

THE CONSTRUCTION OF BOW AND STERN FILLER BLOCKS

by Dirk De Bakker and ed. by NRG Staff

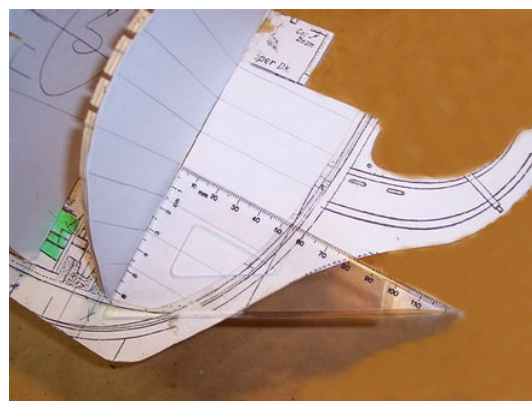
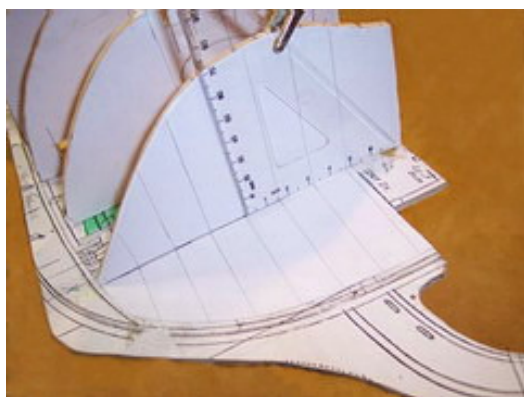
The following is a method of constructing bow and stern filler blocks using scrap material when water line plans are not available with your kit. Although I have used a band saw to rough cut the fillers to shape it can easily be done with a coping saw. I have also used a hobby drill press and a sanding drum to shape the various segments but this can be accomplished by hand. The process will only be a little slower and more tedious.

I have used some scrap pine to make these blocks but any alternative soft wood such as basswood would be suitable.

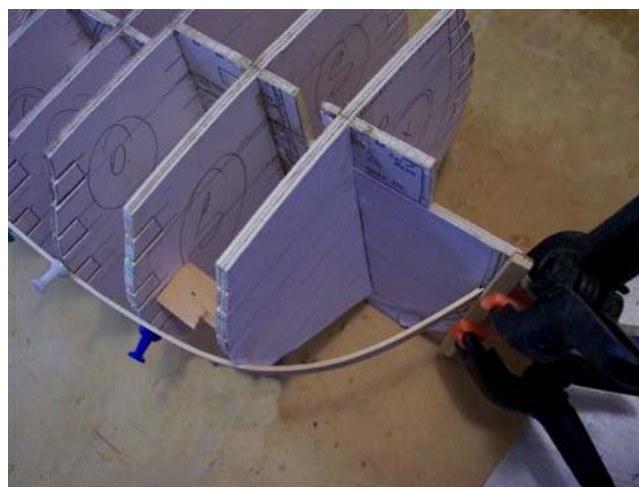
BOW FILLER BLOCKS:

The shape of these blocks is easily established using the following procedure. Select the material you are going to use. The thickness of this material is going to determine the spacing of the lines we will mark on the backbone and the first bulkhead from the stem. First, from the toe of the first bulkhead where it sits against the top of the keel, (the bearding line) measure up the thickness of your material and make a mark on the backbone and the bulkhead. Continue marking upwards on the backbone and bulkhead until you are at the height required (usually the top of the deck beam). You may need to reduce the thickness of the last layer.

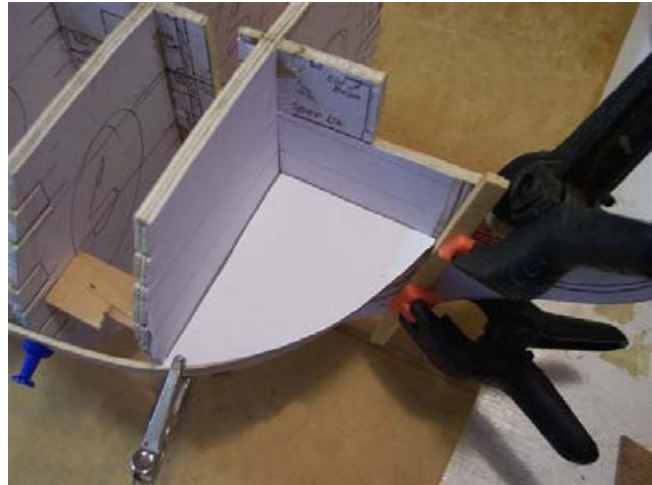
Take a set square and now project the lines forward on the backbone to the bearding line and on the bulkhead extending outwards as seen in the pictures below.



