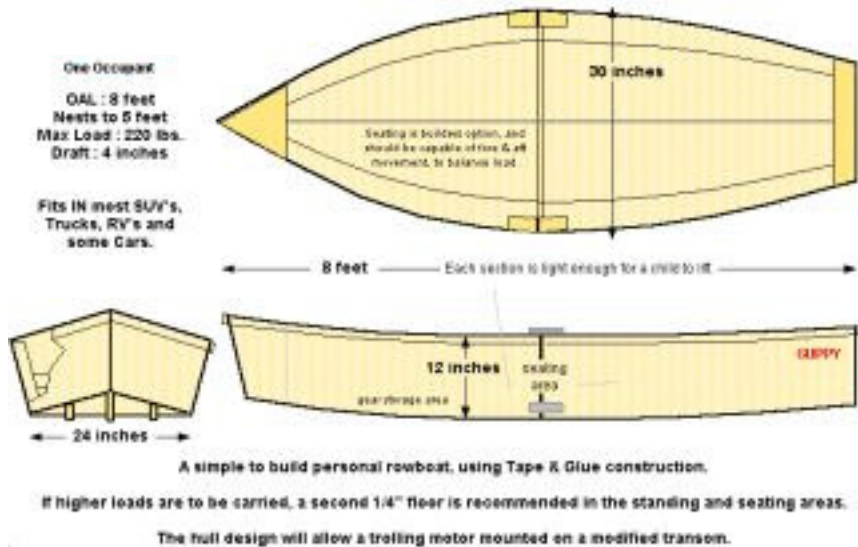


TRIFECTA

3 Boat Plans for the Price of 1 - FREE Assembly Manual

Nov. 2010

The GUPPY



3 SIMPLE MODULAR BOATS THAT CAN BE NESTED
AND EASILY STORED ON-BOARD SHIP,
OR IN AN RV, SUV, TRUCK and GARAGE.
Less than 5 feet long for transport.

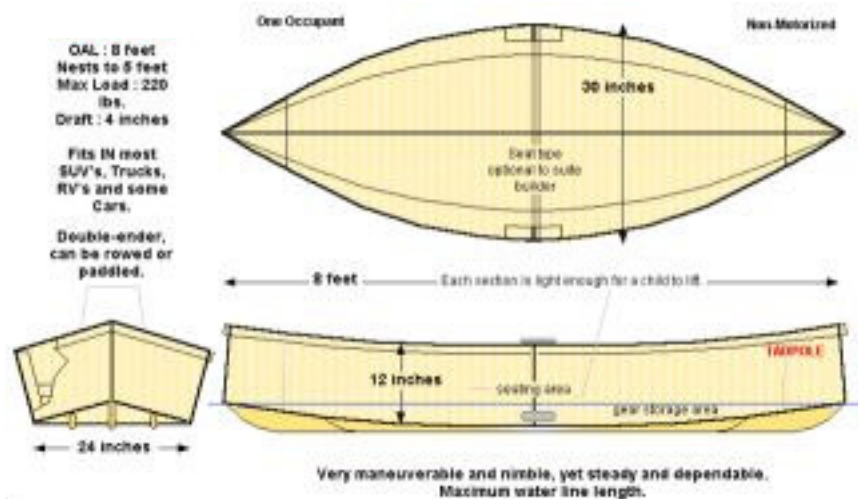
INTENDED AS BRING-ALONG ROW or PADDLE BOATS,
FOR USE ON ALL INLAND WATERWAYS.
AMPLE FREEBOARD AND SAFETY BUOYANCY .
EACH IS CAPABLE OF CARRYING 1 ADULT COMFORTABLY,
PLUS SOME GEAR.

All use only 1 sheet of 1/4" ply, and some
1/2" ply for the bulkheads.

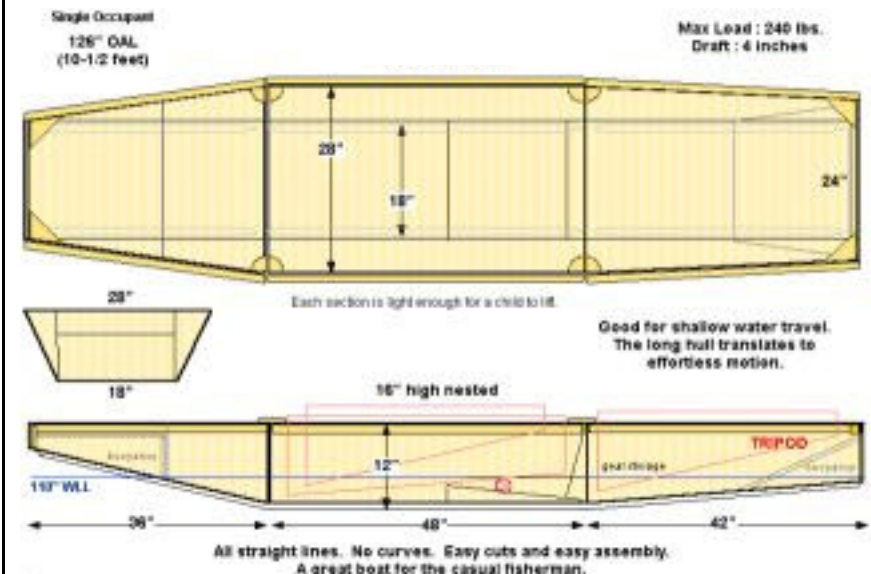
Finished weight less than 50 pounds.
Can be built for about \$125

EACH IS DIFFERENT, EACH IS BUILT THE SAME WAY !

The TADPOLE



The TRIPOD



KenSimpsonDesigns

NO TRAILER REQUIRED !

www.portableboatplans.com

Print this Manual in Landscape Mode

1 of 16

General Notes

The attached boat plans use some non-traditional methods of assembly , specifically the “Tape & Glue” construction process developed and incorporated by the designer.

This provides a strong, yet lightweight finished product, and building is easily mastered by the home handyman and amateur boat builder.

As a result, only hand tools and a jig-saw, maybe a circular saw, and router or roto-tool is all that will be required throughout the assembly process.

Be selective in your choice of materials. Use plywood that is at least exterior rated.

To insure proper alignment of the various panels, certain other small tools may be suggested.

It is important to note, the final choice of materials is the decision of the builder.

We have made specific recommendations, but if the builder has previous experience with different methods and materials, that is their choice, and we respect that decision.

Certainly, minor changes in design are acceptable, to provide a 'custom' boat to satisfy a builders specific needs. We do not make changes to the drawings.

This would be up to the individual builder, and their responsibility.

It is very important that none of the basic design parameters be drastically modified, as this may adversely affect overall boat safety or performance.

FYI : The flat bottom design was finally chosen for ease of assembly, loading, beaching and storage.

As a result, high speed and quick maneuvers are not any of the boat's key attributes.

It should also be noted that the hull halves can be glued and screwed together, for those that do not have storage or transportation limitations. The hull exterior can also be completely fiberglassed for durability.

Any questions or comments regarding the construction and/or design of this project will be responded to in a timely fashion. Thank you for purchasing these plans, and good luck with your project.

Happy Boating !

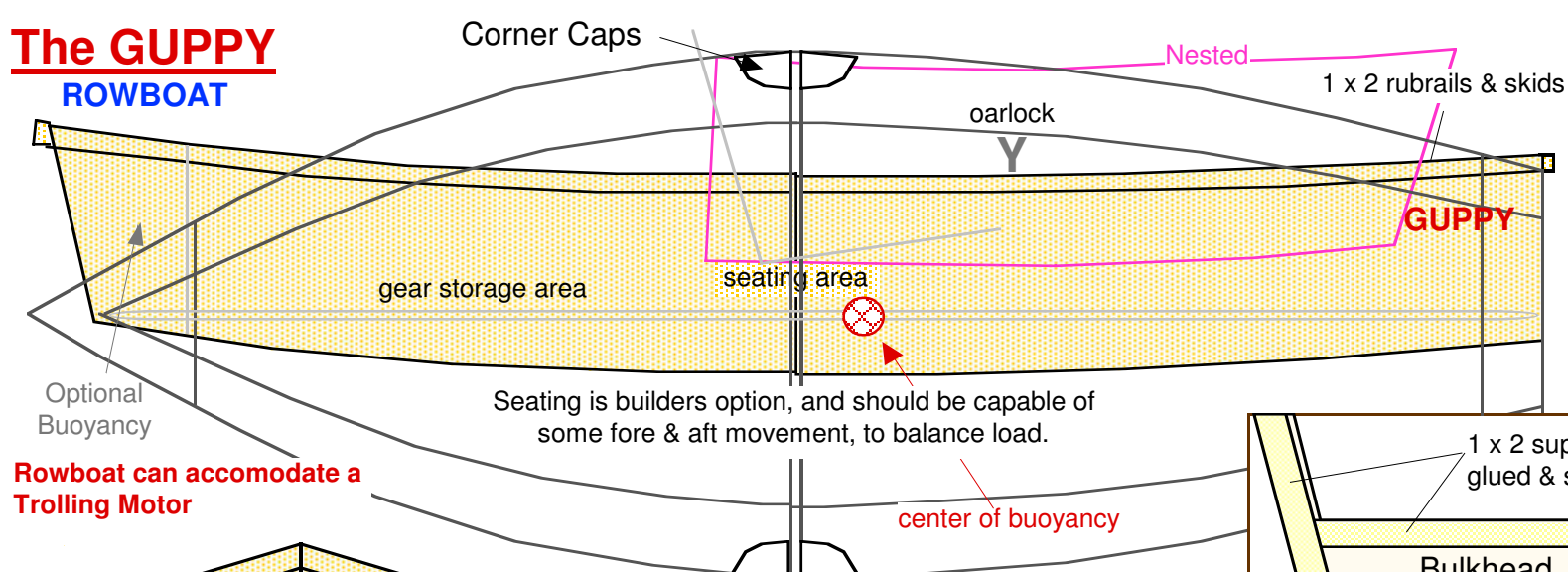
Ken Simpson , Designer

kensimpsonaz@yahoo.com

This is an experimental design drawn up by an untrained amateur. The Designer accpets no liability for any loss or damage sustained during construction or use. Builders may use these plans to construct small numbers of boats freely for their own use. Commercial manufacturers must ask the designer to negotiate permission.

