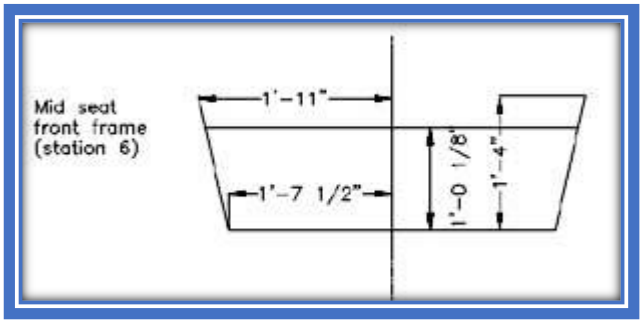
How to Cut a Plywood Frame

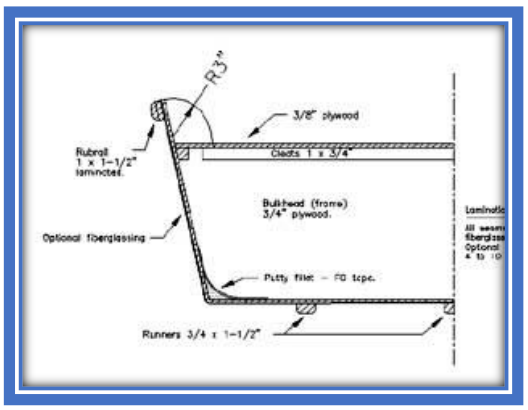
Most of our plans for small boats include full size patterns for the frames and the sides but it is easier and faster to work from the dimensions given on the blueprints. Unfortunately, many are intimidated using figures, have troubles reading a plan and transferring the dimensions to the plywood. Read what follows and you will see how easy it is to work from our plans and forget about the patterns. We will keep these explanations very simple, even simplistic: some of our builders are very young and we also sell our plans to schools and boy-scouts' troops.

This first tutorial is about cutting a simple frame. Most of our small boats are built with the sides wrapped around a mold or a mid-frame and that frame is what we will scribe and cut in this "how to" file.

We start with a sheet of plywood and two drawings. The first drawing on the left shows the outside dimensions for that frame (=bulkhead) and the level of the seat.



The second drawing is what we call a "typical drawing". It shows details that are common to all frames like the nice rounded corner, the cleats, fiberglass lamination etc. we will use it later to finish the frame.



This is how the plywood sheet is supposed to look just before cutting.

Transferring dimensions to plywood is not lofting!

Let's start by looking at the plans for that frame. The frame is 46" wide: the drawing shows max. half width = 1' 11" this means 23" from center. Multiply by 2 = 46". The frame is 16" high (1' 4"). Thus, we need a piece of plywood that is at least 16 x 46. Let's cut that frame in the corner of a full sheet.

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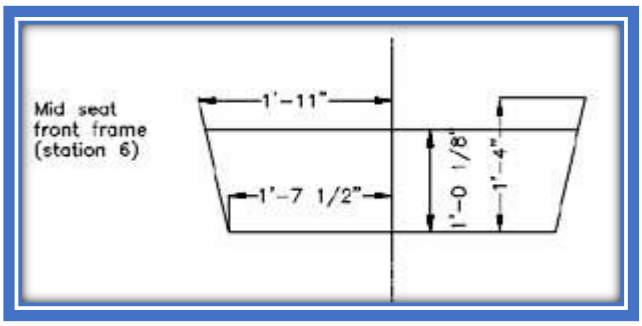
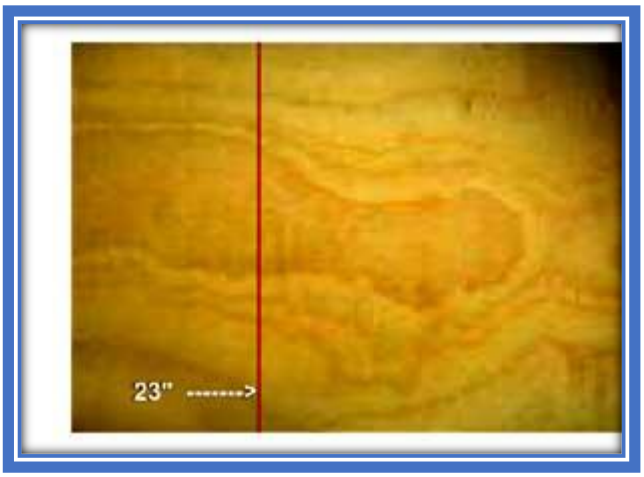
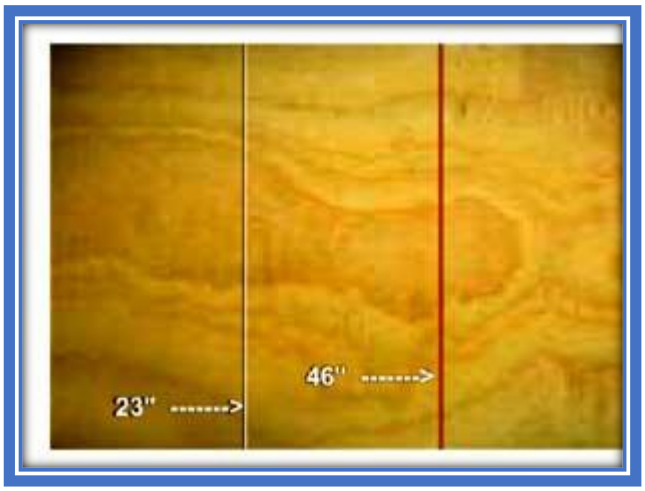


