M. J. ALEXANDER.

Wallace Shipbuilding & Dry Dock Co.

LTD.

NORTH VANCOUVER, B. C.

CANADA.

SPECIFICATION

FOR THE CONSTRUCTION OF

A SINGLE-SCREW PASSENGER STEAMER FOR THE BRITISH COLUMBIA COAST SERVICE

OF THE

CANADIAN PACIFIC RAILWAY

DIMENSIONS

Length O.A.	330'-0"
" *B.P.*	317'-0"
Beam Mld	48'-0"
Depth Mld	18'-6" TO MAIN DECK.

Date SEPTEMBER 1920

S P E C I F I C A T I O N

of

H U L L

for

A PASSENGER STEAMER FOR THE BRITISH COLUMBIA COAST SERVICE

(Princess Louise)

of the

CANADIAN PACIFIC RAILWAY

North Vancouver, B.C.
Sept. 21st, 1920.

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SPECIFICATION of HULL

- for -

A PASSENGER STEAMER FOR THE BRITISH COLUMBIA COAST SERVICE

OF THE CANADIAN PACIFIC RAILWAY

- 0 -

GENERAL DIMENSIONS

Length B.P.	~~[illegible]~~	350'-0"
Breadth Moulded	~~[illegible]~~	60'-0"
Depth Moulded to Main Deck, at side...	~~[illegible]~~	20'-0"

Heights between Decks at sides

Orlop deck to Main Deck as approved.

Main Deck to Upper Deck	~~[illegible]~~	8'-9"	8.6
Upper Deck to Promenade Deck	~~[illegible]~~	7'-9"	7.6
Promenade Deck to Boat Deck	~~[illegible]~~	7'-6"	7.3
Houses on Boat Deck	~~[illegible]~~	7'-3"	7.2
		31.8	30.5

All heights are measured from top of beam to top of beam.

Camber of beam on Boat Deck will be ~~12" in the full beam.~~ equivalent to a camber of 12" in 60'-0". Camber on the Promenade Deck will be ~~12" in the full beam.~~ equivalent to a camber of 12" in 60'-0". (See page 10) Camber in the Upper Deck will be ~~9" in the full beam.~~ equivalent to a camber of 6" in 60'-0" but hardwood over this deck in the way of space for dancing to have special treatment. Camber on the main deck will be 6" in the full beam. Camber on the Orlop Deck will be 3".

GENERAL DESCRIPTION

The vessel will have a straight raking stem and an eliptical stern, ~~one funnel~~ 3 funnels and two pole masts, rigged as a fore and aft schooner, ~~having cargo booms on both masts as indicated on profile.~~ with all tables for mast lights placed as required by Canadian regulations. The Orlop Deck except in way of machinery and boilers ~~and thwartship bunker to be continuous.~~ is continuous from fore peak bulkhead to after peak bulkhead. Main Deck, Upper Deck and Promenade Deck will all be continuous. Boat Deck will be continuous from about frame 8 to frame ~~144~~, as shown on profile.

Vessel to be constructed with cellular double bottom extending from after peak bulkhead to fore peak bulkhead

or as far aft and forward as practical. ~~Special attention must be paid to the position and extent of the bilge keels, so as to reduce resistance as much as possible.~~ Peaks to be arranged as Trimming Tanks, and double bottom to be arranged for water and oil fuel with all cofferdams as indicated on plans. ~~and vessel to have [illegible] Compartments, one Boiler Room, Engine Room and Coal or Oil Fuel~~ The vessel to be divided by W.T. bulkheads oil fuel Tanks and W.T. flats as indicated on plans. ~~Bunkers, as indicated on Plans with the exception that oil fuel will not be fitted in the double bottom between frames #68 and #88 as indicated on profile, but will be fitted between frames #87 and #95, and also between frames #95 and #103, both the above being double bottom tanks, and both to be fitted with the necessary cofferdams.~~

~~(See page -~~

NOTE: ~~Deep~~ The deep oil fuel bunkers ~~extending forward and~~ at sides of Boiler Room will be fitted for rapidly changing to coal. A plan of the proposed method of obtaining this to be submitted for approval before proceeding. ~~This as indicated on the various drawings.~~

(See page 13) Special attention must be paid to the position and extent of the bilge keels so as to reduce resistance as much as possible.

Vessel to be fitted with approved steam steering gear with approved control and fitted with hand control aft. ~~If telemotor control is used this must be fitted in duplicate.~~ Geared watertight doors to be fitted only in bulkheads where such is necessary and to be of approved type and arranged for operating from Main Deck. There will be a freight elevator capable of lifting 2 tons 200 ft per minute which will be operated preferably electrically, or if by steam arrangement must be entirely approved.

~~Winches~~ Windlass and capstans to be fitted as required and in each case to have the approval of the Owners. The windlass must be of ample power to handle cables and anchors efficiently. All bollards cleats, and mooring pipes to be fitted as and where required by Owners

Refrigerating plant of sufficient capacity for the cooling of rooms necessary for ship's use, ~~and also for the cargo space on Orlop Deck between frames #100 and #113.~~

Vessel will be fitted throughout with electric light, having all necessary generating plant in two units, each unit being

sufficient for all lamps, Electric heaters, galley equipment, navigating lights, searchlights, motors for ventilation or other use. Ventilating and heating system to be entirely approved, all as hereinafter detailed in the body of this Specification.

Accommodation to be provided for about ~~200~~ 325 First Class Passengers, for night travel in one hundred and fifty two rooms. ~~and also 2nd Class as directed. The 2nd. Class accommodation will be interchangeable as approved.~~

The First Class Passengers will have a Sitting Room, Writing Room, Observation Room, Library, Smoking Room and Verandah. Captain and Officers to be accommodated in houses on Boat Deck. Engineers on Main Deck in way of Engine Room, ~~Stewards and Purser~~ Purser, Steward and Stewardess on Upper Deck, Stewards Petty Officers and crew as indicated on Plans.

Kitchen and Pantry to be arranged for convenient service to the Dining Room. These arrangements to be approved by Owners. ~~Lavatories, etc.~~ Lavatories, etc to be arranged in Passenger Accommodation as shown on Plans.

Vessel to be finished in best style suitable for the highest type of ~~seagoing and~~ coasting vessel.

CONDITIONS and GUARANTEE

GENERAL

The vessel is to be built generally in accordance with the following plans, which accompany this Specification:

Plan of Profile, boat and promen

Plan of Boat and Promenade and Upper Decks

Plan of Main Deck and Orlop Deck.

The above Plans and this Specification are to be signed in duplicate by Owners and Builders as part of the Contract, and are to be the Contract Plans and Specifications.

The Owners are to have the right to order any reasonable alteration from the Contract Plan and or Specifications, and

the Builders shall carry out such alterations. No important alterations from Contract Plans and or Specifications to be made unless written instructions have been received from Owners. If alterations effect cost, deadweight, stability, speed or delivery due allowances are to be made.

Items mentioned twice over in this Specification are only to be supplied once. If the Specification and the Owners' Plans are found to be anywhere at variance, the subject in question will be submitted for approval. When there is any choice left in the Specification relating to material, pattern or manufacture, it is understood the option rests entirely with the Owners.

CLASS & SURVEY

The vessel is to be built to the requirements of the highest class of ~~the British Corporation~~ Lloyd's Registry under special survey ~~to class B.S.~~ for a vessel of this type Seattle and Skagway or Channel class on a mean draft approximately 16 feet, and must comply with the Canadian and American laws for passenger steamers. The requirements of the foregoing authorities are to include any additional rules or circulars issued up to the date of signing the contract.

CERTIFICATES, FEES, ROYALTIES, etc.

Certificates of class, tonnage, freeboard, boats, passengers, etc. and test certificates in duplicate for all anchors, chain cables, wire hawsers and small chains to be handed to the Owners on delivery of the vessel. Compasses to be adjusted and certified as usual. All survey fees and all royalties and patent rights to be paid by the Builders.

SCANTLINGS

To be in accordance with ~~B. C.~~ Lloyd's requirements for the vessel built to the class specified under special survey, except

Scantlings Cont'd

when any of the requirements of this Specification and Contract Plans referred to are in excess of these rules, in which case the requirements of the Specifications are to be adhered to.

Builders to prepare plans of lines and all structural details, which must be submitted to ~~the B.~~ Lloyd's C. and the Owner's representative for their approval before proceeding with the work, and note all deck beams in the way of engine casing light wells which can be continuous must be so arranged. Those extending through First Class Saloons to be cased in, to approval.

MATERIAL and WORKMANSHIP All the materials and workmanship used in the construction of the vessel to be of the very best of their respective kinds and all steel to be of Siemens Martins or other approved process, tested as required by the ~~B.~~ Lloyd's C. ~~and the Canadian Inspectors~~ and to have the makers' name clearly marked thereon.

Steel plates must in all cases be freed of black oxide by weathering or chipping.

All wood used in the construction of the vessel for decks, etc. to be cut, stacked and marked for the vessel within two months of signing the contract. and all deck material must be kiln dried properly

The Builders to furnish all material for the completion of the vessel whether herein mentioned or not, with the exceptions mentioned herein.

The Owners will have power at any time to select materials and have tests made on the Builders' premises, and any materials that may be considered by them not to comply with the above terms will be rejected, even if found worked into the ship.

COMPLETION & OUTFIT

The vessel is to be entirely finished and made ready for sea at the cost of the Builders to the entire satisfaction

of the Owners or their representative in respect to design, material and execution, with the following exceptions:

EXCEPTIONS

All movable furniture ~~and upholstery~~, which will include the mattresses for all staterooms, ~~sofa berths for all staterooms having sofa berths~~, ~~the upholstering of the settees in staterooms where indicated on Plans~~, ~~the bedsteads and mattresses in the special rooms~~, ~~the dressing tables~~, ~~seats~~ Chairs and card tables in the special rooms, movable seats in the Observation Room, ~~upholstery~~, tables, chairs and desks in the Sitting Room and Writing Room, ~~Sitting Room if movable chairs are supplied~~, Mattresses ~~and sofa berths and settees~~ in all Officers' and Engineers' quarters, mattresses in all the crews' quarters, movable chairs and desks in Officers' quarters and all curtains.

(See page 119)

Builders will supply all frame work for settees and sofa berths, will supply and instal Hoskins berths ready for ~~and for boards~~ of suitable design for class of run with hinged leeboards where required and crews quarters. Builders will mattresses in all staterooms ~~will~~ furnish and instal Complete the Company's arrangement of footstools in the Observation Room, ~~Owners merely supplying the upholstering and furniture enumerated above~~. Builders will supply and fit all upholstery, this includes the spring seats on all springs of sofa berths, all upholstered backs and ends for all settees and sofa berths, all settee cushions, all cushions arms, backs and ends for all fixed seats in all Public rooms. It must be distinctly understood that movable furniture supplied by the owners does not release the builders from the fixed furniture and upholstery of same wherever placed. Builders will supply all navigating instruments, this includes compasses docking telegraphs as well as all other instruments required. Builders will supply all galley equipment as required by owners and as selected.

Owners will supply all bedding, napery, crystal, crockery, cutlery, electro-plate, earthenware, stewards' utensils, musical instruments, books, chandlery, charts, chronometers, consumable stores, carpenters' and boatswains' stores, ~~etc.~~

The Builders will furnish a set of lines for the approval of the owners, before proceeding with the work and insofar as possible the lines must allow of the accommodation indicated on the Plans.

P **Stability ~~Cont'd~~** The builders must guarantee a G.M. of not less than 2'6" in any condition enumerated below

When the ship is approaching completion at a time to be mutually agreed upon the Builders are to incline her in the presence and to the satisfaction of the Owners. From the data so obtained ~~the metacentric heights are to be calculated and the~~ curves of stability are to be drawn for the following conditions, and any other conditions which the Owners may require to establish satisfactory stability:

1 Vessel light with water in boilers and condensers to working level, but with no fuel, cargo, stores or other water on board.

2. Vessel as in (1) but with the addition of the double bottoms full of water.

3. Vessel as in (1) with the addition of the bunkers being full, but with no cargo, stores or other water on board.

4. Vessel as in (1) but loaded with cargo at 100 cubic feet a ton, bunkers full, fresh and feed water tanks filled and with passengers, crew, baggage, stores and provisions on board, or their equal.

5. Vessel as in (4) but with all fuel, fresh and feed water provisions and stores consumed.

The foregoing information in detail to be supplied to the Owners when ship is taken over and curves of stability to be prepared and supplied to Owners.

P **DEADWEIGHT**

The deadweight capacity to be about 1200-long tons (1800) on a mean draft of 16 feet, and load on trial to be arranged so that every space alloted for freight will be utilized without endangering stability.

NOTE: Trial draft will be 15' 0" mean, at which draft ~~16 knots must be maintained.~~ about 22½ knots must be obtained to ensured 21 knots in service.

P **T R I M**

The vessel must be designed with her centre of buoyancy so arranged that when the ship is light or loaded under ordinary conditions with a homogenous cargo the vessel will not trim by the head. To insure this before the lines of the vessel are approved, calculations must be made showing the trim of the vessel

in all working conditions.

SPEED

The speed of the vessel at sea in ordinary weather is to be a good ~~16~~ 11 knots per hour and this speed must be maintained with all auxiliary machinery which will be in use when running ~~an~~ on ordinary service, namely heating, cooking, electric lighting, refrigerating machinery, pumps and ventilating apparatus working at normal load.

NOTE: This speed must be maintained for 8 hours continuous service ~~at sea~~ in sheltered waters, not merely for short coasting runs.

TRIALS

A series of progressive trials to be made on the measured mile at a mean draft of approximately 15 feet to determine the power and revolutions at various speeds.

The ship to be put astern when running full speed to determine her capability of coming to rest. The efficiency of the steering gear and rudder to be tested by working from hard-a-port to hard-a-starboard when the vessel is going ahead at full speed as in trial, and astern as in trial.

The vessel will also proceed on a long distance trial ~~at sea~~ in reasonably sheltered waters for at least ~~four~~ eight hours through which trial the mean speed shall be a good ~~16~~ 11 knots. The run is to be made under conditions which will avoid, as far as possible, all tidal influences. On all trials the whole of the auxiliary machinery will be in use as when running on ordinary service carrying passengers and cargo, namely heating, cooking, electric lighting, refrigerating machinery, pumps and ventilating apparatus to be working. All machinery must work cool and smooth without the application of water service to the satisfaction of the owners'representative.

Full details of the trials to be supplied to the Owners. Builders to provide all expenses whatsoever in connection with trials until the vessel is finally handed over to the Owners, as agreed.

P DOCKING

Before the trials the vessel will be drydocked and bottom painted. All expenses in connection with drydocking to be paid by the Builders.

P FUEL & LOAD for TRIALS

Before the trials the Builders are to fill all bunkers and also supply and put on board all water, stores, feed water and any fresh water ballast required. ~~Any further deadweight for trials will be supplied and put on board by Owners, who~~ The owners will take over any fuel, stores, etc. supplied by the Builders and remaining after the trials, at a price to be mutually agreed upon.

~~NOTE: The fuel for the filling of the bunkers may be obtained by an agreement with the Owners.~~

P FUEL, CARGO and DEADWEIGHT CAPACITY

The Builders will supply plans in various conditions, showing fuel, passengers, stores and water and cargo variously distributed approximating a mean draft of ~~16~~ 15 feet. The Builders will further supply capacity plan showing the cubic feet of space for the various compartments. These capacities to be measured from the underside of the deck beam and to inside of sparring.

P INSPECTION

The Owners' representatives and inspectors are to have full access to all places when and where the work under this Contract is being carried out.

P DELIVERY

The vessel is to be delivered as agreed after satisfactory trials at the expense of the Builders, ready for service at the time stipulated in the Contract, subject to the usual strike clause under the penalties named in the Contract.

Delivery Cont'd

On completion of the trials the Builders to open up machinery and boilers as Owners may direct for examination and cleaning, and afterwards to close up and make ready for sea, all to the satisfaction of the Owners' Superintendent Engineer.

GUARANTEE

Any defect in hull through faulty material or workmanship discovered within twelve months from the date of delivery, fair wear and tear excepted, to be made good by and at the expense of the Builders.

CONTRACT

Conditions to be fulfilled by the Builders will be set forth in a Contract between the Owners and Builders which will contain clauses providing for penalties for late delivery, failure to give specified speed requirements, etc. and the usual conditions of insurance, payment of price by instalments, etc.

DEMARCATION of WORK BETWEEN
BUILDERS and OWNERS

The Builders will supply complete everything necessary or specified by the Owners for the completion of the ship for service. Any fittings necessary for mattresses, settees, racks in staterooms must be supplied by the Builders, in fact the Builders must fit up all receptacles for movable furniture, cooking utensils, glasses, water bottles, etc. throughout the ship, so that the Owners can instal all movable furniture in their respective places. This includes curtain rods for berths and windows and any other decorative materials required by the Owners throughout.

P

The Builders will allow the use of their cranes or other appliances for hoisting any of the Owners' materials on board as may be required.

The ship builders will instal all lights, fixed navigating lights and bells required in their special service by the Owners. They will fit up all offices, public rooms, standees, etc. as required by the Owners.

Builders will supply safe stowage for any valuables the Owners may require to stow on their premises during construction

The different woods used in different rooms must be to the approval of the Owners and installed by the Builders to a design approved by the Owners.

P

PLANS, NOTES and DIAGRAMS
to be SUPPLIED

Builders are to supply Owners with the following items for the vessel either before the completion of the Contract or as soon after as possible.

Two sets of cloth tracings:

Midship Section
General Arrangement Plans (internal profile)
" " " (rigging plant)
" " " (decks)
Capacity Plan and Deadweight scale
Bunker capacity plan
Stern Frame, Rudder and Shaft Brackets
Shell expansion
Bilge and Ballast Piping
Ventilating and Heating Arrangements (decks and profile)
Steam Piping and Fire Extinguishing Plans (decks & profile)
Drainage and Discharge Plans " "
Fresh and Salt Water Piping " "
Fuel Piping, Valves, Pumps, showing all deck plates for sounding or filling purposes.
Electric Lighting, showing correct leads of wire, lamps, etc.
" Bells and Telephones, showing correct leads of all wire
Refrigerating Installation.
Stability curves.
Displacement scale and trimming diagram, also plans showing the effect of trimming of compartments and tanks full or empty.
Plans of boat and life saving appliances, showing or indicating locations of any life-saving gear.

Six copies of the finished specifications, hull and machinery separate. One set of white linen photo prints of the

following plans to be mounted and framed for Chart Room:

Capacity Plan and Deadweight Scale.
Bulkhead door plan and profile.
Bilge and Ballast Piping.
Docking Plan.

One set of white linen photo prints of the following Plans, each to be mounted and framed and installed as directed by Superintendent Engineer:

Bilge and Ballast Piping
Steam Piping and Fire Extinguishing Pipes
Drainage and Discharge Piping
Fresh and Salt Water Piping

P FUEL PIPING, VALVES, PUMPS, etc.

All necessary drawing to be supplied during construction for Owners and their representative's use and approval.

P MODELS

Builders will furnish owners with 1/4" scale full model mounted in the usual glass hardwood case ~~on a suitable hardwood finished board~~, such model to be constructed as early as possible.

STEEL and IRONWORK

STEEL WORK GENERALLY

To be in accordance with ~~B. C.~~ Lloyd's requirements, and as per Midship Section agreed upon and signed. Where scantlings are specified greater than Registry requirements ~~as approved by B. C. Builders and Owners~~, the greater to be adhered to, and no deduction elsewhere will be allowed for extra strength. The scantlings given are for ordinary mild steel.

Owners' representative to examine and approve all steel-work plans before work thereon is commenced, and any steel work plans of any spaces requiring special consideration are to be approved.

K E E L S

The keel to be of the flat plate type, and to be a raking keel doubled as agreed, and keel plate to be dished at ends, and properly scarphed into and secured to stem and stern frame.

(See page 2) Bilge Keels of the single plate type of approved size and length are to be fitted, and special attention is to be given to the lining of these keels, so as to minimize their resistance.

S T E M

The stem to rake forward as indicated on plans and to be of rolled steel of the dimensions approved, scraped into a bar at fore foot, this casting to be scarphed efficiently into keel plate. A scarph is also to be made above light water line to facilitate repairs in the case of damage. Stem to be rounded on the fore edge to below light water line.

P **STERN FRAME & SHAFT BRACKETS**

The stern frame and rudder bearings may be of cast steel, suitably designed for the form of the vessel and to be efficiently connected to the shell plating and framing. Special attention must be given to the riveting of the stern frame. The cut up of keel aft may be of steel casting.

The rudder bearing is to be protected against corrosion by pieces of 1/4" steel plating riveted where found possible, otherwise secured by tap bolts.

Detail plans of the above mentioned castings and arrangements proposed to be submitted for approval to the Owners.

Shaft A frames to be fitted as and where required and may be steel castings.

P **RUDDER**

Rudder to be of the balanced type as indicated on plans, of large area, ~~and may~~ to be constructed of ~~cast~~ steel to approval. The stock to be of steel.

Adjustable bearings and gland for rudder stock to be fitted on inside of vessel.

The weight of the rudder to be borne ~~inboard by floating rings fitted underneath a collar on rudder stock~~ as suit design, the bearings to be bushed with gunmetal.

The design of the rudder to be such that it can be removed with reasonable facility.

The Owners may require the rudder to be wood sheathed, finished smooth for protection to the rudder itself.

NOTE: Steel castings must be by makers approved by the Owners. The rudder ~~to be fitted to~~ will have stops fitted on each side to limit the range to ~~40°~~ 35° either way. If rudder is not sheathed it must be protected against corrosion by steel shoe pieces secured by tap rivets and also by steel plates secured by ~~Hunts metal~~ steel studs. Rudder stock to be protected from the galvanic action ~~set up by the bronze liner by means of a packing gland.~~

Rudder Cont'd

Each individual protection plate both of rudder and stem frame to be legibly typed with a distinctive number and Builders to supply moulds to facilitate renewal in Dry Dock.

