

## **MACHINERY SPACE DOUBLE BOTTOM**

Cofferdam provided, separating bunker from double bottom tanks. Save-all above tank top extending 6" above engine room floor around motor well. Forward of after peak bulkhead, a two frame space bilge well, with dry compartment under, is to be arranged. A lubricating oil sump compartment with oiltight sides and ends, and Fathometer compartment, are to be provided in the double bottom.

## **MACHINERY FOUNDATIONS**

Main prime mover and thrust foundations of welded construction, to consist of fore and aft continuous girders and intercoastal cross girders.

Foundations of all auxiliaries and pumps of welded design, generally two girder members running parallel to shaft, and two or more transverse girders, all with deep tapering brackets. Pans of plate, flanged up all around under all machinery and pumps.

Lightening holes for access to all parts of structure and adequate drainage openings at tank top, flat and deck attachments, are to be provided.

## **DECK ERECTION AND STEEL ENCLOSURES**

Steel deck houses (8'0" moulded height) of welded construction will be built amidships and aft for accommodation of officers, etc., as shown on plan. Steel bulwark (3'6" high) on bridge deck and upper bridge deck at fore end and sides, and

on navigating bridge. Steel entrance house over both pump rooms with gastight/watertight doors. Portable gastight/watertight steel skylights for after pumphouse entrance.

All spaces on upper deck under poop and fore-castle decks to be enclosed by steel partitions.

### **AMMUNITION CHAMBERS AND GUN FOUNDATIONS**

Ammunition chambers to be provided as shown on arrangement plan. Foundations shall be provided for guns required as Naval Defense features. All doublers, stiffening, etc., on the weather deck and below shall be provided during construction, so that the remainder of gun foundations and the installation of guns can be proceeded with later with a minimum amount of work. The contractor shall submit complete detail plans of all gun foundations and incidental work to the Commission and shall clearly indicate thereon the work to be done during construction and that required to complete the gun installation. The locations of guns and all details of the incidental work will be directed by the Navy Department through the Commission.

### **NAVIGATING BRIDGE DECK HOUSE**

The Navigating Bridge Deck House (8'0" moulded height) will be built of welded construction and 24" diameter air ports will be fitted. The wheelhouse will be fitted with a shelf desk, percolator shelf and locker boxes for marine glasses and pigeon holed flag locker.

The center airport shall be fitted with a motor driven, pendulum type, parallel motion, window wiper, similar and equal to that shown on Kearfott Plan KS-1228. All parts shall be corrosion resisting steel or other non-corrosive metal; motor to be equipped with combined starting switch and speed-regulation rheostat. Wipers of traversing type as manufactured by Muench Machine Co., Stamford, Conn., will be acceptable also.

Visor fitted over airports at forward end of wheel-house.

Portable ash gratings or "Biltright" leather link bronze fastened mat will be fitted at wheel stand.

The chart room will be fitted up with chart table (with top inset chronometer box), settee, chart racks, sextant racks, etc., upholstered cushions and backs to be fitted to settee. Stairway will be provided giving access from Officers' quarters. Screen doors provided for all doors to chart room.

## **NAVIGATING BRIDGE BULWARKS WIND-BREAK**

A hardwood wind-break about 16" slant height, inclined about 30 degrees to the vertical is to be fitted on cap rail across the bulwarks of the Navigating Bridge front and at outboard sides. Dodger to have slant height of 16" with upper half hinged; outboard of repeaters, dodger will be reduced in height by omission of hinged upper half.

## **PAINTING**

Unless otherwise herein specifically required, all paints and paint materials shall either conform to the latest issue of MC Specifications 52MC5 or at the shipbuilder's option, shall be best grade commercial brand paints. If the Contractor proposes to use commercial paints, ample time shall be allowed to permit the Commission to consider and/or investigate, and to approve the use of the specific paints which the shipbuilder proposes to use. If, in the opinion of the Commission time does not permit such proper consideration it may be necessary to refuse approval of the paints involved.

Contractors are requested to anticipate their paint requirements in order to permit complete orderly inspection and analysis when required.

It is intended that finishing colors shall be to Owner's standard. However, the application of finishing colors shall be delayed as long as practicable. The contractor shall advise the Commission of the latest date on which the finishing color schedule can be received without delaying the orderly completion of the vessel.

Before any painting is done, all steel will be scraped, wire brushed and broomed down to remove all Mill Scale. Interior of cargo and fuel tanks to be scraped, wire brushed and washed down with Butterworth Tank Cleaning equipment.

All faying surfaces, except interior structure of fuel and cargo tanks to be given coating of genuine red lead paint.

