

**Zeitschrift:** IABSE reports = Rapports AIPC = IVBH Berichte  
**Band:** 71 (1994)  
  
**Artikel:** Sports hall "Kreuzbleiche" in St.Gallen, Switzerland  
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**DOI:** <https://doi.org/10.5169/seals-54146>

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## Sports Hall "Kreuzbleiche" in St. Gallen, Switzerland

Halle de Sport "Kreuzbleiche" à Saint Gall, Suisse

Sporthalle "Kreuzbleiche" in St. Gallen, Schweiz

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### 1. DESCRIPTION OF THE BUILDING

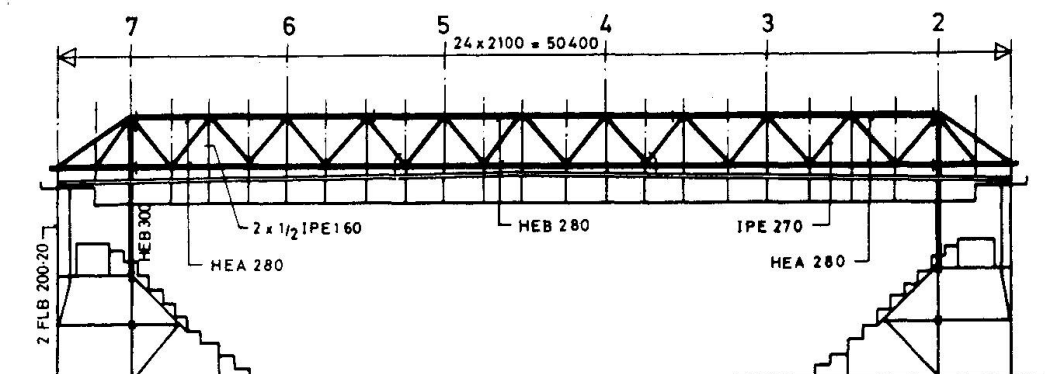
The sports hall (triple sports and apparatus gymnasium) was designed for both sport events and functions. The hall is also used by a nearby vocational school during the day and by sports clubs in the evenings and at weekends. It is complemented by a two-storey car park and outdoor parking facilities. Conveniently located for the school it is also easily accessible by public transport. As a result of the selected positioning of the main body of the building, the communal character of the 'Kreuzbleiche' as a recreation facility close to the towncentre is not impaired. The architecture of the sports hall is not only distinguished by the interior and exterior design but by the steel construction resting on the spectator entrance ramps. The colourful filigree framework, the main supports over the roof and the secondary girder system, which is visible in the hall and overhangs the whole façade, give the building its compelling architecture.

The hall is ideally suited for both sporting activities as well as all kinds of events with audiences. It has been presented the Gold Award 1989 of the International Working Group for the Construction of Sports and Leisure Facilities (IAKS).

### 2. STRUCTURAL STEELWORK

The roof is suspended from three exterior double lattice works of 42 metre span whose overhangs are anchored by tie rods. The engineers decided to use lattice work for the whole roof-construction. Thus lattice work was consistently used with all structural elements such as purlins, passages and bracings whereas the supporting structure of the stands comprises beams and rectangular hollow sections. However, since the grid of the supports of the car park does not match the one of the hall, the main columns also had to be supported by lattice work which was integrated in the stands structure. The structure is coated with a zinc dust primer and coloured finishing coats.

Cross Section





### 3. FIRE ENGINEERING AND SAFETY

It was not necessary to protect the entire steel structure as the large entrances and emergency exits as well as two exterior firestairs alongside are fully sufficient to evacuate the hall quickly. Moreover the fireload of the hall is very small.

