A.D.6.

DEPARTMENT OF THE NAVY

NAVY OFFICE

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

OF

40' WORKBOAT

NAVY OFFICE REGD. NO. 111A/114

29/12/43.

603 240

SPECIFICATION

FOR

40' WORKBOAT

No. S.M.C.S.C.I.

As approved by the

Small Marine Craft Sub-Committee.

ADDENDUM TO SPECIFICATION

1. TROPICAL DETERIORATION OF WOODEN VESSELS.
"Due to very serious tropical deterioration which has been taking place in wooden craft operating in tropical areas, all timber used in the construction of Small Craft for the Department of the Navy, is to be treated, by brushing, with one (1-No.) good coat of a solution of 20% by weight of Copper Napthenate (not less than 2% by weight of copper) in kerosene.

"The timber is then to be painted as soon as possible after the surface will take paint, in order to retain the Copper Napthenate in the timber. It is important that the kerosene solvent should have evaporated before paint is applied.

"Although Copper Napthenate has poisonous properties, it is not dangerous to human beings though dermatitis may occur, due, partly to the kerosene solvent.

"Prevention of dermatitis is best effected by coating hands and skin exposed to contact with 50% mutton fat and 50% lanoline. As use of Copper Napthenate in enclosed spaces may also effect eyes and nose unpleasantly, adequate ventilation should be provided.

"Certain individuals are affected more than others, and, where this is noted, these should not be employed continuously on the work."

2. If vessels are partly built, the Copper Napthenate treatment should be applied to all timbers accessible.

3. NOTE: All parts of the craft, including superstructures, if any, require this protection.

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Clause 29. Delete: About 25 feet from the bow a pair of 5" x 5" Jarrah towing bitts to be fitted one each side. These bitts to be attached on their lower ends between two ribs and to be securely bolted through, strapped and braced to coamings and carlings. To stand 16" above side deck.

Insert: One Sampson Post to be fitted on Centre Line Aft.

Clause 35. Delete: Power for lighting to be from 6 volt Battery. Two batteries to be housed in lead-lined box under steering platform.

Insert: Power for lighting to depend on voltage and capacity of starting arrangements. Batteries should be Admiralty Pattern and housed in lead lined box.
S.B.C. lamps to be used.

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40' WORK BOAT

Specification Registered No. 111A/114

ADDENDUM NO.1.

The following modifications are to be made to the Clauses enumerated hereunder:-

Clause 38 - Delete:- "One compass to be mounted on gimbols in box."

Add to Clause:- "A pattern 185 Boat's compass in binnacle will be supplied by the Naval Board and is to be mounted on a bracket by the Builder in position selected by the Naval Overseer."

Clause 44 - Add to Clause:- 1 spare 35 lbs. C.Q.R. Anchor.
1 Life Raft.

Clause 48 - Delete the words "and towing lamp."

Clause 29. Delete: About 25 feet from the bow a pair of 5" x 5" Jarrah towing bitts to be fitted one each side. These bitts to be attached on their lower ends between two ribs and to be securely bolted through, strapped and braced to coamings and carlings. To stand 16" above side deck.

Insert: One Sampson Post to be fitted on Centre Line Aft.

Clause 35. Delete: Power for lighting to be from 6 volt Battery. Two batteries to be housed in lead-lined box under steering platform.

Insert: Power for lighting to depend on voltage and capacity of starting arrangements. Batteries should be Admiralty Pattern and housed in lead lined box.
S.B.C. lamps to be used.

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40' WORK BOAT

Specification Registered No. 111A/114

ADDENDUM NO. 2. FOR R.N. 7/5/45

The following modifications are to be made to the clauses enumerated hereunder:

Clause 7. Delete: "Oregon planks" Insert: "Hardwood planks"

Clause 8. Insert after words Steam Bent - "Hardwood"

Clause 9. Delete: "Oregon planks" Insert: "Hardwood planks"

Clause 10. Delete: "Oregon" Insert: "Hardwood"

Clause 15. Delete: "Oregon" Insert: "Hardwood"

Clause 16. Delete: "Pine" Insert: "Hardwood"

Clause 19. Delete: The belting to consist of 5" x 2" Oregon bolted through planking and gunwales with 3/8" bolts spaced 18" and an outer layer of 4-1/2" x 1-1/2" Jarrah neatly rounded and capped with 1-1/2" x 1/2" half round galvanised steel bar fastened every 12 inches with galvanised screws.

