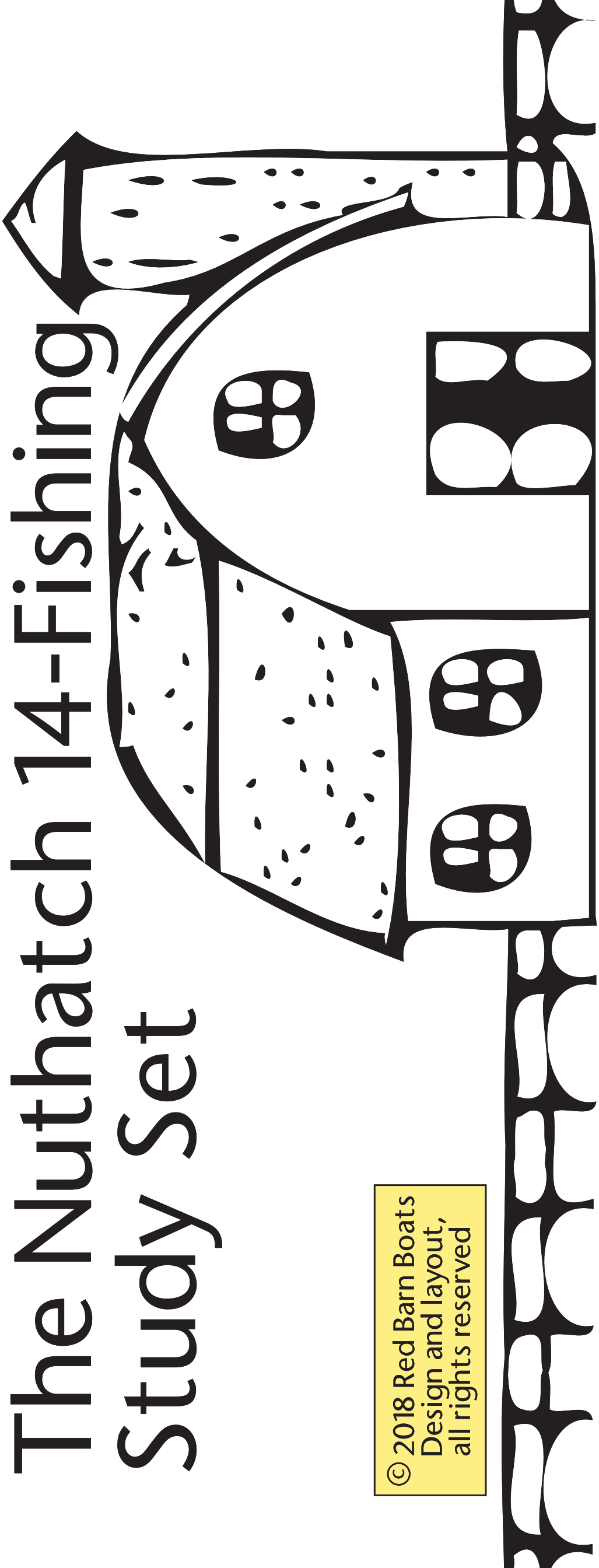


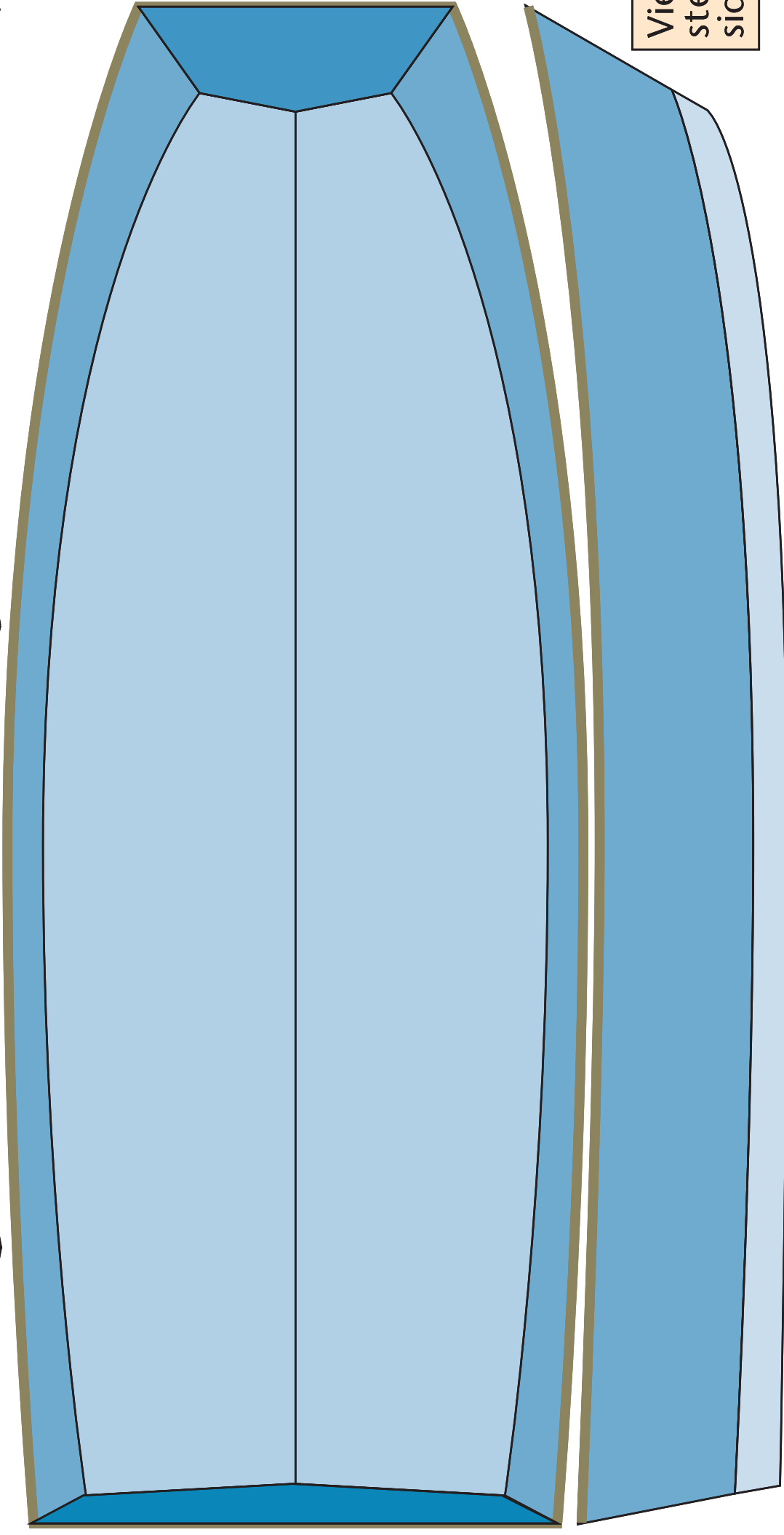
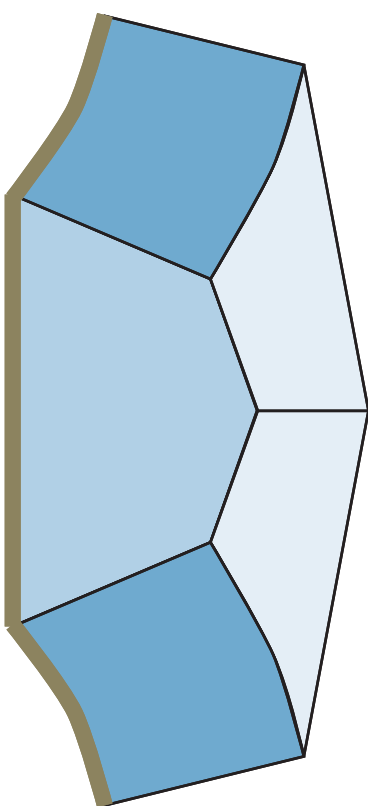
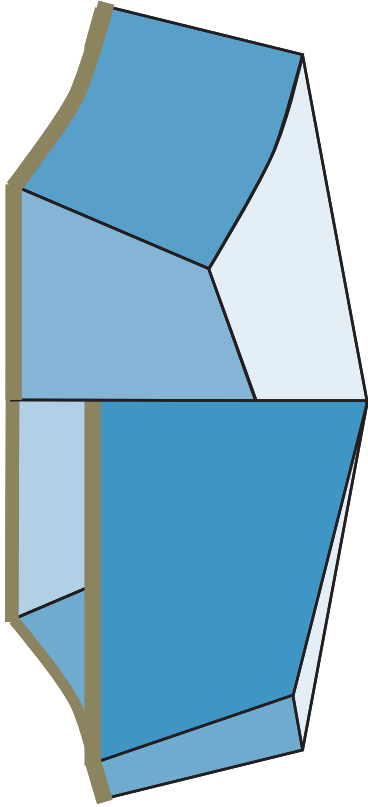
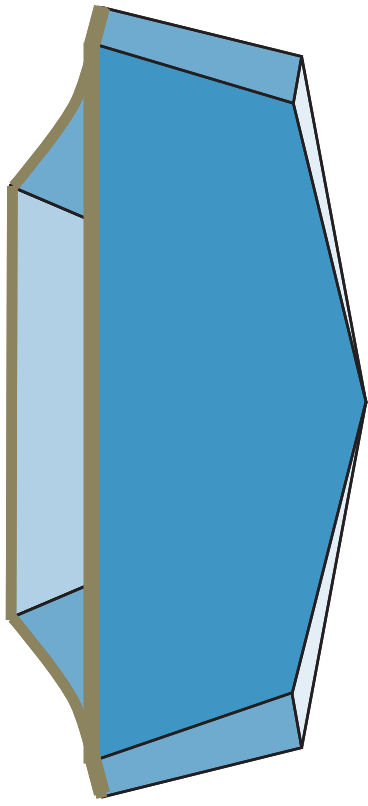
RED BARN BOATS

The Nuthatch 14-Fishing Study Set

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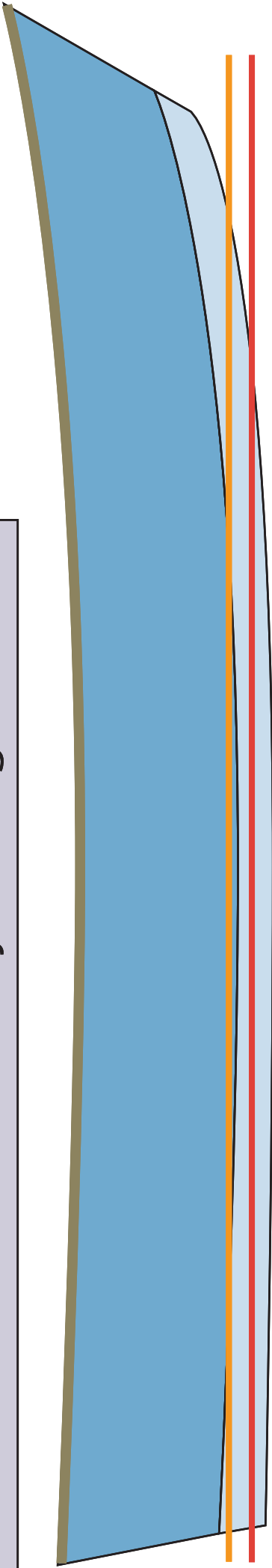
www.youtube.com/redbarnboats



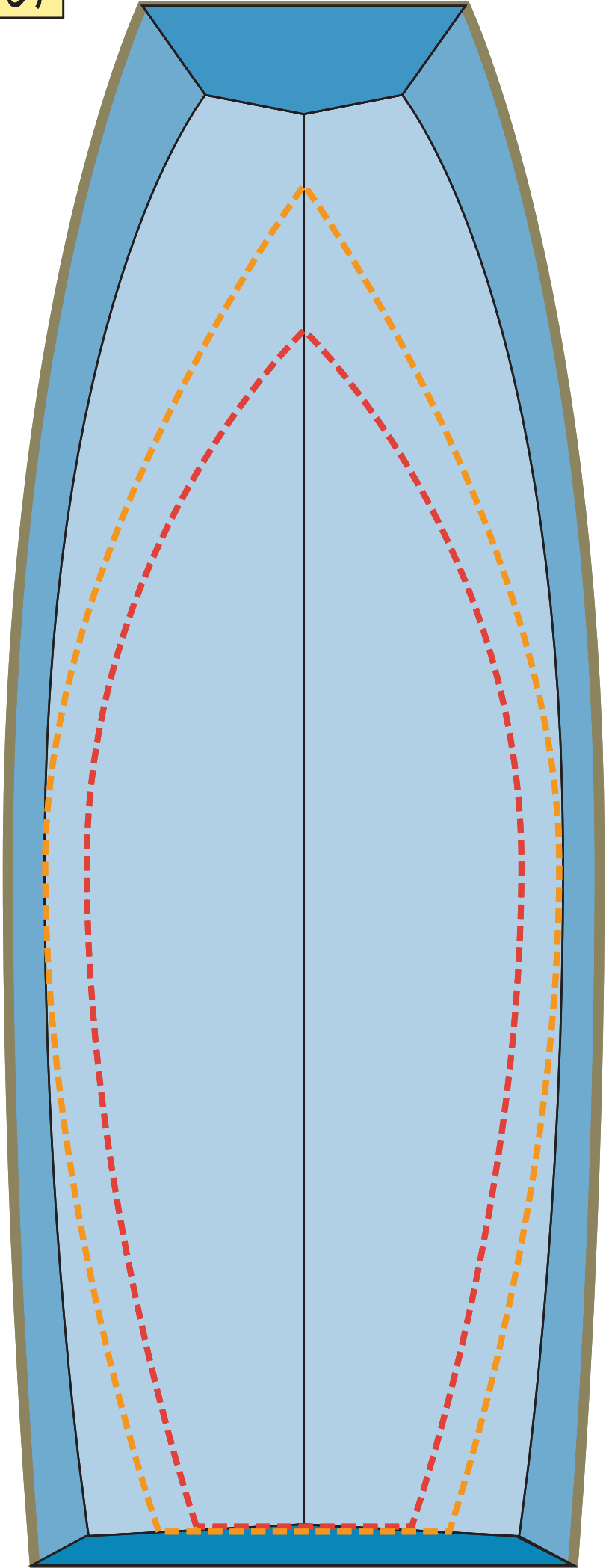
Reduced
Scale!

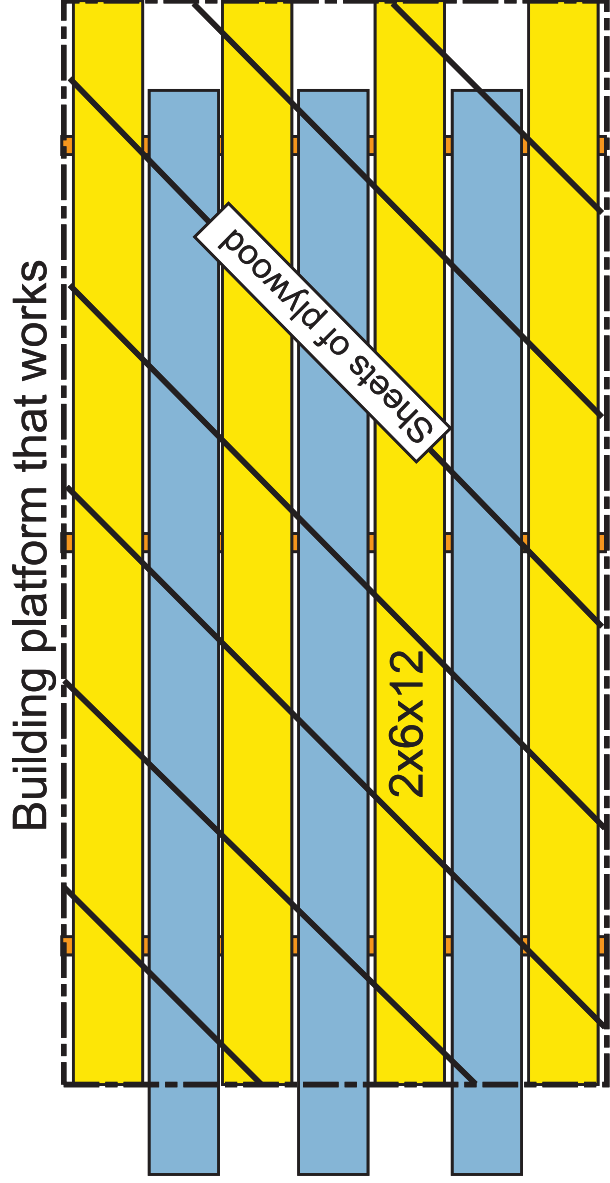
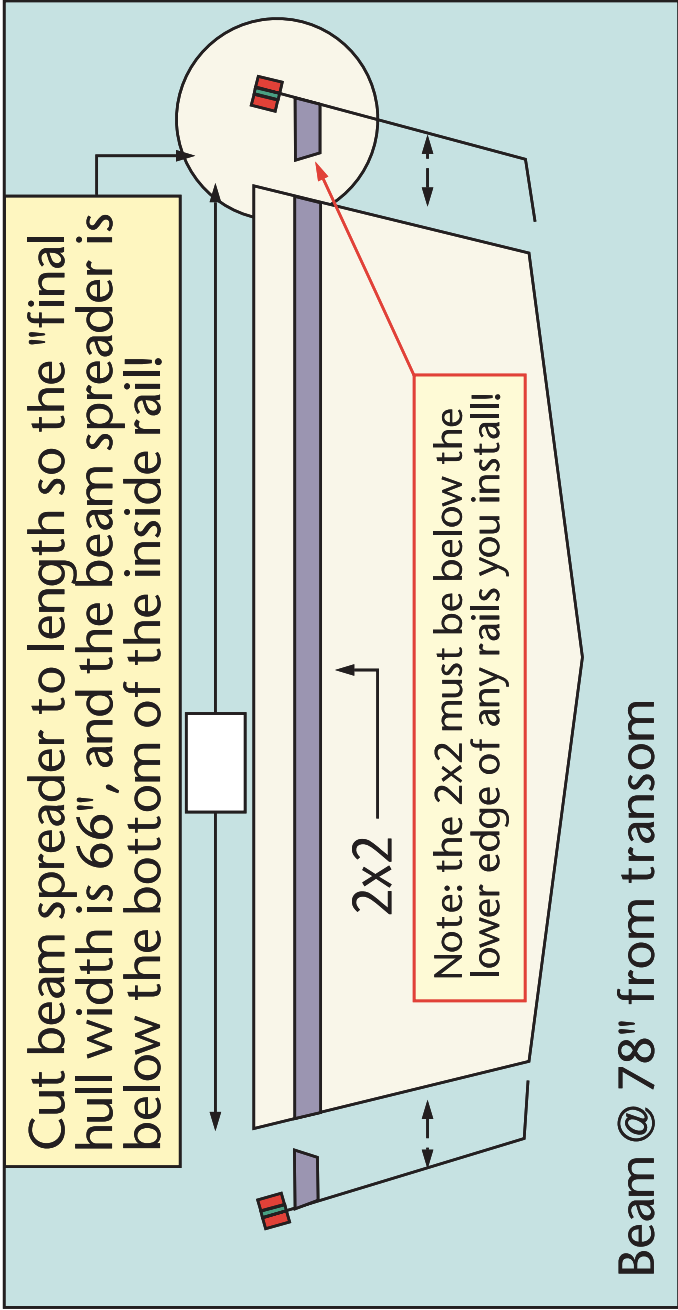
Views: Bow, combo,
stern, bottom, and
side

Waterline levels -- Red: hull only - Orange: loaded

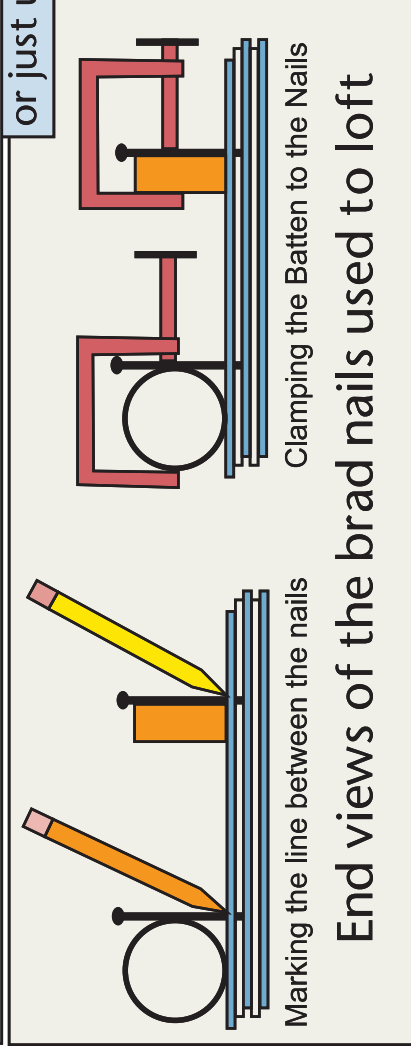


Reduced Scale!

