

Composites UK: Construction Sector Group

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Duracomp Event
National Composites Centre
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Composites Trade Association

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Content

- Composites UK – Construction Sector Group
- Composites Leadership Forum – Delivering the UK’s Strategy
- Individual Needs of Duracomp
 - ❖ Clients
 - ❖ Designers
 - ❖ Contractors
- Construction Differentiators
- What Industry needs from Duracomp – future outlook?

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C-UK: Construction Sector Group

- **Sub Group History**
 - ❖ Formed in Summer 2015
 - ❖ Offspring of the 'Network Group for Composites in Construction'
 - ❖ Committee comprises Manufacturers, Designers, Contractors
- **Group Actions**
 - ❖ Reinvigorating NGCC Case Studies and Technical Sheets
 - ❖ Development of the Bridge Design Guide (led by Toby Mottram)
- **Involvement with Industry Leadership – CLF**
 - ❖ Inputting into delivery UK Composites Strategy (Large Structures Cluster Group input and action plan for Low Volume / Large Structures)
 - ❖ Ability to influence government/other CLF members (UKTI/BIS/EPSC/Innovate UK)

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Composites Leadership Forum

- **History** – CLF born out of the UK Composites Strategy 2009 together with HVM Catapult (National Composites Centre)
- **Remit** – “Voice of UK Composites Industry”
- **CLF Stakeholders/Partners** - BIS, TSB, EPSRC, UKTI, DSTL, KTN, Composites UK, NCC/HVM Catapult, British Composites Society, IMechE and CIMComp
- **Industry Sector Groups** - Aerospace Growth Partnership, Automotive Council, Construction Sector Group, Large Structures Cluster Group plus many others.....

UK Composites Strategy 2016

- Implementation Phase of Strategy
- Action Plans from Cluster Groups being developed
- Outcome – Growing market with proposed 6% CAGR increasing to 15% CAGR
- Market Value of £2.3bn (current) with a potential £12.5bn (2030)

COMPOSITES LEADERSHIP FORUM

Lightening the Load

Delivering UK growth through the multi-sector application of composites



The 2016 UK Composites Strategy



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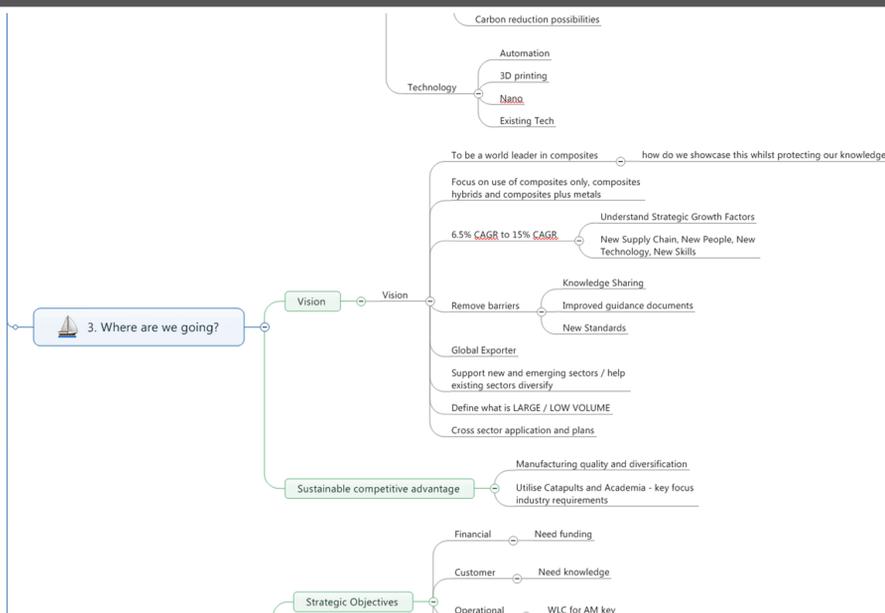
CLF Large Structures – Action Plan

