



Wreck of the Explorer, 2007 by Haley Hughes www.doome.info/haley/hughes/

Mare Liberum

second edition, prepared for the Elizabeth Foundation for the Arts Project Space New York, New York 2008

Mare Liberum (fr. the free seas) v3: to build a small boat out of your city's trash, explore the unseen nooks of your city's neglected waterfront, bays, rivers and industrial canals... a collaborative, open source boat-building project organized by Ben Cohen, Dylan Gauthier and Stephan von Muehlen. www.TheFreeSeas.org

Mare Liberum is a collaborative publishing and boat-building project envisioned by Stephan von Muehlen, Benjamin Cohen and Dylan Gauthier. The project sees as its goal the creation of a fleet of dory-style boats for recreational and educational encounters on the Gowanus Canal, the Newtown Creek and other waterways in and around New York City and beyond. Water is all around us here in New York City, and yet most people have so little personal experience of it. We felt a need to reconnect with this oft-neglected fourth element (after concrete, air and social networks) of our urban experience.

This broadsheet contains all the information needed to build your own Liberum Dory using repurposed materials, basic skills and minimal tools. It has been put together for the exhibition 'Beyond a Memorable Fancy,' at the Elizabeth Foundation, with support from the Foundation and its staff. In addition to this broadsheet, we are presenting a specially modified semi-dory, which has been cut to 10'6" from its original length of 15', 10'6" being the maximum length that would fit in the building in a single piece. The semi-dory is a historical boat shape - at least since the advent of the outboard motor, people have modified their traditional dory designs to allow for greater stability and a wider transom to use as an engine mount. In addition to the semi-dory, we are also presenting a full set of stencils wheatpasted on plywood which will be used in the future build another boat.

Upcoming Mare Liberum events include workshops, demonstrations and public boat races to be held in the Summer of 2009. If you'd like to be in touch with us about future projects, visit us online at <http://www.thefreesas.org>.

Mare Liberum is an open ended experimental form so send us your comments, critiques, suggestions, remaps, or redesigns you may make along your building way.

A note before taking any boat out on the water for the first time: make sure you read up on water safety and give the boat a decent flotation test in shallow water. Given that our boat design calls for scrap wood and improvised materials, well, we're sure you'll have thought of all of this already. Anyhow, wear a PFD (personal flotation device). We also recommend installing flotation foam beneath seats or gunwales. Anyway, just play it smart and get out there on the water.

Thank you to Michelle Levy at Elizabeth Foundation, Jacqueline Shilkoff at the Neuberger Museum, Haley Hughes, Paula Segal, Angela Conant, Megan Hesselthaler, the Sinking Ship, Jesse Karch, George, the staff at the Gowanus Studio Space, and Build it Green in Long Island City.

glossary of useful terms:

BOW: THE FRONT OF THE BOAT. | **STERN:** THE REAR OF THE BOAT
STARBOARD: THE RIGHT SIDE OF THE BOAT. | **PORT:** THE LEFT SIDE OF THE BOAT. | **AHEAD:** IN FRONT OF THE BOAT. | **ABAFT:** BEHIND THE BOAT.
BEAM: TO EITHER SIDE OF THE BOAT. | **CAPSIZING:** TO FLIP THE BOAT. | **BILGE:** THE INSIDE BOTTOM OF THE BOAT, GENERALLY COVERED UP AND CONTAINING A SMALL AMOUNT OF WATER. | **BAIL:** TO GET WATER OUT OF THE BOAT. | **FATHOM:** SIX FEET. | **HEADING:** THE DIRECTION THE BOAT IS GOING. | **KNOT:** SPEED EQUAL TO 1.15 MILES PER HOUR. | **DORY:** A SMALL, SHALLOW-DRAFT BOAT, USED FOR COMMERCIAL FISHING, RIVER AND SHORE NAVIGATION, ESPECIALLY IN HEAVY SEA OR WHITE WATER RIVER CONDITIONS. ALSO SPELLED 'DOREE' OR 'DORIE' IN HISTORICAL USAGE. THE LIBERUM DORY IS AN UPDATE ON A NEW ENGLAND BANKS DORY, WITH AN EYE TO FACILITATING CONSTRUCTION BY THE CASUAL BOAT BUILDER WITH COMMONLY AVAILABLE MATERIALS. | **GUNWALE:** THE RAIL AROUND THE EDGE OF THE BOAT, PRONOUNCED (AND SOMETIMES SPELLED) "GUNNEL," ATTACH OARLOCKS TO THEM. | **PLANKS:** THE SIDES, ONE OR MANY. | **STERN KNEE:** BRACES THE TRANSOM TO THE BOTTOM BOARD. | **TRANSOM:** VERY REAR FACE OF THE BOAT, MOUNT A MOTOR OR RUDDER. | **TRANSOM FRAMES:** BOARDS ADDED TO THE TRANSOM TO FASTEN THE PLANKS TO. ON THE LIBERUM DORY USE PALLET WOOD OR OTHER SOLID WOOD, PROBABLY NOT PLY AS IT LACKS NECESSARY STRENGTH. | **BOTTOM BOARD:** BOTTOM OF THE LIBERUM DORY, ONLY APPLICABLE TO FLAT BOTTOMED BOATS. | **FRAME:** SECTIONAL BRACING OF THE BOAT, USE ANY SOLID-WOOD (PALLET WOOD WILL DO IN A PINCH - ALSO CALLED A 'SECTION') | **STATION:** THE LOCATION OF THE FRAMES. IN MANY CASES STATIONS WILL HELP YOU BUILD THE BOAT BUT NOT BE PERMANENTLY INSTALLED. | **STEM:** STRUCTURAL TIMBER AT THE BOW OF THE BOAT, PLANKS AND BOTTOM BOARD FASTEN TO THIS. | **CHINE BLOCKS:** WHERE THE PLANKS AND BOTTOM BOARD MEET ALONG THE LENGTH OF THE BOAT. | **OARLOCKS:** PIVOT POINT FOR OARS. | **OARS:** ROWING UTENSILS. | **PINE TAR:** OFTEN CALLED 'STOCKHOLM TAR,' A STICKY MATERIAL DERIVED FROM CARBONIZED PINE SAP. USED FOR PRESERVING WOODEN BOATS BY COATING THE INTERIOR SOLE OF THE BOAT WITH THE MIXTURE OF PINE TAR, GUM TURPENTINE AND BOILED LINSEED OIL. | **THOLE-PINS:** TWO GENERALLY WOODEN PINS THAT BEHAVE AS OARLOCKS. | **THWART:** SEATS CROSSING THROUGH THE CENTER OF THE BOAT.