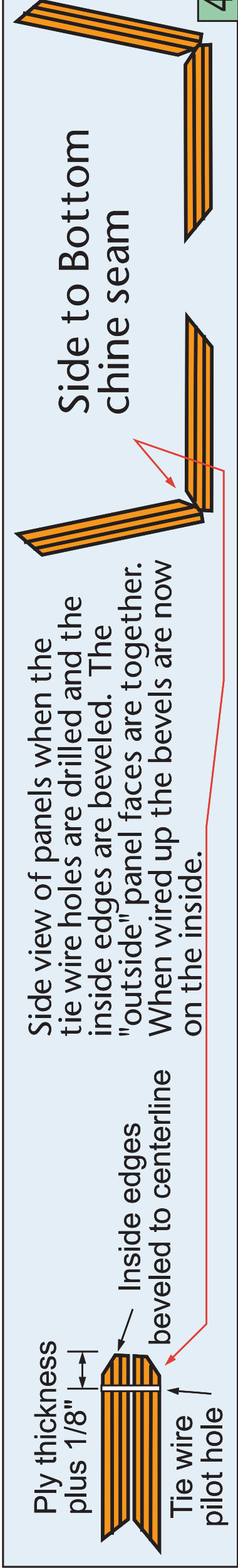
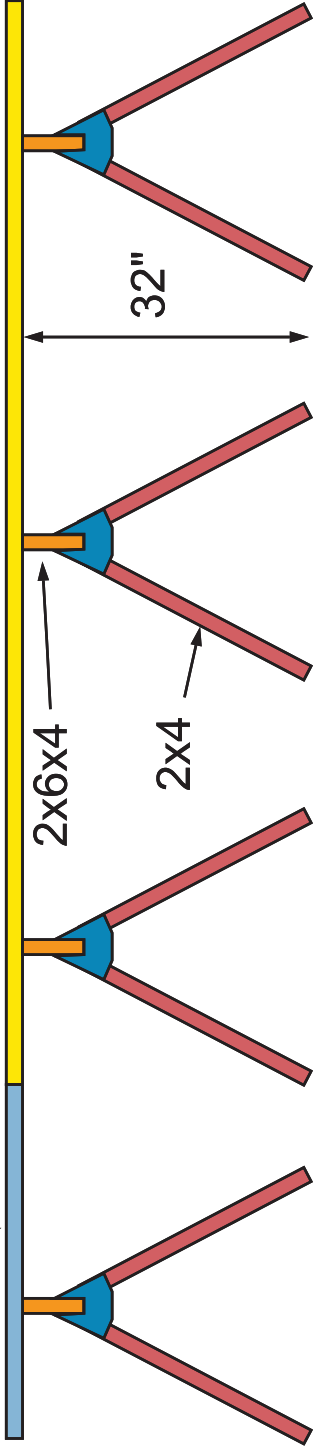




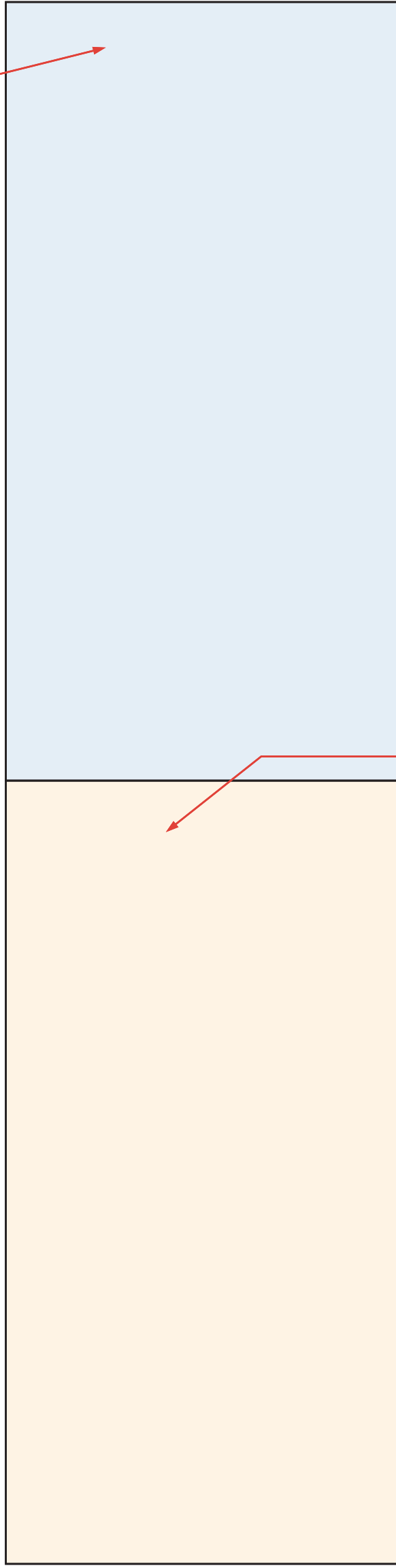
Extra legs and 2x6x12 supports can be used while scarfing and lofting up the long panel sets. The extra legs can be removed and the 2x6x8's shoved back after the panels are cutout and wired up.



or just use 16's

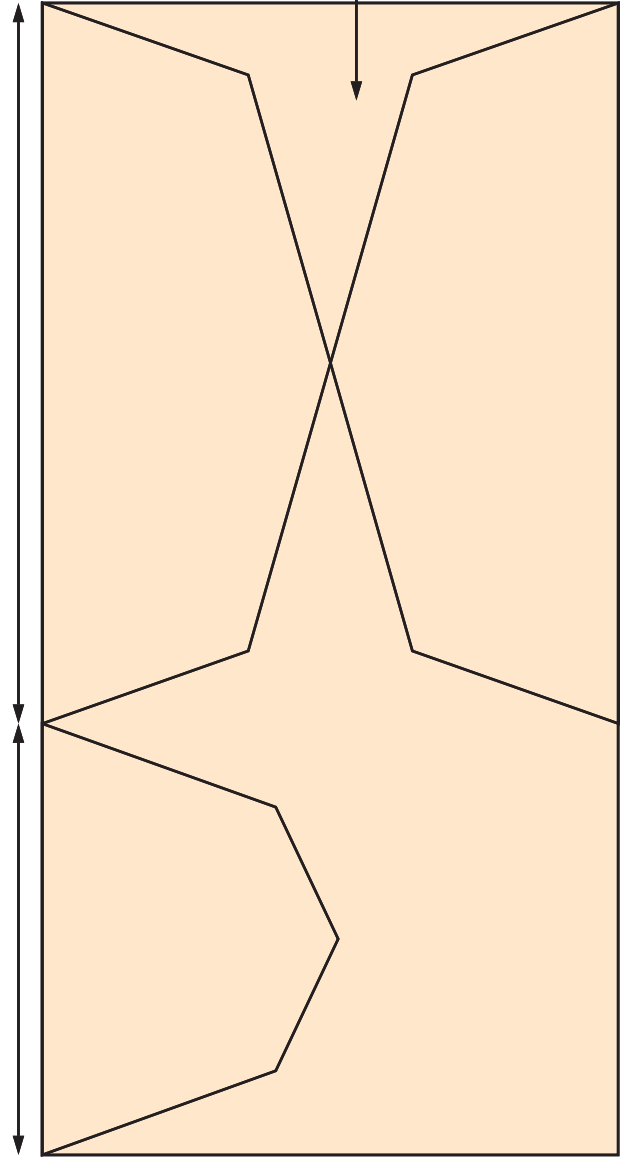


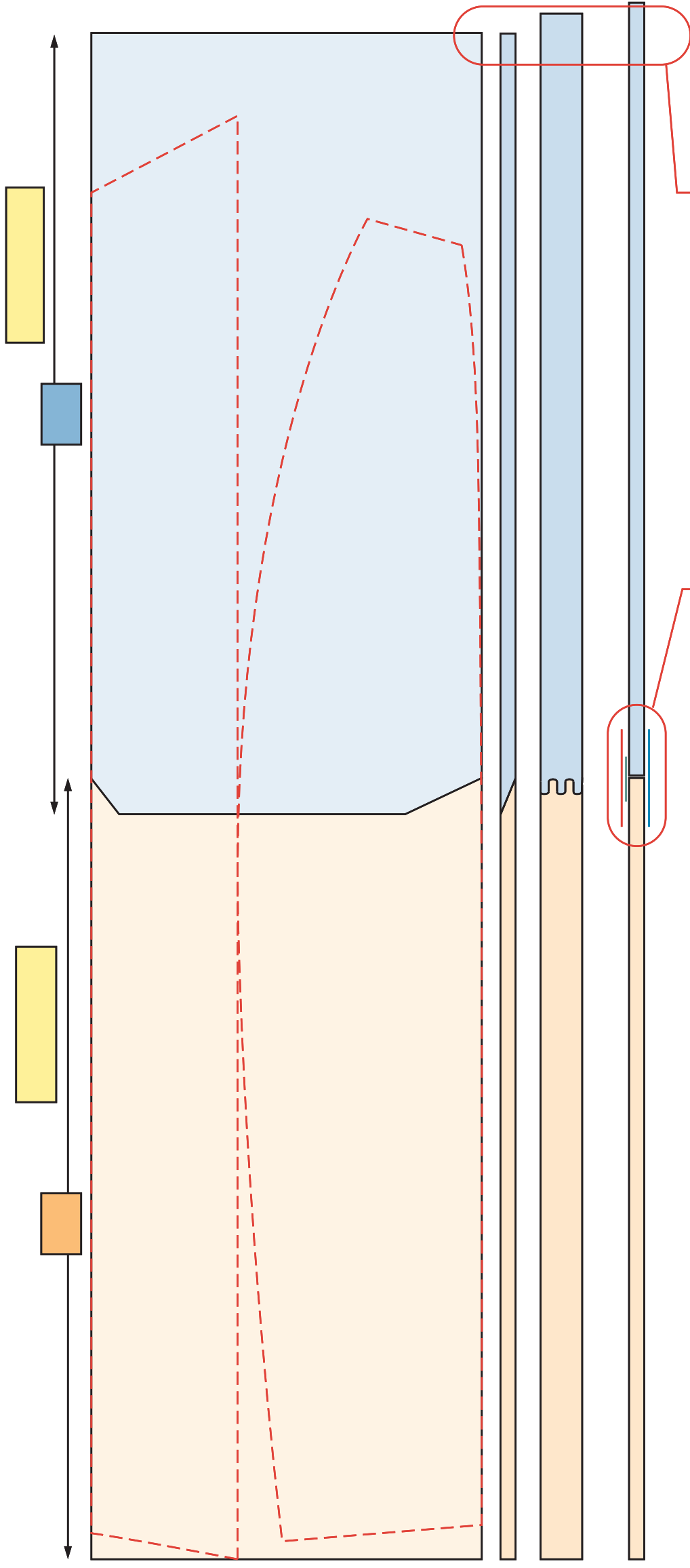
Two 4x8ft or 1220x2440mm sheets of plywood - Excess at end is for "what kind of scarf/joint you use"



This page shows the layout of the hull panels on the plywood. If you are using Metric panels there will be more gap between the bottom and side hull panels. With US panels, the two will touch at about 7.5 ft from the transom end. Just be careful when laying out the lines and when cutting out the panel sets!

One 4x8ft or 1220x2440mm plywood sheet for a single bow panel, and double transom panels. Scrap plywood can/should be used between these two panels to thicken the transom for use with an OB Moter.

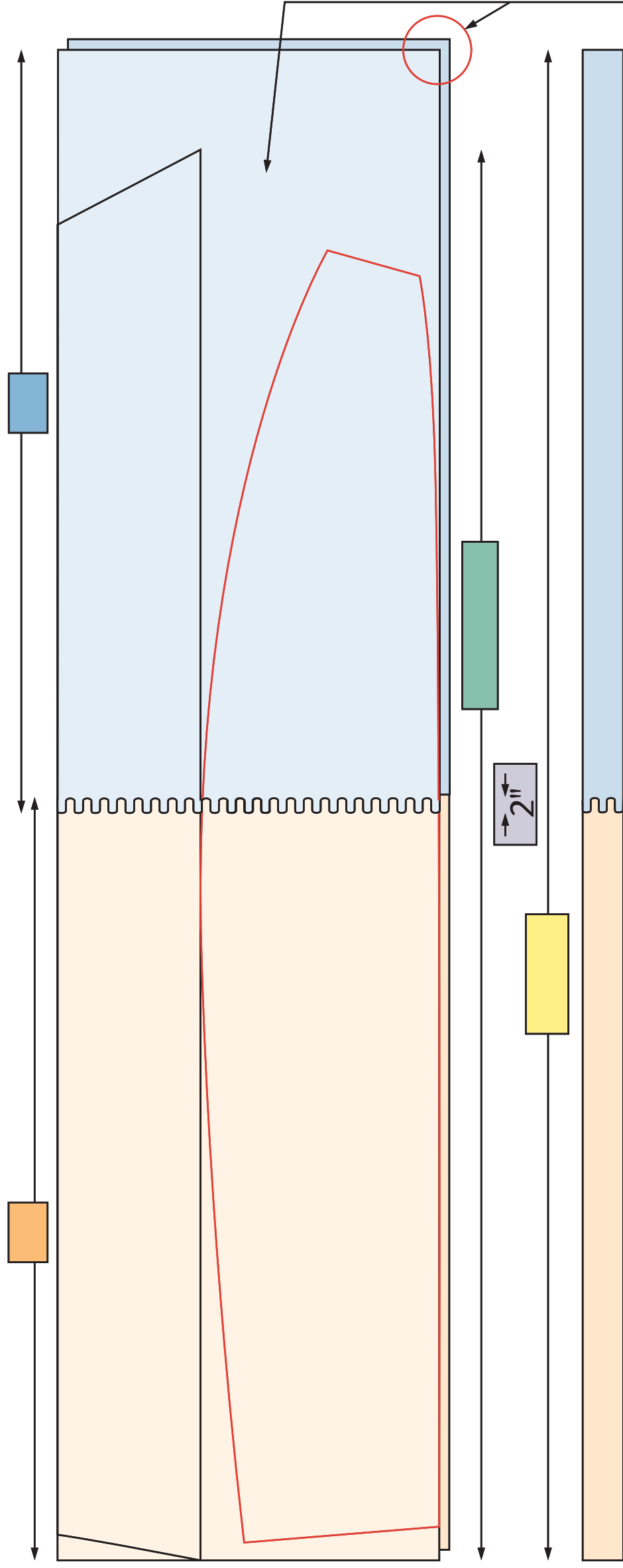




The overall length of the "plywood set" will vary with the type of joint used to make the length needed for this hull!

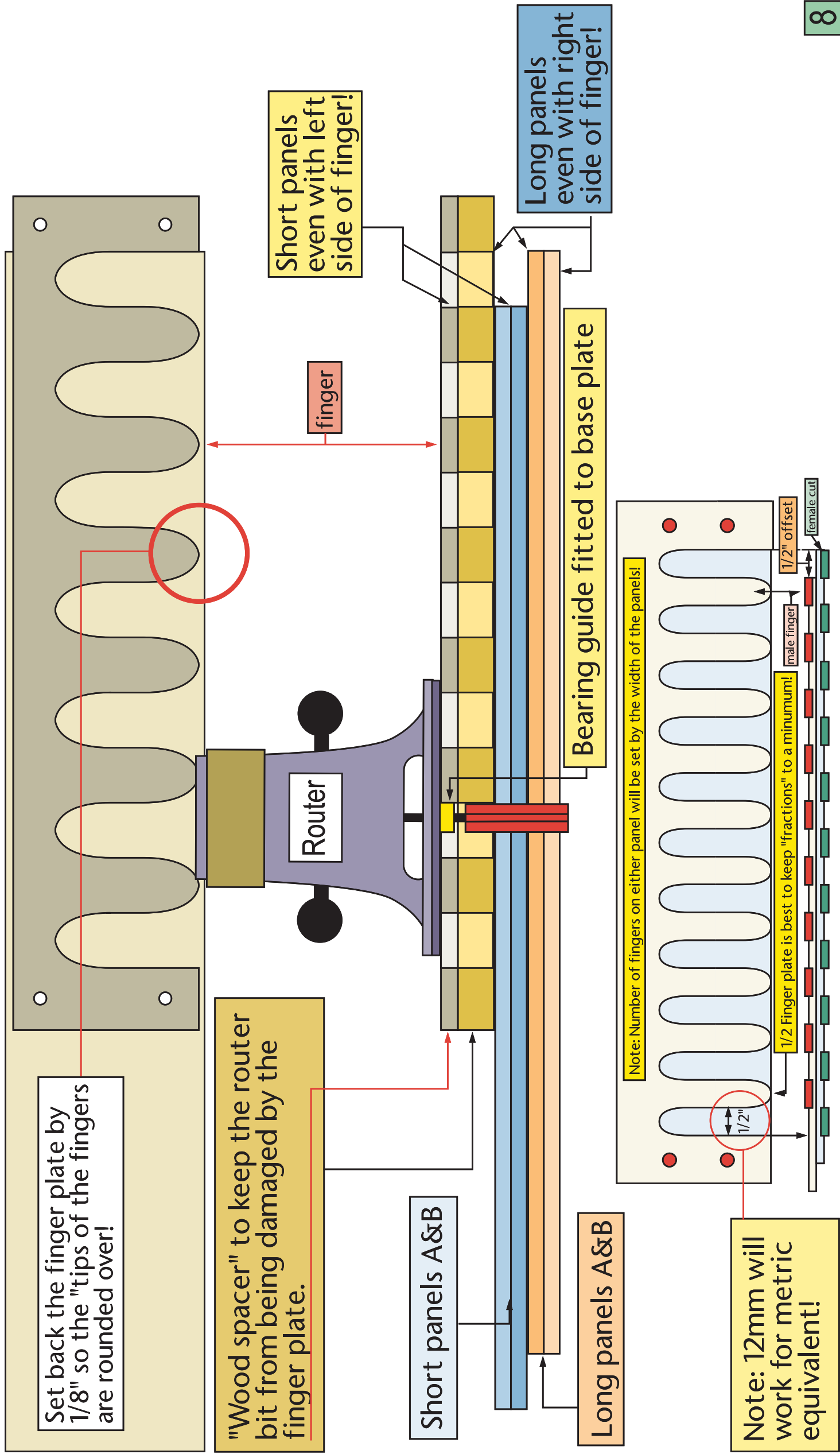
Or you can use a "Payson Joint" where the ends are butted together and layers of glass cloth are attached to both sides. Two on the inside, and one on the outside. The outside layer will be covered by the bottom cloth to give two layers.

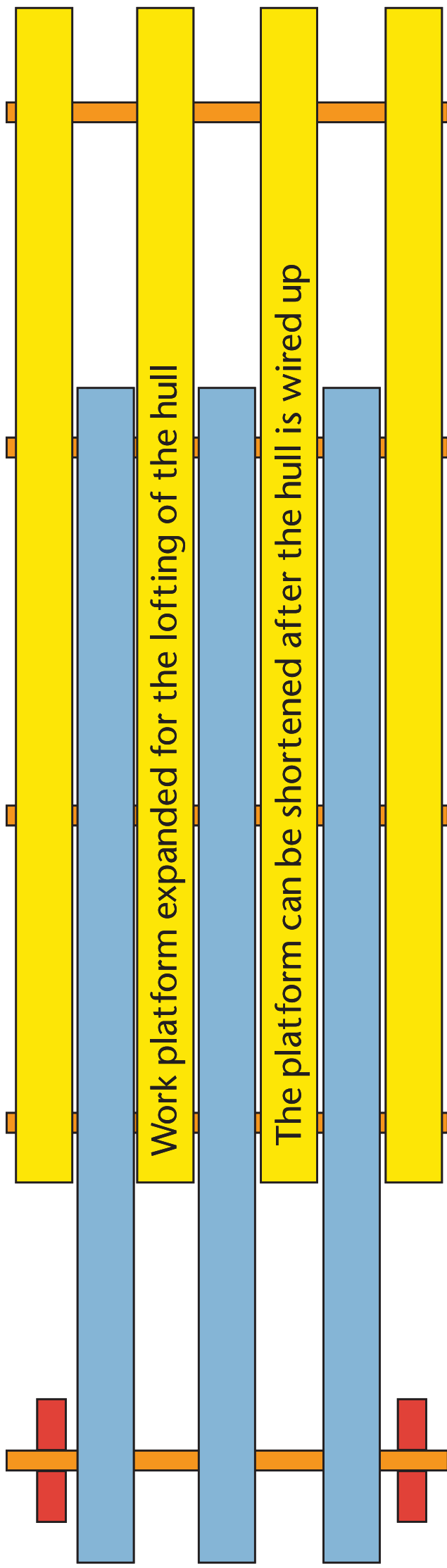
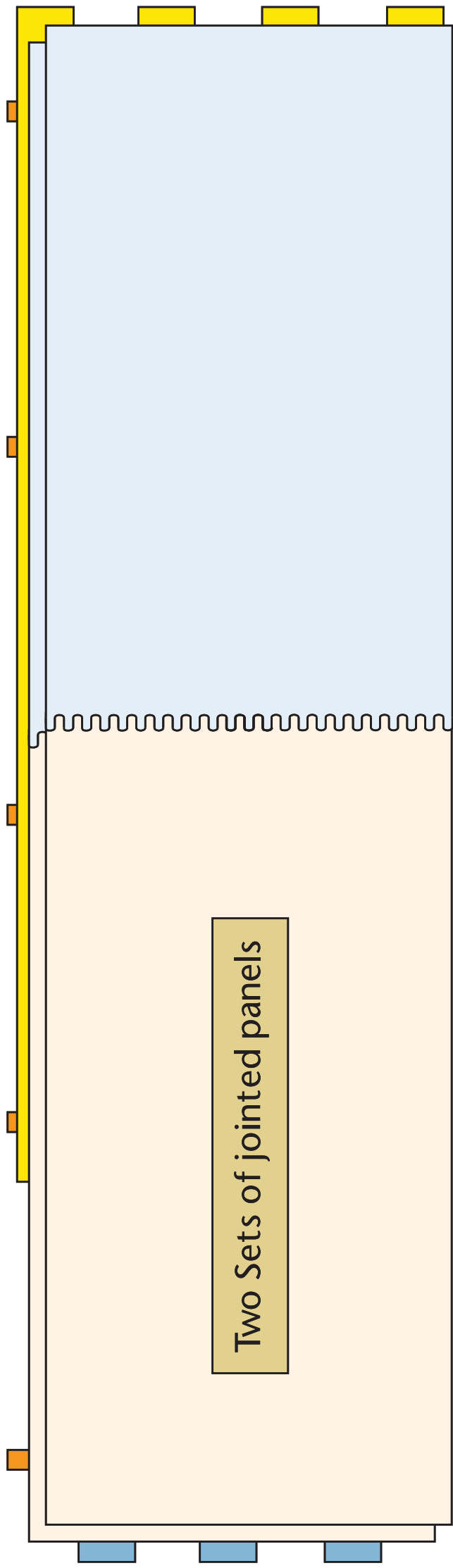
With a 12:1 scarf ratio, the overlap for 9mm/3/8" will be either 108mm or 4 1/4". If you use finger joints with either 9mm or 1/2" bits; the overlap will be 2" for US and what ever is used for finger joint guides in the EU.