Action Plan

- New cluster group
- Need develop membership
- Mind mapping the possible actions

Large Structures/Low Volume

- Defence – Naval Vessels
- Marine – Work Boats/Super Yachts
- Aero – Engine blades/rotors
- Oil/Gas – Modular Structures
- Energy – Wind/Wave Turbines
- Construction – Custom Bridges
- Rail – Track Bed / Rail platforms

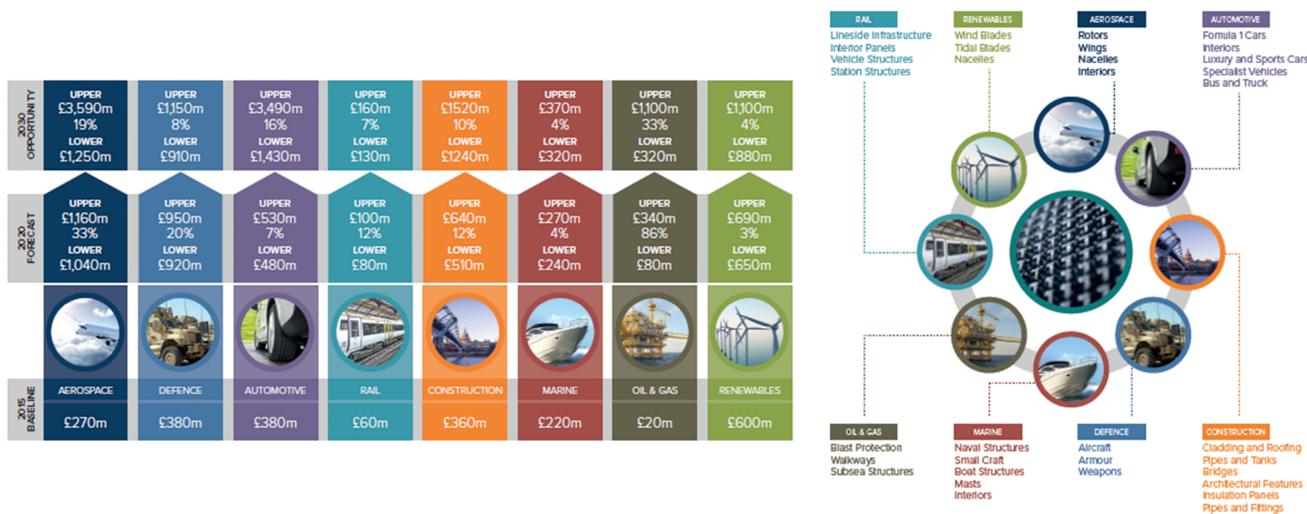


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Composites Leadership Forum



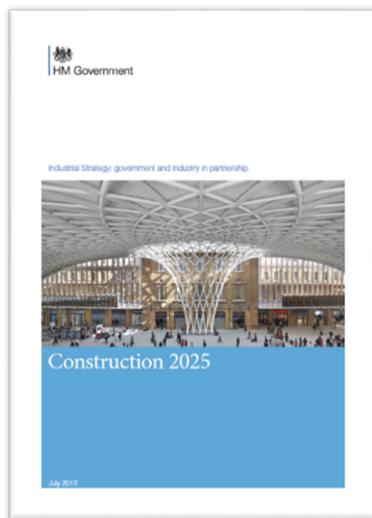
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Construction Challenges

Government Strategy – Construction 2025



Lower costs

33%

reduction in the initial cost of construction and the whole life cost of built assets

Lower emissions

50%

reduction in greenhouse gas emissions in the built environment

Faster delivery

50%

reduction in the overall time, from inception to completion, for newbuild and refurbished assets

Improvement in exports

50%

reduction in the trade gap between total exports and total imports for construction products and materials

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Construction Differentiators

How does the Construction Industry differ to existing Composites Industries?