some frequently asked questions:

Did you build that? Yes.

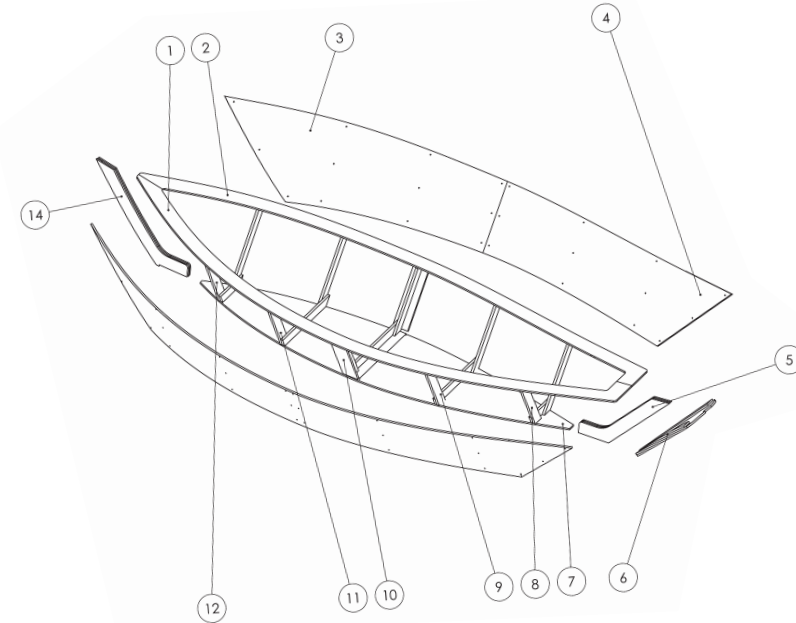
Does it float? Yes. It glides smoothly through the surface of the water, with a draft of about 3" unloaded. It's a speedy row. In the full-sized dory we have taken groups of six people at a time exploring the Gowanus Canal, the East River, Jamaica Bay as well as a small creek Upstate.

But it's plywood! Yes, well, so are many boats manufactured nowadays, commercial boatbuilders simply slather on a goody amount of toxic fiberglass and epoxy so you can't tell, but they're usually plywood at the core. In any case, the material used seems to matter less than the shape of the boat itself. We use construction-site recovered plywood because there's so much new construction in New York City. When we sent a set of stencils to a friend in Holland, he was told that it was going to be difficult to find scrap plywood, and had to improvise.

Where do you get your materials? There is literally a ton of scrap plywood being thrown away each day around the city. Construction sites are known to give their scrap (usually used to mould poured concrete floors) to anyone who offers to haul it away. Ditto for art-handling/art-crating companies. Otherwise, Build it Green deals in all kinds of recovered materials and occasionally has massive quantities of plywood, screws and housepaints. They have provided wood and paint for our boats on several occasions.

