

How to Use Waterproof Plywood in Boat Construction

ONLY resin bonded plywood should be used for boat building. There are many other kinds on the market, including the so-called waterproof variety. Insist, however, on *resin bonded* plywood for marine work, manufactured by the hot press process.

If in doubt about the material you are planning to use, boil a small sample in water for about an hour. The plies or laminations of the resin bonded plywood will not separate.

This product is sold under various trade names adopted by the manufacturers.

When possible order plywood in stock panels. They can generally be obtained from your lumber dealer or direct from the manufacturer's distributors or agents.

Resin bonded plywood of fir is the least expensive material suitable for boats. It is manufactured on the West Coast of the United States in the region where the giant trees grow, and is shipped to the distributors in all parts of the United States and Canada.

Examine each panel very carefully before accepting it.

Inspect the outer laminations on each side of the panel, for blemishes, such as transverse joints and graining pieces. Examine the long edges for voids or gaps between joints of the inner lamination. Do not accept any joint showing more than 1/32" in 3-ply. They seldom exceed this in 5- or 7-ply material.

Stand the panels on edge in a dry room, in a rack or against the wall, with short cleats laid on the floor and a few narrow spacers between each two panels so that each will be separated from the other to allow circulation of air.

Choose a shop with good light to build your boat, ample circulation of air and a solid, level, dry wood floor. Keep a clear space of at least 2 to 3 feet all around the building form.

Be sure the boat can be moved out when completed without tearing the building down. Many amateur builders have overlooked this simple precaution to their sorrow.

GUNWALE STRINGERS (FIG. I)

Here we have a choice of several methods. Whatever you choose, be sure to cover the raw edges of the plywood. Also keep in mind the type of fender you are planning to use.

"A" is the cheapest and poorest form and is not recommended but is shown so that you may know what not to use.

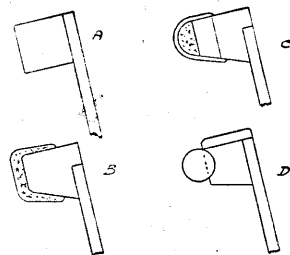


Fig. I
Variety of gunwale shapes for plywood boats

"B" is the best. The outer edge can be grooved for a rope fender as at "D" or shaped for a rubber channel bumper as shown or canvas covered half round rubber as at "C." A half round or half oval metal band can be used on any of these instead of the rope or rubber bumper. The outer gunwales are recommended in all open rowboats, skiffs, canoes, etc.

KEELS (FIG. II)

There are several variations of these important members of a plywood boat's structure.

"A" is probably the simplest and suitable for all vee-bottoms where only a wearing strip or outer keel is required.

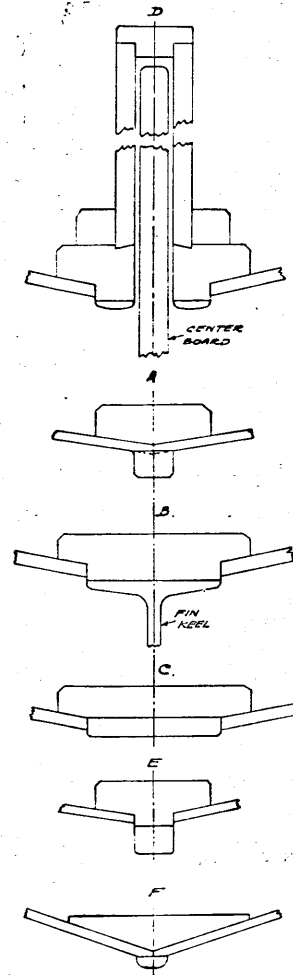


Fig. II. Keels

"B." This wide double rabbeted keel is used where a fin keel or center-board is to be used.

"C" is a modification of "B" but is not recommended for use in a center-board.

"D" is a suggestion for the construction of center-board trunk.

"E" is similar to "B" but with narrow keel and wood false keel or shoe.

"F" is similar to "A" but with a half round metal wearing strip, used for light craft such as canoes, kayaks, catamarans and rowing dinghies.

CHINES (FIG. III)

If the hull form is carefully designed the chine stringers may be easily bent into position without undue twist or edge spring. Rather than put too much edge spring in this member use a wider plank and splice it as is done with conventional planking.

The flat chine is to be preferred to that of a sharp chine, especially in a dinghy. It has the decided advantage of improving the appearance of the hull, eliminating the boxiness so common to all small prams, and it will be found to prevent the tendency to trip or capsize when broadside to a wave in being towed.

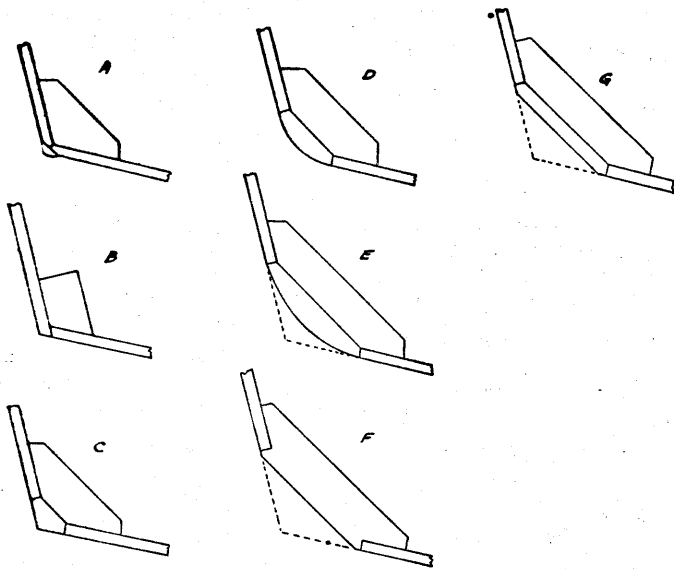


Fig. III, above—various chine constructions which can be employed in waterproof plywood boats. The flat chine is preferable to the sharp form

The square chine stringer is the simplest and cheapest to make, but the edges of the planking should be mitred or protected by a strip of wood or metal.

