BOATBUILDING BY NEP

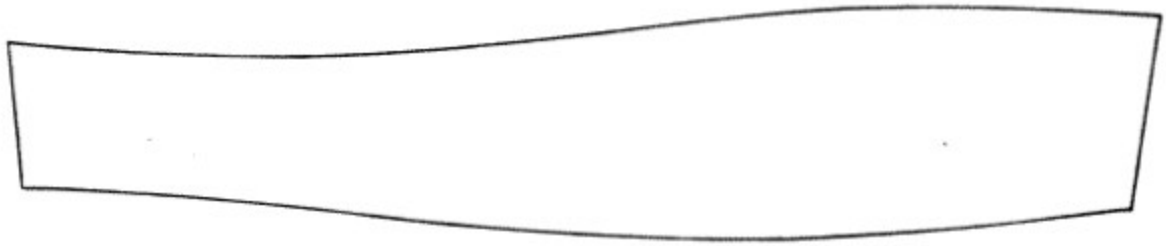
Author: Joe Reisner

If you were to place a stick midway between the ends of two planks, pull these ends together and fasten them, then install a bottom, you'd have an extremely simple albeit miserable looking boat.

But if you sawed the square ends of the planks at angles, the hull would automatically develop rocker, a nice sheerline curve and a bit of flare. And if the stick (by now worthy of being called a thwart) were moved aft of center, the side plank would straighten out forward along the waterline and belly out a bit in the stern, for more volume where weight would normally be centered, you could put on a bottom and end up with a very respectable little boat: the result of utilizing NEP - Naturally Expanded Plank.

In conventional boat and ship construction, be the subject an eight-foot pram or an aircraft carrier,- the original design drawings are enlarged (lofted) to full size. All components are then fabricated to fit their respective spots on the overall enlargement, with all measurements taken directly off the lofting.

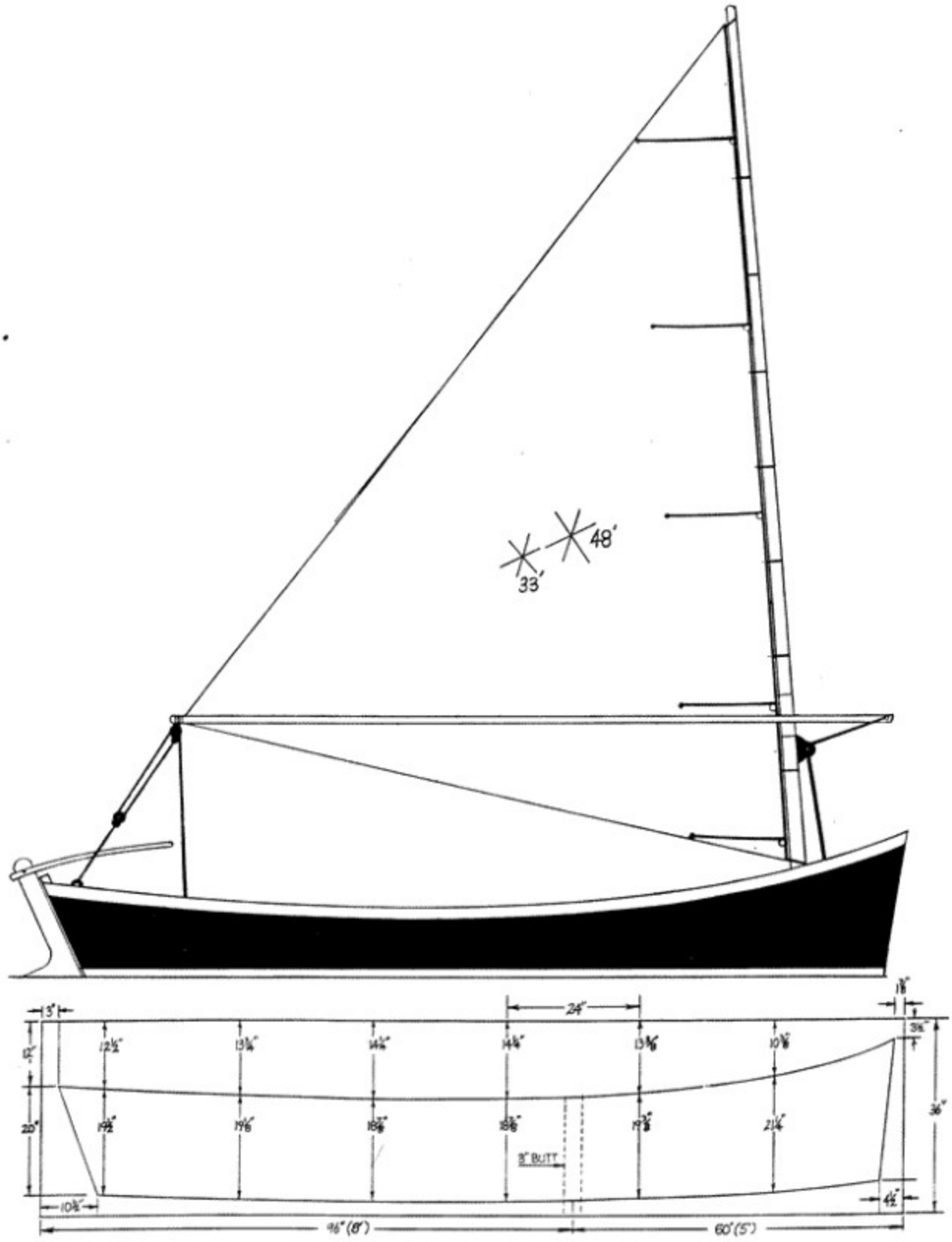
In the NEP building process, the side planking is fully assembled or cut out of sheet material, then bent into place to form the shape of the hull. Conversely, under a lofted system the hull would be built on molds or forms and the planking installed after inside framing was in place. If this planking were removed and laid out flat, its edges would resemble a roller coaster.