How do you get it to the water? The full-scale dory fits on the roof of our 1989 Volvo. There are several obvious and less-than-obvious places to launch a boat around the city. A good starting point is: nycgovparks.org. We also currently have one boat moored full-time on the Gowanus Canal and are happy to have guests come over. Drop us a line.

parts of the liberum dory:

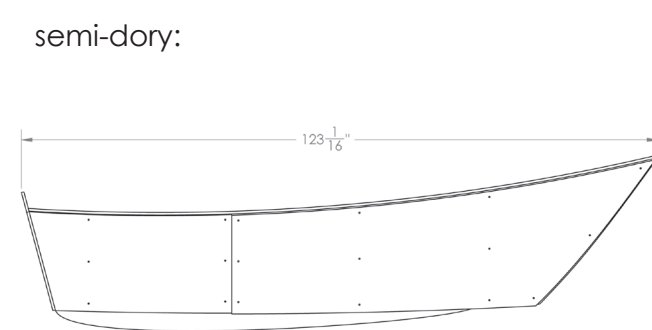
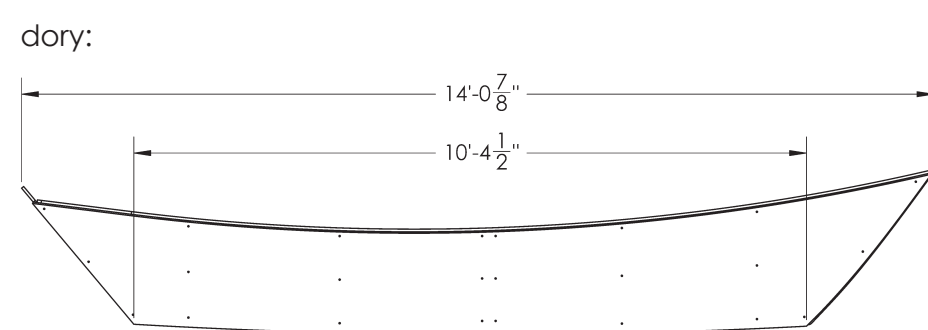


1. PORT GUNWALE | 2. STARBOARD GUNWALE | 3. PLANKS, BOW HALF
 4. PLANKS, STERN HALF | 5. STERN KNEE | 6. TRANSOM AND TRANSOM FRAMES | 7. BOTTOM BOARD | 8. FRAME #5 | 9. FRAME #4 | 10. FRAME #3 (CENTER) | 11. FRAME #2 | 12. FRAME #1 | 14. STEM



Build a Liberrum Dory

v.2



1,

CHECK THE WEBSITE: WWW.THEFREESEAS.ORG FOR WISE WORDS FROM SALTY BOAT-BUILDERS, PEOPLE-WHO-HAVE-LEARNED-THE-HARD-WAY, AND THE BOAT DESIGNERS THEMSELVES! CHANGES ARE INEVITABLE.

2,

GET YOUR TOOLS AND SPACE TOGETHER. THINK IT THROUGH. A JIGSAW AND A SCREW GUN IS THE MINIMUM. SAND PAPER OR A RANDOM ORBIT SANDER, BIG CLAMPS OR A FEW STRONG FRIENDS.

3,

BEFORE YOU DO ANYTHING ELSE, GET SOME CONTEXT. READ THE PLANS AND THE ARTICLES... AND THE WEBSITE TOO. IF YOU'RE IN DOUBT, FEEL FREE TO WRITE TO US. YOUR LIFE MAY BE AT RISK. REMEMBER TO FEAR THE OCEAN A LITTLE BIT.

4,

ACQUIRE YOUR BOAT BUILDING MATERIALS. YOU WILL NEED:

APPROXIMATELY 4 SHEETS OF 1/4" PLYWOOD, 2 SHEETS OF 1/2" PLYWOOD. THE SHAPES YOU WILL BE CUTTING OUT OF THE PLYWOOD SHOULD BE LAID OUT AT 1:1 SCALE. A COPY OF THE TEMPLATES CAN BE PRINTED 'TILED' FROM THE WEBSITE AND WHEAT PASTED ONTO THE PLYWOOD. THE LIBERRUM CREW WILL

ATTEMPT TO MAKE THEM AVAILABLE TO ALL, BUT BE RESOURCEFUL. EXAMINE THE PLANS TO DETERMINE WHICH PIECES REQUIRE WHICH THICKNESSES OF WOOD.

A GOODLY SUPPLY OF 3/4" PINE AT A MINIMUM OF 3" IN WIDTH FOR THE FRAMES (40 - 50 FEET OF THE STUFF.)

