Team Extension for Sustainability

PRESS KIT

January 2021

X4S
EXTENSION FOR
SUSTAINABILITY

solar
decathlon
europe 21
WUPPERTAL GERMANY ...goes urban!

THE PROJECT

Since fall 2019, Team X4S - Extension for Sustainability of Biberach University of Applied Sciences, is participating in the international competition Solar Decathlon Europe 21. The final of the competition will take place in Wuppertal in June 2022.
To create more living space within the city without sealing more land, we are extending the existing building of Café Ada in Wuppertal by adding four additional floors. We will then construct one representative residential unit of our design for the final of the competition.

The project's innovations are aimed at drastically reducing carbon dioxide emissions from buildings in urban neighborhoods while maintaining or improving the socio-cultural environment.

For the extension of Café Ada, our sustainability concept is based on sufficiency, efficiency, consistency and resilience. These ideas are pursued in three sub-areas: Architecture, Energy and Construction.

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Our project site 'Café Ada' in the Mirke District of Wuppertal.

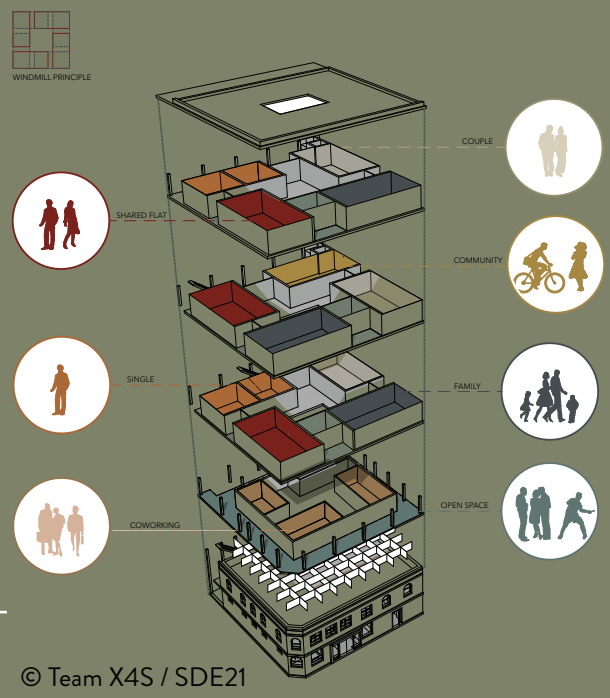
THE OBJECTIVES

SUFFICIENCY.

How much do individuals need to consume? A resource-conserving way of building and living should improve the lifestyles of the residents in the sense that the demand for goods is reduced by the construction method. Flexibility in floor plans is required: Areas should be used multiple times and areas such as working and living should be combined in a meaningful way: The upper three floors at Café Ada will offer a mix of apartments for one to four people. Additional common room and co-working spaces can be used by the residents if required. The aim is to also reduce the building services to a minimum. Efficient technology and economical fittings will be installed to minimize energy and water consumption and to reduce ancillary costs.

EFFICIENCY.

The project contribution follows an efficiency strategy that is characterized by social, economic and ecological sustainability. A central technical concept is the reduction of energy and resource consumption. On a social level, concepts are implemented at minimal construction costs to avoid gentrification. This increase in cost efficiency is achieved through coordinated measures, from resource-saving use of materials to a highly efficient building envelope and grid-compatible operation: Private living space is reduced and communal areas are expanded.



© Team X4S / SDE21

We are using the existing building structure to meet the growing need for living space without sealing additional areas.

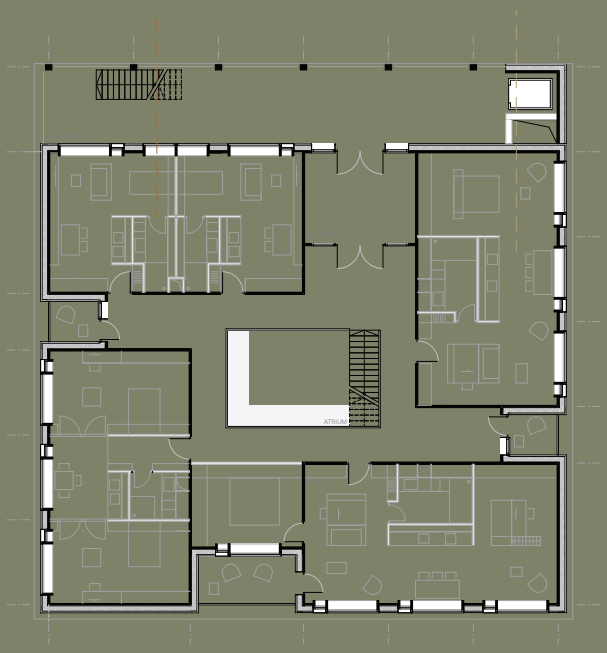
THE OBJECTIVES

CONSISTENCY AND RESILIENCE.

The compact building is limited by an energy-efficient and highly thermally insulating building envelope. Active and passive solar energy will help to heat the shell. Efficient and low-maintenance technology will be used. The high-quality new addition will enhance the existing building and enable it to be renovated while retaining its previous use. Gentrification is to be avoided and affordable rents with a minimal carbon dioxide footprint are to be achieved. In order to maintain an adjusted rent level, an appropriate use of resources is important.

