Analysis of a tragic fire case in panel building of Miskolc

Dr. Mónika HAJPÁL
MC, WG2
Non-profit Ltd. for Quality Control and Innovation in Building,
Fire Protection Division
Panel buildings in Hungary

c. 2-3 Million people live in houses built by industrialized technology in the 60-70ties years

**Previous state:**
- built in 1968, basement + ground floor + 9 floors
- 3 flats per floor in a staircase, 12 staircases (6 dilatation sections)
- Budapest I. factory for prefabricated concrete building:
  - soviet technology (remaked), span: 3,20 m
  - closed-cell structure system, $u = 2,13 \text{ W/m}^2\text{K}$
Panel buildings in Hungary

**After rehabilitation:**
- insulation
  - façade, loggia floor, roof, basement floor
- changing of windows and doors (openings, apertures)
  - windows, lightweight walls, staircase entrance doors
- calculated energy saving, $u = 0.85 \text{ W/m}^2\text{K}$
- modernization of heating (changing of radiators, individual measurements)
Fire case at a panel buildings in Miskolc

- basement + ground floor + 10 floors building
- panel rehabilitation in 2007
- fire at 6. floor flat, in kitchen
- fire spread over the upper flat, some flats and the staircase filled with smoke
- 1 woman with 2 kids dead, 12 smoke poisoning
- bad design of mechanical shafts ⇒ significant smoke spread
- not qualified facade insulation system, inadequate construction ⇒ fast fire spread, flaming droplets
Fire case at a panel buildings in Miskolc

ÉMI - Non-profit Company for Quality Control and Innovation in Building
Fire case at a panel buildings in Miskolc

- using of polystyrene insulation (not the qualified insulation system)
- inadequate sticking and fixation of polystyrene sheets
- mineral wool insulation is missing at window reveals
- no mineral wool facade fire propagation barriers
Fire propagation barriers

- using mineral wool insulation at window reveals and as fire propagation barriers
Fire propagation test for building facades (MSZ 14800-6:2009)
Thank you for your attention!

Dr. Mónika HAJPÁL

hajpal@gmail.com

ÉMI - Non-profit Company for Quality Control and Innovation in Building