

Lloyd's Register of Shipping.  
SURVEYS FOR FREEBOARD.

27 FEB 1934

Computation of Freeboard for Steamer, Sailing Ship, Tanker  
having Prop. Bridge & Forecastle

(Type of Superstructures.)

Ship's Name "ZURRIOLA" Nationality and Port of Registry Spanish San Sebastian Gross Tonnage 2048 Date of Build 6-1899

Moulded Dimensions: Length 276.5 Breadth 40.25 Depth 20.42  
Moulded displacement at moulded draught = 85 per cent. of moulded depth 4456 m<sup>3</sup>  
Coefficient of fineness for use with Tables .815

Port of Survey Bilbao  
Date of Survey 23<sup>rd</sup> February '34  
Name of Surveyor B. Crawford  
Particulars of Classification +100 A.1.

Depth for Freeboard (D) 6223

Moulded depth ... 20.42

Stringer plate ... 0.4

Sheathing on exposed deck  
 $T \left( \frac{L-S}{L} \right) =$  6235

Depth for Freeboard (D) = 20.46

Depth correction

(a) Where D is greater than Table depth  
(D-Table depth) R = 8.33 (6.235 - 5.615) 21.28  
.617 = +109 mm

(b) Where D is less than Table depth (if allowed)  
(Table depth-D) R = ✓

If restricted by superstructures ✓

Round of Beam correction

Moulded Breadth (B) 40.25

Standard Round of Beam =  $\frac{B \times 12}{50} =$  24.5

Ship's Round of Beam = 22.9

Difference 16 mm

Restricted to ✓

Correction =  $\frac{\text{Diff}^e}{4} \times \left( 1 - \frac{S_1}{L} \right) =$   $\frac{16}{4} \times .5737 = +2.2$

## DEDUCTION FOR SUPERSTRUCTURES.

*How closed See Barcelona letter 57/12/55*

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<u>6.96</u>	<u>6.96</u>	<u>23.87</u>	<u>✓</u>	<u>6.96</u>
" overhang ...	<u>1.01</u>	<u>.15</u>	<u>4.83</u>	<u>✓</u>	<u>.15</u>
R.Q.D. enclosed ...	<u>30</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
" overhang ...	<u>19.57</u>	<u>✓</u>	<u>21.34</u>	<u>✓</u>	<u>✓</u>
Bridge enclosed ...	<u>64.00</u>	<u>19.51</u>	<u>4.83</u>	<u>✓</u>	<u>19.51</u>
" overhang aft ...	<u>2.50</u>	<u>.57</u>	<u>✓</u>	<u>✓</u>	<u>.57</u>
" overhang forward ...	<u>2.00</u>	<u>.30</u>	<u>21.34</u>	<u>✓</u>	<u>.30</u>
Fore enclosed <u>open</u> ...	<u>24.66</u>	<u>8.43</u>	<u>4.00</u>	<u>✓</u>	<u>8.43</u>
" overhang ...	<u>8.43</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Trunk aft ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
" forward ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Tonnage opening aft ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
" forward ...	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Total ...	<u>36.57</u>	<u>35.92</u>	<u>✓</u>	<u>✓</u>	<u>35.92</u>

Standard Height of Superstructure 1226 1911

" " R.Q.D. ✓

Deduction for complete superstructure 855

Percentage covered  $\frac{S}{L} =$  43.40%

" "  $\frac{S_1}{L} =$  42.63%

" "  $\frac{E}{L} =$  42.63%

Percentage from Table, Line A. ✓  
(corrected for absence of forecastle (if required))

Percentage from Table, Line B. 29.73%  
(corrected for absence of forecastle (if required))

