2.21 Fire engineering in Slovakia

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Fire Engineering in Slovakia

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Fire resistance of building structures in the slovak republic uder eurocodes – official statement - Ministry of Interior of the SR – MoI

- Fire resistance of building structures in accordance with § 8 promulgation MoI SR no. 94/2004 statute is determined:
  - on the basis of **initial type testing** (act no. 90/1998 statute about building products as amended)
  - **by calculation** according to technical standards (in cases where it is possible to express all the relevant factors by calculation , for example under the so-called „Eurocodes for the design of constructions to the effects of fire “)
  - **by test and calculation** (in those cases where the examination is not possible to express and show all the relevant factors affecting the fire resistance test of building construction

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Focus on activity

- The offered services of fire engineering include computational “considering and demonstration of fire resistance of construction products exposed to fire effects”, which are part of European standards – “eurocodes” EN 199x-1-2.
- In the first place!!!

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Focus on activity

1. **The solution of the fire protection requirements by the development of new and existed construction products and calculation of fire resistance is designed for:**

- **Construction products made of concrete, steel, concrete-steel, sandwich or brick:**
- Internal supporting or non-supporting beams, walls, pillars, etc.
- External claddings,
- Ceilings, roofs,
- Residential and non-residential c.ontainers, boxes, etc

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Focus on activity

2. **Determination of fire models and physical parameters**

which define conditions in fire section – shape, dimensions and boundary conditions (incl. wall and construction holes properties), different velocity of fire expansion (glass breaking, simulation of forced ventilation) – the result is temperature curve of fire expansion incl. heat transmission curve.

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Focus on activity

3. **Solution design of fire protection in construction project documentation**

4. **Fire modelling by using of Fire Dynamics Simulator:**

- virtual simulation of liquid spreading in fire

Calculation of fire resistance is modelled for temperature/time curves:

- **nominal:** conventional curves received for classification or verification of fire resistance
- **parametric:** determined on basis of fire models and physical parameters defining conditions in fire section

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Concrete realized projects

- estimation of fire resistance (REW 30, REI 30) of the building construction by the calculation according to Eurocodes intended for OFFICE BUILDING PRINC", Bratislava II, town section Trnávka, parc. N. 16888/143, 251"
  for **Ing. arch. Aleš Hradecký, PhD.**
- estimation of fire resistance (REW 90, REI 90) of the building construction by the calculation according to Eurocodes intended for external steel construction production hall and storehouse of foam rubber - Veľké Túrovce site, district of ŠAHY
  for **MOLITAS,** Ltd.
- estimation of fire resistance (R30) of the building construction by the calculation according to Eurocodes intended for load-bearing steel truss roof construction
- DSS Gaudeamus facility (campus) - Swimming Pool Addition, Mokrohájska 3, Bratislava
  for **PYROS - INGL,** Ltd**. (J&T REAL ESTATE, Inc.)**
- estimation of equivalent fire time period duration of family house on privateness distanted 3 km of Korytárky village centre. P2 – fire in garage, P3 – fire in family house.
  for **Ministry of Interiory SR, Zvolen**
- estimation of fire resistance (R 60D1) of the building construction by the calculation according to Eurocodes intended for „load-bearing steel truss construction with Sprinkler, for objeckt exhibition studio of furniture GALAN II"
  for **PYROS - INGL,** Ltd
- estimation of fire resistance (REI 120D1) of the building construction by the calculation according to Eurocodes intended for „load – bearing reinforced concrete hollow panels Oberndorfer VSD roof construction with Sprinkler" for object Soravia Centrum IV, V.
  for **PYROS - INGL,** Ltd
- **theoretical – experimental** estimation of the roof construction fire grading (REI 45/D2) of the Hotela Tenis superstructure in Zvolen, Neresnicka cesta 13, 3NP, part B and part A
  for **ForDom** Ltd.
- **theoretical – experimental** estimation of the constructional system fire grading (REW 60) for the arc halls HUPRO
  for HUPRO, Ltd.

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Concrete realized projects

- **theoretical – experimental** estimation of the peripheral wall fire grading of the one-storey prefabricated buildings that are covered with roofs from truss produced and delivered by the company **VO DOMY,** Ltd.
  for VO DOMY Ltd.
- **theoretical – experimental** estimation of the constructional system fire grading (REW 30) for arc hall HUPRO
  for HUPRO, Ltd.
- **theoretical – experimental** estimation of the supporting external wall fire resistance of the constructional system Φ- HA STANDARD
  for **Andante,** Ltd.
- **theoretical – experimental** estimation of the external wall fire resistance of the building system MGU
  for Niko invest, Ltd.
- **the calculation of the** single-direction non-stationary heat conduction of the sandwich walls by the finite elements methods
  for Technical University in Zvolen, Faculty of Wood Sciences and Technology

For PAVUS, Inc. - Authorized body AO 216, Notify body 1391, www.pavus.cz

- The estimation **of** the sandwich walls external casing fire resistance– steely hall Elkamet , **address: Myslinka District Plzeň-Sever**
- The estimation **of the f**ire resistance of the concrete overhead panelboard and spherical modular wall of the prefabricated substation, for **Sloupárna Majdalena**
- The estimation **of** the sandwich container **f**ire resistance - Spolchemie NMEP II
  for **Spolchemie Ústí nad Labem**
- The estimation **of the f**ire grading – nonsupporting partition wall from breeze-blocks LIAPOR M 115 / 4 MPa / 1300 kg / m3 with double-faced lime – cement plaster of the 12 mm thickness

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Thank you for your attention!!!

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