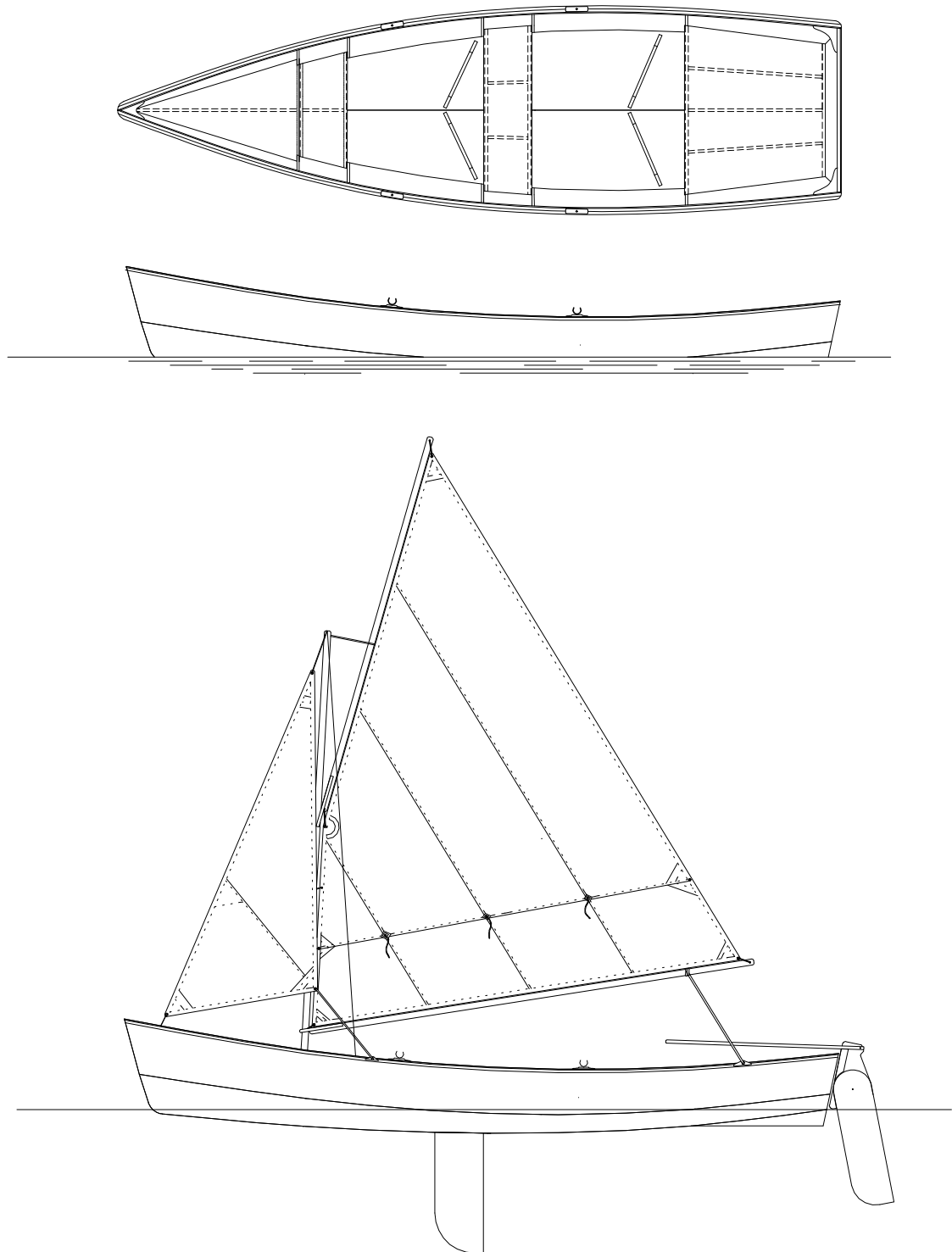


Flint

a Boat for Oars, Sail, and Small Outboard



Designed by Ross Lillistone

Flint – A Boat for Oars, Sail, and Small Outboard Motor

14ft 9-3/4in x 4ft 3-1/4in x 6in

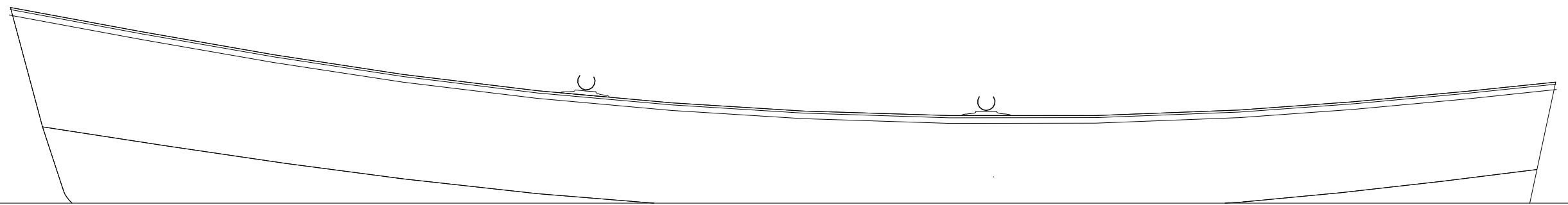
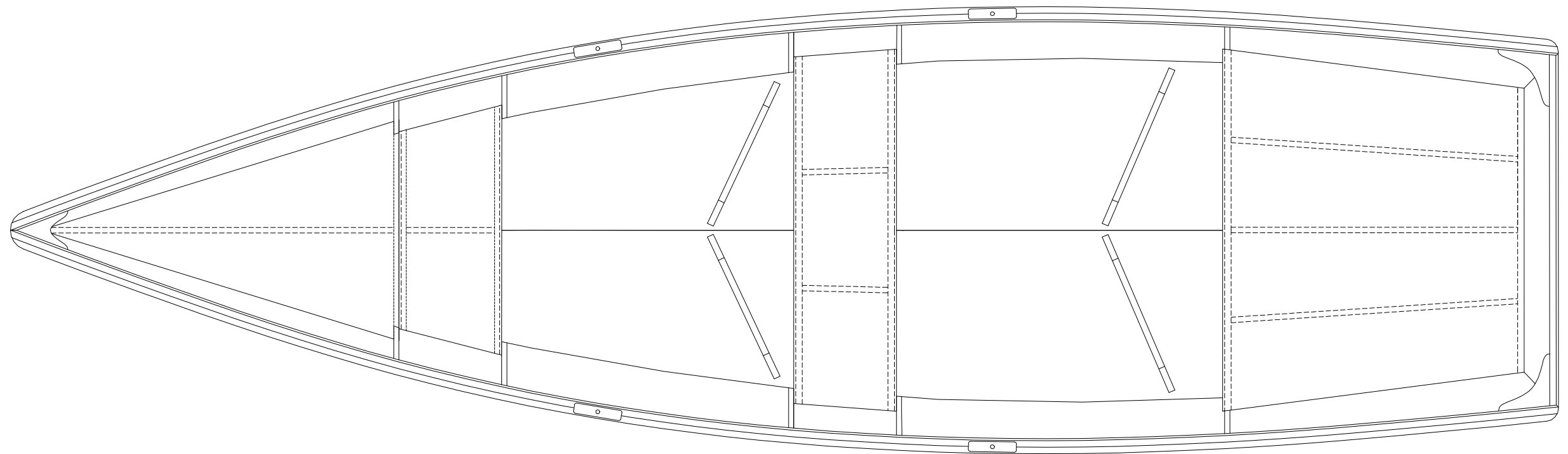
Flint was designed to meet the requirements of an experienced boatman who lived on an island several miles from the mainland. The boat had to row in a spirited fashion, and be able to cover long distances under the urge of a small outboard motor. Most importantly of all, she had to be able to cut through a steep chop without pounding. The resulting boat has proved to be very successful, and displays the following characteristics: -

