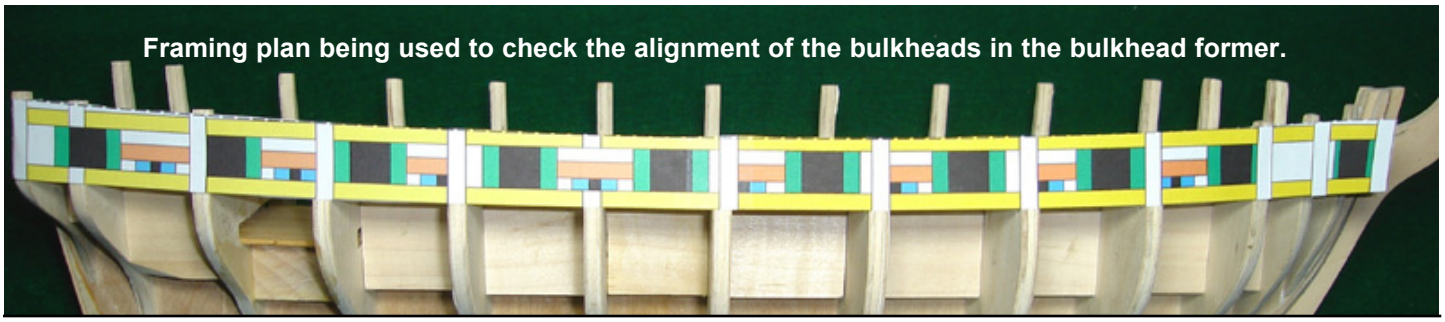


Framing plan being used to check the alignment of the bulkheads in the bulkhead former.

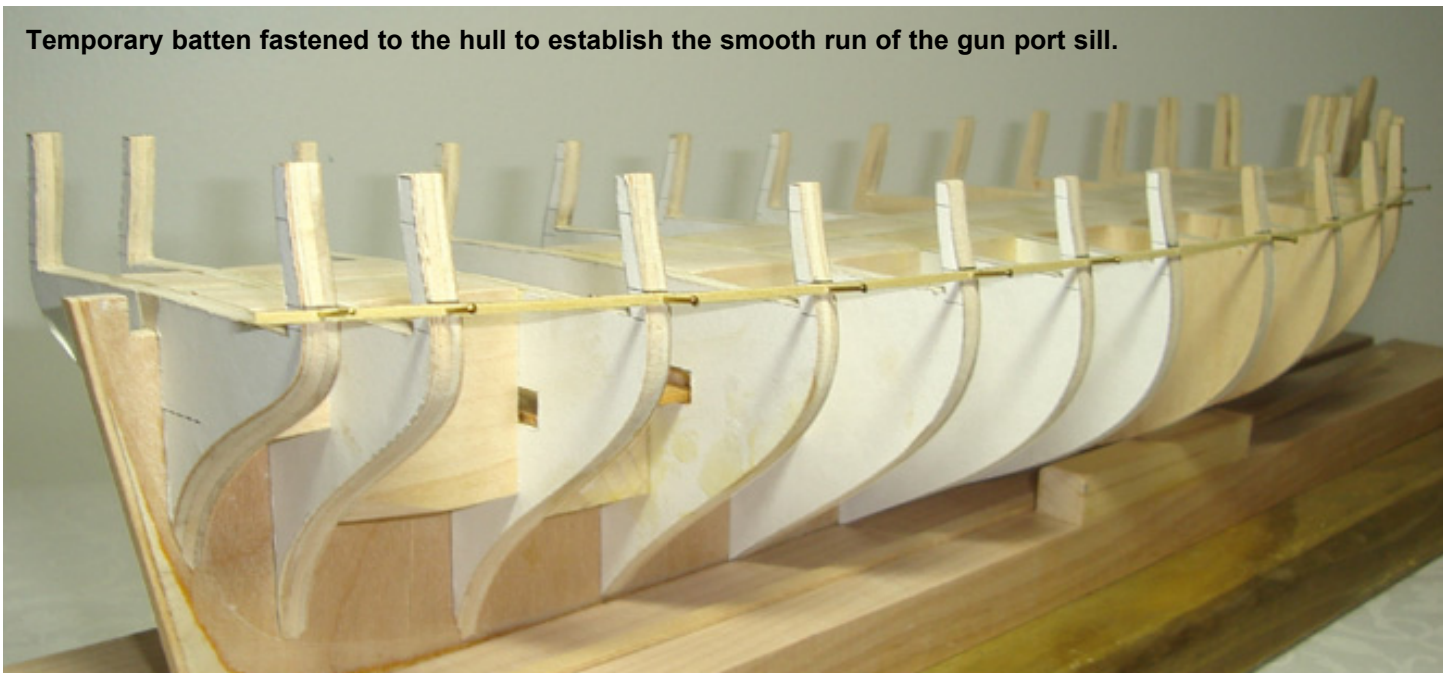
Chapter Three - Framing the Gun Ports and Sweep Ports

