

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker  
having Poop, Bridge and Forecastle. Port of Survey Shanghai.

(Type of Superstructures.)  
Date of Survey 27<sup>th</sup> November 1933.

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
<u>Fau Sang.</u>	<u>British Hong Kong.</u>	<u>146179</u>	<u>2256</u>	<u>1921</u>

Name of Surveyor S. P. ...

Particulars of Classification \*100 A1

Moulded Dimensions: Length 285'-0" Breadth 42'-6" Depth 22'-3"

Moulded displacement at moulded draught = 85 per cent. of moulded depth 4740 tons

Coefficient of fineness for use with Tables .724

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... <u>22'-3"</u>	(a) Where D is greater than Table depth (D-Table depth) R = $(22.57 - 19.00) \times 2.193$ = <u>+ 7.39"</u>	Moulded Breadth (B) <u>42.50</u>
Stringer plate ... <u>1/2"</u>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = <u>✓</u>	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{42.50 \times 12}{50} = 10.20$
Sheathing on exposed deck <u>2 1/2"</u>	If restricted by superstructures <u>✓</u>	Ship's Round of Beam = <u>10 3/4"</u>
$T \left( \frac{L-S}{L} \right) = 2.5 \left( \frac{285-174.82}{285} \right) = 21 \times .3865 = 8.11$		Difference <u>.55" - 1/4" add</u>
Depth for Freeboard (D) = <u>22'-4"</u>		Restricted to
		Correction = $\frac{\text{Diff}}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{.55}{4} \times .3921 = -.05"$

### DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	32.66'	32.66	7'-3"		32.66
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...	97.62	97.62	7'-3"		97.62
Bridge enclosed...	104'-0"	97.62	7'-3"		97.62
" overhang aft ...	6.39	4.79			4.79
" overhang forward					
F'cle enclosed ...	38.16'	38.16	7'-3"		38.16
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward					
Total ...	174.82	173.23			173.23

Standard Height of Superstructure	6.35'
" " R.Q.D.	✓
Deduction for complete superstructure	34.33'
Percentage covered $\frac{S}{L} =$	61.35%
" $\frac{S_1}{L} =$	60.79%
" $\frac{E}{L} =$	60.79%
Percentage from Table, Line A. ✓	
(corrected for absence of forecastle (if required))	
Percentage from Table, Line B.	47.34%
(corrected for absence of forecastle (if required))	
Interpolation for bridge less than 2L (if required)	
Deduction =	34.33 x .4734 = -16.25"

### SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	38.50	1	38.50	45.00	45.00	1	45.00		45.00
1/4 L from A.P. ...	17.13	4	68.52	19.55	19.55	4	78.20		78.20
1/2 L " ...	4.235	2	8.47	4.89	4.89	2	9.78		9.78
Amidships ...	✓	4	✓	✓	✓	4	✓		✓
3/4 L from F.P. ...	8.47	2	16.94	9.92	9.92	2	19.84		19.84
3/4 L " ...	34.26	4	137.04	39.70	39.70	4	158.80		158.80
F.P. ...	77.00	1	77.00	84.00	84.00	1	84.00		84.00
Total ...			346.47				390.62		

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 = > .1 L  
" " aft of " = > .1 L