Insert: The belting to consist of 5" x 3-1/2" jarrah bolted through planking and gunwales with 3/8" bolts spaced 18", the belting to be neatly rounded and capped with 1-1/2" x 1/2" half round galvanised steel bar fastened every 12 inches with galvanised screws.

Clause 21. Delete: A hatch-way 14" x 24" inside measure with 2" coaming to be made in deck and fitted with removable hatch cover.

Insert: A circular hatch 17" dia. (Navy Pattern) to be fitted in deck.

Clause 23. Delete the words: The two central sections of shelter windows to open outwards. All other windows permanently fixed.

Insert: All windows to open.

Add to Clause: A sun visor to be fitted to Port and Starboard side and fore end of steering shelter, the visor to be of timber construction and fitted to satisfaction of Naval Overseer.
Inside and roof to be painted very light Green.

Clause 24. Add to Clause: Additional 4" ventilator to be fitted at aft end Port side of cabin.

Clause 29. Delete: About 25 feet from the bow a pair of 5" x 5" Jarrah towing bitts to be fitted one each side. These bitts to be attached on their lower ends between two ribs and to be securely bolted through, strapped and braced to coamings and carlings. To stand 16" above side deck.

Insert: One Sampson Post to be fitted on Centre Line Aft.

Clause 35. Delete: Power for lighting to be from 6 volt Battery. Two batteries to be housed in lead-lined box under steering platform.

Insert: Power for lighting to depend on voltage and capacity of starting arrangements. Batteries should be Admiralty Pattern and housed in lead lined box.
S.B.C. lamps to be used.

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Clause 35. (Cont'd.) Navigation lights to be 25 watt Port Lamp 15 watt Starboard all other lights to be 15 watt, except Spotlight 36 watt. Panel light and Compass light 9 or 6 watt. One Plug-in point near engine.

Clause 37. Add to Clause, after Tanks - "Each of 55 gallons"

Clause 41. Add to Clause.
Screw to be fitted in steering wire Port and Starboard, lips of pulleys to be deep or bands fitted to prevent wire from slipping off.

Clause 42. Delete: Below the water line and for 6" above it the outside of the Hull is to be sheathed with 16 oz. copper. The sheets are to be fixed to the Hull with 3/4 x 12 gauge copper sheathing nails spaced 1-1/4" on edge and laps. Sheets to lap at least 3/4". Before fixing copper the Hull is to be given a coat of bitumastic black and covered with tarred felt or Bitumen felt of approved quality.

Insert: Below the water line and for 9" Forward 3" Midships and 6" Aft above it the outside of Hull is to be sheathed with 16 oz. copper.
Hull to have 2 Coats of tar to sheathing line, Brown paper steeped in hot Mineral Tar before applying.
Copper sheets to have one coat of tar before applying.
Copper sheets to completely seal the underwater hull including front of stem, under side of keel, etc.
Sheets to lap 1". Tacks spaced 3/4" apart round edges with tack fastenings 4" centres each way completely over sheet. Finished bottom to receive one coat of black Bitumistic solution and one coat of Anti-fouling.
It is important that bottom is in sound and watertight condition before sheathing commences.

Clause 43. Add to Clause: After grey gloss - "Battleship Grey"
Inside and roof of steering shelter very light Green.
Fire Proof Paint to be used if obtainable.

Clause 44. Add to Clause:
4 Hand Fire Extinguishers.
1 Life Belt.
4 Life Jackets.
1 Spare 35 lbs. C.Q.R. Anchor.
1 Life Raft.

Clause 53. Add New Clause 53:
All Loose Items to be marked "R - Broad Arrow - N". Dinghy, Life Raft, Life Jackets and Belt to be branded also with Reg. No. of Craft.

