Press release

Key theme: Material and resources

Are the raw materials of tomorrow already in use?

26. August 2026

- **Existing buildings turning into a resource**
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- **Building materials undergoing change**

July 30, 2026 was Earth Overshoot Day. As of this day, humanity is mathematically consuming more natural resources than the Earth can regenerate within a year. This challenge concerns nearly all sectors of the economy, but especially the construction industry. Finding ways to use materials more efficiently and keep raw materials in circulation is therefore one of the industry's key tasks. Related solutions and innovations will be showcased at BAU 2027 in Munich from January 11 to 15, 2027.

For a long time, the focus was primarily on new construction. Today, however, it is increasingly shifting to existing buildings. After all, the most sustainable resource is often already available. According to the Wuppertal Institute, around 20.8 billion metric tons of building materials can be found in residential and non-residential buildings in Germany alone. Anthropogenic material stocks amount in total to around 51.7 billion metric tons. That also changes the way we view cities and buildings. What has so far mainly been considered existing property is turning out to be a potential source of raw materials.

The Wuppertal Institute refers to a shift from eating up resources to storing them. However, this reevaluation of existing buildings changes not only how resources are managed, but also construction from a planning and social perspective. While discussions were long dominated by new construction and land development, the focus is now shifting more toward issues of preservation,

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further development, and repurposing of existing buildings. This trend is also reflected in the positions of architecture and planning associations, as Benedikt Hotze of the Association of German Architects (BDA) emphasizes: “As early as 2019, in its manifesto ‘Das Haus der Erde,’ the BDA called for prioritizing the continued use and repurposing of existing buildings over demolition and new construction. What may have puzzled some people back then has quickly become a core requirement in the construction industry: Renovation is the ‘new’ new construction.”

The growing importance of existing buildings is not solely a matter of building culture or planning practice, but is also backed by environmental and economic considerations. Preserving, repurposing, and adding levels to existing buildings are now regarded as key levers for conserving resources, reducing gray emissions, and keeping existing materials in the cycle for as long as possible. The UN Environment Programme also views the continued use of existing buildings as a key lever for greater resource efficiency. What is needed is a more intelligent use of materials, as well as circular construction and the reuse of existing buildings in order to reduce resource consumption, costs, and dependencies in supply chains.

The question of how material requirements can be reduced as early as the planning and design phase is also becoming more significant. In addition to the reuse of building materials, the focus is shifting toward compact floor plans, space-efficient designs, and material-optimized constructions. A recent study by the Technical University of Munich shows that more compact floor plans with a smaller grid size could reduce gray emissions by about 10 percent. At the same time, material requirements are reduced without any significant loss in living quality.

“The living space per capita has been rising steadily for years. We must also find ways to reconcile today’s housing needs with lower resource consumption. More compact building typologies can significantly reduce material requirements, gray emissions, and construction costs. Switzerland has been showing the way for years,” explains Annalena Veit of the Chair of Building Technology and Climate-Friendly Construction at the Technical University of Munich.

Circular economy becomes a competitive advantage

In Germany, approximately 220 million metric tons of construction and demolition waste are generated annually (Wuppertal Institute/Butterfly Effect Consulting GmbH, 2025), while demands for resource efficiency, supply security, and climate protection grow. As a result, the circular economy is increasingly evolving from a waste management issue into a key factor for economic success. The pressure to take action is also growing at the European level. According to Construction Products Europe, only about 40 percent of construction and demolition waste in Europe is currently being recycled or reused.

The European construction industry accounts for approximately 1.7 trillion euros in construction investment, employs 18 million people, and generates about 11 percent of Europe’s gross domestic product (Construction Products Europe, Circular Construction Paper, 2025). The circular economy also offers opportunities for innovation, growth, employment, and competitiveness.

To tap into this potential, the focus is shifting toward materials found in existing buildings. The circular economy doesn’t just start with recycling. The focus is increasingly on existing buildings as a source of raw materials. Urban mining, reusing building components, and using secondary raw materials should help extend the useful life of materials already in use and reduce the demand for new raw materials.

