Section: Usage Efficiency

Building technology and Design

Competence

Building technology and Design forms an interface between the various specialist engineering disciplines and architecture – in the interests of team coordination in an integral planning process. Architecture graduates need to have acquired the appropriate technical expertise so that they are able to understand the fundamentals of engineering specialities and can work together with specialist engineers on the overall development of integrated designs.

In future, sustainable design will be influenced more by considerations of energy, construction technology and building physics rather than building design alone. Building technology as a special field will also have a more important position in the context of integral planning than has been the case in the past. An important factor here is the connection between building technology and design. Only the optimised integration in the design process will allow efficient results.

Focus of teaching

In the Bachelor degree course, the architecture students taking the module “Scientific-technical basics of architecture” are introduced to building physics, material studies, HVAC technology, architectural acoustics, fire protection, light planning and installation technology. These ring lectures provide an insight into overall interrelationships in the sense of the “Fundamentals of integral planning”. Project-integrated activities in the design projects provide an understanding of the connections between technology and design.

In the second part, the classes on Design are augmented with additional engineering courses. In the Master’s degree course we supervise those specialising in “Design, Construction, Energy.”

The students also learn to use simulation software and to examine and optimise their own design proposals. Additionally, the design project can also be combined with the optional courses in HVAC and Lighting technology under the supervision of the section, in the sense of integral planning.

The section also supervises students of Building technology studies.

Contact

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Research

Focal point is a long-term, modular research project: “Energetic and climatic optimisation of sustainable building typologies, focusing on workplaces”. Systematic morphological models are investigated in terms of the following main components:

1. Building typology
2. Structural components:
3. Building technology components:

• WATERGY Greenhouse Climate Control as a Source of Water and Energy. 5th Framework programme of the European Union relating to Energy, Environment and Sustainable Development. Duration 03/2003 to 03/2006

• Institute of Physics, Humboldt University Berlin. An urban environment model project commissioned by the Berlin Senat Department of Urban Development

• “CYCLER-SUPPORT” Supporting the implementation of FP6 research activities related to waste water use and recycling by using new generation greenhouse systems adapted to the requirements of the MED partner countries, 7th Framework programme of the European Union (10/2006 to 10/2008).

Key publications


• C. Steffan, „Un gymnase en standard passive“, 1er Atelier des Clubs D2C Ecole d’ Architecture Paris-la-Villette, Tagungsbericht auf CD, Paris 2005


• C. Steffan, „Milestones of Energy-Efficient-Architecture in Germany“, Proceedings GCDM Green City Development Mechanisms Conference Tsinghua University, Beijing October 2006

Prototype buildings

• Watergy, Prototype 1, Almeria, Spain

• Watergy, Prototype 2, Berlin - Dahlem

• OWL- Teaching pavilion, Str. des 17 Juni with HRI, FG Hascher etc., 2008