THE CONSTRUCTION OF BOW AND STERN FILLER BLOCKS

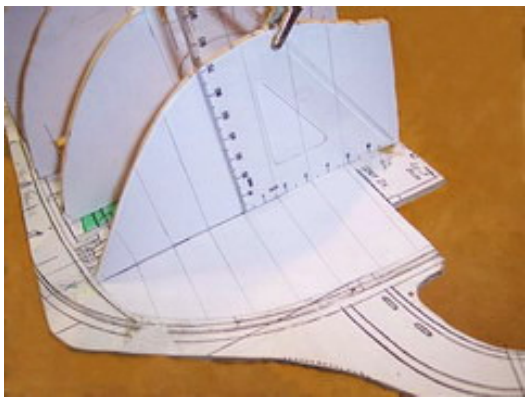
The following is a method of constructing bow and stern filler blocks where water line plans are not available with your kit. This is a simple method where you can construct you own filler blocks using scrap material.
Although I have used a bandsaw to rough cut the fillers to shape it can easily be accomplished 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.

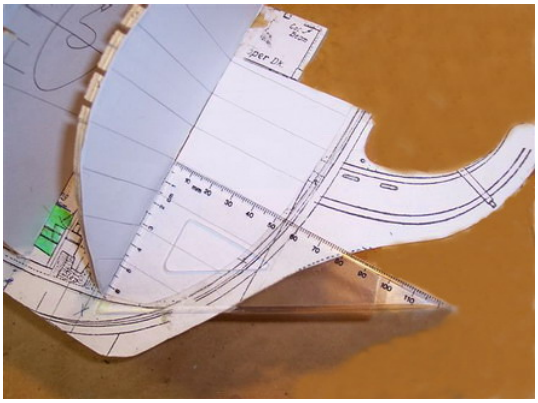
I have used some scrap pine, to make these blocks but any alternative soft wood would be suitable. Balsa is often used for this job but be warned some carpenter and CA glues won't stick to balsa so if you are intending to use balsa carry out some tests to make sure you aren't going to waste valuable time.

BOW FILLER BLOCKS:

The shape of these blocks is easily established using the following procedure. Select the scrap material you are going to use. The thickness of this material is going to determine the spacing of the lines we are about to mark on the keel itself and the first bulkhead from the stem. First off from the toe of the first bulkhead where it sits against the keel, (this would be the bearding line) measure up the thickness of your material and make a mark on the keel itself and the bulkhead. Continue marking upwards on the keel or bulkhead until you are at the height of filler blocks required. If your material is greater than what is required you will need to reduce the last thickness by the appropriate amount. This may be as in my case the floor of the beak head or maybe the underside of the main deck depending on you ship.

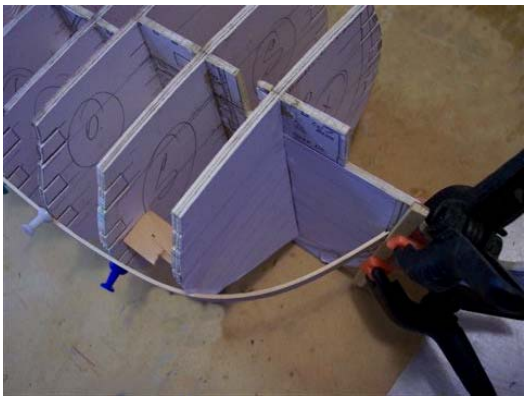
Take a set square and now project the lines forward on the keel to the bearding line and again on the bulkhead extending outwards.

