard Ordinate	S	Product	Mean actual shear aft	Mean standard shear aft
A.P. ...	54.95	1	54.95		
1/4 L from A.P. ...	23.12	4	92.48		
1/2 L " ...	5.71	2	11.42		
Amidships ...		4			
3/4 L from F.P. ...	11.42	2	22.84		
3/4 L " ...	46.24	4	184.96		
F.P. ...	103.90	1	103.90		
Total ...			467.55		

Mean actual shear aft = even
Mean standard shear aft = even

Length of enclosed superstructure forward of amidships = shelter deck
" " aft of " =

Height of erections 8'-6"
Standard height 7'-6"
1'-0"

Correction = $\frac{\text{Difference between sums of products}}{18} = \frac{144.37}{18} = 8.02$

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 = 30.54
Summer freeboard = 3.64
Moulded draught (d) = 26.90

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 6.72 3/4
Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line
 $\Delta = 12730$
Tons per inch immersion at summer load water line
T = 43.3

Deduction = $\frac{\Delta}{40T}$ inches = 7.35 7/8

F.P. D.M.
43.65 29.5
43.49 28.3
43.15 26.0
42.83 24.3

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{7.5 \times 7.68}{136} = 4.172$

Depth Correction ... 7.71
Deduction for superstructures ... 4.172
Sheer correction ... 2.00
Round of Beam correction ...
Correction for Thickness of Deck amidships ...
Other corrections, scantlings, etc. ...

77.64
79.64

Summer Freeboard = 43.63

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

Tropical Fresh Water Line above Centre of Disc ... 14"
Fresh Water Line " ... 7 1/4"
Tropical Line " ... 6 3/4"
Winter Line " ... 6 3/4"
Winter North Atlantic Line " ...

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

3-7 3/4
2-5 3/4
3-0 1/2
3-1
4-2 1/2
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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
Description of Hatchway			h°1 SHRD	h°2	h°3	h°4	h°5	h°6	N°5 16G U RD	Yonnage
Dimensions of Hatchway			Shelter Deck						SAME DIMENSIONS AS	Hatch
			23'-6" x 18'	20'-6" x 18'	10' x 18'	25'-6" x 18'	20'-6" x 18'	20'-3" x 18'	ON SHELTER D°	18' x 4'-10"
COAMINGS	{	Height above Deck	33"	33"	As	As	As	As	9"	9"
		Thickness	44	As	As	As	As	As	44	44
			Sides Ends	44	N°1	N°1	N°1	N°1	44	44
		Stiffeners	9 x 3 1/2 x 32 C	N°1	N°1	N°1	N°1			
		Brackets, Stays								
HATCH BEAMS	{	Number	4	4	5	2	4	4	N°5 AS SHELTER DECK	
		Spacing	4'-9"	5'-3"	5'	5'-4"	5'-4"	5'-3"	" " "	
		Scantling and Sketch	4 x 3 x 44	As	As	As	As	As	9 x 3 x 44	
			22 x 36 / 16	N°1	N°1	N°1	N°1	N°1	17 x 36 / 16	
		Bearing Surface	3 1/2"					3 1/2"		
FORE AND AFTERS	{	Number								
		Spacing								
		Unsupported Lengths								
		Scantling* and Sketch								
		Bearing Surface								
HATCH COVERS	{	Material	Pine						Pine	Pine
		Thickness	3"						2 1/2"	3"
		How fitted	4 a.	As N°1	As N°1	As N°1	As N°1	As N°1	4 a.	4 a.
		Bearing Surface	3"						3"	3"
Spacing of Cleats			2'-0"						2'-0"	none
Number of Tarpaulins			3						3	2

*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:—

Stokehold gratings covered by strong steel hinged covers.
 Tidley ventilator in efficient condition.
 Engine room skylight of steel strongly constructed.

Particulars of Flush Bunker Scuttles:—

None

Particulars of Companionways :—

None.

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

On. Vela: 1-9 x 26 high to fore peak }
2-26 x 26 " hold. }

On. Shelter: 10 - 20 vents. 30 high thresholds tween decks }
4 - 21 " 30 " " " " " }
6 - 6 " 30 " " accom aft " }
4 - 11 " 30 " " " " " }

On Uppe 15

2-15" vents - 18" high in lounage space to hold fitted with angle ring & bolted plate cover

All ventilators constructed in accordance with the rules. & Coamings closed with wood plugs and canvas covers.

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

Gm. Forecastle deck:- { $1-4\frac{1}{2} \times 10$ " high } Fore Peak.
 { $1-3' \times 27'$ " "} Noyals.

