Mobile Sprinkler Experiences & project description

Program

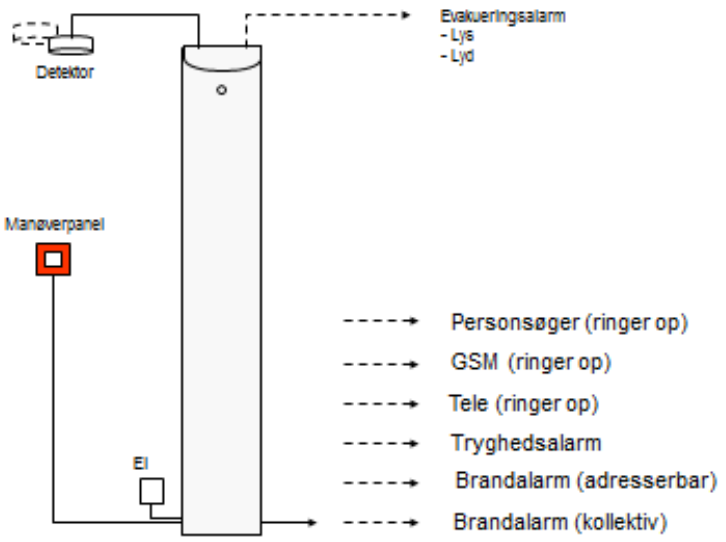
- What is a mobile sprinkler?
  - How is it built?
  - Why use this technology?
  - Who is it intended for?
- Reasons for Copenhagen to use this technology
- Case descriptions
  - Case description of events with mobile sprinklers
  - Case description of a fire in a nursing home
- Experiences from mobile sprinklers
  - In connection with project implementation
- Challenges and Solutions
- Next Project / Phase 2

How is a mobile sprinkler built?

A water spray system which can be installed in all homes.

The system consists of:

- Multi Criteria Detector
- 130 litre water tank
- Nozzle
- Control Panel
- GSM module
- Pump



Q-FOG
MOBILE FIRE CONTROL

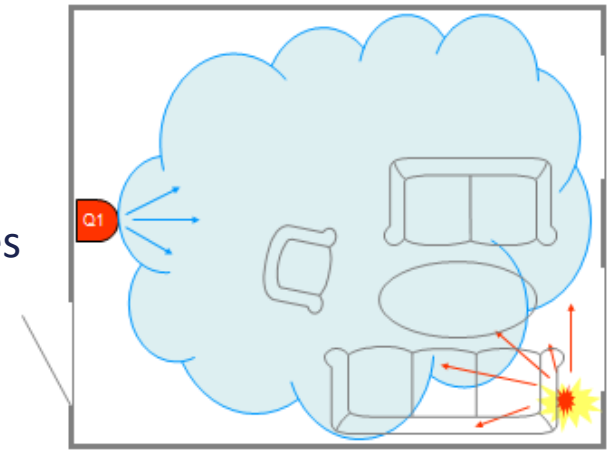
How is a mobile sprinkler built?

The system reacts with the same speed as an ABA* system.

Emits a close liquefied water mist into the room.

Active in approximately 15 minutes according to setup.

Sending a voice message to DECT phones and SMS service.



Q-FOG
MOBILE FIRE CONTROL

* Automatic fire alarm

How is a mobile sprinkler built?

Swedish Technology from the company Q-Fog.

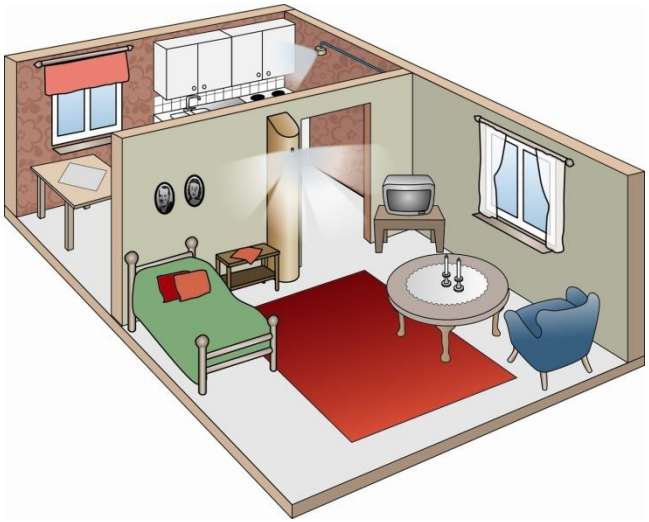
- Developed from the guidance on the "Easily installed automatic extinguishing system" prepared by the Swedish Rescue Services Agency (SRV) and Norwegian Directorate for Civil Protection and Emergency Planning (DSB).

http://www.dsb.no/Global/Publikasjoner/2007/Andre/slokkeveileder-engelsk.pdf

Why this technology?

The difference between Mobile sprinklers and other preventive solutions is the total effect:

- Extinguishes / saves automaticly
- Alerting automaticly
- Supports operation



Why this technology?