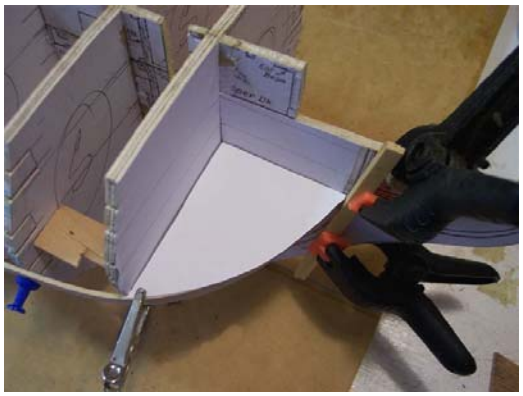




Clamp a piece of scrap material to the keel at the bearding line. This is going to allow you something to rest the fairing strip against that is now going to be used. Take a suitable piece of fairing strip and hold if against the bulkheads along the ships side. This strip won't follow the normal planking but more or less the flow of the decks. When in place it must touch cleanly against all bulkheads and not be allowed to stand off or bow at any point away from the bulkheads if it does so this will result in an incorrect shaped filler block. Pin the fairing strip temporarily to the bulkheads. 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 keel and above the fairing strip.

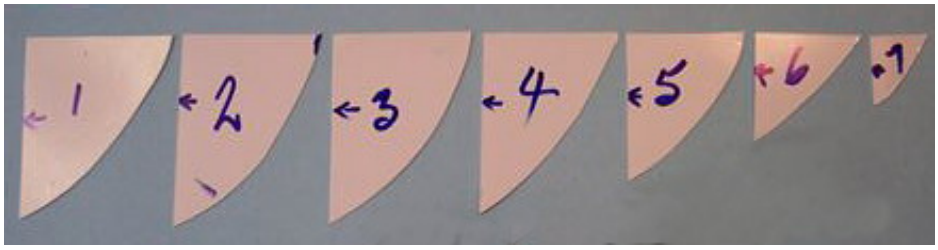
Take a sharp pencil and mark the underside of the card using the fairing strip as a shape guide. Remove the card and number it to avoid incorrect assembly later. Also mark the side of the filler block that goes against the keel OR bulkhead for assembly purposes. Carry on marking and making the templates until you have come to the uppermost block.



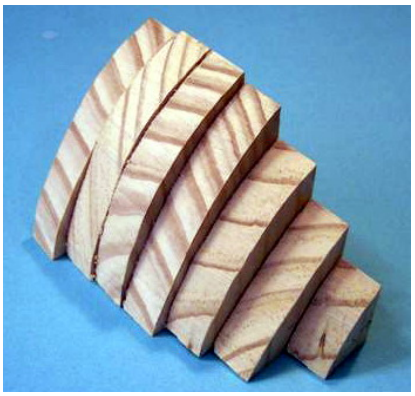


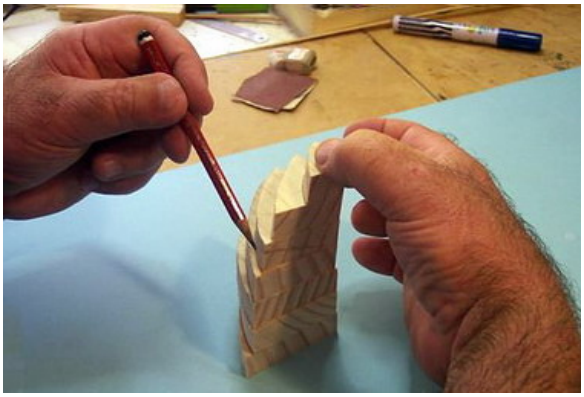
Cut the templates to shape leaving a fraction oversize to allow for final sanding. The blocks now look like an upside down wedding cake and still need sanding to final shape.

NOTE: In the photo below to avoid confusion I have numbered the blocks 1 to 7 from the top down. Number 7 being the smallest and lowest block and number 1 the uppermost block.