A plan of the whole arrangement showing area of rudder and details of construction to be submitted to the ~~B. C.~~ Lloyd's and Owners for approval before putting work on hand.

P CENTRE PLATE GIRDER

The vertical centre girder to be of plates and angles to The ~~B. C.~~ Lloyd's requirements, increased in depth, forward and aft, to suit the form of the ship, and also in the Engine Room if necessary to suit Engineers' requirements.

The centre plate is to be made a perfectly watertight division for the whole length of the double bottom, except in the extreme forward and after ends, where the vessel narrows. The centre plate is to be caulked throughout the watertight division.

P FRAMES

To be of scantlings and spaced as per signed Midship Section.

Single frames of approved scantlings to be fitted to all watertight and oiltight bulkheads and caulked heel and toe.

All frames to be bent and bevelled thoroughly fair, and all concavity removed from bevelled flanges, and due care is to be exercised in removing all ~~excessive~~ burr caused by punching before any rivetting is done. Where watertight flats are fitted frames are to be cut and bracketted, unless otherwise arranged with the Owners.

~~D[illegible] B[illegible]M~~

The double bottom to be built on the cellular system, and to extend from fore peak bulkhead to after peak bulkhead, or as near these as possible, and to be raised in height at fore and after ends and in Engine Room as may be necessary.

To be divided longitudinally and transversely as may be required, and transverse watertight tank divisions are to be arranged one frame space from bulkheads wherever required, so that sounding and air pipes can be led up the vertical stiffening side of the bulkheads. Tanks to be constructed with floor plates on every frame, lightened with manholes and fitted between centre girders plate and margin plate. Tanks for oil fuel to be constructed to requirements as to scantlings, cofferdams, etc and also to Owners requirement and approval.

Frames and reverse frames to be fitted in Engine Room and under boiler bearers. Longitudinals are to be fitted as required by the Classification Society, and special attention must be given to the longitudinals in Engine Room, both as to scantlings, number and the length they are to be carried fore and aft. In any case extra longitudinals in the Engine Room for strengthening purposes must not terminate at a bulkhead but must extend at least three frame spaces beyond bulkhead, being tapered off in the usual manner.

Tank top plating to be extra thick in Engine Room and Boiler Room as approved.

Heavy plating to be fitted under all hatches in cargo holds. Manholes to be cut through tank top plating where required and fitted with doors of approved type. Plan of all manholes to be submitted for approval both in holds, ~~and~~ Engine Room boiler spaces. Directly under hatches tank top has to be sheathed with 3"×12" blank having caulked seams. The wood sheathing to extend one foot beyond the hatch boundaries all round, and take finished all round with a beveled hardwood blank about 8" wide.

NOTE: All lightening holes in the floors must be properly trimmed so as to make examination of any tank as easy as possible.

Wells to be fitted at after ends of machinery spaces and holds, and ~~at~~ in ~~the~~ Boiler Room where desired. The wells to be built

into the double bottom and must extend longitudinally over two frame spaces. Tank top plating in way of wells to have surface strainer fitted.

Drainage holes through floor and intercostal girders in way of continuous angles to be of ample size and of rectangular shape, and special attention must be given to drainage of all margins in the various compartments ~~and all sounding pipes must have protection plates bedded in cement. Drainage from ship's side in cargo holds to be provided for as required by Owners.~~ All sounding pipes must have protection plates bedded in cement.

Gutterways ~~Coamings~~ to be arranged on tank top in way of and parallel to deep oil fuel bunkers to prevent any leakage of oil from spreading over tank top. Gutterways to be caulked.

Double bottom tanks throughout to be a particularly good job, and to be made perfectly watertight by caulking metal to metal, whether for water or fuel ~~and~~ the use of flannel or felt for making watertight jobs must only be adopted where it insures better work and then only by special arrangement.

Double bottom tanks to be tested with water pressure to the height of the ~~upper deck~~ Main Deck, and the pressure on the tanks to be maintained for four hours. For tests of oil fuel tanks see paragraph on Oil Fuel tanks. (Page 20)

WATERTIGHT BULKHEADS

Watertight bulkheads to be of steel, in number, position and height as shown on Contract plans and to the Registration and Owners' requirements.

Scantlings of watertight bulkheads, ~~and~~ deck, ~~and~~ boundary and double bottom angles, size and spacing of stiffeners, all to be to Lloyd's requirements.

All watertight bulkheads to be made thoroughly tight without the use of putty, cement or canvas stopping, and to be caulked throughout and tested with hose.

WEB FRAMES

Web Frames to be fitted as required by ~~B. C.~~ Lloyds and Owners, special attention being given to the oil fuel tanks.

P

OIL FUEL TANKS and BUNKERS

~~Two~~ Three double bottom tanks on each side of the centre girder and under the boilers, making in reality ~~four~~ six tanks will be constructed for fuel oil. ~~One port and starboard tank will extend from frame #87 to frame #95.~~ In this ~~way~~ arrangement the ventilating pipes and sounding pipes for these tanks can all be conveniently fitted ~~be in the stokehold.~~ and each tank will be entirely separate from the other and will have their own filling, suction, sounding and vent pipes also manholes.

~~The other tanks will be from frame #95 to frame #103.~~

Cofferdams will be required to be constructed aft of the after tanks and forward of the forward tanks with the necessary sounding pipes, manholes, etc. fitted.

In addition. Deep wing oil fuel tanks will be fitted at each side of boilers, four to be each side and an equalizing pipe will be fitted between each port and starboard tank opposite each other. These tanks to be to oil tight construction and as indicated on plans and each tank to have independent suction, filling, sounding vent, and manholes. Further each of the above tanks must be fitted for coal in such a manner as to be readily converted to either coal or oil without any cutting out.

~~In addition to these tanks the deep tank immediately forward of the Boiler Room, between frames #88 and #95, will be fitted up for oil fuel or coal. Thank tank will require to be divided into four compartments consequently there will be three bulkheads, all these different compartments to be independent, having their own filling, ventilation, sounding and suction pipes. The centre bulkhead will be entirely oiltight. The wing bulkheads will be oiltight but must be fitted with a sluice valve, so that in emergency oil can be filled from adjacent full tank into adjacent empty tank.~~

~~All [illegible] ladders, etc. necessary, must be supplied and an approved arrangement of hatches suitable for coaling without seriously disabling the vessel, should the owners decide to convert. By referring to the plans a coal shoot for filling bunkers from overhead has been arranged for. It will be necessary to have this coal shoot constructed to oiltight requirements for a distance of about four feet above the tank top and fitted with an oiltight movable cover. Above this oiltight cover coal shoot will have a door opening into the tween decks. This is arranged to serve a double purpose. One is that if oil fuel be used then the shoot can be utilized as a linen shoot~~

Note. A space of four frame spaces to be left between the deep oil fuel tanks to allow soil pipe discharges, waste discharges, blowdowns, ash ejector pipes etc, etc, to be conveniently and accessably fitted and to avoid any pipes being in fuel tanks except those required for such tanks. One of these spaces to be left in each stokehold, one to be on Port side and one on Starboard side

from the various decks. If coal be used the oiltight cover can be removed to fill the two centre compartments with coal, the cover can then be replaced and the door in the coal shoot to the tween decks opened, then coal can be discharged in the tween decks and used to fill all her bunkers. The four foot oiltight portion of the coal shoot will also form small expansion trunk for oil fuel tanks.

Page 64.

Special attention must be given to the suction pipes from double bottom tanks and bilges, which may be required to pass through the deep thwartship oil tanks.

In each case oiltight tubes or a tunnel extending from forward oiltight bulkhead to after oiltight bulkhead must be fitted of sufficient diameter to enable all pipes to pass through the tubes. & leave room for repair Pipes passing through these tubes will require to be in one length with one end projecting into the hold and the other end projecting into the Boiler Room. Special ~~watertight~~ oiltight covers must be fitted at the ends of these tubes, but these covers will be connected with a suitable jointing, studs and nuts, so that they can be removed, and each pipe passing through these covers will be fitted with an approved stuffing box and gland, so that should oil enter the tubes the hold and stokehold would still be protected. When the oil tanks are tested the covers, if fitted, must be removed from tubes so that the tube or ~~tubes~~ or tunnel can be examined for tightness.

Oil fuel tanks will also be contructed the full length of the Boiler Room, one set on the port side, and one set on the starboard side of the Boilers. They will be situated between frame #68 and #88 and will be divided into two compartments, with all necessary filling, sounding, ventilating suction pipes, manholes and ladders similar to other tanks. These tanks will also be fitted for coal, as indicated on plans

~~and so constructed that they can readily be converted.~~

The oil Fuel Tanks are to be built and tested in accordance with ~~the L.R.~~ Lloyds. ~~and Canadian Government~~ requirements with oiltight divisions as hereinbefore stated, and swash ~~bulkheads~~ plates in bunkers as required.

All necessary ventilation pipes, sounding pipes, filling pipes, suction pipes, manholes and ladders to be fitted to the various compartments, and all details of the work must be carried out with great care, especially as to the close fit of plates and angles metal to metal, without any red lead paint or any other material in the joints, and thoroughly sound riveting and perfect oiltight work is to be ensured. (See page 80)

Plans of the arrangement of all piping, manholes, coal arrangements and construction of oil fuel tanks are to be submitted for approval of the Owners, before proceeding with the work. Note. The arrangment and size of oil filling and suction pipes will be entirely to owners requirements as referred to on (Page 80)

P **BEAMS**

Beams to be of camber to meet ~~B.-C.~~ Lloyd's requirements, and as indicated on signed Midship Section. Strong beams to be carried through Engine Room and Boiler Room as and where directed. Plate knees will be used generally, but in some places, such as say the Dining Saloon and Public Rooms, ~~heavy angles may be substituted to connect the beams to the frames.~~ Threats of brackets to be curved to avoid heavy cornices. The whole arrangement of the beams and their connections on the various decks must be approved before being proceeded with. Camber of beams on the various decks will be ~~as follows:~~ hereinbefore stated (See page 1)

~~Camber of beam on Boat Deck~~			~~will be~~	~~12"~~	~~in the full beam~~	
~~"~~	~~"~~	~~Promenade Deck~~	~~"~~	~~12"~~	~~"~~	~~"~~
~~"~~	~~"~~	~~Upper Deck~~	~~"~~	~~9"~~	~~"~~	~~"~~
~~"~~	~~"~~	~~Main "~~	~~"~~	~~6"~~	~~"~~	~~"~~
~~"~~	~~"~~	~~Orlop "~~	~~"~~	~~3"~~	~~"~~	~~"~~

~~hereinbefore stated.~~

Beams Cont'd

(See page 18) Beams will be supported by stringers under and widely spaced pillaring throughout to Lloyd's and Owners approval. ~~In the Public Rooms the arrangement of pillaring and fore and aft girders in these rooms to be approved by Owners.~~ Beams to be on every frame on Orlop, Main, and Upper decks. The promenade deck will have beams on every second frame, the boat deck will have beams on every frame under boats, on every second frame otherwise.

STRINGERS

All the decks, with the exception of the deck over the houses on the Boat Deck, to be fitted with stringer plates of scantling and width required by ~~The B. C.~~ Lloyds and as noted below

Planting stringers and breast hooks to be fitted at ends and forward, all stringers to have double ~~shock~~ angles fitted for a distance of 30 feet abaft of the stem. All stringers must be let in between frames and riveted to outside plating. Should it be necessary to reduce the width of stringers in Engine and Boiler Rooms to suit machinery, these must be compensated for to the satisfaction of the Classification Society and the Owners. Where watertight flats are fitted frames have to be cut and bracketted, and stringer angle bar to be continuous, unless otherwise arranged with Owners. All stringers that pass through watertight bulkheads are to be made watertight with forged shoes.

NOTE: On the Boat Deck the deck in the way of boats will be plated throughout. The deck under the rails indicated will be fitted to an angle bar riveted to the stringers. Where there are no boats the regulation stringer plate will be acceptable.

DECKS

The Orlop Deck to be steel throughout. ~~The after portion shown on plan to be fitted as a watertight flat.~~ Watertight flats to be fitted as indicated on plans.

The Main Deck to be steel throughout, and must be plated flush with butt straps in cargo spaces. The cargo spaces being considered from the for^d end of engineers R^ms and Bakery to the Mail and Express R^ms

The Upper Deck will be steel throughout. ~~The Promenade Deck to be steel throughout.~~

The Promenade deck and Boat deck to Classification requirements with the exception noted above re the boat deck.

~~The Boat Deck to have regulation stringer plates and fitted in the way of the boats, as hereinbefore described.~~ Decks in way of oil fuel tanks to be caulked oiltight. Decks in way of all lavatories, bath rooms, water closets to be of steel, and wherever situated to be caulked and made perfectly watertight.

All portions of decks wherever situated, ~~exposed to the weather~~ and which will be covered must be caulked and tested with hose ~~before any planks is laid.~~ before any covering is laid. also all such portions of decks must be coated with Bitumastic before any covering is laid unless the solution used for such covering will answer the purpose of preserving the plates.

Special compensation must be provided where necessary, such as in the way of winches, capstan, windlass and in the way of all openings, and must in all cases conform to ~~The B.~~ Lloyd's C. rules and Owners' requirements.

Where composition of any kind is laid on steel decks instead of wood, retaining clips of suitable pattern, closely pitched, are to be fitted, and the steel deck must be caulked watertight before composition is applied.

SHAFT TUNNELS

(See page 34)

The portion of the vessel aft off the Engine Room bulkhead and under the watertight flat will be utilized as tunnel, and fitted up with storerooms for the Engineers as directed. also refrigerating machinery.

The platform of the tunnel will extend the full length and width of the tunnel, and will be covered with checkered plating, the storerooms being built thereon. Brackets to stow the spare shafts to be fitted above the platforms in such a position that the tube shaft can be drawn clear ~~before it is necessary to handle the spare shaft.~~ without the spare shafts being unhoused.

Note. Provision will require to be made for one spare tube shaft and two spare tail shafts.

ENGINE & BOILER SEATING

To be constructed on tank top in accordance with Engineers' plans, to the approval of the Owners. The boilers to be carried in strong cradles efficiently connected to tank top and chocked fore and aft. Boilers must be a very safe height clear of the tank top. ~~If~~ Where watertube boilers are ~~selected~~ placed great care must be taken with this portion of the work.

All necessary seats for Main Engines, Auxiliary Machinery, also girders for lifting machinery to be fitted in Engine and Boiler Rooms as and where directed and to the Engineers requirements.

P FRESH AND SALT WATER TANKS

To be independent tanks, fitted in the way of the fidley on top of houses on Boat Deck, which will be specially strengthened to receive them. These tanks will be about ~~3'6"~~ 4'0" in dia. by 10'0" long, but may be varied in size to suit final location as per Owners' requirements. Reference to these tanks will be found further on in the specification. (See page 81)

P CHAIN LOCKER

To be constructed of steel and situated ~~aft~~ of the fore peak bulkhead, to be well stiffened and to have the centre fore and aft division of steel, with foot holes for access and escape from lockers. Chain locker to be caulked watertight. (See page 38)

Ends of main cables to be secured by approved hook to strong clench, brought up from ship's framing or otherwise as may be approved, and locker to be of sufficient capacity to store cables 4 ft. clear of beams. Access to chain locker to be obtained by means of scuttles.

Chain pipes are to be of 3/8" steel plate secured to decks in an approved manner, and to be of larger diameter at the bottom than at the top, having a very strong steel casting on deck.

flanged for bolting to deck, and have housing with lip ~~shelf round lip~~ of large radius, riveted to underside of deck below chain pipe for protection. Hand holes with W.T doors to be cut in chain pipes for lashing chains to prevent noise while at sea.

Chain locker to be arranged to drain into a small well, which is to be connected to the main pumping system.

P SHELL PLATING

Shell plating to be of scantling and arrangement as required by Lloyds ~~The B.C.~~ and as on signed Midship Section, except that on the two sides of bow one strake is to be extra thick for 50 feet at water line.

Plates to be in as long lengths as possible for their various locations. In the way of the passenger gangway and cargo doors forward and aft on Main Deck, compensation must be arranged for, and the construction of the compensation must be submitted for approval. One condition imperative in connection with these doors, ~~especially the passenger gangway doors~~, is, that every available inch of height of clear opening must be arranged for, and compensation to suit ~~compatiable with~~ Classification Society ~~requirements.~~ must be designed with this in view.

Shell plating to be bossed in way of propeller shafts which bossing will not extend to propeller shafts will have A frames as required fitted, ~~as directed~~. Plate liners to be fitted in way of all watertight and oil fuel bulkheads between outside strakes of shell plating and the frames. Curtain plates in way of open rails to be extended 5" above deck to form washboard and curtain plates must be of ample depth compatiable for strength.

All shell plating to be riveted at landings, butts and overlaps as required by Lloyds ~~The B.C.~~ and all rivet holes to be made fair and countersunk to ensure efficient riveting. Shell plating not to be joggled.

All fore and aft landings to be planed and true in line, and plate ends to be planed and those which are strapped made a close and tight fit before caulking.

Corners of lap butts to be rounded and all plating to be accurately punched, no severe drifting being allowed. Plate landings must be laid off on stern frame before it is bored and holes so spaced that none will come on the joints of the plating.

Each strake must ~~be so caulked as to~~ afford a fair bed for the landing coming on it, special care being taken to get this a perfect fit, as also the edge to edge adjustment. Ends of plates on stern frame must not extend further abaft the aftermost row of rivets than the diameter of the countersink, so as to ensure a rigid caulking edge.

Chafing strips are to be fitted as approved under landings in way of anchors, these strips to be riveted on after the seam and butt caulking is finished in way of them.

Shell plating in way of propellers to have steel plates fitted where required ~~round bossing~~ and ~~as arranged between Owners~~ and Builders. Holes for drain plugs 1 1/4" in dia. to be made in each compartment of double bottom and peaks, and a small doubling plate to be riveted to shell for this purpose. Small doubling plate is also to be riveted to shell plating in way of each sounding pipe to double bottom and fuel tanks.

All work to be done under the inspection of ~~The B.C.~~ Lloyd's Surveyors and to the entire satisfaction of the Owners' representatives.

PILLARS

(See page 21)

Pillaring in holds tween decks and public rooms requiring pillaring must be on the widely spaced principle, arranged to suit ~~The B.C.~~ Lloyd's requirement and the arrangment of rooms and submitted to the Owners for approval before work is proceeded with. Suitable fore and aft girders to be fitted under the beams in way of

Pillars Cont'd

pillars.

Pillars under capstans, cable holders, winches, deck machinery, etc. to be well arranged and extra pillars fitted where required.

The pillaring of the Boiler and Engine Room must be given special attention so as to be as perfectly spaced as possible and assist in reducing vibration. Pillars ~~to be made portable in way of~~ cargo hatches ~~and~~ to be fitted double to form ladders, as required.

Plans showing arrangement and scantling of pillars and girders to be submitted to ~~The B.C.~~ Lloyd's and Owners for approval.

NOTE: Special spacing in tween decks to be arranged in order to allow room for manoeuvering motor cars.

P E A K S

The sides of the vessel in the fore and aft peaks to be very efficiently stiffened by cross plates, ~~Steps and beams riveted to frames~~, and panting arrangement to be submitted and approved by ~~The B.C.'s~~ Lloyd's representative and Owners. An extra breast hook to be fitted in fore peak at water line. Peaks to be tested to ~~The B.C.~~ Lloyd's requirements.

DECK HOUSES

Deck Houses to be steel plating arranged horizontally attached to steel coaming, plates to be of sufficient depth and thickness, and to be strongly built and stiffened especially on forward end. The butts of the deck house plating to be finished flush with buttstraps and riveted with countersunk head rivets finished flush.

Where necessary angles, etc. must be caulked watertight especially in the way of waterways, coaming and openings exposed to weather.

Special treatment of upper portion of Verandah to be arranged to Owners approval, in the form of a design embodying lattice work.

Deck Houses Cont'd

All openings for doors and windows are to be well compensated for and all corners to be rounded where possible. All houses to be close riveted and special care taken to keep plate edges fair, all to be well caulked and made perfectly watertight.

All constructional plans of the steel work of deck houses must be submitted for Owners' approval.

P CASINGS

The following casings are to be of steel:

Trunk to Chain Locker

All trunked hatches

(See page 31) The entire casings on the various decks in the way of the Engine hatch, as well as the light and air casing on boat deck and the space alloted to the douches and W.C's on Boat Deck. Funnel, boiler hatch, lavatories, baths, water closets, Ventilating trunks, etc. Bath and toilet arrangements in the special rooms. Bulkheads on Main Deck forward and aft of galley and pantry, also Bulkheads in the way of sanitary arrangements and lamproom forward on Main Deck, also Mail Room and Express Room. In fact the whole of the forward arrangement on the Main Deck to be steel casing suitably framed. In fact the whole of the main deck arrangment forward of dining Room with the exception of the divisional bulkheads between Eng^rs Rooms or as otherwise agreed. In addition to the above, the bulkheads both forward and aft at the main entrance on the Upper Deck, the bulkheads on both sides of the thwartship passages on Promenade Deck (See page -) comprising the after bulkhead of Observation Room and the partial bulkheads forming the passage from the outside to the Observation Room. Also the partial bulkheads of the thwartship passages aft on the Promenade Deck to be of steel.

All these casings, divisional bulkheads in casings and divisional bulkheads otherwise mentioned to be of steel plates of approved thickness, suitably framed and stiffened and attached where necessary to steel coaming plating of sufficient depth and thickness. Openings for doors, etc. to be cut in casings where required and stiffened with suitable framing.

Casings Cont'd

Corners of all casings where required to be rounded, and all steel work to be well riveted, special care being taken to keep the plate edges fair.

Trunked hatches to be stiffened by cope irons on seams, and fitted with W.T. escape doors as directed. Casings in way of Sanitary accommodation to have deep deck angle and to be well riveted and caulked for a height of at least 1 ft. above deck. All steel work in way of refrigerating rooms to be caulked and made watertight.