- Metric and Imperial versions available on request;
- Stitch-and-Glue construction from pre-computed panel shapes. No strongback, mold, or full-size lofting necessary;
- Large volume built-in emergency buoyancy;
- Two rowing stations to allow for proper trim with differing load distribution;
- Light weight – stripped weight of 50kg/110lbs on recently built hull using Okoume Marine Plywood;
- External gunwales reduce labour during construction, allow debris to be washed out when boat is tipped up on her side, and acts as an effective spray deflector;
- High performance from very small outboards – has recorded 6.1 knots using a 2HP Yamaha pushing a load of four people;
- Cruises easily at four knots with a single oarsperson;
- The very sharp entry and pronounced ‘V’ sections prevent pounding and help with steady tracking in a cross-wind;
- Can be re-entered easily after a capsize (has been deliberately capsized for testing) and can be rowed safely with all the water she can hold after being righted. This characteristic is a major safety factor;
- Can be cartopped.
- At the request of several customers, two different sailing rigs have been designed. These have been arranged to allow retro-fitting to existing hulls with an absolute minimum of carpentry.

Flint plans package contains **17 sheets (10 for the standard plans and 7 more for the sailing supplement) of A3-sized drawings, 2 sheets of A4 drawings, and a 17-page illustrated instruction manual.** Metric and Imperial versions of the plans available.

Plans can be purchased from Ross Lillistone, PO Box 152, ESK, QLD 4312 AUSTRALIA r.lillistone@gmail.com for \$60.00 Australian plus postage, or from Duckworks Magazine www.duckworksbbbs.com for \$60.00 U.S. including airmail postage.

FLINT - for oars and small outboard motor
14ft 9-3/4in x 4ft 3-1/4in x 6in

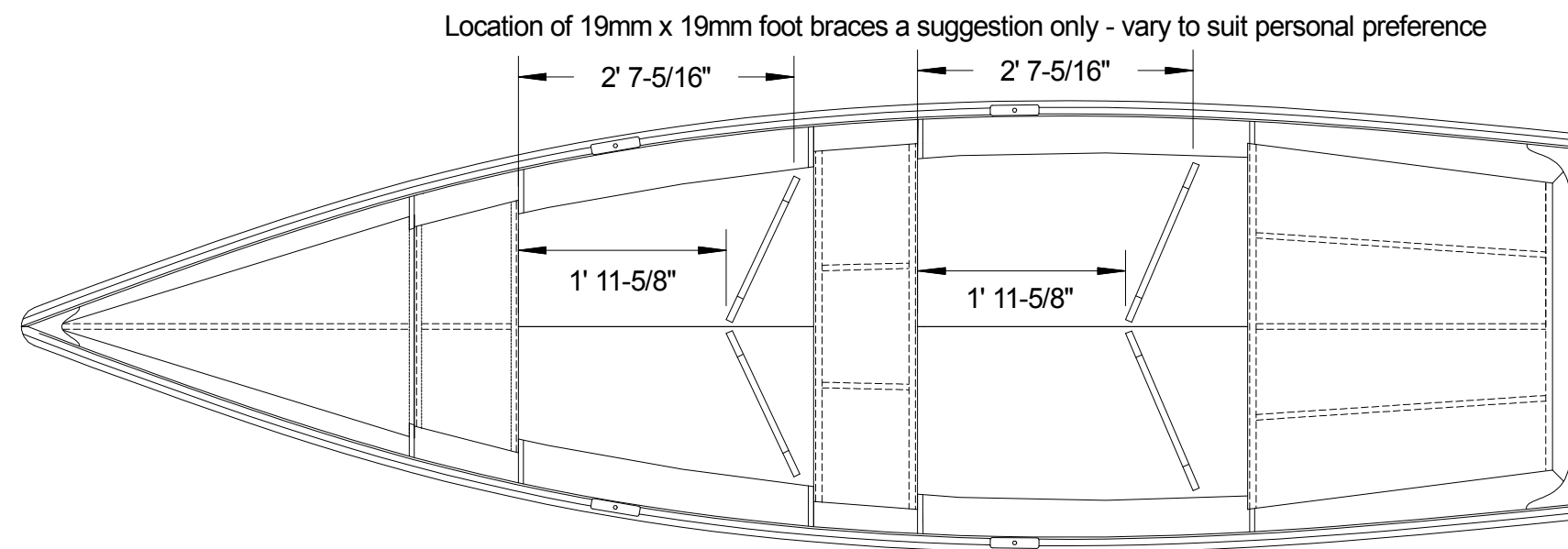


Waterline at 207kg (455lbs) Load Displacement

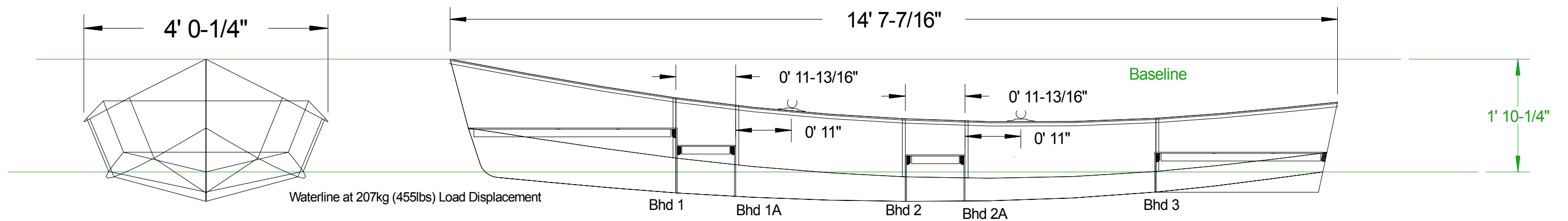
Scale 1:14

FLINT - for oars and small outboard motor
14ft 9 3/4in x 4ft 3 1/4in x 6in

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Lines drawing to inside of planking



