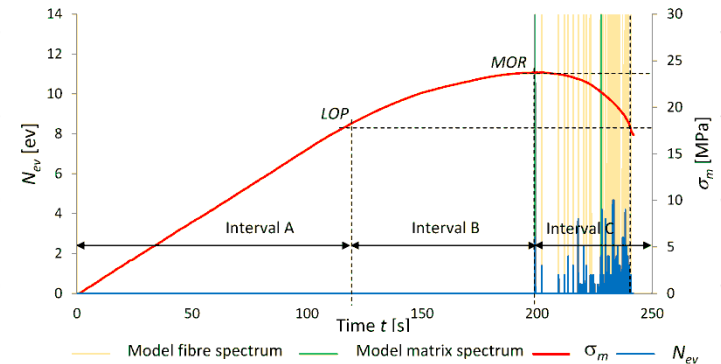
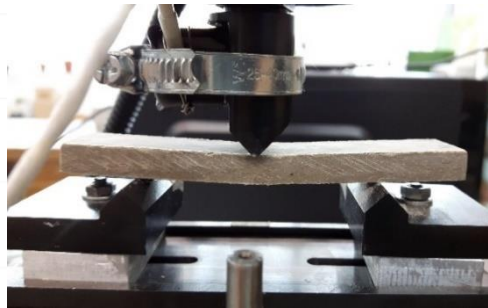


# Research topics

Research on modern composite cladding materials, especially fiber-cement boards

## Description

- testing using non-destructive methods (acoustic emission method, ultrasonic method). Artificial neural networks are used to interpret the results.



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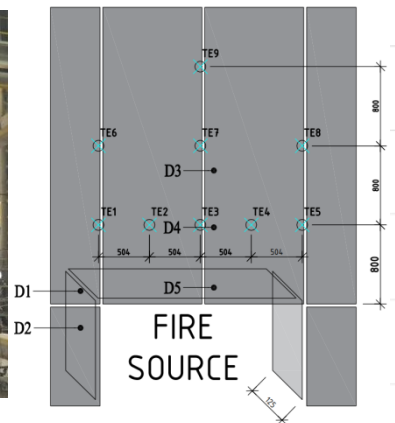
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# Research topics

Investigations of ventilated façade claddings - effect of fire  
(large-scale studies)

## Description

- evaluation by non-destructive methods of the destructive impact of fire on the structure of the fiber-cement boards in a large-scale study. Research conducted in cooperation with another research center.



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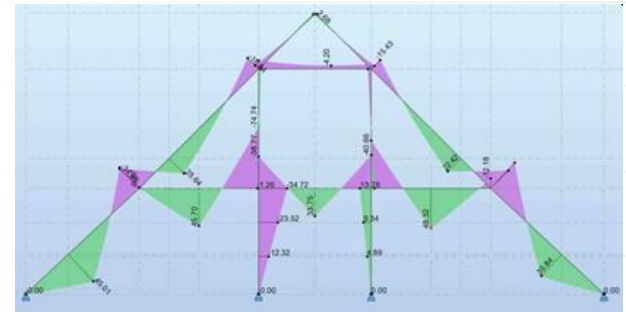
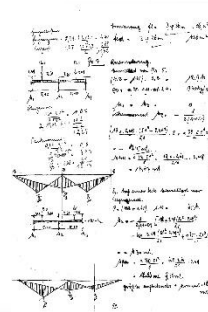
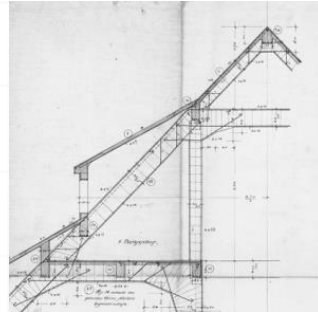
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# Research topics

Historical, structural and material analysis in diagnostics and revitalization of urban and industrial buildings, including historic ones