Clamp a piece of scrap to the backbone at the bearding line. This is going to allow you something to rest the fairing strip against that is now going to be used. Take a flexible batten and hold it against the bulkheads along the ship's side. The top of the batten will lay on one of the marked lines. Try to keep the strip parallel with the deck line. Secure it temporarily with pins or rubber bands. The fore end of the strip will end at the backbone behind the scrap at the bearding line.

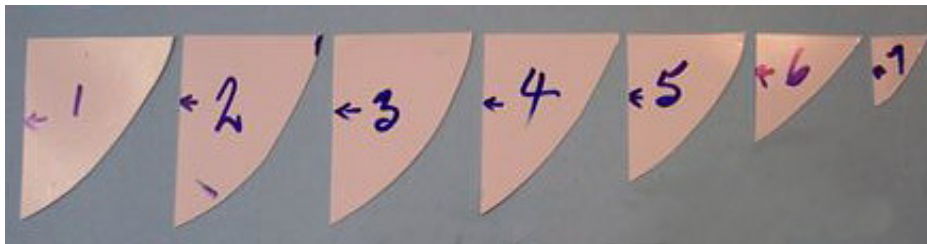


With the fairing strip now in place along the bulkheads and set against the scrap block at the bow, take a piece of solid paper card cut at 90 degrees to one corner. Place this 90 degree corner of the card up against the bulkhead and the backbone and above the fairing strip.

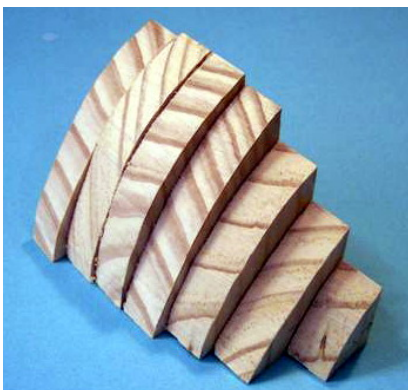


Take a sharp pencil and mark the underside of the card using the fairing strip as a shape guide. Remove the card and number it to avoid incorrect assembly later. Also mark the sides of the template that go against the backbone and bulkhead. Finish making the templates until you have come to the uppermost block.

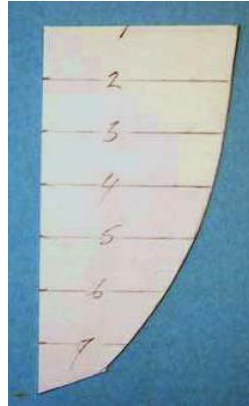
Cut the templates to shape leaving a fraction oversize to allow for final sanding. The blocks now look like an upside down wedding cake.



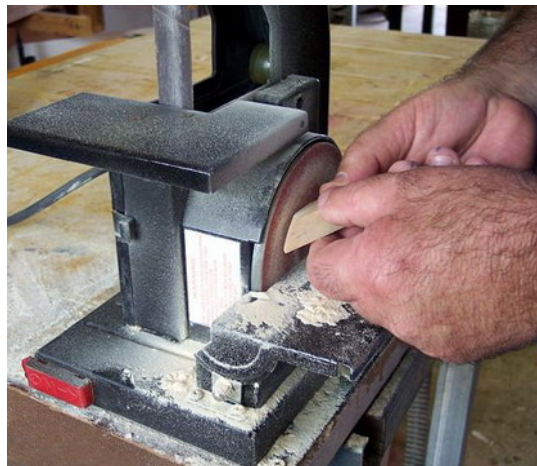
When the filler blocks are made up for both sides of the ship assemble them together BUT DO NOT GLUE them together at this stage. Take a pencil, and on the underside of each block draw the shape on the above block using the lower block as the guide. This line will show you the amount of material that has to be removed to establish the shape of that particular filler block.