Flint - Plan, Profile and Bodyplan
Scale 1:20

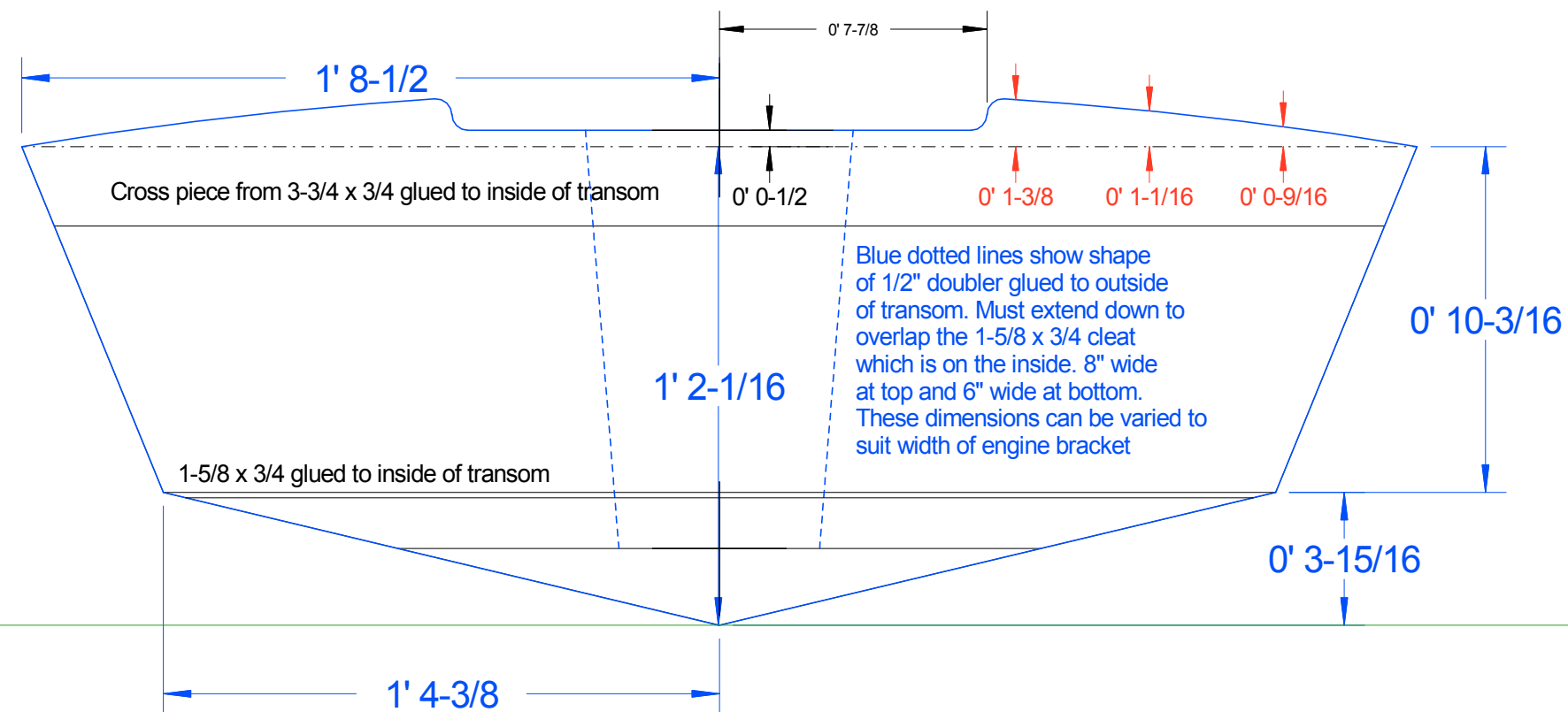
Flint - Transom and Skeg

Scale 1:5

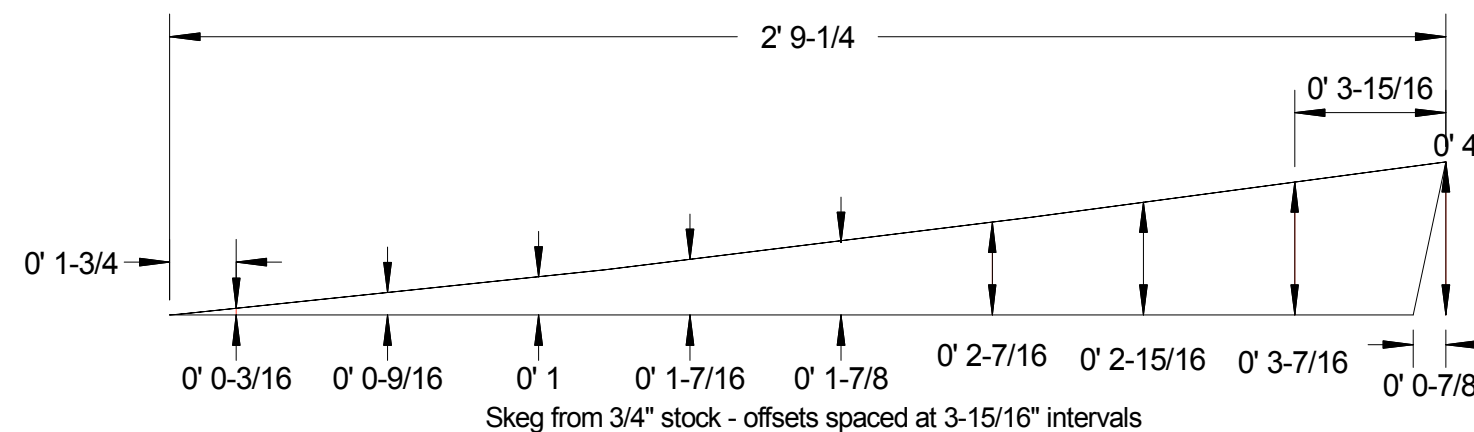
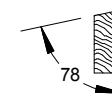
Baseline

1' 10-3/4 (Projected distance)

DWL



Transom - true shape of section. Angle of bevel on upper surface of 1-5/8 x 3/4 cross piece 78 degrees. Make transom from 1/4" ply. If weight is not a problem, thickness can be increased to 3/8" or 1/2".