The GUPPY

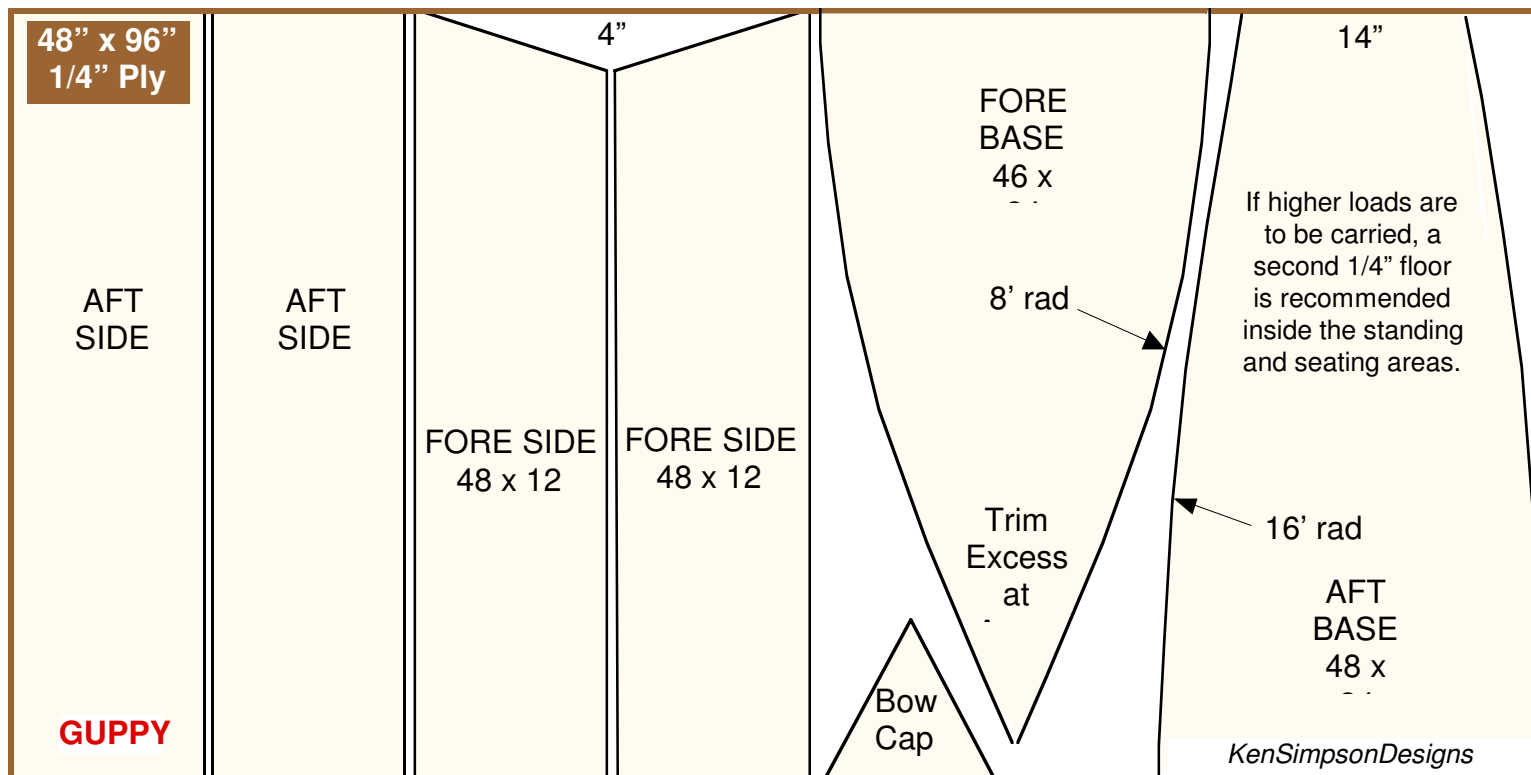
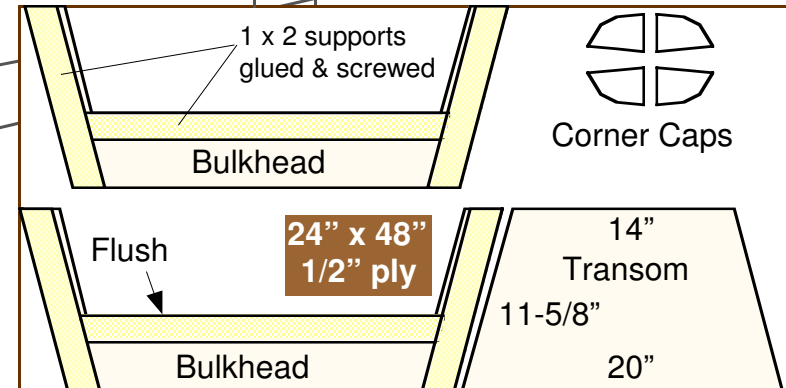
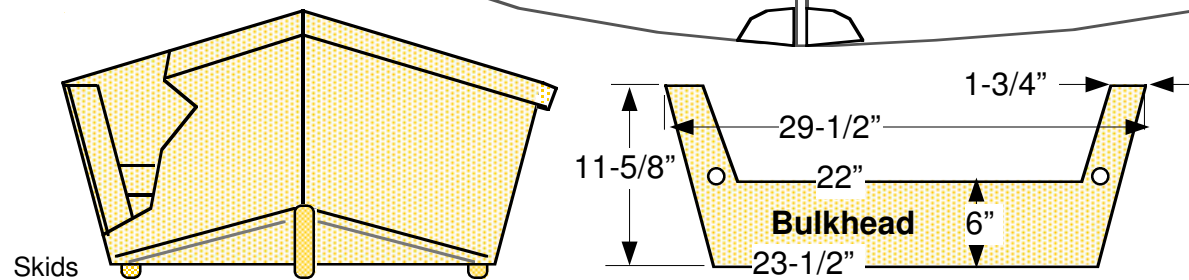
ROWBOAT



OAL : 8 feet
Nests to 5 feet max
Max Load : 220 lbs.
Draft : 4 inches

Fits IN all SUV's,
Trucks, RV's and
some Cars.

Rowboat can accomodate a
Trolling Motor



A low cost
personal
Rowboat, using
Tape & Glue
construction.

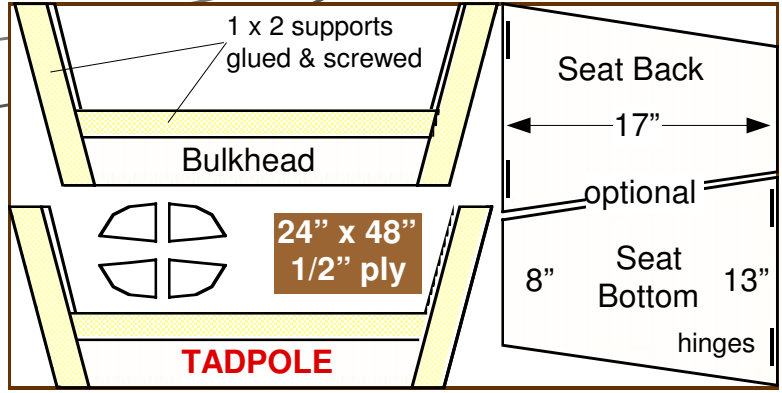
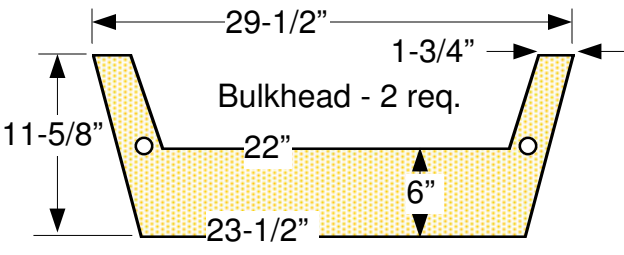
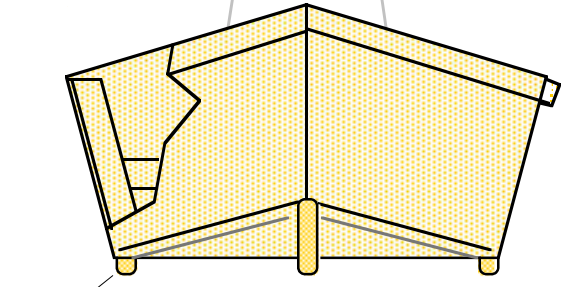
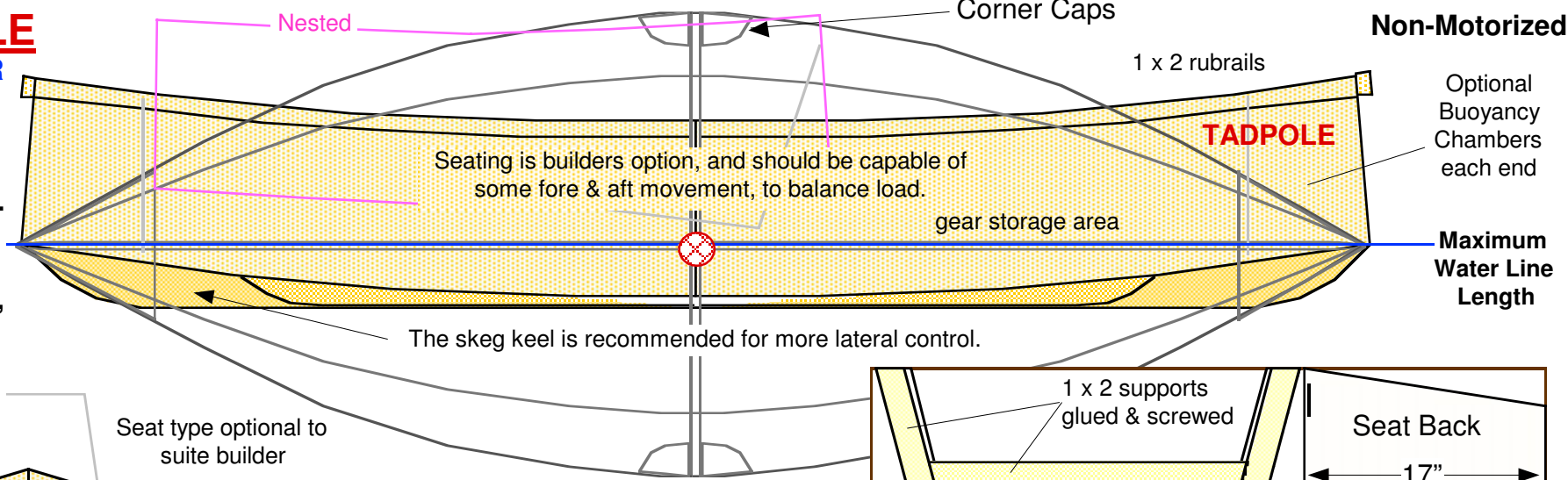
Easy to build and
easy to row or
paddle. Fun for
people of all ages.