Before you begin framing the gun ports examine the framing templates provided. Tape them together using the dashed lines for reference. You should have 3 templates when you are finished. One is an over head view of the framing plan which shows you the probable locations for the upright port frames and the approximate shape for your gun port sills and lintels. The other two templates will be taped to the hull as shown in the photo above. This is how you will mark the placement for your vertical frames later in the chapter.

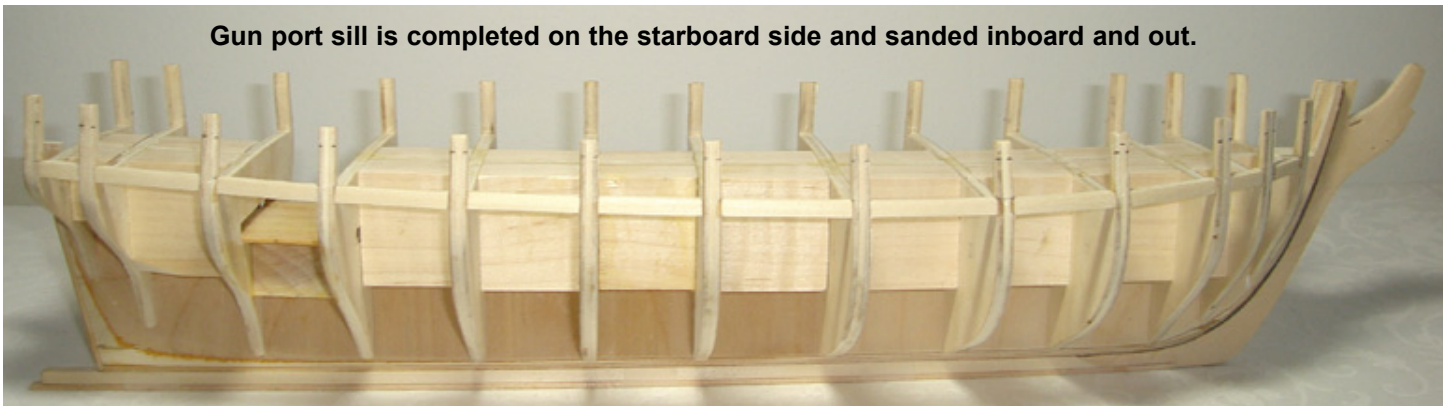
You can trim these two templates (one for the port side and one for the starboard) so only the frames are showing. You won't need any of the other reference lines above and below the port sills and lintels. Again, take a look at the photo above. To start the framing process you can tape the framing template to your bulkheads in order to check their placement. As you can see in that photo, some of the bulkheads were not properly squared with the bulkhead former. This isn't such a big deal. The hull has been faired pretty well at this point. The only problem with having the bulkheads misaligned is that you might have to adjust where the vertical frames (green and blue) will be positioned later. There will always be some fluctuation in their position. It will not have any impact on maintaining the proper shape of the hull or placement of your gun ports. This you will soon see.

Even though the templates are provided in B&W, a framing plan is also provided (reduced in size) and color coded for you. The colors indicate the sequence you should follow while framing the ports. That order will be as follows. The yellow frames will be positioned first. They are for the gun port sills and lintels. Next the green frames will be added. They are the timbers that create the sides of each gun port. The red frames will be added next which define the top for each sweep port. Finally the blue timbers will be positioned which will complete the sweep port framing.

Remove the template from the hull and you will notice the three reference lines etched onto each bulkhead. The top two reference lines indicate the opening for the gun ports. The bottom line will be used to locate the top of the wales. The gun port sills will be framed first. Even though reference lines were added to each bulkhead for you, it will be best to use them only as a guide. Your bulkheads may not be sitting in their respective slots at precisely the same level. Use them as a guide to fasten a temporary batten across the hull. Fasten the batten to each bulkhead edge with a little brass nail. See the photo below. Once it is secured to the hull, look at it from various angles to see if it has a smooth run from bow to stern. Make any adjustments to it until you are satisfied there are no unsightly dips. After you have made the necessary adjustments, mark each bulkhead edge with a pencil along the top of the



Temporary batten fastened to the hull to establish the smooth run of the gun port sill.



