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PART III ACCOMMODATION**SECTION 1 COMPLEMENT AND CLASSIFICATION OF ACCOMMODATION****1-1 COMPLEMENT**

Dep. Name class	Deck Dep.	Engine Dep.	Catering Dep. & others
Highest officer	1-Captain	1-Chief engineer	1-Commisary
Senior officer	1-Chief officer	1-Second engineer	
Junior officer	1-Second officer 1-Third officer	1-Third engineer 1-Fourth engineer 1-Electric engineer	1-Pilot
Crew	1-Boatswain 1- Carpenter 6-Sailor	6-Motoman	1-Cook 1-Steward 3-Spare
Total		30 Persons	

1-2 CLASSIFICATION OF ACCOMMODATION

Accommodation quarter to be divided into living, service, storage and machinery space, which are ranked as follows.

1-2.1 Living space**1-2.1.1 Cabin**

Name Class	Room	Lavatory
Highest officer	Day room, bed room	Private lavatory with bath tub
Senior officer	Day room, bed room	Private lavatory with shower
Junior officer	Single-berthed	Private lavatory with shower
Crew	Single-berthed	Private lavatory with shower
Spare	1-Single-berthed 1- Double bunk	Private lavatory with shower
Hospital	Single-berthed	Private lavatory with bath tub
Suez canal crew	6 persons	Public lavatory

1-2.1.2 Public Spaces

- Mess room
- Small mess room
- Library
- Gymnasium
- Meeting room
- Reception room

1-2.1.3 Control Spaces

- Wheelhouse with chart and radio space
- Engine control room
- Fire control station

1-2.1.4 Offices

- Ship office (with ballast control)
- Tally office

1-2.1.5 Medical Spaces

- Hospital
- Medicine lock

1-2.2 Service spaces

1-2.2.1 Commissary room

- Galley
- Pantry

1-2.2.2 Sanitary spaces

- Private lavatories (prefabricated unit type)
- Laundry and drying room
- Public toilets

1-2.3 Storage spaces

- Refrigerated stores
- Provision store
- Linen store
- Bond store
- Bosun store
- Rope store
- Paint store
- O₂/C₂H₂ store
- Electric store
- Navigation equipment store
- Deck store
- Other stores or lockers (see General Arrangement Plan)

1-2.4 Machinery spaces

Air condition unit room
Engine workshop
Electric workshop
Battery room
CO₂ room
Hydraulic pump room
Windlass control room

1-3 NAME PLATE & IDENTIFICATION

Name plate & identification to be provided as follows

Material	Used For	Letter
Stainless steel	Name plate of room, guide plate (in accommodation quarter)	English
Stainless steel	Name plate of room (exposed to weather)	English
Stainless steel	In stairway of every deck showing deck name. Various safety marks.	English

SECTION 2 JOINER WORK

2-1 DIVISIONAL BULKHEAD, LINING AND CEILING

Construction of divisional bulkhead, lining and ceiling concerning fire protection to comply with requirements of SOLAS and Classification Society.

The arrangement of walls, bulkheads, lining and ceiling in accommodation space to be in accordance with method 1C.

Clear height in living space, service space and passageway to be not less than 2.05 m.

2-1.1 Bulkhead and Lining

Individual bulkheads of pre-fabricated panels in corridors, enclosure living space, service space to have about 50mm thick rock wool, and pre-fabricated panel adjacent to steel bulkheads to have about 25mm thick rock wool. All pre-fabricated panels to be covered with decorative PVC film on about 0.6mm thick galvanized sheet.

About 0.6 mm galvanized steel sheet painted to be used for sanitary space where heat insulation or sound isolation or fire insulation is used.

Bulkhead in galley and pantry to be covered with stainless steel sheet of about 0.5mm thickness.

2-1.2 Ceiling

In corridors, stairway, enclosure living space, service space and control stations, ceiling to be of pre-fabricated panel system with about 30 mm rock wool with decorative PVC film on about 0.6mm thick galvanized steel sheet.

About 0.6mm stainless steel sheet to be used for sanitary space where heat insulation is used.

Ceiling in galley and pantry to be covered with stainless steel sheet of about 0.5 mm thickness.

2-2 FIRE INSULATION, HEAT INSULATION AND SOUND ISOLATION

Fire insulation, heat insulation and sound isolation to be applied to accommodation quarter in accordance with relevant Rules.

