



Somes Sound 12½

STUDY PLAN

**Brooks Boats
DESIGNS**

Brooks Boats Designs

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Station 12'
Looking aft

Station 10'
Looking forward



Above: Sailing on a fine interesting afternoon on Blue Hill Bay.



Right: Checking the deck camber, WoodenBoat School class, Summer 2009.

The Somes Sound 12-1/2

The Herreshoff and Haven 12-1/2's, from which the Somes Sound 12-1/2 is derived, have been described as "the biggest little boat" and "the finest family boat ever developed." The Somes Sound 12-1/2 keeps this heritage well: she is a lovely boat; a delight to build and very enjoyable to sail.

The Somes Sound 12-1/2 has a centerboard with a shoal, nearly 600-pound lead ballast keel (just like the Havens.) She is a displacement boat, weighing about 1,400 pounds total, and therefore has an easy motion as well as being stable, comfortable, forgiving, and seaworthy. She also moves right along, going where you want her to, making sailing her very satisfying.

Either rig, Marconi and gaff, can be easily reefed to handle plenty of wind and waves. There is enough weight in the keel to help the Somes Sound 12 1/2 easily carry her way going to windward in a chop. With plenty of overhangs on the ends and flare to the topsides, the Somes Sound 12-1/2 bobs in the waves like cork, hardly shipping a drop. The laps act like little spray rails keeping her even drier, and add the wonderful benefit of the delightful sound of waves ruffling along her lapstraked hull as she sails.

A century ago, Nathanael Herreshoff designed the original full-keel 12-1/2, which he called the Buzzards Bay Boy's Boat. Yachting families were looking for a sail trainer that could be sailed capably and well in the stiff chop and strong winds of Massachusetts's Buzzards Bay. The design proved extremely popular and spread rapidly up and down the coast and has remained popular ever since. The Somes Sound 12-1/2 continues the tradition of handling easily and well in open water and interesting conditions. Like the Herreshoff, the Somes Sound 12-1/2 is a great teacher: willingly accepting beginners but rewarding capable sailors as well. The loads on the lines are small enough that young children can have a blast learning to sail their first "real boat." The first time our daughter Leigh agreed to try taking a sailing job all by herself, she was seven and a little skittish about the whole idea. It was a nice day and we mostly sailed on a reach, back and forth. She easily handled the main sheet through all the many tacks—with a big grin on her face.

There is plenty of space in the ample cockpit for at least four adults, with room to spare. The boat feels much bigger than its 15'-9" overall length. It's ideal for a bring-the-picnic afternoon or evening sail. Though she's designed as a *daysailer*, it would be possible to build her with the idea of occasionally camping out for a night or two, under the stars or a boom tent.

Since the beginning the 12-1/2s have been raced as a one design under several names. Today the wooden ones are still raced and fiberglass ones, under the name Bullseye, are raced in many harbors. In fact, one of the changes I made in the design for the Somes Sound 12-1/2 was to fill the transom out some to help keep her from squatting, which is the consequence of the boats so easily reaching hull speed and the aft end of the boat settling into the trough of their stern wave as they try to climb the bow wave. We're looking forward to seeing Somes Sound 12-1/2s find each other (along with other 12-1/2s) out there in the world and have a little sporting fun.

The Somes Sound 12-1/2's centerboard/shoal draft arrangement is a distinct advantage in thinner waters, and peaceful coves and other fine places that the occasional shoals, rocks, sand bars, and similar eye-openers. Her 18" draft (with the board up) also means that you can bring the boat up to a beach or ramp and hop out without wetting your wallet. She hauls out and loads easily onto a trailer, and her glued-lapstrake construction makes it possible for her to live on the trailer between sails.

The design

This is a new design that is similar to the Haven, but it is not a glued-lapstrake copy.

It was first sketched up after many requests from my WoodenBoat School students for a boat similar to the Joel White Haven 12-1/2 but one that would be easier to build, that is, glued lapstrake. The first boat, named Red Sky hs, was designed and built for one of these students and launched in 2002.