All steel work, inside and outside (except interior of oil tanks, exterior of shell plating where coated with anti-corrosive paint, or where bituminous coating is applied and elsewhere as noted below) is to be given two coats of genuine red lead primer and two coats of finishing paint to Owner's schedule.

Cofferdams to have three coats of Hydroleum #2.

The interior surfaces of culinary and drinking water tanks are to be given *one light coating* of Hydroleum #2 or equal.

Outside of shell plating, up to a level line 28'9" above base line, and clear of the Apexior coating of the stern, is to have three coats of anti-corrosive, one supplemental coat of anti-fouling from keel to light load line, one supplemental coat of boot-topping from light load line to top line of anti-corrosive, and two supplemental coats top-side finish color from the boot-topping to the top edge of shell sheer strake and erection side plating.

Companions, hatches, hand rails, masts, king-posts, steel rigging, derricks, ventilators, smoke stacks, boats, deck machinery and all other deck work to have three coats of paint.

Inner bottom tanks to be coated with two coats of Apexior No. 3.

Three coats of Apexior No. 3 applied on shell at stern from the after peak bulkhead aft and from the keel to 18'0" above the base line and to rudder for like height. No other paint is to be applied on surfaces specified to be Apexiorized.

All surfaces of wood exposed to air, not treated for finish, to be primed to prevent warping.

All hard wood exposed to weather will be finished with three coats of spar varnish.

The tank top, including side shell and machinery foundations up to floor plates in engine space, low foundations and seatings throughout ship, chain locker, peak tanks, transom tank, and double bottom aft, including underside of floor plates, etc., to be painted with two coats of Red Lead paint.

## **CEMENT AND BITUMINOUS COATINGS**

Bottom of peak tanks and crevices at transom floors will be filled flush with cement and coke and lightening holes will be provided for drainage.

Bituminous solution and enamel on all steel structure under air ports, in way of cold storage rooms, and on deck, deck saddles, under side of fresh water tanks, when tanks or deck fittings are close to deck.

Bituminous solution is to be applied to all deck surfaces upon which Selbalith deck covering is to be applied.

## **HALF ROUND BEAD FINISH OR CHAFING IRON**

Half round chafing iron will be fitted in way of loading connections and otherwise about vessel as found necessary for chafing purposes. All beading will be welded to plating with continuous bead on both edges.

## HAWSE PIPES

One cast steel hawse pipe on each bow for suitable stowing of stockless anchors. Proper reinforcements to be fitted around shell and deck openings. Hawse pipes fitted with dogged down plate covers and deck opening guard railing.

## FOUNDATIONS ON DECK

Deck in way of steering gear, windlass, chain stoppers, winches, pedestal fair-lead-ers, etc., increased in thickness or doublers fitted and additional beams, girders and stanchions (with stanchions under stanchions) fitted underneath as required. Winches and steering gear to have suitable and substantial foundations, and be provided with welded-in place flat bar gutterways and deck surface pans. Windlass landed on yellow pine bed with seams caulked and run with pitch; flat bar pitted entirely around bed and to form deck gutter-way aft and of bed with drains piped overboard through side of fore-castle. Flat bar welded to deck to form drain pan in way of other deck machinery. All fittings (except chocks) welded to doubling plates; all chocks are to have foundations raised to level of upper edge of side plating.

## BITTS, CHOCKS, FAIRLEADS, ETC.

Of steel, of approved design, will be furnished and fitted as noted below and secured on seatings as described under Foundations on Deck.

Eight 16" diameter mooring bitts, four on Fore-castle Deck and four on Poop Deck aft, welded construction.

Eight 12" diameter mooring bitts, four at each side of vessel, welded construction.

Fourteen (7½"x14" opening size) Panama Canal type closed chocks, one at each side of Forecastle Deck, five at each side of Upper Deck and one at each side of Poop Deck—aft.

One (7½"x14" opening size) open chock at aft end of Forecastle Deck near centerline.

One (12"x18" opening size) closed chock at stern.

Four 8" diameter roller, closed double roller chocks, two at each side of Forecastle Deck.

Two 10" diameter roller, open and closed treble roller chocks, one at each side of Poop Deck—aft.

Two (12"x18" opening size) mooring pipes, abaft Forecastle.

Twelve 15" diameter roller fairleads, each on "minimum height" steel base for leads to winches and windlass gypsy heads.

One towing hook on foundations located at stern.

All necessary cleats, pad eyes, ring bolts, required for rigging and for life boats and cargo gear to be supplied and installed.