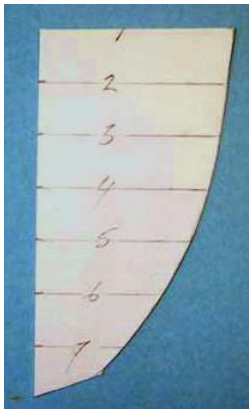


When the filler blocks are made up for both sides of the ship assemble them together BUT DO NOT GLUE them together at this stage. Take a pencil, and on the underside of each block draw the shape on the above block using the lower block as the guide. This line will show you the amount of material that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

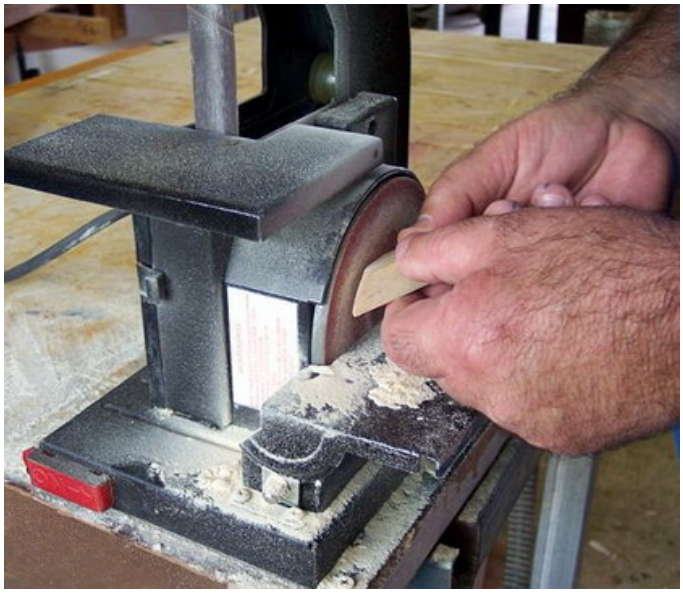




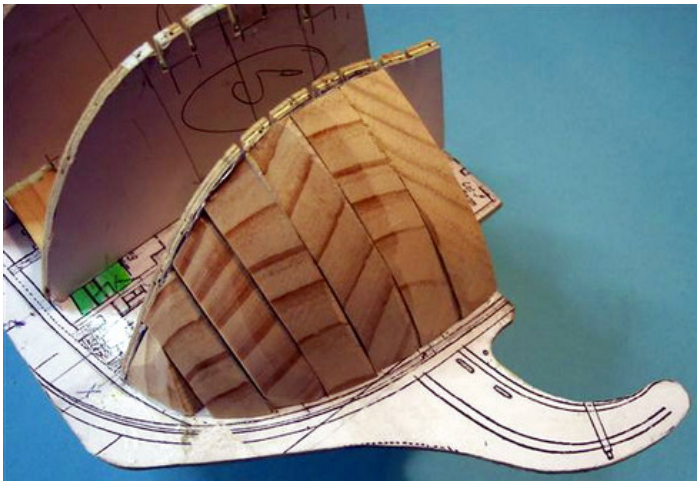
Next make up a paper card template from your plans of the keel. The bearding line will be the forward shape. When this template is placed on the keel side of the filer blocks this will establish the inside shape of the blocks.



The individual shaping of the filler blocks is now carried out. I have used a disc sander for this operation but careful carving with a chisel and mallet is an option if the disc sander is not available. Be careful with this operation, take you time it won't be long before you get into a routine and the shaping will come easy. When all the blocks are shaped close as possible, re-assemble them together as before again, NO GLUE. Place the assembled blocks into place on the model to check for accuracy. Any low spots can be filled later with the appropriate wood filler. Make sure the blocks don't encroach into the bearding line area and that they conform to the shape of the bulkhead. Another check can be made using the fairing strip used before to make sure the flow of the planking is smooth and graceful and not pushed out of shape due to excess material on the filler blocks themselves.