P Hatches ~~Hatch Coamings~~

The forward hatch to have a cover fitted at orlop deck to give a landing to escape from crew's quarters as approved, to be ~~is to be flush on the Orlop Deck~~, flush on the main deck, ~~specially arranged for baggage on the Upper Deck and Promenade Deck, and to have the regulation coamings.~~ (See page 43) Between the orlop and Main decks ~~Between the Upper and Promenade Decks~~ the forward hatch will be trunked.

The arrangement of hatch coamings and hatches in the way of the freight elevator to be thoroughly understood and approved before proceeding with the work. In any case hatch will be trunked between Orlop and Main decks and be fitted with a W.T. door to give access to Orlop Deck. ~~flush on the Orlop Deck and flush on the Main Deck. After cargo hatch will be trunked throughout, finished with founded corners and half round bars wherever necessary to avoid chafing with wires.~~ All deck hatch coamings wherever required to have Tyzack's section iron on top, and the lower edge of hatch coamings to be fitted with cope iron to prevent chafing as hereinbefore mentioned. All hatchways to be fitted with athwartship beams and webs, and all scantlings of hatch coamings and sizes and spacing of athwartship beams and webs etc. to be to Lloyd's ~~The B.C.~~ requirements. Sockets for athwartship beams to be constructed of cast steel and to be of the flat type so as to cause as little obstruction as possible. Webs to be fitted into cast steel slides, riveted to hatch coamings, bottom lips of beam sockets being made specially strong.

Hatch Coamings Cont'd

The arrangement of compensation in the way of the flush hatches to be submitted for approval. Corners of all hatches to be slightly rounded, also the bottom edge of coamings to be fitted with half round bars all to avoid chafing with wires. The flush hatches to be fitted with angle iron to take the covers and to have sloped teak margin planks all round. Solid fir covers 3" thick to be fitted ~~as hereinafter mentioned~~. The landing of elevator on tank top to have special treatment to approval.

Angle iron coaming to be fitted on steel decks round all ladder openings and scuttles as required.

GANGWAY DOORS

Gangway doors to be in size and number indicated on contract plans. Special care must be given to these gangway doors, and in every case must be made watertight with spigot frame and rubber on doors with strong steel angle frames rounded at corners to say 3" radius and to be secured by strong backs eyebolts and butterfly nuts for setting up tight and to be seaworthy to approval. The forward doors on the Main Deck will be in four sections, the two top sections being of less height than the two bottom sections. These doors must be sufficiently strong to withstand constant daily usage. Special attention must be given to the hinges, both as to their strength and position. They must be so placed on the ship's side that each half door when opened will lie snugly to the sheer of the ship. The after section hinging aft and outwards, the forward section hinging forward and outwards. The hinges must be specially strong and the pins in these hinges must be no less than 1 1/4" dia. and of brass with a round head, a hole to be bored in the head of each pin directly in line with the body of the pin, and a small groove cut almost the full length of the body for lubrication.

(See page 38)

NOTE: The groove must not be cut the full length of the pin, but must be stopped before the pin passes clear through the hinge. This hole and groove are for oiling purposes. The clear height of opening in these cargo doors must be made as much as possible in order to allow any motor car to pass through safely with reasonable change of tide. certainly not less than seven feet ten inches

NOTE: Compensation for this opening must be carefully gone into and submitted for approval before proceeding with the work.

Gangway doors shown on plans aft on Main Deck ~~for Steward's stores, Engine stores, etc. to be in two sections~~ hinged to open forward. ~~The top section to be of less height than the bottom section, similar to the cargo doors.~~ The method of hinging to correspond with that described for the cargo doors.

To be a single door as shown

Passenger Gangway on Upper Deck. Doors in this gangway to be constructed in a similar manner to the cargo doors on the Main Deck. The amount of clear height of opening must be as great as possible, in other words compensation must be arranged so that the top of opening will be as close to the deck beams as possible, even if compensation has to be worked into the rail above. The height of these doors is verynessential so that passengers boarding the ship in tidal waters will have ample head room.

NOTE: The distance of 21'6" marked on the drawing indicating the distance from the centre of the cargo doors on the Main Deck to the centre of the passengers' gangway door on the Upper Deck must be adhered to.

In addition to the passenger gangway doors on the Upper Deck, protection doors will be fitted inside these, the upper portion to be of glass, so that in fine weather the passenger gangway doors can be opened for observation purposes.

Gangway Doors Cont'd

All the above steel doors referred to must be strongly framed with welded angles, all necessary ~~rings~~, ring bolts, strongbacks etc. for properly securing these doors to be supplied, as well as chains, ~~etc.~~ as directed for convenience in handling. Suitable arrangement of eyebolts to be made at gangway doors for convenience of handling gangways. Gangways will also be cut in rails on all decks where indicated on plans and have the usual rail fittings

ENGINE and BOILER CASINGS

Engine and Boiler Casings to be arranged to suit Engineers, and to be carried a reasonable height above houses on Joiner Deck with all light and air casings in connection therewith as arranged. To be strongly constructed of steel plates connected to deck plating or stringer plates by angle bars. Plating to be stiffened by steel angles or flanges as required by ~~The B.C.~~ Lloyds, and all necessary stiffening for travellers over the machinery to be arranged.

(See page 27)

All these casings to be attached to steel coaming plates of sufficient depth and thickness, special care being taken to keep the edges fair.

All exposed portions of the casings to be securely riveted and caulked watertight. Casings to be battened and insulated where necessary with magnesia blocks and all casings in way of passenger accommodation where required to be insulated to approval. Top of boiler casing to be covered with checkered plating and grating as required.

Special stiffening will require to be arranged for in the way of any weights, such as fresh water and salt water tanks, etc. Skylight to be arranged over Engine Room as required. All rings necessary for ventilators to be properly fitted and made watertight.

Bow chocks

~~BULWARKS~~

Steel Bulwarks to be constructed in bulwarks from stem aft ~~for a distance of about 32 ft.~~ as indicated on plans. Mooring pipes to be fitted where necessary, ~~bulwark~~ Bow chock plating being doubled in way thereof. Bow chocks Bulwarks to have angle steel bar on top and teak rail, and to be stiffened by angle bar stanchions in the usual manner.

DECK SUPPORTS

The after end of the Upper Deck and that portion of the Promenade Deck in the way of the Boat Deck to be fitted with open rails and stanchions as indicated on plans. Stanchions must be of sufficient size and thickness to conform to ~~The B.C.~~ Lloyd's and Owners' requirements.

See page 37

NAVIGATING BRIDGE

Navigation Bridge to be arranged on top of Officers' houses on forward end of Boat Deck, ~~as arranged in supplementary sketch.~~ This Bridge to be supported on heavy stanchions at ship's side and well braced. Special care must be taken to have this structure as rigid as possible.

GUTTER WAYS

Gutter ways to be arranged on the various decks where necessary and as directed, such as on the after end of Upper Deck, the entire Promenade Deck and on the Boat Deck where clear of boats, the construction in the way of boats has already been noted. ~~Inner~~ Inner standing flange of channel or angle to be about 1/2" less in depth than deck plank and waterway to be made watertight.

STEEL SKYLIGHTS

Steel skylights to be provided in the way of the Engine and Boiler casings where skylights are required. Lat rooms or otherwise These

skylights must be watertight and arranged to give the maximum light compatible with strength and must be fitted with eyebolts, etc., so that they can be readily removed where required.

The various other skylights indicated on the drawings may be of steel or teakwood as agreed by the Owners. The skylight over the Smoking Room will be furnished with suitable ventilators.

SERVICE TANKS

Service Tanks for cold salt and cold fresh water will be supplied and fitted on top of the Engine and Boiler casing, as and where directed. Hot fresh water ~~and hot salt water~~ tanks will also be supplied, their location to be determined ~~by the Engineer~~. by approval of Owners representative

All these tanks to be circular in form, constructed of steel plates of suitable thickness, thoroughly stayed and stiffened by bracket plates and angles of suitable scantlings. Tanks to be fitted in steel seats on top of casings or as otherwise arranged. All service tanks to be tested to 75 lbs. per square inch.

The manholes, drains, overflow, filling and ventilation must all be arranged for and compensated for in the usual manner on each one of the tanks as directed.

The capacities of these various tanks, as far as possible, will be the same, although the location may necessitate variation in construction.

ENGINEERS' STORES
and WORKSHOP

(See page 20) Engineers' Store and Workshop to be arranged as agreed. Boundary bulkheads to be of steel and to be sparred in upper half if required. Steel door in halves to be fitted. All bulkheads to be of approved thickness, suitably built and stiffened and attached where necessary to coaming plates of sufficient depth and thickness. Store to be fitted in approved location in tunnel. also refrigerating machinery.

~~KITCHEN BUNKERS~~

~~The lockers indicated abaft Engine Room on the Main Deck may be partly utilized as a bunker for use of kitchen and if so will require to be suitably constructed.~~

COMPANIONWAYS

Steel companionways to be fitted forward on the Promenade Deck over stair.

SCUTTLE to
STEERING GEAR

Scuttle to steering gear to be provided aft as indicated on the drawings, and to be constructed watertight with a high steel coaming and watertight hinged cover. Suitable ladder to be provided from steering gear scuttle to Main Deck.

M A S T S

Vessel to have two steel pole masts ~~unless otherwise arranged.~~ These masts can be lightly constructed as they are not for cargo purposes

NOTE: These masts ~~may~~ to be used as ventilators. one for the lween decks and one for the galley

See page 43

Each mast to be built in two strakes with lap seams and strapped butts with suitable stiffening, all to be caulked and made thoroughly watertight. Foremast ~~to be stepped on the~~

Masts Cont'd

~~Main Deck~~ and Main mast both to be stepped on the Upper Deck, both to have suitable stiffening arranged. To be properly wedged and suitable mast coatings.

~~Masts will be fitted as indicated on plans with two booms on each mast, capable of handling five tons single lift on any one boom.~~

All iron work, lamp tables to regulations, and shroud ~~must be made to confors to this condition.~~ connections to masts etc must be approved.

~~In addition to the booms on the Fore mast a heavy steel derrick boom must be supplied and fitted, to be stepped on the Promenade Deck, which must be amply stiffened in the way of the heel of the boom. This boom to be capable of handling fifteen tons on the single lift and all iron work must confirm with this.~~

The top mast in each case to be of wood and have the connections for halyard sheaves, wireless rig, and stepping into steel mast

WINDLASS and WINCH BEDS

Beds for the Windlass ~~and the~~ Winches and steam capstans to be bounded by welded steel angle riveted to the deck, where no wood deck is laid. Where wood deck is laid channel ways must be arranged for of watertight construction ~~either in the various bedplates or by watertight construction~~ approved by the Owners. Scuppers to be fitted to all beds.

RIVETING

The riveting throughout the ship to be to ~~The B.C.~~ Lloyds requirements and to be carefully executed, and in no cases are rivets to be put into unfair holes. Where boring or reaming is necessary care to be taken that all borings, etc. are cleaned from between the surfaces before riveting. All rivets to fill the holes, and no countersunk rivets to be used in any part of the vessel unless the holes have been countersunk to receive the heads.

Steel rivets to be used for all the main structure; iron rivets may be used for deckhouses, casings andother minor portions.

Riveting Cont'd.

Shell riveting to be flush throughout ~~and~~ but in no cases are the points when riveted up to be under the surface of the plating.

Before riveting any part a sufficient number of service bolts are to be used to bring the surfaces perfectly close together and under no circumstances are slack rivets to be tightened up cold but are to be bored out and renewed.

Shell plating to be riveted to ~~the B. C.~~ Lloyd's requirements as to the number of rows and size of rivets. All rivet holes to be carefully and accurately punched. No severe drifting will be allowed. Watertight bulkheads to ~~be double~~ be close riveted to side frames. All the butts of shell plating which are strapped are to be tack riveted with half the total number of rivets as soon as butts are formed and as the plating proceeds. Any butt not absolutely tight ~~to be~~ after being tested before caulking ~~and~~ is to be taken down and made good at the will of the Owners' Inspector and at Builders' expense.

Special care to be taken with all the riveting in the way of oil fuel tanks, which is to be up to ~~The B. C.~~ Lloyd's requirements for this work to ensure a perfectly oiltight job. All watertight and oiltight work to be made thoroughly tight without the use of putty, cement or canvas stopping, and all butts and landings in the vessel to be a good steel to steel job.

Rivets in stem and stern frame to be of mild steel and left about 1/8" on the head above surface of the plating, all neatly rounded over.

Riveting of stern frame to be carefully executed and machine riveted where possible.

No tap rivets are to be used in connection with the stern frame and stern plating.

STANCHIONS & RODS.

All stanchions and rods for holding down bolts, etc within 12 feet radius of any standard compass to be of brass, elsewhere throughout the vessel to be of galvanized iron. and all wood work to be put up with brass screws.

(See page 32)

Stanchions with four 3/4" diameter rods and two inch diameter top rail to be fitted round bridge. Stanchions with four 3/4" rods to be fitted on all decks where required, and the spacing of these rods to be approved. Every second stanchion to pass through rail to curtain plate on boat deck. Rails to be of Teakwood except round bridge. The height of these various rails to be approved ~~practically as indicated on plans~~. All these stanchions must be substantial and through stanchions supporting decks overhead must be 2 1/4" diameter at the rail. Rods and stanchions to be fitted to all ladderways as required and round all ladder way openings where required. These to conform with the rods and stanchions in the vicinity. All necessary openings for passenger gangways, to suit Owners special requirements ~~working cargo, carging, etc. as required~~, to be cut in the various rails, teakwood rails to be fitted with the usual rail irons of cast brass, to be hinged in the way of passenger gangways and to be separate from the removable stanchions underneath. Removable stanchions underneath to be fitted in sockets with the usual eyes and hooks in the rods for convenience of readily removing them. All teakwood rails to be fitted with slip bolts for securing them. ~~Rails in the way of cargo hatches to be removable in the usual manner with the stanchions fitted in sockets in the rail ends, secured with the usual eyes and hooks.~~

(See page 43)

Flying bridge to be well braced between the stanchions as herein before referred to. and to have rail fitted all round extending to after end of Pilot House. The thwartship rails to have gates fitted to approval.

Note- A portion, of the Promenade on both sides of Promenade deck extending from forward end of Entrance at Observation room aft about 60'0", will be enclosed with plating below rail and glass above. At the forr. end a sliding door will be fitted to house into after bulkhead of Observation Room. All to approval

PASSENGERS' AND CREWS' LADDERWAYS.

See page 57

All exposed ladders to have double handrails of galvanized iron, covered as required, and all other ladders both for passengers and crew, except where otherwise specified, to have handrails and stanchions where necessary also in galvanized iron, covered as required. Ladder to be fitted on forward side of funnel.

JACKSTAYS.

Jackstays to be fitted on skylights for lashing covers. All jackstays and sockets for same to be of galvanized iron.

STORM RAILS.

(See page 59)

Storm rails to be fitted around Smoking Room and Observation Room. These rails to have brass sockets, and rail to be of 2" brass tubing. Brackets to be ball brackets. Brackets to be bedded on rubber. Teakwood rails with nickeled sockets to be fitted in all main passages in saloons, also in all passenger W.C.s and baths, also in saloon in way of passenger entrance. Rail to be fitted in all crews W.C. and baths as required ~~Teakwood rails similar to those on "Princess Charlotte" will be accepted.~~

CHAIN LOCKER SHACKLES.

(See page 23)

Shackles for securing ends of chain cables to be provided and to be well connected at bottom of chain locker or otherwise as may be decided.

HINGES, ETC.

(See page 29)

Hinges of gangway doors in ships side to be of steel with gunmetal pins, having lubricating arrangement already referred to. Strong backs of approved design for holding doors closed, and suitable racks for stowing strong-backs when doors are open. All screw bolts, nuts, slip bolts, ring bolts, etc. necessary around gangway doors to be supplied to Owners' requirements.

All Steel doors in casings in companion ways, doors of refrigerating chambers and insulated spaces, store rooms, etc. all to have substantial hinges with brass pins, bolts, and other fastenings as required.

~~CARGO HATCHES~~.

~~Battens to be fitted to sides and ends of each hatch supporting all wrought iron cleats riveted to the coaming. Ring bolts to be fitted to all hatch coamings at least one in each corner. All other Smith Work in connection with these hatches to be as required by the Owners.~~

~~MASTS~~.

~~All the mast mountings required for the rig of the vessel and for the working of the various derricks to be properly fitted and the greatest care is to be taken with this portion of the work. Derrick topping gear, etc. chain plates, lightening conductors, pinrails, and brackets for lamps, etc. to be fitted to each mast.~~

~~DERRICKS~~.

~~All mountings required for working the derricks to be supplied and fitted. All necessary derrick hopps, gooseneck for derrick heals, derrick sockets, etc. as required, and all Smith Work connected with the derrick lifting and cargo gear to be supplied and fitted. All necessary rigging plates, eye bolts, to be fitted as required by the Owners.~~

CLEATS, ETC.

~~Belaying pin racks~~, cleats, eye-bolts, ring-bolts, etc. to be fitted as and where required.

~~DERRICK CRUTCHES.~~

~~Derrick crutches to be fitted as required to Owners' requirements and approval.~~

BUTCHER'S SHOP & REFRIGERATED COMPARTMENTS.

See page 71.

Hooks, rods, round bars, etc. all of galvanized iron to be supplied and fitted where required in Butcher's Shop, Refrigerated Store Room, ~~and insulated Cargo spaces.~~ etc.

CARPENTER WORK.

D E C K S .

Boat deck to be covered with 2 3/4" kiln dried edge grained fir, full size after dressing, ~~except in the way of the boats as herein before mentioned and in the way of the Engine and Boiler Casings and the steel trunk casing over forward well of the Promenade Deck,~~ lumber ~~to~~ must be thoroughly seasoned. (Note - The plating under boats must be [illegible]) Joints of the planking on the underside to fit close and to be V jointed, planks to be bevelled for oakum. All deck planks to be perfectly free from sap, shakes, and knots, and all planks throughout the ship to have good shift of butts. No butts to be on the same beam unless there be four strakes of planking between them. The margin planks in way of any rounded corners of hatchways, deckhouses, etc. are to be carried well round ~~with butts from corners.~~ from corners and are to be of Teak. All deck planks to be white leaded in the way of beams before being laid and to be secured with galvanized screw bolts and nuts in every case having a bolt in each plank and at butts. All deck fastenings to come fairly in the centre of the planks. Gromets to be fitted to all deck fastening bolts and nuts.

Dowel holes to be filled in with white lead and dowels fitted tight. The deck planks to be caulked first with one thread of white cotton and then with oakum in proportion of not less than three threads. ~~All to be payed with approved marine glue.~~ Before delivery of ship caulking of all exposed decks to be set down and payed with approved marine glue where necessary and all decks to be well scraped and planed on the upper side. Underside of all decks in the way of accommodation and where exposed to promenade to be planed smooth by hand. All deck planks to be cut, stacked and marked for ship within two months of signing contract.

PROMENADE DECK.

Promenade deck to be covered with 2 3/4" thick edge grain fir decking in all parts outside of houses and exposed to weather. This deck planking to be similarly treated in every respect to that of the Boat Deck. Inside of houses to be laid with Corticene and Linotile. (Corticene in Staterooms, Linotile in passages and Public ~~Offices~~ Rooms.

UPPER DECK.

The exposed portion of Upper Deck aft to be covered with 2 3/4" edge grained fir, similarly treated to the aforementioned decks. The Joiner deck over the houses on the Boat Deck will be laid with 1 1/2 x 3 inch T. & G. kiln dried. Alternate deck beams to be of steel. The steel deck beams to be fitted with beams of wood in the bosom of the angle bar to receive T.& G. decking. This deck to be dressed on both sides and beaded on the under edge. The tongues and grooves and butts to be bedded in white lead before being driven home.

When complete the deck to be hand planed smooth, all butts perfectly flush. The deck to be laid with felt and No. 2 canvas, butts of canvas to have strips underneath bedded in white lead. Butts to be fitted close and secured with double pointed tacks, spaced no more than 3/8" apart. Where watertightness is essential, coamings bedded in sheet lead will be necessary, such as round steel casings, and waterways, etc. The details of the finish of this deck to be submitted to the Owners for approval. Generally, the canvas will be laid thwartships and will be thoroughly stretched and carried over the covering plate at the ends of the deck beams, and these ends thoroughly fastened with double pointed tacks. The finish of the canvas to be covered with a half round moulding. Canvas decks to receive a coat of paint the day canvas is laid. The canvas decks will receive four coats in all. NOTE:- In the way of accommodation all decks where exposed to be planed smooth.

Main Deck

CEILING AND SPARRING.

Ceiling to be fitted on tank top under hatches only. To be ~~2 1/2~~ 3" thick laid on bearers and enclosed in angle frame. Chain locker to be sealed with 2 1/2" thick lumber, bolted to frames and carried ~~to within a foot of the deck~~ height suitable for stowing cable as hereinbefore mentioned. Ceiling ~~on tank top and~~ under Chain Locker to be caulked and payed. Holds from tank margin plate and 'tween decks around sides to have sparring in the usual manner 6" apart and held in position by cleats on frames and hardwood battens to be fitted where required to prevent chafing of cargo.

RAILS & WASHBOARDS.

Teak rails ~~8"~~ 7" by 2 1/2" finished size to be fitted as herein before mentioned. In way of the through stanchions teakwood rail is to be fitted in two portions secured by bolts and nuts. All joints in wood rails to be scarphed together. All teak rails in way of necessary openings for Passenger gangways, ~~working cargo, etc.~~ to be hinged with heavy cast brass hinges and solid brass caps on butt ends, to be tongued into each other and fastened with slip bolts. Teakwood washboards are to be fitted round all decks where no steel skirting plates or bulwarks are fitted. These washboards are to be attached to the rail stanchions.

(See page 37)

HATCH COVERS.

