Fraunhofer BAU

FRAUNHOFER BUILDING INNOVATION ALLIANCE

PRESS RELEASE

Mission for the future of building-affordable.sustainable.safe: Special exhibition by the Fraunhofer Building Innovation Alliance at the BAU 2025 trade fair in Munich

Under the motto “Mission for the future of building-affordable.sustainable.safe”, from January 13 to 17, 2025, the Fraunhofer Building Innovation Alliance will be presenting innovations as part of its special exhibition at the BAU 2025 trade fair in three key areas of transformation in the construction industry: sustainability, productivity and resilience. The exhibits will be on display in and around a two-story Innovation Cube in Hall C2, Booth 528. The Innovation Cube is a symbolic building for demonstrating the latest smart solutions both for the building envelope and for the interior.

The Fraunhofer Building Innovation Alliance sees its primary task as providing impetus for the urgently needed transformation in the construction sector. Its goal is to develop effective, future-oriented solutions for and with industry. It aims to identify prospects and formulate demands and tasks. To this end, the member institutes of the Alliance are conducting intensive research into new products and solutions. The focus is on criteria such as affordability, sustainability and resilience. “To some extent, climate change, social peace and the resilience of Germany's resources are decided in the construction industry,” says Thomas Kirmayr, Managing Director of the Fraunhofer Building Innovation Alliance, adding: “That's why we need to speed up this transformation and make it more effective and efficient. Research plays a crucial role here.”
The exhibits from the Fraunhofer Institutes participating in BAU 2025 are grouped into **three thematic islands “Sustainability”, “Productivity” and “Resilience”**. They showcase new, innovative and effective materials, products and research results that can make the construction industry a “better” industry.

A pioneering role in sustainability

Sustainability is a key issue when it comes to the manufacture and use of building materials and to the operation of buildings. The production of concrete alone accounts for around 2.8 billion tons of CO_2 emissions annually. One way of significantly reducing emissions is Carbon Capture and Utilization, or CCU for short. This involves the capture, transportation and subsequent use of carbon compounds. “With CO_2-negative processes and building materials, with a carbon capture usability strategy promoted by politicians and with innovative ideas and research

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projects that go all the way to practical application in the construction industry, we could turn 2.8 billion tons of CO_2 emissions into 4.6 billion tons of CO_2 savings. Germany could secure a pioneering role in this field," says Kirmayr. At the BAU 2025 trade fair, exhibits will include new climate-friendly building materials that have these CO_2 binding properties or new building materials which, through recycling and a well-thought-out circular economy, can be reused on construction sites.

According to the German Federal Environment Agency, Germany's building-related final energy consumption has fallen in recent years, but still accounts for 35.5 percent of the country's total final energy consumption. This is one reason to continue to push ahead with this development. The consistent expansion of renewable energies ensures energy generation and storage in buildings and contributes decisively to a sustainable heating transition. The concepts and products developed by various Fraunhofer institutes show how buildings can be operated in an energy-neutral way or even used to generate energy beyond their own needs. These include solutions in the field of photovoltaics and the use of renewable energies – for example, heat pumps instead of gas-fired heating systems, insulating materials made from renewable raw materials or with a smaller carbon footprint, and creative surface technologies for façades, windows and doors.

Boosting productivity through sufficiency

Building must become affordable again. This demand is growing louder and louder both in business and in politics. "What we need is knowledge transfer from other industries, such as the automotive or shipbuilding sectors, but also new system solutions that address the fragmented and small-scale structure of the construction industry," explains Thomas Kirmayr. Another approach that could significantly cut building costs is an increase in digitalization and the use of artificial intelligence. A lead project of the Fraunhofer-Gesellschaft titled "BAU-DNS" is working on the development of key concepts for boosting productivity that aim to cut costs, increase circularity and achieve CO_2 neutrality for materials and systems. Visitors to BAU 2025 can see some of these solutions at the Innovation Cube, such as façade modules with integrated photovoltaics or digital methods for recording buildings quickly and accurately. In addition to boosting productivity, however, the focus must also be on sufficiency, which means making do with only what is necessary. This applies not only to the use of materials or resources, but also to bureaucracy and regulations, i.e. reducing them to a minimum.

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Resilience for safe housing and living

Climate change and the growing scarcity of resources are challenges that are increasingly burdening our society. “Germany won’t be able to afford many more disasters like the flooding in the Ahr Valley,” says Thomas Kirmayr and calls for a resilience offensive: prompt answers are needed to the questions of how cities and buildings can be effectively protected against flooding, heat and extreme weather, how water management or a circular economy can be optimized, but also how the economy can be strengthened and how supply bottlenecks and constantly rising costs can be reduced. The Fraunhofer Building Innovation Alliance has specific measures in mind for this. For example, the consistent development and expansion of networks made up of universities, research institutions and industrial companies could help, as well as the establishment of a “Circular Economy and Urban Mining” research cluster as part of a federal construction research program, and interdisciplinary research consortia. At the BAU 2025 trade fair, concrete examples from research collaborations will be presented to interested parties. These include urban planning methods adapted to climate change, options for biodiverse façade greening, and the detection and removal of hazardous substances such as lindane or pentachlorophenol (PCP) that have been used in buildings.

Lecture program

In addition to the exciting and innovative exhibits, we invite visitors to attend informative lectures at our booth. Find out about the latest research findings and talk to our experts. The lecture program will be available for viewing on our website www.bau.fraunhofer.de in the coming weeks. Here you will also find further valuable and interesting information about the Fraunhofer Building Innovation Alliance's exhibition at the trade fair.

Information about the Fraunhofer Building Innovation Alliance can be found at **www.bau.fraunhofer.de.**

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At the BAU 2025 trade fair, the Fraunhofer Building Innovation Alliance will be showcasing products and system solutions for an affordable, sustainable and safe construction industry.

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The **Fraunhofer Building Innovation Alliance** brings together the resources and expertise of several Fraunhofer research institutes specializing in construction. This provides the market with a central point of contact for integral system solutions for planning and construction. The extensive portfolio is aimed at medium-sized companies, as well as large construction companies. The Fraunhofer Building Innovation Alliance sees itself as an indicator and initiator of new and innovative topics related to building research and acts as an interface between industry, research and politics. Customer inquiries are received at a central office and forwarded to the relevant member institute. International contacts and partnerships facilitate the support of globally active companies.

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