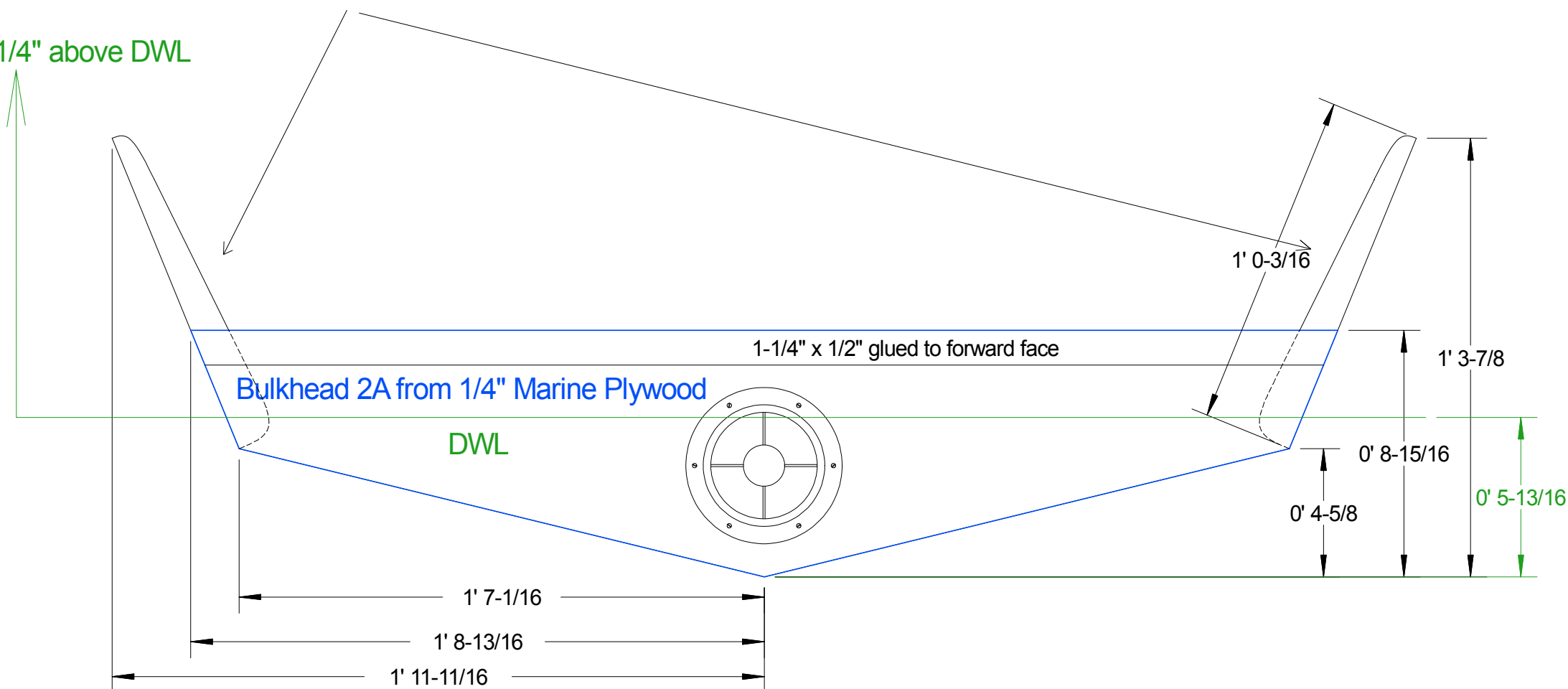


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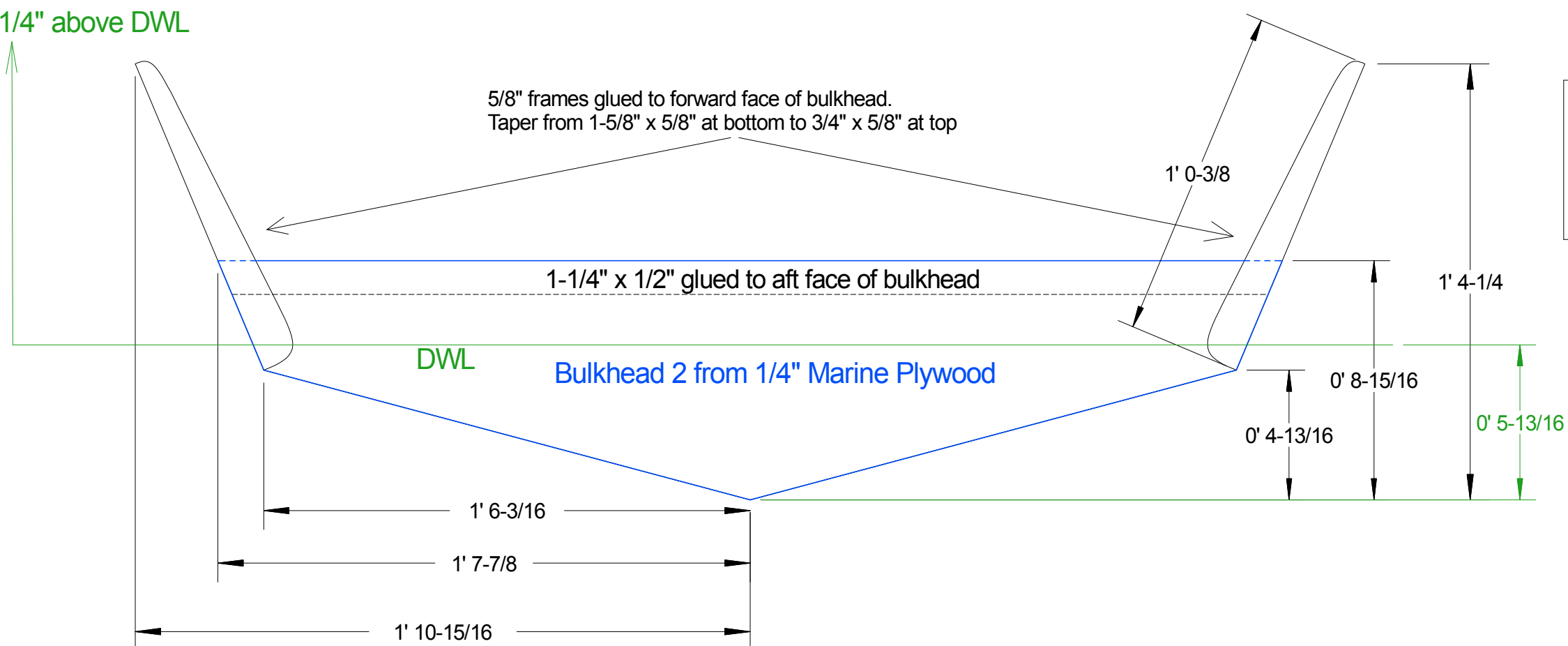
Flint Transom
Scale 1:5

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Baseline 1' 10-1/4" above DWL



Baseline 1' 10-1/4" above DWL



Flint - Bulkhead 2 & 2A

Scale 1:5

Mast, Boom, and Gaff from 40mm/1-9/16" round timber - preferably laminated from two pieces with grain opposed - see instruction manual.