Gun port sill is completed on the starboard side and sanded inboard and out.

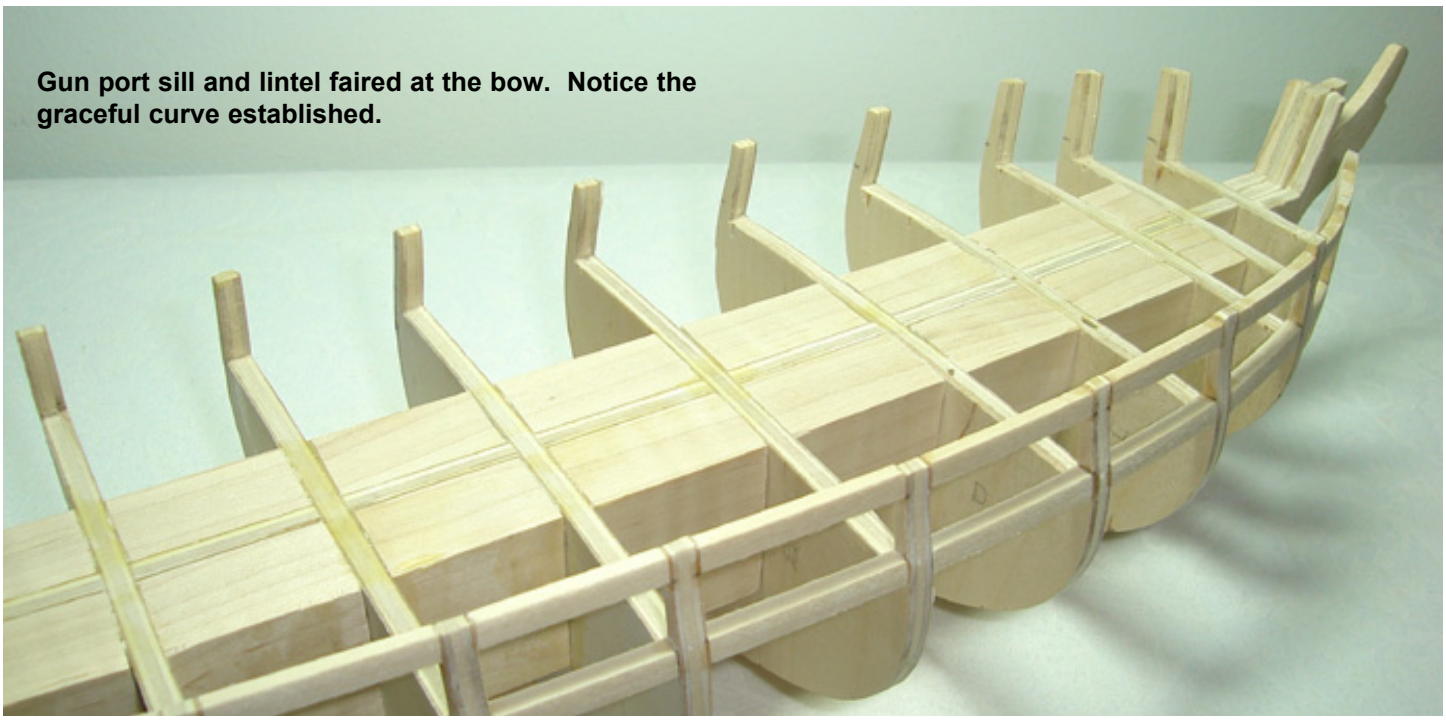
batten. This pencil line will reference the top of your gun port sill.

Most of the port framing will be done using Basswood strips that are ¼" x 3/16" x 20". The side of the basswood strip that is ¼" will become the top of your gun port sills. You can use the overhead view of the framing plan to cut the approximate shape of each frame section. Make them a little longer than shown so you can sand them for a snug fit between each bulkhead. Don't make them too tight as this will force your bulkheads out of alignment. The wood strips are ¼" wide so they overlap the bulkhead edges inboard and outboard. The top of the gun port sills should be perfectly flat. Do not slope them inboard or outboard.

After all of the port sills are in position you can sand them inboard and outboard so they are faired with the rest of the hull. See the photo above which shows the gun port sills completed on the starboard side. Repeat this process on the other side of the hull. Once again you should imagine that you are shaping a solid hull while you sand the gun port framing. This is especially true at the bow where your frames should have a graceful curve when you are finished. See the photo below.