- Existing Supply Chains.....predominantly “Non Structural”
- Durability and WLC fundamental aspects
- Thick Composites Designs
- Design for typically 60 to 120 years
- Limited Knowledge

Major growth potential possible in “**LARGE/LOW VOLUME**” applications

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Client Needs

- **Structural Performance** – What is required for the lifespan of the structure (Design Life: Automotive 10 years however Construction can be 120 years and beyond)
- **Durability** – one of the key selling points! When and what will maintenance be required during a 120 years design life. Information needed for robust 'Whole Life Costing' exercises. How can we create zero maintenance structures (akin weathering steel)?
- **Standards** - Lack of standards (still in development and maturing) / how robust are the 'Material Factors' used in design, how economical are they? Are the high factors making composites uneconomical?
- **Procurement Challenges** – no OEM's. In construction Contractors are 'Fabricators/Builders' unfamiliar with composites, need to consider 'Robustness' in design. Costs can also be highly variable, need performance specification for lightweight composites and thick composites

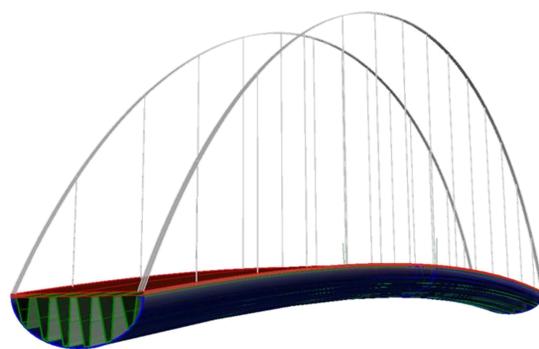
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Designer Requirements

- **Standards** - Need robust standards, Eurocode under development
- **Guides and Best Practise** - Need guides and examples, Bridge Design Guide being drafted
- **Which Materials** - Materials selection advice? Numerous products – How best to combine for different circumstances? Economical use of Carbon? Bio composites to reduce CO2 footprint. Durability information will help make materials decisions
- **Levels of Liability** – This is a going concern for the industry: How can Duracomp help to reduce uncertainties and bring about more widespread acceptance?
- **Life Cycle Assessment** - Need to understand lifecycle assessment and maintenance costs and requirements to permit valid comparisons to be made with traditional materials



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Contractor Requirements

- **Scope** - Contractors may well be the next OEM's
- **Costs** - Lowest price always wins, hence for cost comparisons to traditional need to understand buildability savings and designs need to be economical
- **Materials** - Need guides and examples including handling, storage and installation workmanship standards
- **Skills** – different skills needed to that of traditional contractor/builder. Cross sector involvement or upskilling?
- **Training** – need to train industry and find new people
- **Levels of Liability** – Going concern, as earlier discussed: How can Duracomp help?



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Key Challenges for Duracomp

- **Whole Life Cost** - Determination of WLC/maintenance requirements
- **Sustainability** - Energy Information required including CO² footprints
- **Service Life** (120 year design life) – how do we succinctly prove life span is possible
- **Section Design** (Thick Sections) – design and fabrications issues/WLC/deterioration mechanisms knowledge
- **Knowledge Dissemination** – challenge for Academia/R&D to involve Industry

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More Information

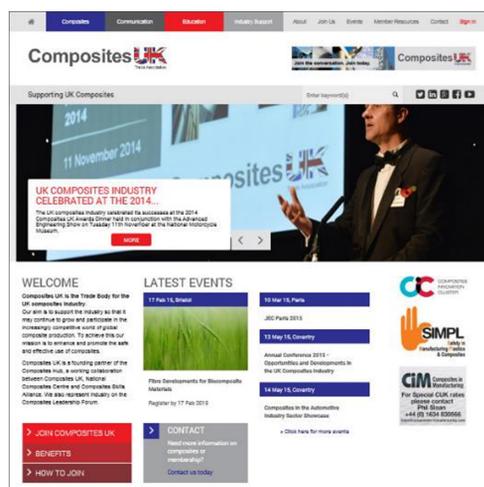
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