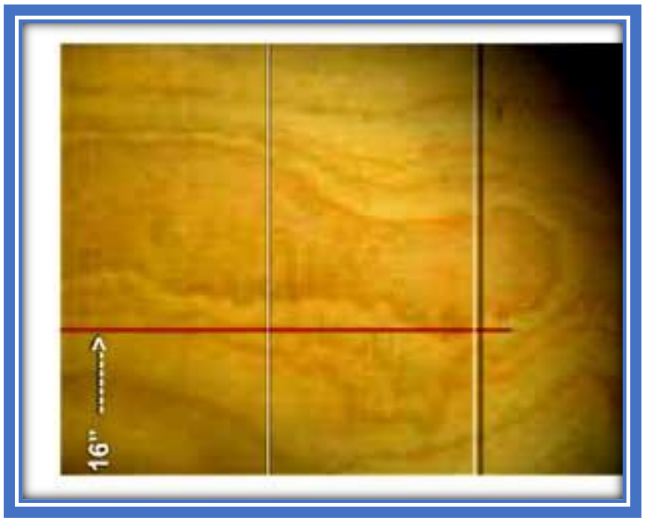
What we are going to do next is draw the outline of the frame using the dimensions from the plans, It is very simple: just some straight lines. Start by scribing the center line at 23" from the edge of the plywood, no waste. To draw a perpendicular, use a square or easier, just measure 23" on each side of the plywood and draw a line.



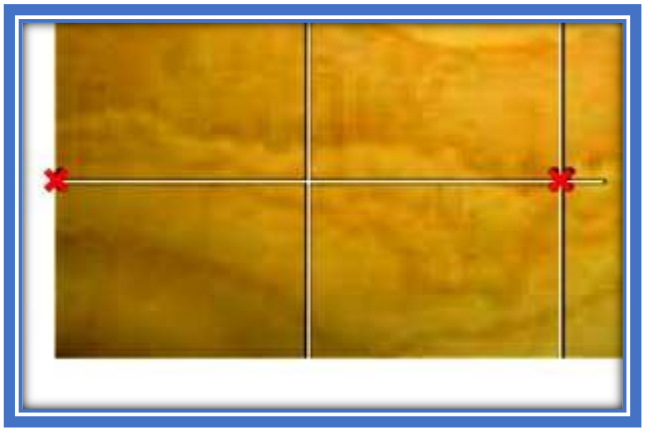
Now, we are going to draw a second line at 46" of the edge for the max. width of the frame.



Next, we draw an horizontal line 16" above the bottom of the plywood sheet edge.



Now, we have our first points: at the intersection of those lines are the upper tips of the frame. Next, we have to locate the bottom corners of that frame.



The drawing shows that the distance from the center line is 19.5". As you remarked, I switched to engineering units. It is much easier to use one single unit, the inch, and decimal fractions. If you are more comfortable with things like 1' 7-1/2", that's fine: we show that on the plans. To find the corners of the bottom, simply measure from the center line, 19.5" each side.

