High-rise Firefighting

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High-rise firefighting – What’s the problem?

- The height difference?
- Firefighting equipment that needs to be transported on certain floor level?
- Different fire behavior?
Main problem in Croatia

- Fire prevention:
  - Dry hydrant;
  - Fire elevator;
  - Fire stairs;
Reality…

☐ **Dry hydrant:**
  - Out of order;
    - Valves opened;
    - Missing spindles on valves;
    - Couplings covered with trash;

☐ **Fire stairs?**
  - Equal to storage room;
    - Evacuation?;
Reality…

Delay in fire extinguishment???

- It is extended!!!
Reality…

☐ Aerial ladder/platform working area?

- High-rise firefighting exercise;
- Rijeka, Ante Kovačića 20 street:
  - Something to think about…
  - Gap between concrete and soil caused by soil settlement through years in front of the main entrance in to the building;
  - Concrete collapses under the aerial ladder stabilizer;
  - Is this isolated case?
  - Do you have the same situation?
High-rise buildings - Rijeka
High-rise buildings - Rijeka
Access roads
Working arias
Positive influence

- High-rise firefighting training exercise;
- Improvement can be seen;
- Depending on occupants representatives;
  - On some buildings approach is changing;
  - Positively look toward fire prevention;
City of Rijeka, high-rise buildings

- About 140 high-rise buildings;
- 30 floors max;
- The biggest fire on June 9 1987 in Jadranska street;
  - 21st floor;
  - Two apartments burned out;
  - 13 apartments damaged;
High-rise firefighting

- Main problem:
  - To reach the floor involved in fire;
  - When we have reached the floor, tactical procedure will be the same as any other indoor tactical procedure?
High-rise fire development

- Depending on:
  - Amount and type of fuel;
    - Apartments;
    - Offices;
  - Amount of air;
    - A significant impact of natural air flow;
Air flow influence!!!

- Natural air flow that is normally present on the high-rise building is reinforced by the heat;
- Wind;
  - Wind speed and direction are important factors that needs to be taken into consideration;
  - Wind driven fire;
Vertical spreading of fire on high-rise building

- Characteristically for vertical fire spreading is possibility for fire to skip one floor and spread into another;
High-rise firefighting tactics

- SOP;

- Tactical procedures:
  - Fires up to level of 10th floor;
  - Fires above level of 10th floor;
Three sectors of work

- Water supply;
- Hose line securing;
- Extinguishing the fire;

  - Water supply:
    - Using dry hydrant;
    - Using fire brigade’s hose line;

9/30/2017 High-rise Firefighting

IFIW – Poland 2014
Laying the hose line

- Water supply hose: 75mm;
- Through the stairs shaft;
- Required hose number:
  - In theory: 1 floor = 3m;

5th Fl.
4th Fl.
3rd Fl.
2nd Fl.
1st Fl.

WELL - HOLE STRET
Fire on fifth floor

TOTAL = 3 LENGTHS
Laying the hose line

- Through the stairs;
Laying the hose line

☐ Next to the facade;
Laying the hose line

- Combined;
Rule

- Divider on base of the building;
- Divider one or two floor below the one involved in fire;
Possible problems

- Couplings disconnection or hose burst;
  - Injuries;
  - Damage;
  - Time loss;
How to avoid it?

- Each coupling connection has to be supported;

Suction coupling
Possible problems

- Water flow?;
Dry hydrant check

- At the same time with vertical hose line preparing;
  - Fire engine connection;
  - Valves;
  - Couplings;
High-Rise Training Exercise

9/30/2017

High-rise Firefighting

IFIW – Poland 2014
High pressure in high-rise firefighting

- Quick laying of the hose line;
  - Easy to lift up;
  - Less demanding for securing the hose line;
- Very good water dispersion;
  - Very good heat absorption;
  - Very good cooling effect;
- Less damage;
- Sufficient flow???
CAFS in high-rise firefighting

- Easier hose line;
- Lower pressure;
- Less damage;
- Protection of unburned surfaces;
- Gas cooling?;
- Use in combination with water;
Some of the ideas…
Low-rise Firefighting
Thank you for your attention!