



CTU in Prague
Faculty of Civil Engineering
Department of Building Structures

Restoration of vaults

Nerudova 15, Prague

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Description of the object

- ▶ view from the street
- ▶ traditional building technologies :
 - ▶ basement and ground floor of the vaults (brick)
 - ▶ other floors are wooden girder floors



Description of defects

- ▶ active cracks in the arches
- ▶ cracks in the facade
- ▶ infestation of truss elements by wood decaying fungi



Solved problems

- ▶ temporary stabilization of the floor
- ▶ injection of load-bearing masonry with cement grout and making of tear-off tests
- ▶ reinforcement of the building with prestressing steel draw rods
- ▶ reinforcement of vaults on the reverse side
- ▶ reconstruction of wooden truss elements
- ▶ injection of bearing soil



Analysis of defects

- ▶ unstable foundation subsoil (site Jánský vršek)
- ▶ insufficient structure reinforcement in the past



Restoration of defects

- ▶ temporary stabilization of the floor



Restoration of defects

- ▶ injection of load-bearing masonry with cement grout



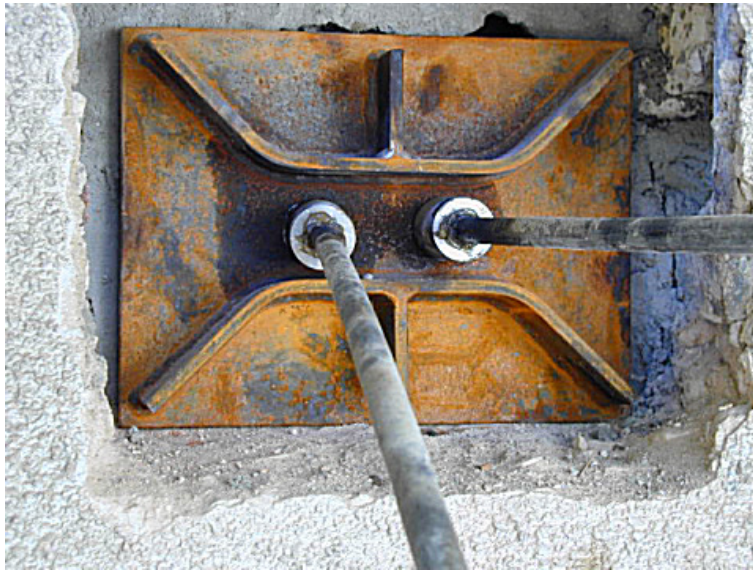
Restoration of defects

► tear-off tests



Restoration of defects

- ▶ temporary draw rods



Restoration of defects

- ▶ reinforcement of the building with prestressing steel draw rods



Restoration of defects

- ▶ reinforcing ribs including prestressing strands



Restoration of defects

- ▶ reinforcing ribs concreting



Restoration of defects

- ▶ prestressing of reinforcing rods



Restoration of defects

- ▶ boundary rib - the overlap of reinforcement



Restoration of defects

- ▶ reinforcement of vault by shell



Restoration of defects

- ▶ shotcreting concrete



Restoration of defects

- ▶ carpentry modifications



Restoration of defects

- ▶ injection of bearing soil