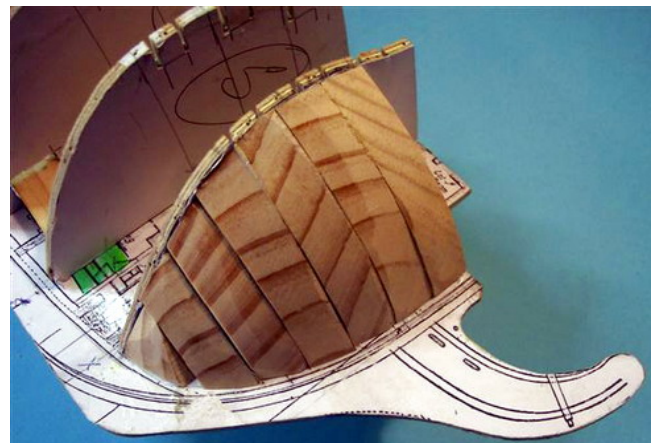
Next make up a paper card template from your plans of the keel. The bearding line will be the forward shape. This template will be placed on the backbone side of the filler blocks to establish the inside shape of the blocks.



Shape each of the filler block layers. I have used a disc sander for this operation but using a sanding drum on the Dremel or a chisel are other options. Take your time; it won't be long before you get into a routine and the shaping will come easy. When all the blocks have been shaped, re-assemble them without glue and place them on the model to check for accuracy. Any low spots can be addressed later with wood filler. Make sure the blocks don't encroach into the bearding line and that they conform to the shape of the bulkhead. Another check can be made using the batten used before to make sure the flow of the hull is smooth and graceful.

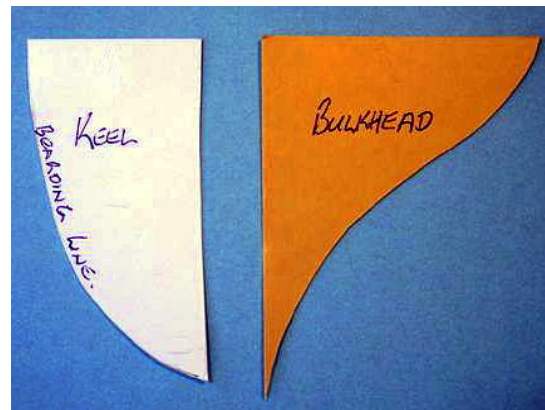
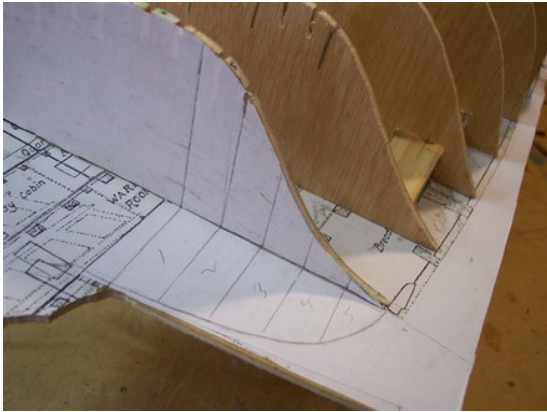


Once you are happy with the shape, glue the filler blocks together making sure they align correctly and in the correct order. When the glue is dry they can be glued into position at the stem. Allow to dry overnight and hand sand to the final finish filling any over cuts or low spots with filler.

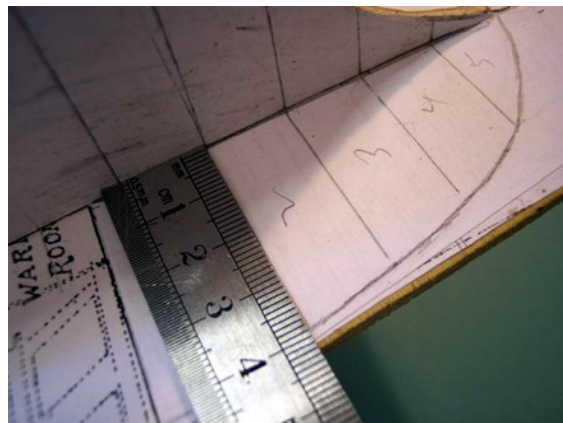


STERN FILLER BLOCKS.

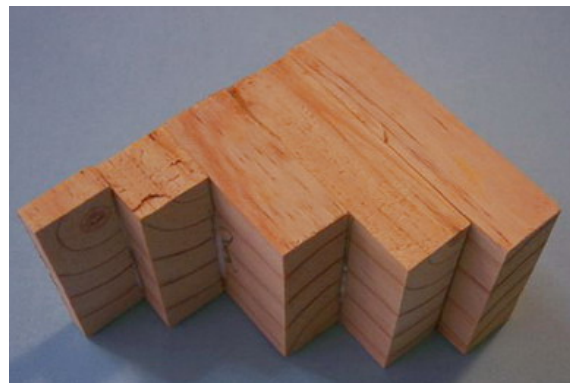
Stern filler blocks are made differently from the bow blocks as a more complex shape is required. Most of this will need to be done before final fitting to the hull. Mark out and make templates as was done in the bow.



