



WORLD WIDE WEAVE

GKD: Sustainability meets multi-functionality

Metallic mesh facades contribute to establishing a positive energy balance in multi-story car parks

As the stepchildren of architecture, multi-storey car parks have been fighting for attention and acceptance for years. However, local authorities and investors are now starting to realize the potential that multi-storey car parks hold as a location and economic factor. Modern building materials, intelligent concepts and appealing aesthetics can help convert what were once considered boring, clunky "gap fillers" into attractive eye-catchers. The architectural and design mesh from the leading international technical weaving mill, GKD – GEBR. KUFFERATH AG (GKD) is playing a key role in this image transformation. At the start of the 90s, Helmut Jahn was the first person to use this material as a shimmering, semi-transparent shell for the car park at Cologne/Bonn Airport. Since this time, its versatile visual appearance and multifunctional range of applications have made stainless steel mesh a highly recommended material for the construction, renovation or visual upgrading of multi-storey car parks. The increasing emphasis being placed on ecological and economically sustainable building is also providing further stimulus for cladding car parks in stainless steel mesh. Whether used as a decorative shell, robust fall guards, efficient sun protection or as an energy-saving video display in XXL format – GKD mesh car park facades compare very favorably against all other building materials.



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First impressions count. This is also true of car parks. Whether metallic and glossy, colorful, illuminated or medialized – CREATIVE WEAVE stainless steel mesh helps people see previously unpopular car park facades in a new and improved light. The textile structure reflects the surrounding environment, uses daylight to offer new and interesting interpretations and emphasizes the formal aesthetics of a building. The comprehensive design spectrum of stainless steel mesh inspires creative combinations of various transparencies, patterns and colors. During daylight hours, the project-based, precisely adjustable transparency allows defined inward and outward views. At night, it then converts buildings into illuminated landmarks. As there are no production constraints as regards to the screen size, GKD mesh fits in seamlessly with buildings of any size or shape. Its flowing texture softens the rigid structure of multi-storey car parks without hiding its function. This lends profane and functional buildings unexpected, representative aesthetics and architectural significance.

Secure protection

These aesthetics alone are not enough to meet the strict requirements of efficient facility management for multi-story car parks. Stainless steel mesh from GKD combines exceptional visual qualities with an extensive range of functions. Indeed, it offers protection from sun, rain and wind, is non-combustible and also serves as an effective fall guard. Another added bonus is that it provides less area for graffiti sprayers, is not sensitive to pressure or impact and guarantees reliable passive protection from vandalism. Facades made from stainless steel mesh are easy to look after, low-maintenance and remain consistently attractive over decades. At the end of its service life, the building material can also be recycled without any quality compromises. Tried and tested installation systems and procedures



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make the textile skin both a practical and pioneering solution for contemporary multi-story car park design.

A successful example of how well all of these aspects can interact is the car park in the Park Square Doral near Miami International Airport in Florida, USA. Some 104 specially produced panels, installed to create zones with different weave densities using standard GKD Omega mesh, encapsulate the facade, lending it the appearance of an oversized chessboard. Depending on the incidence of light, this creates a fascinating 3D-like image. At the same time, the mesh is also responsible for natural ventilation and lighting inside the car park. The robust mesh structure can withstand hurricanes up to Category 4, as are frequently encountered in this region. With its striking pattern, the car park also sends out a clear signal against the monotony experienced in traffic architecture.

Considerable energy savings

Stainless steel mesh facades also offer convincing arguments in terms of energy-saving qualities. The Chateaucieux car park in Saint-Etienne in south-east France was designed by Patrick Chavannes. Despite its size, the circular construction appears to float above the large railway station forecourt. Behind its woven skin, which shimmers in the sun, it offers 603 parking spaces over two stories. Despite the fact that it employs an open area of around 64 per cent, the Licorne spiral mesh in which it is clad reduces the inflow of solar heat. The special wire form – rounded on the outside, flat on the inside – reflects the sun's rays through its U-shaped edges and redirects them into the surrounding area. The Licorne 27-i material used in Saint-Etienne has a g-value of 0.67, meaning that only 67 per cent of solar energy passes through the material. Unlike a glass facade, the textile structure of the car park's shell combines this efficient



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solar protection effect with reliable natural ventilation and a draft-free interior climate. The high degree of light transmission offered by the mesh material also means that no additional electric lighting is required during daylight hours. This exemplary use of daylight, coupled with the fact that no air handling systems are required, ensures significant energy savings.

