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Specification of Hull as fitted for Proposed Steamers for the British Columbia Coast Steamship Service.

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B.C. Copy

CANADIAN PACIFIC RAILWAY COMPANY.

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SPECIFICATION OF HULL

for

PROPOSED STEAMERS for the

BRITISH COLUMBIA COAST STEAMSHIP SERVICE.

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10th October, 1928.

SPECIFICATION OF HULL FOR PASSENGER AND FREIGHT STEAMER FOR THE BRITISH COLUMBIA SERVICE OF THE CANADIAN PACIFIC RAILWAY.

Length overall 365'-3"

GENERAL DIMENSIONS:

Length between perpendiculars.....	351 ft.
Breadth moulded.....	52 "
Breadth at waterline.....	48 "
Depth moulded to Main Deck at sides.....	19 "

Heights between Decks.

Orlop Deck to Main Deck, as approved.	
Main Deck to Upper Deck.....	8'-~~8~~"
Upper Deck to Promenade Deck.....	7'-9"
Promenade Deck to Boat Deck.....	7'-6"
House on Boat Deck.....	7'-3"

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

The camber of the beams on the Pilot House will be equivalent to a camber of 6" on the width of the Pilot House. The camber of the beams on the Boat Deck will be equivalent to a camber of 10" in 54". The camber on the Promenade Deck will be equivalent to 10" in 50". The camber on the Upper Deck will be equivalent to a camber of 6" in 50'. The camber on the Main Deck will be 6" in the full beam and the camber on the Orlop Deck will be 3".

GENERAL DESCRIPTION.

The vessel will have a straight stem and a cruiser stern, three funnels (one of which will be a dummy and used as a ventilator), and two pole masts, rigged as a fore and aft schooner, with all tables for mast lights, placed as required by Canadian regulations.

The Orlop Deck, except in way of machinery and boilers is continuous steel from fore peak bulkhead to after peak bulkhead, with watertight flats as hereinafter stated.

The Main Deck, Upper Deck and Promenade Deck will all be continuous.

The Boat Deck will be continuous from about frame 28 to frame 130, as shown on Profile.

The vessel to be constructed with cellular double bottom, extending from frame 21 to frame 77 and from frame 95 to fore peak bulkhead ~~as far aft as possible and to fore peak bulkhead, except in the way of watertight flats.~~ A deep tank for fresh water with stiffening bulkhead to extend from after peak bulkhead to bulkhead 21. The shafting in these compartments to be enclosed ~~the watertight flat aft and an oil fuel tank will be arranged under the watertight flat, as indicated on the drawings.~~ in water tight compartments and these made accessible The vessel to be divided by watertight bulkheads, oil fuel tanks and watertight and

GENERAL DESCRIPTION (CONTD).

oil tight flats as indicated on plans or as may be required.by Lloyds.

Note:- The deep oil fuel bunkders at sides of Boiler Room will have a portion of the oil fuel tank in the way of the stokehold kept below the waterline to allow discharges etc., to be taken care of.

Special attention must be paid to the position, lining 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, of Brown, Bow and McLaughlen or Hastie's make, Brown preferred.

Geared watertight doors to be fitted only in bulkheads where such are necessary and to be of approved type and arranged for operating from Main Deck or as may be required.

Windlass and Capstans to be fitted as required, with electrical control, and in each case to have the approval of the Owners.

The windlass must be of ample power to handle cables and anchors efficiently. The motor to have sufficient power to heave the anchor cables at a speed of 50 ft. per minute. The after capstan must be of sufficient power to take care of the after lines against a fairly stiff breeze.

All bollards, cleats and mooring pipes to be fitted as and where required by the Owners.

Refrigerating Plant to be of sufficient capacity for the cooling of the rooms as indicated on plans, and necessary for ship's use. To be a C.O.2 machine by Hall and Co., or equivalent.

Vessel will be fitted throughout with electric light, with Diesel driven generators in three units, any two units being sufficient for all lamps, electric heaters, galley equipment, navigating lights, stern lights, motors for ventilation or other use, windlass and winches.

Accommodation to be provided for about ~~354~~ 380 passengers, not including sofa berths, in about ~~203~~ 211 rooms. 16 Sofa berths and 26 Standees making the total that can be accomodated 422

The First Class passengers will have a Smoking Room and a small Sitting Room.

Captain and Officers to be accommodated in houses on Boat Deck. Engineers on the Main Deck as shown, Purser, Freight Clerks and Stewardess on Upper Deck, Steward on Promenade Deck, Waiters, Petty

GENERAL DESCRIPTION (CONTD).

Officers and Crew as indicated on Plans.

Kitchen and Pantry to be arranged for convenient service to the Dining Room. These arrangements to be as per Owners requirements.

Lavatories etc., to be arranged in passenger accommodation as shown on Plans, with ventilation as hereinafter indicated.

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

GENERAL:- The vessel is to be built generally in accordance with the following signed plans:-

Plan of Profile.....	¼"scale
Plans of Boat, Promenade & Upper Decks.....	¼" "
Plans of Main Deck, Orlop Deck and Hold.....	¼" "
Rigging Plans and Midship Section as approved by Lloyds, or other recognised Classification Society.	

All hull and engine plans required by Canadian Inspection Board to be in triplicate.

The above plans and this specification are to be signed in duplicate by the Owners and Builders, as part of the Contract and to be the contract plans and specifications.

The Owners are to have the right to order any reasonable alterations from the Contract Plans and/or Specifications, and the Builders shall carry out such alterations. No important alterations from Contract Plans and/or specifications can be made unless written instructions have been received from Owners. If alterations affect cost, deadweight, stability, speed or delivery due allowance are to be made.

Items mentioned twice over in this Specifications 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 materials, pattern or manufacture, it is understood the option rests entirely with the Owners.

CLASS AND SURVEY.

The vessel is to be built to the requirements of Lloyds' Registry ~~or other approved Classification Society~~ under special survey for a vessel to be classed 100 A1 "with freeboard" "for Channel and Sound Service - Seattle and Skagway" for a mean draft of approximately 15'-6", and must comply with the Canadian and American laws for

CLASS AND SURVEY (CONTD).

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 Classification Society Requirements for vessel built to the class specified under special survey, except 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 specification are to be adhered to.

Builders to prepare plans of lines and all structural details, which must be submitted to the Classification Society and the Owners' 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 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 Martin or other approved process, tested as required by the Classification Society and to have the marks 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 before being laid.

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

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 AND 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:

Owners will supply all bed sheets, blankets, bed spreads, napery, crystal, crockery, cutlery, electro plate, earthenware, Stewards' utensils, musical instruments, charts, chronometers, consumable stores, carpenter and Bosun's stores.

BUILDERS SUPPLIES.

Builders will supply everything else in the ship necessary for completion to Owners' requirements, such as all frame work for seats and sofa berths, mattresses and cushions as agreed, Builders will also supply and instal Hoskins and Sewalls ~~or other~~ best approved make of berth, of suitable design for class of rooms, with hinged lee boards where required, with all springs and mattresses of Marshall's make, similar to Simmons' Beauty Rest Mattress, as per Cut in Captain Neroutsos' possession. Builders will also supply all bedsteads, springs and mattresses of Marshall make wherever required, all upholstered backs and ends for all settees and sofa berths, all settee cushions , all cushions, arms, backs and ends for all seats wherever placed, including chairs in the Dining Saloon. It must be distinctly understood that all moveable furniture must be supplied by the Builders and fitted up as required. Builders will supply navigating instruments as hereinafter enumerated, this includes compasses, engine telegraphs and docking telegraphs. Builders will supply all galley equipment as required by Owners and as selected.

Builders will supply a set of lines for the approval of the Owners, before proceeding with the work and in as far as possible the lines must allow of the accommodation indicated on the plans.

STABILITY.

The Builders must guarantee a G.M. of absolute safety under any of the conditions enumerated below, and the question of stability must be gone into during the initial stages of the developement of the work.

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, curves of stability are to be drawn for the following conditions and any other conditions which the Owners may require to establish stability.

1. The vessel light, with water in boilers and condensers to working level, but with no fuel, cargo, stores or other water on board.
2. The vessel as in 1, but with the addition of the double bottoms full of water.
3. The vessel as in 1, with the addition of the bunkers being filled, but with no cargo, stores or other water on board.
4. Vessel as in 1, but loaded with 400 tons of homogeneous cargo and Main Deck freight space, bunkers full, fresh and feed water tanks aft filled, and with passengers, crew, baggage, stores and provisions on board, or their equal.
5. Vessel as in No. 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.

DEADWEIGHT.

The deadweight, including Engineers' heavy spare gear to be about 650 long tons on a mean draft of 15'-6", and to be arranged so that every space allotted for freight will be utilized without endangering stability.

Note:- The trial draft will be, say 15 ft. mean, at which draft 17 knots must be obtained. Deadweight carried on trial,

DEADWEIGHT (CONTD).

including Engineers' heavy spare gear, to be approximately 490 tons at start of trial.

TRIM.

The vessel must be designed with a centre of buoyancy so arranged that when the ship is light as in Condition 1, or loaded as in condition 4 above, she will not trim by the head. To ensure this before the lines of the vessel are approved, calculations must be made showing the trim of the vessel in these conditions.

SPEED.

The speed of the vessel at sea in ordinary weather is to be a good 17½ knots per hour, and this speed must be maintained with all auxiliary machinery which will be in use when running 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 in reasonably sheltered waters and not merely for short coasting runs.

TRIALS.

A ~~serious~~ Series of progressive trials to be made on the measured mile, the said trials shall consist of a series of progressive trials to be made on the measured mile, with 490 tons deadweight on board corresponding to a mean draft of approximately 15 ft. to determine the revolutions at various speeds. At full power the mean speed over one double run or measured mile, i.e. with and against tide shall not be less than a good 17½ knots. The ship is to be put astern when running full speed to determine her capabilities 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 on trial and full speed astern as on trial. The vessel will also proceed on a long distance trial in reasonably sheltered waters for at least 8 hours, through which trial the mean speed

TRIALS (CONTD).

shall be a good 17 knots.

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, both progressive and long distance, to be supplied to the Owners.

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

DOCKING.

Before the trials, the vessel will be drydocked and bottom painted with Holzapfels International, viz:- two coats of No. 1 and one coat of No. 2. All expenses in connection with the drydocking to be paid by the Builders.

FUEL AND LOAD FOR TRIALS.

Before the trials, the Builders are to fill all bunkers and also to supply and put on board all water, stores, feed water and any fresh water ballast required. 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.

FUEL, CARGO AND DEADWEIGHT CAPACITY.

The Builders will supply plans in various conditions, showing fuel, passengers, stores and water and cargo variously distributed to approximately a mean draft of 15 ft. 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 beams and to the inside of sparring.

INSPECTION.

The Owners' Representatives and Inspectors are to have full access

INSPECTION (CONTD).

to all places when and where the work under this contract is being carried out.

DELIVERY.

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

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

CONTRACT.

Conditions to be fulfilled by the Builders will be set forth in a Contract between the Owners and Builders, which will contain certain 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, including springs for berths and bed steads, all mattresses, settees, racks in staterooms for life preservers etc., looking glasses, water bottles, curtain rods and curtains for berths and windows throughout and any other decorative materials required by the Owners. The Owners will supply the articles as mentioned under the heading of EXCEPTIONS.

all notice frames required

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

The Shipbuilders will supply and install all lights, fixed navigating lights and bells required in this special service by the Owners. They will fit up all public rooms, offices, standees etc.,

DEMARCATION OF WORK ETC., (CONTD).

as required by the Owners.

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

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

PLANS, NOTES AND DIAGRAMS TO BE SUPPLIED.

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

One set of cloth tracings and one set of cloth prints:-

Midship Section.
General Arrangement Plans (Inboard Profile)
" " " (Rigging Plan)
" " " (Decks).
Capacity plan and deadweight scale.
Bunker Capacity Plan.
Stern frame, rudder and shaft brackets.
Shell expansion.
Bilge and ballast piping.
Ventilating and heating arrangement (decksand profile).
Steam piping and fire extinguishing plans (decks and profile)
Drainage and discharge plans (Decks and profile).
Fresh and salt water piping (Decks and profile).
Fuel piping, valves, pumps, showing all deck plates for sounding or filling purposes.
Electric lighting, showing corrects leads of wires, lamps etc.,
Electric bells, 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 the Superintendent Engineer.

Bilge and Ballast Piping.
Steam piping and Fire Extinguishing Pipes.
Drainage and discharge piping.
Fresh and salt water piping.

FUEL PIPING, VALVES, PUMPS ETC.,

All necessary drawings to be supplied during construction for

FUEL PIPING ETC. (CONTD).

Owners and their Representatives use and approval.

MODEL.

Builders will furnish Owners with a ¼" scale full model mounted in the usual glass and hardwood case, such model to be constructed as early as possible.

S T E E L A N D I R O N W O R K.

STEEL WORK GENERALLY.

To be in accordance with Lloyds' requirements, and as per Midship Section agreed upon and signed. Where scantlings are specified greater than Registry requirements, 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.

KEELS.

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

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.

STEM.

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

STERN FRAME AND SHAFT BRACKETS.

The stern frame 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

STERN FRAME AND SHAFT BRACKETS (CONTD).

the rivetting of the stern frame. The cut up of keel aft may be of steel casting.

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

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

RUDDER.

Rudder to be ~~a~~ of Stream line pattern ~~rudder~~, as indicated on plans, of large area and to be constructed of steel to approval. The stock to be of steel.

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

The weight of the rudder to be borne to suit design, the bearings to be bushed with gunmetal and lignum vitae.

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

The rudder post and rudder to be built along stream line ideas, to approval.

NOTE:- Steel castings must be by makers approved by Owners, and the rudder will have stops fitted on each side to limit the range to 35 degrees either way. The rudder stock and post to be protected from galvanic action.

