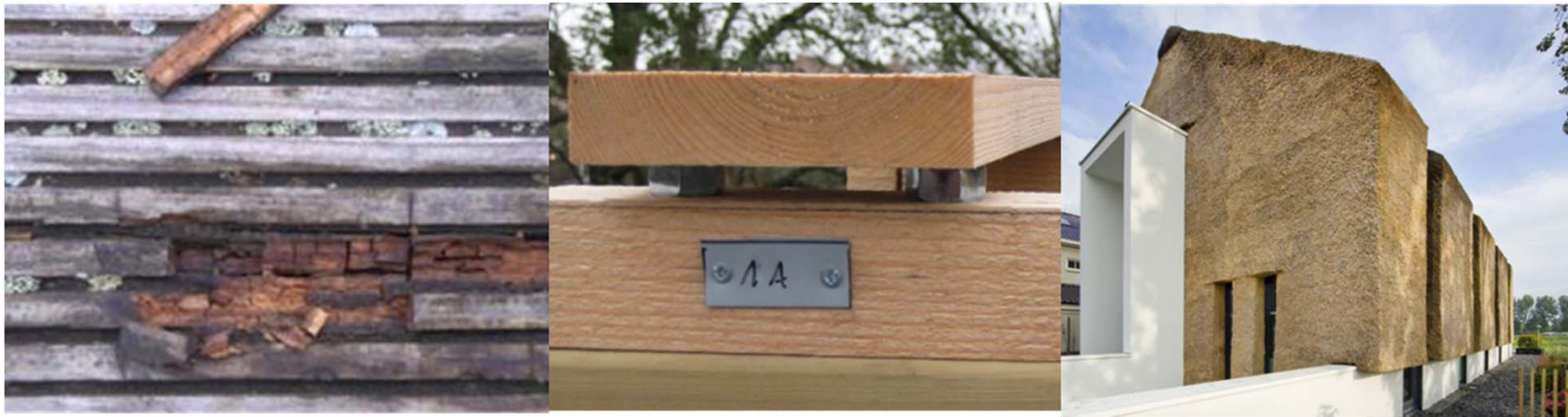


# Ongoing R&D projects in COST member countries

January 2014



**Christian Brischke and Holger Militz**



COST FP1303: Performance of bio-based building materials



University Hamburg, Center for Wood Science, Hamburg

Georg-August-University Göttingen, Wood Biology & Wood Products,  
Wood Chemistry & Wood Composites, Mol. Wood Biotechnology, Göttingen

Leibniz University Hannover, Faculty of Architecture & Landscape Sciences, Hannover

Technical University Dresden, Institute of Steel and Timber Construction, Dresden

Technical University Dresden, Institute of Wood and Paper Technology, Dresden

Friedrich Schiller University of Jena, Institute of Microbiology, Jena

# Germany

January 2014



Technical University Munich, Holzforschung München, Munich

University Stuttgart, Chair for Building Physics, Stuttgart

Albert-Ludwigs-University Freiburg, Faculty of Environment and Natural Resources,  
Freiburg

Ernst-Moritz-Arndt-Universität Greifswald, Institute for Microbiology, Greifswald



COST FP1303: Performance of bio-based building  
materials



Eberswalde University for Sustainable Development, Faculty of Wood Science and Technology, Eberswalde

University of Applied Sciences Ostwestfalen Lippe - Fachbereich Produktion und Wirtschaft, Lemgo

University of Applied Sciences Rosenheim, Wood Technology, Rosenheim

University of Applied Sciences Aachen, Faculty Civil Engineering, Aachen

University of Applied Sciences and Arts, Faculty of Architecture, Engineering and Conservation, Hildesheim



Fraunhofer Institute for Building Physics, Holzkirchen

Fraunhofer Wilhelm-Klauditz Institute, Brunswick

Julius Kühn-Institute (JKI), Federal Research Centre for Cultivated Plants, Brunswick

Thünen Institute of Wood Research, Hamburg

Federal Institute for Materials Research and Testing (BAM), Berlin

MPA Eberswalde Material Testing Institute Brandenburg GmbH, Eberswalde

Fibre Institute (Faserinstitut Bremen e. V.), Bremen

Institute for Wood Technology Dresden (IHD), Dresden



Georg-August- University Göttingen, Wood Biology & Wood Products

- Wood modification & Plasma treatment
- New impregnation technology for wood (high frequency, adapted pressure technology, bio incising)
- Improvement of wood product properties by increased hydrophobicity obtained by waxes and silicon compounds
- Wood decay in buildings
- Innovative wood composites (LVL, WPC, etc.)
- Wood adhesives



