WORLD WIDE WEAVE

A model of sustainability

Stainless steel mesh as sun protection at the Education City in Qatar

The emirate of Qatar combines technological progress and Arabian tradition like virtually no other country in the Persian Gulf. However, the small state with an area of just 11,500 square kilometres is also at the very forefront when it comes to education and sustainable architecture. In the capital Doha, students from across the globe study at branches of the world's leading universities on the Education City campus. Two new student residence halls with an area of over 1,000 hectares are setting international standards for sustainability with the highest level of LEED certification available (Platinum). Large Omega stainless steel mesh elements from GKD – GEBR. KUFFERATH AG (GKD) act as sun protection and thereby make a contribution to the positive energy balance. Alongside this functional efficiency, however, it is the special surface treatment that truly breaks new ground. Arabian motifs created on the mesh by means of a special etching technique evoke the local culture and interpret shining stainless steel mesh in a way never seen before. After a number of smaller projects in the USA, this is the first time that this etching technique has been used on a large scale.

For the international academic elite of tomorrow, virtually nothing is impossible in Doha's Education City. Earning a degree at a renowned Western elite university; studying Islamic and Western legal structures side by side; the high availability of the latest technological standards in the learning environment - there are lots of good reasons for a student to

choose a course in the Gulf state. With the construction of the new student residence halls on the Education City campus, the contracting client, Qatar Foundation, provided plenty of impetus for sustainable thinking. The building project will be ready for occupation in early 2013 and is designed in the manner of an Islamic village. In accordance with Arabian culture there are two single-sex residential buildings with a shared study and work area. Up to 1,200 students will live in the furnished apartments.

Sustainable building concept

The architects Burns & McDonnell from Kansas City, USA took on the challenge of creating the world's first student residence with the highest level of LEED certification (Platinum) with an ingenious combination of energy saving and energy generation measures. These include solar cells on the roofs, a smart lighting system in the building interior and integrated filtration and treatment of dirty water using a "biomass wall". The result is an exemplary reduction in the ecological footprint of the building complex. Alongside this sustainable efficiency, the campus will also provide ideal conditions for studying and preserve Arabian culture. To this end, Burns & McDonnell worked together with Treanor Architects, also from the USA, who had won the separate competition to design the two residence blocks. They planned to create an environment in which the students can flourish in every way: personally, socially, spiritually and academically.

The 7,000 square metres of GKD Omega 1520 stainless steel mesh, which acts as sun protection in front of the glass façade of the two residence blocks, are an important part of this ambitious building concept. A total of 280 panels deliver a striking contrast to the sand-coloured stone façades. In the challenging climate of the Persian Gulf, efficient sun protection is a decisive factor for the positive energy balance of a building: selective

shading that also offers a high degree of light transmission enables enormous savings in air conditioning and lighting. Moreover, the mesh grants residents an unobstructed view from inside the building, thus promoting a sense of well-being and comfort. The freedom from maintenance and virtually unlimited durability offered by stainless steel mesh also guarantee low follow-up costs.

Decorated mesh

This functionality of stainless steel mesh goes hand in hand with its striking aesthetic appeal. Its glossy, textile structure reflects the daylight. Its smooth surface made the Omega mesh the material of choice as it met all the special demands of the client in Qatar. The mesh was decorated using a special etching technique, in which reusable templates protect unprocessed areas of the mesh while the decorative pattern is blasted onto the mesh surface using a procedure similar to sandblasting. Templates generated from digital masters enable virtually every conceivable pattern or graphic to be produced. Possible applications include building inscriptions using text on mesh façades. The contrast to the glossy stainless steel will become even more apparent over time as the blasted sections darken. Despite the precision of the large-scale patterns, the mesh remains transparent and is durable and weather resistant. The recurring floral patterns inspired by Arabian culture cover the entire surface of the mesh. Sweeping, overlapping lines and shapes produce a never-ending ribbon of patterns, with individual shapes merging into optical units whose appearance changes depending on how they are viewed. In this way, the mesh curtains exhibit floral, winged or drop-shaped patterns. The areas in the buildings for male and female students have been assigned different motifs which can also be found on the stone façades, ceilings and on the floor. The mesh panels, which are 13.5 metres high and up to 4 metres wide, already

passed their climactic endurance test while they were being assembled. Faced with temperatures of up to 50°C in the shade and the enormous wind loads typical of the Gulf state, the GKD mesh proved its performance right from the very beginning thanks to fastening technology specially adapted to local conditions.

Individual expression

GKD had previously implemented its first, smaller-scale etching projects in the USA. In one of these projects, an image of the famous Colombian coffee farmer Juan Valdez became the visual trademark of the eponymous coffee shop chain's flagship store. In addition, the foyer of the Piper High School in Kansas is adorned by the head of the school mascot – a pirate – as a symbol of school spirit. This new technique lends optically and functionally proven GKD stainless steel mesh an expressive, individual design freedom.

The etched mesh curtains in Doha set attractive standards here. The highly effective sun protection function of the GKD mesh confirms the status of the campus as an ecological showpiece project. With its individual visual characteristics and unique combination of material properties, stainless steel mesh façades are becoming a pioneering model of sustainable architecture.

6,792 characters incl. spaces

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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 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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