The hull design
may allow a
trolling motor
mounted on the
transom.

The TADPOLE
DOUBLE ENDER

OAL : 8 feet
Nests to 5 feet
Max Load : 210 lbs.
Draft : 4 inches

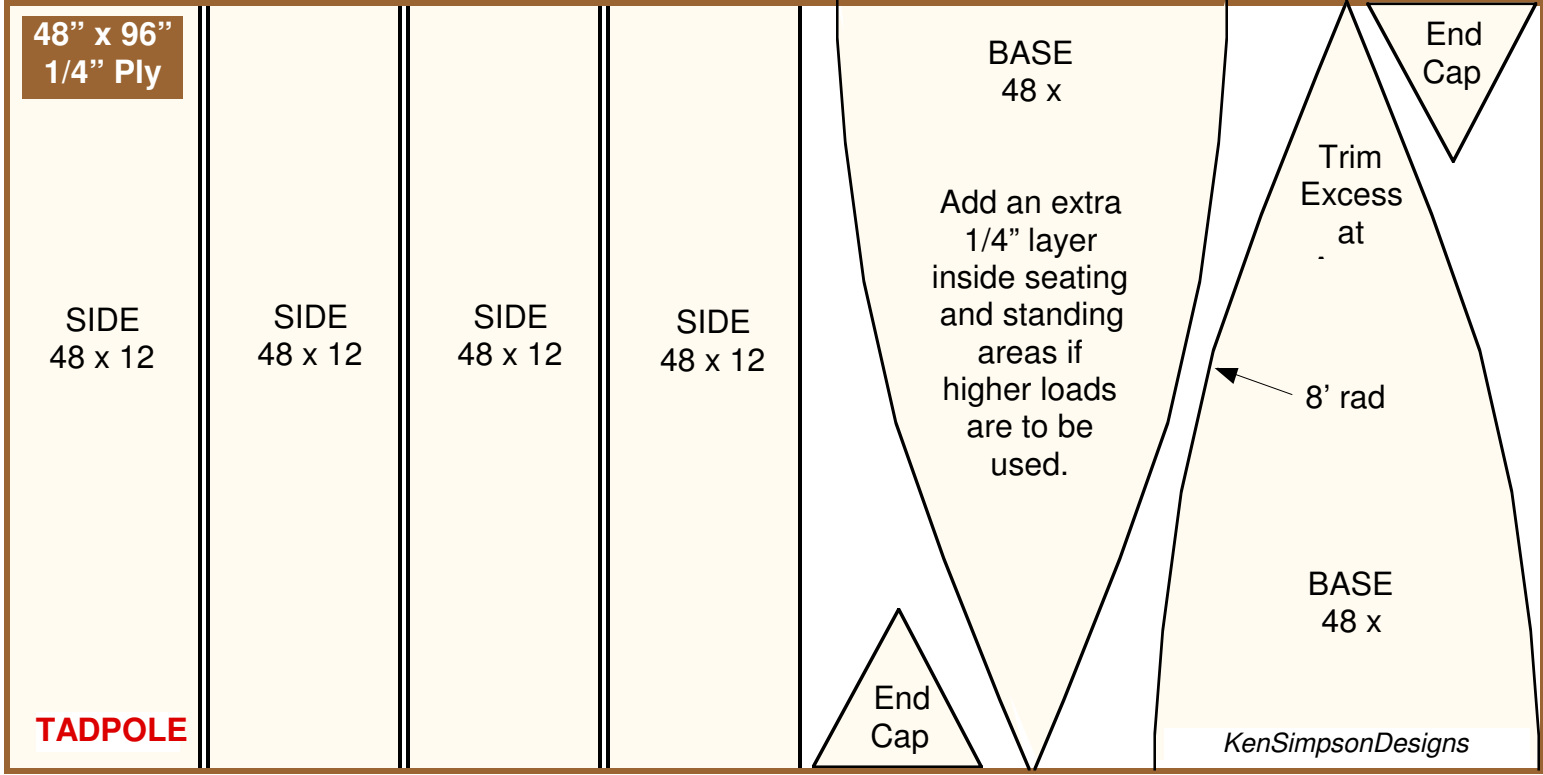
Fits IN most SUV's,
Trucks, RV's and
some Cars.



Double-ender,
can be Rowed
or Paddled.

**MAKE IT A
FAMILY AFFAIR
- BUILD ONE
FOR EACH OF
YOU**

Very
maneuverable
and nimble, yet
steady and
dependable.



This is a fun
little boat,
designed to
be used for
brief
excursions
into the
unknown.
Easy to
paddle and
turnaround in
tight spaces.
Fore & Aft
are equally
balanced.

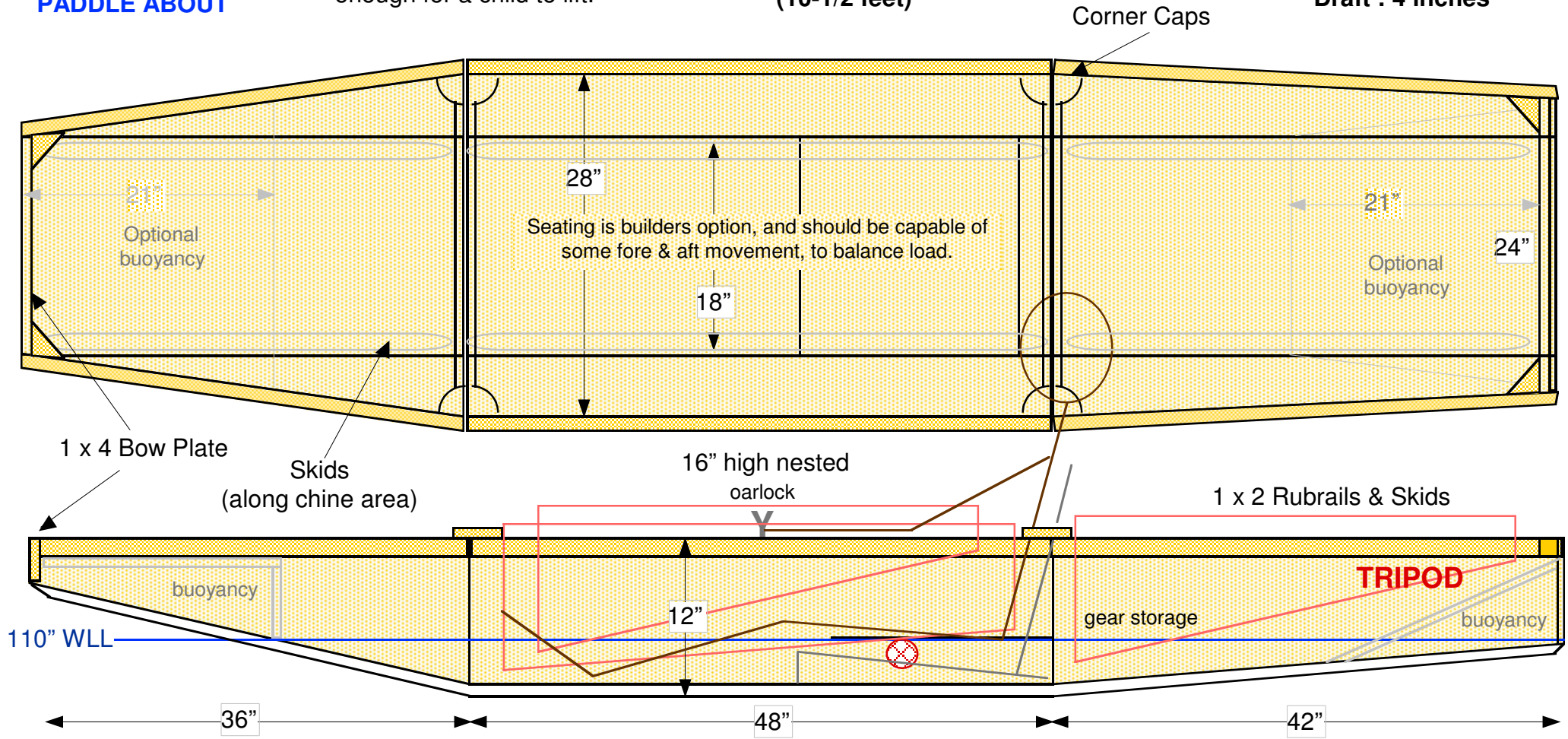
The TRIPOD

PADDLE ABOUT

Each section is light enough for a child to lift.