I had several goals for this design:

- Above all else I wanted to keep the same comfort and delight that the originals have.
- I wanted a boat, though different, that was as lovely as the originals.
- I wanted to incorporate the styling of Nat Herreshoff's well known son, L. Francis, whom I greatly admire.
- I wanted to address some of the performance challenges I saw in the originals.
- I wanted a boat that was easier to build while not compromising on looks, sailing qualities or comfort.

Things that we kept the same:

- Same waterline length.
- Nearly identical displacement.
- Same draft as Haven, suitable for trailering.
- Same sail area as Haven.
- Very similar interior arrangement.
- Used the same lead keel to take advantage of molds and patterns that foundries have.
- Use most of the same hardware as is already made for the Havens and Herrreshoff 12-1/2s.

The changes I have made:

Hull

- The mid-section is more semicircular to help reduce wetted surface, since lapstrake construction adds wetted surface.
- This family of shape helps the boats go well and has great stability.
- This shape raised the rabbet line a little and raised the front of the lead keel, reducing the forefoot area to make her more responsive in tacks.
- The transom is a little fuller to reduce squatting when this boat gets up to speed, which it does very easily .



Somes Sound 12-1/2 (right) and Haven 12-1/2 , together at WoodenBoat School, Summer 2009. Red Sky hs (the Somes Sound 12-1/2) was seven years old at that time; her owner is thinking of repainting her, for the first time, this coming summer.

	Somes Sound	Herreshoff	Haven
LOA	15'-9"	15'-6"	16'-0"
DWL	12'-6"	12'-6"	12'-6"
Beam	6'-1"	5'-10"	6'-0"
Draft	1'-6"	2'-5"	1'-6"
Displacement	1,389 lbs.	1,500 lbs.	1,409 lbs.
Sail Area	134 sq.ft.	140 sq.ft.	133 sq.ft.

- There is a little more sheer since the lines of the planks that are so prominent will tend to make the sheer look flatter.
- In many places, such as the shape of the stem, the taper of the coaming and the rake of the mast, this boat has the styling of Nat Herreshoff's famous son, L. Francis.
- We adjusted the overall length a little to get all the planks from the length of two sheets of plywood scarfed together.

Sail plan

- The mast has been moved aft about 7" to give this design a bigger and more powerful jib while also reducing the main's area to keep the sail area the same. This helps this boat go to windward and perform better in light airs.

Appendages

- The centerboard has a more modern elliptical shape with a foil section for better performance.
- This also allows the trunk to be lower and less obtrusive.
- The rudder is shaped to look, above the waterline, like it is narrow and deep like the original 12-1/2 rudder, with a nice LFH scroll.
- The rudder has a rounded bottom that raises the front end at the stern post so it is less likely to catch lobster pot warps.

Interior

- We made a mock up of the seats to find the most comfortable arrangement and shape. All the parts were adjustable and the mock up was on a panel that could be heeled. After many sittings and adjustments, we found that we preferred a flat seat positioned at a 9-degree angle with the coaming set to 15-degree angle. This felt good with no heel, was very snug when on the leeward side, and hooked your bottom nicely when up on the windward side.
- Cabinets in the middle of length of the seats can hold a battery for a bilge pump or a trolling motor such as the new Torqeedo electric outboards. They are also handy for throwing all sorts of things into.

Hardware and keel

- The Somes Sound 12-1/2 uses most of the same hardware used on the other 12-1/2s; making it much simpler, and less expensive, to order hardware.
- Hardware is expensive, so the plans include detailed drawings and full-size patterns for the hardware that can be easily fabricated from plate and rod. This hardware is lighter than cast versions so it is used extensively up high on the mast.
- The original bolts for the lead keel on the Haven are 7/16" and 3/8" rod that has to have threads cut on both ends. Our 12-1/2 specifies 1/2" and 3/8" all thread rod that are readily available and easy to cut to the lengths you need, with threads already cut.
- One thing that did stay the same was the lead keel. The Somes Sound 12-1/2 uses the Haven lead keel made from molds that already exist, which simplified matters and kept costs down. There are a couple of foundries already making these lead keels. It would also be possible to cast your own keel.