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

A plan of the whole arrangement showing area of rudder and details of construction to be submitted to Lloyds' and Owners for approval before proceeding with the work.

Zinc plates to be fitted as required.

CENTRE PLATE GIRDER.

The vertical centre girder to be of plates and angles to Lloyds' requirements, increased in depth where necessary to suit the form of the ship, and also in Enginee Room if necessary to suit Engineers' requirements.

CENTRE PLATE GIRDER (CONTD).

The centre plate is to be made a perfectly watertight division for the whole length of the double bottom. The centre plate is to be caulked throughout the watertight division.

FRAMES.

To be of scantlings approved by Lloyds' and spaced 27" apart, and 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 burr caulked by punching before any rivetting is done. Where watertight and oil tight flats are fitted, frames are to be ~~xxxxxx~~ cut and bracketted, unless otherwise arranged with the Owners.

The double bottom to be built on the cellular system and 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 girder plate and margin plate. Tanks for oil fuel to be constructed to requirements as to scantlings, cofferdams etc., and also to Owners' requirements and approval.

Frames and reverse frames to be fitted in engine room and under boiler bearers. Longitudinals are to be fitted as required by Lloyds', 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 tapped off in the usual manner.

Tank top plating to run straight out to side and to be extra thick in Engine Room and Boiler Room, as approved.

FRAMES (CONTD).

Heavy plating to be fitted under two hatches in the holds forward, 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, engine room and boiler spaces. ~~Directly under hatch, tank top is to be sheathed with 3 x 12 plank having caulked seams.~~

~~The wood sheathing to extend one foot beyond the hatch boundaries all round and to be finished all round with a bevelled hardwood plank 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 in Boiler Room where directed. The wells to be built into the double bottom and must extend longitudinally over two frame spaces, or as may be arranged. Tank top plating in way of wells to have surface strainer fitted.

Drainage holes through floors 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.

All sounding pipes must have protection plates bedded in cement.

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

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

Double bottom tanks to be tested with water pressure to the height of the Upper Deck and the pressure maintained for four hours. For tests of oil fuel tanks, see paragraph below. All double bottom water tanks to be filled with fresh water. Tanks for reserve feed to be arranged in engine Room, two of these tanks will be for distilled water holding 15 Tons each.

Where piping, such as bilge piping and ballast piping, comes through the deep oil tank, an oil tight tube will be fitted from on tunnel. All double bottom water tanks to be fitted.

bulkhead to bulkhead, ~~2'-6" in diameter~~ and have glands fitted at each bulkhead where the pipes go through.

The plates upon which the stuffing boxes are fitted, will be bolted on studs so that they can be removed and piping repaired if necessary.

WATERTIGHT BULKHEADS.

The watertight bulkheads to be of steel, in number, position and height as shown on Contract Plans and to the Registration and Owners' requirements, also the Canadian Steamship Inspection Act.

Scantlings of watertight bulkheads, deck, boundary, double bottom angles, size and spacing of stiffeners, to be to Lloyds' requirements.

All watertight bulkheads to ne 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 Lloyds' and Owners, special attention being given to the oil fuel tanks.

OIL FUEL TANKS AND BUNKERS.

A double bottom tank under the Scotch boiler and extending aft to frame 67 will be constructed for oil fuel, in this arrangement, the ventilating pipes and sounding pipes for these tanks must all be conveniently fitted. The necessary longitudinals in these tanks to be fitted and each of these tanks will have their own sounding and vent pipes and also manholes. Between frames 66 and 67, cofferdams will be required with the necessary sounding pipes, manholes etc., fitted.

A deep oil tank will be fitted from frame 77 to 95, and will be divided into four tanks, as follows;- an oil tight centre division and two watertight wing divisions, with a sluice valve operating from above on the watertight bulkheads, thus connecting the wing tanks with the centre tanks. This will enable one suction to be fitted each side of the oil tight bulkhead. In addition, tube wing oil fuel tanks will be fitted at each side of the boilers,

OIL FUEL TANKS (CONTD).

two tanks each side, but it must be noted that in the way of the stokehold, a portion of the tank extending ~~fiyr~~ four frame spaces each side will be stopped 18" below the waterline and will require to be oil tight on top and from the top of this tank to the deck, swash bulkheads will be fitted, as indicated on the drawings. In all these fuel tanks, these wing tanks will be fitted on top of the double bottom tanks. Where oil tanks are fitted above a double bottom tank, it is the intention of the Owners to keep that tank dry, although all the necessary suction will be fitted as to other tanks.

Note:- A space above the tank that is kept 18" below the waterline is to allow of soil pipe discharges, waste discharges, blow downs etc., and to be conveniently and accessibly fitted and also to avoid any pipes being in fuel tanks except those required for such tanks. A space equal to the fore and aft divisions to be left on each side, one to be on port side and one on starboard side.

The oil fuel tanks are to be built and tested, in accordance with Lloyds' requirements, with oiltight divisions as hereinbefore stated and swash 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 case, especially as to the close fit of plates and angles, metal to metal, without any red lead paint or anyother material in the joints, and thoroughly sound rivetting and perfect oiltight work is to be ensured.

Plans of the arrangement of all piping, manholes,&construction of oil fuel tanks are to be submitted for the approval of the Owners before proceeding with the work.

Note:- The arrangement and size of oil filling and suction pipes will be entirely to Owners requirements, as referred to later on.

BEAMS.

Beams to be of size to meet Lloyds' requirements and as indicated on signed Midship Section.

BEAMS (CONTD).

Strong beams to be carried through engine room and boiler room as and where indicated. Plate knees will be used generally, but in some places, such as say Dining Saloon and Public Rooms, throats of brackets to be curved to avoid heavy corners. The whole arrangement of the beams and their connections on the various decks must be approved before being proceeded with.

The camber of the beams on the various decks will be as hereinbefore stated.

Beams will be supported by stringers under and widely spaced pillaring throughout to Lloyds' and Owners' approval. On the Main Deck having particular attention paid to the location of the pillaring, for the purpose of easy handling of motor cars. Beams to be on every frame on Orlop, Main, Upper and Promenade Decks. The Boat Deck will have beams on every second frame, except where additional beams may be required in way of boat davits.

STRINGERS.

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

Panting stringers and breast hooks to be fitted at ends, all stringers to have double angles for a distance of 30 ft. abaft of the stem. All stringers must be let in between frames and rivetted 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 bars to be continuous, unless otherwise arranged with Owners. All stringers that pass through watertight bulkhead are to be made watertight with forged shoes.

The Boat Deck is to be plated in way of the deck houses and boats and deck stringer plates to full length to Lloyds' requirements.

DECKS.

The Orlop Deck to be steel throughout. Watertight and oiltight

DECKS (CONTD).

flats to be fitted as indicated on plans.

The Main Deck to be steel throughout and lapped, as this deck will be covered with deck felt 1" thick. Plating will be 38 irrespective of rules

The Upper Deck will be steel throughout.

The Promenade Deck will be steel throughout and Boat Deck to Classification requirements, with the exceptions noted above re Boat Deck.

Decks in way of oil fuel tanks to be caulked and oil tight. 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 and which will be covered, must be caulked and tested with hose before any covering is laid, also such portions of deck 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 Lloyds' 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 the composition is applied.

SHAFT TUNNELS.

The portion of the vessel aft of the Engine Room bulkhead will be utilized as tunnel, and fitted up with store rooms for the Engineers as directed.

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 without the spare shaft being unhoused.

Note:- Provision will require to be made for two spare tube shafts and two spare tailshafts.

ENGINE AND 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 seatings efficiently connected to tank top and checked fore and aft. Boilers must be a very safe height clear of the tank top. Where watertube boilers are placed, geat care must be taken with this portion of the work.

All necessary seatings for main engines, auxiliary machinery, also girders for lifting machinery to be fitted in Engine and Boiler Room as and where directed and to the Engineers' requirements.

FRESH AND SALT WATER TANKS.

To be independent tanks, fitted in way of the fiddley on top of the houses on Boat Deck, which will be specially strengthened to receive them. These tanks will be about 4'-0" in diameter by 10'-0", with dished ends, but may be e varied in size to suit final location as per Owners' requirements. Reference to these tanks will be found further on in the Specification.

CHAIN LOCKERS.

To be constructed of steel and situated fore and 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 lockers to be caulked watertight.

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 lockers to be of sufficient capacity to stow cables 4'-0" clear of beams. Access to chain locker to be obtained by means of scuttles.

Chain pipes are to be 3/8" steel plates, secured to deck in 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 of large radius, rivetted to underside of deck below chain pipe for protection.

Hand holes with watertight doors to be cut in chain pipes for lashing chains to prevent noise ~~while~~ when at sea.

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

SHELL PLATING.

Shell plating to be of scantling and arrangement as required by Lloyds' and as on signed Midship Section, except that on the two sides of the bow, one strake is to be extra thick for 50'-0" at the waterline.

Plates are to be in as long lengths as possible for their various locations. In the way of passenger gangways 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 is that every available inch of clear opening must be arranged for and compensation to suit Classification Society must be designed with this in view. In other words, the compensation must be increased in order to increase the clear height of opening.

Shell plating to be bossed in way of propeller shafts, which bossing will not extend to propeller, shafts will have "A" frames fitted as required.

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 these to be of minimum depth compatible with strength.

All shell plating to be rivetted at landings, butts and overlaps as required by Lloyds' and all rivet holes to be made fair and countersunk to ensure efficient rivetting. 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 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.

SHELL PLATING (CONTD).

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

Shell plating in way of propellers to have two coats of No. 3 Apexior in addition to Antifouling Composition and zinc plates fitted where required and as arranged between Owners and Builders.

Holes for drain plugs 1¼" in diameter to be made in each compartment of double bottom and peaks, and a small doubling plate to be rivetted to shell on inside for this purpose. A small doubling plate is also to be rivetted to shell plating in way of each sounding pipe to double bottom oil fuel tanks.

All work to be done under the inspection of Lloyds' Surveyor and to the entire satisfaction of the Owners' representatives.

PILLARS.

Pillaring in holds between decks and Public Rooms requiring pillaring must be on the widely spaced principle, arranged to suit Lloyds' requirements and the arrangement of rooms and to be 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.

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

Plans showing arrangement and scantling of pillars and girders to be submitted to Lloyds' and Owners for approval.

Note:- As before mentioned, special spacing in between decks to be arranged in order to allow room for manoeuvering motor cars.

PEAKS.

The sides of the vessel in the ~~a~~ fore and aft peaks to be very efficiently stiffened by cross plates and panting arrangement to be submitted and approved by Lloyds' and Owners' representative. In addition, an extra breast hooks to be fitted in fore peak at water line. Peaks to be tested to Lloyds' requirements.

DECK HOUSES.

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

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

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

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

CASINGS.

The following casings are to be of steel:-

All trunked hatches.

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, funnel boiler hatch, lavatories, baths and water closets ~~in~~ throughout the ship and Ladies' toilet room, , ventilating trunks etc. All the forward work on Main Deck to be of steel in the vicinity of the Mail Room, Boatswain's locker, Express Room, Crew's wash room, W.C's, Showers and Lamp Room, also all the after quarters where the Engineers are housed and where the entrance to the Stewards' quarters below is arranged, also all the arrangement of the Stewards' W.C's, Wash Room and Showers aft of the Engineers' quarters on the Main Deck.

On the Boat Deck, the engine and boiler casing will be reduced to 11'-0" wide and to be of steel and the 2'-6" casing on each side of the boiler casing, forming the showers and W.C's of 28 rooms on the Boat Deck will be of steel, but the rooms themselves will be of wood.

CASINGS (CONTD).

All these casings aforesaid, 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.

Trunked hatches to be stiffened by cope irons on seams. Casings in way of sanitary accommodation to have deep deck angle and to be well rivetted and caulked for a height of at least one foot above deck. All steel work in way of refrigerating rooms to be caulked and made watertight.

HATCHES. A Hatch to be fitted to No 2 Hold

~~The two hatches~~ forward on Main Deck ~~to be flush~~.

The Hatch to No 2 Hold to be 9'0" × 12'0" and is to be fitted with an elevator electrically controlled.

The lower edge of hatch trunks to be fitted with cope irons to prevent chafing.

The entire arrangment to be submitted for approval also a watertight door between holds 1 & 2

All scantlings of hatch coamings and both size and space of thwartship beams to be to Lloyds' 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, rivetted to hatch coamings, bottom lip of beam sockets being made specially strong.

The arrangement of compensation in the way of the flush hatches to be submitted for approval.

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

Elevator – Elevator to be guided with angle bars and wire ropes over pulleys and to be fitted on Tank top with ramps to allow of freight trucks being handled in hold. The entire arrangment to be approved. Elevator platform to be built so that it takes up no more depth than 6"

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 they 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 as later described, eyebolts and butterfly nuts for setting up tight and to be seaworthy to approval.

GANGWAY DOORS (CONTD).

The forward and after 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 g hinging aft and outwards, the forward section hinging forward&outwards. The hinges must be specially strong and the pins in these hinges must not be less than 1½" in diameter 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.

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, even to the extent of increasing the compensation, in order to allow any motor car to pass through safely with a reasonable change of tider, and certainly not less than 7'-8".

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

Gangway doors fitted on the Main Deck to be similarly constructed.

The strong backs on these doors to be be fitted athwartships, all of skeleton steel construction for lightness, as per sketch which will be submitted to the successful bidder. One of these strong backs will be for the lower two doors and one for the upper two doors of the various gangway doors.

PASSENGER GANGWAY ON UPPER DECK.

The 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 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.

PASSENGER GANGWAY ON UPPER DECK (CONTD).

The height of these doors is very essential 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 of the centre of the cargo doors on the Main Deck to the centre of the passenger 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 portions to be of glass, so that in fine weather the passenger gangway doors can be opened for observation purposes. These latter doors may be of wood.