126" OAL
(10-1/2 feet)

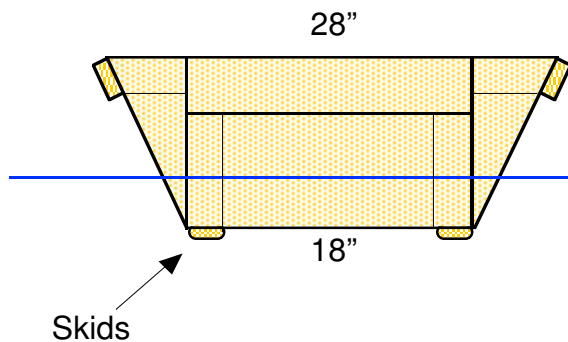
Max Load : 240 lbs.
Draft : 4 inches



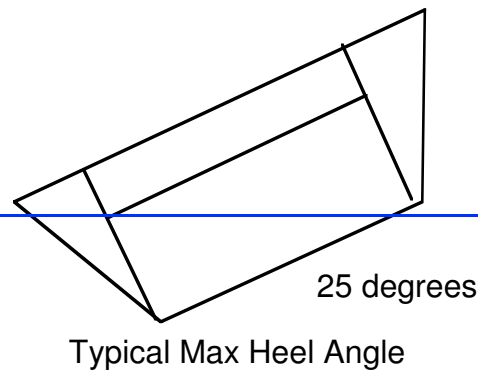
Because of narrow base, keep seat location low in hull.

All straight lines. No curves. Easy cuts and easy assembly.

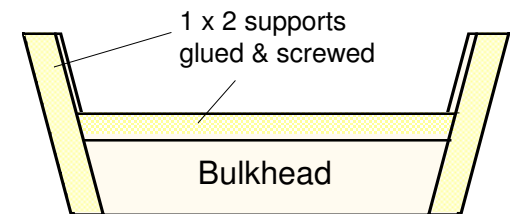
Can be motorized.



KenSimpsonDesigns



READ ALL THE PLANS, AS INFORMATION FOR ONE ALSO APPLIES TO THE OTHERS.



**Great for shallow water travel.
The long hull translates to effortless motion.**

TRIPOD

The **TriPod** is ideal for the casual fisherman.

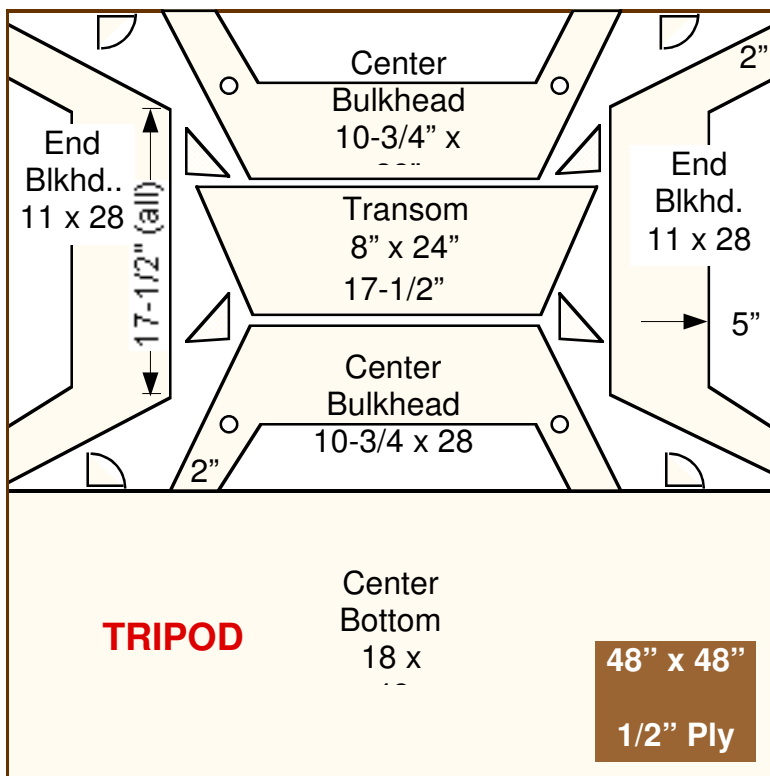
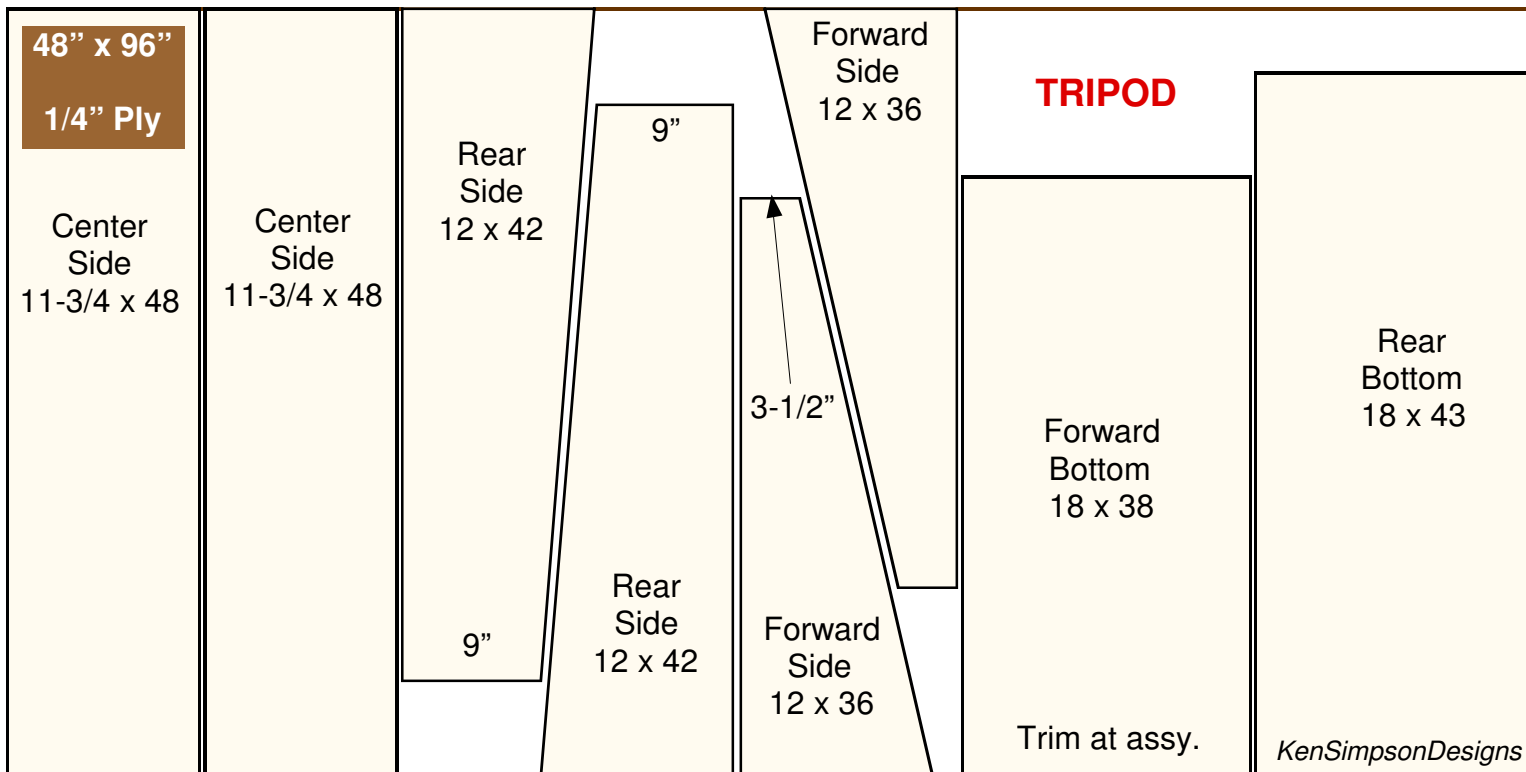
Gear can be located fore and aft, and this helps distribute the load.

The low seat adds to the stability of the craft.

A bait box can be permanently located in the forward section, for quick access.

An electric trolling motor can be fitted to the transom, with push-pull steering and a remote power switch.

However, this along with a battery, would add considerably to the cost and weight of the boat.



**All straight lines. No curves.
Easy cuts and easy assembly.**

TRIPOD is designed for those that have the need of a boat that stores in a 4 foot long space.

Nested, the dimensions are: 30 inches wide, 16 inches high, and 48 inches long.

These dimensions allow to boat to fit in the back seat of most cars !

As with all these boats, NO TRAILER REQUIRED !

Any of the boat hulls can be glued and screwed together, for those that do not have transport or storage limitations.

PRE-ASSEMBLY NOTES

This is when the fun begins ! Each of these boat designs uses the same materials and methods of construction. So, building one makes building another just that much easier. Each has its benefits, and shortcomings. All are single occupant boats with room for gear, and offer optional buoyancy enclosures for safety. In choosing which to build first, define the features you require of a small boat, and then select the design that most satisfies these requirements. Remember, you can add features to the plans to suite your needs.