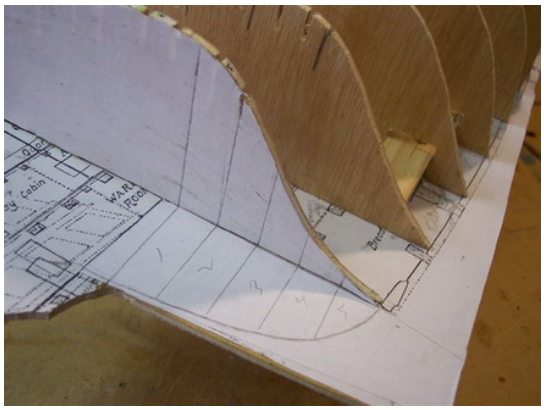


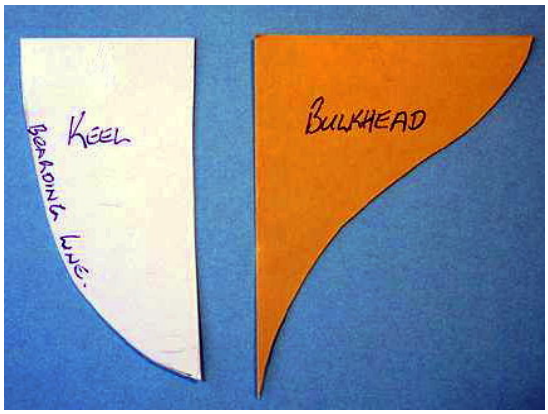
If the above is correct and you are happy with the operation, glue the filler blocks together making sure they align correctly and in the correct order. When the glue is nearly dry they can now be glued into position at the stem. Allow to dry overnight and hand sand to the final finish filling any over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



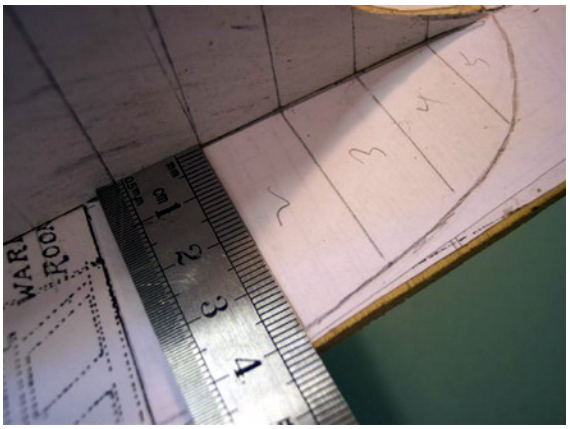
STERN FILLER BLOCKS.

Stern filler blocks are made differently to the bow blocks as a more complex shape is required and the majority of this will need to be carried out before final fitting to the hull. The same marking out procedure is carried out on the stern as was carried out on the bow. Similar templates will need to be made up with an additional one.

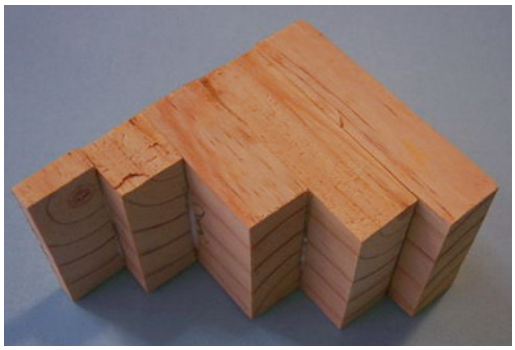




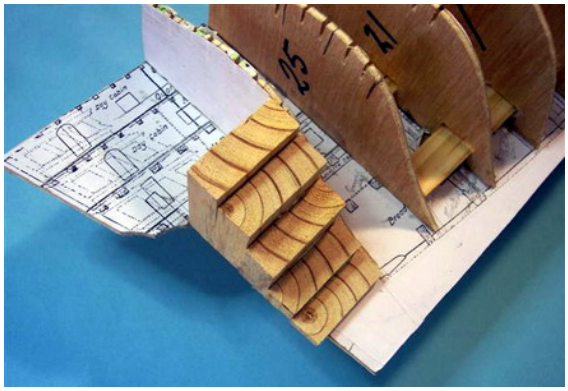
This time you need to measure the longest line on the bulkhead. In this case it was the uppermost filler block at position 1. This is going to establish the size of the block required. Do the same again on the keel. With these two measurements this is the size of the filler block for that segment. Do the same for all blocks using the longest line in all cases.