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{49.15}{18} (.75 - .3067) = -1.21"$   
If limited on account of midship superstructure. ✓  
If limited to maximum allowance of 1 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>Depth to Freeboard Deck = <u>22.50</u></p> <p>Summer freeboard = <u>2.71</u></p> <p>Moulded draught (d) = <u>19.79</u></p> <p>Deduction for Tropical freeboard and addition for Winter freeboard = <math>\frac{d}{4}</math> inches = <math>\frac{19.79}{4} = 4.95 = 5"</math></p> <p>Addition for Winter North Atlantic Freeboard (if required) =</p>	<p><b>Deduction for Fresh Water.</b></p> <p>Displacement in salt water at summer load water line</p> <p><math>\Delta =</math></p> <p>Tons per inch immersion at summer load water line</p> <p>T =</p> <p>Deduction = <math>\frac{\Delta}{40 T}</math> inches</p>	<p><b>TABULAR FREEBOARD</b> corrected for Flush Deck (if required)</p> <p>Correction for coefficient <math>\frac{.724 + .68}{1.36} = \frac{1.404}{1.36}</math></p> <table border="1"> <tr> <th></th> <th>+</th> <th>-</th> </tr> <tr> <td>Depth Correction ...</td> <td>7.39</td> <td>-</td> </tr> <tr> <td>Deduction for superstructures ...</td> <td>-</td> <td>16.25</td> </tr> <tr> <td>Sheer correction ...</td> <td>-</td> <td>1.21</td> </tr> <tr> <td>Round of Beam correction ...</td> <td>-</td> <td>.05</td> </tr> <tr> <td>Correction for Thickness of Deck amidships ...</td> <td>1.56</td> <td>-</td> </tr> <tr> <td>Other corrections, scantlings, etc. ...</td> <td>-</td> <td>-</td> </tr> <tr> <td></td> <td>8.95</td> <td>17.51</td> </tr> </table> <p>Summer Freeboard = <u>32.58</u></p>		+	-	Depth Correction ...	7.39	-	Deduction for superstructures ...	-	16.25	Sheer correction ...	-	1.21	Round of Beam correction ...	-	.05	Correction for Thickness of Deck amidships ...	1.56	-	Other corrections, scantlings, etc. ...	-	-		8.95	17.51
	+	-																								
Depth Correction ...	7.39	-																								
Deduction for superstructures ...	-	16.25																								
Sheer correction ...	-	1.21																								
Round of Beam correction ...	-	.05																								
Correction for Thickness of Deck amidships ...	1.56	-																								
Other corrections, scantlings, etc. ...	-	-																								
	8.95	17.51																								

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

Freeboard under 100 regulations <u>revised</u> being more favourable than those computed under the Convention.	Tropical Fresh Water Line above Centre of Disc ...	8 1/2"	Tropical Fresh Water Freeboard ...	2'-8 3/4"
	Fresh Water Line " " ...	5"	Fresh Water " " ...	2'-0 1/4"
	Tropical Line " " ...	3 1/2"	Tropical " " ...	2'-3 3/4"
	Winter Line below " " ...	3 1/2"	Winter " " ...	2'-5 1/4"
	Winter North Atlantic Line " " ...	5 1/2"	Winter North Atlantic " " ...	3'-0 1/4"
			Winter North Atlantic " " ...	3'-2 1/4"



### PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECK						HATCHWAYS ON TWEEN DECK							
Description of Hatchway		No 1		No 2		No 3		No 1		No 2		No 3	
Dimensions of Hatchway		29'3" x 18'0"		10'0" x 6'0"		32'0" x 18'0"		31'2" x 18'0"		10'0" x 6'0"		32'1" x 18'0"	
COAMINGS	Height above Deck	2'9"		2'0"				31'2" x 18'0"		9'3' x 1/2" BA		9'3' x 1/2" BA	
	Thickness	Sides 1/2" 3/8"		5/8" 5/8"		same as		—		—		—	
	Stiffeners	sides 8' x 3' x 1/2" BA		—		as		—		—		—	
	Battens, Stays	each side 4' - 2 1/2" dia		—		No 1.		—		—		—	
HATCH BEAMS	Number	5		1		6		6		1		6	
	Spacing	4' - 10 1/2"		5' - 0"		4' - 7"		4' - 5 1/2"		5' - 0"		4' - 7"	
	Scantling and Sketch	Top angles 4' x 3' x 1/2"		11" 19" at sides		same		12' x 4' x 1/2" CHANNEL No 3.		12' x 4' x 1/2" CHANNEL No 3.		same as No 1.	
		Bottom angles 5' x 3' x 3/8"		3' x 3' x 1/2" angle		as		12' x 3 1/2" x 5/8" BA No 1.		3' x 3' x 1/2" angle		12' x 4' x 1/2" CHANNEL	
Bearing Surface		3 1/2"		3 1/2"		No 1.		HATCH SIDES No 1 & 3.		3 1/2"		HATCH SIDES No 1 & 3.	
ON FREEBOARD DECK													
FORE AND AFTERS	Number												
	Spacing												
	Unsupported Lengths												
	Scantling and Sketch												
Bearing Surface													
HATCH COVERS	Material	Pine		Pine		same		Pine		Pine		Pine	
	Thickness	3"		3"		as		2 1/2"		2 1/2"		2 1/2"	
	How fitted	F & A		F & A		as		F & A		F & A		F & A	
	Bearing Surface	2 1/2"		3"		No 1.		3"		3"		3"	
Spacing of Cleats		23"		21"		23"		23"		21"		22"	
Number of Tarpaulins		4		4		4		2		2		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?

