

A Plank-on-Frame Technique - The Hahn Method

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The main advantage of Hahn's method is that it almost guarantees a perfectly symmetrical hull when it is finished. Many builders use this method all the time, and they swear by it. Its greatest disadvantage is that there is a considerable amount of wasted material that cannot be used for much of anything else.

In Hahn's method, the hull is built upside-down on a Masonite framing jig called a baseboard, laying each frame into its appropriate notches in the jig as they are completed. Once the framing is finished, all exterior planking is also installed while the hull is in its upside-down position. After the planking has been completed, each frame is then sawn off at the tops of each of the frames. The Masonite jig and the sawn-off, unneeded portions of the frames are then discarded because they are useless.

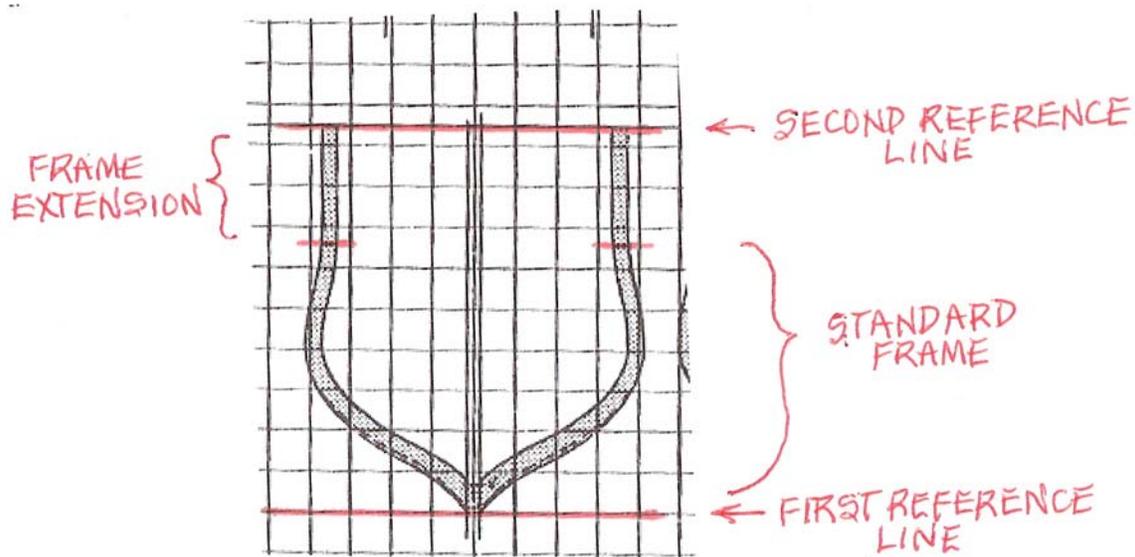


To design frames using Hahn's method it is assumed that you are already familiar with lofting frames in the standard method. If you are not familiar with lofting frames, then please read "[Building a Model Ship from Scratch](#)" found in [MSD](#) before you proceed further.

As with any plank-on-frame model, the first step in the Hahn method is to loft all the frame drawings accurately as one would normally do. To continue:

1. On the sheer plan, draw a straight line at the top edge of the planking rabbet line all the way across the length of the plan, ignoring the curve of the bow. This line will be parallel to the keel. It represents the first of two reference lines.
2. The next reference line will start at a point about an inch (2.5 cm) above the highest point in the ship, usually at the stern transom. Using this reference point, draw another line parallel to the rabbet line you drew in Step 1, and draw it so that it, too, extends all the way across the length of the sheer plan.
3. Then take each of the frame plans you've already lofted using standard methods, and add the two reference lines above to each of these drawings.
4. From the edges of both sides of the lofted frame tops, draw lines to extend the frames up to the second reference line. This additional section of the frame will fit into the Masonite framing jig (baseboard) you will draw after you've completed doing this to all frames.

So far, your frame drawings will look like this:



5. Now you will create the Masonite framing jig (baseboard). Use a piece of ¼" (6 mm) Masonite, allowing an extra 80-100 mm all around the jig for stability.
6. Draw a centerline down the center of the Masonite. Then mark the exact location of each frame.
7. Now mark the width of each frame, which will coincide with the width of the frame shown at the top of the second reference line on each frame. Make these into notches that will be cut into the Masonite at these points. Repeat this for all the frames.
8. Using a jigsaw, cut out the notched areas all around the pattern. This will be your baseboard into which all frames will be glued.

Note that you should install a couple of frames on the baseboard near the bow and a couple more near the stern. The frames are glued right into the Masonite baseboard. After these are installed, the keel assembly is aligned properly and glued into these frames. After that, each frame is installed one at a time. Everything remains symmetrical throughout the entire building process. The keel assembly and the baseboard are always parallel.

After all the frames are completed, the exterior planking is completed on the hull, still in its upside-down position.

After the planking is completed, the top actual edge of each frame is then sawn off with a razor saw or other suitable saw. The hull is now finished, except for the bow area and the stern transom area. What remains is the Masonite jig with a whole lot of sticks sticking up at every frame position – all of which is discarded.

This has been a brief summary of the Hahn method of creating a plank-on-frame model. If you would like to read further details, Harold Hahn has written about his method in a recently re-published publication of the Nautical Research Guild called *Ship Modeler's Shop Notes* edited by Merritt Edson.