

## Build Your Own Stitch & Glue Boat



In 2004 I thought it a cool idea to take an extensive river trip starting in Manhattan and ending in New Orleans (although it never happened). To make the adventure more interesting, I would build my own boat, and build it from scratch. So I created a computer-aided design program to make templates for the boat. This program also analyzed its sea worthiness and provided various other statistical data.

### Computer-Aided Design Program

No doubt there are numerous stitch & glue kayak kits available, but if you enjoy the full experience of building a boat, then designing one to your needs can be quite rewarding. The missing link in the puzzle of a build-your-own is basically the templates. But not anymore, the makeboat (mb.exe) program allows you to specify a shape for a boat, analyze its sea worthiness, and generate templates.

To get started, you'll need to download a few items. [Makeboat.zip](#) (558k) contains everything (as follows) or you can download or view individual items (PDF or HTML) by clicking on a particular item.

- **mb.exe** - The makeboat program. For simplicity it runs in a Windows command shell rather than being mouse driven (for when I created it I was interested in results rather than the design pain I would encounter with a Windows program). Its output is postscript, thus an essential accessory is a PDF distiller so you can view the text and graphical results. An easy to use command file allows mb.exe to turn out templates and a plethora of other information about the stitch & glue boat. Basic syntax is *mb [options] CommandFile.cmd [Outfile]*. By executing only *mb* it returns a list of program options, whereas executing *mb -H* returns advanced syntax for the command file.
- **[mbSyntax.html](#)** - Makeboat (mb.exe) command line syntax and advanced syntax for the command description file (CommandFile.cmd). A text version of this file can be generated by running *mb -H* from a command shell.
- **[Makeboat.pdf](#)** - PDF version of this file.
- **[mbSample.pdf](#)** - The command description file I used to build my wherry with lots of embedded *how-to* comments.
- **[BuildLog.pdf](#)** or **[BuildLog.html](#)** - The good, bad, and ugly of my experience building a boat. Lots of tricks that worked and other things that didn't are described.
- **wherry.cmd** - The command description file I used to build my wherry. It describes a boat that is 16'-8" long and 28" wide. This is a good starting point for designing your own boat.
- **[w17-28.pdf](#)** - The report for my boat. It is 28 pages in length containing: (a) Command file data, (b) Marker plate coordinate data, (c) Various hull statistics, (d) Load stability curves, (e) Pitch and roll analysis, (f) Longitudinal and lateral torsional wood stress characteristics of the hull, (g) Hull profiles plots, (h) Load capacity versus draft graph, (i) Top view contour angle plot, (j) Top and side view plots, and (k) Scaled

templates.

- **ScaledTemplates.pdf** - A set of scaled templates.
- **Sheathing.pdf** - A set of full sized templates designed to print in *banner mode* of an Epson Photo Stylus 1280 printer. With a roll of 12" wide paper, I pushed out a set of four 200" template plots. Accuracy was quite amazing, the overall length shrunk by only 3/8", and this was tracked by all templates.
- **PlateGuides.pdf** - A set of full sized templates for the plate guides and bulkheads.