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GLC research building, ETH Zurich

**A glass house for cutting-edge research**

**ETH has built its state-of-the-art GLC development and laboratory building in the heart of Zurich. The new seven-storey building is intended to be the new interface between health sciences and technology. An important characteristic of Boltshauser Architekten’s project design is its transparent shell, which is why they refer to the project as the glass house. Janisol elements with fire protection play a significant role here.**

**Located in the heart of Zurich’s university district, the new ETH building blends in effectively with the other buildings on Gloriastrasse. With a floor area of around 22,500 square metres, it complements ETH’s existing facilities with additional lecture halls, various medical technology laboratories, research platforms and a new range of dining options. The general planners at Boltshauser Architekten from Zurich were responsible for the design, and won the ETH’s one-stage architectural competition in autumn 2010. Known as “Ammonite”, their project was the best response to the clear requirements of ETH Zurich, whose goal is to set a milestone in medical technology research and application together with partners. Additional professorships are intended to expand existing activities in this field and further develop ETH Zurich’s leading role in medical technology.**

**The architects’ plan was to create an open and equally efficient centre in the form of a “maison de verre”. To do so, they constructed the building around an inner courtyard that resembles the cloister of a monastery. It surrounds an inner garden and the existing Scherrer lecture hall with the various necessary room types. The spacious courtyard becomes the public communal garden of the training and research location. The ring-like layout of the new building also allows direct access to all adjacent buildings inside the facilities. Pillars with large spans emphasise the horizontal openness. The interiors of the GLC thus have a connection with both the courtyard and the surrounding city of Zurich.**

**Building envelope for high standards**

The glass facade consists of a double-skin construction, modular glass block elements in the parapet and lintel area, and a ribbon window with staggered ventilation sashes for opening. By using the glass blocks as a facade material, the planners drew on a long tradition in modern industrial and university buildings. However, in order to adapt the glass house technically and ecologically to contemporary demands and to meet the standards of several sustainability labels (Minergie ECO, DGNB/SGNI Gold, GI Gutes Innenraumklima) as well as fire protection, the material had to be rethought.

The supporting structure of the building is designed as a skeleton structure made of steel and reinforced concrete. The supporting structure of the facade was also made of folded steel sheets in the form of a modular special construction from Aepli Metallbau. All of these facade elements – including the inner shell – were assembled completely at the factory, partly because the limited access to the construction site proved challenging in terms of construction logistics. A special feature is that a specific fitting solution has been developed that permanently overcomes the challenge posed by the oversized sashes – each with a projection of just under three metres at a height of over two metres and a weight of just under 300 kilograms.

**Individual formulation**

With this in mind, the Janisol steel profile system – seen here in the form of the Janisol HI window elements – meets the special requirements of the building envelope of a research building. The special designs were tested for wind, water and air-tightness in advance in the Jansen Technology Centre.

On the one hand, the modular and ventilated double-skin facade acts as a buffer against the weather, climatic conditions and noise emissions. The windows provide Minergie-standard thermal insulation based on insulating bars made of glass fibre reinforced polyurethane. On the other hand, an integrated Janisol C4 fire damper triggered via a magnetic clamp prevents fire from spreading within the double-skin facade.

The steel profiles also boast a high degree of mechanical stability. In this respect, the steel doors made of Janisol have also proved their worth, as they function reliably in the highly frequented entrance areas and also function flawlessly over the long term. The Janisol 2 EI30 fire-resistant sliding doors also comply with the fire safety ordinance at the GLC building.

With these individual and innovative solutions, the high standards of ETH’s new flagship project were also met in terms of safety. With around 12,000 square metres of laboratory, office and seminar space, the building will in future lay the foundations for research groups to meet flexibly and to work more closely with industry, the University of Zurich, the University Hospital Zurich and other university hospitals.

**PROJECT DETAILS**

**Builder:** ETH Immobilien, Zurich

**Architecture:** Boltshauser Architekten AG, Zurich

**Metalwork:** Aepli Metallbau AG, Gossau

**Steel profiles:** Janisol HI window elements, Janisol C4 fire dampers, Janisol 2 EI30 doors

**Text:** Nicola Schröder, Concept B Zurich

**Photos:** Zeljko Gataric, Zurich

**Editorial contacts:**

Gerald Brandstätter, Conzept-B GmbH

Anemonenstrasse 40d

8047 Zurich, Switzerland

Tel.: +41 (0)43 960 07 70

Email: [gbrandstaetter@conzept-b.ch](mailto:gbrandstaetter@conzept-b.ch)

Jansen AG

Anita Lösch

Industriestrasse 34

9463 Oberriet SG, Switzerland

Tel.: +41 (0)71 763 99 31

Fax: +41 (0)71 763 91 13

Email: [anita.loesch@jansen.com](mailto:anita.loesch@jansen.com)

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