ThyssenKrupp Quarter sets new standards

Sustainable approach to environment and natural resources

"The ThyssenKrupp Quarter is to become a symbol for the forward-looking, sustainable development of the Group." This ambitious aim, set out by ThyssenKrupp in the guidelines for the architectural competition, has now been successfully realized after a construction period of around three years. Demands for sustainable use of raw material resources were met in the design and construction of the buildings and grounds. This is reflected among other things in an efficient energy supply concept, the predominant use of locally available or produced materials and an energy-efficient heating and cooling system for the buildings.

This project set the direction for an urban development program with significance beyond the region. It therefore required both forward-looking architecture and a responsible approach to the environment and natural resources. Sustainable development must meet ecological, economical and social objectives – ecological in the sense of protecting health and the environment, economical with regard to the sparing use of resources, and social in terms of fair, integrative and pleasant living conditions.

Office buildings as "power plants"

The expected primary energy demand for the office buildings is 20 to 30 percent lower than the statutory requirements. To date, few such energy-efficient buildings have been realized in Germany, in particular with large glazed areas. The ThyssenKrupp Quarter will use the heat and cold stored in the ground for geothermal heating and cooling. For this, ground loops were installed at depths of up to 100 meters in the roughly 1,000 m² "geothermal field". The geothermal system not only heats and cools the buildings, it can also be used to store surplus heat or cold in the ground. In combination with this technology, room temperature is kept at between 21° and 26°C. Heat will be recovered from the waste air from the offices via the central ventilation system. The system has a high heat recovery factor, reflecting the sustainability of the building.

The office climate will be characterized by the newly developed external sunshades. Some 400,000 centrally controlled slats provide protection from the sun comparable with conventional external blinds. The slats have the advantage that they provide much better visibility and remain fully functional even in severe winds.

Environmental responsibility

Before construction work started, the entire site of the Quarter was examined for possible legacies from almost 200 years of industrial history such as obstructions or contamination. With the assistance of experts, minor contamination was professionally disposed of off-site. Around 450,000 m³ of earth had to be moved on the whole site. To avoid the need to move several thousand truckloads of soil on public roads, it was temporarily stored on the Quarter site, and some of it was used in the construction of the Krupp Park.

The greening of the Quarter site is exemplary. More than 700 trees will be planted in the green spaces. Together with the generously dimensioned water axis, they will significantly enhance the micro climate of the entire site. Particularly impressive is the "Avenue of the Worlds", running parallel to the water axis over a length of 235 meters. A total of 68 trees have been planted, including 15 different tree species from five continents.

1/3 of the site will be paved and 2/3 unpaved, allowing most of the rainwater to drain away and be returned to the water cycle. Throughout the Quarter, rainwater on the roofs of the buildings (around 25,000 m²) will be collected and fed among other things to the lake in the Krupp Park via a drainage system separate from the effluent drains. This rainwater system is roughly 1,300 meters long and can feed up to 520 liters of water per second to the Krupp Park. The overflow from the lake flows into the Borbecker Mühlenbach, part of the Emscher river system. The clean rainwater will thus help improve the water quality of the Emscher river. For this innovative rainwater separation system in the ThyssenKrupp Quarter, the Emschergenossenschaft water management association has presented ThyssenKrupp with its "Watermark" award. The "Watermark" from Emschergenossenschaft symbolizes an intact natural water cycle and is awarded to projects making sustainable use of rainwater.

Eco-friendly construction materials

Wood has always played an important part in the building trade. But in addition to architectural and technical requirements, ecological aspects also have to be considered. In the construction of the ThyssenKrupp Quarter, only indigenous, fast growing wood types were used whose production conditions are known.

In the interiors too – for example the wooden flooring – only eco-certified wood was used. The materials for the external areas were selected consciously on the basis of sustainability. In the majority of cases, locally or nationally produced materials from renewable sources were used.

Lighting power consumption optimized

To limit power requirements, the ThyssenKrupp Quarter will use a fully automated system with daylight-dependent brightness control and presence detection. That means light will only be provided where and to the extent it is really required.

Award for sustainable building

The ThyssenKrupp Quarter sets new standards for minimized consumption of energy and resources, the increased use of renewable resources, minimal ecological impact and the creation of modern working worlds. At the EXPO REAL 2009 international real estate show, the German Sustainable Building Council (DGNB) awarded the new building a Pre-certificate in Gold for the newly created German Certification for Sustainable Buildings.