Once the selection is made, read the plans thoroughly to better understand the design concept and assembly sequence and process. Even if you are a boat building novice, the plans are detailed enough, and the pictures descriptive enough, so that you should be successful on your first attempt at boat construction.

You should know that each of these boat designs were derived from previous design builds, and then simplified to use common materials and processes. All should satisfy the the design features specified.

It is important that you keep in mind certain build criteria, such as the quality of materials used. Purchasing cheap plywood is a recipe for disaster. Not allowing the glue to cure as specified, prior to bending the plywood sides for example, will create a distorted hull shape. And, skimping on materials or rushing the 'Tape & Glue' process may lead to seam failure during use.

This is a boat, and safety comes first in construction, and on the water.

Cut parts accurately, pre-fit panels prior to gluing, and plan ahead !

The following is a simple outline of the preliminary build sequence:

1. Purchase only Exterior grade, water resistant, multi-layer Plywood
2. Purchase TiteBond III waterproof glue in a gallon container
3. Purchase 2 yds. of 3.25 oz. Fiberglass Cloth, 50 inch wide
4. Layout on plywood the panel outlines, with a # 2 pencil
5. Cut out all parts with a Jigsaw. Insure straight lines.
6. Pre-assemble parts to insure proper fit of panels
7. Trim off excess panel material, if necessary
8. Add 1 x 2 support stringers to bulkheads
9. Prepare to assemble sides to bulkhead
10. Re-read the assembly instructions !

NOW ON TO THE ASSEMBLY PROCESS !

It is important to note that all 3 of these designs, although similar, behave in a different way. Each is short and narrow, and as such can be sensitive to balance. They can be 'tippy', so sit low in the hull, and do not overload.

AVERAGE BILL OF MATERIALS

<u>ITEM</u>	<u>QTY.</u>	<u>COST</u>	<u>SUPPLIER</u>
1/4" Plywood, 4' x 8' sheet, Ext. Grade	1	\$14.00	Local home improvement center
1/2" Ply, 4' x 4' sheet max, Ext. Grade	1	\$18.00	Local home improvement center
TiteBond III Waterproof Glue, Gal.	1	\$30.00	Local home improvement center
1" x 2" x 8' Lumber, hard grade	8	\$16.00	Local home improvement center
#6 SS Screws x 3/4" long, Box of 100	1	\$5.00	Duckworks Boat Builders Supply
Nylon Oarlocks & Holders, Pair	1	\$12.00	Duckworks Boat Builders Supply
3.25 Oz. Fiberglass Cloth, Yds.	2	\$12.00	Duckworks Boat Builders Supply
#16 x 1" Brass Brads, Box of 100	1	\$3.00	Local home improvement center
Duct Tape, Heavy Duty, Roll	1	\$8.00	Local home improvement center
Draw Tight Catch # 5300249	4	\$12.00	ACE Hardware
Basic Average Hull Cost		\$130.00	
<u>Additional Items</u>			
Wood Sealer			
Paint / Marine Spar Varnish			
Sand Paper			
Decals			
Oars / Paddles			
Other Builders Choice Items			

It should be noted that another 1/4 sheet of 1/4" plywood may be required to provide a stronger floor in a couple of the designs, as plans suggest. Further, provision for seats and optional buoyancy compartments may also require additional plywood.

TYPICAL ASSEMBLY

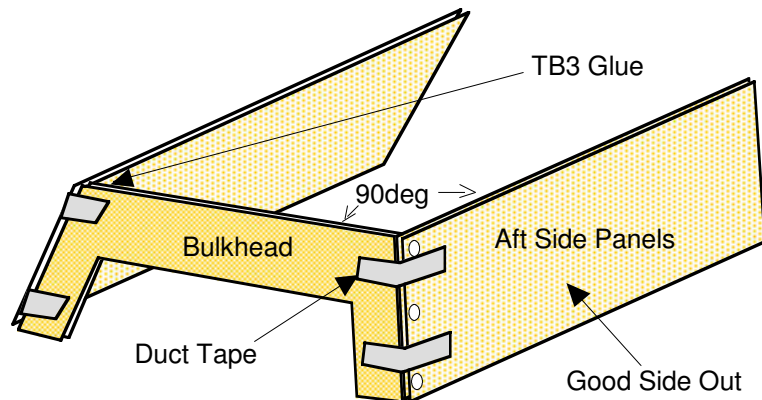
Start by cutting each part from the plywood sheet. It is important you cut straight lines, so use a solid straightedge to guide the jigsaw. Place the good side of plywood down while cutting, which reduces splintering on the boats outside edges. Lightly sand all edges after cutting.

Also cut Bulkheads and Transom from the 1/2" plywood. Insure that both bulkheads are identical, as these form the hull shape.

The following process will be the same for all panel assemblies.

AFT Section (after adding 1x2 supports to bulkhead):

Apply TB3 Glue to the edges of the Bulkhead & Supports, smooth out with finger. Allow to dry for a couple of minutes. Do the same for the end surface of the Side Panel to be glued. This allows the glue to penetrate the wood and form a bonding joint. Next, apply a thick bead of TB3 glue to the Bulkhead area, press a side panel in place, and hold with Duct Tape. Panel goes on the outside of the bulkhead, and the 'good side' should be out. Insure a square corner. Small #6 x 3/4" SS Screws should be used to hold the panel in position during the curing process. Do the same for the opposite side panel. **IMPORTANT:** Allow to cure for at least 6 (six) hours at room temperature..

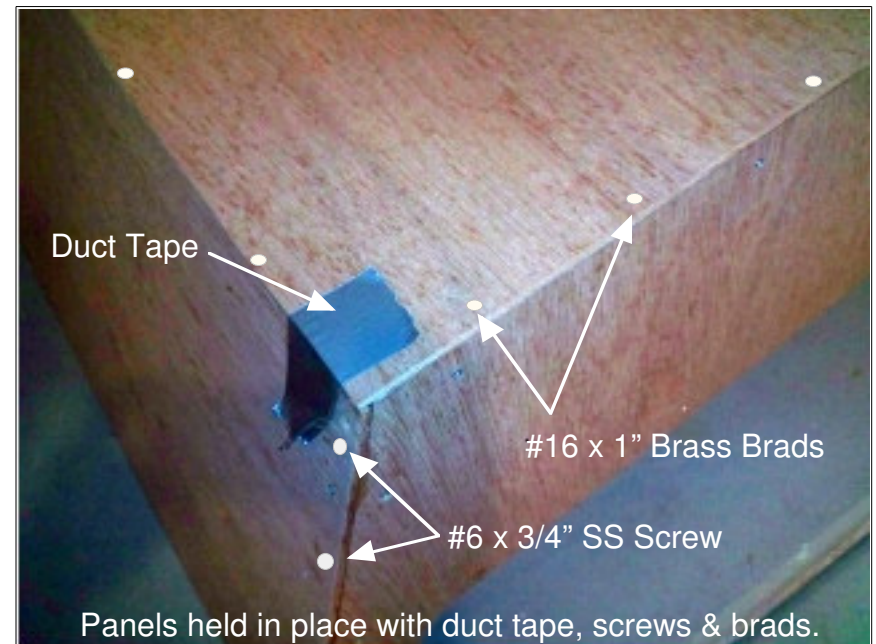
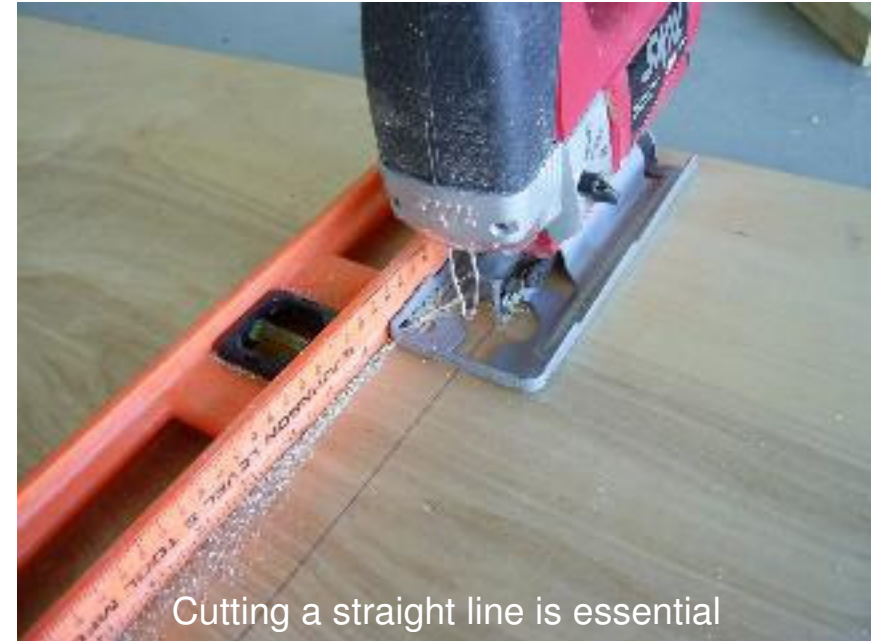


Assemble upside down on a flat surface.

Perform the same assembly process at the Transom end.

Both fore & aft sections can be worked on at the same time.