38mm/1-1/2" square timber, with edges well rounded-over, may be substituted in the case of the boom and the gaff.

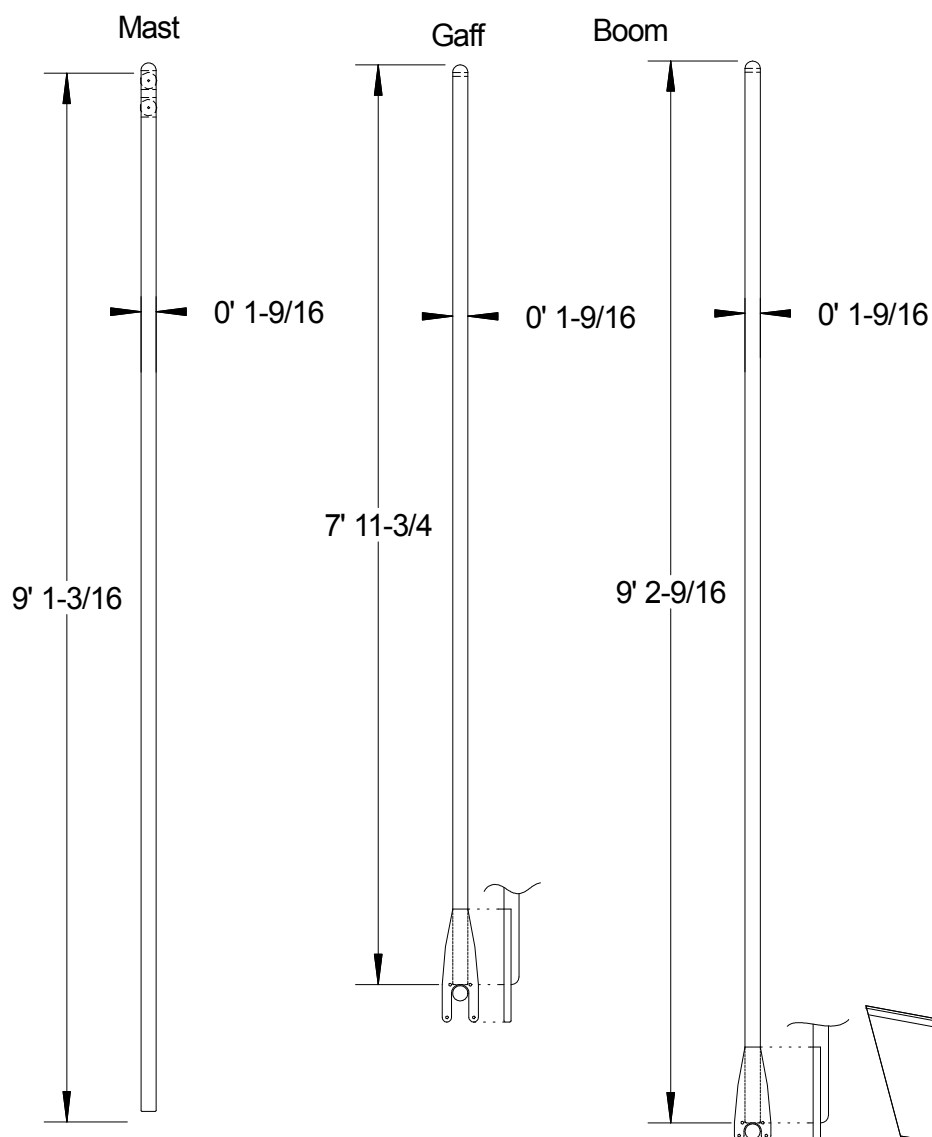
If preferred, Carbon Fibre or Aluminium tubing may be substituted for all spars.

Wall thickness between 1.6 and 2.0 mm for the carbon fibre tube, but check with supplier, as I do not have the required engineering data on hand. Aluminium tube wall thickness should be at least 1.15mm - or more.

Drill 10mm/3/8" holes across ends of gaff and boom to take peak and clew lashings.

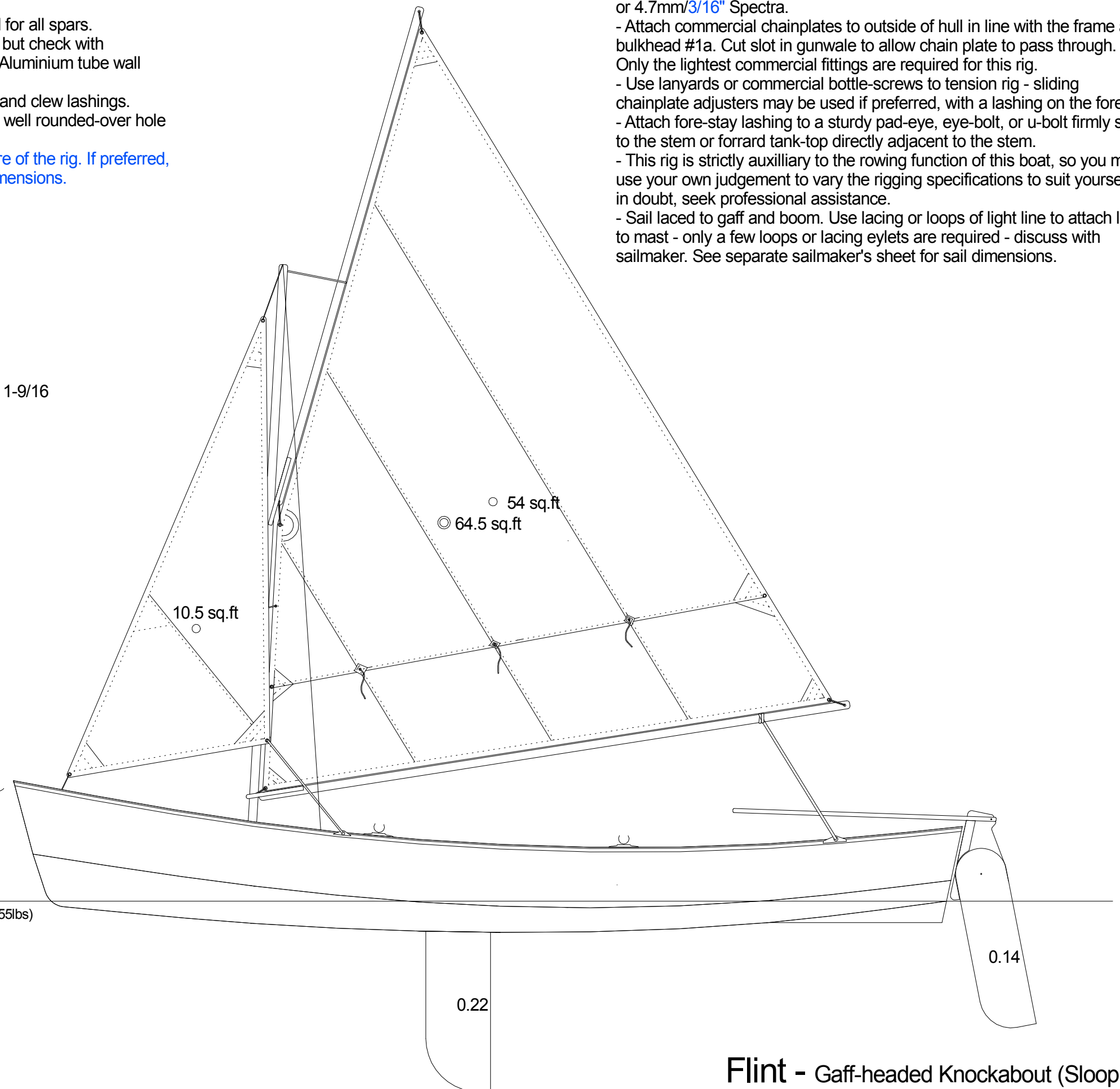
Mortise mast to take sheave for peak and throat halyard, or use a well rounded-over hole to act as a dumb-sheave.