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

FOR

40'-0" W O R K B O A T

AS APPROVED BY

THE SMALL MARINE CRAFT SUB-COMMITTEE

1 **Length Overall** - 40 feet.

Beam - 12 feet.

Draft - 4 feet.

Maximum width to outside Belting 12'-8"

Overall height on cradle 13'

2 KEEL To be of 6" x 4-1/2" jarrah 35 feet long.

To be efficiently scraphed 18 inches at 18 or 20 feet from bow.

The keel is to be fastened to hog and deadwood with 5/8" diameter copper or bronze bolts.

3 HOG To be of 8" x 2" jarrah 34 feet long.

To be in two lengths scraphed about 12 inches. Joint to be well separated from butts in Keel and deadwood. The lower edges of hog to be bevelled back to Keel to form rabbet for garboards.

4 DEAD-WOOD The deadwood to be built up of jarrah faced 5-1/2". The after deadwood to lay parallel with the tail shaft and to be bored to take same.

5 SHAFT LOGS To be formed from 5-7/8" x 5-7/8" jarrah to be placed parallel with tail shaft and bored in line with hole through keel and deadwood.
Shaft logs to be fastened through the hog, keel and deadwood with six 5/8" copper or bronze bolts. To be checked to take ends of ribs.

6 STEM The stem is to be built up from jarrah and a grown or laminated Knee. The latter extending about 30 inches either way and moulded 7" or 8" at throat. The knee to be faced 6 inches and fastened with eight 5/8" copper or bronze bolts. The apron is to be of 5" x 10" jarrah bevelled to form a 5" x 1-1/8" rabbet for plank ends. All other parts faced 6 inches. The stem to extend aft about 6 ft. and to be fastened with five 5/8" copper or bronze bolts in addition to these through the Knee. Not less than two bolts must pass through stem, hog, keel and deadwood.

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6 STEM (Cont'd.)

Checkouts will be required in stem and hog for seven pairs of ribs in bow.

The leading edge of the stem is to be protected with a substantial cast bronze strip and plate, extending well back along the keel.
The upper end of stem to be fixed to gunwale by a brown breast hook faced 3" with 1/2" bolts.

7 TRANSOM

The transom is to have a double skin of Oregon planks, the inner skin of 6" x 1/2" running at 45°, and the outer of 6" x 5/8" running horizontally. A layer of oiled or painted canvas to be placed between the skins.
The two sets of planking are to be fastened to each other and to the transom frame with copper nails and roves. Excepting that the fastening to the outer moulded framing will be by brass screws.
The transom frame to be built from 1-3/4" hardwood.
The transom floor to be moulded from 7" x 3-1/2" jarrah.
The transom to be fixed to the keel and hog by a grown knee, faced 4 inches, and extending about 24 inches along the keel, and about 30 inches high.
To be fastened with two 1/2 inch and one 5/8" copper or bronze bolts through keel and two 1/2" and one 5/8" copper or bronze bolts through stern post and transom planking.
The transom cap to be fixed to gunwales with four 1/2" copper or bronze bolts through a pair of quarter knees, faced 3 inches and with 18 inches arms.

8 RIBS

To be spaced approximately seven inch centres and to be in two laminations of suitable steam bent timber, double dressed and sided 1" x 2-3/8" each.

9 PLANKING

The hull is to be carvel built with twenty one oregon planks on each side.
The planks to be finished 1-1/8" full. Wedges to be placed between second plank, and garboards and the ribs.
Planks to be fastened to ribs with 3-1/2" x 8 gauge copper nails and roves, except through wedges where 4-1/2" x 8 gauge are required. 5" x 6 gauge nails through hog rabbet. Planks are fastened to transom frame by one row of 3" x 9 gauge copper nails and one row of brass screws. Fastening to stem is by 3" x 9 gauge copper nails. Joints in planks to be efficiently staggered, to occur between ribs and to have cover plates riveted inside between ribs. Planks to be well caulked with cotton yarn and whitelead putty.