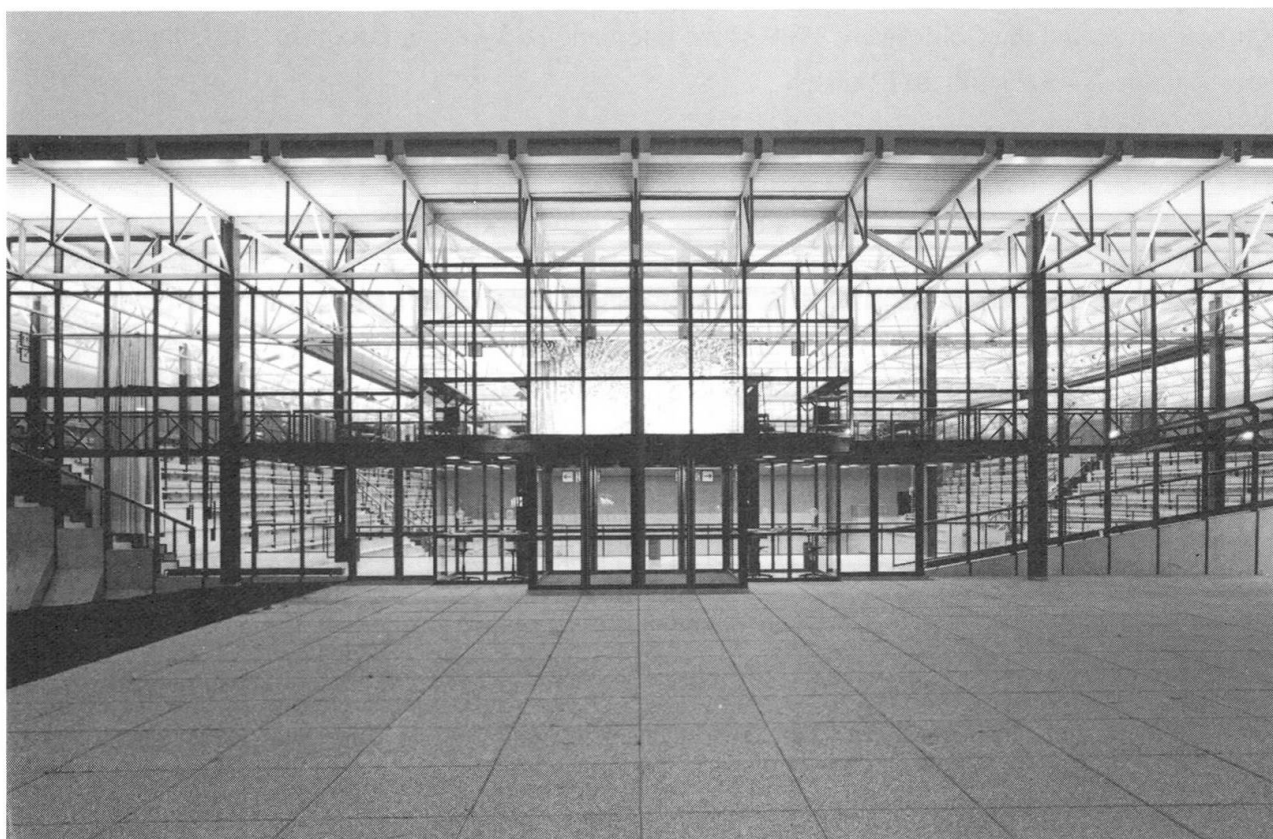
### 4. ROOFING AND INSULATION

The roof, whose slope amounts to 1%, has to carry a snow load of  $2.2 \text{ kN/m}^2$  and consists of perforated trapezoidal sheets, a thermal insulation of 80 mm in thickness and a waterproofing PVC sheet. It is also loaded with a layer of gravel which is 50 mm thick.

The exterior steel structure, overhanging purlins and the frame of the stands are thermically separated by PVC of a compressing strength of  $80 \text{ N/mm}^2$ . The glass façade in the east of the building comprises termically separated façade sections supported by exterior supporting steel structure.

### 5. TECHNICAL SPECIFICATIONS

Area without columns:	42 x 50.4 m
Area of pitch:	27 x 48.5 m, the sports hall can be divided into 3 smaller gyms by folding partitions
Overall length of main girder:	50.4 m, maximal span 42 m
Roof surface:	3410 m <sup>2</sup>
Constructional Steelwork:	370 t
Spectator capacity:	3600 for sport events 1500 for cultural activities such as concerts and theatre performances
car park:	spaces for 382 cars



View from East with Main Entrance