All insulation without lining to be covered with glass cloth and secured with galvanized wire net and fastening pins/clips suitably placed.

2-2.1 Fire insulation

Fire fighting insulation to be complied with requirements of SOLAS.

2-2.2 Heat insulation

The following boundaries to be insulated against heat transmission to the rooms.

Where ceiling or lining is not fitted, rock wool to be covered with glass clothes, but sanitary space to be covered with galvanized steel sheet and painted.

The ceiling of steering gear room to be insulated.

Heat insulation to exposed part to be extended to about 500 mm beyond end of exposed part.

Material	Application
50 mm rock wool with 25 mm beam cover	Deck head where exposed to weather of living space, sanitary space, machinery space, and locker etc. Overhead of drying room and galley.
50 mm rock wool with 25 mm beam cover.	Deck head of wheel house
50 mm rock wool	Bulkhead exposed to weather of living space Bulkhead of drying room and galley

Note: Mineral rock wool to wall to be secured with fastener clips suitably spaced.
Mineral rock wool density to be not less than 20kg/m³ and 110kg/m³ heat insulation.

Engine casing wall to be fixed with tire insulation and to be secured with galvanized wire net and fastening pins/clips suitably placed.

2-2.3 Sound isolation

Sound isolation to be provided in engine control room and cabins where necessary for noise control.

2-3 DECK COVERING

Deck covering to be applied as per following list.

Material	Application
A60 deck covering	According to SOLAS requirement
2 mm thick P.V.C. tile or sheets on 10mm latex type deck composition (except the spaces below furniture)	All living space and corridors except A60 class deck and captain class cabins, senior officer class cabins
Ceramic tile on cement (anti-slip type)	Galley, pantry, laundry and drying room
Paint (steel deck)	Store and locker space, machinery space, all exposed steel decks and other similar spaces except mentioned above.

Passage way to navigation bridge wings to be painted with non-slip painting. Passage way of 1000mm breadth at both sides of the vessel on upper deck to be painted with non-slip painting.

Navigation bridge wings to be covered with perforated rubber mat.

Gutter ways to be fitted for galley which formed by welded flat bar and coated with tar epoxy and covered by grating.

Bulkheads surrounding all sanitary spaces, galley, pantry, laundry and drying room to have tiles in 150 mm height.

Floating floor deck cover to be placed in engine control room and cabins on top of engine space, if neccessary. PVC tiles to be fitted in control room.

Rubber mat to be provided in front and behind electrical switchboards.

Non-slip PVC tiles to be directly adhered to deck composition in wheelhouse.

SECTION 3 FURNITURE AND DECORATION

3-1 FURNITURE

3-1.1 General

- a) The general features and size of furniture to be as listed up in the following. Color scheme book to be submitted for Owner's approval.

Structure of furniture as bed, desk, table, rack, chair, wall cupboard, sideboard and wardrobe etc. to be of wooden board fabricated.

Furniture to be of substantial construction, designed for marine use.

- b) The surface of furniture in general to be as follows.

Steel	Spray paint
Wood	Polyurethane finish

Table tops to be melamine laminate. Steel furniture to be steel with baked enamel coating with matt finish.

- c) Chairs and movable sofas to be provided with fastening device.

Other furniture to be fixed.

3-1.2 Dimension of large furniture

CLASS	Bed	Wardrobe	Desk	Mat
Highest officer	2,000 x 1,500	1,200 x 600	2,000 x 800	Wood
Senior officer	2,000 x 1,300	1,000 x 600	1,600 x 700	Wood
Junior officer	2,000 x 1,000	800 x 600	1,400 x 600	Wood
Petty officer & rating	2,000 x 1,000	800 x 600	1,000 x 500	Wood

Note:

- a) Wardrobe size to be designed according to demarcation of cabins. Life jacket locker to be fitted above wardrobe.
b) All beds to be positioned longitudinally with drawers under.

Name of sofa	Normal sofa	L-type sofa
Size	2000 x 650	2500 x 1500 x 650

All sofas to be positioned transversely as far as possible.

