Darmstadt University of Technology
Institute for Materials in Civil Engineering

About this organisation

Machine translation

This organisation has been machine-translated based on data provided in German.

The Institute for Building Materials (WiB) is active in the fields of building materials, building physics and construction chemistry. Current issues include new concretes for special applications, cement-free alkali-activated binders, the building physics of materials and highly porous and functional materials. Innovative materials and historical building materials can be specifically researched and analysed in laboratories with modern equipment.

The research work of the Institute for Materials in Construction focuses on lightweight construction and functional integration or substitution. The aim is always to enable ecological and sustainable construction. This means that every new material and every new construction method is subject to the principle of "design for recycling". In the construction industry in particular, only a "closed-loop" approach makes sense in lightweight construction, as the classic advantages of moving lightweight construction do not come into play. Nevertheless, lightweight construction in the construction industry is one of the most important strategies for conserving resources. The expertise of the WiB lies in the development of new lightweight building materials for the construction of light but durable structures. In addition, the integration of building functions into building materials is being pursued, particularly with regard to the building physics of the materials: for example, highly porous envelope components doped with phase change materials take on building services tasks.

TECHNISCHE UNIVERSITÄT DARMSTADT

INSTITUT FÜR WERKSTOFFE IM BAUWESEN

Organisation type
University or higher education institution

Sector

Employees
10 up to 49

Turnover
Up to €2m

Funding
n/a

Franziska-Braun-Straße 3
64287 Darmstadt
Hesse
Germany
www.wib.tu-darmstadt.de

Darmstadt University of Technology

Institute for Materials in Civil Engineering

About this organisation

Main areas covered	Materials in construction, Building materials, Construction chemicals, Building physics, Cement and mineral binders
Infrastructure	Physical micro lab, Building materials chemistry laboratory, Mechanical macrolab, Mortar and binder laboratory, Laboratory for fastening technology
Certifications	
Keywords	Lightweight fabric construction, Function integration, Highly porous building materials, Phase change materials, Computer simulation
Memberships	PMP profile area at TU Darmstadt, TUD COST Action TU1404, RILEM, DIN NA 005-07-09 AA, DIN NA 062-08-14 AA

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Offer			
Products Software & databases, Materials	✓	✓	
Services & consulting Training, Consulting, Standardisation, Validation, Simulation, Technology transfer, Approval	✓	✓	

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Hybrid structures, Lightweight material construction	✓	✓	
Functional integration Thermal activation, Material functionalisation	✓	✓	
Measuring and testing technology Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	
Modelling and simulation Life-cycle analysis, Multiphysics simulation, Materials	✓	✓	
Plant construction & automation			
Recycling technologies Material separation, Recycling, Upcycling	✓	✓	

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing 3D printing, Stereolithography	✓	✓	
Coating (surface engineering)			
Fibre composite technology Casting (concrete), Spraying (concrete)	✓	✓	
Forming			
Joining Adhesive bonding, Screwing	✓	✓	
Material property alteration			
Primary forming			
Processing and separating			
Textile technology			

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Material			
Biogenic materials Biocomposites	✓	✓	
Cellular materials (foam materials) Closed-pore, Open-pore	✓	✓	
Composites			
Fibres Basalt fibres, Natural fibres, Others (Plastic fibres)	✓	✓	
Functional materials			
Metals			
Plastics			
Structural ceramics Others (Cold ceramics)	✓	✓	
(Technical) textiles			

Contacts

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Contacts

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