## **BLEEDER PLUGS**

1½" bleeder plugs, of stainless steel, are to be fitted near the lowest (even keel trim) end of all cargo oil tanks, fuel oil compartments, ballast compartments, cofferdams, forward and after peak tanks, and the double bottom compartments, dry-walls and separation cofferdams.



## SCUPPERS AND DRAIN POTS

All surfaces throughout vessel where water is likely to collect are to be effectively drained.

On upper deck, clear of erections, "welded-in" scuppers equivalent to 16 sq. inch area deck opening will be fitted in upper deck stringer sheer strake. Scuppers fitted along all weather decks, and in each end of passageways (non-return fittings at bulkheads).

Suction pots with perforated strainers fitted at lowest point of double bottom tank tops, package freight space forward and all other spaces below deck.

Scuppers with traps fitted in floors of galley, pantry, crew's P.O.'s mess room, toilets, butcher shop and cold storage spaces.

Brass strainers provided for scuppers clear of oil tanks, wood plugs for scuppers in way of oil tanks.

## FORE AND AFT WALKWAY

Fore and aft walkway from poop to bridge deck and from bridge to forecastle deck to be built of steel framing with Irving Subway Gratings (Type M2S) walkway in removable sections. Portable "aft-hinging" section fitted over hatch to package freight space. Support angles welded to deck; piping support bars bolted to vertical support angles where required for readily removing piping, etc., and made with welded attachments elsewhere.

## OILTIGHT HATCHES

Hatch coamings to be level athwartship and welded directly to deck.

One oiltight hatch fitted over each cargo and oil fuel tanks, with coamings 30" high and to have hinged cover of approved design.

Cargo hatches to be 48" diameter, of Builder's standard.

One 10" diameter ullage plate fitted in each hatch cover.

Screw gear lifting device actuated by portable ratchet provided for each cover. Flat bar step on coaming of all hatches.

Cofferdams and forward deep tanks are to be fitted with 24" diameter maximum, 23½" coaming height, oiltight hatches (deck plating opening to be 23½" diameter).

One 2" brass sounding plug fitted in each hatch cover over cofferdams.

One portable safety screen having composition frame and suitable stainless steel wire mesh provided for each ullage plate; in addition, six spare screens to be supplied.

All fittings of Builder's standard.

## WATERTIGHT HATCHES

Coamings to be level athwartship and welded to deck, braces provided to hold covers open.

Upper deck hatchway to fore 'tween decks to have 30" coamings (stiffened as necessary) with hinged watertight steel cover and one 15"x24" low type manhole over ladder.

Rectangular hatches of steel will be fitted to storerooms with ash grating, locking device, etc.

Watertight manholes, 15"x 24", of approved design, to be fitted as required complete with coamings, flax gaskets, hinges, dogs, bronze nuts, bolts, etc., for access to fore peak, after peak tank compartment, fresh water tanks, in tank top of machinery spaces, etc., coamings in way of tank top to be 6" high, all other coamings 1½" high. Where necessary manhole covers to be fitted with brass sounding plugs.

### SKYLIGHTS

Watertight steel skylights over galley, engine hatch and after pump room as shown on plan; skylight over engine hatch and pump rooms to be portable, covers to be fitted with gaskets. Gratings with hinged metal covers, fitted over boiler hatch. "Balance weight-cable" type lifting device (to allow 40 degrees cover opening) fitted to each of the engine room and pump room skylights.

Skylights over galley to be fitted with suitable "screw type" cover lifting devices and stainless steel mosquito screens (fitted in cover openings—not the skylight deck opening).

### STEEL DOORS, ETC.

Watertight steel doors, 28"x 60" clear opening of approved design including flax gasket, fitted in pump room companionways, in bridge ends and in poop and forecastle end bulkheads, in outside bulkheads of deck house on poop deck and bridge deck, in forward bulkhead of steering en-

gine room, 30" clear opening exterior door in halves for galley.

Steel doors, 28" clear openings, fitted in machinery casing, in storerooms aft; 26" clear opening for enclosures under forecastle.

Steel closing plate with hookbolts for (4'1 $\frac{3}{4}$ " x 5'1 $\frac{3}{8}$ " clear opening) tonnage opening at aft end of bridge and in Forecastle Bulkhead; over-head trolley and guides are to be provided to facilitate handling of closing plate.

Spanners, spare tumble bolts, etc., will be provided for operating doors and stowed conveniently.

## AIRPORTS AND FIXED LIGHTS

All air ports and fixed lights to be composition and glass thickness to be 1", of Builder's standard.

