solarCity Linz-Pichling – Sustainable City Development

Author:
Auer+Weber+Architekten

Center

Client: City **Administration** of the Provincial Capital of Linz, A, Raiffeisen-Immobilien-Leasing GmbH, Vienna, A, Strabag, Linz, A

Design: Auer+**Weber**+Architekten, Munich, D, Stephan Suxdorf (associated), Sonja Mutterer, Philipp Auer, Dieter Heigl, Till Richter, Volker Kilian

Design of outdoor areas: Latz + Partner LandschaftsArchitekten und Planer, Kranzberg, D, Tilman Latz, Burkhard Krüpe

Completion: 1st building phase: 2004, 2nd building phase: 2005

Usable floor area: 8,400 m²

Energy demand: Volkshaus 39.67 kWh/(m²a)

Awards: Leaf Award 2005, category 'Best Environmentally Sustainable Project'

Urban concept

The center of the solarCity, with the generously-sized access boulevard, forms the functional and spatial link between the different parts of the city, adjoined by modular structural elements containing commercial, cultural and general services. The boulevard can be experienced as an inherent part of this center. In the future the central square will be the focal point of urban life.

The north-western part of the development combines two building shells to provide a local shopping market, which is located at the junction of the main routes connecting the four parts of the solarCity. The six structures of the eastern half of the complex are combined to form a complex that contains social and cultural facilities. Included here are a senior citizens' club and a library that is run by the municipal administration. Branches of the adult education services and the music school shares classrooms in this complex, and there are several offices for various associations and political parties. In addition to seminar rooms, the multifunctional Volkshaus offers one large and one small events hall.

The stores and restaurant facilities to the south of the boulevard, which formed part of the second planning phase, as well as the sheltering roofs in the area of the market and the tram stop to the south of it, augment

the existing social infrastructure and reinforce the pedestrian connections in a north-south direction, thus helping to link the different parts of the solarCity.

Concept for the buildings

The main characteristics of the development are the overlapping north-south linear framework structures and the volumes of the buildings between them. The side streets and courtyards thus created allow for flexible usage and enable the residents and visitors to the solarCity to experience a diversity of spatial qualities.

A color concept by the Salzburg artist Josef Schwaiger was implemented in the area of the market square. It comprises a spectrum of 13 colors that are created by overlaying different colored foils between the safety glass panes of the glazing facing the street. This strengthens the function of the framework structure as a bridge between different parts of the solarCity. Thanks to its balanced proportions and the fact that it is partially closed at the top, this open space creates a balance between openness and intimacy that invites visitors to linger here a while. While here the warm, sensual qualities of sunlight are conveyed, in the buildings sunlight is used to produce electricity.

Construction

The steel framework structure spans the side streets and the courtyards. It consists of a grid of girders 3.50 meters wide and 14 meters long. At the intersections, at a height of 9 meters, the grid elements rest rigidly on fixed steel columns. The fixing of the columns also provides the horizontal bracing of the structure against wind and impact loads.

The primary structure of the two-story building consists of a reinforced concrete frame with a span of 10.25 meters. Inside the building, maximum flexibility is achieved by reducing the number of columns to an absolute minimum.

The post and beam facade made of larch wood attached to the front of the building has no structural function.

Ecological concept

The buildings and their services carefully take into account various aspects of energy saving in the areas of production, operation and recycling.

Mixed construction, with heavy floor slabs and light facades, turned out to be most suitable, as the slabs are engaged in the heat exchange between the air in the rooms and the storage mass. For the buildings with greater internal loads (offices, halls) the advantages offered by buildings with a thermally active mass are even greater, on account of the energy saved through the use of natural cooling.

In combination with highly insulated wood facades and light partition walls that guarantee considerable flexibility in the internal organization of spaces, it was possible to realize an ecological building in which environmental impact and the use of energy and resources are minimized during all phases of the building's life.

Energy supply

The available areas on the roofs of the buildings are occupied by photovoltaic systems with a total area of 65 m².

Latz + Partner LandschaftsArchitekten und Planer

Open space concept

The square and the ensemble of buildings cross the boulevard to connect the northern and southern parts of the city. The green shimmering surface extends like a carpet both inside and outside, covering the surfaces of the buildings and the side streets, the pedestrian zones and the areas for vehicular traffic. Pedestrians, cyclists, motorists use this carpet together and adjust their speed to suit the special situation of an urban square.

The sandwich slabs of concrete and granite were developed especially for this location. Their joints follow the strict grid of the buildings. Long strips of dark stone continue the ground structure of side streets into the squares and across the traffic areas. They integrate the gutters, the cubic benches and the long water-table of dark colored concrete at the centre of the square.

The color of the surfaces harmonizes with the larch of the facades and the glazed, partly colored roof elements. According to the weather conditions the color can change from a light grey-green to an intense green.

Together with rows of trees in the west and east a tall creeper-covered pergola to the north terminates the square with a definite edge and separates public from private space.

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