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Building extension

Sustainable building: In search of new solutions in the urban context

Café and residential building with garden, bicycle workshop and care offers in a house united: preferably carbon neutral, ecologically and socially lastingly. With this concept the student SDE21 team of the University of Applied Sciences Biberach (HBC) wants to compete in the international student competition Solar Decathlon Europe 21. The X4S (Extension for Sustainability) team is led by Prof. Andreas Gerber, Professor of Building Physics and Climate-Responsible Construction, and Lena Frühschütz, Master's student of Energy and Building Systems. The Biberach team is fully committed to sustainability in its contribution to the project and is implementing this by planning a multi-storey extension to the Café Ada building in the middle of Wuppertal. Not only the result is community-oriented, but also the way to get there. The further the project progresses, the more it develops into an interdisciplinary joint project of HBC.

In the competition entry, the Café Ada, which is located in the Mirker Quartier in Wuppertal, is to be extended by four floors. In concrete terms, this means that the total usable space will increase fivefold. To ensure that the solid wood construction fits perfectly into its surroundings, part of the team made an excursion to Wuppertal in September and set their sights on the quarter and the building. The project is challenging, because "the current standard is extensions with a maximum of one or two storeys; a four-story extension is rather unusual and requires new solutions in many fields," says Lena Frühschütz, describing the special feature. A sticking point for the team: fire protection. Together with the fire protection planning office Sinfiro, based in Balingen, X4S is currently working on an innovative fire protection concept that combines safety and sustainability - "human life is of course always in the foreground," says Frühschütz. In a three-part lecture series of the planning office, teachers and students "experienced how to approach fire protection in a solution-oriented way. Prof. Gerber is enthusiastic about the benefits and solutions that

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participation in SDE21 brings - for the entire university. But the innovative approaches to fire protection are also of particular interest to experts from the field who are curiously following the ideas. The further the project progresses, the clearer the complexity and interdisciplinary nature of the project becomes. This is also reflected in HBC's course offerings: More and more courses are thematically dedicated to the project and support the X4S team in sustainable construction and innovation.

For example, in the course "Art and Design", architecture students deal with the conception of furniture made of sustainable and recyclable materials. The aim is to conserve resources, save costs through self-construction and create a healthy indoor climate for the residents. "The furniture industry has unfortunately developed in many areas to the point where furniture is no longer designed for timelessness in terms of both design and functionality. Instead, this industry, like many others, has become very short-lived," describes architecture student Anna Diemer, who wants to counteract this trend by taking part in the course. The students work mainly with the materials wood, bioplastics and mycelium (thread-like cells of a fungus) and develop models for tables, chairs, shelves, sofas, etc. that are easy to assemble, comfortable to use and completely recyclable.

For the student, the mushroom mycelium is "a completely new impulse. It is the fibre mesh in the floor from which mushrooms sprout. Combined with different natural raw materials and waste, such as coffee to go paper cups, the mycelium can be cultivated. The mass is pressed into a mould and after a few weeks the "ingredients" are not only dried but also grow together - a robust material from which tabletops, chairs but also lampshades can be made. The great advantage of mycelium is that after use it can be returned to nature without the use of energy and is completely compostable. It offers a wide range of applications and represents an alternative that can help to save raw materials and make the planet more sustainable. The Planet and Café Ada in Wuppertal.

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