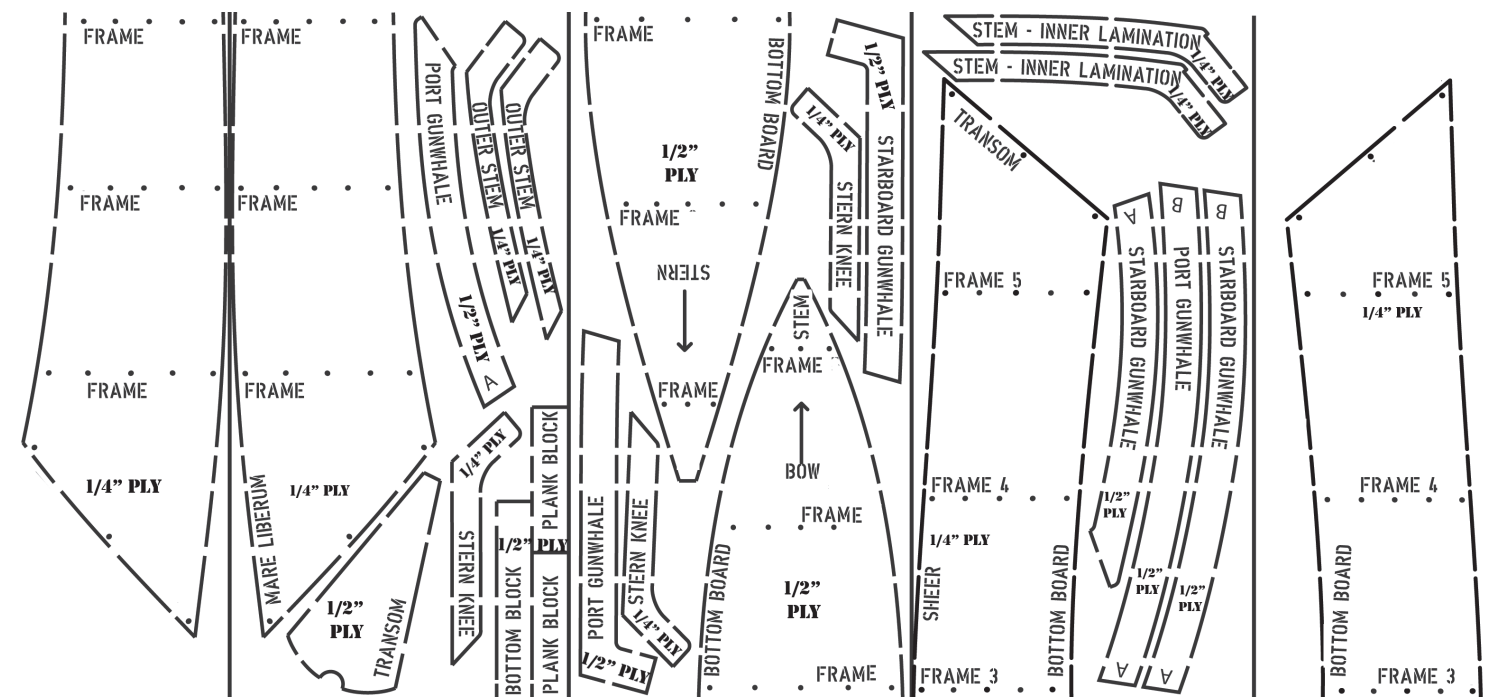
STAINLESS STEEL DECK SCREWS IN A RANGE OF LENGTHS WOULD BE CHOICE WOOD GLUE, CONSTRUCTION ADHESIVE, AND

SOMETHING TO SEAL THE BOAT WITH. THIS CAN BE ANY KIND OF LATEX HOUSEPAINT, POLYURETHANE, SPAR VARNISH OR A SOLUTION OF 1/3 PINE TAR 1/3 MINERAL SPIRITS 1/3 VARNISH.

BUILDING A SEMI-DORY INSTEAD OF THE FULL SIZE DORY CAN MAKE TRANSPORTATION OF THE BOAT EASIER AND ALLOWS THE ADDITION OF AN OUTBOARD MOTOR. CUT THE SIDES AND BOTTOM BOARD INDICATED ON THE STENCILS, SKIP FRAME 5, AND BUILD THE SEMI-DORY TRANSOM BELOW.