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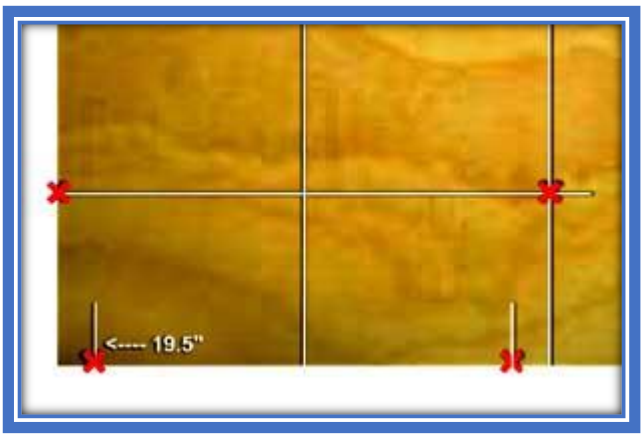
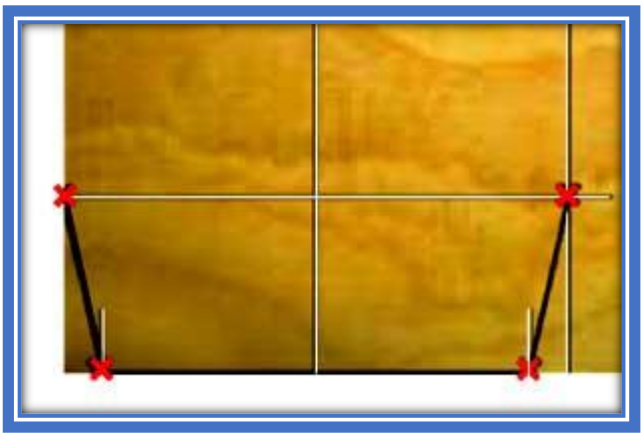
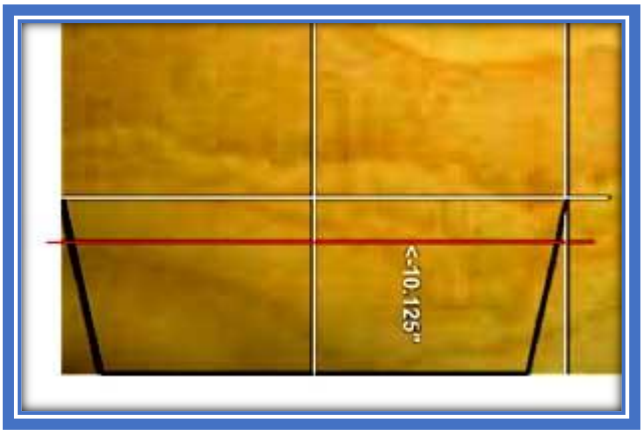
Now we have the four corners of the outside of the frame, a simple trapeze. Let's trace the outline of our frame. Great start! Now we must do the inside: the line for the top of the seat and the sides. Have a look at the blueprints to get an idea of what we are going to do.

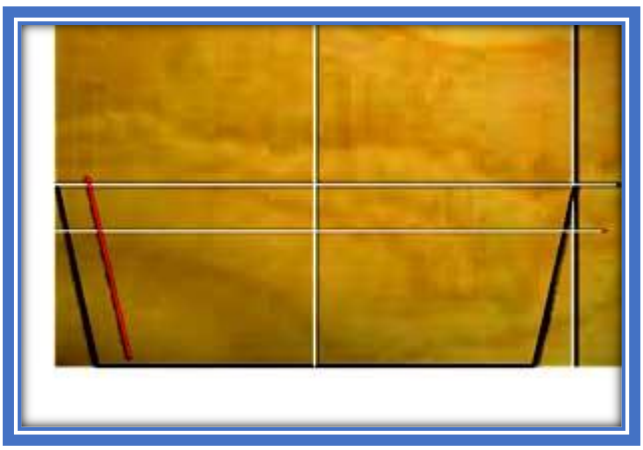




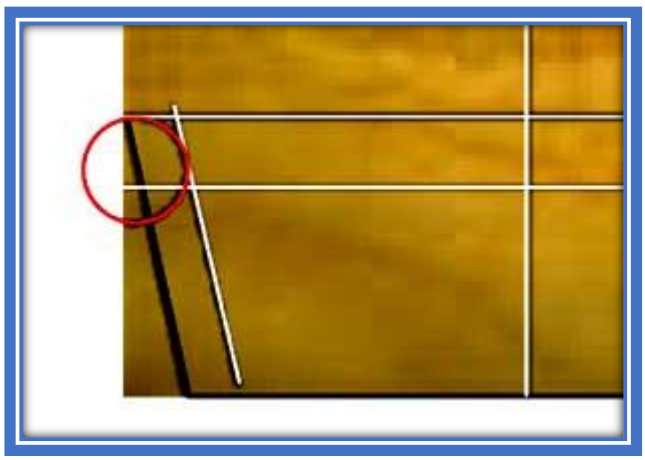
The seat is 10.125" above the bottom (1' 0-1/8"). Using the same method, we draw a line at that level.



We offset the sides three inches for the width of the frame. 3" is just a suggestion: it could be 2 or 4, unimportant. No need to measure: use a board that is approximately 3" wide, line it up with the side of the frame on the inside and scribe the offset line. If you prefer to measure, please do.



The last line we need is the curved top. That is the easiest one. We simply grab a round object with a radius close to 3". for example, the bottom of paint can, position it tangent to the top line and the offset line and there it is. Proceed the same way for the other side.



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To finish, mark the outline of your frame with a thick line and that's it.

Grab your circular saw for the straight cuts, use the jig saw to finish the corners and you have your frame.