Hatchways to have covers 3" thick finished and through bolted with galvanized iron bolts, clenched on washers. All covers to be fitted with galvanized iron lifting bars sunk flush and to be properly marked and numbered for each respective deck, numbers being neatly cut in. Hatch covers to be fitted fore and aft and to be inter-changeable to fit any section of hatch. The hatch on main deck ~~Each hatch on the weather decks to have~~, will have in addition to the solid covers, a half set of teak framed grating covers for ventilation. Arrangements for the flush hatches to be submitted for approval.

(See page 28)

MASTS & SPARS.

Steel masts surmounted with wood top mast and trucks, with all necessary pulley wheels for flag halyard blocks, fittings for wireless, etc., and with the usual fittings on top of each. Masts to be properly wedged on all decks.

(See page 34)

other decks of edged grain fir. All wedging to be thoroughly caulked and payed as in the case of deck planks.

DERRICKS.

~~The fore mast will have two derricks fitted for working hatch. Main mast will also have two derricks fitted for working the hatch as shown on contract plans. In addition, on the fore mast a heavy boom will be fitted healed on the deck, as indicated on plans. These various derricks must have all gear complete for handling cargo and must be at least 40 feet in length. These derricks to be strong enough to take lifts as herein before mentioned.~~

BOLLARDS, FAIRLEADS, ETC.

Bollards and/or Cleats and Fairleads to be fitted as shown on plans ~~or as otherwise required.~~ Four Six bollards ~~Six Bollards~~ to be fitted on Main Deck, ~~although not~~ as indicated on plan as and where required, ~~and two~~ Four Bollards fitted on Promenade Deck forward, ~~in addition to the four indicated on plan.~~ Two bollards in Windlass Room and four fitted on upper deck aft. Two cleats with rollers will be fitted on boat deck as and where approved. Bollards to be of cast iron with ventilating tops, where necessary, to be securely riveted to deck plating with all necessary fairleads placed conveniently to same and mounted on steel chocks where suitable. Fairleads to be bushed on gunmetal having turned steel pins. Bow and stern fairleads to have large size steel rollers and to be carved to suit line of vessel's deck. Mooring pipes with specially designed rollers to be fitted aft of the hawse pipes and so placed as to lead through the deck above to the windlass warping ends. These mooring pipes will be in addition to the other mooring pipes required for the various bollards. ~~Mooring pipes to be fitted where required of approved pattern.~~ Care must be taken to have suitable reinforcements under all bollards, fairleads, etc.

All necessary leading blocks, [illegible] pins and ring bolts to be supplied and fitted. Roller fairleads for warping vessel by means of capstans or winches to be fitted where required. Patterns for all the foregoing to be submitted for approval. All castings to be of good hard close grained iron with ample strength for the work.

HAWSE PIPES.

To have heavy cast iron hawse pipes, one on each bow. To be carefully designed with a very easy sweep so as not to nip the cables and having a substantial lip at bottom where chain rides. Hawse pipes to be fitted with collar pieces for securing to the deck. Galvanized close-fitting covers to be fitted over upper end of hawse pipes. Suitable arrangement of stopper to be provided for each cable.

STEAM STEERING GEAR, ELECTRIC DYNAMO, CABLE HOLDER, CAPSTAN & WINCH BEDS.

Beds for steam steering gear to be made very strong as may be approved by Owners and makers of the gear. Each dynamo to be bedded in teak at least 3" thick with felt packing under. Cable holders to be bedded in planks as directed. These planks should be without a seam under cable holders so as to avoid any possible leakage. Capstans to be bedded on suitable wooden beds thoroughly caulked and securely fastened with suitable number of holding down bolts. Cargo winches to have similar beds similarly fitted. The fitting of "Mascolite" or other approved insulating material under teak beds to be considered as a means of reducing noise and preventing vibration.

CASINGS FOR TELEGRAPHS, ~~PUMPS~~, PIPES, ETC.

Casings to be carefully fitted where required for telegraphs, speaking tubes, etc., and to be made portable in short lengths and to be put up with brass screws. All ~~pumps, pipes~~ pipes from, water closets, or other discharge pipes, to be properly cased in where required. Casings to be of wood with brass screws. Where necessary pipes will be protected by steel plates ~~or~~ and/or boxed in with white wood as may be approved by Owners. All casings to be marked with the name of the pipes enclosed, the marking being cut in. This applies to any pipe running through rooms, such as water or heating pipes.

FLAGSTAFFS.

One to be fitted for Ensign aft having gilt truck and brass fittings for securing pole to rail, and a brass hinged socket on deck. A small flag pole to be fitted forward on stem head.

BAGGAGE, MAIL & EXPRESS ROOMS.

(See page 71)

The Baggage Room will require special treatment. ~~In any case the entire hatch cover forming floor of baggage room to be hinged as noted on drawings for removal of freight~~, and suitable doorway must be provided as indicated on plan, ~~cut in the afterside of the forward trunked hatchway on Upper Deck.~~ All Shelving, etc. necessary must be ~~of portable nature~~ fitted and the arrangement entirely agreed to by the Owners. To apply

The Mail and Express Rooms where shown on Contract Plans to be fitted with shelves and dockets to approval.

Floor of Mail and Express Rooms to be covered with gratings. Sides to be coated with bitumastic. and coated with bitumastic

STANDARD COMPASS.

Standard Compass to be supplied and fitted up on top of house and Navigating Bridge. To be surrounded by a teakwood-framed grating and protected by brass stanchions. Other compasses, telegraphs, etc fitted as and where required. ~~Generally,~~ Generally all carpenter work required to complete the vessel and not specially mentioned in this Specification to be fitted by the Builders and to be of the best description and workmanship and to Owners' approval and satisfaction.

BOATS & DAVITS.

B O A T S.

Boats to be supplied to the requirements of the Canadian and U. S. Steamship Inspection. All boats to be of wood and approved as life boats with hardwood at gunwales, stem, keel, keelson, and sternpost, and to be built to Owners' approval. All boats to have 18 oz. copper buoyency tanks and life lines becketed round sides and fastened to strong rings clenched through frames, each boat to have a complete outfit as required by the Canadian Steamship Inspection. Each boat to have number and ship's name indicated. Dimensions and capacity of each boat to be cut in on the stem. Boats to be fitted with approved disengaging gear and to have all necessary gripes, chocks, oars, row-locks, sails, water breakers, oil, bread receptacles, lamps, axes, etc. etc., to inspection requirements. There will be two electric winches fitted with a double warping end, so that the lines from each end of the boats and be dealt with and the boat hoisted level. These electric winches will be placed as agreed upon in a position aft of the aftermost boat and will be capable of raising boats at the rate of 60 feet per minute.

Boats will be spaced seven feet apart and space between fitted with rail extending inboard towards boats stem and stern, as well as connecting these rails to one another along the ships side. All to approval.

CHOCKS.

Boats to be fitted with chocks, having necessary hinges, bolts, locking pins, all to pass the Canadian Inspection Act requirements.

Life belts - To be supplied in racks, there being five racks in rooms which can take care of more than 2 people, each of these racks to hold 2 life belts. Life belts will also be supplied and stowed where needed to make the complement 1500.

DAVITS.

Approved davits to be fitted as and where required to suit requirements. All davit blocks to be of non-toppling pattern and approved make with brass roller bushes and self-oiling sheaves. All blocks to be of ample size, and size of davits to suit requirements of the Canadian Inspection Act and to be sufficient height to allow of ample drift on the falls to lift the boats. To be fitted with guys, spans, swivels, eyebolts, etc. complete.

and one rack in rooms of two people

DECK COVERINGS.

DECK COVERINGS.

Captain's, Officers', Wireless Operator's, Engineers' cabins, Chief Steward's cabin, Purser's cabin, all to be laid with Linoleum, corticene, teakoid or other approved material as may be selected for these various places. Chart room Officers' and Engineers' Mess Room to be covered as approved. The enclosed portion on Promenade Deck and Upper Deck in the way of all accommodation to be laid with Corticene and Linotile or other approved material. The Public Rooms to be to special design, such as the Main Entrance, Social Halls, Sitting Room, Writing Room, Smoking Room and Observation Room, Library, and Dining Room. Floors in all Staterooms on the Upper, Promenade, and Boat Decks, Library, and Observation Room, to be Corticene; the various other Main Rooms to be Linotile, except as hereinafter specified.

The ~~Second Class Dining~~ Officers', ~~Crews'~~, Engineers' rooms, engineers, Bathrooms, etc. to be covered with Linoleum or Corticene or other approved material of equal cost. The entire Orlop deck to be laid with Corticene or other approved material. The deck in the galley and pantry to be laid with suitable bricks for the purpose to approval. All of the covering material used on the various decks must not be less than 1/2" thick and to be of approved make and of approved color and design. All Corticene to be by an approved maker, to be laid on top of composition on steel deck and to be guaranteed for twelve months.

When composition of any kind is laid on the steel decks, retaining clips of Z pattern and closely pitched are to be fitted.

WATERTIGHT DOORS.

WATERTIGHT DOORS.

Geared sliding watertight doors are to be fitted to watertight bulkheads where required. As far as possible they are to be of vertical sliding type and horizontal doors are only to be fitted where absolutely necessary and to Owners' approval. Watertight doors to be tested in the presence of the ~~Canadian Inspectors~~ Lloyd's and the Owners' Representative. All watertight doors, both sliding and hinging, to be of approved make and to be supplied and fitted by Builders. Frames and doors to be of suitable material for their various locations and thoroughly finished, being planed on the faying surfaces, so as to obtain a fair bearing all round the joint. All door spindles to be of steel. Bevalled gearing to be of gunmetal throughout.

Racks to have good breadth of face and teeth to be shrouded full depth. Pinions to be of sound cast steel, truly pitched, and secured to spindle by accurately fitting keys. All bevalled wheels to have machined teeth.

JOINER WORK.

GENERALLY.

The joiner work throughout, both in Passenger and Crew accommodation, to be done in the very best style, all wood used being thoroughly well kiln dried and seasoned, and the best of its kind. The ~~outside~~ wood bulkheads bounding staterooms, Purser's, freight clerk's, Steward's, Stewardess and Engineers Rooms and Officers and Engineers Pass Room ~~Crew's cabins, etc.~~ to be constructed of cedar or equivalent light material paneling 1 1/2" thick. Special attention is to be given to the securing of Passengers' comfort, both as regards size, fittings, and equipment of Public Rooms, Staterooms, etc. and ventilation by means of jalousie under and grills between beams, etc. to be provided, all as indicated on plans and to the Owners' approval. Provision is to be made for life-belts all throughout the vessel to Owners' requirements. Racks for all staterooms and Officers ~~these~~ lifebelts to be in hardwood, those in special rooms to suit ~~to match~~ the woodwork of the Staterooms or Cabins. Any pipes fitted under sofas and sofa berths must have means of access arranged for. All hardwood in Public Rooms, Staterooms, or Cabins is to be of selected material and treated as approved. All weather deck woodwork such as ladders, doors, etc. to be of teakwood, except where otherwise specified. All doors and all vertical lines of joiner work must be fitted plumb off the ~~keel~~ water line, and any doubtful parts are to be carefully checked before being bound, so that they may be rectified if need be.

Small metal fittings, such as hinges, catches, etc. on weather decks are to be well bedded in white lead, and all screw nails in exposed positions and liable to rust are to be of brass. Designs of all woodwork in Spetial Room, Public Rooms, etc. to be specially approved.

The Purser's Office and Barber Shop are to be fitted up to the Owners' requirements and suitable for their various locations, to have all lockers, cases with glass doors, desks, drawers, etc. to approval both as to location, material and size.

CEILINGS.

Ceilings in the Observation Room, Smoking Room, and Dining Room, and public room at head of Dining Room stairs, ~~to be panelled~~, also entrance hall to be panelled, and the beams cased in with approved material. The Special Rooms, Writing Room, and Sitting Room to be similarly treated. Where beams are not cased in they are to be finished in every respect to Owners' requirements.

PILLAR CASINGS.

Pillars in Observation Room, Smoking Room, Dining Room, Special Halls, Writing Room, Sitting Room, etc. to be cased in hardwood, finished as approved. Pillars to have carved capitals in keeping with the general arrangement of decoration of the various rooms.

STATEROOM BULKHEADING.

The outside bulkheading of the various staterooms to be framed and panelled in approved wood of approved design, to finish flush on the inside of all staterooms; mock panelling will not be accepted. A fret panel or, if required, a panel of approved pattern is to be fitted in the lower portion of the bulkheads and expanded metal frets fitted between beams in the upper part of all outside bulkheading.

Divisional bulkheading in all Staterooms ~~will~~ to be panelled with material to be agreed upon and finished flush on both sides as agreed. or if of T & G to be of approved wood 3" thick and laid vertically with joints broken and to have 3" face in two thicknesses approved pattern required. Divisional bulkheads in Crew's accommodation to be of approved T. & G. or all steel, according to the requirements and location. The Crew's accommodation forward on the Main Deck has already been specified steel throughout. The bulkheads in the Special Staterooms to be finished in approved woods as selected for the various rooms of approved design. All to be panelled.

STATEROOM LINING.

The lining of the ship's side in all First Class Staterooms to be framed in approved wood 1" thick and finished flush and moulded to approval. ~~and~~ Panelling will be put up with screw nails for convenience in taking down, the steel work to be coated with Bitumastic or other approved material before any lining is put up. The Public Rooms and Special Rooms will have special treatment. The various rooms for the ship's use, or for the accommodation of ship's crew, are generally speaking not to be lined, with the exception of the Officer's Rooms on the Upper Deck; the ship's side in such cases will be left exposed and cork dusted to the Owners' requirements.

This paneling will not extend to deck at bottom and will be treated at top to secure air circulation.

SANITARY ACCOMMODATION BULKHEADING.

In as far as possible the divisional bulkheading in the sanitary accommodation to be of steel, and the various compartments within the steel bulkheading, such as toilets, bath rooms, etc. to be divided with approved wood bulkheads 1" thick, tongued and grooved and V jointed. The divisional bulkheads between water closets to be kept 6", and those between bathrooms 4" above top of tiled deck and also to be kept short of deck at top to admit of a free circulation of air. All these internal divisional bulkheads to be fitted on galvanized crutches, bolted to steel deck. The bulkheading of the rooms in the Engineers' quarters to be treated similar to the Staterooms. Ship's side in these rooms need not be lined, with the possible exception of the Chief Engineer's room. The bulkheading of the various rooms on the Upper Deck, Purser's, Freight Clerk's, ~~2nd Steward's, and baggage man and watchman~~ Steward's and Stewardess, to be similarly treated to the balance of the Staterooms. ~~The Waiters' quarters throughout to have similar divisional bulkheads to the balance of the Upper Deck, but the ship's side need not be lined.~~ The 3rd Class rooms will not be lined, but exposed frames and plating must be treated to the Owners' requirements. Quartermasters, Quarterdeckmen, and Sailors' compartments to be plainly, strongly, and neatly finished with 1" T. & G. thoroughly seasoned and fitted as required. The ship's side need not be lined in the way of this accommodation. Note— The arrangment of douches and W.C's on Boat deck will require special treatment.

WHEEL HOUSE.

(See page 56)

Wheelhouse will be finished in approved hardwood throughout, the design to be submitted, and the arrangement of draining any water which may get between the lining in the way of the sashes to be to Owners' requirements, with galvanized iron trays fitted under each sash, and canvas aprons painted & coats filled to direct the water to the trays, having small lead pipe drains led as required by Owners.

D O O R S.

All wood doors where exposed to the weather to be of teakwood with frame work of teakwood, having a large rabbet with groove for indiarubber tubing to make the door watertight. Outside door sills to have brass step plates made to suit the rabbet and the plate to extend over the steel plating outside and to be returned down about ½" to prevent water getting in between the woodwork and the steel. Doors to be fitted with nickeled brass hinges, brass locks with nickeled face plate and keepers, handles to be nickeled on inside and Brass outside, nickeled ajar hooks, small stateroom doors and Hooks to hold all outside doors open to be of brass, bolts, and all other necessary mountings, either nickeled or brass as required. Top of doors to be fitted with rigols. Outside doors leading to ~~at~~ passages on all decks ~~the promenade Deck~~ to be particularly also doors to saloon entrance and doors around baggage Room wide doors for convenience in handling furniture, or other gear, out and in. and those to staterooms to be 2'-2" wide. All outside doors to open forward, as indicated on plans, fitted with all the necessary stops, and door springs, preferably Corbin springs ~~Blounts~~, fitted to all large doors. Doors to W.C compartments, W.C doors etc ~~as may be selected~~ to avoid shocks. All inside doors in Passenger and Crew accommodation to be principally of cedar, and those to staterooms to be 2'-2" wide or other approved wood, as required, and to conform in design with the surrounding woodwork. All inside doors to have ~~flat brass~~ ~~sill plates~~ sills to approval in Passenger accommodation, and in Crew's quarters ~~they~~ sills may be galvanized iron or brass as required, and all doors to have nickeled or brass ship's hinges, nickeled or brass ship's locks, nickeled or brass handles, nickeled non-rattling ajar hooks, nickeled bolts, and all other necessary fittings according to location. The above fittings will ~~be similar~~ to ~~those on the "Princess Charlotte" as to material, quality~~ type ~~and finish~~. will all be submitted for approval

Ventilating louvres to be fitted in doors where required. Doors in all lavatories are to be similar to the doors in the vicinity. Doors to water closets in special rooms to conform to the particular room in which they may be placed. Doors to water closets in First Class accommodation to be of hardwood as directed. Water Closet doors in Second Class and Crew accommodation to be lattice doors. All water closet doors to be kept 6" clear of tiling on deck at bottom and top of door to be 6' 6" above tiling. Doors to Bath Rooms entering from Public Hall wherever placed to be full length doors. Doors to all water closets and bath rooms in the various accommodations to have indicator bolts of approved maker. All doors to lavatories and bath rooms to have ship's locks, nickeled or brass as required, and doors in all sanitary accommodation to have all necessary fittings. Doors to Kitchen and Pantry and to all Steward's Store Rooms where necessary to be specially strongly built. The doors to the galley and pantry to be particularly wide doors for convenience in handling material out and in. Doors in pantry and galley leading into Dining Room to be solid doors covered with approved material, and to be arranged as kick doors with the necessary brass plates and spring hinges, ~~or door springs~~, as approved, also glass peep holes; to height agreed ~~---~~ to enable men to see others approaching. these doors to be fitted with locks, handles, hooks to keep doors open if necessary, nickeled or brass according to location and all necessary gear required for the successful operation of these doors. Emergency doors are to be fitted where shown on plans, and elsewhere as considered necessary, to give ample means of escape from various compartments, such as Crlop Deck forward and aft and also tunnel. ~~2nd Class and Petty Officer's and Sailor's.~~

All doors to special rooms to have glass knobs, Doors to Observation Room to have special locks handles, etc as approved.

Note - About 30 rooms will have full length mirrors fitted on doors or as where directed.

Emergency arrangement to the Upper Deck doors on the stairway leading to the Oriental passengers' and Chinese Cooks' quarters, and in other places that Owners' may require, to be fitted. Any emergency doors in casings to be of steel. Where necessary these doors are to conform in design with the surrounding woodwork. Doors to be fitted with all necessary hinges, locks, hooks, etc. as may be required.

WINDOWS.

Windows in wheelhouse are to be of teak with plate glass lights. At least four of these windows must be made to drop. Sills of windows to be fitted with 1/8" by 1" brass strips and the bottom rails of sashes to be fitted with a similar brass strip, so that when windows are closed water will drain off outside. The method of construction of these sashes will conform to the custom of the B. C. Coast Service and designs must be submitted for approval before proceeding with the work. Galvanized iron trays and canvas aprons thoroughly painted must be fitted underneath windows and approved by the Owners, to drain water which may find access between the outside and inside lining. All windows must be fitted with buffers to avoid shock should they drop by accident. Windown to be fitted in the after portion of the Wheelhouse, as indicated ~~on amended sketch~~, for the purpose of enabling the Officer on watch to look aft. These windows to be neatly fitted and made watertight. Windows in all Officer's Rooms, Staterooms on Boat Deck, and Staterooms on Promenade Deck to be of Plate Glass, and fitted with the top half opening only. These must be of regular ship's construction, 22" wide by 30" long made thoroughly watertight, and design

(See page 54)

and size to be adopted after approval. Forward in the Captain's room and 1st Officer's Room a bay window will be fitted with special small panes of plate glass in the small sashes, the centre sash will be similar to the windows on Boat deck rooms fitted with top half opening. Observation Room windows, Library, and 1st Class Smoking Room windows will be large windows of teak with heavy plate glass. The Observation Room ~~and smoking room~~ will be fitted with the bottom of opening at a height of about 2 ft. from the deck. These sashes will be three feet wide by four feet high opening, and a system of ventilation whereby tops of a certain number of sashes may be fitted with a small sash which can be opened or closed as required. The smoking room will have large windows of plate glass to approval The Library ~~on a scaled sketch~~ will have windows 2' 6" by 3' 0" of heavy plate glass.

Jalousies All State room and officers windows will have jalousie blinds fitted to approval on the Boat and Promenade decks

NOTE:- At the forward end of the Observation Room outside and in the way of the Purser's office an arrangement of prismatic lights must be fitted underneath the Observation Room windows in this vicinity to give light to the Purser's Office.

Windows on Promenade deck will be similar to boat deck except size will be 22"×32"

LADDERWAYS.

