

Reconstruction of the New Station Square in Berne, Switzerland

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Summary

The station square in Berne with its underground passage was built in 1972, it included major city roads, various tramways and bus lines and many local businesses. Apart from insufficient structural safety and durability, the appearance of this gate to Berne was inappropriate for the capital of Switzerland. The reconstruction executed in 2007 covers an area of 40'000 m². In the main element, which is called the Christoffel-Passage, parts of concrete slabs and columns were dismantled, new concrete members added and existing ones strengthened. The ceiling was strengthened against punching shear with the newly developed strengthening method of post-installed inclined bonded bars. Furthermore, the local transportation stops, the underground shopping centre and the flow of pedestrians were optimized. The project New Station Square not only rehabilitates the existing structures, but creates an appealing entrance next to the Old City of Berne (Unesco World Heritage).

Keywords: reconstruction in urbanised area, strengthening, repair, rehabilitation, post-installed punching shear reinforcement, inclined bonded bars, construction inspection

1. Introduction

The station square of Berne is situated in the centre of the town next to the Old City (Fig. 1). The project of its reorganization and reconstruction covers an area of 40'000 m² including main elements of individual and local public transportation as well as many local businesses (Fig. 2). The traversing road across the square is the main connection for the town parts on either side of the dividing river Aare with 26'000 vehicles per day. The public transportation is organised into fifteen radiating local routes with the station square as a central element. Additionally, about 150'000 pedestrians cross the square each day. During the main construction period, the square was closed to private and public transportation except for pedestrians, cyclists and emergency vehicles crossing the site via a narrow passageway.

The requirements for a new station square evolved over the 35 years of its existence. Apart from reasons of structural safety and durability, both organization and appearance had to be enhanced. The opportunity was taken to create a new public square as a gate to the city with more shopping space, optimized local public transportation and the rehabilitation of all structures at the same time. The higher costs were approved by a public vote. The main issue in the preceding public discussion, however, was not the actual reconstruction of structures, but the design of the glass baldachin as the most visible element leading into the Old City of Berne (view in Fig. 2). The restriction of car traffic within the project perimeter during construction launched a public discussion about the possibility of permanently closing the road crossing the station square to individual motor car traffic. During construction, the deviation via adjacent roads was well accepted; however, so far no solution for a permanent deviation has been found.