"A." Simple and efficient.

"B." Simplest and cheapest and a method not recommended, because of the exposed edge of the planking.

"C." Very efficient and simple.

"D." Similar to "C" but with rounded chine.

BROAD CHINES

"E" is an excellent form and improves the appearance of the hull.

"F" is a modification of "E," most efficient for quantity manufacture.

"G" is similar to "E" but for flat wide chine.

STEMS (FIG. IV)

There are several desirable forms of stems; the simplest form is shown at "A." This is suitable for light craft such as canoes, kayaks, fishing skiffs and any of the smaller straight stem boats of simple construction. This is a triangular shaped piece beveled to fit the side planking. The forward edges of planking are planed off to give bearing for a metal stem band. "B" illustrates a modification of this with the use of a false stem instead of a stem band. "C" is the simplest form of rabbeted stem

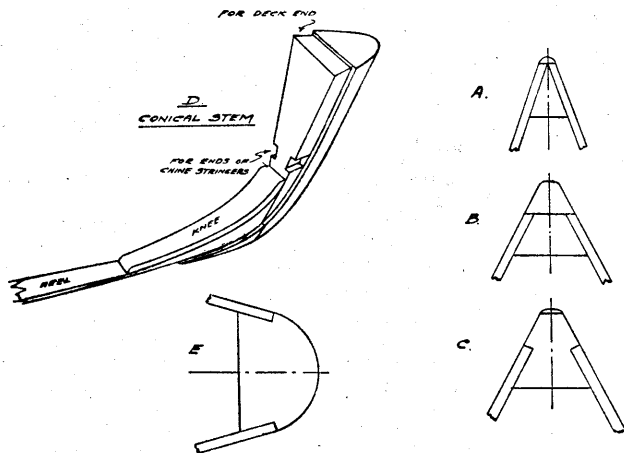


Fig. IV. Stem construction for a small plywood boat

and is to be preferred to "A" and "B." I have found, however, in this plywood construction, especially on the better type boats, that a certain distinctive appearance and utility can be gained by the use of a conical shaped stem as illustrated in "D" and "E." It has been found by using this form of stem that an increased flare can be given to the bows which add to the seaworthiness and looks of the boat and it simplifies the construction because the planking does not have to be twisted into the vertical position as is necessary with a straight sided stem.

TRANSOMS (FIG. V)

The simplest form of transom is made of one piece of solid lumber. It is often necessary, however, because of the width of the transom, to make it up of 2 or 3 widths. These should be glued together with dowels as illustrated at "A" and the edges bonded with resin glue. A plywood transom is illustrated

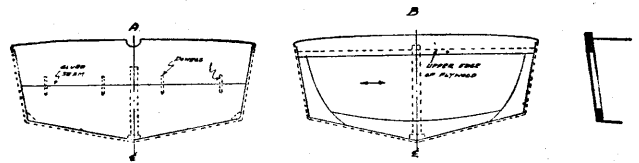


Fig. V. Transom construction

at "B." This transom can be made the same thickness as the bottom planking but around the edges fashion pieces should be screwed and glued to provide a good hold for the plank and stringer ends. Where a transom is of great width and depth, additional stiffeners should be used to prevent flexing of the plywood.

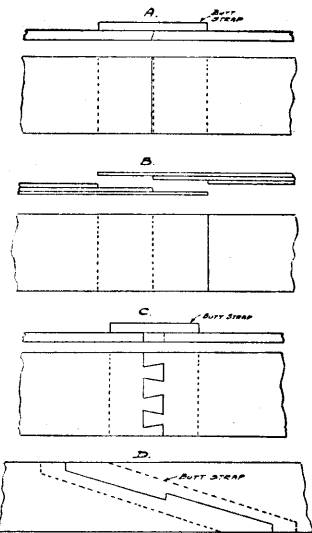


Fig. VI. Butts

PLANKING (FIG. VI)

It is generally found in boats built of plywood exceeding 8 feet in length that a butt or joint is necessary to provide the required length. There are several methods of doing this but I have found the most satisfactory is a square butt as shown at "A." Backed up with a piece of the same material known as a butt strap. The planking is screw-fastened along the edges close to the butt and the butt strap is fastened to the planking along the edges. Resin glue should be used on such a joint. Another method is shown at "B"; this may be used on 3-ply material. It entails a little more labor, is very neat but not any better and not so strong as "A." Another variation is that shown at "C." The ends of the planks are dovetailed and the butt backed up by a butt strap. This method is quite unnecessary where resin glue is used. "D" illustrates a form of long scarf, preferred by some who have not used the resin glue but not so economical or efficient as "A." This type of scarf theoretically distributes the break in the planking over a greater length. It is a relic of conventional boat building and is not recommended.