Deck ladders to be fitted to navigating bridge and Standard Compass, from the Promenade Deck to the Boat Deck, forward, amidships, and aft, as indicated on plans, and from Upper Deck to the Promenade Deck aft ~~on the port side~~, as indicated on plans. Vertical ladders to the deck over the Officers' quarters and Boat Deck staterooms. All to be of teak wood of approved width and thickness, stringers being not less than 1 1/4" thick finished, ~~and no steps to be less than 10" wide, except in the case of the vertical ladders which will be of the usual type.~~

(See page 38)

All ladders for use by passengers must be easy to climb this is imperative and the headroom in all cases must be such that ~~as the~~ none can bump their heads

All deck ladders to be well secured at top and bottom and all ladders used by passengers and exposed to weather to be teak lath sparred on back, and to have approved rubber treads. Suitable nosings and toe plates; treads of ladders not used by Passengers may be of brass or galv. iron as agreed. Ladderways or stairs according to location to be fitted from the Promenade Deck companion forward to the various decks below as required, ~~also from Main Deck to the Promenade Deck, forming emergency exit for 2nd Class~~, also for the Main Deck to the Orlop Deck, ~~giving access to the 2nd Class~~. All these ladders to be substantially built of ship's pattern of suitable width and spread to conform to the Inspector's requirements, to have galv. iron or rubber treads as required, and to have all necessary hardwood hand rails or galvanized handrails as directed. Two pilot ladders with stanchions and manropes complete to be supplied.

STAIRWAYS.

Stairways in Passengers' accommodation leading from Dining Room to Upper Deck, from Upper Deck to Promenade Deck, and from Observation Room to Library, to ~~have~~ have hardwood stringers; treads, risers, handrail ~~balusters~~, ~~handrails~~, and newels all of hardwood, and the whole artistically designed and fitted with brass nosings, care being taken not to have the lips of nosings above the rubber treads. Treads to be fitted with ribbed rubber treads 1/4" thick. Between the stringer and the handrail a metal balustrade of approved design will be fitted.

Stairways on upper deck leading to promenade deck to be cased in under stair and doors fitted as required. The forward space under stair will be for News Agent, and the space under after stair will be for brooms etc.

STORM RAILS.

(See page 38)

Storm rails of approved hardwood about ~~1½"~~ 2" diameter, with the usual nickeled or brass fittings according to location to be fitted on one side of all cross passages in Passenger accommodation, also on fore and aft bulkheads where required, special storm rails or handles to be fitted in water closets and bath rooms as required. Storm rails outside around Smoking Room and Observation Room to be fitted to approval as to height and material ~~as previously mentioned.~~

FURNITURE & WOOD FITTINGS.

In 1st Class accommodation throughout, including Purser's Office, Barber's shop, etc., to be of approved hardwood and of a design for the various compartments to the approval of the Owners. The Dining Room tables, which are to be furnished by builders, will have hardwood frame and legs, but soft wood top covered with felt, and green baize as directed to suit Owners' necessities. These tables to be 2'-7" high.

Furniture in all the Officers' Rooms will be similar in finish to the 1st Class Staterooms.

All wood fittings in kitchens, scullery, bakery, Butcher's shop, refrigerating rooms, and pantry are to be of approved wood for their various uses. The chopping block in Butcher's Shop to be of approved hardwood.

FRAMES & NOTICE BOARD, ETC.

Glass frame boards are to be supplied for ship's register, fire and boat stations, passenger certificates, seating plans, and other notices that may be required. Glass framed boards are also to be supplied for plans to be hung up in Chart Room, Engine

Room, Engineer's Rooms, or [illegible]

required.

Notice boards are to be supplied for propeller notices, smoking notices, sailing boards, ballast and fresh water tank, sounding boards for Engine Room and Bridge, and other notice boards required by Owners.

GRATINGS.

Teak framed gratings to be fitted in steam steering gear compartments where required, in Wheelhouse and on Navigating Bridge at sides, also in way of Standard Compass. At all outside doors on the weather decks leading to the various cross passages to the various saloons. also at Main Entrance

Small mesh teak gratings to be fitted in front of all baths. also gratings for lines as approved. Any other gratings required by Owners to be supplied and fitted.

CHART TABLE.

Hardwood chart tables of approved size is to be supplied and fitted for Chart Room as and where directed. To have all necessary mountings, drawers, etc. all to Owners' approval. One table in chart room and one in open Chart room.

SKYLIGHTS.

Teakwood skylights to be fitted up over Wireless Room, over forward stair well, over after stairway leading from Upper Deck to Promenade Deck, and over Smoking Room. ~~Skylight over Smoking Room to be in the form of a dome, neatly designed to approval.~~

The smoking room skylight will be additional to the Dome skylight over smoke room and arranged to provide ventilation. All skylights over public rooms & wells will be of special design and embodying special designs of glass suitable to Owners.

METAL FITTINGS.

All metal fittings in 1st Class Staterooms, Purser's Office, Barber's Shop, and sanitary accommodation to be of oxydized white metal. All metal fittings in 2nd Class Public Rooms to be to design and approval of the Owners. All metal fittings in 2nd Class sanitary accommodation to be oxydized white metal. All metal fittings in Crew's accommodation forward to be of bronze brass. All metal fittings in Officers' Rooms throughout to be of oxydized white metal. All metal fittings in the kitchen and pantry spaces to be of brass, lacquered or bronze, to approval. All the following metal fittings to be to Owners' pattern but supplied by Builders:-

Folding net racks and brackets for same,
Electric Light push buttons,
" " switches,
Watch pockets,
Locks for all doors,
Finger plates,
Number plates,
Name Plates,
Door sills,
Sponge nets, Sponge nets to be on hard wood blocks
Water bottle and tumbler holders,
Hat & Coat hooks,
Towel hooks,
Hand-holds over top berths,
Door checks,
Ajar hooks,
Curtain rods and rings,
Sanitary paper holders,
Metal hand-grips in bathrooms,
Towel rail brackets,
Storm-rail brackets and all hinges, locks, keys, bolts, etc.
Spring self closing taps

BEDSTEADS, BERTHS, & SOFA BERTHS.

*See note on next page

Bedsteads for Special Rooms will be supplied ~~by owners~~ by builders.* the lowest Bed in special rooms showing an upper berth to be a bedstead ~~by owners, but the Sofa Berths in Special Rooms will be fitted up to suit Owners' necessities by Builders.~~

1ST CLASS BERTHS.

Generally, 1st Class Berths will be 6' ~~3"~~ 6'-2" by ~~3' 7" in the clear~~ 3'-6" for lower berths, and 6' ~~3"~~ by 2' ~~7"~~ 6" ~~in the clear~~ for upper berths.

Lee boards to be of polished hardwood. Note all berths will be fitted to hinge up with mattresses, blankets, pillows and bed spreads intact and care must be exercised to so place the fittings for this purpose. As an example electric moulding may interfere, therefore a set of fittings will necessarily be required. Speaking generally it will require about 6'-5" from wall to wall to accomplish this.*

Crews ~~2ND CLASS~~ BERTHS.

This will follow when marked

*All berths will have hardwood at back of each berth about $\frac{5}{8}$" x 10" as agreed.

~~Berths for the 2nd Class accomodation~~ to be of standee type, with iron standee stanchions, iron rails, and iron lee boards to Hoskins or other approved pattern, with white enamel finish. To be 6'-2" by 2'-4" wide and of the number required for the various rooms.

CAPTAIN'S BERTH. Petty officers rooms to have drawers under lower berth to owners approval in addition to any lockers etc required.

Captain's berth to be 6' ~~3"~~ by 3' ~~7"~~ 6" ~~in the clear~~, the same as the lower berth in staterooms. To have hardwood lee boards and drawers with hardwood fronts to be fitted under berth, with ~~the~~ a locker at one end under berth for seaboots, etc.

OFFICERS' & ENGINEERS' BERTHS.

Berths for all Officers, Engineers, Purser, Chief Steward, Freight Clerks, 2nd Steward & Stewardess, are to be 6' ~~3"~~ by 2' ~~7"~~ 6" ~~in the clear~~, similar to the upper berths in staterooms, finished with hardwood leeboard similar to the staterooms, and fitted with drawers and locker in similar manner to those for the Captain's Room.

Berths for all Petty Officers to be 6' 2" by 2' 4" wide ~~in the clear~~, to be fitted with ~~fir~~ iron leeboards, and firemen's quarters to be fitted two berths high throughout, quarter-

deckmen's quarters to be fitted with one single and one two berths high. Quartermaster's to be fitted with one single and one two berths high. single berths to be arranged with drawers underneath, and for each man with separate locks and keys for each drawer, and the framing to be as arranged so that access cannot be obtained from one drawer to another.

SOFA BERTHS.

Sofa berths are to fitted in all Staterooms indicated on plan, in the Special Room, where indicated, and in the Captain's Room, as follows:-

Sofa berths to be in length to suit various rooms, and to be 2' 6" (and 2'-2" as agreed.) wide in the clear, and to be fitted for upholstered back and ends as may be required ~~and folding hardwood handrails~~ to have folding hardwood leeboards.

SETTEES.

Settees with spring upholstered seats, upholstered backs and ends to be fitted in all Staterooms where indicated, in Officers' and Engineers' Rooms where indicated, and to be at least ~~21"~~ 22½" from wall to outside of facing in front of settee ~~in the clear~~. To be fitted up with hardwood facings and to be open underneath, all to Owners' requirements. ~~Generally~~, all bedsteads. berths, ~~and all~~ sofa berths spring mattresses ~~for sofa berths and sofa backs~~ for berths and sofa berths are to be by an approved maker, and to be fitted and secured by Builders. All wire springs for mattresses, sofa berths, etc. throughout the vessel to be of Hoskins, or other approved make, and are to be supplied by builders.

Refer from the words all bedsteads on to end of this paragraph to be put after * mark on page 62.

NOTE:- The heights of the various berths in the various staterooms must be to the Owners' necessities, the bottom of the leeboard of the lower berths must be about 14" from the deck in order

to allow a steamer trunk underneath, and the leeboard will not run parallel to the crown of the deck, but will be fitted as approved by owners. The distance between the top of the leeboard of the lower berth and the bottom of the leeboard of the upper berth will be ~~at least 2 ft.~~ to approval with due regard to the upper berths being low enough from deck to hinge up.

All 1st Class Staterooms are to be fitted with net racks with metal brackets, watch pockets at each berth, numbers of metal or ivorine outside each stateroom door and over each berth or sofa berth. Small hardwood frames for notices, etc. as may be required.

Note - The rooms on boat deck having douches and WC's connected will have 6'-2" × 2'-6" berths both lower and upper

Commode Boxes - Commode boxes of hardwood with two compartments will be supplied for all staterooms not having WCs. These boxes to have hinged door to each compartment with lock and knob as required. Boxes to be to size agreed upon to suit conditions

FIRST CLASS ACCOMMODATION.

Dining Saloon, 1st Class Observation Room, Library and 1st Class Smoking Room, Writing Room, Sitting Room, Entrance Halls and Hallways in the way of stairs to Promenade Deck and stairs to Dining Room on the Upper Deck, to be specially designed throughout to the Owners' approval, ~~and~~ of ~~a standard equal to the "Princess Alice"~~.

BARBER'S SHOP. + Manicure

Barber's Shop to be arranged where shown on plans and to be fitted with shampoo basins, with roses and hose connection, and to be supplied with hot and cold fresh water, with large mirror, hardwood show-cases having drawers, shelves, and glass door in front, cupboards, shelves, and all other requisite toilet appliances. Coat and hat hooks fitted as and where required. Detailed plan of Barber's and manicure Shop to be submitted for Owners' approval before going on with the work.

1ST CLASS SPECIAL ROOMS.

To be arranged where shown on contract plans. All these spaces will be decorated and finished to approval by Owners. To be fitted with electric fans as directed.

1ST CLASS STATEROOMS.

Arrangement of 1st Class Staterooms on the various decks will be as shown on the contract plans, to have all necessary mirrors, with water bottle racks and shelves as one piece of furniture at least four hat and coat hooks & one coat hanger in each ordinary room, and wash basins with hot and cold fresh water in each room, wash basins with spring self closing taps in the 1st Class Staterooms to be of approved size and design of standard Manufacturing Co's make, and selected design for all special rooms with suitable mirror over each wash basin, and selected arrangment of mirrors water bottles etc for special rooms or as where directed, bottle racks, one electric light in each ordinary stateroom for lighting room in suitable place on ceiling of room; all berths to be fitted with electric reading lamps, one for each berth, and also for each of the sofa berths, lighting arrangement of the large rooms and special rooms must be to the Owners' requirements. Electric light switches for the rooms to be fitted on the entrance of door of the staterooms, in a position convenient to both upper and lower berths, or as where directed. Electric push buttons to be fitted in a place convenient to both lower and upper berths, and all the fittings to be as approved as herein before mentioned. All curtain rods to have end brackets, and those for the berths to have centre supports with suitable leather served curtain rings and approved curtains fitted to both top and bottom berths and windows. Lifebelt racks to be fitted in each stateroom between beams overhead or elsewhere as required; racks to conform to Company's requirements. Metal towel hooks and a metal towel rails to be fitted in each stateroom, as and where required. All to

The large rooms on Promenade deck and all special rooms on any deck will have six hat and coat hooks, 2 coat hangers

All Staterooms to be [illegible]

in the very best manner obtainable. Wardrobes as and where required on plans to be fitted, all wardrobes to have the necessary fittings, with hat and coat hooks, coat hangers, etc. as and where required. All to approval.

OFFICERS' ROOMS.

Officers' Rooms to be fitted up with wash basins with hot and cold water, water bottles, hat and coat racks, electric light lamps at berth. with spring self closing taps

Captain's Room to be fitted up with desk.

1st Officers', Chief Steward's, Chief, 2nd, 3rd & 4th Engineer's Rooms to have desks fitted up.

Captain's desk to be of hardwood with drawers and opening for knees in the usual manner.

1st Officer's desk to be of hardwood ~~as agreed~~. with drawers at sides and knee hole

Chief Engineer's and 2nd Engineer's desks to be of hardwood with drawers at sides and knee hole.

3rd and 4th Engineer's to be plain desks, single drawer underneath, all suitably fitted up with special framing or brackets as the case may require.

Wardrobes to be fitted in these various rooms. with all hat and coat hooks and coat hangers.

SECOND CLASS ACCOMMODATION.

~~2ND CLASS DINING SALOON.~~

~~Second Class Dining Saloon to be arranged on Main Deck as indicated on plans, to be fitted with dining tables with hardwood tops, with seating accommodation of forms fitted with metal stands and backs arranged with hardwood rail at top. All necessary cupboards, plate racks, etc. to be fitted to the Owners' necessities. Arrangement of this room will be 1st Class in workmanship, but simple in design and substantial.~~

2ND CLASS SMOKING ROOM.

Second Class Smoking Room to be fitted up to Owners' approval with small tables suitable for cards, and seats of plain but substantial make, to be fitted with the necessary ash trays, etc. usual to such compartments.

WASH ROOM, BATH ROOM & WATER CLOSETS. for 2nd Class and crew

Washroom, Bathroom & Water closets to be plain but substantial, lavatory basins and bathrooms to be fitted with hot and cold fresh water. Sailors' water closet and bathrooms to be similar to the 2nd Class. All floors to be tiled.

OFFICERS' & ENGINEERS' MESS ROOMS.

Officers' & Engineers' mess rooms to be fitted up with hardwood tables and upholstered seats and backs in leatherette, in the usual manner of 1st Class passenger steamers. To be fitted with all necessary racks, etc. as required.

CREW'S MESSROOMS & PETTY OFFICERS' MESS ROOMS.

To be fitted up with plain forms and plain tables with hardwood tops as directed.

Sculleries — Sculleries to be fitted for the Officers and crew's mess Rooms with dumb waiters from Galley above and these rooms to be fitted up to suit the mess Rms they supply.

ENGINEERS' BATH & WATER CLOSETS.

To be fitted up similar to 1st Class Passengers', with wash basins, with spring self closing taps to have hot and cold fresh water for the baths and cold salt water, and hot and cold fresh water to the wash basins.

OFFICERS' BATH ROOM & WATER CLOSET.

To be fitted similar to 1st Class accommodation with hot and cold fresh water and cold salt water to the bath and wash basins with spring self-closing taps to have hot and cold water

WHEEL HOUSE.

Wheel house to be arranged as shown on amended sketch, and to be fitted up with steering wheel and standard connected to steam steering gear by approved method steering compass, as herein before indicated.

Flag locker of suitable design to be fitted in wheel house as directed.

The floor of wheel house to be fitted with teakwood gratings as directed. To have fixed electric lights, oil lamps, voice pipe, and binocular case, docking, steering and engine telegraphs. Gear for handling searchlight, both for revolving light and for dipping the light, and any other fittings required by Owners.

B R I D G E.

Navigating Bridge to be situated on top of houses on forward end of Boat Deck. To be fitted up with side screens and navigating lights. Teakwood boxes for holding night glasses and telescopes, teak gratings of small mesh to be laid on deck where required. Engine, docking and steering telegraphs, telephones, and all other fittings, to be to Owners' approval and requirements. The Standard Compass to be fitted in a suitable place on the Bridge, with suitable teakwood gratings round same.

HAND STEERING ARRANGEMENT.

Arrangement of hand steering to be aft with the necessary gearing from steering engine and compass arranged to Owners' requirements. All compasses to be Kelvin compasses, unless otherwise agreed.

WASH BASINS.

Wash basins in all 1st Class Staterooms and Officers' rooms throughout to be of type approved and must be of such a pattern that they will project the least possible distance into the rooms. The basins in all cases could be oval. All other wash basins to be of a type suitable for their various locations and duties. To be cast iron enamel equal to the Standard Manufacturing Company and all to be fitted with nickeled self closing taps.

BATHS.

Baths in 1st Class accommodation, Officers' baths, Engineers' baths, to be of vitreous enamel, except in the Special Room where the Owners may require porcelain. Baths to be firmly set in cement and to be of a size approved by Owners. Baths to have hot and cold fresh and salt water laid on throughout, Officers' bath and the Engineers' bath having also cold salt water. All bath fittings to be of approved pattern before being purchased. Baths for crew and 2nd Class to be enamelled baths of substantial type, and fitted with hot and cold fresh water. All fittings for these baths to be approved. And all fittings for baths and Lavatories in special rooms to be of special design to approval.

FITTINGS.

Douches to be porcelain lined shoulder high having coaming in each compartment with scupper to each douche and spray to be circular to douche all round from the shoulders down, and to be fitted with combination taps for either cold or hot water or both. Fittings to be nickeled

1st Class lavatories will each have following fittings:

Mirrors, brush and comb shelves, hooks, rollers and shelves for towels, linen baskets, coat and hat hooks, all as may be required. Fittings for the other lavatories to have brush and comb shelves, rollers and shelves for towels, hat and coat hooks, all to approval. All water closets to be fitted with storm rail in metal bracket, holders for sanitary paper, towel hook, hat and coat hooks.

Bathrooms in 1st Class accommodation to have one cork bath mat, one metal sponge rack and one metal soap box, one towel rail in metal brackets, one plain white wooden seat to fit on top of bath, one storm rail, one metal hand grip at back of each bath, and two metal coat hooks.

Bathrooms for the 2nd Class and Crew must be neatly fitted up with all necessary conveniences.

KITCHENS & PANTRIES, ETC.

All kitchen and pantry spaces to be enclosed in steel,casings, except where otherwise specified. These steel casings for a height of at least one foot above deck, and the deck in all these spaces to be caulked and made watertight and tested with water before any tiling is laid. All necessary exhaust fans and ventilating arrangements to be to Owners' approval and all permanent fixtures necessary for the Steward's requirements in the way of dressers, shelves, sinks, plumbing, etc. to be supplied and installed. (Smks to be 2'6" long x 18" wide x 12" deep.) Any bulkheads in kitchen that may require insulation are to be effeciently insulated with magnesia blocks and galvanized sheet iron. All shelves, drawers, and racks for stowage of crockery, glass, cutlery, etc. are to be tallied. Detail plans of all kitchen and pantry spaces to be submitted for approval before going on with the work.

Tea, coffee and hot water urns to be S.R. Prowse Manufacturing Co. Montreal to be metal sheathed to be about 18" diameter and 3'-0" height.

A spring self closing tap will be fitted in galley as and where directed to give a supply of cold drinking water to the Dining Room from a tank placed in the refrigerating space.

BAKERY.

Bakery to be fitted up where indicated on plan, and to have the necessary bins, dressers, shelves, etc. to meet Steward's requirements, to be submitted for approval before proceeding with the work. A marble slap to be fitted in Bakery for pastry.

BUTCHER'S SHOP.

Butcher's shop to be fitted up with chopping block, dressers, necessary drawers, and shelving and hooks to suit the Steward's requirements. All to be submitted for approval before proceeding with the work.

PANTRY.

Pantry to be fitted up with all sinks, drain boards, dressers, shelves, glass racks, etc. to suit Steward's requirements, all to be submitted for approval before proceeding with the work.

REFRIGERATING CHAMBERS.

(See page 40)

Refrigerating rooms as indicated on plans to be thoroughly insulated on deck overhead, and sides to be fitted up with all shelving, hooks, etc. required by Steward's. ~~In addition thereto Owners may arrange to fit the 2nd Class space on the Orlop Deck up for refrigeration.~~ These various cold chambers will require to be maintained at a temperature as approved by Owners. and to have a 30 gallon tank connected to the cold fresh water supply

~~Note:- The fitting up of the 2nd Class space for refrigeration will be an extra if ordered.~~

fitted with a discharge leading to a spring loaded tap in the galley for cold drinking water.

BAGGAGE ROOM.

(See page 46)

Baggage room to be as herein before mentioned specially treated. Arrangement to be agreed to by Owners before being proceeded with.

MAIL ROOM.

Mail room to be arranged where shown on plans. To be enclosed in steel bulkhead, and fitted with all necessary shelves and racks, shelves being divided into compartments and dockets as required. Door of Mail Room to be special door with special locks approved.

EXPRESS ROOM.

Express Room to be similar to Mail Room with special doors and special locks approved.

PAINT STORE.

Paint locker to be arranged as agreed, to have necessary racks and shelves for pots, etc. all metal lined and all as approved.

LAMP ROOM.

Lamp room to be fitted up with steel bulkheads throughout, with necessary dresser, drawers, shelves, etc., dresser top to be covered with lead, all to approval.

LINEN ROOM & LOCKERS.

The various linen rooms to be fitted up for shelves, etc. as required.