Interpolation for bridge less than 2L (if required) ✓

Deduction =  $855 \times .2973 = -254$

## SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ...	<u>956</u>	<u>1</u>	<u>956</u>	<u>1067</u>	<u>1067</u>	<u>1</u>	<u>1067</u>
$\frac{1}{8}$ L from A.P. ...	<u>425</u>	<u>4</u>	<u>1700</u>	<u>461</u>	<u>461</u>	<u>4</u>	<u>1844</u>
$\frac{3}{8}$ L " ...	<u>106</u>	<u>2</u>	<u>212</u>	<u>115</u>	<u>115</u>	<u>2</u>	<u>230</u>
Amidships ...	<u>✓</u>	<u>4</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>4</u>	<u>✓</u>
$\frac{5}{8}$ L from F.P. ...	<u>212</u>	<u>2</u>	<u>424</u>	<u>248</u>	<u>248</u>	<u>2</u>	<u>496</u>
$\frac{7}{8}$ L " ...	<u>849</u>	<u>4</u>	<u>3396</u>	<u>993</u>	<u>993</u>	<u>4</u>	<u>3972</u>
F.P. ...	<u>1912</u>	<u>1</u>	<u>1912</u>	<u>2286</u>	<u>2286</u>	<u>1</u>	<u>2286</u>
Total ...	<u>8604</u>	<u>✓</u>	<u>8600</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>9675</u>

Mean actual sheer aft = Excess  
Mean standard sheer aft

Mean actual sheer forward = Excess  
Mean standard sheer forward

Length of enclosed superstructure forward of amidships = > .1L

" " aft of " = > .1L

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) =$   $\frac{1095}{18} (.75 - .217) = -22$

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 = 6235

Summer freeboard = 879

Moulded draught (d) = 5356

Deduction for Tropical freeboard and addition for Winter freeboard =  $\frac{d}{48}$  inches = 112

Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$

Tons per inch immersion at summer load water line

T =

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

TABULAR FREEBOARD corrected for Fresh Deck (if required)

Correction for coefficient  $\frac{.815 + .68}{1.36} = \frac{1.495}{1.36}$

	+	-
Depth Correction ...	<u>109</u>	<u>✓</u>
Deduction for superstructures ...	<u>254</u>	<u>✓</u>
Sheer correction ...	<u>38</u>	<u>✓</u>
Round of Beam correction ...	<u>2</u>	<u>✓</u>
Correction for Thickness of Deck amidships ...	<u>✓</u>	<u>✓</u>
Other corrections, scantlings, etc. ...	<u>292</u>	<u>181</u>
	<u>111</u>	<u>176</u>

Summer Freeboard = 879 34.60

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

Tropical Fresh Water Line above Centre of Disc	<u>226</u>	<u>8.91</u>	Tropical Fresh Water Freeboard ...	<u>653</u>	<u>25.69</u>
Fresh Water Line	<u>114</u>	<u>4.50</u>	Fresh Water	<u>765</u>	<u>30.10</u>
Tropical Line	<u>112</u>	<u>4.41</u>	Tropical	<u>767</u>	<u>30.19</u>
Winter Line below	<u>112</u>	<u>4.41</u>	Winter	<u>991</u>	<u>39.01</u>
Winter North Atlantic Line	<u>163</u>	<u>6.41</u>	Winter North Atlantic	<u>1042</u>	<u>41.01</u>



# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS On Freeboard Deck									
Description of Hatchway	...	...	...	...	...	...	...	...	...
Dimensions of Hatchway	...	...	...	...	...	...	...	...	...
COAMINGS	Height above Deck	...	...	...	...	...	...	...	...
	Thickness	...	...	...	...	...	...	...	...
	Stiffeners	...	...	...	...	...	...	...	...
	Brackets, Stays	...	...	...	...	...	...	...	...
HATCH BEAMS	Number	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...
	Scantling and Sketch	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...
FORE AND AFTERS	Number	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...
	Unsupported Lengths	...	...	...	...	...	...	...	...
	Scantling and Sketch	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...
HATCH COVERS	Material	...	...	...	...	...	...	...	...
	Thickness	...	...	...	...	...	...	...	...
	How fitted	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...
Spacing of Cleats	...	...	...	...	...	...	...	...	...
Number of Tarpaulins	...	...	...	...	...	...	...	...	...