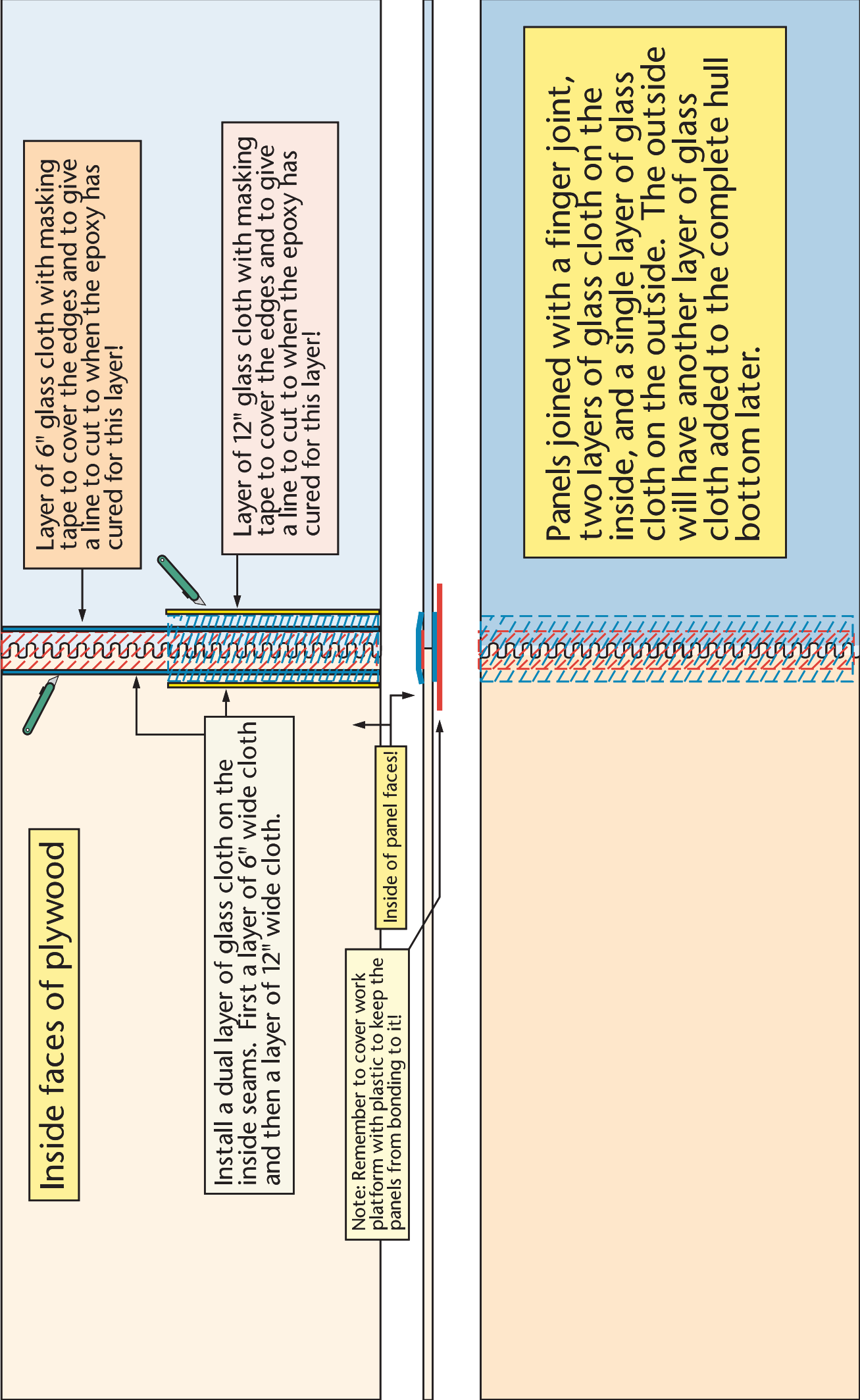


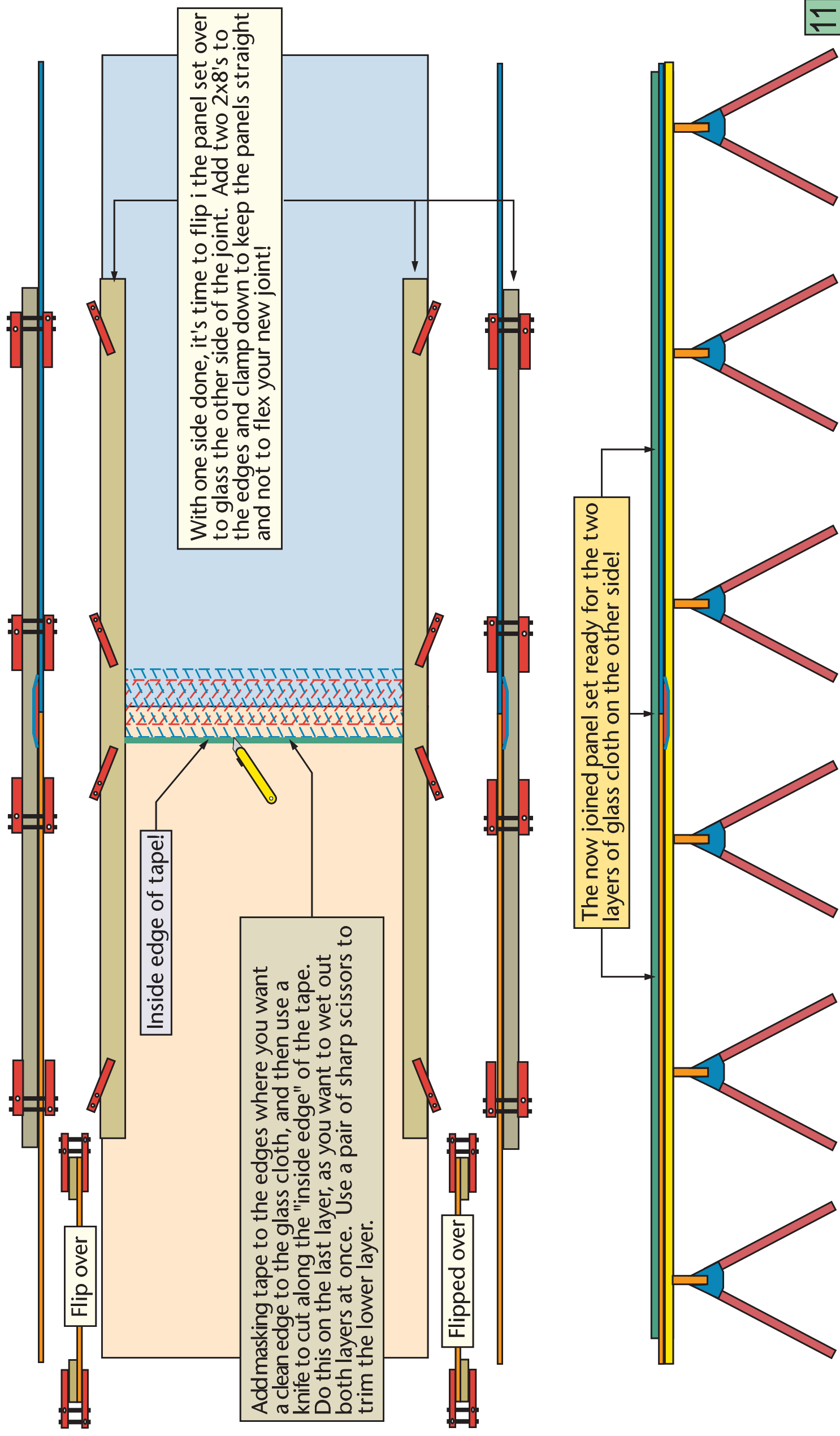
Note: you will have two sets of these panels to make up the hull of the 14ft Nuthatch!

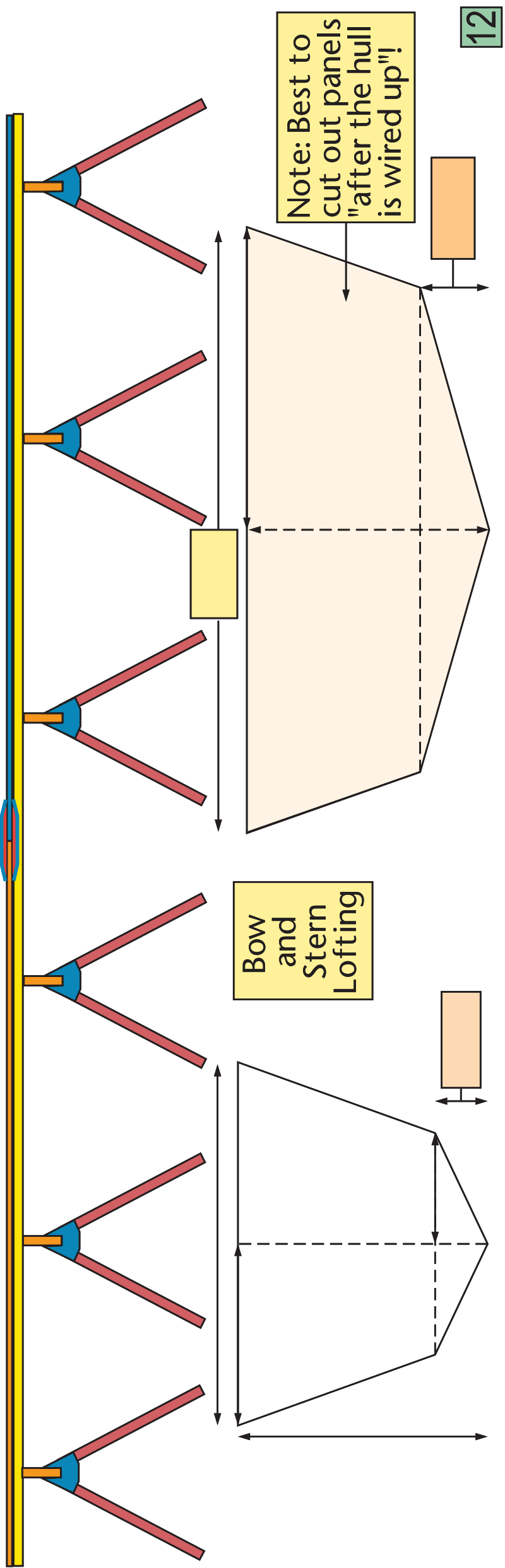
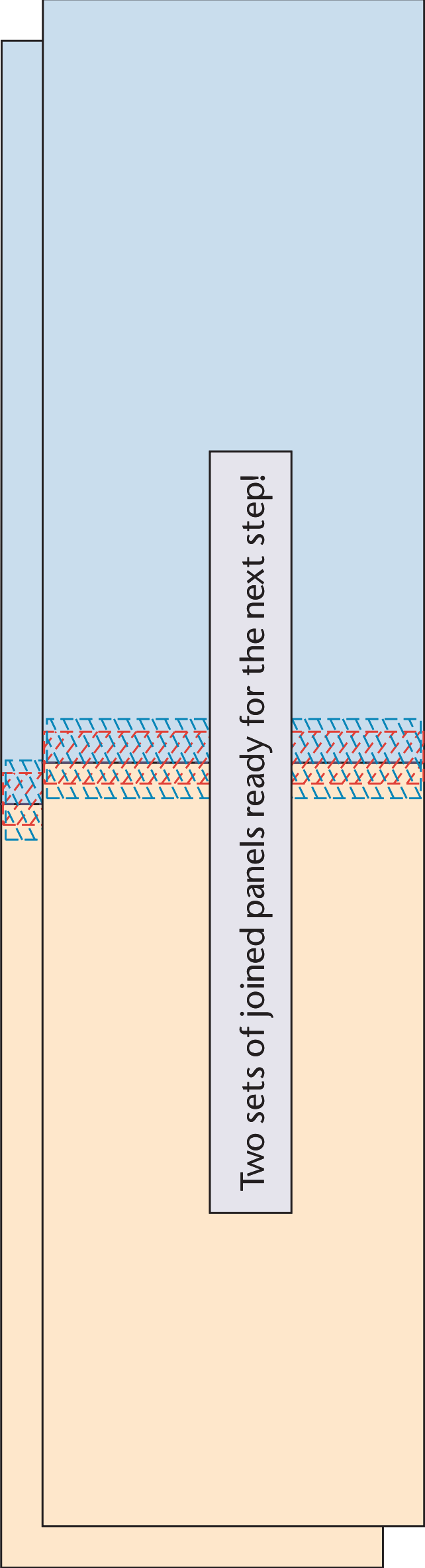
For this design set I will use the "finger joint method", which I find is the easiest and fastest way to join thin 4mm-12mm plywood. I find it is also the strongest joint for home builders without a special jig to get the "perfectly beveled" scarf joints for each sheet. The strength of a joint is at the "surfaces" of the joined panels and most scarf joints can not achieve a perfect mating of the top surfaces of the plywood!

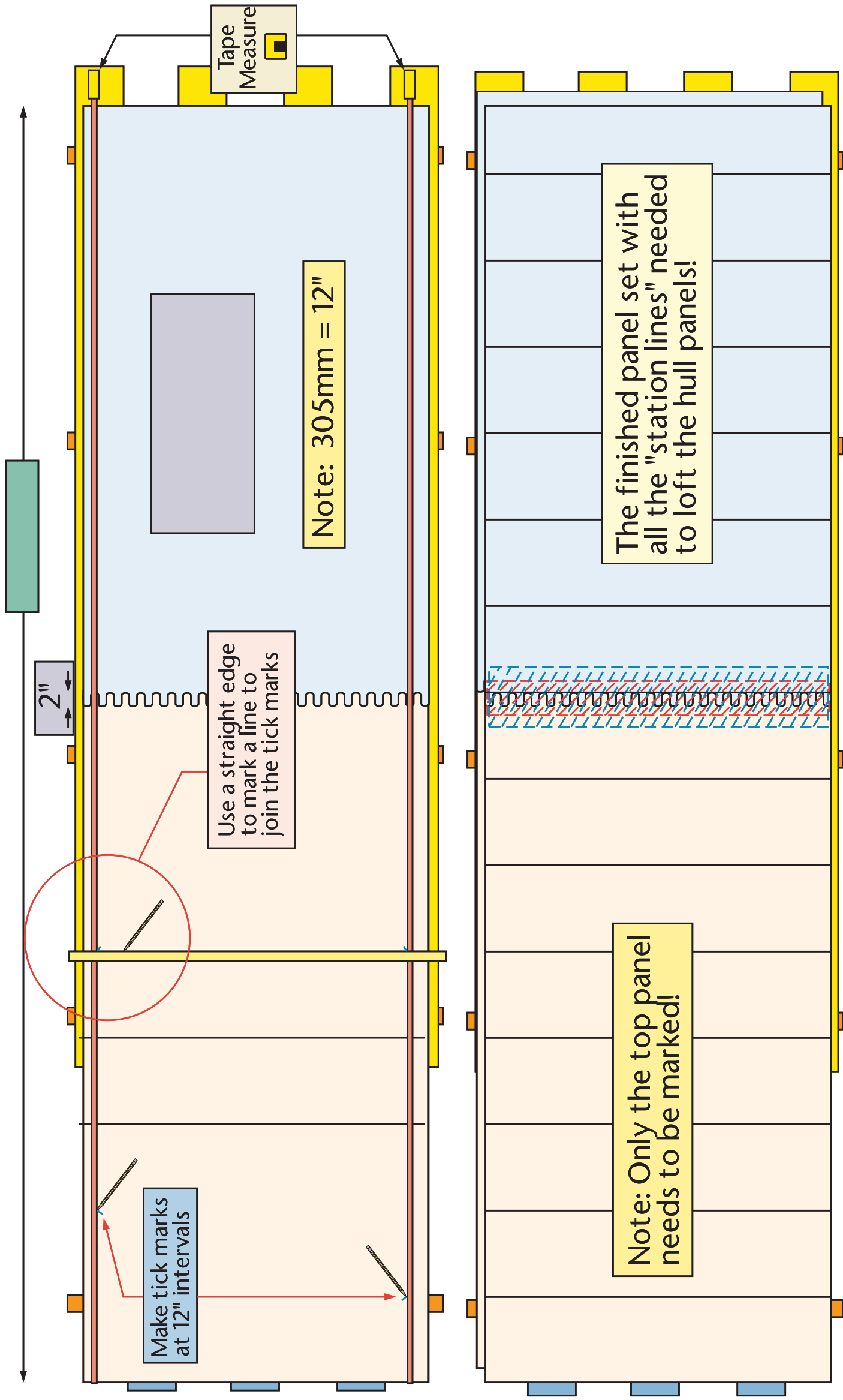




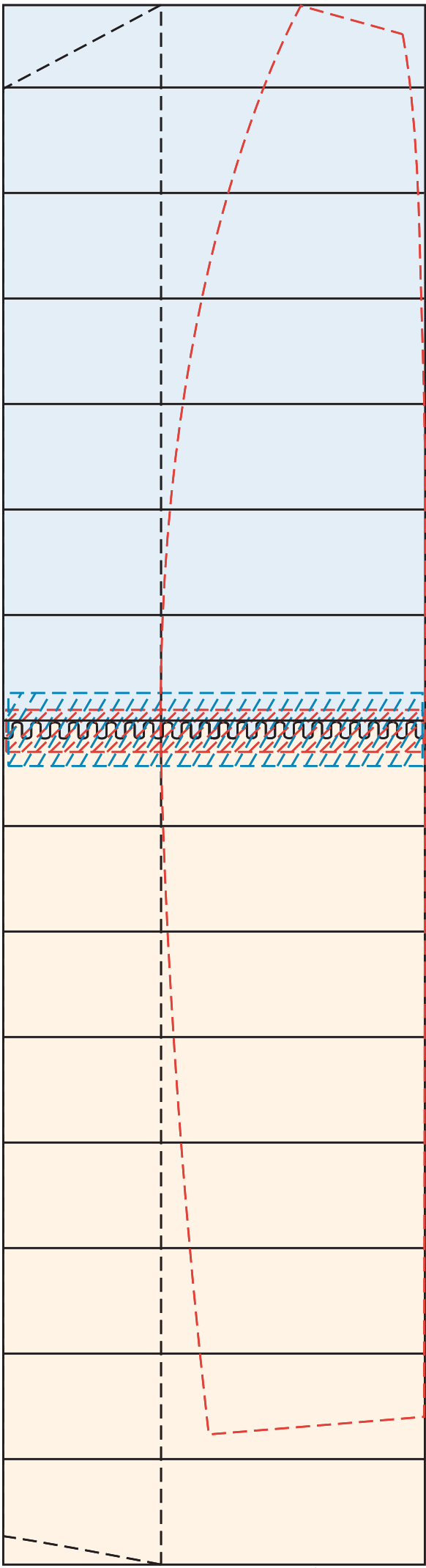








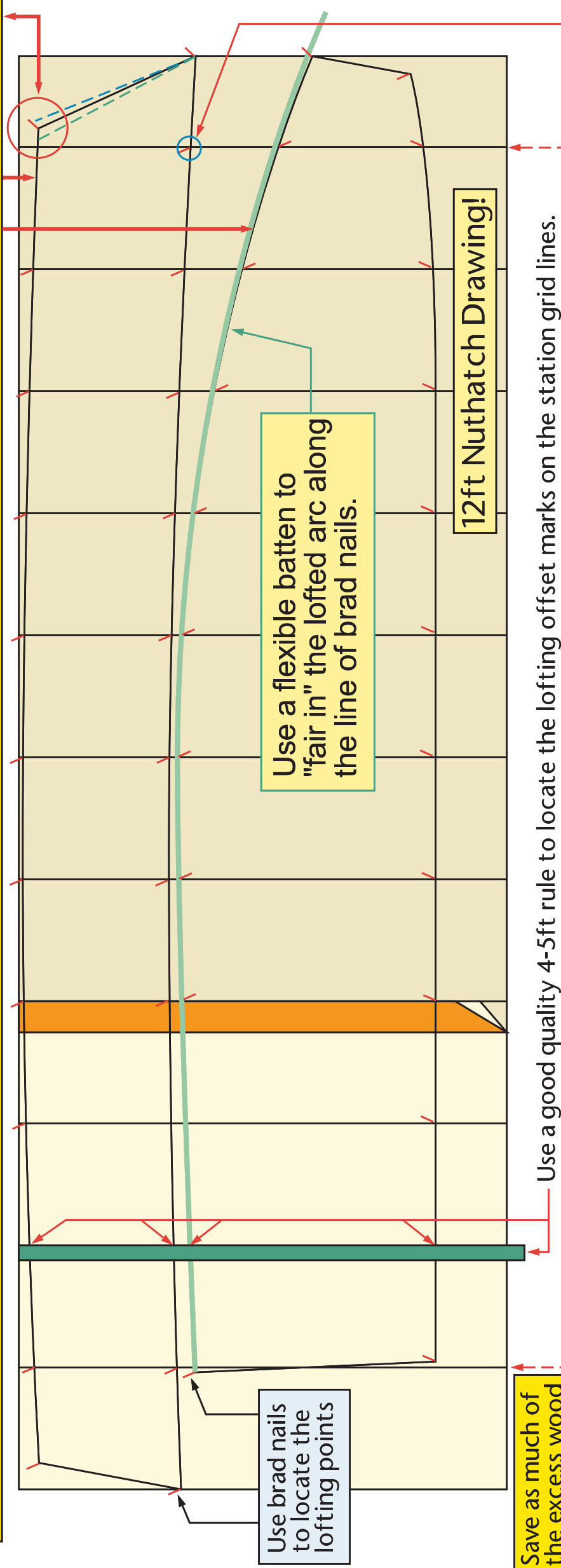
Station lines marked at one foot intervals starting at the lefthand end!



Note: The second panel is underneath the one shown!

Note: The following pages were taken from the 12ft Nuthatch Fishing Version, build plan set. The construction method is exactly the same for this hull too. Any changes specific to the 14ft Nuthatch version will be called out in the drawings. These will be the locations for any oarlocks, the daggerboard location, and the mast partner location. All other interior measurements and placements will be up to you the builder.

To Do, To Do, To Do: Measure the "arc lengths" of the two mating curves of the side and bottom panels! The top panel should be 1/4" longer! adjust the lower bow corner in or out to get this extra 1/4"



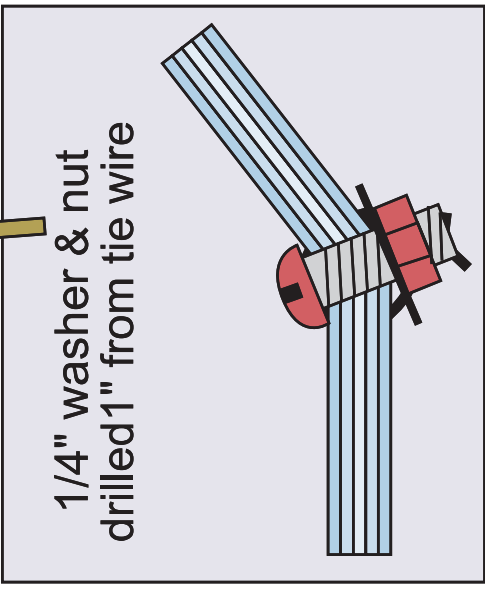
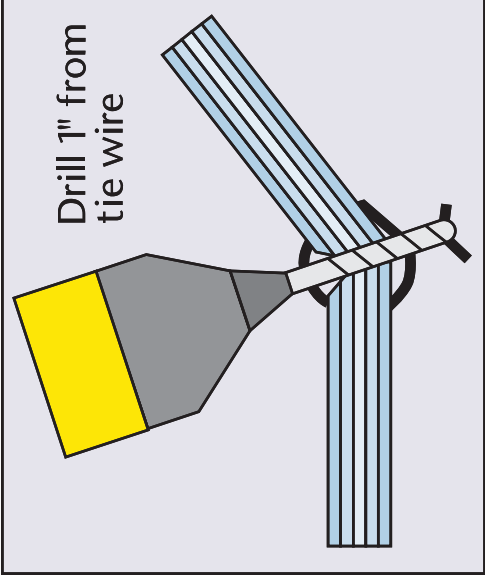
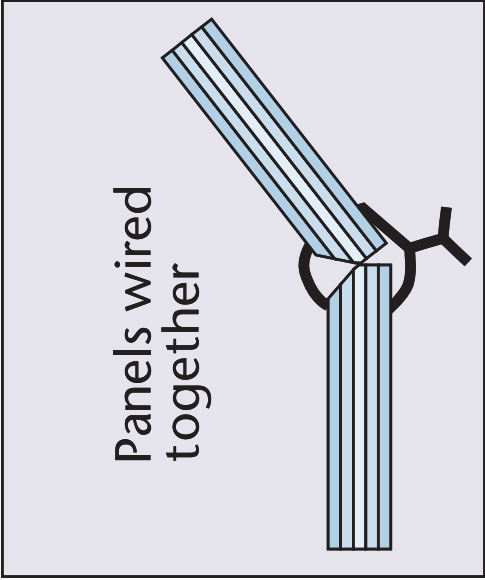
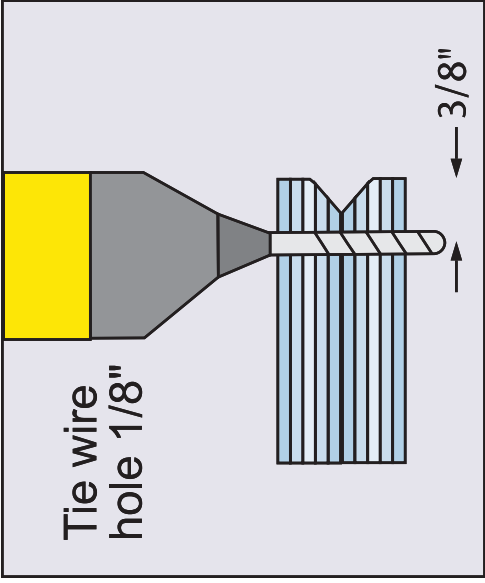
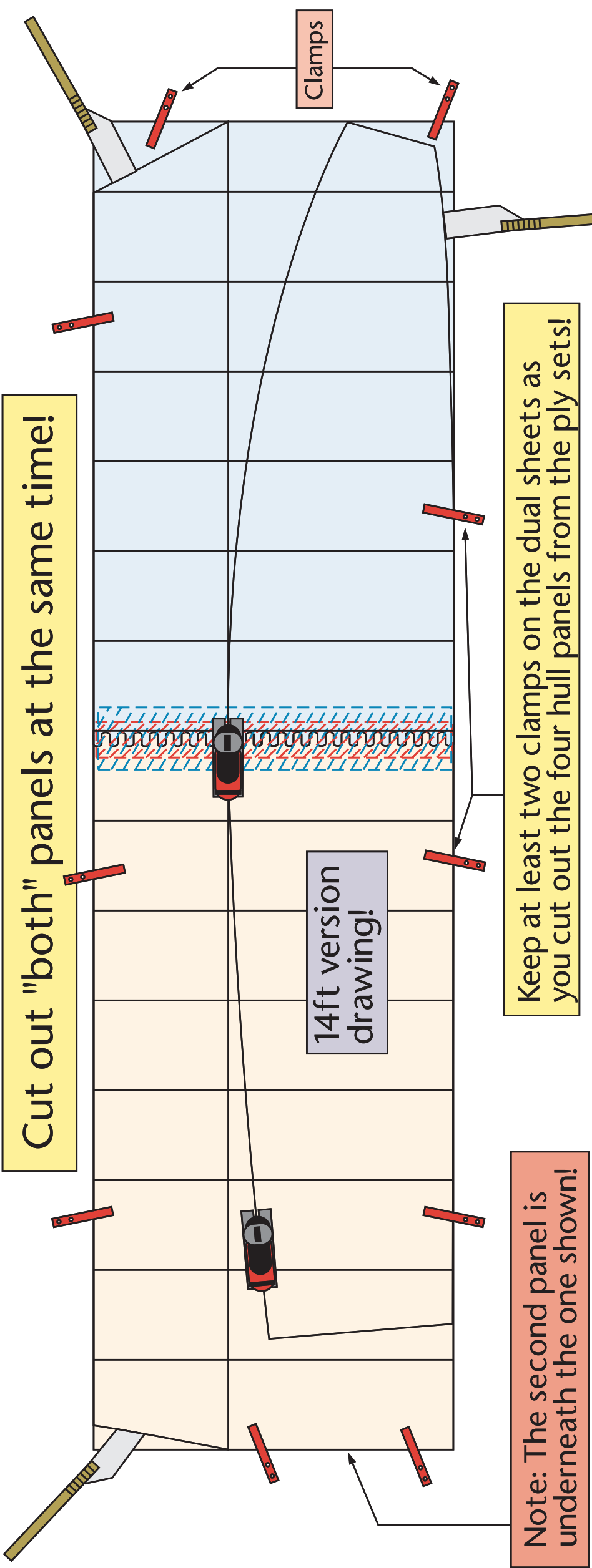
Save as much of the excess wood as you can for later!