Note:- All the above steel doors referred to must be strongly framed with welded angles, all necessary ring bolts, strongbacks etc., for properly securing these doors to be supplied, as well as chains, as directed, for convenience in handling. Suitable arrangement ~~xx~~ 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 Lloyds and all necessary stiffening for travellers over the machinery to be arranged.

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 rivetted and caulked watertight. Casings in the way of the Engine Room and Boiler Room, including all thwartship bulkheads between longitudinals, to be battened and insulated with Magnesia blocks and

ENGINE AND BOILER CASINGS (CONTD).

the underside of decks in the way of the Engine Room and boilers will also be insulated with Magnesia blocks, of approved quality throughout. The top of the 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. Skylight to be arranged for Engine Room as required. All rings necessary for ventilators to be properly fitted and made watertight. The light and air casing on the Boat Deck will be fitted over the Showers and W.C's in the way of the Engine and Boiler Casing and will be vented by Jalousie treatment to approval. The engine and boiler casing will be carried to about a height of 18" above the deck over Boat Deck houses.

BOW CHOCKS.

Steel bow chocks to be constructed aft of stem, as indicated on plans. Mooring pipes to be fitted where necessary. Bowchock plating being doubled in way thereof. Bowchocks to have angle steel bar on top and teak rail and to be stiffened by angle bar stanchions in the usual manner.

ANCHOR CRANE.

An approved anchor crane to be fitted.

DECK SUPPORTS.

The after end of the Upper Deck and that portion of the Promenade Deck which have passages, to be fitted with open rails and stanchions, as indicated on plans. Stanchions must be of sufficient size and thickness to conform to Lloyds' and Owners' requirements.

NAVIGATING BRIDGE.

Navigating Bridge & wheel House to be arranged on top of houses on Boat Deck, ~~&~~ as indicated on Plans. 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.

GUTTERWAYS.

Gutterways to be arranged on all the decks wherever necessary and as directed, such as on the after end of the Upper Deck, the open portions of the Promenade Deck and on the entire Boat Deck. The inner standing flange of channel or angle to be ½" less in depth than deck plank and waterway to be made watertight. Gutterways on the various decks to be made as narrow as practicable, in order to give full deck space for promenade.

STEEL SKYLIGHTS.

Steel skylights to be provided in the way of the engine and boiler casing where skylights are required for 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 wood as agreed by the Owners. The skylight over the Smoking Room will be ~~furnished with suitable ventilators~~ a dome skylight with special treatment of indirect lighting and special ornamental glass.

All skylights are to be fitted with all necessary quadrants for convenient handling.

Note:- There will be skylights over the toilets in the way of the Engine Room casing on the Boat Deck.

SERVICE TANKS.

Service tanks for cold salt and cold fresh water will be supplied on top of the Engine Room and boiler casing, as and where directed. Hot fresh water tank will also be supplied, this location to be determined by approval of Owners' representative.

All these tanks to be circular in form, constructed of steel plates of suitable thickness, thoroughly staved and stiffened by brackets plates and angles of suitable scantlings. Tanks to be fitted in steel seats on top of casings or as otherwise arranged. All tanks to be tested to 60 lbs. per square inch.

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

SERVICE TANKS (CONTD).

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

These tanks will be built as before mentioned, with dished ends.

The cold fresh and ~~hot~~ salt water tanks on the Boat Decks will be subjected by means of relief valves, to a constant pressure of 8 lbs, so that the top toilets will flush properly and also that the ~~hot~~ salt and cold water supply will be ample.

ENGINEERS' STORE AND WORK SHOP.

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.

SCUTTLE TO STEERING GEAR.

The 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.

MASTS.

Vessel to have two pole steel masts. These masts can be lightly constructed, as they are not for cargo purposes. 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. Fore Mast and Main Mast both to be stepped on the Upper Deck and both to have suitable stiffening arranged. To be properly wedged and have suitable mast coatings.

All iron work, lamp tables to regulations, and shroud connections to masts etc., must be approved.

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, winches and steam capstans to be bounded by welded steel angles rivetted to the deck, where no wood deck is laid. Where wood deck is laid, channel ways must be arranged for, of water-tight construction, approved by the Owners. Scuppers to be fitted to all beds.

RIVETTING.

The rivetting throughout the ship to be to Lloyds' requirements and to be carefully executed, and in no cases are rivets to be put into unfair holes. Where boring and reaming is necessary, care to be taken that all borings etc., are cleaned from between the surfaces before rivetting. 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 deck houses, casings and other miner portions.

Shell rivetting to be flush throughout, but in no case are the points when rivetted up to be under the surface of the plating.

Before rivetting 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 rivetted to Lloyds' 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. Water-tight bulkheads are to be close rivetted to side frames. All the butts of shell plating which are strapped are to be tack rivetted with half the total number of rivets as soon as the butts are formed and as the plating proceeds. Any butt not absolutely tight after being tested before caulking is to be taken down and made good at the will of the Owners Inspector and Builders' expense.

Special care to be taken with all the rivetting in the way of oil fuel tanks, which is to be up to Lloyds' requirements for this work to ensure a perfectly oil tight job and double rivetted. All water-

RIVETTING (CONTD).

tight 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.

Rivetting of stern frame to be carefully executed and machine rivetted where possible.

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

The angles on the ship's side for taking the guard must be so placed that the guard will not come above the top of the Main Deck beams, so that if it is desired to land the gang planks on the top of the guard, these planks will not project above the bottom of the gangway doors - this is to enable as much height as possible being obtained.

The curtain plates to extend 6" below the bottom of the beam and to be bracketted ~~through~~ to beams. - the throat of the bracket to be curved.

S M I T H W O R K .

STANCHIONS AND RODS.

All stanchions, rods and holding down bolts etc., within 10 ft. radius of any 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.

Stanchions with four ¾" diameter rods and two 1" diameter top rail to be fitted round bridge. Stanchions with four ¾" rods to be fitted on all decks where required, and the spacing of these rods to be approved. Every 2nd stanchion to pass through rails to curtain plate. Rails to be of teakwood except round bridge. The height of the various rails to be approved. All these stanchions must be substantial and through stanchions supporting decks overhead must be 2¼" diameter at the rail. Rods and stanchions to be fitted to all ladderways as required and round all ladder way openings where

STANCHIONS AND RODS (CONTD).

required. These to conform with the rods and stanchions in the vicinity. All necessary openings for passenger gangways, to suit Owners' special requirements, 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.

Flying Bridge to be well braced between the stanchions as hereinbefore referred to, and rail fitted all round as indicated on drawings. The thwartship rails to have gates fitted to approval. Note:- A portion of the Promenade Deck on both sides, extending for a distance of some 80 ft. will be enclosed with plating below rail and glass above.. At the forward end, a sliding door will be fitted to house, all to approval.

PASSENGERS' AND CREWS' LADDERWAYS.

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

JACK STAYS.

Jack stays to be fitted on skylight for lashing covers. All jack stays and sockets for same to be of galvanized iron.

STORM RAILS.

Storm rails to be fitted round Smoking Room and round the exposed portions of the Promenade Deck outside, at approved height. These rails to have brass sockets and rail to be of teak. Brackets to be ball brackets. Mahogany rails with nickelled sockets to be fitted in all the main passages and saloons, also in all passenger

STORM RAILS (CONTD).

W.C's and baths, also in Saloon in way of passenger entrance.

Rail to be fitted in crew's W.C's and baths as required.

CHAIN LOCKER SHACKLES.

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.,

Hinges of gangway doors in ship's side, to be of steel with gunmetal pins, having lubricating arrangement already reffered to. Strong backs of approved design, as per drawing submitted, 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 honges with brass pins, bolts and other fastenings as required.

CLEATS ETC.,

Cleats, eyebolts, ring bolts etc., to be fitted as and where required.

BUTCHER'S SHOP AND REFRIGERATING CHAMBERS.

Hooks, rods, round bars etc., all of galvanized iron, to be supplied and fitted where required, also blocks, racks and shelves where required in Butcher's Shop and refrigerated store rooms.

C A R P E N T E R W O R K.

D E C K S.

Boat deck to be covered with $2\frac{3}{4}$" thick by $3\frac{1}{2}$" wide well dried edge grained fir, in long lengths, full size after dressing, lumber must be thoroughly seasoned. Pitch pine will be accepted.

Joints of the planking on the underside to fit close and to be

DECKS (CONTD).

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, deck houses, gutterways etc., are to be carried well round from corners and are to be of teak. Margin planks round hatchways, deckhouses, all fore and aft and gutterways all fore and aft to be of teak. All deck planks to be white leaded in the way of beams before being laid and to be secured galvanized screw bolts and nuts in every case, having a bolt in each plank at each beam and at butts. All deck fastenings to come fairly in the centre of planks. Gromets to be fitted to all deck fastening bolts and nuts.

Note:- After caulking is completed, inside of rooms will be covered with Battleship linoleum.

Dowel holes to be filled in with white lead and pin dowels fitted tight. The deck planks to be caulked first with one thread of white cotton and then with oakum in proportion to the inch, but not less than three threads well hawsed.

Before delivery of the ship, caulking of all exposed decks to be set down and payed with No. 3 marine glue, and all decks so payed, 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 the contract.

PROMENADE DECK.

Promenade Deck to be covered with $2\frac{3}{4}$" x $3\frac{1}{2}$" wide 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 the houses to be laid with Corticene and Linotile. Corticene in staterooms and Linotile in the passages and Public Rooms. Corticene and Linotile to be laid on steel decks with suitable clips and to be laid in cement appropriate for the composition of covering.

UPPER DECK.

The exposed portion of Upper Deck aft to be covered with 2¾" x 3½" wide edge grain fir, similarly treated to the aforementioned decks.

JOINER DECK.

Joiner Deck over the houses on the Boat Deck will be laid with 1½" x 3" T. & G. edge grain, kiln dried pine or fir. Alternate deck beams to be of steel. The steel 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 ~~upper~~ under edge. The tongues and grooves and butts to be bedded in white lead before being driven home, and the underside of planks to be painted with white lead before being laid.

When complete, the deck to be hand planed smooth, all butts being perfectly flush. The deck to be laid with felt and No. 2 cotton canvas, the butts of canvas to have No. 6 cotton strips underneath bedded in white lead. The butts of canvas to be fitted close and secured with double pointed tin tacks, spaced no more than 3/8" apart. Where water-tightness is essential, coamings bedded in sheet lead will be necessary, such as round steel ~~castings~~ 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 tin 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 rceive four coats in all.

Note:- In the way of accommondation, all decks where exposed to be planed smooth.

CEILING AND SPARRING.

On Tank Top ramps and ramps will be fitted so that when elevator is down trucks can be handled to and from elevator platform to Tank top.

Ceiling to be fitted on tank top under hatch only. To be 3" thick laid on bearers and enclosed in angle frame. Chain locker to be sealed with 2½" thick lumber, bolted to frames and carried to a height suitable for stowing cable, as hereinbefore mentioned. Ceiling under chain locker to be caulked and paued. Holds from tank margin plate

CEILING AND SPARRING (CONTD).

round 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.

GUARDS.

Guards will be fitted around the ship in the vicinity of the Main Deck, as shown on Profile, and will be of fir 9" thick by 12" deep, tapered to 9" at the outer edge, in as long lengths as possible and will be faced with 3" x 9" Australian blue gum. Where the guards terminate at the forward end, they will be tapered away and gradually die out and the pieces at the end will be for a matter of 2'-6" all gumwood to the ship's skin and being checked out to 3", so as to finish the same as the balance of the gum wood.

RAILS AND WASHBOARDS.

Teak rails, 7" x 2½" finished size, to be fitted as hereinbefore mentioned. In the 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 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 necessary The washboards will be fitted to rail stanchions.

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, numbers being neatly cut in. Hatch covers to be fitted fore and aft and to be interchangeable to fit any section of hatch. In addition to the solid covers, hatches will have a half set of teak framed grating covers for ventilation. Arrangement to be submitted for approval.

MASTS AND 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

MASTS AND SPARS (CONTD).

on all decks.

On the weather decks, wedging to be of teak, on other decks of edge grain fir. All wedging to be thoroughly caulked and payed as in the case of deck planks and to be fitted with steel collars.

BOLLARDS, FAIRLEADS ETC.,

Bollards and/or cleats and fairleads to be fitted as shown on Plan. Six bollards to be fitted on Main Deck as indicated on Plan as and where required. Two bollards to be fitted in windlass room and four fitted on Upper Deck aft. Four bollards fitted on Promenade Deck forward. Two cleats with rollers to be fitted on Boat Deck as and where approved.

Bollards to be of cast iron, on steel seatings if required, with ventilating tops where necessary, to be securely rivetted to seatings or deck plating with all necessary fairleads placed conveniently to same. Fairleads to be bushed on gunmetal having turned steel pins. Bow and stern fairleads to have large size steel rollers and to be curved 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 bollards. Care must be taken to have suitable reinforcements under all bollards, fairleads etc.,

Note:- The pins and the cleats and fairleads having rollers, will be of gunmetal and treated in the same manner as the pins for the hinges of cargo doors.

All necessary leading blocks, cleats, belaying 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 hard close grained iron, with ample strength for the work. Fairleads to have large radius to save ropes.

HAWSE PIPES.

To have heavy cast steel hawse pipes for anchors and the bottom of pipe to be further out from the centre line than the top on each bow. To be carefully designed with a very easy sweep so as not to nip the cables

HAWSE PIPES (CONTD).

and having a substantial lip at the bottom where chain rids and hawse pipes to be fitted with collar pieces for securing to the deck. Galvanized close fitting covers to be fitted over upper ends of hawse pipes. Suitable arrangement of stopper to be provided for each cable. Cable holders to be bedded in plank without any seam under to avoid leakage.

Anchors to house readily without trouble and to be housed within shell plating line.

STEAM STEERING GEAR, ELECTRIC DYNAMO, CABLE HOLDER, CAPSTAN AND 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, in additional to the steel bed, to be bedded in teak at least 3" thick with heavy felt packing under.

