



CTU in Prague
Faculty of Civil Engineering
Department of Building Structures

Restoration of truss

Nostitz Palace in Prague

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Description of the object, defects



View on the facade of the palace

Truss



- ▶ rotten beams gridiron
- ▶ wall plate infected by wood decaying fungi (Coriolus)

Mycological survey

- ▶ Determination of the extent and seriousness of infestation
 - ▶ destructive methods



Mycological survey

- ▶ The degree of damage to elements
 - ▶ **A** – completely without damaging the wood
 - ▶ **B** – surface or shallow damaged timber
 - ▶ **C** – deeply damaged wood
 - ▶ **C!** – focus on in-depth damage element
 - ▶ **D** – more than 1 / 3 of cross-sectional area of wood damaged

- ▶ **B-C, C-D** – reflect condition between the degree (state variations in the length of the element under consideration)



Analisis of defects

- ▶ Causes of defects of timber structures
 - ▶ Wood-decaying fungi
 - ▶ most important wood-destroying element
 - ▶ presence of moisture at a minimum 30 - 40% (dry rot only 19%)
 - ▶ Wood-destroying insects
 - ▶ larvae are most dangerous
 - ▶ long development stage
- ▶ Infestation of the truss by wood-destroying fungi and insects due to insufficient maintenance and leaking into the attic

Restoration of defects

- ▶ Requirements of preservation of monuments
 - ▶ maintaining the authenticity of repaired structure



Restoration of defects

- ▶ Requirements of preservation of monuments
 - ▶ maintaining the authenticity of repaired structure



Restoration of defects

- ▶ Protection from severe weather during restoration - Nostitz Palace (Prague)
 - ▶ roofing for objects up to 10 m span



Restoration of defects

- ▶ Protection from severe weather during restoration - Nostitz Palace (Prague)
 - ▶ system roof panels mounted on scaffolding support (up to 24m)



Restoration of defects

- ▶ Elevation of the truss for repairs



- ▶ repair of corner of the truss



Restoration of defects

- ▶ Cross joists for five-sided purlins



- ▶ Edge-halved scarf

Restoration of defects

- ▶ use of quality wood
- ▶ prevent moisture



- ▶ wood treatment by biocidal chemical means
- ▶ separation of wooden elements from the wall