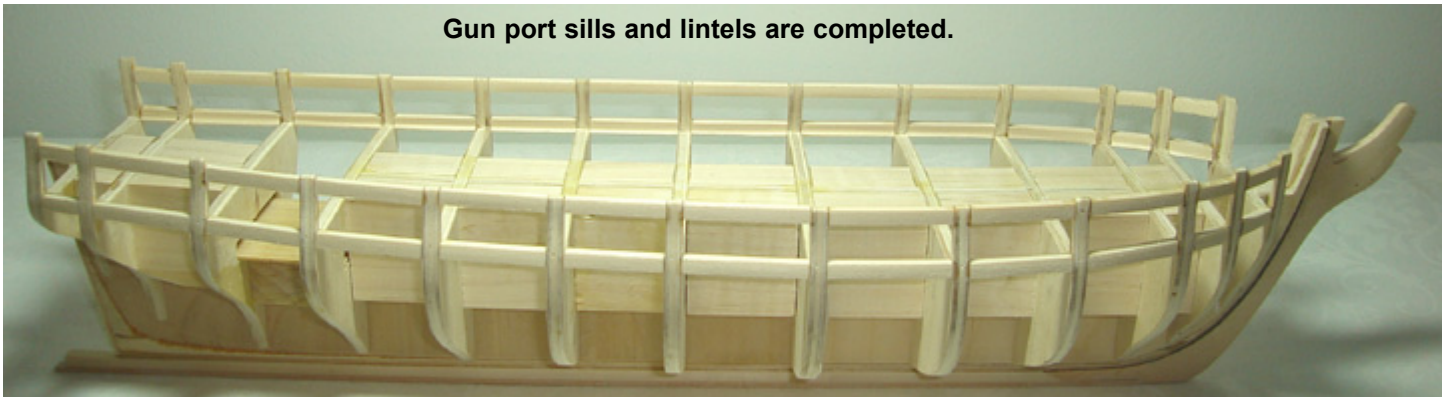
The process is the same for installing the gun port lintels. These will define the top of each port opening. Rather than run another batten across the hull it would probably be easier to just measure the gun port height from the top of the sill. The gun ports will be 15/32" high. Simply measure this distance and mark the bulkhead edges for reference. It cannot be emphasized enough how important it is to make sure the batten you used to establish the run of your ports sills has a clean and smooth run from bow to stern. If the port sill is wavy and poorly situated then the lintels will follow suit. See the photo which shows the port sills and lintels in position. They have been sanded to a consistent thickness and match the profile of each bulwark stanchion. The lintels should be about 1/8" thick at this point and the sills a little thicker at 5/32". You will eventually make the bulwarks even thinner. This won't be done until after the outside of the hull is planked. Another photo is provided above that shows both sides of the hull completed.

The GREEN frames which represent the sides of each gun port will be positioned next. Take your paper framing templates and remove the gun port sills and lintels (yellow frames). We will be using them to establish the positions



Gun port sill and lintel faired at the bow. Notice the graceful curve established.

Gun port sills and lintels are completed.



