



CTU in Prague
Faculty of Civil Engineering
Department of Building Structures

Restoration of masonry

Hotel Central – Hybernská street, Praha 1

Presentation was created with the kind support of Ministry of Education Grant FRVŠ
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Description of the object

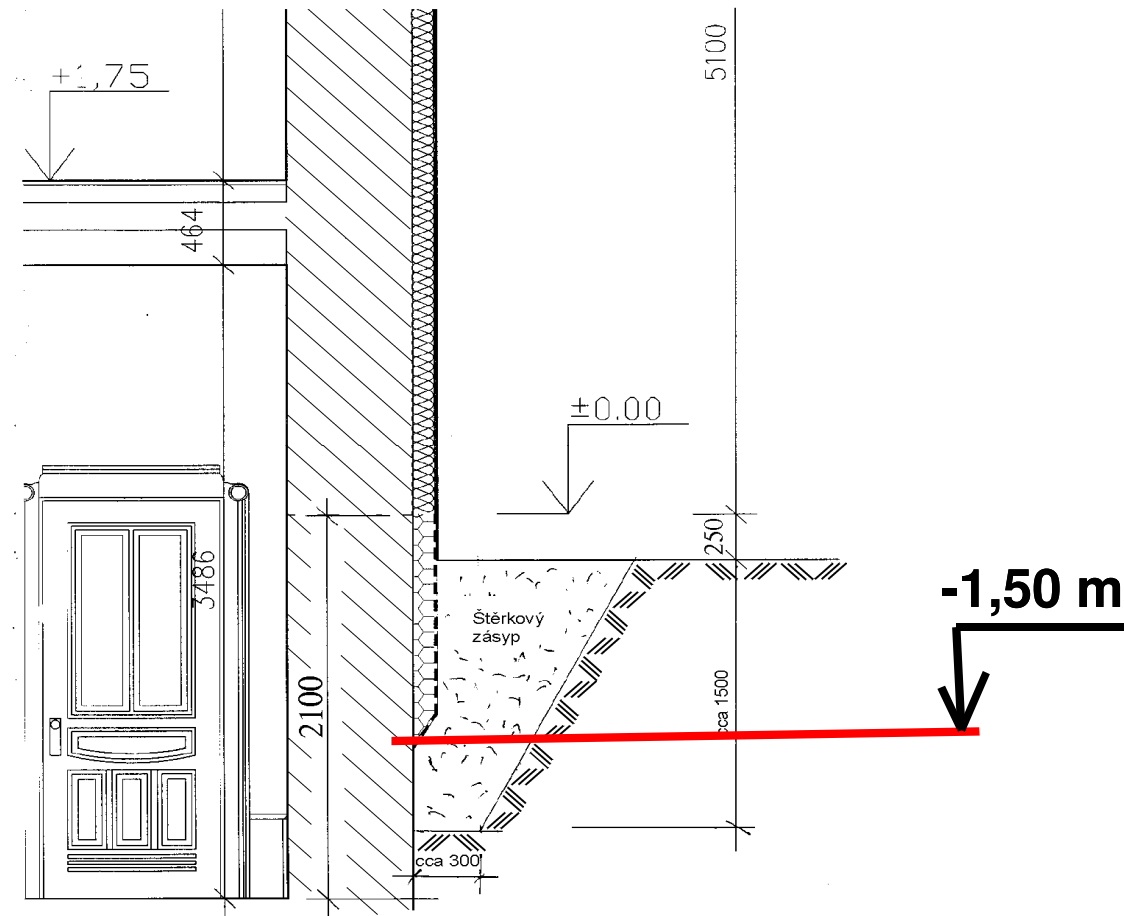
- ▶ Secession building from 1901
 - ▶ Listed building
- ▶ 2 basements
 - ▶ conference hall (-2.1 m)
 - ▶ fitness center, archives, stores (-6.0 m)
- ▶ vertical load-bearing walls of marl and brick
- ▶ subsoil
 - ▶ embankment 4 m
 - ▶ sandy gravels and granular sands
 - ▶ groundwater level at a depth of 10-12 m

History of the object

- ▶ Re – re – rekonstruction
 - ▶ 2002-2004 complex reconstruction of the object
 - ▶ unsolved waterproofing resulted in the occurrence of defects
 - ▶ 2004 installation contactless EO equipment
 - ▶ 2005 realization of vertical waterproofing system to the level of about 1.5 m below ground
 - ▶ marble socel completed with depth core bore holes (Knapen channels)

