

Technology: ThyssenKrupp products in the new quarter

An architectural calling card for ThyssenKrupp – this describes the new quarter in more ways than one. While the architectural design of the building ensemble conveys typical ThyssenKrupp values such as transparency and openness, the materials and products from which it is built illustrate the Group's innovativeness and technical capabilities. Almost half the materials used to build the quarter were made by ThyssenKrupp. Added to this are 20 high-tech elevators, three escalators and other passenger transportation systems which were also manufactured by the ThyssenKrupp Group.

The most striking testimony to the Group's materials competency is the sunshade system for building Q1, the central building of the ThyssenKrupp Quarter. 400,000 stainless steel slats covering an area of 8,000 square meters control light entering the building. The material used is Nirosta 4404, a chromium-nickel-molybdenum stainless steel with high corrosion resistance made by ThyssenKrupp Nirosta. Processed by ThyssenKrupp Umformtechnik, the slats are part of a solar control system which is the first of its kind in the world. What makes the system different is that it automatically adjusts to the position of the sun, keeping direct sunlight out while allowing enough light into the building to keep the offices bright. The seven centimeter long slats are mounted on vertical shafts. The shafts rotate to adjust the stainless steel slats to the position of the sun. Data on the seasonal course of the sun are programmed into the controls. Also, the system is fed current weather data from a meteorological station installed on the roof of Q1. On cloudy days all the slats will be turned outwards so that the sun shades remain open.

ThyssenKrupp Steel Europe produced over 10,000 square meters of flat-rolled steel with a special innovative coating for the new quarter. The PLADUR ZM Premium steel was used among other things as cladding for the walls of the atrium inside Q1, the interior of the ground-floor lobbies in the Q2 forum and buildings Q5 and Q7, and exterior facade areas on the Q2 forum, Q5 and Q7. The material owes its superior appearance to a multi-layer coating in a color named Pearl Metallic Gold Q1. Thanks to special pigments, the color shade of the surface changes depending on light conditions and the angle from which it is viewed. The coating is produced by coil coating, in which paint is applied to steel strip in a continuous process on special equipment. The term "Premium" in the name of the product refers mainly to the quality of the top coat, while

the abbreviation ZM signifies the main technological innovation: ZM means that the surface of the steel is first protected against corrosion with a zinc-magnesium alloy coating before the paint system is applied. This alloy provides roughly twice the corrosion protection effect of conventional hot-dip galvanizing.

For the quarter's six-level parking garage, ThyssenKrupp Steel Europe supplied over 17,000 square meters of Hoesch Additive Floor. The lightweight decking system consists of steel profiles which are topped with concrete. Compared with solid concrete decking with the same load-carrying capacity, this solution is around 40 percent lighter. Because this means fewer and thinner beams are needed and savings can also be made on materials for the foundations, Hoesch Additive Floor has been extremely successful on the market: More than 300 parking garages covering an area of over four million square meters have been built with the system to date. With its green roof, the parking garage for the quarter provides space for more than 800 cars.

Resource-efficient technologies characterize the elevators and escalators supplied by ThyssenKrupp Elevator: For instance, the six elevators in Q1 are equipped with regenerative drives. Energy produced as the cabs are slowed is converted into electricity and returned to the power supply. Two of the six installations in Q1 are TWIN elevators, in which two cabs arranged one above the other run independently in a single shaft. As well as transporting more passengers significantly more quickly, this system also cuts the space required for elevator shafts by a third, freeing up extra useable space on all floors. Also, thanks to the higher carrying capacity of the two TWIN cabs, less material is required for shaft doors and guide rails than for two separate elevators. Another environment-friendly feature: While conventional elevator cabs run on permanently oiled rails, almost all the cabs in the ThyssenKrupp quarter feature special roller guides. This means that oil collecting on the shaft floor, which normally has to be disposed of in a time-consuming process, is no longer a problem.

Many of the elevator systems in the ThyssenKrupp quarter are fitted with LED lighting, often in the form of LED floor or ceiling lighting. Compared with conventional fluorescent lighting, LED technology uses up to 90 percent less energy. The escalator systems, too, feature LED skirt lighting and LED bottom lighting. Further energy is saved by the intermittent operation of the escalators, which means they stop when not in use.