Case study

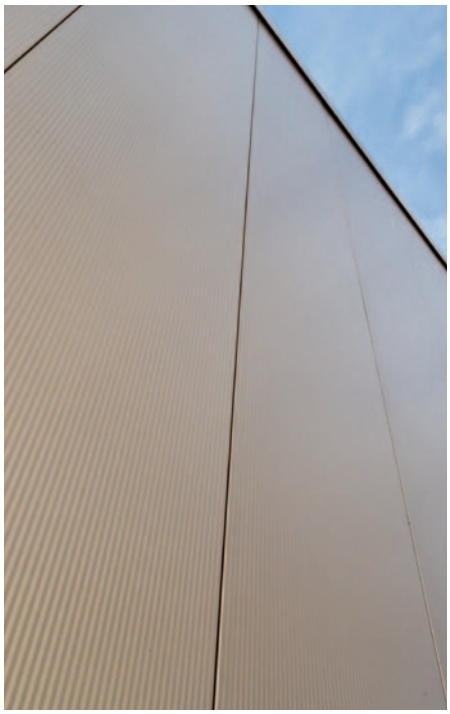
Indoor Climbing and Squash Centre Uster, Switzerland

Products:
MONTANATHERM® Composite panels
Panel-type façade:
MTW V ML 140/1000 – 3100 m^2
MONTANATHERM® Composite panels
Panel-type roof: MTD TL 185/1000 – 2900 m^2
Installation PV modules: Montana SOLbond
Façade surface: Colorcoat Prisma® of the ephyra colour
Roof surface: Colorcoat Prisma® of the ephyra colour

Client:
Genossenschaft Griffig, Nänikon, CH

General construction firm:
Zaugg & Partner AG, Herzogenbuchsee, CH

Architects:
Urs Furger, Zürich, CH



Indoor Climbing and Squash Centre Uster, Switzerland

One of Europe's largest indoor climbing centres opened in October 2014. The new indoor climbing and squash centre in Uster was officially inaugurated on 15 November 2014. The striking building form is enveloped in sandwich panels of golden-coloured sheet steel. An unusual gate wall from which the climbing walls emerge is the design highlight.

The challenge

Climbing is becoming increasingly popular. More and more indoor centres are being built to cater for the increased demand. They are turning climbing into a sport unaffected by the weather particularly in the winter months. The "Wallhouse" project for a joint indoor squash and climbing centre in Uster in the Zurich uplands near Lake Greifen was started at the beginning of 2010. Two separate cooperatives were established shortly afterwards for the squash and climbing area.

Those involved worked incessantly on the operating concept, building layout and business plan. The idea was for a further indoor centre to be set up behind the trend sport ground and sports hall in Buchholz. The intention was to provide 2,000 square metres of climbing surface up to a height of 15 metres for the climbers. The Uster Squash Club players needed seven courts and with one as a self-supporting floor-to-ceiling glass structure. Construction started in October 2013. One year later, the sports centre was opened in October 2014. The official inauguration took place in November.

The solution

As an additional sport and leisure complex, the new indoor climbing and squash centre on the Uster Buchholz area sets real standards. The structure drafted by Zurich architect Urs Furger is one of the largest of its kind in Europe. Its centrepiece is a 14 metres high gate which when opened connects a covered climbing wall in the outer area with the indoor centre. The gate wall is of an imposing 17 metres height. The large gate (10 x 14 metres) is connected on the right to this sector. When open you have the feeling that it is a little like being outdoors: "Climb indoor, feel outdoor!"

The mesh of steel girders and wooden beams with an integrated squash arena is based on a 5,555 square metres floor area. According to the Griffig cooperative - the climbing gym operator - its overall 18-metres height is "structurally aiming to reach the stars". Inside there is a central climbing tower and the centre walls providing a 3200 square metres climbing surface with 250 easy-to-extremely difficult climbing ascents/descents.