Building materials undergoing change

In addition to reusing existing materials, the focus is also shifting toward the further development of building materials. Concrete and cement will remain indispensable in the future. At the same time, manufacturers, research institutions, and industry are working on new solutions to reduce emissions and material use. Among the most important areas of innovation are low-clinker cements, alternative binders, recycled concrete, carbon concrete, and processes for carbon capture and storage. The international Breakthrough Agenda formulates the goal that low-emission cement should be the preferred choice in global markets in the future (Breakthrough Agenda Report 2025). At the same time, bio-based building materials such as wood, hemp, flax, straw, and clay are gaining in importance. They can store carbon, strengthen

regional value chains, and reduce transport distances. There is also a stronger interest in health considerations. Low-emission building materials and low-pollution interiors are playing a bigger role in planning and the choice of materials.

At the same time, the valuation of buildings is changing. In addition to energy consumption during operation, there is a stronger focus on emissions from manufacturing, transport, construction, use, renovation, and demolition. Life cycle analyses, environmental product declarations, and the tracking of gray emissions are therefore becoming increasingly important. The UN Environment Programme points out that buildings account for nearly half of global material extraction and that emissions embedded in materials therefore represent a challenge for climate protection that has not yet been adequately addressed.

Circular economy requires transparency

Materials can only be reused if their properties are known. Origin, composition, environmental impacts, and deconstruction potential therefore become key decision-making factors for planning, construction, and operation. The new European Construction Products Regulation makes digital documentation of construction products more important. In the future, digital product passports (DPPs) will make environmental information, compliance data, and other product-specific information available throughout the entire life cycle. The goal is to improve transparency and traceability along the value chain.

“Regulations demonstrate that sustainability is taking hold at all levels of the construction and real estate industry, and becoming vastly more important in economic terms. With the mandatory introduction of the digital product passport and building life cycle assessment, transparency and quality throughout the entire life cycle of products and buildings are becoming the new normal for manufacturers and planners. BAU 2027 is a good place to get started and delve into these topics,” explains Johannes Kreißig, Executive Director of the DGNB.

The circular economy itself is also becoming more technological. Artificial intelligence, sensor technology, and robotics help identify materials in existing buildings, automatically sort construction and demolition waste, and provide high-

quality secondary raw materials. This opens up new opportunities for organizing material cycles cost-effectively and on a larger scale.

Solutions for the responsible use of resources

The responsible use of materials and resources will have a significant impact on the development of the construction industry in the coming years. What is needed are solutions that combine resource conservation, cost-effectiveness, and technical quality. At BAU 2027, manufacturers, planners, research institutions, and startups will show ways to integrate the circular economy, material efficiency, and digital transparency into construction practices. New building materials, innovative products, digital tools, and concepts for the preservation and further development of existing buildings will be on display at the trade fair. BAU 2027 in Munich will present the technologies, products, and concepts that will shape the future of construction.

More information about BAU: bau-muenchen.com

About BAU

BAU, the world's leading trade fair for architecture, materials and systems, is the largest and most important event in the industry. Unique worldwide, BAU brings together the industry's market leaders in this multi-trade exhibition every two years and is regarded as an innovation driver and industry network. The range of exhibits is broken down according to building materials, products and topics. Everyone involved internationally in planning, constructing and designing buildings comes to BAU: architects, planners, investors, industry and trade representatives, tradespeople, and many more. As one of its USPs, BAU combines know-how from all sectors and trades at a high international level. The numerous events in the supporting program, including high-profile forums with experts from around the world, round out the trade fair program.

Messe München

As one of the world's leading trade fair organizers, Messe München presents the world of tomorrow at its around 90 international trade fairs. Its portfolio comprises trade fairs for capital and consumer goods, as well as for new technologies. These include 14 of the world's leading trade fairs such as bauma, BAU, IFAT and electronica, cooperative events such as the IAA MOBILITY, and numerous guest events.

With an international network of affiliated companies and foreign representatives, Messe München is active worldwide. Together with its around 1,200 employees in the group, it organizes trade fairs in China, India, Brazil, South Africa, Turkey, Singapore, Vietnam, Hong Kong, Thailand, the U.S., and Saudi Arabia.

Around 150 events held annually attract more than 50,000 exhibitors and around three million visitors in Germany and abroad. That makes Messe München an important economic driver, triggering purchasing power effects in the billions.