

 **Keel Marine Ltd**
Naval Architects Marine Engineers and Surveyors



Serving the Marine Industry since 1962.



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DESIGN OF NEXT GENERATION INLAND WATERWAYS FREIGHT VESSELS

PRESENTED BY
Steven Mears



Company Background

Keel Marine are a consultancy specialising in naval architecture, marine engineering and survey for all vessel types, commercial and leisure, and of all sizes.

The company has been in operation since 1962 and has been involved with vessels on the UK inland waterways system since the late '70s with clients over the years including;

- Environment Agency
- British Waterways
- Port of London Authority
- Transport for London
- Thames Water Authority
- Land & Water Services
- Abwood Marine
- Veolia
- Airbus Industries
- Ebsford Environmental

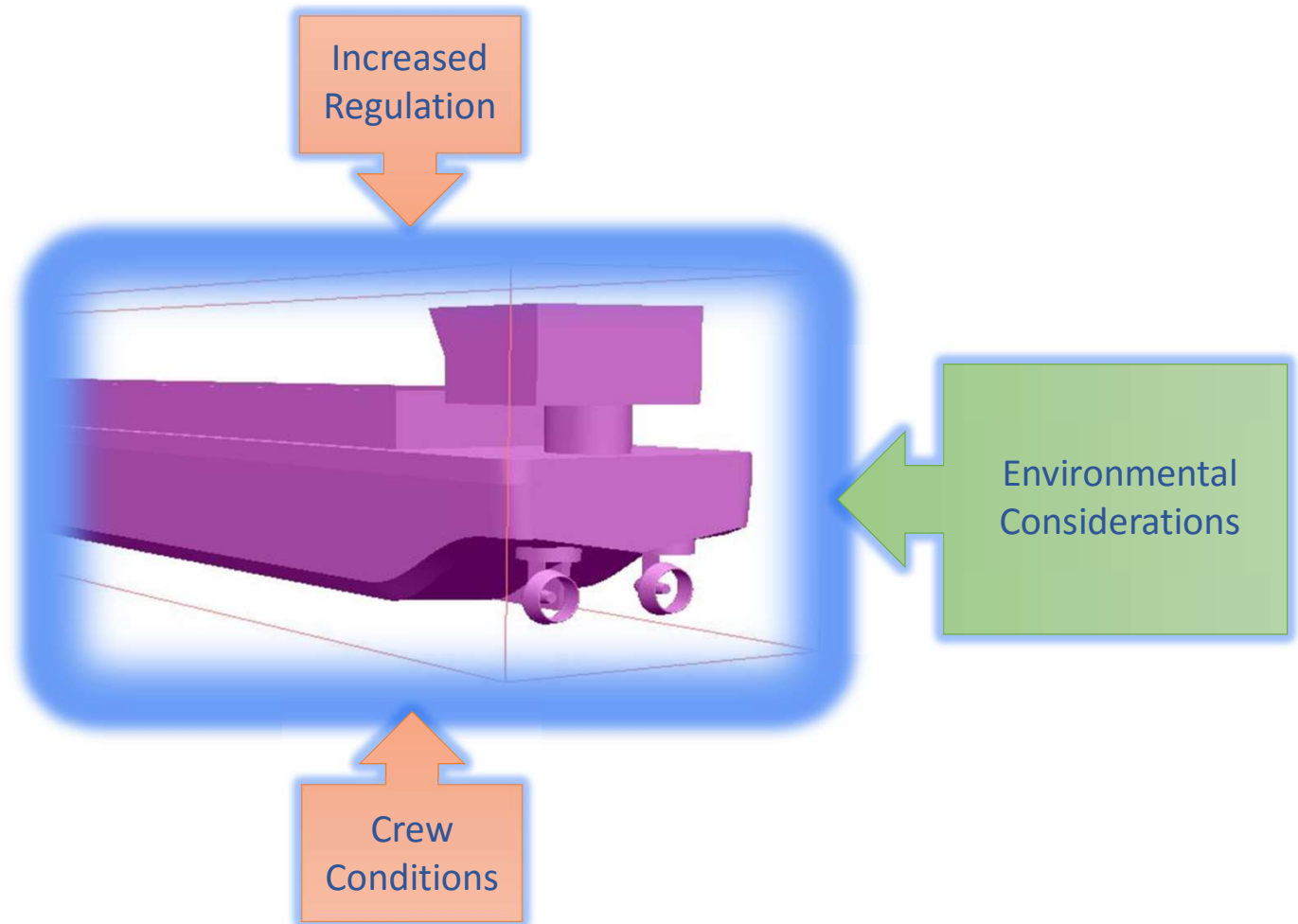




Design Drivers

All drivers interlinked with decisions in one area effected many others.

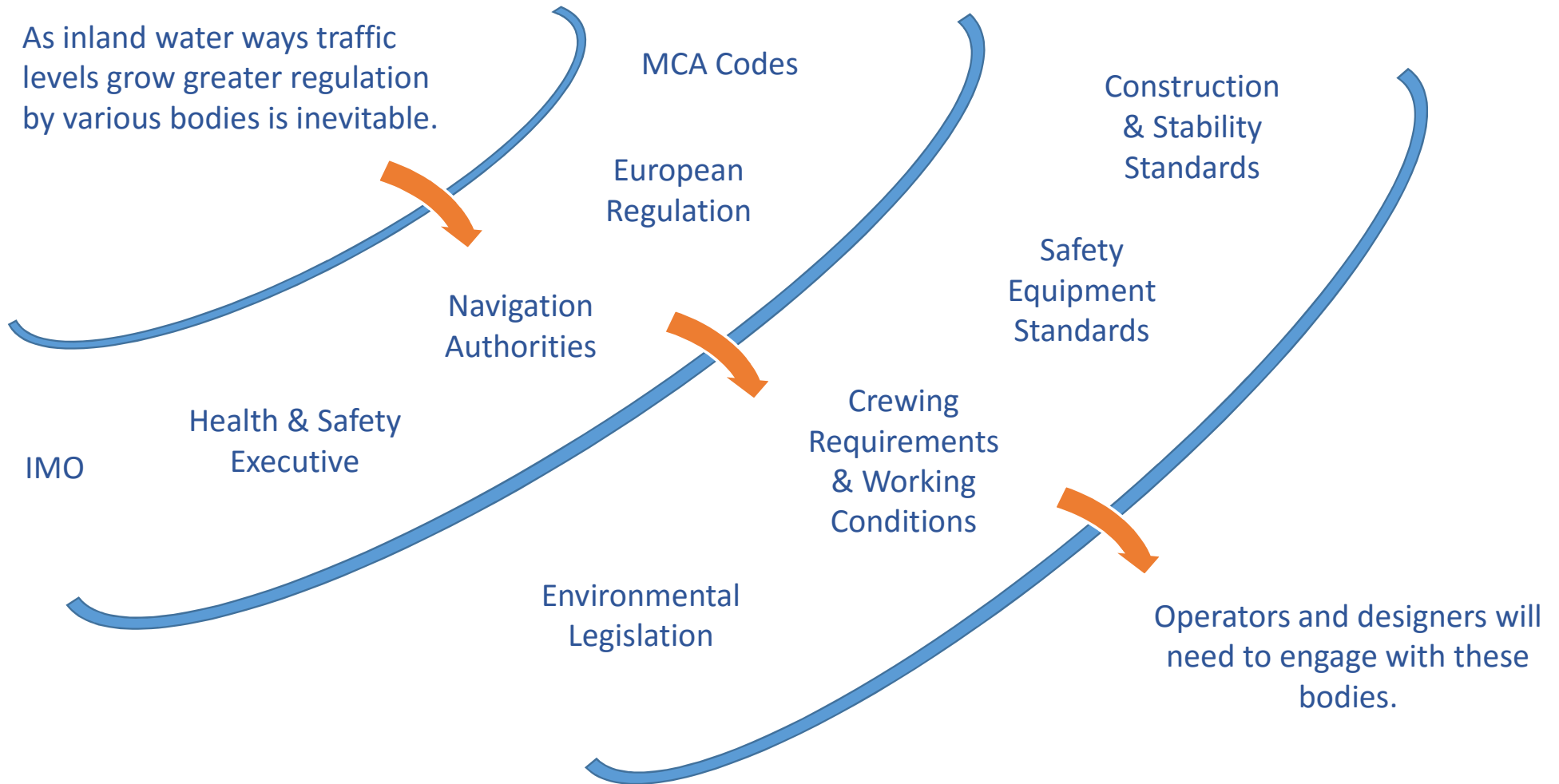
Owners and designers must work together to find the most effective balance for a successful vessel.





