



TISSOT ARENA

MULTIFUNCTIONAL STADIUM WITH SHOPPING CENTRE
BIEL – BE

N° 12047E

Principal

Stadium and dressing room building:
Einwohnergemeinde Biel
Direktion Bau, Energie und Umwelt
Zentralstrasse 49, 2502 Biel

Shopping centre:
Kumaro Delta AG
Oberblattstrasse 6, 8832 Wollerau

Total contractor

HRS Real Estate AG
Feldstrasse 30, 3073 Gümligen

Architects

ATS Architektenteam
GD Architectes
Place-d'Armes 3, 2001 Neuchâtel
GLS Architekten AG
Zentralstrasse 115, 2503 Biel

Civil engineers

Civil engineer:
Ingenta AG Ingenieure+Planer
Laubeggstrasse 70, 3000 Bern 31

Structural engineering:

Ribi+Blum AG
Ingenieure und Planer SIA/USIC
Konsumhof 3, 8590 Romanshorn

Electrical engineers

Football stadium and
dressing room building:
HKG Engineering AG
Mühlemattstrasse 16, 5000 Aarau

Ice stadium:

Amstein+Walthert AG
Hodlerstrasse 5, 3001 Bern

Shopping centre:

HKG Engineering AG
Grundstrasse 12, 6343 Rotkreuz

HVAC engineers

tp, AG für technische Planungen
Zentralstrasse 115, 2501 Biel

HVAC controlling

Amstein+Walthert AG
Hodlerstrasse 5, 3001 Bern

Geotechnical engineering

Geotest AG
Bernstrasse 165, 3052 Zollikofen

Construction physics

Kopitsis AG
Zentralstrasse 52, 5610 Wohlen
Gartenmann Engineering AG
Nordring 4A, 3001 Bern

Landscape designer

Klötzli Friedli
Landschaftsarchitekten AG
Ensingerstrasse 25, 3006 Bern

Construction project location

Boulevard des Sports 20
2504 Biel

Planning 2007 – 2012
Implementation 2013 – 2016

Published in Switzerland



CENTRE D'INFORMATION
ARCHITECTURE ET CONSTRUCTION



LOCATION/HISTORY

The Tissot Arena is located in the Bözingenfeld area in the eastern part of Biel, a development focus in this watchmaking city. The Tissot Arena has very good transport links, thanks to a dedicated bus stop with direct links to the train station and to its proximity to the A5 motorway. The A5 «eastern branch» a new direct link between the Brüggmoos and Bözingenfeld junctions, was inaugurated in October 2017. The Tissot Arena thus became even better connected to the road network.

The Tissot Arena is the only stadium in Switzerland that combines an ice hockey stadium, a football stadium and a curling hall under a single roof. The stadium offers EHC Biel and FC Biel-Bienne, the Swiss Football League's women's team, the Biel skating club and several curling clubs a modern home and new possibilities. There are also four outdoor football training fields.

The Tissot Arena also contains restaurants, bars and a sky lounge. The «Galerie-Arena» shopping centre has over 21,000 m² of retail space. Companies that are already





present, such as anchor tenants Conforama and Lipo home furnishings stores as well as Jysk, Athleticum, King Jouet and major retail distributors Denner and Migros, generate high store traffic levels.

Swatch Group has acquired the naming rights and invested in the stadium infrastructure. The building, which was originally planned under the name «Stades de Bienne», has thus officially been the Tissot Arena since February 2015.

CONCEPT / ARCHITECTURE

The size of the structure can be deduced from its impressive dimensions: the Tissot Arena is 380 metres long, 120 metres wide and 28 metres high. The entire installation covers 88,600 m², which is equivalent to about twelve football fields.

The new building consists of a conventional concrete/steel supporting structure with sand-lime brick walls. The stadium roof consists of a steel construction. The facades of the sports' arenas are made of different materials: to ventilate the natural turf, the facade of the football stadium mostly consists of hot-dip galvanised gratings, whereas the ice hall is primarily covered in stainless steel and aluminium sheet metal sections.