Easier to build

- The construction of the original Herreshoff 12-1/2 was designed around a production building system developed by the Herreshoff Manufacturing Company where there was a mold for every frame. Framing up was easy and quick when building many boats to the same design. But, in this barely 16' boat there are 22 molds! The Joel White-designed Haven is built in the same way that the original Herreshoff boats were built.
- The Somes Sound 12-1/2 hull is built over three web frames that stay in the boat, and four molds, for a total of seven—less than a third of the number of molds required for the other designs.
- The construction for this design is thoroughly modern with many easy-to-form laminated parts such as the stems, keelson, floors, sheer clamp, and deck beams to make them easier to make, stronger, easier to install, and easier to maintain.
- Glued lapstraking makes it much easier and more efficient to build a modern, always watertight hull, working with relatively few (especially compared to strips or veneers) easily handled planks and small amounts of epoxy. No need to deal with pots of epoxy or, best of all, get out the misery board to fair the hull. Epoxy clean-up while working is simple, and finished hulls require very little clean-up and sanding.

- For complete information on how to build in glued lapstrake, the techniques shown in our book, *How to Build Glued Lapstrake Wooden Boats* (WoodenBoat Publications, 2004) are exactly the same ones, or nearly so, as shown in the plans. The few differences are explained in the specifications.
- The planking is made of plywood and is thinner than the original cedar because it is stronger so planking the hull is much easier. I have found planking on the Somes Sound easier than on our 12' sailing dinghy Ellen with 1/4" planks!
- This design has been drawn to make an easier to build 12-1/2, but it is still a "real" boat that has not been compromised in shape, construction or rig so that you can be truly proud of what you build and will have years of enjoyment sailing her.

New Somes Sound 12 1/2-to-be set up with an outline of her gaff sail at the end of the 2009 WoodenBoat class. She awaits her keel (fitted but not yet permanently attached) as well as the rest of the deck/coaming and interior work; hardware and several vital appendages; as well as sails and rigging.

The Somes Sound-12 1/2 draws 18" with the board up; draft with the board all the way down is 4'-1". The boat is designed to sail with the board at 3'-5".



What's in the plans

The Somes Sound 12 1/2 plans include seventeen plan sheets, a 32-page detailed specifications manual, and twenty-seven pages of useful lists. Everything is designed to work together to give you all the information you need, clearly and precisely.

Plan sheets

Ten scaled plan sheets (24" x 36")

- Sail plans (Marconi and gaff)
- Lines
- Construction (keyed to specifications)
- Construction (plain working copy)
- Sections
- Building jig; backbone set-up
- Details
- Cradle construction; keelson and keel layout
- Transom support; seat/locker details
- Spars; hardware

Note:

- To make the construction of the hull clearer the building jig and backbone setup are drawn on a separate sheet.
- The sections drawings are drawn at twice the scale of the construction drawing to give you a clearer picture of the details.

Seven full-size pattern sheets (36" x 60")

- Stem profile, forefoot, tiller, deck stringer
- Developed transom, transom knee, lazarette
- Aft sections
- Forward sections, web frames, mast bulkhead
- Rudder, tiller, deadwood
- Centerboard, trunk, gaff jaws, coaming
- Seat locker sides, aft bulkhead, deck cambers, coaming knee