yes

yes

3 Rings/batts each side of No 1 Hatch on Freeboard Deck

3 " " " " No 3 " " " "

Particulars of fiddley, funnel and ventilator coamings:—

Particulars of fiddley, funnel and ventilator coamings.—		Funnel Plating $\frac{1}{8}$ "	
Fiddley coaming	6'9" above Boat dth $\times \frac{1}{4}$ " thick,	Fiddley Grating at Boat dth	8'9" $\times$ 3'4" with hinged steel cover.
Engine Room Skylight, steel,	12'3" $\times$ 9'3"	Coaming 12" above Boat dth	$\times \frac{5}{16}$ " thick } with hinged steel covers
Galley Skylight, steel,	6'6" $\times$ 4'0"	" 12" "	" $\times \frac{5}{16}$ " "
Engine Room Ventilator 2, at 20' dia.		Coaming 2'6" "	" $\times \frac{3}{8}$ " "
	at 13'2"	" 1'3" "	" $\times \frac{1}{4}$ " "
Boiler Room Ventilator 2 at 28' "		" 2'0" "	" $\times \frac{1}{4}$ " "

Particulars of Hatch Bunker Scares: — <sup>HATCHES</sup> on Freeboard Deck in Bridge House

2 Hatches 4'0" x 4'0", boaming 2'-2" high x 5/16", 2 1/2" Rest Bar. 2 1/2" wood covers, cleats spaced 22"  
2 Hatches 4'0" x 2'0", " 2'-2" " x 5/16", 2 1/2" " " , 2 1/2" wood covers, cleats spaced 22"  
2 ParPaulins for each hatch.

Particulars of Companionways :—

Steel Skylight on Poop Deck to Crew Space 8'-0" x 5'-0" ✓  
coaming 17" above Deck x  $\frac{1}{4}$ " thick, with 4 Hinged steel flaps.

Steel Companion on Poop Deck to Crew Space 4'-0" x 5'-0" x 6'-6" high,  
coaming 17" above Deck x  $\frac{1}{4}$ " thick. Companion fitted with hinged double wood doors ✓

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

Vento. on Poop.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks :-			
Ventilator on Forecastle Deck.			
1 - 6" dia vent, coaming 2'3" above $\Delta$ x $\frac{1}{4}$ " thick.	4 - 8" dia vents, coamings 2'3" above $\Delta$ x $\frac{1}{4}$ "		
3 - 8" " " " 2'3" " " x $\frac{1}{4}$ "	4 - 9 $\frac{1}{2}$ " " " " " " x $\frac{1}{4}$ "		
3 - 9 $\frac{1}{2}$ " " " " " 2'3" " " x $\frac{1}{4}$ "	Ventilator on Boat Deck		
2 - 17 $\frac{1}{2}$ " " " " " 3'0" " " x $\frac{3}{8}$ "	2 - 17 $\frac{1}{2}$ " dia vents, coamings 3'0" above $\Delta$ x $\frac{3}{8}$ "		
	1 - 12 $\frac{1}{2}$ " " " " " 3'0" " " x $\frac{5}{16}$ "		
Ventilators in After Well			
4 - 17 $\frac{1}{2}$ " dia vents coamings 3'0" above $\Delta$ x $\frac{5}{16}$ " thick.	Wood Plugs & Canvas covers supplied for vents.		

