

# SIMPLE 8' PRAM

An Easy to Make, Paddle and Transport Family Pram



Drawn 05-10-2013

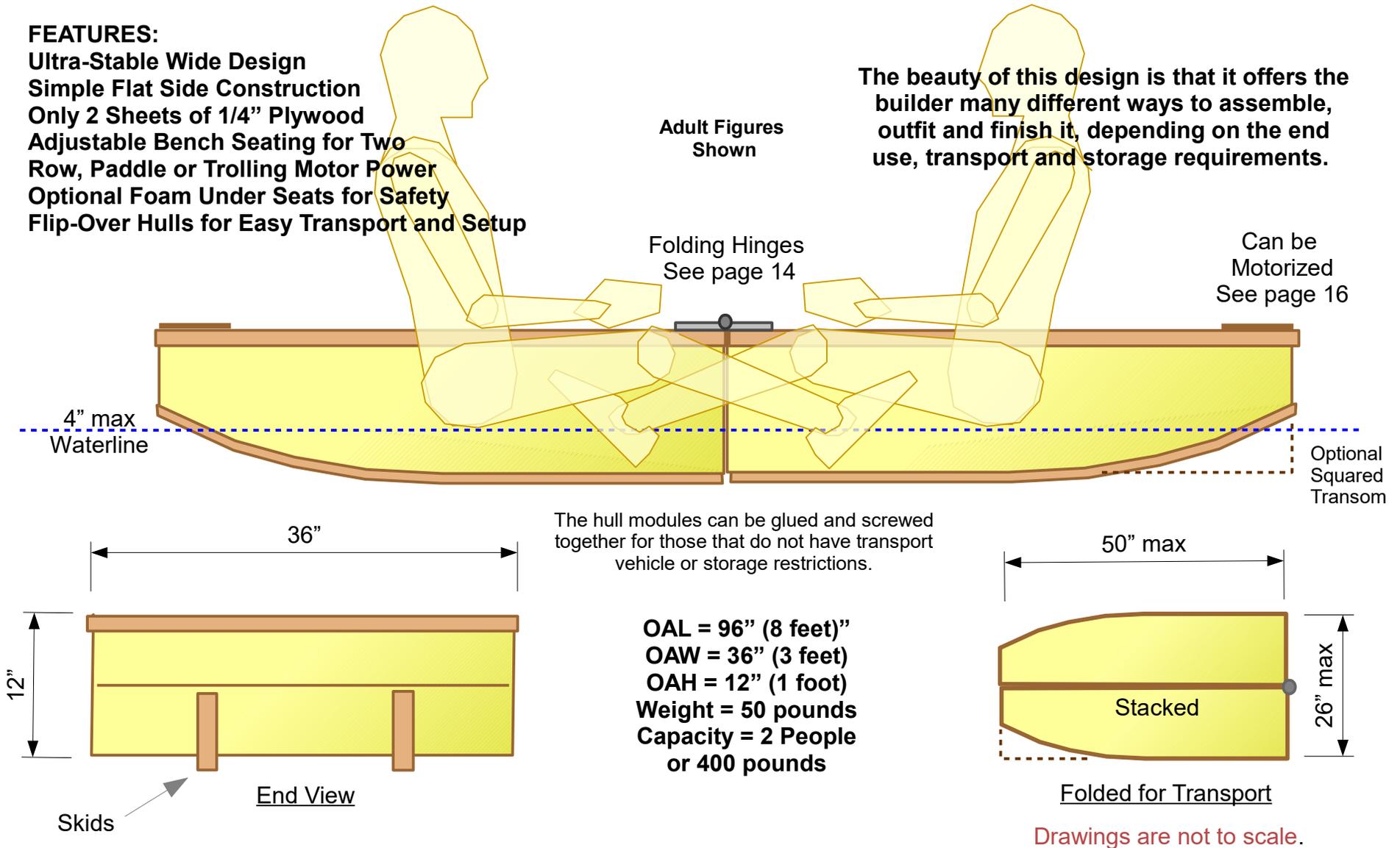
Rev. 09-25-2015

Print in Landscape Mode with 1/4 inch borders.

## FEATURES:

- Ultra-Stable Wide Design
- Simple Flat Side Construction
- Only 2 Sheets of 1/4" Plywood
- Adjustable Bench Seating for Two
- Row, Paddle or Trolling Motor Power
- Optional Foam Under Seats for Safety
- Flip-Over Hulls for Easy Transport and Setup

The beauty of this design is that it offers the builder many different ways to assemble, outfit and finish it, depending on the end use, transport and storage requirements.



a ken simpson design

PortableBoatPlans.com

Page 1 of 23

This is an experimental design drawn up by an untrained amateur. The Designer accepts no liability for any loss, harm or damage sustained during construction or use. Builders may use these plans to construct a small quantity of boats for their own use only. Commercial manufacturers must ask the Designer for permission.

## General Notes

The design of the SIMPLE 8' PRAM is in response to a request for a low cost, stable, portable boat. It includes a wide beam, good freeboard, generous volume, seating for two, and safety buoyancy. It is sturdy, easy to build, quite portable, easy to paddle and can utilize a trolling motor.

To have strength and yet be lightweight, the plans use some non-traditional methods of assembly, specifically the "Tape & Glue" construction process developed and incorporated by the designer.

This provides a durable, yet truly portable, finished boat, and the building process is easily mastered by the home handyman and amateur boat builder.

As a result, only hand tools, a jig-saw, a power drill and a large carpenter's square, scissors, and tape measure are all that will be required throughout the assembly process.

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

Luan Plywood may not be available, so the use of ACX Grade is suggested, but be choosy.

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 encouraged, to provide a 'custom' boat to satisfy a builder's specific needs. We do not make changes to the drawings.

This would be up to the individual builder, and their responsibility. Also, it is very important that none of the basic design parameters be drastically modified, as this may adversely affect overall boat safety or performance.

Seating choice is also up to the builder. I have folding seat plans available for free on the website.

It should also be noted that the hull modules can be glued and screwed together, for those that do not have limitations of storage or transportation.

The hull exterior can also be completely fiber-glassed for durability, allowing yet thinner and lighter (4 or 5 mm) plywood hull building material.

Any questions or comments regarding the construction and/or design of this project will be responded to in a timely fashion.

All sketches are hand drawn, and as such, may have irregularities, but the dimensions and text are accurate.

Thank you for your interest, and for purchasing these plans, and good luck with your project.

And don't forget to visit [www.PortableBoatPlans.Com](http://www.PortableBoatPlans.Com) for new designs and updates.

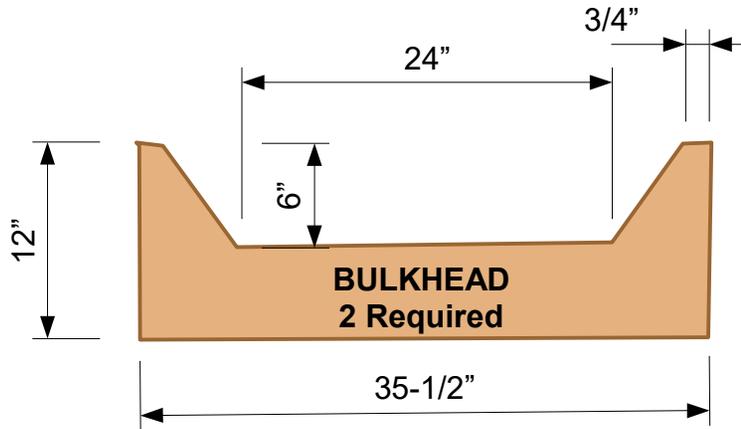
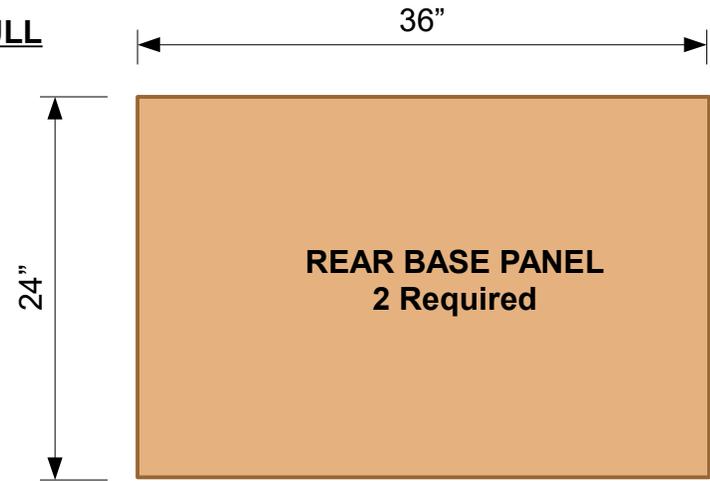
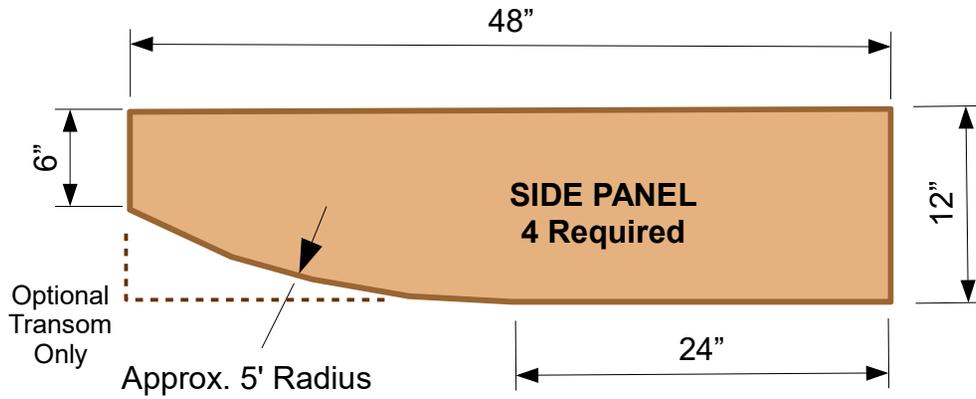
Happy Boating !

*Ken Simpson , Designer*

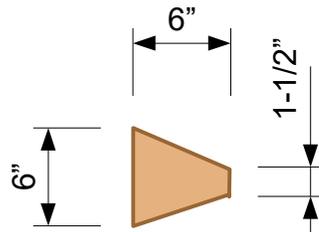
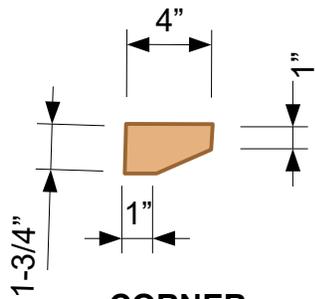
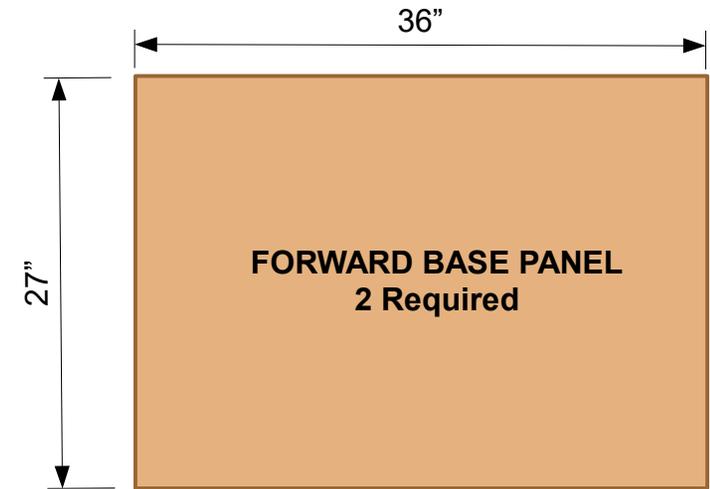
# SIMPLE 8' PRAM

## PANEL LAYOUT

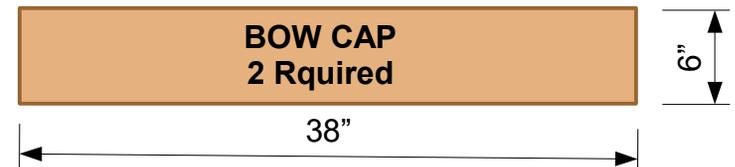
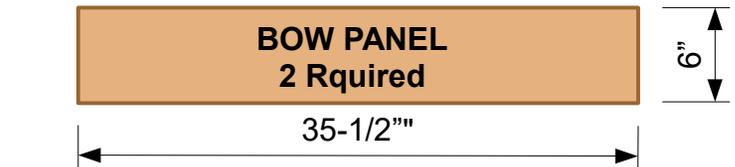
For  
2 MODULE HULL