3-1.3 Cabins

Furniture	Highest Officer		Senior Officer		Junior Officer	Petty Officer & Rating
	Day room	Bed room	Day room	Bed room		
Bed	-	1	-	1	1	1
Wardrobe	-	1	-	1	1	1
Desk	1	-	1	-	1	1
Dressing table with stool	-	1	-	1	-	-
Tea table	1	-	1	-	1	-
Night table	-	1	-	1	1	-
Book shelf	1	-	1	-	1	-
Book rack	-	-	-	-	-	1
File cabinet	2	-	1	-	-	-
Safe	1	-	1	-		
Sofa	1 (L-type)	-	1 (L-type)	-	1	1
Rev. arm chair	1	-	1	-	-	-
Easy chair	-	1	-	1	-	-
Arm chair	2	-	2	-	1	1
Waste basket	1	-	1	-	1	1
Coat hook	4	2	4	2	2	2
Refrigerator	1 (120 liter)	-	1 (120 liter)	-	-	-
Computer & table	1	-	1	-	-	-

Note:

- Key box suitable for about 150 keys to be provided for chief officer, about 50 keys for captain, chief engineer, 2nd engineer and electric engineer.
- All cabins to have a mirror of suitable size, a mattress and two pillows.
- Safe to be provided also for captain and chief engineer.
- TV table with 29" color TV to be arranged in the following cabins:
captain, commissary, chief officer, chief engineer, 2nd engineer

3-1.4 Public spaces

3-1.4.1 Mess room, library & meeting room

Furniture	Mess room	Small mess room	Library	Meeting room
Mess table	3- 1800X700 3- 1200X700	1- 1500	-	-
Reading table	-	-	2- 1200X700	1
Side board	-	1	1	2
Book shelf	-	-	2	-
Arm chair	-	-	-	2
Common chair	30	8	8	-
Bottle cabinet	1	1	-	-
Notice board	1	1	-	-
Coat hook	10	8	8	8
TV rack with 29" color TV & DVD player	1	1	-	1
Sofa (L type)	-	1	-	2
Tea table	-	1	-	2
Refrigerator	1 (120 liter)	1 (120 liter)	-	-

Above table may be changed according to final cabin's arrangement.

3-1.4.2 Gymnasium

Pingpang table	1
Locker	1
Bench	1
Coat hook	6
Notice board	1
Gymnastic device	2

3-1.4.3 Suez crew room

Double bunk (2000X800)	3
Table	1
Bench	1
Locker	1

3-1.4.4 Reception

Table	1
Sofa	1
Common chair	2
File cabinet	1
Book case	1
Notice board	1

3-1.5 Control spaces

Furniture	Wheelhouse/Chart space	Radio space
Chart table (with chronometer chart locker)	1	-
Binocular box	2	-
Log book and ballast note board	1 (each)	-
Flag locker	1	-
Book rack and book case	1 (each)	1 (book case)
File cabinet (4 drawers)	-	1
Radio stand	-	1
Working table	1	1
Pilot chair	1	-
Rev. arm chair	-	1
Sofa	1	-
Sounding board	1	-
Notice board	1	-
Pigeon hole for flag	2	-
Kettle rack	1	1
Direction indicator	1	-
Folding board	2	-
Coat hook	2	2
Wooden locker	1	1
Computer table	1	-

Note: Furniture of engine control room to reference to "Machinery Part".

3-1.6 Offices

Furniture	Ship office	Tally office
File cabinet with 4 drawers	4	-
Book case/rack	1 (case)	1 (rack)
Wash basin	-	-
Desk	1	1
Common chair	-	2
Arm chair (Rev.)	5	-
Notice board	1	1
Sofa	1	1
Key box	1	-
Waste basket	1	1
Table (rectangular)	1	-
Coat hook	6	2
Computer table	1	-
Copy machine (A3, 12ppm) with foundation	1	-
Typewriter	1	-

3-1.7 Hospital & medicine locker

Furniture	Hospital	Medicine locker
Steel single bed (2000 x 1000)	1	-
Wardrobe	1	-
Night table	1	-
Common chair	1	1
Desk	1	-
Steel stool	1	-
Medicine locker	-	1

3-2 UPHOLSTERY

3-2.1 Surface material of sofas and chairs

Textile ----- Highest officer, senior officer and junior officer class, meeting room
 Vinyl ----- All others rooms

Two (2) sets of textile covers to be provided for each sofa and chair covered with textile material.