Architecturally, the Tissot Arena acts as a structuring generator for the development of the eastern area of the city. To underscore the site's urban planning importance, the architects placed the Tissot Arena on a sort of «landscape plateau» that matches the level of Längfeldweg to the west and runs along the 800-metre-long tree-lined avenue as far as the motorway roundabout. To further ease understanding, the installation is characterised by two elements: the landscape plateau as a base and the roof with the



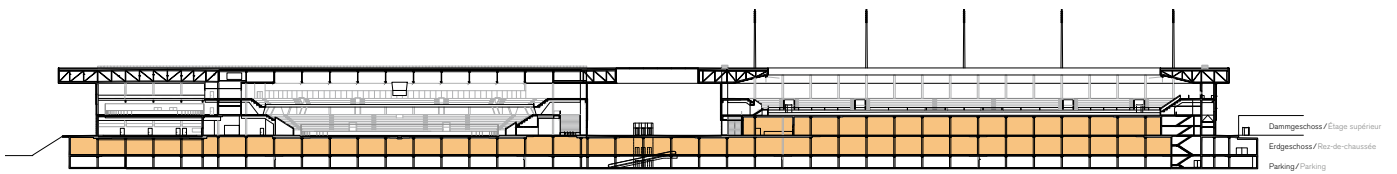
solar energy plant. The two stadiums and the gallery are arranged between them, almost like the filling in a sandwich.

Access is on two levels: the bus stop and outdoor parking are on the ground floor at the natural terrain level; six metres higher at embankment level, there are access points for pedestrians and bicycles, as well as for deliveries. The two levels are linked by numerous flights of stairs along the landscaped banks. The underground car park is accessed from the north via Roger-Federer-Allee and from the south via Längfeldweg.

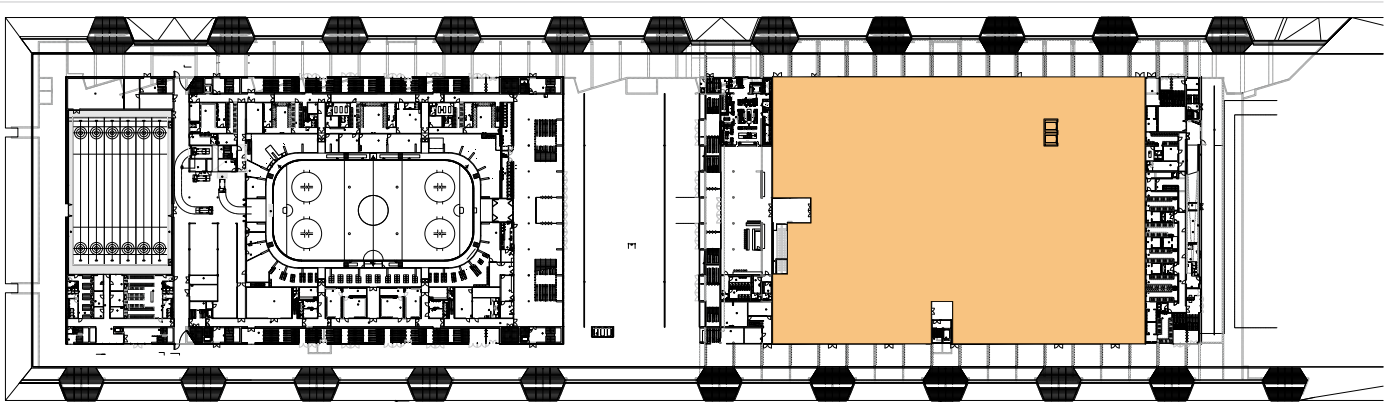
The Tissot Arena offers various forms of usage and combinations thereof – from seminar rooms for smaller groups to spacious event halls for several thousand spectators. The generous entrance area and the light, airy and transparent mall leave sufficient space for exhibitions, promotions and events. Besides the stadiums, the gallery is a platform for shopping experiences, while always creating a link with the sports stadiums.

The football stadium offers covered seating for 5,100 spectators and can be extended to accommodate 10,000 spectators. A circulation level where spectators can move around, is located two metres below the stands. VIP and media rooms are arranged immediately below the roof with a view of the pitch and the surroundings.