NOTE:- ~~Coal~~ shoot will be arranged ~~as a~~ to land on main deck as approved linen ~~shoot should oil be installed as fuel.~~

GENERALLY.

All Steward's and Ship's store rooms, Baggage Room, Mail Room, Boatswain's locker, Paint Store, Deck Stores, Linen Rooms and Lockers, are to be well lighted and ventilated. Detail plan of all these different store rooms to be submitted for approval before proceeding with the work.

C E M E N T W O R K.

Cement work to be avoided wherever possible to eliminate weight and difficulty in case of repair.

The edges of raised strakes of plating in double bottom tanks, etc. to be flushed off with a tapered layer of cement composed of best Portland cement mixed with sharp fresh water sand in equal proportions, and all ballast tanks, and fresh and feed water tanks in double bottom and peaked tanks to be cement washed with two coats, except where otherwise specified.

Frames at back of the stringer bar to be filled in with suitable material next the stringer and covered with furnace coke and cement, well grouted and weathered off from top bar.

Special care to be taken in cementing round pipes and ventilators which pass down back of cabin lining. A steel plate to be bedded in cement under all sounding pipes.

All steel plates to be thoroughly cleaned before applying the cement, and all cementing to be of best possible description and to approval.

Cementing to be laid in all spaces which are to be tiled. All spaces which are to be cemented or tiled are to have steel plating boundary bulkheads caulked watertight for not less than one foot above the deck, and deck spaces are also to be caulked watertight. The deck and casing bulkheads are to be tested with water before cementing or tiling is gone on with. Some method of "anchoring" to be arranged in these spaces to secure cement to steel decks.

Rivets and flush butts of deckhouse side plating to be smoothed over with Scotch cement before painting.

PLUMBER WORK.

GENERALLY.

The whole of the Plumber work to be of substantial character. The material employed to be of very best description, and the workmanship to be fully equal to that in the highest type of passenger ship.

To be in conformity in every respect with the rules for plumber work in passenger ships, as required by the ~~B.~~ Lloyd's C. and Canadian Inspection. The whole of the work to be done to the entire satisfaction of the Owners' representatives, and is all to be tested thoroughly and found in perfect order at speed trials of vessel. The W.C bowls to be of Shank's Canadian pattern and the flushing valves to be 1¼" and The piping immediately connected to bilge strums to plate will be lead pipe 5/16" thick. All bends in soil No 1920 pipes to be lead pipes 5/16" thick. The portion page 143 of flushing supply connected to W. C. bowls to be having the words lead. The first portion leading from scuppers to Last No 132 be lead 3/16" thick, and ~~lead~~ nickeled traps to all wash at the basins and any place in close quarters requiring bottom of offsets to be lead, and the arrangement of traps 1st page. under all wash basins to be such that removal for cleaning can be easily accomplished by disconnecting unions or other approved method. In fact clearing arrangements (to approval) must be provided throughout the vessel. the pipes will be galvanized iron or cast iron, except when lead pipe is fitted.

Complete plans for each of the services included in the Plumber work are to be submitted for Owners' approval before going on with the work, and finished plans of all Plumber work in the vessel are to be supplied to Owners.

It is intended to use the light and air trunk in the way of the engine and boiler casing on boat deck for soil and all other pipes required for state rooms on boat deck. It is further intended to discharge all soil pipes in the vicinity of the engine and boiler casing where the space is left clear to the ship's at the deep oil fuel tanks.

It is to be clearly understood that all diameters

of pipes stated in this specification are only approximate, and that the Owners have the power to increase the size of any pipes necessary. The whole arrangement of piping is to be submitted for approval before proceeding with the work. All pipes of 2" diameter and over, where passing through steel bulkheads or decks, to have watertight fitting, and all joints of pipes must be arranged to make the easiest means of access. All pipes are to be carefully fitted and hung in iron suspenders, or supported by brackets or chairs where necessary.

All holes that may have to be cut for pipes through side stringers or keelson intercostal plates attached to shell must be cut before vessel is launched, in order that if any rivets are started through this cutting of holes, they can be tested and made good before the vessel is in the water.

All wrought iron pipes are to be galvanized and bitumastic solution to be coated on all ballast and bilge pipes. Where lead and iron pipes are joined together, brass stud coupling unions are preferred to fitting ordinary tail pieces and nuts. Where copper and iron pipes are joined together a lead washer or distance piece should be fitted to prevent wastage by galvanic action.

Wherever lead pipes are ~~lead~~ led alongside ship's framing, or against angles, thin slips of soft wood are to be inserted to prevent pipes being cut. Any lead pipes passing over plate edges, such as floors, etc. should sit on teakwood ~~gounds~~ grounds for protection against abrasion. When large bore lead pipes are carried alongside the under deck they are to be efficiently supported by hangers from every beam; this is preferred to continuous wood boards, both

small bore lead pipes are run in vertical lengths, the lower bend is to be formed by a brass elbow casting to support the weight. All lead pipes are to have soldered flanges with loose iron backing rings.

All lying pipes are to have clearing plugs where necessary.

All pipes discharging below main deck are to be fitted with brass storm valves as required.

All pipes above 2 1/2" to be flanged, below 2 1/2" to have couplings (to American standard thread). All pipes and fittings to be galvanized where wrought iron pipes are used.

All fresh water supply pipes, and all salt water pipes, wherever located, are to be fitted with large size plugs at lowest points of various sections for rapid draining in frosty weather.

Supply pipes up to 2" diameter bore to have drain plugs same bore as pipes. All pipes above 2" bore to have 2" drain plugs. Where gunmetal and iron flanges join a lead washer must be fitted between in addition to any jointing material used.

Where long lengths of piping are fitted terminating in rigid connections at bulkheads, expansion bends are to be suitably arranged.

All pipes throughout ship to be protected wherever protection is necessary. Steel protection plates being fitted in main deck and all protection to be to approval.

All lead pipes must be of sufficient thickness to withstand a pressure of 60 lbs. per square inch. All plumbing to be arranged with draining plugs for complete drainage in winter.

SCUPPERS.

Tops of houses on Boat Deck to have suitable number of scuppers on each side 2" in diameter, and discharging through pipes to Boat Deck.

Boat Deck to have sufficient number of scuppers on each side 2 1/4" in diameter, and discharging through galvanized iron pipes into gutter waterways on Promenade Deck.

Promenade Deck to have a sufficient number of scuppers on each side 2 1/2" in diameter led down between frames in suitable places and discharging below Main Deck, having storm valves attached. The location of these scuppers must be submitted for approval before proceeding with the work.

Scuppers are generally to be of galvanized iron pipes with lead pipe bands where necessary, only the lead pipes are to be of ample thickness. ~~All scuppers to be screwed through plate with countersunk heads outside.~~ All scuppers are to be kept clear of gangways and lights, and no scupper is to be fitted above a side light. A screw plug to be fitted on top of all scuppers where required, such as weather decks and insulated spaces. Scuppers to be fitted in the way of Refrigerating Rooms, Galley, Pantry, Mess Rooms, Dining Room, etc., all as approved. All scuppers to have gratings where required.

All lavatories and water closets, wherever located are to be fitted with scuppers to approval, at least one scupper on each side of each compartment. All scuppers in Butcher's Shop, Galley, Pantry, to be fitted with strong gratings. Scuppers are to be fitted wherever water is likely to accumulate, on Main Deck and elsewhere, whether herein specified or not.

Valves are to be selected by Owners, and wherever practical scuppers are to be carried to near the load line.

A plan showing general arrangement of scuppers and the discharges of same is to be submitted for approval, and to be specially considered by Builders and Owners. The whole arrangement of scuppers must be to the Owners' approval.

FRESH WATER FILLING PIPE.

Fresh water filling pipes are to be arranged so that any double bottom tank can be filled from shore through ~~one~~ connection on both sides of ship ~~ship's side~~, near cargo hatches, which connection will be 2" male thread American Standard and supplied with cap.

Pipe and fittings to suit 2" American Standard thread hose. The location of the ship's side connection will be aft of and near the freight gangway doors on Main Deck.

The whole of this arrangement to be submitted for approval. One of these connections to be on either side of vessel so that filling can be accomplished from both port and starboard side.

TANK & BILGE SUCTION PIPES.

Separate suction pipe to be lead from each water ballast fresh water and feed water tanks in the double bottom to the ballast ~~pipe~~ pump. Connections to permit of water being transferred from one tank to another to be fitted.

Separate suction is also to be led into each bilge well and to the chain locker, and suction pipe is to be led into both fore and after peaks from the ballast main. All the ballast suction pipes to be of cast iron, flanged and bolted together. All the suction pipes to bilge wells to be fitted with rose boxes at ends. Where suction pipes pass through watertight bulkheads special bulkhead fittings to be installed.

Valves on bilge suctions manifolds to be of screw down non-return type. All valve chests to be fitted well above flooring plates.

Provision is to be made for pumping from any forward tank to any after tank and vice versa.

Fresh and feed water tanks in double bottoms are to have separate connections to fresh water and feed water pumps in engine room. Drain plugs 1 1/4" in diameter are to be fitted in bottom of vessel to all peaks, Tanks, Bilges, etc. with brass screw plug and protecting shield riveted to shell of vessel, all drain plugs to be let in flush with shell plating, and the pumping arrangements are to be in accordance with Lloyd's ~~B. C.~~ and Canadian Inspection requirements, and all the arrangements of suction pipes are to be to the Owners' approval. A complete plan of the pumping arrangements is to be submitted and approved by Lloyd's ~~the B. C.~~ and Owners before the work is proceeded with.

All manifolds to be carefully typed.

SOUNDING PIPES.

Sounding pipes are to be fitted to each bilge well and ballast tank, and all fresh water tanks, throughout the vessel. Sounding pipes are to be led from the various tanks to at least the height of the Main Deck and fitted with brass engraved screw covers.

All sounding pipes to be carried down to bottom plating, and a doubling plate bedded in cement to be fitted in way of same, or a solid end fitted on pipe and slots cut in sides of pipe at bottom.

Two iron sounding rods 2 ft. long, shod with india-rubber at ends, and having the necessary markings, are to be supplied. Sounding pipes to be 1 1/2" in dia. with

~~With~~ the exception of the oil sounding pipes, which will be 2" in dia., all these oil pipes will be fitted with slotted holes the full length of the pipe, so that the oil when thick will register correctly.

VENT PIPES.

Two Air Pipes 3" in dia. are to be fitted to each double bottom tank and tunnel tank, one on forward end and one on after end, carried up to weather deck, and each fitted with galv. iron swan-neck ventilator.

All Air Pipes in double bottom tanks wherever possible should be led up ship's side between frames.

Vent pipes from the various oil fuel tanks must be equal in size to the filling pipe, which will be 4".

OIL FUEL FILLING PIPE. The connection on ships side is to be increased above 4" so that the area lost by the gauge wire joint at ships side may be compensated for.

(3) (See page 20) Filling pipe for oil fuel will be 4" arranged forward on the Main Deck in approved position, and convenient to a port light, which particular light must be large enough in the clear to allow a 4" flange to pass through with ample clearance.

This pipe must be arranged in a position convenient for the present oil filling connections at Vancouver, and if possible, so located that oil can be filled from either side of the vessel but, if preference has to be given, the port side will be selected. This filling pipe to be fitted with all necessary valves, cap, air valves, etc. as common to the existing vessels of this Company. The filling pipe will also be the suction pipe from the various tanks to the pumps, the valve arrangement on the various tanks being fitted to conform to these arrangements.

The whole of this piping system must be submitted for approval before being proceeded with.

OIL FUEL BUNKERS. All piping below 2½" to have American Standard thread all above 2½" to be flanged. Note-All oil piping will be black, all other piping as elsewhere stated to be galvanised.

~~The division in oil fuel bunkers having sluice valves as herein before mentioned, to be fitted with all gearing for these valves, led to suitable position for manipulating valves.~~

Equalizing pipes are to be fitted from each deep port tank to each deep starbd tank with all necessary valves for shutting off any tank from the others.

Means are to be provided for emptying any one oil tank into another through the service pumps. Shut-off valves are required controlling each tank, so that oil can be pumped from one tank only as required.

The Oil Fuel Pumps must be arranged for pumping oil overboard with the necessary connection on the ship's side and male thread with a cap, so that one ship can supply oil to another vessel. This pipe will be 2", American thread and its location will be determined by the Owners. All this work must be finished complete to the Owners' satisfaction and approval.

FRESH WATER & FEED WATER TANKS.

(See page 23) Fresh water tanks are to be arranged in double bottom as and where approved, and arranged so that the service tank on the top deck can be filled therefrom. All ~~certain~~ water sections of the double bottom are to be arranged to carry reserve feed water.

Separate suction pipes are to be arranged in each fresh water and feed water tank as required.

Overflow from the various tanks to be led to suitable position, those in the engine room may be led to sufficient height in the engine room for safety and convenience for observation.

Service tanks for hot and cold fresh water daily use to be fitted as herein before mentioned, and as required. Inside of these tanks to be coated with approved composition, manholes to be fitted to the various tanks. These tanks to be supplied from the main fresh water system, and to have all necessary supply pipes with non-return valves, air and automatic overflow pipes, and so arranged with automatic relief valve to return overflow from the cold tank to the fresh water tanks. Hot fresh water service tanks to be fitted with copper steam coils with all necessary valves.

All these various tanks to be fitted with suitable relief valves, brass drain tap fitted to each tank.

COLD FRESH WATER SERVICE.

Cold fresh water supply arranged in suitable sections to be laid from service tanks with branches to all sinks, wash basins, baths, etc. as required. and any section on any deck must be arranged to shut off for repairs Taps to be fitted of approved make, as and where required, both for staterooms and for ship's use. All stateroom and officers rooms taps will be nickeled

Drinking fountains - Four porcelain drinking fountains to be supplied and fitted - two on the promenade deck and two on the upper deck with fresh water supply and drain led as agreed and to be in approved location

The whole of this piping is to be tested in the various sections to 100 lbs. hydrostatic pressure.

HOT FRESH WATER SERVICE.

Hot fresh water supply arranged in suitable sections to be led from the service tanks, with branches to all sinks, wash basins and baths, as herein before enumerated. Hot water supply taps to be fitted in all rooms and led to the various sinks, etc. requiring hot water for ship's use. Small air vessel is to be fitted at the end of each section for supply to wash basins, for the prevention of shock on pipes when drawing off is taking place in some other section. and any section on any deck must be arranged to shut off for repairs.

Each dead end on each deck will have a return to a small pump, care being taken to have shut-off valves for each section. This pump will discharge back to the hot water tank with all check valves, control valves necessary. In this way hot water can be obtained instantly in any room and dead end are avoided

Care to be taken regarding the fitting of expansion bends on all long lengths of pipe, the stresses caused by varying temperature conditions, and by the working of the ship, must not wholly be taken up at the neck of a pipe bend when passing through a deck.

Bulkhead pieces in gunmetal are to be fitted at all steel bulkheads where pipes pass through, but sections are to be arranged as far as possible to avoid passing through watertight bulkheads.

Piping throughout to be of galvanized iron of steam pipe quality at Owners' option. Care to be taken where any piping is concealed by lining or room furniture that means of access is provided for overhaul. Pipes are to be covered with suitable asbestos composition 3/4" thick and lapped with sewn canvas and varnished. All pipes to be fitted with large size drain plugs at lowest points of various sections for rapid draining of pipes in frosty weather. Hot and cold self closing spring taps are to be fitted for service purposes, in the lavatories on all decks, two on boat deck

The whole service of piping to be tested after erection in sections with a hydrostatic pressure of 75 lbs. per square inch, and this test must be maintained to prove the suitable working of this arrangement as regards supply and temperature, freedom from air locks, and expansion trouble.

SANITARY SERVICE.

Service tank for sanitary purposes to be fitted on top deck as herein before mentioned. To be constructed strongly of galvanized steel plates of suitable scantling and to be coated with approved composition. Manhole doors to be fitted to tank. Tank to be fitted with all necessary filling pipes, air pipes, overflow pipes, spring loaded valves, brass drain cocks, etc. as required. Overflow from the sanitary tank may be led to the crew's sanitary arrangements in the form of continuous flush. Connections for the various baths supplied with cold salt water to be made as approved. Complete plans of the sanitary service to be submitted and approved by Owners before going on with the work.

Lavatories, water closets, etc. will be arranged as shown on plans. Supply to flush all water closets will be taken from the cold salt water service tank and all pipes are to be of ample size to insure an adequate flushing arrangement.

Water closet flushing pipes are not to be less than 1 1/2" bore, with regulating valve to each water closet. All water closet coil pipes to be of cast iron, at least four inch bore, with lead bends not less than 5/16" thick, arranged with suitable clearing plugs, and to be carried out through ship at water line, and when the number of W.C.s exceeds six the size of pipe must be proportionately increased. Note-All water closet pipes must be vented to the open and of height agreed. and to have the most approved form of metal storm valves at ship's side. Under no circumstances is a bath or wash basin waste to be led into a soil pipe, but several water closet waste pipes may be led into one common main. Provision for the ventilation of all water closets and wash basins in public and crews forehorses to be adequately arranged. All water closet flushing pipes to be arranged so that valves may be removed for repair at any time. Approved racks for hose to be supplied and fitted

FIRE & WASH DECK SERVICE.

The fire service throughout will be 2" galvanized pipe fitted so that outlets for hose connection will be so located that any fifty foot length of hose will meet another fifty foot length of hose. All these hydrants are to be fitted with 2" angle valves, or globe valves, if more suitable for the location. These valves to have male brass hose connection with caps and chains at each hydrant. In addition, where required, one inch branch will be fitted with valve and brass hose nipple 1" standard male thread fitted with chain and cap for wash deck purposes as arranged. All to be American thread. Approved racks for hose to be supplied and fitted as directed.

P I P I N G.

All steam and exhaust pipes to be galvanized iron with large bends where bends are required, also expansion bends for all places where the direction of the piping changes.

All steam pipes to be tested to twice the vessel's working pressure on Main boilers. All steam and exhaust pipes to be fitted with drain cocks, as required, for thprough drainage, and wherever necessary drains to be led into traps, separate traps being supplied for steam pipes and exhaust pipes. Non-return valve being fitted to exhaust trap outlet. Trap discharges to be led as and where required. All steam and exhaust pipes to have adequate freedom for expansion by means of large expansion bends in the pipes. Suitable hangers or chairs for supporting the piping to be supplied where necessary. All such hangers and stools are to be lined with 1/8" sheet lead, and secured to deck or beams by bolts and nuts, the bolts being tapped through the steel deck. Where steam pipes pass through steel deck plating, or through steel bulkheads or casings they are to have sufficient bulkhead flanges fitted of gunmetal. All copper work to be of the best description, and a plan to be submitted for approval before going on with the work. Steam to be taken from boilers as arranged, all necessary reducing valves, stop valves, and pressure gauges to be supplied, and separate reducing valves, safety valves and pressure gauges, are to be fitted for the steam heating arrangement. The Kitchen and Pantry steam to have separate reducing stop, and safety valves and pressure gauges approved, so that wherever placed independent control can be obtained. All exhaust pipes are to be laid to the Engine Room into auxiliary exhaust range from whence they may be diverted to the various heaters, condensers, and the atmoshpere, as required. Reducing valves to be of Auld's, or other approved make.

to be fitted where required, and connected with the auxiliary steam pipe arrangements, and pressure gauges fitted in convenient positions, as required.

Steam to steering gear to be fitted independently to hand steering. Exhaust from steering gear to be led back to condenser, or elsewhere, where required. Pipes to be of sufficient size and thickness, and to have expansion joints, and all necessary valves, drain cocks and traps, as may be arranged. Great care must be taken in arranging these pipes so as to avoid water being entrained in any portion of the pipes, especially in connection with the exhaust from the steering engine.

Steam and exhaust to Windlass, Capstan and aft ~~and Winches~~, to be supplied and fitted. Pipes to be of sufficient size to insure velocity of steam in the pipes not exceeding 120 feet per second when all deck machinery is running full power. All necessary valves, drain cocks, traps, and expansion joints, to be fitted as required. Steam to be supplied for heating arrangement as approved with all necessary valves, drain cocks, traps and expansion joints. Heating of the Observation Room, Smoking Room and Library, Special Rooms, Writing Room, Sitting Room, and Public Hallways, to be specially arranged. The Special Rooms will have in addition electric heaters. Heating arrangement of the Rooms throughout will be generally that adopted on the B. C. Coast Service, ~~the "Princess Charlotte" being taken as guide in this respect.~~ (Also see page 105.)

The Officers' Rooms on the Boat Deck will have an independent heating arrangement, arranged so that each room can be heated independently, with independent radiators, and the Wheel house heated independently of any of the rooms.

Engineers' Rooms will be fitted with radiators as approved.

All steam pipes where exposed, to be well insulated and covered as required, and all steam and exhaust pipes below deck beams and deck houses, and elsewhere, where necessary, to be insulated with suitable material covered with canvas as required.

SIDE LIGHTS.

All circular or Oval side lights to be of brass of ~~approved~~ Utley's make, pattern, and quality, and all those below margin line of safety are to be arranged with suitable dead lights. Owners may agree to have a certain number of side lights below the margin line of safety fixed lights. Side lights ~~of brass in 1st Class Dining Room~~ throughout the entire 1st Class accomodation saloons, Galley and Pantry and engineers Rooms on Main deck except where Oval lights are agreed upon to be 16" clear glass, and arranged as far as possible in the Dining Room so that one light will be over the table and one light between tables. Large lights are to be fitted in kitchen and pantry so as to assist the ventilation. All side lights under the main deck are to have galvanized hinged covers, covers to be hinged on top. ~~Side lights of brass in~~ Side lights of brass in rooms in way of the engine casing except as otherwise stated on Main Deck to have 12 inches clear glass, and side lights of brass in tween deck space forward of engine space in Main Deck to have 10 inches clear glass, and in each case of approved thickness. All lights to be absolutely tight when screwed up, and to be tested with hose. Side lights in upper deck throughout to be 16 inches clear glass. Drip pans are to be fitted to these side lights of brass. Drip pans to be 6" long by 2 1/2" wide by 2" deep, and fitted with flanges for suitable detachment.