Parallel-sided spars shown because of the small and simple nature of the rig. If preferred, double-tapered spars can be substituted - contact designer for dimensions.



See separate full-size drawing for details of Jaws

Waterline at 207kg (455lbs)



- Attach fore-stay and shrouds to mast head using commercial tangs, or by making loops to drop over chocks placed on either side of mast, as was done in the old days.

- Stays and shrouds may be from 2.4mm/3/32" 1x19 stainless steel wire, or 4.7mm/3/16" Spectra.

- Attach commercial chainplates to outside of hull in line with the frame at bulkhead #1a. Cut slot in gunwale to allow chain plate to pass through.

Only the lightest commercial fittings are required for this rig.

- Use lanyards or commercial bottle-screws to tension rig - sliding chainplate adjusters may be used if preferred, with a lashing on the fore-stay.

- Attach fore-stay lashing to a sturdy pad-eye, eye-bolt, or u-bolt firmly secured to the stem or forrard tank-top directly adjacent to the stem.

- This rig is strictly auxilliary to the rowing function of this boat, so you may use your own judgement to vary the rigging specifications to suit yourself. If in doubt, seek professional assistance.

- Sail laced to gaff and boom. Use lacing or loops of light line to attach luff to mast - only a few loops or lacing eylets are required - discuss with sailmaker. See separate sailmaker's sheet for sail dimensions.