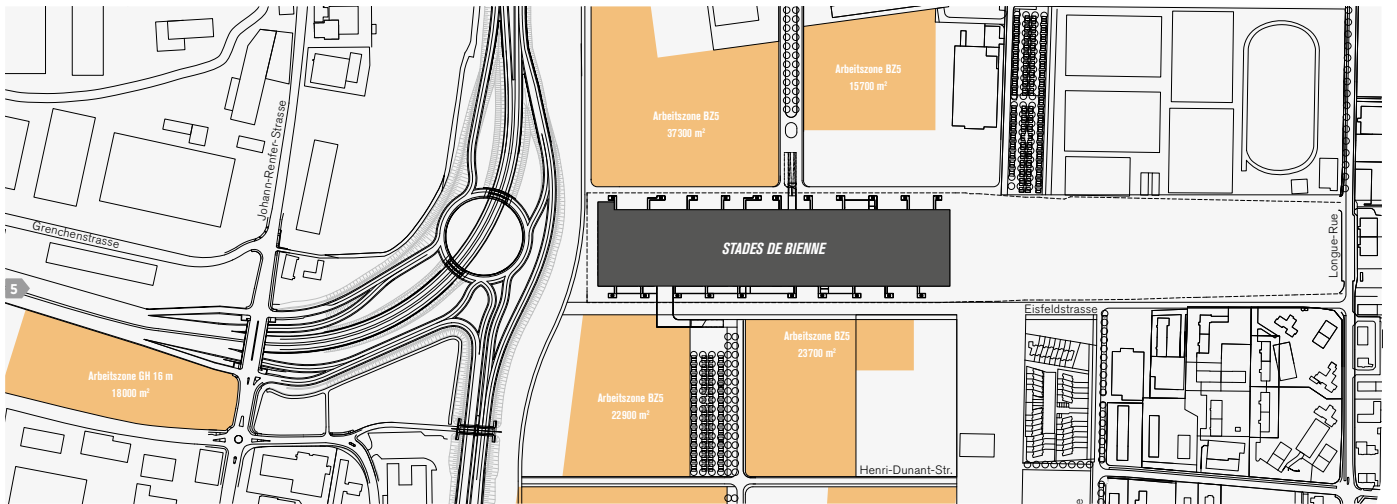




Sectional view



Shops, upper floor



Location map





The ice hockey stadium can accommodate 7,000 spectators and can be quickly converted for concerts, exhibitions, conferences or trade fairs. The circulating level, where spectators can move around, is six metres above embankment level and is reached via generously dimensioned staircases. Spectators have an attractive view into the stadium even during refreshments breaks. A covered outdoor ice rink is located two floors above the embankment level.

The curling hall is designed for international competitions and has six rinks. The dressing rooms are on the entry level, while a restaurant and spectator gallery are located above. The hall can also be used in summer for smaller events or trade fairs.

SPECIAL FEATURES

The largest challenge was the short construction time. Constructing a building complex of this size in two-and-a-half years is a true tour de force and was only possible thanks to our great experience and stringent construction management and coordination; at times, 600 people were working on the site simultaneously. An additional difficulty was that the use of some areas was only finalised during construction.