3-2.2 Stuffing of sofas, chairs and mattresses

Polyurethane foam

3-2.3 Curtains

Curtain with blind ----- All living space windows, windows in house front, between light proof lining wheelhouse and chart space

Vinyl curtain ----- Shower space

3-2 PAINTINGS AND PICTURES

Paintings and pictures to be provide in highest officers, senior officers' day room, mess room, reception and meeting room.

SECTION 4 COMMISSARY AND SANITARY OUTFITS

4-1 COMMISSARY EQUIPMENT

4-1.1 Material

Material of equipment for commissary spaces to be generally as follows:

Equipment	Material
Sinks, Top of dressers, Top of cooking tables	Stainless steel
Frames of dressers, Frames of cooking tables and shelves	Galvanized steel
Cooking machinery	Maker's standard

Note: All surfaces coming in contact with food to be stainless steel.

4-1.2 Equipment

Equipment to be provided as following list.

4-1.2.1 Galley equipment

Electric range with 4 hot plates	1
Electric fired cook	1
Steam/electric cook	1
Refrigerator for abt. 450 ltr. (market size)	1
Electric soup kettle (40ltr.)	1
Electric baking oven with 3 sections (abt. 9kW)	1
Universal cooking machine (abt. 0.75kW) consisting of mixing bowl of 30ltr., meat grinder and vegetable slicer	1
Dish washing machine	1
Deep fish fryer (abt. 8kW)	1
Meat slicer (abt. 0.15kW)	1
Electric hot plate (abt. 0.5 kW)	1
Dressing table, galv. steel frame and stainless steel top with double sinks	2
Chopping board	2
Cooking table, galvanized steel frame and stainless steel top	1
Black board	2
Electric meat chopper (abt. 0.7kW)	1
Locker	2
Can opener	2
25 kg scale for weighing food	1
Electric rice cooker for 20 persons	3
Food disposer	1
Wash basin	1

Plastic garbage can with cover	3
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Necessary dish racks, bottle racks, shelves, cupboards, etc. to be furnished for galley.

4-1.2.2 Pantry

Fitting	Name of Space	Pantry	Pantry for meeting room
Refrigerator		1-200litre	1-120litre
Dressing table, galv. steel frame and stainless steel top with single sink		1	1
Electric water boiler (9 ltr.)		1	1
Plastic garbage can with cover		1	1
Toaster (automatic for 4 slice)		1	-
Black board		1	-
Electric coffee urn		1	1

Necessary dish racks, bottle racks, shelves, cupboards, kettle hooks, cup and jug hooks etc. to be furnished.

4-2 SANITARY OUTFITS

4-2.1 Material

Wash basin, urinal and water closet in sanitary spaces to be of vitreous china.

Equipment to be suitable for marine use.

All wash basins to be provided with hot and cold independent adjustable valves with one (1) outlet.

Water closets to be fitted with cistern type, seat and cover to be of plastic material.

Bathtub to be of enameled type and fitted with telephone type shower, hot and cold water independent adjustable valve and drain plug.

Showers to be chrome plated fixed type with mixing valve.

Stop valves to be provided for each hot and cold water pipe below wash basin.

Toilet paper holder, storm rails, towel rails & soap dish to be provided for each individual use as necessary.

4-2.2 Fittings in lavatories

Private lavatory Shower set, water closet, wash basin and toilet cabinet with mirror. (Bathtub to be fitted in highest officer class)

Public lavatory Water closet, wash basins and toilet rack with mirror.

Hospital lavatory

Bathtub, shower set, water closet, wash basin and toilet cabinet with mirror

Clothes lines and hocks to be fitted in all private lavatories.

4-2.3 Equipment in laundry and drying room

4-2.3.1 Laundry

1 – Automatic washing machine with dryer of abt. 5 kg capacity

1 – Automatic washing machine of 8 kg capacity

2 - Ironing table

2 - Washing sink (stainless steel)

4-2.3.2 Drying room

Drying room to be fitted with steam radiator & cloth drying lines.

4-3 COLD WATER FOUNTAINS

Cold water fountains of marine type to be fitted on each deck, in engine control room, pantry and wheelhouse.