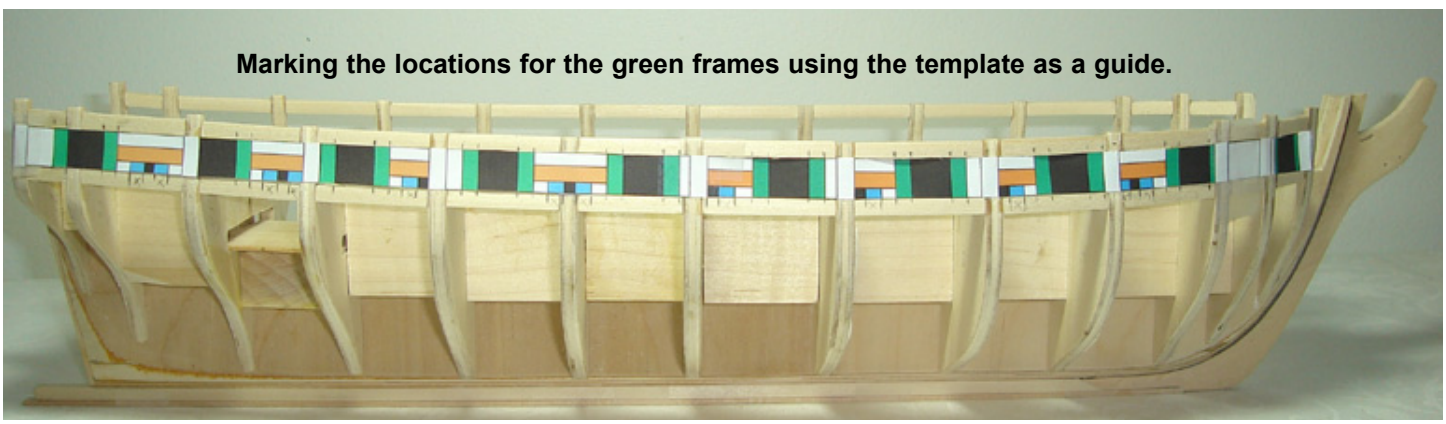
for the green framing. Tape the template to the hull as shown in the photo below. It is important to line the template up with bulkhead 26. Don't worry about where the other bulkheads fall. This was what I was referring to earlier when I mentioned it didn't matter if your bulkheads were slightly off. By lining the template up with bulkhead 26 your gun port spacing will be accurate across the hull. A mirrored version was provided for you so the same spacing can be established on both sides of the hull. This will keep the gun port spacing consistent on both sides. Mark the locations for each green frame on the gun port sills and lintels. Do this for every gun port except the bridle port. The bridle port is the forward-most port at the bow. You should not use the template as a guide to mark its location. This is ok since it will be centered directly between bulkheads N and P. Check the overhead version of the framing plan for details. There is no need to mark its location. If you examine the overhead framing plan you will also notice that not all of the green timbers are square to the bulkhead frames. The first two ports at the bow should have these timbers oriented as shown on the plan. There will also be instances where you may not be able to use a strip of wood that is 3/16" thick for some of the vertical frames. For example, 1/16" thick strips were used for the bridle gun ports. This might occur for other gun ports depending on whether you need to make adjustments after discovering your bulkheads were not aligned perfectly.

The aft-most green frame should be the last one you put into position. You will see on the framing plan that part of bulkhead 24 must be removed before you can glue that last green frame into place. Use a fine-toothed scroll saw blade to cut the bulkhead frame out between the gun port sill and lintel. Don't cut it out flush against the sill and lintel. Leave a little room so you can sand it flush after it is removed. You will be surprised at just how strong your hull is at this stage. A jigsaw blade would do the trick as well. When you are sawing don't apply too much pressure and go slow. Glue the last stanchion into position afterwards and apply some Elmer's wood filler if you need to fill any cracks. Sand the inside edges of the gun port smooth with some very fine sandpaper to finish it off. See the photos provided.

With all of the green frames completed you can sand the hull inboard and outboard as you did before. Each frame should take on the shape of the hull guided by the profiles of your bulkheads. If you sand the hull after you finish each color frame it should be faired perfectly to accommodate the planking. But don't sand too much off the exterior of the hull. Once you sand the gun port framing flush to the bulkhead edges - STOP. You will not be able to avoid reducing the thickness of the bulwarks as you sand each subsequent framing color. But your goal should be to reduce that thickness to no less than what is required before planking begins. The bulwarks should end up being 3/32" thick below the cap rail and 1/8" thick at deck level. See the photo below that shows all of the vertical gun port frames completed on the starboard side.