Increased Regulation

As inland water ways traffic levels grow greater regulation by various bodies is inevitable.





Medway Tug and Dredger Barge



Hydraulic Latching System



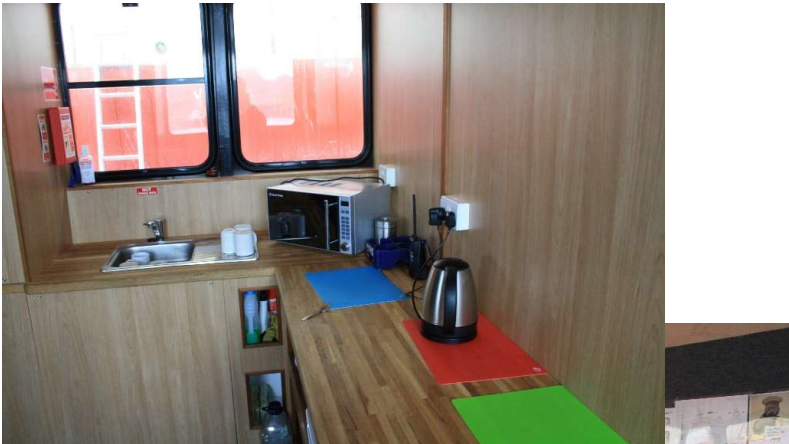
Remotely Operated Crane



Hold Sized to Prevent Overloading



Welfare Facilities



Outfit on Windfarm Service Vessel



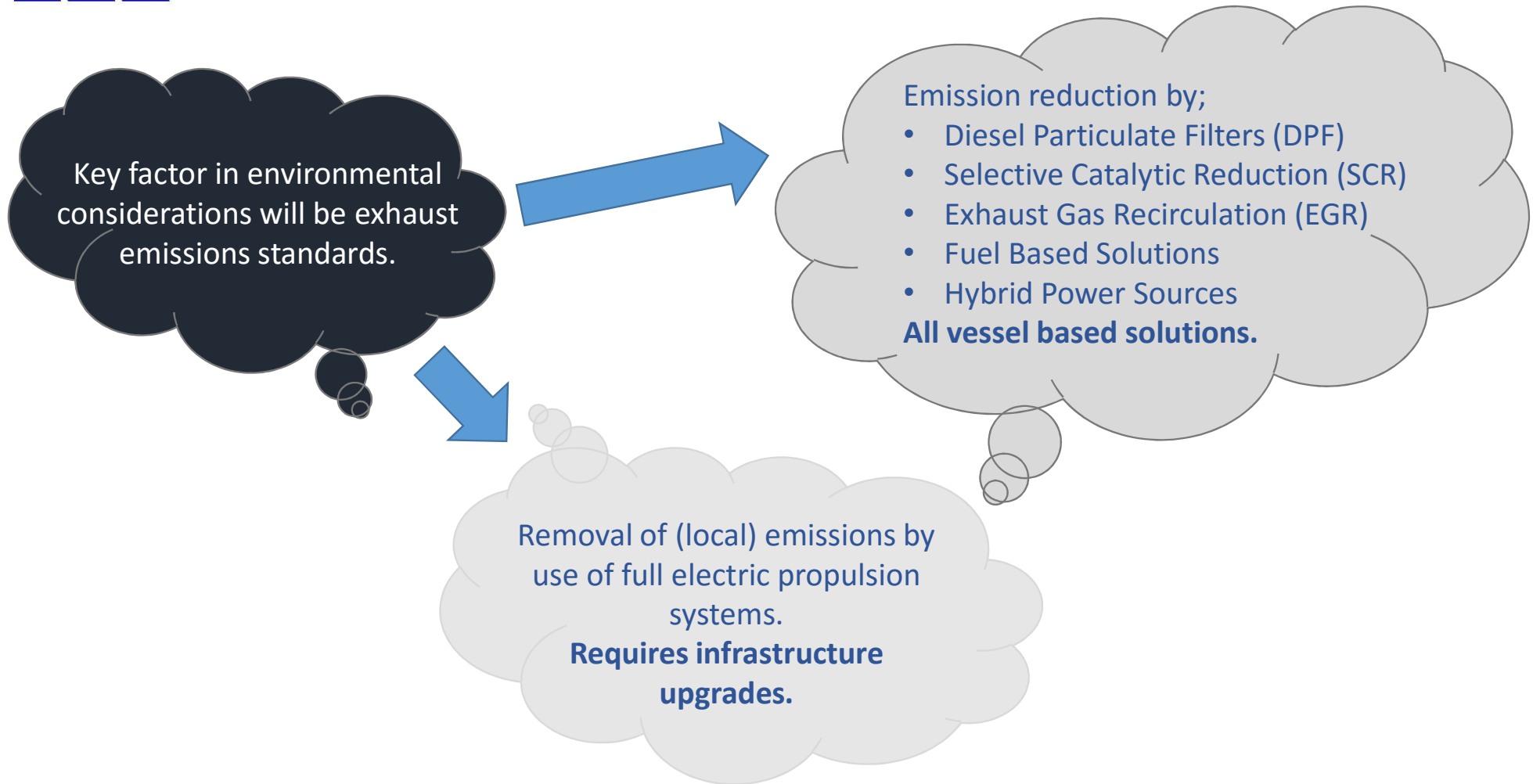
