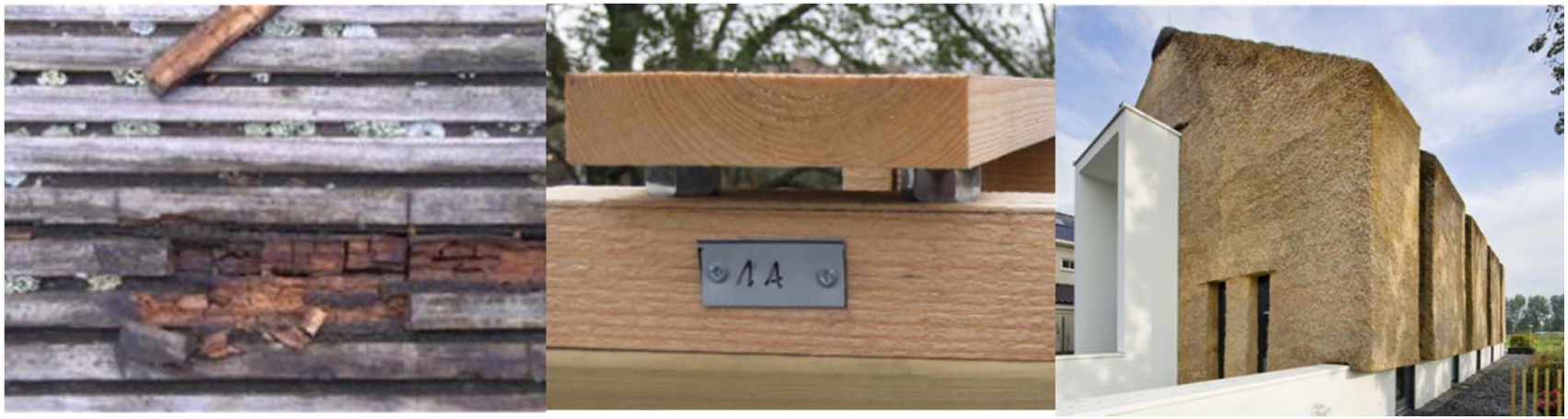
Ongoing R&D projects in COST member countries

January 2014



COST FP1303: Performance of bio-based building materials

UK

January 2014

Overview

- Construction is one of the largest sectors of the UK economy.
- It contributes almost £90 billion to the UK GDP
- 280,000 businesses
- 2.93 million jobs, which is equivalent to about 10% of total UK employment

Research and Innovation

- Smart Cities, BIM, Retrofit
- TSB and built environment
- Closed loop recycling
- KTNs –Advanced Materials
- EPSRC-Retrofit 2050

UK

January 2014

WG 1 Material capability

- Bangor, Bath, Brunel Exeter, Cambridge
- Sheffield Hallam
- Plymouth, Kingston, Brighton, Sussex
- Portsmouth, York, Queen Mary,
- Cambridge Bioresins
- Natural Materials Society
- Alliance of Sustainable Building Products
- TRADA, BRE, NNFCC, Lonza, Protim Solignum
- Lime Technology, Modcell, Akzo Nobel (ICI)
- Crown Paints, InCrops,
- University of South Wales,
- National Composites Centre
- University of East Anglia
- Herriott Watt

WG 2 Functionality and performance

- Nottingham, Plymouth
- Bangor, Brunel
- Strathclyde,
- Loughborough
- Leicester, UCL
- Salford, Cambridge
- Aberdeen, Coventry
- Queen Mary, BRE
- Granta, Napier

WG 3 Adaptation and application

- Bath, Queens Belfast
- UEA, Glasgow Caledonian
- Worcester, ADAPT
- BRE, PE International
- Best Foot Forward
- TRADA, Granta
- Wood for Good
- Genomics Network
- NNFCC, Cranfield
- Cardiff University
- Alliance of Sustainable Building Products

UK
Research institute/uni/company

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Biocomposites Centre (Bangor University)

Wood utilisation, testing, biocomposites, adding value, performance

A4B CIRP- Welsh funded project developing modified timber for durability

LIMNET- Welsh funded network looking at low impact construction materials

REFAB-TSB funded feasibility project

ECO Slate- Welsh funded project looking at waste slate bonded by bio resins.