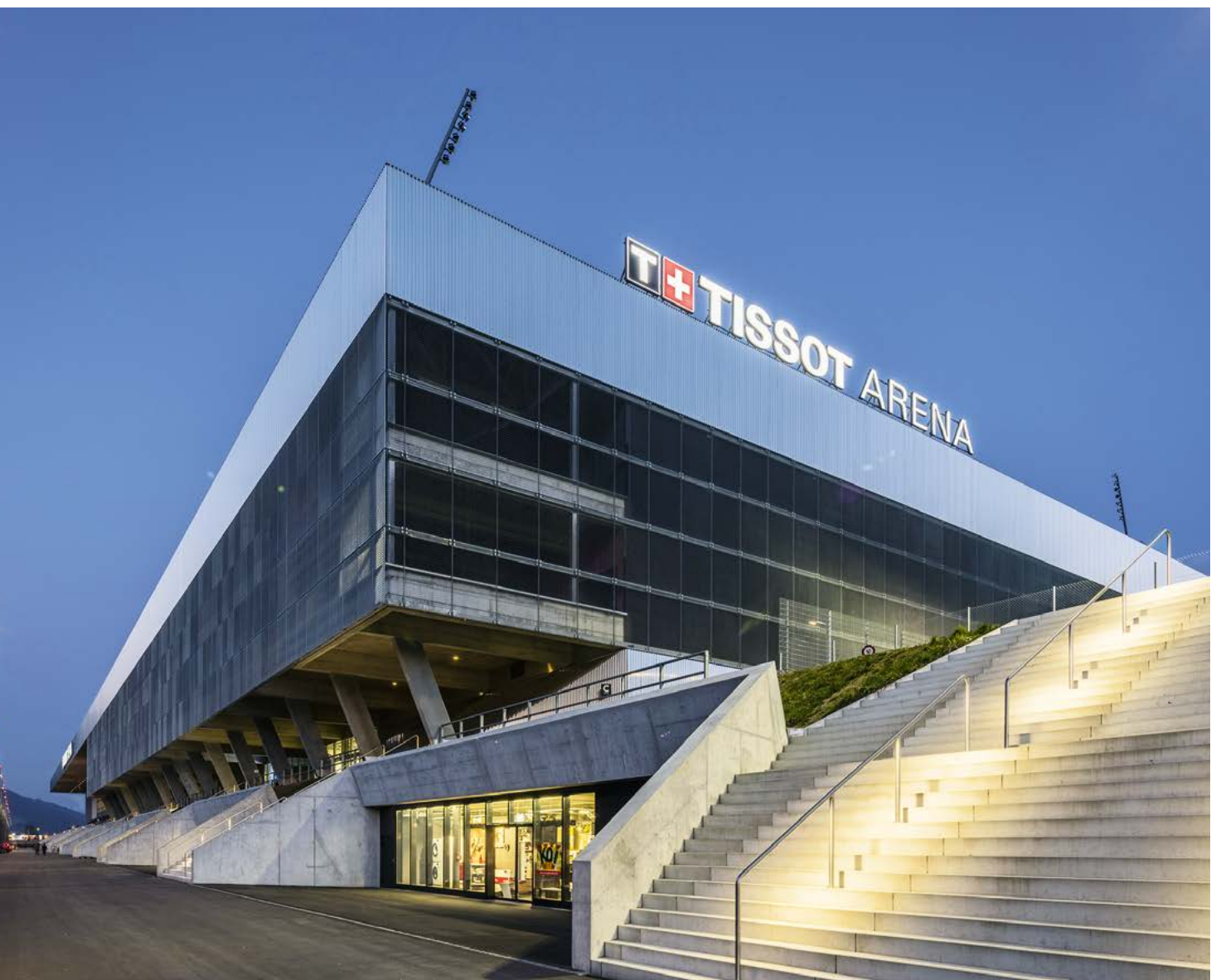
The fine-grained, water-sensitive subsoil had to be secured with sheet piling in order to reach the load-bearing substrate. Excavated





material was not removed, but was stored temporarily where the outdoor football pitches now stand and later used to construct the «landscape plateau» mentioned above.

The Tissot Arena's sophisticated building automation is also interesting. Twenty-four switching devices combine 95 ventilation and heating installations with a total of 5,500 data points. Besides current information about each individual data point, the control system also provides and visualises 900 additional outside alarms and alerts acquired by almost every device in the stadium. Every



month, over 250 electricity, energy and gas metres are automatically read.