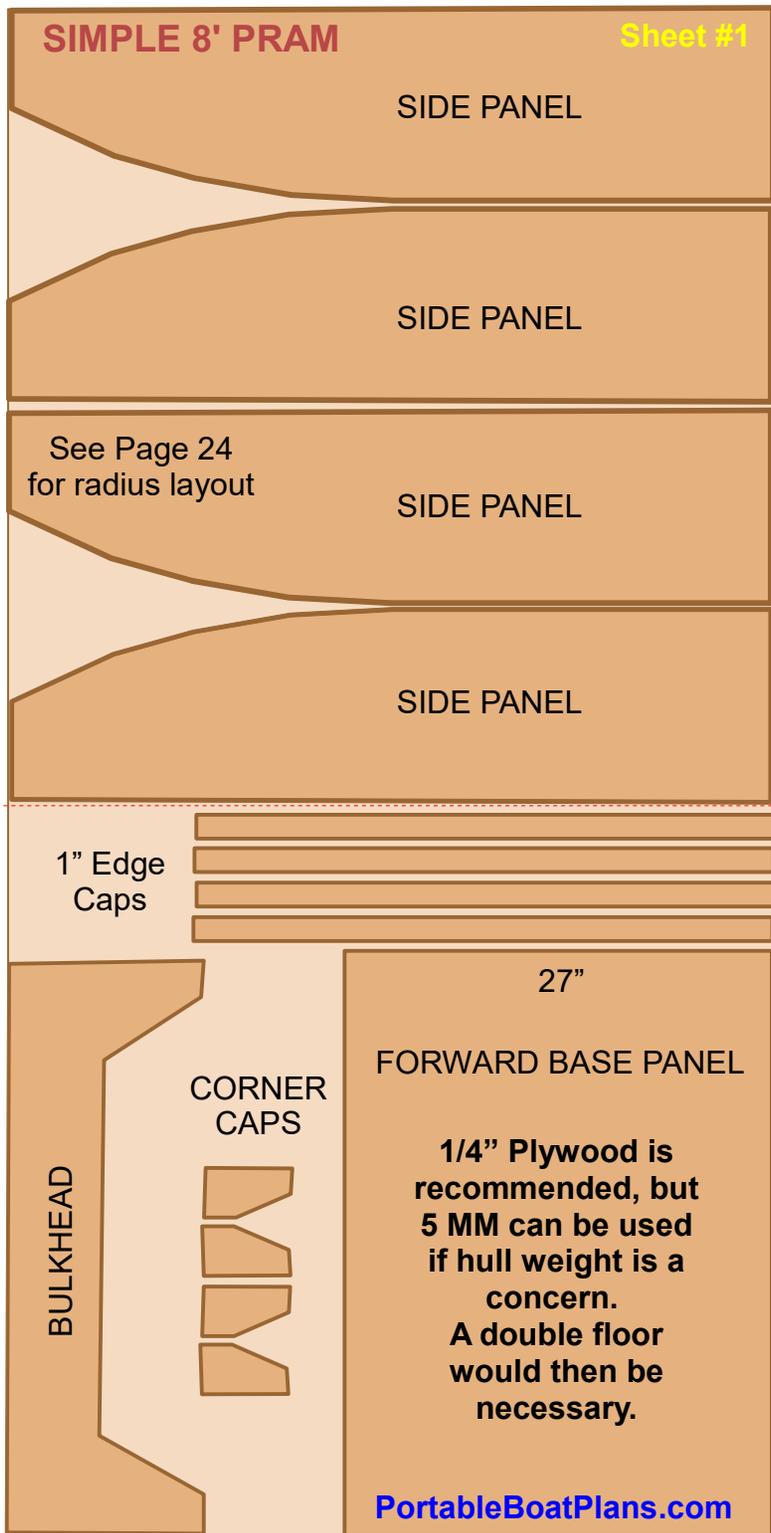


1/4" Plywood is recommended, but 5 MM can be used if hull weight is a concern. A double floor would then be necessary.



Drawings are not to scale.



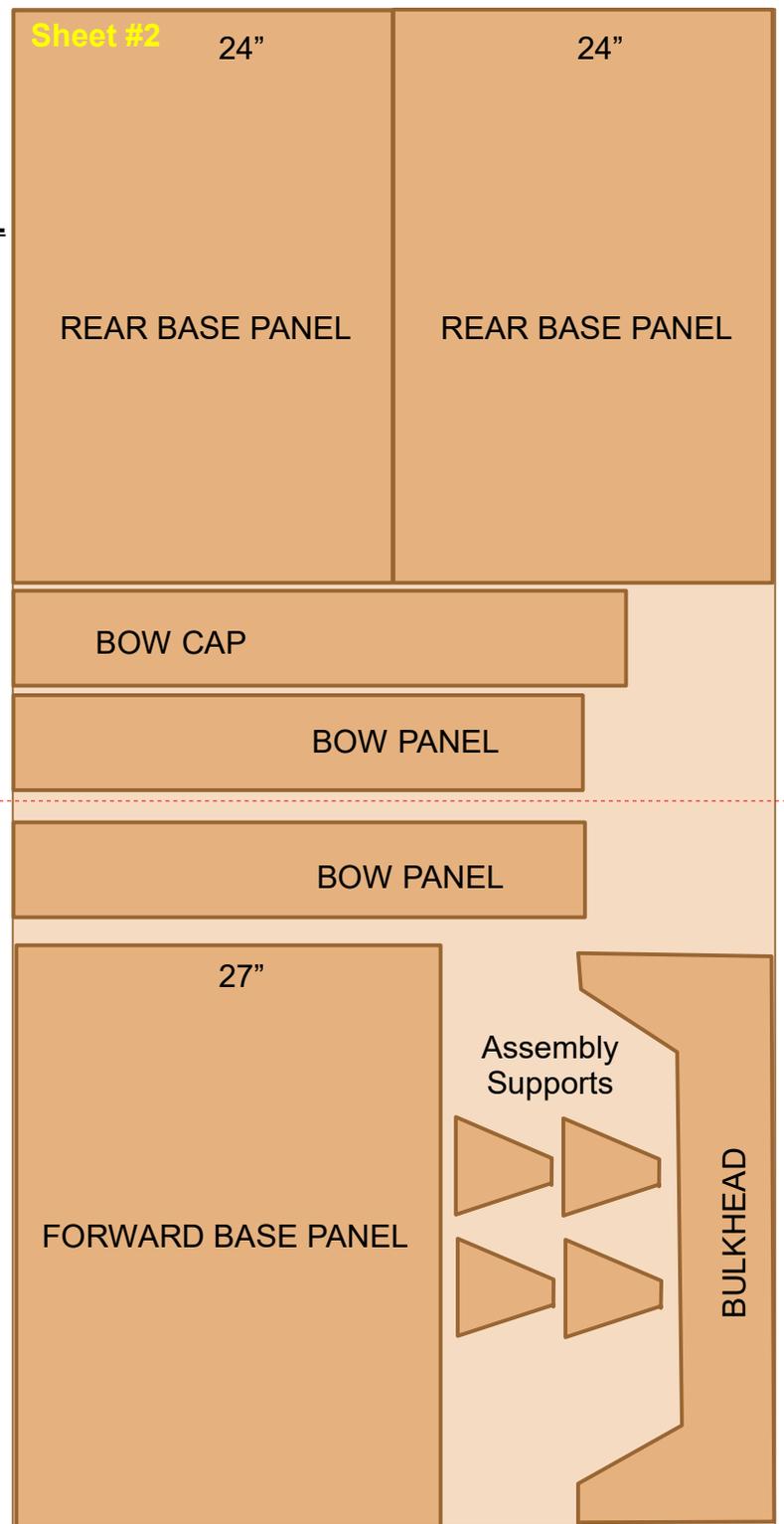


**1/4" PLYWOOD LAYOUT**  
For 2 MODULE HULL

It is very important that the Panels be cut from the plywood sheets exactly as shown on this page.

The Plywood specified is ACX Grade, or better. This insures that waterproof glue is used to bond the layers.

Remember, there is a good side, and a not so good side to plywood. The good side should always be on the outside of the boat. It is smoother and has less knots.



The first thing to do is to **read the instructions thoroughly** before cutting any plywood. There are areas where you have to make a decision that affects further assembly. So, take your time, plan your work, and enjoy the building process.

The plans are laid out in a sequence of steps dedicated to a specific hull module. Usually the easiest assembly is presented first. Photos are used as much as possible to assist in describing the assembly process, with sketches developed to provide dimensions and clarity. Some detail will be the builders option, such as motor mounting and seating choices. Each build should have the stamp of the builder on it, items that are not on the plans, but desired by the builder. Such as fishing rod holders, oar locks, or a cooler compartment. This is your project, so personalize it, you will be glad you did.

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### **STEP 1** LAYOUT PLYWOOD SHEET # 1 & 2 (Both Modules)

*Take special note of the red cut lines of the plywood cutout pages. If you have difficulty transporting a full sheet of plywood, have the store cut the plywood into sections, per the red dimensions defined and shown on the plan pages.*

Using a dark pencil, layout the relevant panels defined on Page 4 to Plywood Sheet #1. Plywood generally has a good side, and a not so good side. I suggest the use of ACX grade plywood, or better, side A being the good side. The X signifies exterior, and waterproof glue was used to bond the plywood layers. Underlayment plywood is acceptable. Do ALL your marking on side C, because you want the good side A to be down when cutting, as it minimizes splinters on the good side. The good side A will always be on the outside of the boat. It is important that you take your time, use a good straight edge, and double check each dimension. Always measure twice and cut once! And remember Murphy's Law of Boat Building: The glue dries before the mistake is found!

The use of a fine tooth plywood saw blade is recommended. Cutting a straight line is critical, and where like panels are cut ( Side Panels for instance) make sure they are identical. Note, the plywood panel layout insures that there is a right and a left panel. After a panel is cut, sand the edges lightly to minimize splinters. Lay panels aside on a flat surface, to prevent them from warping. Weigh down if necessary.

The next steps will describe the assembly process for each panel. The glue recommended is **TiteBond III**, waterproof wood glue, available at most home improvement stores. I suggest you buy a Gallon, as it is less expensive in the long run. Should cost about \$32, and may require a special order at your store, so plan ahead. Other glues can be used, but try not to use Poly glues (Gorilla Glue), as they expand when curing. The curing time of glues vary greatly depending on weather conditions; hot or cold, humid or dry. Read the manufacturers recommendations first.

Panel assembly requires the use of #6 x 3/4" wood screws. Brass or Stainless preferred. Zinc plated is acceptable. Now, on to the assembly!

# SIMPLE 8' PRAM

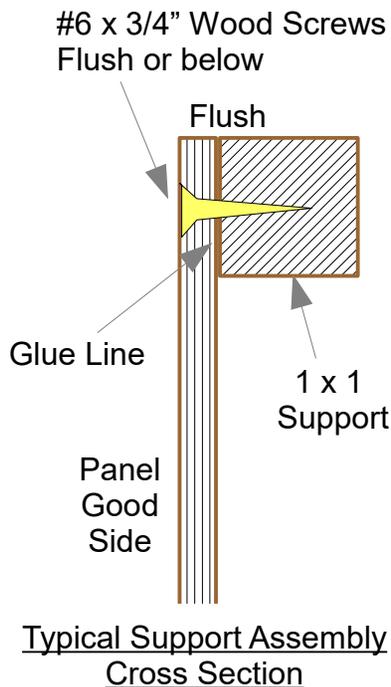
## CONSTRUCTION NOTES

### STEP 2 BULKHEAD ASSEMBLY (Both Modules)

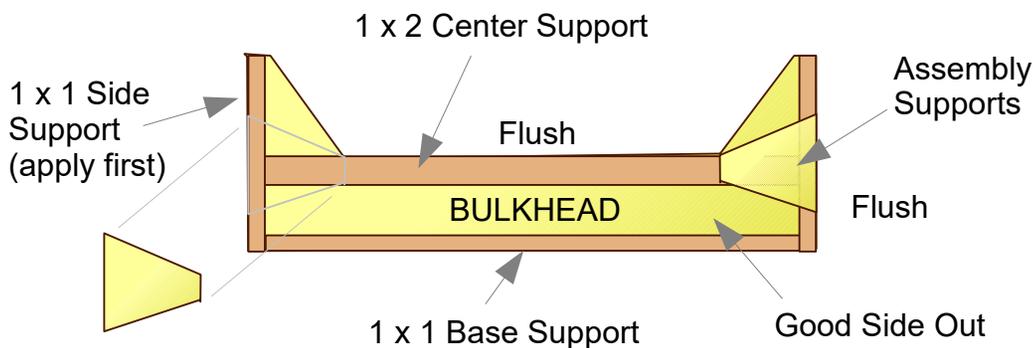
The joining of the Supports to the Panel is very straight forward. The sketch at right is very typical.

