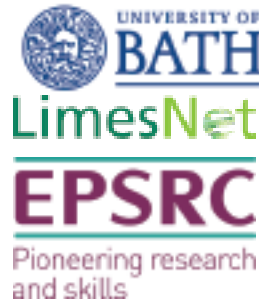


Research network for low impact construction



The need to radically reduce the global impact of ground engineering and structural engineering for buildings and infrastructure presents significant challenges for the selection and use of materials.

In recent years, the construction product industry has made significant improvements in materials' manufacture, such as the use of cement replacement materials, greater recycling of steel, and more-energy-efficient processes. However, most new buildings have an increased, rather than a decreased, level of embodied carbon. By the end of the decade over 95% of the carbon footprint of new buildings is predicted to be embodied within the materials from which they are made and only 5% from the consumption of energy in the activities in and operation of the building.

Materials used in ground and structural engineering mostly originate from before the 20th century and nearly all rely on a continued supply of cheap (fossil-fuel-based) energy sources for manufacture. If the UK is to meet agreed 80% carbon reduction targets by 2050 it is clear that significant reductions in the embodied carbon of construction materials is required. High-energy materials and systems are unlikely to deliver these reductions in carbon. Materials with greater resilience to the effects of flooding, extreme temperatures and the effects of drought are also required.

In response to a 2009 Review of Academic Research in Ground and Structural Engineering, EPSRC are funding a research network based at the University of Bath. LimesNet (Low Impact Materials and innovative Engineering Solutions Network) aims to build a community of researchers and industrialists

that will lead to innovative research into materials and technologies. These will significantly reduce the environmental impact of new and existing infrastructure.

Supported activities include workshops for members, support for international engagement work (overseas missions), research proposal development, and a conference in Bath over 12-13 July 2012.

Initially the material scope for LimesNet is cement and concrete, advanced composites, geo-materials, and renewable (plant-based) solutions. LimesNet has recently awarded over £50,000 to its members for international missions that will support knowledge gathering from international centres of research excellence, build sustainable research partnerships, and identify new challenges for construction materials research. The missions will follow up with workshops for network members to develop potentially transformative research projects. The six missions, supporting 30 members, included destinations in Europe and North America to undertake:

- waste fibres in novel composite materials;
- bio-stabilisation of geo-materials;
- novel textile based formwork;
- whole life cycle impact of cement and concrete structures; and
- low impact concrete structure through efficient structural forms.

A second funding round for International Mission Funding, open to existing and new academic members, has recently been launched.

LimesNet membership currently comprises over 100 leading researchers and sector stakeholders, including product manufacturers, building designers, contractors, and clients. Non-academic membership is drawn from across the construction sector including material and product manufacturers; ground and structural engineering consultants; construction contractors and subcontractors; architects and building environment engineers; and clients, property owners and procurers.

The network is now seeking to recruit further members from the industry, as well as those who generally work outside the traditional fields of construction materials, to develop multidisciplinary solutions for challenges of low-carbon construction materials and technologies. LimesNet membership is free for individuals and organisations.



(Top) Renewable materials is one of four LimesNet research areas.

(Above) Delegates at LimesNet launch workshop, September 2011.

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