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Ceiling system module for ecological refurbishment of old buildings

With the ceiling system module for the modernization of suspended ceilings in buildings, researchers at the Fraunhofer WKI are demonstrating an ecological way of renovating old buildings.

With the prefabricated small panels in modular construction, renovations will be easier and faster to carry out in the future. The small panels, with a high proportion of renewable raw materials, are intended to replace suspended ceilings in old buildings which have a low load-bearing capacity and provide poor soundproofing. The application area is extensive, because of the approximately 9 million old buildings in Germany, about 70 percent have not yet been renovated for energy efficiency. In the research project in collaboration with the Institute of Joining and Welding (IFS) of the Technische Universität Braunschweig, the researchers have developed prefabricated small panels with good sound and heat-insulation properties. Modular wood or wood-concrete elements are used to create a mosaic-like coffered ceiling that should ultimately exhibit

a load-bearing capacity comparable to that of reinforced concrete.

At the Fraunhofer WKI, the researchers selected the wood materials and developed OSB boards, among other things. The outer box of the ceiling system module is made from structural solid timber, with a ceiling and a floor made from OSB boards, while the core is made from wood foam. Due to the use of wood-based materials, the small panels have a low dead weight. As a result, the modules can be transported by two people through a stairwell. This is a major advantage for the refurbishment of old buildings that are often difficult to access. In order to increase resource efficiency, mainly deciduous woods such as small-diameter beech wood from thinnings were used in the development of the modules.

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