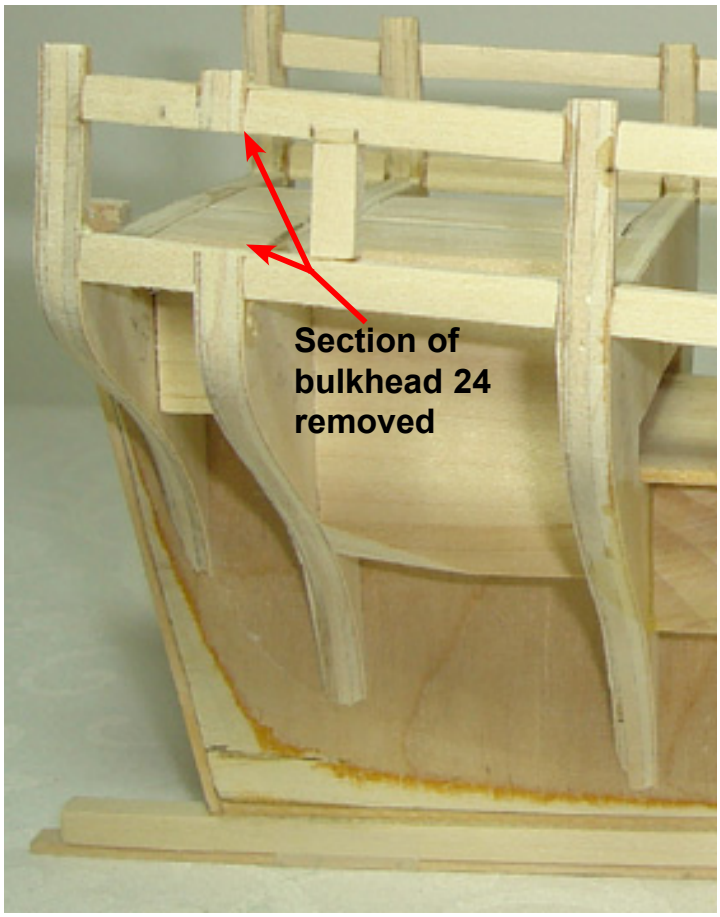
The red frames should be added next. These frames will define the top of each sweep port. The sweep ports will be 1/8" high so all you have to do is measure that distance from the port sills (bottom yellow frames) and mark them in pencil. Use the same Basswood strips (3/16" x 1/14") for the red frames. This time however, your bulwark frames should be substantially thinner and this will allow you to turn the frames so the 1/4" side faces outboard. If you

Marking the locations for the green frames using the template as a guide.

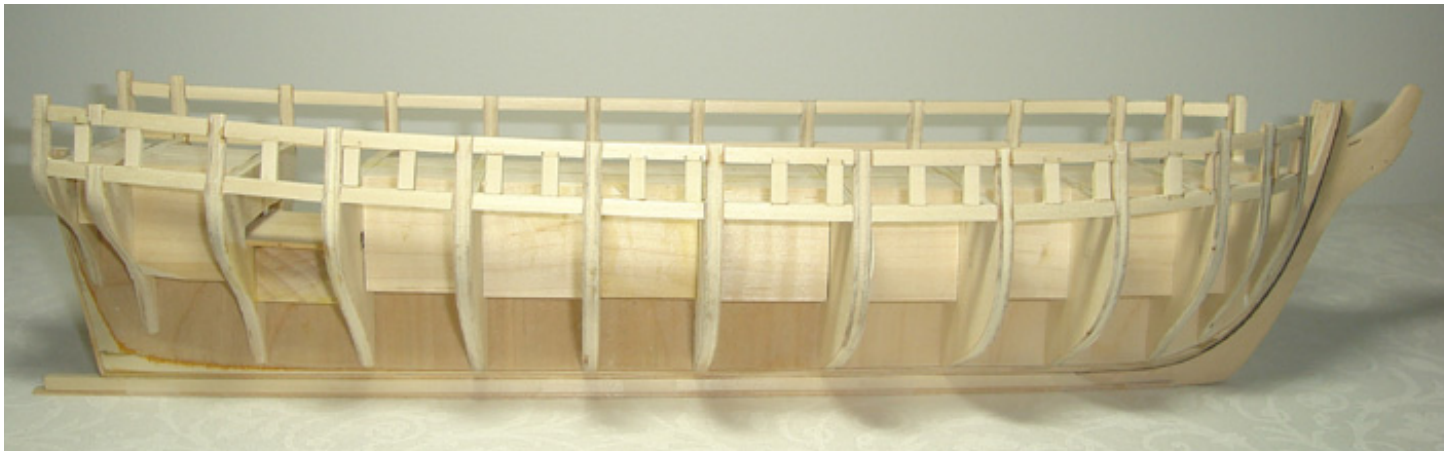


recall, the yellow frames were oriented so the 1/4” side was on top and bottom. This allowed some extra thickness inboard and outboard so you could sand it to the hulls final shape. Such thick frames should no longer be needed so they can be turned the other way. This will fill in more space and give you more surface area to plank over later. The hull will also be much stronger. Bulkhead #8 will have to be cut out like you did earlier to make room for one of the sweep ports. This is shown on the framing template. Use the fine-toothed saw blade like you did earlier when you removed a portion of bulkhead 24.

The last frames to be added in this chapter are the blue ones. Use the framing templates again to locate their position on the hull. Line the template up with the gunports you just finished framing. Then mark the locations for the blue frames on the hull with a pencil. These frames will define the sides of each sweep port. Once again you can use the 1/4’ x 3/16” thick Basswood strips. However there may be times where you will have to switch to a thinner wood when these pieces are too large to fit into place. See the photos provided which show the framing for the hull in progress. While you are framing all of the gun ports and sweep ports keep in mind their sizes and measure frequently to keep them consistent . The gun ports are 15/32” wide and high. The sweep ports are 1/8” wide and just as high. The eight sweep ports on each side of the hull are also centered between the gun ports. Make any adjustments required in order to keep them properly positioned and consistent from one side of the hull to the other.