Are wood fore and afters steel shod at all bearing surfaces? *Yes.*  
 Are battens and wedges efficient and in good condition? *Yes.*  
 Are tarpaulins in good condition and in accordance with rule requirements? *Yes.*  
 Are lashings provided in accordance with rule requirements? *Yes.*

Particulars of fiddle, funnel and ventilator coamings:— *Fiddle openings are fitted with strong steel covers permanently attached in their proper positions. Engine Room skylight is of steel and is fitted with strong steel covers permanently attached in their proper positions. With substituted glass light, fiddle top 3'-0" above Bulk. &c. 2 coaling bitts on fiddle top are provided with efficient wood covers & tarpaulin & battening arrangements. B.R. & L.R. vents on fiddle top are efficient.*

Particulars of Flush Bunker Scuttles:—

*None.*

Particulars of Companionways:—

*None.*

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

*Poep Deck. 1 Vent 15" dia x 1/4" x 21" coaming.  
 After well. 1 Vent 12" " x 1/4" x 40" "  
 Fore. well. 1 Vent 12" " x 1/4" x 40" "  
 Forecastle &c. 6 vents 6" dia. x 5/8" x 14" high.*

*All vents fitted with wood plugs & canvas covers.*

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:— *All air pipes in exposed positions on the freeboard & superstructure decks are fitted with brass deck sockets and brass plugs, and do not extend above the top of the deck, except 2 in fore & after wells 2" dia goose-neck type x 33" above decks.*

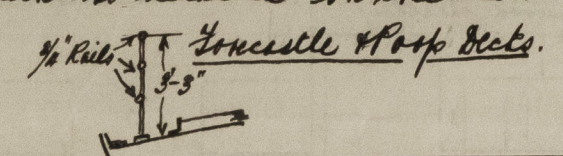
Particulars of Gangway Cargo and Coaling Ports:—

*None.*

Particulars of Scuppers and Sanitary Discharge Pipes — *Scuppers 3 each side of fore & after wells, discharging over deck thus:—  
 Sanitary Discharges:— Bridge Deck 2 S.S. & 1 P.S. discharging through bridge space, fitted with storm valves.  
 Forecastle 1 S.S. discharging below freeboard deck, not fitted with storm valve.*

Particulars of Side Scuttles:— *No side scuttles are situated below the freeboard deck. Side scuttles are situated 21" below the forecastle deck.*

Particulars of Guard Rails:— *Efficient guard rails are fitted on all exposed portions of all superstructure. Details as detailed on sketches:—*



*Efficient bulwarks are fitted to the Bulk. dk. 39" high.*

Particulars of Gangways, Lifelines, etc.:—

*Suitable provision made for rigging lifelines on both sides of the vessel in the fore & after wells, from the forecastle to the bridge, & from the bridge to the poep respectively.*

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	86	4'-0"	4'-0" x 1'-6"	4	24 sq ft	17.20 sq ft
Forward Well	76	4'-0"	4'-0" x 1'-6"	4	24 sq ft	15.20 sq ft