## Description

- research based on the results of several real cases of diagnostic processes completed for different heritage industrial and public buildings from the turn of XIX and XX century
- elements of diagnostic: archival documentation review (drawings and calculations), architectural inventory, material assessment, structural modeling and calculations FEM, revitalization/refurbishment methods



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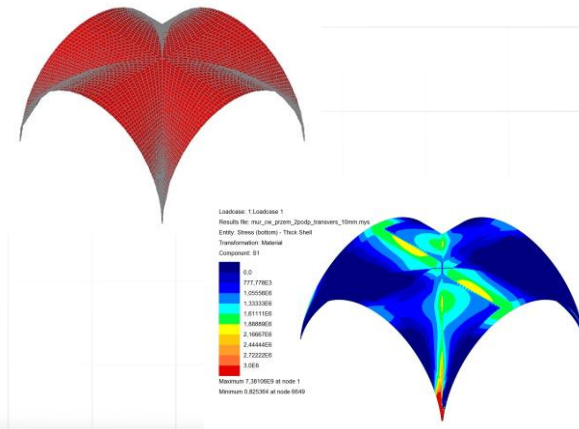
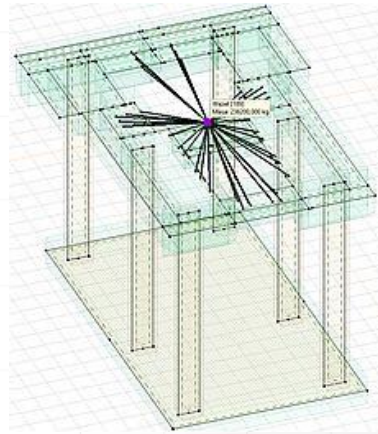
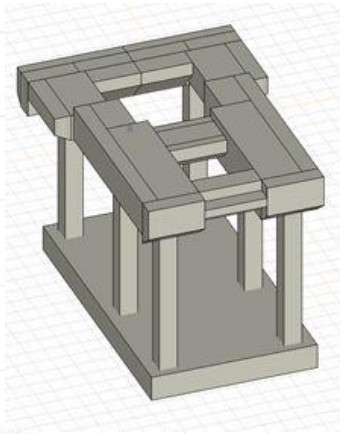
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# Research topics

Modeling and numerical analysis of building and engineering structures using finite element method, including complex masonry structures of historic buildings

## Description

- research based on the results of modeling and analysis of several real cases of modeling of different engineering structures as well as industrial buildings including historical ones



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# Research topics

Different energy efficiency aspects in low energy, near Zero Energy and retrofitted buildings

## Description

- Energy calculations and simulations approach on the influence of different parameters on building energy performance
- Improving the energy efficiency of retrofitted buildings



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# Research topics

## NDT – research offer

- modern non-destructive testing of building structures and materials - modern methods of assessing the corrosion risk of concrete structures

### Rainbow Test



### Rapid Chloride Test



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# Research topics

## NDT – research offer

- non-destructive testing of building structures and materials
- modern testing methods of identifying and locating internal defects in existing concrete structures



Ground Penetrating Radar



Impact-Echo

## Ultrasonic Tomographer



Impulse-Response



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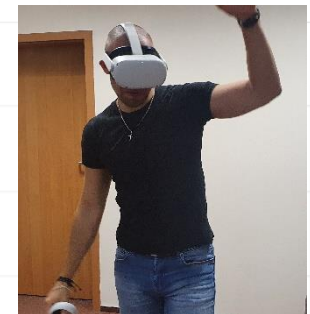
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# Research topics

## Occupational Health and Safety

### Description

- modeling of the development of accident situations in construction industry;
- analysis of the causes of occupational accidents at work in construction;
- development a safe and fully reliable training environment using BIM technology, including virtual reality and 3D simulation;
- use of simulation technology in virtual reality (VR) in the training of construction workers.



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