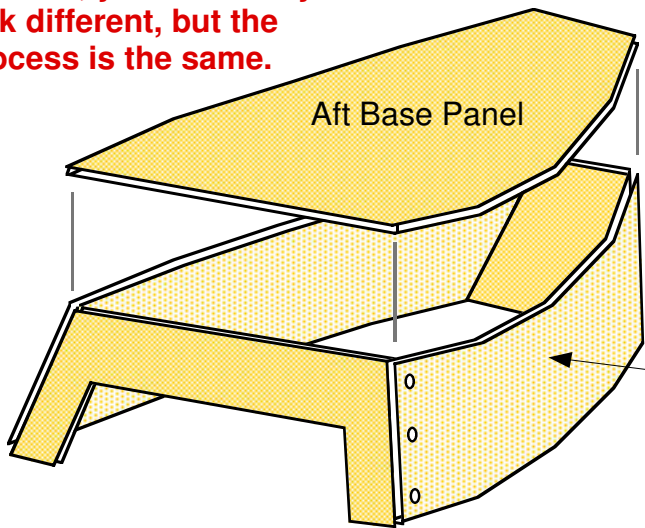
All photos are of similar boats that use the same panel construction and Tape & Glue method.



Remember, your boat may look different, but the process is the same.

This is a Glue-Together assembly. The 'Tape & Glue' process begins only after basic assembly of hull sections are complete.

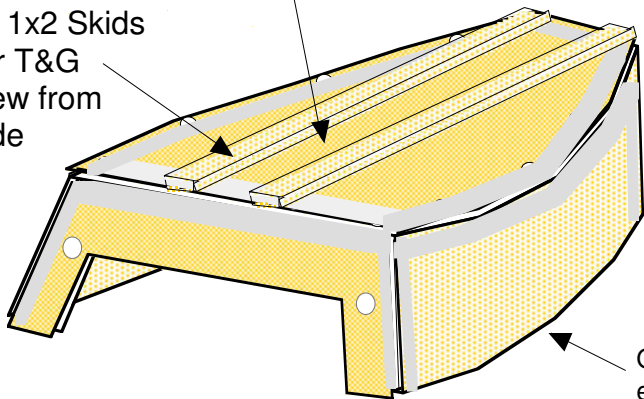
Repeat all these processes for the Forward section.



Assemble upside down on a flat surface
Base fits on top of all panel edges.

Depending on plywood selected and your size, you may want to add a second 1/4" base inside, to the sitting and standing areas, for added support.

Add 1x2 Skids
after T&G
Screw from
inside

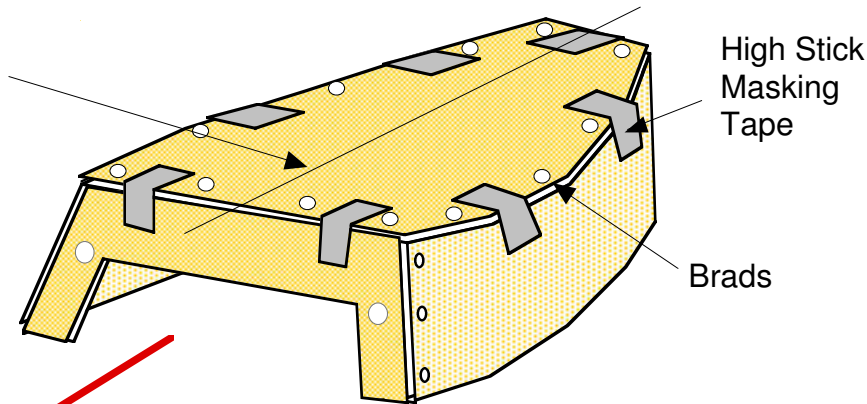


'Tape & Glue' all the seams, inside and outside. See instructions page 11 & 12.

Insure alignment of
Transom to Bulkhead.



Be careful when bending
sides to transom. A 2x3
support may need to be
temporarily placed
centrally to provide the arc
required.



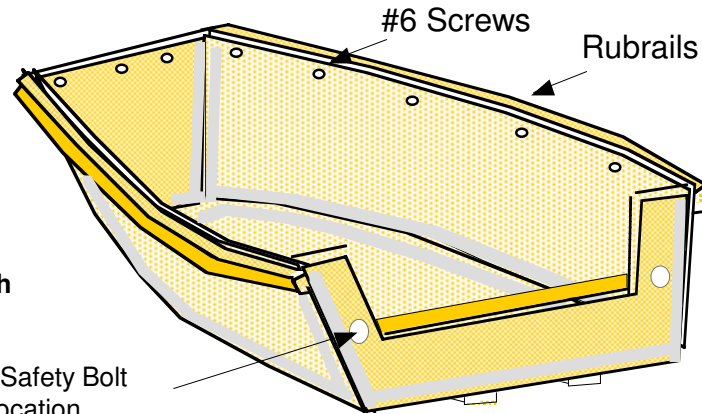
TB3 Glue the Base to all Hull Sides.
The brads help to hold the hull shape.
Fit & sand all edges before taping.

Round all
corners & edges
prior to 'Tape &
Glue' process.

Sand all surfaces
prior to finishing.



Be careful not to sand through
the glass cloth taped joints.



All seams taped, rubrails added to 2 sides.
Next, add the Stern & Corner Caps.

To apply Rubrails (1 x 2 lumber) you will have to slot the rail about every 6 inches and about 1/2 inch deep with a hacksaw blade. Apply TB3 glue to slotted side and place at edge of hull panel. Hold with spring clamps, and secure from inside with #6 screws.

The remaining construction details should be self evident. Just follow your instinct and add personal touches where desired. No further drawings or photos are necessary. Once you have reached this point in the assembly, you have already accomplished the most difficult aspect of the build.

T & G CONSTRUCTION SUPPLIES:

- * Fiberglass Cloth, 3.25 Oz., 50 inch wide, cut into 2-1/2" to 3" x 50 inch strips for seam sealing.
- * TiteBond III Waterproof Wood Glue - 16 oz (\$8)
(available in larger 1 Gal. container (\$30))

Options:

Epoxy Resin - Gallon : Duckworks BBS

Glass Cloth Tape, 4" , Roll : Duckworks BBS

Note: About 200 ft. of 2-1/2 inch cloth tape is required for average small boat assembly.

* **Not recommended for bonding:**

Polyester Resin (poor bond to wood), OK for molding fiberglass.

FINISHING:

The choice of finishing is that of the builder. However, it is not just a matter of sanding and sealing all the wood surfaces, and applying a coat of durable paint, it is also about personalizing the boat. Color or natural finish? Fancy trim or camouflage? The important elements are the needs of the builder; you built it, you enjoy it, you earned it !

Insure that all surfaces are protected, that skids are applied as needed, and that hull weight is always kept in check.

Recommend a minimum of 2 layers of tape per joint.

Optional Glue Mixing & "Tape & Glue" Instructions

TiteBond-III, which is easy to work with, does not require any thickening agent, unless used in a very hot environment. You should mix only enough woodflour to prevent excessive vertical running.

If necessary, Wood Flour can be purchase from *Duckworks Boat Builders Supply* in pound containers .

It acts as a thickening agent that produces a more viscous glue that will not run easily. Mix only enough by volume (container of choice) of glue to wood flour to minimize running. Mix thoroughly.

Tape & Glue Process:

Apply Glue in thick strips, first in the corner of a joint, and then about 3/4 inch away from each side of the corner. Smooth glue evenly over the panel surface in the area the Glass Tape is to be applied, and let dry for a few (2-3) minutes. Cut strips of Glass Tape (2-1/2" wide) the length of the joint, and centrally place in the corner of the joint. Smooth out over the length of the Tape. Apply Glue over the Tape, wetting Tape completely. Again smooth evenly over the entire Tape surface. Remove any bubbles.

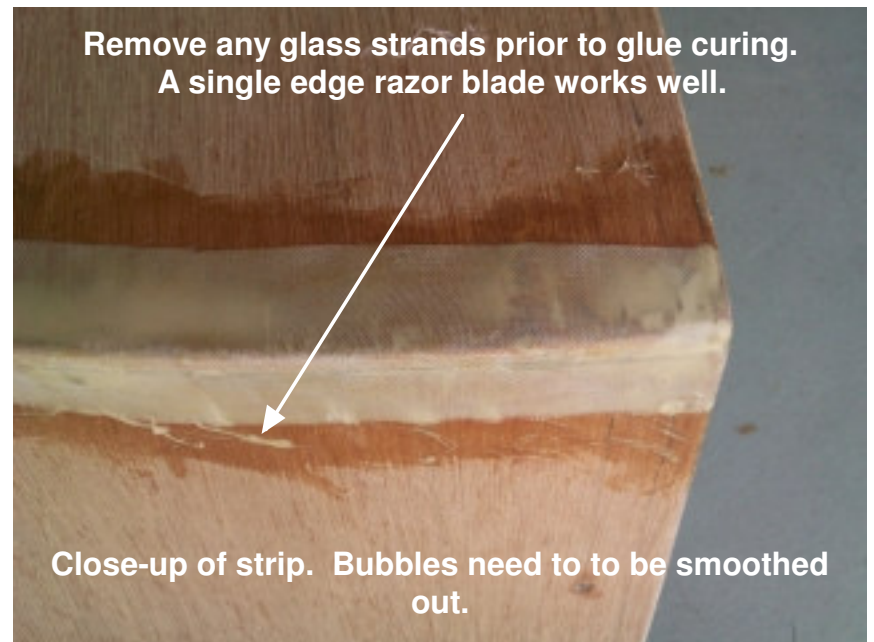
Insure edges are wet and that the Tape is completely saturated with TB3 Glue. Repeat the process for all exposed corners and joints.

Allow to cure 4 hours minimum. Repeat the process for any additional layers that may be required

• Note: Temperature and humidity may affect mixing ratios and glue cure time.

Always wear Latex Gloves during the gluing process.

