

## **MEDIA INFORMATION**

April 2018

**Futurium, Berlin:**

### **Experiencing the future – today**

**Berlin is now home to a unique building dedicated to the future. The Futurium – a joint project of the German Federal Ministry of Education and Research, scientific organisations, foundations and various research companies – aims to provide insights into the world of tomorrow and present scenarios of possible futures in the laboratory and as part of exhibitions and events. Thanks to two extensive screen facades, visitors can form a link between the future worlds shown inside the building and the reality of the outside world at any time.**

Berlin-based architecture firm Richter Musikowski, together with JUCA Landschaftsarchitekten, won the international, anonymous two-stage competition from among 163 participants. Despite their lack of comparable experience, the public building owners placed their trust in the young architects to implement the ambitious design with them. In addition to the basic requirement for the realisation of a successful building – the sensitive approach to the genius loci, or spirit of the place – the history of this project is also a prime example of how innovative architecture can be created. With many special designs, the architects explored the limits of what is currently possible. A prerequisite for this is the constructive cooperation of all those involved and their willingness to learn from each other. The expertise of industry partners was in demand from a very early stage. The Swiss company Jansen AG also contributed the knowledge and experience needed to play an active role in shaping the ambitious project.

The two screen facades in the exhibition area on the upper floor are a perfect example of the teamwork between the planning parties in the areas of supporting structures, facade construction, building physics and architecture. From the outside, the steel-glass constructions facing the southern and northern forecourts appear as shiny screens, not unlike the display of an oversized smartphone. They measure 28 x 8 metres (to the south, with a view of the Chancellery and the German Bundestag) and 28 x 12 metres (to the north-east, with a view of the Charité hospital and Berlin Central Station). In addition to the design requirements for maximised pane sizes and minimised load-bearing structures, the structural requirements for sound insulation, heat insulation, sun protection, darkening, wind load, fire protec-

tion and fall protection also had to be met. The triple insulation glazing in suspended mullion and transom design measures approx. 2.3 x 4 metres and is fastened as a structural glazing system without visible glazing clips. At the same time, the glazing also acts as fall protection. The surrounding opaque edges are printed black on the rear, meaning they are perceived as part of the transparent glass surface.

#### Load transfer reversal using steel profiles

In terms of statics, the trick in the design of the large structural glazing facade can be found in the reversal of the load transfer. The dead loads and working loads of the 11-metre-long ceiling in the north and 18-metre-long ceiling in the south are transferred via steel tension plates each suspended from an upper steel box girder. As a result, the plates always remain under tensile stress and can have a very slim design. The loads of the two structural glazing facades are also transferred via these steel swords. The reversal of the static system means that it is not the mullions that absorb the wind load, but instead the horizontally tensioned transoms. The vertical mullions are only inserted in between. The statically desired solution works as soon as all the components, including the roof structure, are friction-locked together.

The two panoramic facades are a building-specific solution that can only be realised with steel profiles. The architects opted for the VISS SG profile system with a profile depth of just 150 millimetres and a slim face width of 60 millimetres. With VISS SG, the Swiss company Jansen AG offers an architecturally high-quality solution for the construction of aesthetically pleasing all-glass facades in an energy-efficient design. On the north-eastern facade where the largest panes are installed, the maximum glass format permitted in this all-glass facade system was almost reached. A special glass holding anchor was developed in discussions with the manufacturer Metallbau Windeck GmbH, the engineering office for glass statics and a testing institute. As a result, the silicone joints of the all-glass facades are 20 mm wide in the vertical arrangement and 30 mm wide in the horizontal arrangement – a negligible difference that only the trained eye will notice, given the enormous dimensions of the facade as a whole.

Curious visitors were able to take a look behind the scenes on 16 September 2017, when the public was granted access to the building for the first time at the event “Ein Tag Zukunft. Open House im Futurium”. From 30 May to 9 June 2018, the Futurium will present its three focal points – our

future relationship with technology, nature and ourselves – at an exhibition as part of workshop weeks. The full opening of the Futurium is planned for spring 2019. This will also mark the end of a constructive cooperation between the many specialists involved in the building project, without whom the implementation of this ambitious and demanding design would not have been possible. Under the leadership of Christoph Richter and Jan Musikowski, they have created an architectural gem that enriches the Berlin Spreebogen quarter in every respect.

## **PROJECT DETAILS**

**Client:** Bundesanstalt für Immobilienaufgaben, Berlin, with Federal Ministry of Education and Research, Berlin

**Architects:** Richter Musikowski, Berlin

**General contractor:** BAM Deutschland AG, Berlin

**Installation of the panoramic facade:**

Metallbau Windeck GmbH, Kloster Lehnin

**Steel profile systems used:**

Entrance area ground floor: VISS TVS high-performance structural facade profiles

Panoramic facade upper floor: VISS SG structural glazing

Doors: Janisol HI (outside) and Janisol (inside)

**System supplier:** Jansen AG, Oberriet, Switzerland

**Photos:** Stephan Falk, Berlin

**Image rights:** Jansen AG, Oberriet, Switzerland

The editorial use of the photos is linked to this property report.

From here, captions:

pic\_01.tiff and pic\_02.tiff: View of the southern screen facade of the Futurium. A closer look allows for a remarkable comparison: While the entrance facade, which is slightly over 6 metres high, required the use of high-performance structural steel profiles, the structural glazing facade above it (8 metres high in the south, 12 metres high in the north) was built with extremely thin profiles. To implement the object-specific special solution with the VISS SG profile system, the architects used a trick – namely the reversal of the static system. The wind load is not absorbed by the mullions, but instead by the horizontally tensioned transoms. The mullions are only inserted in between. This is a design process that is only possible with steel profiles.

pic\_03.tiff: The Futurium sees itself as a museum, laboratory and forum for discussing future issues. The architects also explored the limits of what is currently possible with many special designs across the building.

pic\_04.tiff: Thanks to the two extensive screen facades, visitors can form a link between the future worlds shown inside the building and the reality of the outside world at any time.

pic\_05.tiff: The two-pane-high south facade (pic\_05) and three-pane-high north facade (pic\_06) hang on five or six steel tension plates, respectively, which are suspended from an upper steel box girder.

pic\_06.tiff: The triple insulation glazing made from VISS SG in suspended mullion and transom design measures approx. 2.3 x 4 metres and is fastened as a structural glazing system without visible glazing clips.

pic\_07.tiff: The entrances from the foyer to the event space are designed as double-sash door elements with increased soundproofing. The slim door profile holds a skylight glazing of approx. 3000 x 3000 mm.

pic\_08.tiff: Panes filled with paraffin and featuring coloured light cover the elevator core and a paraffin storage unit that stores solar energy. This enclosure was also constructed using the VISS SG structural glazing system.

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