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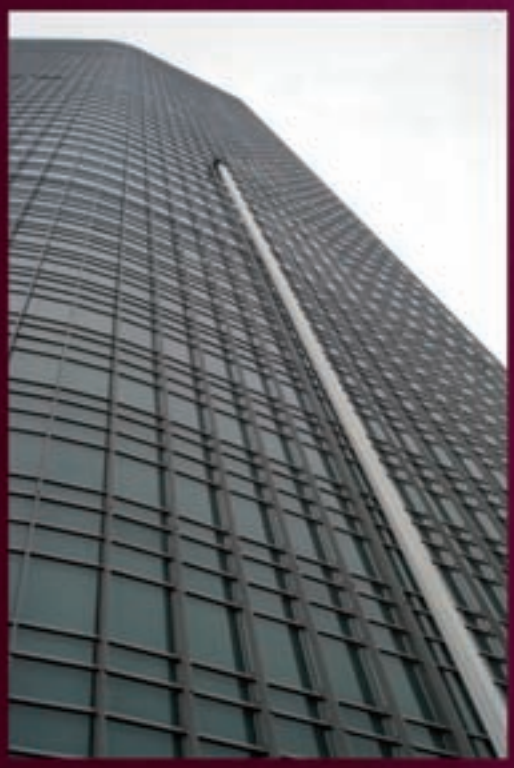

SUPPLEMENTAL EVAC TECHNOLOGY – SO THAT NOBODY GETS LEFT BEHIND

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13-16 May 2013, NEC Birmingham, UK

NFPA® CONFERENCE & EXPO

MEMBERS OF THE INTERNATIONAL WATER MIST ASSOCIATION CELEBRATED A CONFERENCE DURING INTERSEC DUBAI IN JANUARY. *IFJ* COULDN'T RESIST TURNING UP TO HEAR ABOUT SOME OF THE NEW DEVELOPMENTS AND EXCITING PROJECTS THAT HAVE BEEN UNDERTAKEN IN THE MIDDLE EAST. HERE IS A TASTER.

Ruediger Kopp, FOGTEC, Germany: *Water mist system recognition in the Middle East region*

Ruediger's presentation concentrated on WM applications in the Middle East, where the technology was introduced 10-15 years ago and has since received increasing recognition and acceptance.

He started with a potted history of WM. WM has been well established in the marine world for the last 20-25 years, with standardisation strongly driven initially by Marioff, with particular acceptance in machinery protection and as an alternative to gaseous systems which can endanger people. 'From there it progressed to accommodation areas on cruise liners and ferries, where standardisation has moved strongly in line with the approval processes. In-land based applications have taken much longer, largely because there is no international standardisation process in contrast with that of the International Maritime Organisation (IMO).'

The first land-based applications related to machinery rooms in turbines, generators and engine testing areas. WM then moved to cable tunnels, where it had been identified as a good alternative to technologies that used lots of water.

In food processing FM Global identified WM as a good alternative to CO_2 systems, and WM then gained recognition in general machinery or storage areas with flammable liquid fire risks, where the inert nature of water steam can extinguish fires.

'Within land applications we also saw WM move towards building protection, initially in areas where conventional sprinklers could not be installed due to the users being nervous about water – for example museums, archive areas, and heritage buildings. These often only had fire detection systems as nobody dared to install sprinklers in case

Ruediger Kopp of FOGTEC demonstrated how the concept of water mist had been enthusiastically embraced within a number of high-profile projects in the Middle East.

everything would be water damaged.'

In the last few years fire tests and protocols on land have been playing 'catch up' with similar applications in the marine environment. Initially the applications relied on project-specific testing, but now approval standards for light and ordinary hazards are being seen, said Ruediger. 'Also we are seeing development in areas were it is difficult to get water to, such as underground facilities – metro – where it is used to protect escape/platform areas, and escalators, but also high risk areas, such as technical rooms and cable tunnels.'

From the underground WM then jumped to road and rail tunnel protection, where research has started on the evaluation of this technology for active fire fighting in tunnels. 'In the past it was thought that ventilation/extraction systems could cope with tunnel fires because the maximum fire load expected was in the region of 30 MW. However, research has shown that real fires are much larger than initially thought – up to 200 MW – which is why an active system should also be used. And this is where WM has turned out to be an ideal solution due to its cooling and heat radiation shielding effect.'

The WM concept is also being considered for railway carriages and in particular high speed trains, both for locomotive parts as well as passenger sections: 'WM uses less water therefore it can be integrated and carried within the vehicle.'

After the general overview of WM history, Ruediger concentrated on the Middle East.

Ruediger stressed that the WM solution only worked if there were a sufficient basis of fire tests carried out by an accredited institution using an existing protocol, such as FM 5560 (*Approval standard for water mist systems*), NFPA 750 (*Standard on water mist fire protection systems*); and EN TS 14972 (*Fixed fire fighting systems, water mist systems: design and installation*). 'In Saudi Arabia the system protects the machinery area of elevators along the metro line in the Mecca area. There was considerable fire risk in the machinery space due to electrical cabinet and motors, so WM was identified as ideal.'

700 nozzles in 170 cylinder systems have been installed, and the benefits Ruediger presented were:

- Fast extinguishment and effective cooling, thus prevention of re-ignitions
- No pre-warning times/safe to personnel
- Easy and space-saving installation of pipe work and nozzles
- Minimal down times in case of activation.

From the year 2000 onwards a number of projects have been carried out in Dubai and Abu Dhabi involving cable tunnels, essential to supply power for large developments and high rise buildings. 'Initially getting acceptance was not easy but there are clearly-listed institutes in the Middle East whose approvals are accepted by local civil defence departments for this technology.'

WM has also been installed in 'ordinary hazard' areas such as offices and data centres, including a retrofit project in one of the major telecoms sites of Egyptian telecoms provider Telecom Egypt.

Ruediger then outlined two prestigious projects in the ME area, the first being the Sultan Qaboos University library in Oman – the copyright and legal deposit institution for the country. 'Specific tests had to be carried out for the archive environment because it didn't fall under the light hazard 1 definition. So we did fire tests with paper material on shelves and based on the results we protected the whole library in

Muscat with a wet system operated by glass bulb nozzles – very similar to the sprinkler principle.'

A very special project which FOGTEC is currently involved with is the Mecca Royal Hotel Clock Tower, part of the Abraj al-Bait Towers, which is also the world's second tallest building (601m).

'The architect had to use a lightweight steel structure with cladding construction which had the disadvantage of being highly flammable. So benefits of WM were useful in terms of little water and therefore less weight, as well as the very effective cooling and shielding. WM was used for the top 200m of the Clock Tower; in this case a combination of high-pressure nozzles and WM guns. It is an example of a special project where special fire testing had to be done for specific areas.'

The Clock Tower today carries 2,700 WM nozzles and 83 high-pressure wall hydrants, the whole system using small diameter stainless steel pipes. 'To summarise, WM is not completely new in the Middle East and has been used in the last 10-15 years, and it is continually gaining acceptance from authorities having jurisdiction.'