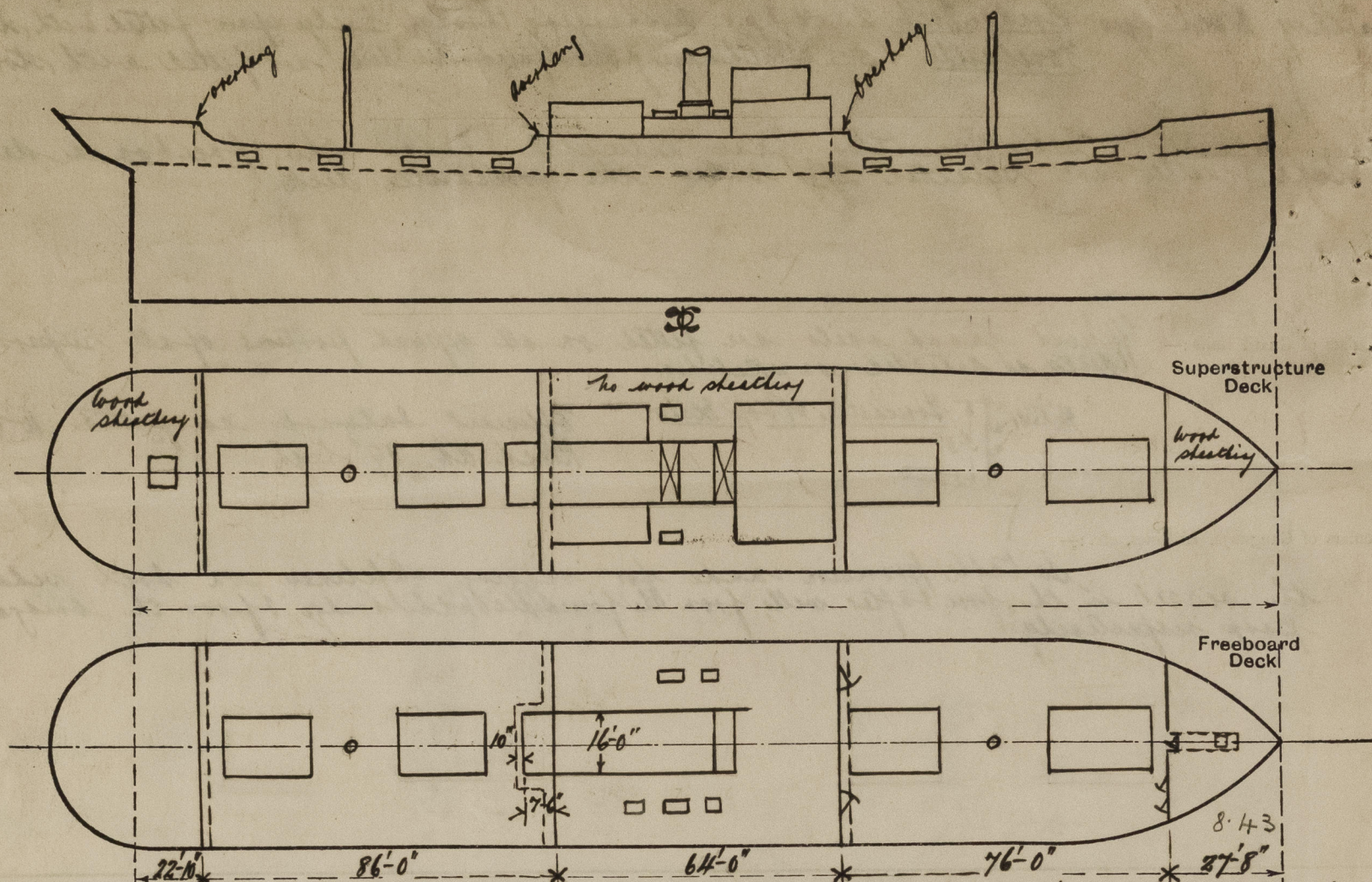
State position of each freeing port (F. and A. position and height above deck edge) { After Well:— *See sketch*  
 Forward Well:— *See sketch*  
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— *Height of opening above = 11". 3 steel bars spaced 6" apart.*  
 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
Poep Bulkhead	24" x 7/8"	3/8"	5" x 3 1/2" x 3/8" A	30"	none at top 18" track at bottom 4 Ribs each way.	4'-6" x 3'-0"	21"	7'-10"
Raised Quarter Deck Bulkhead	24" x 7/8"	3/8"	4" x 3" x 3/8" A	30" to 42"	none	6'-10" x 3'-3"	none	6'-10"
Bridge, After Bulkhead	24" x 7/8"	3/8"	5" x 3" x 3/8" A	30"	Brackets at top & bottom 13" x 13" 3 Ribs	4'-6" x 3'-2"	21"	7'-0"
Bridge, Forward Bulkhead	24" x 7/8"	3/8"	5" x 3 1/2" x 3/8" A	30" to 42"	none	4'-6" x 2'-0"	18"	7'-0"
Forecastle Bulkhead	24" x 7/8"	3/8"	5" x 3 1/2" x 3/8" A	30" to 42"	none	4'-6" x 2'-0"	18"	7'-0"
Trunk, Aft	24" x 7/8"	3/8"	5" x 3 1/2" x 3/8" A	30" to 42"	none	4'-6" x 2'-0"	18"	7'-0"
Trunk, Forward	24" x 7/8"	3/8"	5" x 3 1/2" x 3/8" A	30" to 42"	none	4'-6" x 2'-0"	18"	7'-0"
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	24" x 7/8"	3/8"	5" x 3 1/2" x 3/8" A	30" to 42"	none	4'-6" x 2'-0"	18"	7'-0"
Exposed Machinery Casings on Superstructure Decks	24" x 7/8"	3/8"	5" x 3 1/2" x 3/8" A	30" to 42"	none	4'-6" x 2'-0"	18"	7'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	24" x 7/8"	3/8"	5" x 3 1/2" x 3/8" A	30" to 42"	none	4'-6" x 2'-0"	18"	7'-0"
Deckhouses on Flush Deck Ships	24" x 7/8"	3/8"	5" x 3 1/2" x 3/8" A	30" to 42"	none	4'-6" x 2'-0"	18"	7'-0"