10 STRINGERS

Two stringers on each side, to run full length of boat.
To be cut from 6" x 2" oregon.
The lower stringer to taper to 3-1/2" x 2" at bow and 4" x 2" at stern.
The upper stringer to taper to 4" x 2" bow and stern.
The stringers are to be fastened through ribs and planks with 6" x 6 gauge copper nails and roves.

11	BEARERS	Seventeen floor timbers spaced 2 feet centres, to be of jarrah. 8" deep at centre line. Twelve to be faced 3-1/2" and fastened through planks with 1/2" copper or bronze bolts spaced athwart ships 12 inch centres one or two 5/8" bolts through keel, etc. Five of these timbers to act as engine bearers and to be faced 6" and fastened with 5/8" copper or bronze bolts through planking, spaced 12" centres. The engine bearers are to be set on two ribs, the space between the ribs to be filled with moulded oregon packing pieces.
12	ENGINE BEDS	Two jarrah engine beds running fore and aft, faced 4" x about 10" deep to be spaced 24" centres and moulded to suit engine. The beds are to rest on the engine bearers to which they are attached by five pairs of 5/8" copper or bronze bolts.
13	COCKPIT DECK BEAMS	Cockpit floor bearers to be 2" x 3" and spaced 18" centres. Beam centres supported on a 2" x 3" stud standing on the hog. Short beams either side of engine to have inboard ends supported on a pair of 2" x 3" joists running along side engine.
14	COCKPIT FLOOR	Planks to be 4" x 1" T & G boards running fore and aft, fastened to deck beams with galvanised screws. Two loose hatches 20 to 24 inches wide to be left along centre line. Two 12" hatches to be provided either side of engine.
15	GUNWALES	To be cut from 6" x 2" Oregon tapering to 4" x 2" at bow and 4" x 3" at stern. To be fastened through ribs and planking with 6" x 6 gauge copper nails and roves.
16	SIDE DECKS	Side decks to be of 3/4 seven ply hardwood or 1-1/4" pine. Side decks beams to be 2" x 1" and spaced 15 inch centres. At every other beam a 1/2" galvanised iron tie bolt to pass through gunwale and carling. 1-1/8 x 3/8 thread battens in 4'6" lengths and running fore and aft to be screwed to deck with galvanised screws. Outboard side of decks to be fitted with 2" x 2" toe rail in which waterways are cut every two feet. The toe rails to be bevelled 1" x 1" on outer edge and tops neatly rounded. To be fastened with galvanised screws every eight inches.
17	CARLINGS	Carlings to be of 4" x 3" oregon and to run from the after bulkhead to the water tight bulkhead forward.
18	COAMINGS	Coamings to be of 6" x 2" oregon, to run from after bulkhead to steering shelter, and across after end of cockpit. The coamings are to be capped with a protective strip of 1-1/2" x 1/2" half round galvanised mild steel bar. To be fastened every 12 inches with galvanised screws.

19 BELTING

The belting to consist of 5" x 2" oregon bolted through planking and gunwales with 3/8" bolts, spaced 18" and an outer layer of 4-1/2" x 1-1/2" jarrah neatly rounded and capped with 1-1/2" x 1/2" half round galvanised steel bar, fastened every 12 inches with galvanised screws.

20 SIDE BENCHES & LOCKERS

The space under the side decks for a depth of 18 inches to be fitted as lockers. Front face to be of 3" x 1/2" T & G lining and to be removable in 3 foot sections. Below these, and to deck level a set of side benches, about 20 inches high and 16 inches wide are to be built to house the fuel tanks. Inner vertical walls of 3" x 1/2" T & G lining to be removable in 3 foot sections.

21 FORE DECK & FOREWARD

The fore-deck to be built of 3/4 seven ply bondwood and supported on three 3" x 4" beams, half dovetailed to gunwales. The two after beams attached to gunwales with grown lodging knees faced 2".
The three beams to have a camber of approximately 4".
The after one of the three to form top of water tight bulkhead. The bulkhead to be built of 3-1/2" x 7/8" T & G lining boards running at 45° to vertical and screwed to three 2 x 3 uprights.

A hatchway 14" x 24" inside measure with 2" coaming to be made in deck, and fitted with a removable hatch cover.

