Blue Buildings for a Blue City: How buildings get our cities in shape for the future

It is expected that 70 per cent of the world's population will live in an urban environment by 2050. In Germany, three-quarters of people already live in cities, and that figure is continuing to rise – not just in metropolitan areas like Berlin or Hamburg but also in places like Freiburg and Augsburg. There are numerous challenges associated with this, for example infrastructure utilisation and climate change. Individual buildings take on special significance in meeting these challenges. Buildings need to be healthy, flexible, intelligently networked, self-sufficient in terms of energy and integrated. Such Blue Buildings do not exist in isolation but interact with the help of intelligent networking systems. With its Blue City approach, Drees & Sommer takes account of the interplay of different factors and areas of activities that influence a city.

The example of energy supply illustrates how a building can better prepare the city for the future. First, the right energy concept reduces operating costs and, second, the building contributes to protecting the climate. One crucial aspect of an environmentally friendly concept is the use of renewable energy: wind turbines, geothermal energy systems, solar power plants as well as a combination of all three technologies. A building’s outer shell also plays a significant role – offering space for solar modules, providing thermal insulation and keeping out solar radiation and noise. For example, if there is no system to protect against the sun, the building will need a considerable amount of energy in the summer to keep the interior cool. This has an effect on the city’s energy footprint. Urban space is therefore like a complex organism in which every element has its function – and has an influence on the entity as a whole.

Interaction between building and city

Buildings in the Blue City do not exist in isolation but communicate with each other. Today, buildings are already being developed that are self-sufficient in terms of energy and that even generate surplus electricity. In order to avoid this energy being lost, it is fed into the grid or supplied to other buildings in the complex or in the neighbourhood. In summer, buildings with solar modules produce more electricity than they need and can therefore supply other properties, while in winter they draw power from the neighbour’s co-generation plant. This relationship is made possible thanks to an intelligent power network – the so-called smart grid, which looks after generation, storage, grid management and consumption, combining them into one overall system. It therefore makes sense to plan large real estate developments in such a way that they contain buildings with different usage profiles. For example, office buildings require most of their energy during the day, while the reverse is true for
residential buildings, where people consume most electricity in the evening. Here, too, the focus is on the ability of buildings to exchange energy with each other and thereby create added value for the city.

**Project example: The largest energy-plus building in Europe**

The city of Freiburg is building a new administrative centre on an overall area of more than 24,000 m². The project unites a number of technologies. The outer shell is constructed to the passive house standard, the roof and the façade are equipped with photovoltaic units, and heating and cooling are effected using groundwater. The building generates more electricity than it needs itself and the surplus is fed into the city’s power grid.

BU: Blue City – the city of the future – is smart, sustainable und economic. © Drees & Sommer

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Drees & Sommer has been assisting private and public builders as well as investors with all real estate-related questions for more than 45 years. Its portfolio of services today covers the areas of
development consulting, project management, engineering, real estate consulting, infrastructure consulting and strategic process consulting.

The company provides all its services under the premise of giving economy, functionality and process quality the same consideration as ecology, architecture and comfort factors. Drees & Sommer calls this holistic and sustainable approach “the blue way”. Approximately 2,150 employees work at 40 offices and representative offices to ensure success for our customers; in 2015 they generated sales of EUR 300.7 million.

Drees & Sommer and EPEA Internationale Umweltforschung Hamburg are jointly committed to Cradle to Cradle® in the construction industry and bring principals, investors, architects and manufacturers together to promote the approach.