

# TRIMO

CASE STUDY  
**HIGH SCHOOL EXTREME  
FACADE MAKEOVER**

BUILDING TYPE **SCHOOLHOUSE AND SPORTS HALL**

INVESTOR **CITY OF VILLINGEN-SCHWENNINGEN**

ARCHITECT **BECKER ELLENBERGER ARCHITEKTEN**

PRODUCT TYPE **QBISS ONE**

LOCATION **VILLINGEN-SCHWENNINGEN, GERMANY**



## FAÇADE REFURBISHMENT OF A MEMORIAL

In 2010 the Gymnasium am Deutenberg in Villingen-Schwenningen was due to undergo a comprehensive façade refurbishment. The sports hall was constructed at the same time as the schoolhouse back in 1968, with both buildings being designed by the architectural office Günther Behnisch (Stuttgart). These buildings were extremely good and well-preserved examples of the early phase of the Behnisch architectural office and are therefore subject to a preservation order and protection. Individual structural elements, however, such as the façade of the sports hall were no longer contemporary in terms of windproofness, thermal insulation and visual appearance and their age threatened the continued use of the building.

The façade consisted of various basic elements; the closed façade was formed by metal panels and different solutions were applied for the glazed section of the façade, for the window glazing itself and for the glass front of the south side.



Before



After

## CONSTRUCTION / GRID OF THE EXISTING BUILDING

On top of the massive hall floor, which is composed of basements and prefabricated components, the hall construction consists of pillars, roofs girders and intermediate beams of steel. The steel construction has a column grid arrangement of 3.25 m (north and south façade) and 3.00 m (east and west façade). The support shafts are aligned to the grid; at the corners the outer edges of the pillars are aligned to the grid. The façade was hung circumferentially approx. 12 cm in front of the pillars, so that the supporting construction appeared to be detached behind the façade. The grid of the construction was adopted circumferentially in all façade surface areas. The façade was structured consistently around the circumference by vertical elements of nine metres in height and one metre in width. The corner elements were mounted without vertical joints and the respective corner elements were consequently wider.



## METAL FAÇADE OF THE EXISTING BUILDING

The metal façade consisted of panels, which were tailored to the grid dimensions (1.00 x 3.00 [3.25]) and were composed of an inner and outer, galvanized sheet metal. Both sheet metals were slanted around the circumference edges and joined together using rivets or screws. The insulation in the space between the sheet metals was performed by means of polystyrene. The panel width amounted to approx. 6 cm. On the outside, the arrangement of the panel edges formed a joint with a width of approx. 1 cm which portrayed the grid. On the inside, the panels were riveted to overlapping sheets without any joints. The panels were mounted consecutively interlocking each other and could not be disassembled one at a time without any trouble. The galvanized sheets were painted white on the inside and outside. The construction was neither airproof nor windproof and the insulation was already very thin. Notably, the insulation had shrunk over time inside the panels, which resulted in the formation of condensation within the panel. A refurbishment was only possible by replacing the façade.



## QBISS ONE

The façade elements of Qbiss One represented the ideal solution for the sheet-metal façade as it would preserve the grids and the optical appearance in detail of the original façade, but replaced with highly insulated and windproof elements. The “monument protection authority” consented to the proposed plan.

The joints and the visual appearance of the deep-drawn outer shells are very close to the original design. For technical reasons, deviations from the original had to be carried out with regard to the incorporation of the window glazing. Subject to the approval of the monument protection authority, Qbiss One enabled the replacement of the original facade.



- To conclude, it can be said that the issuance of an approval according to monumental protection laws for the refurbishment was considerably facilitated by the product Qbiss One. By coincidence, we discovered the Qbiss One system at just the right time and we are very satisfied with the result.”

Karlheinz Ellenberger,

Becker Ellenberger Architekten

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