

Seismic Performance of the Bridges in the Zurich cantonal road network



On behalf of the Zurich Office of Civil Engineering, EBP examines several hundred bridges in the federal motorway network to determine their seismic performance.

The Canton of Zurich owns and operates around 700 bridges in the cantonal road network. These bridges, as well as various third party owned (e.g. by the SBB, municipalities, private sector owners) overpasses and underpasses crossing cantonal roads, were recently evaluated to determine their seismic performance. Half of the structures were evaluated by EBP.

Using a triage approach, geometric and structural criteria were first applied to determine which structures could be considered to be in the non-critical bracket in terms of seismic performance, without subjecting them to an analytical assessment. The second stage involves performing analytical assessments of the remaining structures.

While the check-list procedure used to examine the structures was largely based on motorway bridge guidelines developed by the Swiss Federal Roads Office (FEDRO), the procedure was easily adapted to the task in hand.

In the second phase of the project, numerical analyses were used to examine an entire class of structures known as soil integrated stone arches. These analyses revealed regularities that permit an approximate quantification of the seismic performance of such structures based on purely geometric criteria.

Client

Canton of Zurich Building Department,
Office of Civil Engineering

Facts

Period	2011 - 2013
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Project Country	Switzerland
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