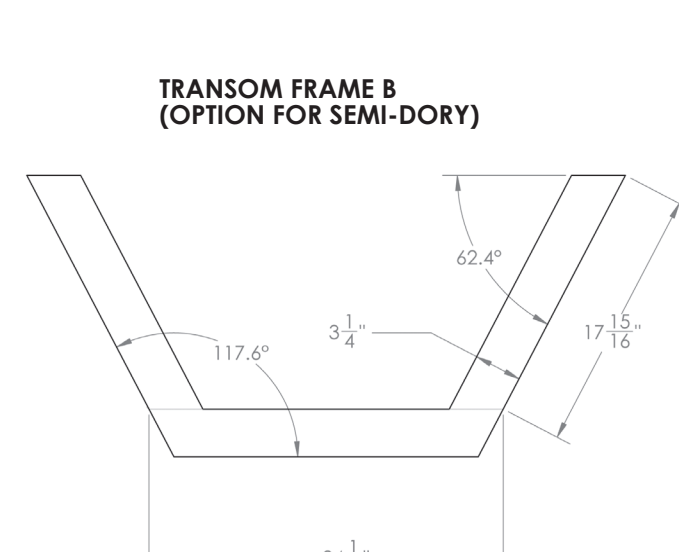
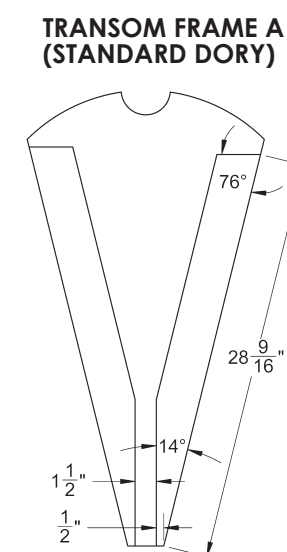
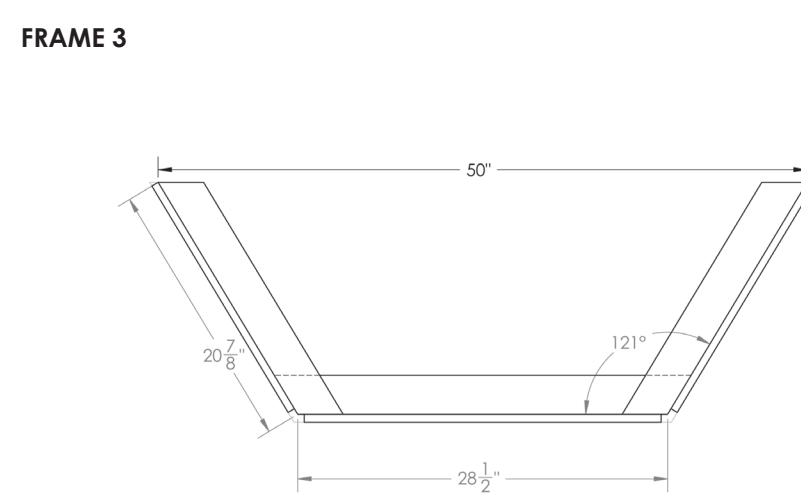
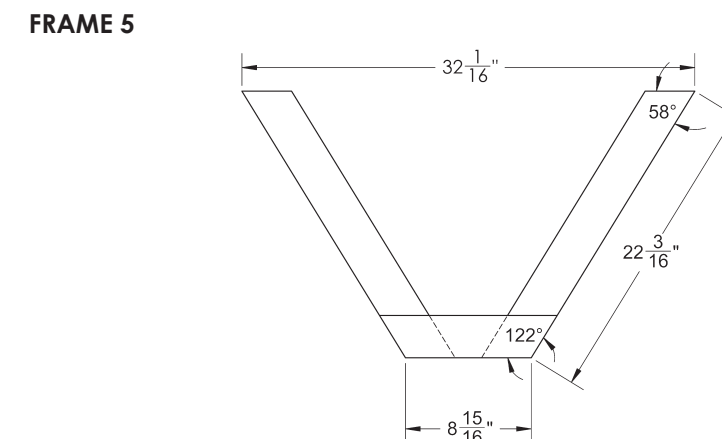
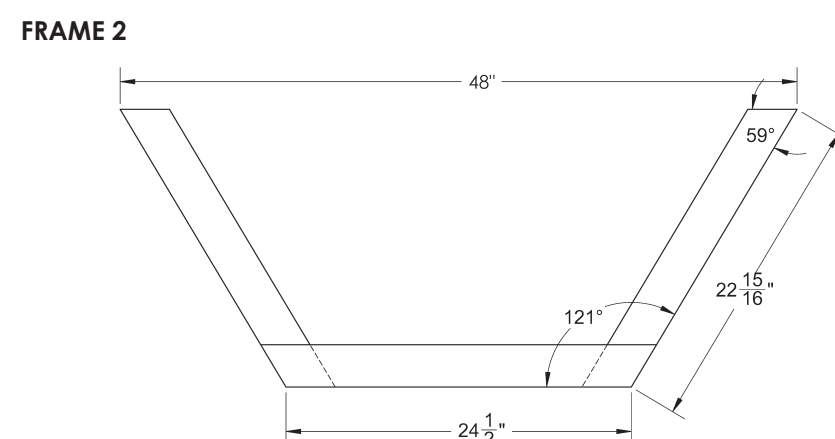
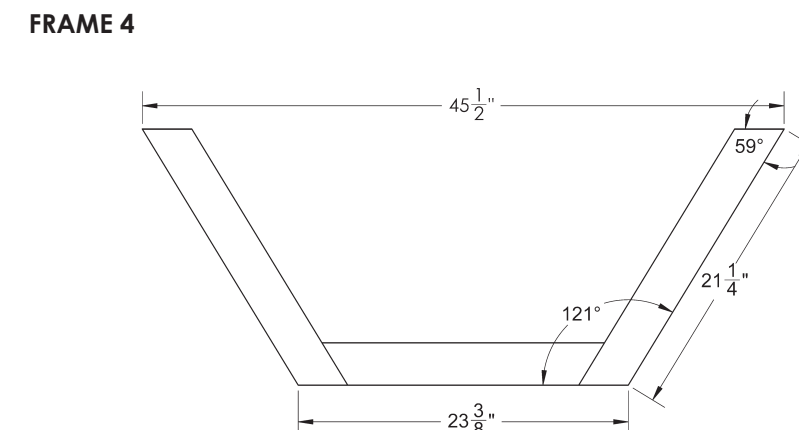
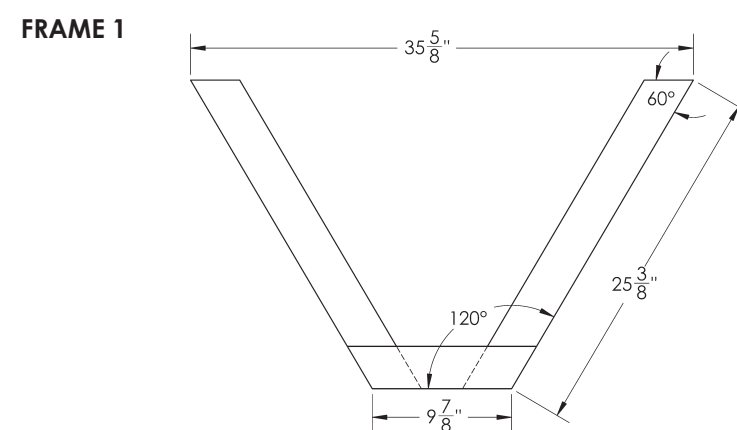
5,