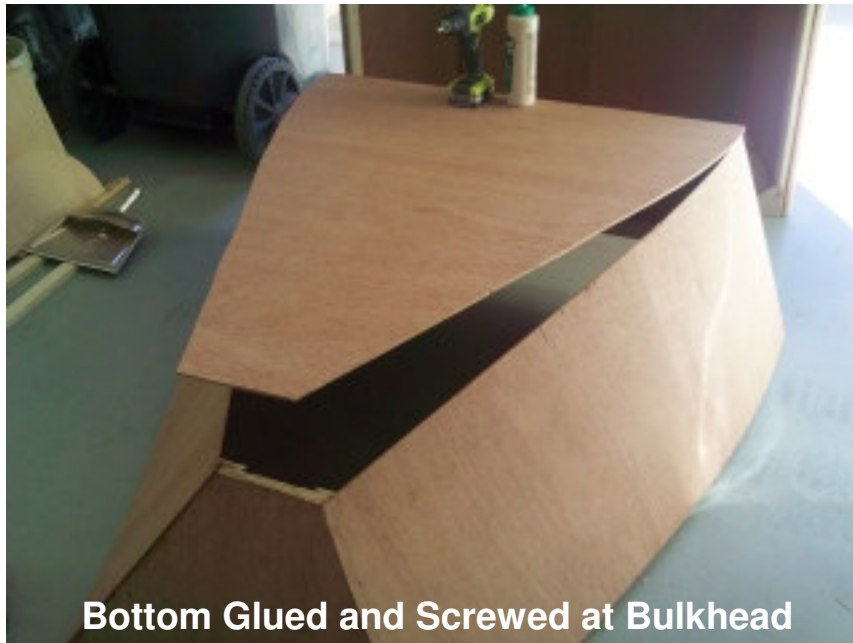
TAPE and GLUE Process Pictures



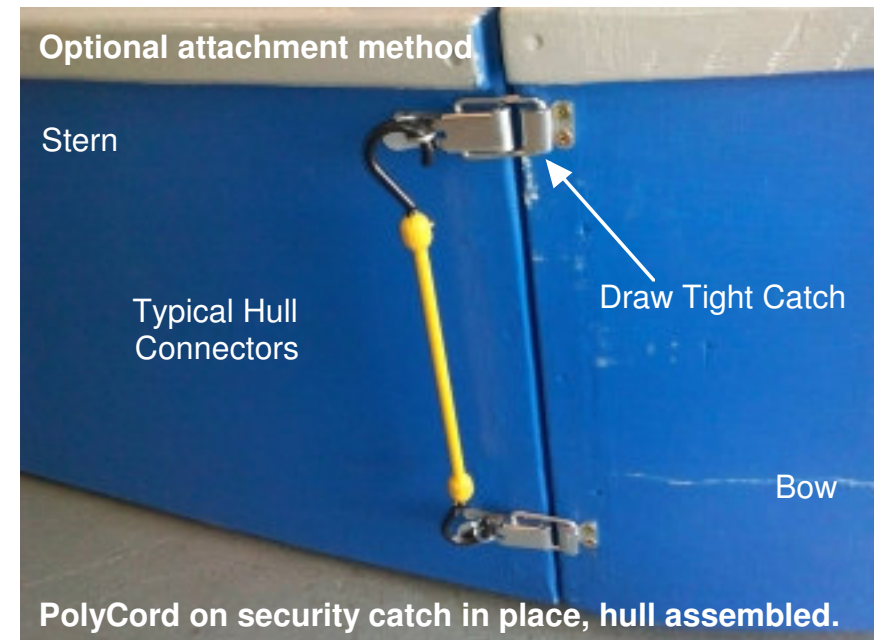
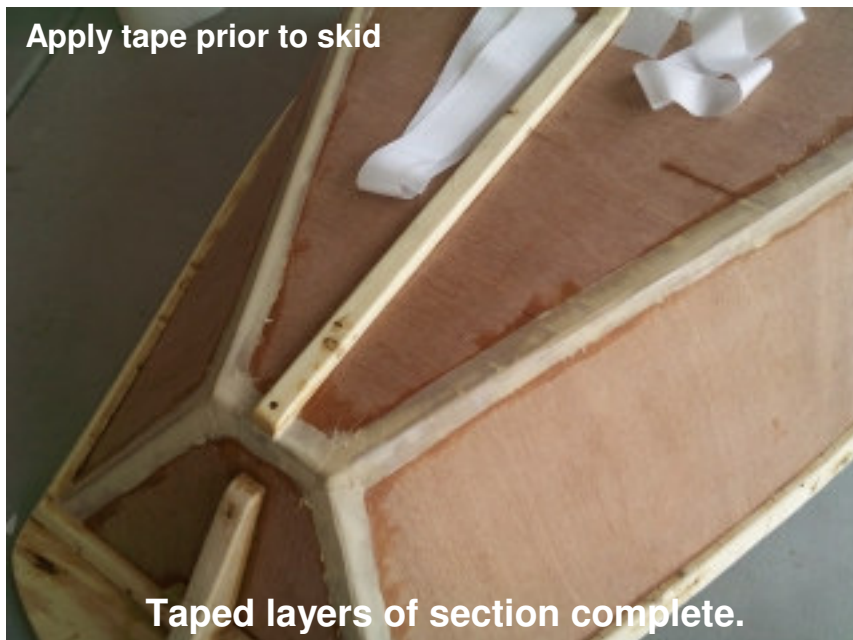
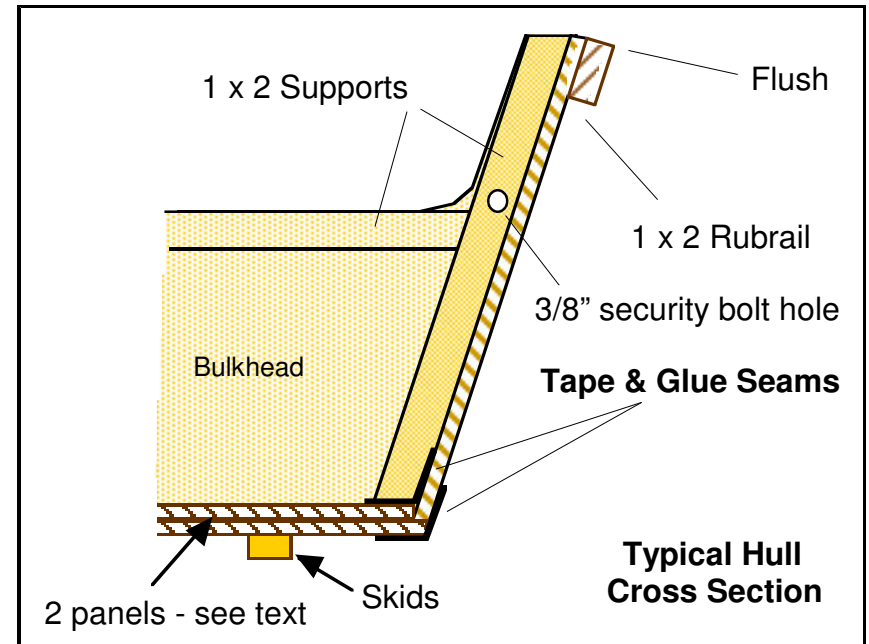
KenSimpsonDesigns

After the basic hull construction (shown above), it should be noted that 1 x 2 supports are needed in certain areas for strength and support. An example would be backup for the clamps, or support for the corner caps and the bow & stern caps. Also, any support needed for oarlocks, a motor mount or seat.

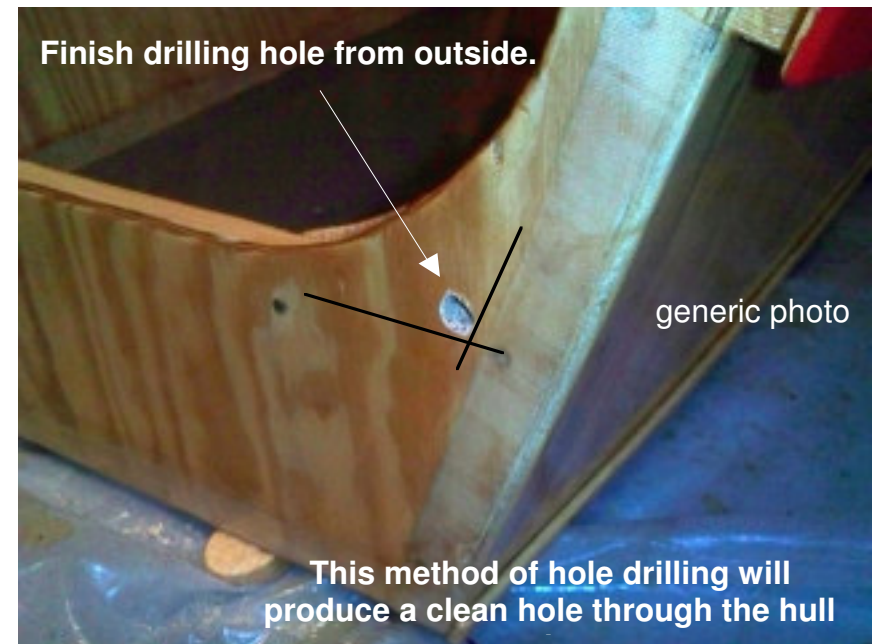
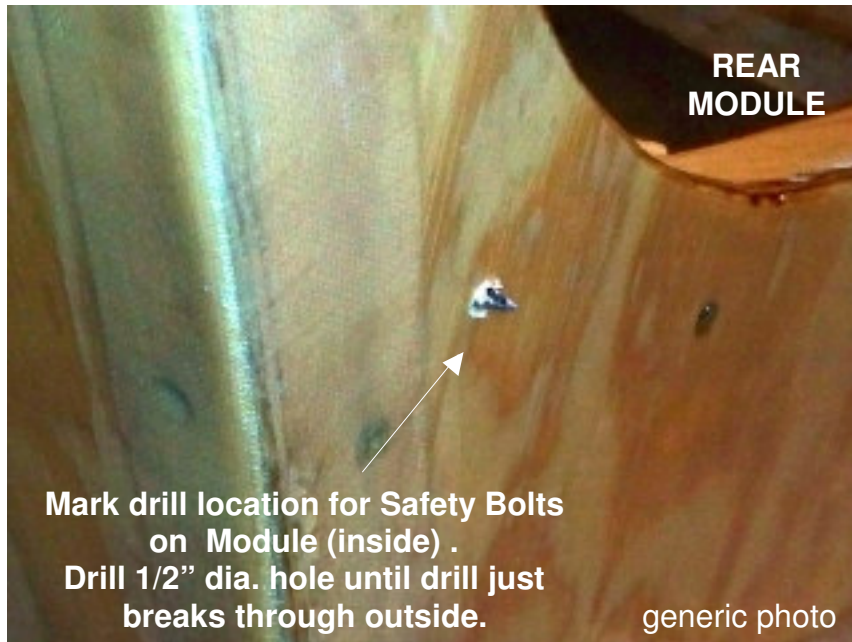
Tape and Glue Pictures



