

MARINE FORUM

THURSDAY, MARCH 26 2009

10:30 AM – 1:30 PM

THE BENEFITS OF MARINE COMPOSITE MATERIALS IN DESIGN AND ENGINEERING



Moderator

● **European Boatbuilder. Dennis O'Neil, Editor.**

Has been a leading yachting journalist for twenty years and previously worked as features editor of Motor Boat & Yachting. Also the editor of Superyacht Business.



In partnership with :

**European
boatbuilder**

TABLE OF CONTENTS

MECHANICAL PROPERTIES AND STRUCTURAL ANALYSIS

1 ISO Scantling Standards and Composite Properties 3

● **Fédération des Industries Nautiques. Grégoire Dolto**, Technical Consultant

- Composite mechanical properties in ISO 12215-5 to 12215-9 standards

2 Finite Element Analysis Smart Application for Smart Solutions 15

● **High Modulus. Alex Shimell**, General Manager – Europe

- Variables involved in FEA, best combination of tools and knowledge for best results

- Range of benefits FEA can offer boat builders, designers and owners

- A number of recent projects presented as case studies

NEW ADVANCED MARINE COMPOSITE MATERIALS

3 Industrializing Advanced Composites for Production Marine Structures 27

● **SP Gurit. Nick Partington**, Global Technical Leader

● **SP Gurit. Luke McEwen**, Senior Engineer

- New materials to bridge the gap between one-off-racer and high-volume production yacht in a commercially viable way

- New growth areas in composite marine structures

- Issues and solutions

4 Smart Materials for Marine Applications 45

● **BVT (Halmatic). Edward Findon**, Senior Composite Engineer

- History of smart materials in boat building, including electrical screening, anti-fouling coatings and stealth techniques

- Smart materials currently used in marine composite structures from passive fire protection to monitoring structural loads

- Future technologies explained including "Bruisable composites – damage detection made easy" and "Prism" – electrical sensing structural health, both UK-funded programs finished in 2008

- Enhanced ballistic and blast performance hybrid composites tested at BVT

TWO MARINE CASE STUDIES

5 Marine Construction Processes and Techniques 53

● **Trimarine. Sebastiano Rech Morassutti**

● **Trimarine. Fernando Sena**

- How the construction processes and techniques used to build very sophisticated advanced composite racing yachts - i.e.: America's Cup, Volvo 70 Round the World Racer, UIM Class 1 Offshore Powerboats, etc. - can be transferred into the composite yacht production

6 Lightweight Dubai Taxi Boat 75

● **Lightweight Structures. Ing. Aldert Verheus**, CEO

- Well-designed, well-engineered and fast carbon composite motor boat

- For transportation between the islands and the creek of Dubai

- Vacuum infusion for high-tech quality

- FEA-based structural design for extreme weight reduction