First pre-drill clearance and countersink holes from the outside of the panel, about every 4 inches. Next apply a thin bead of TB3 glue to both surfaces to be glued. Rub into the wood. This eliminates any possible dry spots. Now apply a thicker bead of TB3 on the support, align it to the edge of the panel, clamp if necessary. Apply the screws, do not overtighten.

Remove any excess glue. Repeat this process for all supports.

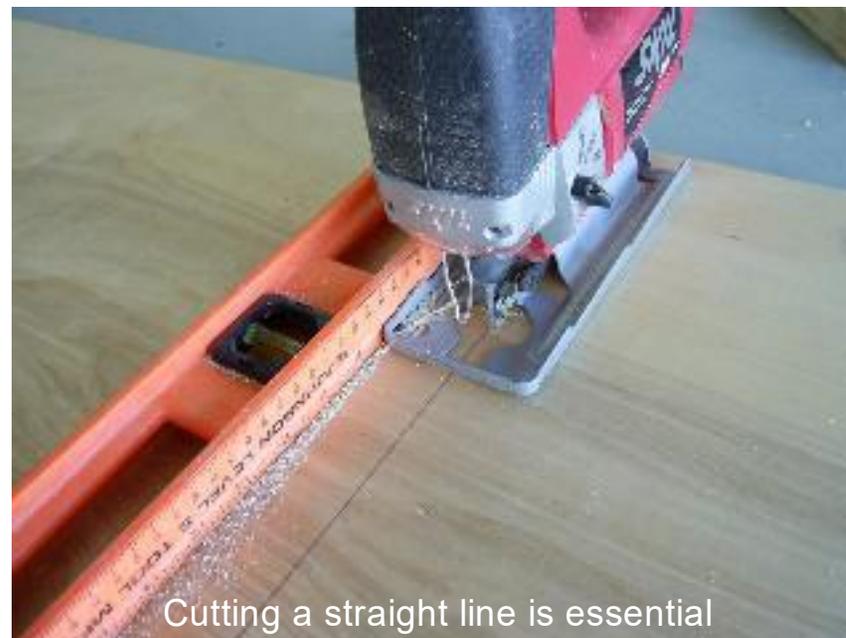


Drawing Not to Scale



After all supports are assembled, lay bulkhead on a flat surface and allow the glue to cure. Weigh down, if necessary, to prevent warping of the panel.

Read Assembly Instruction Thoroughly Before Cutting.



Note:

1 x 2 lumber is actually 3/4" x 1-1/2" in size  
1 x 1's are 1 x 2's cut in half down the middle  
Make from framing lumber, but be selective in your choice. Straight, few knots and dry.  
Supports need to be flush to all outside edges of the Bulkhead.

Place the 2 Side Supports first, followed by the Base Support and the Center Support. Glue & screw the Assembly Supports to the side and center supports as shown.

Repeat the process for the other Bulkhead.

# SIMPLE 8' PRAM

## CONSTRUCTION NOTES

### STEP 3 BOW PANEL ASSEMBLY (Both Modules)

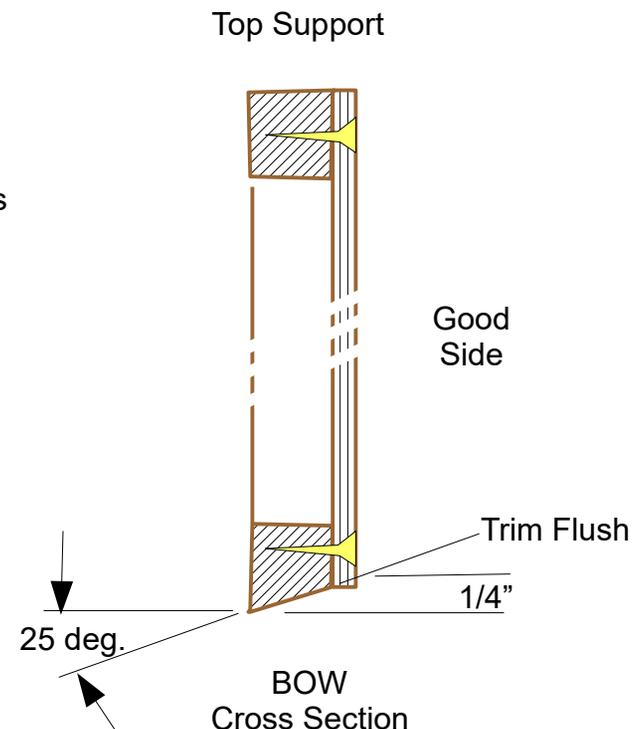
First, trim a 6 foot length of 1 x1 lumber with a 25 degree angle on one side, about 1/4 inch, as shown in sketch at right. Then cut into two 36 inch lengths.

Using the same process as in Step 2 (Bulkhead), Glue and Screw the 1 x1 Supports as shown. It is important that the Top Support be positioned so that it is flush to the top edge of the Bow Panel. It is also important that the Bottom Support be located so that it is at the inside edge of the Bow Panel, as shown at right.



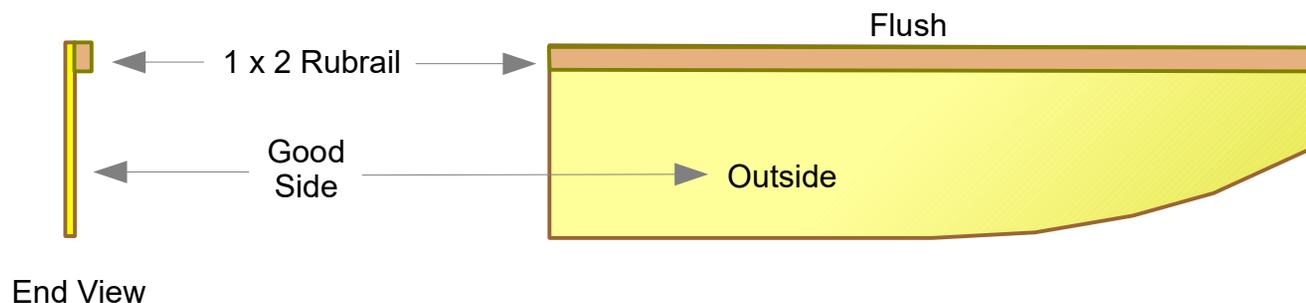
Place the Top and Bottom Supports first.  
Then the 2 Side Supports, as shown.

After all supports are assembled, lay bulkhead on a flat surface and allow the glue to cure. Weigh down, if necessary, to prevent warping of the panel.



Drawings are  
not to scale.

### STEP 4 SIDE PANEL ASSEMBLY (Both Modules)



Glue and screw a 1 x 2, as shown, on the outside of each of the Side Panels. These Rubrails will keep the panels rigid during assembly of the Bulkhead and Bow. Select a harder grade wood for this purpose, as it helps provide torsional strength to the finished hull assembly.

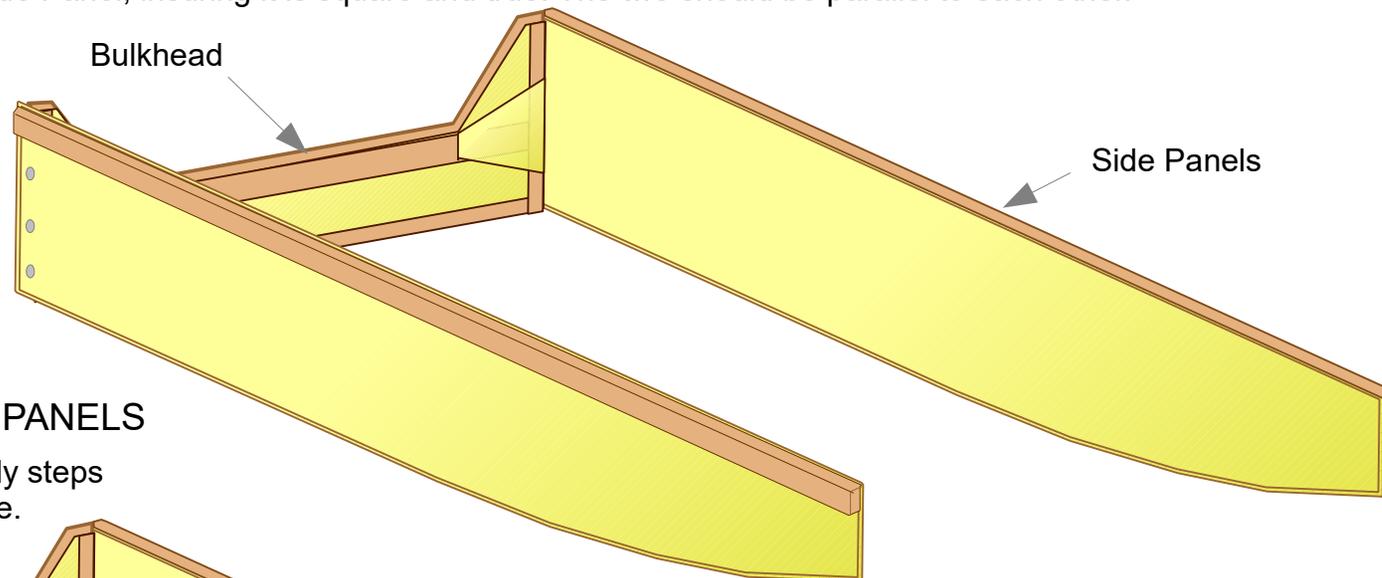
# SIMPLE 8' PRAM

## CONSTRUCTION NOTES

### STEP 5 SIDE PANELS TO BULKHEAD

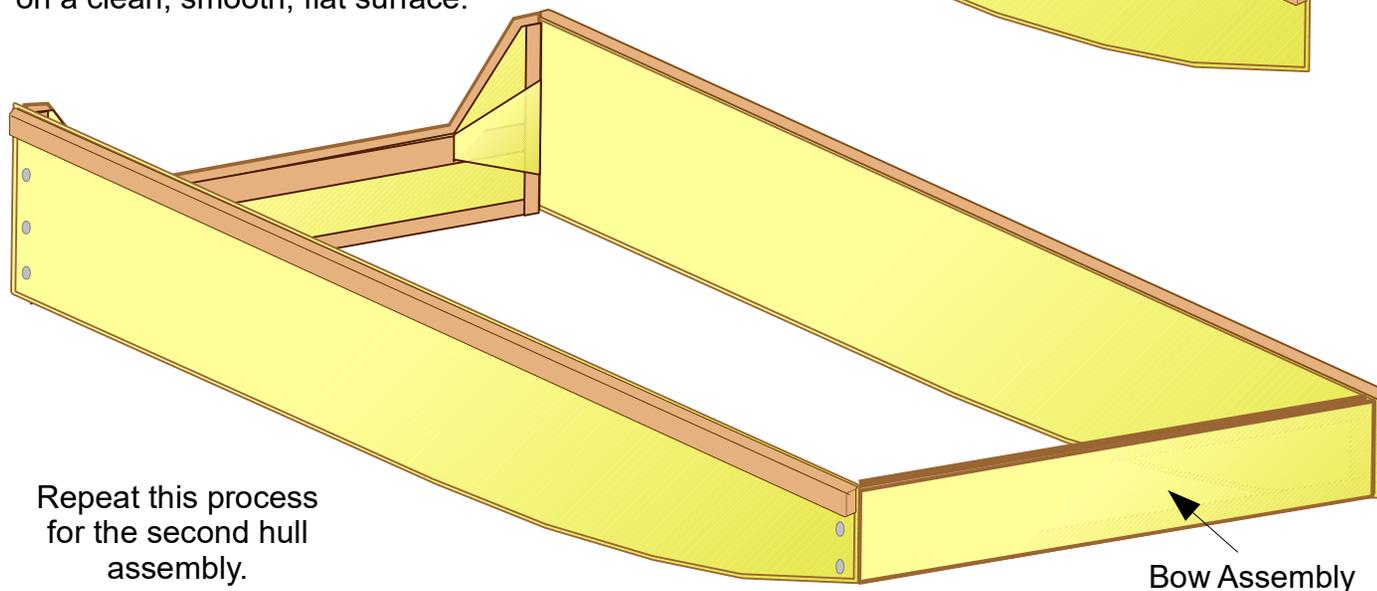
Using the same method of applying glue from Step 2, glue and screw the Side Panels to the Bulkhead, as shown below. Prior to applying screws, check to make sure the first Side Panel is square to the Bulkhead, and that the Bulkhead is square to the floor. Also check to make sure the end of the Side Panel is flush to the outside surface of the Bulkhead Assembly. Then assemble the second Side Panel, insuring it is square and true. The two should be parallel to each other.