SECTION 5 STORES

5-1 REFRIGERATED PROVISION STORES

5-1.1 General

	Capacity (m ³)	Temperature ()
Vegetable room	abt. 20	+ 4
Meat room	abt. 15	-20
Fish room	abt. 10	-20
Dry provision	abt. 25	+4
Lobby	abt. 10	

Door frames in fish and meat room to be fitted with strip heater with thermostat control.

5-1.2 Insulation

The boundary walls to be of steel and insulated as follows:

Insulation	polyurethane foam thickness about 120 mm
Surface furnishing	0.5 mm stainless steel sheet

5-1.3 Furnishing

Meat room and fish room to be furnished with 3 tiers wooden shelves with stainless steel frames at one side of the wall.

Stainless steel meat rails to be suspended from the deck head spaced about 600mm apart. Stainless steel hooks to be fitted at suitable intervals.

Vegetable room to have 3 tiers wooden shelves with stainless steel frames arranged at one side of the wall.

Thermal expansion valve control panel and dial type remote reading thermometer to be fitted near to the chamber.

Alarm bell to be fitted in galley with signal light outside the compartment and push button arranged in each chamber and lobby. Other details refer to "Electric Part".

Meat chopping block, one (1) meat hook and one weighing scale to be furnished near the refrigerated chamber and a sink, fresh hot and cold water supply to be provided.

5-1.4 Refrigerating plant

The refrigerating plant to consist of following units.

Two (2) - Refrigerating compressors, R-404A or equivalent, direct expansion, reciprocating, automatic start-stop, electric motor driven.

Two (2) - Condensers, shell and tube type, horizontal, multipass tubes.

The refrigerating plant to be of PLC control type.

Cooling water to be supplied by L.T. cooling F.W. pump in engine room.

The refrigerating plant to be capable to maintain the specified temperatures with one (1) compressor working at full load not more than 18 hours per day. The other compressor to serve as standby. Cooling down to specified temperatures to be worked by two compressors. Ambient temperature to be based on 35 and cooling F.W. temperature of 36. Compressors to be automatically started and stopped to maintain the specified temperatures.

Each provision store to be cooled by one (1) ceiling suspension type diffuser. Diffuser to consist of an aluminum fin cooling coil and an electric fan contained in an enameled metal case. Drain pan to be fitted and drain pipe to be led to the scupper in the chamber. A electric defrost device with timer to be provided for meat and fish room.

One (1) gas dryer, two (2) oil separators and automatic temperature control device to be fitted.

Compressor to be fitted with unloading device.

Drain pipe to the scupper to be fitted with heating elements.

Return line of refrigerants to be led through steel pipe grids in the lobby, and temperature regulation for lobby will not be provided.

Thermostat, pressure gauges, remote reading thermometers, necessary valves and safety valves, level gauges, gas charging device, etc., to be fitted completely.

Expansion valves to be provided and strainer to be fitted with by-pass.

Shore connection to be provided for condenser cooling water line of refrigerating plant.

Materials for compressors, condensers and etc. to be manufacturer's standard.

5-2 PROVISION STORE

Dry provision store to be furnished with 3 tiers wooden shelves with galvanized steel frames at one side of the wall.

Floor to be drained through scuppers provided with water traps.

The boundary to be insulated according to the requirement of temperature.

5-3 MISCELLANEOUS STOWAGE FACILITY

Name of Store & Locker	Fittings
Bonded locker	2-tier galvanized steel shelves with fiddles
Linen store	2-tier wooden shelves with galvanized steel frame
Paint store	2-oil tank, tin hooks, fire extinguishing system 2-tier steel shelves
Boatswain store	2-tier steel shelves with wood plate, and wooden grating
Rope store	2-tier steel shelves.
Battery room	Steel galvanized shelves and FRP box for storage of batteries and shelves for distilled water bottle etc.
Deck & engine changing room	8-steel jumper locker, 1-stainless wash basin with toilet rack and mirror 1-bench
O ₂ /C ₂ H ₂ room	Steel shelves with mounting for bottles
Carpenter's workshop	Working table, locker, bench
Other stores & lockers	Steel shelves, wooden plate

SECTION 6 SIDE SCUTTLES, WINDOWS, DOORS, STAIRWAYS, ETC.