If a boat which was lofted and built on molds were to have its ‘skin’ removed amd laid out flat, it might assume a shape like this.

Because the shape of the side planking determines the final shape of the hull, a NEP boat is designed as a scale model from which dimensions are taken so that the shape can be replicated full size on the plank material. It's a system ideally suited to plywood and pretty well limited to hard-chine designs. Cardboard is the NEP designer's material of choice.

I use a stiff cardboard which will resist bending and flopping after it's finished but which can be cut with a razor blade and X-Acto knife. My choice is illustration board, available at a commercial art supply store, or white poster board, found in almost any stationery store, laminated with glue to a workable thickness.



The plywood side plank layout for KITTY, a small skif. Planking from the model was traced, then divided into 2” vertical units (24” on the actual plywood) with distances measured down from the top of a sheet of 3’ x 13’ plywood. These marks serve as cordinates for laying down battens, to trace the curves at the sheer and chine.

For a boat 18 feet in length or less, a scale of one inch to a foot is easy to work with. You can use a larger scale, of course, but if the final model is going to end up more than 24" long it's probably going to have to be made of doorskin plywood or something much heavier and thus harder to cut than cardboard.

The first step is cutting out the side planking, taping it temporarily at the stem and, if it's a double-ender, at the stern, and then establishing the beam using a small piece of wood which can be moved around until the desired hull shape has been found. If the boat is to have a transom, tape can hold the sides apart until a permanent part is glued in place.

When the trial-and-error process is over and the design looks right, and before any glue is applied to the model, the exact position of the wooden spacer is marked, the tapes are removed, and the side plank - all in one piece - is removed and laid on a piece of paper and traced all around. Then everything can be reassembled and cardboard frames and bulkheads made and set in place and the model securely glued so it can be handled and measured.

When you're building a boat by lofting, you cut and fit each component from the full-size drawing. In an NEP operation you do essentially the same thing but using the actual hull instead of a lofted plan. The hull takes shape as frames, bulkheads, decks, cabin parts, centerboard trunks, transoms and all of the pieces of the final boat are made and fitted in place according to measurements taken directly from the work in progress. The hull is often held together temporarily while parts are made and then installed.

If the hull is flat-bottomed, a sheet of plywood or series of planks is fastened in place and the surplus around the perimeter of the chine sawed and sanded off. Logically, this is known as the pie crust method. But if the boat has deadrise, the keel is set in place and planking fastened on. There's no difference here between NEP and lofted construction.

While there's no way to count the thousands of boats built using NEP, versus those of conventional practice, the "instant" method has been completely successful but within certain logical constraints. For one thing, when a hull is formed as a cardboard model the designer has to accept the form as shape of the sides dictates. If there's some little thing that might be nice to change, the option's not open. In a lofted design, changes are made on the drawing board and, under time-honored practices, also by the loftsman whose judgment is usually final.

On the other hand, assuming a good design at the model stage, the NEP boat can stand proudly in any company in terms of appearance and performance.

All of us who design, build and enjoy small boats - and please note the operative adjective - can very quickly tell a good boat from a bad one. As for size, small would probably end at about 25 feet. Anything larger would probably be better and more easily built if lofted first. But in smaller sizes, there's a pretty good NEP rule of thumb: If the model's lines are fair, the boat will be a fair performer. And "fair" means just that, not something short of "great".

Professional boatbuilder Scott Gearhart sets two frames in place in JOZEBOTE. NEP eliminates the need for molds, strongbacks, building jigs or fixtures. Building can be done anywhere on two saw horses.

For about twenty years I've been designing and selling plans for small flat-bottomed boats, all for NEP building by amateur builders who may be intimidated by professional boatbuilding techniques and trade jargon. But the funny thing is, these boats have turned out to perform every bit as well and often better than their lofted peers. Many have been built by professionals and sold commercially. In each case, building time was a fraction of "normal"; material waste was eliminated; and esthetic styles left builders with a huge sense of accomplishment and pride.

My 16' JOZEBOTE, actually a bateau but usually taken for a kayak, is built by rank amateurs and full-time boatbuilders, which is a very nice compliment. But what's even nicer is the vision of the existing 100 or so of these little guys happily riding the big rollers, poking through the shallows and stepping out ahead of the fleet, paddled by people who took advantage of NEP to get a quality boat for pennies on the dollar than the price of a commercial kayak.

Joe Reisner 9600 Seventeen Mile Road, Marshall, MI 49068