



WORLD WIDE WEAVE

## **Consistently sustainable**

Woven sun protection for the new headquarters of the Turkish Contractors Association

**As an independent, non-profit making association, the Turkish Contractors Association (TCA) represents the interests of the tradition-steeped Turkish construction industry. Turkish building contractors are well-known far beyond national borders and the TCA is one of the world's most powerful associations in this area. The association consistently focuses on transparency and sustainability and, for this reason, designed its new headquarters in Ankara in compliance with the highest LEED certification requirements (Platinum). In addition to a thermal labyrinth for climate control, the sun protection façade made from metallic mesh manufactured by GKD – GEBR. KUFFERATH AG (GKD) from Düren, Germany, makes a significant contribution to the sustainable building concept. The mesh, which is pulled taut in front of the glass façade, was designed with a different thickness on each side of the building. Adapted to the respective intensity of the sun in this way, it makes an important contribution towards achieving the LEED certification.**

For the association's new headquarters in Ankara, the TCA brought in a team of 16 planning and consulting companies. Under the leadership of Avci Architects from Istanbul, they designed the building as a shining example for the entire industry. With a total area of 7,000 square metres, the almost entirely glazed building is an architectural expression of the desire for maximum transparency, which the Turkish Contractors Association is committed to. At the same time, however, it offers privacy where needed. A



narrow plateau made from dark basalt stone and the modular, staggered floors give the complex its floating appearance. A glazed atrium in the entrance area links together the individual floors of the building and the public areas with the conference and showrooms on the ground floor. Open staircases with glass balustrades lead to the upper floors, where restricted access areas such as the administrative departments are housed. Besides glass, the interior is dominated by natural materials such as wood and stone. The walls clad partially with walnut veneer and the floor made from large, light marble slabs reinforce the puristic effect of the lower floors.

#### **Setting a sustainable example**

The TCA sees itself and the construction industry as having a special responsibility for the environment and the climate. By planning the new headquarters in a sustainable way from the very start, its aim was to reflect this responsibility and at the same time serve as a role model for the entire industry. When the warm air rises inside the glazed atrium in summer, the automatic ventilation in the building's roof allows the hot air to be released. In winter, it is used for heating instead. The central element of the passive climate control is Turkey's first and so far only thermal labyrinth, located over an area of 910 square metres below the building's underground car park. The cellar rooms interspersed with concrete walls are used to make the local temperature differences between day and night of around 15-20 °C in summer utilisable for air conditioning – a solution devised by the experts from Atelier Ten in London, who were responsible for environmental planning and consulting. The warm outside air streams into the cellar through chutes and cools down naturally as it passes through the labyrinth. 150 millimetre thick steel pipes embedded in the concrete walls and ceilings conduct the cooler air into the building. Finally, the air conditioning can be controlled as needed via chilled beams in the individual rooms. In winter, the constant



background heat of around 16 °C at depth irrespective of the season is used as the basis for heating the rooms in the same way. Besides the thermal labyrinth, the new headquarters' photovoltaic system, treatment of rain water and process water, and automatically controlled LED lights are further evidence of the TCA's exemplary function with regard to sustainable construction planning.

### **Effective sun protection**

The almost entirely glazed façade solution of the association's headquarters meets the demand for transparency even at first glance. But the building's outer skin also plays a key role with respect to climate control. To regulate the high inflow of heat caused by sun shining into the building, the architects chose an additional hanging façade made from stainless steel mesh manufactured by GKD. 75 per cent of the building is covered with a total of 900 square metres of Omega type mesh. The textile skin was pulled taut starting from the first floor upwards in front of the glass panels with no visible joins. Working together with the architects, the experts from GKD varied the thickness of the mesh depending on the respective direction in which the woven façade faced. And so Omega 1510 type mesh was used for the south-facing side of the building – a mesh with just 35.4 per cent open area – in order to significantly reduce the solar energy input of the intense midday sun. The sides of the building on which the morning or afternoon sun shines were covered with Omega 1520 type mesh (50.6 per cent open area) and Omega 1530 (59 per cent open area) in order to achieve the greatest possible transparency and make the most of the natural light, taking into account the lower position of the sun. By significantly reducing the solar heat intake into the building, the stainless steel mesh supports the effectiveness of the thermal labyrinth and reduces the need for additional climate control. Thanks to its transparency, the mesh lets a lot of daylight into the rooms and



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thus also reduces the need for artificial light. The sustainability of the material is also reinforced by its low maintenance and complete recyclability at the end of its useful life. Thanks to the numerous material advantages, the woven skin thus substantially supports the achievement of the highest LEED certification (Leadership in Energy and Environmental Design).

### **A shining beacon**

Besides these functional properties, the mesh from Düren also won over the architects because of its optical qualities. To give a seamless effect to the hanging façade, the individual panels were pulled taut next to each other without frames. The ends of the mesh are bent through 90 degrees and secured horizontally below and above the glass building elements with springs. This virtually invisible fixing in accordance with the architects' wishes reinforces the filigree appearance. The transparency of the mesh allows the building users to maintain a visual dialogue with the outer world and thus underlines the effect with maximum comfort. Whereas during the day, the shiny stainless steel mesh reflects the ambient light as a link to the outside world, at night it makes the complex which is illuminated from the inside visible from far and wide. And so the semi-transparent skin means that the new TCA headquarters in Ankara really is a beacon for sustainable construction.

7,101 characters with spaces

### **GKD – GEBR. KUFFERATH AG**

The owner-run technical weaver GKD – GEBR. KUFFERATH AG is the global market leader for metal and plastic woven solutions. Under the umbrella of GKD – WORLD WIDE WEAVE the company combines four independent business units: SOLID WEAVE (industrial meshes), WEAVE IN



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MOTION (process belt meshes), CREATIVE WEAVE (architectural meshes) and COMPACT FILTRATION (compact filter systems). With its seven plants – including the headquarters in Germany and other facilities in the US, Great Britain, South Africa, China, India and Chile – as well as its branches in France, Spain, Dubai, Qatar and worldwide representatives, GKD is never far from its customers.

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Picture 1: The sun protection façade made from metallic mesh manufactured by GKD makes a significant contribution to the sustainable building concept.



Picture 2: At night, the transparent stainless steel mesh makes the complex which is illuminated from the inside visible from far and wide.



Picture 3: By significantly reducing the solar heat intake into the building, the stainless steel mesh reduces the need for additional climate control.



Picture 4-5: Thanks to its transparency, the mesh lets a lot of daylight into the rooms and thus also reduces the need for artificial light.



Picture 1-5 © Yunus Özkazanç

We will be happy to send you the desired images in printable resolution by e-mail.

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