

Analysis of a tragic fire case in panel building of Miskolc



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Panel buildings in Hungary

ca. 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

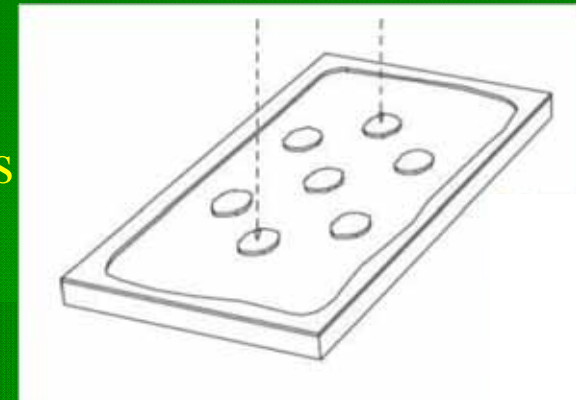
- 15. August 2009, Miskolc, Középszer u. 20.
- basement + ground floor + 10 floors building
- panel rehabilitation in 2007
- fire at 6. floor flat, in kitchen
- fire spread over the upper flat, some flats and the staircase filled with smoke
- 1 woman with 2 kids dead, 12 smoke poisoning
- bad design of mechanical shafts \Rightarrow significant smoke spread
- not qualified facade insulation system, inadequate construction \Rightarrow fast fire spread, flaming droplets

Fire case at a panel buildings in Miskolc



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

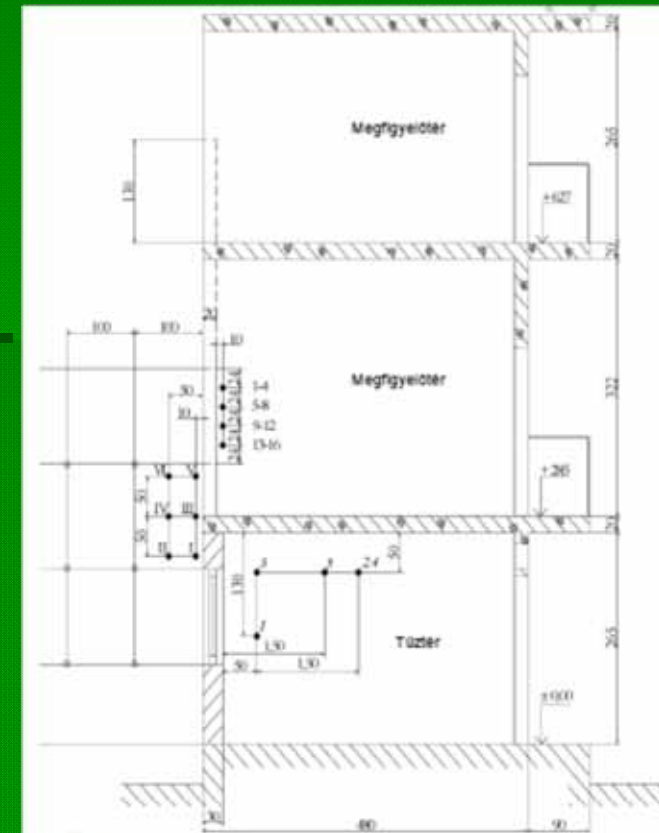


Fire propagation barriers

- 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!

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