Cut bulkhead 24 out as shown to make room for the final gunport frame. Note the type of blade used.



All of the green frames are glued into place. These frames define the sides of the gunports.

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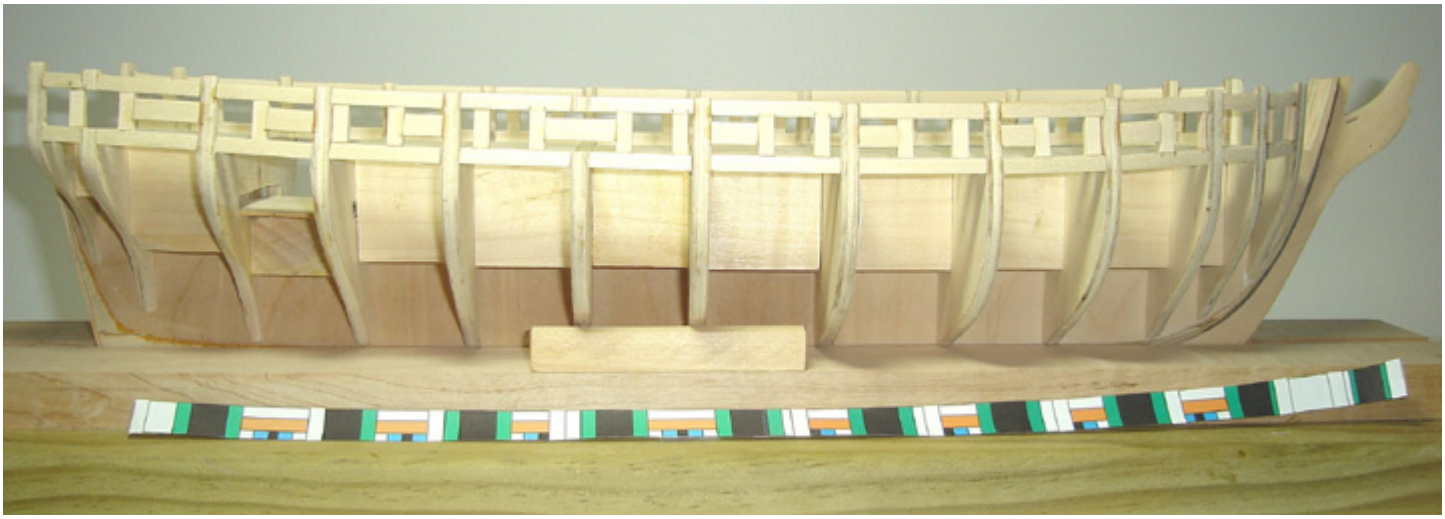
