



## Grainger constructs 8.5 m racing day catamaran with CCG help

Today, modern sailing racing catamarans are at the forefront of technological development in the sailing world. Designers are looking at all aspects of sail boat design to gain a performance edge.

### **Lightweight and robust day racing catamaran**

Grainger Designs has been designing high performance multihulls for 30 years with boats built all around the world. This latest design is a small day racing catamaran where the dual demands of light weight and stiffness are the driving requirements for the structural design.

### **Inspired by America's Cup catamarans**

To increase the longitudinal stiffness of the boat and increase rig tension the designer has specified a central spine linking the headsails to the main cross beams. This additional structure has been used by the new America's Cup racing catamarans to increase performance and now smaller boats are taking advantage of its benefits.

### **Critical areas of the structure**

The Australian office of CCG was contracted by the designers to assist them with the structural design of the main cross beams and new central spine. With the use of simplified finite element models the engineering team was able to accurately predict the loads paths through the structure and determine the critical areas of the structure.

The engineering design of this vessel is a showcase of the abilities of CCG to use appropriate levels of engineering analysis to suit the scope of work and budget of the

designer. Included in the work is the supply of full workshop drawings to fabricate both the main beams and the central spine.

### **Lightweight construction**

The hull and decks are constructed with *Divinycell H* series foam with E-Glass skins laminated with epoxy resin. The internal supporting structure of bulkheads and beams are sandwich panels and foam top hat beam fabricated with *Divinycell H* foam. The main beams and spine are fabricated with carbon fiber epoxy and *Divinycell H* foam.