Samples of all side lights, and a plan showing details of side lights, to be submitted for approval.

WINDOWS.

Rectangular windows of approved make to be supplied and fitted throughout the passenger accommodation, all to be of approved size and pattern. Top half being made to open and fitted with strong plate glass. Windows in Observation Room, Library, and 1st Class Smoking Room, to be of a large size, as herein before mentioned.

DECK LIGHTS.

Deck lights of approved prism pattern are to be fitted below Observation Room windows forward in the way of the Purser's office to give light to that office. These lights to be perfectly watertight, the arrangement to be submitted for approval.

NAME.

The name of vessel and port of registry to be put on the stern, and the name of the vessel on each side of the bow, all in polished cast brass twelve inch letters. Letters to be bedded on shell plating with canvas and red lead paint to prevent corrosion.

BELLS.

To have two bell-metal bells, with brass belfries as required, to be 12" bells, and to be placed where desired by Owners. Tones of bells and quality of same to be to Owners' approval, and each bell to have name of vessel engraved thereon, and to have plaited striking cord.

BRASS COVERS.

All sounding pipes, oil filling and fresh water filling pipes, etc. to have brass covers hinged or screwed, as may be satisfactory and suitably marked.

OPEN SCREW COVERS.

It is preferred to have a square recessed out in the centre of the cover with the spanner to suit, as covers fitted with round holes soon get the holes ovalled and are difficult to remove. All these covers to be suitably marked, scuppers where required to have brass grating covers.

STANCHIONS & RODS.

Brass rods and stanchions are to be fitted within 10' radius of any compass.

LOCKS.

All door and other locks to be entirely of brass, nickeled where required and to be of pattern selected by the Owner. All to be of the best quality of metal, and have brass or nickel plated keys, all labelled and numbered to correspond to key bbards. Locks in all Officers' Rooms to be similar to the locks in 1st Class Staterooms. The whole of the locks, except the locks for the Mail Room, Express Room, Lamp Room, Refrigerating Room and Paint Locker, to be made so that they can be opened by one master key, and only four of these master keys are to be made, and all are to be supplied to the Owners. In no case are two locks to be fitted which can be opened by the same ordinary key. In all cases where more than one officer, or other member of the ship's complement, is berthed in the same cabin a key for each is to be supplied. Locks are to be supplied to all wardrobes, drawers, desks, lockers, cabinets, bookcases, writing tables, etc. as required by Owners. Special locks are to be fitted to the following spaces:- Captain's room, Purser's office, Chief Engineer's room, Purser's room, Chief Steward's Room, Barber's Shop, to all Store Rooms, Kitchen spaces, Refrigerating Chambers, etc. Linen Lockers to be fitted with Yale locks. All key tags to be fibre.

TELEGRAPH, VOICE PIPES, ETC.

Engine decking and steering telegraphs with replies, to be fitted on Bridge and Wheel house. To be of Chadburn's, or other approved make, and to have all the latest improvements.

Telegraph leads to be boxed in, boxes to be made portable and in short lengths, and fastened with round-headed brass screws. Voice pipes to be fitted to Wheel house from the Bridge, to the Captain's Room from the Wheel house, and from the Bridge and Wheel house to the Engine Room. Connection between the Engine Room and Bridge to have the Graham loud speaking phone, or other approved apparatus. Voice pipe to be led from the Chief Engineer's Room to the Engine Room. All of the voice pipes to have brass mouth pieces with loud sounding whistles, except those from the Wheel house to the Engine Room.

GENERALLY.

Skylight fittings, sill plates, nosings, toe-plates, tread plates, rail mountings, name plates, direction plates, brass key labels, any brass fittings in Passenger or Crew accommodation, and all other brass work required, is to be supplied and fitted up as desired and to Owners' approval.

TILING WORK.

All tiling work throughout the vessel must be submitted for approval before work is proceeded with. Smoking room will be tiled with suitable rubber tiles to pattern, or other approved make of tiles to pattern. Main Entrance to be tiled with rubber tiling to pattern, or other approved make of tiles to pattern. The 1st Class Lavatories and Baths Rooms to be tiled with approved vitrified or glass tiling to pattern. All special Rooms and rooms with douches must be tiled to approval. The Officers' bath and toilets, and the Engineers' bath and toilet, to be tiled to approved pattern. Second Class Wash Room, toilets and bathroom, Sailors' bathroom and toilets and the Firemen's bathroom and toilets, all to be tiled to approval. The tiling of the Officers' baths and Engineers' baths will conform to that in the 1st Class Lavatories. The tiling for the 2nd Class and Crew's accommodation will be of a pattern usual for such compartments. The Kitchen and Pantry, Bakery and Butcher's Shop, will be fitted with specially ridged tiles of approved

pattern or suitable bricks, as desired by Owners. In laying all tiling in the vessel, wherever placed, provision must be made for movement under docking stresses, or other expansion or contraction strains, by giving the necessary freedom and breaking the continuity both thwartship and fore and aft of the tiling. Gutterways to be placed in tiling as and where directed to Owners' approval. All tiling to be fitted with ribs on bottom side for adhering to cement, and all designs and quality of tiling must be approved by Owners.

UPHOLSTERY WORK.

GENERALLY.

The Upholstery work will be of the best description, the whole of the material and workmanship being of the very best quality throughout. Samples of quality and design are to be submitted for approval. The Builders will supply and fit all upholstery permanently fixed as part of the completion of the vessel, such as around the alcoves in the Smoking Room and Observation Room, the Company's arrangement of footstools in the Observation Room, Sitting Room and Writing Room, Engineers' and Officers' Mess Rooms.

The Builders will also supply all Dining Room seats for 1st Class Dining Room of ship's pattern, upholstered to approval of Owners. all upholstered settees, which settees will be spring cushion seats, in fact all upholstery in the vessel throughout, with the exception of the upholstered furniture supplied by the owners such as observation Rm chairs, smoke Rm chairs library chairs, music and writing Rm chairs and such staterooms as are supplied with chairs

~~Owners will generally supply all moveable upholstery, such as settees in Staterooms and Officers' Rooms, sofa berths, upholstered mattresses, curtains for windows and berths, curtain rods, etc. but Builders must do all the work necessary for their installation~~ in their respective places. Second Class ~~Dining Room~~ seats to be supplied and covered by Builders of approved material.

ELECTRIC INSTALLATION.

Installation to be carried out on the two wire system to approval. All workmanship and material to be of the best quality and to the entire satisfaction of the Owners and their representatives, and to be in complete accordance with the ~~B.~~ C. Lloyds and Owners requirements ~~and Canadian Inspector's requirements~~ for Passenger Steamers. A detailed specification, together with plan of lighting and wiring, to be submitted to the Owners for approval before going on with the work. Installation to be arranged so as to provide throughout the ship a supply of electricity for power, heating purposes, or lighting throughout, to 110 volts. Installation to consist of two generating sets direct coupled. Each generating set must be capable of supplying the whole of the lights in the ship, electric heating arrangements, (electric fans, elevator, electric winches) and the searchlight without overload, and will be in the neighborhood of ~~85~~ 80 killowats.

These generating sets must be of Siemens, or other approved make, and must be the very best obtainable in every respect, both as to the field magnets and their accessibility for removal. One spare armiture to be supplied with the set. Complete set of tools, including set of spanners in rack, lifting eye-bolts and sling, and set of holding-down bolts and anchor plates. Spanners to be forgings.

STEAM & EXHAUST PIPE ARRANGEMENT - to the dynamos.

Steam and exhaust pipes of generators to be led direct and to be independent of all other pipes, and to be arranged so that light can be generated from any one boiler.

Arrangements to be made for exhausting into condenser, feed heater, atmosphere, and auxiliary exhaust range.

SPARE GEAR FOR DYNAMOS, ETC.

1 armature

2 field coils

1 set dynamo bearing bushes

3 sets carbon brushes

Commutator grinding set

Spare parts for the Engine will be enumerated in the end of the specification.

Main switchboard fitted in Engine Room with double pole main switch and fuse for each dynamo. One main switch to be fitted with double throw arrangement for lighting from shore, and the switchboard must be fitted up with single pole double throw switch, so that with both generators running any circuit can be on either one or the other, and the main switchboard must have a fuse on each pole for each circuit.

Main generator panels to be of ample proportions. Switchboard to be arranged for the various circuits found necessary, and to be of slate or marble. Switchboard to be provided with the usual instruments, rheostat voltmeter, ammeter, and ground detectors for each machine. System must be fitted with all necessary distributing boxes, section boxes, junction boxes, navigating light indicator, searchlight resistance, and electric radiators. (Electric fans and electric boat winches.) Navigation lights will be on separate feeds from Engine Room, controlled from the Wheelhouse with the indicator in Wheelhouse to show when any of these lights have gone out, with a separate switch for each light and each light on its own circuit and fitted for double filament lamps.

The outside lights in the way of the proper handling of the ship at night, such as lights around Officers' Rooms and lights around the Observation Room and Library, are to be within control of the Wheel house.

BOAT DECK.

Will be arranged with one junction box from which will be led at least four distributing boxes, and from which distributing boxes the various circuits will be arranged. Note:- All outside lights will be on separate circuits from those inside.

PROMENADE DECK.

Will be supplied with two feeds from Main switch board distributed through six junction boxes leading to the various distribution boxes from which the light circuits are led. Special lighting arrangements to be agreed upon for the Observation Room and Library, the wells over stairs, and the Smoking Room.

UPPER DECK.

To have three feeds from the Main switchboard distributed through at least eight junction boxes to the various distribution boxes from which the various circuits will be led.

MAIN DECK.

Main deck will have two feeds from the Main switchboard distributed through at least four junction boxes leading to the various distribution boxes from which the light circuits are led. NOTE:- Special treatment to be given to Dining Room.

ORLOP DECK.

Orlop Deck accommodation to be lit from the Main Deck junction boxes.

Hold CLUSTERS.

To be on separate circuits on each deck where required, and to be equivalent to four 60 watt lamps in each cargo cluster.

WIRELESS will have an independent lead from the switchboard.

SEARCHLIGHT will also have an independent lead from switchboard.

LIGHTS - The Wheelhouse to be supplied with one light overhead, one light for the clock, compass light and telegraph light. Wheelhouse also to have a small portable light for writing up log books, etc.

CAPTAIN'S ROOM will have two lights overhead, berth light and portable desk light.

FIRST OFFICER will have one light overhead, berth light, and desk light.

SECOND OFFICER - similar to First Officer.

THIRD OFFICER will have ~~one~~ two light overhead, and one berth light.

CHART ROOM will have one light overhead, and one portable light.

WIRELESS ROOM will have two lights overhead, and a berth light.

STATEROOMS ON BOAT DECK will be furnished with one light overhead, and a berth light for each berth, with the switch for the overhead light convenient when opening the door. The bachelor rooms will be fitted in addition to above with one light in W.C. and one in douche and W.C. compartment both lights to be controlled by switches placed as directed.

Linen Locker, Men's Lavatory & Baths, Women's Lavatory & Baths, Officers' Lavatories & Baths, ~~and deck store~~, all in the way of the Engine and funnel casing will be efficiently lighted throughout.

Each water closet will have a light, and each bathroom will have a light. There will be two overhead lights in the Men's Lavatory, and two overhead lights in the Women's Lavatory, and halls leading to the various lavatories will have ~~one~~ two overhead lights. There will be ~~one~~ two lights in the ~~deck store, and one light~~ in the Linen Locker.

OUTSIDE LIGHTS - The outside lights must be distributed so as to avoid shadows as much as possible. In the way of the Officers' quarters there will be three outside lights each side; in the open passageway from side to side aft of the Officers' quarters there will be two outside lights; in the way of the Staterooms aft of the passageway there will be four outside lights each side, and two on the after end. There will also be outside lights in the way of the stairway and ladderway to the Promenade Deck, and about six lights in the after portion of the Boat Deck.

NOTE:- The distribution of these outside lights must be arranged so that the best effect may be obtained for convenience in handling boats. The various lights to be used must be submitted to the Owners for approval, but in any case, each will be the best obtainable for its respective location, both as to the light and the fittings.

LIGHTS ON PROMENADE DECK - Observation Room will have a special lighting arrangement, possibly ~~twenty~~ twenty-five lights in all, with switches distributed to approval, at least ~~six~~ seven switches.

1ST CLASS SMOKING ROOM will also have special lighting arrangement, and will have at least ~~twenty~~ thirty lights, arranged with approved switches, at least ~~six~~ eight in number, similar to the Observation Room.

The lighting arrangements in the way of the after stairway to conform to the general lighting of the passage ways, with the exception of over the stairway which will have special dome light ~~overhead~~ as approved.

The lighting for the forward stairway and well, to conform generally to the lighting of the passageways, except directly over the well and the stairway, special dome or other lights to be fitted to the boxed in through beams over well. There will be at least twenty lights in the passageways, in addition to the special lights referred

to over stairs and well. Thwartship passageways leading outside on the Promenade Deck will all have one light. Fore and aft passages to have 6 lights each side. All large Staterooms will be lighted with ~~one~~ two light overhead, and a berth light on each berth, with the overhead lights switch within easy access of the door, ~~similar to the Boat Deck Staterooms~~. The staterooms laid with an inside door leading to one room and an outside door leading to the other room to have one light overhead and a berth light on each berth, with the overhead light switch within easy access of the door.

The lighting of the Men's Lavatories, Bathrooms, Women's Lavatories and Bathrooms, will be similar to the lighting already described on the Boat Deck. The suite rooms will receive special treatment and will include plug for curling iron, plug for electric heater, etc.

LIGHTING OF THE UPPER DECK - Main entrance on the upper deck will have six lights in the full beam. The lighting of the Main Saloon or Dance hall ~~in the way of the after trunked hatch~~, will be arranged with sufficient 40 watt lights and approved shades to avoid any shadows whatever, and will have ~~In the Saloon immediately aft of the Main Entrance there will be~~ at least fifteen lights, in addition to the lights in the well, and in the after Saloon from the Barber's Shop aft, there will be about ~~twelve~~ fifteen 40 watt lights with shades similar to the forward saloon. In addition to the lighting of the writing room, music room, and stairs

The writing room and ~~sitting~~ music room in the way of this after Saloon will have special lighting arrangement, with lights in the Writing Room on each deck and in the Sitting Room over each table, and otherwise as arranged. All writing room lights and sitting room lights to have special finish to conform to the Owners' requirements. Dome lights will be fitted in way of all stairs on this deck to approval.

The passageways leading between the two saloons will have at least twelve 40 watt lights with approved shades; the lighting arrangement in the way of the stairway down to the Dining Room will have a dome overhead, or otherwise as approved.

Barber's Shop to have at least ~~three~~ six lights. Men's Lavatories and Baths, Women's Lavatories and Baths in way of the Engine and funnel casing, to be similarly treated to the decks above. placed as directed

All Staterooms ~~having sofa berths~~ on upper deck, with the exception of the Special Rooms, will be fitted with ~~one~~ two light overhead, one berth light for each berth, and one berth light for each sofa berth, with the switch for controlling the lights overhead within easy access of the door. ~~The lights in all the other Staterooms, with the exception of the Special Rooms, will have one light overhead, and one berth light for each berth, with the switch for controlling overhead light within easy access of the door.~~ . The SPECIAL ROOMS will have ~~two~~ special treatment throughout ~~overhead lights~~ in each room, berth lights at each bed, also berth lights for each of the sofa berths, one light inthe bathroom, and one light in each water closet. All these plug for curling iron and plug for electric radiator lights to be of special selection with special fittings.

In addition to the lighting all rooms ~~with sofa berths~~, including Special Rooms, will be fitted up for Electric heaters, these electric heaters to be those using the long globe. Heaters to be supplied in every room fitted with electric heater plugs ~~NOTE:- These rooms will be all wired for electric heaters, but eighteen heaters WILL be all that will be supplied.~~

On the open deck aft outside lights will require to be fitted about eight in number. NOTE:- All outside lights wherever placed must have waterfroof fittings and strong screw guards, and these fittings must be brass to withstand the action of the sale water.

Pursers, Mistwards rooms to be similar to 1st Officer, Halls and 2nd Class t'ne's to be efficiently lighted

LIGHTS ON MAIN DECK. The lighting of the Dining Room will be arranged so that lights will be over each table and between each set of chairs and on the bulkheads, and in fore and after passageways in the way of the centre table. There will be at least ~~two~~ four rows fore and aft of ceiling lights over the tables, and ~~two~~ four rows fore and aft of lights between the tables. The centre portion of the Dining Room will be lit to conform to the rest of the Dining Room, and so arranged that everywhere will be thoroughly lighted. In addition to these lights either

additional ceiling lights or bulkhead lights will be placed on the forward bulkhead of the Dining Room, and the after bulkhead of the Dining Room, and the tables must be wired for table lamps to take at least two table lamps in certain cases for each table, ~~except the two square tables aft which will take only~~ and one table light in other cases.

Galley and Pantry will be fitted with about twenty 40 watt lights with approved guards. All the lights in the galley, pantry, and dining room will be controlled by a series of switches.

REFRIGERATING ROOM. Two lights in the refrigerating room, one in the Butcher's Shop, one in the Baker's Shop, one in the passageways between the Bakery and Butcher's Shop, two lights in each Mess Room, and about six lights in the Second Class Dining Room, ~~two lights in each of the Officers' Mess Rooms~~, Chief Engineer's Rooms to be fitted up with lighting arrangements similar to the Captain's with two ceiling lights, one berth light and one table lamp, Second Engineer's Room to be fitted up similar to 1st Officer's with one ceiling light, one berth light and one table lamp. Third & Fourth Engineers' Rooms to be fitted up similar to Staterooms, Engineers' water closet, passage to Bathroom and Bath all to have one light each. ~~Petty Officers' bath to have one light, and Oiler's room to have two lights, Second Class Smoking Room to have six lights~~, Mail Room two, Express Room two, Wash Room forward two, Water closets forward ~~two~~ four, and one light in separate W.C., Lamp Room two, Fireman's Bathroom ~~one~~ two, ~~Fireman's quarters four~~, and one in the fore peak. ~~The lavatories in way of the engine casing to have two lights, in the 2nd Class water closets one light, in the wash room one light, and one in the bathroom, one in the Sailors' water closet, and one in the bathroom.~~ Passageway aft between the Pantry and Engine Room to have four

lights. Passageway on each side of the Engine Room to have five lights, ~~lockers aft of the Engine Room to have one light each.~~

TWEEN DECKS. Tween deck spaces to have a light over emergency exit at ~~the Upper Deck~~ main deck hatch, and also at the head of the stairways leading from the Orlop Deck both from the Sailors' + firemen's quarters ~~and~~ the Oriental quarters, and the after accomodation on the Orlop Deck. Lights in the tween decks will be about ~~fourteen~~ sixteen in all. All the lights in the cargo space and the passages forward of galley ~~passages~~ will be fitted with suitable guards with key sockets. Lights in the tween decks and in the passages are preferably to be swinging lights. Room for steering gear to have two lights.

ORLOP DECK. W.C.'s and Wash Rooms aft ~~Store aft of the Orlop Deck~~ to have six ~~two~~ lights and bath room 2 lights. ~~Two lights in the Quartermaster's Room, one in the passage leading to the Quarter-master's Room, in the Quarterdeckman's Room two, in the lockers one, at the foot of the stairway one, in the Galley one, in the Sailors' quarters four, and in the Cargo or End Glass space ten. In the cargo space forward about four lights, in the Chinese Cook's Room three lights, in the Oriental passengers' room three lights, at the foot of the stairway leading to the Oriental passengers' quarters one light, and one in the boatswain's store. After cargo hold to have about six lights.~~

Rooms with 2 and 3 men 2 lights.
Room with six men 4 lights
Rooms with over six men 6 lights
Sculleries 2 lights each. Mess Rooms 3 lights each
all the above lights to be controlled by switches.
Passages to have 10 lights in all.
Chinese quarters — Chief cook to have 2 lights, Chinese Room to have 8 lights
Stores to have 8 lights.
Hall way round elevator and stairs 6 lights.
Oilers 4 lights
Firemen 6 lights
Lounge 6 lights
Quartermasters 3 lights
" deckmen 3 "
Sailors 6 lights
Lounge 6 lights
Passages 8 lights

Lights in the Engine Room and Boiler Room to be in the neighborhood of 150, arranged so that all the working parts of the Engine Room will be observable, and to be fitted with plugs over all the boilers, so as to be able to use lights inside the boilers for cleaning purposes. Four plugs to be arranged in the Engine Room to use with cable attachment for the purpose of overhauling. The balance of the Engine Room and Boiler Room to be in conduit. ~~Second Class~~ Orlop Deck and Cargo space ~~forward and aft~~ to be in conduit ~~or armored cable~~. All the outside lights to be in conduit ~~armored cable, lead covered.~~

NOTE:- ~~The outside lights and the Engine Room may be in armored cable, lead armored.~~ The general lighting to be armoured cable on the loop system.

FITTINGS & FIXTURES. All bracket fixtures to be ~~of standard, similar to "Princess Alice"~~ selected, and all deck head fittings to be of ~~standard, similar to "Princess Adelaide"~~ the best obtainable for the purpose and location. All fuses for lights to be controlled in alleyways.

Wiring for the freight elevator motor to be installed of sufficient gauge to carry without overload a ten H.P. motor.

SEARCHLIGHT. Searchlight to be of approved maker, capable of throwing a beam of light without difusion four hundred (400) feet. Searchlight to be 20" searchlight.

Throughout the passenger accommodation no more than four lights will be on a circuit using No. 14 wire. In the passages and saloons where more than four lights are required for lighting, it will be permissible to use fewer switches, putting more lights on the switches, but using heavier wire to suit. Tween decks and cargo spaces can be arranged with more than four lights on the one circuit. but not over seven

POLICE LIGHTS. Irrespective of what has been herein before stated police lights will be arranged throughout the whole of the passenger accommodation, First Class Dining Room, including all the passageways on the Main Deck in the way of the engine casing. These police lights to be on one main feed from Engine Room and also these separate lights to be controlled with switches.