Capstans to be bedded on suitable wooden beds suitably caulked and securely fastened with suitable number of holding down bolts, and grommeted.

The fitting of "Mascolite" or other approved insulating material under teak beds to be considered as a means of reducing noise and vibration.

CASINGS FOR TELEGRAPHS, 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 pipes from water closets or other discharge pipes to be properly cased in and insulated where required. Casings to be of wood with brass screws. Where necessary, pipes will be protected by steel plates 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 piping 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 securing pole~~ to rail, and a brass hinged socket on deck. A small flag pole to be fitted forward on stem band.

BAGGAGE, MAIL AND EXPRESS ROOM.

The Baggage Room will require special treatment and suitable doorway

BAGGAGE. MAIL & EXPRESS ROOM (CONTD).

to approval, must be provided as indicated on plan. All shelving etc., must be fitted and the arrangement entirely agreed to by the Owners.

The Mail Room and Express Rom, where shown on Contract Plans, to be fitted with shelves and dockets to approval. The door of the Mail Room to be a large door, 7'-0" wide, in two halves, each half sliding each way and to be hung from overhead so that mail truck can be taken into the Mail Room without a coaming being on the deck.

Floors of Mail and Express Room to be coated with Bitumastic and sides to be coated with Bitumastic, & finished white deck overhead in these rooms to be painted white three coats to improve light.

STANDARD COMPASS.

A standard compass, of approved make, to be supplied and fitted up on top of house on Navigating Bridge. To be surrounded by a teakwood framed grating and protected by brass stanchions. Other compasses, including ~~steering~~ 2nd Standard compass, telegraphs etc., of best make, fitted as and where required.

Please note that in every case, compasses are to be liquid compasses of the latest type and to approval.

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 AND DAVITS.

Boats to be supplied to the requirements of the Canadian and United States Steamship Inspection. All boats to be of wood and approved as lifeboats, with hardwood at gunwales, stem, keel, keelson and stern post and to be built to Owners' approval.

All boats to have 18 oz. copper buoyancy tanks and life lines becketted 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 indicating dimensions and capacity of each boat, to be cut in on

BOATS AND DAVITS (CONTD).

the stem. Boats to be of steel 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., to Inspection requirements. There will be two electric winches fitted, with double warping end so that lines from each end of the boat may be dealt with and the boat hoisted level. These electric winches will be placed as agreed in a position midships and will be capable of raising boats at the rate of 20 ft. per minute.

Boats will be placed about 7 ft. apart and space between fitted with rail extending inboard to boats stem and stern as well as connecting these rails to one another along the ship's side, all to approval.

Three copies of the construction and equipment of boats to be submitted to the Canadian Steamship Inspection before proceeding with the work.

CHOCKS.

Boats to be fitted with chocks, having necessary hinges, bolts, gripes, locking pins etc., all to pass the Canadian Inspection Act requirements. Also, canvas covers xxxxxxxxxxxxxx of best make, to be provided and fitted on suitable ridge poles etc.,

LIFEBELTS.

To be supplied in racks, there being two racks in rooms that can take care of more than two people and one rack in rooms for two people, and one rack in rooms for one person, each of these racks capable of holding two lifebelts. Lifebelts will also be supplied and stowed where directed to make the complement 1500.

DAVITS.

Approved davits of the Welin or Steward pattern to be fitted as and where required. All davit blocks to be of the non-topping 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 of sufficient height to allow of ample drift on the falls to lift the boats. To be fitted with guys, spans, swivels, eyebolts etc., complete.

(by the Builders for. the buoyancies the buoyancies will be made in Canada)

Note - Buoyancy tanks 4'-5½" wide, 6'-5¼" long & 9¾" high will be fitted on 1¼" bearers fitted on deck by builders. There will be three tanks under each boat, two between chocks and davit the 4'-5½" way and one between chocks the 6'-5¼" way. The bearers will be fitted

DECK COVERINGS.

The Captain's, Officers', Wireless Operator's, Engineers' cabins, Chief Steward's cabin, Purser's cabin, Freight Clerks cabin, all to be laid with linoleum, Corticene, Teakoid, or other approved material as may be selected for their 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 specially designed, such as the main entrance, Social Halls, Sitting Room, Smoking Room and Dining Room. Floors in all staterooms on the Upper and Promenade Decks to be Corticene. The various other main rooms to be linotile, except as hereinafter specified.

Engineers' Rooms, Engineers' bathrooms etc., to be covered with linoleum or Corticene, and vitrified tiles on bathroom, showers etc., or other approved material.
Engineers sitting Room to be covered with linoleum.

The Orlop Deck to be laid with Corticene or other approved material.

The deck in the galley and pantry to be laid with suitable bricks or tiles for the purpose, to approval.

All of the covering material used on the various decks must not be less than the maximum thickness for each class of material used and to be of approved make and of approved colour and design. All Corticene to be by approved maker and to be laid on top of composition in steel deck and to be guaranteed for 12 months.

The Main Deck will be covered with Decfat 1"

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

WATERTIGHT DOORS.

WATERTIGHT DOORS.

Geared sliding watertight doors are to be fitted to watertight bulkheads and as far as possible, they are to be of the vertical sliding type and horizontal doors are only to be fitted where absolutely necessary and to Owners' approval. Watertight doors are to be tested in the presence of Lloyds' and Owners' representative. All water-

WATERTIGHT DOORS (CONTD).

tight doors, both sliding and hinging, to be of approved make, operated by hand through gearing, 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. Bevelled 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 bevelled wheels to have machined teeth.

J O I N E R W O R K.

GENERALLY:

The Joiner Work throughout, both in Passenger and Crew's accommodation, to be done in the very best style of workmanship. All wood used being thoroughly well kiln dried and seasoned and the best of its kind. The wood bulkheads bounding staterooms, Purser's, Freight Clerks, Stewards', Stewardess,&Engineers rooms, Officers' and Engineers' Mess Room, to be constructed of two thicknesses of 5 ply wood, with tar paper between, and the framing to be laid out in panels so as to ~~make~~ cover the joints.

In the way of the passenger accommodation, certain of the framing will be hardwood.

A rail will run thwartships on the stateroom bulkheads in hardwood 10" wide in the way of the berths and also in the way of the wash basins. 6" wide. Special attention is to be given to securing of passengers' accommodation both as regards size, fittings and equipment.of Public Rooms, Staterooms etc., and ventilation by means of jalousies at the deck and grills between beams overhead, all to the Owners' approval. Provision is to be made for lifebelts all throughout the vessel, all to the Owners' requirements. Racks for all staterooms and Officers' lifebelts to be in hardwood, 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 and French polished.

JOINER WORK (CONTD).

All weather deck woodwork, such as ladders, doors etc., to be of hardwood, except where otherwise specified. All doors and all vertical lines of joinerwork must be fitted plumb off the waterline and any doubtful parts are to be carefully checked before being bound, so that they may be rectified if need be. Small metal fittings, nickel plates fittings, staterooms numbers etc., such as number plates, door 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 Special Rooms to be specially approved. The Purser's Office and Barber's Shop are to be fitted up to the Owners' requirements and suitable for their various locations ~~for~~ as regards desks, drawers etc., ~~xxxxxxxxxx~~, both as to locations, material and size, all to be approved.

Sample Rooms to be fitted up complete in Builders' Yard and to approval of Owners before proceeding with the work.

CEILINGS.

Ceilings in the Entrance Hall, Smoking Room, Dining Room and Public Rooms to be panelled and the beams cased in with approved material. Where beams are not cased in, they are to be finished in every respect to Owners' requirements.

PILLAR CASING.

Pillars in the various rooms, such as Smoking Room, Dining Room, Social Halls, Sitting Rooms to be cased in hardwood, finished as approved. Pillars to have capitals in keeping with the general arrangement of decoration of the various rooms.

STATEROOM BULKHEADING.

As previously mentioned, the bulkheading of the various staterooms to be of plywood, framed with hardwood in the vicinity of all Social Halls and Public Rooms, to approval.

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. Jalousies are to be fitted for ventilation . Divisional bulkheads in all staterooms to be of two thicknesses of 5 ply wood, with felt between,

-6

The scupper from the overhang of the Joiner Deck will be led through channels running from the outside of the houses to the waterways on Boat Deck and these channels will be covered with checkered plating - the planking on the Boat Deck being cut at the channels to suit.

STATEROOM BULKHEADING (CONTD).

and finished on both sides a agreed.

Divisional bulkheads in crew's accommodation to be of approved T. & G. or all steel, according to the requirements and location.

The accommodation forward on the Main Deck ~~&~~ has already been specified steel throughout.

STATEROOM LINING.

The lining of the ship's side in all first class staterooms to be framed in ply wood and finished flush or panelled and moulded to approval. This panelling will not extend to deck at the bottom and will be treated at top to secure air circulation.

All panelling will be ~~bedded~~ fitted up with ~~screw nuts~~ brass screws for convenience in taking down. The steel work behind the panelling to be coated with Bitumastic or other approved material before any lining is put up. 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 Officers rooms stated on the Main Deck. The ship's side in such cases will be left exposed and cork ~~ducted~~ dusted to the Owners' requirements.

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 about 1" thick, tongued and grooved and V jointed. The divisional bulkheads between water closets to be kept 6" above the top of the 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.

Note:- The arrangement of showers and W.C's on Boat Deck will require special treatment.

OFFICERS' ROOMS.

The bulkheading of the rooms in the Engineers and Officers' quarters to be treated similar to the staterooms, except where steel is considered best. Ship's side in these rooms at the ships side not to be lined, with the possible exception of the Chief Engineer's room. The bulkheading of the various rooms occupied by the crew on the decks above, such as Purser, Freight

OFFICERS' ROOMS.

etc., to be treated similarly to the balance of the staterooms. The 2nd Class accommodation will not be lined, but exposed frames and plating must be treated ~~to the treated~~ to the Owners requirements. Quartermasters, Quarterdeckmen, Sailors and Firemen and Chinese accommodation to be strongly constructed and neatly finished with Steel throughout ~~about 1" T. & G. thoroughly flush.~~ The ship's side ~~not to be lined in the way of this accommodation, but will~~ be cork dusted and painted to suit Owners' requirements.

WHEEL HOUSE.

The Wheel House will be panelled of approved wood throughout, hardwood where required a design to be submitted, and the arrangement of draining any water which may get between the lining and in the way of the sashes to be to Owners' requirements, with galvanized iron trays fitted under each sash and canvas aprons ~~trays~~ painted four coats, fitted to direct water to the trays, having a small lead pipe led to outside and ~~drains led~~ as required by Owners.

DOORS.

All wood doors where exposed to the weather to be of teakwood, with frame work of teakwood, having a large rabbet with groove for india rubber tubing to make the door watertight. Outside door sills to have brass step plates made to suit the rabbet and the brass plate to extend over the steel plating outside and to be turned down about ½", to prevent water getting in between the wood work and the steel. Doors to be fitted with nickelled brass hinges, brass locks with nickelled face plates and keepers, handles to be nickelled on inside and brass outside, nickelled ajar hooks on all staterooms doors and hooks to hold all outside doors when open to be of brass and all necessary mountings to be either nickelled or mounted as required.

The top of outside doors to be fitted with rigols. Outside doors leading to passages on all decks to be 3'-3" wide doors for convenience in handling furniture or other gear out and in, also large doors to Saloon Entrance and doors round Baggage Room. All outside doors generally to open forward, those to staterooms to be 2'-2" wide, as indicated on Plans, fitted with all the necessary stops and door springs, preferably Corbin springs, fitted to all large doors, doors to W.C. compartments,

DOORS (CONTD).

W.C. doors etc., to avoid shocks. W.C. doors to have jalousies in lower panel. All inside doors in passenger and crew accommodation to be principally of Cedar or Pine and those to staterooms to be 2'-2" wide and to conform in design with the surrounding woodwork. All inside doors to have sills to approval in passenger accommodation and in crew's quarters, sills may be galvanized iron or brass as required. All doors to have nickelled or ~~ship's bra~~ brass ship's hinges, nickelled or brass ship's locks, nickelled or brass handles, nickelled non-rattling ajar hooks, nickelled bolts and all other necessary fittings according to location. The above fittings will all be submitted for approval, but note, that the location will decide the nature of the fittings.

Ventilating louvres to be fitted on doors where required. Doors in all lavatories to be similar to the doors in the vicinity, with the exception of the width in the public lavatories and the Special Rooms, they will be 2'-0" wide. The width of the doors on the Boat Deck leading to the shower and toilet will be 22". Doors to bath rooms and showers 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 hardwood as directed. Water closets in second class accommodation and Crew's accommodation to be lattice doors. All water closets doors to be kept 6" clear of tiling on deck at bottom and top of door to be 6'-6" above tiling. Doors to all W.C's and bath rooms in the various accommodation to have indicator bolts, of approved makers. All doors to lavatories and baths to have ship's ~~lockers~~ locks, nickelled or brass as required and doors in all sanitary accommodation to have all necessary fittings. All water closet doors in public lavatories to spring open with catches to keep them open when not occupied. All lavatories in Special Rooms and on Boat Deck rooms with showers, to spring closed when not occupied. Doors to kitchen and pantry and ~~a~~ to all Stewards' 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 to the Dining Room to be solid doors, covered with approved material and to be arranged as kick doors, with the necessary brass plates and floor

~~spring~~

DOORS (CONTD).

spring hinges, 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, nickelled or brass, according to location, to keep doors open if necessary, and all the necessary gear required for the successful operation of these doors must be fitted. Emergency doors are to be fitted where shown on Plans and elsewhere where considered necessary to give ample means of escape from the various compartments, such as Orlop Deck aft, also tunnel.

Note:- All the 12 Special Rooms will have full length mirrors fitted, as and where directed.