The new indoor centre is entered via a ramp leading to the upper floor where the reception, bar and lounge are housed. Large window fronts look out onto both the climbing walls and the squash arena. The squash arena is run by second cooperative and provides six standard courts and an all-glass one. It is the home of the Uster Squash Club which will host the NLA playoffs here next year - its first major event.

Building Structure

The structure of the 77.40 x 42.20 metres building consists of a combined steel/wooden skeleton construction with reinforcing concrete walls. The climbing gym measures 38 x 42 metres and is up to 19 metres high. Double T-section steel supports carry the main steel girders and ancillary timber beams. The gate wall has an eight metres depth. The climbing surfaces extend over 3200 square metres with wall heights between nine and seventeen metres.

The 20.00 x 42.20 x 9.18 metres squash arena consists entirely of timber columns and wooden diagonal/main/secondary beams. It provides space for a glass court and six standard courts.

The sports centre is accessed via an open ramp over 50 metres long arranged at the side. It takes visitors from 0.00 level to level 5.76 metres in the 2nd. storey. The reception and bar are housed in the foyer. Stairs lead up to the 1st upper floor changing rooms. The climbing gym and squash courts on the ground floor are accessed via the spectator stands.

Coated Outer Cover

MONTANATHERM® MTW V ML 140/1000 wall sandwich elements with a 50 µm thin ephyra Prisma® Colorcoat coating, envelope the entire building right up to the top and give it a classy look. What particularly impressed the owners aside from the design quality was the structural-physical and processing properties of the panels. The low-cost light yet stiff elements - which are easy and quick to mount - have a concealed fastening. They basically consist of PIR rigid foam insulation of a 140 mm thickness.

An optimized Galvalloy® carrier material provides excellent corrosion protection in keeping with Class RC5 based on EN 10169. This is especially true at the element cutting edges. The excellent colour fastness of Colorcoat Prisma® which by far demonstrably exceeds the requirements placed on UV resistance (RUV) of EN 10169 impressed the clients. It ensures an aesthetic appearance for many years to come. There is a 30-year Tata Steel Confidex® guarantee on this. No inspections or maintenance are needed for the guarantee to remain valid.

The fire-protection requirements and those in keeping with energy needs also had to be taken into account. The sandwich elements have a U-value of under 0.23 W/m²K and thus comply with that specified by the SIA. This means proof is on hand not only of the thermal insulating property of the composite panels but that they also provide effective heat protection on hot days in summer.

The employed MONTANATHERM® MTW V ML 140/1000 wall sandwich elements have the BKZ 5.3 fire classification as required by the association of cantonal fire insurance (VKF) (corresponds to the DIN 4102-1-based B1). The test reports also demonstrated that these fire elements ensure a 30-minute resistance to fire. Up to now this property has been reserved for mineral-insulated sandwich elements only.

MONTANATHERM® MTD TL 185/1000 roof sandwich elements were used to cover the roof. A 260 kWp PV system covering 2300 square metres has been fitted on the roof elements which are especially designed and suitable for large spans. In contrast to conventional mechanically secured frame structures, the 826 Montana SOLbond frameless photovoltaic modules were completely and non-penetratively fastened onto the sandwich elements and/or bonded to them. This excludes any risk of a lack of seal tightness across their entire service life. Bonding ensures easy and rapid installation. By economising on the sub-structure, the roof additional static load is limited to just 10 kg/m².

The selected innovative Montana SOLbond system with a performance guarantee of up to 25 years for maximum investment and income security has proved itself on innumerable occasions. The low module weight turns Montana lightweight roofs with Colorcoat Prisma® trapezoidal roof elements into a powerful solar power station.

Preference for Swiss premium products

The User indoor climbing and squash centre was officially opened on 15 November 2014 after just one year of construction. From the beginning, the owners set great store on rapid construction progress, a high energetic standard (Minergie modules) and easy-to-process Swiss-made premium products. Montana Bausysteme AG based in Villmergen not only fulfilled all product requirements but also supplied the required services for both the owners and their designers. The Montana teams were involved in the project from the word go. They took on the comprehensive technical support and coordinated the wall, roof and photovoltaic lots and, as such, successfully completed the project

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