Note: Before you separate the cut out panel pairs, take a "fine bladed saw" and cut notches in the upper edge of the panels. You will need these "station line cut marks" later in construction to locate and "square up" all the interior cross braces, seat panels, mast partner, and oarlock sockets.

Keep Clamped Together!

Outside scarf end points aft!

Inside plywood faces



Do not bevel top edges of side panels!

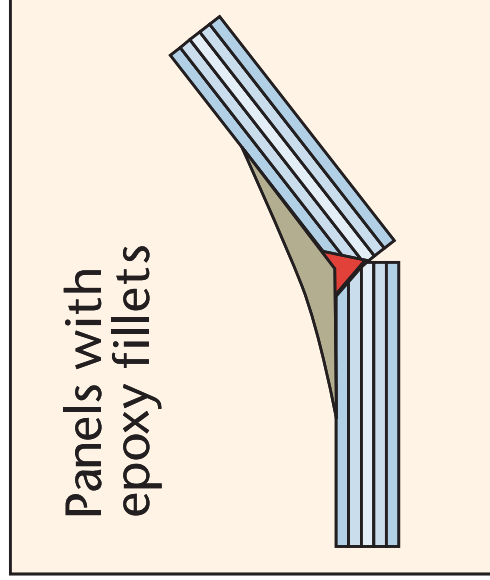
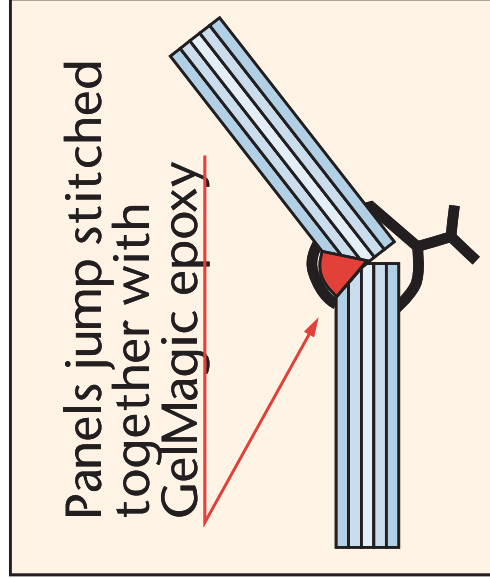
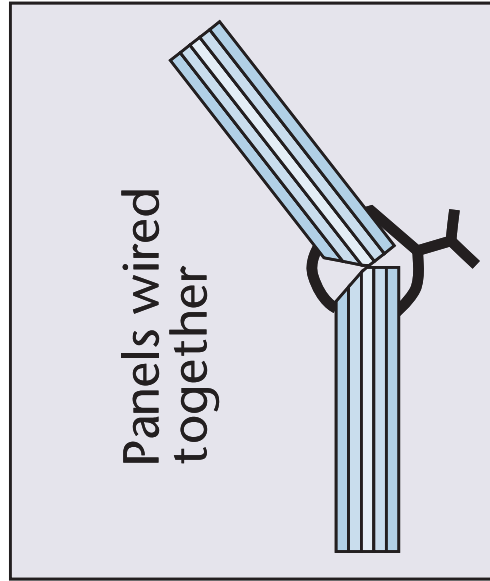
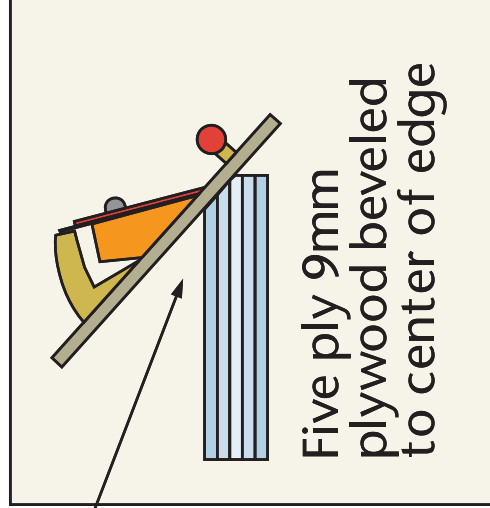
Bevel bottom and end edges on the two side panels only!

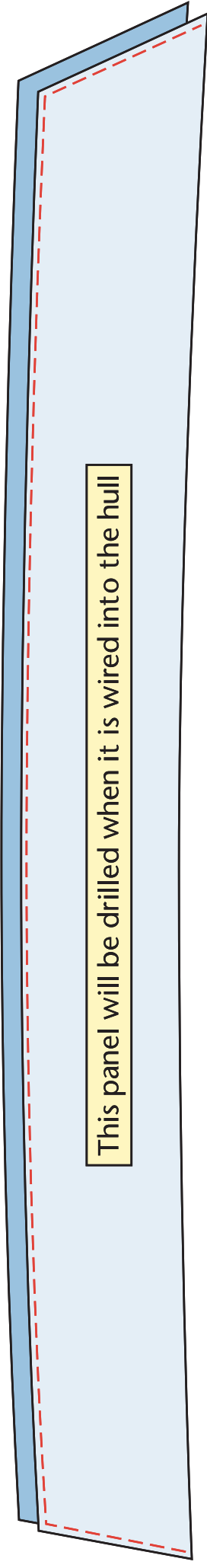
Use a plane or rasp to bevel the edges.

14ft version drawing!

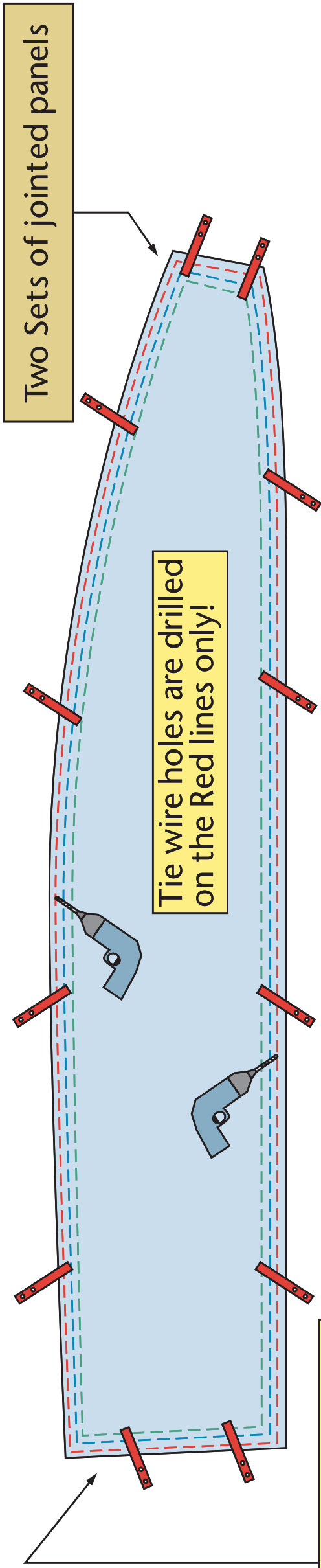
Bevel all edges on the inside faces of the two bottom panels

Note: Bevel "only" the inside edges!





This panel will be drilled when it is wired into the hull



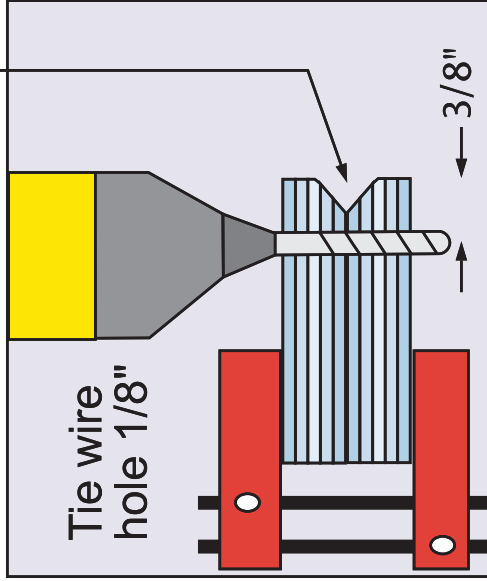
Two Sets of jointed panels

Tie wire holes are drilled on the Red lines only!

Note: Beveled faces clamped together!

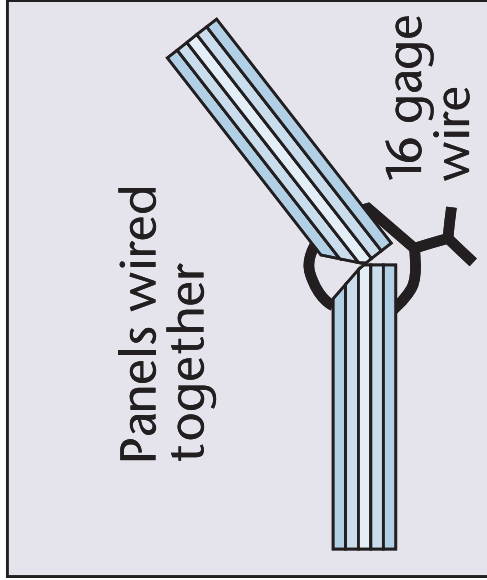
Drill both panels at the same time

12ft Nuthatch Drawing!



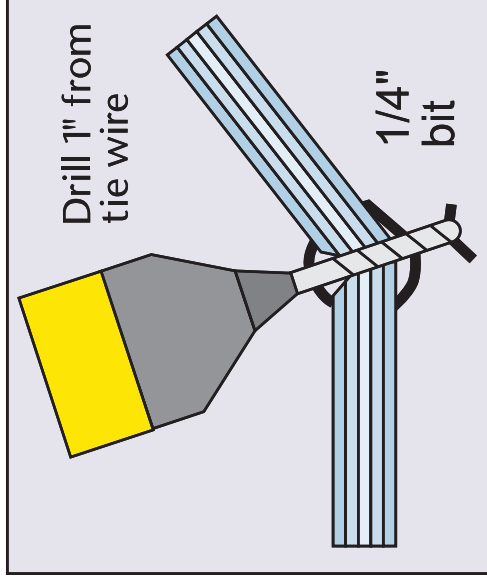
Tie wire hole 1/8"

3/8"



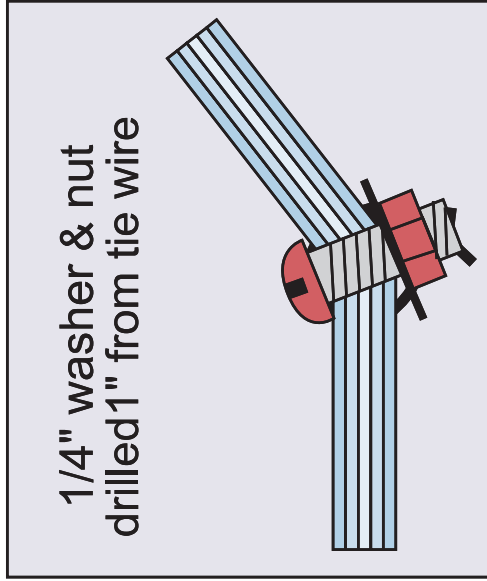
Panels wired together

16 gage wire



Drill 1" from tie wire

1/4" bit



1/4" washer & nut drilled 1" from tie wire

Note: Reduced to fit on page!

Note: The scarf locations will be different on the 14ft Version!

12ft Nuthatch Drawing!

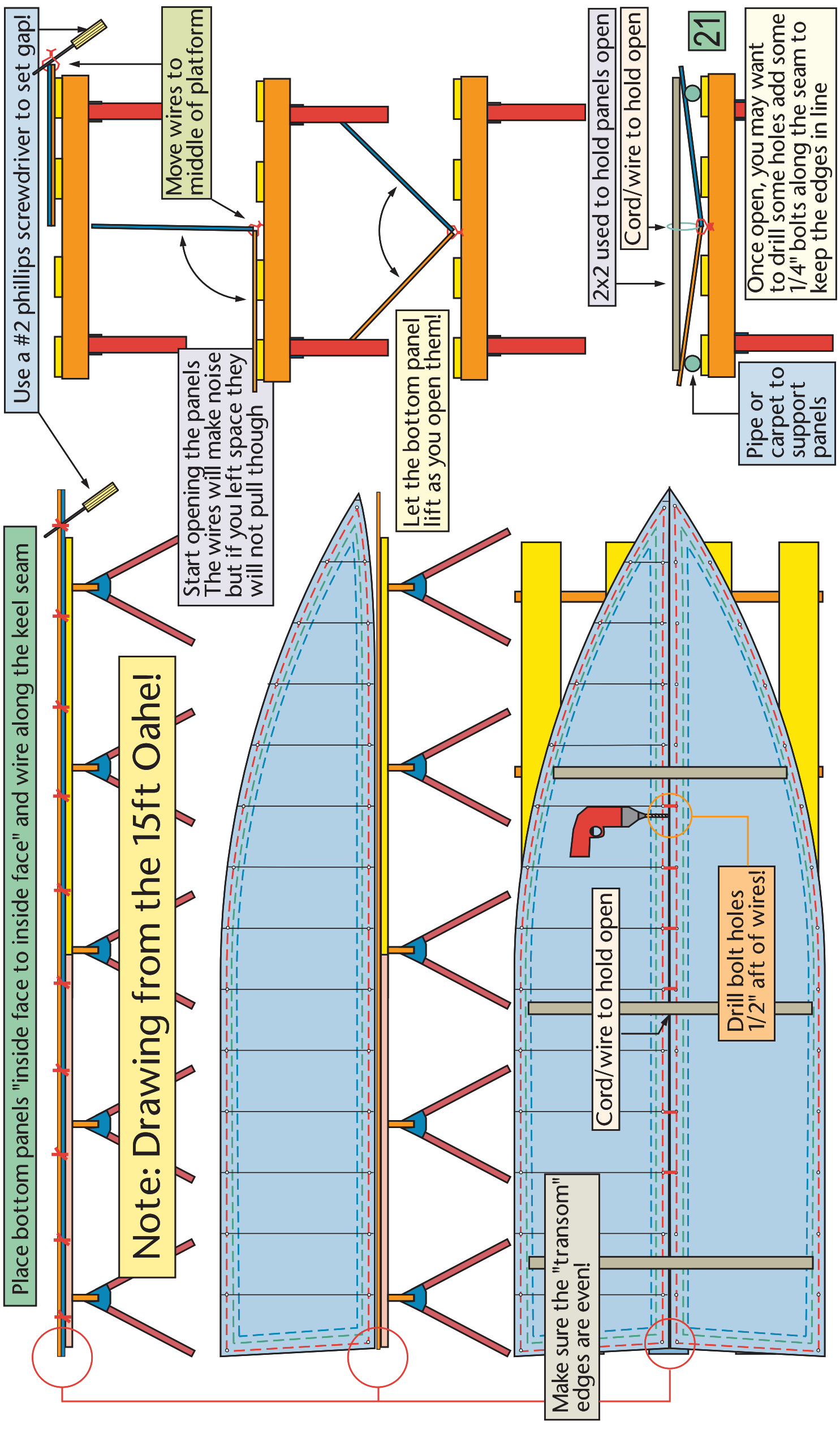
Bevels are on "inside" during assembly of the hull panels

#2 phillips screwdriver use as "gage" for tightening the wire

20

Place bottom panels "inside face to inside face" and wire along the keel seam

Note: Drawing from the 15ft Oahe!



Use a #2 phillips screwdriver to set gap!

Move wires to middle of platform

Start opening the panels
The wires will make noise
but if you left space they
will not pull though

Let the bottom panel
lift as you open them!

2x2 used to hold panels open

Cord/wire to hold open

21

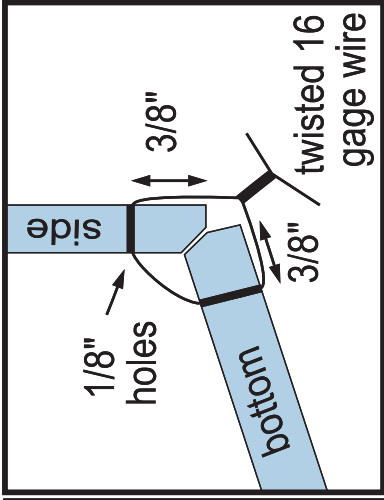
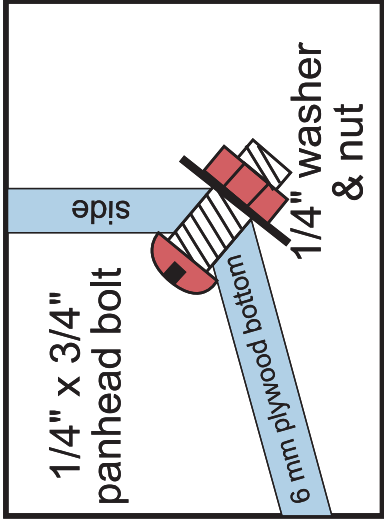
Once open, you may want
to drill some holes add some
1/4" bolts along the seam to
keep the edges in line

Pipe or
carpet to
support
panels

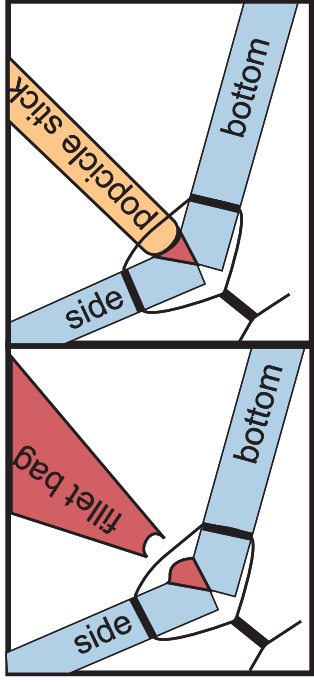
Make sure the "transom"
edges are even!

Cord/wire to hold open

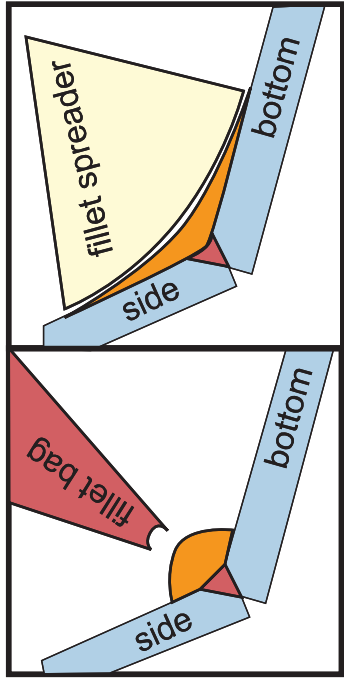
Drill bolt holes
1/2" aft of wires!



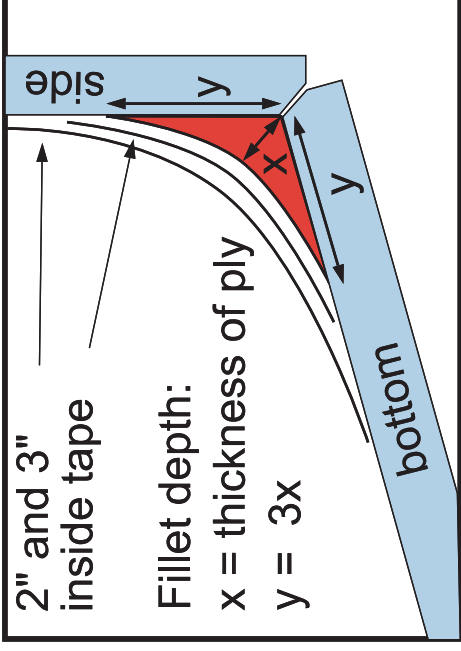
Wiring and bolting the panel sections together



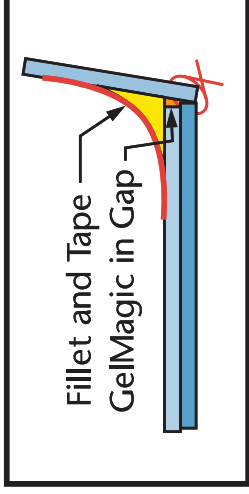
Jump Stitch



Applying and Spreading the Fillet

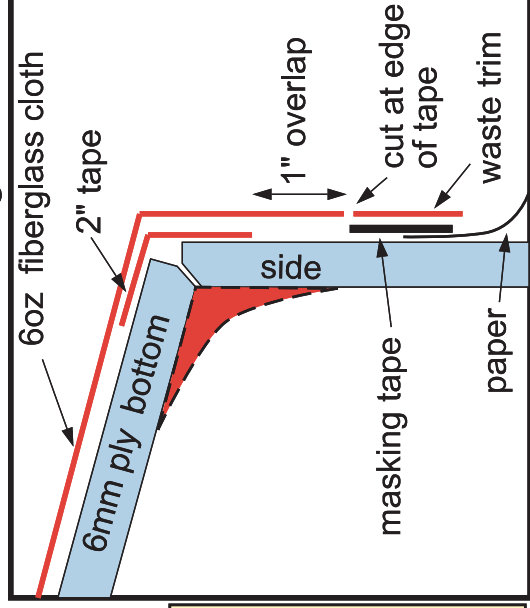


Cross section of taped seam



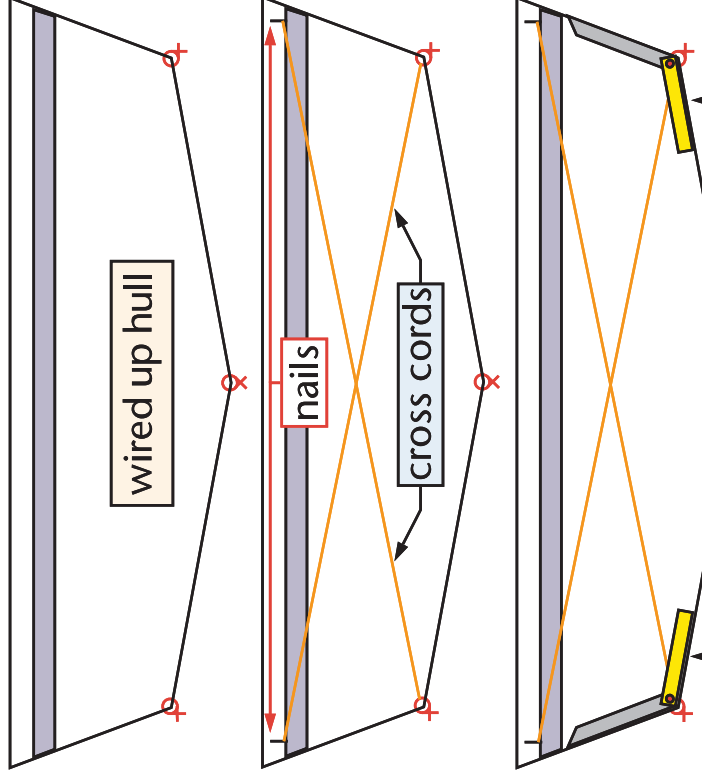
Double Transom Panel

Bottom outside edge details



Read the instructions as you study these drawings. Each picture tells a story. Use the cardboard model you made to visualize the directions.