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

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—				A.	B.	C.	D.		
1 off, on Side to Fore Peak,	1'-6"	2'-4"	1'-3"	5"	2 off for Deep Tank, After well,	6'-0"	6'-6"	1'-6"	8"
1 " " to No. 1 Tank,	1'-4"	2'-1"	1'-1"	3"	3 off Fresh Water Tanks, "	1'-9"	2'-6"	1'-2"	2'-2"
2 off, Fore Well, " " 2 "	2'-7½"	3'-4"	1'-2"	2'-2"	2 off Engine Room Tank, "	1'-9"	2'-9"	1'-3"	2'-2"
2 off, After " " 3 "	2'-3"	3'-3"	1'-2"	2'-2"	1 off Aft Leak Tank, on Roof,	2'-4"	3'-2"	1'-3"	3"

Particulars of Gangway Cargo and Coaling Ports :—

Particulars of Gangway Cargo and Coaling Ports:—

2 Coaling Ports 1 Port & 1 Starboard between upper & Bridge Decks amidships, 5'0" x 3'6", with two hinges and rubber joints. Door plate 1" thick. Door stiffener 5' x 2 1/2" x 1/2" and fitted with 2 Strongbacks 5' x 1 1/4" and four 1 1/4" dia screwbolts.

8 Cargo Ports to Tween Decks, 4 Port & 4 Starboard, 4'0" x 4'0". Doors are hinged double doors, 1" plate & rubber joints. Door stiffeners 4' x 3' x 1/2" fitted with two strongbacks 5' x 1 1/4" with 8 - 1 1/4" dia screwbolts.

2 Scuppers 5' x 3' Port & Starboard in each well. 6' below Freeboard Deck.  
1. W.C. 4" Discharge pipe, Starboard side Forward, 6' 0" below Freeboard & fitted with Brass Storm Valve  
1 2" Scupper " , Port " " , 6' 0" " " " " " " " " ✓

Particulars of Scuppers and Sanitary Discharge Pipes —

2 - W.C. 4 Discharge pipes amidships, P & S.	6'-0"	below Freeboard	ok fitted with Brass Storm Valves	✓
2 - 2" Bath " " " " " "	6'-0"	"	" " " Storm Value	✓
1 - 2 1/2" Scupper pipe amidships, 'P & S.	"	"	" " " Storm Value	✓
3 W.C. 4 Discharge pipes aft. 2 P. & 1 S.	3'-0"	"	" fitted with Brass Storm Valves	✓
1 - 2 1/2" Scupper pipe aft, Port & Starboard, 3'-0"	"	"	" " " "	✓

Particulars of Side Scuttles:

Particulars of Side Scuttles:		Size	Location	Remarks	Notes
In	Forecastle.	5-10" dia	Side Scuttles	P. & S. fitted with deadlights	✓
In	Bridge House.	14-10" "	"	"	"
In	Port	6-10" "	"	Port	"
"	Starb.	5-10" "	"	Starb.	"
All side scuttles about 5'6" above Freeboard Deck.					1 1/2 DIA. T. & S.

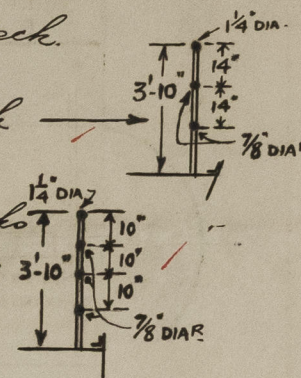
Particulars of Guard Rails :—

3 tier rails & Stanchions on Forecastle Deck  
Stanchions spaced about 4'-6" apart.