6-1 SIDE SCUTTLES AND WINDOWS

6-1.1 Size and distribution

Size (mm)	Material	Location
400 x 560 rectangular	Aluminum alloy	All space, except below
φ 400 side scuttle	Aluminum alloy	Rooms on upper deck
Abt. 1200 x 710 rectangular	Aluminum alloy	Wheelhouse front
Abt. 800 x 710 rectangular	Aluminum alloy	Wheelhouse aft & side
Abt. 1200X800	As per maker's standard	Engine control room

Centerline height of windows and side scuttles to be about 1,500 mm from steel deck except windows in wheelhouse.

Size of wheelhouse windows to be as large as possible to improve the visibility and to be determined as per final design. All front windows in wheelhouse to be fitted with glass with imbedded heating elements, roller type sunshades, window wipers and water spray system.

The windows to be fitted to the wall with stainless steel bolts and nuts.

6-1.2 Number of Windows

Wheelhouse front	7
Wheelhouse aft & sides	10
Highest officer	4
Senior office	4
Junior officer	1 or 2
Rating	1
Mess room	2 or 4
Meeting room	4
Hospital	1
Ship office	3
Gymnasium	2
Galley	4
Pantry	2
Engine control room	2

Number of windows may be changed due to final arrangement.

6-2 DOORS

Doors to be arranged according to General Arrangement Plan. Door stoppers to be fitted for non-selfclosing doors required by Rules.

6-2.1 Weather-tight steel doors

Weather-tight steel door to be used in accordance with the requirement of Regulation.

Clear width of weather-tight steel doors to be generally 700 mm and top of doors to be about 1950 mm above the surface of deck.

Weather-tight steel doors to be of hinged, single steel plate type welding of seal channels continuous with synthetic rubber gasket, and pad lock eye plate and fixing hook and door stopper. Closing dogs to be operated by central wheel.

Foot step to be installed only to sills with height equal and above 450 mm.

Hinged pins of weather exposed steel doors to be of stainless steel and fitted with grease device.

Visor to be provided over all weather doors except under shade.

Wheelhouse sliding doors to be of stainless steel.

6-2.2 Cabin doors

Class of fire protection to be in accordance with the SOLAS. The type and material to be the same as bulkhead and lining panel.

6-2.3 Size of door opening

- (1) Clear height of cabin doors to be not less than 1,950 mm above the surface deck covering
- (2) Clear height of wheelhouse sliding door from sill to top to be not less than 1950 mm
- (3) Clear width of door opening

Clear width (mm)	Location
800	Entrance to corridor from weather deck, hospital, Galley, provision store, CO ₂ room
600	Private lavatory
900	Wheelhouse (weather part)
700	Mess room, passage way and stairway
650	All other doors.

6-2.4 Hardware

6-2.4.1 General

All hardware to be marine type of chrome plated brass or stainless steel. Door handles to be lever type.

6-2.4.2 Locks and key

Doors inside living space to be fitted with mortise locks or latches with following characters:

Location	Lock
Living room, changing room, cabin's inside door	Using key to open from outside with locking knob Inside
Small locker, store room etc.	Using key to open from outside

Private lavatory	Locking knob inside lavatory Emergency square key can open from inside of cabin
Stairway door	No lock, lever handle only for opening from either side
Common lavatory (Inside door)	Lock showing "Occupied or Vacant"

All locks mentioned above except lavatory locks can be opened by following master keys and a grand master key.

Three grand master keys for captain and each three submaster key for three Departments to be supplied.

6-3 STAIRWAY AND STORM RAIL IN ACCOMMODATION QUARTER

6-3.1 Stairway dimension and material

Item		Living Space	Service Space
Dimension	Breadth (clear of hand rails)	abt.900 mm	abt.700 mm
	Inclination	Less than 45 deg.	Less than 50 deg.
Material	Step	Steel plate covered with PVC tile and nose grip to be fitted.	Checkered steel plate (galvanized)
	Hand rail	Stainless steel	Steel pipe (galvanized)

6-3.2 Storm rail

Storm rail in accommodation quarter to be provided at one side of the corridor at 1.0 m height above deck.

Storm rails to be fitted on the front wall of wheelhouse, handrail material to be of stainless steel pipe and seat of chrome plated brass.

Regarding outdoor storm rails, "Hull Part" and "Outfitting Part" to be referred to.

Storm rails to be fitted in toilets/showers as per normal practice.