Any Emergency doors in casings to be of steel. Where necessary, these doors are to conform in design to the surrounding woodwork. Doors to be fitted with all necessary hinges, locks, hooks etc., as may be required.

WINDOWS.

Windows in Wheel House are to be of Teak, with plate glass lights and to be about 24" wide by 3'-0" high, at least four of these windows must be made to drop. Sills of windows to be fitted with 1/8" x 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 Owners to drain water which may find access between the outside and the inside lining. All windows must be fitted with buffers to avoid shock should they drop by accident. Windows to be fitted in the after portion of the Wheel House for the purpose of enabling the Officer on watch to look aft. These windows to be neatly fitted and made watertight. Windows in all Officers rooms, staterooms on Boat Deck and staterooms on Promenade Deck, to be of teakwood with plate glass and fitted with the top half opening only - these must be of regular ship's construction, about 22" wide by 30" long, made thoroughly watertight. The design and size to be adopted after approval.

Note. These windows will not have balance weights, but will have rubber buttons fitted on sliding portion so that they are noiseless and due to the friction of the rubber do not open with shock. Rubber buffers to be fitted for sash to drop on when fully open. A spring catch to be fitted about 2" down from top to hold sash partly open if desired.

WINDOWS (CONTD).

The windows in the Sitting Room on the Promenade Deck forward and the Smoking Room will be large sized windows, about 2'-6" wide by 3'-6" high, of heavy plate glass.

Windows on the Promenade Deck will be similar to the windows on the Boat Deck, except the size will be about 22" x 32".

Jalousies of staterooms and Officers' windows will have jalousie blinds fitted to approval on the Upper, Promenade and Boat Decks where exposed to alleyways.

LADDER-WAYS.

Deck ladders to be fitted as shown on drawings, to give access from the various decks. All to be of teakwood of approved width and thickness, stringers being not less than 1¼" thick finished.

All ladders for use by passengers must be easy to climb, this is imperative and the head room in all cases must be such that 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 galvanized iron, as agreed. All these ladders, wherever located, to be substantially built, of ship's pattern, to conform to the Inspector's requirements, to have galvanized iron or rubber treads as required and to have all necessary hardwood hand rails, served, as directed. Two pilot ladders with stanchions and manropes complete to be supplied.

STAIRWAYS.

Stairways in passenger accommodation throughout leading from one deck to another to have hardwood stringers, treads, risers, hand rails and newals, 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 rudder treads. Treads to be fitted with ~~wide ribbed~~ smooth rubber treads, ¼" thick. Between the stringer of the stairs and the hand rail, a metal balustrade of approved design, will be fitted. Wherever suitable, stairways will be cased in underneath and doors

STAIRWAYS (CONTD).

fitted as required - the space under stairs will be for brooms.

STORM RAILS.

Storm rails of approved hardwood, about 1½" diameter, with the usual nickelled or brass fittings, according to location, to be fitted on one side of all cross passages in the 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 Smoking Room and Sitting Room to be fitted to approval, as to height and materials.

FURNITURE AND WOOD FITTINGS.

Fittings in First Class accommodation throughout, including Purser's office, Barber's Shop etc., to be of approved wood and of a design for the various compartments to the approval of the Owners.

The Dining Room tables and chairs, which are to be furnished by the Builders, will have hardwood frame and legs, but soft wood top, covered with felt and green baize as directed, to suit Owners' requirements. These tables to be 2'-7" high.

The furniture in all ~~[illegible]~~ Officers' rooms will be similar in finish to the First Class staterooms. All wood fittings in kitchen, scullery, bakery, butcher's shop, refrigerating rooms and pantry, are to be of approved wood or metal for their various uses. The chopping block in Butcher's Shop to be of approved size and of hardwood.

All seating inside Saloons and outside on Promenades to be fitted as required. The outside seating where adopted, will take the form of lifebelt boxes, of inside size as follows:- 16" deep, 20½" wide and length in multiples of 21". All sizes are inside sizes.

FRAMES AND NOTICE BOARDS 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, such as in various staterooms etc., Glass framed boards are also to be supplied for plans which hang up in Chart Room, Engine Room, Engineers' Rooms, or elsewhere, as required.

Notice Boards are to be supplied for propeller notices, smoking

FRAMES AND NOTICE BOARDS (CNTD).

notices, sailing boards, ballast and fresh water tanks, 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 compartment where required, also in Wheel House and on Navigating Bridge, also in way of standard compass, on all outside doors on the weather decks leading to various saloons, also at Main Entrance and ~~&~~ any gutterways as required.

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

DECK SEATS.

Teak sparred deck seats, with galvanized cast iron frames are to be fitted as and where required, with brass holding down bolts.

CHART TABLES.

Hardwood Chart tables of approved size are to be supplied and fitted for Chart Room as and where directed. To have all necessary mountings, drawers etc., all to Owners' approval.

SKYLIGHT.

Teakwood skylights are to be fitted up over Wireless Room, stairs, ~~all the inside doors on Boat Deck~~, over the Boat Deck lavatories and over the Engine Room, and over the Smoking Room, which will have a ~~skylight in addition to the~~ dome skylight to approval indicated on the drawings. All skylights for stairs and public rooms will be of special design and embodying designs of glass suitable to Owners. The inside rooms on Boat deck to have decklights.

METAL FITTINGS.

All metal fittings in first class staterooms, Purser's office, Barber's Shop and sanitary accommodation to be of ~~[illegible]~~ oxidized 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 oxidized white metal. All metal fittings for kitchen and pantry spaces to be of brass, lacquered or bronze, to approval.

METAL FITTINGS (CONTD).

All the following metal fittings to be to Owners' pattern, but supplied by the Builders:-

Electric light push buttons.
" " switches.
Watch pockets in Special Rooms only.
Locks for all doors.
Finger plates.
Number Plates.
Name Plates.
Door Sills.
Sponge Nets (To be on hardwood blocks)
Water bottle and tumbler holders.
Hat and coat hooks.
Towel Hooks.
Hand-holds over top berths.
Ajar hooks.
Curtain rods and rings.
Sanitary paper holders.
Metal hand-grips in bath rooms.
Towel rail brackets.
Storm rail brackets and all hinges, locks, keys, bolts etc., Self-closing spring taps throughout, and nickelled plate waste with trap from wash basins.

BEDSTEADS, BERTHS AND SOFA BERTHS.

Bedsteads for Special Rooms will be supplied 4'-6" wide by 6'-4" long in rooms shown on Plans. All other bedsteads will be 3'-0" wide by 6'-4" long.

All bedsteads, berths, sofa berths, spring mattresses for berths and sofa berths are to be as already mentioned, of Marshall type, similar to cut. All wire springs for mattresses, sofa berths etc., throughout the vessel are to be of Hoskins selected pattern, or other approved make, both supplied and fitted.

Note:- The heights of the various berths in the staterooms must be to Owners' requirements, the bottom of the leeboard of the lower berths must be 15" from the deck in order to allow steamer trunk underneath and the leeboard will not run parallel to the crown of the deck but will be fitted as approved by the 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 to approval, with due regard to the upper berths being low enough from deck to hinge up.

Numbers of metal or Ivorine outside each stateroom door and over each berth and sofa berth, small hardwood frames for notices etc., as may be required. The rooms on Boat Deck throughout will have brass number plates with the numbers showing illuminated, that at night time a person

in the dark can read the number.

COMMODE BOXES.

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

FIRST CLASS BERTHS.

Generally, the wide lower berth will be 6'-3" x 3'-6" and the upper berths 6'-3" x 2'-6". Leeboards to be of polished hardwood and hinged.

Note:- All berths on all decks are 6'-3", not ~~included~~ including studs for support.

All upper berths will be fitted to hinge up with mattresses, blankets, pillows and bedspreads intact and care must be exercised to so place the fittings for this purpose. As an example, electric moulding may interfere and blocking out of fittings will necessarily be required. Speaking generally, it will require about 6'-5" from wall to wall to accomplish this. All berths will have polished hardwood at back, about 5/8" x 10" as agreed.

CREW'S BERTHS.

Crew's berths to be of the standee type, with Hoskins wire springs, with iron standee stanchions, iron rails and iron leeboards, to Hoskins or other approved pattern, with white enamelled finish. To be 6'-2" x 2'-4" wide and of the number required for the various rooms. Petty Officers rooms to have drawers under lower berth to Owners' approval, in addition to any lockers etc., required.

CAPTAIN'S BERTH.

Captain's berth to be 6'-3" x 3'-6", the same as the lower berth in staterooms. To have hardwood leeboards and drawers with hardwood fronts to be fitted under berth, with a locker at one end for sea boots etc.,

OFFICERS' AND ENGINEERS' BERTHS.

Berths for all Officers', Engineers', Purser, Chief Steward, 2nd Steward and Stewardess, are to be 6'-3" x 2'-6", 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 in

OFFICERS' AND ENGINEERS' BERTHS (CONTD).

Captain's room.

SOFA BERTHS.

Sofa berths are to be fitted in all staterooms indicated on Plan and in all Special Rooms where indicated and in the Captain's and Officers' rooms where indicated, as follows:- Sofa berths to be in length to suit the various rooms and to be 2'-6" wide. All seats will be 2'-2" wide in the clear. Sofa Berths to have hardwood leeboards and to be fitted for ?????? upholstered back and ends as may be required.

SETTEES.

Settees with spring upholstered backs and ends to be fitted in all staterooms where indicated and to be at least 2'-3" wide from wall to ouside of face and front of settee to be fitted up wuth hardwood facings all to Owners requirements.

FIRST CLASS ACCOMMODATION.

Dining Saloon, First Class Smoking Room, Sitting Rooms, Entrance Halls and Hallways in the way of all stairways ~~of~~ to the various decks and to Dining Room, to be designed throughout to the Owners' approval.

BARBER'S SHOP AND MANICURIST.

Barber's Shop to be arranged where shown on Plans. 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. Hat and coat hooks fitted as and where required. Detailed plan of Barber's Shop to be submitted for Owners' approval before going on with the work.

PURSER'S OFFICE.

Office to be fitted up with stand up desk with drawers underneath, the face of these drawers being kept back about 8" from the face of the stand up desk, a ~~Naval~~ knee hole desk with drawers, ticket desk and all special drawers required, racks, pigeon holes, keyboards in duplicate, grills (similar to bank grills), and all this arrangement must be to the B.C. Coast requirements in every particular and will be hardwood finish throughout.

FIRST CLASS SPECIAL ROOMS.

To be arranged where shown on Contract Plans. All these spaces will be finished as directed and to Owners' approval. To be fitted with electric fans as directed, plugs for electric radiators and also for electric curling irons.

FIRST CLASS STATEROOMS.

Arrangement of first 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 and one coat hanger in each ordinary room. In large rooms on the various decks and all Special Rooms will have six hat and coat hooks and two hangers. Wash basins with hot and cold fresh water in each room. In each first class rooms, basins to have spring self-closing non-concussion taps, to be of approved type&size, and to be of selected design for all Special Rooms, with suitable mirror ~~for~~ over each wash basin or as where directed, bottle racks and selected arrangement of mirrors, water bottles etc., for Special Rooms.
Note:- All looking glasses in every room to be so fitted with swivelled mirrors at sides, that a person shaving can swing these side glasses to various angles.

One or more electric light in each stateroom~~s~~ for lighting room according to the size and shape of the room, the lights will be more.

All berths to be fitted with electric reading lamps, one for each berth and also for each sofa berth. Lighting arrangements of the large rooms and Special Rooms must be to the Owners' requirements. Electric light switches for the rooms to be fitted at the ~~s~~ entrance of door ~~to~~ the staterooms, in a position convenient to both upper and lower berths, ~~as and~~ and as where directed.

All curtain rods to have end brackets and those for the berths to have centre supports with suitable leather served curtain rings.

Lifebelt racks to be fitted in each staterooms between beams overhead or elsewhere as required. Racks to conform to Company's requirements.

Metal towel hooks and metal towel rails to be fitted in each stateroom, as and where directed.

FIRST CLASS STATEROOMS (CONTD).

All staterooms to be fitted in every way complete, in first class manner. 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., to approval.

OFFICERS' ROOMS.

To be fitted up with wash basins, with hot and cold water, with spring self-closing non-concussion taps, water bottles, hat and coat hooks, electric light overhead and electric reading lamps, similar to first class staterooms.

Captain's room to be fitted up with desk.

First Officer, 2nd and 3rd Officer, Purser, Chief Steward, Stewardess, Chief, 2nd, 3rd and 4th Engineers, to have desks fitted up.

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

First Officer's desk similar. Chief Engineer's and 2nd Engineer's desk similar. 3rd and 4th Engineers to have 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, as required.

All Officers', Engineers, Purser's, and Stewards' rooms to be fitted with book cases.

Engineers' lounge to be fitted up with hardwood table and upholstered chairs as required.

SECOND CLASS ACCOMMODATION.

Forward on the Upper Deck, accommodation will be arranged for second class, as indicated on plans, with standee berths, a sitting Room and toilets, as indicated. To be all steel

In the Second Class, all seats will be plain but substantial and to have tables fitted with the necessary ash trays etc.,

Wash room and toilets to be fitted up in a similar manner to the crew's wash rooms below.

CREW'S WASH ROOMS, BATH ROOM AND WATER CLOSETS.

To be plain, but substantial. Lavatory basins in bath rooms to

CREW'S WASH ROOM, BATH ROOM AND WATER CLOSETS (CONTD).

be fitted with hot and cold fresh water. All floors to be tiled in the way of these water closets, bath room for 2nd class and crew.

OFFICERS' AND ENGINEERS' MESS ROOM.

Officers' and Engineers' Mess Room to be fitted up with hardwood table tables and upholstered seats and backs in leatherette in the usual manner of 1st class passenger steamers.

To be fitted up with all necessary racks etc., required.

CREW'S MESS ROOM AND PETTY OFFICERS' MESS ROOM.