Gen. Shelter deck:-

12-2"	air pipes	19" high	to DPs tanks.
4-6"	"	"	24" to Side oil tanks (Patent valve fittings)
2-6"	"	"	24" to deep tanks
2-4"	"	"	20" to B.B.
2-3"	"	"	21" " "
1-3 1/2"	"	"	21" " " Aft. Peak.

Particulars of Gangway Cargo and Coaling Ports:—

W.T. doot P & S							to h ^o 1 tween deck between Up ^r D* & Shelter D*		6'-6" x 4'-0" efficiently constructed	
"	"	"	"	"	"	"	N ^o 2	"	"	2'-6" x 2'-6"
"	"	"	"	"	"	"	P&K:	"	"	2'-6" x 2'-6"
"	"	"	"	"	"	"	N ^o 4	"	"	2'-6" x 2'-6"
"	"	"	"	"	"	"	N ^o 6	"	"	2'-6" x 2'-6"

Particulars of Scuppers and Sanitary Discharge Pipes —

4 Scuppers P+S from Shelter Green ^{1/2} 3 1/2" D metal castings at Ships side /
Non-return storm valves.

Particulars of Side Scuttles:

All side scuttles to crew spaces in forecastle & poop fitted with fixed /
deadlights, and of substantial construction

Particulars of Guard Rails:—

Forecastle rails 3'-3" high 3 rods 4'-9" apart. /
Rails from forecastle to front of bridge house & elsewhere abreast main hatches on Shelter deck /
3'-9" high, 3 rods, stanchions 4'-3" apart. /
Steel bulwarks on Shelter deck 3'-9" high efficiently constructed & supported where no guard rails. /

Particulars of Gangways, Lifelines, etc.:—

Steel hand rails fitted at sides of Bridge house and casings /
2 1/2" Manila Rope stretched from forecastle to bridge houses P+S & from aft end of /
Casings to Poop House. No stanchions fitted. /

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 ^{Tonnage} _{Space.} ...	4'-5" /	8'-6" /	2'-0" x 12" /	1 /	2 sq ft. /	2. /
Forward Well ...	—	—	—	—	—	—
State position of each freeing port ... } After Well:— Close to forward bulkhead of tonnage space. 6' above deck. / (F. and A. position and height above deck edge) } Forward Well:— / State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— Hinged plate shutter fitted (no clips) / Additional area where sheer is less than standard. —						

Particulars of Superstructures, Trunks, Casings, Deckhouses.