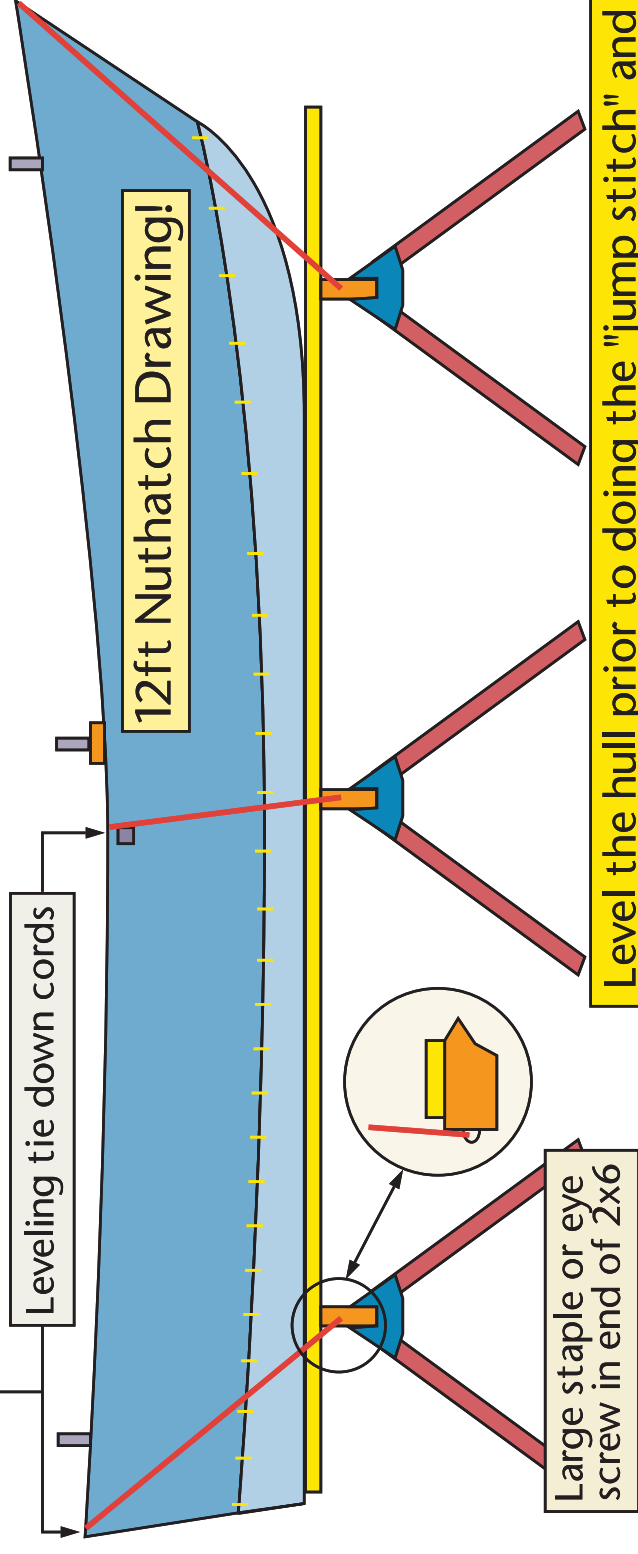
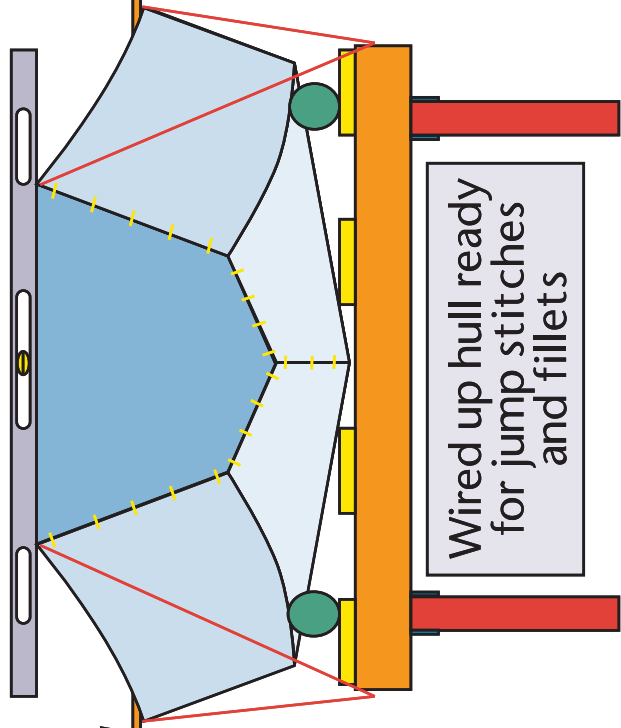
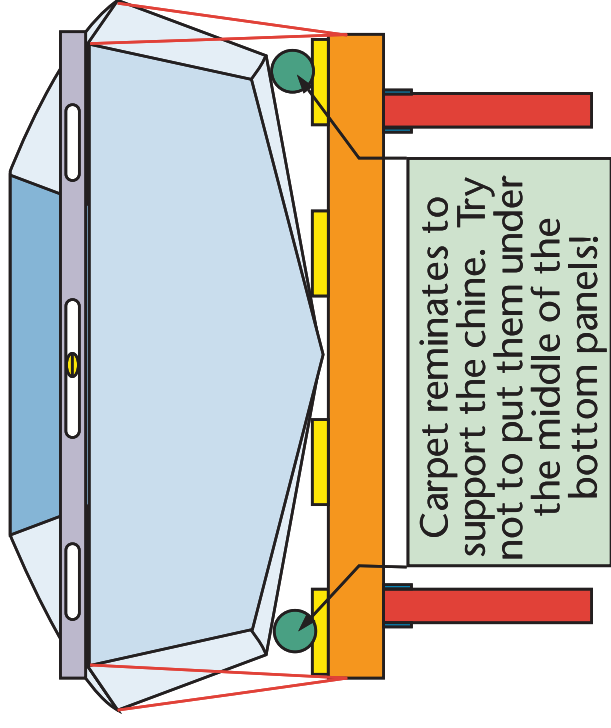
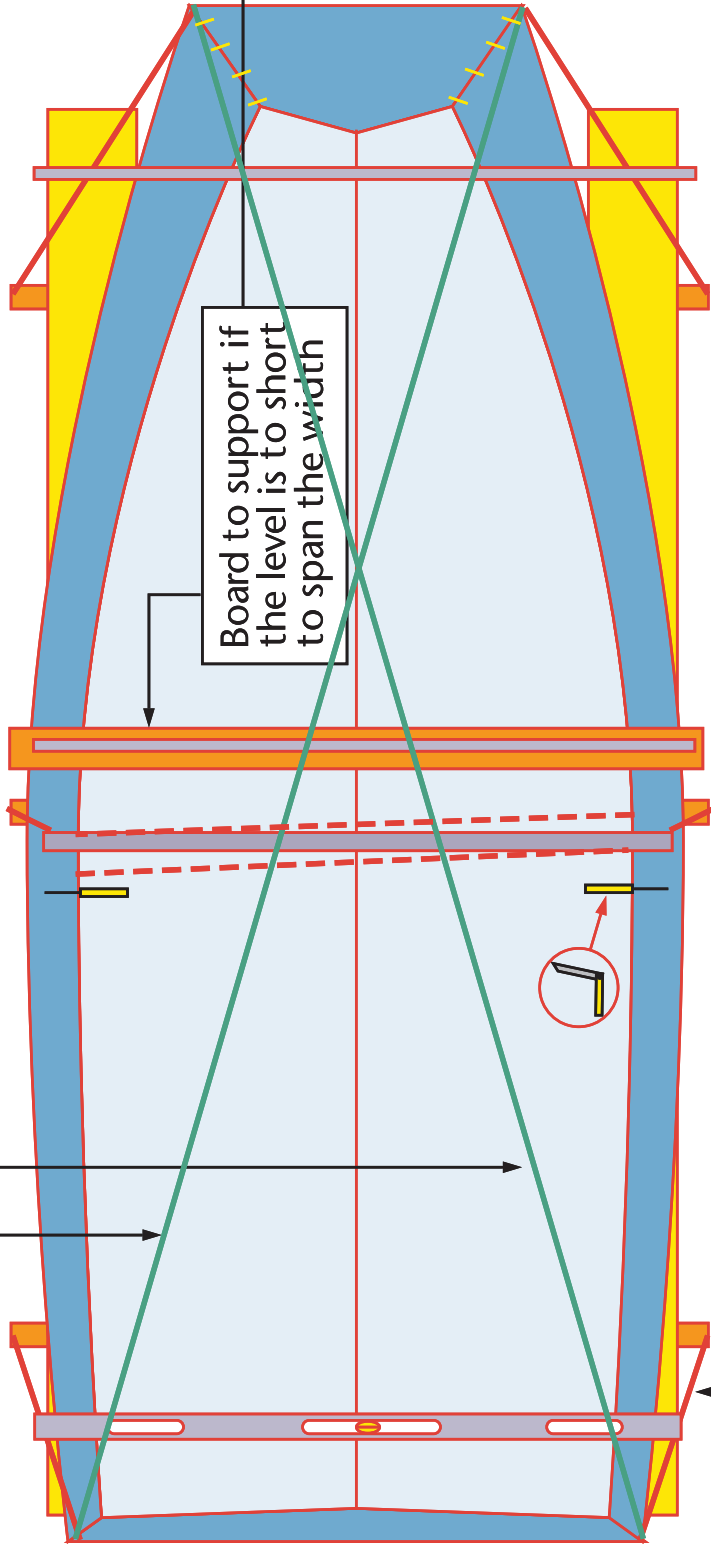
Squaring up the side to bottom panels at the beam of the hull

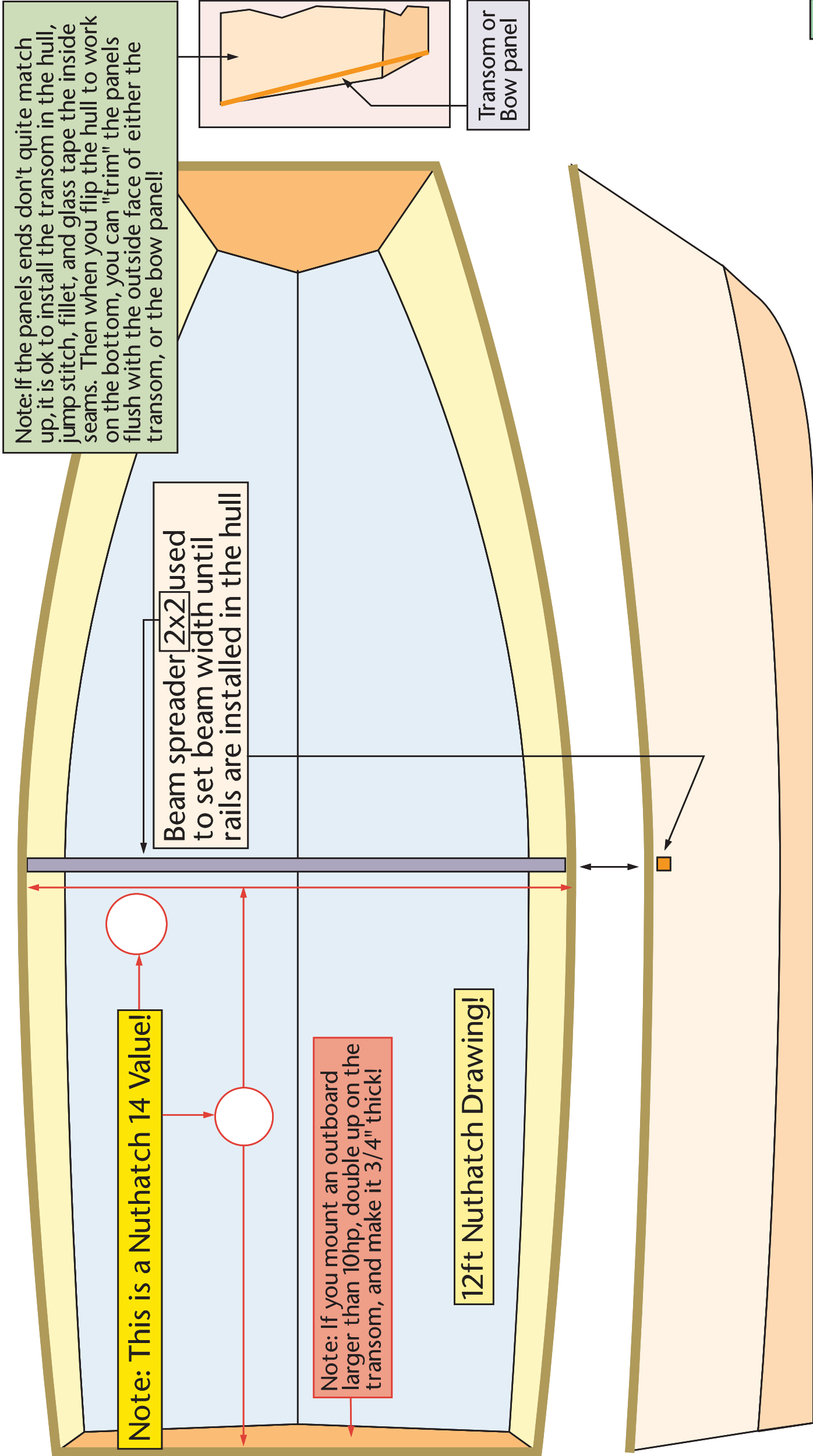


Compare the angles on both sides and tighten or loosen one or both "green" cords until the angles are the same. Recheck the level and square of the rest of the hull after you do this. Recheck again if those need adjusting too; until you are happy and the hull is level and square!

Cross hull tension lines used to "square up" the hull. Adjust until the "cross hull distances" are the same!

Do not "over tighten" cords!





Note: If the panels ends don't quite match up, it is ok to install the transom in the hull, jump stitch, fillet, and glass tape the inside seams. Then when you flip the hull to work on the bottom, you can "trim" the panels flush with the outside face of either the transom, or the bow panel!

Beam spreader 2x2 used to set beam width until rails are installed in the hull

Note: This is a Nuthatch 14 Value!

Note: If you mount an outboard larger than 10hp, double up on the transom, and make it 3/4" thick!

12ft Nuthatch Drawing!

Transom or Bow panel

Cut to fit to corner

12ft Nuthatch Drawing!

Cut to fit from space to corner

Locate and install the oarlock spacer block first! Then add the rest of the gaps and spacer blocks until you get close to the ends, then you fill the space with a block that will reach the corners!

Note: "XX" values will be larger on the 14ft Version!

Oarlock Sockets optional on the 14ft version

Place a screw in the center of the spacer block, and watch out for screws underneath!

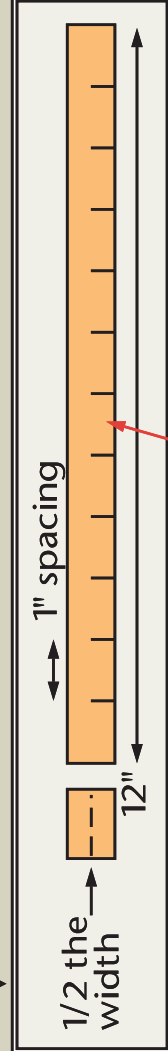
6" long mast partner block. Disregard if this is a "fishing only" hull. Use the 3" spacing all the way from end to end.

The spacer blocks at the ends will be (should be) longer than a normal block

Not to scale! spacer block glued to panel

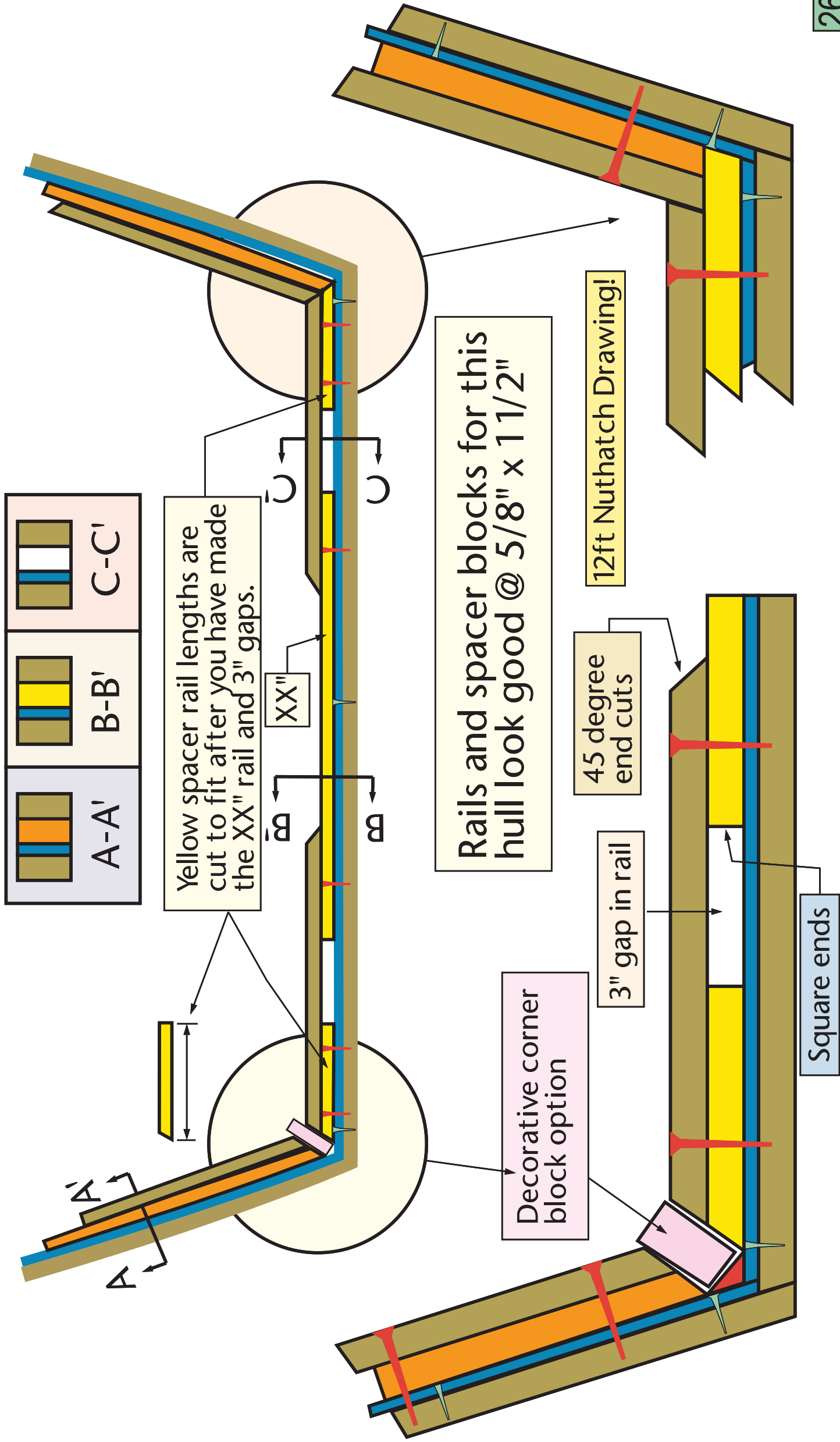
A 3" gap and a 3" spacer block look good

The oarlock socket block can be from 8" to 12" long. If you row go with the longer block.

