R.A.U.M. Laboratory: Euregio Meuse-Rhine – Resources, Atmospheres, Environments, People

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Abstract

The R.A.U.M. Laboratory Euregio-Maas-Rhine is an innovative centre of expertise and application for sustainable building products, which is being established at the TFI. The project consortium comprises nine organisations from the fields of business, engineering and the natural sciences, sociology, medicine and business administration. The aim of the project is to create new research and development capacities to support the construction products industry – particularly small and medium-sized enterprises – in its transition towards sustainable materials, digitalised production processes and resilient value chains.
Climate targets, rising energy prices, resource scarcity and new regulatory requirements regarding recyclability, the use of recycled materials or the carbon footprint of products all call for innovative solutions. At the same time, many companies have scaled back their own research capacities in recent years. The R.A.U.M. Laboratory is therefore establishing a modern research infrastructure that enables application-oriented research and drives innovation across the entire sector.

At the heart of the project is a 'virtual-real' centre of excellence and application, which combines physical laboratory and pilot facilities with digital technologies. The digitalisation of machinery, plant and testing equipment opens up new opportunities to develop sustainable products and processes in a data-driven manner and to analyse their environmental impacts across their entire life cycle. This approach to data-driven sustainability supports the development of recyclable building products.

The focus is on research and application of bio-based and recycled materials, development of reusable, repairable and recyclable building products, and optimisation of sustainable production processes. This is complemented by modernised testing technology, which can be used to investigate the properties, durability and recyclability of new materials.

A key feature of the project is the accompanying research initiative, the Living Building Lab: the products and technologies developed are deployed, tested and examined under real-world conditions directly within the research infrastructure building. The R.A.U.M. laboratory itself thus becomes a demonstration and reference site for sustainable building products for both interior and exterior use.
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