

## **KSS PRESSURE SHAPING (KPS) ON DISPLAY**

KSS (Kelsall Swiftbuild Sandwich) is the method used to build all Kelsall catamaran designs. KPS is a refinement which provides a neat and novel way to achieve compound curvature. A patent is pending on the process.

The first public showing of KPS was at the NZ Multihull Club's open day in Auckland February 2008.

A 2.7m model shows what can be achieved by way of a fully compound curvature catamaran hull. It is a relatively fat hull, with more compound curvature than the usual catamaran hull, to test how far the process can be taken.

The display consisted of a base of plywood which serves the purpose of setting the final deck width, a F and A center line frame, with three adjustable control points and a bendy timber batten, which sets the keel depth below the sheer line. The screw portions of G clamps provided the adjustment of the keel batten.

When I explained that I had carried the hull to the show as two flat panels of foam, joined along the stem and the keel line, and that there were only the two controls – deck width and depth of hull - there was much shaking of heads. Not in disbelief, it was all there to be seen, but that such a fair, and appropriate, catamaran hull shape could be achieved so simply. We demonstrated how adjusting the keel depth changed the hull shape.

The process can be applied, with relatively few extra controls, to hulls of any size. The industry standard method of producing such a hull shape is to cut the foam into lots of narrow strips which are then formed around a dozen, or as many as 30 on larger hulls, carefully cut and set up frames. It is a several stage process and none are done quickly.

KPS utilises the properties of the foam to stretch and compress under stress. This approach has not previously been used in boat building. We have yet to investigate the full potential of this exciting new process.

### **As Applied to our Hull Designs**

The standard KSS, Kelsall catamaran hull designs are of developed topsides (starts from flat) with round bilge for the lower portions of the hull (below waterline). The KPS technique is applied to the round bilges of these designs, retaining the finish from the panel for the topsides. It is a neater and simpler process than the one it replaces.

### **KSS for Non Kelsall Designs**

The full compound curvature shape is preferred by many designers who use the strip building method. The KSS technique can now be applied for the builders who choose this shape. Kelsall Catamarans, are working with a number of designers who wish to take advantage of the whole KSS build process – saving time for the boat builders, ensuring a neater and cleaner environment in the boat shed, and achieving top quality and least weight. KPS widens the scope to work with others.