LAY TEMPLATES OUT ON YOUR MATERIAL, REFERENCING THE DIAGRAM BELOW TO BE SURE THAT THE PIECES LABELED 1/2" ARE LAID OUT ON 1/2" PLYWOOD AND THE PIECES LABELED 1/4" ARE LAID OUT ON 1/4" PLY. TRACE, AND CUT OUT ALL THE PARTS YOU WILL NEED WITH THE JIGSAW. CUT TO THE INSIDE EDGE OF THE LINES.



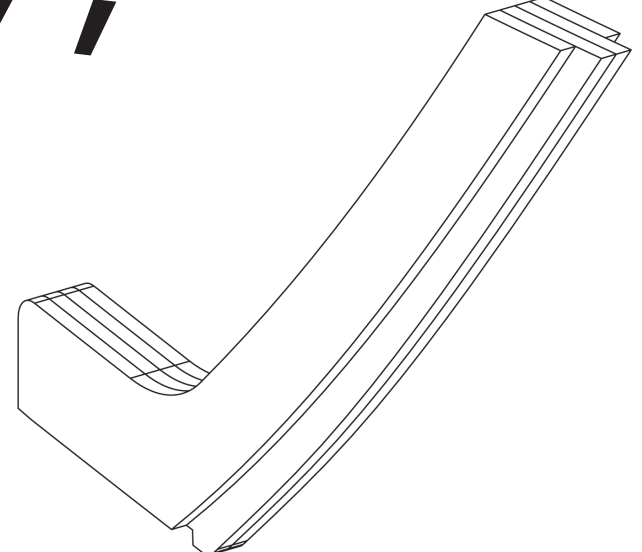
6,

ASSEMBLE FRAMES FROM 3/4" SOLID WOOD (SEE DRAWINGS BELOW FOR THE DETAILS) CHECK THE WEBSITE. THESE DIMENSIONS MAY CHANGE AS LESSONS ARE LEARNED AND INFORMATION IS SHARED.



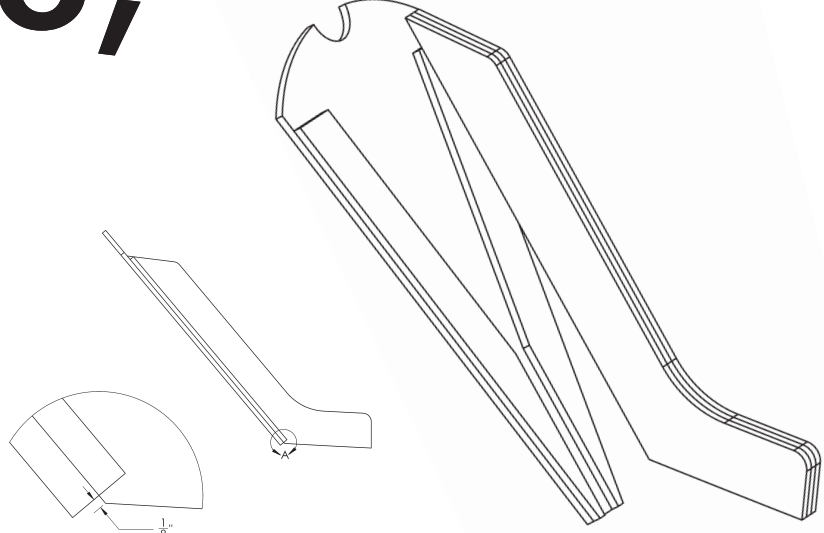
7,

LAMINATE STEM TOGETHER AS SHOWN. DO THE SAME FOR STERN KNEE.