Medway Tug
Toilet Space



Medway Tug
Wheelhouse
Fitout

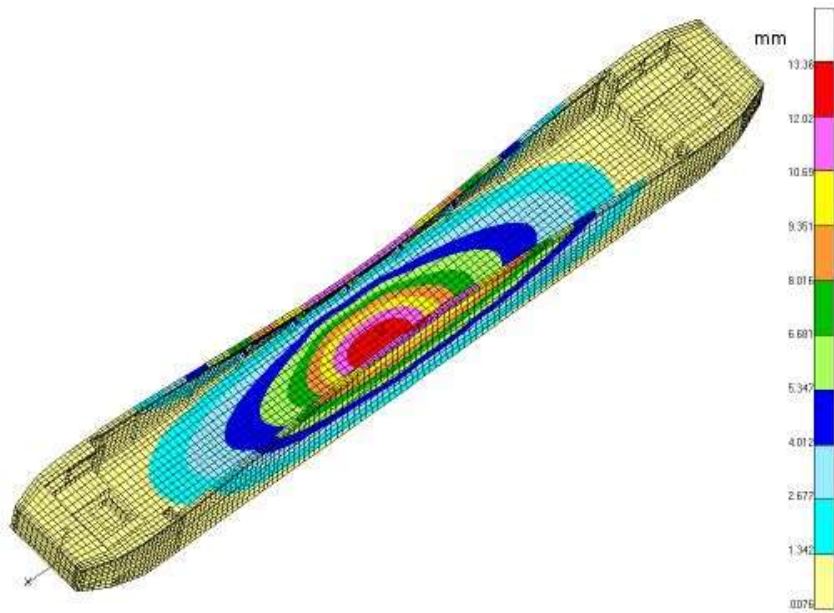


Environmental





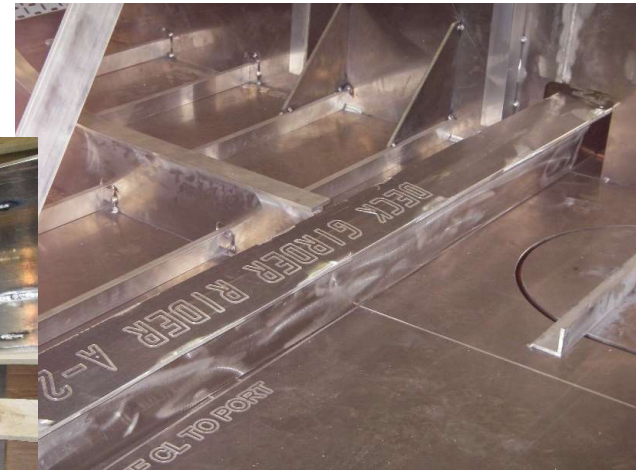
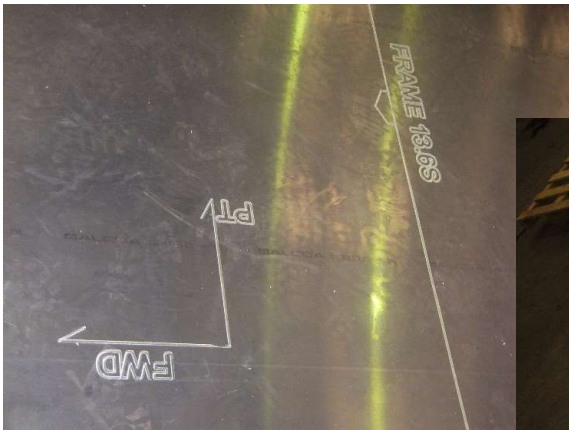
Design Tools – British Waterways Barge



Finite Element Analysis of structure allowed replacement of traditional bottom structure with single skin unstiffened thick plate

