Airport architecture: Ready for take off

New design horizons with metal fabric

Rapidly increasing passenger numbers – with 4.1 billion passengers being transported worldwide in 2017 alone – are being reflected in ever greater airport architecture dimensions. Whether expansion and upgrade processes for existing buildings to meet altered requirements or large new buildings that provide a stage for experiencing aviation: metal fabrics from GKD – Gebr. Kufferath AG are an established standard in global airport architecture.

In the competition for locational advantages, airports are transformed from purposeful and often cold places of transit to representative feel-good spaces. For the operators, however, economic constraints are often the key factors. In this vein, rental income from retail and catering units are just as indispensable as parking and landing fees when it comes to financing the airports. GKD metal fabric offers architects and owners a virtually limitless range of design options for façades, ceilings, walls, and parking garages when attempting to balance the necessary attractiveness with functionality and security of investment. The functional and aesthetic properties make the fabrics universally deployable. With weavable dimensions of eight meters in width and 100 meters in length, GKD metal fabrics are predestined for use in the design of these sophisticated large buildings. Beside a large number of fabric types, the entire spectrum of design visions can be realized through use of colored surfaces, printing, etching, or medialization. Stainless steel fabrics also make a valuable contribution to gaining sustainability certificates, as they support optimization of building energy consumption, a long service life, and material-specific recyclability. The MEDIAMESH® and ILLUMESH transparent media façade systems from GKD combine the benefits of a high-

performance LED display for advertising and entertainment with the fabric-typical properties of transparency and flexibility. In the field of airport architecture, they facilitate installation of huge video screens in front of window areas or passages by allowing light to pass through and therefore maintaining views.

Fascination of functional façade shells

In the mid 1990s, the parking garage façade made of GKD metal fabric at Terminal II of Cologne Bonn Airport represented a pioneering architectural turning point for the design of new buildings in the field of transportation architecture. Today, OMEGA and TIGRIS cable fabrics are ubiquitous in the field of airport construction. Thanks to its three-dimensional structure and flexible formability, the ESCALE spiral fabric lends large façades a particularly expressive, textile materiality. Used as parking garage cladding, GKD metal mesh contributes to a pleasant stay with its draft-free ventilation, protection from driving rain, and natural daylight illumination. The parking garages at London Heathrow, as well as the airports in Barcelona and Brisbane are good examples of this. Some 2,500 square meters of LAGO fabric encapsulate the parking garage at Van Nuys Airport in Los Angeles. Huge letters attached to the metal fabric form the word *Flyaway*, underlining the airport's brand identity. The terminals at the Paris-Charles de Gaulle, La Réunion, Basel/Mulhouse, London Stansted, and Madrid Barajas airports gain their unmistakable, representative look from metal fabric. At the same time, their woven skin meets the respective operators' strict demands in terms of energy efficiency, user comfort, and security. Spain's major airport Madrid Barajas also had the two control towers encapsulated with a total of 1,600 square meters of ESCALE 7x1 stainless steel fabric. At Adelaide Airport in Australia, some 2,000 square meters of TIGRIS stainless steel fabric were used for the extended and slanted façade of the path connecting

the terminal with the parking garage. The Newark Liberty International Airport in New York selected 2,360 square meters of OMEGA 1510 stainless steel mesh as perimeter fencing for its transformer station. An etching process was used to apply a generous wave pattern to the fabric here. Despite its graceful design, the rugged stainless steel mesh can permanently withstand adverse weather conditions, including wind, rain, snow, and frost, as well as the vandalism that is sadly encountered all too often at travel hubs.

Elegant ceiling design

Stainless steel fabric can attribute its ongoing success in the world of airport interior design to its rugged multifunctionality and versatility. As an elegant suspended ceiling, which hides technical installations while maintaining access, the non-combustible material meets the strict safety requirements of public buildings. Beside the airports in Dusseldorf, Zurich, Singapore, Athens, and London Heathrow, Madrid-Barajas therefore also relies on ceilings made of GKD metal fabric. For the Hong Kong International Airport Midfield Concourse, the architects selected 24 three-dimensional, curved elements made of ESCALE 5x1 fabric to trace the path of the massive ceiling arches. In the new passenger terminal at Muscat International Airport, curved panels attached to a steel construction form semi-transparent canopies over the three piers. Freely suspended ceiling elements above the long escalators, each measuring 13 meters in length, then create a sense of visual harmony with the other metal fabric elements. The planners in Muscat also decided to go with LAMELLE fabric for three raster ceilings, as well as one projecting counter canopy. In Frankfurt, the sophisticated MANDARIN bronze metal fabric shapes the sweeping ceiling construction in the reception area of the Hilton Frankfurt Airport Hotel.

