INFLUENCE OF PRODUCTION METHOD ON STRUCTURAL PERFORMANCE AND PRODUCTION COSTS

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INTRODUCTION
There are several benefits associated with the infusion method. The health aspect in terms of decreased styrene emissions is well documented. Also the improvements compared to hand lamination in terms of consistency, quality, mechanical properties and productivity are well known. However, how does it work in reality? This presentation addresses some of the structural and the economical implications of making a switch from hand lamination to infusion.

ABSTRACT
One of the inherent benefits of infusion is the fact that the fibre fraction of the skin is typically increased compared to hand-lamination. This results in higher strength and modulus values, which is desirable, but also in a decrease of the skin thickness. The impact of the skin thickness reduction on the flexural rigidity will naturally differ for monolithic and sandwich laminates. In single skin construction the flexural rigidity is highly dependent on the laminate thickness; whereas for sandwich construction the same property is govern by the core thickness. A design exercise comprising of a 38 ft motor yacht hull have been conducted comparing the different structural implications when switching from hand lamination to infusion for single skin and sandwich respectively.

The second part of the presentation compares the overall production costs of the selected 38 ft hull for infusion and hand lamination.