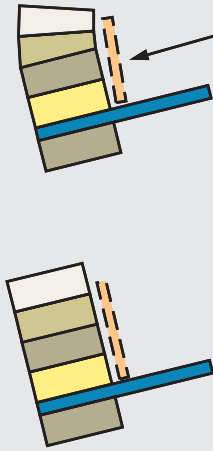


1. Install the oarlock/mast partner spacer block
2. Measure off the first "gap"
3. Install the first spacer block on either side of the oarlock/mast partner spacer block
4. Repeat until you get to the end, and fill that space with a spacer block that will go to the corner. It will be longer than a normal spacer block

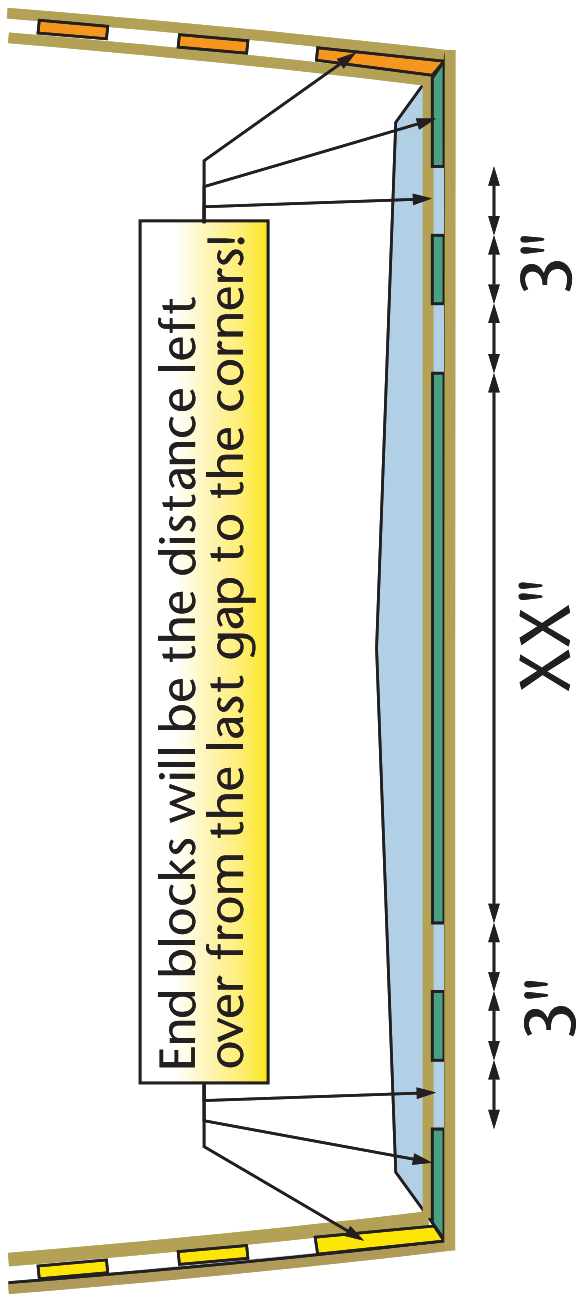
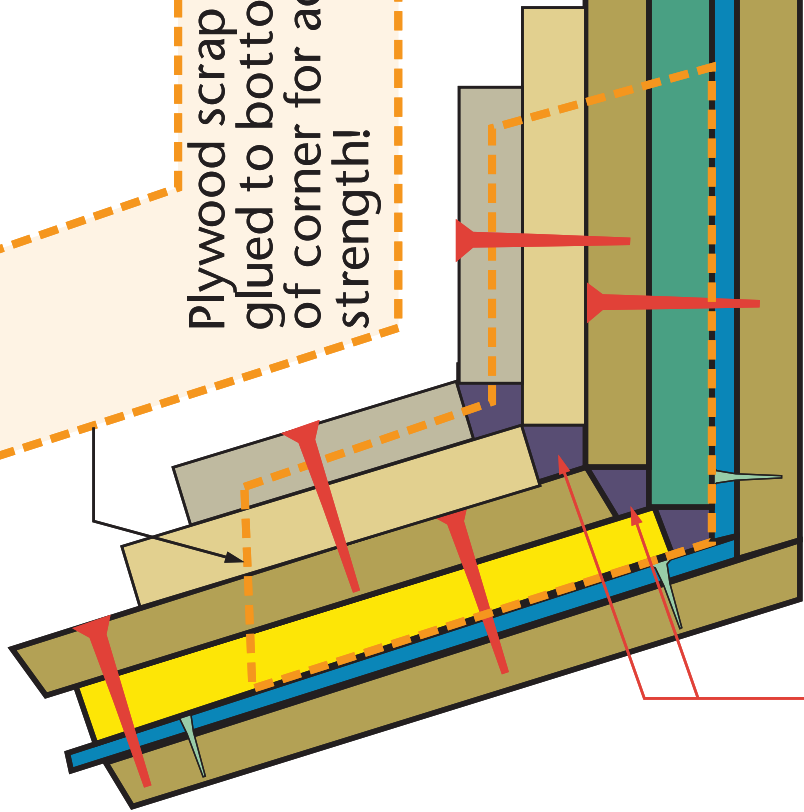
Remember where the screws are!



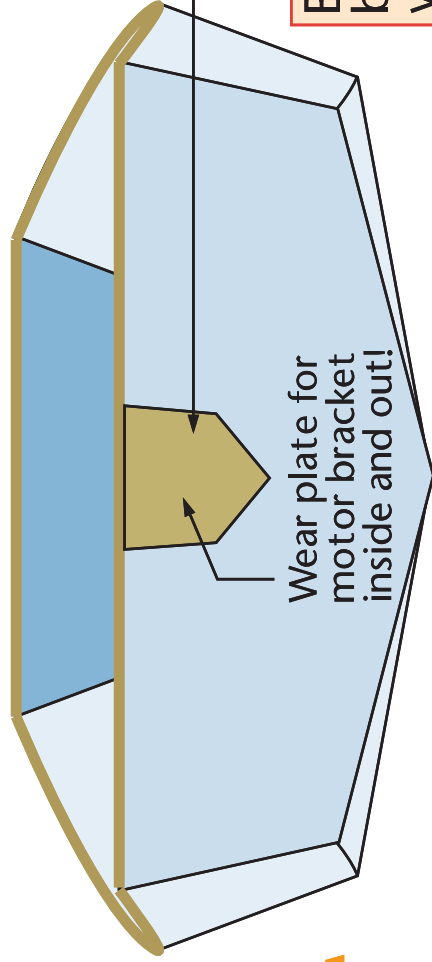
To keep the height of the blocks down, it helps to put bevels in the two smaller blocks.



Plywood scrap glued to bottom of corner for added strength!

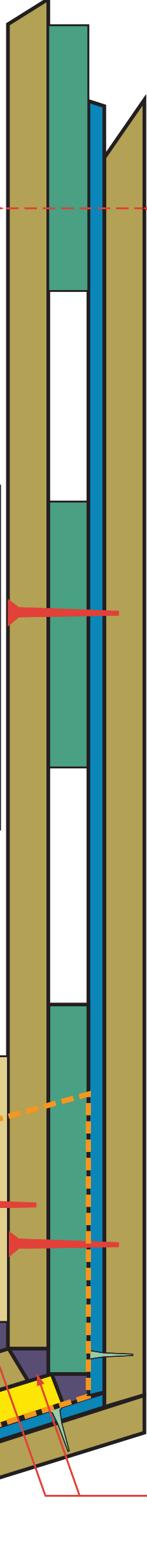


3" XX" 3"



Be sure your motor's bracket can span this width of rail!

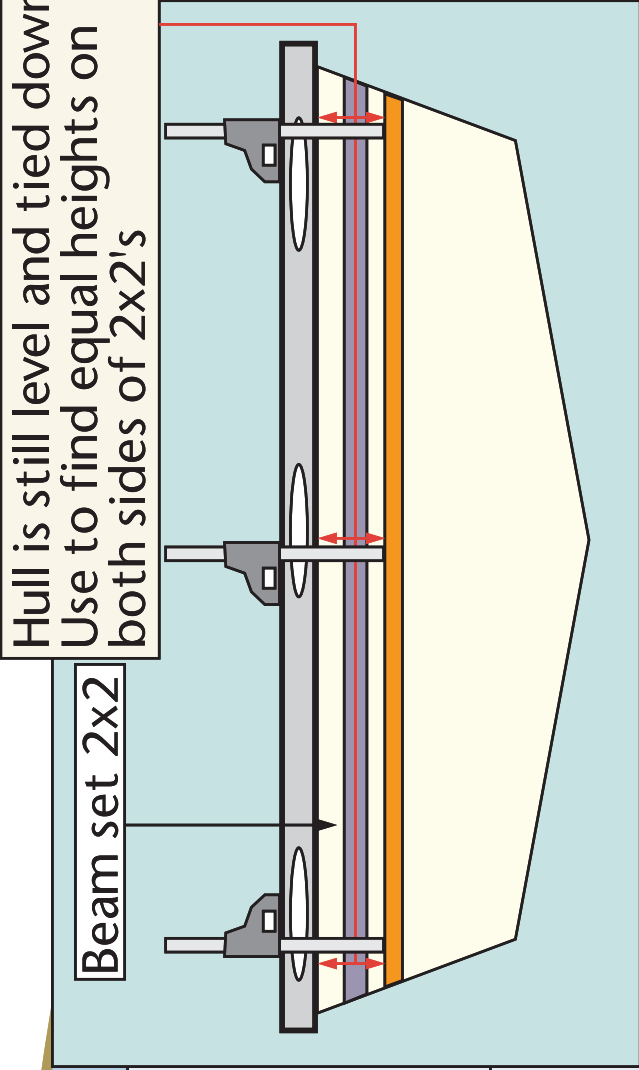
12ft Nuthatch Drawing!



Wood filled epoxy or EZ-Fillet used to fill and finish the gaps in the corners

The middle seat or any seat you install in the hull will set the height of all the rest of them. The placement shown is taken from the sailing version and is placed at this location for the DBoard.

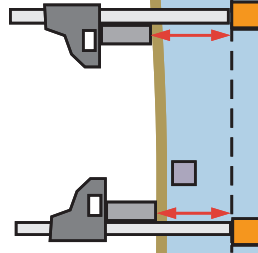
Beam set 2x2



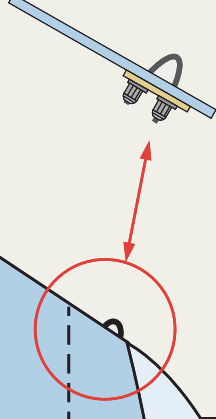
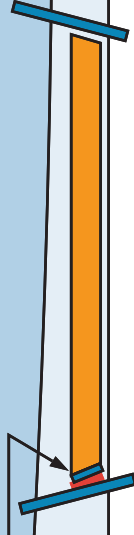
Hull is still level and tied down. Use to find equal heights on both sides of 2x2's

Use GelMagic to fill the gap between the 2x2 and the hull. Use a screw to hold alignment until cured.

12ft Nuthatch Drawing!



Epoxy and screw square of 1/4" ply to end of 2x2 on excessive gaps. It looks bad, but it works, and will be covered on all sides by plywood for strength.



U-bolt, backing block, washer, and nylock nut

It helps to make a "big compass" out of scrap plywood left over from cutting out the panels.

12ft Nuthatch Drawing!

Use a level to make sure the "leveling 2x2's" are even bow to stern off the DB case's top.

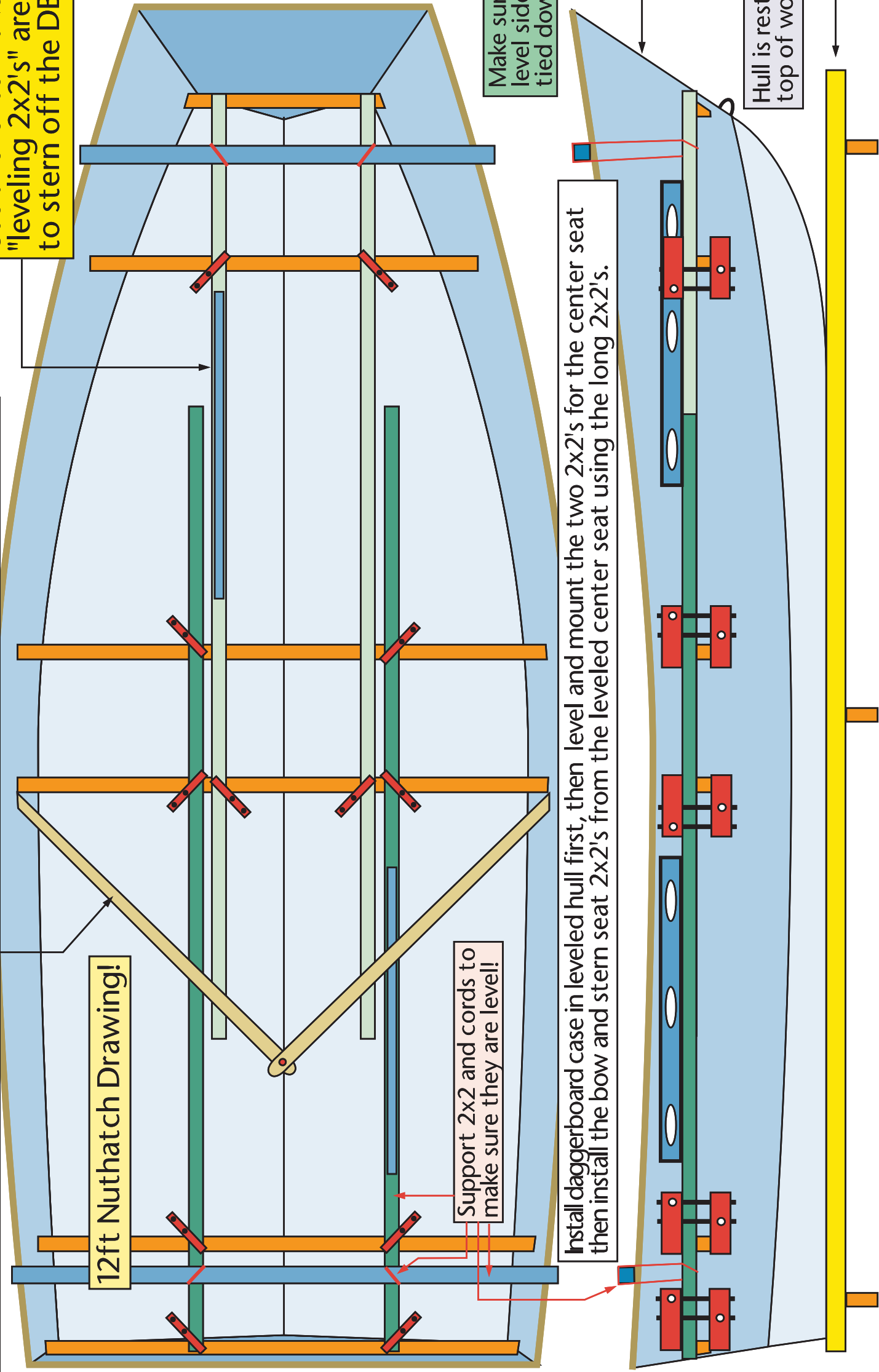
Scrap wood compass

Make sure the hull is level side to side and tied down!

Install daggerboard case in leveled hull first, then level and mount the two 2x2's for the center seat then install the bow and stern seat 2x2's from the leveled center seat using the long 2x2's.

Support 2x2 and cords to make sure they are level!

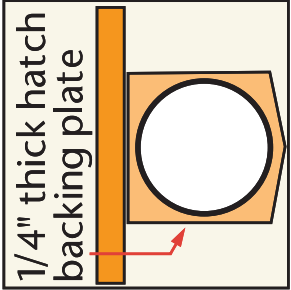
Hull is resting on keel on top of work platform



Side seat panels can be angled or vertical in the hull. Angled looks better, and has more resistance to fore and aft forces.

Remember to leave room for 2x2 seat support rail in hatch area!

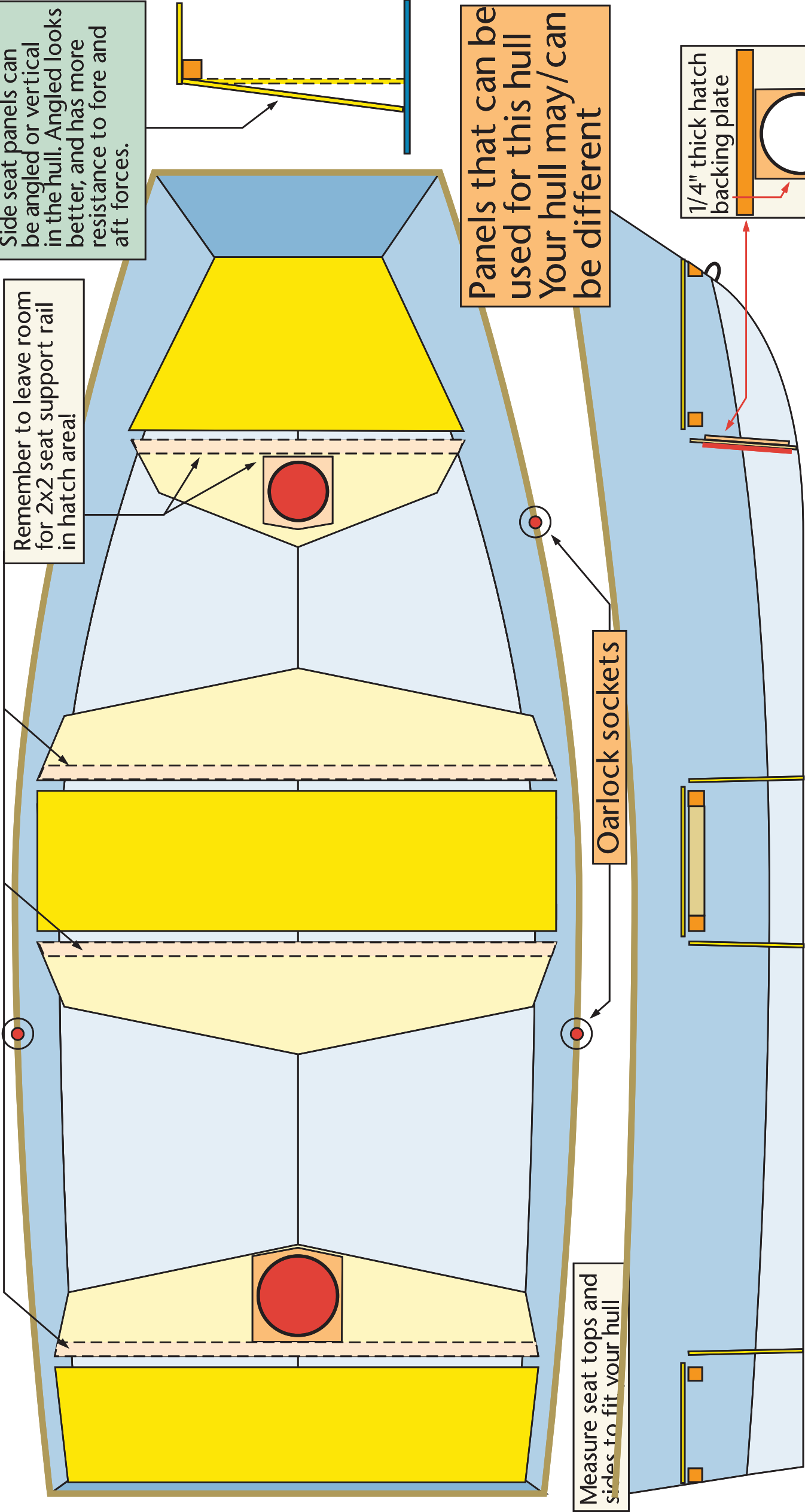
Panels that can be used for this hull
Your hull may/can be different



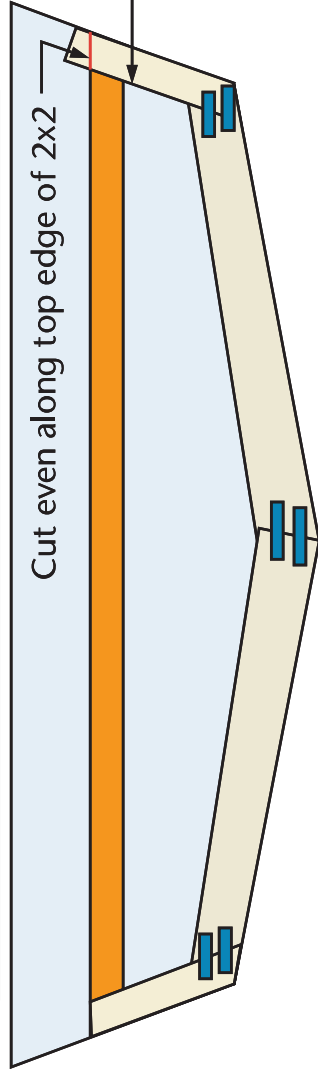
Oarlock sockets

Measure seat tops and sides to fit your hull

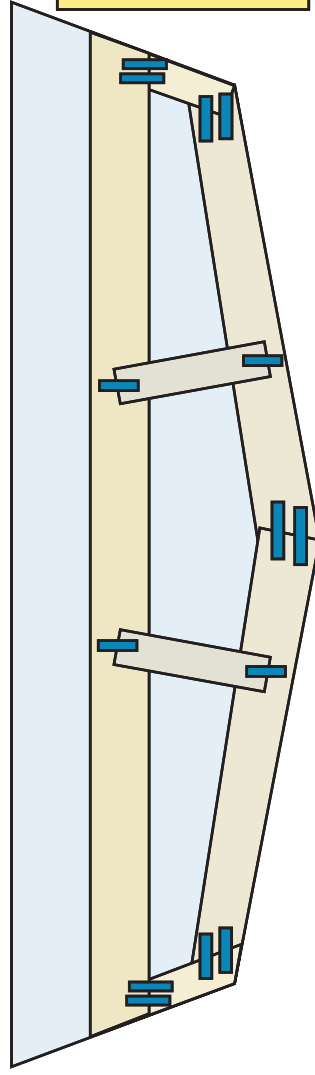
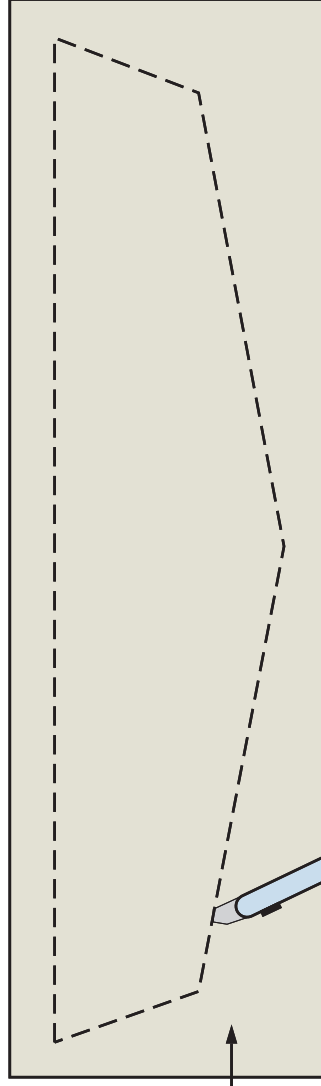
12ft Nuthatch Drawing!



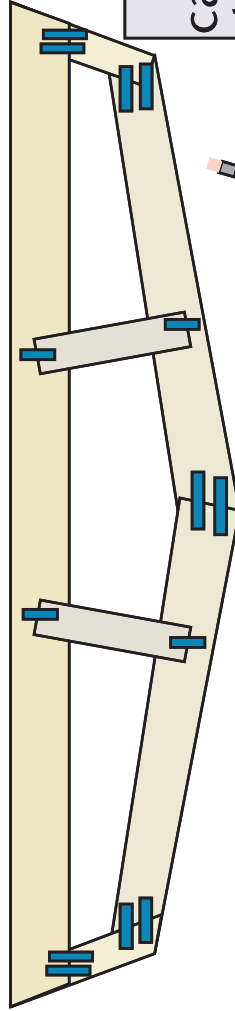
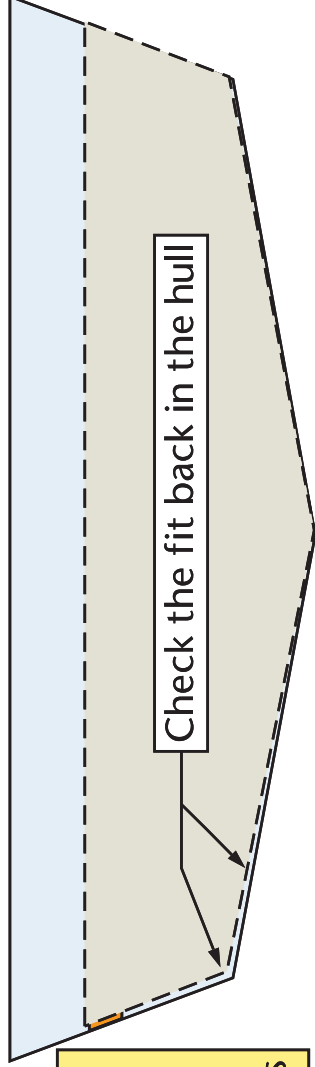
An easier way to fit the interior panels!