4 tier rails & stanchions on Poop and Bridge Decks  
Stanchions spaced about 4'-6" apart. —————→

Particulars of Gangways, Lifelines, etc. :—

Suitable provision for lifelines. ✓



	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
Aft <sup>r</sup> Well ... ..	62'-0"	3'-9"	2'-9"x1'-6" oval	3	10.9 \$	12.7 #
Fo <sup>r</sup> ward Well ... ..	54'-2"	3'-9"	2'-9"x1'-6" oval	3	10.9 \$	11.72 #
<p>State position of each freeing port ... } After Well :—Inon Bridge after Bueblid to Fore end of port, 11'-6", 28'-6"  (F. and A. position and height above deck edge) { Forward Well :— " " Forward " to " " " , 9'-0", 21'-1"  State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such :—Height above deck edge 14".  Sneering porte have 3-7/8" did vertical rods to reach port.</p>						

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 ... ..	3'-3" x 7/16"	3/8"	5' x 3' x 3/8"	2'-4"	Lugs Top and Bottom	5'-0" x 2'-0"	15"	7'-3"	
Raised Quarter Deck Bulkhead ...									
Bridge, After Bulkhead ... ..	1'-3" x 5/16"	5/16"	4' x 3' x 3/8"	4'-0"	—	5'-6" wide	—	7'-3"	
Bridge, Forward Bulkhead ... ..	3'-3" x 3/8"	3/8"	8' x 3 1/2' x 1/2" BA	2'-3"	22" x 22" 7/8" Btts Top & Bottom	5'-6" x 5'-0"	15"	7'-3"	
Forecastle Bulkhead ... ..	3'-3" x 5/16"	5/16"	3' x 2 1/2' x 1/4"	2'-6"	—	5'-0" x 2'-0"	15"	7'-3"	
Trunk, Aft ... ..									
Trunk, Forward ... ..									
Exposed Machinery Casings on Free-board <del>on Raised Quarter</del> Decks ...	1'-3" x 3/8"	3/8"	4' x 3' x 7/16"	4'-0"	Riveted to Beam	5'-0" x 2'-0"	15"	7'-3"	
Exposed Machinery Casings on Super-structure Decks ... ..	1'-3" x 3/8"	5/16"	3 1/2' x 3' x 1/4"	2'-4"	—	5'-0" x 2'-0"	15"	7'-3"	
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... ..	1'-3" x 3/8"	3/8"	4' x 3' x 3/8"	4'-0"	Riveted to Beam	5'-0" x 2'-0" 4'-3" x 2'-4"	16" 21"	7'-3"	
Deckhouses on Flush Deck Ships ...									