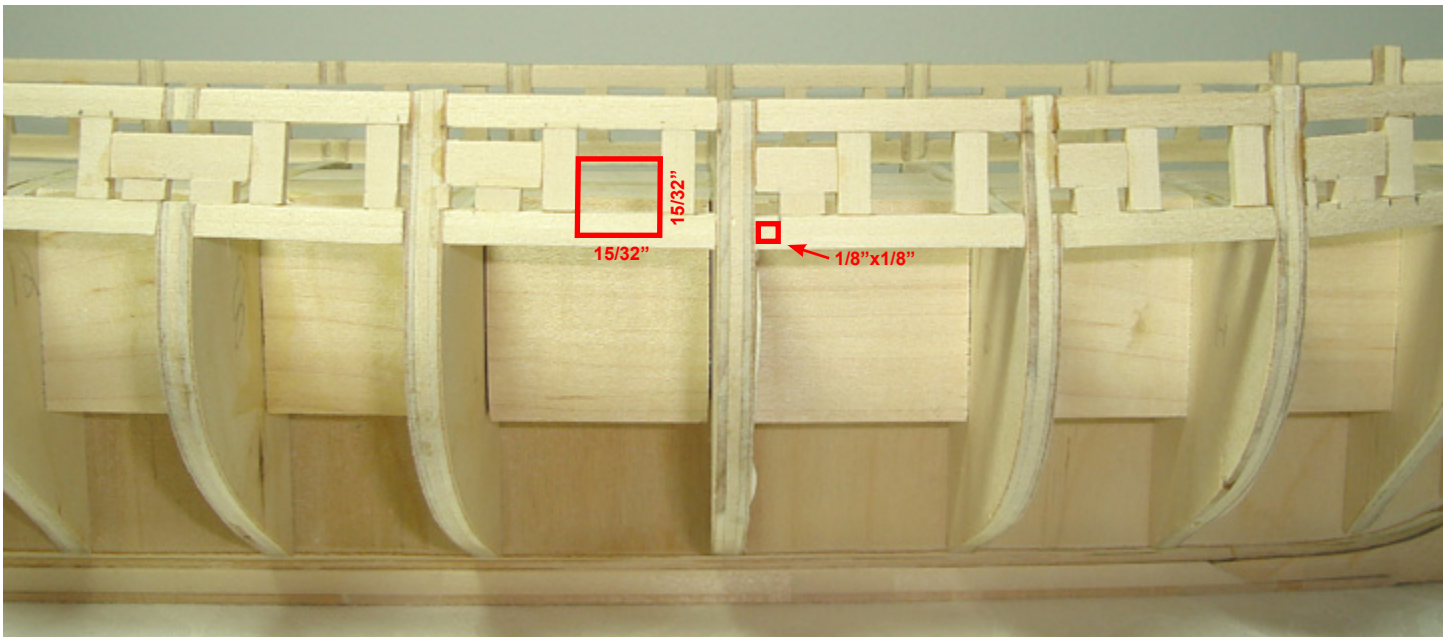
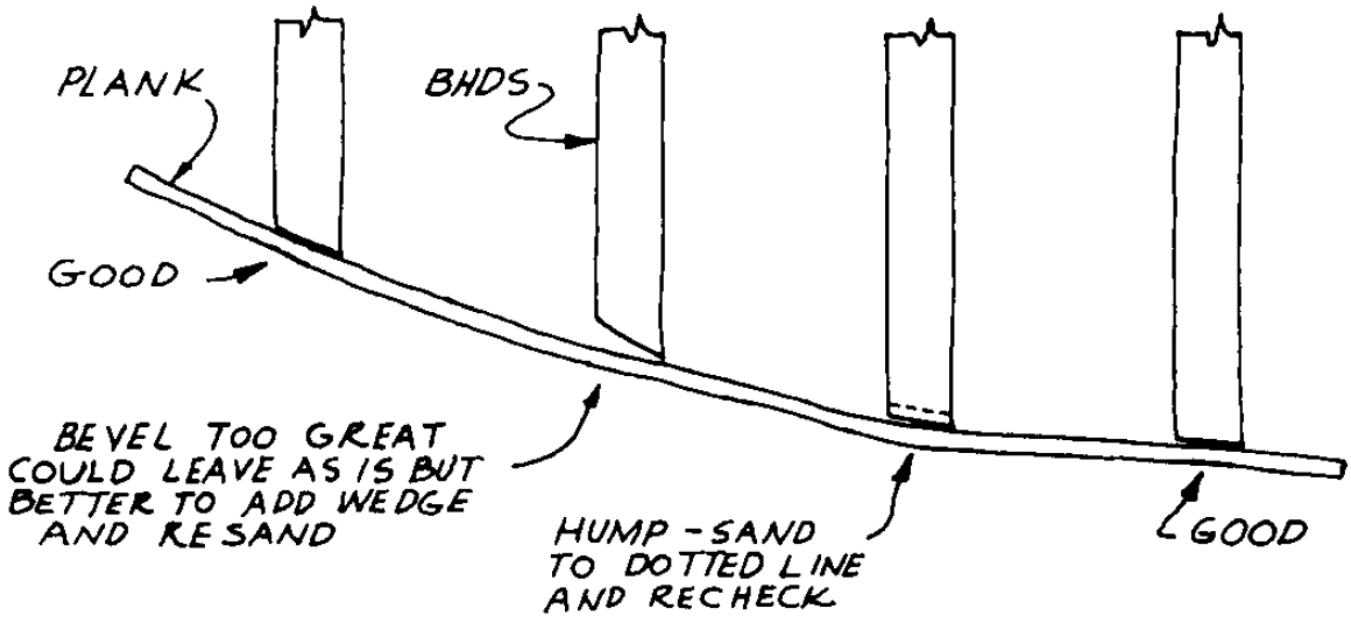


All of the red frames are glued into place. These frames define the top of each sweep port.





Fairing the bulkheads properly to get the correct bevel angles for planking