Repeat this process for the second hull assembly.



### STEP 6 BOW TO SIDE PANELS

Always perform these assembly steps on a clean, smooth, flat surface.



Repeat this process for the second hull assembly.

Using the same process as the Bulkhead, align, glue and screw the Bow Panel between the Side Panels. Insure the Bow is vertical, and that there is no twist or mis-alignment in the complete assembly.

You can turn the assembly upside down to perform this function, if it would be easier.

Allow to cure before next step.

# SIMPLE 8' PRAM

## CONSTRUCTION NOTES

### STEP 7 PREPARATION FOR BASE ASSEMBLY

This is a straight forward assembly. Cut a 35-1/2 inch length of 1 x 2. Insure it is straight and not warped. This will be the Base Cross Support. Glue and screw, from the outside, both ends of the Cross Support, flush to the bottom of the Side Panels, as shown.

Next, cut 2 lengths of 1 x1 lumber to fit on each side of the assembly between the Bulkhead and the Cross Support. These are the Rear Edge Supports. Glue and screw in position, flush to the edge of the Side Panels.

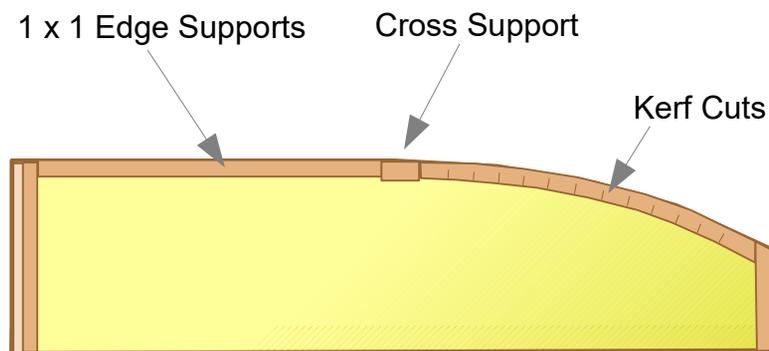
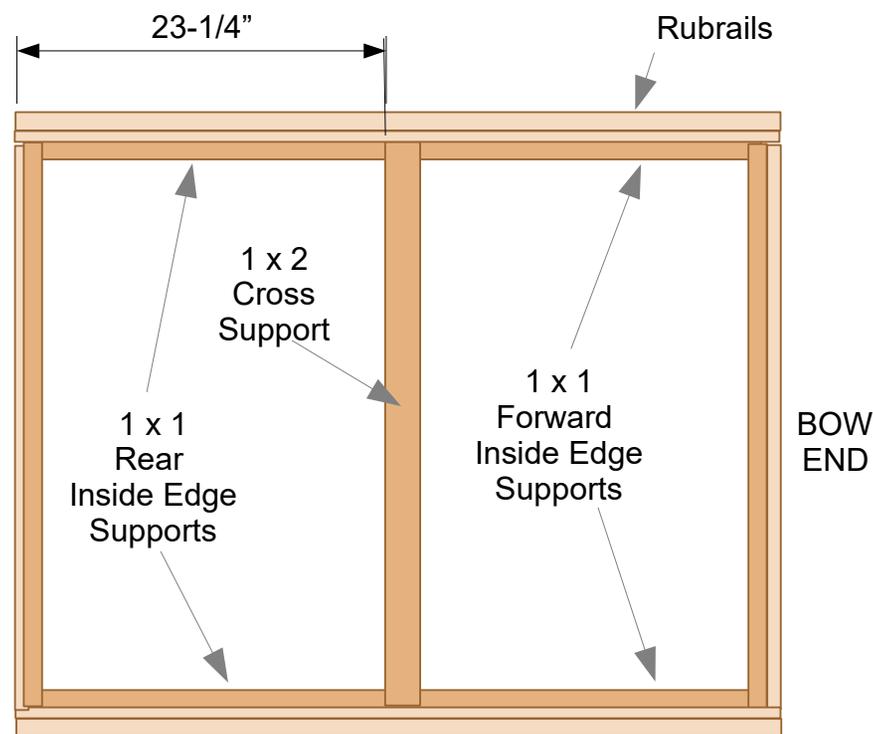
**You can choose to use Spring Clamps to hold these Supports in place, instead of screws. This applies to other assembly steps as well. Your choice.**

Now cut 2 lengths of 1 x1 lumber about 27 inches long. These will be the Forward Edge Supports. Because the lumber will not easily bend around the bow curve, it is necessary to "Kerf" each to fit properly. Kerfing is the slotting of the lumber to allow it to bend in one direction. Do this by slotting with a hand saw every 1 to 1-1/2 inches apart, as shown in the sketch below. Slot about 1/2" deep. When complete, carefully bend the support to fit the radius of the bow. Mark the end location, and cut to proper length. Glue the 2 supports in place, flush to the side panel edge.

Allow to cure.



Typical Kerf Cuts



CROSS SECTION

Drawings are not to scale.

# SIMPLE 8' PRAM

## CONSTRUCTION NOTES

### STEP 8 ASSEMBLY OF BASE PANELS

This is also a straight forward assembly. Again, using the previous glue process, align and glue the Rear Base Panel to the Edge Supports and Side Panel top edges, and the Cross Support. Insure the assembly is square. Screw the panel in place, all 4 sides. Note that the panel covers only half of the cross support. This will facilitate placement of the Forward Base Panel. If the base Panel is wider than the assembly, you can trim it to size after the assembly has cured.

Now carefully align the Forward Base Panel onto the assembly. Glue and screw to the Cross Support only, as shown in the cross section view. Then slowly bend the Forward Base Panel down until it touches the Bow Panel. If there is overlap, you can trim it after the assembly has cured. If the panel will not bend easily, wet the outside of the panel with hot water, until it bends all the way. Release the panel, and start to apply glue to the Side Panel edges and Edge Supports, and apply screws until you reach the Bow. Finally, glue and screw to the Bow Panel. Insure there are no gaps, and that the assembly is straight and true.

**To do this quickly, apply glue to all joint surfaces, and use straps to hold the Base Panel down against the Sides and Bow.**

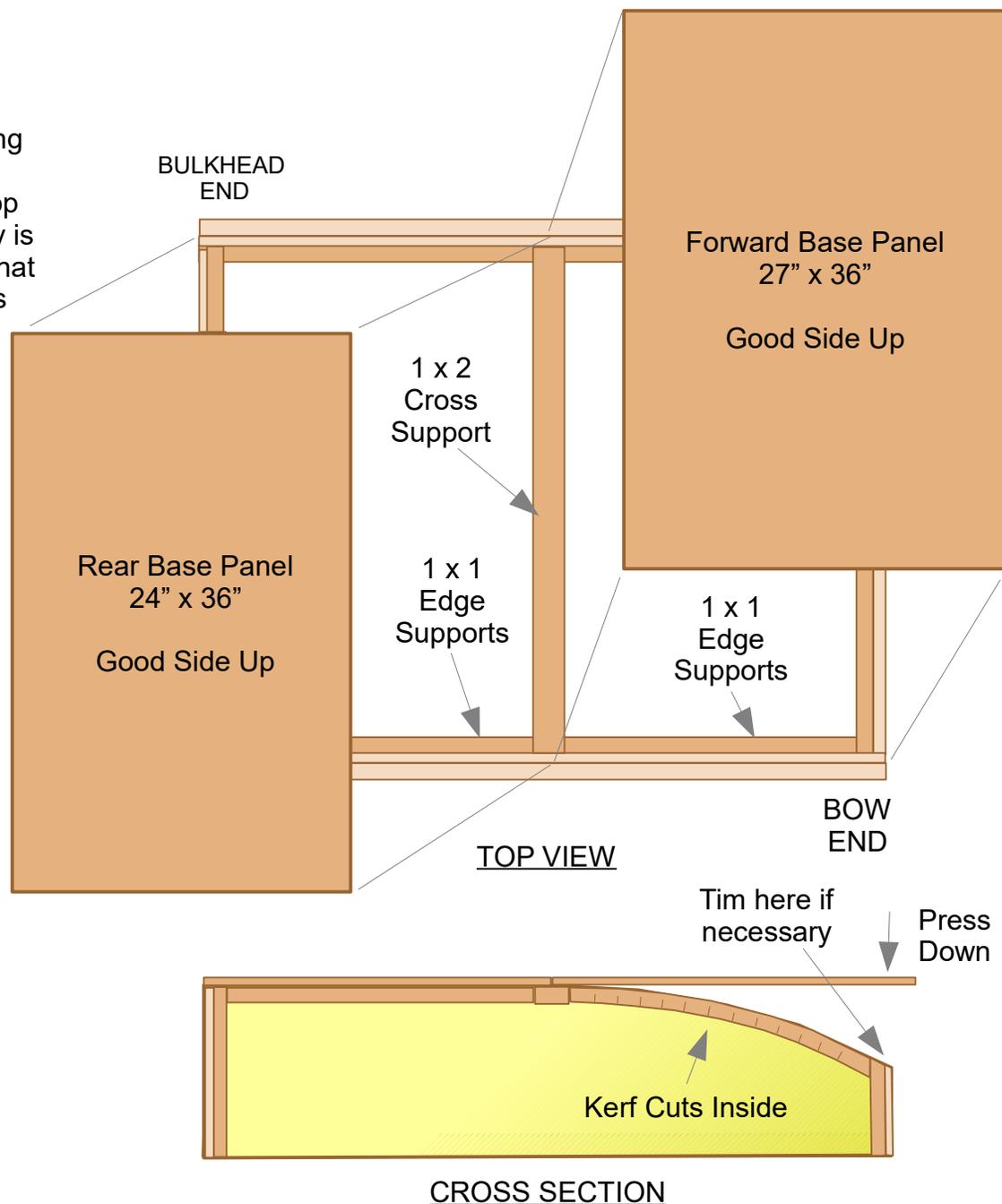
**Apply screws, and allow to cure (page 12).**

Cut off any overhang on the sides and at the bow with a fine tooth hand saw.

Lightly sand the entire assembly.

Again, check for glue voids or gaps in the edge assembly. Fill with TB3 glue if necessary. Sand smooth all edges and remove any glue residue.

Repeat this process for the other hull module.



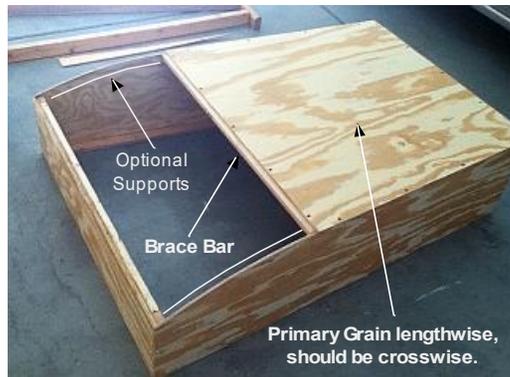
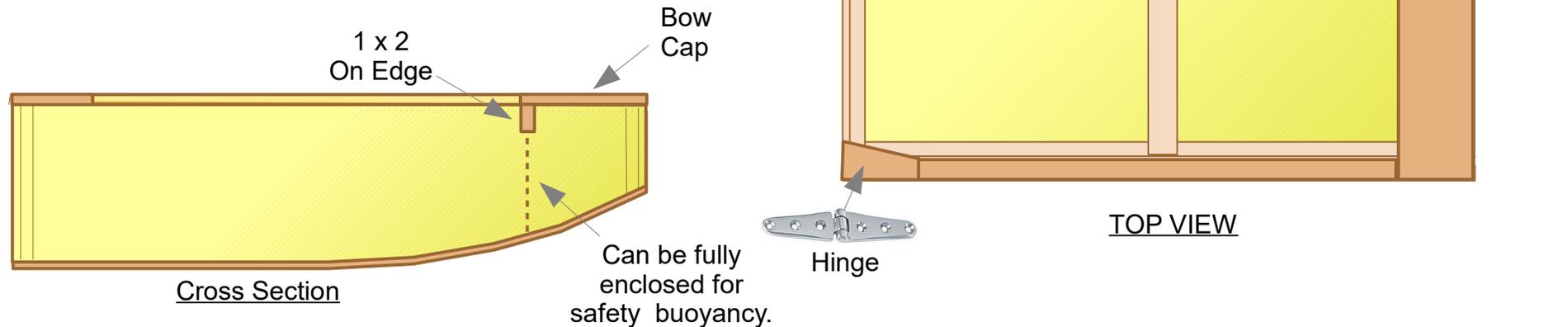
# SIMPLE 8' PRAM

## CONSTRUCTION NOTES

### STEP 9 ASSEMBLY OF TOP CAPS

To finish off the hull details, and to add rigidity, Top Caps are applied on the corners, sides and the bow. These should be glued in place and held with clamps, or weighted down until cured. This way no screws are evident on the top side.

