

LIFTEX INTERNATIONAL 2016

Modernising lifts for fire service use

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- Fire safety and lifts
- Evacuation lifts
- Fire fighting lifts
- The problems for existing building stock
- Firefighting lifts – why modernise?
- DD8899
- Case study
- Summary
- Q&A



Fire Safety and Lifts



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- Common perception – do not use lifts in the event of fire (passenger lifts)
- Improved technology and resilience – lifts becoming a more relied upon for fire safety , particularly in high rise buildings
- Evacuation lifts and fire fighting lifts; form part of a package of measures implemented in a building (fire strategy).
- Key standards: BS EN 81-72 (2015), BS9999 (2008 – currently under revision), BS EN 81-70
- Worth remembering: fire safety design guidance, fire service operational procedures, and technology has significantly changed over the last 30 to 40 years.



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Evacuation lifts



Source: <http://fpmag.mdmublishing.com/pedestrian-modelling-in-a-fire-environment/>



Source: <http://ems.stryker.co.uk/products/evacuation-equipment/evacuation-chair>



Source: <http://www.veriserv.co.uk/fire/disabled-refuge-installation-maintenance/>

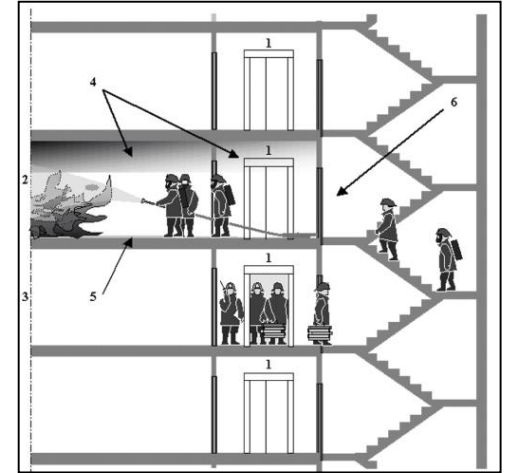
- A lift used in the evacuation sequence for people requiring assistance (not just wheelchair users)
- BS9999: 2008 Annex G (historically, BS5588 pt. 8)
- Needs to be operated by an authorised person(s), such as a trained member of staff; emerging concept of self-operation of evacuation?
- A key feature for buildings occupied by vulnerable groups (e.g. hospitals, care homes); however, now being applied more frequently in other building uses (offices, hotels, high rise buildings) as an alternative to other methods
- Key part of emergency plan; supported by use of refuge areas
- Protected and resilient installation; designed to be used for evacuation of people in the event of an emergency

Firefighting lifts



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- A lift used by the fire service in to transport their personnel and equipment when responding to an emergency, as well as for the removal of casualties. Also can be used for evacuation purposes
- BS EN 81-72: 2015 and BS9999: 2008 clause 21.3.4 (historically, BS5588 pt. 5)
- Should be present in buildings over 18m in height (as part of a fire fighting shaft); crucial to help facilitating efficient, swift, and safe firefighter intervention
- Modern standard firefighting lift is very robust and resilient to ensure continued operation during a fire incident



Source:
http://www.windcrest.co.uk/index.php?route=product/product&product_id=126

- Standards and technology has evolved greatly in recent years; can be massive difference between historic and modern standard lift installations
- Are existing lifts that were installed under older standards and intended to be used in the event of fire always appropriate? Are they still practical for use?
- Existing lift shafts are extremely hard to adjust in existing building stock
- Particular challenge for lifts intended for fire service use in existing high rise residential building stock



Example residential tower - Source:
http://ukhousing.wikia.com/wiki/Tower_block



- Pre-1970s lift installations for fire service use very basic (often recall switch only), with minimal protection and resilience
- 1986 – significant improvement in protection measures under BS5588-5 (water protection measures, communication system, in-car controls, secondary power supplies)
- Standards have continued to build on this – BS EN 81-72: 2015
- Pre-1986 installations offer less functionality to the fire service; they will have to use with care. Potential impact on their operations?
- Fire risk assessment (under the Regulatory Reform (Fire Safety) Order 2005); required to maintain what is there, but is there a moral obligation to consider modernisation (life and firefighter safety?). Responsible person should know what standard of lift their building has installed to help inform this process
- Building Regulations considerations
- Common perception; BS EN 81-72/ BS9999 cannot be fully complied with, thus we will maintain the status quo. Is there a more pragmatic solution to improve standards?