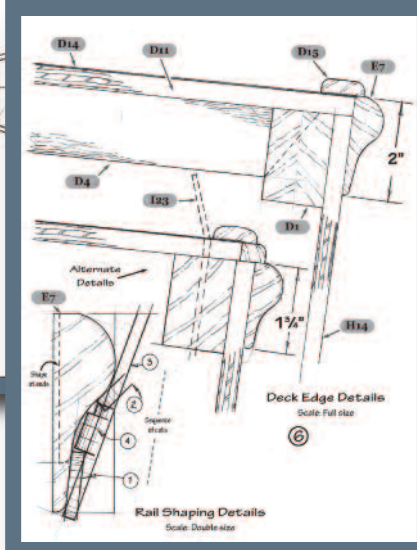
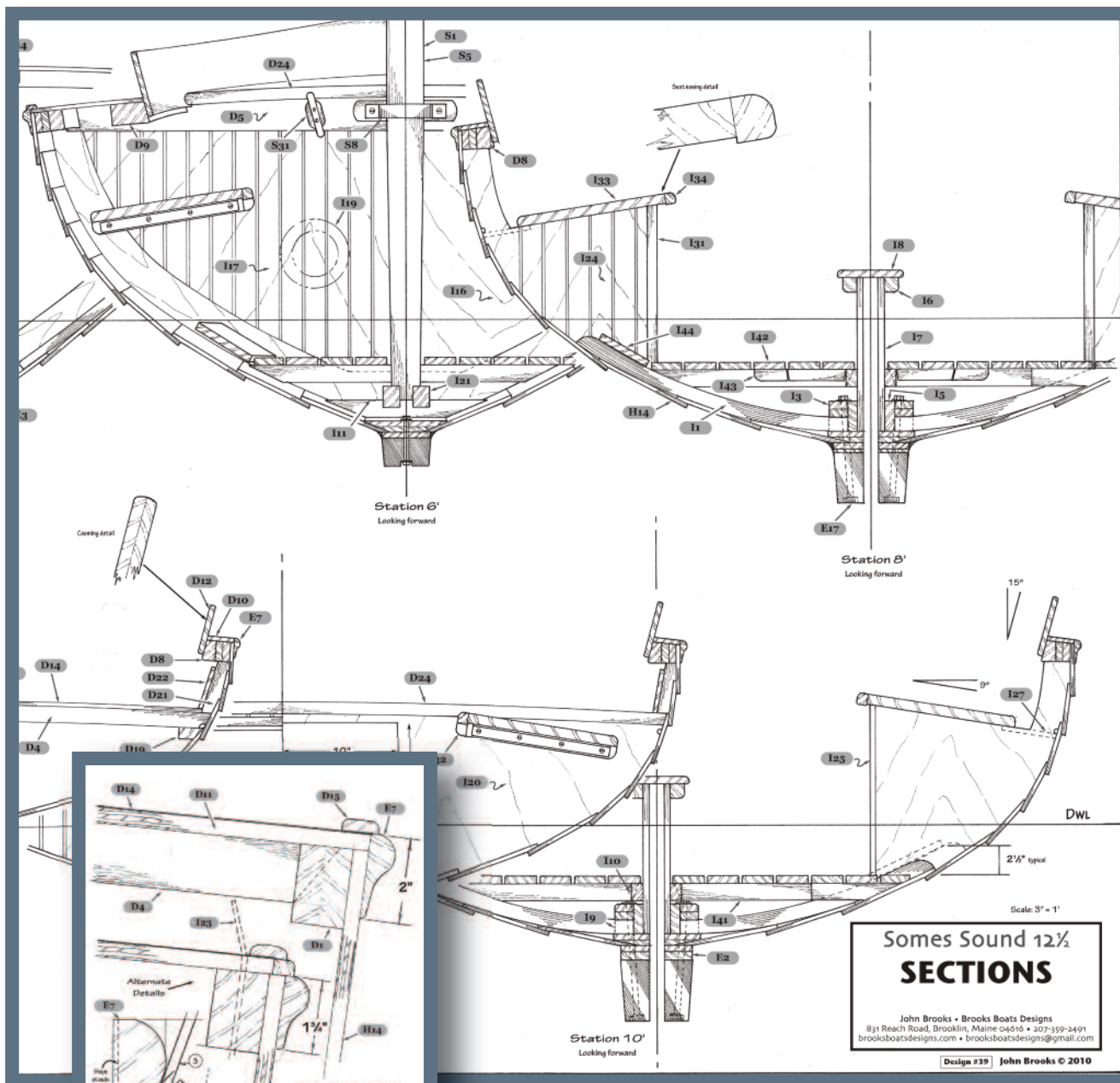
Useful detail drawings and lists