Refined yet rugged wall hangings

Used as wall or column cladding, metal fabrics open up individual design opportunities in the field of airport construction. Their robust texture is insensitive to scratching and jolts, while also producing refined spatial effects thanks to interaction between back lighting and light reflections. At Muscat International Airport, wall hangings made of LAMELLE fabric and measuring up to 7.5 meters high visually upgrade the retail area. An 8.5 meter high and 15 meter wide ILLUMESH screen acts as a partition wall between two building segments. At Dubai International Airport, GKD metal fabric was used as cladding for the columns that stretch across multiple floors.

Multifunctional room dividers

Thanks to their alternating transparency or opacity based on the respective viewing angle and type of lighting, metal fabrics offer a fascinating appearance for visitors of terminals and lounges in their function as room dividers. The airports in Athens, Dubai, Johannesburg, Qatar, Los Angeles, Madrid, Paris, or Zurich are prime examples of this. At New Doha International Airport in Qatar, four massive MEDIAMESH® screens in Hall C of the main terminal demonstrate their power as attention-grabbing advertising platforms for luxury goods from across the globe. Thanks to their transparency, they also guarantee unobstructed views from the rooms located behind them. A mixed media screen, which combines the transparent MEDIAMESH® and ILLUMESH media façade systems in a refined way, marks the transition to the retail area at Muscat International Airport. Two MEDIAMESH® screens installed at Minneapolis-St. Paul International Airport, each measuring 25 square meters in size, demonstrate their effectiveness as a signposting system.

Transparent metal mesh roll-up systems

Planners are increasingly also using GKD metal mesh when designing shopping arcades, restaurants and duty-free areas. Roll-up systems made of high-grade architectural mesh and employing the tried and tested technology of strategic partner Braselmann open up attractive design options thanks to their combination of high transparency and rugged resilience. They represent both elegant and rugged security solutions as night closure doors for businesses and restaurants, at underground parking garage entrances/exits, or at transitions to staff-only areas in the terminals. This perfect interaction of aesthetics and functionality has proved a real hit, for example at Munich Airport with 1,250 square meters of roll-up screens, as well as various brand shops at the airports in Sydney and Melbourne, Australia.

Modern airport architecture is both challenging and prestigious. Smart terminals are increasingly adapting to the requirements of their visitors by tailoring their offers and design accordingly. Metal fabrics from GKD make a valuable contribution to designing the complex transport hubs as transit points with urban feel-good character.

8.690 characters incl. spaces

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As a privately owned technical weaver, GKD - Gebr. Kufferath AG is the world market leader in metal, synthetic and spiral mesh solutions. Four independent business divisions bundle their expertise under one roof: Industrial Mesh (woven metal mesh and filter solutions), Process Belts (belts made of mesh and spirals), Architectural meshes (façades, safety and interior design made of metal fabrics) and Mediamesh® (Transparent media

façades). With its headquarter in Germany and five other facilities in the US, South Africa, China, India and Chile – as well as its branches in France, Spain, Dubai and worldwide representatives, GKD is close to markets anywhere in the world.

For more information:
GKD – GEBR. KUFFERATH AG
Metallweberstraße 46
D-52353 Düren
Tel.: +49 (0) 2421 / 803-0
Fax: +49 (0) 2421 / 803-211
E-Mail: metalfabrics@gkd.de
www.gkd.de

Please send a reprint to:
impetus.PR
Ursula Herrling-Tusch
Charlottenburger Allee 27-29
D-52068 Aachen
Tel.: +49 (0) 241 / 189 25-10
Fax: +49 (0) 241 / 189 25-29
E-Mail: herrling-tusch@impetus-pr.de