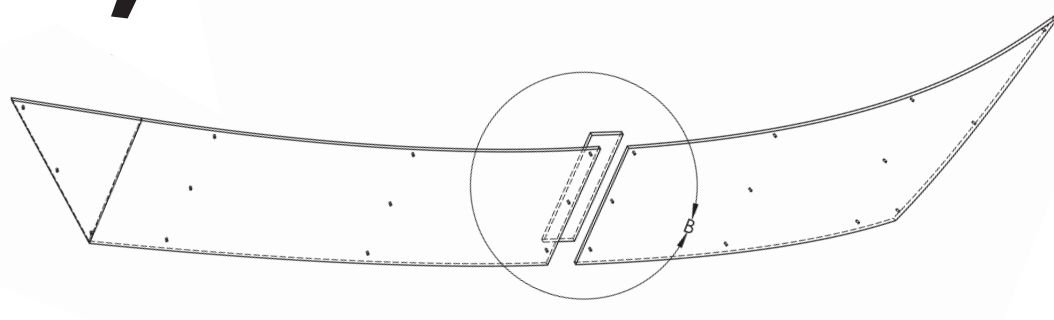
8,

ATTACH TRANSOM TO STERN KNEE



9,

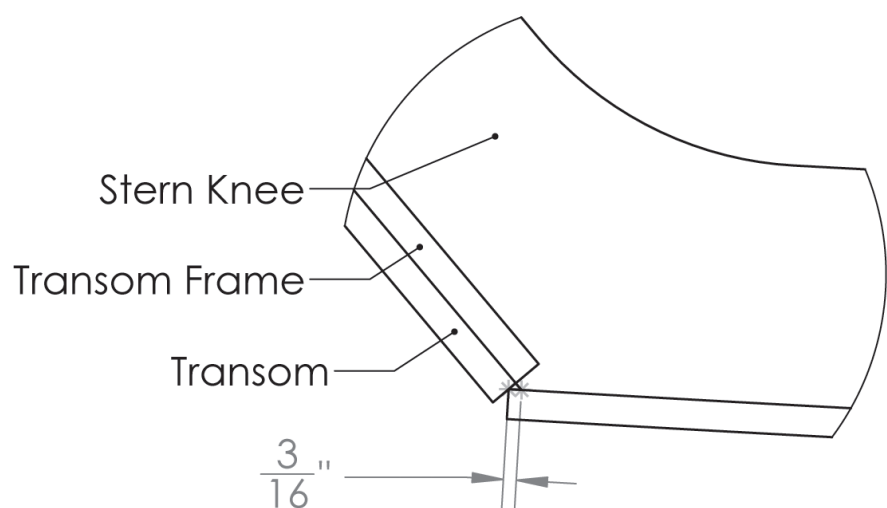
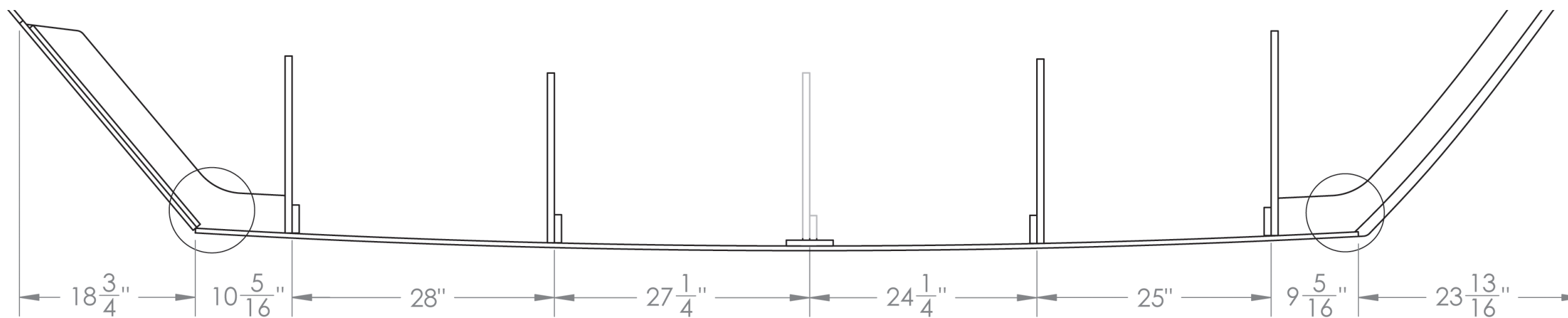
ATTACH THE BOTTOM BOARD HALVES TOGETHER, THEN DO THE SAME WITH THE SIDES. USE THE 'PLANKS' SECTIONS AS FOUND ON THE TEMPLATES.



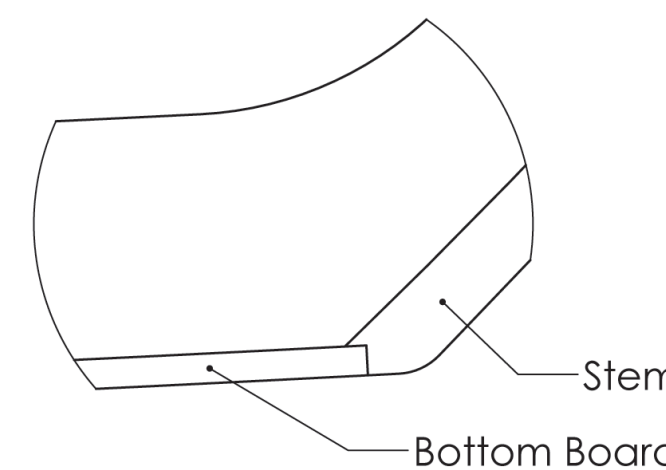
10,

ATTACH STEM AND STERN KNEE TO THE BOTTOM BOARD AS SHOWN BELOW, FIRSTV AND SCREWS. ATTACH FRAMES TO THE BOTTOM BOARD IN THE SAME WAY. LOCATE THE FRAMES ON CENTER AND IN THE LOCATIONS SHOWN IN THE DRAWING, BEGINNING WITH FRAME 3 AND WORKING OUTWARD.