Hinged air ports, 15" diameter, having not less than four dogs, will be fitted throughout vessel, except in forecastle bulkhead where 10" diameter will be used and in Navigating Bridge Deck House where 24" diameter will be fitted. All air ports to be so installed so lens and deadlight swing up with well secured hooks of approved design to hold each in open position. Air ports in the forecastle bulkhead, bridge end bulkheads, and poop side shell and elsewhere as may be required are to have cast iron deadlights; air ports in the Navigating Bridge Deck House, Upper Bridge Deck House, Bridge Deck House and Poop Deck House will be without deadlights. Frosted glass in air ports of toilets. 24" fixed light each side

in extension of Wheel House front. 15" fixed lights with hinged deadlights in Poop front bulkhead. 12" fixed lights with non-shatterable glass lenses fitted in after pump room skylight covers. Small light in each outside door of passageway and deck houses.

Air ports to have button head brass machine screws with nuts on inside. Galvanized wind scoops and stainless steel wire mesh fitted mosquito screens will be provided for all air ports in accommodations, galleys, pantry aft, mess rooms, toilets, wash rooms, bath rooms, store rooms, etc. Drip pans provided under air ports in conjunction with joiner work air port casings.

## **MASTS AND BOOMS**

There will be two masts built of steel and will have topmasts also of steel. Each mast shall be stepped on a doubling plate which shall be plug welded to the Upper Deck plating. Near the base of each mast a manhole with bolted cover plate shall be fitted, and cement grouting shall be placed within the mast to the level of the lower edge of the manhole for drainage. Each mast shall be fitted with the necessary doubling plates, light brackets, flame arrestor platforms, welded bands and fittings. Foremast to have two booms on fore side capable of handling 5 tons each.

Kingposts with plain heads shall be fitted amidships and each equipped with two 30' cargo booms for handling cargo hose and accommodation ladder.

Kingposts with cowl ventilator heads shall be fitted on each side of the after pump room, each equipped with one 30' cargo boom of 2-ton capacity for handling stores, etc.

Cargo booms of steel, pins and swivels of steel with pin type alemitite fittings and other fittings of wrought iron or cast steel as best adapted for the service of the fitting. Rests and lashings will be provided for each boom. Lead flashing on boom rests.

Steel ladders will be fitted to full height of each mast and kingpost.

## RIGGING AND FITTINGS

Rigging will be in general as shown on general arrangement plan, grounded as required and fitted with proper attachment for efficient handling of all gear, running rigging, antennae, etc., with all necessary wrought steel mast bands and fittings, wrought steel rope end sockets, pads, cleats, fairleads, etc.

Arrangements of signal mast with yard, flag boards, signal hoists, blinker lights, speed cones, etc., shall be as required by the U. S. Navy for merchant vessels.

Each king post to have two stays secured to deck, and one stay between posts.

Standing rigging of galvanized wire rope (with end sockets) properly set up with turnbuckles attached to hull by "Welded-in-place" lugs.

Guys to be of galvanized wire rope (with end sockets) set up with turnbuckles.

All turnbuckles of closed type and to be fitted with nuts and lock nuts.

Running rigging will be of manila except where otherwise specified, having necessary number of parts for load specified, with McMillan or equal hardwood blocks with self-lubricating galvanized sheaves.

Booms to be fitted with topping lifts, falls, vangs, purchase, etc., complete as necessary for service specified. All rigging and fittings to be to builder's standard sizes.

## FLAG POLES

Steel pipe jack and ensign staffs to be hinged-at-deck type with lignum vitae trucks (two brass sheaves) cleats and halyards, secured in hinge sockets at bottom and clamp keeper above.

## VENTILATION

Adequate natural ventilation is to be provided to the following spaces by means of cowl ventilators, generally of the quantity and sizes as listed below.

Two 24" diameter combination kingpost and vent to after pump room. 24" trunk to extend through Upper Deck and connect to 18" O.T. trunk through cofferdam space into pump room.

Two 18" diameter accommodations in Bridge Deckhouse and Upper Bridge Deckhouse and Gyro Compass Room vents to dry cargo space.

Two 15" diameter to forward pump room.

One 18" diameter to Machine Shop.

One 12" diameter to deck stores under fore-castle.

One 12" diameter to fore-castle enclosure.

One 12" diameter mushroom to fore peak store room.

Four 12" diameter to bridge space.

Two 18" diameter to steering gear space.

One 9" diameter gooseneck vent to cordage space, aft.

All cowls to extend above nearby awnings.

Four 36" diameter to engine room with ducts and controlling dampers to spaces on gallery deck and forward lower engine room (latter to have electrically operated fans).