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

ENGINEERS' BATH AND WATER CLOSETS.

To be fitted up similar to 1st class passengers, with wash basins, with spring, self-closing, non-concussion taps. To have hot and cold fresh water for the baths and hot and cold fresh water to the wash basins.

OFFICERS' BATH ROOM AND WATER CLOSET.

To be fitted up similar to 1st Class accommodation, with hot and cold fresh water and wash basins with spring, self-closing, non-concussion taps, to also have hot and cold water.

WHEEL HOUSE.

To be arranged as shown on Profile, and to be fitted up with steering wheel and standard connected to steam steering gear by approved method. To have liquid steering compasses, as hereinbefore indicated and also inclinometer.

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 dipping the light to be fitted and any other fittings required by the Owners.

BRIDGE.

BRIDGE.

Navigating Bridge to be situated on to of houses at forward end of Boat Deck and forward of Pilot House. To be fitted up with side screens and navigating lights. Teakwood boxes for holding night glasses amd telescopes. Teak gratings of small mesh to be laid on deck where required. Engine, docking and steering telegraphs and all other fittings to be to Owners' approval and requirements.

Compasses to be fitted, with suitabke teak gratings round same.

HAND STEERING ARRANGEMENT.

Arrangements of hand steering to be aft, with the necessary gear for steering engine and compass to be arranged to Owners' requirements.

All compasses to be Kelvin, unless otherwise agreed.

WASH BASINS.

Wash Basins in all first class staterooms and Officers' rooms throughout to be of type approved and must be of such oattern that they will project the least possible distance into the rooms. The basins in all cases could be oval, to be cast iron enamel in all public lavatories vitrified elsewhere, as supplied by Shanks, and all to be fitted with nickelled self closing non-concussion taps.

Under each wash basin or other convenient place, as receptacle is to be fitted in every stateroom and Officers' rooms for the reception of used towels.

BATHS.

Baths in 1st Class accommodation, Officers' baths and Engineers' baths to be of vitreous enamel, except in the Special Rooms, where the Owners may require porcelain. Baths to be firmly set and to be of a size approved by the Owners. Baths to have hot and cold fresh water supplied throughout. Officers' baths and Engineers' baths also to have hot and cold fresh water. All bath fittings to be of approved pattern before being purchased. The taps for all baths to be 1¼" taps.

~~Baths for crew and 2nd Class to be enamel, and fitted with hot and cold fresh water.~~

Note:- All fittings for these baths to be approved and all fittings for baths and lavatories ~~and~~ in Special Rooms to be of special design to approval.

SHOWERS.

Showers, wherever located, to be porcelain lined, shoulder high, having coaming in each compartment with scupper to each shower, and spray from shower will be circular, according to location. The mixing valve for mixing the hot and cold water must be specially designed, so that a pilot tested hole for temperature will be open before the actual water is discharged ~~from~~ through the showers.

FITTINGS.

1st Class lavatories will each have the following fittings:- Mirrors, brush and comb shelves, hooks, rollers on 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 on 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~~ throughout 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 2nd class and crew must be neatly fitted up with all necessary conveniences.~~ Towel boxes for individual towels, with all towels connected on a rod by means of a ring, so that a clean towel can be taken from one box and when used deposited in another box, the rod leading from one box to another.

KITCHENS AND PANTRIES.

All kitchen and pantry spacing to be enclosed in steel casings, ~~except where otherwise specified.~~ These steel casings for a height of at least one foot above the deck, and the deck itself to be caulked and made watertight and tested with water before any tiling is laid. All necessary fans and ventilating arrangements to be to Owners' approval and all permanent fixtures necessary for the Stewards' requirements in the way of dressers, shelves, sinks, plumbing etc., to be supplied and installed. Sinks to be 2'-6" long x 18" wide by 12" deep. Tee, coffee and hot water urns to be metal sheathed and to be G.R. Prouse Manufacturing Co., Montreal, to be about 18" diameter x 3'-0" wide. Coal bunker to be fitted in galley. Slop chutes to be fitted somewhere on Main Deck, convenient to the galley. Any bulkheads in kitchen that may require insulation are to be efficiently insulated with Magnesia

KITCHENS AND PANTRIES (CONTD).

blocks and galvanized sheet iron. All shelves, dressers and racks for stowage of crockery, glass, cutlery etc., are to be detailed. Detail plan of all kitchen and pantry spaces to be submitted for approval before going on with the work. All necessary cup hooks to be fitted overhead as arranged.

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.

Range, steam table, hot press, cup hooks, plate warming closet, Bien Marie, stock pot, 1 electric 12 slice toaster & electric egg boiler and all other galley and pantry requirements complete must be supplied. The Owners will expect the galley and pantry complete ready for the crockery and cutlery they supply.
The range will be oil fired to approval.

BAKERY.

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

BUTCHER'S SHOP.

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

PANTRY.

To be fitted up with sinks, drain boards, dressers, shelves, glass racks etc., to suit Stewards' requirements. All to be submitted for approval before proceeding with the work.

REFRIGERATING CHAMBERS.

Refrigerating Rooms as indicated on Plan to be thoroughly insulated on deck overhead and sides, fitted up with all shelving, hooks etc., as required by Stewards. These various cold chambers will require to be maintained at a temperature as approved by Owners and to have a 30 gallon tank in the chamber on Main Deck connected to the cold fresh water supply, fitted with a discharge leading to a spring loaded tap in the galley for cold drinking water.

BAGGAGE ROOM.

To be as hereinbefore mentioned, specially treated. Arrangement to be agreed to by the Owners and the arrangement of doors must be approved.

MAIL ROOM.

To be arranged as shown on Plans. To be enclosed with steel and fitted with all necessary shelves, to be divided into compartments and dockets as required.

Doors of Mail Room to be special doors with special locks approved.

EXPRESS ROOM.

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

PAINT LOCKER.

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

LAMP ROOM.

To be fitted up with steel throughout, with necessary dresser, drawers, shelves etc., dresser top to be covered with lead, as approved.

BOATSWAIN'S LOCKER.

To be fitted up with all necessary gear as approved.

LINEN ROOMS AND LOCKERS.

The various Linen Rooms to be fitted up with shelves for linen as required and to have a chute arranged on each deck to land linen on the Main Deck as required.

Generally: All Stewards' 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 plans 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.

Theedges of raised strakes of plating in double bottom tanks to be flushed off with a tapered lower of cement, composed of best Portland

CEMENT WORK (CONTD).

Cement mixed with sharp fresh water sand in equal proportions and all ballast tanks, fresh and feed water tanks in double bottoms and peak tanks, to receive two coats of Rosbanite, except where otherwise specified.

Frames at back of the stringer bar to be filled in with wood chocks next to the stringer and covered with bitumastic cement, well grouted and weathered off from top of bar.

Special care to be taken in cementing round pipes and ventilators which pass down back of the 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 the 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 to be tiled are to have steel plating boundary bulkheads caulked watertight for not less than 1" above the deck and deck spaces are also to be caulked watertight.

Note:- Scuppers must be fitted in every one of these compartments and on both sides of the compartments in the funnel casings.

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 deck house side plating to be smoothed over with Scotch cement before painting.

P L U M B E R W O R K.

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 Lloyds' 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 1½" and to plate No. 1920, page 143, having the words List

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No. 132 at the bottom of the 1st page.

The piping immediately connected to bilge strums will be lead pipe 5/16" thick. The portion of flushing supply connected to W.C. bowls to be lead. The first portion leading from scuppers to be lead 3/16" thick, and nickelled traps to all wash basins and any place in close quarters requiring offsets to be lead, and the arrangement of traps 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.

The casing in way of engines and boilers on Boat Deck is 11'-6" to allow discharge to go inside of casings.

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 water tight 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

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iron pipes are joined together a lead washer or distance pieces should be fitted to prevent wastage by galvanic action.

Wherever lead pipes are 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 grounds for protection against abrasion. When large bore lead pipes are carried alongside the Upper Deck, they are to be efficiently supported by hangers from every beam; this is preferred to continuous wood boards, both for detection of leaks and for access to same. Where small bore lead pipes are run in vertical lengths, the lower bend is to be reinforced 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 2½" to be flanged, below 2½" to ~~have couplings~~ be ~~to~~ American Standard thread. with American fittings. 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 are 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.

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, 2¼" in diameter, and discharging through galvanized iron pipes into gutterways on Promenade Deck, or overboard below Main Deck.

Promenade Deck to have a sufficient number of scuppers on each side 2½" 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 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 Room, 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 discharge 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 connection on both sides of ship, which connection will be 2" male thread, American Standard, and supplied with cap.

⊗ Special attention must be 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 oil tight tubes or a tunnel extending from fore oiltight bulkhead to after oiltight bulkhead must be fitted of sufficient diameter to enable all pipes to pass through the tubes and leave room for repair. Special 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 will still be protected. When the oil tanks are tested the covers, if fitted, must be removed from tubes so that the tube or tunnel can be examined for lightness

FRESH WATER FILLING PIPE (CONTD).

Pipes and fittings to suit 2" American standard thread hose. The location of the ship's side connections 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 port and starboard side.

TANK AND BILGE SUCTION PIPES.

Separate suction pipe to be led from each water ballast fresh water and feed water tanks in the double bottom to the ballast 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 aft 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 suction manifolds to be 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 1¼" in diameter are to be fitted in bottom of vessel to all peaks, tanks, bilges etc., with brass screw plug and protecting shield rivetted 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 Lloyds' 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 Lloyds' 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

SOUNDING PIPES (CONTD).

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 out 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 1½" in diameter with the exception of the oil sounding pipes, which will be 2½" in diameter, 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 diameter 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 galvanized iron swan-neck ventilator.

All air pipes in double bottom tanks wherever possible, should be led up to 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". The connection on ship's side is to be increased above 4", so that the area lost by the gauze wire joint at ship's side may be compensated for. Vent pipes from oil fuel Tanks to be carried ~~up on sh~~ as high as possible below upper deck & there ~~enlarged as stated~~ ~~above~~ have an enlarged connection as stated above

OIL FUEL FILLING PIPE.

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

The 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.

OIL FUEL FILLING PIPE (CONTD).

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

OIL FUEL BUNKERS.

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~~ both sides of ship side and to be male thread with a cap, so that one ship can supply oil to another vessel. This pipe ~~be~~ to 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. Steam pipe coils to be fitted round suctions at thwartship deep oil tanks and also round suctions of double bottom fuel tanks. Note. The exhaust from heater steam for tanks & also from heaters to be led overboard through a 1" Sargo trap fitted at ships side to approval

FRESH WATER AND FEED WATER TANKS.

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 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 hereinbefore 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 that automatic relief valve to return overflow from the cold tank to the fresh water tanks. Hot fresh

FRESH WATER AND FEED WATER TANKS (CONTD).

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. Non-concussion self-closing taps to be fitted of approved make, as and where required, both for staterooms and for ship's use. All staterooms and Officers' rooms' taps will be nickelled.

Note:- All piping throughout the ship must have distinctive colours to indicate whether salt or fresh water, steam or exhaust or oil. All to approval.

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. Cooled by brine pipe and a circulating arrangement to be fitted so that at all times cool water is available.

~~SERVICE ROOMS.~~

~~To be fitted as required.~~

HOT FRESH WATER SERVICE.

Hot fresh water supply arranged in suitable sections of copper pipe to be led from the service tanks, with branches to all sinks, wash basins and baths, as hereinbefore 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,

HOT FRESH WATER SERVICE (CONTD).

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 ends 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 copper, of selected 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 ¾" 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 such to be in each 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 hereinbefore 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 to be continuous and as arranged. Complete plans of the sanitary service to be submitted and approved by Owners before going on with the work.

SANITARY SERVICE (CONTD).

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 ensure an adequate flushing arrangement.

Water closet flushing pipes are not to be less than 1½" bore, with regulating valve to each water closet. All water closet soil pipes are 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 when the number of W.C's exceeds six, the size of pipe must be proportionately increased, and to be carried out through ship at water line, with storm valves.

Note:- All water closet pipes must be vented to the open 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 crew's lavatories to be adequately arranged. All water closet flushing pipes to be arranged so that valves may be removed for repair at any time.

FIRE AND WASH DECK SERVICE.

The fire service throughout will be galvanized pipe graduated in size so that outlets for hose connection will be 2" dia. and these outlets will be so located that any fifty feet length of hose will meet another fifty feet 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.

PIPING.

All steam and exhaust pipes to be galvanized iron with large bends where bends are required, also expansion bends for all

PIPING (CONTD).

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 thorough 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 discharge to be led as and where required. All steam and exhaust pipes to have adequate freedon 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 ~~beeing~~ 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~~ led to the Engine Room into auxiliary exhaust range from whence they may be diverted to the various heaters, condensers, and the atmosphere, 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 be supplied for heating arrangement as approved, with all necessary valves, drain cocks, traps and expansion joints.

Heating of the Smoking Room, Special Rooms, 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 individual heaters in each room.

The Officers' rooms on the Boat Deck will have an independent

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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 Utley's or equal 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 throughout the Engineers' rooms on Main Deck to be 16" clear glass, and swivelled where required. All side lights under the main Deck are to have galvanized hinged covers, covers to be hinged on top. 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 on Orlop 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 1st Class accommodation where side lights are fitted, 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 2½" wide by 2" deep, and fitted with flanges for suitable detachment. All side lights to have rigols. 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. with strong plate glass Top half being made to open and fitted with strong plate glass. Windows in 1st Class Smoking Room to be of a large size, as hereinbefore mentioned.

NAME.

The name of vessel and port of registry to be cut 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, one to be 16" and one 8", 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.

It is preferred to have a square recess cut 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 AND RODS.

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

LOCKS.

