New Civil Engineer

Call for design rethink after MTR firebombing

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In the wake of the firebomb attack on the Hong Kong subway system last week, a leading fire expert has called for a rethink on fire design on metro systems.

The firebomb was dropped by a lone passenger on the train at around 7pm on the Hong Kong subway operator MTR's Tsuen Wan Line shortly before arriving at Tsim Sha Tsui station. A reported 18 people who were on the train at the time suffered burns in the attack, with three in a critical condition.

MTR is investigating the incident.

Specialist fire consultant Mosen managing director Fathi Tarada said the event should prompt a rethink of how metros are designed to cope with new fire risks. Tarada is a leading expert in fire safety engineering with design, review and operations experience in tunnels and buildings worldwide.

He said that metro fire protection systems were currently designed to tackle large fires beneath train wheels and smoke from smaller fires within trains passing to the platforms. But he said that they were not designed to protect people within the carriages from fire, especially caused by terror attacks or lone arsonists.

"This isn't the first attack in Hong Kong and I think that it's possible that the attack could happen elsewhere, such as London," he said. "We're investing millions if not billions in measures such as tunnel ventilation to extract smoke in the event of a fire, but we're not really addressing the problem at source.

"I don't know if we're addressing the biggest risks today," he added.

Tarada wants the industry to evaluate whether on board fire suppression systems should be installed on all new trains.

"If it had been used in Hong Kong, I don't think there would have been so many injuries," he said. "With a high pressure mist system you could cool the temperature down dramatically and quickly and you wouldn't have had such a rapid spread of fire through clothes and possessions.

"You would have made people wet, but I'd rather be wet than hurt."

Tarada said that retrofitting fire suppression systems on existing London Underground trains may not be possible due to space constraints, but there was still a chance to introduce it on the new Crossrail trains.

"They're big beasts with a lot of people on them and therefore the risks will be magnified accordingly," said Tarada.

Bombardier is supplying Crossrail's rolling stock under a £1bn contract with Transport for London. The contract covers the supply, delivery and maintenance of 65 trains and a depot at Old Oak Common. The line itsellf will be run by MTR's European arm in an eight year deal worth £1.4bn.

Tarada also said the Hong Kong incident drew attention to a new phenomenon – commuters standing on the platform taking photos and videos of the burning carriage rather than evacuating. Footage posted on YouTube clearly shows this happening.

“This is totally against what we assume will happen in this event,” said Tarada. “What we assume is that when there’s a fire people will want to get off the platforms as quickly as possible, but here people are just milling around. There’s a psychology there which is totally wrong.”

He questioned whether through better fire design, the situation had appeared to be safe- giving people a false sense of security.

“We’ve made it so safe for people though our engineering of the materials, through the tunnel ventilation, through the design of the station, that people now feel ove- safe and they’re taking unnecessary risks,” said Tarada. “There was nothing stopping those people evacuating the platform and yet they stood there completely confident, even though they were 30m underground and next to a fire and potentially in a life threatening position.

“Have we made it appear too safe?”

New Civil Engineer has chosen not to use images taken at the scene or link to YouTube footage as some readers may find them disturbing.