Cardboard strips sheet

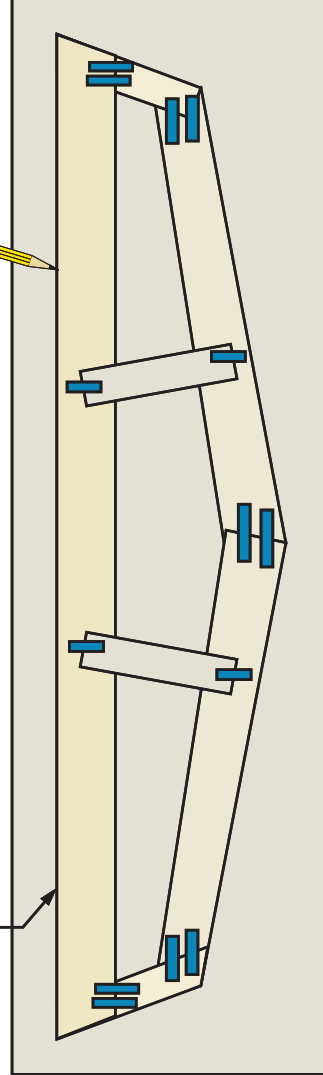
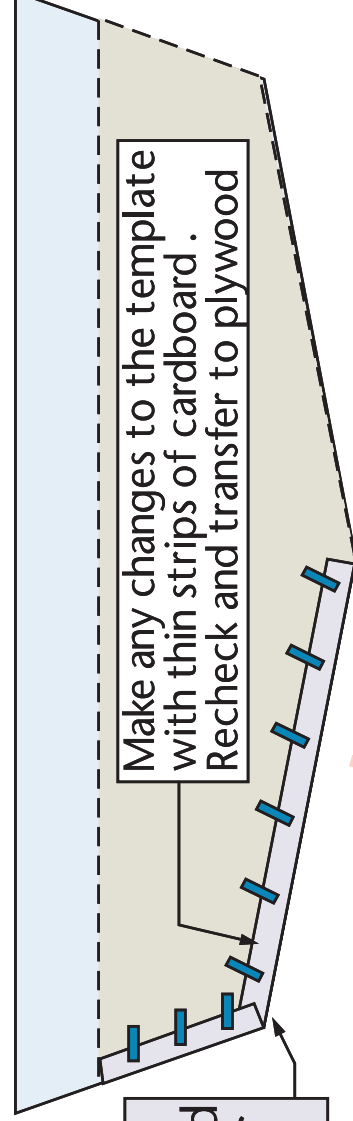


This is an alternative to using a spiling stick to find the dimensions to the interior panels

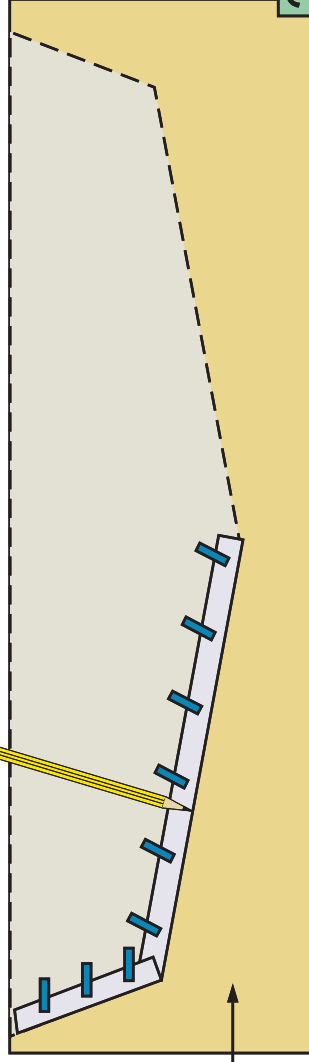


Use a pencil to outline the template you have taped together from the interior dimensions of your hull. Remember, all hulls will be different!

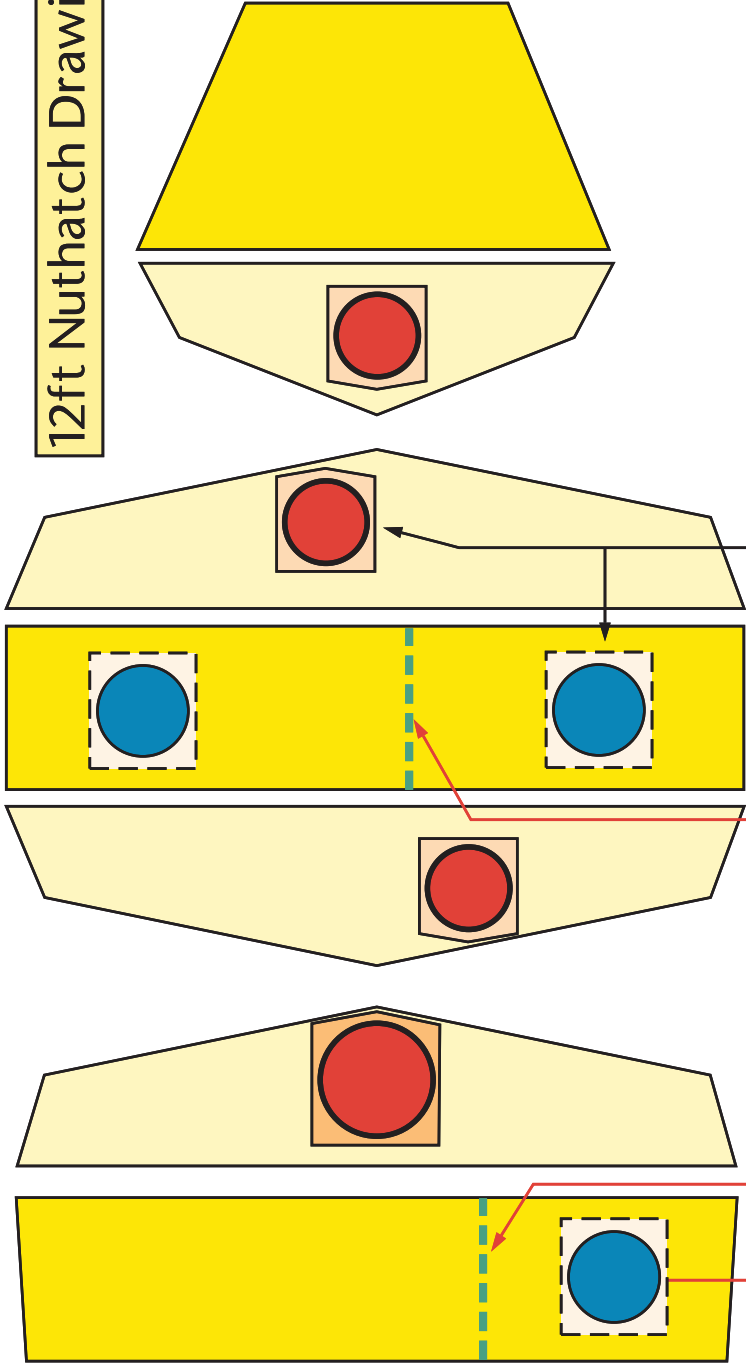
Light weight cardboard taped to template for a better fit



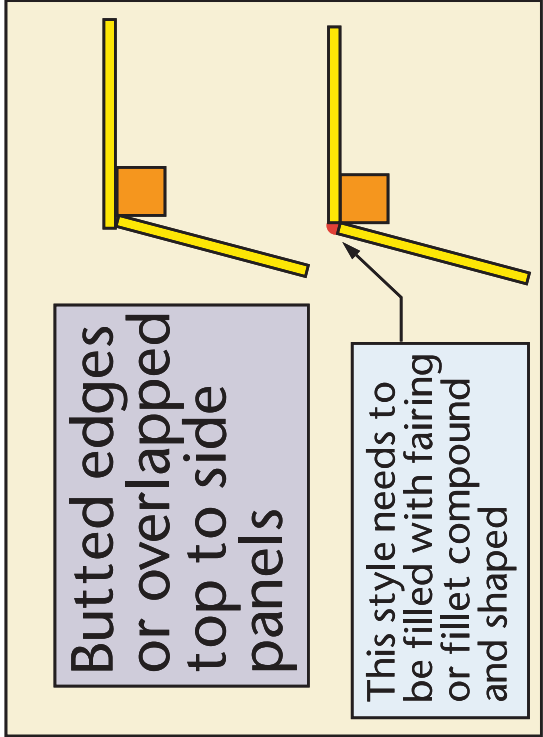
Plywood sheets



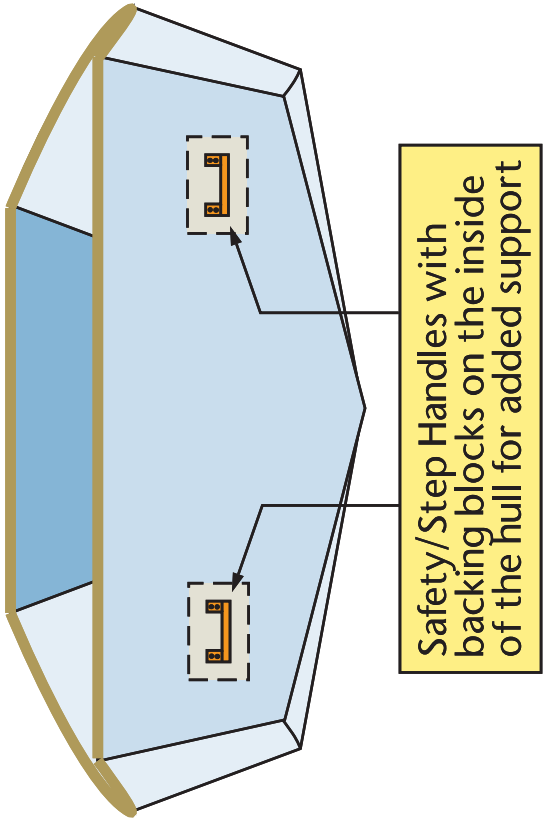
12ft Nuthatch Drawing!



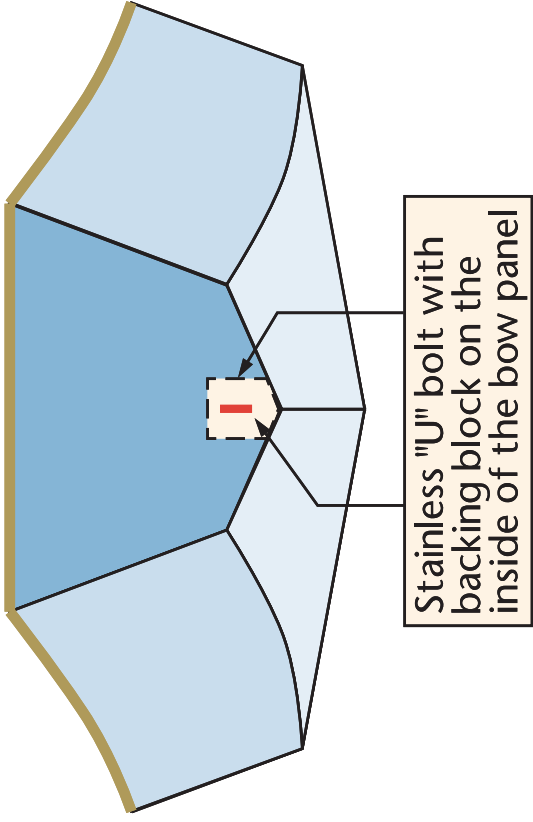
Extra hatch mounted for top access to a built in cooler. Add an extra bulkhead and line all sides with sheet foam.



Note: Hatches can be mounted in the top or on the seat faces. Besure to add backing plates to the hatches for either method. For top hatches, make sure they are not in the way of the seat support 2x2's!

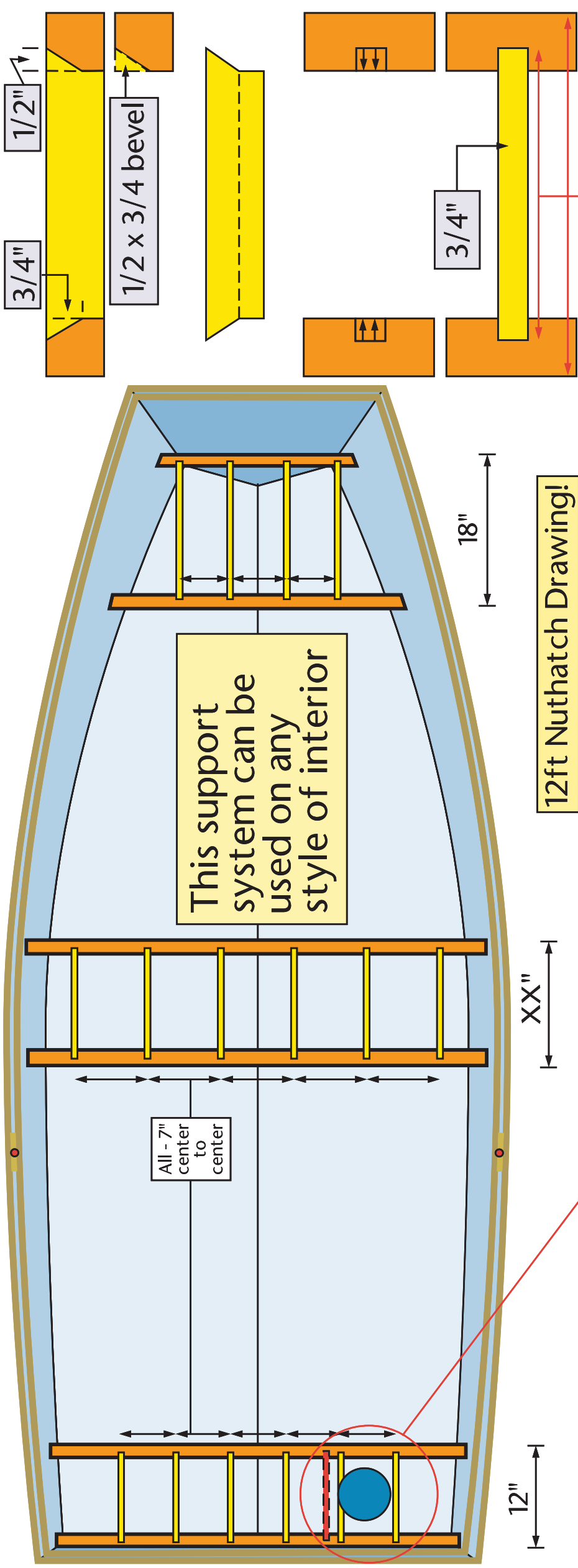


Safety/Step Handles with backing blocks on the inside of the hull for added support



Stainless "U" bolt with backing block on the inside of the bow panel

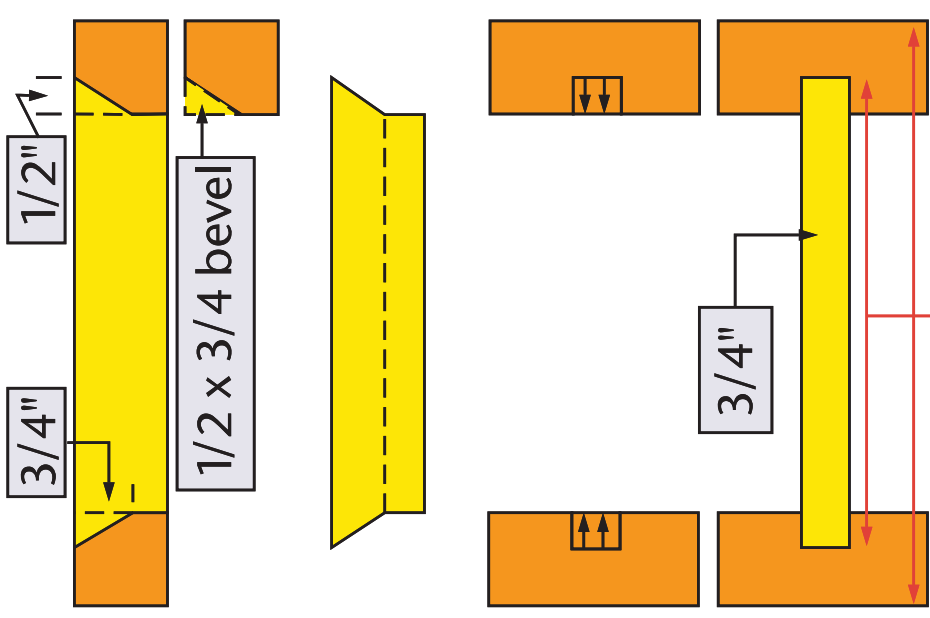
Finished, fitted, and ready to install interior seat panels for the sailing version of this hull.



This support system can be used on any style of interior

All - 7" center to center

12ft Nuthatch Drawing!

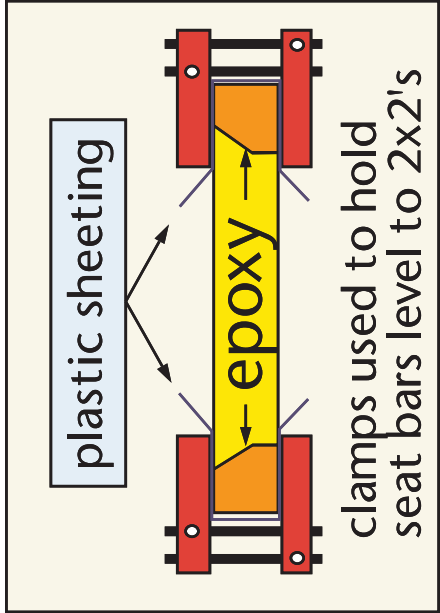


Adjust length to fit your hull! Don't worry if your seats are wider or narrower than mine.

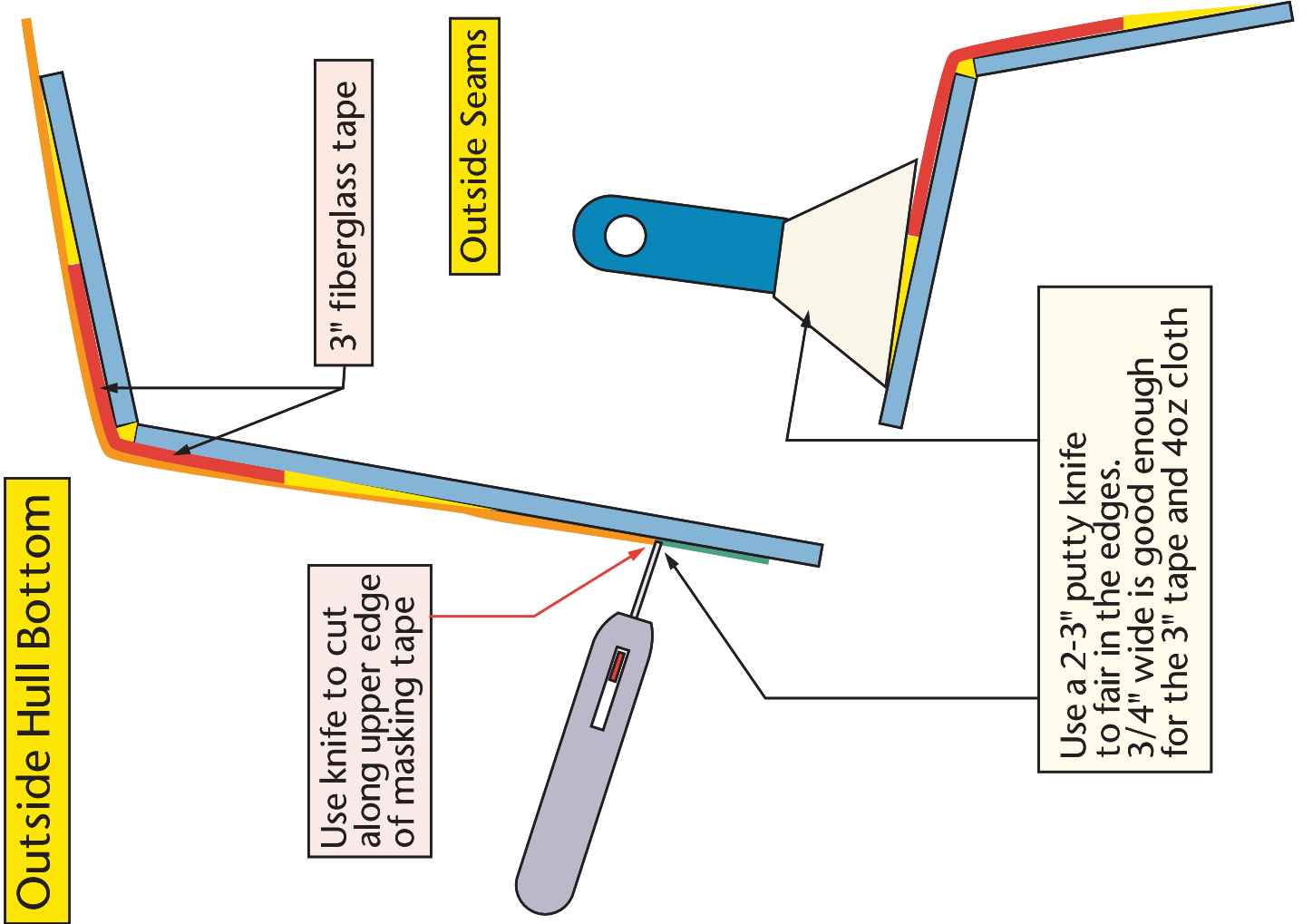


If you install a "cooler" in your hull, you may want to change the spacing between the seat support braces to fit the hatch between them

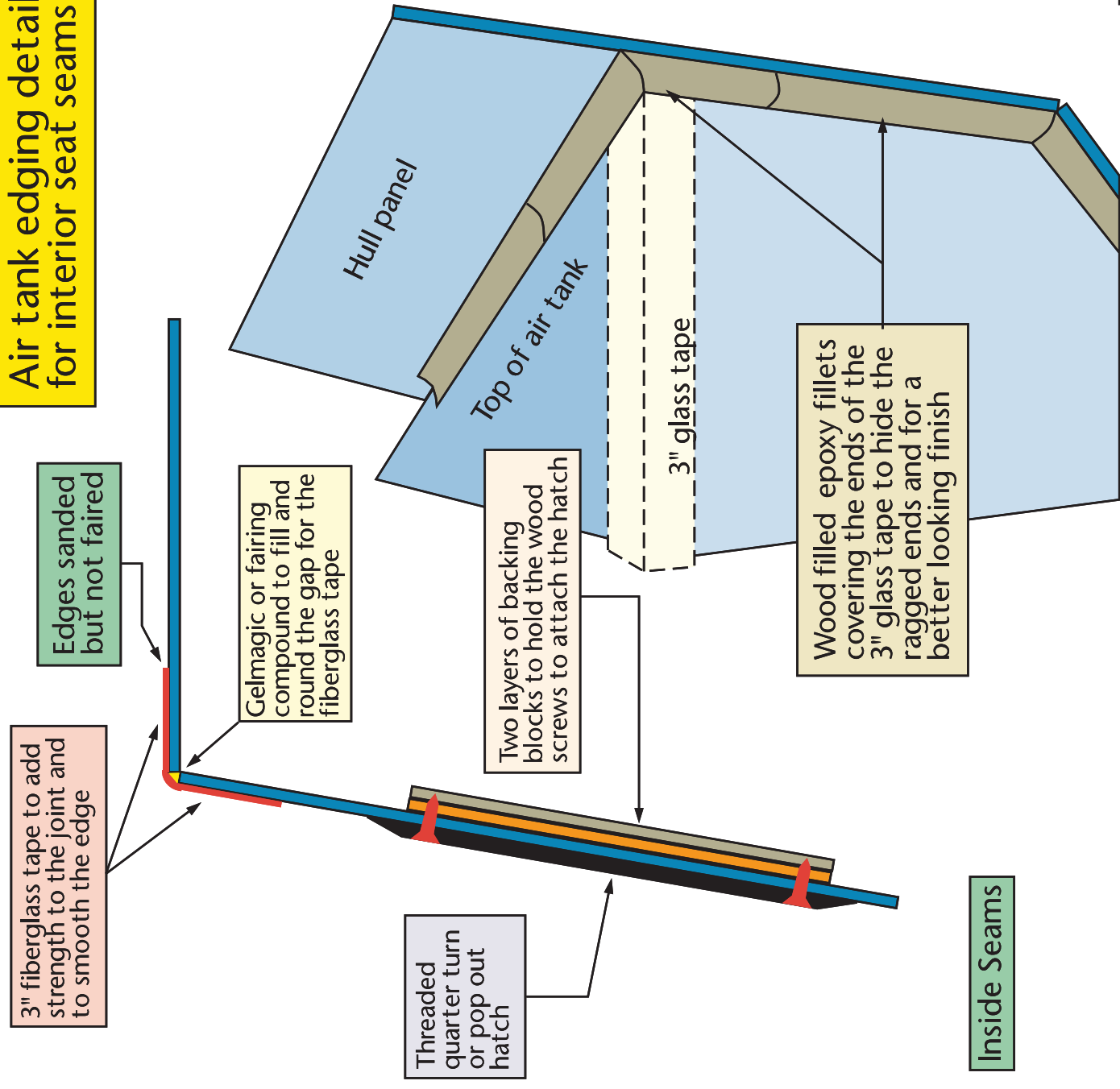
Make seat support bars from scrap 2x2 cut in half