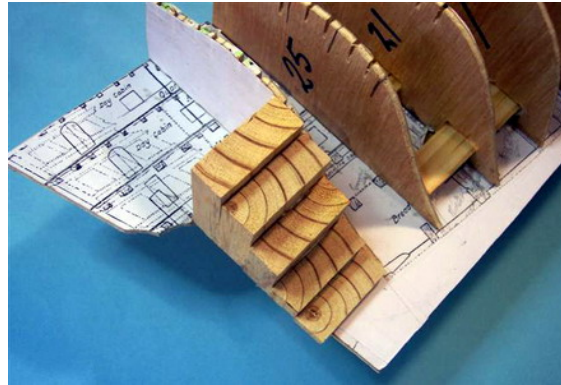
In contrast to the bow, sometimes you will encounter tumble home in the stern. Therefore, you need to measure the longest lines on the bulkhead and backbone (in this case it was the uppermost filler block) to determine the size of block required.



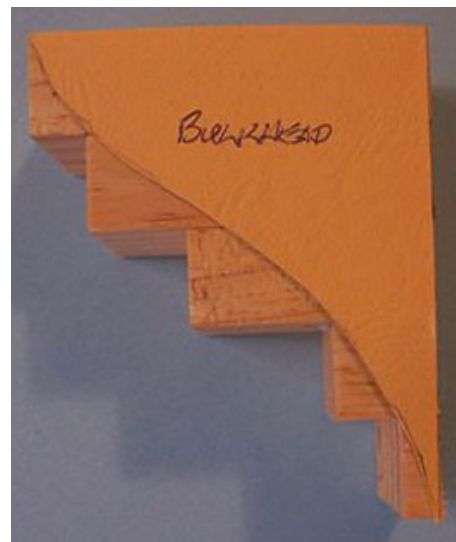
Cut the blocks to these measurements. Assemble them together on the ship making sure there is no undercutting.



Glue the blocks together and when dry place them into position BUT DO NOT GLUE them in at this stage.

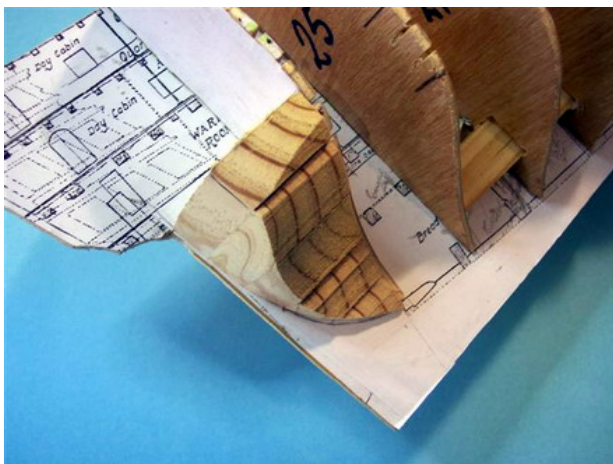


Mark the outline of the last bulkhead onto the forward side of the filler block assembly. A template can be made up for this operation if you prefer.



A template will need to be made up similar to the bow template from the backbone using the bearding line as the final keel shape. Place this template on the keel side of the filler blocks and mark the shape.

From your plans make up a template of the deck. It may be necessary to use a fairing strip to establish this curve using the same method as in the bow. Place the template on the filler block and mark out the required shape. You can now see the stern filler blocks in 3 dimensions.



Trial fit the blocks to see how the shaping is progressing. Make sure there is no undercutting. As you proceed, check and re-check the blocks against the hull. When you are finally satisfied, glue the blocks into place and allow to dry overnight.



In the photo I used a Dremel with a small sanding drum to obtain the final smooth flowing shape. The final shaping needs to be done on the ship after the blocks are glued into place.

The transition of the lower part of the filler block to backbone should be without any bumps or depressions. The idea is to have the planks flow smoothly over the filler block at this point and onto the backbone. The filler block changes shape as it rises, so follow your plans closely.