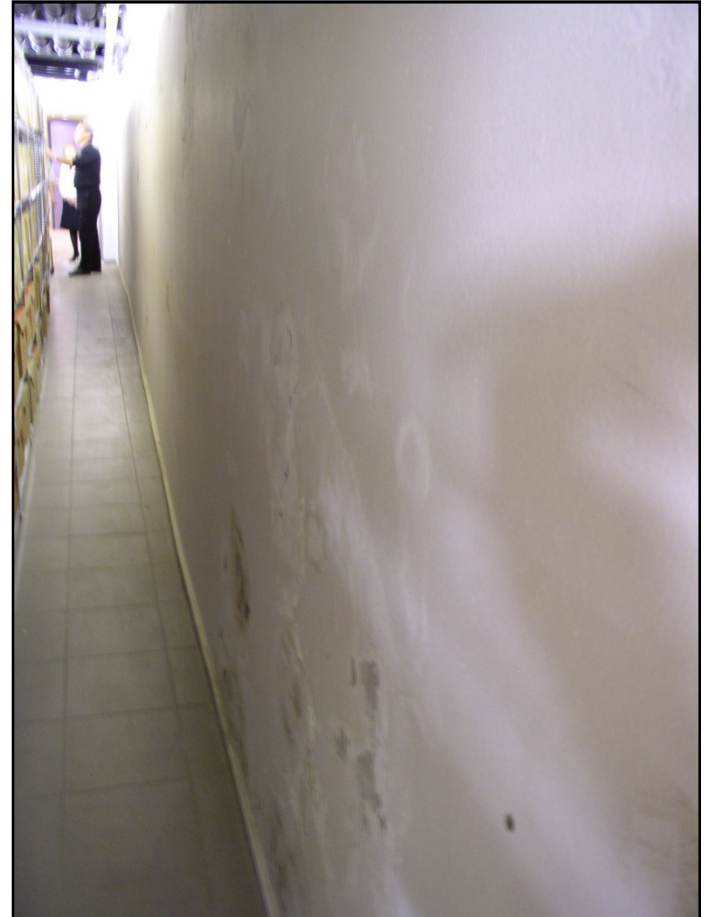
History of the object

- Realization of vertical waterproofing system



Description of defects

► Defects



Description of defects

- ▶ Socel facing by marble-slabs



- ▶ Depth core bore holes (Knapen channels)

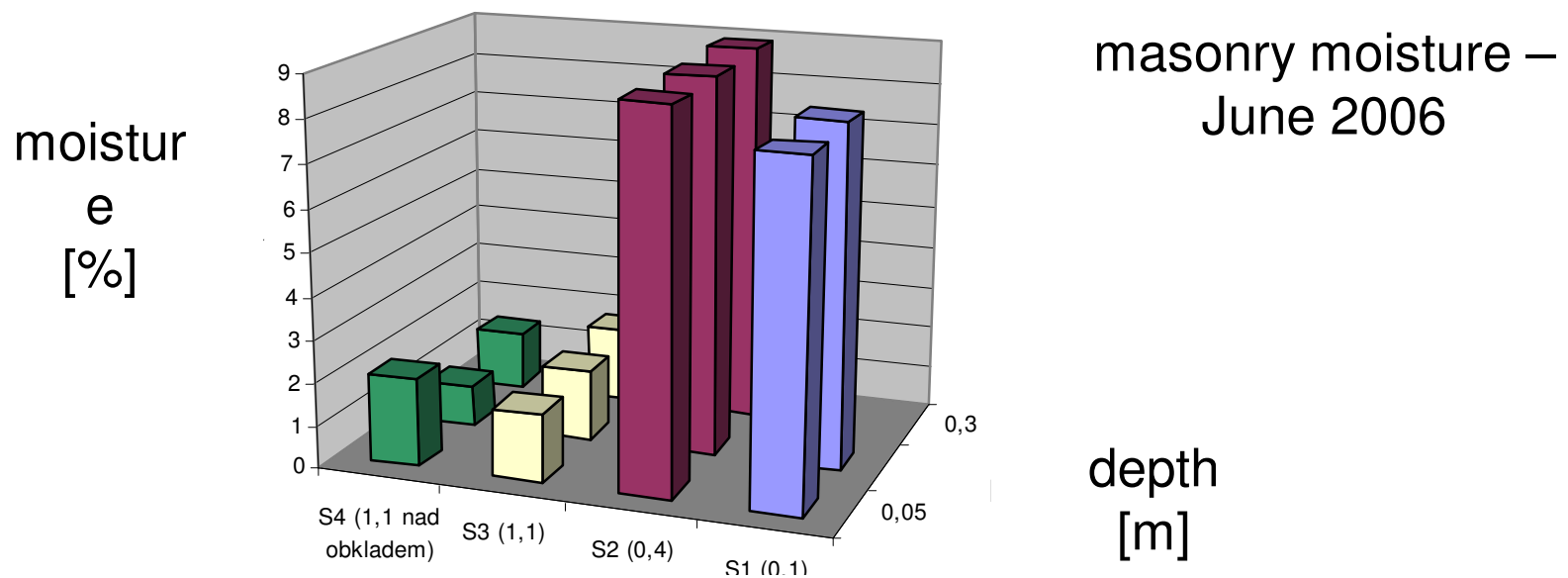
Description of defects

► Defects



Analysis of defects

- ▶ Masonry survey - determination of:
 - ▶ masonry moisture
 - ▶ chemical status of masonry
 - ▶ parameters of the internal environment
 - ▶ biological infestation of the historic wooden facing



Analysis of defects

- ▶ New implemented waterproofing system does not reach the floor level of first basement (water is accumulated in gravel layer)
- ▶ Complete absence of vertical waterproofing in the 2nd basement
- ▶ Dysfunctional depth core bore holes (princip of Knapen channels)

Restoration of defects

- ▶ realized solutions
 - ▶ vertical insulation
 - ▶ grouting
 - ▶ drainage
- ▶ effects of second reconstruction
 - ▶ difficult to identify an additional defects
 - ▶ technically and economically demanding solutions
 - ▶ difficult implementation
 - ▶ not always 100% guarantee of effective measures