All door and other locks to be entirely of brass, nickelled where required, and to be of pattern selected by Owners. All to be of the best make and quality of metal, and have brass or nickel plated keys, all labelled and numbered to correspond to key boards. 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, book-

LOCKS (CONTD).

cases, writing tables, etc., as required by Owners. Special locks are to be fitted to the following spaces:- Captain's Room, Officers' rooms, Purser's Office, Engineers' rooms, 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.

NOTE:- All locks for Officers', Engineers', Purser's, Stewards', and all staterooms to be fitted with ajar hooks, holding the various doors slightly open, in which position the ajar hooks can be locked by the bolt of the lock so that no one can release the hook and enter the room.

TELEGRAPH, VOICE PIPES ETC., Engine docking 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. Engine Telegraphs on each side of bridge as well as in Wheel House.

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 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, toeplates, tread plates, rail mountings, name plates, direction plates, brass key labels, ~~and~~ 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 lino tiles to pattern. Main Entrance to be tiled with lino tiling to pattern. The 1st Class lavatories and Bath Rooms to be tiled

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with approved vitrified or glass tiling to pattern. All Special Rooms and rooms with showers must be tiled to approval. The Officers' bath and toilets, and the Engineers' bath and toilet, to be tiled to approved pattern. The 2nd Class wash room, toilets and bathroom, Sailors' bathroom and toilets, and 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.

U P H O L S T E R Y W O R K.

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 in the Smoking Room, Sitting 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 seats, sofa berths and settees, in fact all upholstery in the vessel throughout. 2nd Class seats to be supplied and covered by Builders with approved material.

Dining Room chairs in 1st Class to have coil spring seats, upholstered in leather. all upholstery throughout that may have coil springs, the same must be secured to avoid tilting.

HEATING AND VENTILATING.

The heating of the Officers' Rooms will be with radiators arranged separately as hereinbefore described.

The heating of the staterooms on the Promenade Deck will be individual heaters, working pressure 50 lbs. The heating of the ~~Observation~~ Sitting 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 individual heaters.

Special Rooms will have special heating arrangement of radiators and also electric heaters. Rooms on Boat Deck will be heated by individual heaters.

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

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 hereinbefore mentioned. The Crew's quarters will be heated with radiators of ample capacity to keep these rooms at normal temperature.

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 manifold in the Engine Room.

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

In the general heating system, copper 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.

HEATING AND VENTILATING (CONTD).

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

VENTILATATION.

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. The 1st Class lavatories throughout will be ventilated through the various shafts indicated on the plans. The usual ventilating arrangement must be fitted in the skylight over the Smoking Room. The galley and pantry will be ventilated by means of a large electric exhaust fan of selected type fitted as approved to ventilator from galley through which the galley funnel does not pass so as to extract the heated air from the galley, on the inductor system.

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 efficiently ventilated. Ventilations to be specially well attended to in the way of shaft tunnels, storerooms and galleys. Public Rooms to be well ventilated.

Store rooms 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 waterways 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 colour. 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 vent pipes through accommodation to be nade airtight. Wherever practical, ventilators are to be arranged on top of companion ways, skylights and waterways where suitable,

VENTILATION (CONTD).

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 crew's quarters forward, Chinese quarters, and crew's quarters aft, will all be accomplished with electric blower fans, forcing fresh air into the various compartments, each compartment will have separate fans. The exhaust will take care of itself through the various openings. Trunks will be fitted to draw from the atmosphere and discharge in the various compartments. Provision to be made to supply ample fresh air to every room, passage and compartment below the Main Deck, on the Punkah Louvre system.

STEAM STEERING GEAR.

Steam steering gear of selected make, 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 Wheel House on Navigating Bridge, as hereinbefore stated, and small hand wheel for direct operation of the steering engine control valves to be fitted in steering compartment. The control of steering gear from the Bridge is to be mechanical, all the bearings to be roller bearings, and the whole arrangement of leads, gears, universal joints etc., to be approved before putting the work in hand.

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.

W I N D L A S S A N D C A P S T A N.

Electric windlass in two units 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

WINDLASS AND CAPSTAN(CONTD).

1½" Teak bed fitted inside watertight cants 5" deep. The inside of the cants to be fitted with scuppers.

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

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

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

On all warping balls or drums whelps are notto be cast on, but to be fitted portable so that they may be renewed when 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 shocks.

E L E C T R I C W I N C H E S .

Electric winches of an approved maker to be provided for hoisting boats, and to be arranged ~~as shown on Contract Plans~~ one on the Port side and one on the Starboard side so Located that any boat can be hoisted.

All winches to be capable of efficiently performing the maximum work required.

Both winches to be operated by electricity.

Winches to be fitted with all necessary connections and cables.

Winches to be fitted with strong beds.

The freight elevator will be handled with motor.

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 Superintendent 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 galvanized 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.

RIGGING (CONTD).

Shrouds, backstays and stays to be set up with rigging screws, and all to be spliced in on galvanized 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.

~~Ratlines to be fitted to the rigging.~~

All necessary rings and irons to be fitted, belaying pins for lines, flag halyards, wireless etc., to approval.

FUNNEL STAYS.

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

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 patent roller sheaves of brass with steel pins and to be inside strapped.

Blocks throughout to have swivel eyes, and 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-topping type.

C A N V A S W O R K .

WEATHER CLOTHS, SCREENS AND DODGERS.

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

Jack stays top and bottom.

COVERS.

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

PIPE COVERING.

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

GENERALLY:

All canvas work necessary and usually fitted in 1st 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 Builders' hands. Samples of all canvas to be submitted for approval.

N A M E P L A T E S .

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 rhe Public Rooms, Staterooms, and berths to be to Owners' requirements but will be oxydised white metal or ivorine. Plates indicating the number of rooms in each passageway to be fitted. All lavatories etc., in passenger accommodation to have oxydised 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 2nd Class and crew's quarters as required by Owners.

T E L E G R A P H S .

ENGINE TELEGRAPH.

Two Chadburn's improved or other approved screw telegraph with reply to be fitted, two on the Navigating Bridge and one in the Wheel House. The latter is to be connecyed with the telegraphs on the Navigating Bridge. Dials 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 Wheel House and aft within access of the after capstan, to be fitted with replies. Dial to be about 12" in diameter.

L A M P S .

Oil swinging lamps are to be supplied in the following rooms, or bracket lamps as agreed:-

Captain's room.
Officers' rooms.
Engineers' rooms.
Purser's room.
Stewards' Room and
Special Rooms as required by Owners.
Engine room at least six bracket swinging lamps and galley two.

P A I N T W O R K .

The whole of the steel and iron work 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 four coats finished to approval of genuine red lead and white lead mixed, except where bitumastic is specified. The whole of the outside steel and iron work is to have three coats of genuine red lead and white lead mixed before launching.

The ship is to be drydocked before trials and the bottom to be well cleaned and coated with two coats of anti-corrosive composition or apexior as stated. and one coat of anti-fouling composition.

All inside steel and iron work 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 iron work is to be thoroughly dried before next one is applied.

PAINT WORK (CONTD).

All fresh, hot or cold and salt water service tanks to be coated internally with "Rosbonite" 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, and rubbed down. All deck work and houses on Boat, Promenade and aft on Upper Deck to be painted four coats and finished as required. All staterooms, passages and casings in 1st Class accommodation, kitchen and pantries to be enamel painted with approved make of white enamel. Officers' rooms to be painted four coats and finished white enamel 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 iron work in way of accommodation and also on all exposed ironwork on Officers' and crew's quarters and spaces utilized for the operation of the ship, such as kitchen, pantries etc.,

BITUMASTIC COVERING.

Bitumastic enamelling of Wailes Dove or other approved make is to be laid on tank top about ½" 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 1/16" thick:-

Steam Steering Gear Space.
Engineers' Store Room.
Stewards' 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 1st Class accommodation, which is afterwards covered with lining. Bitumastic solution to be coated on all ballast and bilge suction pipes.

O U T F I T .

ANCHORS, CHAINS.

Anchors and chains to be one grade above Lloyds' requirements, and

OUTFIT (CONTD).

ANCHORS, CHAINS (CONTD).

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 & be flush with the shell plating. Cables are to be by an 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 AND NAUTICAL INSTRUMENTS.

Builders will supply Boats' compasses in brass case, each with lamp complete. Builders will supply clocks as electrically controlled follows:-,

One clock for Captain.
One clock for Engineers' Mess Room.
One clock for Officers' Mess Room.
One clock for galley.
One clock for head of stairs in Upper Deck entrance, fitted to engine and boiler casing.
One clock for Dining Room.
One clock for Pilot House in addition to Master clock

All the clocks including Engine Room clock are to be wired and magnetic controlled. All clocks other than these specified above, including Master clock in ~~wheelhouse~~ Chartroom, 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 fit them up as and where directed by Owners.

Builders will supply such navigation instruments, as required to be fitted on board ship, such as Sounding machine Taffrail log. All compasses fitted in the vessel to be supplied by Builders and must be of the latest liquid type, tested and accurately adjusted by competent adjusters before vessel is handed over.

FLAGS AND SIGNAL CODE.

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

FLAGS AND SIGNAL CODE (CONTD).

One signal code book.
One Canadian Dominion Ensign, 5 yards.
One Canadian Dominion Ensign, 2 yards.
One American Ensign, 5 yards.
One British Ensign, 5 yards.
Two Boats' Ensigns, 1½ yards.
One Burgee with ship's name, 6 yards.
Two house flags.
One Blue Peter.
One Pilot Jack.
One Quarantine Flag.
One yard of red, white, blue and 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 side lights, consisting one one port, one starboard and one fore mast headlight and one main mast headlight.

One set of oil side lights consisting of one port, one starboard, one fore mast headlight and one main mast headlight.

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

~~Three~~ Two red globes 10" in diameter, ~~three~~ Two black balls 24" in diameter. One electric Morse lamp, and any other lamps required to fulfil the requirements of the Canadian Government regulations.

DISTRESS SIGNALS:-

Two Shipwrecking Distress Flags.
24 Cotton ~~Power~~ Rocket Distress Signals.
12 Distress Rocks (1 lb. each) in tin case.
24 pocket Distress Signals.
2 Deck Sockets.

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

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 Lloyds' and Owners' 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 and lighting throughout, at 110 volts. Installation to consist of three Diesel driven generating sets direct coupled. Each generating set must be capable of being worked independently or any two together, or three together. These machines must not be coupled in parallel. The negative pole of each machine to be coupled to one common bus bar. There will also be electric heating arrangements, electric fans, elevator, electric winches, Capstans windlass and searchlight. The dynamo sets will be three units of 60 k.w. each, Diesel driven.

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 armature 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.

Note:- All fittings except switches must be to American standard, with screwed sockets and all lamps, except for navigation lanterns, must be metal filament lamps. The navigation lamps to be double filament carbon 32 C.P. lamps.

Power to be on separate circuits from lighting.

SPARE GEAR FOR DYNAMOS ETC.

1 Armature.
2 Field Coils.
1 set Dynamo Bearing Bushes.
3 sets Carbon brushes.
1 set of Commutator grinding blocks.

Main switchboard fitted in Engine Room with double pole main switch and fuse for each dynamo. One of these switches to be fitted with double throw arrangement for ~~lifting~~ lighting from shore, having armoured cable led to plugs, one on the port and one on the starboard side of the Main

SPARE GEAR FOR DYNAMOS ETC.,

Deck where directed, and the switchboard must be fitted up with single pole three way switches, so that each circuit can be connected to any Dynamo, 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 enamelled slate. Switchboard to be provided with field regulator and the usual instruments, voltmeter, ammeter, and earth detector. 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, controlled from the Wheel House with the indicator in Wheel House to show when any of these lights have gone out, with a separate switch for each light and each lights 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 Sitting Room, alleyways and Boat Deck are to be within control of the Wheel House.

BOAT DECK.

Will be supplied with two feeds, starboard and port and will be arranged with two junction boxes, from which will be led at least four distributing boxes from each junction box, and from which distributing boxes the various light 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 switchboard distributed through two junction boxes, starboard and port, leading to the various distribution boxes from which the light circuits are led. Special lighting arrangements are to be agreed upon for the Sitting Room, stairs, wells in way of stairs and Smoking Room.

UPPER DECK.

To have two feeds from the main switchboard, distributed through at

UPPER DECK. (Contd).

least two junction boxes to the various distribution boxes from which the various light circuits will be led.

MAIN DECK.

Main Deck will have two feeds from the main switchboard distributed through at least two junction boxes leading to the various distribution boxes from which the light circuits are led.

Note:- Special treatment to be given to the Dining Room on Orlop Deck.

ORLOP DECK.

Orlop Deck accommodation to be lit from the Engine Room direct, having two junction boxes etc.,

Note:- All distribution boxes for fuses and also fuse boxes to be of hardwood. All fuses in above boxes to be as per sample supplied.

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.

WHEEL HOUSE.

Wheel House will have two overhead lights and one overhead over each Chart Table, lights for each compass, lights in telegraph. & steering wheel stand under indicator

CAPTAIN'S ROOM.

Will have two lights overhead, berth light and portable desk light, plug for electric heater.

FIRST OFFICER.

Will have two lights overhead, berth light and desk light.

SECOND OFFICER.

Similar to First Officer, but with one ceiling light.

THIRD OFFICER.

Will have one light overhead and one berth light.

CHART ROOM.

Will have one light overhead and one portable light.

WIRELESS ROOM.

Will have two lights overhead, a desk and a berth light.

WIRELESS OFFICE..

Will have two lights overhead and radio connection with plugs, all in addition to usual requirements.

STATEROOMS ON BOAT DECK.

Will be furnished with one light overhead and a berth light for each berth, with switch for the overhead light convenient when opening the door.

The rooms with showers will be fitted in addition to above with one light in shower and W.C. Compartment, to be controlled by switches placed as directed. Lights in showers to have unguarded watertight fittings.

Linen Locker, Men's lavatories, Women's Lavatories, Officers' Lavatories, will be efficiently lighted throughout and to have pyramid shaped lanterns to direct passengers to lavatories, green for Women and red for Men, with "WOMEN" and "MEN" distinctly showing on each side of lantern.