Leibniz University Hannover, Faculty of Architecture & Landscape Sciences

- Service life prediction of exposed wooden components based on dose-response functions
- Monitoring of timber structures
- Quality control and assurance of thermally modified timber (TMT)
- Moisture-based durability assessment of wood-based products
- PerformWOOD - Performance standards for wood in construction - delivering customer service life needs
- Thermal modification of reed



## Technical University Dresden, Institute of Steel and Timber Construction

- Development of highly reliable composite wood structures strengthened with fiber-reinforced plastics and technical textiles
- Wood densification and thermo-hydro-mechanical modification
- Wood moulding and lightweight structures

## Technical University Dresden, Institute of Wood and Paper Technology

- Wood modification, wood moulding
- Enzymatic modification of fibrous material
- Thermal modification of bamboo and wood





## Institute for Wood Technology Dresden (IHD)

- Research in biocide-free timber preservation
- Thermal modification of wood and wood-based panels
- Development of coatings with enhanced antimicrobial effectiveness
- Composite panels with alternative cores
- Improvement and testing of wood-plastic composites (WPC)



University Hamburg, Center for Wood Science / Thünen Institute of Wood Research

- Determination of biological, chemical and physical parameters of wood species
- Wood and climate (e. g. Environmental product declaration, WECOBIS, Emissions from Wood and wood-based products [VOC])
- Development and standardization of test methods in wood preservation
- Investigations concerning the performance of wax treated timber in UC 3



Eberswalde University for Sustainable Development, Faculty of Wood Science and Technology

- Simultaneous shaping and fixation of veneer by specific material modification
- Quality assurance and process development of thermally modified timber
- Emissions from TMT products
- Sound absorbers for acoustic panels made of wood particles
- Sustainable polymerbased composites / Wood-Plastic-Composites from Saw Dust (WPC-SD)



Ernst-Moritz-Arndt-Universität Greifswald, Institute for Microbiology, Greifswald

- Microbial degradation of thatched roofs

Julius Kühn-Institut (JKI), Federal Research Centre for Cultivated Plants

- Development of quality control measures for reed
- Deterioration of reed thatching material



## Chemical modification pilot plants / Impregnation pilot plants

- University Göttingen , Thünen Institute Hamburg, Institute for Wood Technology Dresden (IHD)

## Heat treatment facilities

- University Göttingen, University Hannover, HNEE Eberswalde, Institute for Wood Technology Dresden (IHD)



# Activities/Facilities

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)
Uni Göttingen	✓	✓	✓			✓					
Uni Hannover	✓	✓	✓			✓	✓				
TU Dresden	✓	✓					✓				
BAM Berlin	✓	✓	✓	✓	✓	✓				✓	
Uni Hamburg/ Thünen Institute for Wood Research	✓	✓			✓		✓			✓	



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)
TU Munich	✓			✓		✓	✓				
MPA Eberswalde	✓	✓	✓		✓	✓			✓	✓	
HNEE Eberswalde	✓	✓		✓	(✓)	✓	(✓)			✓	
WKI Braunschweig	✓	✓	✓	✓		✓			✓	✓	
JKI Braunschweig	✓	✓									
IHD Dresden	✓	✓	✓		✓	✓	✓		✓	✓	



# Activities/Facilities

January 2014

	Laboratory tests						Field tests				
INSTITUTE	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
Uni Göttingen	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Uni Hannover	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
TU Dresden	✓			✓	✓	✓					
BAM Berlin	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Uni Hamburg/ Thünen Institute for Wood Research	✓	✓	✓	✓	✓	✓	✓	✓	✓		





# Activities/Facilities

January 2014

	Laboratory tests						Field tests				
INSTITUTE	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
TU Munich	✓					✓					
MPA Eberswalde	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
HNEE Eberswalde	✓		(✓)	✓	✓	✓	✓	✓	✓	✓	✓
WKI Braunschweig		✓		✓	✓	✓		✓	✓	✓	
JKI Braunschweig	✓				✓						
IHD Dresden	✓	✓		✓	✓	✓	✓	✓	✓	✓	