To make the Bow Cap strong, apply a 1 x 2 on edge, underneath the inside edge. Hold in place with clamps until cured.



This is a sample photo from a different build, but it is representative of the Base assembly.

The next phase of construction is the finishing. This includes sanding all the surfaces and edges, in preparation for the Tape & Glue Process, which seals all outside panel interfaces to prevent water intrusion. Waterproofing and painting are the last of the hull major finishing activities.

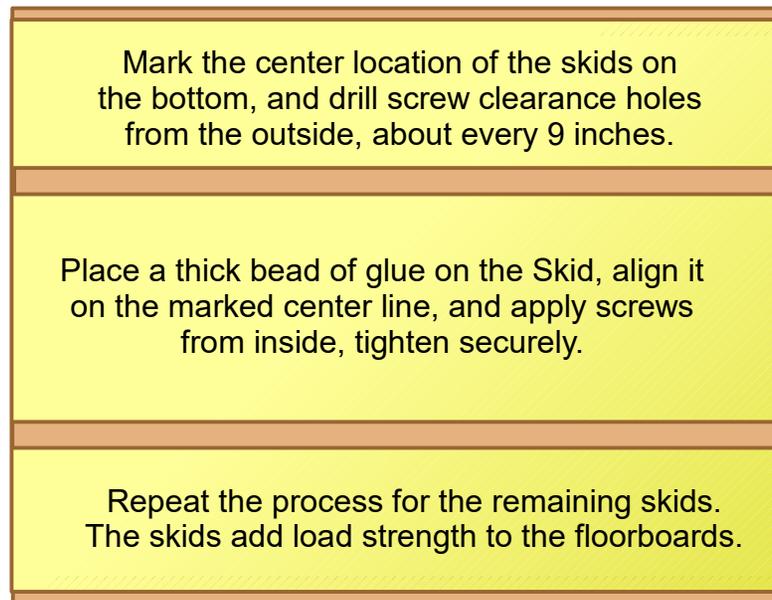
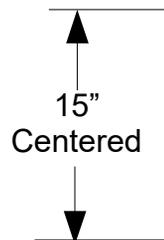
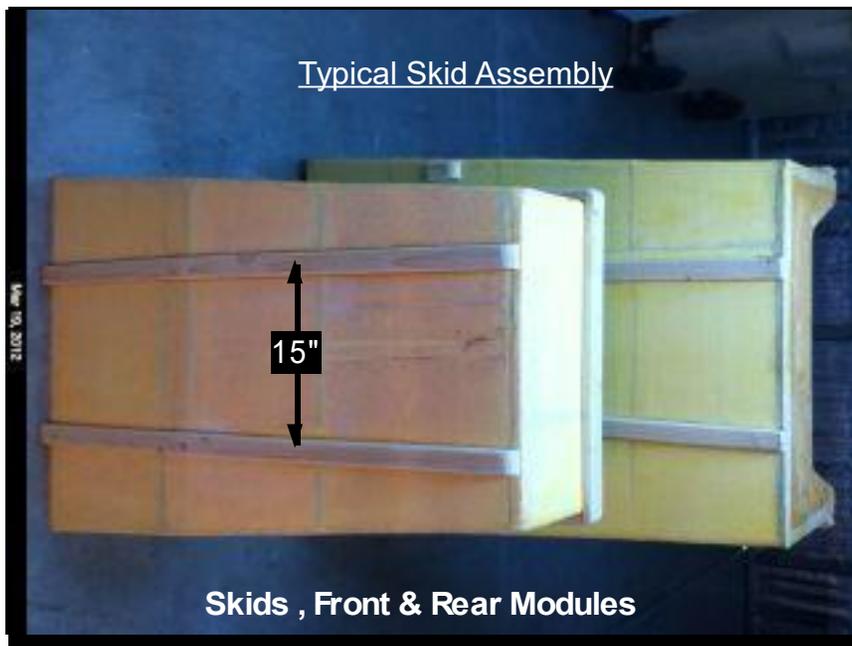


This photo shows 2 straps holding down the forward base panel for gluing and screwing in place.

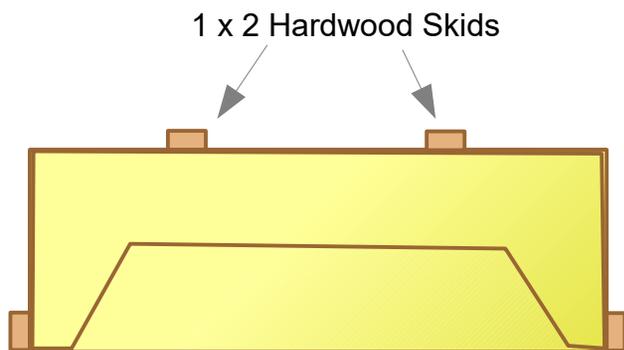
# SIMPLE 8' PRAM

## STEP 10 SKID ASSEMBLY

It is suggested you use a harder grade wood for the Skids, as they can take a lot of abuse. If you want extra protection, place 3 equally spaced skids, one down the center, and one 9 inches to each side. This is also suggested if you carry heavier loads.



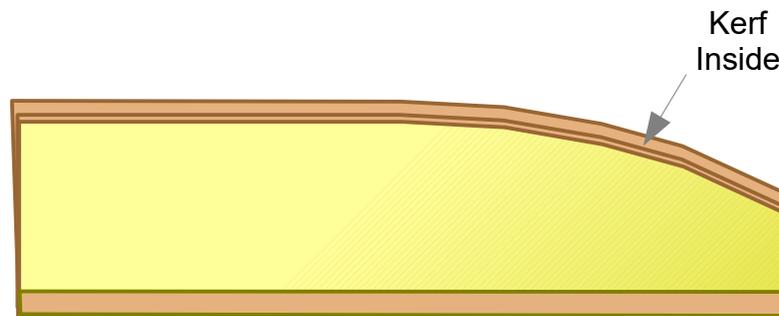
Bottom View



End View

3 skids recommended for greater strength.

You will have to Kerf the inside of the forward end of the Skids so that they bend down over the curve of the bow.



Side View

**After skids are complete, the next major step is the “Tape & Glue Process” of all external seams and edges. This is critical to the long term reliability of the hull, and to minimizes maintenance over time. Refer to pages 18 thru 22 for complete T&G instructions.**

## SIMPLE 8' PRAM



Accurately align and clamp the hull modules together. Using a 3/16" dia. bit, drill through both modules, as shown. The hole should be straight & centered vertically on the 1 x 2 crossbar, and 3" from the side panel.

## SEQUENTIAL ASSEMBLY PHOTOS



Unclamp the modules. Using a 1/2" dia. spade wood drill bit, drill from one side, halfway through, then drill from the other side through. This prevents breakthrough chipping or splinters. Repeat for all four holes.

## HULL ASSEMBLY BOLTS



This is a 3/8"-16 T-Nut. It will be placed in the hole, glue applied (TB3) to the flange inside face & corner, and pounded flush to the support plate. Apply glue to exterior face and around the support surface.



After the two T-Nuts are applied, align the hull modules and secure with the Assembly Bolt Knobs. Hand tighten as best you can. Allow the glue to cure.



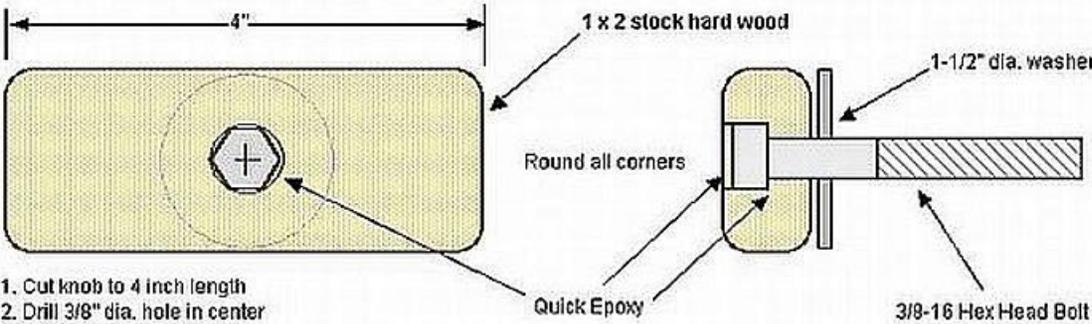
Assembly Bolt Knob.  
See drawing on last page of this plan.  
Bolt length to be 3 inches.



Detail view of Assembly Knob.  
Not necessary to overtighten.  
Hand tight is sufficient.  
I put a little petroleum jelly on the threads  
to ease installation.

# SIMPLE 8' PRAM

**ASSEMBLY BOLT - CUSTOM KNOB**



1 x 2 stock hard wood

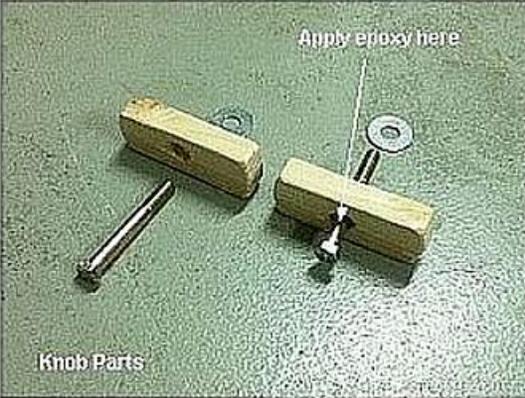
Round all corners

Quick Epoxy

1-1/2" dia. washer

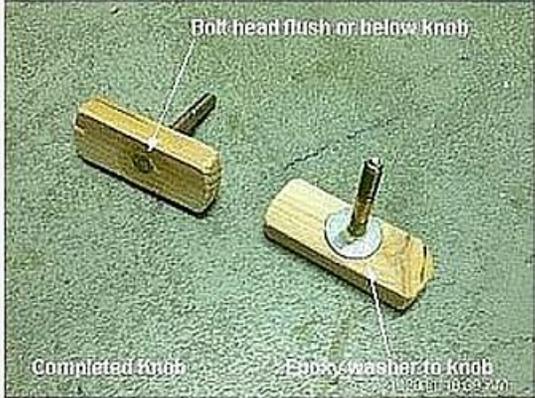
3/8-16 Hex Head Bolt  
Length of bolt to suite application

1. Cut knob to 4 inch length
2. Drill 3/8" dia. hole in center
3. Drill 5/8" dia. hole 3/8" deep
4. Insert bolt into knob halfway
5. Apply quick cure epoxy to bolt shaft and head (not threads)
6. Press the bolt all the way into the knob
7. Remove excess epoxy
8. Allow to cure.
9. Paint knob color of choice



Apply epoxy here

Knob Parts



Completed Knob

Bolt head flush or below knob

Bolt & washer to knob

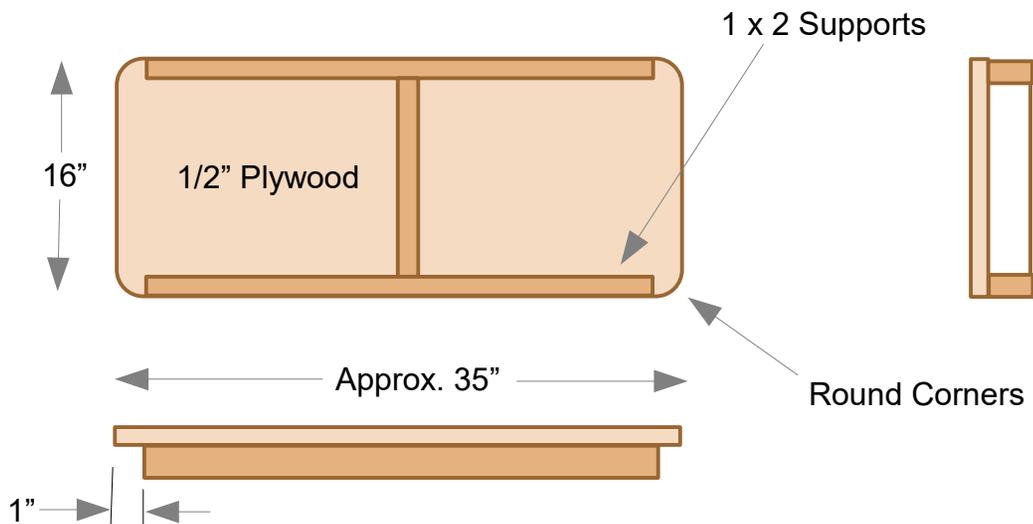


Typical 'Strap Hinge' to connect the 2 hulls for easy stacking. See page 11.