The hatch gives access to the fore peak where a shelf is to be provided for stowage of anchor line and mooring ropes etc. The deck to be protected with six 1-1/8" x 5/8" tread battens spaced 6 inch centres and fastened with galvanised screws.

22 AFTER DECK & BULKHEAD

Deck to be of 3/4" plywood supported on three 3" x 4" beams and the transom cap. The beams to be cambered 5".
The foremost of the three beams to be attached to gunwale with a lodging knee faced 2 inches.
Tread battens, spaced 3 inches to be screwed to deck.
The bulkhead to consist of three loose sections to be 3 feet wide.

23 STEERING SHELTER

To extend aft 5 feet from the cabin bulkhead at station 3.
To have about 7 feet head room. The roof to be rounded 5 inches, to be of 3/4" ply wood, covered with painted canvas, and carried on five 2" x 3" beams, supported by two 3" x 3" stanchions either side.
A safety hand rail to run round outer top of roof.
A crutch block for mast to be fixed on centre line on after edge of shelter roof.
The cabin bulkhead to be built of 4" x 7/8" T & G lining placed vertically on 2" x 2" horizontal members.
A sliding door 21 inches wide and about 5'-6" high is placed on port side (about 18 inches off boats centre line) to give access to cabin.
A 17" high steering platform 3 feet wide and 3'-9" long to be placed on starboard side against bulkhead.
A hatch 18" x 16" covering 1 14" deep recess for battery box to be made in platform. Before manufacture check all battery dimensions. The two central sections of shelter windows to open outwards. All other windows permanently fixed. Shelter sides, above side deck level

23 STEERING SHELTER (Cont'd.)

to be two 12 x 2 stream bent oregon planks, which are continuous with cabin sides. A flag locker to be fitted on cabin bulkhead just to left of steering wheel.
A log book box to be provided on starboard side near to wheel and two chart racks to be built in roof.
A steering grating about 22" x 17" to be provided.
Screens for port and starboard navigation lights to be fixed on steering shelter roof, one each side.

24 CABIN

The space between forward bulkhead and cabin bulkhead to be fitted out as a cabin, about 8 feet long x 6'-5" head room. The cabin floor being about 9" below cock pit floor level, and carried on 2" x 3" floor beams spaced 18 inches. 12 inch wide loose sections to be left along centre line to give access to bilge.
The roof to be of 3/4" canvas covered plywood, to be carried on eight 2-1/2" x 2" beams with a 5 inch crown.
Hand rails to run round edge of roof.
A 33" square skylight to be provided in centre of roof. To be in two sections hinges athwart ships and opening upwards. To be adjustable from inside the cabin. The glass to be reinforced with wire and protected on the outside with metal bars. In the forward end of the cabin roof a 4 inch ventilator is to be fitted. Cabin walls are a continuation of steering shelter sides, three port holes, spaced 3 ft. centres, are to be provided on each side. The forward ports to be size 4 inch, the next 5 inch and the after ones 6 inch diameter, all ports to open inwards. Two built-in bunks or seats 17" high to run along cabin walls, to extend aft from forward bulkhead 6'-6" aft to be 17" wide forward to 26" wide aft.

In addition two pipe bunks, 6' long by 24" wide to be fitted, one on each side above the other bunks, and to be hinged so as to drop against walls.
The spaces between bunks and cabin bulkhead to be occupied by lockers. The lower ones to be 30" high and fitted with hinged double doors. The upper lockers, to be about 20" high. A folding table 4' long x 18" wide and about 30" high to be hinged on forward bulkhead, to be fitted with a folding leg to support it when in use.

25 CANVAS AWNING

An approved canvas awning of approved weight and quality to be provided to cover cockpit, top and sides.
To be supported by 1" pipe stanchions set in cast bronze sockets, attached to inner side of coamings.
Rings to be set in side deck for lashing down side awning.

26 DECK FITTINGS

A cast bronze stem head fitting, carrying a central bronze roller and two fairleads, to be securely fixed to forward end of deck.