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Poep Bulkhead	<i>Portable plates secured in position by hook bolts.</i>
Raised Quarter Deck Bulkhead	<i>✓</i>
Bridge, After Bulkhead	<i>Storm boards in riveted channels full height.</i>
Bridge, Forward Bulkhead	<i>Hinged steel weather-tight doors, capable of being manipulated from both sides.</i>
Forecastle Bulkhead	<i>Hinged steel doors, capable of being manipulated from both sides.</i>
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	<i>✓</i>
Exposed Machinery Casings on Superstructure Decks	<i>✓</i>
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	<i>— do —</i>
Deckhouses on Flush Deck Ships	<i>✓</i>



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:— Particulars for the Carriage of Timber Deck Cargoes.

- (1) Double bottom tanks within half length amidships have adequate longitudinal subdivision.
- (2) Bulwarks fitted to fore & after wells. plating  $\frac{1}{4}$ " thick  $\times$  4'-0" high. Stays  $8" \times \frac{7}{16}"$  B. Plate spaced 6'-0" apart. & fitted on the beams. Bulwark Rail  $6" \times 3" \times \frac{7}{16}"$  B.A.
- (3) Protection to Hold Vents:— Cargo stowed well clear of all vents forming ample space round same.
- (4) Access to Crew's Quarters and Machinery Space, Deck cargo stowed clear of fore-castle bridge and stowed so as to form a ladderway from deck to top of deck cargo, over which the crew pass to the bridge. Access to Machinery Space through casings on Bridge Deck, no deck cargo on superstructure decks.
- (5) Protection of main steering gear, Deck cargo stowed well clear of all quarter blocks, steering drum & chains. Hand steering on Poop Deck clear of cargo.
- (6) Efficient sockets for uprights fitted spaced 10 feet apart, secured to the stringer plate in fore & after wells. Eyeplates for securing lashings riveted to the sheerstrake at 10'-0" intervals, and the first eyeplate from the end bulkheads being 6'-0" from same.
- (7) Deck Cargo lashed by wire ropes passing through above eyeplates from port to starboard.

Builder's name and yard number Messrs Robert Thompson & Son. Sunderland, Hall N° 208.

Names of sister ships

Owners Messrs Cia. Nav. Guipuzcoana. Bilbao.

Fee £ 15 600  
exp. 2

Received by me R. Crawford.



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Foundation