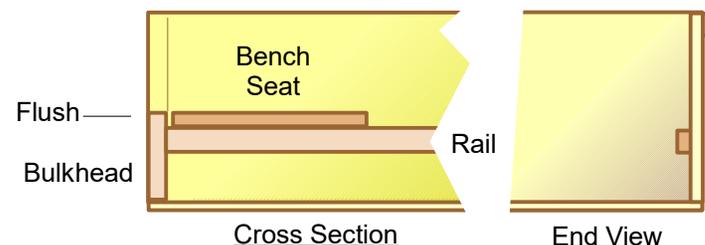
# SIMPLE 8' PRAM

## SEATING

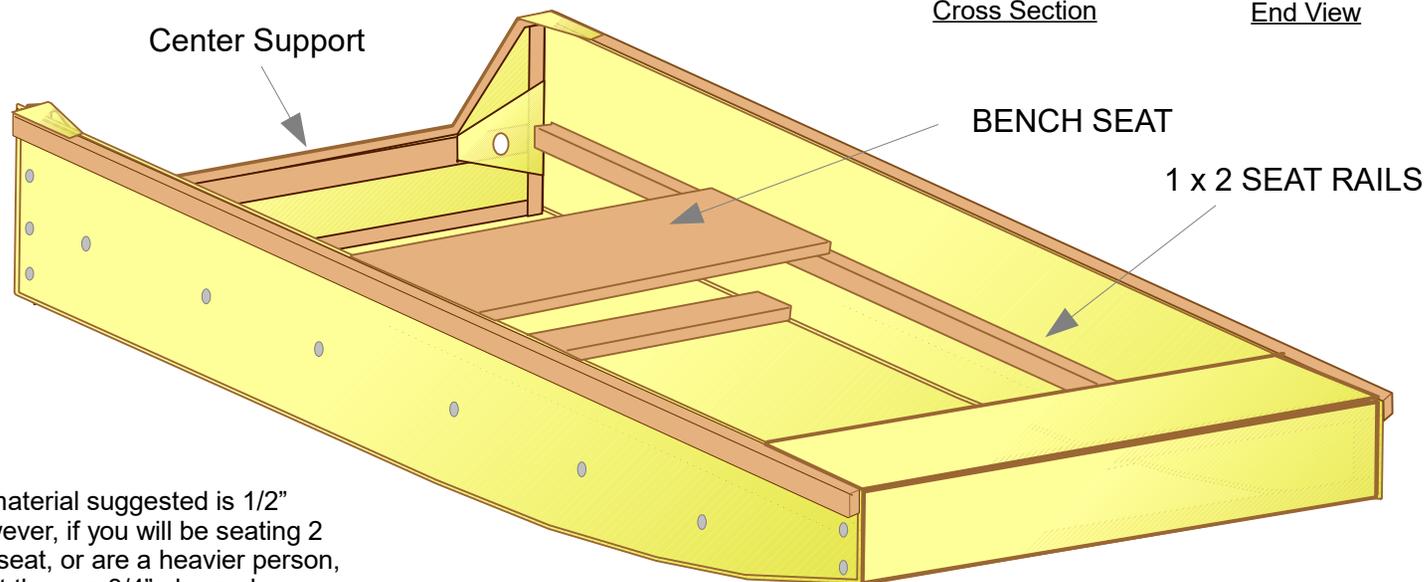
The suggested seating method is movable bench seats, as defined on this page. However, the builder can choose other types of seating, including fold up beach chairs, or a folding plywood seat. In the end, the seat type should be determined by the how the boat is to be used, and the comfort level required. I like a seat with a back, and will probably employ the bench seat for paddling or rowing, and a full seat for motoring.



Glue and screw the 1 x 2 supports, on edge, to the underside of the seat, located as shown. It is important that the seat move easily in the boat, but not so loose that it can fall from the seat rails. Smooth all edges and round the corners. Finish with a waterproof paint.



The seat rail location should be such that when the seat is installed, it becomes flush to the top of the bulkhead center support. Mark the center of the rail location, and drill clearance screw holes, as shown. Glue and screw the rails in position. Allow to cure.

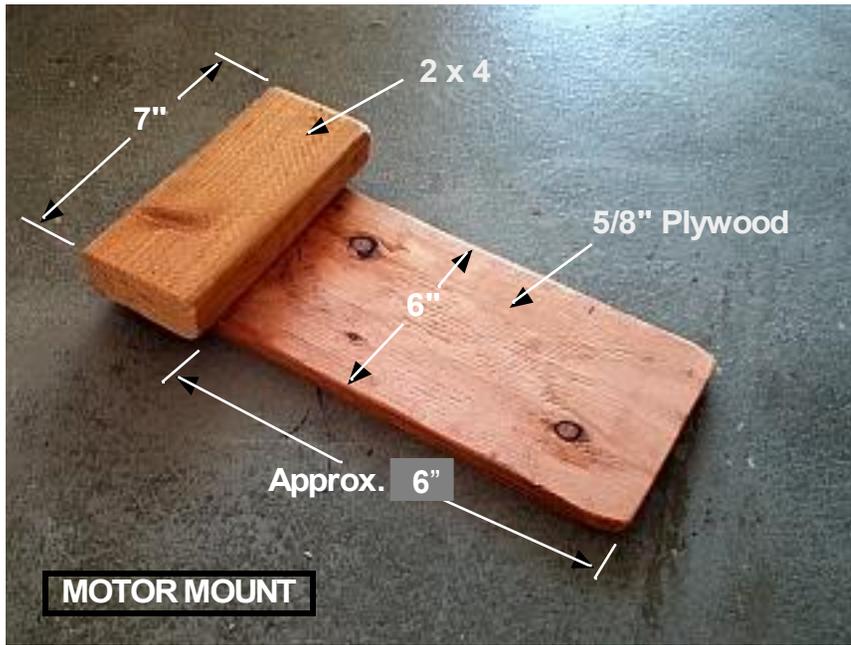


The seat material suggested is 1/2" plywood. However, if you will be seating 2 people on one seat, or are a heavier person, I suggest the use 3/4" plywood.

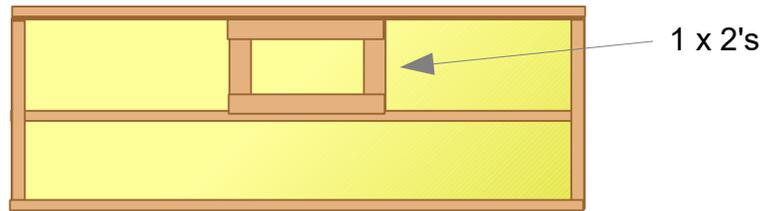
Drawings are not to scale.

**OPTIONAL**

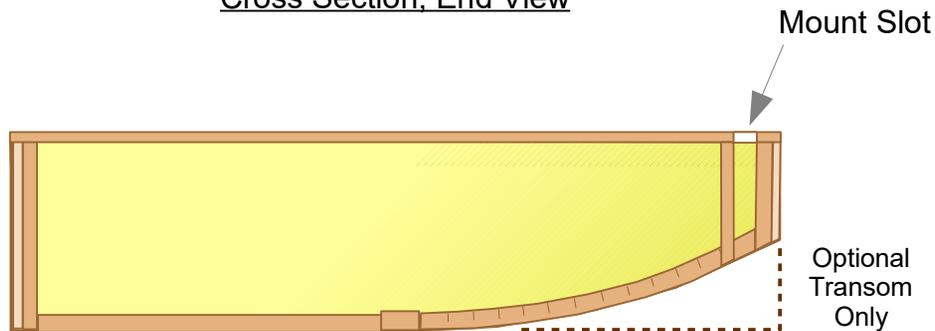
**SIMPLE MOTOR MOUNT**



Simply fasten the mount securely to the motor, then just slip the mount tab into the hull slot. Easy to mount and remove.



Cross Section, End View



Cross Section, Side View

Typical 1 x 2 Mount Assembly  
6" x 3/4" Opening



This is a sample photo from a different build, but it is representative of the assembly.

## FINISHING

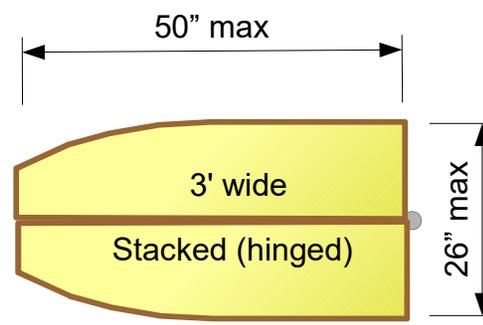
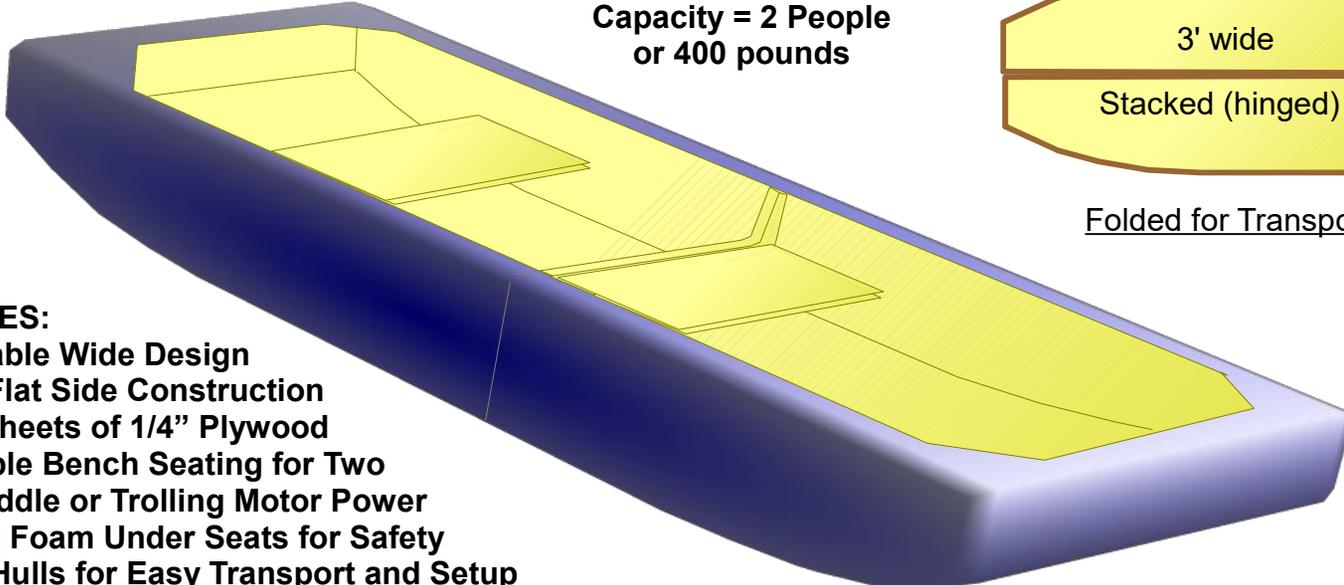
The finishing of the boat is the most important element of boat building to some people. I believe it is equally important to the quality of construction. The next assembly step, the Tape & Glue Process, is proof of that statement. It is a seam sealing process that does not use epoxy, yet produces a tough waterproof barrier. After all T&G seams are complete, it is necessary to apply a waterproof sealer to the entire hull, inside and out. The choice of material is yours. I use Thompsons Water Seal on all my boats, but I also use only oil based finishes, like marine spar varnish or enamel paint. Thompsons and water based finishes (acrylic latex paint) do not work well together, as it does not allow the paint to dry properly. I even recommend coating the hull with a 25% watered-down mixture of TB3, mixed well, and brushed on in a thin penetrating waterproof coating. As I said, the choice is yours. Good luck with your project, and happy & safe boating !