- Detail drawings: Many details are also drawn out at full size. Some of these are drawn on the same sheets as the other the scaled drawings, 24" x 36", but the sheets have been gridded off for 9" x 12" panels so you can, if you like, cut them apart and staple them together to make a small booklet that's smaller and easier to handle than the large sheet drawings.
- Lists: We have included a wood blank and machining lists for all the parts, along with a materials list, so that you can cut your lumber up into manageable pieces while there is plenty of room in your shop before the jig is set up. In fact, with the shop empty I recommend that you make as many of the parts for your boat beforehand as you are comfortable making so the job goes easier and quicker. This is a hard one. Many people think the first thing to do is set up the building jig, but then it is in the way even for making the few parts needed for the backbone and planking.
- All the parts are identified with a letter-number system, keyed to the 32-page specifications manual. This way we can provide you with much more information on each part and how to make and assemble them. Parts are listed in sequence of making them and in sequence of assembling them to help you organize the project.

John,

Got em' !! I'm a bit astounded at all the detailed drawings, instructions and lists. My first 2 thoughts were 1. she is really SWEET !! 2. she is REALLY SWEET !!! 3. what amazing drawings 4. you ain't gettin' enough money for all this (but that's your business :)).

Congratulations to both of you. Well done. I don't know what else to say but you've really done a wonderful job. – BB



Each of the main scaled plan drawings relates to specific detail drawings, layouts, and full-size patterns.

For example, here's the list for the portion of the Sections plan sheet shown above:

Specific detail drawings: Deck Edge Details and Rail, full-size and 2X (inset); Seat Locker Panels; Molding Sections; Seat Cleats; Toerail; Trunk Cap Edge Treatment; Coaming Edge; Seat Nosing; Coaming Pattern Layout; and Keel and Keelson Layout.

...and full-size patterns: Molds and Sections; Plank Layout; Web Frames and Mast Bulkhead; Aft Bulkhead; Decorative Bulkhead Panel; Deck Cambers; Coaming Knee; Trunk Panels and Centerboard; and Trunk Logs.

The scaled drawings are keyed to the specifications (please see following pages for an example.)

Sample page from
the Specifications
manual, keyed to
the rails, among
other things,

D13 Coaming cleats (6/4 mahogany) Make the shape shown in the details drawings. You may have to adjust the angles for your boat.

D14 Dynel For both decks. The foredeck is likely too wide for a single piece of Dynel. In that case it's nice to make an overlapping seam along the centerline that is about 1/2" wide. Mark a line 1/4" from the centerline and run a strip of 2" masking tape along it. Cut the Dynel to be about 1" big around all edges. Lay it in place and roll up half of it. Wet out the exposed wood with epoxy, then roll the Dynel back into place. Be careful adjusting, smooth it out so there are no wrinkles. Wet out the Dynel, squeegee smooth and to take off excess epoxy. Roll up other half and wet out for the other half.

When the epoxy has set—it is best when it is still “green”, that is not sticky but still rubbery—use a sharp utility knife to trim the edges. Along the centerline use a straightedge along the edge of the tape, then pull the tape. For the other side, run a line of tape 1/2" from the edge of the first piece of Dynel, then glue down the second piece just like the first. When set, trim carefully along the tape edge to go only through the top layer of Dynel. Pull the tape and you have a nice, neat overlapping seam.

E7 Rails (4/4 mahogany) (See two detail drawings.) The rails are shaped by routing the top edge with a 1/2" quarter round bit and making a series of cuts on the table saw. Note that the layout of the cuts is drawn double scale for more accurate measurements. Divide all measurements from the drawing in half to set the table saw.