IMPLEMENTATION

In concrete terms, this refers to an innovative construction made of wood, i.e. using regionally available (deciduous) wood. This wood construction has separable and reusable component structures, a high degree of prefabrication with short construction times for a healthy life, free of pollutants. Energy losses are minimized by achieving the passive house standard, the use of heat recovery on several levels and the implementation of an electrical DC network. The energy is primarily generated from renewable energy sources on the roof and facade, and combined storage systems are to enable a high degree of self-sufficiency.



The wooden building will sustain itself by reducing the energy demand and resource consumption and by generating solar energy on roof and facade.

THE TEAM

Our interdisciplinary project team consists of energy and civil engineers, project managers and architects. Students work on the project with the support of professors. Different HBC institutes also contribute to the progress of the project with profound expertise, innovative approaches and practical experience. These include the Institute for Timber Construction, the Institute for Applied Research, the Institute for Education and Transfer as well as the University Communication and Marketing. The sde21 project permeates the entire university and combines subject-specific competencies to create innovative solutions.

With growing tasks and increasing workload, our core team has also grown. With the team, which now consists of nine members, we are able to work continuously and purposefully on the competition entry throughout the year.
Due to the different specializations and practical experiences of the individual team members, we can rely on professional competence in areas such as public relations, project management or visualizations.

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Weekly sessions of Team X4S to ensure the best collaboration possible.

CURRENT STATE

TEAM-WORK

Due to the Corona pandemic, communication within the X4S team has been almost exclusively digital since March. The nine-member core team of Biberach University of Applied Sciences meets once a week to discuss the current status and project progress. Some of the members now live almost 600 kilometers from Biberach; digital communication certainly has its advantages.

VISIT OF THE PROJECT SITE

A highlight of the past months was certainly the tour of the neighborhood in Wuppertal; by visiting Café Ada, the design plans and ideas were given a more concrete form.

PROJECT ADVANCE

The extended deadline of the competition final gave us time to work on some topics more intensively. Above all, we strengthened the interdisciplinary cooperation, which plays a major role in project management. As a team, we learned to cross disciplinary boundaries for new solutions. We transferred knowledge from the lecture hall and from the laboratory into practice and into life. We bring the sun, energy, state-of-the-art technology, good ideas and smart solutions right into the heart of the city.

Team X4S visiting the project site Café Ada in Wuppertal.

CURRENT STATE

EDUCATION

Both in project planning and in the courses, which are tailored to the competition, bulding aspects become more practical. For example, students will consider integral building design and further develop the areas of ventilation, direct current and automation. Architecture course participants are already thinking about sustainable furniture. Students develop models for tables, chairs, shelves, etc. that are easy to assemble, comfortable to use and fully recyclable.

FIRE PROTECTION

The topic of fire protection is currently of great importance. Multi-story extensions are a promising solution for the economic and sustainable repopulation of urban spaces. At present, however, regulatory restrictions in the building code prevent a practical implementation for such projects. With the development of an exemplary fire protection concept for multi-story extensions, we show our scope for action in the implementation of fire protection. The planning and implementation of fire protection for existing and new buildings requires holistic and protection goal-oriented solutions, especially in timber construction. The team has a special focus on these timber construction solutions.

In the architectural course of the “short draft”, design ideas get improved in a casual working atmosphere.

DISSEMINATION

PRESS

Continuous reporting on the progress of the project as well as press relations are an important part of Team X4S' work. The goal is to address different target and age groups - the general public as well as experts or potential sponsors. We want to offer as much scientific information as possible, packaged in multimedia formats to best reach the general public.

NEW TEAM-DESIGN

With the progress of the project and increasing public appearances, Team X4S now appears in a new outfit. "One logo, one team, ten colors, ten disciplines"; - with this thought in mind we have now created our own brand manual. Our uniform design standard achieves identification with the project and a certain professionalism. Along with the new outfit, we have also set up our own Team X4S Instagram channel. This channel provides weekly posts about the progress of the project and current topics.

X4S

EXTENSION FOR SUSTAINABILITY

Logo for use on coloured background.

X4S

Logo for use on white background.

DISSEMINATION

PERSONAL COLLABORATION

We also work together with local personalities who support our participation through their public appearance. These include Biberach Mayor Norbert Zeidler. In a video message, Zeidler has expressed his wishes for our success and perseverance for the upcoming tasks. He emphasized the importance of participation, also for the city of Biberach.
We received further encouragement from the neighboring city of Ravensburg in a video contribution of Ravensburg Mayor Dirk Bastin.
In order to reach the younger target group, Mathias Brugger, German decathlete and student of civil engineering at HBC, supports us in external communication. Due to his sporting career, he is very familiar with the successful mastering of ten disciplines and has already promoted our participation in SDE21 on posters and in video contributions.

INSTITUTIONAL COLLABORATION

Our cooperation with the **carpentry training center** and the **Karl-Arnold-Schule** currently consists of exchanging know-how and developing sustainable construction techniques as well as preparing and planning the joint execution phase.

PARTNER

By the distribution of our competition entry, our name recognition and also the interest of regional or thematically-related companies and organizations increases. Thus, the team of Biberach University of Applied Sciences already receives support in the area of software. We are also in contact with companies and organizations in the field of timber construction and wood-based materials. We receive further support from named companies in the energy and technical sector.

A message from Biberach Mayor Norbert Zeidler on the YouTube Channel of Biberach University of Applied Sciences.

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