

## Ceiling reinforcement restaurant TIBITS in Bern CH

Reinforcement of insufficient upper reinforcement as a result of alterations

### Project

The two-story restaurant Tibits is to be built at the main station in Bern. As a result of this, it was decided to implement a new internal lift and stair access to connect the first and second floor. Due to this work, the existing concrete structure was examined concerning its future structural suitability.

It can be seen from the structural history of the railway station that the cantilever balcony, was originally a larger terrace slab with additional columns.

During reconstruction at the turn of the millennium, the roadside support of this terrace was removed, resulting in today's cantilevered balcony. The result was an insufficiently dimensioned upper reinforcement in the inner field.



### Challenge

Already during the earlier renovations, the insufficiently dimensioned upper reinforcement in the inner field was reinforced with classic bonded CFRP plates. From the inventory plans, it was possible to determine that the existing upper reinforcement, including adhesive reinforcement inside the building, no longer meets today's requirements.

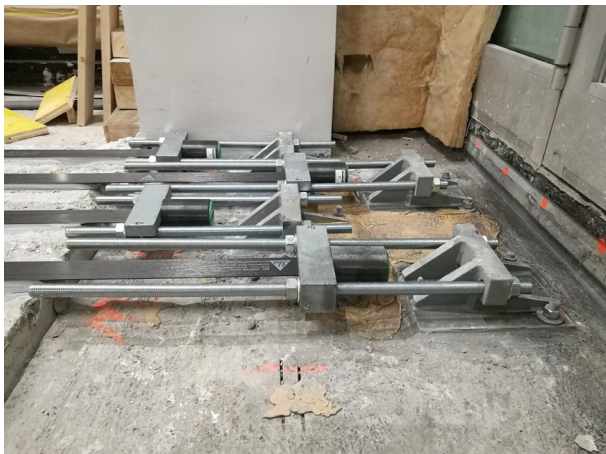
The complex reconstruction required prestressed plates to reinforce the ceiling above the first floor. The anchorages must be as flat as possible to find space in the underlying floor. In the area of movable anchors on the facade, there was also locally a massive existing reinforcement, which was not allowed to be damaged.

### Solution

To replace the upper insufficient reinforcement layer, the ceiling was strengthened with 35 prestressed StressHead CarboStress tensioning systems. In the area of the columns were cut through steel reinforcements found, which were also newly replaced with transverse, prestressed StressHead systems.

Thanks to the low installation height of the StressHead system, this all could be realised in the underlying floor

A new anchoring system with shear bars anchors the prestressing forces of up to 220 kN per system into the concrete with minimal drilling and milling work and without getting in conflict with the existing reinforcement.



### Facts

Object:	Restaurant TIBITS, Bern
Construction time:	September 2018
Strengthening system:	StressHead-CarboStress
Number of systems:	35

### Involved parties

Owner:	SBB AG Immobilien
Project manager:	Rothpletz Lienhard AG
Contractor:	Sika Bau AG, Kirchberg

### STRESSHEAD AG

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