



Guidelines for the use of FRP in ships structures

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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 beginning 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...
3. **restricted use of combustible materials;**
4. detection ...
5. 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
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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 beginning October
- Non-Bulky documents to SDC2 beginning November
- Input needed
- Examples
- Information