Composite Repair of Offshore Structures

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About the Course

Offshore structures are subject to variety of actions which can eventually lead to structural failure. To combat this, composites are becoming a popular option to repair these damaged structures as well as to rehabilitate structures.

Composites now offer a cost-effective means repair and/or strengthen structures made of steel, concrete or other materials. Composites are increasingly being used to repair structures built with other materials. Target applications include ships offshore platforms and pipelines, including underground systems.

The workshop would begin with an overview of composites in the offshore environment and will be followed by with some detailed case studies and examples looking at the application side.

Schedule

Registration

Composite repairs for offshore structures – Context

Main threats on composite repairs, in the particular case of Marine & offshore structure

Regulatory background, Marine and others

Generalities on strength & Durability

General Overview of composite patch repairs (COMPA)

COMPA patch design and application

COMPA patch testing and monitoring

COMPA patch repair examples

Future outlook

Finish

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About the Lecturers

Darko Frank is the technical director at As2con whose duties involve the management of engineering projects including EU research projects. Projects included concept of semi submersible fish farm, concept of floating solar power storage, CFD propeller analysis, collision assessment of tanker and iceberg, and COPATCH - composite materials for ship repairs. As a postgraduate he carried out research into the fatigue strength assessment of laser stake-welds in web-core sandwich panels.

Luc Mouton works on composites and bonding in the scope of Marine and Offshore field, participating research projects such as Fibreship, Vi-comte, or managing projects such as the taking-off JIP Strength Bond Offshore. He has been project leader for the certification of ColdShield which is a world premiere in fully bonded repair solution for FPSOs Hull without restrictions on hull girder stress. The main Classification societies have followed and are certifying the product. He has an extensive experience in structure, fatigue and finite element analysis of marine and offshore vessels. His naval architecture background is strong of 10 years involvement in design review at Bureau Veritas.

About the Modules

Composite repairs for offshore structures – Context
Discussion about the situation of floating offshore units, threat and interest of composite bonded repairs. Existing products, comparison of pipe repairs and hull repairs.

Main threats on composite repairs, in the particular case of Marine & offshore structure
Adhesive bonding is a special process, what does it mean? Quality aspects about composite bonded repairs. The reality of an offshore unit.

Regulatory background, Marine and others
Overview of the existing marine rules about composite repairs, composite in marine, and adhesive. Elements of standards from other industries.

Generalities on strength & Durability

General Overview of composite patch repairs (COMPA)
Regulatory framework from classification societies and technology qualification requirements and procedures. Recommendations on when to apply the carbon fibre composites for the repair of marine structures.

COMPA patch design and application
A look at patch design and case-to-case analysis using different software packages, procedure of the patch manufacturing and on-board installation using different alternatives.

COMPA patch testing and monitoring
An introduction to bonding strength tests, large scale tests and tests on board a vessel.

COMPA patch repair examples
Overview of the large-scale repairs of pipes and tanks, small-scale repair cases and emergency repairs.

Future outlook
COMPA technology qualification progress with DNVGL. Threats, qualification plan and tests to be performed in the near future.

Cost
Registration of the course is now open. The fee for the workshop will be £385 +VAT which includes course notes, lunch and refreshments.

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