SECTION 7 AIR CONDITIONING AND VENTILATION

7-1 AIR CONDITIONING SYSTEM

All cabins, offices and mess room to be fully air conditioned by a medium velocity, single duct system having a central heating and cooling plant.

Wheelhouse, pantry, gymnasium, bonded locker and laundry to be provided spot cooling or heating, but not to be counted as air conditioned spaces with regard to temperature and relative humidity.

Design Criteria	Cooling		Heating	
Outside	35	70%RH	-15	
Inside	27	50%RH	20	50%RH
Fresh air ratio		50%		50%
Cooling F.W. temperature		36		

Air-conditioning system to consist of two (2) sets of R404A or equivalent, direct expansion compressor unit, two (2) sets of air handling unit and diffusers etc, each compressor unit and air handling unit to be of 70% total capacity and to be of PLC control type.

Auto humidity control for air condition system to be provided.

Air filter to be provided. Gas dryer, oil separators, automatic temperature controller to be fitted. Compressor to be fitted with unloading device.

Cooling F.W. to be provided by L.T. cooling F.W. pump in engine room.

In summer the inside temperature in air conditioning spaces to be automatically controlled by the thermostat and the solenoid valves.

In winter the supply air temperature to be automatically controlled by steam regulating valve, the steam humidifying to be controlled automatically.

Double wall insulated spiral ducts to be used. The insulation material to be of mineral wool.

The air ducts for each deck to be connected to the air distribution box of air handling unit individually in order to obtain even air flow for each cabin.

Necessary dampers to be fitted to main branches at easy accessible locations.

Non-return damper to be provided for hospital.

The ducting to be designed such that the fresh air in the total supply air to be not less than 50% and the other part of the supply air to be re-circulated from those spaces.

In mild climates when cooling or heating is not required, the system to serve as mechanical ventilation for the accommodations, supplying fresh air only.

Proportion of fresh air, re-circulation air and exhaust air is to be controlled manually by means of dampers.

The doors to each cabin or wall where necessary to be fitted with ventilation shutter to allow to exhaust air supplied into passageways, and not more than 50% of that to be re-circulated to air handling unit via passageways, stairways and return air ducts.

No re-circulation from hospital, galley, pantry, smoke and mess rooms.

Recooling and re-heating at the room not to be applied.

Fire dampers to be installed at each deck and made accessible and where required by the Rules.

One (1) set of independent air conditioner to be provided for galley with full fresh air.

7-2 MECHINICAL VENTILATION AND AIR CHANGE RATE

The air conditioning and mechanical ventilation system to be provided with following minimum air change times per hour based on the volume of each compartement.

Compartment	Air conditioning	Mechanical	
		Supply	Exhaust
Living room	8	-	-
Office	10	-	-
Mess room	12	-	-
Wheelhouse & chart space	8	-	-
Lavatory	-	-	10
Hospital	10	-	-
Hospital lavatory	-	-	12
Changing room	8	-	10
Public toilet	-	-	15
Laundry	6	-	10
Drying room	-	-	15
Linen locker	4	-	-
Galley	15	15	40
Pantry	10	-	15
CO ₂ room	-	-	10
Steering gear room	-	-	10
Emergency generator room	-	10	-
Gymnasium	12	-	-
Bonded locker	6	-	-
Paint store	-	-	10
Pipe tunnel	-	-	10

Materials of the fan to be as maker's standard.

Stainless steel canopy to be provided over electric range only in galley for exhaust. Canopy to have stainless steel filters and arrangement of collecting and drain of fat.

Exhaust ducts to have stainless grids at suction side.

Hospital lavatory to have independent exhaust.

Insect screens of stainless steel to be provided at weather openings of supply and vent ducts for living quarters.

Engine room ventilation to be described in Machinery Part.

7-3 NATURAL VENTILATION

The other's compartments without mechanical ventilation to be arranged with natural ventilation if not otherwise required by the authorities.

Suitable mushroom ventilators, wall ventilators, small gooseneck ventilator or door louvers to be provided where necessary.

Coming height of ventilators to be as Rules requirements for upper deck and to be as the Builder's practice for the other decks.

7-4 CARGO HOLDS VENTILATION

The natural ventilation to be provided.

The natural venting trunks with closing flap and safety mesh to be flanged on the upper deck.