DD8899 standard



- Initiated as a work-stream between lift industry, fire services, and fire safety design consultants with the aim to provide a benchmark for upgrading existing lift installations for use during a fire where modern standards cannot be fully complied with. Aspires to assist in improving standards for life and fire fighter safety
- For building operators (responsible person), fire services, authorities having jurisdiction, designers, lift engineers/ contractors
- To be approached from a Qualitative Design Review (QDR) perspective, involving consultation between stakeholders
- Application is building/ project specific, and based on risk assessment
- Fully modern standard compliant firefighting and evacuation lifts should still be provided where it is practical to do so or if it is a new installation; DD8899 should not be seen as a short-cut to lessening standards!



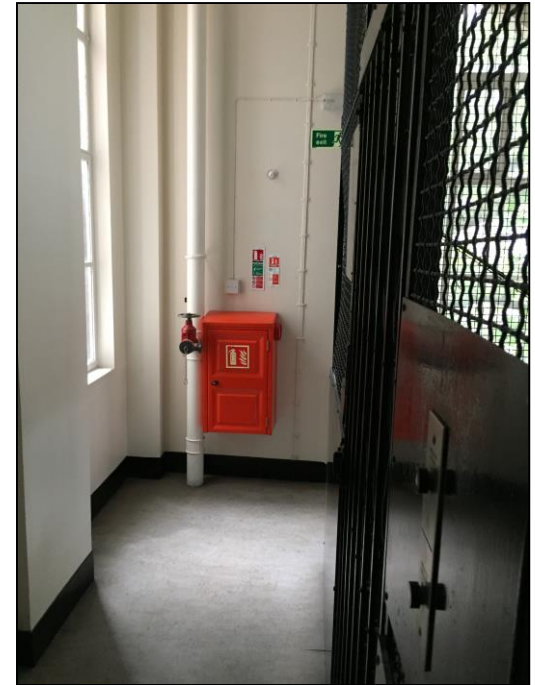
- Provides background guidance on the history of lifts intended to be used in the event of fire, thus helping stakeholders to identify the type of existing lift present (Annex B checklist)
- Evacuation lifts – due to role they can play in life safety, view taken that these types of lifts need to be modernised fully in line with BS9999: 2008 Annex G
- Firefighting lifts – potential to agree a pragmatic package of measures to upgrade an existing lift installation, being practical for use by the fire service but not being ‘code-compliant’
- Key lift provisions: primary/ secondary power, water protection (drainage, IP rating), fire recall function, in-car firefighter controls, communication system, floor indicators
- Consultation/ liaison with local fire and rescue service (ultimately the end user)
- Challenge: making stakeholders aware of the standard, and promoting a pro-active approach
- Document is available for public review/ comment until 30th May 2016 (<http://drafts.bsigroup.com/>)

Case study



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- Existing school building (1920's) – ground to 7th floor, over 18m in height. Existing caged passenger lift located in one of the two stair cores
- No formal firefighting shaft present, albeit a dry rising main installed
- Proposed building refurbishment scheme; change of use at 7th floor level and alterations to circulation routes. Client/ architect pro-active in improving fire service access
- Broad principles of DD8899 applied; existing lift infrastructure assessed. Fire fighting lift installation proposed; smaller than expected lift car size. Other key provisions can be installed
- Discussions with stakeholders, including fire service. Lift assessment put into context with overall building fire strategy. Agreement that proposed updated lift will be able to be practically used by the fire service, despite not being fully 'code compliant'
- Design moving forward with a pseudo-firefighting shaft accommodated, greatly enhancing the existing building





- Evacuation and firefighting lifts are becoming increasingly important installations are part of fire strategies for both new and existing buildings
- Modern lift design standards are reflecting this; lifts expected to be used in the event of fire are robust and resilient, and can be used with confidence when needed (and if maintained correctly!)
- Existing building infrastructure and 'code compliance' does not always have to prevent improving lift standards in existing building stock; pragmatic design solutions are achievable
- DD8899 is attempting to promote the awareness and consistency of potentially upgrading lift installations in existing buildings to be used as evacuation and/or firefighting lifts
- DD8899 guidance is to be applied on a project/ building specific basis
- Hopefully DD8899 will be applied by stakeholders to investigate practical opportunities to improve the standards of lifts expected to be used in the event of fire, thus helping to improve life and/or fire fighter safety in the building in question

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