Linen Room will have three lights on one switch.

Each water closet will have a light. There will be two overhead lights in the Men's lavatories and two overhead lights in the Women's lavatories and halls leading to the various lavatories will have two overhead lights.

The Sitting Room on Boat Deck will have a special lighting arrangement and be equal to 15 lights, having four switches where approved.

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 all open passageways from side to side, there will be four outside lights; in the way of the staterooms aft of the passageway leading to officers quarters there will be eight outside lights each side; and four 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, and also in way of stairs. 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. As the outside lights are on at times during navigation, the latest method of shading these lights will be adopted.

LIGHTS ON PROMENADE DECK.

1ST CLASS SMOKING ROOM.

Will have special lighting arrangement and will have at least thirty lights, arranged with approved switches, at least eight in number, in addition to indirect lighting through dome overhead, as approved.

The lighting arrangement in the way of the after stairway to conform to the general lighting of the passageways, with the exception of over the stairway which will have special dome light, 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 lights will be fitted in addition to the lights 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 in way of engine and boiler casing to have six lights each side. All large staterooms will be lighted with two lights overhead, and bracket lights over each bedstead, with the overhead light switch within easy access of the door, also plug for curling tongs and plug for electric heater in rooms with bedsteads.

The four Special Rooms will have one light and one switch controlled near door in bath rooms.

The L shaped state rooms will have two overhead lights on one switch and the other state rooms one overhead light on one switch.

Note:- The extra light in the L shaped rooms will be over the wash hand basin. Berth light will be on each berth and also at all sofa berths. Linen Room will have three lights on one switch.

The lighting of the Men's lavatories, bathrooms, Women's lavatories

LIGHTS ON PROMENADE DECK (CONTD).

and bathrooms, will be similar to the lighting already described on the Boat Deck, with the addition that all bathrooms will have one light.

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 will be arranged with sufficient 40 watt lights and approved shades to avoid any shadows whatever, and will have at least fifteen lights in addition to the lights in the well, and in the after saloon there will be about fifteen 40 watt lights with shades similar to the forward saloon in addition to lighting of stairs.

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 Barber's Shop will have three overhead lights on one switch and two plugs for curling irons.

Chief Steward's Room will have two lights overhead on one switch, one berth light and plug for desk light.

News Stand will have one large Dome light overhead of 150 watts and in addition will have eight cabinet lights for show case lighting.

All overhead lights will be controlled from switches near doors.

Note:- The overhead lights in Barber's Shop & news stand to be controlled from outside.

Linen Room will have three lights on one switch.

Men's lavatories and baths, Women's lavatories and baths in way of the Engine and Funnel Casing to be similarly treated to the Promenade Deck.

All staterooms on Upper Deck, with the exception of the Special Rooms, will be fitted with two lights overhead for Bibby cabins and one for outboard cabins, 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 Special Rooms will have special treatment throughout in each room, bracket lights at each bed, also bracket lights for each of the sofa berths, one overhead light in each shower or W.C., plug for curling tongs and plugs for electric radiator. All these lights to be of special selection with special fittings.

LIGHTING OF THE UPPER DECK (CONTD).

In addition to the lighting, Special Rooms will be fitted up for electric heaters, these electric heaters to be those using the long globe. Each heater to have 750 watts. in three globes. Heaters to be supplied in every room fitted with electric heater plugs.

On the open deck aft, outside lights will require to be fitted, about eight in number, with control at aft or steering wheel.

Note:- All outside lights wherever placed must have waterproof fittings and strong screw guards, and these fittings must be brass to withstand the action of the salt water.

Purser's and Freight Clerks' Baggage & Barber's Rooms to be similar to 1st Officer. Passages to Purser's room etc., and W.C's to be efficiently lighted.

Purser's office to have special treatment with two 150 watt lights, semi-indirect lights overhead & light at each grill and at each desk. Overhead lights to be controlled by switches at door

Ladies' Rest Room are each to have eight lights on three switches. one curling iron plug near dressing table, this covers W.C. lights.

Linen Room will have three lights on one switch.

2nd Class Accommodation in sleeping quarters will have ten lights in two switches.

2nd Class Lounge will have six lights in two switches.

Baggage Room will have six lights in two switches.

2nd Class W.C's and Wash Rooms will have four lights in two switches.

Passages in way of 2nd Class to have four lights in two switches.

Windlass Room to have five lights in two switches, and one plug for portable lighting.

LIGHTS ON THE MAIN DECK.

Lights in steering gear compartment will have six lights in two switches and two plugs for portable lighting.

Waiters' wash rooms, showers and W.C's will have about twelve lights with 5 switches.

Engineers' Bath and W.C. will have three lights and three switches.

Chief Engineer will have two overhead lights and one switch, one berth light and one plug.

All other Engineers' will have one overhead light with one switch, one berth light and one plug.

The arrangement in casing forward of Boiler casing will have about fourteen lights on six switches, also a dome light of 100 watts over Dining

LIGHTS ON THE MAIN DECK (CONTD).

Room stairs.

Butcher's Shop will have two lights on one switch.

Cold Storage will have four lights inside and one telltale light outside, all on one switch.

Mail Room will have six lights on two switches.

Express Room will have four lights on one switch.

Boatswain's Locker to have two lights on one switch.

Crew's wash room to have two lights on one switch.

Crew's W.C's to have four lights on two switches.

Crew's showers to have two lights on one switch, watertight fittings.

Lamp Room to have one light on one switch.

General lighting of 'tween decks will have about 35 lights in two parallel rows each side, also in centre in wide spaces. These lamps to be wired in American conduit, with vapourproof swinging sockets.

ELEVATOR.

An electric elevator of 25 H.P. with a compound motor of speed 700 revolutions, and raising the elevator at the rate of 50 ft. per minute. The elevator to have a platform 6" deep and to have automatic control on elevator as well as control at the machine. A safety device to automatically stop platform when elevator is up and down. Arrangement to be approved.

WINDLASS AND WINCHES.

Electric windlass in two units of not less than 35 H.P. each and an electric capstan aft of not less than ~~25~~ 30 H.P. to be fitted in approved manner. Also electric boat winches as otherwise stated. Resistances and control for the above must be in watertight compartments.

DINING ROOM.

The Dining Room will be specially lighted, having four Dome lights each side, having 100 watt. lamps in each with shades to give semi-indirect lighting as selected. In addition, Dining Room will have about 25 lights in three rows, one between dome lights and one each side of same.

Table lamps will be fitted for each table with one table lamp. In as far as possible, wiring will be along shelving for serving purposes on each side of ship and branched off same to the various tables. Lamps to be

DINING ROOM (CONTD).

selected.

Galley and Pantry will have about 25 lights arranged as approved, with six switches, this includes lights in dry stores, silver room, service room and Baker's Shop.

There will also be provision made for ~~four~~ twelve-slice electric toasters & electric egg boiler.

Officers' Mess to have three lights on one switch.

Engineers' Mess to have three lights on one switch.

Crews' Mess to have three lights on one switch.

Petty Officers' Mess to have three lights on one switch.

ORLOP DECK.

Rooms with two men to have one light; three men two lights.

Rooms with six men three lights.

Rooms with over six men four lights.

Sculleries one light, each Mess Room three lights.

All the above lights to be controlled by switches.

Passages to have 15 lights in all, this includes forward and aft.

Waiters' Lounge to have seven lights on two switches.

2nd Steward to have two overhead on one switch, one berth light and one plug.

Store Room aft to have five lights on one switch.

Cold Storage to have three inside and one telltale outside on one switch.

Lights in the Engine Room and Boiler Room to be in the neighourhood 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.

Cables in passenger and Crew's quarters to be insulated with vulcanized india-rubber, taped and braided and protected by wood casing. On Orlop Deck and in cargo spaces, conduit shall be substituted for wood casing.

Cables behind panelling, e.g. in Public Rooms, to be run in conduit

ORLOP DECK (CONTD).

and to be capable of being renewed without disturbing the panelling. Cables in Engine and Boiler Rooms generally to be in American conduit, having asbestos covered wire in Boiler Room. Wiring to lights exposed to the weather to be in American conduit. Main and sub-main cables from switchboard to junction and distribution boards to be twin armoured lead cable and must not be encased.

Berth lights and room lights will be on separate circuits. Electric heaters to be on separate fused circuits.
Note - All plugs wherever located to be of American type, and all conduit American conduit.

FITTINGS AND FIXTURES.

All bracket fixtures to be selected, and all deck head fittings to be of the best obtainable for the purpose and location. All fuses for lights to be controlled in alleyways.

Wiring to be installed to suit all electric fans throughout for ventilation.

SEARCHLIGHT.

Searchlight to be of approved maker, capable of throwing a beam of light without diffusion four hundred (400) feet. Searchlight to have 20" mirror and fitted above Pilot House and arranged for control therefrom, also a 500 watt. incandescent searchlight fitted in after rail, with switch convenient.

Throughout the passenger accommodation, no more than four lights will be on a circuit using 3/.029 wire, except for berth lights where six will be permitted. In the passages and saloons where more than four lights are required for lighting, it will be permissable to use fewer switches, putting more lights on the switches. 'Tween decks and cargo spaces can be arranged with more than four lights on the one circuit, but not over six in any case.

POLICE LIGHTS.

Irrespective of what has been hereinbefore stated, police lights will be arranged throughout the whole of the passenger accommodation, 1st 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 by switches.

ELECTRIC FANS.

Electric fan to be supplied for galley and fitted in galley to draw fumes from galley and eject same out. through ventilating arrangment around galley funnel and hood over range

Individual electric blower fans of sufficient capacity to be fitted to supply with fresh air, Petty Officers', Firemen and Sailors, also Chinese, also Mess Rooms, 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 and rooms in the various compartments with separate control in every room. Separate fans as may be required are to be supplied to the various compartments, namely, Mess Rooms, Stewards, Chinese and Stores, Petty Officers and Firemen. All on the Punkah-louvre System Also fan arrangement in Dining Saloon for supplying fresh air to Dining Saloon through suitable trunks.

ELECTRIC BOAT HOISTING WINCHES.

Two electric winches, each capable of easily lifting one boat out of the water to be fitted on Boat Deck as and where agreed, having two warping ends. To be of 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 Lloyds' and the Owners.

BELLS.

A complete installation of electric bells to be fitted throughout the ship, to be connected to annunciators fitted in convenient location on each deck with a master annunciator at the top of the stairs leading to Dining Room ~~where agreed~~, with a throw over switch ringing at the annunciators or in the pantry according to whether it is night or day. To have two push buttons in each ordinary stateroom, one convenient to each berth and fitted on the same block as berth light. To have two in each Special Room, to have four in the Sitting Room, & at least eight in the 1st Class Smoking Room. ~~[illegible]~~ One to be fitted in the Wheel House, Captain's Room, Chart Room, and all the Officers' Rooms, Wireless Room, Purser's Room, Purser's Office, Freight Clerks', Baggage & Barber Chief Steward's Room, Stewardess, 2nd Steward's Room, all Engineers' Rooms, Engineers' and Officers' Mess Rooms, and all bathrooms. The Purser's Office, in addition to bell to annunciator, will

BELLS (CONTD).

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 annunciators ~~in the saloon~~ suitably located one port and one starboard. There will be an electric bell fitted between the Wheel House 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 hearing distance of both cargo doors. There will also be a bell from the Wheel House to the Engine Room, with reply, and bells from the Engine Room to the stokeholds with replies. Wiring for these bells to be ~~armoured by means of lead casings~~ in conduit, 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 of Patrick and Wilkins type must be supplied. The annunciators to be fitted up with numbers corresponding to the rooms, the two push buttons for each room will be on one number, four push buttons in the Sitting Room will be on two indicators, port and starboard, eight push buttons in the Smoking Room to ~~ting~~ ring to indicator suitably located. Various independent bells to be on separate circuits, and all bells in 'tween decks in the way of the windlass will be 3" bells and in the Wheel House 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.

In connection with the bells, a small switchboard with double pole fuses and switches will supply each bell circuit, which will consist of all room bells, deck bells to and from Wheel House, engine bells to and from Wheelhouse, docking bells to and from Windlass, cargo doors with two spare circuits on board. A 12-volt storage battery will feed this board through double pole switch and fuses. The storage batteries will be charged from 110-volt. ship's current through an automatic cut-out, which will disconnect when dynamo is shut down. The wiring from 110-volts. to

12-volts will have two 25 watt. lamps in series on the positive and two in series on the negative. The location of the storage battery will be approved.

CONDITIONS AND 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 72 degrees Fahr. Governing tests to be carefully carried out at full and overload, and the permanent rise or fall in voltage on full load is not to exceed three per cent. A final test is also to be made of the insulation of the system. The conductivity of leads for furthermost lamps to be arranged so that loss of energy in leads relative to energy expended in lamps shall not exceed two per cent on the furthest lamp with all load on. During the trial, the ship's compasses should be testedm 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 ELECTRIC INSTALLATION:-

25 per cent for each kind of lamp fitted.
6 double filament lamps for navigation lamps.
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.
24 spare fuses of various sizes fitted for section boxes.
24 spare fuses of various sizes fitted for distribution boxes.

F I N A L L Y .

It is intended under this Specification that the Builders will build, fit and finish this vessel in the very best style for a boat of this class, which is intended for the Coast Service on the Pacific Coast, where the bulk of travel is First Class, and where the sleeping accommodation is important and must be equal to the very best.

The finish of the Public Rooms is to be specially designed and specially treated in selected hardwoods.

FINALLY. (Contd).

All fittings and equipment are to be supplied and fitted whether specified or not, and the ship is to be rendered completely sound and ready for sea, with the exceptions mentioned in this Specification.

Delivery to be taken after the completion of satisfactory trials.

Board of Trade Certificate and Lloyds' to be handed over with the vessel.

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