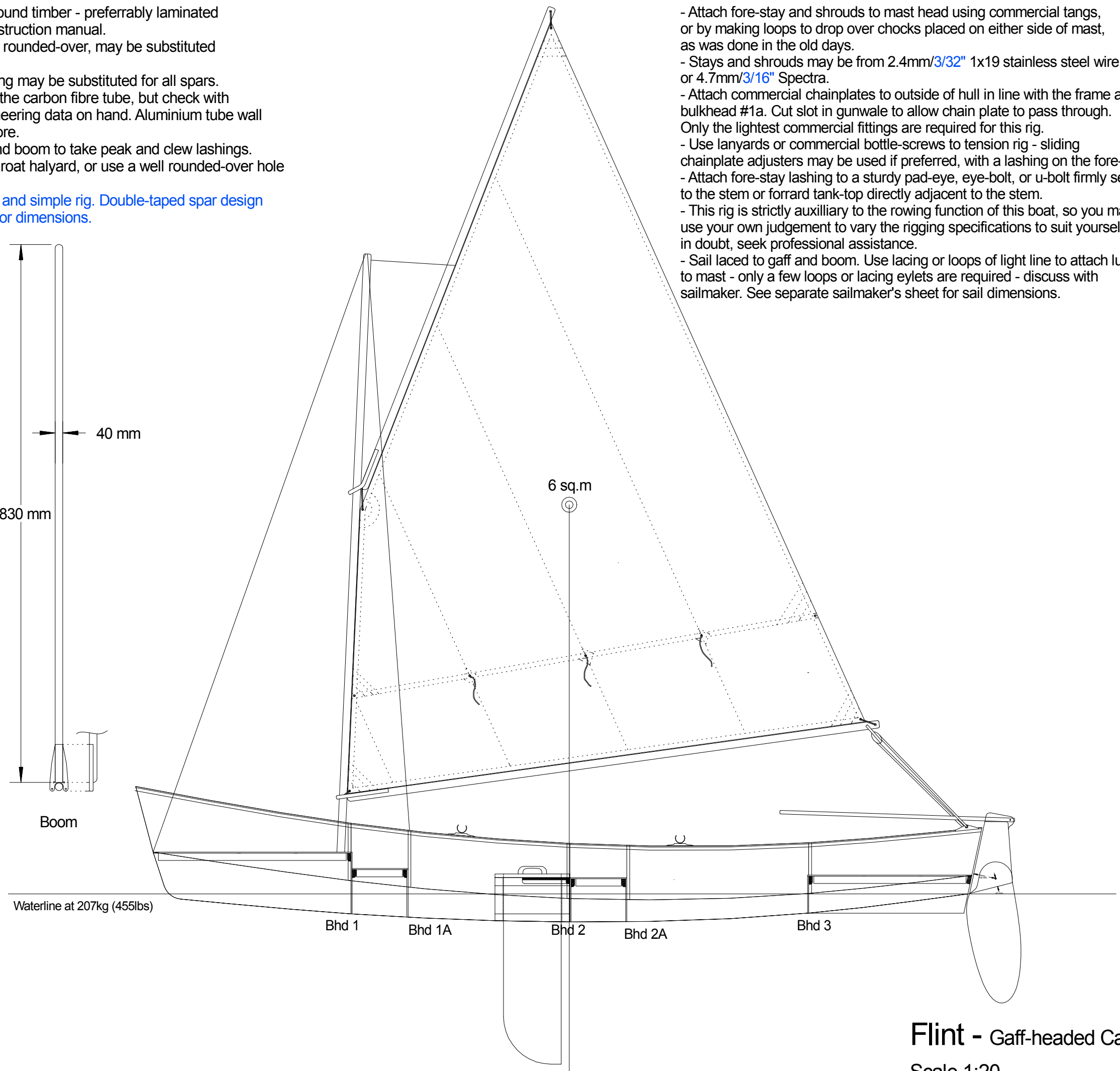
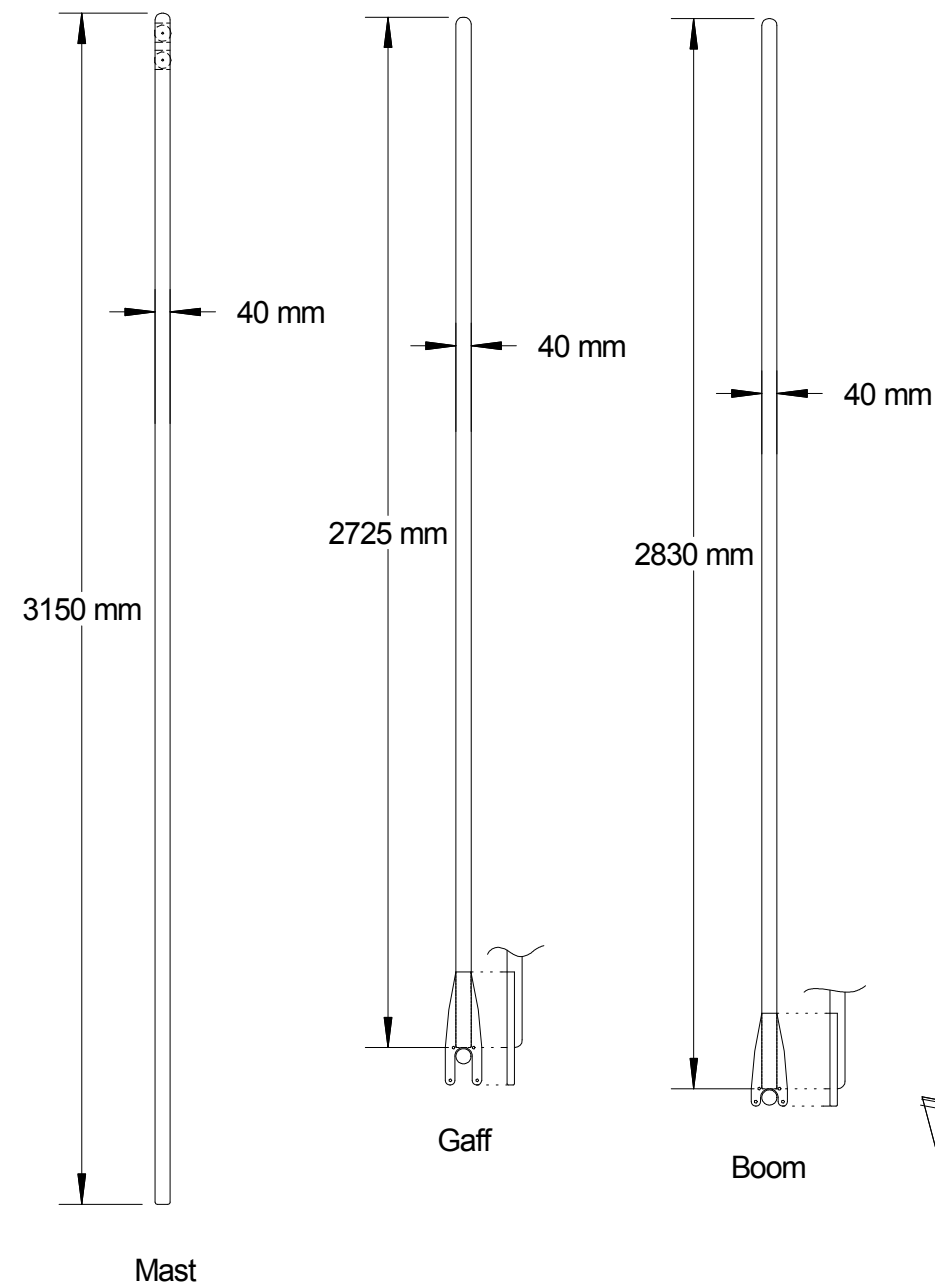
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Flint - Gaff-headed Knockabout (Sloop) Rig

Scale 1:20

Mast, Boom, and Gaff from 40mm/1-9/16" round timber - preferably laminated from two pieces with grain opposed - see instruction manual.
 38mm/1-1/2" square timber, with edges well rounded-over, may be substituted in the case of the boom and the gaff.
 If preferred, Carbon Fibre or Aluminium tubing may be substituted for all spars.
 Wall thickness between 1.6 and 2.0 mm for the carbon fibre tube, but check with supplier, as I do not have the required engineering data on hand. Aluminium tube wall thickness should be at least 1.15mm - or more.
 Drill 10mm/3/8" holes across ends of gaff and boom to take peak and clew lashings.
 Mortise mast to take sheave for peak and throat halyard, or use a well rounded-over hole to act as a dumb-sheave.

Parallel-sided spars shown due to the small and simple rig. Double-taped spar design can be used if preferred - contact designer for dimensions.



- Attach fore-stay and shrouds to mast head using commercial tangs, or by making loops to drop over chocks placed on either side of mast, as was done in the old days.
- Stays and shrouds may be from 2.4mm/3/32" 1x19 stainless steel wire, or 4.7mm/3/16" Spectra.
- Attach commercial chainplates to outside of hull in line with the frame at bulkhead #1a. Cut slot in gunwale to allow chain plate to pass through. Only the lightest commercial fittings are required for this rig.
- Use lanyards or commercial bottle-screws to tension rig - sliding chainplate adjusters may be used if preferred, with a lashing on the fore-stay.
- Attach fore-stay lashing to a sturdy pad-eye, eye-bolt, or u-bolt firmly secured to the stem or forrard tank-top directly adjacent to the stem.
- This rig is strictly auxilliary to the rowing function of this boat, so you may use your own judgement to vary the rigging specifications to suit yourself. If in doubt, seek professional assistance.
- Sail laced to gaff and boom. Use lacing or loops of light line to attach luff to mast - only a few loops or lacing eyelets are required - discuss with sailmaker. See separate sailmaker's sheet for sail dimensions.