Cuts to make the hollowing in the rail; keyed to the detail drawing:

- 1) Blade at 7°, 5/8" high, fence at 3/8", vertical cut;
- 2) Blade at 45°, 3/16" high, fence at 1-1/16+", from bottom edge. Flat cut;
- 3) Blade at 20°, 2+" high, fence at 7/8", vertical cut;
- 4) Series of short, 90° cuts to remove bulk of wood between cuts 1) and 2).

Hand plane the bottom outside corner, then use course sanding belt or discs until the shape is smooth, then sand with progressively finer grits. Note that the rail tapers in thickness and width. The dashed lines are the shape of the rail at the ends.

D15 Toe rail (4/4 mahogany) The shape should match the end of the bow chocks—two styles are shown in the detail drawings, flat topped with rounded corners or more oval shaped.

D16 Bow chocks (Purchased) These finish off the bow nicely. Trim the end (with belt sander and file) to fit against the protruding part of the stem. You may have to trim the side of the stem a little if the angles don't match. Remove for painting and varnishing after the toe rail is installed.

D21 Quarter board cleats (4/4 Doug fir or mahogany off cuts) Fit to the hull and underside of the sheer clamp. These do not have to go on top of the deck beams but can go alongside, except at the forward end. Once fitted, mark and trim the inboard face so it is roughly parallel to the hull but straight to take the quarter board. Glue and screw in place.

D22 Quarter board (5/4 mahogany; re-saw to 3/8") Spile the shape and make the piece just fit in the space for it. Do a final fit along the deck and transom, fasten in place with oval-head screws (so it can be removed for painting behind it) then mark an even gap along the sheer clamp and quarter knee. Remove the quarter board, trim along the lines and finish the pieces. When you reinstall them, after all the paint work is done, use a goo (Sikaflex, 3M 101, etc.) that seals but isn't too much of an adhesive along the bottom and transom edges.

Sample parts list, one of many useful lists that make planning the project much easier.