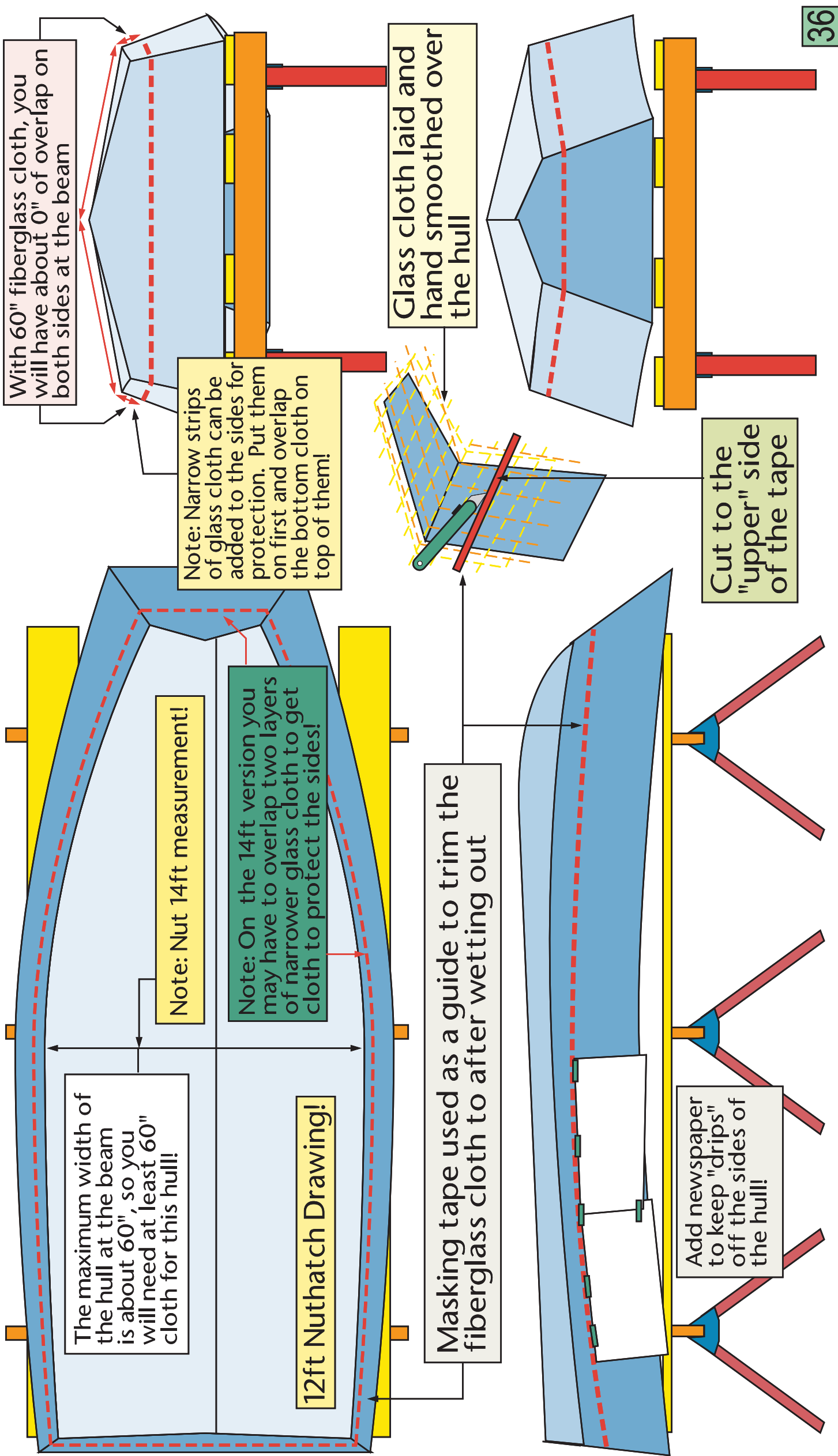


Outside Hull Bottom



Air tank edging details for interior seat seams





With 60" fiberglass cloth, you will have about 0" of overlap on both sides at the beam

Note: Narrow strips of glass cloth can be added to the sides for protection. Put them on first and overlap on the bottom cloth on top of them!

Glass cloth laid and hand smoothed over the hull

Cut to the "upper" side of the tape

The maximum width of the hull at the beam is about 60" , so you will need at least 60" cloth for this hull!

12ft Nuthatch Drawing!

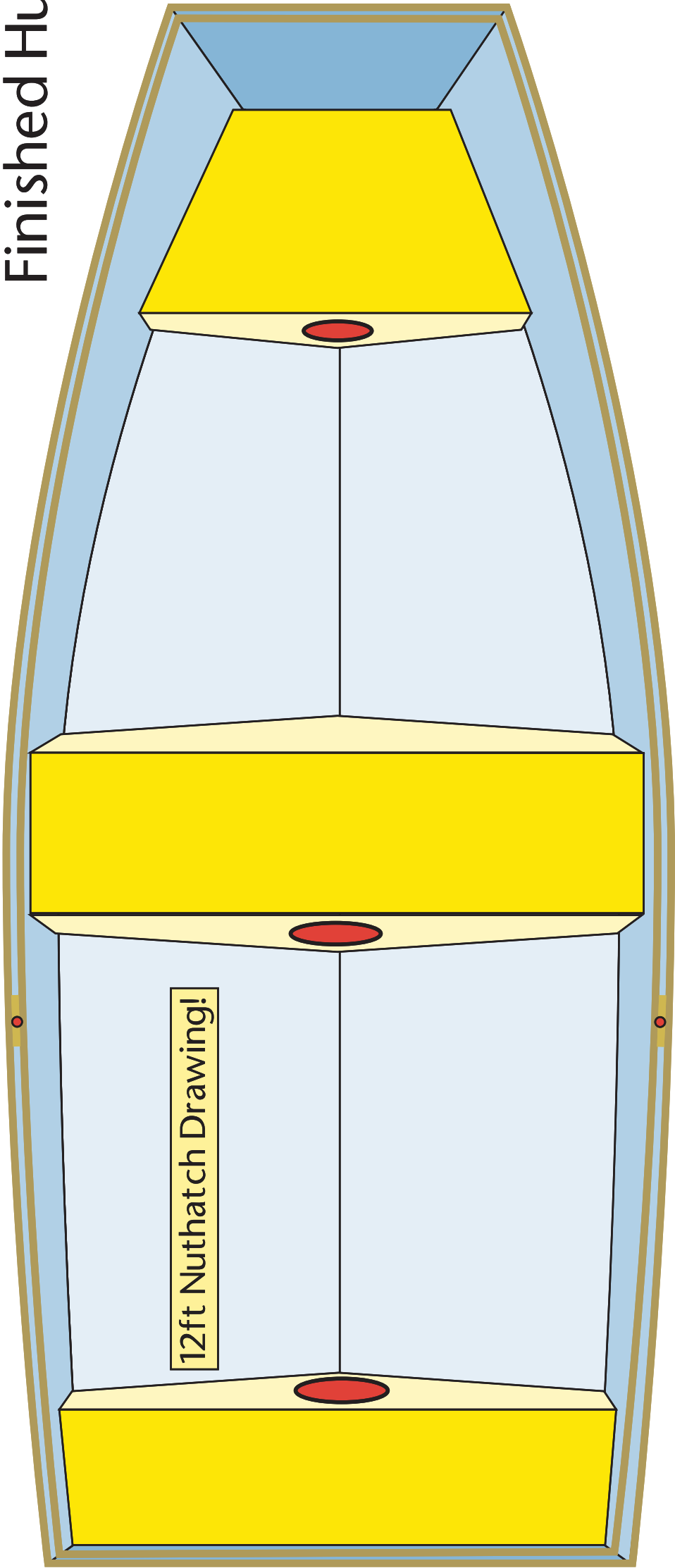
Note: Nut 14ft measurement!

Note: On the 14ft version you may have to overlap two layers of narrower glass cloth to get cloth to protect the sides!

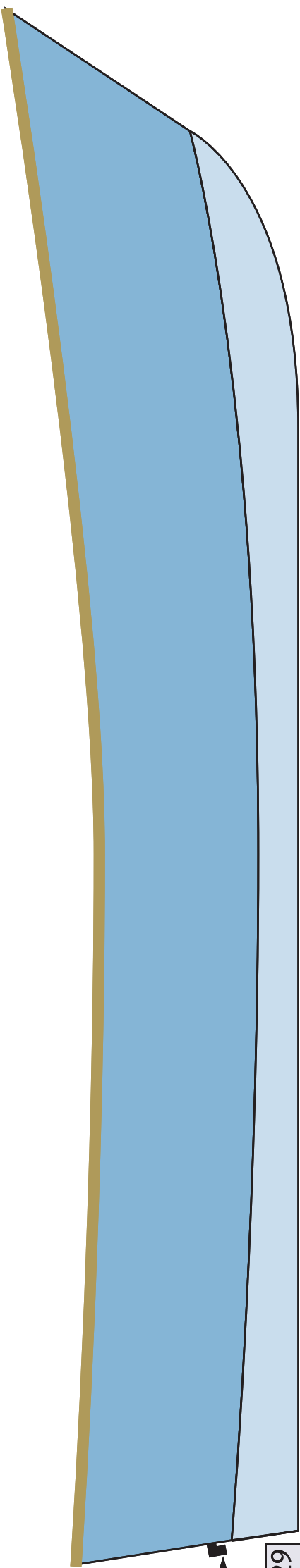
Masking tape used as a guide to trim the fiberglass cloth to after wetting out

Add newspaper to keep "drips" off the sides of the hull!

Finished Hull



12ft Nuthatch Drawing!

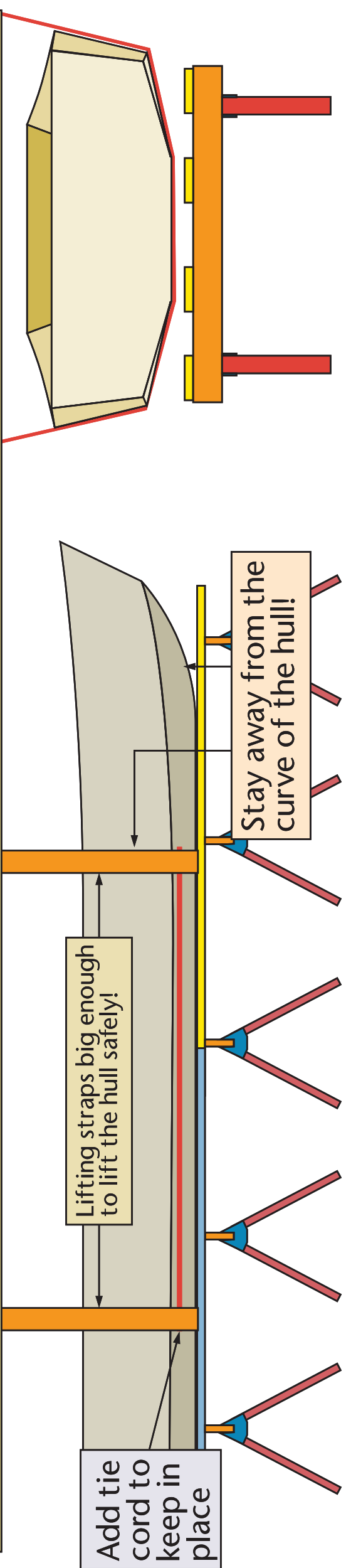


Safety
step
re-entry
handle



See page @29
for details

Note: Before you finish off the interior of the hull you will need to flip the hull and finish all the bottom work!

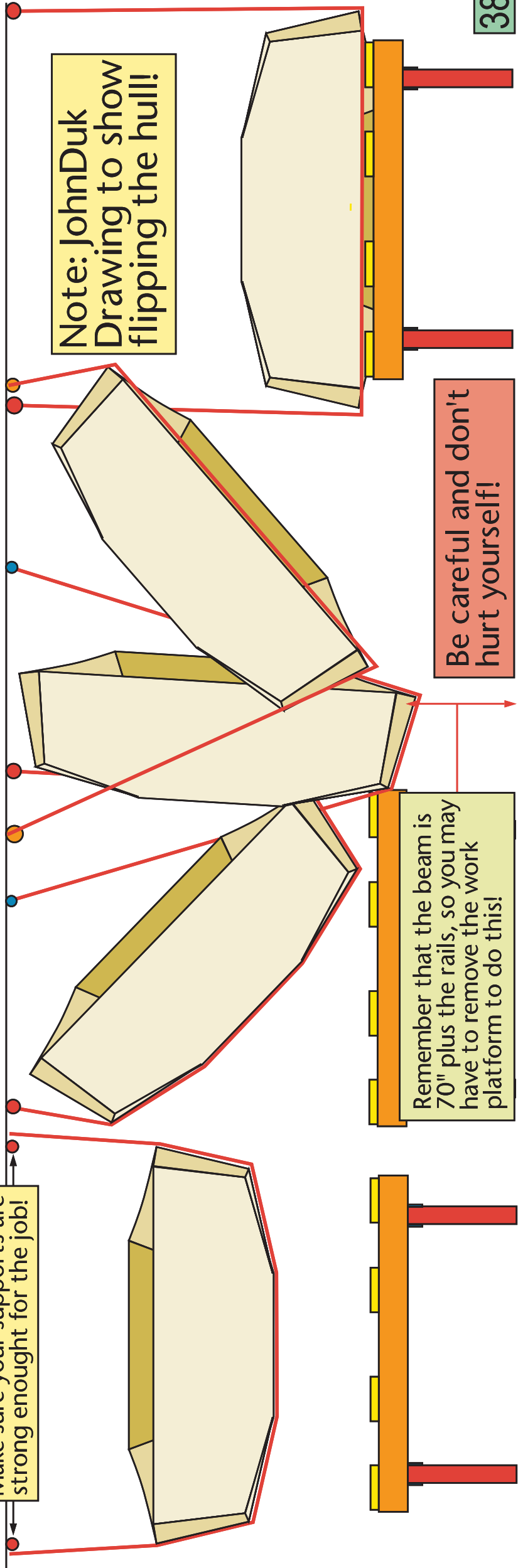


Lifting straps big enough
to lift the hull safely!

Add tie
cord to
keep in
place

Stay away from the
curve of the hull!

Make sure your supports are
strong enough for the job!

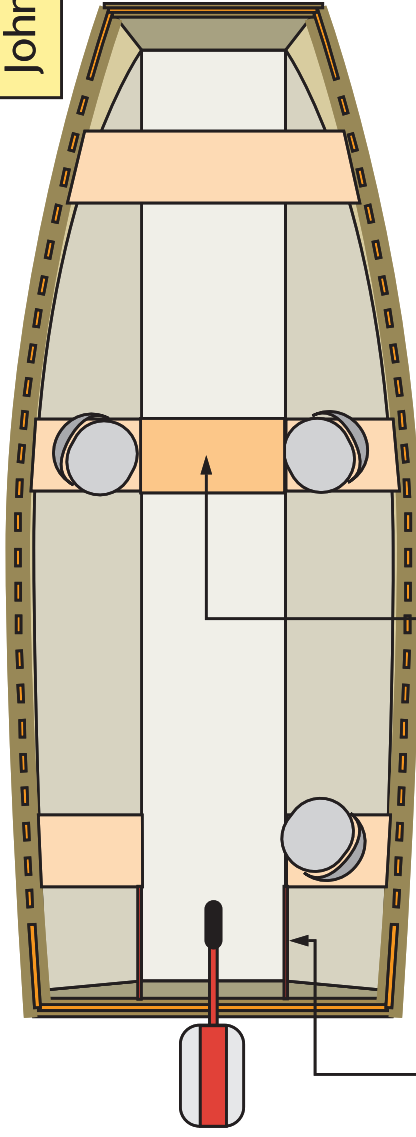


Note: JohnDuk
Drawing to show
flipping the hull!

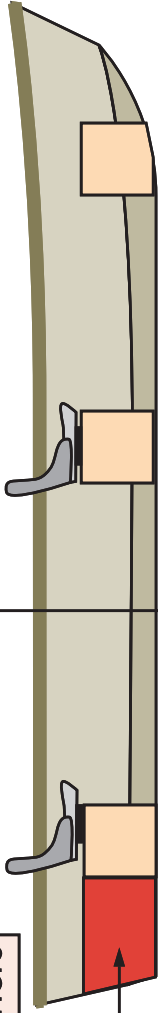
Remember that the beam is
70" plus the rails, so you may
have to remove the work
platform to do this!

Be careful and don't
hurt yourself!

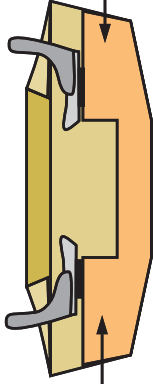
John Duk Drawing!



Stiffeners

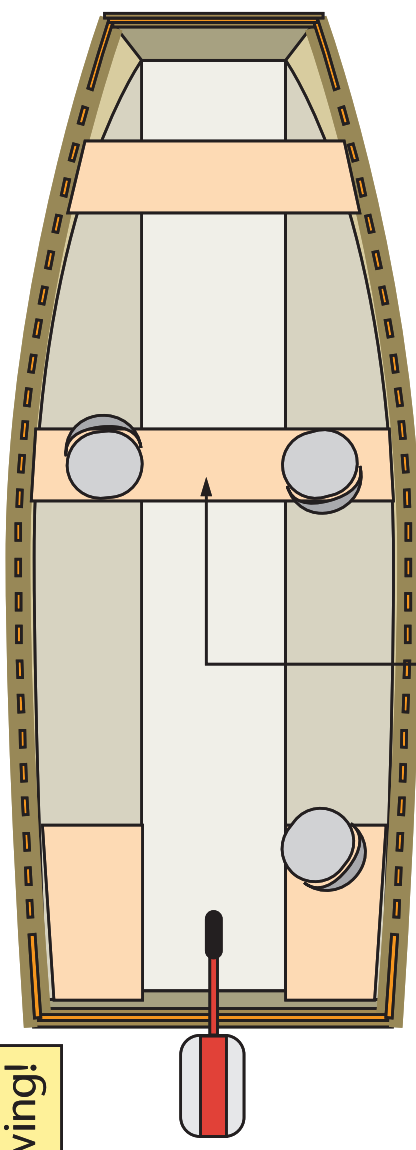
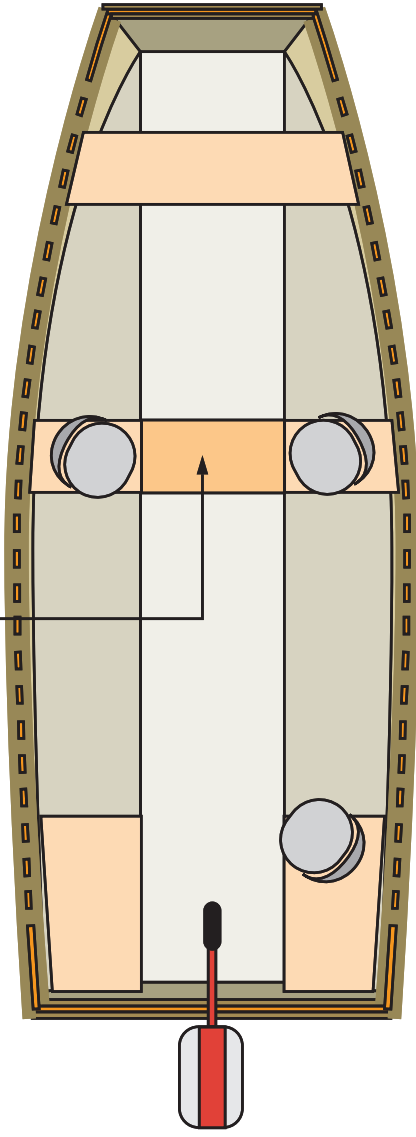


Interior Ideas

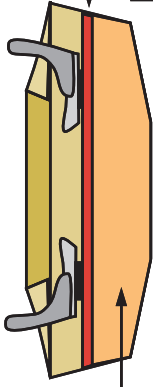


Dropped step through section

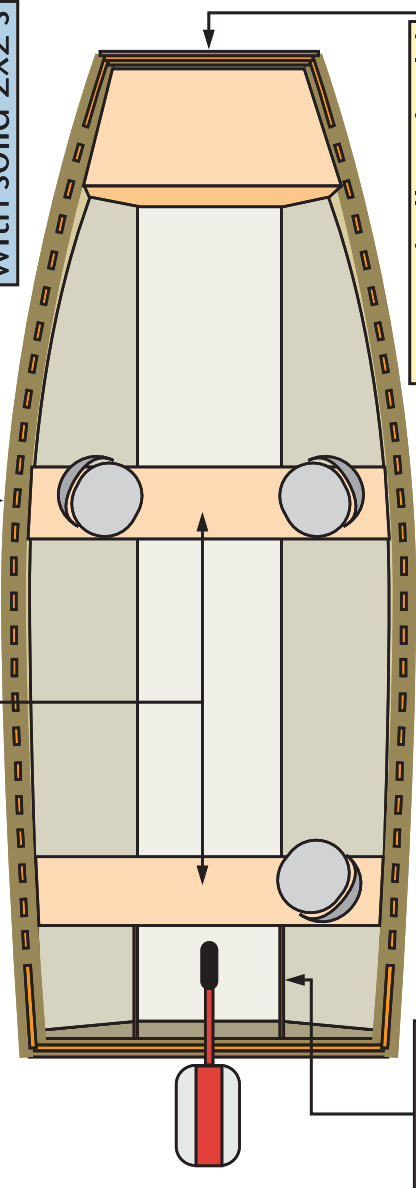
Raised center section to stiffen hull!



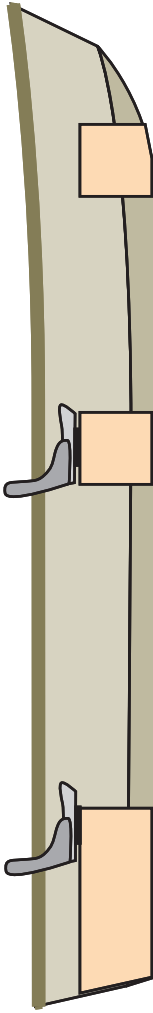
Continuous seat panels from side to side



Stiffer hull sides with solid 2x2's



Stiffeners



Easiest hull to build