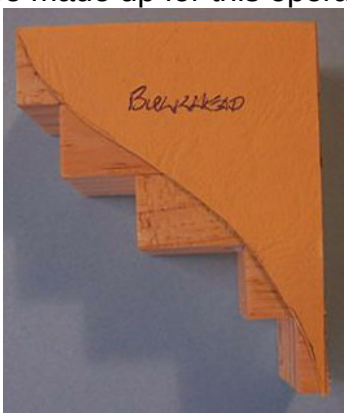
Cut the blocks to these measurements. Assemble them together on the ship making sure there is no undercutting.



Glue the blocks together, when dried place them into position BUT DON'T GLUE them at this stage to the keel or bulkhead. This is only a marking out step.



Now 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 made-up similar to the bow template from the keel plan using the bearding line as the final keel shape. Place his template on the keel side of the filler blocks and mark the shape.

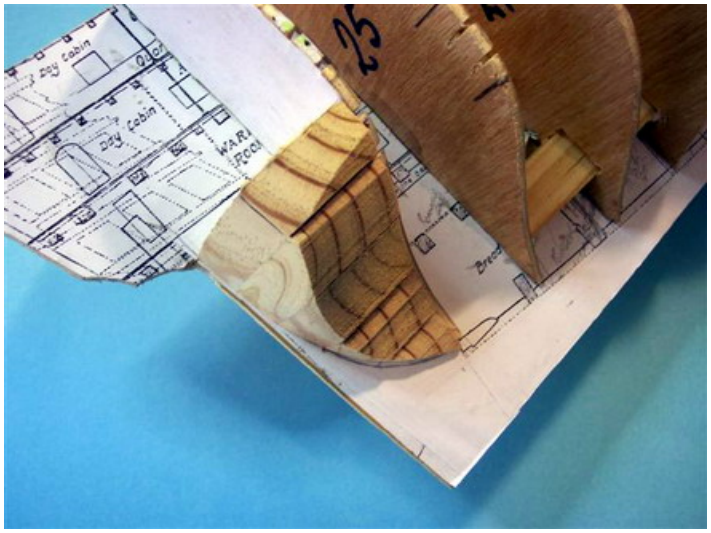
From your plans make up a template of the cabin floor or deck whatever the case may be. If you can't establish the final shape use a fairing strip to establish this shape if necessary using the same method as in the bow section.

Place the template on the top part of the filler block. In my case this was nearly the floor of the ward room. Mark out the required shape onto the filler block.

You can now see the stern filler blocks in 3 dimensional. Again I used a bandsaw to rough cut the shapes but this can be accomplished by hand.

IMPORTANT: Make sure the shapes you are going to make are side for side and not as I have done in the past identical to each other so that I have two blocks for the one side instead of one for each side. An easily done thing so check and double check, don't assume.

Now trial fit the blocks to see how they are going. Make sure there is no undercutting to either side.



I used a sanding drum in a small drill press for this shaping but again this can be accomplished by hand sanding and or the use of files and carving chisels. Just go steady and carefully.

As you proceed, check and re-check the blocks against the ship. Final shaping should be carried out by hand, when you are finally satisfied glue the blocks into place. Allow to dry overnight.

In the photo below I used a Dremel and a small sanding drum to obtain the final smooth flowing shape from the filler block to the keel. This final shaping needs to be carried out in place on the ship after the blocks are glued into place.

The transition of the lower part of the filler block to keel should be smooth flowing without bumps. The idea is to have the planks flow smoothly over the filler block at this point and onto the false keel. Of course the filler block changes shape as it rises and it may be that it eventually winds up at right angles to the keel as in my case. It all depends on the ship you are building, so follow your plans closely.