UK
Research institute/uni/company

January 2014

University of Bath (Centre for Innovative Construction Products)

Bio-based and natural materials, performance, straw bale, lime render

LIMESNET- Network looking at low impact construction materials

ECOSEE- FP7 project looking at indoor air

MODCELL – panelised straw bale construction system

UK
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BRE (Centre for Sustainable Products, Building Technology Group)

Environmental impact, low impact materials and products, innovation in wood supply chain, whole building testing, indoor air quality, wellbeing

PerformWOOD FP7 – Performanec classification of wood in construction

The Green Guide for Specification – LCA and EPD underpinning UK Government policy

Bio-based insulation materials and cellulose recovered from household waste – new bio-based boards for construction

Performance of incised refractory timber species for fencing

BREEAM – whole building environmental rating scheme

EcoShopping FP7– deep retrofit for retail (LCA of retrofit solutions)

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BM TRADA

Timber technology and knowledge association, TimberExpo, University outreach, testing, certification

Thermal mass in lightweight domestic construction

Defra - Assessment of the durability and engineering properties of lesser-known hardwood timber species for use in marine and freshwater construction

The role of wood waste as a source of biomass fuel in the UK

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Brunel University (School of Engineering & Design)

Bio-based materials innovation, composites, agricultural residues, testing and performance

TSB - Bio-based lightweight sandwich structures for packaging applications

Defra - Novel Bio-Composites Based on Whole Utilisation of Wheat Straw

TSB and HGCA - Lightweight eco-composites based on renewable raw materials

EPSRC - Biodegradable Foams Based on Wheat Flour

UK
Research institute/uni/company

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Edinburgh Napier UNIVERSITY

Edinburgh Napier University (Centre for Timber Engineering)

Home-grown timber innovation, product testing, design school, engineering education

ERDF – Wood Products Innovation Gateway

Centre for Offsite Construction and Innovative Structures

Specialist equipment

January 2014

Pilot Scale Equipment

- BC Tech Transfer facility (Bangor)
- Wolfson Centre (Brunel)
- Warwick Manufacturing

Processing methods

- Biomass processing (York, Bangor and Norwich)
- Compression pressing
- Extrusion facilities

Analytical tools

- Large scale mechanical testing facilities (Trada, BRE and Napier)
- Dual climate chambers
- Thermal testing Fox (Bangor, UCL)
- GC-MS Air Quality (Bangor)
- Formaldhyde measurement

Specialist equipment

January 2014

INSTITUTE	Properties						Environmental				
	Natural Durability	Moisture / sorption studies	Resistance to mould	Fire resistance / reaction to fire	Insect /termites / pests	Dimensional stability	Life Cycle Assessments	Whole Life evaluations	Product accreditation	Emission testing	Environmental Product Declaration (EPD)
Biocompoistes Centre	x	x	x			x					
Bath University		x				x	x	x			
BRE	x	x		x	x	x	x	x	x	x	x
BM TRADA		x		x					x		
Brunel University		x				x					
Napier University		x				x					

Specialist equipment

January 2014

INSTITUTE	Laboratory tests						Field tests				
	Natural Durability	Mould resistance	Insect /termite testing	Leaching / weathering	Sorption studies	Dimensional stability	In ground contact tests	Out of ground contact tests	Natural weathering	Surface performance / coatings	Moisture data logging
Biocompoistes Centre	x			x		x	x	x	x		
Bath University						x					x
BRE	x		x	x	x	x	x	x	x	x	x
BM TRADA				x		x		x	x	x	x
Brunel University					x	x			x	x	x
Napier University								x	x		x