*May 2013*

### SIMPLE 8' PRAM

**Build with basic handyman tools.  
Great starter boat for all ages.**

**SPECIFICATIONS:**  
OAL = 96" (8 feet)"  
OAW = 36" (3 feet)  
OAH = 12" (1 foot)  
Weight = 50 pounds  
Capacity = 2 People  
or 400 pounds



Folded for Transport

**FEATURES:**  
Ultra-Stable Wide Design  
Simple Flat Side Construction  
Only 2 Sheets of 1/4" Plywood  
Adjustable Bench Seating for Two  
Row, Paddle or Trolling Motor Power  
Optional Foam Under Seats for Safety  
Hinged Hulls for Easy Transport and Setup  
Can be Constructed as a Single Hull Design

[PortableBoatPlans.com](http://PortableBoatPlans.com) *a ken simpson design*



Print in Landscape Mode with ¼ inch borders.

The TAPE & GLUE PROCESS has been around for a few years, and hundreds of small boats have been constructed successfully utilizing the process without incident. There were two goals in developing the construction process, which is similar to Stitch & Glue. First, it had to be people and earth friendly, meaning it had to be as biodegradable as possible, and a non-allergen to those using it. Second, the materials used had to be low in cost to purchase. A third, but lower priority, had to be ease of assembly. The process has proven to be very popular with the small boat building community. Some builders have asked if other materials could replace those specified, and, up until now, none proved better. However, recent tests of various other materials has prompted a change to the materials list. Specifically, the "tape" can be replaced with a commonly available alternative, FibaTape, an ultra thin fiberglass drywall tape, with adhesive backing. The weave is small enough, and the thickness thin enough to provide just the right combination of features to replace the fiberglass cloth previously recommended. The following instructions will guide you through the process, in words and pictures, so that you should have no problems in producing strong and water sealed assemblies. Remember, the T&G Process is applied to most corners and seams after the basic hull modules are assembled, to provide a water seal at the edge of the plywood, and to enhance the structural integrity of the overall hull design. As a result, it is recommended that the boat being constructed be designed specifically to take advantage of this process.

The materials specified should be available at your local home improvement stores. The bonding glue is **TITEBOND III**, waterproof wood glue. It is biodegradable, non-allergenic, and FDA approved. It is available in 16 oz and 128 oz containers.

The tape is **Ultra Thin FibaTape**, used in drywall construction. It is an adhesive backed fiberglass mesh tape, that is mildew resistant. It is available in 75 foot and 300 foot rolls

Combined, these two materials produce a strong, thin, and easy to process alternative to other boat construction methods.

The photo at right is an edge seam processed with this new T&G2 method. As you can see, it covers the corner completely, and produces a smooth surface finish. Only light sanding is required after the glue has cured, typically in about 4 hours, weather depending. Like all processes, the ideal working conditions are at room temperature, around 72 degrees F, or 22 degrees C.



## TAPE & GLUE PROCESS 2

### Materials

The photos below are of the two components that make up the Tape & Glue Process 2. In combination they provide a strong, waterproof panel sealing system, that adds strength and rigidity to the hull components. The following instructions will show, in text and pictures, how to easily accomplish this process, and they will also indicate those areas of caution..



Use only Ultra Thin Fiba-Tape

Available in 75 foot and 300 foot rolls.  
Purchase the 75 foot roll.



TiteBond III Waterproof Wood Glue

Available in 16 oz and 128 oz containers.  
Purchase 32 oz for T&G only

Typically for small boats, one layer of tape is all that is necessary. However, if you are going to portage the boat over rough terrain, rocks or gravel, it is recommended two overlapping layers of tape be applied, for best seam protection. Also, do not skimp on the glue, as it is what holds all components together, and provides some abrasion resistance. All my designs utilize bottom skids, and some even utilize chine rails, to protect the hull panels from damage. The T&G Process 2 is intended for small boats only, 12 feet in length, or under. Larger boats, which are heavier and carry a bigger load, should use more traditional methods of assembly, for safety purposes.

Follow the instructions, and do not replace the materials specified, as they have been tested and proven to work on this boat.

## TAPE & GLUE PROCESS 2

Make sure that all panels to be taped have been cleaned and are free of sawdust. Wipe all these areas with a damp cloth, and allow to dry. Make sure all surface preparations, including rounding and sanding, have been made prior to starting.

You will be taping the inside and the outside seams of all hull modules. I like to do the inside first, and get it out of the way, but it's your choice. Whichever, always allow sufficient curing time for the TB3 glue, a minimum of 4 hours.

### DO's and DONT's

DO take your time in performing these instructions.

DO wear protective gloves and eyewear when applying the glue.

DO plan ahead to insure you have sufficient materials to finish the job.

DO NOT take shortcuts, follow the instructions.

DO NOT crease or fold the Tape, as it is a stiff fiberglass mesh and may crack.

DO NOT water down the TB3 Glue, as it will be difficult to control the drip.

DO NOT sandpaper through the corner edge of the Taped joints.

Other Do's and Dont's may show up where necessary.

## The T&G PROCESS 2

A simple process description: **Cut Tape to Length, Press Adhesive Side Firmly to Panel, Apply a Bead of Glue, and Smooth Out.**



Sharp Shears to Cut the Tape

Press the tape firmly and evenly over the rounded corner of the hull. Repeat this action for the other edges. Make sure there are no loose spots. If there are, make note of it, as you will have to re-seat these after the glue has started to cure.

It is not necessary to tape the inside joint of the bulkheads and side panels, only the outside corners, as shown.



Protective Gloves

## TAPE & GLUE PROCESS 2

### The Process



Typical glue bead size

Notice the bead size of the glue, and also note the small plastic trowel. This will be used to spread the glue evenly over, and into, the surface of the tape.

Be consistent in the application of glue, and how you spread it out onto the tape. Allow the glue to settle into the weave of the tape. Pay particular attention to the corners, as the glue has a tendency to dry out in these areas.



Spreading glue with a small brush

**When lightly sanding the taped edges, take special caution not to sand through the fiberglass tape !**



Finished taped edge

Note: A second coat of TB3 will be applied to all taped seams, after the first has fully cured. This will add strength and fully conceal the tape. Patience is the key word when performing this process. Allowing the glue to fully cure is critical to achieve the full strength of the finished project. When ready to add the second coat of TB3, first lightly sand the taped surface to provide better bonding.



Typical corner application

After using both the trowel and the brush, I found the brush to be easier to use, and causes less disruption to the tape.

# TAPE & GLUE PROCESS

## Interior and exterior application



4 inch lengths of tape

What seams and corners need the T&G Process ?

INSIDE:

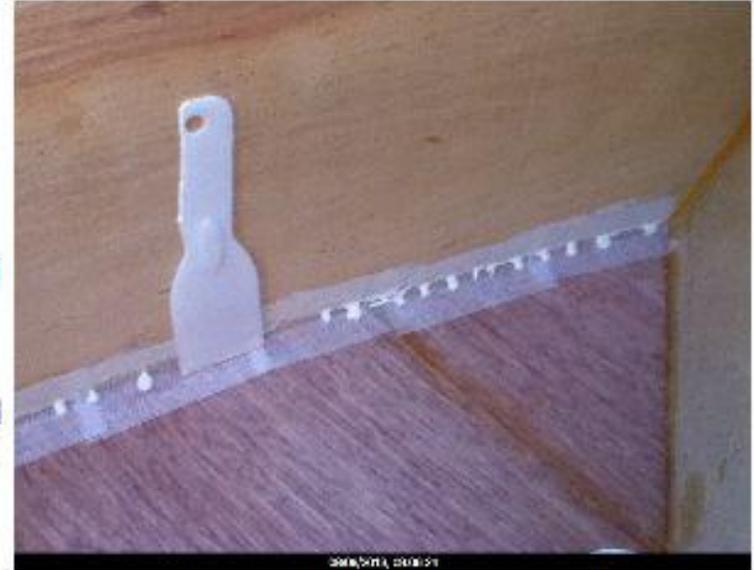
All Base to Side Panels.  
The Bow and Stern ends.

OUTSIDE:

All Base to Side Panels  
All Side Panels to Bulkhead  
All Base to Bulkheads  
The Bow & Stern ends.

You will note that the curved sections of the inside base require the tape to be cut into 4 inch lengths.

See below.



Glue being spread up the tape

As stated earlier, I like to do the inside first, because it is harder to reach, and therefore more difficult.



Overlapping Taped Sections

As previously mentioned, the tape is stiff, and as such, cannot be stretched. So it is necessary to apply it in overlapping sections to achieve a fully taped curved seam. These photos should provide a good view of that process.

On the exterior curved surfaces, it is best to apply the tape to the side panel, and then slit the area to fold over, every 4 inches, as shown at right.



Exterior method on curved surface

## TAPE & GLUE PROCESS

## Final Notes



These are photos of the finished T&G Process, utilizing [Titebond 3 Glue](#) and [FibaTape Ultra Thin](#), with a second coating of glue over all taped edges. Next process is to lightly sand all taped surfaces, taking caution not to sand through the tape !

If I told you taping was a simple task, I would not be truthful. There were times the tape lifted from the plywood after I had applied the glue, and this required special attention in those areas. I had to wait for the glue to start to harden, then press the loose tape down to the plywood, to achieve a bond. This occurred several times. It is possible the roll of tape I bought was older, as the adhesive backing was weak, and not very sticky. Or it could have been that I did not clean the plywood surface well enough. A second roll of tape, purchased at a different store, produced the same results. My conclusion is that this is not going to change, and the few times it lifted were tolerable. It is still far easier than the previous fiberglass cloth material, which moved every time it was touched, and unraveled upon application. The [FibaTape](#) is easier to work with, and should produce a strong assembly.

Taping the inside and outside edges of a four module hull took me 2 days to complete. I would assume you could do it in the same amount of time, or a long weekend. Just remember, this is a necessary process, and the protection it provides to the hull design is certainly worth the time and effort.

Good luck with your project ! Take your time, have patience, and you too will be rewarded with a safe and watertight hull.

*Ken Simpson, Designer*

## WATERPROOFING the HULL

Over the years I have tried quite a few waterproofing methods, as I am sure you have also. It is important to note the objective: To seal out water and water vapor from penetrating the plywood surface and edges of the hull. Period. The problem is that it is most difficult to accomplish. Because I recommend non-marine plywood for my boats, the problem is accentuated. As a result, even more precaution must be taken. Up until a few months ago (2013), I was recommending Thompsons Water Seal as the best waterproofing method for the ACX Plywood recommended. It penetrates the wood surface and provides a good water barrier. The downside of this method is time; after application, the manufacturer suggests at least 72 hours minimum drying time. I recommend 24 hours, but only if you use oil based paints for the finish, and sand all surfaces prior to painting. Non-oil based paints will not adhere well to a surface treated with Thompsons. This has proven a problem to some builders.

Well, that was then, and this is now. After a couple of builders suggested I try a different process, I can now recommend an alternate method. We already use Titebond II Waterproof Wood Glue for construction, so why not use it as a water barrier? That is exactly what I recommend now, and here is how to apply it.

**WATERPROOFING METHOD** Follow the directions and photos below, for best results.



NOTE: It is important to water seal the inside surfaces of the bow & stern openings prior to assembly of the deck panel, and also the underside of the deck panel, and then all other inside surfaces of the hull modules. So, mix a container with 1/3 **water** and 2/3 Titebond III, by volume. Shake very well. I use an empty glue container, with 1/3 markings on the bottle, as shown above. Pour some into a plastic dish, and use a 2" disposable brush to apply. Brush evenly and completely over all interior surfaces of the module assembly. Allow to dry for at least 4 hours, at room temperature. This same process will be used for all waterproof sealing of all the hull assemblies, all surfaces, inside and out. The brush and dish can be water cleaned and reused for the next assembly, a big advantage using TB3. After the mixture has dried on the plywood, lightly sand all surfaces in preparation for a finish. The plywood surfaces will now be smooth, water sealed, and also strengthened by the application of the TB3 mixture.

Note: If the mixture is too runny on vertical, or horizontal surfaces, change the mix ratio to 25% water and 75% TB3.

Use this method for both the Inside & Outside surfaces.

