



WORLD WIDE WEAVE

## **Sun protection with a view**

GKD: External roller blinds made of metallic mesh for sustainable architecture

**Once again, Behnisch Architects strictly implement their credo of holistically sustainable architecture at a private residence in Stuttgart. Extension of the building, originally constructed in the 1930s, followed their stated principle of respecting the environment and the local conditions while improving the quality of life for the users - all in equal measure. The deliberately unobtrusive structure of the new upper floor of the building duly takes account of the building's exposed location. External, roll-up sun protection systems made from metallic mesh supplied by the company GKD – GEBR. KUFFERATH AG protect the large, glazed second floor from overheating without compromising the view of the surrounding countryside from the inside. With their purist look, the metal roller blinds shimmer in the sunlight and underline the overall architectural concept.**

A solid-built, detached house, situated above the town on a quiet hillside, was to be extended incorporating transparency and lightness to open it up to its beautiful surroundings. In addition to the view over the southern part of Stuttgart, the property gleams a certain amount of charm from the immediately adjacent forests. In the 1990s, the existing building underwent a thorough renovation. In response to the increased space requirement, the owner was impressed with the architects' idea of building another open-plan floor of the same size on top of the existing floor rather than fitting a pitched roof. In contrast to the existing cubic masonry construction, the new glass-box type structure gives an open and floaty impression. Thus, the



approximately 150-square-metre extension does not dominate the traditional stonework of the lower floor nor its scenic surroundings. Overhangs on the west and south sides underline the horizontally oriented building structure. Simultaneously, they function as canopies, providing cover for seating areas in the garden. Visually, they also act as separation lines, dividing the structurally unmodified ground floor from the new roof system. The glazed traverse section is divided into strictly geometrically arranged functional areas. The bathrooms and dressing room are adjacent to the bedroom, which extends across the full depth of the floor. A large sliding door separates this private area from the lounge, which leads on to the study room and reading corner. The study room projects into the only room that remains from the existing building on the upper floor, in a bay-window shape. From the lounge, residents can reach the ground floor via an internal staircase. An external staircase leads to the new roof, where a sprawling terrace with timber flooring provides a view of the city.

### **Purist aesthetics**

Floor to ceiling, triple-glazed windows in narrow wooden frames produce a light-flooded upper floor with unimpeded views of the surrounding forests. External roller blinds made from spiral mesh, type Licorne 13A, guarantee a pleasant indoor atmosphere even in the height of summer because the motorised blinds reliably protect the interiors from overheating. The simple elegance is a clear commitment to a timeless look. All in all, 120 square metres of aluminium mesh were used to create the cable-operated blinds. The profile-free corners and the weight of the system, due to the size of the elements, presented particular challenges during assembly. Eleven elements, each up to 3.76 metres wide and 2.4 metres high, reinforce the symmetrical design of the whole building with their linear arrangement, interrupted only by the vertical struts of the window frames. Above all, the



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decision to use the innovative sun protection system from GKD came down to its excellent solar factor. The metal fabric reflects solar energy and dissipates it into the environment. The chosen mesh type, Licorne 13A, has a normal-normal energy transmission level of just 0.2. That means 80 percent of the solar energy input is dissipated through reflection or diffusion. In conjunction with the triple glazing commonly used today ( $U=0.7$ ,  $g=0.5$ ,  $T_e=0.75$ ), the overall g-value is even reduced to 0.14. This enormous reduction in solar heat input reduces the cost of cooling the rooms in summer to a minimum, while making a solar energy gain possible in the winter. At the same time, the light-permeable mesh immerses the interiors in a pleasant, soft light that also significantly reduces the need for additional, artificial lighting. The tall, open space makes the mesh a transparent filter, allowing undisturbed views of the outside world. From both the architects and the building owner's perspective, these unobstructed views of the countryside, even with the blinds fully rolled down, were another very important reason for choosing this system. Meanwhile, the texture also protects residents' privacy by preventing people outside being able to see inside if need be during the daytime. During the evening, exterior spotlights put the shimmering blinds centre stage while preventing the interiors being visible from the outside. The sustainability of the investment in this high-performance sun protection system is secured by the corrosion-resistant and virtually maintenance-free aluminium mesh. Any maintenance eventually needed can easily be performed from the outside. When rolled up, the innovative system disappears under the fascia and lets the subtle elegance of the private residence speak for itself.

*5.536 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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## Sun protection with a view

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Picture 1: External, roll-up sun protection systems made from metallic mesh supplied by the company GKD protect the large, glazed second floor from overheating or undesirable insights.



Picture 2: With their purist look, the metal roller blinds shimmer in the sunlight and underline the overall architectural concept.



Picture 3: The chosen mesh type, Licorne 13A, has a normal-normal energy transmission level of just 0.2. That means 80 percent of the solar energy input is dissipated through reflection or diffusion.



Picture 4: The innovative roller blinds allow - even with the blinds fully rolled down - undisturbed views of the outside world.

Picture 1-4 © David Matthiessen

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