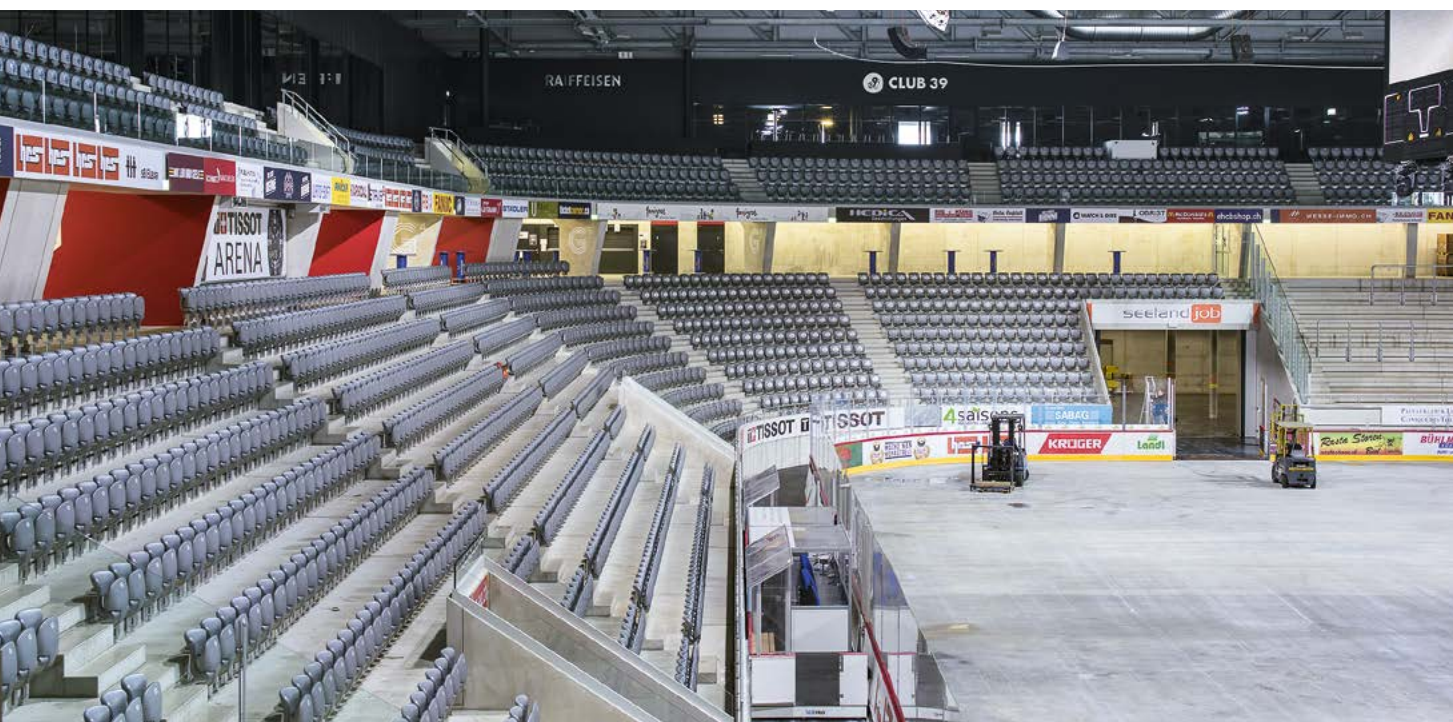
ENERGY CONCEPT / SUSTAINABILITY

Concerning sustainability, the total contractor HRS Real Estate AG acted as a true pioneer in the Tissot Arena. The whole site fulfils the Minergie standard requirements, which is a remarkable achievement in itself. Until now, no multifunctional building of this size in Switzerland has produced heating and cooling practically CO₂-neutrally.

Both the cooling needed to produce ice and the heat are produced via a heat exchanger using ground water. Waste heat from ice production can heat the entire building or be used to treat drinking water for the whole stadium via heat pumps. Two emergency gas boilers can produce additional heat in emergencies.

On the roof of the Tissot Arena, Energie Service Biel/Bienne operates the largest solar energy plant integrated into any stadium in the world. Covering a surface area of 16,500 m², the installation has been supplying over 500 households with renewable energy since summer 2015.





PROJECT DATA

Total cost: **CHF 210 million (excluding VAT)**

Gross floor area

- Stadium roof area **26,850 m²**
- Total area of the installations (incl. outdoor fields) **85,600 m²**

Stadium and dressing room buildings:

- Ice hockey: **41,450 m²**
- Football: **22,260 m²**
- Dressing room building: **1,200 m²**
- Shopping centre: **21,000 m²**

SIA volume

Total: **438,000 m³**

Stadium and dressing room

buildings: **185,000 m³**

Shopping centre (incl. parking): **253,000 m³**

Site area: **88,600 m²**

Infrastructure

- 1 multifunctional ice stadium to accommodate 6,500 spectators (4,400 seats)
- 1 covered outdoor ice rink
- 1 football stadium with natural turf to accommodate 5,100 spectators (2,900 seats)
- 4 outdoor football fields (of which 3 with artificial turf)
- 1 curling hall with 6 rinks
- 11 VIP boxes
- 3 restaurants
- 1 VIP bar in the ice stadium
- 1 skylounge in the football stadium
- 10 bars
- 397 toilets and urinals
- 48 surveillance cameras
- shopping centre
- fitness facilities

Division of the areas

Football stadium: **22,260 m²**

Ice stadium: **41,450 m²**

Covered gallery: **3,200 m²**

Retail space: **21,000 m²**

Storage: **8,681 m²**

Parking spaces

Outdoor: **400**

Indoor: **750**

Bicycle parking spaces: **1,000**