- Permanent sprinklers use appr. 120 liters per minute
- The fire department extinguish (within appr. 8-10 minutes in CPH)
- Reaction time of 2 -3 min or about 65 degrees at sprinkler head
- Smoke Detectors are good. However, it requires that the person can save themselves.
- Hose reels / handheld extinguishers are good. However, they require operation.
- Stove guards are good. Can be circumvented.
- Smoking Aprons are good. Can be circumvented.
- Self-extinguishing bins are good. Can be circumvented.

For whom is the system intended for?

The system should be referred to citizens which for several reasons are that regarded as being a fire risk.

Their particular vulnerability may be due many things. However include dementia, mobility impaired, smoking, cooking and careless handling of live fire.

Project background 2012 - 2014

- Significant parts of the building stock has not integrated sprinkler systems.
- All buildings meet applicable law.
- There have been great costs related to fire -and water damages.
- It will cost estimated 111 million DKK to sprinkle all nursing homes in the traditional manner.
- Great human and operational impact.
- Typically, a fire in an apartment has direct costs of 35 - 110 thousand EUR.
- Minimizing the risk from 4 to 7 thousand EUR per fire.

Case descriptions

Copenhagen has noted nine incidents of mobile sprinkler systems where it has made a positive difference.

As well as an event where the sytem did not save the occupier who was elderly person in the last stages of life.

Overall for the case descriptions is that they are quite undramatic.

Case descriptions

A mobile sprinkler system extinguished a small fire (in stuffed toys on a hot plate) in a nursing home. Clean up required 2 water vacuums for about 20 m² wet floor. 1 dehumidifier in the accommodation. A serviceman was called in to reset the mobile sprinkler and the site was handed over to a restoration company.

The mobile sprinklers had a good effect and limited and extinguished the small fire, it did clearly a difference. An elderly lady (residents) were present in the room when the fire occurred, the staff came and evacuated her out. The staff was announced on their DECT telephones. Subsequently, they called the fire brigade which could quickly ascertain that the fire was off and that the task consisted of damage control. Approximately 130 liters of water was used and humidified the floor and a sofa, mainly because the staff did not know the procedure to keep the "fire switch / emergency stop" for 8 seconds to disconnect the water mist.

Case descriptions

Fire in the garbage caused activation of a mobile sprinkler in a nursing home. When the fire brigade arrived the staff had evacuated a person from the apartment and closed the door to this. Firemen used pressure ventilators and opened windows inside to create a good ventilation. Inspection of the trash, found that the fire was extinguished by the sprinkler system. Rescue services started suction of water and damage control. Well oriented staff and police on site.

The staff did a really nice effort.

Case descriptions - 2010

- Loss of life of a citizen.
- 6 residents had to be moved to another nursing home in 3 months.
- Large odor and moisture generated problem for those who stayed, as well as noise from craftsmen during weekdays.
- Staff and residents had to wear masks in the period.
- Unsecurity among staff.
- Economic burden due to injury and loss of earnings.

- **Economy**
- 134 000 EUR. in direct costs.
- 6 residents relocated for months. And no new residents during the refurbishment. A nursing home placement costs 100 000 EUR annually.

Experiences from implementation

- EU tenders, function based. A framework contract with a supplier
- Requirements specification based on the guidance of "easy mountable extinguishing systems "from Norway and Sweden
- Purchase of 50 plants in 2012, 90 in 2013 and 120 in 2014
- Distributed by needs and wants
- Total price 2.2 million EUR

- Training of super users at each nursing home
- Preparation of the handbook
- Dialogue meetings

- Systems present in 39 out of 45 nursing homes

Setup challenges

Challenge

- Small housing
- Many furniture
- Lifting rails in ceiling
- ”ugly”
- Large operating costs by moving the product

Solutions

- 16 to 10 amp power
- Flexible setups
- Information for relatives
- Information for managers

Lessons learned - good

- 9 fires where the facility has made a difference
  - Rescued lifes?
  - Rescued values!
- Increased confidence among employees
  - Quantitative survey response rate of 75%
- The need for more units
  - Ongoing new orders
- Focus on fire safety
  - Comments about exercises and training
  - Requests to use in other setups in different housings
  - Guidelines for escape routes and storage

Lessons learned - bad

- The system must be adapted to the property and not vice versa
- The system has significant operating costs
- Uncertainty surrounding new technology
- Education must come before implementation and to a very large extent
- Building owner and his insurer, sees an opportunity to move the costs on to the tenant

Problems and Phase 2 issues

Problems/challenges

- Electrical work
- Takes up part of a small housing
- What about private homes?

Phase 2

- UPS solution
- Urbanized Q2 model with battery backup
- Less water consumption = less weight
- Operating time of 8 min instead of 15min

KØBENHAVNS BRANDVÆSEN

Credits to

Stig Nordmark
Københavns Brandvæsen
Tlf. 27 24 41 78
Mail. aj5y@okf.kk.dk