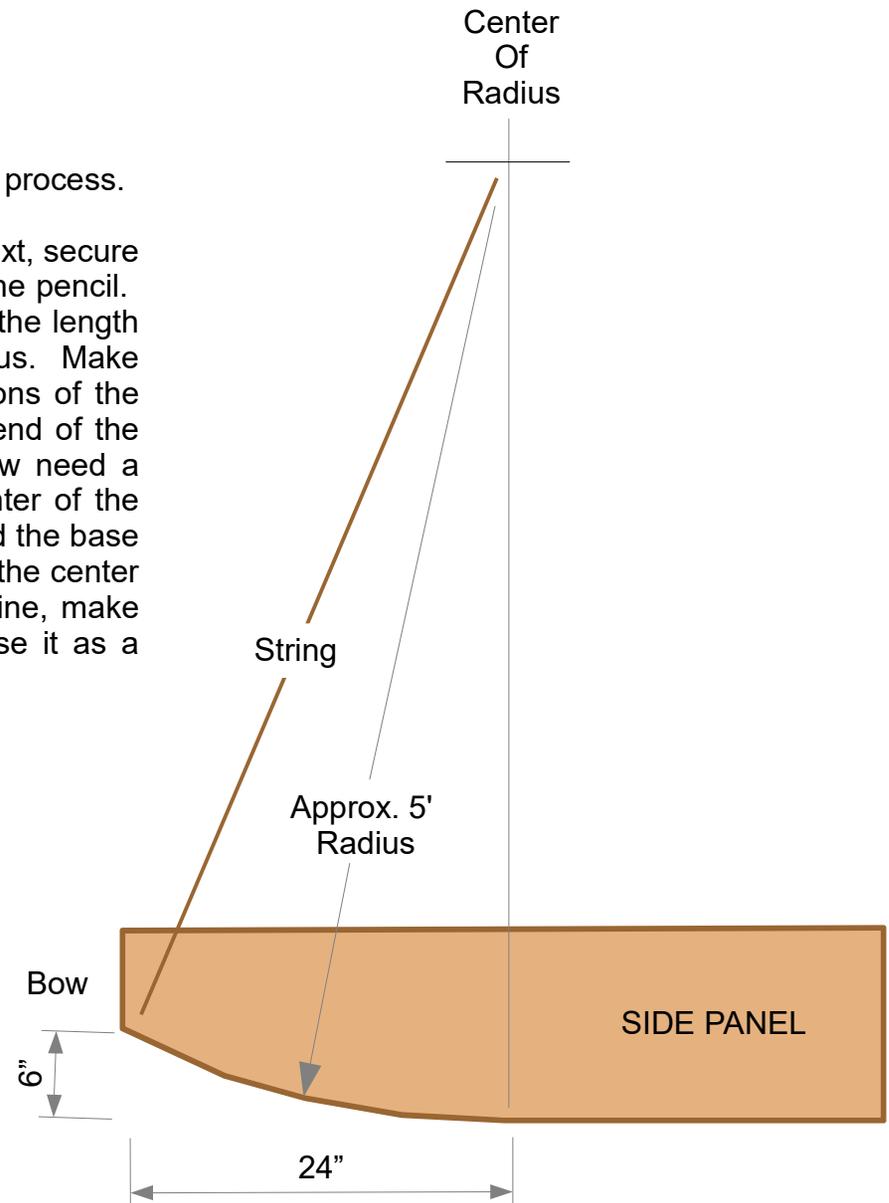
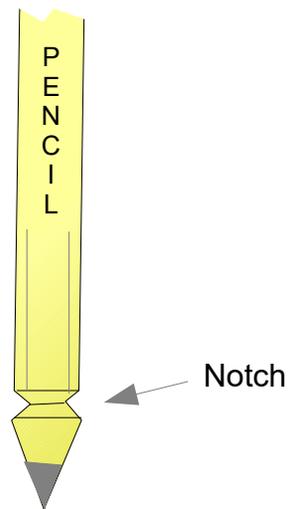
## ADDENDUM

### METHOD FOR LAYING OUT A LARGE RADIUS

To layout a large radius on a sheet of plywood, follow this simple process.

First, notch a wood lead pencil as shown in the sketch below. Next, secure a length of non-stretch string, and knot it around the notch on the pencil. Place a mark on the floor (the flat surface you are working on) the length of the radius, in this case 5 feet. That is the center of the radius. Make sure it is perpendicular to the Panel. And mark the end locations of the Radius on the plywood. Now position the pencil at the lower end of the radius, in this case the bow bottom of the panel. You will now need a second person to place the other end of the string on the center of the radius, pull it taught, not tight. Now swing the pencil down toward the base of the panel. If the radius does not match, adjust the location of the center point slightly and try again. Once you have found the correct line, make the radius line on the panel dark. This will be the cut line. Use it as a template for the other panels.

This is one method of developing a smooth radius. Another is to take a flexible length of wood, plastic or metal, and bend it between the start and finish points of the curve, Then trace the outline on the plywood. The important thing is that a smooth radius be developed, the actual dimensions of which are not important to the function of the boat.



Drawings are  
not to scale.

**UNIVERSAL SMALL BOAT  
LOW PROFILE, LOW CG  
PLYWOOD SEAT**

Can be used on all my designs that do not specify fixed seating.

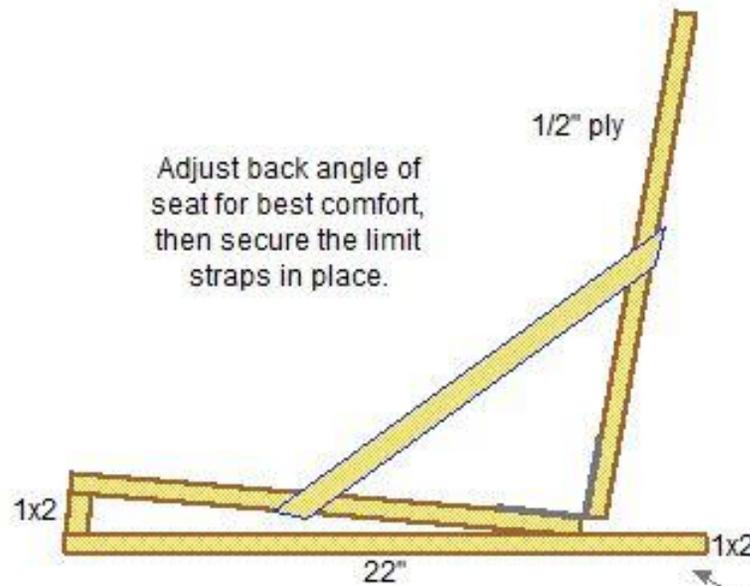
Easy to make, inexpensive, and only requires a 2' x 4' piece of 1/2" plywood, 2 strap hinges, limit straps, and a 8 foot length of 1 x 2 lumber. About \$20 total, plus paint.

Place cushions on seat base and back for additional comfort.

Seat Supports are 1 x 2 lumber. Glue and screw to plywood seat & the 1x2 base support.



NOTE: Grain of plywood is important for strength.

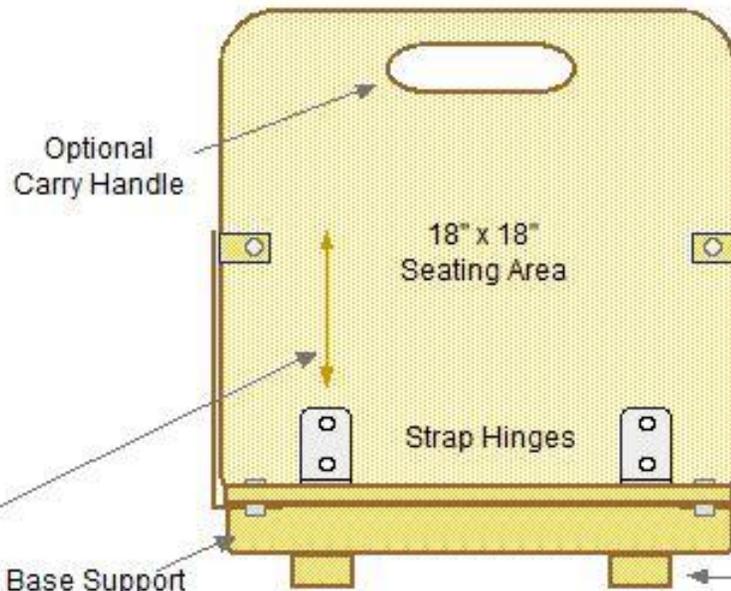


This extension is necessary to prevent you from flipping backward.

Place the Straps about in the center of the seat panels, wrap to back, and bolt through the seat panels, as shown.

The Limit Straps can be small chain, nylon rope, or anything that will withstand your force against the back of the seat.

The back of the seat folds down for storage.



Modify the seat any way you like to suite your specific needs.

PortableBoatPlans.com



Folding Beach Seat

I have been using this type of seat for some time, and find it to be comfortable, and easy to store.

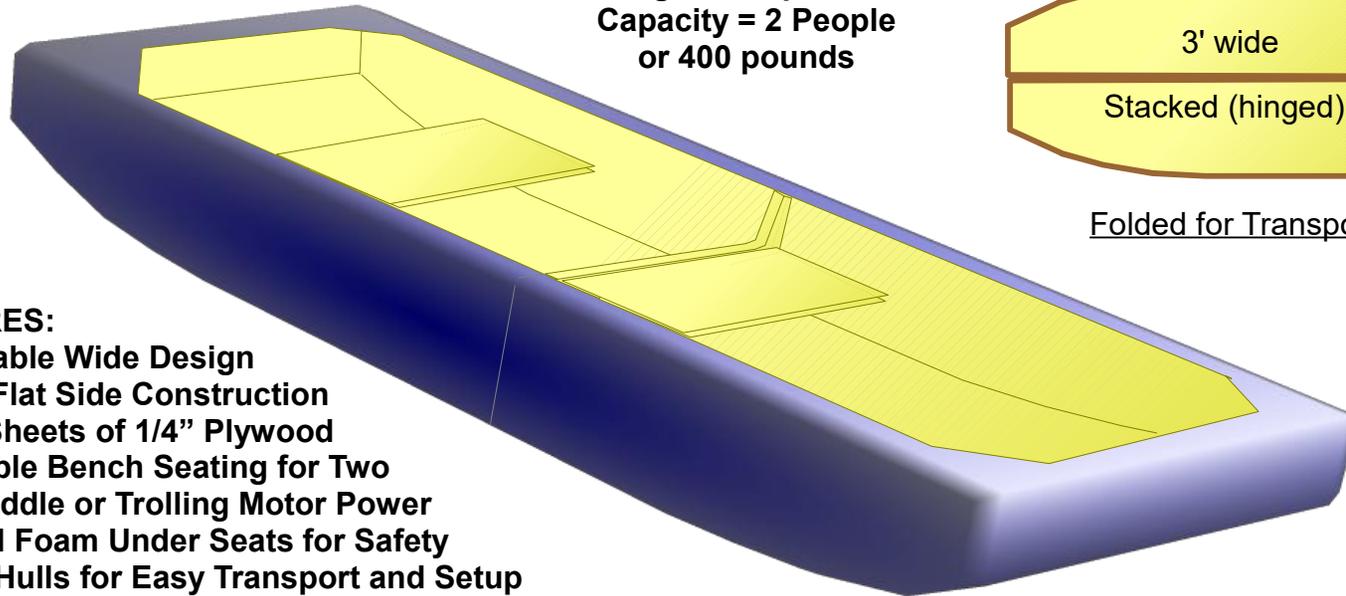
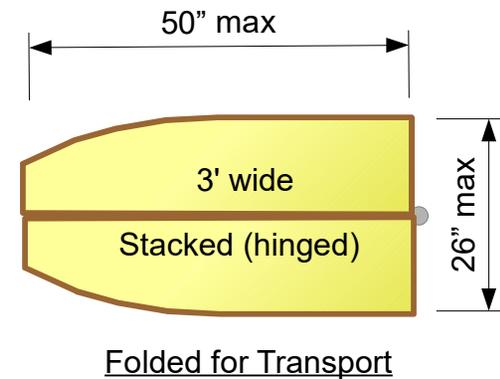
Bought it at TARGET for \$11 on sale, end of season. Normally about \$18.

May 2013

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[PortableBoatPlans.com](http://PortableBoatPlans.com)

*a ken simpson design*

### NOTE:

It should be stated that builders options are very much recommended. The use of 2 hinges at the edges of the bulkheads allows the forward module to be easily lifted and folded over onto the rear module. A foam tape could be applied along the gunwales to seal the two hulls during transport. Removable boxes for gear could be included in the build, for under the seat storage, or, buoyancy cells could be created at each end of hull, for safety. As you can see, the options are many, including a folding canvas top, for those sunny days. Use the plans as a guide in building your ideal water craft !

Happy and safe boating.

**Ken**