ELECTRIC FANS:- Electric fans to be supplied for Galley, and fitted on Boat Deck in way of Galley funnel of 92 K.W. capacity ~~similar to "Princess Alice"~~. ~~An~~ Electric exhaust fans to be fitted to ~~Petty Officers', Seamens' and 2nd Class quarters~~ supply with fresh air, Petty officers, firemen and sailors, also chinese, also on ~~Orlop Deck to approval~~. Mess Rooms, ~~Engineers'~~, Stewards quarters aft on Orlop Deck and must be ample to keep all compartments sweet under the severest conditions they are put to. These fans to draw from the atmosphere and discharge to the various Halls & rooms in the various compartments with seperate control in every Room.

Electric boat hoisting winches.- Two electric " winches to be fitted on Boat deck as and where agreed having the warping end fitted for two lines. To be 9 5 K.W. each and to be thoroughly protected from weather in every respect.

GENERALLY:- The workmanship for the electric installation must be first-class throughout, and subject to the approval of Lloyd's, ~~Canadian Inspection~~ and the Owners.

BELLS:- A complete installation of electric bells to be fitted throughout the ship, to be connected to anunciators fitted ~~in the way of the after trunked cargo hatch on the Upper Deck~~ where agreed with a throw over switch ringing at the anunciators or in the pantry according to whether it is day or night. To have two push buttons in each ordinary stateroom convenient to each berth. This is usually fitted on the same block as berth light. To have two in each special room, to have four in the writing room, four in the sitting room, at least eight in the 1st Class Smoking Room, and eight in the Observation Room. One to be fitted in the Wheelhouse, Captain's Room, Chart Room, and all the Officers' Rooms, Wireless Room, Purser's Room, Purser's Office, Freight Clerks', Chief Steward's room, 2nd Steward's room, Stewardess, all Engineers' rooms, Engineers' and Officers' Mess rooms, and all bathrooms. The Purser's Office, in addition to the bell to anunciator, will also have a bell in the saloon immediately aft of the entrance for the purpose of calling the Stewards to assist passengers. Arrangement in the Dining Room to have one for each table, all connected to the anunciators in the saloon. There will be an electric bell fitted between the Wheelhouse and suitable location on the Main Deck for calling the watchman, with reply. There will be two push buttons from the cargo doors to the windlass, one port and one starboard, and a reply in a convenient place within bearing distance of both cargo doors. There will also be a bell from the Wheelhouse to the Engine Room, with reply, and ~~a bell~~ bells from the Engine Room to the stokeholds with replies

See Sample Wiring for these bells to be armour with lead casings, and to be of the same quality and make as that specified for electric light leads. The wiring for bells to be led entirely separate to the electric light wiring. Annunciators desired by the Owners ~~will be similar to those in the Princess~~ must be supplied

~~Royal~~". The anunciators to be fitted up with numbers corresponding to the rooms, the two push buttons for each room will be ~~one in~~ on one number, eight push buttons in the Observation Room will be on two indicators, port and starboard, eight push buttons in the Smoking Room will be on two indicators, port and starboard. Dining Room push buttons will be on two indicators, port and starboard. Writing Room push buttons will be on one indicator, and the Sitting Room push buttons will be on one indicator. Various independent bells to be on separate ~~buttons~~ circuits, and all bells in tween decks in the way of the windlass will be 3" bells in the Wheelhouse buzzers. The bells in the engine room and stokehold will be 5" gongs.

TELEPHONES:- Graham loud speaking telephones to be installed between the Bridge and the Engine Room, and the location in the Engine Room must be selected to be as free from vibration as possible in addition to convenience.

CONDITIONS & TESTS OF ALL ELECTRICAL INSTALLATIONS:-The whole installation of the electrical system to be carried out in a thoroughly workmanlike manner and to the entire satisfaction of the Owners. When completed it is to be subjected to a satisfactory run throughout the sea trial under a full load and the rise in temperature in the machines at the end of trials must not exceed 70 degrees Fahr. Governing tests to be carefully carried out at full and overload, and the rise or fall in voltage on load and overload is not to exceed three per cent. A final test is also to be made of the insulation of the systems. The conductivity of leads for furtherest lamps must be taken, and the loss of energy of leads relative to energy expended in lamps is to be shown. This loss must not exceed 2 per cent. During the trial the ship's compasses should be tested, and should any deviation be noticed, the defect in the installation to be made good by the Builders. The whole of the trials to be made to the approval of the

Owners' Superintendent, and a copy of all particulars and tests complete to be forwarded to the Owners' Superintendent Engineer.

SPARE GEAR FOR ELECTRICAL INSTALLATION:-

25 per cent for each set of lamp fittings

6 double filament lamps for navigation lights

12 spare fittings of each type supplied to the ship

25 per cent of each type of globe shade or well glass fitted

24 spare fuses of various sizes fitted for auxiliary board

25 " " " " " " " section boxes

25 " " " " " " " distribution boxes.

The heating of the Officers' Rooms will be with radiators arranged separately as herein before described. Heating arrangement in the Staterooms on the Boat Deck will be the system generally adopted in the Coast Service. The heating of the Staterooms on the Promenade Deck will be generally the system adopted in the Coast Service. The heating of the Observation Room will be by radiators suitably placed and of sufficient capacity to maintain a temperature of the rooms at about 70 degrees. The Smoking Room will be heated with radiators of sufficient capacity to maintain the temperature of the room at 70 degrees. The Staterooms on the Upper Deck will be generally the system adopted in the Coast Service, with the following exceptions:-

Special Rooms will have special heating arrangement of radiators and also electric heaters. Batchelor rooms on boat deck will be heated by radiators.

Rooms with sofa berths, in addition to the ordinary heating, will have connection for electric heaters.

Writing Room & Sitting Room will have radiators as required, and all saloons on various decks will be heated with radiators suitably placed and of ample capacity.

The Dining Room will be heated with radiators suitably placed and of ample capacity.

The Engineers' rooms will be heated with radiators, as herein before mentioned. The Crews' quarters will be heated with radiators of ample capacity to keep these rooms at normal temperature.

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NOTE:- In the whole of these heating arrangements the expansion of the pipes must be carefully provided for. The pipes must be arranged in circuits so that as far as possible the downtake for the exhaust steam will be at the lowest part of the deck in order that accumulation of water may be avoided as far as possible and also that each deck is independent of any other deck, and that all the circuits on the various decks have a separate control of both steam and exhaust. This is accomplished by having steam and exhaust manifolds in the engine rooms.

Drainage plugs must be fitted in all places as required by the Owners for thorough drainage in frosty weather.

In the General Heating System galvanized pipes will be used throughout. All valves necessary for the proper control of the various heating systems must be installed, and in no cases will traps be allowed in the heating arrangements.

The entire system of heating, both the general heating circuits and the independent heating circuits, must be submitted for approval before proceeding with the work.

VENTILATION. Arrangements to be made for ventilating the various compartments as required. The rooms on the Boat Deck will all be ventilated with suitable overhead ventilators, ~~similar to Trimmer's Dry~~. The 1st Class lavatories throughout will be ventilated through the various shafts indicated on the plans. The forward saloon in the way of the well will have ventilating arrangement fitted in the skylight over the light well, and the skylight over the after stairway on the Promenade Deck will also be fitted with ventilating arrangement. The usual ventilating arrangement must be fitted in the skylight over the Smoking Room. The galley and pantry will be ventilated by means of an electric fan fitted to the casing around the galley funnel so as to extract the heated air from the galley.

Electric fans will be fitted in the Special Rooms.

The entire ventilation of the ship must be of the best procurable for their various locations.

All holds must be effeciently ventilated. Ventilation to be specially well attended to in the way of shaft tunnels, storerooms, and galleys. Public Rooms to be well ventilated.

Staterooms to be ventilated by means of top and bottom ventilators, as previously stated. Ventilators over the rooms on the Boat Deck to be 4" diameter, and one over each room. The ventilators to accommodation on Promenade Deck to consist generally of torpedo vents fitted at suitable intervals along the top of the sides of the deck houses, and to have hardwood slides inside.

Ventilation to accommodation on Upper Deck to consist generally of Fyfe vents, fitted in the waterway as required.

All cowl heads to be of galvanized iron of suitable height fitted with galvanized iron mouth rings having handle for use in turning and pinching screws to prevent them working when the ship is rolling. The interior of the bell mouths and exterior vents to be painted of approved color. Where ventilators have coaming, coaming must be of the height required by the Registration Society. All ventilation coamings and trunks to be galvanized. The jointing of all vents pipes through accommodation to be made airtight. Wherever practical ventilators are to be arranged on top of companion ways and skylights in waterways where suitable, and close up to or against houses, etc., so that there will be no obstruction on any deck promenade. The whole of the ventilation arrangements to be approved by the Owners. The stokehold vents to be controlled from stokehold by gear

Ventilation of crews quarters forward, chinese quarters, and crews quarters aft will all be accomplished with electric fans drawing fresh air into the various compartments each compartment will have separate fans and the exhaust will take care of itself through the various openings. Trunks will be fitted to draw from the atmosphere and discharge in the The various compartments to be supplied.

STEAM STEERING GEAR.

Steam steering gear to be by an approved maker, and to be supplied and fitted up in compartment arranged for steering gear.

Engine of the steam steering gear to be designed to withstand full boiler pressure, but in ordinary working will be fitted with reducing valve and steam gauge.

Exhaust from the steering engine to be led without traps to the exhaust range in the Engine Room. Steering gear is to be controlled from the Wheelhouse on navigating bridge, as herein before stated, and small hand wheel for direct operation of the steering engine control valves to be fitted in steering compartment.

Steering gear to be fitted with suitable hand steering arrangement.

Suitable relieving tackle with all necessary blocks and wire falls to be fitted and stowed in convenient position.

Steering gear trials to be carried out during the steam trials.

WINDLASS & CAPSTAN.

Windlass of approved size for handling the anchors and cables to be fitted. This windlass must be powerful and must conform in every respect to the requirements of the Registration Society, and to be bedded in 1 1/2" teak bed fitted inside watertight cants 5" deep. The inside of the cants to be fitted with scuppers.

Capstan to be fitted on the Promenade Deck, and to be driven from windlass by means of a shaft, the shaft to be fitted with a disconnecting clutch.

All necessary capstan bars to be supplied, also galvanized iron racks for stowing same.

Steam capstan aft to be fitted for docking, and must have sufficient power to deal efficiently with the ship's lines when docking.

On all warping balls or drums whelps are not to be cast on, but to be fitted portable so that they may be renewed where necessary.

The exposed parts of windlass and capstan gear to be properly protected by galvanized iron plates and guards, a chain stopper and devil's claw to be supplied for each cable, chain stoppers, if necessary, to be raised on chocks.

Electric ~~Hand~~ WINCHES.

Electric ~~Cargo~~ winches of an approved maker to be provided for hoisting booms ~~for working derricks~~, and to be arranged as shown on Contract Plans.

All winches to be capable of efficiently performing the maximum work required ~~for handling cargo~~.

Both Winches ~~at each hatch~~ to be operated ~~by one man~~. electricity

Winches to be fitted with all necessary ~~air and exhaust properly insulated.~~ connections and cables

~~All~~ Winches to be fitted with strong beds ~~with efficient waterways round the beds and fitted with scuppers led overboard~~.

The freight elevator will be handled with motor, or by special steam arrangement, as agreed to by Owners.

R I G G I N G.

GENERALLY.

All Rigging work to be of the best quality and workmanship, and all to be carried out to the satisfaction of the Marine Supt. and to Owners' approval.

The vessel is to be rigged as a fore and aft two-masted schooner, standing rigging is to be of the best galv. steel charcoal wire rope, of 6 strands with 7 wires in each strand, and to have no rope heart in the strands. All sizes to be to approval.

Each mast to have three shrouds each side and backstay and stays. Shrouds, backstays and stays to be set up with rigging screws, and all to be spliced in on galv. iron hearts, covered with canvas and painted.

All shrouds and stays to be wormed, parcelled and served with spun yarn for 7 ft. at upper and lower ends, and to be fitted to chain plates or other approved attachment, to approval.

Rat lines to be fitted to the rigging.

All necessary rings and irons as hereinbefore mentioned to be fitted for blocks for cargo, heels for derricks, belaying pins for lines, flag halyards, wireless, etc. to approval.

CARGO GEAR

All wire rope for topping lifts, guys, slings, etc. that may be required for cargo gear to be supplied and fitted. The wire rope to be flexible wire rope of approved make, with suitable blocks and manilla rope falls to deck, so that derricks can be topped as desired.

FUNNEL STAYS

To be in number as required for the funnel, and to consist of the best galv. steel rope, having shackles at top and to be set up at bottom with tension screws.

Rigging Cont'd

WIRELESS FITTINGS

All arrangements to be made on each mast to take the wireless fittings and all necessary shipbuilder's fittings to be supplied and fitted.

FLAG STAFFS

Running halyards to be supplied and fitted to the flag staffs at stern and bow, to be of best manilla and to approval.

B L O C K S

All rigging blocks required are to be supplied and fitted. All to have parent roller sheaves of brass with steel pins and to be inside strapped.

Blocks throughout to have swivel eyes, and all ironwork to be galvanized.

CARGO BLOCKS

All necessary leading, cargo and self-lubricating gin blocks of approved type to be supplied and fitted as required.

All to be fitted with patent roller bushes, and with shackle eyes and shackles to have screwed pins on forelocks. All ironwork to be galvanized.

BOATS' FALL BLOCKS

All necessary Blocks for boats and guys for boats to be supplied and fitted as required. To have brass sheaves and roller bushes with steel pins and lower block for falls to be of the non-toppling type.

CANVAS WORK

WEATHER CLOTHS, SCREENS & DODGERS.

Weather Cloths of No. 3 canvas to be supplied and fitted as follows:- Round front and sides of the Observation Room windows , Library windows and complete set of dodgers to be fitted on Navigation Bridge. These screens and dodgers to be fitted with the necessary eyes and studs for efficient attachment in their various locations to approval.

COVERS

One canvas cover for each boat to be supplied and fitted. One canvas cover for all skylights, one canvas cover for all telegraphs, compass binnacles, ship's bells, winches and capstans in exposed positions. All these covers to be painted to approval.

TARPAULINS

Hatches to be supplied with two tarpaulins covers for each weather deck hatch and one for each hatch on the other decks where not trunked. Each tarpaulin to be plainly stencilled for the hatch it is intended for.

PIPE COVERING

All steam and exhaust pipes where necessary to be covered with canvas.

GENERALLY

All canvas work necessary and usually fitted in First Class passenger ships whether mentioned in foregoing clauses or not, to be supplied and fitted, and all work to be of the best description throughout. All weather cloths, screens, dodgers and covers to be supplied and properly fitted and painted before the vessel leaves the Builder's hands. Samples of all canvas to be submitted for approval.

NAME PLATES

Ornamental cast brass name plates are to be fitted over each exposed door in the ship and to be fastened to teakwood blocks. Those to the Public Rooms, Staterooms, and berths to be to Owner's requirements, but will be of oxydized white metal or ivorine. Plates indicating the number of rooms in each passageway to be fitted. All lavatories, etc., in Passenger Accommodation to have oxydized white metal or ivorine plates outside and name plates of bronze cast brass or other approved material to be fitted over the doors in the Second Class and Crew's quarters as required by Owners.

TELEGRAPHS

ENGINE TELEGRAPHS

~~One~~ Two Chadburn's improved or other approved ~~twin~~ screw telegraph with reply to be fitted both in the Navigating Bridge and the Wheelhouse. The latter is to be connected with the telegraph on the Navigation Bridge. Dial about 16" in diameter and double faced. Both these sets of telegraphs will be connected to engine telegraphs with replies.

DOCKING TELEGRAPHS

To be fitted in the Wheelhouse and aft within access of the after capstan, to be fitted with replies. Dial to be about 12" in diameter.

LAMPS

Oil swinging lamps are to be supplied in the following rooms:-

Captain's room.
Officers' rooms.
Engineers' rooms.
Purser's room
Stewards' " and
Special Rooms as required by Owners.

The whole of the steel and ironwork in the ship is to be left bare until well rusted and then to be thoroughly cleaned and the whole of the inside steel and ironwork is to have three coats of genuine red lead and white lead mixed, except where bitumastic is specified. The whole of the outside steel and ironwork is to have two coats of genuine red lead and white lead mixed before launching. The ship to be dry-docked before trials and the bottom to be well cleaned and coated with two coats of anti-corrosive composition and one coat of anti-fouling composition. All inside steel and ironwork is to be finished with one coat of approved colour and with two coats of white zinc paint on underside of all decks, except where otherwise specified. Each coat of paint applied to steel and ironwork is to be thoroughly dried before next one is applied. All fresh and salt water service tanks to be coated internally with "Rosbanite" or other approved composition.

All painted woodwork is first to be coated with spirit varnish and then to have at least three good coats of paint of approved colour, and where varnished three coats of copal varnish. All deckwork and houses to be painted three coats in colours as required. All Staterooms, Passages and Casings in First Class Accommodation, Kitchen, and Pantries, to be enamel painted with approved make of white enamel. Officers' rooms to be painted with white enamel as required. All sparring to be arranged as required. All teakwood to receive three coats of copal varnish. All roofs and inside of Public Rooms to be painted and decorated as required. Dining Saloon to be painted and decorated as required. Cork dusting to be applied on all exposed ironwork in way of accommodation and also on all exposed ironwork in Officers' and Crews' quarters and spaces utilized for the operation of the ship, such as, Kitchen, Pantries, etc.

Bitumastic enamelling of Wailes dove or other approved make is to be laid on tank top about 1/2" thick in Engine Room, Boiler Room, and tunnels. Bitumastic enamelling is also to be laid 1/16" thick in all Refrigerating Chambers, on the Steel Deck, sides, frames, and beams, before insulating same, and the following spaces are to be covered with bitumastic enamelling to be put on about 1/16" thick:-

Steam steering gear space,
Engineers' store room,
Steward's store room,
Mail room,
Express room,
Lamp room,
Boatswain's store.

and the ship's side to be coated with bitumastic in the way of all First Class accommodation, which is afterwards covered with lining. Bitumastic solution to be coated on all ballast and bilge suction pipes. Bitumastic covering is to be supplied in other parts of the vessel not herein enumerated, as required by the Owners.

O U T F I T.

ANCHORS, CHAINS.

Anchors and Chains to be one grade above the B.C. requirements, and in every respect to conform to the equipment number A 1.

Anchors to be stockless anchors of approved make, and are to house neatly in the hawse pipes. Cables are to be of approved maker, and to have joining shackles every fifteen fathoms, and anchor shackles complete, also the usual spare shackles.

The anchor connecting shackles and all connecting shackles to be secured with steel pins. Stretching screws to be fitted for securing anchors when housed in hawse pipes. All anchors and chain cables, etc. are to be tested at a public testing machine, and certificates of these tests are to be supplied. All warps and ropes to be to the full requirements of the Classification Society. All necessary reels, etc. to be supplied with wire hawsers and cables.

COMPASSES & NAUTICAL INSTRUMENTS.

Builders' will supply boats' compasses in brass case, each with lamp complete. Builders will supply clocks and barometers as follows:-

One clock for Cpatain,
" " " Engineers' Mess Room,
" " " Officers' Mess Room,
" " " Galley,
" " " Head of stairs in Upper Deck entrance, fitted to Engine and Boiler casing,
One Barometer aneroid for Captain.

All the clocks including Engine Room clock are to be magnetic controlled. All clocks other than those specified above, including Master clock in Wheelhouse, will be supplied by Owners together with the clocks for the various Public Rooms as arranged by Owners. Builders to make suitable provision in the various rooms to take these clocks and to fit them up as and where directed by Owners.

Builders ~~Owners~~ will supply all navigation instruments, including telescopes, binoculars, megaphones, fog horns, sounding machine, deep sea leads, hand leads, patent logs, log glasses, log books. All compasses fitted in the vessel must be tested and accurately adjusted by competent adjusters before vessel is handed over.

FLAGS & SIGNAL CODE.

One set of International signals fitted in flag locker having compartments lettered.

One signal code book.

One Canadian Dominion Ensign, 5 yards,

" " " " 2 "

One American Ensign, 5 "

One British Ensign, 5 "

Two Boats Ensigns, 1½ "

One Burgee with ship's name, 6 "

Two House Flags,

One Blue Peter,

One Pilot Jack,

One Quarantine Flag,

One yard of red, white, blue, yellow bunting,

All flags to be of bunting and sewn.

Signal lamps to be of copper of approved make, and dioptric pattern.

One set of electric signal lamps, consisting of one port, one starboard, and one fore mast head lamp and one main mast lamp.

One set of oil signals. lamps consisting of one port, one starboard, one fore mast light, and one main mast light.

Two anchor lamps electric, two lamps, oil, one stern lamp, electric, one standing lamp, oil.

Three red globe lamps 10" in diameter, three black balls 24" in diameter. One electric Morse lamp.

DISTRESS SIGNALS.

2 Shipwrecking distress flags,

24 Cotton powder distress signals,

12 distress rockets (1 lb. each) in tin case,

24 pocket distress signals,

2 Deck rockets,

Distress signals to be stored in suitable racks at or near the Flying Bridge.

F I N A L L Y.

FINALLY.

It is intended under this Specification that the Builders will build, fit, and finish this vessel throughout to the entire satisfaction of the Owners' representatives, and to the approval of the Owners, in a most complete manner, with all fittings and outfit, whether specified or not, that are necessary to render the ship completely sound and ready for sea, excepting in so far as regards fittings and/or furnishings which will be supplied by the Owners, and as previously specified. In short, the builders will supply a complete vessel, in every particular less the exceptions noted on page 6.

~~NOTE:- The "Princess Alice" will be taken as a guide throughout, except where other Vessels are specifically mentioned.~~

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