27 BOLLARDS

Two cast bronze bollards one each side about seven feet from bow, to be fastened through gunwales with 1/2" copper or bronze bolts.

28 MOORING POST — A 5" x 5" jarrah mooring post fitted with pin to be set on hog and project 12" above foredeck, just aft of hatchway. This post to be securely bolted to after side of the central of the three foredeck beams.

29 TOWING BITTS — About 25 feet from the bow a pair of 5" x 5" jarrah towing bitts to be fitted one each side. These bitts to be attached on their lower ends between two ribs, and to be securely bolted through, strapped and braced to coamings and carlings. To stand 16" above side deck level.

30 FAIRLEADS — A pair of cast bronze fairleads to be fixed to transom one each side.

31 BOLLARDS — A pair of cast bronze bollards to be bolted with 1/2" copper or bronze bolts through the after deck beams.

32 MAST — The stump mast 4-1/2" dia., to be stepped on the hog and pass through cabin roof to height of steering shelter roof. A bronze hinge to be fitted to enable the mast to lay back on shelter roof. Mast to be 4-1/2" dia. lower end and to be 16 feet high of oregon.

33 YARD — A six foot yard to be fitted 3 feet from top. A 3/8" x 3/8" groove to run up after edge of mast to carry wires for mast head light wiring.

34 CHAIN PLATES — Chain plates to be attached to centre stanchion on either side of steering shelter and one to port of cabin.

35 LIGHTING — Power for lighting to be from 6 volt battery. Two batteries to be housed in lead-lined box under steering platform.

Interior lighting as follows:-
One light in roof of steering shelter.
One shaded light on instrument panel.
One light on cabin roof.
One "plug-in" point for lead light in steering shelter on port side.
One spot light to be provided on shelter roof in such a manner as to focus in any direction and to be controlled from steering platform.
One mast head light, switch on instrument panel.
Red and green port and starboard navigation lights to be mounted on roof of steering shelter.

36 BILGE PUMP

A hand operated geared centrifugal bilge pump "VORTEX" to be set on hog just forward of engine. This pump is operated by a vertical crank passing through deck. When not in use handle to be stowed on cabin bulkhead. The pump to discharge through 1-1/2" rubber hose connected to a bronze casting through planking.

37 FRESH WATER TANKS

Two fresh water tanks of about 55 gals. capacity to be fitted under side decks on either side of steering shelter. They are to be made of 18 gauge copper, well tinned on the inside to be fitted with suitable baffles and provided with a 2-1/2" filling plug and a 1/2" tank tap. A graduated dip stick to be provided.

38 ENGINE INSTALLATION

The boat is to be powered with an 8 cylinder Chrysler Royal Marine engine Type R.M.8 with a gear reduction ratio 4.48 to 1., or a Cadillac, or a Gray Motor.
To be mounted in engine beds and held by eight steel bolts passing through the beds. Amend set up for different motor, if necessary. A copper drip tray is to be placed under the engine and to occupy the whole space between the engine logs for full lengths of engine and gearbox. Cooling water is pumped in through a sand trap and discharged partly into the exhaust system, and partly overboard through the bronze casting set in the planking. The exhaust system consists of a water jacketed copper tube. 3" outer pipe 2-1/4 inner to the muffler then one 2-1/4" copper pipe lead along port side and out through the transom. Engine to be controlled from an instrument panel mounted above steering wheel box.
The panel to have the following instruments and controls:-
One ignition switch.
One starting switch.
One engine choke button.
One horn button.
Four lighting switches.
One oil pressure gauge.
One amp. meter.
One rev. counter.
One shaded light.
One compass to be mounted on gimbals in box.
The throttle lever to be mounted beside the panel.
Auxiliary gear lever to be mounted along side wheel.

39 TAIL SHAFT & PROPELLER

The tailshaft is to be a 2-1/2" diameter aluminium or manganese bronze bar. A white metal lined bronze water tight gland to be fitted on in board end of shaft log and a cast bronze white metal lined bearing on outer end, this bearing to be lubricated through an 1/8" bore copper tube from a grease gun located in a suitable position in the engine room. The after end of tail shaft to be supported in a water lubricated "Cutless" rubber bearing set in a Naval bronze strut between keel and skeg. A three blade propeller cast in Naval bronze is keyed to the tapered end of shaft and secured by a castellated nut. The shaft taper to be 3/4" per foot. See drawing of propeller shaft.

