Guidelines for the use of FRP in ships structures

Johan Wikman Swedish Transport Agency

2014-03-27



Topic

- Background about performance based fire regulations in SOLAS
- The work progress within the IMO
- Planned work during this year
- What input are needed



Performance based Chapter II-2

- In the begining of 1990:ies eg FP39/INF23
- New Structure of Chapter II-2
- Fire Safety Objectives and Functional Requirements
- Part F Alternative design and arrangements





Regulation II-2/2

1 Fire safety objectives

- .1. prevent the occurrence of fire and explosion;
- .2. reduce the risk to life caused by fire;
- .3. reduce the risk of damage caused by fire to the ship, its cargo and the environment;
- .4. contain, control and suppress fire and explosion in the compartment of origin; and
- .5. provide adequate and readily accessible means of escape for passengers and crew.

2 Functional requirements

- 1. division of the ship...
- 2. separation of accommodation...
- restricted use of combustible materials;
- 4. detection ...
- containment and extinction...
- 6. protection of means of escape...
- 7. availability of fire-extinguishing appliances...
- 8. minimization of possibility of ignition of flammable cargo vapour.



Regulation 5 - Fire growth potential

1 Purpose

- The purpose of this regulation is to limit the fire growth potential in every space of the ship. For this purpose, the following **functional requirements** shall be met:
- .1. means of control for the air supply to the space shall be provided;
- .2. means of control for flammable liquids in the space shall be provided; and
- .3. the use of combustible materials shall be restricted.



Regulation 17 - Alternative design and arrangements

- 2.1. Fire safety design and arrangements may deviate from the prescriptive requirements set out in parts B, C, D, E or G, provided that the design and arrangements meet the fire safety objectives and the functional requirements.
- 2.2. When fire safety design or arrangements deviate from the prescriptive requirements of this chapter, engineering analysis, evaluation and approval of the alternative design and arrangements shall be carried out in accordance with this regulation



II-2/17.3 Engineering analysis

- .4. determination of the required fire safety performance criteria...
- .4.1. performance criteria shall be based on the fire safety objectives and on the functional requirements of this chapter;
- .4.2. performance criteria shall provide a degree of safety not less than that achieved by using the prescriptive requirements; and
- .4.3. performance criteria shall be quantifiable and measurable;

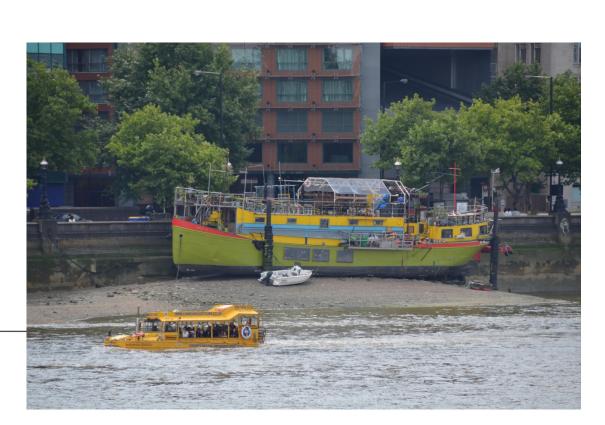


FRP as an alternative?

FRP discussions in IMO

- UK MSC 87/24/2
- Guidelines for the use of FRP in structures of SOLAS ships
- FP 55
- FP 56
- SDC 1/11
- SDC 1/inf5
- Guidelines reg 17
- SDC 1/26





Outcome SDC 1

- Discussion about regulations II-2/2.2 and II-2/17
- Complex matter.... Cautious approach...
- Reinstate the Correspondence Group based on the view that FRP shall be evaluated against II-2/17 (paragraph 8 in SDC1/11)
- Define consequences from use of FRP on other issues than fire protection
- Continue to develop the Guidelines
- To invite MSC to reconsider the objectives in part A



Issues other than fire protection

- Working environment issues
- Nano particles
- Electrical installations, EMC
- Radar waves
- Live saving equipment
- Maintenance
- Structural strenght

•





Continuing work

- SDC 2 16-20 February 2015
- MSC 93 14-23 May 2014
- The Correspondence Group will continue
- First Circulation in next week
- Bulky documents to SDC2 begining October
- Non-Bulky documents to SDC2 begining November
- Input needed
- Examples
- Information