MAKE SURE THAT YOU ORIENT THE FRAMES CORRECTLY - THE VERTICALS FACE OUT FROM THE CENTER. SCREW IN PLACE THROUGH THE BOTTOM BOARD. LEAVE THE SCREWS A LITTLE LOOSE UNTIL THE SIDES ARE ATTACHED SO THAT YOU CAN PULL THEM INTO VERTICAL IN THE LOCATIONS MARKED ON THE SIDES.



NOTE: The Stern Knee is attached 3/16" from the edge of the Bottom Board, such that when the Transom is attached, it's outside face lines up with the bottom edge.



NOTE: Make sure the Stem clips the Bottom Board as shown.

11,

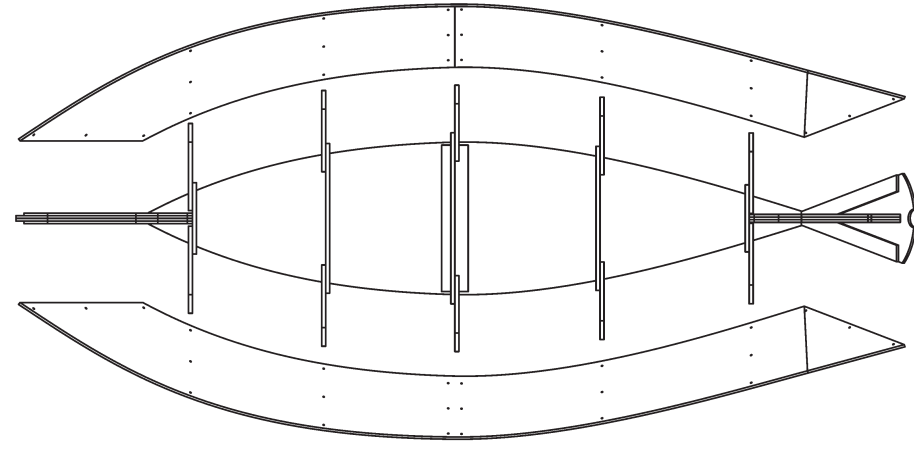
PROCEED FROM THE MIDDLE OF THE BOAT WORKING TOWARD THE ENDS, WORKING ON BOTH SIDES OF THE BOAT EQUALLY. CLAMP AND ATTACH BOTH SIDES OF THE BOAT TO THE FRAMES.

ALIGN THE SIDES TO THE BOTTOM BOARD WITH THE SEAM LINES ON BOTH.

MAKE SURE THE BOTTOM BOARD'S EDGE IS FLUSH WITH THE BOTTOM EDGE OF THE SIDES. (CHECK AGAIN AND AGAIN AS YOU MOVE OUTWARD.)

FASTEN WITH THE STAINLESS STEEL DECK SCREWS. YOU WILL PROBABLY WANT TO PILOT THE HOLES TO AVOID SPLITTING THE FRAMES. FEEL FREE TO ADD AS MANY SCREWS AS MAKES YOU HAPPY AND SAFE.

ONCE THE SIDES HAVE BEEN 'DRY-FIT' TO THE FRAMES, ADD ADHESIVE ALONG THE FRAMES AND ALONG THE EDGE OF THE BOTTOM BOARD.



12,

ATTACH THE SIDES TO THE STEM AND TRANSOM IN THE SAME FASHION, USING BOTH ADHESIVE AND SCREWS

THIS MAY BE THE MOST DIFFICULT PART DUE TO THE

ACCUMULATION OF ERROR, INCREASED FORCES, AND DIFFICULTY IN CLAMPING THE CURVES. PROCEED WITH CARE AND CAUTION, GO SLOWLY, BUT HAVE HEART! YOU ARE ALMOST THERE.)

13,

SCAB GUNWALES (PRONOUNCED 'GUNNELS', JUST SO YOU KNOW) TO EACH OTHER AS YOU'VE DONE WITH THE SIDES AND BOTTOM BOARDS.

ATTACH GUNWALES TO FRAMES. WATCH FOR SPLITTING WHEN SCREWING INTO END GRAIN. PILOT DRILL YOUR HOLES OR TOENAIL THEM IN AT A SHARP ANGLE FOR BEST RESULTS.

14,

SQUIRT CONSTRUCTION ADHESIVE EVERYWHERE. GET IN BEHIND THE STEM, ALONG THE TRANSOM SEAM, BOTTOM BOARD. PLUG UP ANY HOLES IN THE BOTTOM BOARD THAT PREVIOUSLY EXISTED

15,

ADD DESIRED FINISH TO SEAL AND COAT THE OUTSIDE AND INSIDE OF THE DORY: PAINT, VARNISH, PINE TAR, ROOFING TAR, FIBERGLASS, SPIT AND FINGERNAIL POLISH OR ANYTHING ELSE...

AND THEN...

BUILD OARS AND ATTACH OARLOCKS. SEATS, FLOTATION FOAM. KIT OUT YOUR DORY WITH A MAST & SAILS. MAKE YOUR DORY INTO A SEMI-DORY. SHARE WHAT YOU'VE LEARNED WITH US ONLINE AND SEND PICTURES. YOU CAN ALSO REGISTER YOUR BOAT WITH US AND RECEIVE A MARE LIBERRUM NUMBER (ML-XX).

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liberrum