Somes Sound 12-1/2 Parts List

January 2010

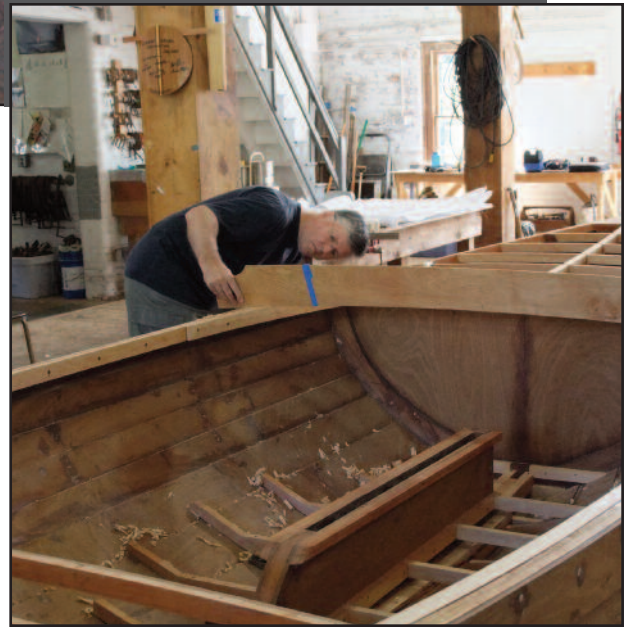
Plan #	Part Name	#	Stock	Plane	Width		Lgth.	Pcs	Notes
					Rough	Finish			
E7	Rails	2	6/4 Mah.	1-7/16	2-1/4		16'	1	Resaw @ 5/8
D5	Mast deck beam	1	6/4 Mah.	1-5/16	4		6'	1	
D20	Quarter knees	2	6/4 Mah.	1-1/4	3-1/2		12"	1	
D13	Coaming cleats	3	6/4 Mah.	1-1/4	2		24"	1	
D12	Coamings	2	6/4 Mah.	1-7/16	10		13'	1	Resaw @ 1/4
D6	Deck stringer	1	6/4 Doug Fir	1-1/4	2-1/2		5'	1	
D1	Sheer clamp	2	6/4 Doug Fir	1-7/16	4	1-7/8	16'	1	Resaw @ 5/8
E10	Tiller	1	6/4 Ash/Oak	1-1/4	1-3/4		46"	1	
S20	Gaff jaws	2	6/4 Ash/Mah.	1-3/8	3-1/2		3'	1	Resaw @ 1/8
I26	Seat locker bottom	2	5/4 Pine	1-1/8	4-1/4	2	7'	1	Resaw @ 3/8
I5	Trunk logs	2	5/4 Mah.	1	6		5'	1	
I32	Seat cleats	4	5/4 Mah.	1-1/8	4-1/4	2	30"	1	
I31	Seat locker moldings	4	5/4 Mah.	1-3/16	2-3/4	1-1/4	3'	1	Resaw @ 1/2
I22	Blocking, chain plates	2	5/4 Mah.	1-3/16	3-1/4	3	30"	1	
I13	Mast step filler	1	5/4 Mah.	1-3/16	2-1/2	2-1/4	18"	1	
H13	Keelson	1	5/4 Mah.	1-3/16	8	7-3/4	12'	1	Resaw @ 1/2
E8	Rudder top block	1	5/4 Mah.	1-1/8	4-1/2		12"	1	
E1	Keel	1	5/4 Mah.	1-3/16	7		12'	1	Resaw @ 1/2
D23 D24	Molding 1 & 2	3	5/4 Mah.	1-1/8	1-1/2		8'	1	
D22	Quarter boards	2	5/4 Mah.	1-1/8	4-1/2		32"	1	Resaw @ 3/8
S19	Spar, gaff	1	5/4 Doug Fir	1	4		8'	1	
S11	Spar, boom	1	5/4 Doug Fir	1	4		11'	1	
I41	Sole beams	13	5/4 Doug Fir	1	8	1-1/2	12'	1	
I11	Mast step cleats	2	5/4 Doug Fir	1	4		2'	1	
I10	Sole beam cleats	2	5/4 Doug Fir	1	3-1/4	1-1/2	5'	1	
I1	Floors	7	5/4 Doug Fir	1-3/16	8		12'	1	Resaw @ 3/16
H8	Webframe cleats	6	5/4 Doug Fir	1-3/16	4		10'	1	Resaw @ 1/2
E2	Keel filler	1	5/4 Doug Fir	1-1/8	7		4'	1	From Keel resaw



Above: Planking the hull of a Somes Sound 12 1/2 at the WoodenBoat School, Summer 2008.

Note the web frames in the bow, two of three frames that serve as molds for building the hull then stay in the boat as permanent structural members. The jig comes apart for storage, and can be used to build many different boats, to our designs and those of others.

Right: Trimming the deck panels, WoodenBoat School, Summer 2009.





Another look at the Somes Sound 12-1/2 (left) and Haven 12-1/2 together at the end of summer. The Somes Sound 12-1/2's L. Francis Herreshoff-styled stem, shaped rail, and tapered coaming complement each other nicely.



Looking aft in Red Sky hs, showing the handy seat lockers, as well as joinery details of the doors and comfortable angles of the seats and coamings. A couple of the floorboard hatches have been lifted out, showing the floors; trunk log construction; keel bolts; and plenty of room for a bilge pump and float switch.

Finishing up the backbone (transom, keelson, inner stem), WoodenBoat School class, Summer 2008.

The open molds and jig system makes cleaning up the epoxy squeeze-out from each plank simple and quick—inside and out.



Jane Peterson



The sweeping coaming is laminated in two pieces. The webframe at the mast can be clearly seen with the bulkhead attached to it. The bulkhead plywood has been dressed up with routed V-match grooves.



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PLANS**

The complete set of Somes Sound 12 1/2 plans is

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Thank you!

John and Ruth