Illuminated solution

The wide range of functions that woven stainless steel facades can perform also make them ideal for multifaceted lighting solutions in the field of car park design. An illuminated shell gives those using the car park an extra sense of security, while also protecting against vandalism and thereby contributing to the building's positive overall feel. At night, the car park designed by Frank Gehry at the New World Symphony in Miami Beach, USA, becomes a real eye-catcher that can be seen from a great distance thanks to its colorful veil of GKD mesh. The building has a simple structure, which is characterized by a woven skin. Some 2,400 square meters of high alloy stainless steel were used for the skin, and the material is capable of permanently withstanding the salty sea air. In selecting the Helix 12 spiral mesh, Gehry chose a special mesh made of round wire. Its interplay with light lends the five stories of the car park above the shopping arcade a representative face. The mesh, which shimmers in the sun during daylight hours, then becomes an emotionalized stage in the evening through a computer-controlled display of colors. LED lights attached at the base of the mesh panels support the sustainability of the facade solution thanks to their low energy consumption and minimized stray light.

Dynamic communication platform

Architecturally integrated, transparent media facades made of stainless steel mesh assume the function of attention-grabbing communication



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platforms. The patented **Mediamesh** system from GKD combines the advantages of a high performance LED display with visual transparency and all the other advantages associated with the wire mesh. Powerful LEDs show moving images, advertisements and sophisticated graphics in exemplary image quality around the clock. Covering a total area of 46,000 square meters, the WinStar World Casino in Oklahoma, USA, is one of the largest casinos in the world. Its operators chose the latest generation of **Mediamesh** as a way of enticing guests from the busy Interstate 35 highway. Two large-size **Mediamesh** screens made of 14 panels – each 3.9 meters wide and 10 meters high – enhance the casino car park both visually and functionally. The facade of the car park, which serves both sides of the interstate, displays adverts for the casino and the connected hotel in daylight-friendly video quality. The sophisticated LED strips with six LEDs per pixel also grant users an unimpaired view out of the car park. From the outside, the brilliance of the images is sure to captivate anyone passing by.

The largest transparent media facade created to date uses the facade of the Port Authority Bus Terminal in New York, USA, as a powerful advertising platform. Set over five stories, three of which are parking decks, the Terminal is both the central bus interchange station and a shopping paradise all in one. More than 7,200 buses and 200,000 people pass through the Terminal every day. A **Mediamesh** screen is fitted at right angles to form the facade of the huge building on the corner of 40th and 42nd street and 8th and 9th Avenue. Eight panels, each 35 square meters in size, show video clips in incredible image quality. The sheer vastness of the location allows for an image resolution which remains clearly visible even from 80 meters away. More than four million pixels from five powerful LED displays ensure that the advertising messages are eye-catching both



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during the day and at night. Its watertight electronics, coupled with its ability to withstand temperatures in the range from -20°C to +70°C and hurricanes with wind speeds of up to 145 mph, serve to further underline the incredible performance of the **Mediamesh**. As is the case with all GKD facade solutions, the open mesh construction provides unrestricted views out of the building together with a high degree of daylight transmission, efficient sun protection and natural air circulation. The fact that they are maintenance-free and draw just one sixth of the typical energy consumption of conventional displays make **Mediamesh** screens an efficient, high performance system for medialized cladding of car park facades in exposed, heavily frequented locations.

9,234 characters incl. spaces

GKD – WORLD WIDE WEAVE

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.

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Picture 1: Multi-storey car park Doral Park, Florida.



Picture 2: Zones with different weave densities using stainless steel mesh create the appearance of an oversized chessboard.



Picture 3: Stainless steel mesh at Cologne/Bonn Airport.



Picture 4: Coloured LED lights call attention to GKD's stainless steel mesh, installed at the New World Symphony parking garage.

Picture 1 - 2 © GKD/DVDesign

Picture 3, 5, 6 © GKD

Picture 4, 7 © GKD/New York Focus LLC

Picture 8 © GKD/David Joseph

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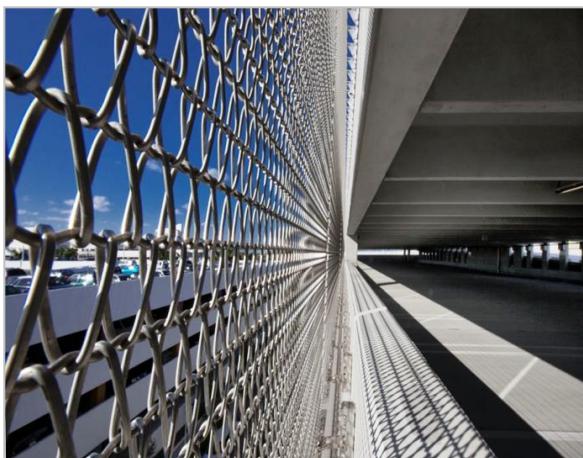
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Picture 5: Despite its size, the multi-storey car park Chateaucreux in Saint-Etienne appears to float above the large railway station forecourt.



Picture 6: Licorne spiral mesh reduces the inflow of solar heat, although it employs an open area of around 64 per cent.



Picture 7: The open structure allows a natural ventilation and protects visitors from draught.



Picture 8: Mediamesh stainless steel mesh system with integrated LED profiles at Port Authority Bus Terminal in New York.

Picture 1 - 2 © GKD/DVDesign

Picture 3, 5, 6 © GKD

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