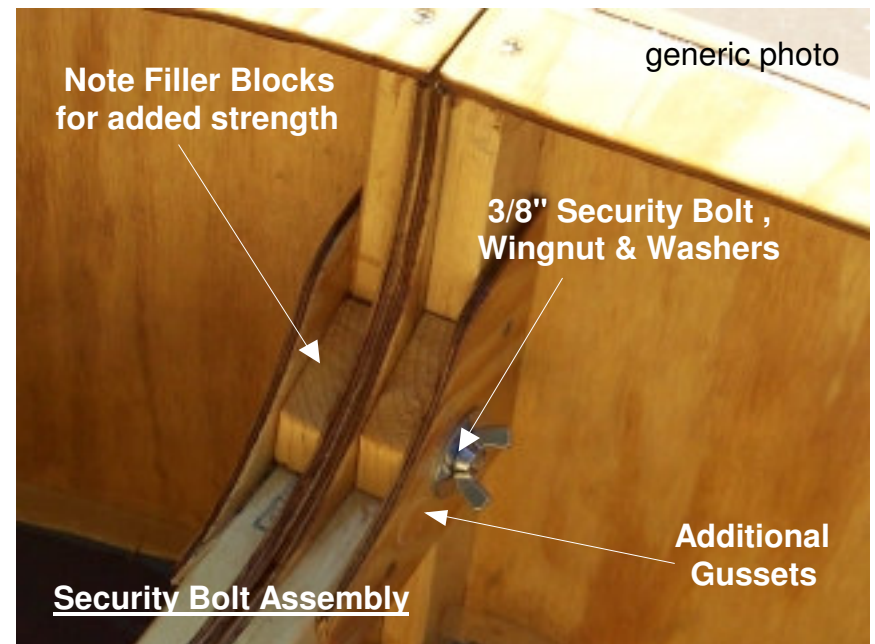
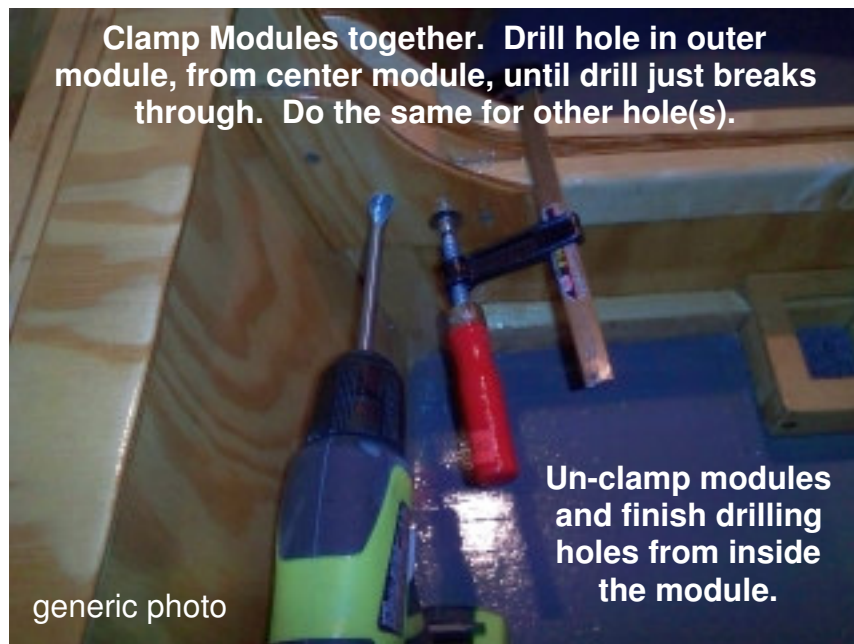
All photos are of similar boats that use the same panel construction and Tape & Glue method.



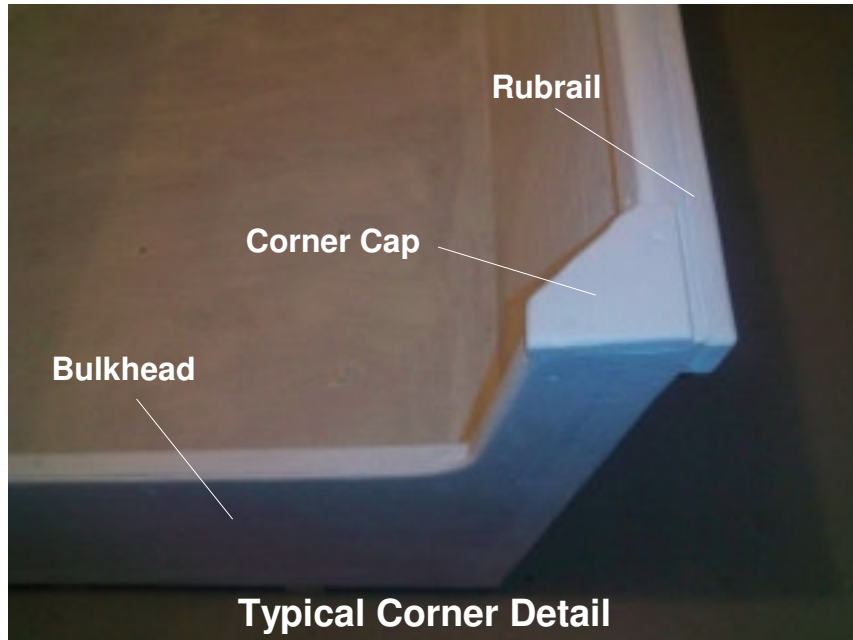
Suggestion for Drilling Safety Bolt Holes.



The location of the Safety Bolt Holes is at the intersection of the horizontal and vertical bulkhead supports.



TYPICAL IN-PROCESS PHOTOS



Basically these boats are designed to be rowed or paddled, but a couple could be outfitted with an electric trolling motor, with some modification to the stern of the boat. For all, occupant weight must be kept within the maximum operating load specified, about 200 pounds. After all, these are small boats, utilizing lightweight materials, and intended for casual use.

RANDOM ASSEMBLY NOTES

All 3 designs are constructed using the same assembly processes. As a result, the following notes apply to all.

It is important the Bulkheads be kept flat during construction, as they are what provide a good water seal between the hull sections. Unless the boat is overloaded, no water should enter the hull via the bulkhead interface.

Light sanding between layers of fiberglass tape is recommended, which helps in the bonding process. Sanding of the finished hull sections is important to smooth out the edges, but do not sand through the glass taped seams.

The Corner Caps provide additional integrity to the hull build, and should be glued and screwed in place.

The Draw Tight Catches specified have been used on larger boats with success. The application is critical, however, and long screws should be used to fasten them to the hull. Insure they are locked when in the water. The addition of security bolts, placed above the water line, connecting the hull sections (as shown) is a good safety feature.

Re-read the plans throughout the assembly process.

It is recommended that you DO NOT exceed the capacity rating of any of these boats. Overload can cause structural failure, or cause water to enter between the hull sections.

Skids should be placed on the center of the hull bottom, and as close to the edge as possible to protect the chine. Seating should be as low in the hull as possible, to maintain a low center of gravity, thereby providing a stable boat.

If you elect to add a Trolling Motor you must provide a structurally strong motor mount on the transom.

It bears repeating: Pre-Fit panels and double check dimensions, prior to actual assembly. Always plan ahead.

If you bought the gallon size of TiteBond III, you will also need to purchase an empty Glue Dispenser. The use of spring clamps can be very helpful for some of the assembly, especially in securing the Rubrails.

As a last thought, these plans can be scaled-up to produce a larger boat, but additional materials must be added to provide sufficient structural support.

Finishing of the boat is just as important as the construction phase. A good waterproof primer and exterior grade paint is critical to the long term integrity of the boat. The use of marine spar varnish provides excellent sealing, and also brings out the wood grain. Make sure any finish you select is UV protected. Continued maintenance will also extend the life of your creation.

HAPPY BOATING !

The Glass Cloth, Screws and Oarlocks can all be purchased from
Duckworks Boat Builders Supply.

The TB3 Glue is available at Home Depot, as is the Lumber.

The Locking Clamps are available at ACE Hardware.

Good luck with your project !

Questions ? E-mail : **kensimpsonaz@yahoo.com**

The Tape & Glue assembly technique specified can be substituted for another process, if the builder so desires. However, no testing of other processes has been conducted, and the designer cannot determine the outcome.

I have intentionally kept the instructions brief, but the many small notes on the plans are key to the overall success of the building process.