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Flint - Gaff-headed Cat Rig
 Scale 1:20

***Flint* – Plans Checklist**

- Outboard Profile
- 3 – View
- Panel Layout
- Panel Nesting
- Bulkhead 1 & 1A
- Bulkhead 2 & 2A
- Bulkhead 3
- Transom
- Tank Tops
- Oars 7
- Oars 7.5

Sailing Supplement

- Sail-plan Knockabout (Sloop)
- Sail-plan Cat
- Daggerboard Case
- Rudder
- Mast Step and Rudder Fittings Detail
- Gaff and Boom Jaws
- Sail Dimensions

Sample sheet from Instructions



Once the assembly of panels is complete, work around the joins gradually tightening and manipulating until the whole structure is even and fair, with all of the inner edges meeting correctly. You can easily flip the loose assembly upside-down to make the tightening process easier.



Based on bevel measurements taken from the assembly, plane bevels onto the side frames of the bulkheads. Do not bevel the plywood section of the bulkhead. The forward edge of the ply part of bulkheads 1 and 2, and the aft edge of the plywood part of bulkhead 3, sit on the marked bulkhead locations. The position of bulkheads 1A and 2A are determined by the 300mm spacing noted in the drawing. The slight open 'V' will be filled with the epoxy fillets.

Level the hull crosswise, sighting across the flat tops of the bulkheads and the stern transom and using a spirit level until you are satisfied that there is no built-in twist. Run a string-line

between the centre of the upper edges of the topside panels at the bow to the centre of the stern transom. You may find it more convenient to attach the stringline to a lower point on the joint between the two topside panels so that the string line runs closer to the tops of the bulkheads. In reality, one needs to carry out a number of such measurements in order to be sure that the boat is straight, true, and free of twist. Sight across the string-line to ensure that the four bulkheads are also aligned with the centerline of the boat. A plumb-bob can also be used if the hull is level athwartships.

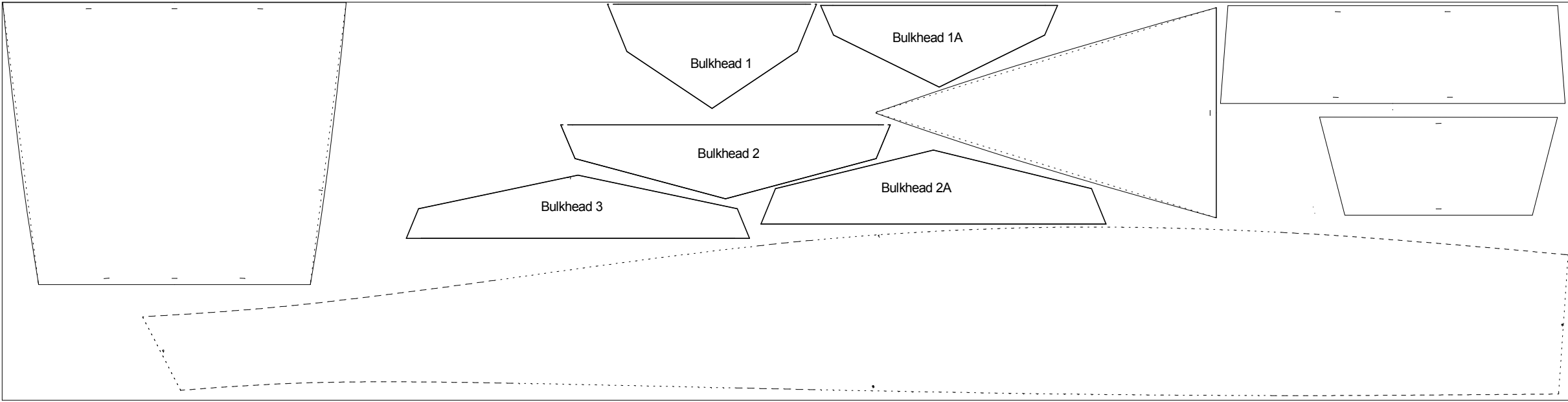
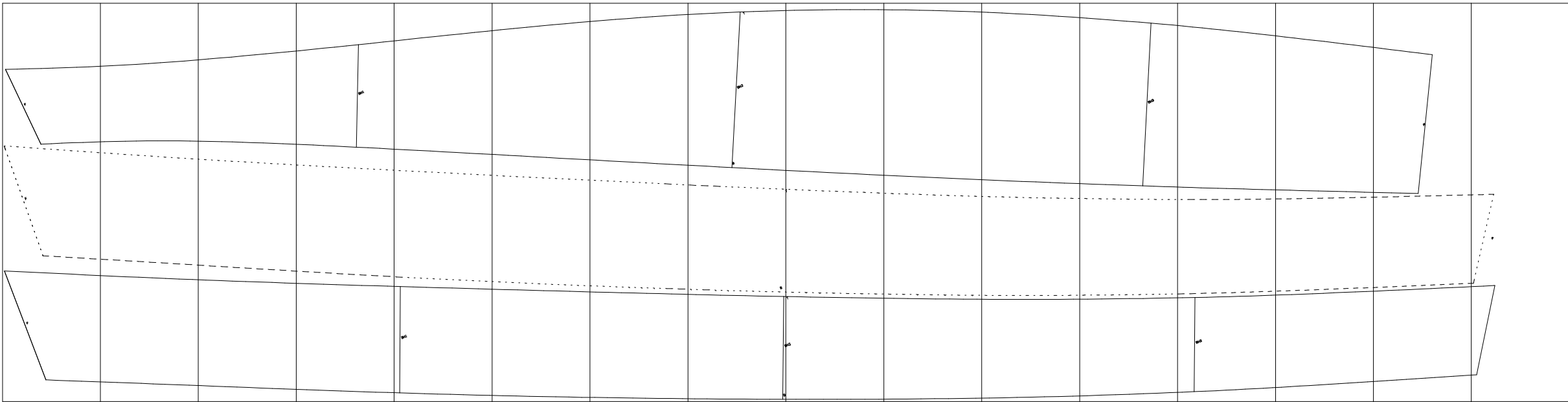
Apply short epoxy fillets 'tack welding'-style to the sewn edges in between the ties, and to the bulkheads. Allow to cure overnight, and then carefully remove the ties.



Apply heavier epoxy fillets to all of the joints, completely covering the existing 'tack welds'. Lay the glass taping material directly into the un-cured epoxy fillet, and then brush un-thickened

Panel Layout - All panels to be cut from 1/4" Marine Plywood (either AS/NZ 2272 or BS1088). Panel shapes are shown true-shape-of-section. If preferred, the marking can be done on cheap, disposable material such as 1/8" MDF, which can then be placed on top of the plywood in order to find the most efficient nesting of components on the plywood panels.

This suggested nesting is based on the use of four sheets of plywood which are 1220mm wide. It should be possible to achieve the same with 1200mm wide sheets by juggling components. The transom is not included in the nesting.



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