40 FUEL TANKS

Fire proof fuel tanks to be situated under side benches in cockpit. There are to be four tanks, two of 65 gals. and two of 52 gals. capacity. One of each on either side. They are to be made of 18 gauge copper and to be fitted with suitable baffles. 1/8" copper tube vents to be provided to carry fumes through side decks. 2-1/2" filler plugs to be fitted and 1/8" gas outlet in each tank. A Dip Stick, graduated on either side for the two sizes of tanks to be provided.

41 STEERING

Steering to be effected by a 24" dia. wheel keyed to a 1" dia. shaft carrying a 4-1/2" diameter drum. The whole supported on a galvanised iron bracket which is securely bolted to cabin bulkhead. 1 inch flexible steel cable to be lead over 4" bronze hinged pulleys mounted on cast brackets on upper starboard stringer, and through a pair of galvanised iron pipes to the stern and attached to the 18" radium quadrant which is keyed to the rudder post. The rudder to be of cast bronze and fitted to the rudder post which passes through a water tight bronze gland in the keel and rests in a foot step bearing on the end of the skeg. A tiller to fit over the square end of the rudder post to be provided for emergency.

42 COPPER SHEATHING

Below the waterline and for 6" above it the outside of the hull is to be sheathed with 16 oz. copper.
The sheets are to be fixed to the hull with 3/4 x 12 gauge copper sheathing nails, spaced 1-1/4" on edges and laps.
Sheets to lap at least 3/4".
Before fixing copper the hull is to be given a coat of bitumastic black and covered with tarred felt or Bituman felt of approved quality.

43 FINISHING & PAINTING ETC.

The outside of the hull is to be planed smooth and fair before painting. All nails and screws to be well counter sunk and the holes filled with white lead putty.
All woodwork inside and out to receive a priming coat of red lead and white lead oil paint.
Parts to be copper sheathed to be painted bitumastic black. All other parts except interior of cabin to receive one undercoat of grey paint and a finishing coat of grey gloss.
Interior of cabin to be finished white.

44 EQUIPMENT

The following equipment to be supplied by builders:-
One spare propeller.
One spare taper propeller shaft, key and nut.
One "Cutless" rubber bearing.
Two 8' boat hooks.
12 feet 3/8" chain.
One 35 lb. C.Q.R. Anchor.
30 fathoms 4" coir rope.
A Jacobs Ladder is to be provided of sufficient length to enable the person coming aboard to pick up the first rung of the ladder at least two feet below the surface of the water.

45 PLYWOOD — All plywood used in the construction of these vessels must be in accordance with latest Australian Standard Specification for Marine Plywood.

46 MAIN FRAME FASTENINGS — All main frame fastenings below the copperline must be of approved non-ferrous material. Main fastenings above the copperline may be of hot dipped galvanised iron. All other fastenings to be either copper, brass, or galvanised iron as approved by Hull Inspectors.

47 TIMBER — All hardwood must be of good quality timber, free from all deleterious defects bearing in mind the purpose of each item and service required of same.
All oregon must be of No.1. clear quality when used in hull or deck planking. In the event of oregon being used elsewhere, the same conditions as are given for hardwood, apply.

48 NAVIGATION & TOWING LAMPS — All necessary navigation and towing lamps (electric and/or oil) as required shall be supplied and fitted to usual regulations.

49 STOWAGE & LIFTING CRADLES — An approved lifting and stowage cradle is to be supplied with each vessel. It is to be of a sturdy construction and so designed to take the total lift of the fully equipped vessel.

50 INSPECTION — Inspection of these vessels will be carried out as per arrangement between Directorate of Small Craft and the Service for which the boat is being built.

51 TRIALS — All necessary basin and harbour trials to be arranged and carried out under responsible supervision.

52 DELIVERY — Delivery will be accepted in city of manufacture.