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Passenger ship resistance to collision

Jo Dormon - MCA



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Overview

- Introduction
- Prevention
- Structure – general
- Scantling Determination
- Post damage survivability
- A note on fendering
- Closing thoughts





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About me...

- Naval Architect by training
- Work as Principal for passenger ships in the MCA
- Primarily deal with UK domestic fleet – that is ships operating in UK waters and not on international voyages



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Introduction

- Focus on inland waterways passenger ships
- Collisions with fixed infrastructure e.g. piers
- Main collision modes:
 - Head on collision
 - Side collision – ‘glancing blow’



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Prevention

- Best mitigation is prevention
- Navigation, waterway controls
- Visibility from the control position
- Close quarters manoeuvring and additional visual aids
- Maintenance of propulsion machinery and control systems



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Structure - general

- MCA do not produce technical standards for hull structure.
- New passenger ships are therefore designed in accordance with Classification Society Rules.
- This is in line with international regulations – SOLAS does not deal in the detail of structural requirements.
- Requirements detailed in Classification society rules.
- Rules for different applications, e.g. inland waterways, high speed and light craft, special service.



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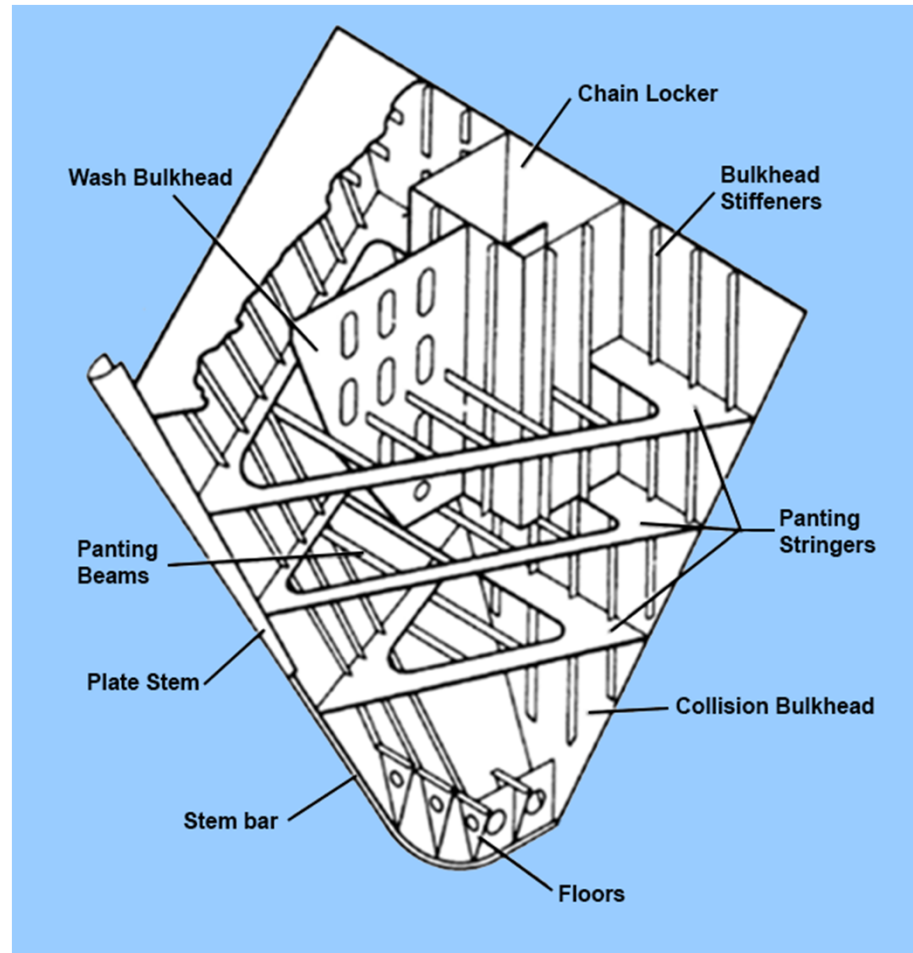
Scantling determination

- Scantling determination according to calculations against rules
- Build material
- Plating thickness
- Framing
- Stiffening
- Different requirements for different areas – according to structural load



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Example structure



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Survivability

- Subdivision
- Collision bulkhead
- Stability in the damaged condition
- Bilge pumping
- Inherent buoyancy
- Evacuation



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Fendering

- Energy absorption
- Prevent damage to both ship and infrastructure
- Areas of high contact
- Mobile fenders
- Fixed fenders



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Examples



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Closing thoughts

Prevention of collision = best defence!



Any questions?