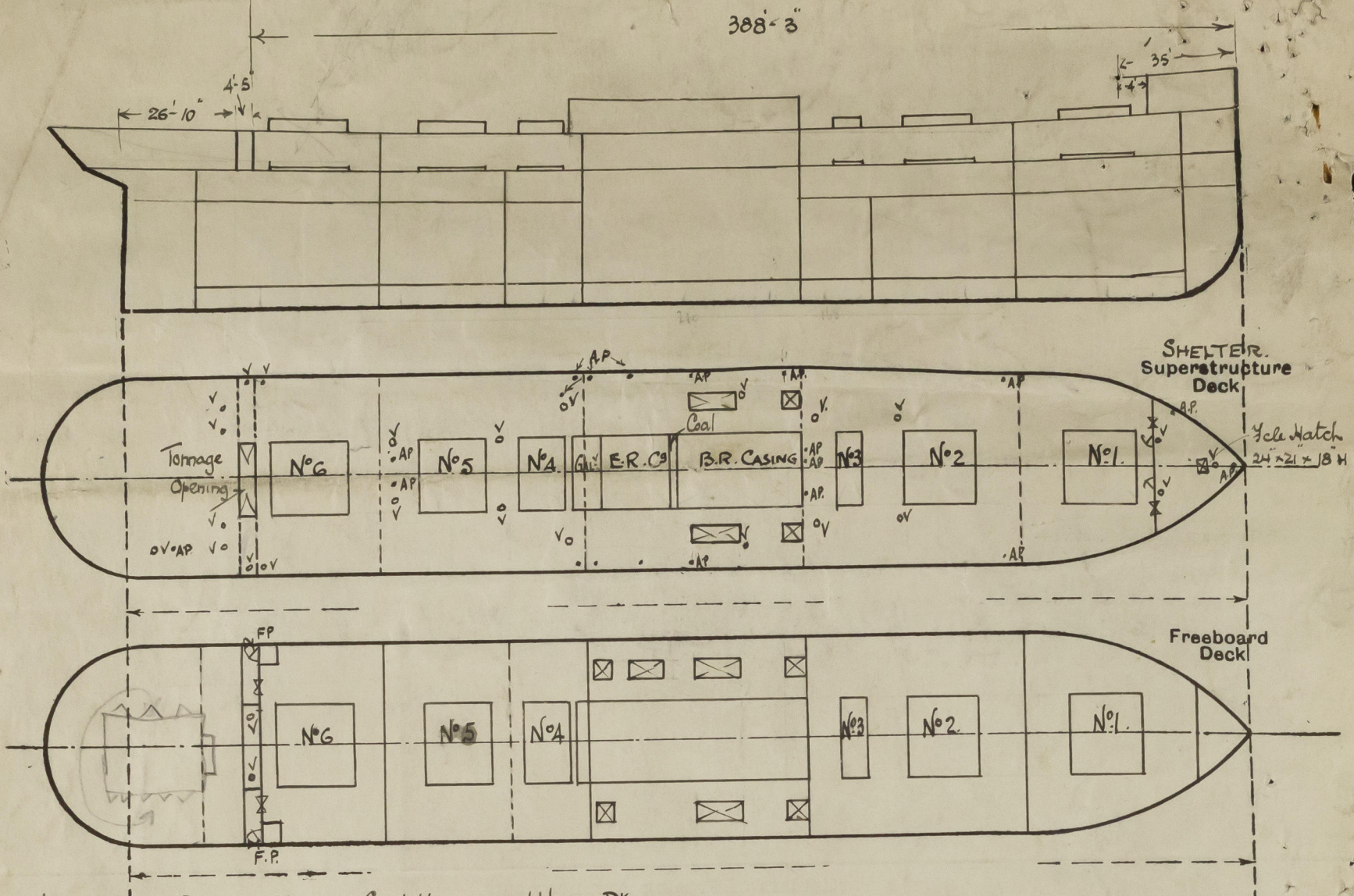
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead ...	Vert. Plating /	.40 /	L 5 x 3 x .44 /	30" /	None /	None /	— /	8'-6" /
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead ...	" "	.38 /	L 5 1/2 x 3 x .28 /	30" /	None. /	2 x 5' x 39" /	19" /	8'-6" /
Bridge, Forward Bulkhead ...								
Forecastle Bulkhead ...	Vert. Plating /	.30 /	L 3 x 3 x .30 /	33" /	None. /	2 x 5' x 3' / 2 x 5' x 2' /	15" /	7' 7" /
Trunk, Aft ...								
Trunk, Forward ...								
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...								
Exposed Machinery Casings on Superstructure Decks ...	18" x .38 /	.30 /	3 x 3 x .30 /	54" /	Brackets at top. /	4 x 51" x 24" /	18" /	7'-3" /
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	18" x .38 /	.30 /	3 x 3 x .30 /	54" /	None. /	None /	— /	8'-6" /
Deckhouses on Flush Deck Ships ...								

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

Poop Bulkhead ...	— No openings. /
Raised Quarter Deck Bulkhead ...	—
Bridge, After Bulkhead ...	2 with shifting boards full height in riveted channels. /
Bridge, Forward Bulkhead ...	—
Forecastle Bulkhead ...	2 with shifting boards full height in riveted channels / 2 hinged steel doors operated from both sides /
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	—
Exposed Machinery Casings on Superstructure Decks ...	2 Hinged wood doors operated from both sides / 4 " " " " " " " " /
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	— No openings /
Deckhouses on Flush Deck Ships ...	—

London Exchange

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:—



COAL HATCHES ON SHELTER DECK
1 P&S 4'-2" x 3'-0" } all with 3" coamings
1 P&S 13'-0" x 3'-0" } 3" wood covers & tarpaulins clips & battens as required

COAL HATCHES ON UPPER DECK
1 P&S 6'-6" x 3'-0"
1 P&S 2'-6" x 3'-0"
1 P&S 4'-6" x 3'-0"
1 P 5'-6" x 3'-0" } All with 9" B.A. coamings
3" wood covers & tarpaulins
clips & battens as required

State any special features in the construction of the ship:—

Displacement at 29'-5" mld = 13962 full.
29'-3 1/4 mld = 13900 mld. TPI = 43.6

85 D = 25.92' Δ = 13900 - 43.3 x 40.25
= 12150.7 tons

Displacement at 26'-10 3/4 mld.
27'-0 1/2 = 13962 - 43.3 x 28.5
12780 tons

Builder's name and yard number _____

Names of sister ships _____

Owners _____

Fee £ 14 : 9 : 0
 9/4 4/4/32

Received by me *[Signature]*