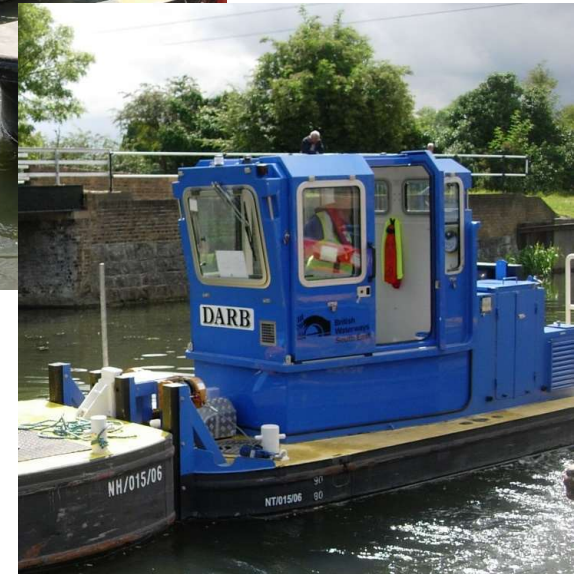


Design Tools – Cutting Files





Materials – Fibreglass Raising Wheelhouse





Hybrid and Electric Propulsion



Typical Battery Installation

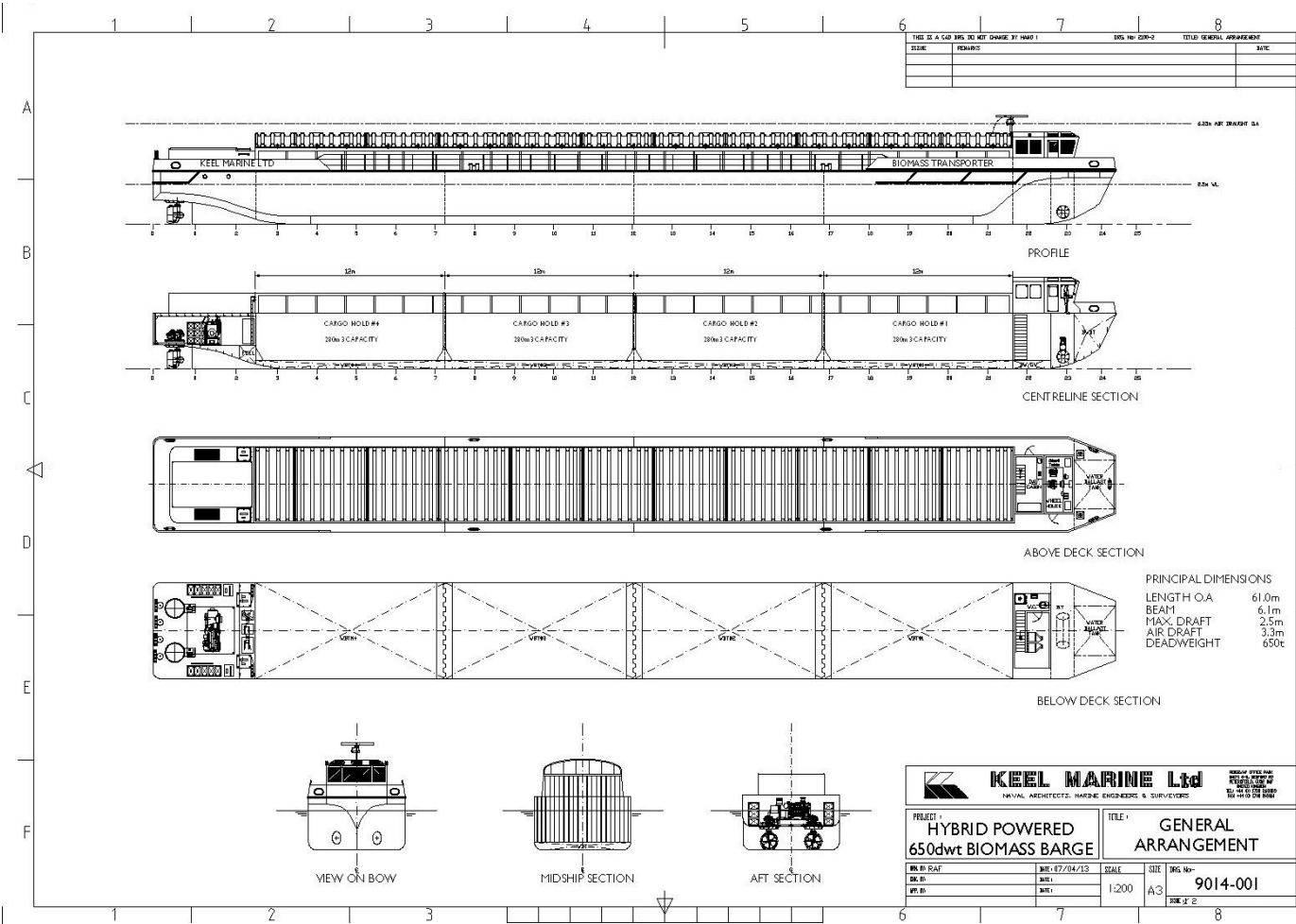


Thermal Runaway





Next Generation Vessel Features



- Steel hull, conventional shape
- Alternative materials employed in other vessel structure
- Good visibility
- Technology to minimise manual handling by crew and reduce risk
- Low or zero emission machinery for propulsion systems



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Thank you
for your
attention