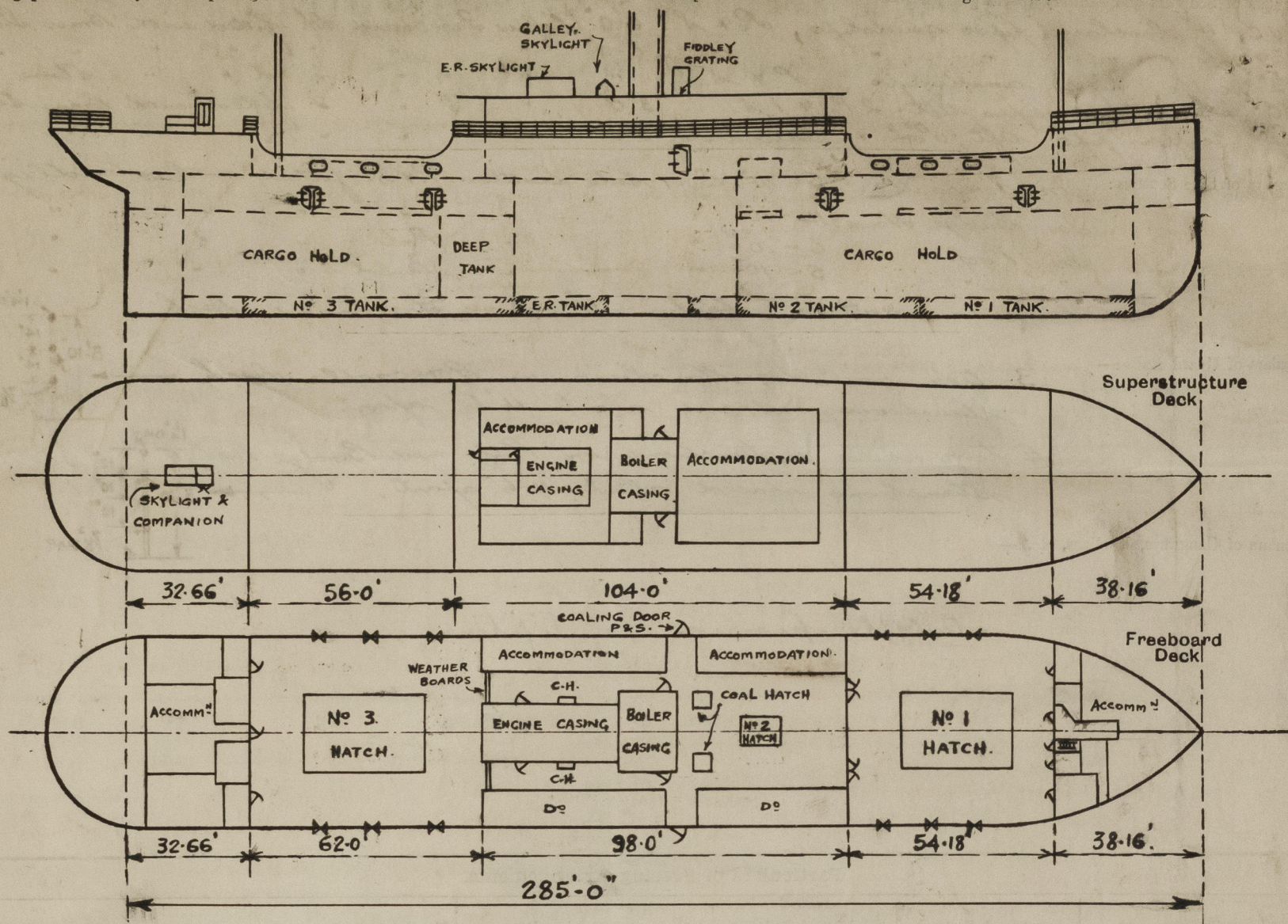
Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	...	...	2 Hinged Steel Doors & 1-1/2" Leak, Hinged Door operating both sides.
Raised Quarter Deck Bulkhead	...	...	
Bridge, After Bulkhead	...	...	2 1/2" Weatherboards fitted in Channels. Port & Starboard.
Bridge, Forward Bulkhead	...	...	2 Hinged Double W.I. Doors fitted with Strong Backs. Operating on Inside.
Forecastle Bulkhead	...	...	1-1/2" Leak Hinged door to crew space operating both sides.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	...	...	1-1/2" " " to Lower Deck. Padlocked on outside.
Exposed Machinery Casings on Superstructure Decks	...	...	3 Hinged Steel Doors operating both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	...	...	2 Hinged Steel Doors to Engine Room
	...	...	2 " " " Boiler Room } operating both sides.
Deckhouses on Flush Deck Ships	...	...	



*Tai Sang.*

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



*Sheathing on the Freeboard Deck. 5' x 2 1/2" Teak in Wells and 5' x 2 1/2" Oregon Pine in accommodation.*

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

*Vessel surveyed afloat*

*omit*

Builder's name and yard number *Messrs Dunlop Bremner & Co. Ltd., Port Glasgow*  
 Name of sister ship *Ting Sang*  
 Owners *The Indo China Steam Navigation Co. Ltd. Shanghai Hong Kong*  
 Fee £ # 295: Received by me  
 Exp. 5  
 Calligram 3350



© 2020

Lloyd's Register Foundation