Two 30" diameter to boiler room with dampers at lower end.

Two 30" diameter to after lower engine room with dampers at lower end.

One 30" diameter exhaust vent with mushroom head to after lower engine room to have electrically operated fan.

Turning gear provided for cowls for kingpost ventilators, at engine operating level for engine room ventilators, and at boiler flat for boiler room vents.

Coamings on weather deck will be in accordance with Classification requirements. Cowls of approved welded design, of galvanized steel, to be removable and have canvas covers and portable coarse mesh wire screens at mouth.

The trunks of vents on Fore-castle Deck, Upper Deck, Bridge Deck and Poop Deck are to have dogged-down hinged steel cover for closing same.



Approved electric exhaust fans provided for Boiler Room, After Pump Room and Galley and Toilets; each fan to have suitable suction duct and discharge into a duct ending in mushroom type exhaust head.

Mechanical ventilation is to be supplied by Electric motor actuated blowers for all living spaces of the Poop Deck House, Upper Deck accommodations, and steward's store room on Upper Deck Aft.

Steam radiators shall be fitted in all bath rooms and toilet spaces, steering gear compartment, wheelhouse and chart room. These radiators shall be of the Shaw-Perkins type or equal; all brass for the wheelhouse and chart room.

Blowers to be of sufficient capacity to obtain adequate complete changes of air in each space per hour, aft units to be located within the upper boiler casing, all to have inlets, trunks terminating above awnings or overhead decks, in suitable weatherproof inlet heads. Galvanized steel ducts to the living spaces and bath rooms are to be led from blower outlet to each space to be ventilated, the outlet in each space to be controlled by suitable "Tuttle and Bailey Flexair" grill ducts to be airtight and to be assembled with sound absorbing insets and arranged with baffles, easy bends and gradual changes of duct form. Each space is to have suitable air outlet to passageways and passageways to have exhaust trunks of ample size, ending above awnings or overhead decks in suitable weatherproof head. Separate exhaust trunks from bath rooms under poop.

All vents and trunks to living quarters, mess rooms, galleys, pantries, passageways, bath rooms, etc., to have stainless steel mosquito screens and closing device where required.

## BOATS AND DAVITS

Four 22'0" x 6'9" x 2'11" (31 persons) metallic (with steel gunwales and buoyancy tanks) life boats, two aft and two amidships, complete with all appliances, gear and outfit. Boats suspended from mechanical davits and fitted with releasing gear. All necessary lead flashed boat chocks on elevated steel seatings and approved boat gripes provided as directed. Triple non-toppling and non-twisting blocks with malleable iron shells and brass roller bushings are to be fitted to each boat fall. Lower blocks arranged with swivel eye for releasing gear. Falls of manila rope of sufficient length to lower boats safely when vessel is light. Approved reels with canvas covers to be provided for falls. A large bollard (on deck) is to be fitted at each davit.

## LADDERS

Ladders to all cargo tanks to be arranged "fore and aft" and be made with angle iron sides, welded angle iron treads (treads punched for non-slip footholds) and to have solid rod handrails at both sides of each ladder. Welded steel rung vertical ladders and hand grabs in fuel oil tanks, cofferdams, peak tanks, double bottom tanks, store rooms, etc.

Outside ladders, from upper deck to poop, bridge and forecastle decks and to fore and aft gangway both forward and aft of bridge deck, from fore and aft gangway to after end of upper bridge deck, and to forward end of Poop House Top, from Upper Bridge Deck to Navigating Bridge Deck, from Navigating Bridge Deck to Navigating Bridge Deck House Top, from Poop Deck to House Top aft, from Poop Deck House Top to fidley top. All inside ladders in accommodations aft and to package freight space forward, to be of welded construction of plate stringers and checkered plate steps with galvanized pipe hand rails. Checkered plate steps with galvanized hand rails fitted over deck piping as required. Ladder from navigating bridge deck house top to compass platform on house top to be constructed of teak with brass non-slip treads, brass nosings and brass hand rails.

Stairs in midship house will be constructed of plate stringers and solid steel plate treads covered with Selbalith or equal and stainless steel nosings. Open balustrades of square bar steel fitted with chrome-bronze hand rails.

Accommodation ladder of aeroplane spruce in two sections complete with platforms (platform to be used for leadsmen's platform), davits, manilla falls, brass roller bushed blocks, davits, sockets and fittings on each side of ship so that ladder can be used on either side. Storage arranged in midship enclosure, or on walkway.

Pump room ladders described under Machinery Specifications.